MIRAI MR13-01 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2017-06-22

ReadMe | Observation Data | Data Format

Cruise ID: MR13-01
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/MR13-01_all.pdf

For Using Data

Principal Investigator
Data Management Office

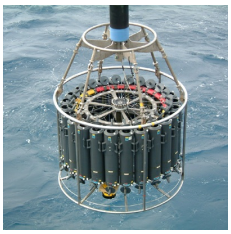
JAMSTEC / BPPT joint cruise in the Indonesian waters.

Use Constraints
See **Terms and Conditions** about constrain of use.

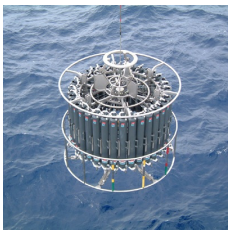
Data Citation
See **Terms and Conditions** about data citation.

Instrument

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

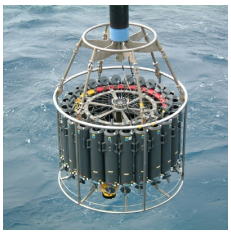


Instrument:
Water sampling system with CTD (12 litters * 36 bottles)



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 MR13-01 cruise are presented in “System”.
The following software, developed and supplied by the Sea-Bird Electronics, Inc., was used in MR13-01.
SEASAVE(ver 7.22) for data acquisition
SEASOFT(ver 7.22) for data processing
Data presented on this website is averaged over 1db.

System

・Pressure sensor
Model : SBE9plus, Sea-Bird Electronics,Inc.
Serial number : 94766
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 : 034421
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 : 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
C01M01	94766	034421	041088	430330
C02M01	94766	034421	041088	430330
C03M01	94766	034421	041088	430330
C04M01	94766	034421	041088	430330
C05M01	94766	034421	041088	430330
C06M01	94766	034421	041088	430330
C07M01	94766	034421	041088	430330
C08M01	94766	034421	041088	430330
C09M01	94766	034421	041088	430330
C10M01	94766	034421	041088	430330
C11M01	94766	034421	041088	430330
C12M01	94766	034421	041088	430330
C13M01	94766	034421	041088	430330
C14M01	94766	034421	041088	430330
C14M02	94766	034421	041088	430330
C15M01	94766	034421	041088	430330
C15M02	94766	034421	041088	430330
C16M01	94766	034421	041088	430330
C17M01	94766	034421	041088	430330
C18M01	94766	034421	041088	430330
C19M01	94766	034421	041088	430330
C20M01	94766	034421	041088	430330
C21M01	94766	034421	041088	430330
C22M01	94766	034421	041088	430330
C23M01	94766	034421	041088	430330
C24M01	94766	034421	041088	430330
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C26M01	94766	034421	041088	430330
C27M01	94766	034421	041088	430330
C28M01	94766	034421	041088	430330
C29M01	94766	034421	041088	430330
C30M01	94766	034421	041088	430330
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C32M01	94766	034421	041088	430330
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C35M01	94766	034421	041088	430330
C36M01	94766	034421	041088	430330
C37M01	94766	034421	041088	430330
C38M01	94766	034421	041088	430330
C39M01	94766	034421	041088	430330
C40M01	94766	034421	041088	430330
C41M01	94766	034421	041088	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.
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.
bottomcut*	Bottom cut deletes discontinuous scan bottom data if it's created by BINAVG.
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.

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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.

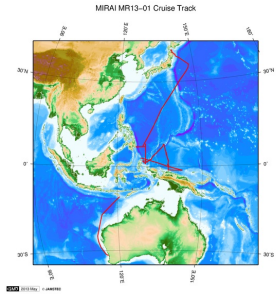
QUALITY CONTROL AND PROCESSING OF HISTORICAL OCEANOGRAPHIC TEMPERATURE, SALINITY, AND OXYGEN DATA

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



Enlarge Image

MR13-01
Ship Name: MIRAI
Period: 2013-02-18 - 2013-03-28
Chief Scientist: Yuji Kashino (JAMSTEC)
Project Name: [Tropical Ocean Climate Study (TOCS)]

Update History

2017-06-22	An observation data was registerd.
2016-04-07	An observation data was registerd.
2015-11-05	An observation data was registerd.
2015-05-22	An observation data was registerd.
2015-03-28	An observation data was registerd.

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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

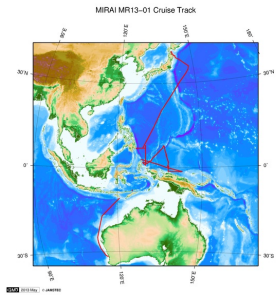
QCed data were added flag according to the NODC (National Oceanographic Data Center) quality control procedure, additionally visually checked. Please see the site of NODC of the following link for quality control procedure.

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

Sample Program

ex_read2.f

Related Information



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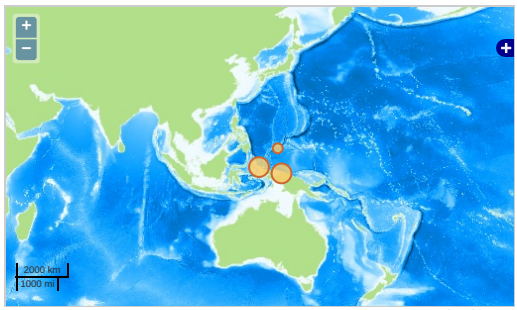
OCEANS	> OCEAN TEMPERATURE	> WATER TEMPERATURE
OCEANS	> SALINITY/DENSITY	> SALINITY

Observation Map

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

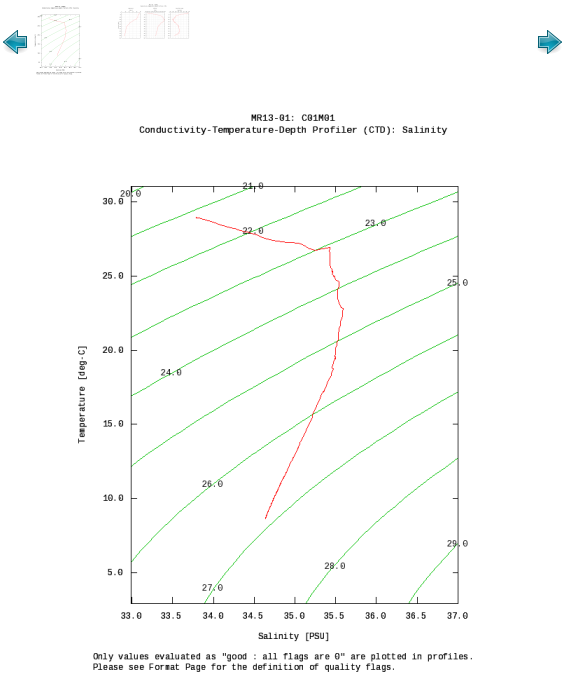


Imagery reproduced from ...

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

Figures

C01M01



Data List

Add to Basket

File names
C01M01.dat
C02M01.dat
C03M01.dat
C04M01.dat
C05M01.dat
C06M01.dat
C07M01.dat
C08M01.dat
C09M01.dat
C10M01.dat
C11M01.dat
C12M01.dat
C13M01.dat

File names
C14M01.dat
C14M02.dat
C15M01.dat
C15M02.dat
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C17M01.dat
C18M01.dat
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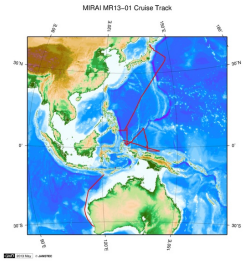
C35M01.dat
C36M01.dat
C37M01.dat
C38M01.dat
C39M01.dat
C40M01.dat
C41M01.dat
ex_read2.f (Sample Program)

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

Observation	Time and Date	Lat. [°]	Lon. [°]
C01M01	2013-03-02 05:57	-1.2496	138.0020
C02M01	2013-03-02 09:02	-1.0055	137.9995
C03M01	2013-03-02 12:39	-0.5024	137.9983
C04M01	2013-03-02 20:23	0.0573	138.1305
C05M01	2013-03-03 06:39	0.5561	138.0391
C06M01	2013-03-03 22:54	1.0005	137.9986
C07M01	2013-03-04 02:38	1.4973	138.0008
C08M01	2013-03-04 06:28	1.9695	138.0988
C09M01	2013-03-05 06:34	2.4980	137.9173
C10M01	2013-03-05 10:06	2.9930	137.7520
C11M01	2013-03-06 10:10	3.5005	137.5798
C12M01	2013-03-07 10:01	4.0030	137.4170
C13M01	2013-03-07 06:32	4.5039	137.2490
C14M01	2013-03-07 03:54	4.9365	137.3270
C14M02	2013-03-07 20:28	4.8360	137.2636
C15M01	2013-03-09 03:56	7.6420	136.6713
C15M02	2013-03-09 06:16	7.8446	136.4726
C16M01	2013-03-12 07:55	1.0018	130.0018
C17M01	2013-03-12 04:11	1.5083	130.0048
C18M01	2013-03-11 20:11	1.9326	130.1798
C19M01	2013-03-12 22:53	2.4965	130.0018
C20M01	2013-03-13 02:44	2.9946	129.9975
C21M01	2013-03-13 06:31	3.4978	130.0015
C22M01	2013-03-13 10:15	4.0000	130.0000
C23M01	2013-03-13 13:52	4.4958	129.9993
C24M01	2013-03-13 17:27	4.9976	129.9986
C25M01	2013-03-13 21:17	5.5001	129.9998
C26M01	2013-03-14 00:54	5.9935	129.9998
C27M01	2013-03-14 04:46	6.4978	130.0001
C28M01	2013-03-14 07:52	6.9976	130.0008
C29M01	2013-03-14 12:17	7.5021	129.9990
C30M01	2013-03-14 20:58	7.9596	130.0310
C31M01	2013-03-15 09:07	6.9998	129.4998
C32M01	2013-03-17 10:59	7.0001	128.9955
C33M01	2013-03-17 07:56	7.0006	128.4995
C34M01	2013-03-17 04:39	6.9795	127.9991
C35M01	2013-03-16 23:31	6.9981	127.7500
C36M01	2013-03-16 19:55	6.9995	127.5005
C37M01	2013-03-16 11:53	7.0023	127.2473
C38M01	2013-03-16 09:38	7.0005	126.9945
C39M01	2013-03-16 07:42	7.0020	126.7950
C40M01	2013-03-16 05:33	7.0031	126.5925
C41M01	2013-03-16 03:56	7.0003	126.5055

Related Information



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