

MIRAI MR19-02 Bottle Sampling Water Chemical Analysis

Last Modified: 2021-10-28

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

Cruise ID: [MR19-02](#)

Bottle Sampling Water Chemical Analysis: Processed (PI)

Data Policy: [JAMSTEC](#)

Observation Items: Pressure, Temperature, Practical salinity, Absolute salinity, Dissolved oxygen, Potential temperature, Density, Transmittance, Turbidity, Fluorescence, PAR, Silicate, Nitrate, Nitrite, Phosphate, Ammonia, Total inorganic carbon, Alkalinity, POC, Chlorophyll, Photosynthetic pigment, CDOM

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	> PHOSPHATE	
OCEANS	> OCEAN CHEMISTRY	> SILICATE	
OCEANS	> OCEAN CHEMISTRY	> CHLOROPHYLL	
OCEANS	> OCEAN TEMPERATURE	> WATER TEMPERATURE	
OCEANS	> SALINITY/DENSITY	> SALINITY	
BIOSPHERE	> AQUATIC ECOSYSTEMS	> PLANKTON	> PHYTOPLANKTON
OCEANS	> OCEAN OPTICS	> PHOTOSYNTHETICALLY ACTIVE RADIATION	
BIOSPHERE	> ECOLOGICAL DYNAMICS	> ECOSYSTEM FUNCTIONS	> PRIMARY PRODUCTION
OCEANS	> OCEAN CHEMISTRY	> ALKALINITY	
BIOSPHERE	> ECOLOGICAL DYNAMICS	> ECOSYSTEM FUNCTIONS	> PHOTOSYNTHESIS
OCEANS	> OCEAN CHEMISTRY	> CARBON	
OCEANS	> OCEAN TEMPERATURE	> POTENTIAL TEMPERATURE	

Cruise Report

http://www.godac.jamstec.go.jp/catalog/data/doc_catalog/media/MR19-02_all.pdf

For Using Data

Principal Investigator

CTD/O2 : Hiroshi Uchida / Masahide Wakita (JAMSTEC)
 SBE35, XMISS, FLUOR, PAR, TURB, CDOM : Hiroshi Uchida / Masahide Wakita (JAMSTEC)
 DNSSAL : Hiroshi Uchida (JAMSTEC)
 SALNTY, OXYGEN : Masahide Wakita (JAMSTEC)
 Nutrients : Masahide Wakita (JAMSTEC)
 TCARBON, ALKALI : Masahide Wakita (JAMSTEC)
 CHLWEL, SIZECHL : Tetsuichi Fujiki (JAMSTEC)
 Photosynthetic Pigments : Tetsuichi Fujiki (JAMSTEC)
 Primary Production (d-POC): Kazuhiko Matsumoto (JAMSTEC)

Use Constraints

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

Data Citation

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

Instrument

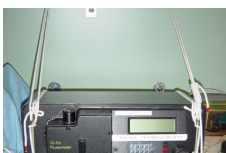
Instrument:
Salinity measurement system



Instrument:
CN mass spectrometer system(MR19-01 -)



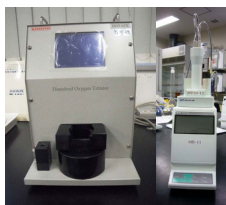
Instrument:
Fluorometer (TURNER DESIGNS)



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



Instrument:
Titrator for DO Dissolved oxygen titration equipment (MR11-06 -)



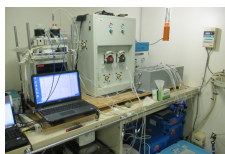
Instrument:
High-performance liquid chromatography (MR10-04 Leg1 -)

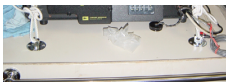


Instrument:
Total dissolved inorganic carbon measurement system (MR11-05 Leg1 -)



Instrument:
Titrator for total alkalinity (MR14-03 -)





Information on CTD data

Pressure sensor

Model : SBE9plus, Sea-Bird Electronics, Inc.
Measurement range : 0 to 10500 m
Accuracy : $\pm 0.015\%$ of full scale range
Resolution : 0.001% of full scale

Temperature sensor

Model : SBE3, Sea-Bird Electronics, Inc.
Measurement range : -5 to +35 °C
Accuracy : ± 0.001 °C
Resolution : 0.0002 °C

Deep Ocean Standards Thermometer

Model : SBE35, Sea-Bird Electronics, Inc.
Measurement range : -5 to +35 °C
Accuracy : 0.001 °C
Resolution : 0.000025 °C

Salinity sensor

Model : SBE4, Sea-Bird Electronics, Inc.
Measurement range : 0 to 7 S/m
Accuracy : ± 0.0003 S/m
Resolution : 0.00004 S/m

DO sensor (primary)

Model : RINKO III, JFE Advantech Co. Ltd.
Measurement range : 0 to 200 %
Accuracy : ± 2 % FS, non linearity
Resolution : 0.01 to 0.04 %

DO sensor (secondary)

Model : SBE43, Sea-Bird Electronics, Inc.
Measurement range : 120% of surface saturation
Accuracy : $\pm 2\%$ of saturation

Transmissometer

Model : C-Star, WET Labs, Inc.
Linearity : 99% R²

Fluorometer

Model : Seapoint Chlorophyll Fluorometer, Seapoint Sensors, Inc.
Measurement range : 0 - 15 µg/l
Resolution : 0.02 µg/l

PAR sensor

Model : PAR-Log ICSW, Satlantic, Inc.
Measurement range : 0 - 5000 µmol photons m⁻² s⁻¹

Turbidity

Model : Seapoint Turbidity Meter, Seapoint Sensors, Inc.
Measurement range : 0 to 25 FTU
Resolution : 0.006 FTU

CDOM sensor

Model : The Seapoint Ultraviolet Fluorometer (SUVF), Seapoint Sensors, Inc.
Measurement range : 0-50 QSU
Resolution : 0.02 QSU

Information on Chemical and Biological data

Salinity

Instruments : Autosal salinometer model 8400B (Guildline Instruments Ltd.)
Methods : -
Precision : average of absolute difference 0.0004 , standard deviation of absolute difference 0.0004 (24 pairs of replicate samples)
Reference Material/Calibration : IAPSO Standard Sea Water P162 (Ocean Scientific International Ltd.)

Dissolved Oxygen

Instruments : Burette: APB-610/APB-620 manufactured by Kyoto Electronic Co. Ltd. /10 cm³ of titration vessel
Detector and Software: Automatic photometric titrator DOT-15X manufactured by Kimoto Electronic Co. Ltd
Methods : Winkler method/photometric methods
Precision : 0.13 µmol kg⁻¹(36 pairs of replicate samples)
Reference Material/Calibration : the standard potassium iodate (NMIJ CRM 3006-a No.061)

Silicate

Instruments : BL TEC K.K QuAAtro 2-HR
Methods : Molybdenum blue method
Precision : C.V. 0.14% (standard solution)
Reference Material/Calibration : KANSO CRMs (KANSO Co., Ltd.) and Silicon standard solution SiO₂ in NaOH 0.5 mol/L CertiPUR® (Merck KGaA)

Nitrate

Instruments : BL TEC K.K QuAAtro 2-HR
Methods : Diazotization method (reduced to nitrite by Cd - Cu tube)
Precision : C.V. 0.14% (standard solution)
Reference Material/Calibration : KANSO CRMs (KANSO Co., Ltd.) and potassium nitrate 99.995 suprapur® (Merck KGaA)

Nitrite

Instruments : BL TEC K.K QuAAtro 2-HR
Methods : Diazotization method
Precision : C.V. 0.15% (standard solution)
Reference Material/Calibration : KANSO CRMs (KANSO Co., Ltd.) and nitrite ion standard solution (Wako Pure Chemical Industries, Ltd.)

Phosphate

Instruments : BL TEC K.K QuAAtro 2-HR
Methods : Molybdenum blue method
Precision : C.V. 0.15% (standard solution)
Reference Material/Calibration : KANSO CRMs (KANSO Co., Ltd.) and potassium dihydrogen phosphate anhydrous 99.995 suprapur® (Merck KGaA)

Ammonia

Instruments : BL TEC K.K QuAAtro 2-HR
Methods : Indophenol method
Precision : C.V. 0.25% (standard solution)
Reference Material/Calibration : KANSO CRMs (KANSO Co., Ltd.) and Ammonium Chloride (NMIJ)

Dissolved inorganic carbon

Instruments : TCO2 measuring system (Nihon ANS, Inc.) equipped with coulometer Model 3000 (Nihon ANS, Inc.)
Methods : coulometry
Precision : average of the differences $1.19 \text{ } \mu\text{mol kg}^{-1}$, standard deviation of the differences $1.07 \text{ } \mu\text{mol kg}^{-1}$ (29 pairs of replicate samples)
Reference Material/Calibration : Certified Reference Material for TCO2 analysis provided by Dr A. G. Dickson (batch 166), DIC RM (KANSO CO., LTD) and JAMSTEC DIC reference material

Total alkalinity

Instruments : Spectrophotometric system(Nihon ANS, Inc.). The system comprises of a spectrophotometer (TM-UV/VIS C10082CAH (Hamamatsu Photonics, Japan))
Methods : Single step acid additional procedure/spectrophotometry
Precision : average of the differences $2.57 \text{ } \mu\text{mol kg}^{-1}$, standard deviation of the differences $2.17 \text{ } \mu\text{mol kg}^{-1}$ (26 pairs of replicate samples)
Reference Material/Calibration : DIC RM (KANSO CO., LTD.)

Primary Production

Instruments : stable isotope analyzer Ecovision (Elementar Analysensysteme GmbH)
Methods : Incubation : Simulated in-situ incubation
Measurement : Dumas method, Mass spectrometry
Precision : repeatability of a standard material measurement $\leq 0.2 \text{ } \%$
Reference Material/Calibration : L-alanine (Shoko Science. Co.,Ltd. (former SI Science co., Ltd.))

Chlorophyll a

Instruments : Fluorophotometer model 10-AU-005 (Turner design)
Methods : Extract in N, N-dimethylformamide /fluorometric determination (Welschmeyer non-acidification method)
Precision : standard deviation of the differences $0.02 \mu\text{g L}^{-1}$ (17 pairs of replicate samples)
Reference Material/Calibration : Pure chlorophyll a (Sigma-Aldrich Co., LLC)

Photosynthetic Pigments (Phytoplankton Pigments)

Instruments : HPLC System composed by Agilent1200 modular system (Agilent Technologies Japan, Ltd.)
Methods : Heukelem, L. V. & Thomas, C. S. (2001) ,
Jeffrey S. W., Mantoura R. F. C. & Wright S. W. (Eds.). (1997)
Precision : repeatability of Chlorophyll a standard solution measurement 231.8 ± 1.4 (n = 40)
Reference Material/Calibration : see cruise report

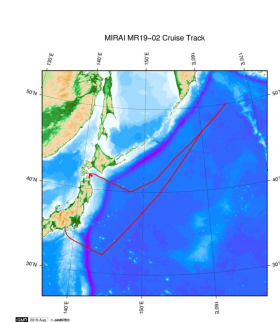
Absolute Salinity (Seawater Density, DNSSAL)

Instruments : oscillation-type density meter DMA 5000M (Anton-Paar GmbH)
Precision : the root-mean square of the absolute difference 0.0008 g/kg (20 pairs of replicate samples)
Reference Material/Calibration : Reference Material for Density in Seawater PRE19 (KANSO CO., LTD.) and ultrapure water

About this data

The Carousel Water Sampler (12 sampling bottles) with CTD was used at cast 6 and 7 of the station A04, while that sampler (36 sampling bottles) was used at the other casts.

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

2021-10-28	An observation data was registered.
2021-07-27	An observation data was registered.

JAMSTEC

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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:



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 Cruise ID: [MR19-02](#)

Bottle Sampling Water Chemical Analysis: Processed (PI)

 Data Policy: [JAMSTEC](#)

Exchange Format

Provided in the Exchange Format of CCHDO (CLIVAR and Carbon Hydrographic Data Office).

Please see the following link for details of Exchange Format.

[CCHDO | CLIVAR & Carbon Hydrographic Data Office](#)

Format Information

Column No.	Column Heading Mnemonic	Units Mnemonic	Reporting Precision FORTRAN Format	Comments
1	EXPCODE		A14	ExpoCode
2	SECT_ID		A6	Section ID
3	STNNBR		A6	Station Number
4	TYPE		A4	Type
5	CASTNO		I3	Cast Number
6	SAMPNO		A7	Sample Number
7	BTLNBR		A7	Bottle Number (S/N fixed to the sampling device)
8	BTLNBR_FLAG_W		I1	Bottle quality flags
9	DATE		I8	Cast date
10	TIME	UTC	A4	Cast time
11	LATITUDE	DEG	F8.4	Latitude
12	LONGITUDE	DEG	F9.4	Longitude
13	DEPTH	METERS	I5	Bottom depth
14	CTDDPT	METERS	F9.1	Depth
15	CTDDPT_FLAG_W		I1	Quality flags for CTD data
16	CTDPRS	DBAR	F9.1	Pressure
17	CTDPRS_FLAG_W		I1	Quality flags for CTD data
18	CTDTMP	ITS-90	F9.4	Temperature (primary sensor)
19	CTDTMP_FLAG_W		I1	Quality flags for CTD data
20	CTDTMP_1	ITS-90	F9.4	Temperature (secondary sensor)
21	CTDTMP_1_FLAG_W		I1	Quality flags for CTD data
22	SBE35	ITS-90	F10.5	Temperature from Deep Ocean Standards Thermometer
23	SBE35_FLAG_W		I1	Quality flags for CTD data
24	CTDSAL	PSS-78	F9.4	Salinity (primary sensor)
25	CTDSAL_FLAG_W		I1	Quality flags for CTD data
26	CTDSAL_1	PSS-78	F9.4	Salinity (secondary sensor)
27	CTDSAL_1_FLAG_W		I1	Quality flags for CTD data
28	CTDCND	S/M	F11.6	Conductivity (primary sensor)
29	CTDCND_FLAG_W		I1	Quality flags for CTD data
30	CTDCND_1	S/M	F11.6	Conductivity (secondary sensor)
31	CTDCND_1_FLAG_W		I1	Quality flags for CTD data
32	CTDOXY	UMOL/KG	F9.2	CTD-oxygen (primary sensor)
33	CTDOXY_FLAG_W		I1	Quality flags for CTD data
34	CTDOXY_1	UMOL/KG	F9.2	CTD-oxygen (secondary sensor)
35	CTDOXY_1_FLAG_W		I1	Quality flags for CTD data
36	CTDOXV	V	F9.4	CTD-oxygen voltage (primary sensor)
37	CTDOXV_FLAG_W		I1	Quality flags for CTD data
38	CTDOXV_1	V	F9.4	CTD-oxygen voltage (secondary sensor)
39	CTDOXV_1_FLAG_W		I1	Quality flags for CTD data
40	THETA	DEG C	F9.4	Potential temperature (primary sensor)
41	THETA_FLAG_W		I1	Quality flags for CTD data
42	THETA_1	DEG C	F9.4	Potential temperature (secondary sensor)
43	THETA_1_FLAG_W		I1	Quality flags for CTD data
44	SIG0	KG/CUM	F9.4	Density (primary sensor)
45	SIG0_FLAG_W		I1	Quality flags for CTD data
46	SIG0_1	KG/CUM	F9.4	Density (secondary sensor)
47	SIG0_1_FLAG_W		I1	Quality flags for CTD data
48	XMISS	%TRANS	F9.3	Transmissometer
49	XMISS_FLAG_W		I1	Quality flags for CTD data
50	XMISSCP	/METER	F9.4	Beam attenuation coefficient
51	XMISSCP_FLAG_W		I1	Quality flags for CTD data
52	XMISSV	V	F9.4	Transmissometer voltage
53	XMISSV_FLAG_W		I1	Quality flags for CTD data
54	FLUOR	MG/CUM	F9.3	Fluorescence
55	FLUOR_FLAG_W		I1	Quality flags for CTD data
56	PAR	UE/SQM/S	F9.3	PAR
57	PAR_FLAG_W		I1	Quality flags for CTD data
58	TURB	FTU	F9.3	Turbidity
59	TURB_FLAG_W		I1	Quality flags for CTD data
60	CTDCDOM	QSU	F9.1	CDOM (Colored dissolved organic matter) sensor
61	CTDCDOM_FLAG_W		I1	Quality flags for water samples
62	SALNTY	PSS-78	F9.4	Bottle Salinity
63	SALNTY_FLAG_W		I1	Quality flags for water samples

Column No.	Column Heading Mnemonic	Units ⁷⁸ Mnemonic	Reporting Precision FORTRAN Format	Bottle Salinity (replicate) Comments
65	OXYGEN_1_FLAG_W	UMOL/KG	F9.2	Quality flags for water samples
66	OXYGEN	UMOL/KG	F9.2	Bottle Oxygen
67	OXYGEN_FLAG_W		I1	Quality flags for water samples
68	OXYGEN_1	UMOL/KG	F9.2	Bottle Oxygen (replicate)
69	OXYGEN_1_FLAG_W		I1	Quality flags for water samples
70	SILCAT	UMOL/KG	F9.2	Silicate
71	SILCAT_FLAG_W		I1	Quality flags for water samples
72	SILUNC	UMOL/KG	F9.2	Uncertainty of Silicate data
73	SILCAT1	UMOL/KG	F9.2	Silicate
74	SILCAT1_FLAG_W		I1	Quality flags for water samples
75	SILCAT2	UMOL/KG	F9.2	Silicate (replicate)
76	SILCAT2_FLAG_W		I1	Quality flags for water samples
77	NITRAT	UMOL/KG	F9.2	Nitrate
78	NITRAT_FLAG_W		I1	Quality flags for water samples
79	NRAUNC	UMOL/KG	F9.2	Uncertainty of Nitrate data
80	NITRAT1	UMOL/KG	F9.2	Nitrate
81	NITRAT1_FLAG_W		I1	Quality flags for water samples
82	NITRAT2	UMOL/KG	F9.2	Nitrate (replicate)
83	NITRAT2_FLAG_W		I1	Quality flags for water samples
84	NITRIT	UMOL/KG	F9.2	Nitrite
85	NITRIT_FLAG_W		I1	Quality flags for water samples
86	NRIUNC	UMOL/KG	F9.2	Uncertainty of Nitrite data
87	NITRIT1	UMOL/KG	F9.2	Nitrite
88	NITRIT1_FLAG_W		I1	Quality flags for water samples
89	NITRIT2	UMOL/KG	F9.2	Nitrite (replicate)
90	NITRIT2_FLAG_W		I1	Quality flags for water samples
91	PHSPHT	UMOL/KG	F9.3	Phosphate
92	PHSPHT_FLAG_W		I1	Quality flags for water samples
93	PHPUNC	UMOL/KG	F9.3	Uncertainty of Phosphate data
94	PHSPHT1	UMOL/KG	F9.3	Phosphate
95	PHSPHT1_FLAG_W		I1	Quality flags for water samples
96	PHSPHT2	UMOL/KG	F9.3	Phosphate (replicate)
97	PHSPHT2_FLAG_W		I1	Quality flags for water samples
98	NH4	UMOL/KG	F9.2	Ammonium
99	NH4_FLAG_W		I1	Quality flags for water samples
100	NH4UNC	UMOL/KG	F9.2	Uncertainty of Ammonium data
101	NH41	UMOL/KG	F9.2	Ammonium
102	NH41_FLAG_W		I1	Quality flags for water samples
103	NH42	UMOL/KG	F9.2	Ammonium (replicate)
104	NH42_FLAG_W		I1	Quality flags for water samples
105	TCARBN	UMOL/KG	F9.1	Total Carbon CT
106	TCARBN_FLAG_W		I1	Quality flags for water samples
107	TCARBN_1	UMOL/KG	F9.1	Total Carbon CT (replicate)
108	TCARBN_1_FLAG_W		I1	Quality flags for water samples
109	ALKALI	UMOL/KG	F9.1	Total alkalinity
110	ALKALI_FLAG_W		I1	Quality flags for water samples
111	ALKALI_1	UMOL/KG	F9.1	Total alkalinity (replicate)
112	ALKALI_1_FLAG_W		I1	Quality flags for water samples
113	d-POC_1	mgC/m ³ /day	F9.4	Carbon uptake rate (Primary Production)
114	d-POC_1_FLAG_W		I1	Quality flags for water samples
115	d-POC_2	mgC/m ³ /day	F9.4	Carbon uptake rate (Primary Production, replicate)
116	d-POC_2_FLAG_W		I1	Quality flags for water samples
117	d-POC_Dark	mgC/m ³ /day	F9.4	Carbon uptake rate (Primary Production, dark)
118	d-POC_Dark_FLAG_W		I1	Quality flags for water samples
119	CHLWEL	MG/CUM	F9.2	Chlorophyll a
120	CHLWEL_FLAG_W		I1	Quality flags for water samples
121	CHLWEL_1	MG/CUM	F9.2	Chlorophyll a (replicate)
122	CHLWEL_1_FLAG_W		I1	Quality flags for water samples
123	CHLHPLC	MG/CUM	F9.3	Chlorophyll a (HPLC)
124	CHLHPLC_FLAG_W		I1	Quality flags for water samples
125	SIZECHL>10um	MG/CUM	F9.2	Chlorophyll a > 10um
126	SIZECHL>10um_FLAG_W		I1	Quality flags for water samples
127	SIZECHL3-10um	MG/CUM	F9.2	Chlorophyll a 3-10um
128	SIZECHL3-10um_FLAG_W		I1	Quality flags for water samples
129	SIZECHL1-3um	MG/CUM	F9.2	Chlorophyll a 1-3um
130	SIZECHL1-3um_FLAG_W		I1	Quality flags for water samples
131	SIZECHL<1um	MG/CUM	F9.2	Chlorophyll a < 1um
132	SIZECHL<1um_FLAG_W		I1	Quality flags for water samples
133	CHLC3	MG/CUM	F9.3	Chlorophyll c3
134	CHLC3_FLAG_W		I1	Quality flags for water samples
135	MGDVP	MG/CUM	F9.3	Mg2 4-divinyl pheoporphyrin a5 monomethyl ester
136	MGDVP_FLAG_W		I1	Quality flags for water samples
137	CHLC2	MG/CUM	F9.3	Chlorophyll c2
138	CHLC2_FLAG_W		I1	Quality flags for water samples
139	PERID	MG/CUM	F9.3	Peridin
140	PERID_FLAG_W		I1	Quality flags for water samples
141	PHIDEA	MG/CUM	F9.3	Pheophorbide a
142	PHIDEA_FLAG_W		I1	Quality flags for water samples
143	BUTFUCO	MG/CUM	F9.3	Butafucoxanthin
144	BUTFUCO_FLAG_W		I1	Quality flags for water samples

Column No.	FUCO Column Heading FUCO_FLAG_W	MG/CUM Units Mnemonic	F9.3 Reporting Precision FORTRAN Format	Fucoxanthin Comments Quality flags for water samples
147	NEO	MG/CUM	F9.3	Neoxanthin
148	NEO_FLAG_W		I1	Quality flags for water samples
149	PRAS	MG/CUM	F9.3	Prasinoxanthin
150	PRAS_FLAG_W		I1	Quality flags for water samples
151	HEXFUCO	MG/CUM	F9.3	19'-hexanoyloxyfucoxanthin
152	HEXFUCO_FLAG_W		I1	Quality flags for water samples
153	VIOLA	MG/CUM	F9.3	Violaxanthin
154	VIOLA_FLAG_W		I1	Quality flags for water samples
155	DIADINO	MG/CUM	F9.3	Diadinoxanthin
156	DIADINO_FLAG_W		I1	Quality flags for water samples
157	ALLO	MG/CUM	F9.3	Alloxanthin
158	ALLO_FLAG_W		I1	Quality flags for water samples
159	DIATO	MG/CUM	F9.3	Diatoxanthin
160	DIATO_FLAG_W		I1	Quality flags for water samples
161	ZEA	MG/CUM	F9.3	Zeaxanthin
162	ZEA_FLAG_W		I1	Quality flags for water samples
163	LUT	MG/CUM	F9.3	Lutein
164	LUT_FLAG_W		I1	Quality flags for water samples
165	CHLB	MG/CUM	F9.3	Chlorophyll b
166	CHLB_FLAG_W		I1	Quality flags for water samples
167	DCHLA	MG/CUM	F9.3	Divinyl Chlorophyll a
168	DCHLA_FLAG_W		I1	Quality flags for water samples
169	PHYTINA	MG/CUM	F9.3	Pheophytin a
170	PHYTINA_FLAG_W		I1	Quality flags for water samples
171	ALPHAC	MG/CUM	F9.3	Alpha-carotene
172	ALPHAC_FLAG_W		I1	Quality flags for water samples
173	BETAC	MG/CUM	F9.3	Beta-carotene
174	BETAC_FLAG_W		I1	Quality flags for water samples
175	DNSSAL	G/KG	F9.4	Absolute Salinity (Seawater Density)
176	DNSSAL_FLAG_W		I1	Quality flags for water samples
177	DNSSAL_1	G/KG	F9.4	Absolute Salinity (Seawater Density, replicate)
178	DNSSAL_1_FLAG_W		I1	Quality flags for water samples

ODV Format

Please see the following link for details of ODV Format and ODV Software.

[Ocean Data View \(ODV\)](#)

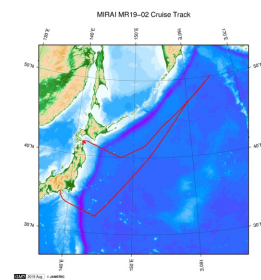
Format Information

Column No.	Column Heading	Comments
1	EXPOCODE	Cruise Label
2	Cruise	Cruise
3	Station	Station number_Cast number
4	Type	Station type
5	mon/day/yr	Cast date
6	hh:mm	Cast time
7	Latitude[degrees_north]	Latitude
8	Longitude[degrees_east]	Longitude
9	Bot. Depth[METERS]	Bottom depth
10	CTDDPT[METERS]	Depth
11	QF	Quality flags for CTD data
12	CTDPRS[DBAR]	Pressure
13	QF	Quality flags for CTD data
14	CTDTMP[ITS-90]	Temperature (primary sensor)
15	QF	Quality flags for CTD data
16	CTDTMP_1[ITS-90]	Temperature (secondary sensor)
17	QF	Quality flags for CTD data
18	SBE35[ITS-90]	Temperature from Deep Ocean Standards Thermometer
19	QF	Quality flags for CTD data
20	CTDSAL[PSS-78]	Salinity (primary sensor)
21	QF	Quality flags for CTD data
22	CTDSAL_1[PSS-78]	Salinity (secondary sensor)
23	QF	Quality flags for CTD data
24	CTDCND[S/M]	Conductivity (primary sensor)
25	QF	Quality flags for CTD data
26	CTDCND_1[S/M]	Conductivity (secondary sensor)
27	QF	Quality flags for CTD data
28	CTDOXY[UMOL/KG]	CTD-oxygen (primary sensor)
29	QF	Quality flags for CTD data
30	CTDOXY_1[UMOL/KG]	CTD-oxygen (secondary sensor)
31	QF	Quality flags for CTD data
32	CTDOXV[V]	CTD-oxygen voltage (primary sensor)
33	QF	Quality flags for CTD data
34	CTDOXV_1[V]	CTD-oxygen voltage (secondary sensor)
35	QF	Quality flags for CTD data
36	THETA[DEG C]	Potential temperature (primary sensor)
37	QF	Quality flags for CTD data
38	THETA_1[DEG C]	Potential temperature (secondary sensor)
39	QF	Quality flags for CTD data
40	SIG0[KG/CUM]	Density (primary sensor)
41	QF	Quality flags for CTD data
42	SIG0_1[KG/CUM]	Density (secondary sensor)

Column No.	Column Heading	Comments
43	QF	Quality flags for CTD data
44	XMISS[%TRANS]	Transmissometer
45	QF	Quality flags for CTD data
46	XMISSCP[METER]	Beam attenuation coefficient
47	QF	Quality flags for CTD data
48	XMISSV[V]	Transmissometer voltage
49	QF	Quality flags for CTD data
50	FLUOR[MG/CUM]	Fluorescence
51	QF	Quality flags for CTD data
52	PAR[UE/SQM/S]	PAR
53	QF	Quality flags for CTD data
54	TURB[FTU]	Turbidity
55	QF	Quality flags for CTD data
56	CTDCDOM[QSU]	CDOM (Colored dissolved organic matter) sensor
57	QF	Quality flags for water samples
58	SALNTY[PSS-78]	Bottle Salinity
59	QF	Quality flags for water samples
60	SALNTY_1[PSS-78]	Bottle Salinity (replicate)
61	QF	Quality flags for water samples
62	OXYGEN[UMOL/KG]	Bottle Oxygen
63	QF	Quality flags for water samples
64	OXYGEN_1[UMOL/KG]	Bottle Oxygen (replicate)
65	QF	Quality flags for water samples
66	SILCAT[UMOL/KG]	Silicate
67	QF	Quality flags for water samples
68	SILUNC	Uncertainty of Silicate data
69	QF	Quality flags for water samples
70	SILCAT1[UMOL/KG]	Silicate
71	QF	Quality flags for water samples
72	SILCAT2[UMOL/KG]	Silicate (replicate)
73	QF	Quality flags for water samples
74	NITRAT[UMOL/KG]	Nitrate
75	QF	Quality flags for water samples
76	NRAUNC	Uncertainty of Nitrate data
77	QF	Quality flags for water samples
78	NITRAT1[UMOL/KG]	Nitrate
79	QF	Quality flags for water samples
80	NITRAT2[UMOL/KG]	Nitrate (replicate)
81	QF	Quality flags for water samples
82	NITRIT[UMOL/KG]	Nitrite
83	QF	Quality flags for water samples
84	NRIUNC	Uncertainty of Nitrite data
85	QF	Quality flags for water samples
86	NITRIT1[UMOL/KG]	Nitrite
87	QF	Quality flags for water samples
88	NITRIT2[UMOL/KG]	Nitrite (replicate)
89	QF	Quality flags for water samples
90	PHSPHT[UMOL/KG]	Phosphate
91	QF	Quality flags for water samples
92	PHPUNC	Uncertainty of Phosphate data
93	QF	Quality flags for water samples
94	PHSPHT1[UMOL/KG]	Phosphate
95	QF	Quality flags for water samples
96	PHSPHT2[UMOL/KG]	Phosphate (replicate)
97	QF	Quality flags for water samples
98	NH4[UMOL/KG]	Ammonium
99	QF	Quality flags for water samples
100	NH4UNC	Uncertainty of Ammonium data
101	QF	Quality flags for water samples
102	NH41[UMOL/KG]	Ammonium
103	QF	Quality flags for water samples
104	NH42[UMOL/KG]	Ammonium (replicate)
105	QF	Quality flags for water samples
106	TCARBN[UMOL/KG]	Total Carbon CT
107	QF	Quality flags for water samples
108	TCARBN_1[UMOL/KG]	Total Carbon CT (replicate)
109	QF	Quality flags for water samples
110	ALKALI[UMOL/KG]	Total alkalinity
111	QF	Quality flags for water samples
112	ALKALI_1[UMOL/KG]	Total alkalinity (replicate)
113	QF	Quality flags for water samples
114	d-POC_1[mgC/m^3/day]	Carbon uptake rate (Primary Production)
115	QF	Quality flags for water samples
116	d-POC_2[mgC/m^3/day]	Carbon uptake rate (Primary Production, replicate)
117	QF	Quality flags for water samples
118	d-POC_Dark[mgC/m^3/day]	Carbon uptake rate (Primary Production, dark)
119	QF	Quality flags for water samples
120	CHLWEL[MG/CUM]	Chlorophyll a
121	QF	Quality flags for water samples
122	CHLWEL_1[MG/CUM]	Chlorophyll a (replicate)
123	QF	Quality flags for water samples
124	CHLHPLC[MG/CUM]	Chlorophyll a (HPLC)

Column No.	Column Heading	Comments
		Quality flags for water samples
126	SIZECHL>10um[MG/CUM]	Chlorophyll a > 10um
127	QF	Quality flags for water samples
128	SIZECHL3-10um[MG/CUM]	Chlorophyll a 3-10um
129	QF	Quality flags for water samples
130	SIZECHL1-3um[MG/CUM]	Chlorophyll a 1-3um
131	QF	Quality flags for water samples
132	SIZECHL<1um[MG/CUM]	Chlorophyll a < 1um
133	QF	Quality flags for water samples
134	CHLC3[MG/CUM]	Chlorophyll c3
135	QF	Quality flags for water samples
136	MGDVP[MG/CUM]	Mg2 4-divinyl pheoporpyrin a5 monometyl ester
137	QF	Quality flags for water samples
138	CHLC2[MG/CUM]	Chlorophyll c2
139	QF	Quality flags for water samples
140	PERID[MG/CUM]	Peridin
141	QF	Quality flags for water samples
142	PHIDEA[MG/CUM]	Pheophorbide a
143	QF	Quality flags for water samples
144	BUTFUCO[MG/CUM]	Butafucoxanthin
145	QF	Quality flags for water samples
146	FUCO[MG/CUM]	Fucoxanthin
147	QF	Quality flags for water samples
148	NEO[MG/CUM]	Neoxanthin
149	QF	Quality flags for water samples
150	PRAS[MG/CUM]	Prasinoxanthin
151	QF	Quality flags for water samples
152	HEXFUCO[MG/CUM]	19'-hexanoyloxyfucoxanthin
153	QF	Quality flags for water samples
154	VIOLA[MG/CUM]	Violaxanthin
155	QF	Quality flags for water samples
156	DIADINO[MG/CUM]	Diadinoxanthin
157	QF	Quality flags for water samples
158	ALLO[MG/CUM]	Alloxanthin
159	QF	Quality flags for water samples
160	DIATO[MG/CUM]	Diatoxanthin
161	QF	Quality flags for water samples
162	ZEA[MG/CUM]	Zeaxanthin
163	QF	Quality flags for water samples
164	LUT[MG/CUM]	Lutein
165	QF	Quality flags for water samples
166	CHLB[MG/CUM]	Chlorophyll b
167	QF	Quality flags for water samples
168	DCHLA[MG/CUM]	Divinyl Chlorophyll a
169	QF	Quality flags for water samples
170	PHYTINA[MG/CUM]	Pheophytin a
171	QF	Quality flags for water samples
172	ALPHAC[MG/CUM]	Alpha-carotene
173	QF	Quality flags for water samples
174	BETAC[MG/CUM]	Beta-carotene
175	QF	Quality flags for water samples
176	DNSSAL[G/KG]	Absolute Salinity (Seawater Density)
177	QF	Quality flags for water samples
178	DNSSAL_1[G/KG]	Absolute Salinity (Seawater Density, replicate)
179	QF	Quality flags for water samples
180	SAMPNO	Sample Number
181	QF	Bottle quality flags

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

2021-10-28 An observation data was registered.
2021-07-27 An observation data was registered.

JAMSTEC
Site Policy
Privacy Policy
Application for Data and Samples

Lists
Publication List
Amount of Public Info.
Data

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KAIYO
YOKOSUKA

Information of the Submersibles
KAIKO
SHINKAI 2000
SHINKAI 6500

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MIRAI MR19-02 Bottle Sampling Water Chemical Analysis

Last Modified: 2021-10-28

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

Cruise ID: [MR19-02](#)

Bottle Sampling Water Chemical Analysis: Processed (PI)

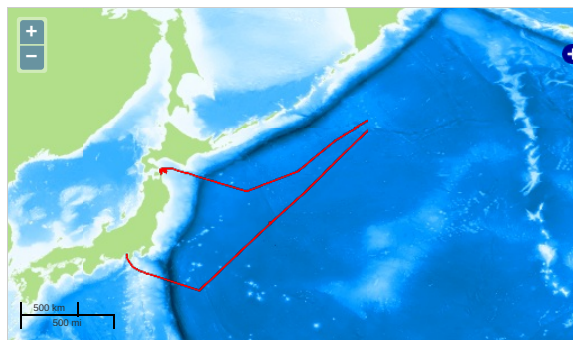
Data Policy: [JAMSTEC](#)

Observation Items: Pressure, Temperature, Practical salinity, Absolute salinity, Dissolved oxygen, Potential temperature, Density, Transmittance, Turbidity, Fluorescence, PAR, Silicate, Nitrate, Nitrite, Phosphate, Ammonia, Total inorganic carbon, Alkalinity, POC, Chlorophyll, Photosynthetic pigment, CDOM

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	> PHOSPHATE	
OCEANS	> OCEAN CHEMISTRY	> SILICATE	
OCEANS	> OCEAN CHEMISTRY	> CHLOROPHYLL	
OCEANS	> OCEAN TEMPERATURE	> WATER TEMPERATURE	
OCEANS	> SALINITY/DENSITY	> SALINITY	
BIOSPHERE	> AQUATIC ECOSYSTEMS	> PLANKTON	> PHYTOPLANKTON
OCEANS	> OCEAN OPTICS	> PHOTOSYNTHETICALLY ACTIVE RADIATION	
BIOSPHERE	> ECOLOGICAL DYNAMICS	> ECOSYSTEM FUNCTIONS	> PRIMARY PRODUCTION
OCEANS	> OCEAN CHEMISTRY	> ALKALINITY	
BIOSPHERE	> ECOLOGICAL DYNAMICS	> ECOSYSTEM FUNCTIONS	> PHOTOSYNTHESIS
OCEANS	> OCEAN CHEMISTRY	> CARBON	
OCEANS	> OCEAN TEMPERATURE	> POTENTIAL TEMPERATURE	

Observation Map



— ... Observation Line — ... Navigation ● ... Observation, Dive Point, Hole Imagery reproduced from ...

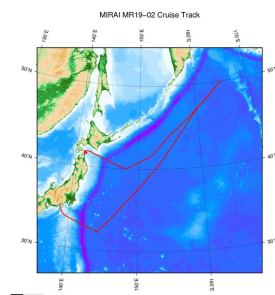
Data List

☐ File names

☐ MR190200_ex_bot.csv

☐ MR190200_odv_bot.txt

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]

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