

## MIRAI MR16-08 Underway Thermosalinograph

Last Modified: 2017-06-23

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

Cruise ID: **MR16-08**

**Underway Thermosalinograph**: Processed (DMO)-QCed

**Data Policy**: JAMSTEC

**Observation Items**: Temperature, Salinity, Dissolved oxygen

**Science Keywords**:

OCEANS > OCEAN CHEMISTRY > OXYGEN  
 OCEANS > SALINITY/DENSITY > SALINITY  
 > OCEAN > SEA SURFACE  
 OCEANS TEMPERATURE TEMPERATURE

**Cruise Report**

[http://www.godac.jamstec.go.jp/catalog/data/doc\\_catalog/media/MR16-08\\_all.pdf](http://www.godac.jamstec.go.jp/catalog/data/doc_catalog/media/MR16-08_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:

Continuous sea surface water monitoring system (MR14-03 - )



### **Overview**

Thermosalinograph measures the following surface parameters continuously.

- temperature
- salinity
- dissolved oxygen

Sea surface water is continuously pumped up at 4.5 meters depth to the sea surface monitoring laboratory and then flowed into each analysis equipment through a steel pipe and a vinyl-chloride pipe.

The flow rate of this system is controlled by some valves. Data are recorded in the personal computer.

### **System**

- Temperature sensor  
 Model : SBE 38, Sea-Bird Electronics, Inc.  
 Serial number : 3852788-0457  
 Measurement range : -5 to 35 deg-C (ITS-90)  
 Sensor location : Bow thruster room
- Salinity sensor  
 Model : SBE45, Sea-Bird Electronics, Inc.  
 Serial number : 4557820-0319  
 Measurement range : [temperature] -5 to +35 deg-C (ITS-90), [conductivity] 0 to 7 S/m  
 Sensor location : Sea surface monitoring laboratory
- DO sensor  
 Model : OPTODE3835, AANDERAA Instruments.  
 Serial number : 1915  
 Measurement range : 0 ~ 500 μmol dm<sup>-3</sup>  
 Sensor location : Sea surface monitoring laboratory

### **Number of significant figures of data**

After considering the accuracy of the sensors, the significant digit of data was changed as in the following list.

Data	Raw (ASCII data)	On this web site
Temperature	0.0001 [deg-C]	0.001 [deg-C]
Salinity	0.0001 [PSU]	0.001 [PSU]
Dissolved oxygen	0.01 [μmol/kg]	0.1 [μmol/kg]

\* The unit of the dissolved oxygen was changed from ml/l into μmol/kg since MR10-04.

### **Data acquisition**

Date/Time (UTC)	Start/Stop	Remarks
2016/11/27, 08:32	start	34-47.13N, 138-32.75E
2016/12/08, 09:24	stop	02-00.43N, 138-46.58E
2016/12/08, 11:24	start	01-57.60N, 139-02.47E
2016/12/22, 20:00	stop	17-15.03S, 175-35.16E

### **Calibration Information**

Calibration Information is as follows.

[Calibration Information](#)

## Data processing

### (1) 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

Please see the site of NODC of the following link for quality control procedure in detail.

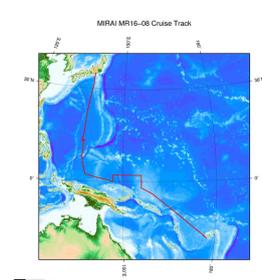
[QUALITY CONTROL AND PROCESSING OF HISTORICAL OCEANOGRAPHIC TEMPERATURE, SALINITY, AND OXYGEN DATA](#)

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 (Turbidity, fluorescence intensity, dissolved oxygen obtained by RINKO sensor) in additional to temperature, salinity, dissolved oxygen obtained by OPTODE sensor that has been opened to the public. Please contact us from "Contact Us" above if necessary.

## Related Information



### MR16-08

Ship Name: MIRAI

Period: 2016-11-27 - 2016-12-23

Chief Scientist: Iwao Ueki (JAMSTEC)

Project Name: [Tropical Ocean Climate Study (TOCS)]

Proposal ▶ Tropical Ocean Climate Study/Operation of TRITON Buoy

Title:

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## Update History

2017-06-23 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](#)

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Dive ID:



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### TSG DMO

#### Format Description for the QCed Data

Each data file contains one line header and daily observation data.

#### Header part

No.	Column	Content	Format	Remarks
1	1	Header ID	a1	fixed as '#'
2	3 - 6	Data ID	a4	TSG
3	8 - 22	Cruise ID	a15	e.g. MRYX-XX_legx
4	68 - 71	Number of data lines	i4	
5	72 - 73	Terminator	-	CR+LF

#### Data part

No.	Column	Content	Unit	Format	Remarks
1	1 - 8	Date	-	i8	YYYYMMDD (UTC)
2	10 - 13	Time	-	i4	hhmm (UTC)
3	15 - 23	Latitude	-	i2,a1,f5.2,a1	dd-mm.mmN(S)
4	25 - 34	Longitude	-	i3,a1,f5.2,a1	ddd-mm.mmE(W)
5	35 - 45	Temperature	deg-C	f11.3	ITS-90
6	46 - 56	Salinity	PSU	f11.3	PSS-78
7	57 - 67	Dissolved oxygen	μmol/kg	f11.1	
8	68 - 78	Flag	-	i11	1 - 6 : space 7 : flag of date/time 8 : flag of latitude/longitude 9 : flag of temperature 10 : flag of salinity 11 : flag of dissolved oxygen
9	79 - 80	Terminator	-	-	CR+LF

\* This format has been applied since MR10-04 cruise of R/V Mirai.

\* Temperature, Salinity, Dissolved oxygen: Missing value is presented by '-5', and error value is presented by '-9'.

#### Definition of Quality Control Flags

##### 1. Observed Level Flags

- 0 - accepted value
- 1 - range outlier ( outside of broad range check )
- A - doubtful value
- N - missing value

##### 2. Date and time flag (Thermosalinograph only)

- 0 - accepted data and time
- 1 - failed duplicate/missing/incorrect date and time

##### 3. Position flag (Thermosalinograph only)

- 0 - accepted position
- 1 - failed estimated ship speed check including missing/incorrect position

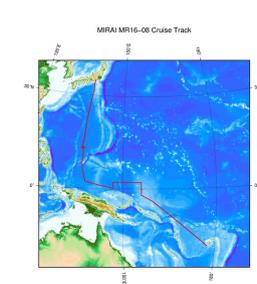
For details about range set of temperature, salinity and oxygen data, please refer the web site of NODC (National Oceanographic Data Center) from the following link for quality control procedure.

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

#### Sample Program

[ex\\_read2.f](#)

#### Related Information



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Chief Scientist: Iwao Ueki (JAMSTEC)  
Project Name: [Tropical Ocean Climate Study (TOCS)]  
Proposal ▶ Tropical Ocean Climate Study/Operation of TRITON Buoy  
Title:

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POWER GRAB SAMPLER (SHELL)  
POWER GRAB SAMPLER (CLOW)  
BMS

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**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

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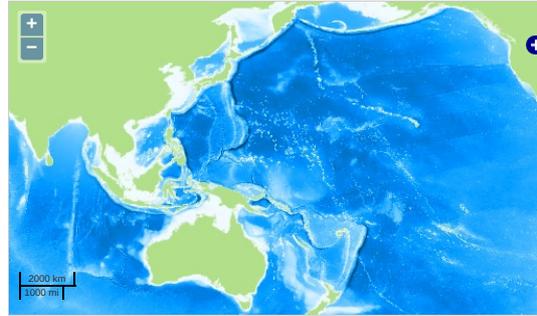
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### Observation Map

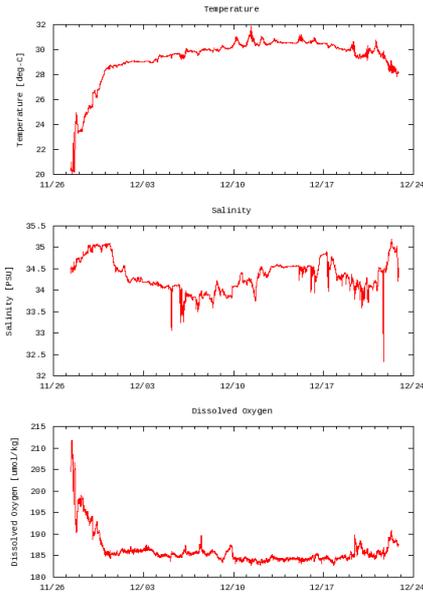


— ... Observation Line — ... Navigation ● ... Observation, Dive Point, Hole

Imagery reproduced from ...

### Figures

MR16-08: Underway Thermosalino Graph

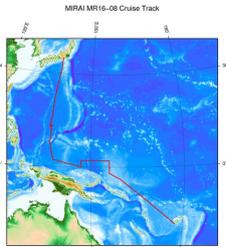


### Data List

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<input type="checkbox"/>	20161129.dat
<input type="checkbox"/>	20161130.dat
<input type="checkbox"/>	20161201.dat
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<input type="checkbox"/>	20161210.dat
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<input type="checkbox"/>	20161212.dat
<input type="checkbox"/>	20161213.dat

File names
<input type="checkbox"/> 20161214.dat
<input type="checkbox"/> 20161215.dat
<input type="checkbox"/> 20161216.dat
<input type="checkbox"/> 20161217.dat
<input type="checkbox"/> 20161218.dat
<input type="checkbox"/> 20161219.dat
<input type="checkbox"/> 20161220.dat
<input type="checkbox"/> 20161221.dat
<input type="checkbox"/> 20161222.dat
<input type="checkbox"/> ex_read2.f (Sample Program)

#### Related Information



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