

MIRAI MR02-K02 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2017-06-22

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

Cruise ID: [MR02-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.

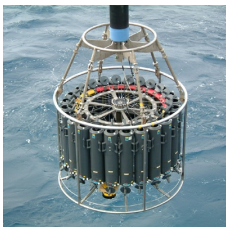
Data Citation

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

Instrument

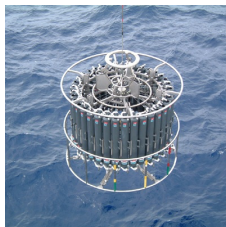
Instrument:

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



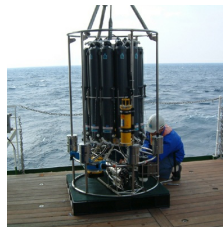
Instrument:

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



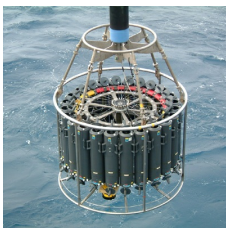
Instrument:

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 MR02-K02 cruise are presented in "System".

The following software, developed and supplied by the Sea-Bird Electronics, Inc., was used in MR02-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 : 51190

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 : 031525

Measurement range : -5.0 to +35degC

Accuracy : 0.001degC

Resolution : 0.0002degC

• Salinity sensor

Model : SBE4, Sea-Bird Electronics,Inc.

Serial number : 041088

Measurement range : 0.0 to 7 S/m

Accuracy : 0.0003 S/m

Resolution : 0.00004 S/m

• DO sensor

Model : SBE13, Sea-Bird Electronics,Inc.

Serial number : 130540
Measurement range : 0 to 15ml/l
Accuracy : 0.1ml/l
Resolution : 0.01ml/l

Sensors used in each cast is as follows.

Cast name	Serial number of sensor			
	Pressure	Temperature	Salinity	Dissolved Oxygen
C01S01	51190	031525	041088	130540
C02S01	51190	031525	041088	130540
C03S01	51190	031525	041088	130540
C04S01	51190	031525	041088	130540
C05S01	51190	031525	041088	130540
C06S01	51190	031525	041088	130540
C07S01	51190	031525	041088	130540
C08S01	51190	031525	041088	130540
C09S01	51190	031525	041088	130540
C10S01	51190	031525	041088	130540
C11S01	51190	031525	041088	130540
C12S01	51190	031525	041088	130540
C13S01	51190	031525	041088	130540
C14S01	51190	031525	041088	130540
C15S01	51190	031525	041088	130540
C16S01	51190	031525	041088	130540
C17S01	51190	031525	041088	130540
C18S01	51190	031525	041088	130540
C19S01	51190	031525	041088	130540
C20S01	51190	031525	041088	130540
C21S01	51190	031525	041088	130540
C22S01	51190	031525	041088	130540
C23S01	51190	031525	041088	130540
C24S01	51190	031525	041088	130540
C25S01	51190	031525	041088	130540

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.
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.

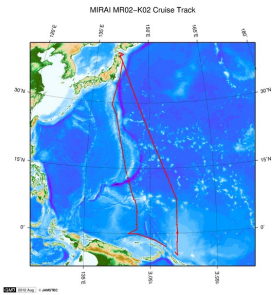
[QUALITY CONTROL AND PROCESSING OF HISTORICAL OCEANOGRAPHIC TEMPERATURE, SALINITY, AND OXYGEN DATA](#)

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 (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



MR02-K02
Ship Name: MIRAI
Period: 2002-02-21 - 2002-03-30
Chief Scientist: Kentaro Ando (JAMSTEC)
Project Name: [Tropical Ocean Climate Study (TOCS)]

 [Enlarge Image](#)

Update History

2017-06-22	An observation data was registerd.
2014-07-18	An observation data was registerd.
2014-02-06	An observation data was registerd.
2014-02-05	An observation data was registerd.
2012-12-25	An observation data was registerd.

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Dive ID:

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MIRAI MR02-K02 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2017-06-22

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

 Cruise ID: [MR02-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

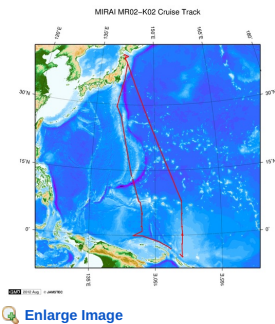
QCed data were added flag according to the NODC (National Oceanographic Data Center) quality control procedure, additionally visually checked. Please see the site of NODC of the following link for quality control procedure.

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

Sample Program

[ex_read2.f](#)

Related Information



MR02-K02
Ship Name: MIRAI
Period: 2002-02-21 - 2002-03-30
Chief Scientist: Kentaro Ando (JAMSTEC)
Project Name: [Tropical Ocean Climate Study (TOCS)]

Update History

2017-06-22	An observation data was registerd.
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MIRAI MR02-K02 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2017-06-22

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Cruise ID: **MR02-K02**

Conductivity-Temperature-Depth Profiler (CTD): Processed (DMO)-QCed

Data Policy: **JAMSTEC**

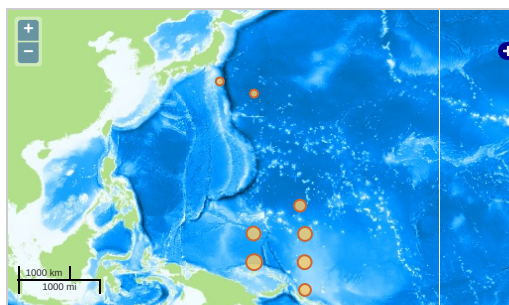
Observation Items: Pressure, Temperature, Salinity, Dissolved oxygen

Science Keywords:

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

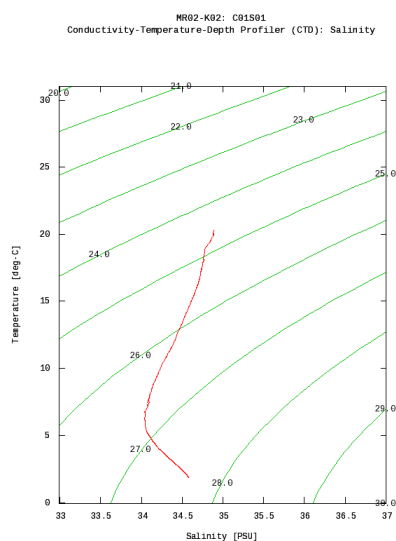
Observation Map

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



Figures

C01S01



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

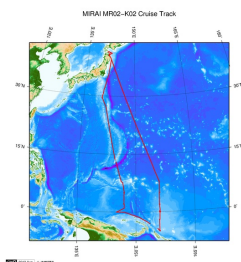
 C15S01.dat
 C16S01.dat
 C17S01.dat
 C18S01.dat
 C19S01.dat
 C20S01.dat
 C21S01.dat
 C22S01.dat
 C23S01.dat
 C24S01.dat
 C25S01.dat
 ex_read2.f (Sample Program)

Observation List

The list of observation is shown as follows.

Observation	Time and Date	Lat. [°]	Lon. [°]
C01S01	2002-02-24 03:51	29.9063	147.0149
C02S01	2002-02-28 02:38	9.9956	155.1808
C03S01	2002-03-01 03:22	8.0399	155.9273
C04S01	2002-03-01 05:19	8.0103	155.9766
C05S01	2002-03-03 02:24	4.9790	156.0681
C06S01	2002-03-03 04:28	5.0351	156.0021
C07S01	2002-03-05 02:26	1.9291	155.9801
C08S01	2002-03-05 04:21	2.0133	156.0120
C09S01	2002-03-09 02:26	-0.0406	155.9948
C10S01	2002-03-09 04:20	-0.0331	156.0405
C11S01	2002-03-11 01:22	-1.9755	155.9963
C12S01	2002-03-11 03:54	-2.0473	155.9338
C13S01	2002-03-13 01:25	-4.9688	156.0535
C14S01	2002-03-13 03:18	-5.0283	156.0613
C15S01	2002-03-13 05:22	-5.0503	156.0743
C16S01	2002-03-15 22:39	-0.0350	147.0283
C17S01	2002-03-16 00:32	-0.0570	147.0243
C18S01	2002-03-17 02:45	-0.0223	145.0575
C19S01	2002-03-18 02:22	2.0048	146.9858
C20S01	2002-03-18 04:21	2.1101	146.9185
C21S01	2002-03-20 01:36	5.0510	146.9161
C22S01	2002-03-20 03:43	4.9800	146.9898
C23S01	2002-03-21 01:37	5.0191	147.0598
C24S01	2002-03-21 21:52	7.9991	146.2140
C25S01	2002-03-28 08:51	32.0578	140.9416

Related Information



 [Enlarge Image](#)

MR02-K02

Ship Name: MIRAI

Period: 2002-02-21 - 2002-03-30

Chief Scientist: Kentaro Ando (JAMSTEC)

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

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Data Policy
What's New
Update History
Feeds

Lists

Publication List
Amount of Public Info.
Data
Map Search
Data Tree
Detailed Search

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