

## MIRAI MR19-02 Underway Thermosalinograph

Last Modified: 2019-12-19

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

Cruise ID: [MR19-02](#)

Underway Thermosalinograph: Processed (DMO)-QCed

Data Policy: [JAMSTEC](#)

Observation Items: Temperature, Salinity, Dissolved oxygen

Science Keywords:

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

Cruise Report

[http://www.godac.jamstec.go.jp/catalog/data/doc\\_catalog/media/MR19-02\\_all.pdf](http://www.godac.jamstec.go.jp/catalog/data/doc_catalog/media/MR19-02_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.

### System

- Temperature  
Model : SBE38, Sea-Bird Electronics, Inc.  
S/N : 3852788-0457  
Measurement range : -5 to 35 deg-C (ITS-90)  
Sensor location : Bow thruster room
- Salinity  
Model : SBE45, Sea-Bird Electronics, Inc.  
S/N : 4552788-0264  
Measurement range : [temperature] -5 to +35 deg-C (ITS-90), [conductivity] 0 to 7 S/m  
Sensor location : Sea surface monitoring laboratory
- Dissolved oxygen  
Model : RINKO II ARO-CAR, JFE Advantech Co., Ltd.  
S/N : 0035 (2019/05/24 - 2019/06/06)  
S/N : 0013 (2019/06/07 - 2019/06/12)  
Measurement range : 0 - 200%  
Sensor location : Sea surface monitoring laboratory
- Fluorescence and Turbidity  
Model : C3, Turner Designs  
S/N : 2300384  
Measurement range : [Chlorophyll *in vivo*] 0 to 500 µg L<sup>-1</sup>, [Turbidity] 0 to 1500 NTU
- Total dissolved gas pressure  
Model : HGTD-Pro, model 0-30 PSI, Pro-Oceanus Systems Inc.  
S/N : 37-394-10

### 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 [umol/kg]	0.1 [umol/kg]

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

### Calibration Information

Calibration Information is as follows.

[Calibration Information](#)

### Data processing

DMO-QCed data are flagged after the data check process shown below:

- 1) Range check

2) range check

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

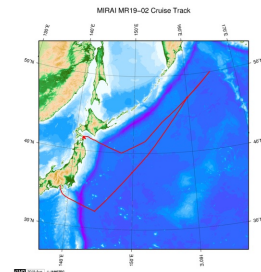
2) Visual check

If an value were extremely out from time-series plot of each variable or were affected by ambient air due to unstable flow of sampled water, it may be put flag "A" which means doubtful value.

#### About this data

This cruise obtained data of fluorescence, turbidity, and total dissolved gas pressure in addition to data of temperature, salinity and dissolved oxygen. Please [contact us](#) for usage of those data.

#### Related Information



[Enlarge Image](#)

#### MR19-02

Ship Name: MIRAI

Period: 2019-05-24 - 2019-06-14

Chief Scientist: Tetsuichi Fujiki (JAMSTEC)

Project Name: [Station K2, Station KEO, Station KNOT]

Proposal The observational study to construct and to extend the western Pacific super site network

Title:

#### Update History

Update Date	Update Content
2019-12-19	An observation data was registered.

#### 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 to a Dive Information

Dive ID:

Copyright 2011 Japan Agency for Marine-Earth Science and Technology

 **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 MR19-02 Underway Thermosalinograph

Last Modified: 2019-12-19

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

Cruise ID: [MR19-02](#)

Underway Thermosalinograph: Processed (DMO)-QCed

Data Policy: [JAMSTEC](#)

### 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

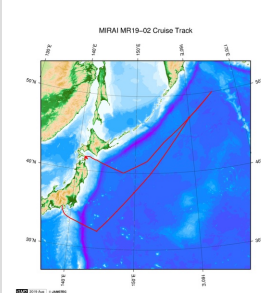
For details about range set of temperature, salinity and oxygen data, please refer the web site of NODC (National Oceanographic Data Center) from the following link for quality control procedure.

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

#### Sample Program

[ex\\_read2.f](#)

### Related Information



[Enlarge Image](#)

#### MR19-02

Ship Name: MIRAI  
Period: 2019-05-24 - 2019-06-14  
Chief Scientist: Tetsuichi Fujiki (JAMSTEC)  
Project Name: [Station K2, Station KEO, Station KNOT]  
Proposal Title: The observational study to construct and to extend the western Pacific super site network

### Update History

2019-12-19 An observation data was registerd.

Application for Data and  
Samples  
Data Policy

What's New  
Update History  
Feeds

Data  
Map Search  
Data Tree  
Detailed Search

KAIYO  
YOKOSUKA  
MIRAI  
KAIREI  
CHIKYU  
KAIMEI  
SHINSEI MARU  
HAKUHO MARU

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 Dive Information

Dive ID:

Copyright 2011 Japan Agency for Marine-Earth Science and  
Technology



## MIRAI MR19-02 Underway Thermosalinograph

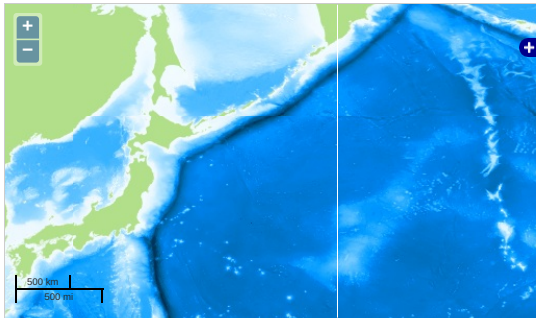
Last Modified: 2019-12-19

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

Cruise ID: [MR19-02](#)  
Underway Thermosalinograph: Processed (DMO)-QCed  
Data Policy: [JAMSTEC](#)  
Observation Items: Temperature, Salinity, Dissolved oxygen  
Science Keywords:

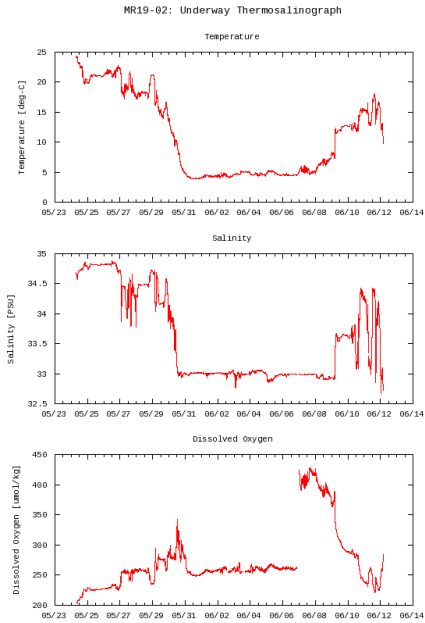
OCEANS > OCEAN CHEMISTRY > OXYGEN  
OCEANS > SALINITY/DENSITY > SALINITY  
OCEANS > OCEAN > SEA SURFACE  
TEMPERATURE TEMPERATURE

Observation Map



Imagery reproduced from ...

Figures

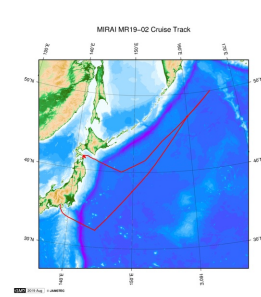


Data List

[Add to Basket](#)

<input type="checkbox"/>	File names
<input type="checkbox"/>	20190524.dat
<input type="checkbox"/>	20190525.dat
<input type="checkbox"/>	20190526.dat
<input type="checkbox"/>	20190527.dat
<input type="checkbox"/>	20190528.dat
<input type="checkbox"/>	20190529.dat
<input type="checkbox"/>	20190530.dat
<input type="checkbox"/>	20190531.dat
<input type="checkbox"/>	20190601.dat
<input type="checkbox"/>	20190602.dat
<input type="checkbox"/>	20190603.dat
<input type="checkbox"/>	20190604.dat
<input type="checkbox"/>	20190605.dat
<input type="checkbox"/>	20190606.dat
<input type="checkbox"/>	20190607.dat
<input type="checkbox"/>	20190608.dat
<input type="checkbox"/>	20190609.dat
<input type="checkbox"/>	20190610.dat
<input type="checkbox"/>	20190611.dat
<input type="checkbox"/>	20190612.dat
<input type="checkbox"/>	ex_read2.f (Sample Program)

#### Related Information



[Enlarge Image](#)

#### MR19-02

Ship Name: MIRAI

Period: 2019-05-24 - 2019-06-14

Chief Scientist: Tetsuichi Fujiki (JAMSTEC)

Project Name: [Station K2, Station KEO, Station KNOT]

Proposal The observational study to construct and to extend the western Pacific super site network  
Title:

#### Update History

2019-12-19	An observation data was registered.
------------	-------------------------------------

#### 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 to a Dive Information

Dive ID:

Copyright 2011 Japan Agency for Marine-Earth Science and Technology



**JAMSTEC**  
JAPAN AGENCY FOR MARINE-EARTH SCIENCE AND TECHNOLOGY

国立研究開発法人  
海洋研究開発機構