

## MIRAI MR04-06 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2017-06-22

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Cruise ID: [MR04-06](#)

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/MR04-06\\_all.pdf](http://www.godac.jamstec.go.jp/catalog/data/doc_catalog/media/MR04-06_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 MR04-06 cruise are presented in "System".

The following software, developed and supplied by the Sea-Bird Electronics, Inc., was used in MR04-06.

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 : 032453

Measurement range : -5.0 to +35degC

Accuracy : 0.001degC

Resolution : 0.0002degC

#### • Salinity sensor

Model : SBE4, Sea-Bird Electronics, Inc.

Serial number : 041203

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
K01m01	79492	032453	041203	430330
K01m02	79492	032453	041203	430330
K01m03	79492	032453	041203	430330
K02m01	79492	032453	041203	430330
K02m02	79492	032453	041203	430330
K02m03	79492	032453	041203	430330
K02m04	79492	032453	041203	430330
K35m01	79492	032453	041203	430330
K35m02	79492	032453	041203	430330
K03m01	79492	032453	041203	430330
K03m02	79492	032453	041203	430330
K03m03	79492	032453	041203	430330
KNTm01	79492	032453	041203	430330
KNTm02	79492	032453	041203	430330
KNTm03	79492	032453	041203	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.
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.

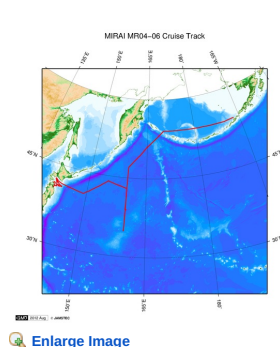
[QUALITY CONTROL AND PROCESSING OF HISTORICAL OCEANOGRAPHIC TEMPERATURE, SALINITY, AND OXYGEN DATA](#)

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

#### Related Information



#### MR04-06

Ship Name: MIRAI  
 Period: 2004-10-14 - 2004-11-09  
 Chief Scientist: Makio Honda (JAMSTEC)  
 Project Name: [Station K2, Station KNOT]

#### Update History

2017-06-22	An observation data was registered.
2014-07-24	An observation data was registered.
2014-02-06	An observation data was registered.
2013-03-27	An observation data was registered.
2012-11-25	An observation data was registered.

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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 MR04-06 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2017-06-22

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

 Cruise ID: [MR04-06](#)

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

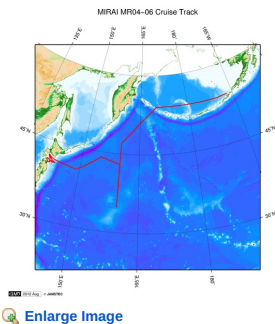
QCed data were added flag according to the NODC (National Oceanographic Data Center) quality control procedure, additionally visually checked. Please see the site of NODC of the following link for quality control procedure.

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#### Sample Program

[ex\\_read2.f](#)

#### Related Information



**MR04-06**  
 Ship Name: MIRAI  
 Period: 2004-10-14 - 2004-11-09  
 Chief Scientist: Makio Honda (JAMSTEC)  
 Project Name: [Station K2, Station KNOT]

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Observation Items: Pressure, Temperature, Salinity, Dissolved oxygen

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

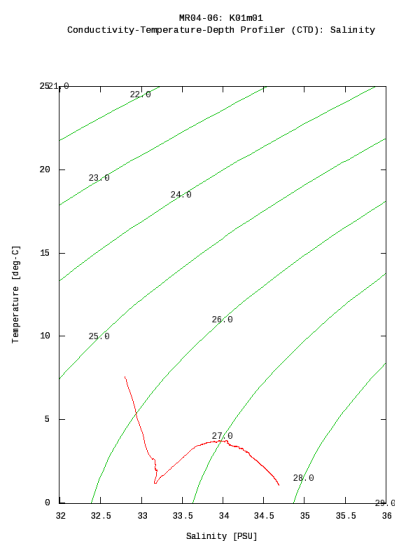
### Observation Map

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



### Figures

K01m01



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

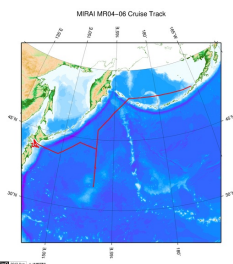
<input type="checkbox"/>	K01m01.dat
<input type="checkbox"/>	K01m02.dat
<input type="checkbox"/>	K01m03.dat
<input type="checkbox"/>	K02m01.dat
<input type="checkbox"/>	K02m02.dat
<input type="checkbox"/>	K02m03.dat
<input type="checkbox"/>	K02m04.dat
<input type="checkbox"/>	K03m01.dat
<input type="checkbox"/>	K03m02.dat
<input type="checkbox"/>	K03m03.dat
<input type="checkbox"/>	K35m01.dat
<input type="checkbox"/>	K35m02.dat
<input type="checkbox"/>	KNTm01.dat

- KNTm01.dat
- KNTm03.dat
- ex\_read2.f (Sample Program)

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

Observation	Time and Date	Lat. [°]	Lon. [°]
K01m01	2004-10-18 01:10	51.0083	164.9915
K01m02	2004-10-18 08:31	51.0223	164.9081
K01m03	2004-10-18 17:58	51.0000	164.9978
K02m01	2004-10-19 21:44	46.9988	160.0038
K02m02	2004-10-20 00:34	47.0058	159.9925
K02m03	2004-10-20 04:28	46.9860	159.9803
K02m04	2004-10-20 17:56	44.4983	159.9998
K03m01	2004-10-25 20:55	38.9990	160.0048
K03m02	2004-10-26 00:32	38.9706	160.0209
K03m03	2004-10-26 09:01	38.9988	160.0015
K35m01	2004-10-23 17:56	35.0005	159.9936
K35m02	2004-10-23 18:51	35.0046	159.9911
KNTm01	2004-10-28 17:53	44.0013	155.0026
KNTm02	2004-10-28 19:01	44.0010	154.9970
KNTm03	2004-10-29 00:28	44.0096	155.0265

#### Related Information



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Chief Scientist: Makio Honda (JAMSTEC)  
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