

Supplementary Table S1. Nutrient data analysed for the GEOVIDE transect relevant to this study.

All nutrient data are concentrations (μM) and pressure was measured as decibars (equivalent to meters below surface). Note: concentration of DSi recorded in this table was collected from a different cast than the samples collected for analysis of $\delta^{30}\text{Si}_{\text{DSi}}$. The $\delta^{30}\text{Si}_{\text{DSi}}$ samples were analysed independently for DSi (see table S2).

Station	Cast	Bottle	Pressure	NO_3	NO_2	DSi	Si*
1	1	24	2.6	0.04	0.00	0.90	0.86
1	1	23	16.2	0.03	0.00	0.87	0.84
1	1	22	36.7	0.90	0.00	0.55	-0.35
1	1	21	59.8	4.23	0.00	1.09	-3.14
1	1	20	99.3	5.60	0.00	1.88	-3.72
1	1	19	149.2	6.31	0.00	2.17	-4.14
1	1	18	201.2	7.30	0.00	2.72	-4.57
1	1	17	299.8	9.26	0.00	3.58	-5.68
1	1	16	401.9	10.75	0.00	4.69	-6.06
1	1	15	500.6	12.36	0.00	6.34	-6.03
1	1	14	600.4	12.81	0.00	7.28	-5.53
1	1	13	700.6	12.55	0.00	7.42	-5.12
1	1	12	799.5	12.60	0.00	7.95	-4.65
1	1	11	900.9	12.81	0.00	8.45	-4.37
1	1	10	1000.8	12.96	0.00	8.81	-4.15
1	1	9	1200.6	13.31	0.00	9.67	-3.64
1	1	8	1400.5	13.94	0.00	11.02	-2.92
1	1	7	1600.3	14.53	0.00	13.20	-1.33
1	1	6	1799.5	14.93	0.00	15.19	0.26
1	1	5	2001	15.34	0.00	18.87	3.53
1	1	4	2499.6	16.46	0.00	28.61	12.15
1	1	3	3000.4	17.21	0.00	36.05	18.84
1	1	2	3250.3	17.55	0.00	39.21	21.66
1	1	1	3580.6	17.82	0.00	41.72	23.89
13	1	24	4.2	0.05	0.01	0.53	0.48
13	1	23	29.7	0.65	0.06	0.67	0.03
13	1	22	49.1	2.70	0.30	0.95	-1.75
13	1	21	99.9	6.32	0.02	1.83	-4.49
13	1	20	200.6	7.30	0.02	2.26	-5.04
13	1	19	299.9	9.57	0.01	3.10	-6.47
13	1	18	399.7	9.01	0.02	2.96	-6.05

13	1	17	498.7	10.82	0.00	3.70	-7.11
13	1	16	599.8	12.93	0.01	5.04	-7.89
13	1	15	700.2	16.09	0.01	7.52	-8.57
13	1	14	798.6	17.08	0.00	8.69	-8.40
13	1	13	1000	17.57	0.00	10.32	-7.25
13	1	12	1250.5	16.76	0.00	10.65	-6.11
13	1	11	1499.8	17.29	0.00	11.88	-5.41
13	1	10	1749.7	17.52	0.00	13.08	-4.43
13	1	9	1999.9	17.78	0.00	16.33	-1.46
13	1	8	2250.1	18.34	0.00	20.19	1.85
13	1	7	2499.4	18.75	0.00	23.83	5.08
13	1	6	3000.2	19.96	0.00	33.31	13.35
13	1	5	3498.4	20.73	0.00	39.11	18.37
13	1	4	4000.8	21.38	0.00	43.43	22.05
13	1	3	4499.1	21.62	0.00	45.81	24.20
13	1	2	4998.9	21.72	0.00	46.51	24.79
13	1	1	5439.5	21.70	0.00	47.00	25.31
21	1	24	2.4	0.80	0.09	0.40	-0.40
21	1	23	39.4	4.06	0.15	1.62	-2.44
21	1	22	100.2	8.00	0.04	2.89	-5.11
21	1	21	149.7	8.65	0.01	3.22	-5.42
21	1	20	197.4	9.10	0.01	3.39	-5.71
21	1	19	300.1	9.45	0.01	3.60	-5.85
21	1	18	398.2	11.49	0.01	4.54	-6.96
21	1	17	500	10.57	0.00	4.07	-6.50
21	1	16	600.3	11.30	0.01	4.59	-6.71
21	1	15	699	16.19	0.00	8.03	-8.16
21	1	14	799.8	0.01			
21	1	13	800	18.11	0.00	10.05	-8.06
21	1	12	1000.4	17.88	0.00	10.77	-7.11
21	1	11	1250.6	17.49	0.00	11.01	-6.49
21	1	10	1499.9	17.16	0.00	10.93	-6.23
21	1	9	1749.6	17.07	0.00	11.44	-5.63
21	1	8	2000.2	17.07	0.00	12.17	-4.89
21	1	7	2300.2	17.00	0.00	13.34	-3.67
21	1	6	2499.6	17.22	0.00	15.92	-1.30
21	1	5	2999.4	18.01	0.00	23.76	5.75
21	1	4	3499.4	20.25	0.00	37.02	16.77
21	1	3	3998.9	21.22	0.00	43.11	21.89
21	1	2	4500.4	21.31	0.00	43.68	22.36
21	1	1	4607.2	21.64	-0.01	45.61	23.97

26	1	24	4.2	5.60	0.53	1.13	-4.47
26	1	23	34.6	5.87	0.55	1.19	-4.67
26	1	22	99.9	10.72		4.03	
26	1	21	149.5	12.01		5.13	
26	1	20	199.5	12.52	0.06	5.90	-6.62
26	1	19	300	12.99	0.02	6.47	-6.52
26	1	18	400.3	15.46	0.02	8.43	-7.03
26	1	17	500.8	18.37	0.01	11.26	-7.12
26	1	16	600.3	18.07	0.01	11.14	-6.93
26	1	15	750.3	17.16	0.01	10.75	-6.41
26	1	14	899.3	16.88	0.00	10.47	-6.41
26	1	13	999	16.67	0.00	10.11	-6.56
26	1	12	1199.5	16.48	0.00		
26	1	11	1400.4	16.44	0.00	10.56	-5.89
26	1	10	1599.7	16.51	0.00	11.06	-5.44
26	1	9	1800.2	16.50	0.00	11.72	-4.77
26	1	8	1998.4	16.44	0.00	12.29	-4.15
26	1	7	2299.9	16.23	0.00	13.14	-3.09
26	1	6	2498.9	16.25	0.00	14.65	-1.60
26	1	5	2749.2	16.47	0.00	17.54	1.07
26	1	4	2999	17.24	0.00	23.13	5.90
26	1	3	3250.5	18.37	0.00	29.41	11.04
26	1	2	3499.5	19.06	0.00	33.42	14.36
26	1	1	4191.8	20.84	0.00	43.86	23.03
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32	1	24	15.7	6.74	0.15	1.07	-5.67
32	1	23	30.5	8.79	0.27	2.21	-6.57
32	1	22	100.1	9.51	0.67	1.95	-7.56
32	1	21	150.9	12.88	0.08	5.42	-7.46
32	1	20	200.6	12.94	0.03	5.85	-7.09
32	1	19	299.8	14.43	0.02	7.54	-6.89
32	1	18	378.2	15.40	0.02	8.43	-6.97
32	1	17	450.1	17.80	0.01	10.65	-7.15
32	1	16	501	17.72	0.01	10.76	-6.96
32	1	15	600.1	16.44	0.00	10.41	-6.02
32	1	14	700.4	16.30	0.00	10.32	-5.98
32	1	13	801.1	16.44	0.00	9.76	-6.68
32	1	12	899.1	16.51	-0.01	9.88	-6.63
32	1	11	999.5	15.88	-0.01	9.64	-6.24
32	1	10	1199.5	15.69	0.00	9.77	-5.92
32	1	9	1399	15.81	-0.01	10.50	-5.32
32	1	8	1549.3	16.50	0.00	10.89	-5.61

32	1	7	1700	16.49	0.00	11.27	-5.23
32	1	6	2000.1	16.37	0.00	11.93	-4.44
32	1	5	2250	16.33	0.00	13.25	-3.08
32	1	4	2499.8	16.25	0.00	14.47	-1.77
32	1	3	2799.2	16.50	-0.01	18.31	1.81
32	1	2	2999.8	16.96	0.00	22.27	5.31
32	1	1	3273.2	17.22	0.00	25.07	7.85
44	1	24	10.2	9.39	0.11	7.75	-1.64
44	1	23	25.5	15.33	0.05	8.10	-7.23
44	1	22	98.9	15.32	0.04	7.99	-7.32
44	1	21	149.6	15.26	0.03	7.97	-7.29
44	1	20	200.6	15.32	0.02	8.19	-7.13
44	1	19	300.6	15.17	0.01	8.06	-7.10
44	1	18	399.4	15.27	0.01	8.21	-7.06
44	1	17	499.4	15.14	0.00	8.34	-6.80
44	1	16	600.3	15.26	0.01	8.39	-6.87
44	1	15	699.3	15.25	0.01	8.37	-6.89
44	1	14	799.8	0.01		8.47	
44	1	13	900.3	15.30	0.01	9.37	-5.93
44	1	12	1000.8	15.91	0.01	9.66	-6.25
44	1	11	1100.6	15.83	0.00	10.61	-5.22
44	1	10	1401.3	16.05	0.01	11.09	-4.96
44	1	9	1600.4	16.05	0.00		
44	1	8	1800.4	15.83	0.01	11.97	-3.86
44	1	7	2000.3	15.80	0.00	12.73	-3.07
44	1	6	2249.4	15.72	0.00	13.63	-2.09
44	1	5	2501	15.66	0.00	13.67	-1.99
44	1	4	2600.5	13.15	0.00	7.62	-5.53
44	1	3	2800.2	12.82	0.00	7.27	-5.56
44	1	2	2900.1	12.86	0.00	7.40	-5.46
44	1	1	2965.5	8.87	0.10	7.36	-1.51
60	3	24	4.6	7.67	0.11	4.29	-3.38
60	3	23	20.3				
60	3	22	50.4				
60	3	21	50.5	10.58	0.20	5.12	-5.47
60	3	20	100	13.27	0.27	6.89	-6.38
60	3	19	109.7				
60	3	18	152.2	14.20	0.13	7.41	-6.79
60	3	17	152.2				
60	3	16	252.5				
60	3	15	252.3	14.76	0.01	7.95	-6.81

60	3	14	401.4				
60	3	13	500.1	15.28	0.01	8.49	-6.79
60	3	12	751.6				
60	3	11	800.7	15.34	0.00	9.01	-6.33
60	3	10	999.5	15.58	0.00	9.71	
60	3	9	999.4				
60	3	8	1201.8				
60	3	7	1201.7	15.40	0.00	10.06	-5.34
60	3	6	1400.6	14.99	0.00	9.87	-5.12
60	3	5	1400.6				
60	3	4	1500.7				
60	3	3	1600.4				
60	3	2	1719.4				
60	3	1	1738.1	14.63	0.00	9.94	-4.68
64	1	24	4.6	4.70	0.12	4.47	-0.24
64	1	23	49.7	10.65	0.20	6.93	-3.71
64	1	22	99.8	14.00	0.31	7.37	-6.63
64	1	21	149.7	15.14	0.15	7.40	-7.74
64	1	20	199.7	15.51	0.08	7.64	-7.88
64	1	19	319.6	15.67	0.05	8.00	-7.67
64	1	18	399.7	16.00	0.02	8.15	-7.85
64	1	17	499.6	15.73	0.02	8.10	-7.63
64	1	16	649.3	15.99	0.00	8.41	-7.58
64	1	15	750	15.97	0.01	8.32	-7.65
64	1	14	799.7	15.89	0.00	8.25	-7.64
64	1	13	899.9	15.88	0.01	8.35	-7.53
64	1	12	999.4	16.07	0.01	8.68	-7.39
64	1	11	1199.6	16.52	0.00	9.88	-6.65
64	1	10	1399.4	16.60	0.01	10.41	-6.19
64	1	9	1598.9	16.53	0.01	10.71	-5.82
64	1	8	1799.8	16.56	0.01	11.41	-5.15
64	1	7	1999.1	16.48	0.01	12.38	-4.10
64	1	6	2249.7				
64	1	5	2249.6	16.20	0.01	13.03	-3.17
64	1	4	2401				
64	1	3	2401	15.47	0.00	11.43	-4.04
64	1	2	2502.3				
64	1	1	2502.1	15.01	0.01	10.46	-4.55
69	1	24	4.2	0.08	0.00	3.56	3.48
69	1	23	50.4	10.97	0.31	7.04	-3.94
69	1	22	99.3	14.28	0.32	7.38	-6.90

69	1	21	150	14.57	0.16	7.75	-6.82
69	1	20	200.2	14.78	0.14	7.98	-6.80
69	1	19	299.8	14.99	0.04	8.06	-6.93
69	1	18	399.9	15.19	0.02	8.12	-7.07
69	1	17	499.7	14.89	0.02	8.10	-6.78
69	1	16	600.7	14.93	0.01	8.06	-6.88
69	1	15	800.9	15.10	0.01	8.20	-6.90
69	1	14	1000.1	15.10	0.01	8.34	-6.75
69	1	13	1200.1	15.07	0.00	8.25	-6.82
69	1	12	1400.3	15.02	0.01	8.81	-6.21
69	1	11	1599.8	15.61	0.00	9.14	-6.48
69	1	10	1799.6	16.12	0.00	10.62	-5.50
69	1	9	2000	15.91	0.00	10.83	-5.08
69	1	8	2249.6	15.98	0.00	11.55	-4.42
69	1	7	2500	15.69	0.00	11.65	-4.04
69	1	6	2725.4	15.65	0.00	12.53	-3.12
69	1	5	2999	15.47	0.00	13.22	-2.25
69	1	4	3248.9	15.25	0.00	14.03	-1.22
69	1	3	3499.9	14.33	0.00	11.49	-2.84
69	1	2	3700.6	13.35	0.01	8.42	-4.93
69	1	1	3745.3	13.37	0.00	8.90	-4.47
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77	1	24	3.5				
77	1	23	3.5	0.35	0.04	1.09	0.74
77	1	22	23.8	2.99	0.13	3.59	0.60
77	1	21	40.3	6.53	0.27	5.99	-0.54
77	1	20	100.2	13.58		8.05	-5.54
77	1	19	150.5	14.47		8.14	-6.33
77	1	18	200.7	14.15	0.56	8.17	-5.98
77	1	17	300.4	14.54	0.24	8.20	-6.33
77	1	16	401.6	15.08	0.03	8.40	-6.69
77	1	15	501.7	15.15	0.03	8.38	-6.78
77	1	14	600.8	15.25	0.01	8.43	-6.81
77	1	13	701	15.28	0.00	8.52	-6.76
77	1	12	801.7	15.10	0.01	8.47	-6.63
77	1	11	901.5	15.21	0.01	8.54	-6.67
77	1	10	1001.4	15.26	0.01	8.68	-6.59
77	1	9	1201.7	15.89	0.01	10.14	-5.75
77	1	8	1301.6	16.02	0.01	10.57	-5.45
77	1	7	1500.3	16.10	0.00	11.13	-4.97
77	1	6	1750.5	15.60	0.00	11.11	-4.49
77	1	5	2000.4	15.43	0.00	11.71	-3.73

77	1	4	2201.2	15.16	0.01	12.03	-3.13
77	1	3	2400.5	14.77	0.01	12.07	-2.70
77	1	2	2449.4	14.91	0.01	12.18	-2.73
77	1	1	2530.9	14.56	0.01	11.82	-2.74

Supplementary Table S2: Stable silicon isotope data ($\delta^{30}\text{Si}_{\text{DSi}}$) including; reproducibility (2SD) and number of full chemistry replicates (n), DSi concentration ([DSi]), and the inverse of [DSi] for each station and depth sampled during GEOVIDE.

Station	Latitude (°N)	Longitude (°E)	Depth (m)	[DSi] (μM)	1/[DSi] (μM^{-1})	$\delta^{30}\text{Si}_{\text{DSi}}$ (‰)	2SD	n
1	40.333	-10.036	500.6	6.8	0.148	1.45	0.16	2
1	40.333	-10.036	1000.8	9.3	0.107	1.33	0.20	2
1	40.333	-10.036	2499.6	29.1	0.034	0.95	0.16	3
1	40.333	-10.036	3000.4	36.5	0.027	0.97	0.16	3
13	41.383	-13.888	1000	10.8	0.041	n/a	---	---
13	41.383	-13.888	1999.9	16.7	0.060	n/a	---	---
13	41.383	-13.888	2499.4	24.2	0.041	1.22	0.16	1
13	41.383	-13.888	3000.2	33.6	0.030	0.96	0.16	3
13	41.383	-13.888	4000.8	43.8	0.023	1.1	0.16	2
13	41.383	-13.888	4998.9	46.6	0.021	0.98	0.16	3
21	46.544	-19.672	500	11.1	0.090	n/a	---	---
21	46.544	-19.672	1000.4	11.1	0.090	n/a	---	---
21	46.544	-19.672	2000.2	12.6	0.079	n/a	---	---
21	46.544	-19.672	2999.4	24.1	0.041	n/a	---	---
21	46.544	-19.672	3998.9	43.3	0.023	1.17	0.16	2
21	46.544	-19.672	4500.4	43.6	0.023	1.31	0.16	2
26	50.278	-22.602	500.8	11.7	0.086	2.85	0.16	3
26	50.278	-22.602	999	10.6	0.094	2.26	0.16	3
26	50.278	-22.602	1400.4	11.1	0.090	1.72	0.16	3
26	50.278	-22.602	1998.4	12.8	0.078	1.74	0.20	2
26	50.278	-22.602	2999	23.2	0.043	n/a	---	---
26	50.278	-22.602	3499.5	44.3	0.023	1.07	0.16	1
32	55.506	-26.710	501	11.1	0.090	n/a	---	---
32	55.506	-26.710	999.5	10.1	0.099	n/a	---	---
32	55.506	-26.710	1399	10.9	0.092	1.86	0.16	2
32	55.506	-26.710	2000.1	12.4	0.080	1.74	0.16	2
32	55.506	-26.710	2499.8	14.8	0.067	1.55	0.16	3
32	55.506	-26.710	2999.8	22.4	0.045	1.52	0.16	3
44	59.623	-38.954	499.4	8.8	0.114	2.29	0.16	2
44	59.623	-38.954	1000.8	10.2	0.098	1.59	0.26	3
44	59.623	-38.954	1401.3	11.6	0.086	1.49	0.16	2
44	59.623	-38.954	2000.3	13.4	0.075	1.59	0.16	2
44	59.623	-38.954	2501	14.2	0.070	1.4	0.16	4
44	59.623	-38.954	2900.1	8.0	0.125	1.24	0.16	3
60	59.799	-42.003	500.1	8.9	0.112	n/a	---	---
60	59.799	-42.003	999.4	10.2	0.098	2.74	0.16	3

60	59.799	-42.003	1400.6	10.3	0.097	1.73	0.16	2
60	59.799	-42.003	1719.4	10.5	0.095	1.41	0.16	1
64	59.068	-46.083	499.6	8.5	0.117	2.01	0.18	2
64	59.068	-46.083	999.4	9.0	0.111	2.13	0.16	2
64	59.068	-46.083	1399.4	10.8	0.093	1.45	0.26	3
64	59.068	-46.083	1799.8	11.9	0.084	1.6	0.16	2
64	59.068	-46.083	1999.1	12.8	0.078	1.36	0.16	2
64	59.068	-46.083	2249.6	13.4	0.075	1.35	0.16	2
69	55.842	-48.093	499.7	8.6	0.116	n/a	---	---
69	55.842	-48.093	1000.1	8.8	0.113	1.56	0.16	2
69	55.842	-48.093	1400.3	9.1	0.110	1.43	0.16	2
69	55.842	-48.093	2000	11.4	0.088	1.55	0.16	3
69	55.842	-48.093	2999	13.8	0.072	1.53	0.16	2
69	55.842	-48.093	3499.9	12.0	0.084	1.55	0.16	2
77	53	-51.100	501.7	8.8	0.114	1.89	0.16	3
77	53	-51.100	1001.4	9.2	0.108	1.91	0.16	2
77	53	-51.100	1500.3	11.6	0.086	1.52	0.16	2
77	53	-51.100	2000.4	12.2	0.082	1.38	0.16	2
77	53	-51.100	2530.9	12.2	0.082	1.28	0.16	2