

MIRAI MR13-04 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2014-12-26

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Cruise ID: [MR13-04](#)

Conductivity-Temperature-Depth Profiler (CTD): Processed (PI)

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
OCEANS > OCEAN OPTICS > PHOTOSYNTHETICALLY ACTIVE RADIATION
OCEANS > OCEAN OPTICS > FLUORESCENCE

Cruise Report

http://www.godac.jamstec.go.jp/catalog/data/doc_catalog/media/MR13-04_all.pdf

For Using Data

Principal Investigator

Masahide Wakita (JAMSTEC)

Use Constraints

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

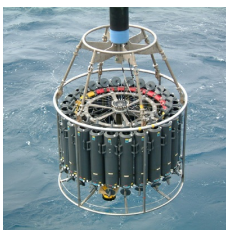
Data Citation

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

Instrument

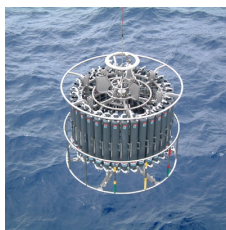
Instrument:

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



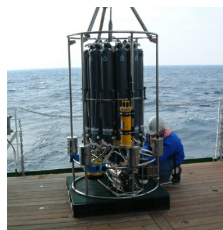
Instrument:

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 MR13-04 cruise are presented in "System".

The following software, developed and supplied by the Sea-Bird Electronics, Inc., was used in MR13-04.

SEASAVE(ver 7.22) for data acquisition

SEASOFT(ver 7.22) for data processing

Data presented on this website is averaged over 1db.

System

- Pressure sensor
Model : SBE9plus, Sea-Bird Electronics, Inc.
Measurement range : up to 10500m
Accuracy : 0.015% F.S.
Resolution : 0.001% F.S.
- Temperature sensor
Model : SBE3, Sea-Bird Electronics, Inc.
Measurement range : -5.0 to +35degC
Accuracy : 0.001degC
Resolution : 0.0002degC
- Salinity sensor
Model : SBE4, Sea-Bird Electronics, Inc.
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.
Measurement range : 120% of surface saturation
Accuracy : 2% of saturation
- DO sensor
Model : RINKO-III, ALEC ELECTRONICS CO., LTD.
Measurement range : 0 to 200%
Accuracy : Linear $\pm 2\%$ FS
Resolution : 0.01 to 0.04%
- Fluorometer
Manufacturer : Seapoint Sensors,Inc.
Measurement range : 0-5ug/l
Resolution : 0.02ug/l
- Transmissometer
Manufacturer : WET Labs,Inc.
- PAR sensor
Manufacturer : Satlantic Inc.
Measurement range : 0-6500 umol photons/m²/s

Note

(1) About the data of CTDOXY (SBE43)

In the following casts, the characteristic spike and the periodic noise were checked with depth deeper than 3500db.

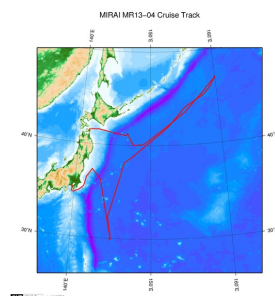
The characteristic spike was interpolated and the flag 6 was given. Moreover, the flag 3 was given to the periodic noise.

S01M01, KEOM01, JKOM01, KNTM01, K02M01

(2) 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.

Related Information



[Enlarge Image](#)

MR13-04

Ship Name: MIRAI

Period: 2013-07-09 - 2013-07-29

Chief Scientist: Makio Honda (JAMSTEC)

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

Proposal ▶ Change in material cycles and ecosystem by the climate change and its feedback

Title:

Update History

2014-12-26 An observation data was registered.

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Dive ID:



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CTD WOCE-type1

Format Description for the Processed (PI) 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

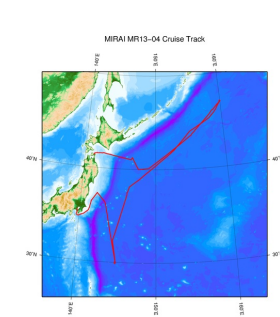
Data part

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'.

Related Information



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HAKUHO MARU

6K Sonar DEEP TOW
KM-ROV
POWER GRAB SAMPLER
(SHELL)
POWER GRAB SAMPLER
(CLOW)
BMS

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JAMSTEC

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ReadMe: **Observation Data** Data Format

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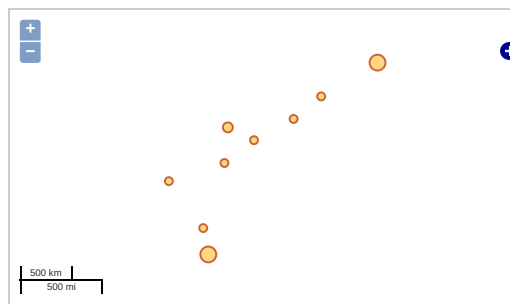
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Observation Map

1. Clicking the icon displays a balloon with observation information.



Data List

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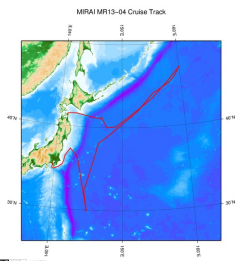
File names

	MR1304_42N_01_ct1.wct
	MR1304_E01_01_ct1.wct
	MR1304_E02_01_ct1.wct
	MR1304_E03_01_ct1.wct
	MR1304_F01_01_ct1.wct
	MR1304_JKO_01_ct1.wct
	MR1304_K02_01_ct1.wct
	MR1304_K02_02_ct1.wct
	MR1304_K02_03_ct1.wct
	MR1304_K02_04_ct1.wct
	MR1304_K02_05_ct1.wct
	MR1304_KEO_01_ct1.wct
	MR1304_KNT_01_ct1.wct
	MR1304_S01_01_ct1.wct
	MR1304_S01_02_ct1.wct
	MR1304_S01_03_ct1.wct
	MR1304_S01_04_ct1.wct
	MR1304_S01_05_ct1.wct

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

Observation	Time and Date	Lat. [°]	Lon. [°]
MR1304_42N_01_ct1	2013-07-20 00:00	42.0033	152.5540
MR1304_E01_01_ct1	2013-07-26 00:00	41.2522	146.7120
MR1304_E02_01_ct1	2013-07-27 00:00	41.0310	146.5430
MR1304_E03_01_ct1	2013-07-26 00:00	40.1170	149.0360
MR1304_F01_01_ct1	2013-07-11 00:00	36.4778	141.4770
MR1304_JKO_01_ct1	2013-07-18 00:00	38.0927	146.4160
MR1304_K02_01_ct1	2013-07-22 00:00	47.0020	160.0050
MR1304_K02_02_ct1	2013-07-22 00:00	47.0025	160.0060
MR1304_K02_03_ct1	2013-07-22 00:00	47.0010	159.9940
MR1304_K02_04_ct1	2013-07-23 00:00	47.0038	159.9950
MR1304_K02_05_ct1	2013-07-23 00:00	47.0278	159.9880
MR1304_KEO_01_ct1	2013-07-17 00:00	32.3137	144.5290
MR1304_KNT_01_ct1	2013-07-20 00:00	44.0048	155.0020
MR1304_S01_01_ct1	2013-07-14 00:00	29.9723	144.9810
MR1304_S01_02_ct1	2013-07-14 00:00	29.9955	145.0000
MR1304_S01_03_ct1	2013-07-14 00:00	30.0563	144.9990
MR1304_S01_04_ct1	2013-07-15 00:00	29.9113	144.9550
MR1304_S01_05_ct1	2013-07-16 00:00	30.0693	144.9720

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