

MIRAI MR99-K04 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2018-04-09

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

Cruise ID: [MR99-K04](#)

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/MR99-K04_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 MR99-K04 cruise are presented in "System".

The following software, developed and supplied by the Sea-Bird Electronics, Inc., was used in MR99-K04.

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 : 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 : 031524

Measurement range : -5.0 to +35degC

Accuracy : 0.001degC

Resolution : 0.0002degC

• Salinity sensor

Model : SBE4, Sea-Bird Electronics,Inc.

Serial number : 041203

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

Sensors used in each cast is as follows.

Cast name	Serial number of sensor			
	Pressure	Temperature	Salinity	Dissolved Oxygen
K04A01	42423	031524	041203	130338
K04A02	42423	031524	041203	130338
K04A03	42423	031524	041203	130338
K04A04	42423	031524	041203	130338
K04A06	42423	031524	041203	130338
K04A07	42423	031524	041203	130338
K04A08	42423	031524	041203	130338
K04A09	42423	031524	041203	130338
K04A10	42423	031524	041203	130338
K04A11	42423	031524	041203	130338
K04A12	42423	031524	041203	130338
K04A13	42423	031524	041203	130338
K04A14	42423	031524	041203	130338
K04A15	42423	031524	041203	130338
K04A16	42423	031524	041203	130338
K04G11	42423	031524	041203	130338
K04G12	42423	031524	041203	130338
K04G13	42423	031524	041203	130338
K04G31	42423	031524	041203	130338
K04G32	42423	031524	041203	130338
K04B01	42423	031524	041203	130338
K04B02	42423	031524	041203	130338
K04B03	42423	031524	041203	130338
K04B04	42423	031524	041203	130338
K04B05	42423	031524	041203	130338
K04B06	42423	031524	041203	130338
K04B07	42423	031524	041203	130338
K04B08	42423	031524	041203	130338
K04B09	42423	031524	041203	130338
K04B10	42423	031524	041203	130338
K04B11	42423	031524	041203	130338
K04B12	42423	031524	041203	130338
K04B13	42423	031524	041203	130338
K04B14	42423	031524	041203	130338
K04B15	42423	031524	041203	130338
K04B16	42423	031524	041203	130338
K04B17	42423	031524	041203	130338
K04B18	42423	031524	041203	130338
K04B19	42423	031524	041203	130338
K04B20	42423	031524	041203	130338
K04B21	42423	031524	041203	130338
K04B22	42423	031524	041203	130338
K04B23	42423	031524	041203	130338
K04B24	42423	031524	041203	130338
K04B25	42423	031524	041203	130338
K04B26	42423	031524	041203	130338
K04B27	42423	031524	041203	130338
K04B28	42423	031524	041203	130338
K04B29	42423	031524	041203	130338
K04B30	42423	031524	041203	130338
K04B31	42423	031524	041203	130338
K04B32	42423	031524	041203	130338
K04B32A	42423	031524	041203	130338
K04B33	42423	031524	041203	130338
K04B33A	42423	031524	041203	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.
wfilter	Median filter removes spikes of fluorometer data.

command section	function
	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.

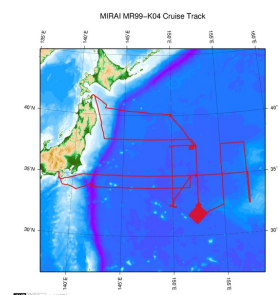
- 1) The gradient check of adjacent depth data
- 2) The density inversion check
- 3) The broad range check set up at given ocean space and depth

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.

Related Information



[Enlarge Image](#)

MR99-K04

Ship Name: MIRAI

Period: 1999-07-23 - 1999-08-19

Chief Scientist: Hirofumi Yamamoto (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.
2014-02-07	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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HYPER-DOLPHIN
URASHIMA
YOKOSUKA DEEP TOW
6K Camera DEEP TOW
6K Sonar DEEP TOW
KM-ROV
POWER GRAB SAMPLER (SHELL)
POWER GRAB SAMPLER (CLOW)
BMS

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Last Modified: 2018-04-09

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

 Cruise ID: [MR99-K04](#)

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	MRYY-(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

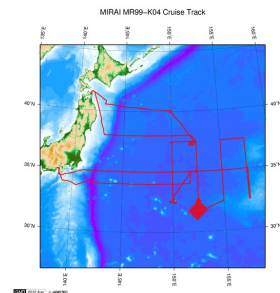
QCed data were added flag according to the NODC (National Oceanographic Data Center) quality control procedure, additionally visually checked. Please see the site of NODC of the following link for quality control procedure.

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

Sample Program

[ex_read2.f](#)

Related Information



[Enlarge Image](#)

MR99-K04

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Period: 1999-07-23 - 1999-08-19

Chief Scientist: Hirofumi Yamamoto (JAMSTEC)

Update History

2018-04-09	An observation data was registerd.
2017-06-22	An observation data was registerd.
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Data Policy: **JAMSTEC**

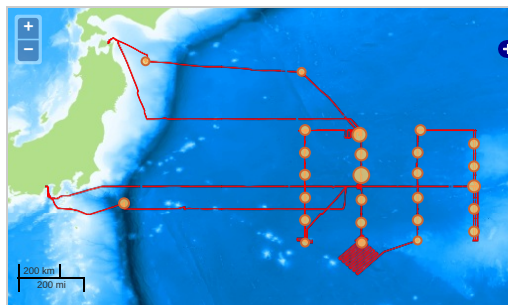
Observation Items: Pressure, Temperature, Salinity, Dissolved oxygen

Science Keywords:

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

Observation Map

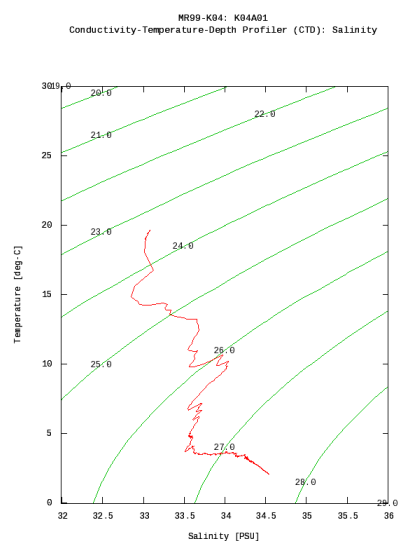
1. Clicking the icon displays a balloon with observation information.
2. Then click the observation name, figures will be displayed.



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

Figures

K04A01



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"/>	K04A01.dat
<input type="checkbox"/>	K04A02.dat
<input type="checkbox"/>	K04A03.dat
<input type="checkbox"/>	K04A04.dat
<input type="checkbox"/>	K04A06.dat
<input type="checkbox"/>	K04A07.dat
<input type="checkbox"/>	K04A08.dat
<input type="checkbox"/>	K04A09.dat
<input type="checkbox"/>	K04A10.dat
<input type="checkbox"/>	K04A11.dat
<input type="checkbox"/>	K04A12.dat
<input type="checkbox"/>	K04A13.dat
<input type="checkbox"/>	K04A14.dat

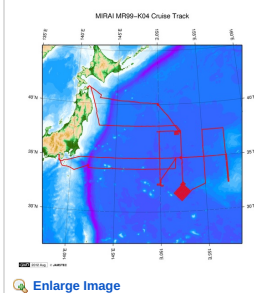
File names
K04A16.dat
K04B01.dat
K04B02.dat
K04B03.dat
K04B04.dat
K04B05.dat
K04B06.dat
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K04B33A.dat
K04G11.dat
K04G12.dat
K04G13.dat
K04G31.dat
K04G32.dat
ex_read2.f (Sample Program)

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

Observation	Time and Date	Lat. [°]	Lon. [°]
K04A01	1999-07-23 23:09	40.5528	142.9183
K04A02	1999-07-25 04:14	40.0840	149.8476
K04A03	1999-07-25 23:32	37.2956	152.4153
K04A04	1999-07-27 01:28	37.5000	151.9966
K04A06	1999-07-27 23:59	37.5005	150.0015
K04A07	1999-07-28 04:27	36.9970	150.0033
K04A08	1999-07-28 07:38	36.4970	149.9940
K04A09	1999-07-28 10:42	36.0030	149.9993
K04A10	1999-07-28 14:03	35.5161	149.9963
K04A11	1999-07-28 19:24	35.0010	150.0023
K04A12	1999-07-29 00:25	34.5000	150.0056
K04A13	1999-07-29 04:00	34.0005	150.0008
K04A14	1999-07-29 07:23	33.5030	150.0000
K04A15	1999-07-29 10:49	33.0006	150.0008
K04A16	1999-07-29 20:20	32.5045	149.9990
K04B01	1999-08-07 21:19	35.0041	157.5013
K04B02	1999-08-08 01:26	34.5936	157.4981
K04B03	1999-08-08 05:26	34.0010	157.4981
K04B04	1999-08-08 08:24	33.5930	157.5004
K04B05	1999-08-08 12:20	32.9970	157.5000
K04B06	1999-08-08 15:09	32.6085	157.5033
K04B07	1999-08-09 05:28	35.5021	157.5004
K04B08	1999-08-09 08:19	35.8891	157.4960
K04B09	1999-08-09 12:16	36.4980	157.4970
K04B10	1999-08-09 15:11	36.8953	157.4973
K04B11	1999-08-09 19:10	37.4998	157.5010
K04B12	1999-08-10 05:02	37.5001	155.1210
K04B13	1999-08-10 10:05	37.0000	155.0003
K04B14	1999-08-10 13:30	36.4998	155.0013
K04B15	1999-08-10 15:16	36.3806	155.0013
K04B16	1999-08-10 20:04	35.5890	154.9950
K04B17	1999-08-11 00:03	34.9998	155.0041
K04B18	1999-08-11 04:26	34.4978	155.0038
K04B19	1999-08-11 07:17	34.1061	155.0020
K04B20	1999-08-11 11:12	33.4995	155.0018
K04B21	1999-08-11 15:06	32.9983	154.9995

Observation	Time and Date	Lat [°N]	Long [°E]
K04B23	1999-08-14 23:13	32.5036	152.5173
K04B24	1999-08-15 04:17	33.0015	152.5015
K04B25	1999-08-15 07:09	33.3898	152.4918
K04B26	1999-08-15 11:04	34.0000	152.5026
K04B27	1999-08-15 14:08	34.4043	152.5046
K04B28	1999-08-15 20:00	34.9986	152.5016
K04B29	1999-08-16 03:30	35.4995	152.4966
K04B30	1999-08-16 07:05	36.0011	152.4998
K04B31	1999-08-16 10:25	36.4195	152.4970
K04B32	1999-08-16 14:01	36.8956	152.4985
K04B32A	1999-08-16 17:06	37.0000	152.4996
K04B33	1999-08-16 20:05	37.5098	152.5020
K04B33A	1999-08-16 22:18	37.5226	152.5029
K04G11	1999-07-30 09:57	34.9661	151.8333
K04G12	1999-07-30 14:40	34.9665	151.8331
K04G13	1999-07-30 18:29	34.9666	151.8326
K04G31	1999-08-02 03:37	34.2496	141.9644
K04G32	1999-08-02 08:12	34.2500	141.9660

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