MIRAI MR10-01 Leg1 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2017-06-22

ReadMe | Observation Data | Data Format

Cruise ID: MR10-01 Leg1
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/MR10-01_leg1-2_all.pdf

For Using Data

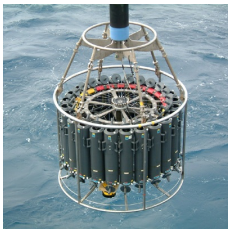
Principal Investigator
Data Management Office

Use Constraints
See Terms and Conditions about constrain of use.

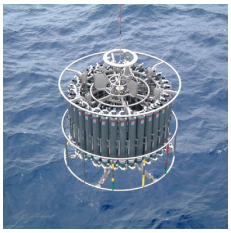
Data Citation
See Terms and Conditions about data citation.

Instrument

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

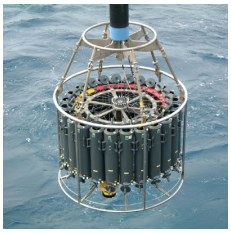


Instrument:
Water sampling system with CTD (12 litters * 36 bottles)



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 MR10-01 Leg1 cruise are presented in “System”.
The following software, developed and supplied by the Sea-Bird Electronics, Inc., was used in MR10-01 Leg1.
SEASAVE(ver 7.19) for data acquisition
SEASOFT(ver 7.18d) 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 : 031464
Measurement range : -5.0 to +35degC
Accuracy : 0.001degC
Resolution : 0.0002degC
• Temperature sensor
Model : SBE3, Sea-Bird Electronics,Inc.
Serial number : 032453
Measurement range : -5.0 to +35degC
Accuracy : 0.001degC

Resolution : 0.0002degC

• Salinity sensor

Model : SBE4, Sea-Bird Electronics,Inc.

Serial number : 041172

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 : 430330

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
JKOM01	79492	031464	041172	430330
KNTM01	79492	032453	041172	430330
K02M01	79492	032453	041172	430330
K02M02	79492	032453	041172	430330
K02M03	79492	032453	041172	430330
K02M04	79492	032453	041172	430330
K02M05	79492	032453	041172	430330
S01M01	79492	032453	041172	430330
S01M02	79492	032453	041172	430330
S01M03	79492	032453	041172	430330
S01M04	79492	032453	041172	430330
S01M05	79492	032453	041172	430330
S01M06	79492	032453	041172	430330
S01M07	79492	032453	041172	430330
S01M08	79492	032453	041172	430330

Calibration Information

Calibration Information is as follows.

Calibration Information

Data processing

(1) Data processing sequence for SEASOFT is as follows;

("∗" is not SEASOFT original procedure.)

command	function
datcnv	Convert raw data to engineering units, and store converted data in file.
tcorp∗	Corrected the pressure sensitivity of the temperature(SBE3) sensor.
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.
despike∗	Remove spikes of the data.
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.

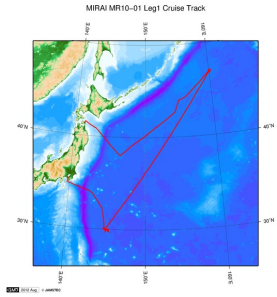
QUALITY CONTROL AND PROCESSING OF HISTORICAL OCEANOGRAPHIC TEMPERATURE, SALINITY, AND OXYGEN DATA

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, 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



Enlarge Image

MR10-01 Leg1
Ship Name: MIRAI
Period: 2010-01-19 - 2010-02-06
Chief Scientist: Kazuhiko Matsumoto (JAMSTEC)
Project Name: [Station K2,Station S1,Station KEO,Station KNOT]
Proposal Title: ▸ Change in material cycles and ecosystem by the climate change and its feed back

Update History

2017-06-22	An observation data was registerd.
2014-08-06	An observation data was registerd.
2014-02-15	An observation data was registerd.
2014-02-13	An observation data was registerd.
2013-03-27	An observation data was registerd.
2012-09-28	An observation data was registerd.

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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'.

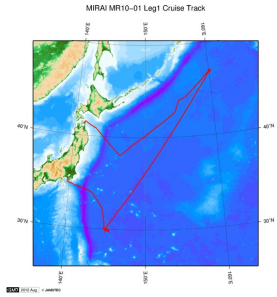
Definition of Quality Control Flags
1. Depth Flags
- 0 - accepted value
- 1 - error in recorded depth (same or less than previous depth)
- 2 - density inversion

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



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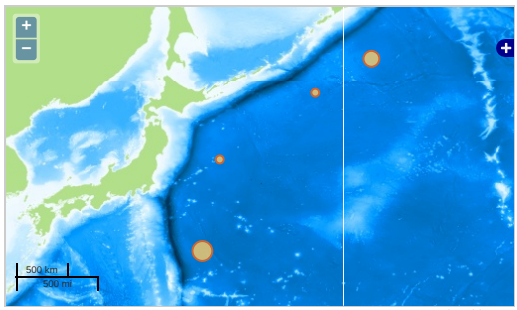
OCEANS	> SALINITY/DENSITY	> SALINITY

Observation Map

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

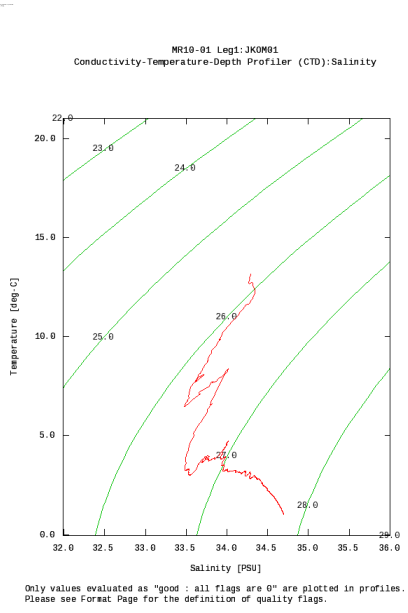


Imagery reproduced from ...

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

Figures

JKOM01



Data List

Add to Basket

File names
JKOM01.dat
K02M01.dat
K02M02.dat
K02M03.dat
K02M04.dat
K02M05.dat
KNTM01.dat
S01M01.dat
S01M02.dat
S01M03.dat
S01M04.dat
S01M05.dat
S01M06.dat

File names

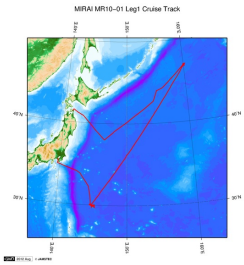
S01M07.dat
S01M08.dat
ex_read2.f (Sample Program)

- Observation List

The list of observation is shown as follows.

Observation	Time and Date	Lat. [°]	Lon. [°]
JKOM01	2010-01-21 01:20	38.0630	146.5096
K02M01	2010-01-24 07:54	46.9983	159.9763
K02M02	2010-01-24 18:54	47.0041	159.9698
K02M03	2010-01-25 07:07	46.8573	160.0731
K02M04	2010-01-25 18:53	46.9531	160.2126
K02M05	2010-01-25 22:05	47.0141	160.2655
KNTM01	2010-01-22 22:54	43.9993	154.9951
S01M01	2010-01-30 22:25	29.9365	144.9683
S01M02	2010-01-30 23:07	29.9366	144.9660
S01M03	2010-01-31 05:54	30.0633	144.9663
S01M04	2010-01-31 18:56	29.9985	145.0000
S01M05	2010-02-01 05:43	29.9303	144.9833
S01M06	2010-02-01 07:22	29.8960	145.0095
S01M07	2010-02-02 05:52	30.0615	144.9373
S01M08	2010-02-02 18:55	30.0085	145.4300

Related Information



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