

## MIRAI MR08-06 Leg2 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2017-06-22

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

Cruise ID: [MR08-06 Leg2](#)

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/MR08-06\\_leg2-3\\_all.pdf](http://www.godac.jamstec.go.jp/catalog/data/doc_catalog/media/MR08-06_leg2-3_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 MR08-06 Leg2 cruise are presented in "System".

The following software, developed and supplied by the Sea-Bird Electronics, Inc., was used in MR08-06 Leg2.

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 : 034421

Measurement range : -5.0 to +35degC

Accuracy : 0.001degC

Resolution : 0.0002degC

#### • Salinity sensor

Model : SBE4, Sea-Bird Electronics, Inc.

Serial number : 041088

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 : 430949  
 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
037M01	79492	034421	041088	430949
038M01	79492	034421	041088	430949
042M01	79492	034421	041088	430949
042M02	79492	034421	041088	430949
041M01	79492	034421	041088	430949
040M01	79492	034421	041088	430949
040M02	79492	034421	041088	430949
043M01	79492	034421	041088	430949
043M02	79492	034421	041088	430949
046M01	79492	034421	041088	430949
046M02	79492	034421	041088	430949
046M03	79492	034421	041088	430949
044M01	79492	034421	041088	430949
044M02	79492	034421	041088	430949
044M03	79492	034421	041088	430949
045M01	79492	034421	041088	430949
045M02	79492	034421	041088	430949

#### 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.

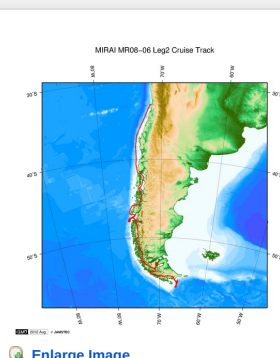
[QUALITY CONTROL AND PROCESSING OF HISTORICAL OCEANOGRAPHIC TEMPERATURE, SALINITY, AND OXYGEN DATA](#)

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, 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



#### MR08-06 Leg2

Ship Name: MIRAI  
 Period: 2009-03-14 - 2009-03-30  
 Chief Scientist: Naomi Harada (JAMSTEC)  
 Project Name: [Paleoceanography Research, South Pacific Ocean Research Activity 2009]

[Enlarge Image](#)

#### Update History

2017-06-22	An observation data was registered.
2014-08-05	An observation data was registered.
2014-02-15	An observation data was registered.

2014-02-13	An observation data was registerd.
2013-03-28	An observation data was registerd.
2013-03-26	An observation data was registerd.
2012-10-27	An observation data was registerd.

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## MIRAI MR08-06 Leg2 Conductivity-Temperature-Depth Profiler (CTD)

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

 Cruise ID: [MR08-06 Leg2](#)

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

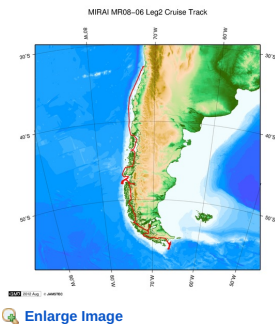
QCed data were added flag according to the NODC (National Oceanographic Data Center) quality control procedure, additionally visually checked. Please see the site of NODC of the following link for quality control procedure.

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

#### Sample Program

[ex\\_read2.f](#)

#### Related Information



#### MR08-06 Leg2

Ship Name: MIRAI

Period: 2009-03-14 - 2009-03-30

Chief Scientist: Naomi Harada (JAMSTEC)

Project Name: [Paleoceanography Research, South Pacific Ocean Research Activity 2009]

#### Update History

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POWER GRAB SAMPLER

(SHELL)

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Data Policy: [JAMSTEC](#)

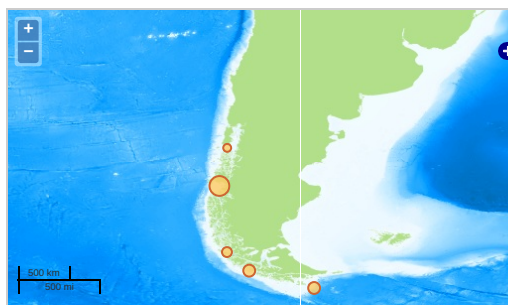
Observation Items: Pressure, Temperature, Salinity, Dissolved oxygen

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

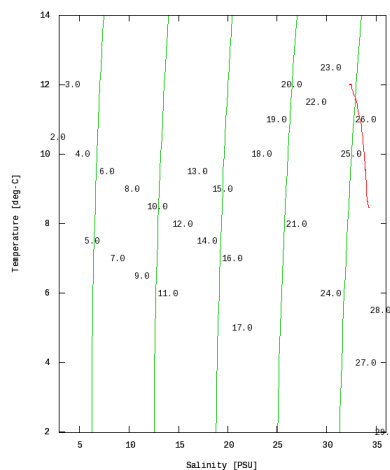
Imagery reproduced from ...

### Figures

037M01



MR08-06 Leg2: 037M01  
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"/>	037M01.dat
<input type="checkbox"/>	038M01.dat
<input type="checkbox"/>	040M01.dat
<input type="checkbox"/>	040M02.dat
<input type="checkbox"/>	041M01.dat
<input type="checkbox"/>	042M01.dat
<input type="checkbox"/>	042M02.dat
<input type="checkbox"/>	043M01.dat
<input type="checkbox"/>	043M02.dat
<input type="checkbox"/>	044M01.dat
<input type="checkbox"/>	044M02.dat
<input type="checkbox"/>	044M03.dat
<input type="checkbox"/>	045M01.dat

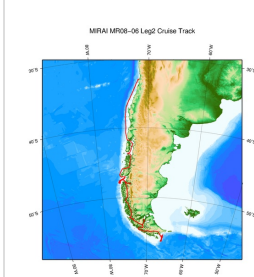
File Names

046M01.dat  
046M02.dat  
046M03.dat  
ex\_read2.f (Sample Program)

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

Observation	Time and Date	Lat. [°]	Lon. [°]
037M01	2009-03-17 07:26	-43.6180	-74.0615
038M01	2009-03-18 10:50	-47.0003	-74.7514
040M01	2009-03-20 10:48	-47.7086	-74.7383
040M02	2009-03-20 11:58	-47.7065	-74.7400
041M01	2009-03-19 22:37	-47.9799	-74.2576
042M01	2009-03-19 10:05	-47.9983	-73.7760
042M02	2009-03-19 11:48	-47.9883	-73.7883
043M01	2009-03-21 09:50	-47.8200	-75.8575
043M02	2009-03-21 14:38	-47.8180	-75.8678
044M01	2009-03-26 12:20	-56.0568	-66.3428
044M02	2009-03-27 09:52	-55.7066	-66.1324
044M03	2009-03-27 11:36	-55.7111	-66.1430
045M01	2009-03-28 13:21	-54.5183	-72.1051
045M02	2009-03-28 14:51	-54.5150	-72.1068
046M01	2009-03-23 14:57	-53.1423	-73.1791
046M02	2009-03-24 09:50	-52.8670	-74.0816
046M03	2009-03-24 11:40	-52.8655	-74.0836

#### Related Information



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Period: 2009-03-14 - 2009-03-30  
Chief Scientist: Naomi Harada (JAMSTEC)  
Project Name: [Paleoceanography Research, South Pacific Ocean Research Activity 2009]

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