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Supplement of

Nutrient distribution and nitrogen and oxygen isotopic composition of nitrate in water masses of the subtropical southern Indian Ocean

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Table S1: Location of CTD stations during cruises MSM 59/2 (INDEX 2016) and SO 259 (INDEX 2017).

CTD station	Latitude [°S]	Longitude [°E]
Cruise MSM 59/2 in 2016		
03	23.01	67.07
14	23.87	69.50
22	22.89	69.16
32	21.78	69.02
35	21.61	69.44
52	21.17	68.62
67	21.72	67.67
Cruise SO 259 in 2017		
01	2.98	77.16
03	8.81	75.67
05	15.08	74.05
07	20.36	69.75
11	20.67	69.32
15	20.96	68.92
45	23.91	69.56
49	26.05	70.84
60	27.78	73.92
99	27.01	72.40

Table S2. Results of CTD casts from cruise MSM 59/2 (2016), continue on page 4-6.

Cruise MSM 59/2 in 2016									
Station	Depth	Sigma-theta	Salinity	Temp	O ₂	NO ₃ ⁻	PO ₄ ³⁻	NO ₃ ⁻ δ ¹⁵ N	NO ₃ ⁻ δ ¹⁸ O
	[m]	[kg/m ³]	[PSU]	[°C]	[ml/l]	[μM]	[μM]	[‰ ± 1 S.D.] ^a	[‰ ± 1 S.D.] ^b
CTD 03	Latitude: 23.01°S		Longitude: 67.07°E			Date: 30 November 2016			
	1	23.47	35.11	24.84	4.21	0.40	0.06	N/D	N/D
	5	23.50	35.10	24.71	4.23	0.36	0.06	N/D	N/D
	10	23.45	35.11	24.91	4.22	0.33	0.02	N/D	N/D
	25	23.55	35.09	24.53	4.24	0.01	0.07	N/D	N/D
	31	23.68	35.06	24.00	4.35	0.00	0.07	N/D	N/D
	51	23.88	35.11	23.48	4.45	0.20	0.09	N/D	N/D
	75	23.95	35.10	23.22	4.45	0.09	0.04	N/D	N/D
	91	24.01	35.11	23.03	4.47	0.25	0.07	N/D	N/D
	100	24.13	35.17	22.80	4.47	0.23	0.06	N/D	N/D
	150	24.83	35.51	21.23	4.18	0.62	0.11	N/D	N/D
	200	25.36	35.64	19.62	3.92	3.02	0.27	5.4 ± 0.0	1.5 ± 0.2
	300	26.15	35.59	16.25	4.20	3.64	0.36	6.6 ± 0.2	2.5 ± 0.4
	400	26.53	35.29	13.48	4.47	7.76	0.62	7.5 ± 0.0	4.4 ± 0.5
	499	26.66	35.07	11.95	4.58	7.32	0.54	7.7 ± 0.1	5.2 ± 1.1
	600	26.74	34.89	10.78	4.60	12.29	0.89	7.3 ± 0.0	4.8 ± 0.2
	799	26.92	34.59	8.27	4.11	19.88	1.40	6.6 ± 0.0	3.4 ± 0.4
	1000	27.19	34.45	5.49	3.36	25.06	1.87	6.0 ± 0.0	1.5 ± 0.1
	1199	27.41	34.58	4.55	2.43	25.22	2.02	6.0 ± 0.1	1.6 ± 0.3
	1599	27.62	34.66	2.99	2.86	35.40	2.46	5.5 ± 0.1	1.1 ± 0.3
	2001	27.74	34.71	2.15	3.21	33.86	2.33	5.2 ± 0.0	1.1 ± 0.3
	2502	27.78	34.72	1.77	3.31	34.13	2.34	5.2 ± 0.1	1.1 ± 0.0
	3000	27.79	34.72	1.70	3.32	27.26	1.83	5.2 ± 0.1	1.4 ± 0.1
	3670	27.80	34.72	1.62	3.33	22.82	1.90	5.1 ± 0.1	1.2 ± 0.1
CTD 14	Latitude: 23.87°S		Longitude: 69.50°E			Date: 2 December 2016			
	3	23.79	35.43	24.60	4.75	0.54	0.11	N/D	N/D
	10	23.98	35.42	23.95	4.80	0.54	0.09	N/D	N/D
	25	24.09	35.44	23.60	4.81	0.56	0.07	N/D	N/D
	35	24.24	35.43	23.06	4.93	0.47	0.05	N/D	N/D
	48	24.54	35.46	22.11	5.02	0.54	0.08	N/D	N/D
	70	24.95	35.57	20.91	4.94	0.54	0.12	N/D	N/D
	90	25.17	35.64	20.29	4.83	0.53	0.12	N/D	N/D
	100	25.26	35.66	20.03	4.79	0.72	0.13	N/D	N/D
	150	25.71	35.69	18.37	4.57	2.47	0.27	4.5 ± 0.1	1.7 ± 0.3
	201	25.97	35.66	17.26	4.62	3.20	0.37	5.8 ± 0.2	2.2 ± 0.1
	301	26.49	35.34	13.85	4.88	6.53	0.53	7.6 ± 0.0	4.0 ± 0.4
	398	26.64	35.12	12.25	5.05	9.71	0.78	7.8 ± 0.0	4.5 ± 0.1
	503	26.73	34.92	10.96	5.15	10.46	0.90	7.3 ± 0.0	4.9 ± 0.1
	602	26.79	34.79	10.08	5.12	10.80	0.93	7.0 ± 0.0	4.8 ± 0.0
	797	26.94	34.55	7.98	4.63	23.37	1.56	6.4 ± 0.4	1.9 ± 0.2
	1001	27.27	34.47	4.93	3.55	34.17	2.31	5.9 ± 0.3	1.6 ± 0.0
	1300	27.49	34.60	3.89	2.98	39.46	2.73	5.8 ± 0.1	1.4 ± 0.2
	1999	27.74	34.72	2.15	3.83	40.22	2.79	5.1 ± 0.1	1.3 ± 0.1
	2496	27.78	34.72	1.78	3.92	30.55	2.24	5.1 ± 0.1	0.6 ± 0.2
	3501	27.79	34.73	1.76	3.93	33.69	2.34	5.0 ± 0.1	0.9 ± 0.5

Table S2. Continued.

Cruise MSM 59/2 in 2016										
Station	Depth	Sigma-theta	Salinity	Temp	O ₂	NO ₃ ⁻	PO ₄ ³⁻	NO ₃ ⁻ δ ¹⁵ N	NO ₃ ⁻ δ ¹⁸ O	
	[m]	[kg/m ³]	[PSU]	[°C]	[ml/l]	[μM]	[μM]	[‰ ± 1 S.D.] ^a	[‰ ± 1 S.D.] ^b	
CTD 22	Latitude: 22.89°S		Longitude: 69.16°E				Date: 5 December 2016			
	3	23.49	35.17	24.95	4.67	0.55	0.08	N/D	N/D	
	11	23.49	35.17	24.95	4.69	0.60	0.09	N/D	N/D	
	21	23.66	35.28	24.66	4.74	0.53	0.03	N/D	N/D	
	30	23.79	35.24	24.12	4.80	0.55	0.02	N/D	N/D	
	50	24.05	35.33	23.48	4.94	0.59	0.07	N/D	N/D	
	74	24.42	35.35	22.23	4.87	0.58	0.09	N/D	N/D	
	100	24.74	35.48	21.46	4.62	0.65	0.11	N/D	N/D	
	120	25.04	35.65	20.84	4.87	0.88	0.11	N/D	N/D	
	149	25.38	35.67	19.63	4.66	1.79	0.18	4.5 ± 0.2	1.4 ± 0.4	
	201	25.74	35.71	18.33	4.57	2.74	0.26	5.7 ± 0.4	2.6 ± 0.5	
	300	26.38	35.43	14.68	4.78	6.24	0.55	7.1 ± 0.1	3.8 ± 0.1	
	400	26.59	35.20	12.84	4.99	9.47	0.73	7.6 ± 0.2	4.7 ± 0.1	
	500	26.71	34.96	11.27	5.12	12.78	0.91	7.0 ± 0.1	5.3 ± 0.5	
	600	26.78	34.81	10.21	5.07	15.94	1.09	7.3 ± 0.0	4.3 ± 0.2	
	799	26.96	34.54	7.74	4.54	22.98	1.54	6.4 ± 0.4	1.6 ± 0.2	
	999	27.24	34.45	5.08	3.71	34.41	2.28	6.1 ± 0.3	1.1 ± 0.1	
	1250	27.47	34.62	4.29	2.72	32.65	2.35	5.4 ± 0.2	0.8 ± 0.4	
	2000	27.75	34.72	2.03	3.81	35.31	2.32	5.3 ± 0.3	0.6 ± 0.5	
	2501	27.78	34.72	1.78	3.86	35.12	2.43	5.3 ± 0.3	0.6 ± 0.2	
	3149	27.79	34.72	1.71	3.86	35.70	2.45	5.3 ± 0.2	0.7 ± 0.4	
	3693	27.79	34.72	1.74	3.84	35.53	2.44	5.2 ± 0.3	0.6 ± 0.2	
CTD 32	Latitude: 21.78°S		Longitude: 69.02°E				Date: 8 December 2016			
	5	23.14	34.96	25.57	4.61	0.26	0.09	N/D	N/D	
	10	23.14	34.96	25.54	4.61	N/D	N/D	N/D	N/D	
	20	23.57	35.07	24.43	4.75	0.20	0.02	N/D	N/D	
	29	23.64	35.08	24.21	4.78	0.23	0.05	N/D	N/D	
	51	23.95	35.11	23.23	4.91	0.19	0.05	N/D	N/D	
	75	24.24	35.23	22.57	4.88	0.17	0.07	N/D	N/D	
	101	24.49	35.33	21.96	4.75	0.26	0.07	N/D	N/D	
	139	24.90	35.50	20.92	4.18	2.64	0.26	5.9 ± 0.3	2.9 ± 0.4	
	199	25.53	35.71	19.19	4.24	2.88	0.27	4.9 ± 0.2	0.5 ± 0.3	
	293	26.23	35.55	15.81	4.68	3.97	0.39	7.1 ± 0.2	3.2 ± 0.3	
	400	26.60	35.19	12.77	4.99	6.74	0.60	7.8 ± 0.2	4.4 ± 0.8	
	500	26.71	34.97	11.31	5.14	10.03	0.77	7.2 ± 0.2	5.0 ± 0.5	
	601	26.79	34.78	10.03	5.12	15.44	1.07	7.1 ± 0.0	4.5 ± 0.0	
	799	26.98	34.54	7.65	4.33	25.15	1.71	6.4 ± 0.4	2.7 ± 0.4	
	889	27.11	34.45	6.19	4.08	29.75	2.00	6.2 ± 0.0	1.3 ± 0.1	
	1005	27.28	34.47	4.91	3.55	33.97	2.35	6.1 ± 0.0	1.0 ± 0.3	
	1256	27.49	34.62	4.02	2.84	0.83	0.09	N/D	N/D	
	2008	27.75	34.72	2.04	3.83	26.63	1.78	5.3 ± 0.0	0.9 ± 0.2	
	2509	27.78	34.72	1.76	3.89	31.23	2.19	5.2 ± 0.0	0.4 ± 0.1	
	2731	27.78	34.72	1.76	3.89	34.20	2.37	5.3 ± 0.0	0.5 ± 0.1	
	3412	27.79	34.73	1.75	3.91	33.84	2.33	5.1 ± 0.1	1.4 ± 0.1	

Table S2. Continued.

Cruise MSM 59/2 in 2016										
Station	Depth	Sigma-theta	Salinity	Temp	O ₂	NO ₃ ⁻	PO ₄ ³⁻	NO ₃ ⁻ δ ¹⁵ N	NO ₃ ⁻ δ ¹⁸ O	
	[m]	[kg/m ³]	[PSU]	[°C]	[ml/l]	[μM]	[μM]	[‰ ± 1 S.D.] ^a	[‰ ± 1 S.D.] ^b	
CTD 35	Latitude: 21.61°S		Longitude: 69.44°E				Date: 8 December 2016			
	0	n/D	n/D	n/D	n/D	0.05	0.12	N/D	N/D	
	10	23.07	34.90	25.62	4.65	0.26	0.02	N/D	N/D	
	25	23.33	35.00	25.06	4.70	0.03	0.06	N/D	N/D	
	50	23.82	35.05	23.54	4.88	0.05	0.06	N/D	N/D	
	75	24.15	35.18	22.72	4.90	0.01	0.01	N/D	N/D	
	101	24.44	35.30	22.04	4.88	0.07	0.05	N/D	N/D	
	149	24.78	35.47	21.30	4.45	0.85	0.15	N/D	N/D	
	200	25.37	35.69	19.73	4.32	2.41	0.25	4.8 ± 0.1	1.7 ± 0.1	
	301	26.17	35.59	16.19	4.62	3.74	0.38	6.8 ± 0.3	2.6 ± 0.3	
	400	26.56	35.26	13.23	4.97	8.11	0.63	7.9 ± 0.1	4.9 ± 0.8	
	501	26.69	35.01	11.55	5.11	11.63	0.84	7.3 ± 0.2	4.9 ± 0.6	
	600	26.78	34.81	10.25	5.13	10.99	0.80	7.0 ± 0.2	4.6 ± 0.4	
	900	27.16	34.46	5.86	3.80	31.21	2.16	5.9 ± 0.1	2.2 ± 0.2	
	1400	27.55	34.69	4.00	2.58	37.65	2.70	5.9 ± 0.1	1.7 ± 0.1	
	1999	27.75	34.72	2.12	3.77	34.41	2.42	5.2 ± 0.2	1.6 ± 0.7	
	3053	27.79	34.73	1.70	3.93	33.51	2.39	5.1 ± 0.3	1.7 ± 0.5	
CTD 52	Latitude: 21.17°S		Longitude: 68.62°E				Date: 14 December 2016			
	2	23.00	34.80	25.61	4.62	0.10	0.08	N/D	N/D	
	10	23.00	34.80	25.62	4.63	0.11	0.08	N/D	N/D	
	21	23.01	34.80	25.61	4.62	0.10	0.08	N/D	N/D	
	31	23.01	34.79	25.57	4.61	0.09	0.08	N/D	N/D	
	51	23.26	34.87	24.93	4.71	0.09	0.07	N/D	N/D	
	75	23.72	34.90	23.49	4.84	0.10	0.07	N/D	N/D	
	101	24.12	35.16	22.79	4.82	0.16	0.08	N/D	N/D	
	150	24.63	35.41	21.67	4.66	1.00	0.15	N/D	N/D	
	201	25.26	35.65	20.03	4.35	1.90	0.21	4.3 ± 0.2	1.0 ± 0.8	
	251	25.63	35.73	18.87	4.40	2.49	0.27	4.6 ± 0.1	0.7 ± 0.9	
	299	26.07	35.64	16.77	4.54	1.51	0.14	N/D	N/D	
	401	26.57	35.24	13.09	4.95	7.62	0.60	7.6 ± 0.1	4.5 ± 0.5	
	503	26.69	35.02	11.61	5.11	10.51	0.82	7.1 ± 0.0	4.9 ± 0.2	
	600	26.76	34.85	10.49	5.17	8.78	0.79	7.3 ± 0.1	4.4 ± 0.1	
	899	27.16	34.47	5.83	3.74	26.05	1.98	6.3 ± 0.2	2.5 ± 0.4	
	998	27.28	34.49	4.98	3.36	25.94	2.07	6.2 ± 0.1	2.7 ± 0.3	
	1350	27.55	34.69	3.95	2.62	26.54	2.13	6.0 ± 0.1	2.7 ± 0.2	
	2001	27.74	34.72	2.15	3.71	26.54	2.11	5.4 ± 0.1	2.0 ± 0.2	
	2501	27.78	34.72	1.82	3.83	27.70	2.24	5.3 ± 0.1	2.0 ± 0.4	
	2998	27.79	34.73	1.74	3.91	32.21	2.37	5.2 ± 0.3	1.8 ± 0.6	
	3712	27.79	34.73	1.81	3.88	27.78	2.22	6.1 ± 0.2	1.8 ± 0.2	

Table S2. Continued.

Cruise MSM 59/2 in 2016										
Station	Depth	Sigma-theta	Salinity	Temp	O ₂	NO ₃ ⁻	PO ₄ ³⁻	NO ₃ ⁻ δ ¹⁵ N	NO ₃ ⁻ δ ¹⁸ O	
	[m]	[kg/m ³]	[PSU]	[°C]	[ml/l]	[μM]	[μM]	[‰ ± 1 S.D.] ^a	[‰ ± 1 S.D.] ^b	
CTD 67	Latitude: 21.72°S		Longitude: 67.67°E				Date: 19 December 2016			
	6	23.31	35.11	25.38	4.60	0.10	0.07	N/D	N/D	
	10	23.31	35.11	25.37	4.61	0.12	0.06	N/D	N/D	
	21	23.37	35.17	25.36	4.60	0.63	0.07	N/D	N/D	
	30	23.51	35.24	25.05	4.66	0.80	0.07	N/D	N/D	
	50	23.99	35.23	23.41	4.89	0.08	0.06	N/D	N/D	
	75	24.37	35.46	22.72	4.89	1.03	0.17	N/D	N/D	
	115	24.82	35.48	21.16	4.38	10.97	0.99	N/D	N/D	
	150	25.18	35.62	20.22	4.32	2.35	0.25	4.5 ± 0.1	2.6 ± 0.2	
	195	25.62	35.69	18.77	4.43	4.06	0.40	5.1 ± 0.2	4.2 ± 0.2	
	300	26.24	35.54	15.70	4.63	7.29	0.60	6.7 ± 0.1	4.0 ± 0.1	
	401	26.57	35.25	13.16	4.95	10.01	0.77	7.3 ± 0.1	4.5 ± 0.7	
	500	26.68	35.04	11.72	5.06	12.28	0.95	7.0 ± 0.3	4.7 ± 0.6	
	601	26.77	34.84	10.43	5.05	19.71	1.50	6.8 ± 0.2	4.6 ± 0.3	
	801	26.97	34.54	7.72	4.49	25.98	1.94	6.3 ± 0.0	1.8 ± 0.1	
	900	27.15	34.46	5.93	3.85	33.81	2.54	6.1 ± 0.0	2.1 ± 0.0	
	1300	27.50	34.65	4.21	2.62	26.54	2.15	6.1 ± 0.1	2.8 ± 0.0	
	2000	27.73	34.72	2.26	3.60	24.56	2.04	5.6 ± 0.0	2.4 ± 0.3	
	3002	27.79	34.73	1.74	3.81	33.17	2.40	5.3 ± 0.0	2.4 ± 0.4	
	3459	27.79	34.72	1.76	3.79	2.79	0.23	4.3 ± 0.1	0.3 ± 0.1	

^a δ¹⁵N in ‰ versus air and ^b δ¹⁸O in ‰ versus VSMOW; S.D. = standard deviation; n/D = no data; N/D = not detectable.

Table S3. Results of CTD casts from cruise SO 259 (2017), continue on page 8-10.

Cruise SO 259 in 2017										
Station	Depth	Sigma-theta	Salinity	Temp	O ₂	NO ₃ ⁻	PO ₄ ³⁻	NO ₃ ⁻ δ ¹⁵ N	NO ₃ ⁻ δ ¹⁸ O	
	[m]	[kg/m ³]	[PSU]	[°C]	[ml/l]	[μM]	[μM]	[‰ ± 1 S.D.] ^a	[‰ ± 1 S.D.] ^b	
Station 01	Latitude: 2.98°S		Longitude: 77.16°E				Date: 26 August 2017			
	8	22.09	35.18	29.33	3.97	0.40	0.11	N/D	N/D	
	28	22.09	35.19	29.33	3.97	0.03	0.12	N/D	N/D	
	61	22.91	35.34	27.19	3.76	0.71	0.26	N/D	N/D	
	85	24.17	35.33	23.05	2.75	10.09	0.78	7.3 ± 0.1	4.9 ± 0.1	
	181	26.18	35.05	14.26	1.42	26.38	1.77	6.3 ± 0.1	3.6 ± 0.2	
	302	26.75	34.97	11.04	2.30	26.02	1.74	7.0 ± 0.1	2.5 ± 0.0	
	400	26.86	34.92	10.21	1.90	29.84	1.98	7.2 ± 0.0	2.7 ± 0.1	
	499	26.98	34.89	9.39	1.53	33.26	2.25	7.2 ± 0.2	3.0 ± 0.2	
	600	27.11	34.91	8.67	1.34	35.07	2.45	7.2 ± 0.1	3.0 ± 0.3	
	706	27.22	34.95	8.17	1.07	37.17	2.65	7.3 ± 0.0	3.3 ± 0.0	
	800	27.29	34.93	7.64	1.04	37.93	2.66	7.2 ± 0.1	2.8 ± 0.3	
	910	27.36	34.86	6.68	1.27	32.21	2.40	7.0 ± 0.1	2.6 ± 0.1	
	1001	27.40	34.83	6.23	1.37	38.57	2.72	7.1 ± 0.1	3.1 ± 0.2	
	1100	27.46	34.81	5.59	1.54	38.66	2.72	6.9 ± 0.0	2.9 ± 0.0	
	1201	27.51	34.80	5.15	1.66	38.65	2.73	6.6 ± 0.1	3.4 ± 0.2	
	1302	27.56	34.82	4.88	1.71	38.76	2.73	6.6 ± 0.1	2.5 ± 0.1	
	1801	27.72	34.78	3.03	2.53	37.52	2.53	6.0 ± 0.1	2.2 ± 0.0	
	2998	27.80	34.73	1.68	3.32	36.28	2.45	5.3 ± 0.2	1.8 ± 0.3	
	5018	27.82	34.72	1.45	3.72	35.40	2.36	5.3 ± 0.1	2.3 ± 0.1	
Station 03	Latitude: 8.81°S		Longitude: 75.67°E				Date: 28 August 2017			
	3	22.93	35.15	26.67	4.12	0.60	0.16	N/D	N/D	
	29	22.93	35.15	26.68	4.11	1.07	0.20	N/D	N/D	
	55	23.45	35.08	24.85	3.28	6.35	0.57	7.0 ± 0.1	4.1 ± 0.2	
	100	25.51	35.16	17.54	1.40	17.67	1.21	6.2 ± 0.2	3.0 ± 0.2	
	200	26.40	34.98	12.91	1.44	27.60	1.80	6.4 ± 0.1	3.0 ± 0.0	
	249	26.56	34.96	11.99	1.36	29.24	1.89	6.5 ± 0.0	3.1 ± 0.1	
	299	26.68	34.94	11.32	1.62	27.30	1.77	6.7 ± 0.1	3.0 ± 0.2	
	399	26.85	34.87	10.06	1.93	22.67	1.65	6.8 ± 0.1	2.9 ± 0.2	
	500	26.96	34.83	9.19	1.77	19.60	1.46	7.0 ± 0.0	2.2 ± 0.1	
	600	27.07	34.82	8.48	1.68	23.08	1.75	6.9 ± 0.1	2.5 ± 0.4	
	700	27.15	34.81	7.88	1.53	35.78	2.44	6.8 ± 0.1	2.7 ± 0.1	
	801	27.24	34.79	7.15	1.34	27.57	2.14	6.8 ± 0.1	2.7 ± 0.1	
	900	27.31	34.77	6.62	1.41	38.09	2.66	6.7 ± 0.0	3.0 ± 0.2	
	1000	27.36	34.74	5.98	1.50	38.59	2.71	6.4 ± 0.2	2.4 ± 0.1	
	1100	27.42	34.75	5.59	1.63	26.38	2.04	6.5 ± 0.1	2.6 ± 0.3	
	1200	27.47	34.74	5.14	1.74	34.41	2.48	6.5 ± 0.1	3.1 ± 0.3	
	1300	27.52	34.74	4.74	1.87	26.72	2.05	6.3 ± 0.0	3.1 ± 0.3	
	1399	27.56	34.74	4.30	2.03	19.97	1.73	6.2 ± 0.2	1.9 ± 0.1	
	1500	27.61	34.74	3.84	2.24	26.42	2.14	6.0 ± 0.0	2.2 ± 0.1	
	1599	27.65	34.75	3.54	2.40	37.76	2.62	6.0 ± 0.1	2.7 ± 0.1	
	3000	27.80	34.73	1.64	3.47	35.54	2.40	5.3 ± 0.1	2.0 ± 0.2	
	5151	27.82	34.72	1.44	3.78	35.34	2.36	5.0 ± 0.1	2.1 ± 0.2	

Table S3. Continued.

Cruise SO 259 in 2017										
Station	Depth	Sigma-theta	Salinity	Temp	O ₂	NO ₃ ⁻	PO ₄ ³⁻	NO ₃ ⁻ δ ¹⁵ N	NO ₃ ⁻ δ ¹⁸ O	
	[m]	[kg/m ³]	[PSU]	[°C]	[ml/l]	[μM]	[μM]	[‰ ± 1 S.D.] ^a	[‰ ± 1 S.D.] ^b	
Station 05	Latitude: 15.08°S		Longitude: 74.05°E				Date: 29 August 2017			
	8	23.50	35.02	24.52	4.27	0.54	0.24	N/D	N/D	
	126	24.10	35.09	23.52	3.72	2.83	0.36	7.2 ± 0.2	N/D	
	199	25.47	35.68	20.04	4.07	1.14	0.22	N/D	N/D	
	301	26.58	35.34	14.12	4.19	7.69	0.52	7.1 ± 0.1	3.6 ± 0.3	
	400	26.73	34.94	11.05	4.66	12.49	0.95	7.6 ± 0.2	4.6 ± 0.1	
	499	26.84	34.69	9.31	4.55	17.89	1.28	7.0 ± 0.1	3.9 ± 0.1	
	595	27.03	34.55	7.29	3.55	27.44	1.92	6.7 ± 0.0	2.9 ± 0.4	
	701	27.23	34.63	6.31	2.43	34.04	2.44	6.6 ± 0.2	3.0 ± 0.1	
	799	27.33	34.69	5.92	2.00	36.05	2.21	6.6 ± 0.1	2.6 ± 0.1	
	899	27.39	34.71	5.52	1.96	36.00	2.64	6.6 ± 0.1	3.4 ± 0.0	
	1000	27.44	34.71	5.17	2.01	36.93	2.70	6.5 ± 0.2	3.5 ± 0.3	
	1102	27.48	34.72	4.83	2.06	37.15	2.73	6.4 ± 0.1	3.6 ± 0.0	
	1201	27.52	34.73	4.54	2.12	37.20	2.74	6.3 ± 0.0	3.0 ± 0.1	
	1299	27.56	34.73	4.22	2.23	37.10	2.57	6.3 ± 0.2	3.4 ± 0.0	
	1400	27.59	34.73	3.91	2.38	36.77	2.55	5.9 ± 0.1	2.5 ± 0.2	
	1502	27.62	34.72	3.62	2.51	36.63	2.67	6.0 ± 0.0	3.2 ± 0.3	
	1800	27.70	34.73	2.79	2.85	36.08	2.62	5.8 ± 0.1	3.2 ± 0.0	
	3001	27.80	34.73	1.63	3.56	34.66	2.45	5.3 ± 0.1	3.0 ± 0.1	
	5170	27.82	34.72	1.47	3.76	34.56	2.48	5.0 ± 0.0	2.1 ± 0.3	
Station 15	Latitude: 20.96°S		Longitude: 68.92°E				Date: 1 September 2017			
	4	23.76	35.07	23.78	4.37	0.03	0.10	N/D	N/D	
	101	23.86	35.11	23.57	4.35	0.01	0.09	N/D	N/D	
	145	24.06	35.24	23.21	4.08	2.38	0.25	5.4 ± 0.1	N/D	
	200	25.01	35.53	20.62	3.75	2.41	0.29	5.9 ± 0.1	N/D	
	279	25.66	35.70	18.67	3.89	3.01	0.30	5.4 ± 0.1	1.8	
	403	26.49	35.33	13.82	4.51	5.32	0.42	7.5 ± 0.0	4.6 ± 0.1	
	500	26.68	35.03	11.74	4.74	10.46	0.68	7.7 ± 0.1	4.9 ± 0.4	
	600	26.79	34.78	10.01	4.81	14.88	0.98	7.3 ± 0.1	4.3 ± 0.2	
	700	26.87	34.62	8.74	4.56	19.41	1.15	6.9 ± 0.1	3.8 ± 0.2	
	801	27.02	34.50	7.11	4.05	25.94	1.71	6.7 ± 0.1	3.1 ± 0.0	
	899	27.21	34.44	5.31	3.61	32.00	2.11	6.3 ± 0.0	3.1 ± 0.2	
	999	27.35	34.56	4.82	2.73	35.51	2.21	6.4 ± 0.2	2.8 ± 0.1	
	1100	27.42	34.59	4.47	2.65	36.13	2.57	6.3 ± 0.0	3.1 ± 0.2	
	1199	27.47	34.62	4.18	2.61	35.62	2.52	6.3 ± 0.0	3.0 ± 0.1	
	1300	27.53	34.65	3.89	2.60	36.53	2.66	6.2 ± 0.2	2.9 ± 0.0	
	1400	27.57	34.69	3.76	2.59	36.50	2.28	6.3 ± 0.0	3.2 ± 0.0	
	1499	27.61	34.70	3.51	2.68	36.49	2.74	6.3 ± 0.1	3.1 ± 0.1	
	1799	27.71	34.70	2.47	3.41	34.23	2.53	5.8 ± 0.2	2.4 ± 0.4	
	2500	27.78	34.72	1.78	3.70	33.83	2.29	5.5 ± 0.1	2.4 ± 0.2	
	2999	27.79	34.73	1.74	3.76	33.85	2.18	5.4 ± 0.0	2.4 ± 0.0	
	3266	27.79	34.73	1.76	3.77	33.59	2.47	5.4 ± 0.1	2.3 ± 0.3	

Table S3. Continued.

Cruise SO 259 in 2017										
Station	Depth	Sigma-theta	Salinity	Temp	O ₂	NO ₃ ⁻	PO ₄ ³⁻	NO ₃ ⁻ δ ¹⁵ N	NO ₃ ⁻ δ ¹⁸ O	
	[m]	[kg/m ³]	[PSU]	[°C]	[ml/l]	[μM]	[μM]	[‰ ± 1 S.D.] ^a	[‰ ± 1 S.D.] ^b	
Station 45	Latitude: 23.91°S		Longitude: 69.56°E				Date: 9 September 2017			
5	24.25	35.23	22.50	4.40	0.07	0.01	N/D	N/D		
50	24.27	35.25	22.50	4.40	0.04	0.06	N/D	N/D		
103	24.67	35.55	21.91	4.24	0.02	0.03	N/D	N/D		
201	25.59	35.72	18.94	4.14	1.03	0.15	N/D	N/D		
304	26.30	35.51	15.35	4.40	3.75	0.33	7.4 ± 0.1	2.2 ± 0.2		
405	26.60	35.17	12.70	4.55	8.50	0.62	7.6 ± 0.1	4.4 ± 0.3		
506	26.71	34.94	11.13	4.81	11.68	0.81	7.6 ± 0.0	5.0 ± 0.1		
602	26.79	34.77	9.98	4.82	14.77	0.99	7.2 ± 0.2	4.6 ± 0.2		
707	26.85	34.64	9.01	4.65	N.D	N.D	N/D	N/D		
806	26.96	34.53	7.73	4.23	23.40	1.54	6.6 ± 0.1	3.6 ± 0.1		
904	27.13	34.43	5.91	3.85	28.90	1.91	6.6 ± 0.1	3.7 ± 0.3		
1007	27.26	34.44	4.81	3.49	33.07	2.16	6.3 ± 0.0	2.7 ± 0.2		
1110	27.36	34.51	4.45	3.05	N.D	N.D	6.2 ± 0.0	2.7 ± 0.0		
1209	27.42	34.54	4.09	2.93	35.52	2.46	6.2 ± 0.1	2.6 ± 0.2		
1312	27.48	34.59	3.89	2.77	36.06	2.53	6.1 ± 0.2	2.5 ± 0.4		
1413	27.53	34.62	3.66	2.78	35.99	2.55	6.2 ± 0.1	2.7 ± 0.2		
1516	27.58	34.66	3.44	2.81	35.94	2.54	6.1 ± 0.2	2.5 ± 0.0		
1616	27.62	34.67	3.16	2.96	35.49	2.45	6.0 ± 0.2	2.7 ± 0.3		
1716	27.65	34.69	2.96	3.05	35.00	2.42	6.0 ± 0.0	2.5 ± 0.1		
1818	27.68	34.69	2.72	3.21	34.52	2.35	5.8 ± 0.0	2.4 ± 0.1		
2022	27.73	34.71	2.29	3.51	33.70	2.30	5.5 ± 0.1	2.1 ± 0.2		
3042	27.79	34.72	1.72	3.75	33.15	2.27	5.4 ± 0.1	2.2 ± 0.2		
4291	27.79	34.72	1.85	3.76	33.24	2.23	5.4 ± 0.1	2.2 ± 0.0		
Station 49	Latitude: 26.05°S		Longitude: 70.84°E				Date: 11 September 2017			
5	25.20	35.72	20.43	4.57	0.10	0.11	N/D	N/D		
102	25.53	35.79	19.38	4.67	0.03	0.10	N/D	N/D		
151	26.00	35.61	16.95	4.73	0.06	0.23	N/D	N/D		
201	26.37	35.44	14.75	4.57	3.94	0.48	7.8 ± 0.0	3.6 ± 0.0		
250	26.49	35.32	13.77	4.72	4.22	0.48	7.8 ± 0.1	3.7 ± 0.1		
303	26.54	35.27	13.33	4.72	4.57	0.52	7.5 ± 0.0	3.3 ± 0.3		
402	26.65	35.11	12.22	4.75	10.01	0.83	7.2 ± 0.0	5.0 ± 0.3		
505	26.70	34.98	11.36	4.78	11.61	0.91	7.2 ± 0.1	4.6 ± 0.2		
602	26.75	34.86	10.61	4.76	13.78	1.05	7.3 ± 0.0	4.4 ± 0.3		
702	26.82	34.72	9.56	4.58	17.00	1.28	6.9 ± 0.1	3.8 ± 0.3		
802	26.93	34.58	8.21	4.32	21.90	1.69	6.5 ± 0.1	3.0 ± 0.3		
903	27.05	34.45	6.60	4.15	26.63	1.99	6.4 ± 0.1	3.6 ± 0.0		
1004	27.22	34.40	4.97	3.87	31.27	2.27	6.3 ± 0.2	2.4 ± 0.2		
1106	27.35	34.45	4.11	3.49	33.91	2.43	6.1 ± 0.1	2.7 ± 0.2		
1205	27.42	34.51	3.93	3.12	34.30	2.49	6.1 ± 0.0	2.4 ± 0.4		
1307	27.48	34.56	3.70	2.98	35.91	2.64	6.2 ± 0.1	2.6 ± 0.2		
1409	27.52	34.59	3.52	2.96	35.75	2.66	6.0 ± 0.2	1.8 ± 0.4		
1507	27.58	34.62	3.14	3.10	35.94	2.58	6.0 ± 0.2	2.4 ± 0.2		
1609	27.61	34.64	2.93	3.24	34.97	2.54	5.7 ± 0.2	2.1 ± 0.1		
1710	27.65	34.66	2.71	3.36	34.39	2.61	5.7 ± 0.1	2.0 ± 0.0		
1811	27.69	34.69	2.47	3.48	33.84	2.51	5.6 ± 0.0	1.9 ± 0.0		
2011	27.74	34.71	2.17	3.62	33.27	2.39	5.4 ± 0.0	2.2 ± 0.0		
3021	27.79	34.72	1.67	3.73	33.67	2.48	5.3 ± 0.2	1.9 ± 0.4		
4020	27.80	34.73		3.84	33.03	2.47	5.2 ± 0.1	1.8 ± 0.3		

Table S3. Continued.

Cruise SO 259 in 2017										
Station	Depth	Sigma-theta	Salinity	Temp	O ₂	NO ₃ ⁻	PO ₄ ³⁻	NO ₃ ⁻ δ ¹⁵ N	NO ₃ ⁻ δ ¹⁸ O	
	[m]	[kg/m ³]	[PSU]	[°C]	[ml/l]	[μM]	[μM]	[‰ ± 1 S.D.] ^a	[‰ ± 1 S.D.] ^b	
Station 60	Latitude: 27.78°S		Longitude: 73.92°E				Date: 15 September 2017			
	6	25.17	35.73	20.56	4.56	0.06	0.05	N/D	N/D	
	51	25.20	35.74	20.46	4.57	0.01	0.05	N/D	N/D	
	101	25.61	35.72	18.86	4.62	0.06	0.11	N/D	N/D	
	150	26.15	35.59	16.23	4.50	2.05	0.30	6.8 ± 0.1	1.4 ± 0.1	
	200	26.34	35.47	15.01	4.56	3.78	0.40	8.0 ± 0.1	3.3 ± 0.1	
	301	26.55	35.22	13.10	4.69	7.94	0.64	7.9 ± 0.1	5.0 ± 0.3	
	403	26.66	35.06	11.90	4.79	10.72	0.82	7.4 ± 0.1	5.1 ± 0.3	
	502	26.71	34.95	11.21	4.82	12.24	0.90	7.3 ± 0.1	4.8 ± 0.1	
	604	26.76	34.82	10.36	4.80	14.47	1.01	7.1 ± 0.0	4.5 ± 0.0	
	705	26.83	34.68	9.36	4.65	17.95	1.23	6.8 ± 0.1	3.8 ± 0.1	
	804	26.95	34.54	7.87	4.29	18.17	1.39	6.4 ± 0.1	3.0 ± 0.2	
	905	27.07	34.43	6.33	4.13	27.70	1.88	6.4 ± 0.1	3.3 ± 0.1	
	1005	27.19	34.39	5.08	3.98	31.13	2.11	6.2 ± 0.1	2.6 ± 0.0	
	1105	27.29	34.41	4.35	3.71	33.34	2.29	6.4 ± 0.1	3.2 ± 0.1	
	1207	27.37	34.45	3.89	3.52	34.58	2.38	6.1 ± 0.1	3.2 ± 0.1	
	1307	27.44	34.49	3.56	3.33	35.48	2.47	6.0 ± 0.1	3.1 ± 0.1	
	1408	27.50	34.54	3.31	3.22	35.71	2.50	6.0 ± 0.0	2.8 ± 0.1	
	1508	27.55	34.58	3.05	3.29	35.35	2.47	5.9 ± 0.1	2.8 ± 0.1	
	1606	27.61	34.63	2.86	3.31	34.89	2.45	5.4 ± 0.1	1.9 ± 0.1	
	1808	27.68	34.68	2.58	3.42	35.08	2.47	5.8 ± 0.1	2.4 ± 0.3	
	2111	27.75	34.72	2.14	3.78	32.55	2.29	5.4 ± 0.1	2.3 ± 0.3	
	3021	27.79	34.72	1.66	3.78	33.84	2.39	5.4 ± 0.0	2.4 ± 0.2	
	3216	27.79	34.72	1.64	3.79	33.86	2.40	5.3 ± 0.1	2.5 ± 0.1	
Station 99	Latitude: 27.01°S		Longitude: 72.40°E				Date: 29 September 2017			
	5	25.23	35.76	20.41	4.56	0.05	0.08	N/D	N/D	
	50	25.42	35.77	19.73	4.59	0.36	0.07	N/D	N/D	
	99	25.79	35.68	18.03	4.65	0.69	0.16	N/D	N/D	
	199	26.45	35.36	14.10	4.54	6.14	0.53	7.6 ± 0.1	4.2 ± 0.2	
	300	26.57	35.23	13.03	4.68	8.59	0.67	7.2 ± 0.1	5.0 ± 0.1	
	400	26.65	35.09	12.14	4.71	10.48	0.79	7.2 ± 0.1	4.7 ± 0.3	
	503	26.71	34.95	11.21	4.74	8.07	0.69	7.1 ± 0.1	3.4 ± 0.1	
	602	26.77	34.80	10.20	4.66	15.62	1.10	7.0 ± 0.0	4.4 ± 0.1	
	703	26.85	34.66	9.10	4.54	18.63	1.29	6.7 ± 0.1	3.8 ± 0.1	
	804	26.96	34.53	7.72	4.22	23.92	1.68	6.7 ± 0.1	3.2 ± 0.2	
	904	27.09	34.42	6.10	4.02	28.54	1.95	6.3 ± 0.1	2.8 ± 0.1	
	1004	27.22	34.39	4.84	3.89	32.48	2.18	6.4 ± 0.2	3.8 ± 0.1	
	1104	27.32	34.43	4.19	3.55	34.12	2.66	6.1 ± 0.1	2.5 ± 0.4	
	1205	27.39	34.48	3.85	3.30	33.99	2.33	6.0 ± 0.0	2.4 ± 0.2	
	1308	27.46	34.53	3.54	3.16	35.51	2.51	6.0 ± 0.1	2.0 ± 0.2	
	1407	27.52	34.57	3.30	3.13	35.73	2.51	6.0 ± 0.1	2.2 ± 0.2	
	1507	27.57	34.60	3.04	3.19	35.35	2.47	5.9 ± 0.1	1.9 ± 0.2	
	1608	27.62	34.63	2.87	3.24	34.82	2.46	5.7 ± 0.1	1.7 ± 0.0	
	1809	27.69	34.68	2.49	3.43	33.57	2.35	5.6 ± 0.0	1.7 ± 0.1	
	2111	27.75	34.71	2.02	3.64	33.31	2.33	5.5 ± 0.1	1.8 ± 0.1	
	3021	27.79	34.72	1.69	3.72	N.D	N.D	N/D	N/D	
	4267	27.80	34.72	1.74	3.82	33.19	2.32	5.2 ± 0.0	2.1 ± 0.3	

^a δ¹⁵N in ‰ versus air and ^b δ¹⁸O in ‰ versus VSMOW; S.D. = standard deviation; N/D = not detectable.