MIRAI MR12-E03 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2017-06-22

ReadMe | Observation Data | Data Format

Cruise ID: MR12-E03
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/MR12-E03_all.pdf

For Using Data

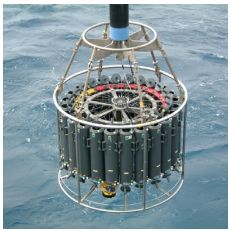
Principal Investigator
Data Management Office

Use Constraints
See Terms and Conditions about constrain of use.

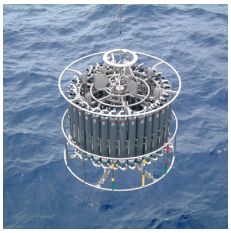
Data Citation
See Terms and Conditions about data citation.

Instrument

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

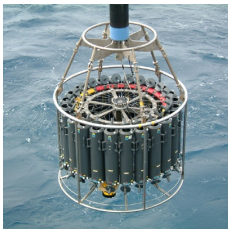


Instrument:
Water sampling system with CTD (12 litters * 36 bottles)



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 MR12-E03 cruise are presented in “System”.
The following software, developed and supplied by the Sea-Bird Electronics, Inc., was used in MR12-E03.
SEASAVE(ver 7.22) for data acquisition
SEASOFT(ver 7.22.0) for data processing
Data presented on this website is averaged over 1db.

System

・Pressure sensor
Model : SBE9plus, Sea-Bird Electronics,Inc.
Serial number : 117457
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 : 043036
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

・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
000M01	117457	031524	043036	430394
001M01	117457	031524	043036	430330
002M01	117457	031524	043036	430330
003M01	117457	031524	043036	430330
004M01	117457	031524	043036	430330
005M01	117457	031524	043036	430330
006M01	117457	031524	043036	430330
007M01	117457	031524	043036	430330
008M01	117457	031524	043036	430330
009M01	117457	031524	043036	430330
010M01	117457	031524	043036	430330
011M01	117457	031524	043036	430330
012M01	117457	031524	043036	430330
013M01	117457	031524	043036	430330
014M01	117457	031524	043036	430330
015M01	117457	031524	043036	430330
016M01	117457	031524	043036	430330
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020M01	117457	031524	043036	430330
021M01	117457	031524	043036	430330
022M01	117457	031524	043036	430330
023M01	117457	031524	043036	430330
024M01	117457	031524	043036	430330
025M01	117457	031524	043036	430330
027M01	117457	031524	043036	430330
028M01	117457	031524	043036	430330
029M01	117457	031524	043036	430330
029M02	117457	031524	043036	430330
030M01	117457	031524	043036	430330
031M01	117457	031524	043036	430330
032M01	117457	031524	043036	430330
033M01	117457	031524	043036	430330
034M01	117457	031524	043036	430330
035M01	117457	031524	043036	430330
036M01	117457	031524	043036	430330
037M01	117457	031524	043036	430330
038M01	117457	031524	043036	430330
039M01	117457	031524	043036	430330
039M02	117457	031524	043036	430330
040M01	117457	031524	043036	430330
041M01	117457	031524	043036	430330
042M01	117457	031524	043036	430330
043M01	117457	031524	043036	430330
044M01	117457	031524	043036	430330
045M01	117457	031524	043036	430330
045M02	117457	031524	043036	430330
046M01	117457	031524	043036	430330
047M01	117457	031524	043036	430330
048M01	117457	031524	043036	430330
049M01	117457	031524	043036	430330
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056M01	117457	031524	043036	430330
057M01	117457	031524	043036	430330
058M01	117457	031524	043036	430330
059M01	117457	031524	043036	430330
060M01	117457	031524	043036	430330
060M02	117457	031524	043036	430330

Cast name	Serial number of sensor			
	Pressure	Temperature	Salinity	Dissolved Oxygen
061M01	117457	031524	043036	430330
062M01	117457	031524	043036	430330
063M01	117457	031524	043036	430330
064M01	117457	031524	043036	430330
064M02	117457	031524	043036	430330
065M01	117457	031524	043036	430330
066M01	117457	031524	043036	430330
066M02	117457	031524	043036	430330
067M01	117457	031524	043036	430330
068M01	117457	031524	043036	430330
069M01	117457	031524	043036	430330
070M01	117457	031524	043036	430330
071M01	117457	031524	043036	430330
072M01	117457	031524	043036	430330
073M01	117457	031524	043036	430330
074M01	117457	031524	043036	430330
075M01	117457	031524	043036	430330
076M01	117457	031524	043036	430330
077M01	117457	031524	043036	430330
078M01	117457	031524	043036	430330
079M01	117457	031524	043036	430330
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081M01	117457	031524	043036	430330
082M01	117457	031524	043036	430330
083M01	117457	031524	043036	430330
084M01	117457	031524	043036	430330
085M01	117457	031524	043036	430330
086M01	117457	031524	043036	430330
087M01	117457	031524	043036	430330
088M01	117457	031524	043036	430330
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090M01	117457	031524	043036	430330
091M01	117457	031524	043036	430330
092M01	117457	031524	043036	430330
093M01	117457	031524	043036	430330
094M01	117457	031524	043036	430330
095M01	117457	031524	043036	430330
096M01	117457	031524	043036	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.

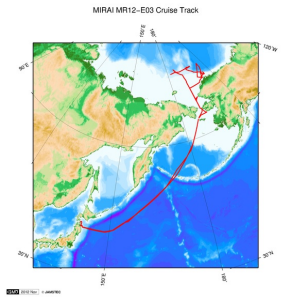
QUALITY CONTROL AND PROCESSING OF HISTORICAL OCEANOGRAPHIC TEMPERATURE, SALINITY, AND OXYGEN DATA

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

MR12-E03
Ship Name: MIRAI
Period: 2012-09-03 - 2012-10-17
Chief Scientist: Takashi Kikuchi (JAMSTEC)
Project Name: [Arctic Ocean Climate System Reaserch]
Proposal Title: ▶ Ecosystem studies on the Arctic Ocean declining sea ice

Update History

2017-06-22	An observation data was registerd.
2015-05-22	An observation data was registerd.
2014-10-17	An observation data was registerd.

JAMSTEC
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

Information of the Ships
NATSUSHIMA
KAIYO
YOKOSUKA
MIRAI
KAIREI
CHIKYU
KAIMEI
SHINSEI MARU
HAKUHO MARU

Information of the 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

Go to a Cruise Information
Cruise ID: Go

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

JAMSTEC 国立研究開発法人 海洋研究開発機構
JAPAN AGENCY FOR MARINE-EARTH SCIENCE AND TECHNOLOGY

MIRAI MR12-E03 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2017-06-22

ReadMe | Observation Data | Data Format

Cruise ID: MR12-E03
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'.

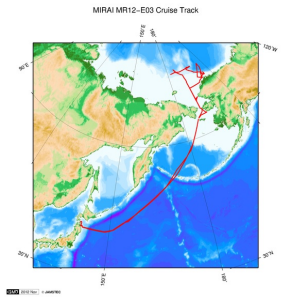
Definition of Quality Control Flags
1. Depth Flags
- 0 - accepted value
- 1 - error in recorded depth (same or less than previous depth)
- 2 - density inversion

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

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Data Policy: JAMSTEC
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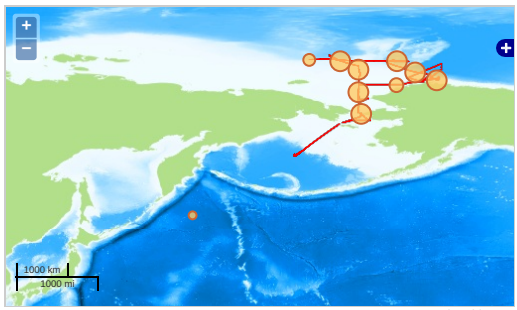
Science Keywords:

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.

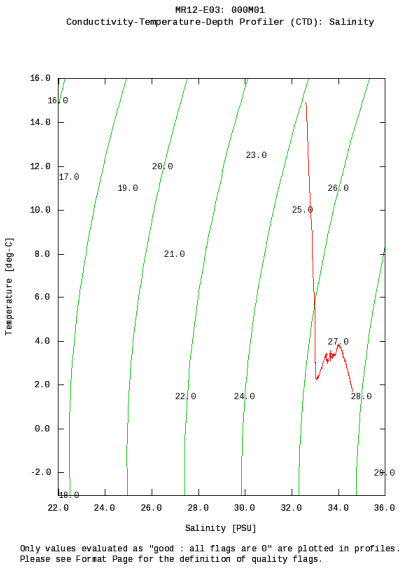


Imagery reproduced from ...

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

Figures

000M01



Data List

Add to Basket

File names
000M01.dat
001M01.dat
002M01.dat
003M01.dat
004M01.dat
005M01.dat
006M01.dat
007M01.dat
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090M01.dat
091M01.dat
092M01.dat
093M01.dat
094M01.dat
095M01.dat
096M01.dat
ex_read2.f (Sample Program)

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

Observation	Time and Date	Lat. [°]	Lon. [°]
000M01	2012-09-07 21:50	47.6303	161.8086
001M01	2012-09-13 18:10	65.6488	-168.2520
002M01	2012-09-13 20:30	65.7021	-168.5241
003M01	2012-09-13 21:35	65.7718	-168.7858
004M01	2012-09-13 23:59	65.9996	-168.7490
005M01	2012-09-14 03:28	66.4970	-168.7500
006M01	2012-09-14 06:50	66.9943	-168.7500
007M01	2012-09-14 09:57	67.4933	-168.7465
008M01	2012-09-14 12:11	67.7463	-168.5006
009M01	2012-09-14 14:23	67.8736	-168.2500
010M01	2012-09-14 17:09	67.9978	-167.9993
011M01	2012-09-14 19:47	68.0980	-167.6681
012M01	2012-09-14 21:00	68.1948	-167.3440
013M01	2012-09-14 22:25	68.2496	-167.2030
014M01	2012-09-14 23:22	68.2980	-167.0498
015M01	2012-09-15 03:15	68.0014	-168.7313
016M01	2012-09-15 06:57	68.4930	-168.7483
017M01	2012-09-15 10:29	68.9923	-168.7500
018M01	2012-09-15 14:39	69.4990	-168.7503
019M01	2012-09-15 17:47	69.9946	-168.7438
020M01	2012-09-15 22:22	70.7473	-168.7435
021M01	2012-09-16 03:37	71.5000	-168.7498
022M01	2012-09-16 07:59	72.2401	-168.7473
023M01	2012-09-16 15:37	73.0020	-168.6033
024M01	2012-09-16 19:34	73.5010	-168.7443
025M01	2012-09-17 00:08	74.0028	-168.7601
027M01	2012-09-17 06:46	74.6695	-170.9233
028M01	2012-09-17 09:45	74.9916	-171.9748
029M01	2012-09-17 17:43	75.2125	-172.5745
029M02	2012-09-17 20:54	75.2236	-172.6111
030M01	2012-09-17 23:42	75.3481	-172.7565
031M01	2012-09-18 02:06	75.4966	-173.0078
032M01	2012-09-18 06:43	75.9935	-173.9868
033M01	2012-09-19 03:09	75.2328	-177.4735
034M01	2012-09-19 08:27	75.2661	-175.5245
035M01	2012-09-19 11:50	75.2991	-174.0158
036M01	2012-09-20 02:03	75.0023	-170.0435
037M01	2012-09-20 06:09	74.9996	-168.0343
038M01	2012-09-20 09:44	75.0010	-166.0111
039M01	2012-09-20 17:36	75.0048	-161.8985
039M02	2012-09-21 02:42	75.0013	-162.0148
040M01	2012-09-22 05:21	74.9998	-162.9818
041M01	2012-09-22 08:16	75.0001	-163.9946
042M01	2012-09-23 01:54	74.5998	-163.4993
043M01	2012-09-23 06:08	74.1700	-162.3411
044M01	2012-09-23 11:31	73.8061	-161.0195
045M01	2012-09-23 17:04	73.3338	-160.0221
045M02	2012-09-23 19:38	73.3420	-160.0425
046M01	2012-09-24 00:18	73.0018	-158.6655
047M01	2012-09-24 06:37	72.8151	-157.3823
048M01	2012-09-24 11:11	72.5018	-156.0066
049M01	2012-09-24 20:32	71.2478	-157.1613
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052M01	2012-09-24 23:51	71.3708	-157.4135
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054M01	2012-09-25 05:02	71.4501	-157.5846
055M01	2012-09-25 05:49	71.4943	-157.6670
056M01	2012-09-25 07:04	71.5338	-157.7516
057M01	2012-09-25 07:48	71.5770	-157.8481
058M01	2012-09-27 13:50	71.6076	-154.8368
059M01	2012-09-27 15:06	71.6826	-154.9591
060M01	2012-09-27 17:06	71.7345	-155.1186
060M02	2012-09-27 19:29	71.7280	-155.1291
061M01	2012-09-27 20:47	71.8121	-155.2905
062M01	2012-09-27 22:48	71.9320	-155.6558
063M01	2012-09-28 00:24	71.9985	-155.9998
064M01	2012-09-28 17:08	74.5011	-153.9936
064M02	2012-09-29 00:38	74.5023	-154.0048
065M01	2012-09-29 06:34	74.0026	-155.1933
066M01	2012-09-29 12:23	73.5001	-156.3980

Observation	Time and Date	Lat. [°]	Lon. [°]
066M02	2012-09-29 18:47	73.4940	-156.4066
067M01	2012-09-29 22:27	73.0853	-157.4008
068M01	2012-09-30 03:08	72.8650	-157.9643
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070M01	2012-09-30 09:08	72.5025	-158.7905
071M01	2012-09-30 11:43	72.2518	-159.3920
072M01	2012-09-30 17:27	72.0001	-159.9948
073M01	2012-10-01 08:50	70.7501	-160.9983
074M01	2012-10-01 11:08	70.7513	-161.9946
075M01	2012-10-01 13:42	70.7513	-162.9944
076M01	2012-10-01 17:32	70.7503	-163.9948
077M01	2012-10-01 20:23	70.7493	-164.9993
078M01	2012-10-01 22:31	70.7500	-165.9995
079M01	2012-10-02 01:12	70.7508	-166.9933
080M01	2012-10-02 03:23	70.7516	-167.9920
081M01	2012-10-02 05:38	70.7501	-168.7463
082M01	2012-10-03 10:53	68.6673	-168.7518
083M01	2012-10-03 12:40	68.5043	-168.7476
084M01	2012-10-03 13:52	68.3783	-168.7471
085M01	2012-10-03 15:03	68.2510	-168.7486
086M01	2012-10-03 16:30	68.1285	-168.7481
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088M01	2012-10-03 20:24	68.0006	-168.3708
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091M01	2012-10-04 01:14	67.7501	-168.7504
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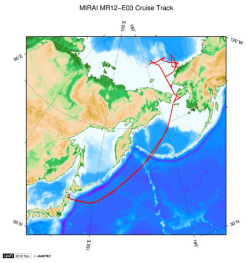
096M01	2012-10-04 21:53	65.6498	-168.2520

Related Information



Enlarge Image

MR12-E03
Ship Name: MIRAI
Period: 2012-09-03 - 2012-10-17
Chief Scientist: Takashi Kikuchi (JAMSTEC)
Project Name: [Arctic Ocean Climate System Reaserch]
Proposal Title: ▸ Ecosystem studies on the Arctic Ocean declining sea ice

Update History

2017-06-22	An observation data was registerd.
2015-05-22	An observation data was registerd.
2014-10-17	An observation data was registerd.