

MIRAI MR13-03 Leg2 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2017-06-22

[ReadMe](#) [Observation Data](#) [Data Format](#)

Cruise ID: [MR13-03 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/MR13-03_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)



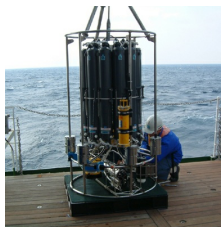
Instrument:

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 MR13-03_leg2 cruise are presented in "System".

The following software, developed and supplied by the Sea-Bird Electronics, Inc., was used in MR13-03_leg2.

SEASAVE(ver 7.22.5) for data acquisition

SEASOFT(ver 7.22.5) 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 : 031525

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 : 430205

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
12M001	79511	031525	042240	430205
12M002	79511	031525	042240	430205
12M003	79511	031525	042240	430205
12M004	79511	031525	042240	430205
12M005	79511	031525	042240	430205
12M006	79511	031525	042240	430205
12M007	79511	031525	042240	430205
12M008	79511	031525	042240	430205
12M009	79511	031525	042240	430205
12M010	79511	031525	042240	430205
12M011	79511	031525	042240	430205
12M012	79511	031525	042240	430205
12M013	79511	031525	042240	430205
12M014	79511	031525	042240	430205
12M015	79511	031525	042240	430205
12M016	79511	031525	042240	430205
12M017	79511	031525	042240	430205
12M018	79511	031525	042240	430205
12M019	79511	031525	042240	430205
12M020	79511	031525	042240	430205
12M021	79511	031525	042240	430205
12M022	79511	031525	042240	430205
12M023	79511	031525	042240	430205
12M024	79511	031525	042240	430205
12M025	79511	031525	042240	430205
12M026	79511	031525	042240	430205
12M027	79511	031525	042240	430205
12M028	79511	031525	042240	430205
12M029	79511	031525	042240	430205
12M030	79511	031525	042240	430205
12M031	79511	031525	042240	430205
12M032	79511	031525	042240	430205
12M033	79511	031525	042240	430205
12M034	79511	031525	042240	430205
12M035	79511	031525	042240	430205
12M036	79511	031525	042240	430205
12M037	79511	031525	042240	430205
12M038	79511	031525	042240	430205
12M039	79511	031525	042240	430205
12M040	79511	031525	042240	430205
12M042	79511	031525	042240	430205
12M043	79511	031525	042240	430205
12M044	79511	031525	042240	430205
12M045	79511	031525	042240	430205
12M046	79511	031525	042240	430205
12M047	79511	031525	042240	430205
12M048	79511	031525	042240	430205
12M049	79511	031525	042240	430205
12M050	79511	031525	042240	430205
12M051	79511	031525	042240	430205
12M052	79511	031525	042240	430205
12M053	79511	031525	042240	430205
12M054	79511	031525	042240	430205
12M055	79511	031525	042240	430205
12M056	79511	031525	042240	430205
12M057	79511	031525	042240	430205
12M058	79511	031525	042240	430205
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12M063	79511	031525	042240	430205
12M064	79511	031525	042240	430205
12M065	79511	031525	042240	430205
12M066	79511	031525	042240	430205
12M067	79511	031525	042240	430205
12M068	79511	031525	042240	430205
12M069	79511	031525	042240	430205
12M070	79511	031525	042240	430205

Cast name	Serial number of sensor	Pressure	Temperature	Salinity	Dissolved Oxygen
12M071	79511	031525	042240	430205	
12M072	79511	031525	042240	430205	
12M073	79511	031525	042240	430205	
12M074	79511	031525	042240	430205	
12M075	79511	031525	042240	430205	
12M076	79511	031525	042240	430205	
12M077	79511	031525	042240	430205	
12M078	79511	031525	042240	430205	
12M079	79511	031525	042240	430205	
12M080	79511	031525	042240	430205	
12M081	79511	031525	042240	430205	
12M082	79511	031525	042240	430205	
12M083	79511	031525	042240	430205	
12M084	79511	031525	042240	430205	
12M085	79511	031525	042240	430205	
12M086	79511	031525	042240	430205	
12M087	79511	031525	042240	430205	
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12M089	79511	031525	042240	430205	
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12M091	79511	031525	042240	430205	
12M092	79511	031525	042240	430205	
12M093	79511	031525	042240	430205	
12M094	79511	031525	042240	430205	
12M095	79511	031525	042240	430205	
12M096	79511	031525	042240	430205	
12M097	79511	031525	042240	430205	
12M098	79511	031525	042240	430205	
12M099	79511	031525	042240	430205	
12M100	79511	031525	042240	430205	
12M101	79511	031525	042240	430205	
12M102	79511	031525	042240	430205	
12M103	79511	031525	042240	430205	
12M104	79511	031525	042240	430205	
12M105	79511	031525	042240	430205	
12M106	79511	031525	042240	430205	
12M107	79511	031525	042240	430205	
12M108	79511	031525	042240	430205	
12M109	79511	031525	042240	430205	
12M110	79511	031525	042240	430205	
12M111	79511	031525	042240	430205	
12M112	79511	031525	042240	430205	
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12M115	79511	031525	042240	430205	
12M116	79511	031525	042240	430205	
12M117	79511	031525	042240	430205	
12M118	79511	031525	042240	430205	
12M119	79511	031525	042240	430205	
12M120	79511	031525	042240	430205	
12M121	79511	031525	042240	430205	
12M122	79511	031525	042240	430205	
12M123	79511	031525	042240	430205	
12M124	79511	031525	042240	430205	
12M125	79511	031525	042240	430205	
12M126	79511	031525	042240	430205	
12M127	79511	031525	042240	430205	
12M128	79511	031525	042240	430205	
12M129	79511	031525	042240	430205	
12M130	79511	031525	042240	430205	
12M131	79511	031525	042240	430205	
12M132	79511	031525	042240	430205	
12M133	79511	031525	042240	430205	
12M134	79511	031525	042240	430205	
12M135	79511	031525	042240	430205	
12M136	79511	031525	042240	430205	
12M137	79511	031525	042240	430205	
12M138	79511	031525	042240	430205	

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.
alignstd	Align data relative to pressure (typically used for conductivity, temperature, and oxygen)

command	function
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..
bottomcut*	Bottom cut deletes discontinuous scan bottom data if it's created by BINAvg.

(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.

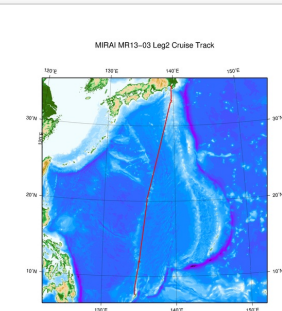
[QUALITY CONTROL AND PROCESSING OF HISTORICAL OCEANOGRAPHIC TEMPERATURE, SALINITY, AND OXYGEN DATA](#)

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) 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](#)

MR13-03 Leg2

Ship Name: MIRAI
 Period: 2013-06-12 - 2013-07-06
 Chief Scientist: Masaki Katsumata (JAMSTEC)
 Project Name: [MJO Research]
 Proposal ▶ Observational Study on the Intraseasonal Variability over the western Pacific
 Title:

Update History

2017-06-22	An observation data was registered.
2015-08-31	An observation data was registered.

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 Detailed Search

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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 to a Dive Information

Dive ID:

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JAMSTEC
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国立研究開発法人
 海洋研究開発機構

MIRAI MR13-03 Leg2 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2017-06-22

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 Cruise ID: [MR13-03 Leg2](#)

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	MYYY-(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

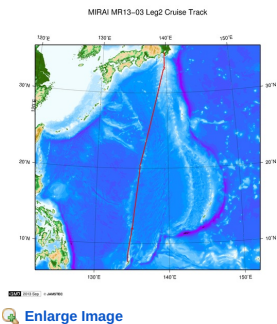
QCed data were added flag according to the NODC (National Oceanographic Data Center) quality control procedure, additionally visually checked. Please see the site of NODC of the following link for quality control procedure.

[QUALITY CONTROL AND PROCESSING OF HISTORICAL OCEANOGRAPHIC TEMPERATURE, SALINITY, AND OXYGEN DATA](#)

Sample Program

[ex_read2.f](#)

Related Information



MR13-03 Leg2

Ship Name: MIRAI

Period: 2013-06-12 - 2013-07-06

Chief Scientist: Masaki Katsumata (JAMSTEC)

Project Name: [MJO Research]

Proposal ▶ Observational Study on the Intreseasonal Variability over the western Pacific

Title:

Update History

2017-06-22	An observation data was registerd.
2015-08-31	An observation data was registerd.

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[KAIYO](#)

[YOKOSUKA](#)

[MIRAI](#)

[KAIREI](#)

[CHIKYU](#)

[KAIMEI](#)

[SHINSEI MARU](#)

[HAKUHO MARU](#)

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[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 to a Dive Information

Dive ID:

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JAMSTEC 国立研究開発法人
海洋研究開発機構
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MIRAI MR13-03 Leg2 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2017-06-22

[ReadMe](#) [Observation Data](#) [Data Format](#)

Cruise ID: [MR13-03 Leg2](#)

Conductivity-Temperature-Depth Profiler (CTD): Processed (DMO)-QCed

Data Policy: [JAMSTEC](#)

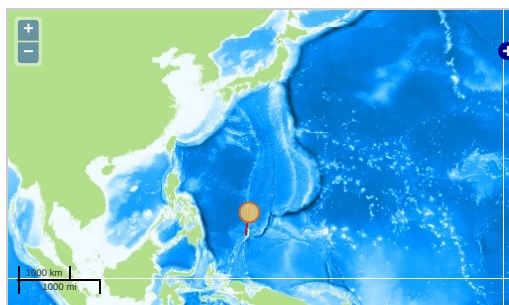
Observation Items: Pressure, Temperature, Salinity, Dissolved oxygen

Science Keywords:

OCEANS > OCEAN CHEMISTRY > OXYGEN
OCEANS > OCEAN > WATER
TEMPERATURE 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.



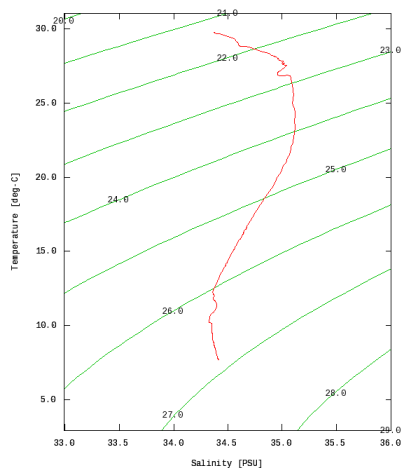
— ... Observation Line — ... Navigation ● ... Observation, Dive Point, Hole

Figures

12M001



MR13-03 Leg2: 12M001
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

<input type="checkbox"/>	12M001.dat
<input type="checkbox"/>	12M002.dat
<input type="checkbox"/>	12M003.dat
<input type="checkbox"/>	12M004.dat
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File names

	12M015.dat
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	12M135.dat
	12M136.dat
	12M137.dat
	12M138.dat
	ex_read2.f (Sample Program)

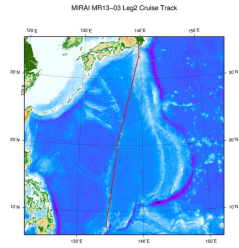
- Observation List
The list of observation is shown as follows.

Observation	Time and Date	Lat. [°]	Lon. [°]
12M001	2013-06-13 05:29	12.0006	134.9980
12M002	2013-06-13 08:29	11.9970	135.0036
12M003	2013-06-13 11:30	11.9948	135.0003
12M004	2013-06-13 14:31	11.9900	134.9968
12M005	2013-06-13 17:25	11.9963	135.0071
12M006	2013-06-13 20:27	12.0055	135.0031
12M007	2013-06-13 23:27	12.0060	135.0149
12M008	2013-06-14 02:30	11.9973	135.0029
12M009	2013-06-14 05:29	11.9913	134.9938
12M010	2013-06-14 08:30	11.9878	134.9858
12M011	2013-06-14 11:53	11.9675	134.9715
12M012	2013-06-14 14:34	11.9801	134.9796
12M013	2013-06-14 17:32	11.9971	134.9978
12M014	2013-06-14 20:25	11.9965	134.9968
12M015	2013-06-14 23:26	11.9991	134.9978
12M016	2013-06-15 02:30	12.0070	135.0065
12M017	2013-06-15 05:30	11.9988	135.0056
12M018	2013-06-15 08:31	12.0093	135.0043
12M019	2013-06-15 11:31	12.0171	135.0006
12M020	2013-06-15 14:35	11.9985	135.0095
12M021	2013-06-15 17:30	11.9985	134.9953
12M022	2013-06-15 20:27	11.9871	134.9896
12M023	2013-06-15 23:29	11.9985	135.0021
12M024	2013-06-16 02:30	11.9955	134.9983
12M025	2013-06-16 05:41	12.0011	135.0056
12M026	2013-06-16 08:30	12.0001	135.0023
12M027	2013-06-16 11:32	11.9923	134.9896
12M028	2013-06-16 14:29	11.9960	135.0130
12M029	2013-06-16 17:38	11.9940	135.0120
12M030	2013-06-16 20:30	11.9985	135.0068
12M031	2013-06-16 23:27	11.9955	135.0001
12M032	2013-06-17 02:30	11.9890	135.0025
12M033	2013-06-17 05:29	11.9996	134.9976
12M034	2013-06-17 08:30	12.0058	134.9981
12M035	2013-06-17 11:32	12.0121	135.0021
12M036	2013-06-17 14:28	11.9998	134.9868

Observation	Time and Date	Lat. (°)	Lon. (°)
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12M038	2013-06-17 21:03	12.0023	134.9966
12M039	2013-06-17 23:55	11.9983	135.0006
12M040	2013-06-18 02:30	12.0010	135.0000
12M042	2013-06-18 08:31	11.9913	135.0056
12M043	2013-06-18 11:25	11.9830	135.0081
12M044	2013-06-18 14:28	11.9820	135.0040
12M045	2013-06-18 17:33	11.9911	135.0101
12M046	2013-06-18 20:28	11.9883	135.0118
12M047	2013-06-18 23:27	11.9988	135.0048
12M048	2013-06-19 02:27	11.9893	134.9818
12M049	2013-06-19 05:30	11.9955	135.0020
12M050	2013-06-19 08:32	12.0073	134.9971
12M051	2013-06-19 11:32	12.0168	134.9998
12M052	2013-06-19 14:28	11.9961	134.9888
12M053	2013-06-19 17:33	11.9993	134.9981
12M054	2013-06-19 20:28	12.0033	135.0055
12M055	2013-06-19 23:27	11.9981	134.9936
12M056	2013-06-20 02:31	12.0010	135.0063
12M057	2013-06-20 05:32	11.9986	134.9996
12M058	2013-06-20 08:32	11.9926	135.0025
12M059	2013-06-20 11:45	11.9955	134.9986
12M060	2013-06-20 14:24	12.0005	135.0020
12M061	2013-06-20 17:40	11.9916	135.0006
12M062	2013-06-20 20:27	11.9953	134.9988
12M063	2013-06-20 23:28	11.9985	134.9996
12M064	2013-06-21 02:31	11.9978	135.0003
12M065	2013-06-21 05:30	12.0006	135.0006
12M066	2013-06-21 08:32	12.0035	134.9991
12M067	2013-06-21 11:33	12.0136	135.0013
12M068	2013-06-21 14:29	11.9961	134.9990
12M069	2013-06-21 17:32	11.9976	135.0004
12M070	2013-06-21 20:27	12.0065	135.0006
12M071	2013-06-21 23:25	11.9951	134.9976
12M072	2013-06-22 02:29	12.0045	134.9995
12M073	2013-06-22 05:30	12.0003	134.9991
12M074	2013-06-22 08:31	11.9986	135.0003
12M075	2013-06-22 11:33	11.9978	135.0031
12M076	2013-06-22 14:29	11.9996	134.9991
12M077	2013-06-22 17:24	12.0001	135.0008
12M078	2013-06-22 20:26	12.0061	135.0000
12M079	2013-06-22 23:28	12.0018	134.9996
12M080	2013-06-23 02:29	12.0020	135.0003
12M081	2013-06-23 05:31	11.9996	135.0021
12M082	2013-06-23 08:31	11.9998	134.9986
12M083	2013-06-23 11:33	12.0116	134.9893
12M084	2013-06-23 14:29	11.9965	134.9965
12M085	2013-06-23 17:33	11.9990	134.9983
12M086	2013-06-23 20:26	11.9988	134.9980
12M087	2013-06-23 23:27	11.9973	134.9991
12M088	2013-06-24 02:30	12.0030	135.0033
12M089	2013-06-24 05:31	11.9993	135.0013
12M090	2013-06-24 08:31	11.9961	134.9976
12M091	2013-06-24 11:33	11.9970	134.9950
12M092	2013-06-24 14:29	11.9986	134.9978
12M093	2013-06-24 17:32	11.9998	134.9993
12M094	2013-06-24 20:28	11.9996	134.9978
12M095	2013-06-24 23:28	12.0000	134.9995
12M096	2013-06-25 02:31	12.0075	134.9971
12M097	2013-06-25 05:31	11.9980	135.0003
12M098	2013-06-25 08:31	11.9980	134.9988
12M099	2013-06-25 11:31	12.0163	135.0004
12M100	2013-06-25 14:29	11.9966	134.9991
12M101	2013-06-25 17:32	12.0016	135.0026
12M102	2013-06-25 20:28	12.0036	135.0021
12M103	2013-06-25 23:27	11.9968	135.0000
12M104	2013-06-26 02:29	12.0026	135.0021
12M105	2013-06-26 05:30	11.9976	135.0010
12M106	2013-06-26 08:31	11.9985	134.9980
12M107	2013-06-26 11:31	11.9983	134.9935
12M108	2013-06-26 14:29	12.0000	134.9978
12M109	2013-06-26 17:31	12.0036	134.9990
12M110	2013-06-26 20:29	12.0051	135.0004
12M111	2013-06-26 23:28	12.0005	134.9986
12M112	2013-06-27 02:30	12.0040	134.9968
12M113	2013-06-27 05:30	11.9995	134.9993
12M114	2013-06-27 08:30	11.9998	134.9965
12M115	2013-06-27 11:31	12.0153	134.9875
12M116	2013-06-27 14:29	11.9985	134.9965
12M117	2013-06-27 17:30	11.9970	134.9983
12M118	2013-06-27 20:28	11.9996	134.9980
12M119	2013-06-27 23:28	12.0001	134.9975

Observation	Time and Date	Lat. [°]	Lon. [°]
12M120	2013-06-28 02:31	12.0021	135.0004
12M121	2013-06-28 05:30	12.0018	134.9986
12M122	2013-06-28 08:32	11.9988	134.9970
12M123	2013-06-28 11:29	12.0023	134.9930
12M124	2013-06-28 14:31	11.9966	134.9983
12M125	2013-06-28 17:30	11.9930	134.9970
12M126	2013-06-28 20:28	11.9953	135.0055
12M127	2013-06-28 23:29	11.9980	135.0021
12M128	2013-06-29 02:30	11.9998	134.9985
12M129	2013-06-29 05:30	11.9988	134.9983
12M130	2013-06-29 08:31	12.0001	134.9995
12M131	2013-06-29 11:31	12.0166	135.0029
12M132	2013-06-29 14:29	12.0020	135.0025
12M133	2013-06-29 17:30	12.0025	135.0020
12M134	2013-06-29 20:27	12.0025	134.9996
12M135	2013-06-29 23:29	12.0051	135.0028
12M136	2013-06-30 02:29	12.0065	134.9970
12M137	2013-06-30 08:31	12.0000	135.0020
12M138	2013-06-30 14:31	11.9995	135.0006

Related Information



MR13-03 Leg2
Ship Name: MIRAI
Period: 2013-06-12 - 2013-07-06
Chief Scientist: Masaki Katsumata (JAMSTEC)
Project Name: [MJO Research]
Proposal: ▶ Observational Study on the Intreseasonal Variability over the western Pacific
Title:

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Update History

2017-06-22	An observation data was registerd.
2015-08-31	An observation data was registerd.

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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)
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