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Data and Sample Research System
for Whole Cruise Information in JAMSTEC

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MIRAI MR03-K04 Leg6 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2017-06-22

ReadMe Observation Data Data Format

Cruise ID: **MR03-K04 Leg6**
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
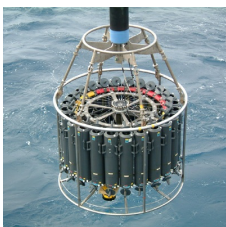　See **Terms and Conditions** about constrain of use.

Data Citation
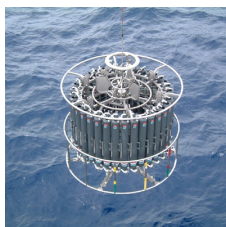　See **Terms and Conditions** about data citation.

Instrument

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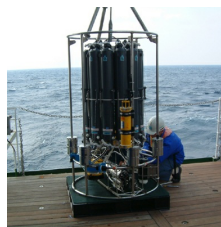Water sampling system with CTD (30 litters * 24 bottles)

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 MR03-K04 Leg6 cruise are presented in "System".
　The following software, developed and supplied by the Sea-Bird Electronics, Inc., was used in MR03-K04 Leg6.
　　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 : 79511
　　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 : 034188
　　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
　• DO sensor
　　Model : SBE43, Sea-Bird Electronics,Inc.

Serial number : 430394
Measurement range : 120% of surface saturation
Accuracy : 2% of saturation

Sensors used in each cast is as follows.

Cast name	Serial number of sensor			
	Pressure	Temperature	Salinity	Dissolved Oxygen
601M01	79511	034188	042240	430394
602M01	79511	034188	042240	430394
605M01	79511	034188	042240	430394
606M01	79511	034188	042240	430394
607M01	79511	034188	042240	430394
608M01	79511	034188	042240	430394
609M01	79511	034188	042240	430394
610M01	79511	034188	042240	430394
611M01	79511	034188	042240	430394
612M01	79511	034188	042240	430394
613M01	79511	034188	042240	430394
615M01	79511	034188	042240	430394
617M01	79511	034188	042240	430394

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.
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, 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

MIRAI MR03-K04 Leg6 Cruise Track

Enlarge Image

MR03-K04 Leg6
Ship Name: MIRAI
Period: 2004-01-27 - 2004-02-19
Chief Scientist: Shuichi Watanabe (JAMSTEC)
Project Name: [Blue Earth Global Expedition 2003]

Update History

2017-06-22	An observation data was registerd.
2014-07-24	An observation data was registerd.
2014-02-06	An observation data was registerd.
2013-03-27	An observation data was registerd.
2012-12-25	An observation data was registerd.

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Publication List
Amount of Public Info.

Data
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Information of the Ships
NATSUSHIMA
KAIYO
YOKOSUKA
MIRAI

Information of the Submersibles
KAIKO
SHINKAI 2000
SHINKAI 6500

Go to a Cruise Information
Cruise ID: [_____] [Go]

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What's New
Update History
Feeds

Data Tree
Detailed Search

KAIREI
CHIKYU
KAIMEI
SHINSEI MARU
HAKUHO MARU

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

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Data Policy

What's New
Update History
Feeds

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| ⓘ Notice | Contact Us | Application | User Registration | 🔍 Data | 🛒 Basket | Lists |

MIRAI MR03-K04 Leg6 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2017-06-22

ReadMe **Observation Data** **Data Format**

Cruise ID: **MR03-K04 Leg6**
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
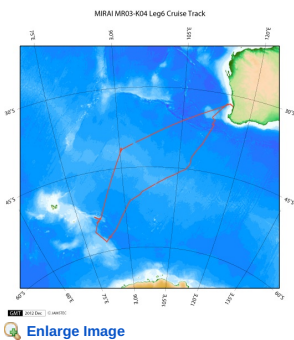   A - failed visual check

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

MIRAI MR03-K04 Leg6 Cruise Track

MR03-K04 Leg6
Ship Name: MIRAI
Period: 2004-01-27 - 2004-02-19
Chief Scientist: Shuichi Watanabe (JAMSTEC)
Project Name: [Blue Earth Global Expedition 2003]

🔍 **Enlarge Image**

Update History

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| ReadMe | Observation Data | Data Format |

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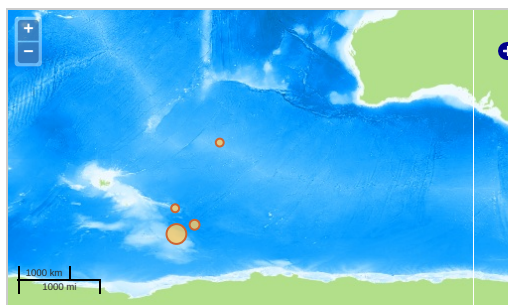**Data Policy**: **JAMSTEC**
Observation Items: Pressure, Temperature, Salinity, Dissolved oxygen
Science Keywords:

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

Observation Map

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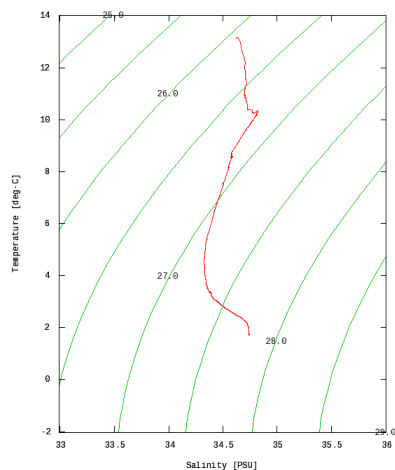

Imagery reproduced from ...

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

Figures

601M01

MR03-K04 Leg6: 601M01
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.
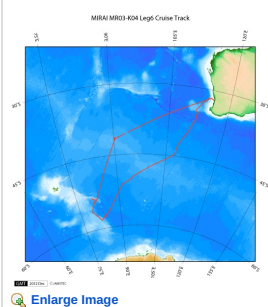
Data List

[Add to Basket]

☐	**File names**
☐	601M01.dat
☐	602M01.dat
☐	605M01.dat
☐	606M01.dat
☐	607M01.dat
☐	608M01.dat
☐	609M01.dat
☐	610M01.dat
☐	611M01.dat
☐	612M01.dat
☐	613M01.dat
☐	615M01.dat
☐	617M01.dat

File names (Sample Program)

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

Observation	Time and Date	Lat. [°]	Lon. [°]
601M01	2004-01-31 01:36	-42.0023	89.9995
602M01	2004-02-04 01:29	-53.6658	82.0816
605M01	2004-02-07 00:10	-58.2373	82.3068
606M01	2004-02-07 03:41	-58.0558	82.6206
607M01	2004-02-07 07:26	-57.8761	83.0010
608M01	2004-02-07 11:47	-57.7463	83.2531
609M01	2004-02-07 23:53	-57.6768	83.3963
610M01	2004-02-08 04:55	-57.5758	83.6228
611M01	2004-02-09 23:51	-57.4586	83.8490
612M01	2004-02-10 05:14	-57.2218	84.3225
613M01	2004-02-10 10:48	-56.9773	84.8105
615M01	2004-02-10 23:51	-56.5960	85.5296
617M01	2004-02-11 07:08	-56.0951	86.4483

Related Information

MIRAI MR03-K04 Leg6 Cruise Track

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MR03-K04 Leg6
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Site Policy
Privacy Policy
Application for Data and Samples
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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6K Sonar DEEP TOW
KM-ROV
POWER GRAB SAMPLER (SHELL)
POWER GRAB SAMPLER (CLOW)
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