

MIRAI MR03-K01 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2017-06-22

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

Cruise ID: [MR03-K01](#)

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/MR03-K01_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

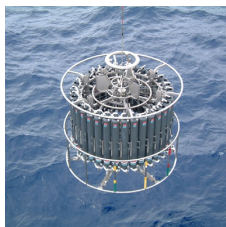
Instrument:

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



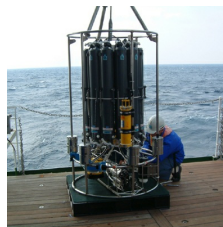
Instrument:

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



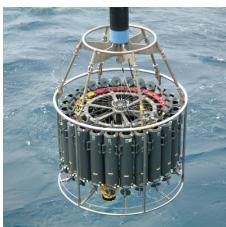
Instrument:

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 MR03-K01 cruise are presented in "System".

The following software, developed and supplied by the Sea-Bird Electronics, Inc., was used in MR03-K01.

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 : 42423

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 : 041202

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 : 430069

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
008M01	42423	031359	041202	430069
008M02	42423	031359	041202	430069
008M03	42423	031359	041202	430069
006M01	42423	031359	041202	430069
006M02	42423	031359	041202	430069
004M01	42423	031359	041202	430069
004M02	42423	031359	041202	430069
004M03	42423	031359	041202	430069
003M01	42423	031359	041202	430069
009M01	42423	031359	041202	430069
009M02	42423	031359	041202	430069
011M01	42423	031359	041202	430069
013M02	42423	031359	041202	430069
001M01	42423	031359	041202	430069
001M02	42423	031359	041202	430069
033M01	42423	031359	041202	430069
035M01	42423	031359	041202	430069
037M01	42423	031359	041202	430069
039M01	42423	031359	041202	430069
041M01	42423	031359	041202	430069
040M01	42423	031359	041202	430069
038M01	42423	031359	041202	430069
036M01	42423	031359	041202	430069
034M01	42423	031359	041202	430069
034M02	42423	031359	041202	430069
032M01	42423	031359	041202	430069
030M01	42423	031359	041202	430069
028M01	42423	031359	041202	430069
027M01	42423	031359	041202	430069
025M01	42423	031359	041202	430069
023M01	42423	031359	041202	430069
022M01	42423	031359	041202	430069
021M01	42423	031359	041202	430069
020M01	42423	031359	041202	430069
019M01	42423	031359	041202	430069
017M01	42423	031359	041202	430069
015M01	42423	031359	041202	430069
014M01	42423	031359	041202	430069
012M01	42423	031359	041202	430069
010M01	42423	031359	041202	430069

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.
loopedit	Mark a scan with badflag if scan fails pressure reversal or minimum velocity tests.
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.

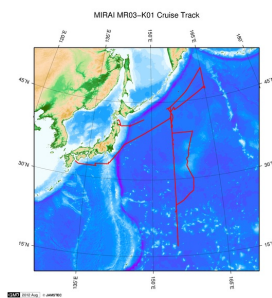
[QUALITY CONTROL AND PROCESSING OF HISTORICAL OCEANOGRAPHIC TEMPERATURE, SALINITY, AND OXYGEN DATA](#)

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

Note

(1) The secondary sensor was adopted as CTD water temperature since the primary sensor had pressure dependency. Please refer to **"data correction"** in detail.

Related Information



[Enlarge Image](#)

MR03-K01

Ship Name: MIRAI
Period: 2003-02-20 - 2003-03-30
Chief Scientist: Shuichi Watanabe (JAMSTEC)
Project Name: [Station K2, Station KNOT]

Update History

2017-06-22	An observation data was registerd.
2014-07-23	An observation data was registerd.
2014-01-11	An observation data was registerd.
2013-03-27	An observation data was registerd.
2012-12-25	An observation data was registerd.

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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 : Definition of Quality Control Flags
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

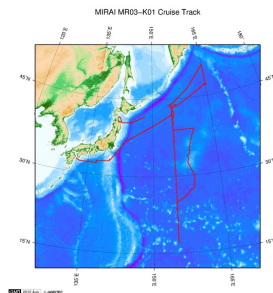
QCed data were added flag according to the NODC (National Oceanographic Data Center) quality control procedure, additionally visually checked. Please see the site of NODC of the following link for quality control procedure.

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

Sample Program

[ex_read2.f](#)

Related Information



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MR03-K01

Ship Name: MIRAI

Period: 2003-02-20 - 2003-03-30

Chief Scientist: Shuichi Watanabe (JAMSTEC)

Project Name: [Station K2, Station KNOT]

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Data Policy: **JAMSTEC**

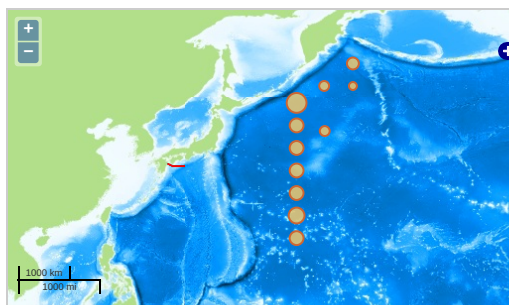
Observation Items: Pressure, Temperature, Salinity, Dissolved oxygen

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.

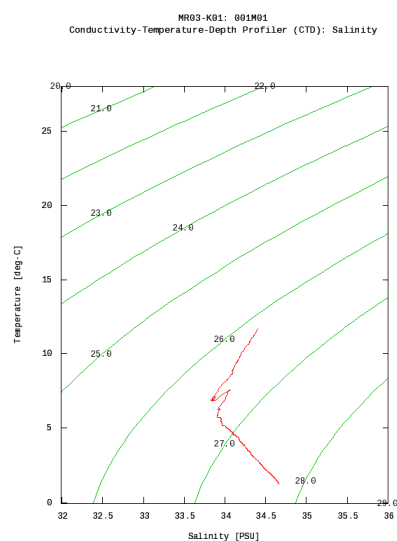


— ... Observation Line — ... Navigation ● ... Observation, Dive Point, Hole

Imagery reproduced from ...

Figures

001M01



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

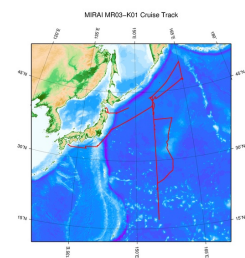
<input type="checkbox"/>	001M01.dat
<input type="checkbox"/>	001M02.dat
<input type="checkbox"/>	003M01.dat
<input type="checkbox"/>	004M01.dat
<input type="checkbox"/>	004M02.dat
<input type="checkbox"/>	004M03.dat
<input type="checkbox"/>	006M01.dat
<input type="checkbox"/>	006M02.dat
<input type="checkbox"/>	008M01.dat
<input type="checkbox"/>	008M02.dat
<input type="checkbox"/>	008M03.dat
<input type="checkbox"/>	009M01.dat
<input type="checkbox"/>	009M02.dat

	011M01.dat
	012M01.dat
	013M02.dat
	014M01.dat
	015M01.dat
	017M01.dat
	019M01.dat
	020M01.dat
	021M01.dat
	022M01.dat
	023M01.dat
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	033M01.dat
	034M01.dat
	034M02.dat
	035M01.dat
	036M01.dat
	037M01.dat
	038M01.dat
	039M01.dat
	040M01.dat
	041M01.dat
	ex_read2.f (Sample Program)

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

Observation	Time and Date	Lat. [°]	Lon. [°]
001M01	2003-03-07 11:47	39.0015	159.9963
001M02	2003-03-07 16:25	39.0456	160.0856
003M01	2003-02-27 23:49	46.9990	164.9986
004M01	2003-02-26 21:46	50.9981	164.9973
004M02	2003-02-27 04:29	51.0093	164.9636
004M03	2003-02-27 07:09	51.0001	164.9991
006M01	2003-02-25 04:05	47.0075	159.8943
006M02	2003-02-25 06:09	47.0075	159.8976
008M01	2003-02-23 13:07	43.9976	154.9991
008M02	2003-02-23 15:28	44.0001	155.0001
008M03	2003-02-23 20:55	44.0001	155.0000
009M01	2003-03-02 07:06	43.0221	155.0161
009M02	2003-03-05 17:56	43.0398	155.0500
010M01	2003-03-23 21:21	42.0001	155.0006
011M01	2003-03-06 03:56	41.0013	155.0013
012M01	2003-03-23 08:53	39.9990	155.0010
013M02	2003-03-06 16:29	39.0001	154.9998
014M01	2003-03-22 20:00	37.9988	155.0013
015M01	2003-03-21 23:20	37.0021	154.9983
017M01	2003-03-20 19:59	35.9965	155.0038
019M01	2003-03-20 04:31	34.9978	155.0013
020M01	2003-03-19 19:55	34.0005	155.0013
021M01	2003-03-19 04:45	32.9985	154.9996
022M01	2003-03-18 19:56	31.9980	154.9996
023M01	2003-03-18 04:48	30.9885	155.0006
025M01	2003-03-17 19:58	30.0008	155.0008
027M01	2003-03-17 04:49	28.9986	155.0000
028M01	2003-03-16 19:56	27.9966	154.9986
030M01	2003-03-16 07:02	26.9983	155.0016
032M01	2003-03-15 22:50	26.0001	155.0031
033M01	2003-03-11 02:45	25.0005	155.0011
034M01	2003-03-15 05:49	24.0038	154.9956
034M02	2003-03-15 09:00	24.0145	154.9788
035M01	2003-03-11 14:58	23.0013	155.0003
036M01	2003-03-14 10:44	21.9951	155.0001
037M01	2003-03-12 02:13	21.0011	155.0015
038M01	2003-03-13 22:02	19.9868	154.9996
039M01	2003-03-12 11:40	19.0021	154.9991
040M01	2003-03-13 08:27	17.9941	154.9976
041M01	2003-03-12 23:18	17.0035	154.9983

Related Information



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MR03-K01

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Period: 2003-02-20 - 2003-03-30
Chief Scientist: Shuichi Watanabe (JAMSTEC)
Project Name: [Station K2, Station KNOT]

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