

\*データのご利用にあたって

- ・データポリシー JAMSTEC
- ・データ責任者 JAMSTEC / BPPT joint cruise in the Indonesian waters. また、品質情報も参照ください。
- ・データの利用制限 データ利用の制限については 注意事項 をご参照ください。
- ・引用方法 データの引用については 注意事項 をご参照ください。

品質

DMO-Processed

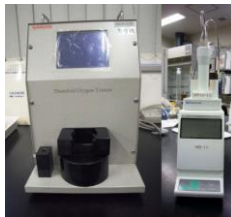
観測機器

機器名

塩分測定装置 (オートサル)



溶存酸素測定用滴定装置  
(MR11-06 - )

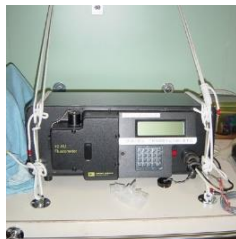


栄養塩分析装置 (5ch)  
(MR09-02 - )



機器名

クロロフィル測定用蛍光光度計



Information on CTD data

Pressure sensor

Manufacturer : Sea-Bird Scientific  
Type : SBE9plus  
Measurement range : 0 to 10500 m  
Accuracy : +/-0.015% F.S.  
Resolution : 0.001% F.S.

Temperature sensor

Manufacturer : Sea-Bird Scientific  
Type : SBE3  
Measurement range : -5 to +35 deg-C  
Accuracy : +/-0.001 deg-C  
Resolution : 0.0003 deg-C

Salinity sensor

Manufacturer : Sea-Bird Scientific  
Type : SBE4  
Measurement range : 0.0 to 7.0 S/m  
Accuracy : +/-0.0003 S/m  
Resolution : 0.00004 S/m

DO sensor

Manufacturer : Sea-Bird Scientific  
Type : SBE43  
Measurement range : 120% of surface saturation  
Accuracy : 2% of saturation

Fluorometer	
Manufacturer :	Seapoint Sensors, Inc.
Type :	Seapoint Chlorophyll Fluorometer
Measurement range :	0 to 15 $\mu\text{g/l}$ at Gain $10\times$
Resolution :	0.02 $\mu\text{g/l}$

PAR sensor	
Manufacturer :	Sea-Bird Scientific (former Satlantic Inc)
Type :	PAR-Log ICSW
Measurement range :	0 to 5000 $\mu\text{mol photons m}^{-2}\text{s}^{-1}$

#### Information on Chemical and Biological data

Salinity	
Manufacturer :	Guildline Instruments Ltd.
Type :	Autosal salinometer model 8400B
Precision :	Average of absolute difference 0.00032 , standard deviation of absolute difference 0.00026 (39 pairs of replicate samples)
Reference Material/Calibration :	IAPSO Standard Sea Water P160 (Ocean Scientific International Ltd.)

Dissolved Oxygen	
Burette :	
Manufacturer :	Kyoto Electronic Co. Ltd.
Type :	APB-510/APB-620
Detector :	
Manufacturer :	Kimoto Electronic Co. Ltd
Type :	Automatic photometric titrator DOT-01X
Methods :	Winkler method/photometric methods
Precision :	0.13 $\mu\text{mol kg}^{-1}$ (113 pairs of replicate samples)
Reference Material/Calibration :	The standard potassium iodate (NMIJ CRM 3006-a No.058)

Silicate	
Manufacturer :	BL TEC K.K.
Type :	QuAAtro 2-HR
Methods :	Molybdenum blue method
Precision :	C.V. 0.12%
Reference Material/Calibration :	Silicon standard solution $\text{SiO}_2$ in NaOH 0.5 mol/L CertiPUR® (Merck KGaA)

Nitrate	
Manufacturer :	BL TEC K.K.
Type :	QuAAtro 2-HR
Methods :	Diazotization method (reduced to nitrite by Cd - Cu tube)
Precision :	C.V. 0.17%
Reference Material/Calibration :	Potassium nitrate 99.995 suprapur® (Merck KGaA)

Nitrite	
Manufacturer :	BL TEC K.K.
Type :	QuAAtro 2-HR
Methods :	Diazotization method
Precision :	C.V. 0.21%
Reference Material/Calibration :	Nitrite ion standard solution (Wako Pure Chemical Industries, Ltd.)

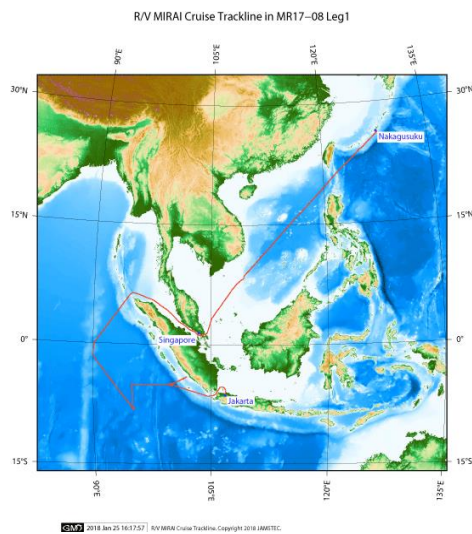
Phosphate	
Manufacturer :	BL TEC K.K.
Type :	QuAatro 2-HR
Methods :	Molybdenum blue method
Precision :	C.V. 0.16% (standard solution)
Reference Material/Calibration :	potassium dihydrogen phosphate anhydrous 99.995 suprapur® (Merck KGaA)
Chlorophyll a	
Manufacturer :	Turner Designs, Inc
Type :	Fluorophotometer model 10-AU-005
Methods :	Extract in N, N-dimethylformamide /fluorometric determination (Welschmeyer non-acidification method)
Precision :	The relative error was 3% (116 pairs of replicate samples)
Reference Material/Calibration :	Pure chlorophyll a (Sigma-Aldrich Co., LLC)

品質情報

データの品質評価者は下記の通りです。（DATA\_IDはフォーマットの項目参照）

DATA_ID	Name
CTD/O2, FLUOR, PAR	横井 覚（海洋研究開発機構）
SALNTY, OXYGEN	横井 覚（海洋研究開発機構）
Nutrients	横井 覚（海洋研究開発機構）
Chlorophyll	松本 和彦（海洋研究開発機構）

## 関連情報



### MR17-08 Leg1

船舶名： みらい  
期間： 2017/11/11 -2018/01/04  
主席/首席： 横井 覚（海洋研究開発機構）  
課題名： 東インド洋湧昇域における大気海洋相互作用研究

Argo(アルゴ)型フロートを用いたインド洋の表層～深層  
海洋環境変動モニタリング

船舶型スカイラジオメーター観測から得られる海洋大気  
エアロゾルの光学的特性

雲・大気混合層高度の時空間分布の観測

MJOに伴う降水及び水蒸気同位体比変動に関する観測研  
究

海洋大陸域における組織化した降水システムとコールド  
プールに関する研究

海大陸域の熱的局地循環による積雲集団の組織化機構の  
解明

## ボトル採水化学分析 (Exchange Format フォーマット)

このデータはCCHDO (CLIVAR and Carbon Hydrographic Data Office) のExchange Formatに準拠しています。Exchange FormatについてはCCHDOのサイトをご覧ください。

\* <https://cchdo.ucsd.edu/formats>

### Exchange Format

No.	項目	表示書式	単位	備考
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	A4	UTC	Cast time
11	LATITUDE	F8.4	DEG	Latitude
12	LONGITUDE	F9.4	DEG	Longitude
13	DEPTH	I5	METERS	Bottom depth
14	CTDDPT	F9.1	METERS	Depth
15	CTDDPT_FLAG_W	I1		Quality flags for CTD data
16	CTDPRS	F9.1	DBAR	Pressure
17	CTDPRS_FLAG_W	I1		Quality flags for CTD data
18	CTDTMP	F9.4	ITS-90	Temperature (primary sensor)
19	CTDTMP_FLAG_W	I1		Quality flags for CTD data
20	CTDTMP_1	F9.4	ITS-90	Temperature (secondary sensor)
21	CTDTMP_1_FLAG_W	I1		Quality flags for CTD data
22	CTDSAL	F9.4	PSS-78	Salinity (primary sensor)
23	CTDSAL_FLAG_W	I1		Quality flags for CTD data
24	CTDSAL_1	F9.4	PSS-78	Salinity (secondary sensor)
25	CTDSAL_1_FLAG_W	I1		Quality flags for CTD data
26	CTDCND	F11.6	S/M	Conductivity (primary sensor)
27	CTDCND_FLAG_W	I1		Quality flags for CTD data
28	CTDCND_1	F11.6	S/M	Conductivity (secondary sensor)
29	CTDCND_1_FLAG_W	I1		Quality flags for CTD data
30	CTDOXY_2	F9.2	UMOL/KG	CTD-oxygen (primary sensor)
31	CTDOXY_2_FLAG_W	I1		Quality flags for CTD data
32	CTDOXY_3	F9.2	UMOL/KG	CTD-oxygen (secondary sensor)
33	CTDOXY_3_FLAG_W	I1		Quality flags for CTD data
34	CTDOXV_2	F9.4	V	CTD-oxygen voltage (primary sensor)
35	CTDOXV_2_FLAG_W	I1		Quality flags for CTD data
36	CTDOXV_3	F9.4	V	CTD-oxygen voltage (secondary sensor)
37	CTDOXV_3_FLAG_W	I1		Quality flags for CTD data
38	THETA	F9.4	DEG C	Potential temperature (primary sensor)
39	THETA_FLAG_W	I1		Quality flags for CTD data
40	THETA_1	F9.4	DEG C	Potential temperature (secondary sensor)
41	THETA_1_FLAG_W	I1		Quality flags for CTD data
42	SIG0	F9.4	KG/CUM	Density (primary sensor)
43	SIG0_FLAG_W	I1		Quality flags for CTD data
44	SIG0_1	F9.4	KG/CUM	Density (secondary sensor)
45	SIG0_1_FLAG_W	I1		Quality flags for CTD data
46	FLUOR	F9.3	MG/CUM	Fluorescence

47	FLUOR_FLAG_W	I1		Quality flags for CTD data
48	PAR	F9.3	UMOL/M^2/SEC	downwelling photosynthetic photon flux in sea water
49	PAR_FLAG_W	I1		Quality flags for CTD data
50	SALNTY	F9.4	PSS-78	Bottle Salinity
51	SALNTY_FLAG_W	I1		Quality flags for water samples
52	SALNTY_1	F9.4	PSS-78	Bottle Salinity (replicate)
53	SALNTY_1_FLAG_W	I1		Quality flags for water samples
54	OXYGEN	F9.2	UMOL/KG	Bottle Oxygen
55	OXYGEN_FLAG_W	I1		Quality flags for water samples
56	OXYGEN_1	F9.2	UMOL/KG	Bottle Oxygen (replicate)
57	OXYGEN_1_FLAG_W	I1		Quality flags for water samples
58	SILCAT	F9.2	UMOL/KG	Silicate (final)
59	SILCAT_FLAG_W	I1		Quality flags for water samples
60	SILUNC	F9.2	UMOL/KG	Uncertainty of Silicate data
61	SILCAT1	F9.2	UMOL/KG	Silicate
62	SILCAT1_FLAG_W	I1		Quality flags for water samples
63	SILCAT2	F9.2	UMOL/KG	Silicate (replicate)
64	SILCAT2_FLAG_W	I1		Quality flags for water samples
65	NITRAT	F9.2	UMOL/KG	Nitrate (final)
66	NITRAT_FLAG_W	I1		Quality flags for water samples
67	NRAUNC	F9.2	UMOL/KG	Uncertainty of Nitrate data
68	NITRAT1	F9.2	UMOL/KG	Nitrate
69	NITRAT1_FLAG_W	I1		Quality flags for water samples
70	NITRAT2	F9.2	UMOL/KG	Nitrate (replicate)
71	NITRAT2_FLAG_W	I1		Quality flags for water samples
72	NITRIT	F9.2	UMOL/KG	Nitrite (final)
73	NITRIT_FLAG_W	I1		Quality flags for water samples
74	NRIUNC	F9.2	UMOL/KG	Uncertainty of Nitrite data
75	NITRIT1	F9.2	UMOL/KG	Nitrite
76	NITRIT1_FLAG_W	I1		Quality flags for water samples
77	NITRIT2	F9.2	UMOL/KG	Nitrite (replicate)
78	NITRIT2_FLAG_W	I1		Quality flags for water samples
79	PHSPHT	F9.3	UMOL/KG	Phosphate (final)
80	PHSPHT_FLAG_W	I1		Quality flags for water samples
81	PHPUNC	F9.3	UMOL/KG	Uncertainty of Phosphate data
82	PHSPHT1	F9.3	UMOL/KG	Phosphate
83	PHSPHT1_FLAG_W	I1		Quality flags for water samples
84	PHSPHT2	F9.3	UMOL/KG	Phosphate (replicate)
85	PHSPHT2_FLAG_W	I1		Quality flags for water samples
86	CHLWEL	F9.2	MG/CUM	Chlorophyll a
87	CHLWEL_FLAG_W	I1		Quality flags for water samples
88	CHLWEL_1	F9.2	MG/CUM	Chlorophyll a (replicate)
89	CHLWEL_1_FLAG_W	I1		Quality flags for water samples
90	SIZECHL>10um	F9.2	MG/CUM	Chlorophyll a > 10um
91	SIZECHL>10um_FLAG_W	I1		Quality flags for water samples
92	SIZECHL3-10um	F9.2	MG/CUM	Chlorophyll a 3-10um
93	SIZECHL3-10um_FLAG_W	I1		Quality flags for water samples
94	SIZECHL1-3um	F9.2	MG/CUM	Chlorophyll a 1-3um
95	SIZECHL1-3um_FLAG_W	I1		Quality flags for water samples
96	SIZECHL<1um	F9.2	MG/CUM	Chlorophyll a < 1um
97	SIZECHL<1um_FLAG_W	I1		Quality flags for water samples

## ボトル採水化学分析（Ocean Data Viewフォーマット）

このデータはOcean Data View (ODV) 対応のODV spreadsheet format (タブ区切り、拡張子.txt) に準拠しています。

ODVは、海洋学などの連続データ、もしくはグリッドデータを可視化するソフトウェアです。

ODVおよびODV spreadsheet formatの詳細についてはODVのサイト\*をご覧ください。

\* <https://odv.awi.de/>

### ODV Format

No.	項目	備考
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	CTDSAL[PSS-78]	Salinity (primary sensor)
19	QF	Quality flags for CTD data
20	CTDSAL_1[PSS-78]	Salinity (secondary sensor)
21	QF	Quality flags for CTD data
22	CTDCND[S/M]	Conductivity (primary sensor)
23	QF	Quality flags for CTD data
24	CTDCND_1[S/M]	Conductivity (secondary sensor)
25	QF	Quality flags for CTD data
26	CTDOXY_2[UMOL/KG]	CTD-oxygen (primary sensor)
27	QF	Quality flags for CTD data
28	CTDOXY_3[UMOL/KG]	CTD-oxygen (secondary sensor)
29	QF	Quality flags for CTD data
30	CTDOXV_2[V]	CTD-oxygen voltage (primary sensor)
31	QF	Quality flags for CTD data
32	CTDOXV_3[V]	CTD-oxygen voltage (secondary sensor)
33	QF	Quality flags for CTD data
34	THETA[DEG C]	Potential temperature (primary sensor)
35	QF	Quality flags for CTD data
36	THETA_1[DEG C]	Potential temperature (secondary sensor)
37	QF	Quality flags for CTD data
38	SIG0[KG/CUM]	Density (primary sensor)
39	QF	Quality flags for CTD data
40	SIG0_1[KG/CUM]	Density (secondary sensor)
41	QF	Quality flags for CTD data
42	FLUOR[MG/CUM]	Fluorescence
43	QF	Quality flags for CTD data
44	PAR[UMOL/M^2/SEC]	downwelling photosynthetic photon flux in sea water

45	QF	Quality flags for CTD data
46	SALNTY[PSS-78]	Bottle Salinity
47	QF	Quality flags for water samples
48	SALNTY_1[PSS-78]	Bottle Salinity (replicate)
49	QF	Quality flags for water samples
50	OXYGEN[UMOL/KG]	Bottle Oxygen
51	QF	Quality flags for water samples
52	OXYGEN_1[UMOL/KG]	Bottle Oxygen (replicate)
53	QF	Quality flags for water samples
54	SILCAT[UMOL/KG]	Silicate (final)
55	QF	Quality flags for water samples
56	SILUNC	Uncertainty of Silicate data
57	QF	Quality flags for water samples
58	SILCAT1[UMOL/KG]	Silicate
59	QF	Quality flags for water samples
60	SILCAT2[UMOL/KG]	Silicate (replicate)
61	QF	Quality flags for water samples
62	NITRAT[UMOL/KG]	Nitrate (final)
63	QF	Quality flags for water samples
64	NRAUNC	Uncertainty of Nitrate data
65	QF	Quality flags for water samples
66	NITRAT1[UMOL/KG]	Nitrate
67	QF	Quality flags for water samples
68	NITRAT2[UMOL/KG]	Nitrate (replicate)
69	QF	Quality flags for water samples
70	NITRIT[UMOL/KG]	Nitrite (final)
71	QF	Quality flags for water samples
72	NRIUNC	Uncertainty of Nitrite data
73	QF	Quality flags for water samples
74	NITRIT1[UMOL/KG]	Nitrite
75	QF	Quality flags for water samples
76	NITRIT2[UMOL/KG]	Nitrite (replicate)
77	QF	Quality flags for water samples
78	PHSPHT[UMOL/KG]	Phosphate (final)
79	QF	Quality flags for water samples
80	PHPUNC	Uncertainty of Phosphate data
81	QF	Quality flags for water samples
82	PHSPHT1[UMOL/KG]	Phosphate
83	QF	Quality flags for water samples
84	PHSPHT2[UMOL/KG]	Phosphate (replicate)
85	QF	Quality flags for water samples
86	CHLWEL[MG/CUM]	Chlorophyll a
87	QF	Quality flags for water samples
88	CHLWEL_1[MG/CUM]	Chlorophyll a (replicate)
89	QF	Quality flags for water samples
90	SIZECHL>10um[MG/CUM]	Chlorophyll a > 10um
91	QF	Quality flags for water samples
92	SIZECHL3-10um[MG/CUM]	Chlorophyll a 3-10um
93	QF	Quality flags for water samples
94	SIZECHL1-3um[MG/CUM]	Chlorophyll a 1-3um
95	QF	Quality flags for water samples
96	SIZECHL<1um[MG/CUM]	Chlorophyll a < 1um
97	QF	Quality flags for water samples
98	SAMPNO	Sample Number
99	QF	Bottle quality flags

## ボトル採水化学分析 品質管理フラグ

ボトルデータでは Exchange フォーマットを基にODV (Ocean Data View) フォーマットに変換し、Exchange フォーマットのフラグに対応するODVのフラグを付与しています。

ODV flagging schemes Version 1.0 : 「みらい」の MR14-06 Leg3 以前のボトルデータ、「かいよう」のボトルデータ

ODV flagging schemes Version 1.4 : 「みらい」の MR15-02 以降のボトルデータ (2015年7月以降のボトルデータ)

### 1. Bottle quality flags

Exchange フォーマット	ODV Version: 1.0	ODV Version: 1.4
1 = Bottle information unavailable.	1 : unknown	1 : unknown quality
2 = No problems noted.	0 : good	0 : good quality
3 = Leaking.	4 : questionable	4 : questionable quality
4 = Did not trip correctly.	8 : bad	8 : bad quality
5 = Not reported.	8 : bad	1 : unknown quality
7 = Unknown problem.	1 : unknown	4 : questionable quality
9 = Samples not drawn from this bottle.	no data	1 : unknown quality

### 2. Quality flags for water samples

Exchange フォーマット	ODV Version: 1.0	ODV Version: 1.4
1 = Sample for this measurement was drawn from water bottle but analysis not received.	1 : unknown	1 : unknown quality
2 = Acceptable measurement.	0 : good	0 : good quality
3 = Questionable measurement.	4 : questionable	4 : questionable quality
4 = Bad measurement.	8 : bad	8 : bad quality
5 = Not reported.	8 : bad	1 : unknown quality
6 = Mean of replicate measurements.	0 : good	1 : unknown quality
9 = Sample not drawn for this measurement from this bottle.	no data	1 : unknown quality

### 3. Quality flags definitions for CTD data

Exchange フォーマット	ODV Version: 1.0	ODV Version: 1.4
1 = Not calibrated.	1 : unknown	1 : unknown quality
2 = Acceptable measurement.	0 : good	0 : good quality
3 = Questionable measurement.	4 : questionable	4 : questionable quality
4 = Bad measurement.	8 : bad	8 : bad quality
5 = Not reported.	8 : bad	1 : unknown quality
6 = Interpolated over >1 dbar interval.	1 : unknown	
6 = Interpolated over >2 dbar interval.		1 : unknown quality
7 = Despiked.	1 : unknown	1 : unknown quality
9 = Not sampled.	no data	1 : unknown quality