

MIRAI MR11-03 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2017-06-22

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

Cruise ID: [MR11-03](#)

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/MR11-03_all.pdf

For Using Data

Principal Investigator

Data Management Office

Use Constraints

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

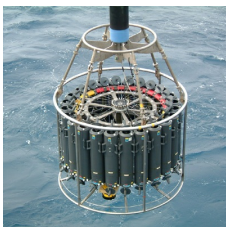
Data Citation

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

Instrument

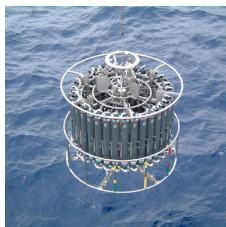
Instrument:

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



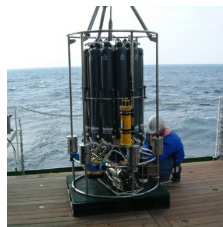
Instrument:

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



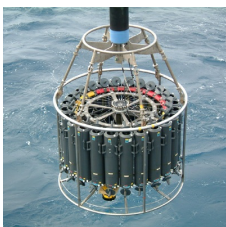
Instrument:

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 MR11-03 cruise are presented in "System".

The following software, developed and supplied by the Sea-Bird Electronics, Inc., was used in MR11-03 .

Seasave-Win32 (ver 7.20g) for data acquisition

SBDataProcessing-Win32 (ver 7.18d)

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 : 034815

Measurement range : -5.0 to +35degC

Accuracy : 0.001degC

Resolution : 0.0002degC

· Salinity sensor

Model : SBE4, Sea-Bird Electronics,Inc.

Serial number : 043036

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 : 430394

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
001M01	79492	034815	043036	430394
002M01	79492	034815	043036	430394
JKOM01	79492	034815	043036	430394
K02M01	79492	034815	043036	430394
K02M02	79492	034815	043036	430394
K02M03	79492	034815	043036	430394
K02M04	79492	034815	043036	430394
K02M05	79492	034815	043036	430394
K02M06	79492	034815	043036	430394
K02M07	79492	034815	043036	430394
K02M08	79492	034815	043036	430394
KEOM01	79492	034815	043036	430394
KNTM01	79492	034815	043036	430394
S01M01	79492	034815	043036	430394
S01M02	79492	034815	043036	430394
S01M03	79492	034815	043036	430394
S01M04	79492	034815	043036	430394
S01M05	79492	034815	043036	430394
S01M06	79492	034815	043036	430394
S01M07	79492	034815	043036	430394
StAM01	79492	034815	043036	430394
StBM01	79492	034815	043036	430394
StCM01	79492	034815	043036	430394
StDM01	79492	034815	043036	430394

Calibration Information

Calibration Information is as follows.

[Calibration Information](#)

Data processing

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

("*" is not SEASOFT original procedure.)

command	function
datcnv	Convert raw data to engineering units, and store converted data in file.
tcorp*	Corrected the pressure sensitivity of the temperature(SBE3) sensor.
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.
despike*	Remove spikes of the data.
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.

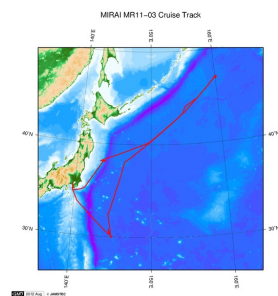
[QUALITY CONTROL AND PROCESSING OF HISTORICAL OCEANOGRAPHIC TEMPERATURE, SALINITY, AND OXYGEN DATA](#)

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

Related Information



[Enlarge Image](#)

MR11-03

Ship Name: MIRAI

Period: 2011-04-14 - 2011-05-05

Chief Scientist: Makio Honda (JAMSTEC)

Project Name: [Station K2, Station S1, Station KEO, Station KNOT]

Proposal ▶ Studies on the microbial-geochemical processes that regulate the operation of the biological pump in the subarctic and subtropical regions of the western North Pacific

Update History

2017-06-22	An observation data was registerd.
2014-08-08	An observation data was registerd.
2014-02-20	An observation data was registerd.
2013-07-18	An observation data was registerd.

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[Update History](#)

[Feeds](#)

Lists

[Publication List](#)

[Amount of Public Info.](#)

Data

[Map Search](#)

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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

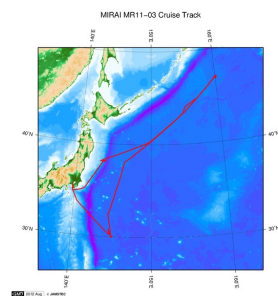
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[QUALITY CONTROL AND PROCESSING OF HISTORICAL OCEANOGRAPHIC TEMPERATURE, SALINITY, AND OXYGEN DATA](#)

Sample Program

[ex_read2.f](#)

Related Information



[Enlarge Image](#)

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Period: 2011-04-14 - 2011-05-05

Chief Scientist: Makio Honda (JAMSTEC)

Project Name: [Station K2, Station S1, Station KEO, Station KNOT]

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[Update History](#)

[Feeds](#)

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[Publication List](#)

[Amount of Public Info.](#)

Data

[Map Search](#)

[Data Tree](#)

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国立研究開発法人
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Data Policy: **JAMSTEC**

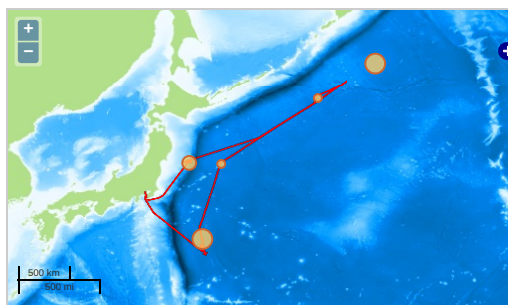
Observation Items: Pressure, Temperature, Salinity, Dissolved oxygen

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.

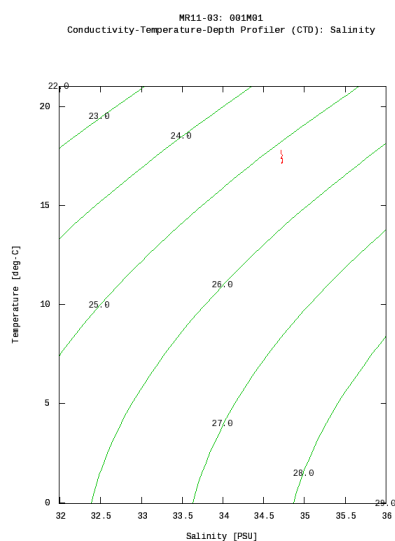


— Observation Line — Navigation ● Observation, Dive Point, Hole

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"/>	002M01.dat
<input type="checkbox"/>	JKOM01.dat
<input type="checkbox"/>	K02M01.dat
<input type="checkbox"/>	K02M02.dat
<input type="checkbox"/>	K02M03.dat
<input type="checkbox"/>	K02M04.dat
<input type="checkbox"/>	K02M05.dat
<input type="checkbox"/>	K02M06.dat
<input type="checkbox"/>	K02M07.dat
<input type="checkbox"/>	K02M08.dat
<input type="checkbox"/>	KEOM01.dat
<input type="checkbox"/>	KNTM01.dat

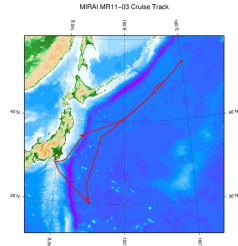
File Names

[S01M02.dat](#)
[S01M03.dat](#)
[S01M04.dat](#)
[S01M05.dat](#)
[S01M06.dat](#)
[S01M07.dat](#)
[StAM01.dat](#)
[StBM01.dat](#)
[StCM01.dat](#)
[StDM01.dat](#)
[ex_read2.f \(Sample Program\)](#)

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

Observation	Time and Date	Lat. [°]	Lon. [°]
001M01	2011-04-28 00:58	31.4141	144.7185
002M01	2011-04-28 04:43	30.8840	144.8448
JKOM01	2011-04-26 01:09	38.0855	146.3891
K02M01	2011-04-19 06:34	46.9920	160.0613
K02M02	2011-04-19 23:36	46.9971	160.0816
K02M03	2011-04-20 16:10	46.9968	160.0828
K02M04	2011-04-20 20:39	46.9991	160.0813
K02M05	2011-04-20 22:10	46.9993	160.0760
K02M06	2011-04-21 21:04	46.9955	160.0621
K02M07	2011-04-22 16:03	46.9923	160.0876
K02M08	2011-04-22 22:09	46.8586	160.0548
KEOM01	2011-04-27 15:38	32.4616	144.4990
KNTM01	2011-04-17 21:09	43.9355	154.9691
S01M01	2011-04-28 09:05	30.0440	144.9943
S01M02	2011-04-28 17:09	30.0060	145.0008
S01M03	2011-04-28 22:04	30.0420	145.1096
S01M04	2011-04-29 19:37	29.9998	145.0028
S01M05	2011-04-30 04:41	29.9995	145.0138
S01M06	2011-04-30 17:06	29.9981	145.0136
S01M07	2011-04-30 22:33	30.0106	145.0148
SIAM01	2011-04-15 00:42	38.1743	143.5458
StBM01	2011-04-15 07:50	38.2081	143.7838
SiCM01	2011-04-15 18:54	38.1450	143.3160
SiDM01	2011-04-15 23:33	38.1340	143.0798

Related Information



MR11-03 Cruise Track

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Chief Scientist: Makio Honda (JAMSTEC)
Project Name: [Station K2, Station S1, Station KEO, Station KNOT]
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[Application for Data and Samples](#)
[Data Policy](#)
[What's New](#)
[Update History](#)
[Feeds](#)

Lists

[Publication List](#)
[Amount of Public Info.](#)
[Data](#)
[Map Search](#)
[Data Tree](#)
[Detailed Search](#)

Information of the Ships

[NATSUSHIMA](#)
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Information of the Submersibles

[KAICO](#)
[SHINKAI 2000](#)
[SHINKAI 6500](#)
[DEEP TOW](#)
[HYPER-DOLPHIN](#)
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Cruise ID:

Go to a Dive Information

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