

MIRAI MR20-E01 Underway Thermosalinograph

Last Modified: 2021-03-24

Cruise ID: [MR20-E01](#)

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/MR20-E01_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, then it flows to each analyzer.

The flow rate of this system is controlled.

System

- Temperature

Model : SBE38, Sea-Bird Electronics, Inc.

S/N : 3857820-0540

Measurement range : -5 to 35 deg-C (ITS-90)

Sensor location : Bow thruster room

- Salinity

Model : SBE45, Sea-Bird Electronics, Inc.

S/N : 4563325-0362

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 (2020/08/01 10:45 - 2020/08/12 18:58)

S/N : 0013 (2020/08/12 19:50 - 2020/09/12 07:00)

Measurement range : 0 - 200%

Sensor location : Sea surface monitoring laboratory

- Fluorescence and Turbidity

Model : C3, Turner Designs

S/N : 2300707

Measurement range : [Chlorophyll *in vivo*] 0 to 500 $\mu\text{g L}^{-1}$, [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 [$\mu\text{mol/kg}$]	0.1 [$\mu\text{mol/kg}$]

* The unit of the dissolved oxygen was changed from ml/l into $\mu\text{mol/kg}$ since MR10-04.

Data missing period

2020/08/12 19:37 - 2020/08/12 19:46

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

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

(1) 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.

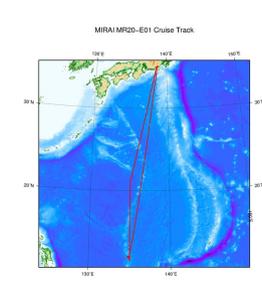
(2) During period as below, temperature, salinity and dissolved oxygen data are flagged "A" or "N" for changing the dissolved oxygen sensor.

2020/08/12 18:49 - 2020/08/12 19:55

(3) During period as below, salinity data and dissolved oxygen data are flagged "A" for filter maintenance.

2020/08/23 22:54 - 2020/08/23 23:05

Related Information



MR20-E01

Ship Name: MIRAI

Period: 2020-08-01 - 2020-09-13

Chief Scientist: Satoru Yokoi (JAMSTEC)

Proposal ▶ Study on air-sea interaction associated with the northward-propagating boreal summer intraseasonal oscillation

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Update History

2021-03-24 An observation data was registerd.

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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.mm(N(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

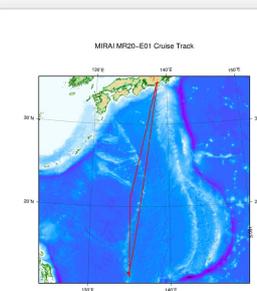
For details about range set of temperature, salinity and oxygen data, please refer the web site of NODC (National Oceanographic Data Center) from the following link for quality control procedure.

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

Sample Program

[ex_read2.f](#)

Related Information



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KM-ROV
POWER GRAB SAMPLER (SHELL)
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BMS

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

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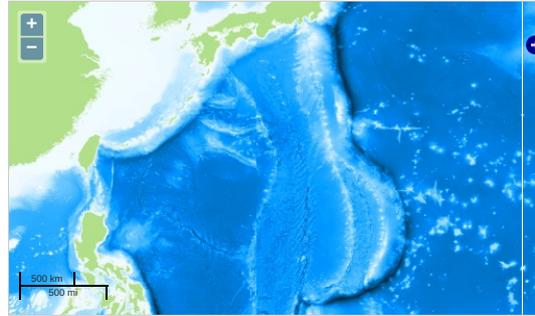
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Observation Map

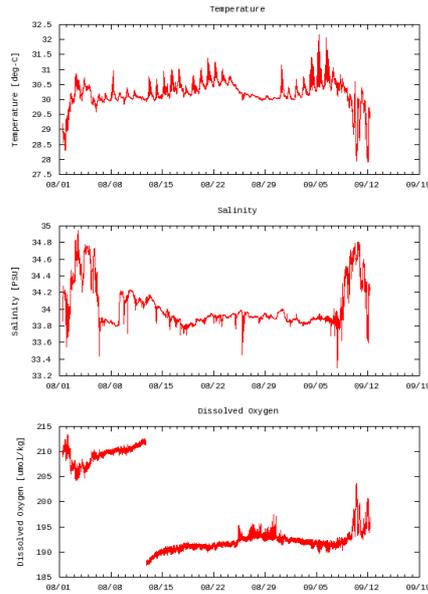


— ... Observation Line — ... Navigation ● ... Observation, Dive Point, Hole

Imagery reproduced from ...

Figures

MR20-E01: Underway Thermosalinograph

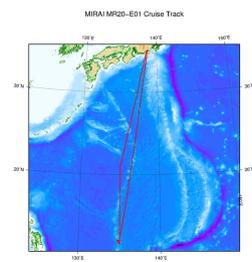


Data List

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File names
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<input type="checkbox"/> 20200908.dat
<input type="checkbox"/> 20200909.dat
<input type="checkbox"/> 20200910.dat
<input type="checkbox"/> 20200911.dat
<input type="checkbox"/> 20200912.dat
<input type="checkbox"/> ex_read2.f (Sample Program)

Related Information



[Enlarge Image](#)

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