MIRAI MR02-K04 Leg2 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2017-06-22

ReadMe | Observation Data | Data Format

Cruise ID: MR02-K04 Leg2
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/MR02-K04_leg2_all.pdf

For Using Data

Principal Investigator
Data Management Office

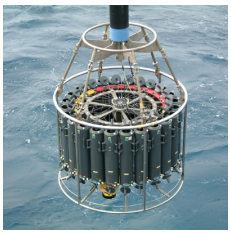
JAMSTEC / BPPT joint cruise in the Indonesian waters.

Use Constraints
See Terms and Conditions about constrain of use.

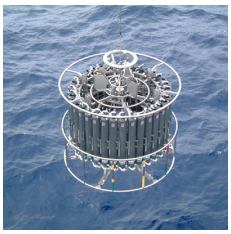
Data Citation
See Terms and Conditions about data citation.

Instrument

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

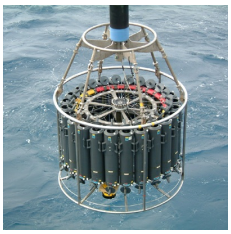


Instrument:
Water sampling system with CTD (12 litters * 36 bottles)



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-K04 Leg2 cruise are presented in “System”.
The following software, developed and supplied by the Sea-Bird Electronics, Inc., was used in MR02-K04 Leg2.
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 : 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 : 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			
	Pressure	Temperature	Salinity	Dissolved Oxygen
C12S01	79492	031525	041088	130339
C13S01	79492	031525	041088	130339
C14S01	79492	031525	041088	130339
C15S01	79492	031525	041088	130339
C16S01	79492	031525	041088	130339
C17S01	79492	031525	041088	130339
C18S01	79492	031525	041088	130339
C19S01	79492	031525	041088	130339
C20S01	79492	031525	041088	130339
C21S01	79492	031525	041088	130339
C22S01	79492	031525	041088	130339
C23S01	79492	031525	041088	130339
C24S01	79492	031525	041088	130339
C25S01	79492	031525	041088	130339
C26S01	79492	031525	041088	130339
C27S01	79492	031525	041088	130339
C28S01	79492	031525	041088	130339

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.

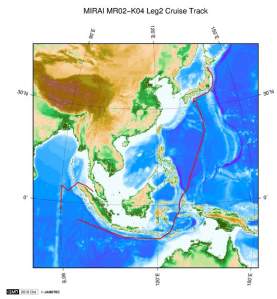
1) The gradient check of adjacent depth data
2) The density inversion check
3) The broad range check set up at given ocean space and depth

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.

Related Information



Enlarge Image

MR02-K04 Leg2
Ship Name: MIRAI
Period: 2002-07-25 - 2002-08-22
Chief Scientist: Hideaki Hase (JAMSTEC)

Update History

2017-06-22 An observation data was registerd.
2016-10-17 An observation data was registerd.

Site Policy
Privacy Policy
Application for Data and Samples
Data Policy

What's New
Update History
Feeds

Publication List
Amount of Public Info.

Data
Map Search
Data Tree
Detailed Search

NATSUSHIMA
KAIYO
YOKOSUKA
MIRAI
KAIREI
CHIKYU
KAIMEI
SHINSEI MARU
HAKUHO MARU

Submersibles
KAIKO
SHINKAI 2000
SHINKAI 6500
DEEP TOW
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

Cruise ID: Go

Go to a Dive Information
Dive ID: ---- Go

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JAPAN AGENCY FOR MARINE-EARTH SCIENCE AND TECHNOLOGY

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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'.

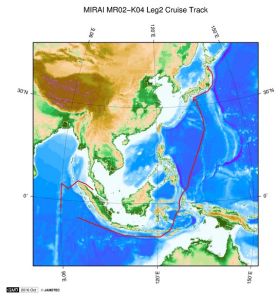
Definition of Quality Control Flags
1. Depth Flags
- 0 - accepted value
- 1 - error in recorded depth (same or less than previous depth)
- 2 - density inversion

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

MR02-K04 Leg2
Ship Name: MIRAI
Period: 2002-07-25 - 2002-08-22
Chief Scientist: Hideaki Hase (JAMSTEC)

Update History

2017-06-22	An observation data was registerd.
2016-10-17	An observation data was registerd.

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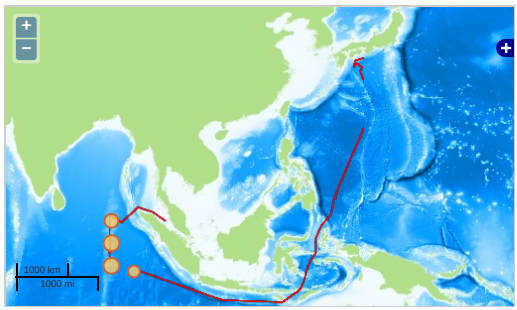
OCEANS	> OCEAN TEMPERATURE	> WATER TEMPERATURE
OCEANS	> SALINITY/DENSITY	> SALINITY

Observation Map

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

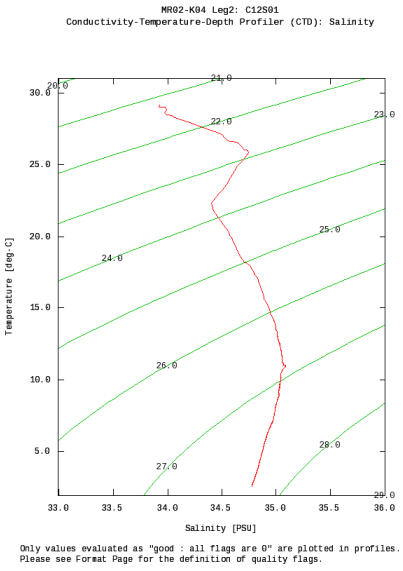


Imagery reproduced from ...

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

Figures

C12S01



Data List

Add to Basket

File names
C12S01.dat
C13S01.dat
C14S01.dat
C15S01.dat
C16S01.dat
C17S01.dat
C18S01.dat
C19S01.dat
C20S01.dat
C21S01.dat
C22S01.dat
C23S01.dat
C24S01.dat

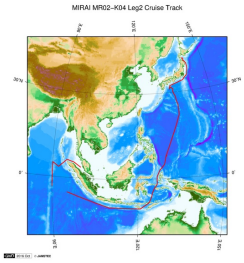
File names
C25S01.dat
C26S01.dat
C27S01.dat
C28S01.dat
ex_read2.f (Sample Program)

- Observation List

The list of observation is shown as follows.

Observation	Time and Date	Lat. [°]	Lon. [°]
C12S01	2002-07-27 15:54	3.9915	90.0005
C13S01	2002-07-27 21:53	3.0005	89.9986
C14S01	2002-07-28 03:56	2.0059	89.9990
C15S01	2002-07-28 09:51	0.9995	89.9993
C16S01	2002-07-29 03:07	0.0143	90.0134
C17S01	2002-07-30 03:44	-1.5991	90.0610
C18S01	2002-07-30 05:43	-1.6541	90.0111
C19S01	2002-07-30 09:27	-2.0001	90.0006
C20S01	2002-07-31 09:52	-3.0008	90.0038
C21S01	2002-07-31 15:45	-3.9991	90.0000
C22S01	2002-07-31 21:54	-4.9986	89.9990
C23S01	2002-08-01 03:51	-4.9996	90.9993
C24S01	2002-08-01 09:51	-4.9990	92.0001
C25S01	2002-08-01 15:53	-4.9998	92.9956
C26S01	2002-08-01 21:54	-5.0005	93.9988
C27S01	2002-08-02 09:02	-5.0375	94.9611
C28S01	2002-08-02 12:46	-5.5673	94.9963

Related Information



Enlarge Image

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Ship Name: MIRAI
Period: 2002-07-25 - 2002-08-22
Chief Scientist: Hideaki Hase (JAMSTEC)

Update History

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2016-10-17	An observation data was registerd.

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