

MIRAI MR00-K02 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2017-06-22

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

Cruise ID: [MR00-K02](#)

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

For Using Data

Principal Investigator

Data Management Office

Use Constraints

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

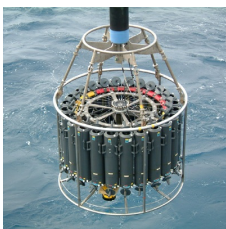
Data Citation

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

Instrument

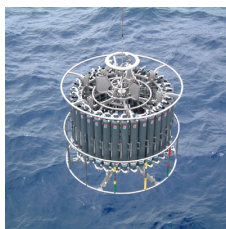
Instrument:

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



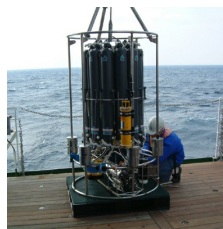
Instrument:

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



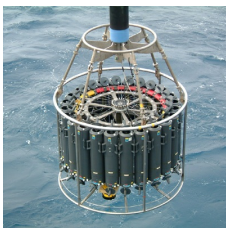
Instrument:

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 MR00-K02 cruise are presented in "System".

The following software, developed and supplied by the Sea-Bird Electronics, Inc., was used in MR00-K02.

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 : 042240

Measurement range : 0.0 to 7 S/m

Accuracy : 0.0003 S/m

Resolution : 0.00004 S/m

Sensors used in each cast is as follows.

Cast name	Serial number of sensor			
	Pressure	Temperature	Salinity	Dissolved Oxygen
C01S01	79492	032453	042240	-
C02S01	79492	032453	042240	-
C03S01	79492	032453	042240	-
C04S01	79492	032453	042240	-
C05S01	79492	032453	042240	-
C06S01	79492	032453	042240	-
C07S01	79492	032453	042240	-
C08S01	79492	032453	042240	-
C09S01	79492	032453	042240	-
C10S01	79492	032453	042240	-
C11S01	79492	032453	042240	-
C12S01	79492	032453	042240	-
C13S01	79492	032453	042240	-
C14S01	79492	032453	042240	-
C15S01	79492	032453	042240	-
C16S01	79492	032453	042240	-

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.
section	Extract rows of data from 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.
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.

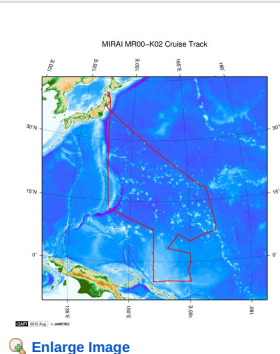
[QUALITY CONTROL AND PROCESSING OF HISTORICAL OCEANOGRAPHIC TEMPERATURE, SALINITY, AND OXYGEN DATA](#)

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

Note

- (1) Water temperature data of this cruise was corrected since it had pressure dependency. Please refer to "[data correction](#)" in detail.

Related Information



MR00-K02

Ship Name: MIRAI
Period: 2000-02-12 - 2000-03-25
Chief Scientist: Yoshifumi Kuroda (JAMSTEC)
Project Name: [Tropical Ocean Climate Study (TOCS)]

Update History

2017-06-22	An observation data was registerd.
2014-08-20	An observation data was registerd.
2014-07-12	An observation data was registerd.
2014-01-11	An observation data was registerd.
2012-12-25	An observation data was registerd.

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Information of the Submersibles

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SHINKAI 2000
SHINKAI 6500
DEEP TOW
HYPER-DOLPHIN
URASHIMA
YOKOSUKA DEEP TOW
6K Camera DEEP TOW
6K Sonar DEEP TOW

Go to a Cruise Information

Cruise ID:

Go to a Dive Information

Dive ID:

KM-ROV
POWER GRAB SAMPLER
(SHELL)
POWER GRAB SAMPLER
(CLOW)
BMS

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

 Cruise ID: [MR00-K02](#)

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 : 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

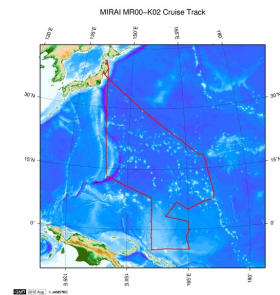
QCed data were added flag according to the NODC (National Oceanographic Data Center) quality control procedure, additionally visually checked. Please see the site of NODC of the following link for quality control procedure.

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

Sample Program

[ex_read2.f](#)

Related Information



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MR00-K02

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Chief Scientist: Yoshifumi Kuroda (JAMSTEC)

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

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(SHELL)

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(CLOW)

BMS

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Cruise ID:

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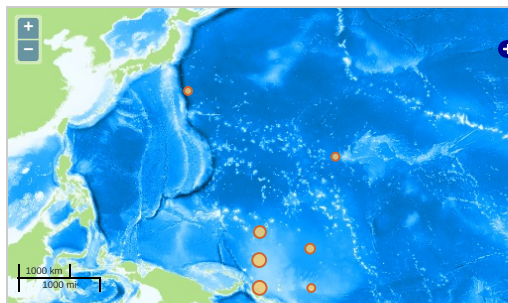
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Science Keywords:

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

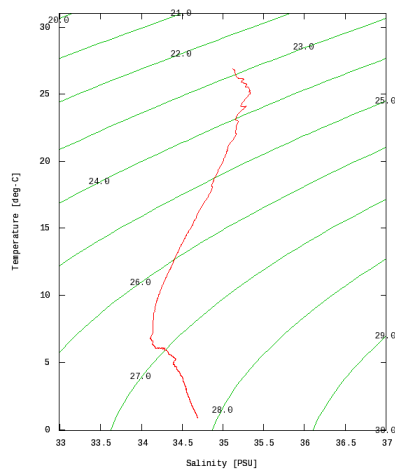
Imagery reproduced from ...

Figures

C01S01



MR00-K02: C01S01
Conductivity-Temperature-Depth Profiler (CTD): Salinity



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"/>	C01S01.dat
<input type="checkbox"/>	C02S01.dat
<input type="checkbox"/>	C03S01.dat
<input type="checkbox"/>	C04S01.dat
<input type="checkbox"/>	C05S01.dat
<input type="checkbox"/>	C06S01.dat
<input type="checkbox"/>	C07S01.dat
<input type="checkbox"/>	C08S01.dat
<input type="checkbox"/>	C09S01.dat
<input type="checkbox"/>	C10S01.dat
<input type="checkbox"/>	C11S01.dat
<input type="checkbox"/>	C12S01.dat
<input type="checkbox"/>	C13S01.dat

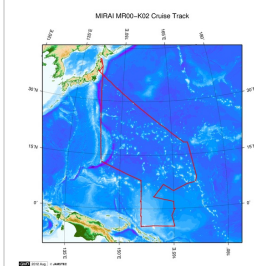
File names

C15S01.dat
C16S01.dat
ex_read2.f (Sample Program)

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

Observation	Time and Date	Lat. [°]	Lon. [°]
C01S01	2000-02-19 04:38	18.3361	169.4890
C02S01	2000-02-28 07:23	2.0066	164.9891
C03S01	2000-02-29 01:31	0.0235	165.0185
C04S01	2000-03-02 04:19	-4.9896	165.1964
C05S01	2000-03-04 01:56	-4.9515	156.0190
C06S01	2000-03-04 04:52	-5.0461	156.0496
C07S01	2000-03-06 02:03	-1.9848	156.0200
C08S01	2000-03-06 04:56	-2.0168	155.9476
C09S01	2000-03-08 02:01	-0.0166	155.9385
C10S01	2000-03-08 04:25	0.0176	156.0363
C11S01	2000-03-10 01:57	1.9576	155.9853
C12S01	2000-03-10 04:53	2.0635	155.9911
C13S01	2000-03-13 01:59	4.9641	156.0708
C14S01	2000-03-14 02:56	7.9710	156.0328
C15S01	2000-03-15 03:01	8.0223	155.9426
C16S01	2000-03-21 23:41	30.0171	143.3073

Related Information



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Chief Scientist: Yoshifumi Kuroda (JAMSTEC)
Project Name: [Tropical Ocean Climate Study (TOCS)]

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