

Oxygen isotope conversion tool

Extreme warming of tropical waters during the Paleocene–Eocene Thermal Maximum: Supplementary Information**1. Methods****1.1 Planktonic Foraminifera Assemblage Counts**

All samples were washed over a 63 µm sieve and dried in an oven overnight at 40°C. A rarefaction analysis was conducted to determine how many individuals needed to be counted in order to detect the full diversity of a sample; the analysis demonstrated that after counting 300 specimens was sufficient.

Samples to be analysed for assemblage work were randomly selected using a random number generator to avoid psychological ‘drift’ during the counting process. The selected samples were scanned under the microscope and the amount of sediment required for at least 300 individuals per tray was determined by eye. Samples were then split using a sediment splitter and were transferred to a picking tray. All planktonic foraminifera specimens per tray were counted to the specific level, where less than 300 were found in a tray the procedure was repeated. The taxonomic references for this work were Olsson et al. (1999) and Pearson et al. (2006). Data from the assemblage work are presented below in section 2.1. Planktonic foraminifera species level assemblage data.

1.2 Calcareous Nannofossil Assemblage Counts

Calcareous nannofossils were viewed as simple smear-slides (Bown and Young, 1998), using transmitted-light microscopy in cross-polarised and phase-contrast light, and on unprocessed, broken rock surfaces using scanning electron microscopy (Lees et al., 2004). Count data were collected from at least five fields of view (FOV) until around 400 specimens total had been counted. Preservation was assessed using SEM from a representative selection of samples.

1.3 Bulk Sediment Geochemical Records

The abundances of total carbon (TC) and total inorganic carbon (TIC) were measured using a LECO CNS-2000 elemental analyser at the Open University. TC was measured initially from 0.2 g aliquots of dried, homogenised sediment powders. Subsequently, 0.3 g aliquots of sample powders were placed in a furnace at 450°C for at least five hours to remove organic carbon, before being analysed for TIC. Percent total organic carbon (%C) was calculated from TC-TIC. Percent calcium carbonate (%CaCO₃) was calculated by multiplying TIC by 8.333, with the assumption that TIC derives exclusively from CaCO₃. Repeat analyses of an in-house mudrock standard (Oxford clay) indicated a %C reproducibility of ±0.03% (2 S.D., n=68). Samples were prepared for δ¹³C_{org} analysis by decarbonating 0.2 g of dried homogenised sample powders in sterile glass centrifuge tubes with repeated treatments of 0.5 N HCl until no further reaction occurred. Subsequently, samples were rinsed several times in ultra-pure water and oven dried. Aliquots of each sample were weighed into tin capsules and analysed using an elemental analyser coupled to a Thermo-Finnegan MAT 253 mass spectrometer. Data are expressed on the Vienna PeeDee Belemnite (VPDB scale). Data accuracy and precision were monitored using IAEA CH-6 sucrose standard, which indicated an external reproducibility of better than ±0.04 ‰ (1 S.D., n=27) during the period of analysis. Separate aliquots of 76 samples were analysed at least in duplicate, with an average 1 S.D. reproducibility of ±0.11 ‰.

1.4 Single Specimen Planktonic Foraminifera Isotope Analysis

All individual planktonic foraminifera specimens were picked from the 300-355 µm size fraction and were cleaned in deionised water in an ultrasonic bath to remove any sediment that was inside or adhering to the tests. Each single shell was photographed in order to verify and record preservation quality (see Fig S.1) before analysed for carbon and oxygen isotope ratios using a GV IsoPrime mass spectrometer plus Multiprep device at the British Geological Survey. Isotope values ($\delta^{13}\text{C}$, $\delta^{18}\text{O}$) are reported as per mil (‰) deviations of the isotopic ratios ($^{13}\text{C}/^{12}\text{C}$, $^{18}\text{O}/^{16}\text{O}$) calculated to the VPDB scale using a within-run laboratory standard calibrated against NBS standards. Analytical reproducibility of the standard calcite (KCM) is < 0.1‰ for $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$.

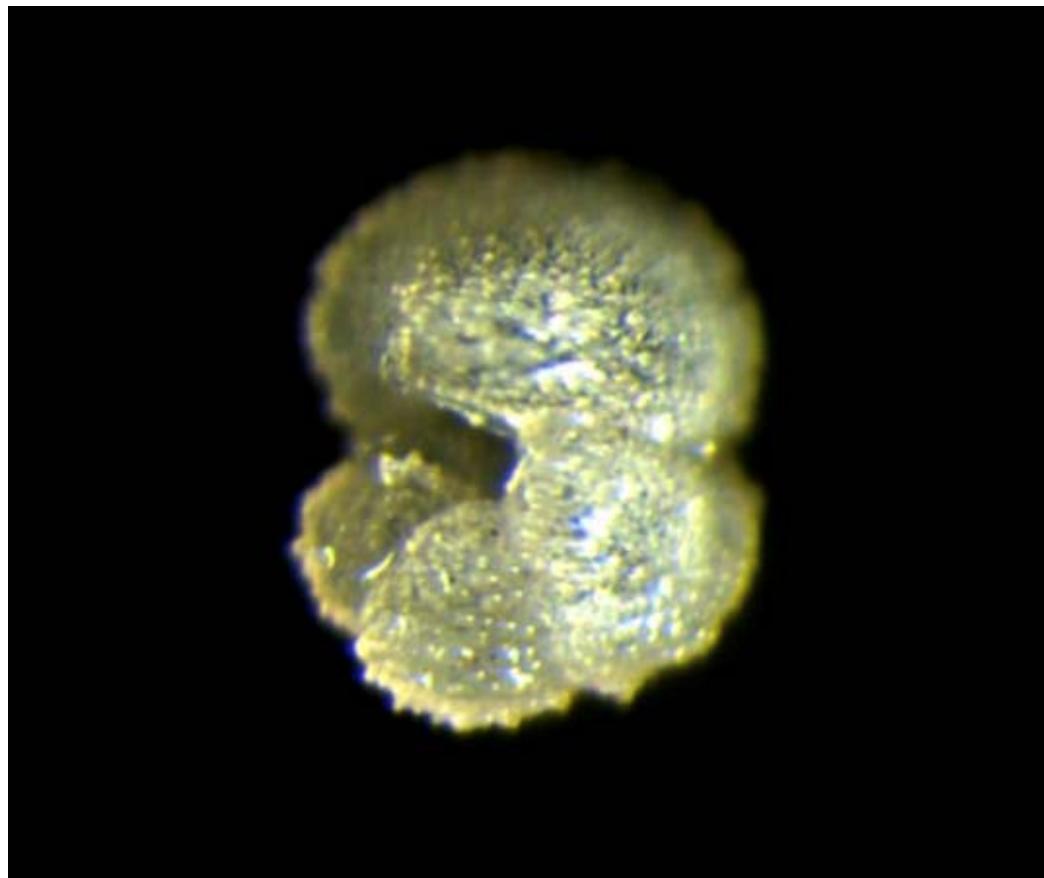


Figure DR1. Sample 7.3, a specimen of the mixed layer species *Morozovella aequa* from TDP Site 14B, core 9, section 1, 44-46cm, from the 300-355 µm size fraction x3.2mag that exemplifies the material that was used for the $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$ isotope analyses. This image captures the exceptional quality of the preservation of these specimens, which have a “glassy” appearance associated with foraminifera that have not experienced diagenetic recrystallization (Sexton et al. 2006).

1.5 Compound Specific Isotope Analysis

Between 40 and 75 g of sediment was freeze-dried and then ground to a fine powder using a mortar and pestle. Extractions were performed overnight by gentle refluxing with a 2:1 (v:v) mixture of dichloromethane:methanol in a Soxhlet apparatus. Resulting total lipid extracts were split into 2 fractions by alumina flash column chromatography, eluted sequentially with *n*-hexane:dichloromethane (9:1 ,v:v; 4 ml;

apolar fraction) and dichloromethane:methanol (1:1; v:v, 3 ml, polar fraction). *n*-alkanes eluted in the apolar fraction. Co-eluting compounds and an unresolvable complex mixture were then removed from the apolar fraction using urea aduction. Compound specific carbon isotope analyses are performed on a ThermoFinnigan Delta^{plus}XP coupled to a Trace 2000 GC via a GC-C III interface, the GC was fitted with a Zebron ZB-1 fused silica capillary column (50 m × 0.32 mm internal diameter; dimethylpolysiloxane equivalent stationary phase, 0.12 µm film thickness). Samples were injected at 70 °C, and the oven programmed to increase in temperature to 130 °C at 20 °Cmin⁻¹ then to 300 °C at 4 °Cmin⁻¹, remaining isothermal at 300 °C for 25 minutes. Samples were run in non-consecutive repeats (n=2) and instrument stability was monitored by injection of an in-house fatty acid methyl ester mix. Long-term uncertainties, based on repeat measurements of the standard are ±0.6 ‰ (2σ).

1.6 Correlation of TDP Site 14 Holes A and B

Data from both TDP Site 14 holes A and B were incorporated into this publication. As the cores were drilled one metre apart and had an ~50cm offset, the two were correlated using the level where thereafter only excursion level δ¹³C is seen in the *n*-alkane record in TDP Site 14 A and where the major decline in calcareous plankton and %CaCO₃ occurs in TDP Site 14 B.

2. Data

2.1 Planktonic Foraminifera Generic Level Assemblage Data

Table DR1. Foraminifera per gram per genus, excursion taxa are given a separate column and include *Acarinina africana* and *A. sibaiyaensis*

Depth (m)	Sample	Morozovellids	Acarininiids	Subbotiniids	Globanomaliniids	Igorinids	Excursion taxa	Microperforates
10.01	TDP 14B 5/3 0-1	230.7	53.3	121.3	14.7	0.0	0.0	22.7
10.18	TDP 14B 5/3 17-19	94.9	39.9	101.4	7.2	1.4	0.0	13.8
10.27	TDP 14B 5/3 26-28	75.6	36.4	47.3	10.9	3.3	0.0	6.5
10.44	TDP 14B 5/3 43-45	54.5	16.4	39.3	5.5	5.5	0.4	4.0
10.58	TDP 14B 5/3 57-59	101.4	56.5	89.1	8.0	1.4	0.0	7.2
10.68	TDP 14B 5/3 67-69	62.9	21.1	45.8	10.5	4.0	0.0	6.5
10.89	TDP 14B 5/4 8-10	50.9	13.5	32.4	1.1	3.3	0.0	3.6
11.25	TDP 14B 6/1 24-26	123.9	15.9	53.6	10.9	3.6	0.0	5.1
11.51	TDP 14B 6/1 50-52	26.5	10.5	23.8	0.5	3.5	0.4	1.5
11.61	TDP 14B 6/1 60-62	52.0	20.4	41.1	3.6	6.9	0.0	2.9
11.81	TDP 14B 6/1 80-82	87.4	17.4	47.8	10.1	2.9	0.0	8.7
11.91	TDP 14B 6/1 90-92	31.8	10.4	25.1	5.1	2.7	0.0	1.1
12.11	TDP 14B 6/2 10-12	10.0	2.5	8.6	1.1	0.6	0.0	1.7
12.35	TDP 14B 6/2 34-36	40.0	6.0	23.1	2.2	2.5	0.0	4.4
12.37	TDP 14B 6/2 36-38	160.1	26.1	69.6	13.8	5.1	0.0	29.7

Depth (m)	Sample	Morozellids	Acarininiids	Subbotiniids	Globanomaliniids	Igorinids	Excursion taxa	Microperforates
12.81	TDP 14B 6/2 80-82	1.6	1.4	0.8	0.0	0.0	0.5	0.1
13.07	TDP 14B 6/3 6-8	0.1	0.0	0.2	0.0	0.0	0.0	0.0
13.33	TDP 14B 6/3 32-34	0.1	0.1	0.3	0.0	0.0	0.0	0.0
13.45	TDP 14B 6/3 44-46	0.5	0.4	0.9	0.0	0.0	0.0	0.0
13.83	TDP 14B 6/3 82-84	2.9	0.6	2.4	0.0	0.1	0.4	0.1
14.25	TDP 14B 7/1 24-26	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14.45	TDP 14B 7/1 44-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14.59	TDP 14B 7/1 58-60	0.0	0.1	0.1	0.0	0.0	0.0	0.0
14.75	TDP 14B 7/1 74-76	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14.91	TDP 14B 7/1 90-92	0.0	0.0	0.1	0.0	0.0	0.0	0.0
15.25	TDP 14B 7/2 24-26	0.3	0.0	0.1	0.0	0.0	0.0	0.0
15.47	TDP 14B 7/2 45-46	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15.49	TDP 14B 7/2 48-50	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15.67	TDP 14B 7/2 66-68	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17.53	TDP 14B 8/1 52-54	2.8	0.4	2.0	1.4	0.0	0.0	0.2
17.55	TDP 14B 8/1 54-56	0.3	0.0	0.1	0.0	0.0	0.0	0.0
17.99	TDP 14B 8/1 98-100	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18.13	TDP 14B 8/2 12-14	0.8	0.0	0.4	0.1	0.0	0.0	0.0
18.71	TDP 14B 8/2 70-72	0.3	0.1	0.3	0.0	0.0	0.0	0.0
18.59	TDP 14B 8/2 58-60	0.0	0.0	0.2	0.0	0.0	0.0	0.0
18.83	TDP 14B 8/2 82-84	0.2	0.1	0.2	0.1	0.0	0.2	0.0
18.87	TDP 14B 8/2 86-88	0.5	0.0	0.5	0.0	0.1	0.0	0.0
18.97	TDP 14B 8/2 96-98	0.2	0.0	0.0	0.1	0.0	0.1	0.0
19.01	TDP 14B 8/3 0-2	0.3	0.1	0.6	0.0	0.0	0.1	0.0
19.13	TDP 14B 8/3 12-14	0.4	0.1	0.6	0.0	0.0	0.2	0.0
19.21	TDP 14B 8/3 20-21	0.6	0.1	0.6	0.1	0.1	0.1	0.0
19.37	TDP 14B 8/3 36-37	0.5	0.0	0.4	0.0	0.0	0.0	0.0
19.46	TDP 14B 8/3 45-46	0.1	0.0	0.0	0.0	0.0	0.1	0.0
19.62	TDP 14B 8/3 61-62	352.9	88.2	235.3	23.5	0.0	2.9	35.3
19.68	TDP 14B 8/3 67-69	71.3	8.4	40.4	12.7	2.2	0.0	3.6
20.01	TDP 14B 9/1 0-1	4.1	1.0	2.4	0.4	0.1	0.0	0.3
20.14	TDP 14B 9/1 13-14	156.4	18.9	80.0	8.7	0.0	0.0	9.5
20.69	TDP 14B 9/1 68-69	1.8	0.3	1.1	0.3	0.0	0.0	0.0
20.85	TDP 14B 9/1 84-85	57.5	13.5	45.1	6.9	3.6	0.0	5.1
20.88	TDP 14B 9/1 87-88	11.8	1.8	4.4	1.3	1.8	0.0	0.7
20.89	TDP 14B 9/1 88-89	6.0	1.0	3.7	0.6	0.0	0.0	0.2
21.28	TDP 14B 10/1 7-8	1.2	0.3	1.3	0.0	0.0	0.1	0.0
21.31	TDP 14B 10/1 10-11	54.5	10.5	24.7	4.4	0.0	0.0	1.8
21.36	TDP 14B 10/1 15-16	0.4	0.1	0.5	0.0	0.0	0.0	0.0
21.39	TDP 14B 10/1 18-19	0.3	0.1	0.2	0.0	0.0	0.0	0.0

Depth (m)	Sample	Morozovellids	Acarininiids	Subbotiniids	Globanomaliniids	Igorinids	Excursion taxa	Microperforates
21.44	TDP 14B 10/1 22-24	1.7	0.4	1.6	0.1	0.0	0.2	0.0
21.59	TDP 14B 11/1 8-10	23.8	10.7	18.9	6.0	2.7	0.0	1.8
21.80	TDP 14B 11/1 29-30	0.3	0.0	0.2	0.0	0.1	0.0	0.0
21.89	TDP 14B 11/1 38-40	2.8	0.3	0.9	0.2	0.0	0.6	0.1
22.04	TDP 14B 11/1 53-55	0.7	0.1	0.6	0.2	0.0	0.0	0.0
22.34	TDP 14B 11/1 83-85	53.5	14.2	34.9	6.9	1.5	0.0	2.5
22.77	TDP 14B 11/2 26-28	25.6	4.5	21.3	0.7	0.7	0.0	4.2
22.94	TDP 14B 11/2 43-45	37.1	12.5	24.9	1.1	0.7	0.0	2.4
23.07	TDP 14B 12/1 6-8	19.3	3.8	15.1	2.7	0.9	0.0	2.4
23.44	TDP 14B 12/1 43-45	162.3	39.1	162.3	40.6	21.7	0.0	18.8
23.56	TDP 14B 12/1 55-57	111.6	32.6	57.2	13.8	6.5	0.0	4.3
23.58	TDP 14B 12/1 57-59	111.6	29.7	68.8	29.0	12.3	0.0	8.0
23.80	TDP 14B 12/1 79-81	15.8	4.1	11.2	4.3	0.7	0.0	2.0
23.94	TDP 14B 12/1 93-95	19.6	3.3	7.8	2.4	0.0	0.4	0.4
24.37	TDP 14B 12/2 36-38	55.3	17.5	46.2	2.9	0.0	0.0	6.2
24.78	TDP 14B 12/2 77-79	102.9	15.6	51.3	3.6	2.9	0.0	4.4
24.84	TDP 14B 12/2 83-85	56.4	13.5	45.8	2.5	1.5	0.0	5.5
26.37	TDP 14B 13/1 35-40	9.9	2.8	7.2	1.7	0.0	0.0	1.2
26.93	TDP 14B 13/1 90-95	3.5	0.7	1.9	0.4	0.1	0.0	0.3
27.17	TDP 14B 13/2 15-20	15.4	4.7	6.5	0.7	0.4	0.0	1.7
27.43	TDP 14B 13/2 40-45	31.1	12.5	29.7	4.4	8.7	0.0	2.9
27.87	TDP 14B 13/2 85-90	47.4	15.7	34.0	0.9	0.3	0.0	2.6
28.00	TDP 14B 13/2 100-102	12.4	3.3	7.7	1.5	0.6	0.0	0.9
28.13	TDP 14B 13/3 10-15	10.4	3.0	8.7	0.4	0.6	0.0	0.8
28.37	TDP 14B 13/3 35-40	11.9	2.7	6.3	0.8	0.8	0.0	0.9
28.63	TDP 14B 13/3 60-65	2.5	0.4	1.1	0.0	0.0	0.0	0.2
29.17	TDP 14B 14/1 15-20	13.8	3.9	9.2	0.4	0.7	0.0	2.0
29.33	TDP 14B 14/1 30-35	13.2	2.6	8.3	0.9	0.5	0.0	1.0
29.73	TDP 14B 14/1 70-75	3.7	0.7	2.0	0.2	0.0	0.0	0.4
29.87	TDP 14B 14/1 85-90	2.4	0.3	1.6	0.1	0.1	0.0	0.2

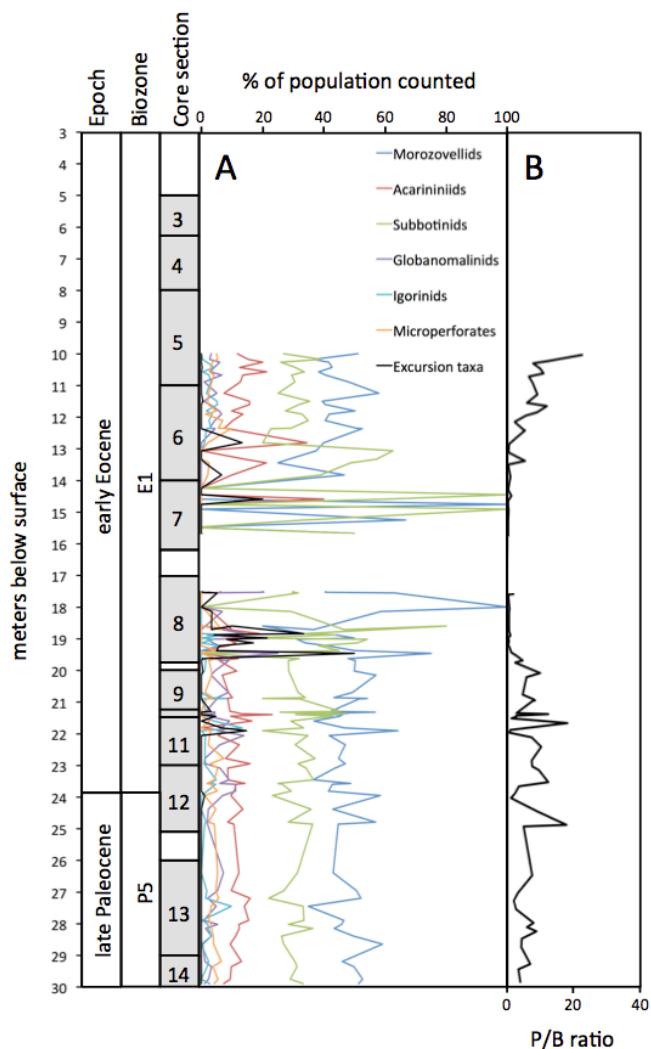


Figure DR2. Generic proportions of assemblages counted against stratigraphic height, excursion taxa category as before (A). Planktonic/benthic foraminifera ratios (B).

Table DR2. Calcareous nannofossil assemblage data

Depth (m)	Sample	1	2	3	4	5	Nannos/FOV
10.64	TDP 14B 5/3 63-65						52
11.01	TDP 14B 6/1 1-2	43	38	43	28	63	43
11.61	TDP 14B 6/1 60-62						60.8
12.41	TDP 14B 6/2 40-42	31	50	54	45	48	45.6
12.50	TDP 14B 6/2 50-52	0	0	0	0	0	0
12.91	TDP 14B 6/2 90-92	0	0	0	0	0	0
13.13	TDP 14B 6/3 12-14	0	0	1	0	0	0.2
14.00	TDP 14B 6/3 102-104	0	0	0	0	0	0
14.01	TDP 14B 7/1 0-2	0	0	0	0	0	0
14.21	TDP 14B 7/1 20-22						0
14.99	TDP 14B 7/1 98-100	0	0	0	0	0	0

Depth (m)	Sample	1	2	3	4	5	Nannos/FOV
15.09	TDP 14B 7/2 8-10	0	0	0	0	0	0
15.47	TDP 14B 7/2 45-50						0.01
15.67	TDP 14B 7/2 66-68	0	0	0	0	0	0
17.09	TDP 14B 8/1 8-10	0	3	0	0	1	0.8
17.49	TDP 14B 8/1 48-50	0	0	0	0	0	0
17.99	TDP 14B 8/1 98-100	0	0	0	0	0	0
18.15	TDP 14B 8/2 14-16	1	1	0	1	2	1
18.97	TDP 14B 8/2 96-98	0	0	0	1	0	0.2
19.37	TDP 14B 8/3 37-38	0	0	2	2	1	1
20.00	TDP 14B 9/1 0-1	35	34	46	22	23	32
20.41	TDP 14B 9/1 41-42	8	2	3	3	8	4.8
20.79	TDP 14B 9/1 79-80	44	47	57	46	58	50.4
20.89	TDP 14B 9/1 89-90						0
21.10	TDP 14B 9/2 1-2	11	25	14	17	20	17.4
21.25	TDP 14B 9/2 25-26	1	0	0	1	4	1.2
21.26	TDP 14B 10/1 0-1	31	36	25	26	27	29
21.45	TDP 14B 10/1 20-21						1.2
21.51	TDP 14B 11/1 0-2						0
22.3	TDP 14B 11/1 79-81						3.1
22.51	TDP 14B 11/1 100-102	44	48	60	35	42	45.8
22.71	TDP 14B 11/2 20-22	53	36	45	33	48	43
23.01	TDP 14B 11/2 50-52	26	28	30	24	26	26.8
23.01	TDP 14B 12/1 0-2	9	9	10	6	5	7.8
23.62	TDP 14B 12/1 61-63						0.95
23.98	TDP 14B 12/1 97-100	8	5	6	7	5	6.2
24.05	TDP 14B 12/2 5-6	5	8	5	7	6	6.2
24.64	TDP 14B 12/2 63-65	46	45	33	45	43	42.4
26.17	TDP 14B 13/1 15-20	55	48	41	33	33	42
26.67	TDP 14B 13/1 65-70	21	36	26	27	27	27.4
27.43	TDP 14B 13/2 40-45						3.34
27.53	TDP 14B 13/3 50-55	39	39	48	23	39	37.6
29.07	TDP 14B 14/1 5-10	47	60	47	59	54	53.4
29.93	TDP 14B 14/1 90-95	33	36	16	30	18	26.6

Table DR3. Single and multispecimen carbon and oxygen isotope data

Samples that have significantly low $\delta^{13}\text{C}$ (3 St. Dev. from the mean background value) have been highlighted in gray.

Depth (m)	Sample	Species	$\delta^{13}\text{C}$	$\delta^{18}\text{O}$
3.75	TDP 14A	<i>Subbotina velascoensis</i>	2.37	-2.77
3.75	TDP 14A	<i>Subbotina triangularis</i>	1.97	-2.35
3.75	TDP 14A	<i>Subbotina triangularis</i>	1.83	-2.39
4.62	TDP 14A	<i>Subbotina velascoensis</i>	2.63	-2.95
6.00	TDP 14A	<i>Subbotina velascoensis</i>	1.87	-2.54
6.50	TDP 14A	<i>Subbotina velascoensis</i>	2.14	-2.90
7.06	TDP 14A	<i>Subbotina velascoensis</i>	2.14	-2.65
8.20	TDP 14A	<i>Subbotina velascoensis</i>	2.20	-2.44
10.08	TDP 14B 5/3 7-9	<i>Morozovella aequa</i>	+3.70	-3.45
10.08	TDP 14B 5/3 7-9	<i>Morozovella aequa</i>	+3.47	-3.19
10.08	TDP 14B 5/3 7-9	<i>Morozovella aequa</i>	+2.93	-2.98
10.08	TDP 14B 5/3 7-9	<i>Morozovella aequa</i>	+3.56	-3.37
10.08	TDP 14B 5/3 7-9	<i>Morozovella aequa</i>	+3.47	-3.77
10.08	TDP 14B 5/3 7-9	<i>Morozovella aequa</i>	+4.68	-4.09
10.21	TDP 14B 5/3 21-22	<i>Morozovella aequa</i>	+4.22	-3.43
10.21	TDP 14B 5/3 21-22	<i>Morozovella subbotinæ</i>	+4.63	-3.18
10.74	TDP 14B 5/3 73-75	<i>Morozovella aequa</i>	+4.66	-3.61
10.74	TDP 14B 5/3 73-75	<i>Morozovella aequa</i>	+3.94	-3.63
10.74	TDP 14B 5/3 73-75	<i>Morozovella aequa</i>	+3.79	-3.56
10.74	TDP 14B 5/3 73-75	<i>Morozovella subbotinæ</i>	+3.72	-4.32
10.74	TDP 14B 5/3 73-75	<i>Subbotina roesnaesensis</i>	+0.65	-2.27
10.74	TDP 14B 5/3 73-75	<i>Subbotina roesnaesensis</i>	+0.48	-2.83
10.74	TDP 14B 5/3 73-75	<i>Subbotina roesnaesensis</i>	+0.78	-2.43
11.20	TDP 14A	<i>Subbotina velascoensis</i>	1.40	-3.29
11.35	TDP 14B 6/1 34-36	<i>Morozovella aequa</i>	+3.40	-4.09
11.35	TDP 14B 6/1 34-36	<i>Morozovella aequa</i>	+4.44	-4.26
11.35	TDP 14B 6/1 34-36	<i>Morozovella subbotinæ</i>	+3.99	-3.86
11.35	TDP 14B 6/1 34-36	<i>Subbotina roesnaesensis</i>	+0.73	-2.71
11.35	TDP 14B 6/1 34-36	<i>Subbotina roesnaesensis</i>	+0.69	-2.76
11.35	TDP 14B 6/1 34-36	<i>Subbotina roesnaesensis</i>	+0.75	-2.90
11.35	TDP 14B 6/1 34-36	<i>Subbotina roesnaesensis</i>	+0.50	-2.51
11.50	TDP 14A	<i>Subbotina triangularis</i>	0.87	-2.87
11.77	TDP 14B 6/1 76-78	<i>Acarinina soldadoensis</i>	+3.21	-4.01
11.77	TDP 14B 6/1 76-78	<i>Acarinina soldadoensis</i>	+3.34	-3.81
11.77	TDP 14B 6/1 76-78	<i>Morozovella aequa</i>	+3.98	-4.24
11.77	TDP 14B 6/1 76-78	<i>Morozovella aequa</i>	+3.60	-3.34
11.77	TDP 14B 6/1 76-78	<i>Subbotina hornibrooki</i>	+1.82	-4.18
11.77	TDP 14B 6/1 76-78	<i>Subbotina roesnaesensis</i>	+0.62	-3.43
12.07	TDP 14B 6/2 6-8	<i>Acarinina soldadoensis</i>	+2.71	-3.31
12.07	TDP 14B 6/2 6-8	<i>Acarinina soldadoensis</i>	+3.25	-3.93
12.07	TDP 14B 6/2 6-8	<i>Subbotina roesnaesensis</i>	+0.46	-3.45
12.07	TDP 14B 6/2 6-8	<i>Subbotina roesnaesensis</i>	+0.34	-2.91
12.07	TDP 14B 6/2 6-8	<i>Subbotina roesnaesensis</i>	+0.09	-3.20
12.07	TDP 14B 6/2 6-8	<i>Subbotina roesnaesensis</i>	+0.38	-3.26
12.10	TDP 14B 6/2 10-12	<i>Subbotina velascoensis</i>	1.53	-3.33
12.10	TDP 14B 6/2 10-12	<i>Subbotina velascoensis</i>	1.39	-3.36
12.10	TDP 14B 6/2 10-12	<i>Subbotina triangularis</i>	1.16	-2.97
12.10	TDP 14B 6/2 10-12	<i>Subbotina triangularis</i>	0.61	-2.36
12.23	TDP 14B 6/2 20-22	<i>Acarinina soldadoensis</i>	+3.45	-3.74
12.23	TDP 14B 6/2 20-22	<i>Morozovella aequa</i>	+3.58	-3.49
12.45	TDP 14B 6/2 44-46	<i>Morozovella aequa</i>	+1.23	-4.50
12.45	TDP 14B 6/2 44-46	<i>Morozovella subbotinæ</i>	+2.96	-4.49
12.75	TDP 14A	<i>Subbotina velascoensis</i>	1.09	-3.08
13.03	TDP 14B 6/3 2-4	<i>Acarinina sp.</i>	+4.25	-4.14
13.07	TDP 14B 6/3 6-8	<i>Morozovella aequa</i>	+6.39	-3.63
13.19	TDP 14B 6/3 18-20	<i>Morozovella aequa</i>	+3.16	-3.75
13.50	TDP 14A	<i>Subbotina velascoensis</i>	-0.71	-2.75
13.50	TDP 14A	<i>Subbotina triangularis</i>	-2.58	-2.84

Depth (m)	Sample	Species	$\delta^{13}\text{C}$	$\delta^{18}\text{O}$
13.97	TDP 14B 6/3 96-98	<i>Subbotina roesnaesensis</i>	+0.62	-4.27
13.97	TDP 14B 6/3 96-98	<i>Subbotina roesnaesensis</i>	-2.72	-3.65
14.12	TDP 14A	<i>Subbotina velascoensis</i>	-1.57	-2.81
17.85	TDP 14A	<i>Subbotina velascoensis</i>	0.49	-2.65
18.11	TDP 14B 8/2 10-12	<i>Morozovella acuta</i>	+4.77	-3.65
18.60	TDP 14A	<i>Subbotina velascoensis</i>	0.85	-3.22
19.24	TDP 14A	<i>Subbotina velascoensis</i>	1.64	-2.50
19.24	TDP 14A	<i>Subbotina triangularis</i>	1.81	-2.64
19.62	TDP 14B 8/3 62-63	<i>Morozovella pasionensis</i>	+4.86	-4.36
19.62	TDP 14B 8/3 62-63	<i>Subbotina hornibrooki</i>	+2.47	-3.71
20.38	TDP 14B 9/1 38-39	<i>Morozovella subbotinae</i>	+5.29	-3.71
20.39	TDP 14B 9/1 39-40	<i>Subbotina roesnaesensis</i>	+0.95	-3.70
20.45	TDP 14B 9/1 44-46	<i>Morozovella aequa</i>	+0.58	-5.05
20.51	TDP 14B 9/1 51-52	<i>Acarinina soldadoensis</i>	+3.25	-3.56
20.51	TDP 14B 9/1 51-52	<i>Morozovella aequa</i>	+3.63	-3.60
20.51	TDP 14B 9/1 51-52	<i>Morozovella aequa</i>	+4.20	-3.54
20.51	TDP 14B 9/1 51-52	<i>Morozovella aequa</i>	+3.86	-3.04
20.51	TDP 14B 9/1 51-52	<i>Morozovella aequa</i>	+3.65	-3.83
20.51	TDP 14B 9/1 51-52	<i>Subbotina hornibrooki</i>	+1.69	-3.88
21.55	TDP 14B 11/1 4-6	<i>Acarinina soldadoensis</i>	+2.07	-3.53
21.55	TDP 14B 11/1 4-6	<i>Acarinina soldadoensis</i>	+3.88	-4.10
21.55	TDP 14B 11/1 4-6	<i>Morozovella aequa</i>	+4.69	-4.14
21.55	TDP 14B 11/1 4-6	<i>Subbotina roesnaesensis</i>	+1.99	-2.92
21.55	TDP 14B 11/1 4-6	<i>Subbotina roesnaesensis</i>	+1.54	-3.50
21.59	TDP 14B 11/1 8-10	<i>Acarinina soldadoensis</i>	+4.45	-3.66
21.59	TDP 14B 11/1 8-10	<i>Morozovella aequa</i>	+0.04	-5.14
21.59	TDP 14B 11/1 8-10	<i>Morozovella aequa</i>	+4.25	-3.57
21.59	TDP 14B 11/1 8-10	<i>Morozovella subbotinae</i>	+1.90	-4.43
21.59	TDP 14B 11/1 8-10	<i>Subbotina roesnaesensis</i>	+2.22	-2.68
22.00	TDP 14B 11/1 48-52	<i>Morozovella acuta</i>	+4.41	-3.87
22.34	TDP 14B 11/1 83-85	<i>Morozovella aequa</i>	+4.92	-3.09
22.34	TDP 14B 11/1 83-85	<i>Morozovella aequa</i>	+3.46	-3.32
22.34	TDP 14B 11/1 83-85	<i>Morozovella aequa</i>	+4.98	-3.40
22.34	TDP 14B 11/1 83-85	<i>Subbotina triloculinoides</i>	+1.25	-3.07
22.34	TDP 14B 11/1 83-85	<i>Subbotina triloculinoides</i>	+1.13	-2.97
22.66	TDP 14B 11/2 15-17	<i>Acarinina soldadoensis</i>	+4.09	-3.84
22.66	TDP 14B 11/2 15-17	<i>Subbotina roesnaesensis</i>	+1.21	-3.02
22.66	TDP 14B 11/2 15-17	<i>Subbotina roesnaesensis</i>	+1.20	-3.08
22.82	TDP 14B 11/2 30-33	<i>Morozovella aequa</i>	+4.63	-1.70
22.82	TDP 14B 11/2 30-33	<i>Morozovella aequa</i>	+1.52	-2.96
22.82	TDP 14B 11/2 30-33	<i>Morozovella subbotinae</i>	+4.69	-3.92
22.94	TDP 14B 11/2 43-45	<i>Acarinina soldadoensis</i>	+4.82	-3.82
22.94	TDP 14B 11/2 43-45	<i>Acarinina soldadoensis</i>	+3.94	-3.10
22.94	TDP 14B 11/2 43-45	<i>Acarinina soldadoensis</i>	+3.64	-2.94
22.94	TDP 14B 11/2 43-45	<i>Acarinina soldadoensis</i>	+3.53	-2.64
22.94	TDP 14B 11/2 43-45	<i>Acarinina soldadoensis</i>	+4.15	-3.49
22.94	TDP 14B 11/2 43-45	<i>Morozovella aequa</i>	+4.97	-3.43
22.94	TDP 14B 11/2 43-45	<i>Morozovella subbotinae</i>	+5.07	-3.65
22.94	TDP 14B 11/2 43-45	<i>Morozovella subbotinae</i>	+3.70	-3.00
22.94	TDP 14B 11/2 43-45	<i>Subbotina roesnaesensis</i>	+0.91	-1.78
22.94	TDP 14B 11/2 43-45	<i>Subbotina triloculinoides</i>	+1.26	-2.81
22.94	TDP 14B 11/2 43-45	<i>Subbotina triloculinoides</i>	+1.34	-2.93
22.94	TDP 14B 11/2 43-45	<i>Subbotina triloculinoides</i>	+1.35	-2.77
23.03	TDP 14B 12/1 2-4	<i>Morozovella aequa</i>	+1.52	-3.70
23.03	TDP 14B 12/1 2-4	<i>Subbotina triangularis</i>	+3.37	-4.03
23.07	TDP 14B 12/1 6-8	<i>Morozovella acuta</i>	+4.23	-3.91
23.07	TDP 14B 12/1 6-8	<i>Morozovella aequa</i>	+3.37	-3.13
23.07	TDP 14B 12/1 6-8	<i>Subbotina roesnaesensis</i>	+1.51	-1.22
23.18	TDP 14B 12/1 17-19	<i>Acarinina coalingensis</i>	+3.62	-4.00
23.18	TDP 14B 12/1 17-19	<i>Morozovella aequa</i>	+3.14	-4.36
23.18	TDP 14B 12/1 17-19	<i>Morozovella subbotinae</i>	+0.32	-2.97
23.18	TDP 14B 12/1 17-19	<i>Subbotina roesnaesensis</i>	+2.13	-3.12
23.18	TDP 14B 12/1 17-19	<i>Subbotina roesnaesensis</i>	+2.85	-4.17

Depth (m)	Sample	Species	$\delta^{13}\text{C}$	$\delta^{18}\text{O}$
23.32	TDP 14B 12/1 31-33	<i>Acarinina soldadoensis</i>	+3.20	-3.09
23.32	TDP 14B 12/1 31-33	<i>Acarinina soldadoensis</i>	+4.05	-3.64
23.32	TDP 14B 12/1 31-33	<i>Morozovella aequa</i>	+4.25	-3.66
23.32	TDP 14B 12/1 31-33	<i>Morozovella aequa</i>	+4.37	-4.31
23.32	TDP 14B 12/1 31-33	<i>Morozovella aequa</i>	+3.62	-3.64
23.32	TDP 14B 12/1 31-33	<i>Subbotina roesnaesensis</i>	+1.70	-3.09
23.32	TDP 14B 12/1 31-33	<i>Subbotina roesnaesensis</i>	+1.92	-2.89
23.32	TDP 14B 12/1 31-33	<i>Subbotina roesnaesensis</i>	+1.01	-3.44
23.32	TDP 14B 12/1 31-33	<i>Subbotina roesnaesensis</i>	+1.71	-3.21
23.32	TDP 14B 12/1 31-33	<i>Subbotina roesnaesensis</i>	+0.94	-1.95
23.46	TDP 14B 12/1 45-47	<i>Morozovella aequa</i>	+3.39	-3.40
23.46	TDP 14B 12/1 45-47	<i>Morozovella aequa</i>	+4.92	-3.93
23.46	TDP 14B 12/1 45-47	<i>Subbotina roesnaesensis</i>	+1.65	-2.64
23.46	TDP 14B 12/1 45-47	<i>Subbotina roesnaesensis</i>	+1.88	-3.19
23.46	TDP 14B 12/1 45-47	<i>Subbotina roesnaesensis</i>	+1.45	-3.24
23.46	TDP 14B 12/1 45-47	<i>Subbotina triangularis</i>	+1.02	-3.57
23.66	TDP 14B 12/1 65-67	<i>Acarinina soldadoensis</i>	+4.53	-3.37
23.66	TDP 14B 12/1 65-67	<i>Morozovella aequa</i>	+3.47	-3.15
23.66	TDP 14B 12/1 65-67	<i>Morozovella subbotinae</i>	+5.12	-3.27
23.66	TDP 14B 12/1 65-67	<i>Subbotina roesnaesensis</i>	+2.04	-3.01
23.73	TDP 14B 12/1 71-75	<i>Acarinina soldadoensis</i>	+3.10	-3.22
23.73	TDP 14B 12/1 71-75	<i>Morozovella aequa</i>	+2.90	-4.75
23.73	TDP 14B 12/1 71-75	<i>Subbotina roesnaesensis</i>	+1.25	-3.21
23.86	TDP 14A	<i>Subbotina velascoensis</i>	1.41	-2.81
24.33	TDP 14B 12/2 32-34	<i>Morozovella acuta</i>	+4.55	-3.95
24.33	TDP 14B 12/2 32-34	<i>Morozovella acuta</i>	+3.71	-3.89
24.33	TDP 14B 12/2 32-34	<i>Morozovella acuta</i>	+4.40	-3.84
24.33	TDP 14B 12/2 32-34	<i>Morozovella acuta</i>	+4.70	-3.08
24.33	TDP 14B 12/2 32-34	<i>Morozovella acuta</i>	+4.43	-3.91
24.33	TDP 14B 12/2 32-34	<i>Morozovella acuta</i>	+4.54	-4.12
24.33	TDP 14B 12/2 32-34	<i>Morozovella acuta</i>	+3.89	-3.66
24.33	TDP 14B 12/2 32-34	<i>Morozovella aequa</i>	+5.44	-3.17
24.33	TDP 14B 12/2 32-34	<i>Morozovella aequa</i>	+4.10	-3.12
24.33	TDP 14B 12/2 32-34	<i>Morozovella aequa</i>	+4.66	-3.09
24.33	TDP 14B 12/2 32-34	<i>Morozovella aequa</i>	+5.02	-3.07
24.33	TDP 14B 12/2 32-34	<i>Morozovella aequa</i>	+3.44	-3.10
24.33	TDP 14B 12/2 32-34	<i>Subbotina roesnaesensis</i>	+0.93	-3.10
24.33	TDP 14B 12/2 32-34	<i>Subbotina roesnaesensis</i>	+0.95	-3.08
24.33	TDP 14B 12/2 32-34	<i>Subbotina roesnaesensis</i>	+0.91	-3.12
24.33	TDP 14B 12/2 32-34	<i>Subbotina roesnaesensis</i>	+1.01	-3.18
24.53	TDP 14B 12/2 52-54	<i>Acarinina soldadoensis</i>	+4.40	-3.91
24.53	TDP 14B 12/2 52-54	<i>Morozovella subbotinae</i>	+4.79	-3.83
24.53	TDP 14B 12/2 52-54	<i>Morozovella subbotinae</i>	+4.00	-3.07
24.53	TDP 14B 12/2 52-54	<i>Subbotina roesnaesensis</i>	+0.83	-2.35
24.78	TDP 14B 12/2 77-79	<i>Morozovella acuta</i>	+4.40	-3.51
24.78	TDP 14B 12/2 77-79	<i>Morozovella acuta</i>	+4.36	-3.29
24.78	TDP 14B 12/2 77-79	<i>Morozovella acuta</i>	+4.43	-3.74
24.78	TDP 14B 12/2 77-79	<i>Morozovella acuta</i>	+4.72	-3.55
24.78	TDP 14B 12/2 77-79	<i>Morozovella acuta</i>	+3.53	-3.62
24.78	TDP 14B 12/2 77-79	<i>Morozovella acuta</i>	+4.07	-3.95
24.78	TDP 14B 12/2 77-79	<i>Morozovella acuta</i>	+4.34	-3.53
24.78	TDP 14B 12/2 77-79	<i>Morozovella aequa</i>	+4.66	-2.75
24.78	TDP 14B 12/2 77-79	<i>Subbotina roesnaesensis</i>	+1.19	-2.56
24.78	TDP 14B 12/2 77-79	<i>Subbotina roesnaesensis</i>	+0.80	-2.65
24.86	TDP 14A	<i>Subbotina triangularis</i>	1.47	-2.53
26.37	TDP 14B 13/1 35-40	<i>Acarinina soldadoensis</i>	+3.92	-3.32
26.37	TDP 14B 13/1 35-40	<i>Morozovella acuta</i>	+4.66	-3.82
26.37	TDP 14B 13/1 35-40	<i>Subbotina roesnaesensis</i>	+1.43	-2.69
26.85	TDP 14A	<i>Subbotina velascoensis</i>	1.79	-2.72
26.97	TDP 14B 13/1 90-95	<i>Acarinina soldadoensis</i>	+4.85	-3.18
27.67	TDP 14B 13/2 65-70	<i>Acarinina coalingensis</i>	+4.90	-3.52
27.67	TDP 14B 13/2 65-70	<i>Acarinina coalingensis</i>	+4.38	-2.76
27.67	TDP 14B 13/2 65-70	<i>Acarinina soldadoensis</i>	+5.50	-3.76

Depth (m)	Sample	Species	$\delta^{13}\text{C}$	$\delta^{18}\text{O}$
27.67	TDP 14B 13/2 65-70	<i>Acarinina soldadoensis</i>	+4.01	-2.56
27.67	TDP 14B 13/2 65-70	<i>Acarinina soldadoensis</i>	+4.58	-3.42
27.67	TDP 14B 13/2 65-70	<i>Acarinina soldadoensis</i>	+4.63	-2.89
27.67	TDP 14B 13/2 65-70	<i>Morozovella aequa</i>	+4.67	-3.21
27.67	TDP 14B 13/2 65-70	<i>Morozovella subbotinae</i>	+4.65	-2.88
27.67	TDP 14B 13/2 65-70	<i>Subbotina roesnaesensis</i>	+1.74	-2.30
27.67	TDP 14B 13/2 65-70	<i>Subbotina roesnaesensis</i>	+1.84	-2.58
27.87	TDP 14B 13/2 85-90	<i>Acarinina soldadoensis</i>	+9.66	-3.03
27.87	TDP 14B 13/2 85-90	<i>Acarinina soldadoensis</i>	+7.73	-2.38
27.87	TDP 14B 13/2 85-90	<i>Acarinina soldadoensis</i>	+5.79	-3.31
27.87	TDP 14B 13/2 85-90	<i>Acarinina soldadoensis</i>	+4.68	-2.68
27.87	TDP 14B 13/2 85-90	<i>Morozovella aequa</i>	+4.84	-3.02
27.87	TDP 14B 13/2 85-90	<i>Morozovella aequa</i>	+3.96	-3.09
27.87	TDP 14B 13/2 85-90	<i>Morozovella aequa</i>	+5.14	-3.38
27.87	TDP 14B 13/2 85-90	<i>Subbotina roesnaesensis</i>	+2.09	-2.38
27.87	TDP 14B 13/2 85-90	<i>Subbotina roesnaesensis</i>	+1.88	-2.20
27.87	TDP 14B 13/2 85-90	<i>Subbotina roesnaesensis</i>	+2.62	-3.35
27.87	TDP 14B 13/2 85-90	<i>Subbotina roesnaesensis</i>	+1.47	-1.73
27.87	TDP 14B 13/2 85-90	<i>Subbotina roesnaesensis</i>	+2.07	-2.65
28.37	TDP 14B 13/3 35-40	<i>Morozovella aequa</i>	+4.50	-2.65
28.37	TDP 14B 13/3 35-40	<i>Morozovella aequa</i>	+5.07	-3.07
28.37	TDP 14B 13/3 35-40	<i>Morozovella aequa</i>	+5.66	-3.32
28.37	TDP 14B 13/3 35-40	<i>Morozovella aequa</i>	+5.60	-3.45
28.37	TDP 14B 13/3 35-40	<i>Morozovella subbotinae</i>	+5.48	-3.25
28.87	TDP 14B 13/3 85-90	<i>Morozovella acuta</i>	+5.19	-3.69
28.87	TDP 14B 13/3 85-90	<i>Morozovella acuta</i>	+5.25	-3.51
28.87	TDP 14B 13/3 85-90	<i>Morozovella acuta</i>	+5.72	-3.63
28.87	TDP 14B 13/3 85-90	<i>Morozovella acuta</i>	+5.13	-3.29
28.87	TDP 14B 13/3 85-90	<i>Subbotina roesnaesensis</i>	+2.31	-2.70
29.07	TDP 14B 14/1 5-10	<i>Morozovella aequa</i>	+5.36	-3.55
29.07	TDP 14B 14/1 5-10	<i>Morozovella aequa</i>	+5.43	-2.70
29.07	TDP 14B 14/1 5-10	<i>Morozovella aequa</i>	+5.10	-2.78
29.07	TDP 14B 14/1 5-10	<i>Morozovella aequa</i>	+5.69	-3.38

Table DR4. *n*-alkane $\delta^{13}\text{C}$ data

Data TDP Site 14 A from Handley et al. (2008, 2012) in black augmented with new data from this publication in red.

Depth (m)	$\mathbf{C_{25}}$		$\mathbf{C_{27}}$		$\mathbf{C_{29}}$		$\mathbf{C_{31}}$	
	avg.	S.D.	avg.	S.D.	avg.	S.D.	avg.	S.D.
11.75	-27.96	0.08	-29.54	0.04	-28.72	0.11	-28.94	0.35
12.65	-27.67	0.01	-29.12	0.01	-28.50	0.04	-28.61	0.22
13.30	-33.01	0.14	-34.51	0.50	-34.94	0.03	-33.58	0.15
13.65	-32.89	0.19	-33.80	0.04	-34.87	0.02	-33.56	0.09
13.93	-32.08	0.07	-33.46	0.23	-34.55	0.13	-33.44	0.32
14.15	-33.05	0.07	-34.14	0.13	-35.01	0.05	-33.95	0.19
14.66	-32.62	0.20	-34.27	0.15	-34.96	0.11	-32.94	0.04
15.15	-33.05	0.04	-34.05	0.09	-35.16	0.01	-33.57	0.14
15.42	-32.72	0.11	-34.62	0.03	-35.13	0.02	-33.33	0.03
15.95	-32.70	0.03	-33.59	0.06	-34.66	0.00	-32.83	0.26
16.30	-33.22	0.18	-35.00	0.02	-35.63	0.07	-33.69	0.00
16.65	-33.05	0.08	-34.11	0.03	-34.86	0.03	-32.82	0.03

17.75	-33.15	0.20	-34.06	0.30	-34.90	0.16	-33.20	0.02
18.40	-31.97	0.46	-33.39	0.52	-35.08	0.08	-34.07	0.16
19.15	-31.56	0.20	-34.11	0.01	-34.09	0.05	-32.65	0.00
19.71	-30.18	0.11	-31.67	0.10	-29.49	0.05	-29.69	0.09
20.65	-32.53	1.89	-33.34	0.28	-33.67	0.71	-32.64	0.20
20.85	-29.66	1.86	-31.27	1.05	-30.45	0.93	-30.26	0.89
21.05	-27.51	0.70	-28.47	1.36	-30.16	0.41	-31.73	0.53
21.25	-29.48	0.39	-31.21	0.34	-30.33	0.21	-29.80	0.30
21.26	-29.28	0.04	-31.45	0.01	-28.95	0.00	-28.27	0.15
21.85	-32.70	1.93	-33.89	0.72	-34.37	0.61	-33.04	0.15
22.15	-30.01	1.40	-31.15	0.09	-31.90	0.42	-31.70	0.11
22.33	-29.40	1.52	-29.54	0.94	-30.84	1.45	-30.81	0.87
23.65	-32.93	0.52	-33.50	1.18	-33.80	0.09	-33.29	0.49
23.85	-32.56	1.12	-32.96	0.18	-33.27	0.51	-32.75	0.88
24.05	-28.02	0.26	-29.77	0.34	-29.10	0.04	-31.06	0.33
24.12	-27.33	0.09	-27.80	0.02	-27.56	0.06	-28.12	0.04
24.28	-28.45	1.15	-28.85	0.33	-29.22	0.05	-28.83	0.79
28.12	-27.98	0.10	-29.68	0.02	-28.43	0.02	-28.60	0.10
30.00			-28.15	0.03	-27.67	0.12	-28.22	0.15
31.66	-27.02	0.09	-28.02	0.03	-27.71	0.06	-28.22	0.17
34.94	-27.17	0.04	-28.48	0.01	-27.89	0.03	-28.72	0.06

Table DR5. Bulk sediment $\delta^{13}\text{C}_{\text{org}}$, %C_{org} and %CaCO³ data

Depth (m)	Sample	$\delta^{13}\text{C}_{\text{org}}$	%C _{org}	%CaCO ₃
3.00	TDP 14B 2/2 0-7	#N/A	0.08	1.82
6.30	TDP 14B 4/1 0-7	#N/A	0.12	9.54
7.00	TDP 14B 4/1 70-76	#N/A	0.13	4.78
7.72	TDP 14B 4/2 42-53	#N/A	0.09	2.58
7.91	TDP 14B 4/2 61-71	#N/A	0.25	8.06
8.02	TDP 14B 5/1 2-4	-22.90	0.22	4.15
8.18	TDP 14B 5/1 18-20	#N/A	0.23	10.89
8.36	TDP 14B 5/1 36-38	-22.56	0.20	14.75
9.10	TDP 14B 5/2 10-12	#N/A	0.32	11.77
9.26	TDP 14B 5/2 26-28	-23.51	0.44	15.03
9.46	TDP 14B 5/2 46-48	#N/A	0.17	29.14
9.58	TDP 14B 5/2 58-60	-23.41	0.28	28.72
9.74	TDP 14B 5/2 74-76	-23.61	0.58	9.27
9.92	TDP 14B 5/2 92-94	-23.15	0.16	25.82
11.12	TDP 14B 6/1 12-16	#N/A	0.13	57.98
11.28	TDP 14B 6/1 28-30	-23.17	0.13	29.46
11.44	TDP 14B 6/1 44-46	-22.92	0.29	17.33
11.60	TDP 14B 6/1 60-62	-22.80	0.18	25.14

Depth (m)	Sample	$\delta^{13}\text{C}_{\text{org}}$	%Corg	%CaCO ₃
11.76	TDP 14B 6/1 76-78	-23.35	0.34	18.18
11.92	TDP 14B 6/1 92-94	-23.42	0.20	5.33
12.08	TDP 14B 6/2 8-10	-23.23	0.28	10.69
12.24	TDP 14B 6/2 24-26	-23.28	0.29	6.10
12.40	TDP 14B 6/2 40-42	-23.13	0.24	6.86
12.56	TDP 14B 6/2 56-58	-26.42	0.03	0.36
12.70	TDP 14B 6/2 70-72	-24.30	0.03	0.64
12.88	TDP 14B 6/2 88-90	-26.79	0.06	0.92
13.06	TDP 14B 6/3 6-8	-25.37	0.05	0.37
13.22	TDP 14B 6/3 22-24	-26.24	0.04	0.25
13.38	TDP 14B 6/3 38-40	-27.14	0.04	0.05
13.56	TDP 14B 6/3 56-58	-25.62	0.04	0.29
13.72	TDP 14B 6/3 72-74	-24.54	0.01	6.45
13.88	TDP 14B 6/3 88-90	-26.94	0.05	0.44
14.02	TDP 14B 6/3 102-04	-24.77	0.06	6.28
14.22	TDP 14B 7/1 22-24	-25.20	0.02	0.46
14.44	TDP 14B 7/1 44-46	-23.95	0.06	-0.38
14.62	TDP 14B 7/1 62-64	-25.81	0.05	0.69
14.86	TDP 14B 7/1 86-88	-25.21	0.12	-0.05
15.12	TDP 14B 7/2 12-14	-25.12	0.04	0.95
15.34	TDP 14B 7/2 34-36	-24.68	0.08	0.10
17.12	TDP 14B 8/1 12-14	-24.10	0.16	0.12
17.42	TDP 14B 8/1 42-44	-24.94	0.04	0.55
17.72	TDP 14B 8/1 72-74	-24.94	0.05	2.01
18.02	TDP 14B 8/2 2-4	-24.71	0.07	1.48
18.14	TDP 14B 8/2 14-16	-24.71	0.05	1.70
18.26	TDP 14B 8/2 26-28	-23.20	0.12	2.84
18.38	TDP 14B 8/2 38-40	-24.33	0.16	4.44
18.50	TDP 14B 8/2 50-52	-25.27	0.07	0.72
18.62	TDP 14B 8/2 62-64	-23.29	0.07	4.18
18.74	TDP 14B 8/2 74-76	-25.98	0.07	2.11
18.86	TDP 14B 8/2 86-88	-26.17	0.10	1.37
19.00	TDP 14B 8/3 0-2	-24.83	0.09	1.24
19.12	TDP 14B 8/3 12-14	-25.19	0.08	1.88
19.24	TDP 14B 8/3 24-25	-26.61	0.08	1.52
19.34	TDP 14B 8/3 34-35	-26.71	0.08	2.46
19.37	TDP 14B 8/3 37-38	-25.62	0.08	1.41
19.38	TDP 14B 8/3 38-40	#N/A	0.12	2.67
19.41	TDP 14B 8/3 41-42	-26.40	0.10	2.20
19.43	TDP 14B 8/3 43-44	-24.38	0.26	3.75
19.46	TDP 14B 8/3 46-47	-25.98	0.33	1.85
19.48	TDP 14B 8/3 48-49	-25.18	0.22	3.14
19.51	TDP 14B 8/3 51-52	-26.26	0.12	1.20
19.54	TDP 14B 8/3 54-55	-26.48	0.24	0.15

Depth (m)	Sample	$\delta^{13}\text{Corg}$	%Corg	%CaCO ₃
19.57	TDP 14B 8/3 57-58	-23.93	0.44	7.20
19.60	TDP 14B 8/3 60-61	-23.64	0.30	5.14
19.63	TDP 14B 8/3 63-64	-23.63	0.30	6.30
19.66	TDP 14B 8/3 66-67	-23.33	0.23	28.72
19.67	TDP 14B 8/3 67-69	-23.31	0.28	21.42
19.70	TDP 14B 8/3 70-71	-23.15	0.32	10.38
19.71	TDP 14B 8/3 71-72	-23.20	0.35	7.28
20.01	TDP 14B 9/1 1-2	-24.39	0.34	5.66
20.04	TDP 14B 9/1 4-5	-25.66	0.31	1.10
20.07	TDP 14B 9/1 7-8	-26.65	0.12	2.23
20.10	TDP 14B 9/1 10-11	-26.04	0.13	2.60
20.13	TDP 14B 9/1 13-14	-24.02	0.25	8.35
20.16	TDP 14B 9/1 16-17	-23.60	0.29	17.72
20.19	TDP 14B 9/1 19-20	-24.00	0.33	11.86
20.22	TDP 14B 9/1 22-23	-23.99	0.28	9.65
20.25	TDP 14B 9/1 25-26	-24.02	0.31	10.47
20.27	TDP 14B 9/1 27-28	-23.96	0.15	15.80
20.29	TDP 14B 9/1 29-30	-24.00	0.44	8.37
20.32	TDP 14B 9/1 32-33	-23.97	0.41	13.50
20.34	TDP 14B 9/1 34-35	-24.20	0.41	14.19
20.38	TDP 14B 9/1 38-39	-23.84	0.25	3.53
20.39	TDP 14B 9/1 39-40	-23.70	0.32	0.58
20.43	TDP 14B 9/1 43-44	-23.79	0.41	11.15
20.46	TDP 14B 9/1 46-47	-23.51	0.72	1.25
20.49	TDP 14B 9/1 49-50	-23.56	0.26	2.26
20.53	TDP 14B 9/1 53-54	-23.59	0.57	3.31
20.56	TDP 14B 9/1 56-57	-23.81	0.41	9.26
20.58	TDP 14B 9/1 58-60	#N/A	0.47	6.44
20.61	TDP 14B 9/1 61-62	-23.70	0.41	7.68
20.63	TDP 14B 9/1 63-65	-23.56	0.42	8.47
20.66	TDP 14B 9/1 66-67	-23.65	0.39	6.78
20.68	TDP 14B 9/1 68-69	-23.74	0.39	7.19
20.70	TDP 14B 9/1 70-71	-23.69	0.39	7.23
20.72	TDP 14B 9/1 72-74	-23.93	0.37	8.43
20.76	TDP 14B 9/1 76-77	-23.86	0.41	8.17
20.80	TDP 14B 9/1 80-81	-23.46	0.43	10.59
20.82	TDP 14B 9/1 82-83	-23.48	0.44	15.30
20.84	TDP 14B 9/1 84-85	-23.70	0.17	24.44
20.84	TDP 14B 9/1 84-85	-23.14	0.08	25.24
20.88	TDP 14B 9/1 88-89	-23.59	0.44	12.16
20.92	TDP 14B 9/1 92-93	-23.52	0.43	17.90
20.93	TDP 14B 9/1 93-94	-23.64	0.51	13.58
20.97	TDP 14B 9/1 97-98	-23.65	0.45	11.34
21.00	TDP 14B 9/2 0-1	-23.72	0.26	7.91

Depth (m)	Sample	$\delta^{13}\text{Corg}$	%Corg	%CaCO ₃
21.04	TDP 14B 9/2 4-5	-23.94	0.36	8.07
21.09	TDP 14B 9/2 9-10	-24.36	0.45	12.21
21.11	TDP 14B 9/2 11-12	-27.06	0.11	1.70
21.16	TDP 14B 9/2 16-17	-26.97	0.08	7.04
21.20	TDP 14B 9/2 20-21	-27.37	0.10	1.16
21.23	TDP 14B 9/2 23-24	-27.20	0.12	1.33
21.25	TDP 14B 10/1 0-1	#N/A	0.46	16.90
21.27	TDP 14B 10/1 2-3	-26.89	0.11	1.21
21.29	TDP 14B 10/1 4-5	-27.35	0.14	1.40
21.33	TDP 14B 10/1 8-9	-27.03	0.17	0.97
21.36	TDP 14B 10/1 11-12	-26.66	0.17	1.54
21.39	TDP 14B 10/1 14-15	-26.17	0.12	1.34
21.41	TDP 14B 10/1 16-17	-26.73	0.17	1.39
21.43	TDP 14B 10/1 18-19	-26.25	0.21	2.73
21.47	TDP 14B 10/1 22-24	-25.85	0.27	2.41
21.54	TDP 14B 11/1 4-6	-21.93	0.13	0.97
21.56	TDP 14B 11/1 6-8	-22.06	0.18	6.48
21.60	TDP 14B 11/1 10-12	-21.89	0.20	5.80
21.62	TDP 14B 11/1 12-14	-22.75	0.09	4.91
21.66	TDP 14B 11/1 16-18	-22.88	0.13	6.14
21.68	TDP 14B 11/1 18-20	-24.68	0.28	4.59
21.72	TDP 14B 11/1 22-24	-26.70	0.27	2.26
21.76	TDP 14B 11/1 26-28	-25.85	0.25	3.78
21.80	TDP 14B 11/1 30-32	-26.52	0.32	2.99
21.84	TDP 14B 11/1 34-36	-26.57	0.22	2.06
21.88	TDP 14B 11/1 38-40	-26.22	0.43	2.19
21.92	TDP 14B 11/1 42-44	-26.03	0.49	2.42
21.96	TDP 14B 11/1 46-48	-26.14	0.81	2.45
22.00	TDP 14B 11/1 50-53	-26.24	0.23	1.43
22.03	TDP 14B 11/1 53-55	-25.57	0.90	6.64
22.07	TDP 14B 11/1 57-59	-26.28	0.21	4.81
22.11	TDP 14B 11/1 61-63	-26.38	0.16	1.12
22.13	TDP 14B 11/1 63-65	-26.07	0.31	1.12
22.15	TDP 14B 11/1 65-67	-26.12	0.20	1.09
22.17	TDP 14B 11/1 67-69	-26.00	0.26	1.64
22.19	TDP 14B 11/1 69-71	-25.92	0.27	1.03
22.21	TDP 14B 11/1 71-73	-26.08	0.27	1.12
22.23	TDP 14B 11/1 73-74	-26.78	0.18	0.91
22.24	TDP 14B 11/1 74-76	-26.52	0.16	1.14
22.27	TDP 14B 11/1 77-79	-25.89	0.17	1.76
22.29	TDP 14B 11/1 79-81	-25.03	0.36	3.76
22.31	TDP 14B 11/1 81-83	-24.23	0.53	4.65
22.33	TDP 14B 11/1 83-85	-24.20	0.78	9.06
22.35	TDP 14B 11/1 85-87	-24.02	0.59	8.78

Depth (m)	Sample	$\delta^{13}\text{Corg}$	%Corg	%CaCO ₃
22.37	TDP 14B 11/1 87-89	-24.22	0.71	8.52
22.39	TDP 14B 11/1 89-91	-24.27	0.70	8.76
22.41	TDP 14B 11/1 91-94	-24.05	0.66	7.97
22.44	TDP 14B 11/1 94-96	-24.19	0.65	8.58
22.46	TDP 14B 11/1 96-98	-24.07	0.71	9.92
22.48	TDP 14B 11/1 98-00	-23.89	0.67	11.34
22.50	TDP 14B 11/1 100-2	-24.02	0.76	11.42
22.52	TDP 14B 11/1 102-5	-24.10	0.75	11.45
22.53	TDP 14B 11/2 3-5	-24.04	0.75	8.28
22.55	TDP 14B 11/2 5-7	#N/A	0.77	6.38
22.59	TDP 14B 11/2 9-11	-24.24	0.79	6.76
22.63	TDP 14B 11/2 13-15	#N/A	0.81	7.98
22.67	TDP 14B 11/2 17-20	-23.97	0.80	7.40
22.70	TDP 14B 11/2 20-22	-24.02	0.68	11.98
22.72	TDP 14B 11/2 22-24	-24.09	0.65	10.71
22.74	TDP 14B 11/2 24-26	-23.71	0.68	11.24
22.78	TDP 14B 11/2 28-30	-23.97	0.69	12.05
22.80	TDP 14B 11/2 30-33	-24.09	0.71	8.89
22.83	TDP 14B 11/2 33-35	#N/A	0.68	5.49
22.85	TDP 14B 11/2 35-38	-23.88	0.72	9.73
22.88	TDP 14B 11/2 38-40	-24.00	0.76	11.01
22.90	TDP 14B 11/2 40-43	-23.80	0.70	10.09
22.93	TDP 14B 11/2 43-45	#N/A	0.68	9.93
22.97	TDP 14B 11/2 47-50	-24.07	0.62	8.74
23.00	TDP 14B 11/2 50-52	#N/A	0.70	4.87
23.00	TDP 14B 11/2 50-52	-24.30	0.68	5.23
23.02	TDP 14B 12/1 2-4	-22.69	0.06	1.12
23.04	TDP 14B 12/1 4-6	-22.81	0.06	7.95
23.04	TDP 14B 11/2 54-55	#N/A	0.66	5.12
23.08	TDP 14B 12/1 8-10	-22.85	0.08	2.64
23.11	TDP 14B 12/1 11-13	-22.29	0.06	0.81
23.15	TDP 14B 12/1 15-17	-24.66	0.07	1.71
23.19	TDP 14B 12/1 19-22	-22.55	0.08	0.60
23.22	TDP 14B 12/1 22-24	-22.13	0.07	0.68
23.24	TDP 14B 12/1 24-26	-23.42	0.08	8.69
23.28	TDP 14B 12/1 28-30	-22.43	0.11	3.81
23.30	TDP 14B 12/1 30-31	-23.43	0.10	4.30
23.31	TDP 14B 12/1 31-33	-23.12	0.19	8.22
23.33	TDP 14B 12/1 33-35	-23.27	0.19	10.54
23.35	TDP 14B 12/1 35-38	-23.42	0.10	9.28
23.38	TDP 14B 12/1 38-43	-22.98	0.09	10.48
23.43	TDP 14B 12/1 43-45	-21.89	0.11	3.95
23.45	TDP 14B 12/1 45-47	-22.65	0.14	6.73
23.47	TDP 14B 12/1 47-48	-23.83	0.10	3.67

Depth (m)	Sample	$\delta^{13}\text{C}_{\text{org}}$	%Corg	%CaCO ₃
23.49	TDP 14B 12/1 48.5	-24.98	0.25	4.69
23.50	TDP 14B 12/1 50-52	-23.46	0.11	4.78
23.53	TDP 14B 12/1 53-55	-23.57	0.06	5.81
23.55	TDP 14B 12/1 55-57	-23.30	0.09	5.28
23.57	TDP 14B 12/1 57-59	-23.05	0.08	6.39
23.61	TDP 14B 12/1 61-63	-24.27	0.61	5.21
23.63	TDP 14B 12/1 63-65	-22.13	0.11	3.56
23.65	TDP 14B 12/1 65-67	-23.07	0.07	3.40
23.67	TDP 14B 12/1 67-71	-25.05	0.12	5.30
23.71	TDP 14B 12/1 71-75	-24.41	0.52	5.18
23.75	TDP 14B 12/1 75-77	-24.25	0.64	8.07
23.77	TDP 14B 12/1 77-79	-24.33	0.45	7.43
23.79	TDP 14B 12/1 79-81	-24.25	0.63	10.14
23.81	TDP 14B 12/1 81-84	-24.13	0.43	7.09
23.84	TDP 14B 12/1 84-87	-23.63	0.45	4.23
23.87	TDP 14B 12/1 87-90	-23.55	0.39	1.82
23.90	TDP 14B 12/1 90-93	-24.09	0.42	8.83
23.93	TDP 14B 12/1 93-95	-24.33	0.82	3.54
23.95	TDP 14B 12/1 95-97	-24.51	0.51	4.60
23.97	TDP 14B 12/1 97-00	-24.30	0.53	10.41
24.00	TDP 14B 12/2 0-2	#N/A	0.61	16.47
24.02	TDP 14B 12/2 2-3	-24.33	0.64	8.55
24.05	TDP 14B 12/2 5-6	#N/A	0.59	5.98
24.08	TDP 14B 12/2 8-10	-24.11	0.48	6.69
24.11	TDP 14B 12/2 11-13	#N/A	0.91	4.03
24.16	TDP 14B 12/2 16-18	#N/A	0.68	4.03
24.20	TDP 14B 12/2 20-22	-23.57	0.54	10.29
24.27	TDP 14B 12/2 27-31	-23.53	0.26	17.58
24.32	TDP 14B 12/2 32-34	-23.91	0.48	8.13
24.36	TDP 14B 12/2 36-38	#N/A	0.53	6.07
24.40	TDP 14B 12/2 40-44	-24.34	0.56	3.10
24.44	TDP 14B 12/2 44-46	-24.06	0.47	9.59
24.52	TDP 14B 12/2 52-54	-24.12	0.36	8.40
24.56	TDP 14B 12/2 56-58	-24.59	0.44	9.17
24.59	TDP 14B 12/2 59-63	-24.16	0.40	-0.18
24.63	TDP 14B 12/2 63-65	-24.23	0.40	6.31
24.70	TDP 14B 12/2 70-72	-24.31	0.45	3.48
24.76	TDP 14B 12/2 75-77	-24.40	0.39	7.07
24.79	TDP 14B 12/2 79-81	-24.25	0.44	3.90
24.83	TDP 14B 12/2 83-85	-24.28	0.41	2.28
24.87	TDP 14B 12/2 87-89	-24.20	0.40	5.60
26.00	TDP 14B 13/1 0-5	-24.26	0.45	2.87
26.05	TDP 14B 13/1 5-10	-24.02	0.43	8.69
26.10	TDP 14B 13/1 10-15	-24.25	0.45	5.17

Depth (m)	Sample	$\delta^{13}\text{Corg}$	%Corg	%CaCO ₃
26.15	TDP 14B 13/1 15-20	-24.10	0.36	4.17
26.25	TDP 14B 13/1 25-30	-24.27	0.42	8.56
26.30	TDP 14B 13/1 30-35	-24.08	0.35	5.41
26.35	TDP 14B 13/1 35-40	-24.00	0.37	2.82
26.40	TDP 14B 13/1 40-45	-23.98	0.33	5.14
26.45	TDP 14B 13/1 45-50	-23.97	0.50	7.08
26.70	TDP 14B 13/1 70-75	-23.73	0.47	1.42
27.00	TDP 14B 13/2 0-5	-23.73	0.39	11.29
27.40	TDP 14B 13/2 40-45	-23.79	0.40	26.87
27.55	TDP 14B 13/2 55-60	-23.58	0.45	15.51
28.00	TDP 14B 13/3 0-5	-23.30	0.44	3.96
29.00	TDP 14B 14/1 0-5	-23.31	0.30	2.97
29.90	TDP 14B 14/1 90-95	-23.47	0.39	2.70

2.2 Oxygen Isotope SST Equations

See accompanying MSExcel spreadsheet.

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