

## MIRAI MR07-03 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2017-06-22

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

Cruise ID: [MR07-03](#)

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/MR07-03\\_all.pdf](http://www.godac.jamstec.go.jp/catalog/data/doc_catalog/media/MR07-03_all.pdf)

### For Using Data

#### Principal Investigator

Data Management Office

#### Use Constraints

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

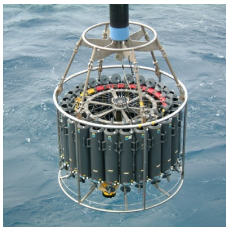
#### Data Citation

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

### Instrument

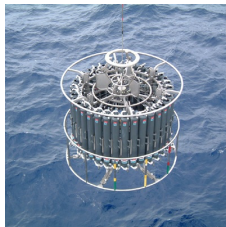
Instrument:

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



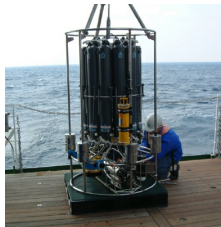
Instrument:

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



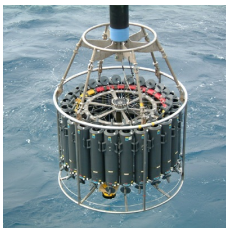
Instrument:

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 MR07-03 cruise are presented in "System".

The following software, developed and supplied by the Sea-Bird Electronics, Inc., was used in MR07-03.

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 : 51190

Measurement range : up to 6800m

Accuracy : 0.015% F.S.

Resolution : 0.001% F.S.

#### • Temperature sensor

Model : SBE3, Sea-Bird Electronics, Inc.

Serial number : 032730

Measurement range : -5.0 to +35degC

Accuracy : 0.001degC

Resolution : 0.0002degC

#### • Salinity sensor

Model : SBE4, Sea-Bird Electronics, Inc.

Serial number : 042854

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 : 430330  
 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
C01M01	51190	032730	042854	-
C01M02	51190	032730	042854	-
C01M03	51190	032730	042854	-
C02M01	51190	032730	042854	430330
C02M02	51190	032730	042854	430330
C02M03	51190	032730	042854	430330
C03M01	51190	032730	042854	430330
C03M02	51190	032730	042854	430330
C04M01	51190	032730	042854	430330
C04M02	51190	032730	042854	430330
C05M01	51190	032730	042854	430330
C07M01	51190	032730	042854	430330
C07M02	51190	032730	042854	430330
C08M01	51190	032730	042854	430330
C08M02	51190	032730	042854	430330
C08M03	51190	032730	042854	430330
C09M01	51190	032730	042854	430330
C09M02	51190	032730	042854	430330

#### 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.
section	Extract rows of data from file.
loopeidt	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.

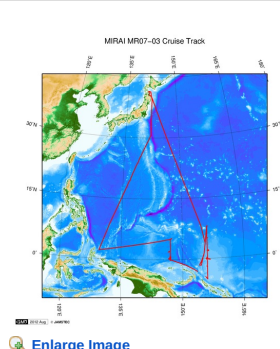
[QUALITY CONTROL AND PROCESSING OF HISTORICAL OCEANOGRAPHIC TEMPERATURE, SALINITY, AND OXYGEN DATA](#)

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 (distance to bottom) in addition to temperature, salinity, dissolved oxygen that has been opened to the public. Please contact us from "Contact Us" above if necessary.

#### Related Information



#### MR07-03

Ship Name: MIRAI  
 Period: 2007-05-31 - 2007-07-14  
 Chief Scientist: Iwao Ueki (JAMSTEC)  
 Project Name: [Tropical Ocean Climate Study (TOCS)]

#### Update History

2017-06-22	An observation data was registered.
2014-08-21	An observation data was registered.
2014-07-30	An observation data was registered.

2014-02-07	An observation data was registerd.
2013-03-27	An observation data was registerd.
2012-10-27	An observation data was registerd.

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HAKUHO MARU

Information of the Submersibles  
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SHINKAI 6500  
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HYPER-DOLPHIN  
URASHIMA  
YOKOSUKA DEEP TOW  
6K Camera DEEP TOW  
6K Sonar DEEP TOW  
KM-ROV  
POWER GRAB SAMPLER (SHELL)  
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## MIRAI MR07-03 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2017-06-22

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

Cruise ID: [MR07-03](#)

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

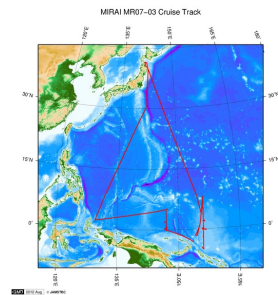
QCed data were added flag according to the NODC (National Oceanographic Data Center) quality control procedure, additionally visually checked. Please see the site of NODC of the following link for quality control procedure.

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

#### Sample Program

[ex\\_read2.f](#)

#### Related Information



[Enlarge Image](#)

#### MR07-03

Ship Name: MIRAI

Period: 2007-05-31 - 2007-07-14

Chief Scientist: Iwao Ueki (JAMSTEC)

Project Name: [Tropical Ocean Climate Study (TOCS)]

#### Update History

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Cruise ID: **MR07-03**

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

Data Policy: **JAMSTEC**

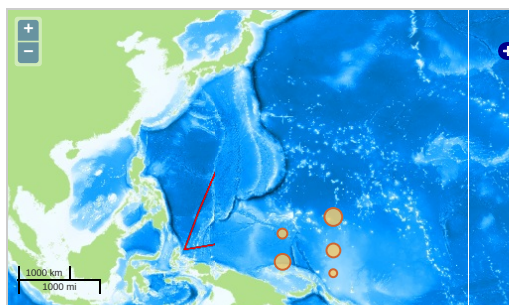
Observation Items: Pressure, Temperature, Salinity, Dissolved oxygen

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

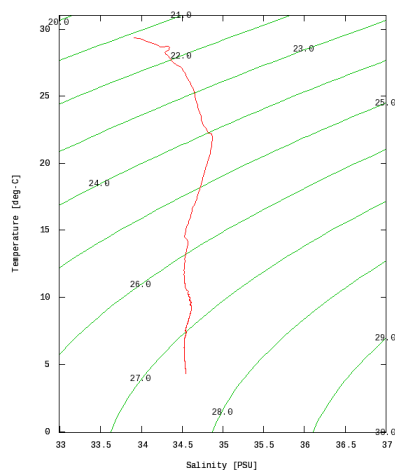
Imagery reproduced from ...

### Figures

C01M01



MR07-03: C01M01  
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

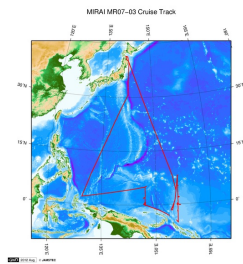
<input type="checkbox"/>	C01M01.dat
<input type="checkbox"/>	C01M02.dat
<input type="checkbox"/>	C01M03.dat
<input type="checkbox"/>	C02M01.dat
<input type="checkbox"/>	C02M02.dat
<input type="checkbox"/>	C02M03.dat
<input type="checkbox"/>	C03M01.dat
<input type="checkbox"/>	C03M02.dat
<input type="checkbox"/>	C04M01.dat
<input type="checkbox"/>	C04M02.dat
<input type="checkbox"/>	C05M01.dat
<input type="checkbox"/>	C07M01.dat
<input type="checkbox"/>	C07M02.dat

-  C08M01
-  C08M02.dat
-  C08M03.dat
-  C09M01.dat
-  C09M02.dat
-  ex\_read2.f (Sample Program)

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

Observation	Time and Date	Lat. [°]	Lon. [°]
C01M01	2007-06-10 19:55	7.9618	156.0100
C01M02	2007-06-11 02:50	7.9616	156.0133
C01M03	2007-06-12 02:53	7.9680	156.0111
C02M01	2007-06-12 19:50	5.0160	155.9388
C02M02	2007-06-13 02:50	5.0205	155.9665
C02M03	2007-06-14 02:53	5.0128	155.9565
C03M01	2007-06-15 01:50	2.0196	156.0245
C03M02	2007-06-15 05:10	1.9690	155.9943
C04M01	2007-06-17 02:50	0.0073	156.0149
C04M02	2007-06-20 02:50	-0.3273	155.9633
C05M01	2007-06-21 02:50	-2.0178	155.9916
C07M01	2007-06-26 02:50	-0.0030	146.9991
C07M02	2007-06-29 02:51	0.0736	146.9995
C08M01	2007-06-29 19:50	2.0911	146.9661
C08M02	2007-06-30 02:50	2.0750	146.9505
C08M03	2007-07-01 02:51	2.0880	146.9648
C09M01	2007-07-01 22:50	5.0161	146.9658
C09M02	2007-07-02 06:02	4.9645	147.0151

#### Related Information



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Chief Scientist: Iwao Ueki (JAMSTEC)  
Project Name: [Tropical Ocean Climate Study (TOCS)]

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