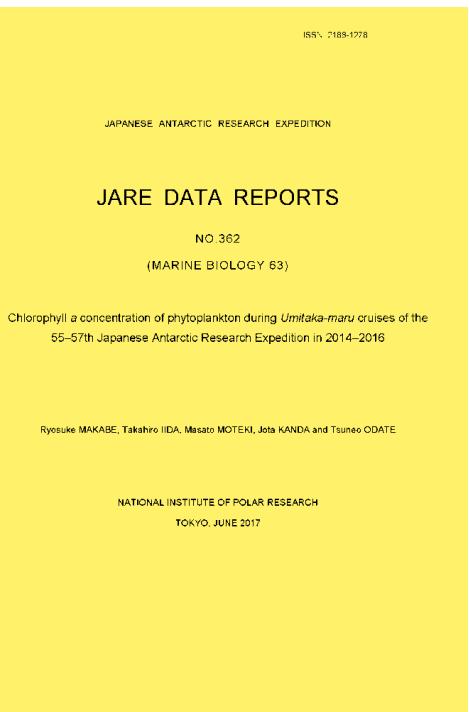
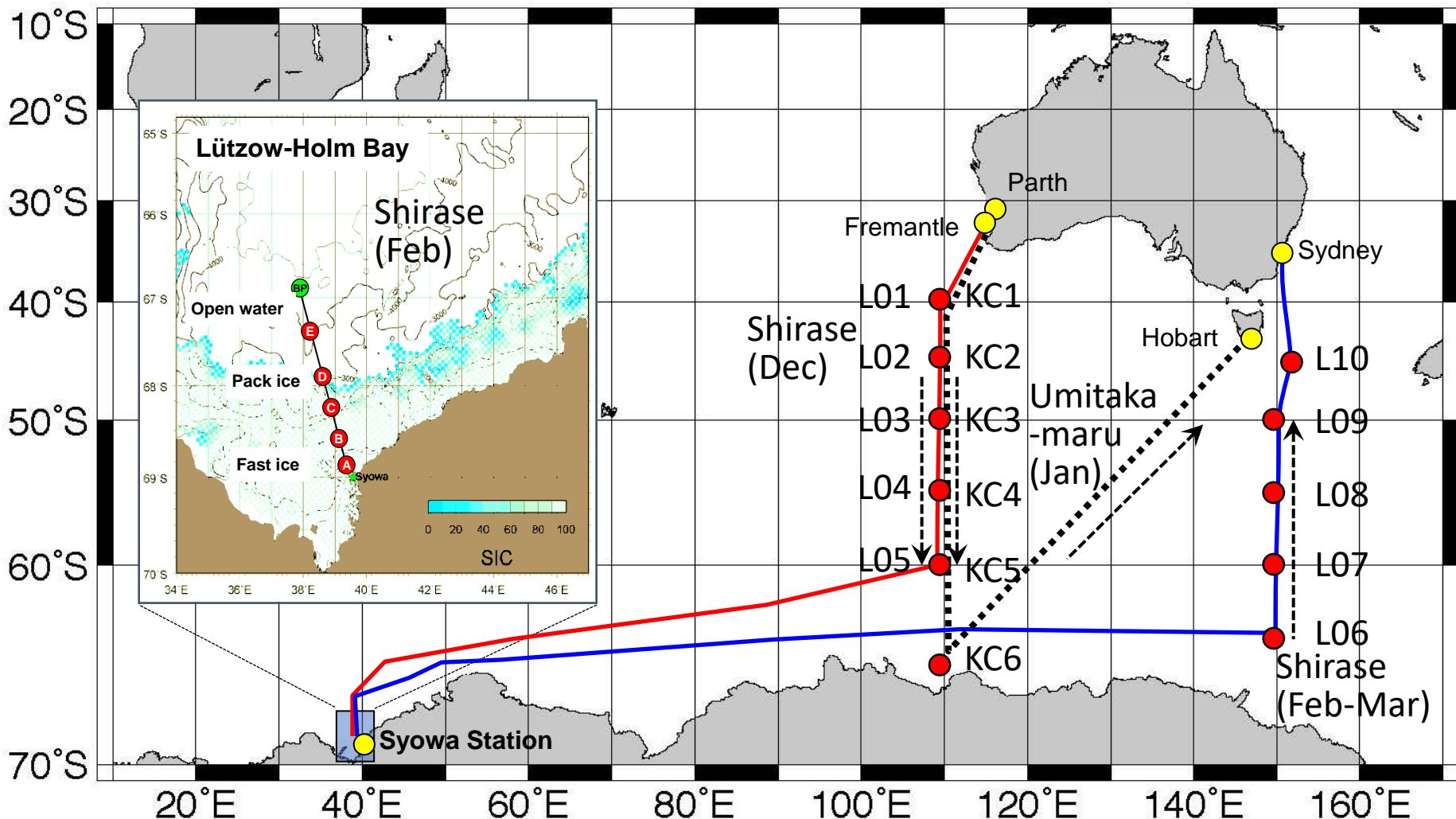


海洋生態系モニタリングデータ公開の現状 —基本観測（海洋物理・化学）との比較—

高尾信太郎、真壁竜介、高橋邦夫、小達恒夫
(国立極地研究所)



JARE 基本観測（海洋物理・化学）& 海洋生態系モニタリングデータ



Shirase

- 01: Surface observation along cruise track (red & blue)
- 02: Station observations at L01 to L10
- 03: Sea ice zone observations at A to BP
- 04: Continuous Plankton Recorder (broken allows)

Umitaka-maru

- 05: Surface observation along cruise track (dotted)
- 06: Station observations at KC1 to KC6
- 07: Continuous Plankton Recorder (broken allows)

JARE 基本観測（海洋物理・化学）& 海洋生態系モニタリングデータの公開状況

Phase	JARE	Year	Zooplankton			Biogeochemical properties of seawater						Scientific Project	
			Monitoring		Others	Lützow-Holm Bay (LHB)			Monitoring transect				
			NORPAC	Closing		CTD	Nutrient	Chl a	CTD	Nutrient	Chl a	Pigment	
	11	1969/70											
	12	1970/71											
	13	1971/72											
	14	1972/73											
	15	1973/74											
	16	1974/75											
	17	1975/76											
	18	1976/77											
I	19	1977/78											
I	20	1978/79											
I	21	1979/80											
I	22	1980/81											
II	23	1981/82											
II	24	1982/83											
II	25	1983/84											
II	26	1984/85											
II	27	1985/86											
III	28	1986/87											
III	29	1987/88											
III	30	1988/89											
III	31	1989/90											
III	32	1990/91											
IV	33	1991/92											
IV	34	1992/93											
IV	35	1993/94											
IV	36	1994/95											
IV	37	1995/96											
V	38	1996/97											
V	39	1997/98											
V	40	1998/99											
V	41	1999/00											
V	42	2000/01											
VI	43	2001/02											
VI	44	2002/03											
VI	45	2003/04											
VI	46	2004/05											
VI	47	2005/06											
VII	48	2006/07											
VII	49	2007/08											
VII	50	2008/09											
VII	51	2009/10											
VIII	52	2010/11											
VIII	53	2011/12											
VIII	54	2012/13											
VIII	55	2013/14											
VIII	56	2014/15											
VIII	57	2015/16											

JARE Data Reports
 Marine Biology (MB) V. 1-62
 Oceanography (O) V. 1-33

Sea ice biota MB3

MB1

MB1

MB5

MB28

MB32

MB38

MB39

MB46

MB45

MTD net MB2

MTD net MB2

MTD net MB2

BIOMASS whale MB4

BIOMASS MB6, 15, 17, 18, 19

BIOMASS MB20

BIOMASS MB21

Zoop & Benthos MB11

O1

O2

O3

O4

O6

O7

O8

O9

O10

O11

O12

O14

O16

O17

O18

O19

O20

O21

O23

O24

O25

O26

O27

O28

O29

MB34

O30

MB35

O31

MB36

O32

MB37

MB7

MB8

MB13

MB11

Chl a in Breid Bay MB12

MB29

MB31

MB41

MB42

MB43

MB50

MB44

MB47

MB48

MB53

MB61

Oceanographic data in LHB O22

Under fast ice in LHB MB30

過去の基本観測（海洋物理・化学）& 海洋生態系モニタリングデータの公開状況

TOC TRADE DATA DEPARTS Oceanography 1 1991

Table 4. Serial observation data.

Station 1

Meteorological observation

Date : December 25, 1979
 Time(GMT) : 0415-0730
 (LMT) : 0815-1130
 Latitude : 63°54'S
 Longitude : 61°59'E

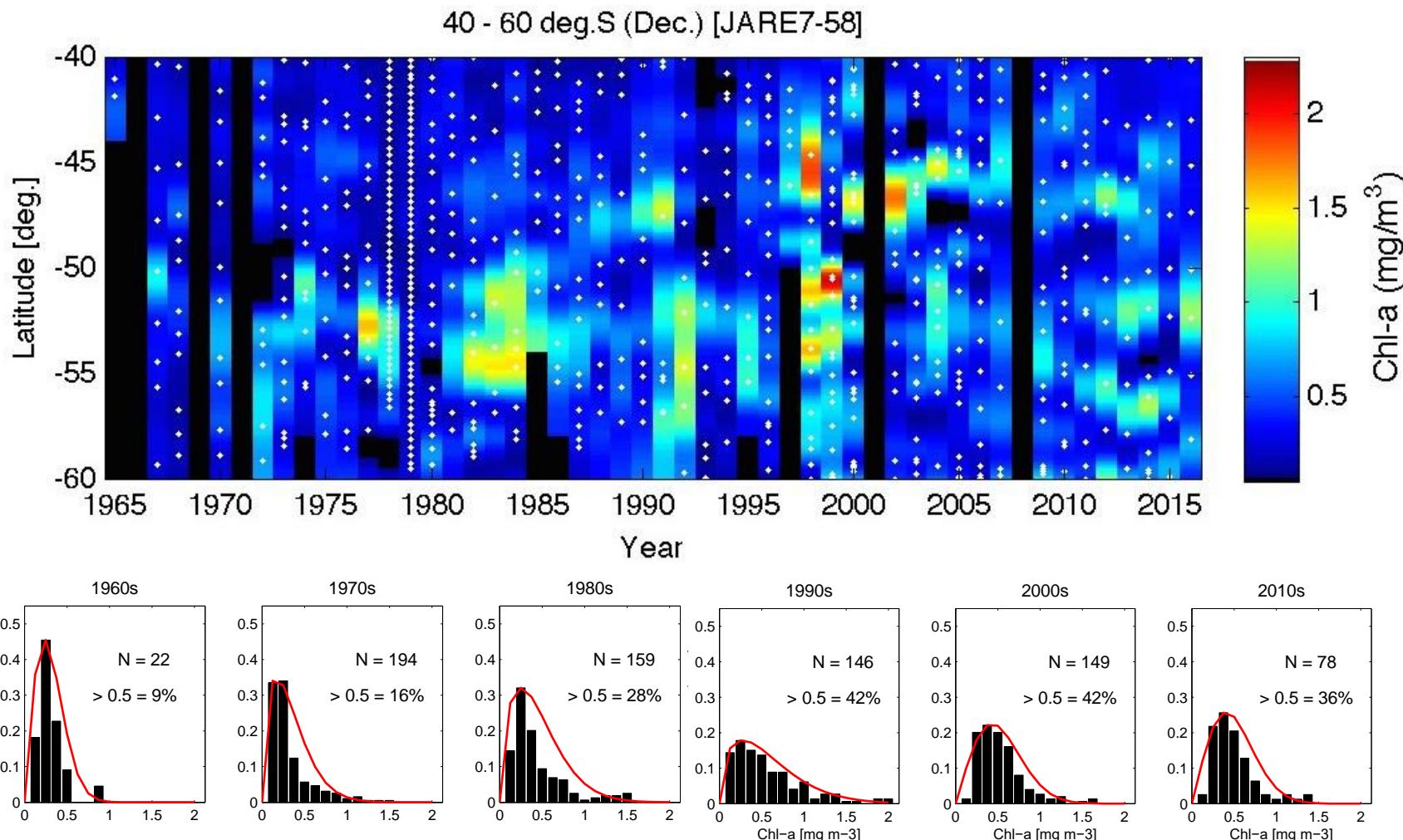
Time(GMT)	: 0600	Wind direction :	E
(LMT)	: 1000	velocity :	2m/s
Weather	: Cloudy	Humidity :	59%
Air temperature	: 4.1°C	Sea :	1
Atmospheric pressure	: 972.9mb	Swell :	NW/1

Depth (m)	T(°C)	S(‰)	pH	O ₂ (ml/l)	(μg-atoms/l)					Depth (m)	T(°C)	S(‰)	δt	ΔD
					PO ₄ - P	SiO ₃ -Si	NO ₂ - N	NO ₃ - N	NH ₄ - N					
0	0.3	32.720	8.20	7.92	1.51	1.48	0.12	20	0.7	0	0.3	32.720	27.12	0.000
10										10				0.09
21										21				0.18
31										31				0.27
52										52				0.42
78	-0.51	34.555	8.21	7.97	2.07	1.51	0.20	0.00	0.00	78	-0.51	34.555	27.71	0.055
103	-0.60	34.453	8.17	5.76	2.16	69	0.19	31.	0.5	100	-0.72	34.440	27.71	0.065
128	0.43	34.555	8.15	4.90	2.17	77	0.17	30.	1.0	125	0.31	34.544	27.74	0.075
154	1.01	34.620	8.11	4.55	2.32	82	0.05	30.	1.0	150	0.94	34.612	27.76	0.084
205	1.63	34.685	8.09	4.23	2.27	87	0.10	31.	0.6	200	1.60	34.682	27.77	0.101
257	1.37	34.677	8.10	7.97	1.51	0.00	0.10	0.01	1.0	257	1.10	34.677	27.78	0.118
308	1.56	34.706	8							308				0.135
411	1.47	34.714	8							411				0.167
514	1.45	34.728	8							514				0.199
616	1.33	34.732	8							616				0.230
719	1.20	34.732	8.11	4.48	2.12	98	0.20	30.	0.6	719	1.22	34.732	27.84	0.259
821	1.12	34.725	8.12	4.44	2.11	99	0.22	31.	0.8	800	1.14	34.727	27.84	0.289
1027	0.91	34.712	8.15	4.58	2.09	104	0.16	31.	0.6	1000	0.94	34.713	27.84	0.347
1232	0.80	34.708	8.15	4.58	2.22	109	0.02	31.	0.7	1200	0.81	34.708	27.84	0.405
1539	0.63		8.12	4.48	2.19	108	0.07	32.	0.8	1500	0.65	34.705	27.85	0.490
2049	0.28	34.698	8.10	4.68	2.25	121	0.05	33.	0.7	2000	0.31	34.699	27.85	0.622
2559	0.16	34.683	8.10	4.80	2.22	125	0.03	33.	1.2	2500	0.17	34.685	27.86	0.748
3067	-0.02	34.677	8.11	5.01	2.24	125	0.11	33.	0.9	3000	0.00	34.678	27.87	0.868
3575	-0.17	34.669	8.11	5.22	2.11	121	0.20	33.	0.8	3500	-0.14	34.670	27.87	0.980
4083	-0.46	34.661	8.10	5.76	2.14	100	0.10	32.	1.0	4000	-0.40	34.662	27.87	1.079

紙媒体に記載されたデータのみ

ユーザーが利用し辛い

海表面Chlaの時系列変化 (12月の110° E line)



12月の110° E Lineのモニタリング観測において、 0.5 mg m^{-3} 以上の海表面Chlaの出現頻度は増加傾向

現在の基本観測（海洋物理・化学）データの公開状況

インターネットを介したデータ公開（契約仕様）

Data is available at http://scidbase.nipr.ac.jp/modules/metadata/index.php?content_id=271

National Institute of Polar Research Joint Support-Center for Data Science Research

 NiPR 日本語 English

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- Meteorology and Glaciology
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Overview	
Title	JARE oceanography database
Sub-Title	
Data Summary	Japanese Antarctic Research Expedition (JARE) has been conducted oceanographic observations since 1965 in the Southern Ocean. Since 2013, JARE started high quality (World Ocean Circulation Experiment :WOCE level) monitoring program along 110 E meridian. This research have been sponsored by Ministry of Education, Culture, Sports, Science and Technology (MEXT) in Japan.

About Observation	
Spatial Coverage	
Data Location	Indian sector of the Southern Ocean
Observation Period / Temporal Coverage	2013-01-01 - present

現在の基本観測（海洋物理・化学）データの公開状況

Data is available at http://scidbase.nipr.ac.jp/modules/metadata/index.php?content_id=271

http://polaris.nipr.ac.jp/~parc/usr/di_list.php?pid=271 NIPR DATA BASE - JARE ocean... Polar Data Archives

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MSN Japan Google ログイン - サイボウズ Office Surface ▾

Polar Science Data Archives

2017/12/04

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DID	Vol	Filename	Description	File size	Date of Entry	Download
302	1	nipr_parc_271_0001.csv	JARE54_bottle.csv	70899	2016-03-23	download
303	2	nipr_parc_271_0002.csv	JARE54_surface.csv	4786522	2016-03-23	download
304	3	nipr_parc_271_0003.csv	JARE55_bottle.csv	37621	2016-03-23	download
305	4	nipr_parc_271_0004.csv	JARE55_surface.csv	4710514	2016-03-23	download
306	5	nipr_parc_271_0005.csv	JARE56_bottle.csv	86656	2016-03-23	download
307	6	nipr_parc_271_0006.csv	JARE56_surface.csv	4380429	2016-03-23	download
308	7	nipr_parc_271_0007.csv	JARE57_bottle.csv	80297	2016-03-23	download
309	8	nipr_parc_271_0008.csv	JARE57_surface.csv	4104746	2016-03-23	download
311	10	nipr_parc_271_0010.zip	JARE54_Data document.zip	662665	2016-03-28	download
312	11	nipr_parc_271_0011.zip	JARE55_CTD.zip	632042	2016-03-28	download
313	12	nipr_parc_271_0012.zip	JARE55_Data document.zip	660688	2016-03-28	download
314	13	nipr_parc_271_0013.zip	JARE56_CTD.zip	983031	2016-03-28	download
315	14	nipr_parc_271_0014.zip	JARE56_Data document.zip	1042760	2016-03-28	download
316	15	nipr_parc_271_0015.zip	JARE57_CTD.zip	1201344	2016-03-28	download
318	16	nipr_parc_271_0016.zip	JARE57_Data document.zip	789025	2016-03-28	download
346	9	nipr_parc_271_0009.zip	JARE54_CTD.zip	385819	2016-06-27	download
408	29	nipr_parc_271_0017.csv	JARE58_bottle.csv	83748	2017-03-27	download
409	29	nipr_parc_271_0018.zip	JARE58_CTD.zip	1028214	2017-03-27	download
410	29	nipr_parc_271_0019.zip	JARE58_Data document.zip	2346509	2017-03-27	download

現在の基本観測（海洋物理・化学）データの公開状況

Data is available at http://scidbase.nipr.ac.jp/modules/metadata/index.php?content_id=271

自動保存 オフ ファイル ツチ ホーム 挿入 ページレイアウト 数式 データ 校閲 表示 実行したい作業を入力してください 共有

nipr_parc_271_0017.csv - 読み取り専用 - Excel

Tsuneo ODATE

EXPOCODE																					
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	
EXPOCODE	SECT	DATE	TIME	LATITUDE	LONGITUDE	DEPTH	STNNBR	CASTNO	SAMPNO	BTLNBR	BTLNBR	CTDPRS	CTDPRS	CTDDPT	CTDDPT	CTDTMP	CTDTMP	CTDSAL	CTDSAL	CTD	
		UTC	UTC	DEG	DEG	M	-	-	-	-	DBAR	-	M	-	ITS-90	-	PSS-78	-	S/m		
3	UM201	110E	01/01/2017	22:57	-39.9998	110.0005	4630	KC1	1	0	-999	9	-999	9	-999	9	-999	9	-999	9	
4	UM201	110E	01/01/2017	22:57	-39.9998	110.0005	4630	KC1	1	24	24252	2	37	2	36.7	2	14.3842	2	35.1321	2	4.24
5	UM201	110E	01/01/2017	22:57	-39.9998	110.0005	4630	KC1	1	23	23687	2	24.4	2	24.2	2	14.8199	2	35.2156	2	4.29
6	UM201	110E	01/01/2017	22:57	-39.9998	110.0005	4630	KC1	1	22	24117	2	49.5	2	49.2	2	14.1258	2	35.1474	2	4.22
7	UM201	110E	01/01/2017	22:57	-39.9998	110.0005	4630	KC1	1	21	24709	3	74.4	2	73.8	2	13.7176	2	35.3045	2	4.20
8	UM201	110E	01/01/2017	22:57	-39.9998	110.0005	4630	KC1	1	20	24351	2	99.8	2	99	2	13.4948	2	35.3755	2	4.18
9	UM201	110E	01/01/2017	22:57	-39.9998	110.0005	4630	KC1	1	19	24703	2	125.8	2	124.8	2	12.299	2	35.147	2	4.04
10	UM201	110E	01/01/2017	22:57	-39.9998	110.0005	4630	KC1	1	18	23688	2	149.7	2	148.5	2	11.8352	2	35.0694	2	3.99
11	UM201	110E	01/01/2017	22:57	-39.9998	110.0005	4630	KC1	1	17	24099	2	199.8	2	198.2	2	11.2954	2	34.9823	2	3.93
12	UM201	110E	01/01/2017	22:57	-39.9998	110.0005	4630	KC1	1	16	24253	2	249.3	2	247.3	2	10.7741	2	34.8867	2	3.84
13	UM201	110E	01/01/2017	22:57	-39.9998	110.0005	4630	KC1	1	15	24718	2	299.3	2	296.8	2	10.4288	2	34.8231	2	3.3
14	UM201	110E	01/01/2017	22:57	-39.9998	110.0005	4630	KC1	1	14	24350	2	399.9	2	396.5	2	10.0315	2	34.7585	2	3.80
15	UM201	110E	01/01/2017	22:57	-39.9998	110.0005	4630	KC1	1	13	24715	2	500	2	495.6	2	9.8455	2	34.7311	2	3.79
16	UM201	110E	01/01/2017	22:57	-39.9998	110.0005	4630	KC1	1	12	24717	2	600.9	2	595.5	2	9.4286	2	34.6779	2	3.75
17	UM201	110E	01/01/2017	22:57	-39.9998	110.0005	4630	KC1	1	11	24363	2	700.1	2	693.6	2	8.9653	2	34.618	2	3.70
18	UM201	110E	01/01/2017	22:57	-39.9998	110.0005	4630	KC1	1	10	24177	2	801.8	2	794.2	2	8.2031	2	34.5433	2	3.63
19	UM201	110E	01/01/2017	22:57	-39.9998	110.0005	4630	KC1	1	9	24367	2	899.6	2	890.7	2	7.1443	2	34.4641	2	3.53
20	UM201	110E	01/01/2017	22:57	-39.9998	110.0005	4630	KC1	1	8	24251	2	999.3	2	989.3	2	5.7398	2	34.3784	2	3.40
21	UM201	110E	01/01/2017	22:57	-39.9998	110.0005	4630	KC1	1	7	24090	3	1249.9	2	1236.6	2	3.9011	2	34.393	2	3.25
22	UM201	110E	01/01/2017	22:57	-39.9998	110.0005	4630	KC1	1	6	24104	2	1498.2	2	1481.4	2	3.1582	2	34.4961	2	3.20
23	UM201	110E	01/01/2017	22:57	-39.9998	110.0005	4630	KC1	1	5	24697	2	1999.6	2	1974.8	2	2.6008	2	34.667	2	3.18
24	UM201	110E	01/01/2017	22:57	-39.9998	110.0005	4630	KC1	1	4	24116	2	2500	2	2466.1	2	2.1803	2	34.7356	2	3.17
25	UM201	110E	01/01/2017	22:57	-39.9998	110.0005	4630	KC1	1	3	23689	2	2999.2	2	2955.2	2	1.7075	2	34.7433	2	3.15
26	UM201	110E	01/01/2017	22:57	-39.9998	110.0005	4630	KC1	1	2	24698	2	3500.7	2	3445.3	2	1.1961	2	34.7218	2	3.12
27	UM201	110E	01/01/2017	22:57	-39.9998	110.0005	4630	KC1	1	1	24368	2	4709.8	2	4622.7	2	0.9225	2	34.7032	2	3.14
28	UM201	110E	01/01/2017	22:57	-39.9998	110.0005	4630	KC1	1	0	000	0	000	0	000	0	000	0	000	0	0

海洋生態系モニタリングデータの公開状況

JARE DATA REPORTS
(Marine Biology), 61

Biogeochemical properties of
seawater measured from the
icebreaker Shirase during the
57th Japanese Antarctic
Research Expedition in the
austral summer, 2015–2016

T. R. Takamura *et al.*

analysis data, along with CTD data at defined depths, are listed in [Table 2](#). Underway water sampling analysis data and sampling information are shown in [Table 3](#).

データ保存先へリンク

(<http://flows.nipr.ac.jp/JARE/>). Permission to use these data for publication or presentation should

be obtained in writing. Inquiries about details of the data record should be addressed to:

Tsuneo Odate

National Institute of Polar Research

Tel: +81-42-512-0738

E-mail: odate@nipr.ac.jp

Acknowledgments

We express our heartfelt appreciation to all members of JARE-57 for their support. We also thank the officers and crew of the icebreaker *Shirase*.

赤字はサンプルの測定値

海洋生態系モニタリングデータの公開状況

Table 3 in JARE DATA REPORTS (Marine Biology), 61

Biogeochemical properties of seawater measured from the icebreaker Shirase during the 57th Japanese Antarctic Research Expedition in the austral summer, 2015–2016

nipr_parc_183_0005_2016.doc [読み取り専用] [互換モード] - Word

Tsuneo ODATE

共有

2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76

Table 3. Sampling date, time, position, temperature, salinity, nutrient concentrations, and chlorophyll *a* concentrations for underway surface water samplings.

Station	Date ^b (UTC) ^a	Time ^b (UTC) ^a	Latitude ^b (°S) ^a	Longitude ^b (°E) ^a	Temperature ^b (°C) ^a	Salinity ^b (‰) ^a	Nitrate ^b (μmol/L) ^a	Nitrite ^b (μmol/L) ^a	Phosphate ^b (μmol/L) ^a	Silicate ^b (μmol/L) ^a	Chl <i>a</i> ^b (μg/L) ^a
S001 ^d	2015/12/8 ^c	23:19 ^c	43-09.72 ^c	110-00.00 ^c	11.9590 ^c	34.8001 ^c	8.05 ^c	0.17 ^c	0.64 ^c	1.82 ^c	0.46 ^c
S002 ^d	2015/12/10 ^c	5:01 ^c	47-29.10 ^c	110-00.00 ^c	8.5112 ^c	34.2674 ^c	15.28 ^c	0.25 ^c	1.07 ^c	0.91 ^c	0.39 ^c
S003 ^d	2015/12/11 ^c	14:27 ^c	52-17.28 ^c	110-00.04 ^c	4.2813 ^c	33.8840 ^c	23.89 ^c	0.23 ^c	1.58 ^c	5.04 ^c	0.28 ^c
S004 ^d	2015/12/12 ^c	15:47 ^c	57-03.84 ^c	109-00.98 ^c	1.9719 ^c	33.9410 ^c	27.77 ^c	0.25 ^c	1.83 ^c	26.42 ^c	0.43 ^c
S005 ^d	2015/12/13 ^c	22:24 ^c	61-00.72 ^c	104-00.11 ^c	8.6606 ^c	32.9000 ^c	28.24 ^c	0.21 ^c	1.96 ^c	49.22 ^c	1.15 ^c
S015 ^d	2015/12/17 ^c	9:21 ^c	62-00.10 ^c	100-00.43 ^c	-0.1703 ^c	33.7327 ^c	29.45 ^c	0.22 ^c	1.96 ^c	47.89 ^c	0.18 ^c
S016 ^d	2015/12/17 ^c	17:11 ^c	62-26.52 ^c	67-00.59 ^c	-0.8669 ^c	33.7327 ^c	29.45 ^c	0.22 ^c	1.96 ^c	47.89 ^c	0.18 ^c
S017 ^d	2015/12/18 ^c	2:35 ^c	62-49.86 ^c	64-00.38 ^c	-1.0772 ^c	33.8008 ^c	28.87 ^c	0.20 ^c	1.91 ^c	46.78 ^c	0.31 ^c
S018 ^d	2015/12/18 ^c	10:14 ^c	63-00.06 ^c	61-00.06 ^c	-1.1881 ^c	33.6890 ^c	28.87 ^c	0.22 ^c	1.92 ^c	44.66 ^c	0.15 ^c
S019 ^d	2015/12/18 ^c	16:51 ^c	63-02.04 ^c	59-00.10 ^c	-0.9990 ^c	33.8627 ^c	28.12 ^c	0.21 ^c	1.83 ^c	47.55 ^c	0.80 ^c
S020 ^d	2015/12/19 ^c	3:23 ^c	63-24.00 ^c	54-00.47 ^c	-1.0491 ^c	33.8572 ^c	28.74 ^c	0.20 ^c	1.89 ^c	52.75 ^c	0.58 ^c
S021 ^d	2015/12/19 ^c	10:16 ^c	63-37.26 ^c	51-00.33 ^c	-0.9016 ^c	33.9281 ^c	27.69 ^c	0.21 ^c	1.81 ^c	49.78 ^c	0.74 ^c
S022 ^d	2015/12/19 ^c	19:18 ^c	64-12.30 ^c	47-00.23 ^c	-1.1486 ^c	33.9489 ^c	28.99 ^c	0.18 ^c	1.94 ^c	56.94 ^c	0.37 ^c
S023 ^d	2015/12/20 ^c	3:21 ^c	64-49.38 ^c	43-00.52 ^c	-1.1624 ^c	33.7938 ^c	26.90 ^c	0.13 ^c	1.80 ^c	55.64 ^c	1.30 ^c
S024 ^d	2015/12/20 ^c	10:30 ^c	65-41.16 ^c	40-00.73 ^c	-0.9933 ^c	33.7262 ^c	28.12 ^c	0.22 ^c	1.86 ^c	56.54 ^c	0.53 ^c

紙媒体のみよりは
ユーザーが利用しやすい

海洋生態系モニタリングデータの公開状況

それだけではユーザーが研究に使用できない情報（サンプル一覧）
だけが公開されている場合もある

JARE DATA REPORTS
(Marine Biology), 62

Plankton sampling by the
training vessel Umitaka-maru
in the Indian sector of the
Southern Ocean in the austral
summer of 2016

JARE Data Reports, No. 361 (Marine Biology 62), April 2017

3.2 NORPAC net

Micro- to meso-zooplankton were collected using a twin NORPAC standard net with one net made of nylon bolting cloth with a 335- μm mesh and the other with 100- μm mesh (Motoda, 1957). The diameter of the net mouth rings was 45 cm. The net was hauled vertically at a speed of about 1 m s^{-1} from an approximate depth of 150 m. The maximum depth reached was estimated from the wire angle and length of wire paid out. The volume of water filtered through each net was estimated using a calibrated flow-meter (#5571-B; Rigo Co., Ltd., Tokyo, Japan) mounted at the center of the mouth ring of each net.

Contents

Station No.

Position

Date & Time (UTC)

Maximum depth reached
(m)

Flow-meter revolutions

Volume filtered (m^3)

Sample No.

NORPAC net samplings were conducted at seven stations along the 110°E transect ([Fig. 2](#)).

Detailed sampling information is given in [Table 2](#).

今後の海洋生態系モニタリングデータの公開

JARE DATA REPORTS
(Marine Biology), 62

Plankton sampling by the
training vessel Umitaka-maru
in the Indian sector of the
Southern Ocean in the austral
summer of 2016

JARE DATA REPORTS
(Marine Biology), 60

Zooplankton sampling during
the 57th Japanese Antarctic
Research Expedition in austral
summer 2015–2016

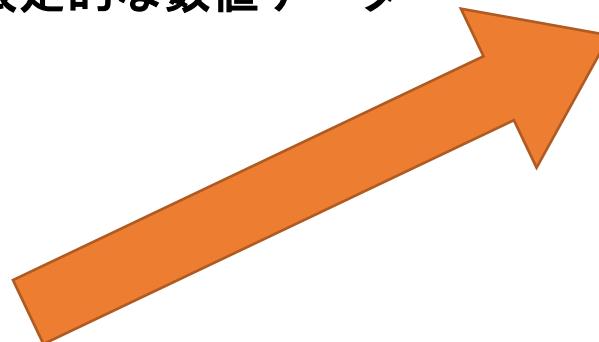
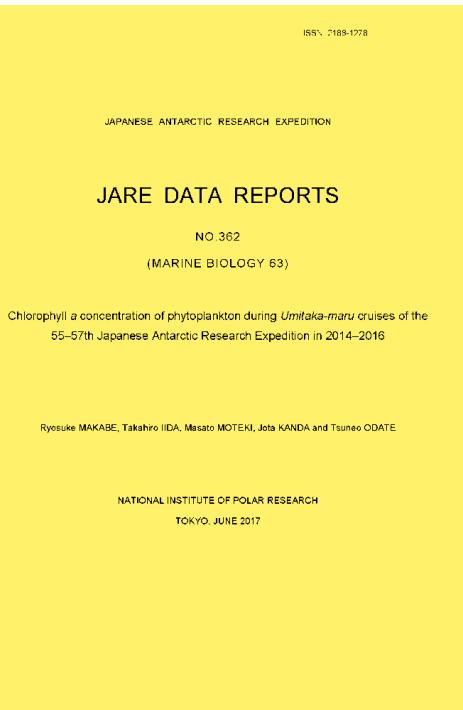
JARE DATA REPORTS
(Marine Biology), 61

Biogeochemical properties of
seawater measured from the
icebreaker Shirase during the
57th Japanese Antarctic
Research Expedition in the
austral summer, 2015–2016

サンプル一覧

サンプル一覧 +
限定的な数値データ

研究に利用できる
数値データ



ユーザーが利用しやすい
枠組みの創生



今後の海洋生態系モニタリングデータの公開

【PDJ投稿済み】

TAKAHASHI, KT., MAKABE, R., S. TAKAO, and T. ODATE

【今年度中にPDJ投稿】

**Chlorophyll *a* and macro-nutrients concentration
during *Umitaka-maru* cruises of the 58th Japanese
Antarctic Research Expedition in January 2017**

MAKABE, R., S. TAKAO, and T. ODATE