

MIRAI MR98-K02 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2018-04-09

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Cruise ID: [MR98-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

Cruise Report

http://www.godac.jamstec.go.jp/catalog/data/doc_catalog/media/MR98-K02_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 MR98-K02 cruise are presented in "System".

The following software, developed and supplied by the Sea-Bird Electronics, Inc., was used in MR98-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 : 42410

Measurement range : up to 10500m

Accuracy : 0.015% F.S.

Resolution : 0.001% F.S.

• Pressure sensor

Model : SBE9plus, Sea-Bird Electronics,Inc.

Serial number : 42423

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
- 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 : 041206
 - Measurement range : 0.0 to 7 S/m
 - Accuracy : 0.0003 S/m
 - Resolution : 0.00004 S/m
 - Salinity sensor
 - Model : SBE4, Sea-Bird Electronics, Inc.
 - Serial number : 041205
 - 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 : 130338
 - Measurement range : 0 to 15ml/l
 - Accuracy : 0.1ml/l
 - Resolution : 0.01ml/l
 - DO sensor
 - Model : SBE13, Sea-Bird Electronics, Inc.
 - Serial number : 130339
 - 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		Salinity	Dissolved Oxygen
	Pressure	Temperature		
9802011	42410	031464	041206	130338
9802021	42423	031525	041205	130339
9802022	42410	031464	041206	130338
9802023	42410	031464	041206	130338
9802024	42410	031464	041206	130338
9802031	42423	031525	041205	130339
9802032	42410	031464	041206	130338
9802033	42410	031464	041206	130338
9802034	42410	031464	041206	130338
9802041	42410	031464	041206	130338
9802051	42410	031464	041206	130338
9802061	42423	031525	041205	130339
9802062	42410	031464	041206	130338
9802063	42410	031464	041206	130338
9802064	42410	031464	041206	130338
9802071	42410	031464	041206	130338
9802072	42410	031464	041206	130338
9802081	42410	031464	041206	130338
9802091	42423	031525	041205	130339
9802092	42410	031464	041206	130338
9802093	42410	031464	041206	130338
9802094	42410	031464	041206	130338
9802101	42410	031464	041206	130338
9802111	42410	031464	041206	130338
9802121	42423	031525	041205	130339
9802122	42410	031464	041206	130338
9802123	42410	031464	041206	130338
9802124	42410	031464	041206	130338

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.
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.

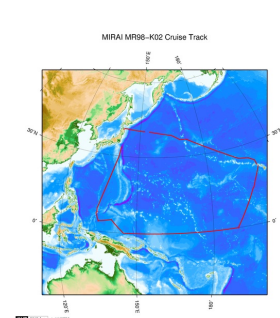
[QUALITY CONTROL AND PROCESSING OF HISTORICAL OCEANOGRAPHIC TEMPERATURE, SALINITY, AND OXYGEN DATA](#)

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

Note

- (1) In this cruise, there is extra data (fluorescence intensity, transmittance) 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](#)

MR98-K02

Ship Name: MIRAI

Period: 1998-12-22 - 1999-01-31

Chief Scientist: Takeshi Kawano (JAMSTEC)

Update History

2018-04-09	An observation data was registered.
2017-06-22	An observation data was registered.
2014-07-12	An observation data was registered.
2014-02-06	An observation data was registered.
2013-03-27	An observation data was registered.
2013-01-25	An observation data was registered.

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MIRAI MR98-K02 Conductivity-Temperature-Depth Profiler (CTD)

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 Cruise ID: [MR98-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

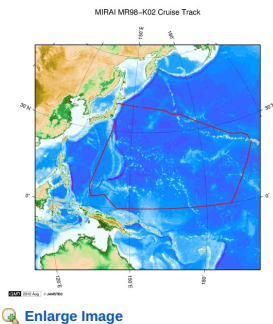
QCed data were added flag according to the NODC (National Oceanographic Data Center) quality control procedure, additionally visually checked. Please see the site of NODC of the following link for quality control procedure.

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

Sample Program

[ex_read2.f](#)

Related Information



MR98-K02
 Ship Name: MIRAI
 Period: 1998-12-22 - 1999-01-31
 Chief Scientist: Takeshi Kawano (JAMSTEC)

Update History

2018-04-09	An observation data was registerd.
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Last Modified: 2018-04-09

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Cruise ID: **MR98-K02**

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

Data Policy: **JAMSTEC**

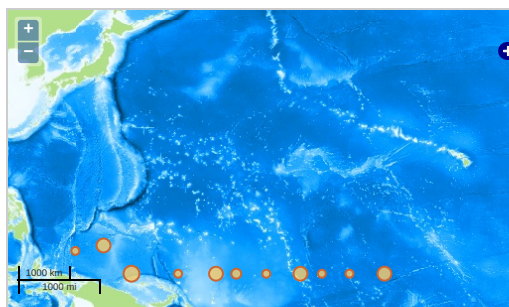
Observation Items: Pressure, Temperature, Salinity, Dissolved oxygen

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.



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

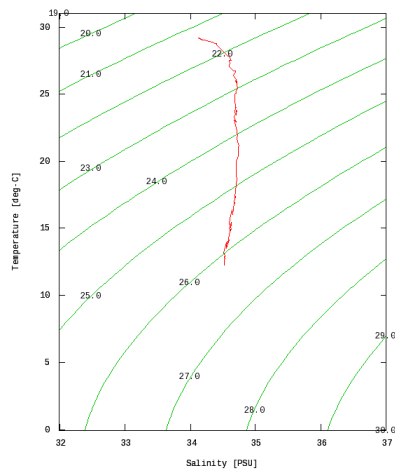
Imagery reproduced from ...

Figures

9802011



MR98-K02: 9802011
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

☐ 9802011.dat
☐ 9802021.dat
☐ 9802022.dat
☐ 9802023.dat
☐ 9802024.dat
☐ 9802031.dat
☐ 9802032.dat
☐ 9802033.dat
☐ 9802034.dat
☐ 9802041.dat
☐ 9802051.dat
☐ 9802061.dat
☐ 9802062.dat

9802062.dat

9802064.dat

9802071.dat

9802072.dat

9802081.dat

9802091.dat

9802092.dat

9802093.dat

9802094.dat

9802101.dat

9802111.dat

9802121.dat

9802122.dat

9802123.dat

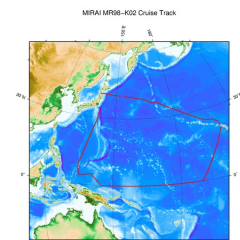
9802124.dat

ex_read2.f (Sample Program)

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

Observation	Time and Date	Lat. [°]	Lon. [°]
9802011	1998-12-31 02:47	4.0465	135.0193
9802021	1999-01-01 08:20	5.0178	140.0290
9802022	1999-01-01 08:20	5.0178	140.0290
9802023	1999-01-01 12:05	5.0296	140.0818
9802024	1999-01-02 01:01	5.0363	140.1046
9802031	1999-01-03 12:09	0.0050	144.9968
9802032	1999-01-03 12:09	0.0050	144.9968
9802033	1999-01-03 17:44	0.0280	144.9970
9802034	1999-01-04 01:10	0.0061	145.0200
9802041	1999-01-05 01:30	0.0000	147.8858
9802051	1999-01-06 01:00	-0.0011	153.2638
9802061	1999-01-07 06:51	0.0011	160.0008
9802062	1999-01-07 07:25	0.0053	159.9991
9802063	1999-01-07 09:30	0.0101	159.9944
9802064	1999-01-07 23:03	0.0680	159.9623
9802071	1999-01-09 00:00	0.0000	163.6025
9802072	1999-01-09 00:00	0.0000	163.6025
9802081	1999-01-10 00:00	-0.0051	168.9319
9802091	1999-01-11 03:53	0.0008	174.9953
9802092	1999-01-11 03:53	0.0008	174.9953
9802093	1999-01-11 06:21	0.0231	174.9625
9802094	1999-01-11 21:58	0.0593	174.9138
9802101	1999-01-12 23:00	-0.0006	178.7970
9802111	1999-01-13 23:01	0.0018	-176.2891
9802121	1999-01-15 03:44	0.0033	-170.0818
9802122	1999-01-15 04:30	0.0031	-170.0850
9802123	1999-01-15 06:13	0.0038	-170.0910
9802124	1999-01-15 21:32	-0.0475	-170.1823

Related Information



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MR98-K02

Ship Name: MIRAI
Period: 1998-12-22 - 1999-01-31
Chief Scientist: Takeshi Kawano (JAMSTEC)

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