

## MIRAI MR15-05 Leg1 Bottle Sampling Water Chemical Analysis

Last Modified: 2021-06-29

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

Cruise ID: [MR15-05 Leg1](#)

Bottle Sampling Water Chemical Analysis: Processed (PI)

Data Policy: [JAMSTEC](#)

**Observation Items:** Temperature, Salinity, Dissolved oxygen, Transmittance, Fluorescence, PAR, Silicate, Nitrate, Nitrite, Phosphate, Ammonia, Dissolved inorganic carbon, Total alkalinity, pH, Chlorophyll, DOC, CFC11, CFC12, CFC113, SF6, C-13, C-14, Cs-134, Cs-137, Ca

**Science Keywords:**

OCEANS > OCEAN CHEMISTRY	> AMMONIA
OCEANS > OCEAN CHEMISTRY	> INORGANIC CARBON
OCEANS > OCEAN CHEMISTRY	> NITRATE
OCEANS > OCEAN CHEMISTRY	> NUTRIENTS
OCEANS > OCEAN CHEMISTRY	> OXYGEN
OCEANS > OCEAN CHEMISTRY	> pH
OCEANS > OCEAN CHEMISTRY	> PHOSPHATE
OCEANS > OCEAN CHEMISTRY	> RADIOCARBON
OCEANS > OCEAN CHEMISTRY	> SILICATE
OCEANS > OCEAN CHEMISTRY	> SALINITY
OCEANS > OCEAN CHEMISTRY	> CHLOROPHYLL
OCEANS > OCEAN TEMPERATURE	> WATER TEMPERATURE
OCEANS > SALINITY/DENSITY	> SALINITY
OCEANS > OCEAN OPTICS	> EXTINCTION COEFFICIENTS
OCEANS > OCEAN OPTICS	> PHOTOSYNTHETICALLY ACTIVE RADIATION
OCEANS > OCEAN CHEMISTRY	> ALKALINITY
OCEANS > OCEAN CHEMISTRY	> CARBON
OCEANS > OCEAN CHEMISTRY	> RADIONUCLIDES
OCEANS > OCEAN CHEMISTRY	> OCEAN TRACERS
OCEANS > OCEAN CHEMISTRY	> TRACE ELEMENTS
OCEANS > OCEAN OPTICS	> FLUORESCENCE

Cruise Report

[http://www.godac.jamstec.go.jp/catalog/data/doc\\_catalog/media/MR15-05\\_leg1\\_all.pdf](http://www.godac.jamstec.go.jp/catalog/data/doc_catalog/media/MR15-05_leg1_all.pdf)

### For Using Data

#### Principal Investigator

CTD/O<sub>2</sub>: Hiroshi Uchida (JAMSTEC)  
 Salinity: Hiroshi Uchida (JAMSTEC)  
 Transmittance: Hiroshi Uchida (JAMSTEC)  
 Fluorescence: Hiroshi Uchida (JAMSTEC)  
 PAR: Hiroshi Uchida (JAMSTEC)  
 Oxygen: Yuichiro Kumamoto (JAMSTEC)  
 Nutrients: Michio Aoyama (JAMSTEC/Fukushima University)  
 DIC/Total Alkalinity (spectrometry)/pH: Akihiko Murata (JAMSTEC)  
 Chlorophyll-a: Kosei Sasaoka (JAMSTEC)  
 DOC/TDN: Masahito Shigemitsu (JAMSTEC)  
 CDOM: Kosei Sasaoka (JAMSTEC)  
 CFCs/SF6: Kenichi Sasaki (JAMSTEC)  
 Carbon Isotopes: Yuichiro Kumamoto (JAMSTEC)  
 Radioactive Cesium: Yuichiro Kumamoto (JAMSTEC)  
 Calcium/Total Alkalinity 2 (potentiometry): Etsuro Ono (JAMSTEC)  
 JAMSTEC / BPPT joint cruise in the Indonesian waters.

#### Use Constraints

See [Terms and Conditions](#) about constrain of use.

#### Data Citation

See [Terms and Conditions](#) about data citation.

### Instrument

Instrument:

Salinity measurement system



Instrument:

Total dissolved inorganic carbon measurement system (MR11-05 Leg1 -)



Instrument:

Gas chromatograph



Instrument:

Titration for total alkalinity (MR14-03 -)



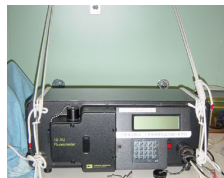
Instrument:

Nutrient analyzer(5ch) (MR09-02 -)



Instrument:

Fluorometer (TURNER DESIGNS)





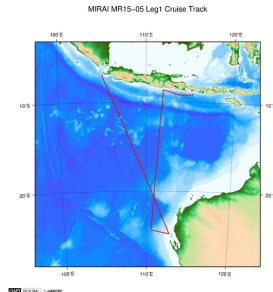
#### Data Citation

Refer [WHP I10 Revisit in 2015 Data Book](#) (doi: 10.17596/0000002) .

#### Overview

For details about observation, please refer to the Data book "[WHP I10 Revisit in 2015 Data Book](#)" (doi: 10.17596/0000002) and [Cruise Report](#).

#### Related Information



100°E 110°E 120°E  
10°N 20°S  
100°E 110°E 120°E

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#### MR15-05 Leg1

Ship Name: MIRAI

Period: 2015-12-23 - 2016-01-11

Chief Scientist: Katsuro Katsumata (JAMSTEC)

Project Name: [POST-WOCE Hydrography]

Proposal ▶ Research cruise on ocean decadal variability -- Indian Ocean GO-SHIP (Global Ocean  
Title: Ship-based Hydrographic Investigation Program)

#### Update History

2021-06-29	An observation data was registered.
2018-05-31	An observation data was registered.

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YOKOSUKA  
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KAIREI  
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KAIMEI  
SHINSEI MARU  
HAKUHO MARU

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SHINKAI 6500  
DEEP TOW  
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URASHIMA  
YOKOSUKA DEEP TOW  
6K Camera DEEP TOW  
6K Sonar DEEP TOW  
KM-ROV  
POWER GRAB SAMPLER (SHELL)  
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#### Go to a Cruise Information

Cruise ID:

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Bottle Sampling Water Chemical Analysis: Processed (PI)

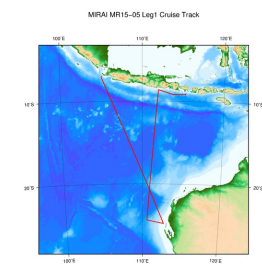
Data Policy: [JAMSTEC](#)

### Data Format

Column No.	Column Heading Mnemonic	Units Mnemonic	Reporting Precision FORTRAN Format	Comments
1	EXPCODE		A14	Exploration code
2	SECT		A6	Section number
3	STNNBR		A6	Station number
4	CASTNO		I3	Cast number
5	SAMPNO		A7	Sample number
6	BTLNBR		A7	Bottle number
7	BTLNBR_FLAG_W		I1	Bottle quality flags
8	DATE		I8	Date [MM/DD/YYYY]
9	TIME	UTC	A4	Time [HH:MM]
10	LATITUDE	DEG	F8.4	Latitude [N]
11	LONGITUDE	DEG	F9.4	Longitude [E]
12	DEPTH	METERS	I5	Bottom depth
13	CTDPRS	DBAR	F9.1	CTD-pressure
14	CTDPRS_FLAG_W		I1	Quality flags for CTD data
15	CTDTMP	ITS-90	F9.4	CTD-temperature (primary sensor)
16	CTDTMP_FLAG_W		I1	Quality flags for CTD data
17	SBE35	ITS-90	F10.5	CTD-SBE35
18	SBE35_FLAG_W		I1	Quality flags for CTD data
19	CTDSAL	PSS-78	F9.4	CTD-salinity (primary sensor)
20	CTDSAL_FLAG_W		I1	Quality flags for CTD data
21	SALNTY	PSS-78	F9.4	Bottle salinity
22	SALNTY_FLAG_W		I1	Quality flags for water samples
23	DNSSAL	G/KG	F9.4	Quality-controlled density salinity data
24	DNSSAL_FLAG_W		I1	Quality flags for water samples
25	CTDOXY	UMOL/KG	F9.2	CTD-oxygen (primary sensor of RINKO)
26	CTDOXY_FLAG_W		I1	Quality flags for CTD data
27	OXYGEN	UMOL/KG	F9.2	Bottle oxygen
28	OXYGEN_FLAG_W		I1	Quality flags for water samples
29	XMISS	%TRANS	F9.3	CTD-transmission
30	XMISSCP	/METER	F9.4	Beam attenuation coefficient
31	XMISS_FLAG_W		I1	Quality flags for CTD data
32	FLUOR	MG/CUM	F9.3	CTD-fluorescence (primary sensor)
33	FLUOR_FLAG_W		I1	Quality flags for CTD data
34	CHLORA	MG/CUM	F9.2	Chlorophyll a
35	CHLORA_FLAG_W		I1	Quality flags for water samples
36	CDOM	MG/CUM	F9.3	Absorption coefficient of CDOM
37	CDOM_FLAG_W		I1	Quality flags for water samples
38	PAR	UE/SQM/S	F9.3	CTD-PAR
39	PAR_FLAG_W		I1	Quality flags for CTD data
40	SILCAT	UMOL/KG	F9.2	Silicate
41	SILCAT_FLAG_W		I1	Quality flags for water samples
42	SILUNC	UMOL/KG	F9.2	Silicate (uncertainty)
43	NITRAT	UMOL/KG	F9.2	Nitrate
44	NITRAT_FLAG_W		I1	Quality flags for water samples
45	NRAUNC	UMOL/KG	F9.2	Nitrate (uncertainty)
46	NITRIT	UMOL/KG	F9.2	Nitrite
47	NITRIT_FLAG_W		I1	Quality flags for water samples
48	NRIUNC	UMOL/KG	F9.2	Nitrite (uncertainty)
49	PHSPHT	UMOL/KG	F9.2	Phosphate
50	PHSPHT_FLAG_W		I1	Quality flags for water samples
51	PHPUNC	UMOL/KG	F9.2	Phosphate (uncertainty)
52	AMMONIA	UMOL/KG	F9.2	Ammonium
53	AMMONIA_FLAG_W		I1	Quality flags for water samples
54	NH4UNC	UMOL/KG	F9.2	Ammonium (uncertainty)
55	CFC-11	PMOL/KG	F9.3	Chlorofluorocarbon 11
56	CFC-11_FLAG_W		I1	Quality flags for water samples
57	CFC-12	PMOL/KG	F9.3	Chlorofluorocarbon 12
58	CFC-12_FLAG_W		I1	Quality flags for water samples
59	CFC113	PMOL/KG	F9.3	Chlorofluorocarbon 113
60	CFC113_FLAG_W		I1	Quality flags for water samples
61	SF6	FMOL/KG	F9.3	Sulfur Hexafluoride
62	SF6_FLAG_W		I1	Quality flags for water samples
63	TCARBN	UMOL/KG	F9.1	Total inorganic carbon
64	TCARBN_FLAG_W		I1	Quality flags for water samples
65	ALKALI	UMOL/KG	F9.1	Total alkalinity (spectrometry)
66	ALKALI_FLAG_W		I1	Quality flags for water samples
67	ALKALI_POT	UMOL/KG	F9.1	Total alkalinity 2 (potentiometry)
68	ALKALI_POT_FLAG_W		I1	Quality flags for water samples

Column No.	Parameter Heading Mnemonic	Units Mnemonic	Reporting Precision	FORTAN Format	Comments (hydrogen scale)
70	PH_TMP	DEG C	I9		Temperature for pH measurement
71	PH_TOT_FLAG_W		I1		Quality flags for water samples
72	CALCIUM	MMOL/KG	F9.3		Calcium
73	CALCIUM_FLAG_W		I1		Quality flags for water samples
74	DOC	UMOL/KG	F9.2		Dissolved organic carbon
75	DOC_FLAG_W		I1		Quality flags for water samples
76	TDN	UMOL/KG	F9.2		Total dissolved nitrogen
77	TDN_FLAG_W		I1		Quality flags for water samples
78	DELC13	/MILLE	F9.3		Delta C13
79	DELC13_FLAG_W		I1		Quality flags for water samples
80	C13ERR	/MILLE	F9.3		Delta C13 error
81	DELC14	/MILLE	F9.1		Delta C14
82	DELC14_FLAG_W		I1		Quality flags for water samples
83	C14ERR	/MILLE	F9.1		Delta C14 error
84	CS-134	MBQ/KG	F9.3		Cesium 134
85	CS-134_FLAG_W		I1		Quality flags for water samples
86	CS134ER	MBQ/KG	F9.3		Cesium 134 error
87	CS-137	MBQ/KG	F9.3		Cesium 137
88	CS-137_FLAG_W		I1		Quality flags for water samples
89	CS137ER	MBQ/KG	F9.3		Cesium 137 error
90	CDOM-325	/METER	F9.3		Absorption coefficient of CDOM at 325nm
91	CDOM-325_FLAG_W		I1		Quality flags for water samples
92	CDOM-370	/METER	F9.3		Absorption coefficient of CDOM at 370nm
93	CDOM-370_FLAG_W		I1		Quality flags for water samples
94	CDOM-443	/METER	F9.3		Absorption coefficient of CDOM at 443nm
95	CDOM-443_FLAG_W		I1		Quality flags for water samples

#### Related Information



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#### MR15-05 Leg1

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Chief Scientist: Katsuro Katsumata (JAMSTEC)  
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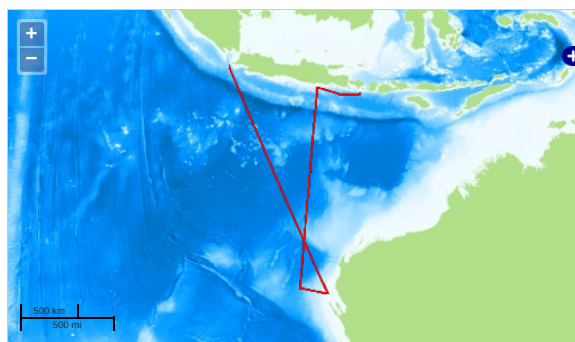
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### Observation Map



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

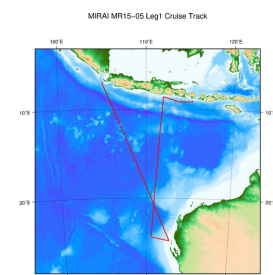
Imagery reproduced from ...

### Data List

File names

☐ 49NZ20151223\_hy1.csv

### Related Information



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#### MR15-05 Leg1

Ship Name: MIRAI

Period: 2015-12-23 - 2016-01-11

Chief Scientist: Katsuro Katsumata (JAMSTEC)

Project Name: [POST-WOCE Hydrography]

Proposal ▶ Research cruise on ocean decadal variability -- Indian Ocean GO-SHIP (Global Ocean

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