

MIRAI MR17-04 Leg2 Bottle Sampling Water Chemical Analysis

Last Modified: 2019-09-20

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

Cruise ID: [MR17-04 Leg2](#)

Bottle Sampling Water Chemical Analysis : Processed (DMO)-QCed

Data Policy: [JAMSTEC](#)

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

Science Keywords:

OCEANS	> OCEAN CHEMISTRY	> AMMONIA
OCEANS	> OCEAN CHEMISTRY	> DISSOLVED GASES
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	> SILICATE
OCEANS	> OCEAN CHEMISTRY	> SALINITY
OCEANS	> OCEAN CHEMISTRY	> CHLOROPHYLL
OCEANS	> OCEAN TEMPERATURE	> WATER TEMPERATURE
OCEANS	> SALINITY/DENSITY	> SALINITY
BIOSPHERE	> AQUATIC ECOSYSTEMS	> PLANKTON
OCEANS	> OCEAN OPTICS	> PHOTOSYNTHETICALLY ACTIVE RADIATION
BIOSPHERE	> ECOLOGICAL DYNAMICS	> ECOSYSTEM FUNCTIONS
OCEANS	> OCEAN CHEMISTRY	> ALKALINITY
BIOSPHERE	> ECOLOGICAL DYNAMICS	> ECOSYSTEM FUNCTIONS
OCEANS	> OCEAN ACOUSTICS	> PHOTOSYNTHESIS
OCEANS	> OCEAN CHEMISTRY	> CARBON
OCEANS	> OCEAN OPTICS	> FLUORESCENCE
OCEANS	> OCEAN TEMPERATURE	> POTENTIAL TEMPERATURE

Cruise Report

http://www.godac.jamstec.go.jp/catalog/data/doc_catalog/media/MR17-04_leg1-2_all.pdf

For Using Data

Principal Investigator

CTD/O₂/OXYGEN : Yoshihiro Fujiwara (JAMSTEC)
 SVEL, XMISS, FLUOR, PAR, TURB : Yoshihiro Fujiwara (JAMSTEC)
 SALNTY, Nutrients : Masahide Wakita (JAMSTEC)
 DIC, ALKALI : Masahide Wakita (JAMSTEC)
 pH : Yoshihiro Fujiwara (JAMSTEC)
 CHLWEL, SIZECHL : Yoshihiro Fujiwara (JAMSTEC)
 Photosynthetic Pigments : Yoshihiro Fujiwara (JAMSTEC)
 Primary Production : Yoshihiro Fujiwara (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:

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



Instrument:

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



Instrument:

CN mass spectrometer



Instrument:

pH meter (MR02-K03 -)



Instrument:

Titration for DO Dissolved oxygen titration equipment (MR11-06 -)



Instrument:

Titration for total alkalinity (MR14-03 -)

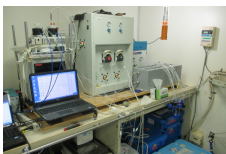
Instrument:

Fluorometer (TURNER DESIGNS)



Instrument:

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



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 : SBE03-04F, Sea-Bird Electronics, Inc.
Measurement range : -5 to +35 °C
Accuracy : ± 0.001 °C
Resolution : 0.0002 °C

Salinity sensor

Model : SBE04C, Sea-Bird Electronics, Inc.
Measurement range : 0 to 7 S/m
Accuracy : ± 0.0003 S/m
Resolution : 0.00004 S/m

DO sensor

Model : RINKO III, JFE Advantech Co. Ltd.
Measurement range : 0 to 200 % of surface saturation
Accuracy : $\pm 2\%$ FS, non linearity
Resolution : 0.01 to 0.04 %

Transmissometer

Model : C-Star, WET Labs, Inc.
Linearity : 99% R^2

Fluorometer

Model : Seapoint Chlorophyll Fluorometer, Seapoint Sensors, Inc.
Measurement range : 0 - 15 $\mu\text{g/l}$
Resolution : 0.02 $\mu\text{g/l}$

PAR sensor

Model : PAR-Log ICSW, Satlantic, Inc.
Measurement range : 0 - 5000 $\mu\text{mol photons m}^{-2} \text{s}^{-1}$

Turbidity

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

Sound velocity

Model : miniSVS OEM, Valeport, Ltd.
Measurement range : 1375 to 1900m/s
Resolution : 0.001m/s

Information on Chemical and Biological data

Salinity

Instruments : Autosal salinometer model 8400B (Guildline Instruments Ltd.)
Methods : -
Precision : The average and the standard deviation of absolute deference among 8 pairs of replicate samples were 0.0002 and 0.0002 in salinity
Reference Material/Calibration : IAPSO Standard Sea Water P159 (Ocean Scientific International Ltd.)

Dissolved Oxygen

Instruments : Burette: APB-510/APB-620 manufactured by Kyoto Electronic Co. Ltd. /10 cm³ of titration vessel
Detector and Software: Automatic photometric titrator DOT-01X manufactured by Kimoto Electronic Co. Ltd
Methods : Winkler method/photometric methods
Precision : 0.17 $\mu\text{mol kg}^{-1}$
Reference Material/Calibration : Potassium Iodate NMIJ CRM 3006-a No.058, The National Institute of Advanced Industrial Science and Technology

Silicate

Instruments : BL TEC K.K QuAAtro 2-HR
Methods : Molybdenum blue method
Precision : C.V. 0.12%
Reference Material/Calibration : CRM produced by KANSO Co., Ltd., 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. 0.16%
Reference Material/Calibration : CRM produced by KANSO Co., Ltd., potassium nitrate 99.995 suprapur® (Merck KGaA)

Nitrite

Instruments : BL TEC K.K QuAAtro 2-HR
Methods : Diazotization method
Precision : C.V. 0.18%
Reference Material/Calibration : CRM produced by KANSO Co., Ltd., sodium nitrite (Wako Pure Chemical Industries, Ltd.)

Phosphate

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

Ammonia

Instruments : BL TEC K.K QuAAtro 2-HR
Methods : Indophenol method
Precision : C.V. 0.35%

Precision : 0.001, 0.002

Reference Material/Calibration : ammonium sulfate (NMIJ CRM 3006-a No.058)

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 1.46 $\mu\text{mol kg}^{-1}$, standard deviation of the differences 1.16 $\mu\text{mol kg}^{-1}$

Reference Material/Calibration : CRM produced by KANSO CO., Ltd

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 3.73 $\mu\text{mol kg}^{-1}$, standard deviation of the differences 3.22 $\mu\text{mol kg}^{-1}$

Reference Material/Calibration : -

pH

Instruments : pH/Ion meter PHM240 (Radiometer Analytical SAS)

Methods : potentiometric methods

Precision : The average of differences 0.001 pH unit, the standard deviation of differences 0.001 pH units

Reference Material/Calibration : TRIS buffer and AMP buffer in the synthetic seawater (Total hydrogen ion concentration scale)

Carbon uptake rate (d-POC)

Instruments : ANCA-SL (SerCon Ltd.)

Methods : Dumas method, Mass spectrometry

Chlorophyll a

Instruments : Fluorophotometer model 10-AU-005 (Turner design)

Methods : Extract in N, N-dimethylformamide /fluorometric determination (Welschmeyer non-acidification method)

Precision : average of the relative error 2.9% (n = 24)

Reference Material/Calibration : Chlorophylla from Anacystis nidulans algae (Sigma-Aldrich Co. LLC)

Photosynthetic Pigments

Instruments : HPLC : Agilent1200 modular system

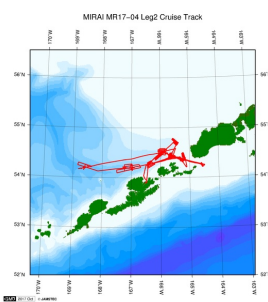
Methods : Van Heukelem and Thomas (2001)

Precision : repeatability of Chlorophyll a measurement 217.7 ± 1.7 (n = 15)

Reference Material/Calibration : see cruise report

Related Information

☒ Cruise Data ☐ Dive Data



[Enlarge Image](#)

MR17-04 Leg2

Ship Name: MIRAI

Period: 2017-08-05 - 2017-08-21

Chief Scientist: Yoshihiro Fujiwara (JAMSTEC)

Proposal [▶](#) Collaborative experiment on Biogeochemical and Ecosystem Studies for sub-Arctic sea

Title:

Update History

2019-09-20 An observation data was registerd.

JAMSTEC

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[6K Camera DEEP TOW](#)

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[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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国立研究開発法人
海洋研究開発機構

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ReadMe Observation Data **Data Format** Quality Information

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Bottle Sampling Water Chemical Analysis: Processed (DMO)-QCed

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	CRUISE		A8	Cruise
4	STNNBR		A6	Station Number
5	TYPE		A4	Type
6	CASTNO		I3	Cast Number
7	SAMPNO		A7	Sample Number
8	BTLNBR		A7	Bottle Number (S/N fixed to the sampling device)
9	BTLNBR_FLAG_W		I1	Bottle quality flags
10	DATE		I8	Cast date
11	TIME	UTC	A4	Cast time
12	LATITUDE	DEG	F8.4	Latitude
13	LONGITUDE	DEG	F9.4	Longitude
14	DEPTH	METERS	I5	Bottom depth
15	CTDDPT	METERS	F9.1	Depth
16	CTDDPT_FLAG_W		I1	Quality flags for CTD data
17	CTDPRS	DBAR	F9.1	Pressure
18	CTDPRS_FLAG_W		I1	Quality flags for CTD data
19	CTDTMP	ITS-90	F9.4	Temperature
20	CTDTMP_FLAG_W		I1	Quality flags for CTD data
21	SVEL	M/S	F9.3	Sound velocity
22	SVEL_FLAG_W		I1	Quality flags for CTD data
23	CTDSAL	PSS-78	F9.4	Salinity (primary sensor)
24	CTDSAL_FLAG_W		I1	Quality flags for CTD data
25	CTDCND	S/M	F11.6	Conductivity
26	CTDCND_FLAG_W		I1	Quality flags for CTD data
27	CTDOXY	UMOL/KG	F9.2	CTD-oxygen
28	CTDOXY_FLAG_W		I1	Quality flags for CTD data
29	CTDOXV	V	F9.4	CTD-oxygen voltage
30	CTDOXV_FLAG_W		I1	Quality flags for CTD data
31	THETA	DEG C	F9.4	Potential temperature
32	THETA_FLAG_W		I1	Quality flags for CTD data
33	SIG0	KG/CUM	F9.4	Density
34	SIG0_FLAG_W		I1	Quality flags for CTD data
35	XMISS	%TRANS	F9.3	Transmissometer
36	XMISS_FLAG_W		I1	Quality flags for CTD data
37	XMISSCP	/METER	F9.4	Beam attenuation coefficient
38	XMISSCP_FLAG_W		I1	Quality flags for CTD data
39	XMISSV	V	F9.4	Transmissometer voltage
40	XMISSV_FLAG_W		I1	Quality flags for CTD data
41	FLUOR	MG/CUM	F9.3	Chlorophyll-a measured by the fluorometer attached to CTD
42	FLUOR_FLAG_W		I1	Quality flags for CTD data
43	PAR	UE/SQM/S	F9.3	PAR
44	PAR_FLAG_W		I1	Quality flags for CTD data
45	TURB	FTU	F9.3	Turbidity
46	TURB_FLAG_W		I1	Quality flags for CTD data
47	SALNTY	PSS-78	F9.4	Bottle Salinity
48	SALNTY_FLAG_W		I1	Quality flags for water samples
49	SALNTY_1	PSS-78	F9.4	Bottle Salinity (replicate)
50	SALNTY_1_FLAG_W		I1	Quality flags for water samples
51	OXYGEN	UMOL/KG	F9.2	Bottle Oxygen
52	OXYGEN_FLAG_W		I1	Quality flags for water samples
53	OXYGEN_1	UMOL/KG	F9.2	Bottle Oxygen (replicate)
54	OXYGEN_1_FLAG_W		I1	Quality flags for water samples
55	SILCAT	UMOL/KG	F9.2	Silicate (Mean of replicate measurements)
56	SILCAT_FLAG_W		I1	Quality flags for water samples
57	SILUNC	UMOL/KG	F9.2	Uncertainty of Silicate data
58	SILCAT1	UMOL/KG	F9.2	Silicate
59	SILCAT1_FLAG_W		I1	Quality flags for water samples
60	SILCAT2	UMOL/KG	F9.2	Silicate (replicate)
61	SILCAT2_FLAG_W		I1	Quality flags for water samples
62	NITRAT	UMOL/KG	F9.2	Nitrate (Mean of replicate measurements)
63	NITRAT_FLAG_W		I1	Quality flags for water samples

Column No.	Column Heading Mnemonic	UNIT/KG Mnemonic	Reporting Precision F9.2 F9.2 Format	Comments Uncertainty of Nitrate data Nitrate
66	NITRAT1_FLAG_W		I1	Quality flags for water samples
67	NITRAT2	UMOL/KG	F9.2	Nitrate (replicate)
68	NITRAT2_FLAG_W		I1	Quality flags for water samples
69	NITRIT	UMOL/KG	F9.2	Nitrite (Mean of replicate measurements)
70	NITRIT_FLAG_W		I1	Quality flags for water samples
71	NRIUNC	UMOL/KG	F9.2	Uncertainty of Nitrite data
72	NITRIT1	UMOL/KG	F9.2	Nitrite
73	NITRIT1_FLAG_W		I1	Quality flags for water samples
74	NITRIT2	UMOL/KG	F9.2	Nitrite (replicate)
75	NITRIT2_FLAG_W		I1	Quality flags for water samples
76	PHSPHT	UMOL/KG	F9.3	Phosphate (Mean of replicate measurements)
77	PHSPHT_FLAG_W		I1	Quality flags for water samples
78	PHPUNC	UMOL/KG	F9.3	Uncertainty of Phosphate data
79	PHSPHT1	UMOL/KG	F9.3	Phosphate
80	PHSPHT1_FLAG_W		I1	Quality flags for water samples
81	PHSPHT2	UMOL/KG	F9.3	Phosphate (replicate)
82	PHSPHT2_FLAG_W		I1	Quality flags for water samples
83	NH4	UMOL/KG	F9.2	Ammonium (Mean of replicate measurements)
84	NH4_FLAG_W		I1	Quality flags for water samples
85	NH4UNC	UMOL/KG	F9.2	Uncertainty of Ammonium data
86	NH41	UMOL/KG	F9.2	Ammonium
87	NH41_FLAG_W		I1	Quality flags for water samples
88	NH42	UMOL/KG	F9.2	Ammonium (replicate)
89	NH42_FLAG_W		I1	Quality flags for water samples
90	TCARBN	UMOL/KG	F9.1	Total Carbon CT
91	TCARBN_FLAG_W		I1	Quality flags for water samples
92	TCARBN_1	UMOL/KG	F9.1	Total Carbon CT (replicate)
93	TCARBN_1_FLAG_W		I1	Quality flags for water samples
94	ALKALI	UMOL/KG	F9.1	Total alkalinity
95	ALKALI_FLAG_W		I1	Quality flags for water samples
96	ALKALI_1	UMOL/KG	F9.1	Total alkalinity (replicate)
97	ALKALI_1_FLAG_W		I1	Quality flags for water samples
98	PH		F9.4	pH
99	PH_FLAG_W		I1	Quality flags for water samples
100	PH_1		F9.4	pH (replicate)
101	PH_1_FLAG_W		I1	Quality flags for water samples
102	d-POC_1	mgC/m³/day	F9.4	Carbon uptake rate
103	d-POC_1_FLAG_W		I1	Quality flags for water samples
104	d-POC_2	mgC/m³/day	F9.4	Carbon uptake rate (replicate)
105	d-POC_2_FLAG_W		I1	Quality flags for water samples
106	d-POC_3	mgC/m³/day	F9.4	Carbon uptake rate(triplicate)
107	d-POC_3_FLAG_W		I1	Quality flags for water samples
108	d-POC_Dark	mgC/m³/day	F9.4	Carbon uptake rate (dark)
109	d-POC_Dark_FLAG_W		I1	Quality flags for water samples
110	CHLWEL	MG/CUM	F9.2	Chlorophyll a
111	CHLWEL_FLAG_W		I1	Quality flags for water samples
112	CHLWEL_1	MG/CUM	F9.2	Chlorophyll a (replicate)
113	CHLWEL_1_FLAG_W		I1	Quality flags for water samples
114	CHLHPLC	MG/CUM	F9.3	Chlorophyll a (HPLC)
115	CHLHPLC_FLAG_W		I1	Quality flags for water samples
116	SIZECHL>10um	MG/CUM	F9.2	Chlorophyll a > 10um
117	SIZECHL>10um_FLAG_W		I1	Quality flags for water samples
118	SIZECHL3-10um	MG/CUM	F9.2	Chlorophyll a 3-10um
119	SIZECHL3-10um_FLAG_W		I1	Quality flags for water samples
120	SIZECHL1-3um	MG/CUM	F9.2	Chlorophyll a 1-3um
121	SIZECHL1-3um_FLAG_W		I1	Quality flags for water samples
122	SIZECHL<1um	MG/CUM	F9.2	Chlorophyll a < 1um
123	SIZECHL<1um_FLAG_W		I1	Quality flags for water samples
124	CHLC3	MG/CUM	F9.3	Chlorophyll c3
125	CHLC3_FLAG_W		I1	Quality flags for water samples
126	CHLIDEA	MG/CUM	F9.3	Chlorophyllide a
127	CHLIDEA_FLAG_W		I1	Quality flags for water samples
128	CHLC2	MG/CUM	F9.3	Chlorophyll c2
129	CHLC2_FLAG_W		I1	Quality flags for water samples
130	PERID	MG/CUM	F9.3	Peridinin
131	PERID_FLAG_W		I1	Quality flags for water samples
132	PHIDEA	MG/CUM	F9.3	Pheophorbide a
133	PHIDEA_FLAG_W		I1	Quality flags for water samples
134	BUTFUCO	MG/CUM	F9.3	19'-butanoyloxyfucoxanthin
135	BUTFUCO_FLAG_W		I1	Quality flags for water samples
136	FUCO	MG/CUM	F9.3	Fucoxanthin
137	FUCO_FLAG_W		I1	Quality flags for water samples
138	NEO	MG/CUM	F9.3	9'-cis-Neoxanthin
139	NEO_FLAG_W		I1	Quality flags for water samples
140	PRAS	MG/CUM	F9.3	Prasinoxanthin
141	PRAS_FLAG_W		I1	Quality flags for water samples
142	HEXFUCO	MG/CUM	F9.3	19'-hexanoyloxyfucoxanthin
143	HEXFUCO_FLAG_W		I1	Quality flags for water samples
144	VIOLA	MG/CUM	F9.3	Violaxanthin

Column No.	Column Heading	Units	Reporting Precision	FORTRAN Format	Comments
145	DIADINO_FLAG_W				Quality flags for water samples
147	DIADINO_FLAG_W		I1		Diadinoxanthin
148	ALLO	MG/CUM	F9.3		Alloxanthin
149	ALLO_FLAG_W		I1		Quality flags for water samples
150	DIATO	MG/CUM	F9.3		Diatoxanthin
151	DIATO_FLAG_W		I1		Quality flags for water samples
152	ZEAX	MG/CUM	F9.3		Zeaxanthin
153	ZEAX_FLAG_W		I1		Quality flags for water samples
154	LUTEIN	MG/CUM	F9.3		Lutein
155	LUTEIN_FLAG_W		I1		Quality flags for water samples
156	CHLOROPHYLL_B	MG/CUM	F9.3		Chlorophyll b
157	CHLOROPHYLL_B_FLAG_W		I1		Quality flags for water samples
158	PHYTIN_A	MG/CUM	F9.3		Pheophytin a
159	PHYTIN_A_FLAG_W		I1		Quality flags for water samples
160	ALPHA_CAROTENE	MG/CUM	F9.3		Alpha-carotene
161	ALPHA_CAROTENE_FLAG_W		I1		Quality flags for water samples
162	BETA_CAROTENE	MG/CUM	F9.3		Beta-carotene
163	BETA_CAROTENE_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

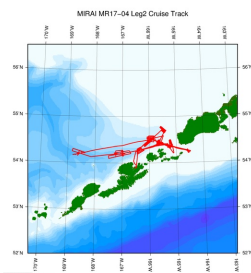
Column No.	Column Heading	Comments
1	EXPCODE	Cruise Label
2	Cruise	Cruise
3	Station	Station number_Cast number
4	Type	Station type
5	mon/day/yr	Cast date
6	hh:mm	Cast time
7	Latitude[degrees_north]	Latitude
8	Longitude[degrees_east]	Longitude
9	Bot. Depth[METERS]	Bottom depth
10	CTDDPT[METERS]	Depth
11	QF	Quality flags for CTD data
12	CTDPRS[DBAR]	Pressure
13	QF	Quality flags for CTD data
14	CTDTMP[ITS-90]	Temperature
15	QF	Quality flags for CTD data
16	SVEL[M/S]	Sound velocity
17	QF	Quality flags for CTD data
18	CTDSAL[PSS-78]	Salinity
19	QF	Quality flags for CTD data
20	CTDCND[S/M]	Conductivity
21	QF	Quality flags for CTD data
22	CTDOXY[UMOL/KG]	CTD-oxygen
23	QF	Quality flags for CTD data
24	CTDOXV[V]	CTD-oxygen voltage
25	QF	Quality flags for CTD data
26	THETA[DEG C]	Potential temperature
27	QF	Quality flags for CTD data
28	SIG0[KG/CUM]	Density
29	QF	Quality flags for CTD data
30	XMISS[%TRANS]	Transmissometer
31	QF	Quality flags for CTD data
32	XMISSCP[/METER]	Beam attenuation coefficient
33	QF	Quality flags for CTD data
34	XMISSV[V]	Transmissometer voltage
35	QF	Quality flags for CTD data
36	FLUOR[MG/CUM]	Chlorophyll-a measured by the fluorometer attached to CTD
37	QF	Quality flags for CTD data
38	PAR[UE/SQM/S]	PAR
39	QF	Quality flags for CTD data
40	TURB[FTU]	Turbidity
41	QF	Quality flags for CTD data
42	SALNTY[PSS-78]	Bottle Salinity
43	QF	Quality flags for water samples
44	SALNTY_1[PSS-78]	Bottle Salinity (replicate)
45	QF	Quality flags for water samples
46	OXYGEN[UMOL/KG]	Bottle Oxygen
47	QF	Quality flags for water samples
48	OXYGEN_1[UMOL/KG]	Bottle Oxygen (replicate)
49	QF	Quality flags for water samples
50	SILCAT[UMOL/KG]	Silicate (Mean of replicate measurements)
51	QF	Quality flags for water samples
52	SILUNC	Uncertainty of Silicate data
53	QF	Quality flags for water samples
54	SILCAT1[UMOL/KG]	Silicate
55	QF	Quality flags for water samples
56	SILCAT2[UMOL/KG]	Silicate (replicate)
57	QF	Quality flags for water samples

58 Column No.	NITRAT[UMOL/KG] Column Heading	Nitrate (Mean of replicate measurements) Comments
59	QF	Quality flags for water samples
60	NRAUNC	Uncertainty of Nitrate data
61	QF	Quality flags for water samples
62	NITRAT1[UMOL/KG]	Nitrate
63	QF	Quality flags for water samples
64	NITRAT2[UMOL/KG]	Nitrate (replicate)
65	QF	Quality flags for water samples
66	NITRIT[UMOL/KG]	Nitrite (Mean of replicate measurements)
67	QF	Quality flags for water samples
68	NRIUNC	Uncertainty of Nitrite data
69	QF	Quality flags for water samples
70	NITRIT1[UMOL/KG]	Nitrite
71	QF	Quality flags for water samples
72	NITRIT2[UMOL/KG]	Nitrite (replicate)
73	QF	Quality flags for water samples
74	PHSPHT[UMOL/KG]	Phosphate (Mean of replicate measurements)
75	QF	Quality flags for water samples
76	PHPUNC	Uncertainty of Phosphate data
77	QF	Quality flags for water samples
78	PHSPHT1[UMOL/KG]	Phosphate
79	QF	Quality flags for water samples
80	PHSPHT2[UMOL/KG]	Phosphate (replicate)
81	QF	Quality flags for water samples
82	NH4[UMOL/KG]	Ammonium (Mean of replicate measurements)
83	QF	Quality flags for water samples
84	NH4UNC	Uncertainty of Ammonium data
85	QF	Quality flags for water samples
86	NH41[UMOL/KG]	Ammonium
87	QF	Quality flags for water samples
88	NH42[UMOL/KG]	Ammonium (replicate)
89	QF	Quality flags for water samples
90	TCARBN[UMOL/KG]	Total Carbon CT
91	QF	Quality flags for water samples
92	TCARBN_1[UMOL/KG]	Total Carbon CT (replicate)
93	QF	Quality flags for water samples
94	ALKALI[UMOL/KG]	Total alkalinity
95	QF	Quality flags for water samples
96	ALKALI_1[UMOL/KG]	Total alkalinity (replicate)
97	QF	Quality flags for water samples
98	PH	pH
99	QF	Quality flags for water samples
100	PH_1	pH (replicate)
101	QF	Quality flags for water samples
102	d-POC_1[mgC/m^3/day]	Carbon uptake rate
103	QF	Quality flags for water samples
104	d-POC_2[mgC/m^3/day]	Carbon uptake rate (replicate)
105	QF	Quality flags for water samples
106	d-POC_3[mgC/m^3/day]	Carbon uptake rate(triplicate)
107	QF	Quality flags for water samples
108	d-POC_Dark[mgC/m^3/day]	Carbon uptake rate (dark)
109	QF	Quality flags for water samples
110	CHLWEL[MG/CUM]	Chlorophyll a
111	QF	Quality flags for water samples
112	CHLWEL_1[MG/CUM]	Chlorophyll a (replicate)
113	QF	Quality flags for water samples
114	CHLHPLC[MG/CUM]	Chlorophyll a (HPLC)
115	QF	Quality flags for water samples
116	SIZECHL>10um[MG/CUM]	Chlorophyll a > 10um
117	QF	Quality flags for water samples
118	SIZECHL3-10um[MG/CUM]	Chlorophyll a 3-10um
119	QF	Quality flags for water samples
120	SIZECHL1-3um[MG/CUM]	Chlorophyll a 1-3um
121	QF	Quality flags for water samples
122	SIZECHL<1um[MG/CUM]	Chlorophyll a < 1um
123	QF	Quality flags for water samples
124	CHLC3[MG/CUM]	Chlorophyll c3
125	QF	Quality flags for water samples
126	CHLIDEA[MG/CUM]	Chlorophyllide a
127	QF	Quality flags for water samples
128	CHLC2[MG/CUM]	Chlorophyll c2
129	QF	Quality flags for water samples
130	PERID[MG/CUM]	Peridin
131	QF	Quality flags for water samples
132	PHIDEA[MG/CUM]	Pheophorbide a
133	QF	Quality flags for water samples
134	BUTFUCO[MG/CUM]	19'-butanoyloxyfucoxanthin
135	QF	Quality flags for water samples
136	FUCO[MG/CUM]	Fucoxanthin
137	QF	Quality flags for water samples
138	NEO[MG/CUM]	9'-cis-Neoxanthin
139	QF	Quality flags for water samples

Column No.	Column Heading	Comments
141	QF	Quality flags for water samples
142	HEXFUCO[MG/CUM]	19'-hexanoyloxyfucoxanthin
143	QF	Quality flags for water samples
144	VIOLA[MG/CUM]	Violaxanthin
145	QF	Quality flags for water samples
146	DIADINO[MG/CUM]	Diadinoxanthin
147	QF	Quality flags for water samples
148	ALLO[MG/CUM]	Alloxanthin
149	QF	Quality flags for water samples
150	DIATO[MG/CUM]	Diatoxanthin
151	QF	Quality flags for water samples
152	ZEA[MG/CUM]	Zeaxanthin
153	QF	Quality flags for water samples
154	LUT[MG/CUM]	Lutein
155	QF	Quality flags for water samples
156	CHLB[MG/CUM]	Chlorophyll b
157	QF	Quality flags for water samples
158	PHYTINA[MG/CUM]	Pheophytin a
159	QF	Quality flags for water samples
160	ALPHAC[MG/CUM]	Alpha-carotene
161	QF	Quality flags for water samples
162	BETAC[MG/CUM]	Beta-carotene
163	QF	Quality flags for water samples
164	SAMPNO	Sample Number
165	QF	Bottle quality flags

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MR17-04 Leg2

Ship Name: MIRAI

Period: 2017-08-05 - 2017-08-21

Chief Scientist: Yoshihiro Fujiwara (JAMSTEC)

Proposal ▶ Collaborative experiment on Biogeochemical and Ecosystem Studies for sub-Arctic sea

Title:

Update History

2019-09-20 An observation data was registered.

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MIRAI MR17-04 Leg2 Bottle Sampling Water Chemical Analysis

Last Modified: 2019-09-20

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

Cruise ID: [MR17-04 Leg2](#)

Bottle Sampling Water Chemical Analysis: Processed (DMO)-QCed

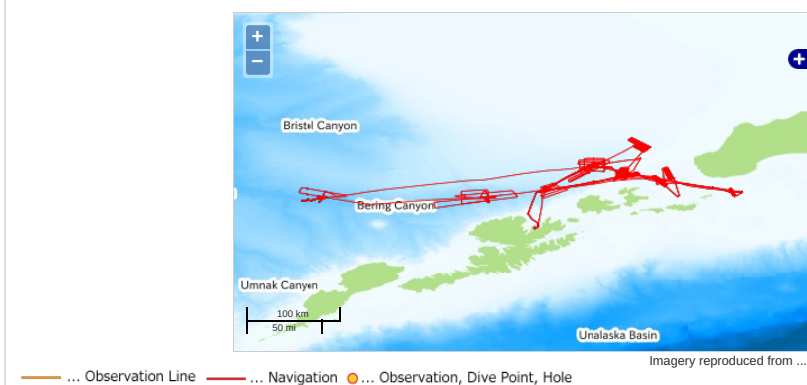
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Observation Items: Pressure, Temperature, Practical salinity, Dissolved oxygen, Potential temperature, Density, Transmittance, Turbidity, Fluorescence, PAR, Silicate, Nitrate, Nitrite, Phosphate, Ammonia, Total inorganic carbon, Alkalinity, pH, POC,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

Science Keywords:

OCEANS	> OCEAN CHEMISTRY	> AMMONIA	
OCEANS	> OCEAN CHEMISTRY	> DISSOLVED GASES	
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	> SILICATE	
OCEANS	> OCEAN CHEMISTRY	> SALINITY	
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 ACOUSTICS		
OCEANS	> OCEAN CHEMISTRY	> CARBON	
OCEANS	> OCEAN OPTICS	> FLUORESCENCE	
OCEANS	> OCEAN TEMPERATURE	> POTENTIAL TEMPERATURE	

Observation Map



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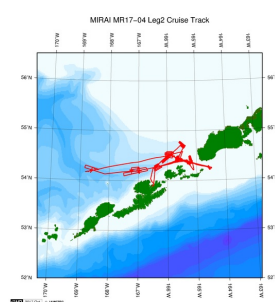
☐ File names

☐ MR170402_ex_bot.csv

☐ MR170402_odv_bot.txt

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MR17-04 Leg2

Ship Name: MIRAI

Period: 2017-08-05 - 2017-08-21

Chief Scientist: Yoshihiro Fujiwara (JAMSTEC)

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