

## MIRAI MR02-ENG Underway Thermosalinograph

Last Modified: 2018-01-31

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

Cruise ID: [MR02-ENG](#)

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

**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 ( - MR10-03 Leg2)



**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 03S, Sea-Bird Electronics, Inc.  
Serial number : 032175  
Measurement range : -5 to 35 deg-C (ITS-90)  
Sensor location : Bow thruster room
- Salinity sensor  
SEACAT THERMOSALINOGRAPH  
Model : SBE-21, Sea-Bird Electronics, Inc.  
Serial number : 2118859-2641  
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 : 2127A, Orbisphere Laboratories Japan Inc.  
Serial number : 44733  
Measurement range : 0 to 14 ppm  
Sensor location : Sea surface monitoring laboratory

**Data acquisition**

Date/Time (UTC)	Start/Stop	Remarks
2002/05/11, 18:30	start	31-06.95N, 134-29.90E
2002/05/12, 01:34	stop	31-13.89N, 134-31.70E
2002/05/12, 01:39	start	31-13.96N, 134-31.28E
2002/05/13, 07:20	stop	31-56.83N, 133-45.46E
2002/05/13, 07:24	start	31-56.62N, 133-46.34E
2002/05/15, 09:30	stop	32-51.94N, 141-20.73E
2002/05/17, 00:00	start	33-34.86N, 143-47.01E
2002/05/17, 23:59	stop	33-39.94N, 143-40.00E

**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

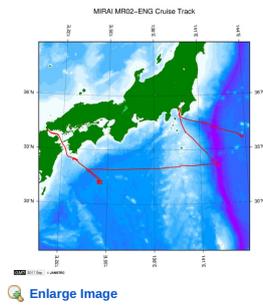
Please see the site of NODC of the following link for quality control procedure in detail.

[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.

**Related Information**

MR02-ENG  
Ship Name: MIRAI  
Period: 2002-05-09 - 2002-05-18



[Enlarge Image](#)

**Update History**

2018-01-31 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
- KAIIMEI
- 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:

**MIRAI MR02-ENG Underway Thermosalinograph**

Last Modified: 2018-01-31

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

Cruise ID: [MR02-ENG](#)

Underway Thermosalinograph: Processed (DMO)-QCed

Data Policy: [JAMSTEC](#)

**TSG DMO (MR98-K01 - MR10-03)**

**Format Description for the Corrected Data**

Please see the site of each cruise.

**Format Description for the QCed Data (MR98-K01 - MR10-03)**

Each data file contains one line header (meta data) followed by data lines for one day.

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	TSG
3	8 - 22	Cruise ID	a15	MRY-(K)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	f11.4	ITS-90
6	46 - 56	Salinity	PSU	f11.4	PSS-78
7	57 - 67	Dissolved oxygen	mg/l	f11.4	
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 * reference : <a href="#">Definition of Quality Control Flags</a>
9	79 - 80	Terminator	-	-	CR+LF

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

\* The check only about range check for Thermosalinograph data.

3. Date and time flag (Thermosalinograph only)

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

4. Position flag (Thermosalinograph only)

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

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.

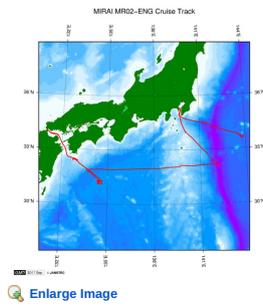
[QUALITY CONTROL AND PROCESSING OF HISTORICAL OCEANOGRAPHIC TEMPERATURE, SALINITY, AND OXYGEN DATA](#)

Sample Program

[ex\\_read.f](#)

Related Information

MR02-ENG  
Ship Name: MIRAI  
Period: 2002-05-09 - 2002-05-18



[Enlarge Image](#)

#### Update History

2018-01-31	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 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 MR02-ENG Underway Thermosalinograph

Last Modified: 2018-01-31

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

Cruise ID: **MR02-ENG**

Underway Thermosalinograph: Processed (DMO)-QCed

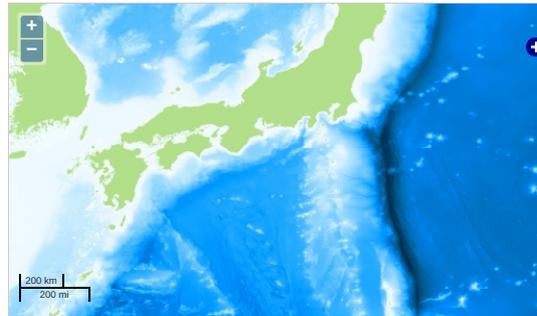
Data Policy: **JAMSTEC**

Observation Items: Temperature, Salinity, Dissolved oxygen

Science Keywords:

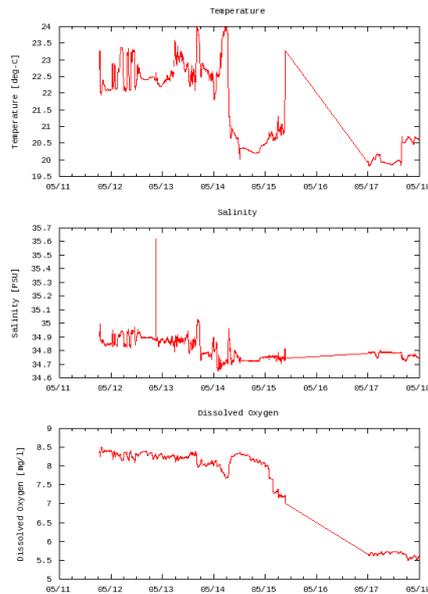
OCEANS > OCEAN CHEMISTRY > OXYGEN  
 OCEANS > SALINITY/DENSITY > SALINITY  
 > OCEAN > SEA SURFACE  
 OCEANS TEMPERATURE TEMPERATURE

### Observation Map



### Figures

MR02-ENG: Underway Thermosalino Graph

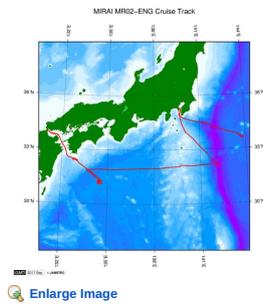


### Data List

- File names
- 20020511.dat
- 20020512.dat
- 20020513.dat
- 20020514.dat
- 20020515.dat
- 20020517.dat
- ex\_read.f (Sample Program)

### Related Information

MR02-ENG  
Ship Name: MIRAI  
Period: 2002-05-09 - 2002-05-18



#### Update History

2018-01-31	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 to a Dive Information

Dive ID: