

MIRAI MR12-03 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2017-06-22

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Cruise ID: [MR12-03](#)

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/MR12-03_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

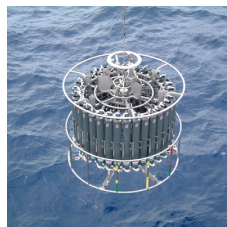
Instrument:

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



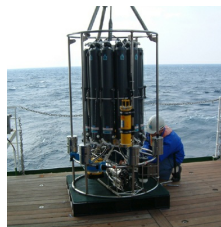
Instrument:

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 MR12-03 cruise are presented in "System".

The following software, developed and supplied by the Sea-Bird Electronics, Inc., was used in MR12-03.

SEASAVE(ver 7.21h) for data acquisition

SEASOFT(ver 7.18d) for data processing

Data presented on this website is averaged over 1db.

System

· Pressure sensor

Model : SBE9plus, Sea-Bird Electronics, Inc.

Serial number : 94766

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 : 031464

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
C01M01	94766	031464	041203	430330
C02M01	94766	031464	041203	430330
C03M01	94766	031464	041203	430330
C04M01	94766	031464	041203	430330
C05M01	94766	031464	041203	430330
C06M01	94766	031464	041203	430330
C07M01	94766	031464	041203	430330
C08M01	94766	031464	041203	430330
C09M01	94766	031464	041203	430330
C10M01	94766	031464	041203	430330
C11M01	94766	031464	041203	430330
C12M01	94766	031464	041203	430330
C13M01	94766	031464	041203	430330
C14M01	94766	031464	041203	430330
C15M01	94766	031464	041203	430330
C16M01	94766	031464	041203	430330
C17M01	94766	031464	041203	430330
C18M01	94766	031464	041203	430330
C19M01	94766	031464	041203	430330
C19M02	94766	031464	041203	430330
C19M03	94766	031464	041203	430330
C19M04	94766	031464	041203	430330
C19M05	94766	031464	041203	430330
C19M06	94766	031464	041203	430330
C19M07	94766	031464	041203	430330
C19M08	94766	031464	041203	430330
C19M09	94766	031464	041203	430330
C20M01	94766	031464	041203	430330
C21M01	94766	031464	041203	430330
C22M01	94766	031464	041203	430330
C23M01	94766	031464	041203	430330
C24M01	94766	031464	041203	430330
C25M01	94766	031464	041203	430330
C26M01	94766	031464	041203	430330
C27M01	94766	031464	041203	430330
C28M01	94766	031464	041203	430330
C29M01	94766	031464	041203	430330
C30M01	94766	031464	041203	430330
C31M01	94766	031464	041203	430330
C32M01	94766	031464	041203	430330
C33M01	94766	031464	041203	430330
C34M01	94766	031464	041203	430330
C35M01	94766	031464	041203	430330

Calibration Information

Calibration Information is as follows.

[Calibration Information](#)

Note

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

command	function
datcrv	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.
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.

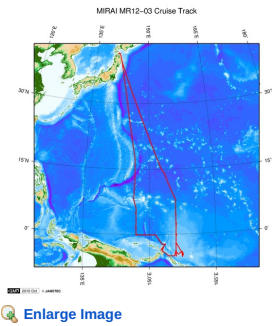
- 1) The gradient check of adjacent depth data
- 2) The density inversion check
- 3) The broad range check set up at given ocean space and depth

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.

Related Information



MR12-03

Ship Name: MIRAI
Period: 2012-07-16 - 2012-08-29
Chief Scientist: Yuji Kashino (JAMSTEC)
Project Name: [Tropical Ocean Climate Study (TOCS)]

Update History

2017-06-22	An observation data was registerd.
2015-05-22	An observation data was registerd.
2014-08-29	An observation data was registerd.

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HYPER-DOLPHIN
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YOKOSUKA DEEP TOW
6K Camera DEEP TOW
6K Sonar DEEP TOW
KM-ROV
POWER GRAB SAMPLER (SHELL)
POWER GRAB SAMPLER (CLOW)
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Dive ID:



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 Cruise ID: [MR12-03](#)

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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

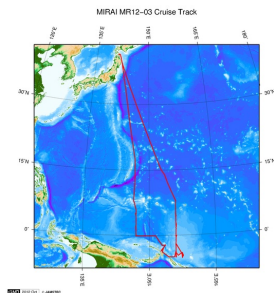
QCed data were added flag according to the NODC (National Oceanographic Data Center) quality control procedure, additionally visually checked. Please see the site of NODC of the following link for quality control procedure.

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

Sample Program

[ex_read2.f](#)

Related Information



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MR12-03

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Period: 2012-07-16 - 2012-08-29

Chief Scientist: Yuji Kashino (JAMSTEC)

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

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国立研究開発法人
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Data Policy: **JAMSTEC**

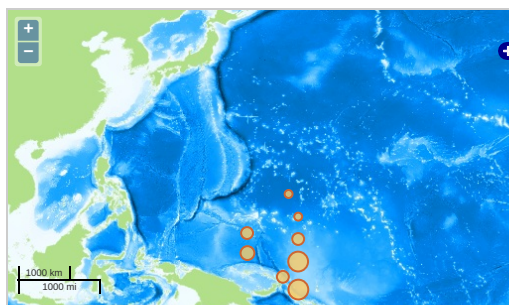
Observation Items: Pressure, Temperature, Salinity, Dissolved oxygen

Science Keywords:

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

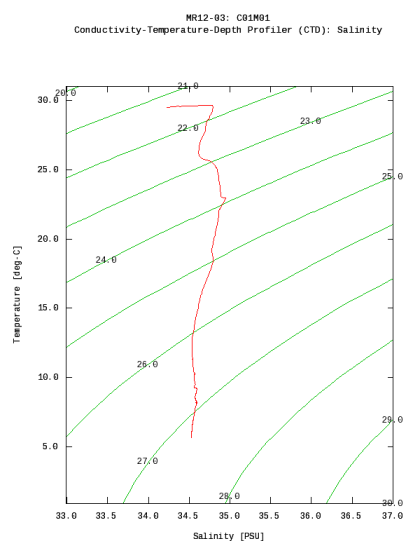
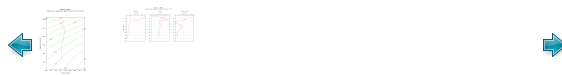
Observation Map

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



Figures

C01M01



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"/>	C02M01.dat
<input type="checkbox"/>	C03M01.dat
<input type="checkbox"/>	C04M01.dat
<input type="checkbox"/>	C05M01.dat
<input type="checkbox"/>	C06M01.dat
<input type="checkbox"/>	C07M01.dat
<input type="checkbox"/>	C08M01.dat
<input type="checkbox"/>	C09M01.dat
<input type="checkbox"/>	C10M01.dat
<input type="checkbox"/>	C11M01.dat
<input type="checkbox"/>	C12M01.dat
<input type="checkbox"/>	C13M01.dat

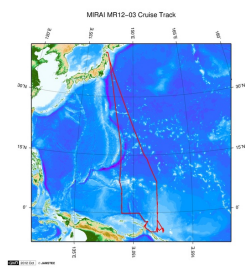
File Manager

C15M01.dat
C16M01.dat
C17M01.dat
C18M01.dat
C19M01.dat
C19M02.dat
C19M03.dat
C19M04.dat
C19M05.dat
C19M06.dat
C19M07.dat
C19M08.dat
C19M09.dat
C20M01.dat
C21M01.dat
C22M01.dat
C23M01.dat
C24M01.dat
C25M01.dat
C26M01.dat
C27M01.dat
C28M01.dat
C29M01.dat
C30M01.dat
C31M01.dat
C32M01.dat
C33M01.dat
C34M01.dat
C35M01.dat
ex_read2.f (Sample Program)

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

Observation	Time and Date	Lat. [°]	Lon. [°]
C01M01	2012-07-25 08:00	5.0608	146.9253
C02M01	2012-07-26 04:39	4.5008	146.9986
C03M01	2012-07-26 19:27	2.0870	146.9753
C04M01	2012-07-27 04:38	1.5040	146.9988
C05M01	2012-07-27 08:33	1.0065	146.9991
C06M01	2012-07-29 08:24	0.4845	147.0020
C07M01	2012-07-29 19:09	-0.0245	147.0308
C08M01	2012-08-01 04:32	-2.7103	153.2851
C09M01	2012-08-04 01:55	-4.9766	156.0378
C10M01	2012-08-04 06:31	-4.5070	156.0000
C11M01	2012-08-05 05:05	-4.0171	156.0001
C12M01	2012-08-03 07:07	-3.5143	155.9960
C13M01	2012-08-09 06:18	-2.9876	155.9990
C14M01	2012-08-09 02:25	-2.4976	156.0000
C15M01	2012-08-08 18:27	-2.0133	156.0066
C16M01	2012-08-10 04:20	-1.5023	155.9991
C17M01	2012-08-10 08:26	-1.0036	155.9986
C18M01	2012-08-12 06:18	-0.4953	155.9986
C19M01	2012-08-12 18:54	0.0000	155.9965
C19M02	2012-08-12 21:56	0.0026	156.0070
C19M03	2012-08-13 00:54	0.0005	155.9916
C19M04	2012-08-13 03:54	0.0021	155.9983
C19M05	2012-08-13 06:51	0.0003	155.9970
C19M06	2012-08-13 09:52	-0.0025	155.9938
C19M07	2012-08-13 12:52	0.0016	155.9845
C19M08	2012-08-13 15:52	-0.0050	155.9846
C19M09	2012-08-13 18:51	-0.0043	155.9911
C20M01	2012-08-13 22:46	0.2498	156.0000
C21M01	2012-08-14 02:34	0.4943	155.9950
C22M01	2012-08-14 06:36	0.7394	155.9990
C23M01	2012-08-14 10:07	0.9953	156.0000
C24M01	2012-08-14 13:35	1.2425	155.9985
C25M01	2012-08-14 17:03	1.4981	156.0413
C26M01	2012-08-14 20:23	1.7303	156.0053
C27M01	2012-08-14 23:59	1.9526	156.0223
C28M01	2012-08-15 05:02	2.4843	156.0003
C29M01	2012-08-16 06:19	2.9956	155.9983
C30M01	2012-08-17 07:38	3.4963	155.9980
C31M01	2012-08-18 07:35	4.0065	156.0020
C32M01	2012-08-18 03:43	4.4985	156.0458
C33M01	2012-08-17 18:24	5.0168	155.9884
C34M01	2012-08-19 18:26	7.9761	156.0130
C35M01	2012-08-21 22:35	11.9949	154.2993

Related Information



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POWER GRAB SAMPLER (SHELL)
POWER GRAB SAMPLER (CLOW)
BMS

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Dive ID:

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