



Supplement of

The influence of near-surface sediment hydrothermalism on the TEX₈₆ tetraether-lipid-based proxy and a new correction for ocean bottom lipid overprinting

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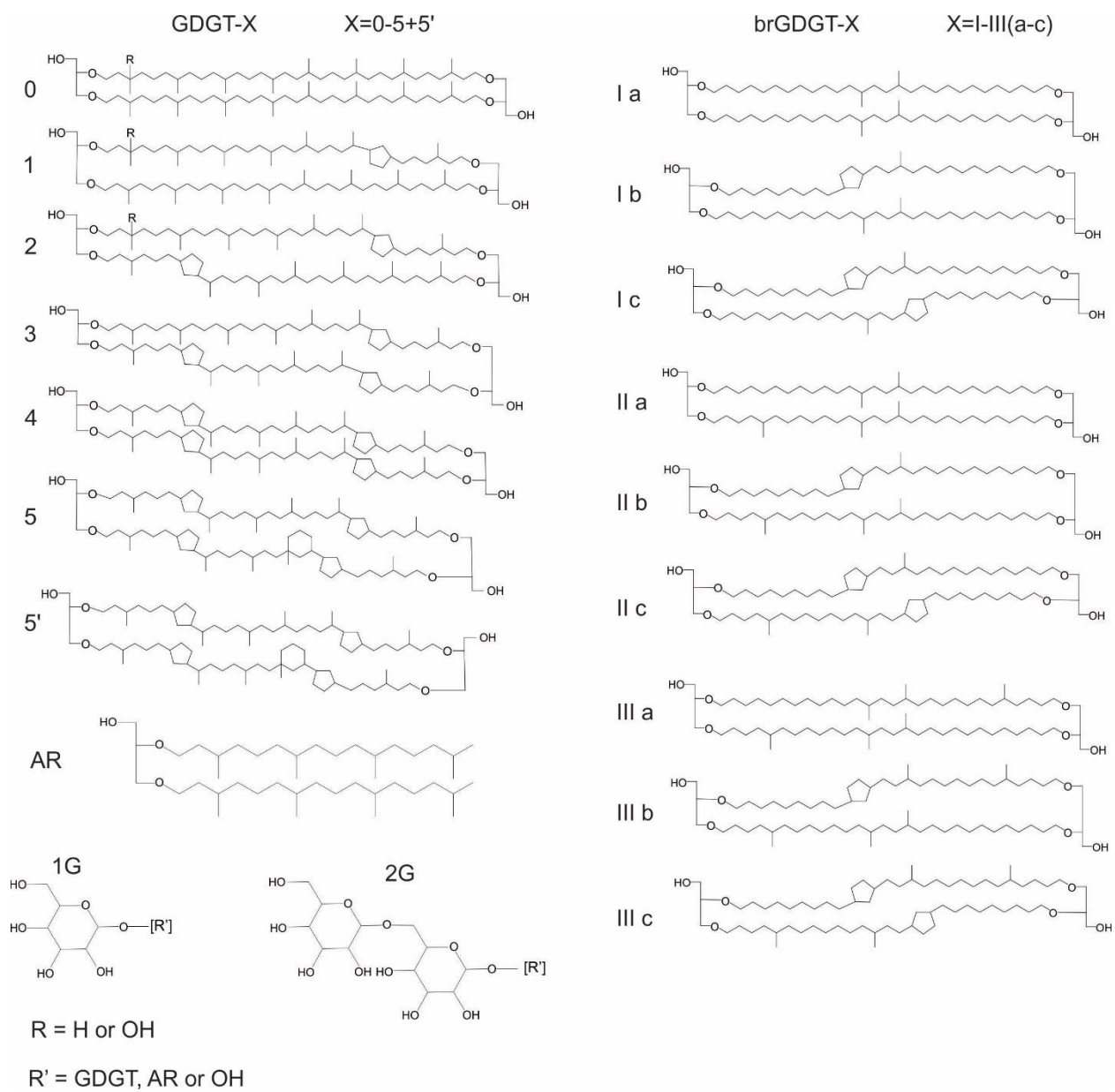


Figure S1: Molecular lipid structures of interest.

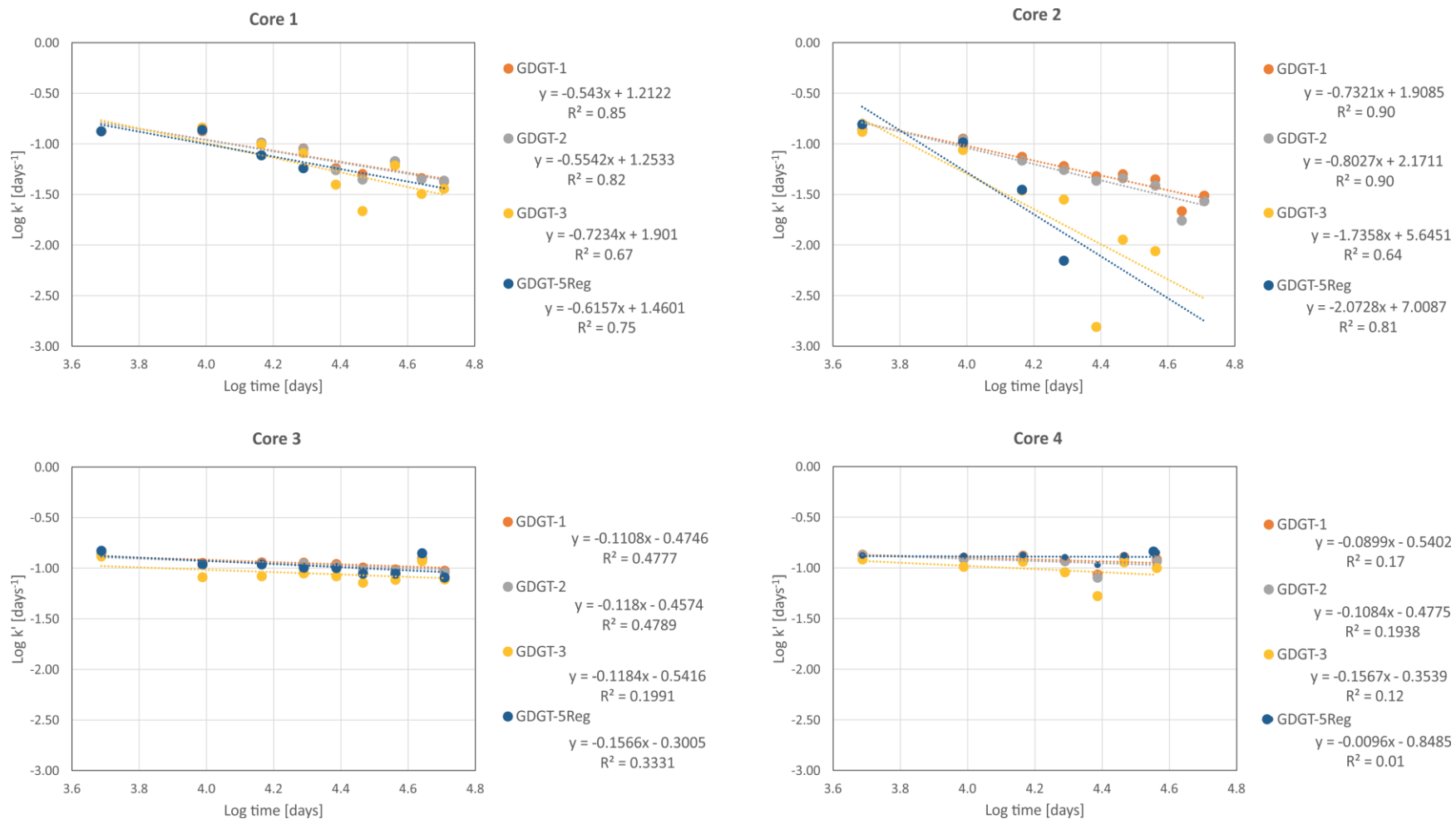


Figure S2: Kinetic degradation constants for the TEX₈₆ GDGT lipids.

Table S1. Concentrations of *i*GDGTs (in $\mu\text{g g}^{-1}$ sed.).

Core	<i>i</i> GDGT-0	<i>i</i> GDGT-1	<i>i</i> GDGT-2	<i>i</i> GDGT-3	<i>i</i> GDGT-4	Cren	Cren'	<i>i</i> GDGT Sum	<i>c</i> TEX ₈₆ Sum
Core 1 (0-2cm)	184.8	49.0	41.8	12.6	15.5	192.2	7.3	503.1	110.7
Core 1 (2-4cm)	160.9	48.9	44.8	15.7	13.2	170.5	7.7	461.7	117.1
Core 1 (4-6cm)	71.5	20.1	17.9	6.6	7.5	76.6	3.2	203.3	47.7
Core 1 (6-8cm)	50.8	14.0	12.0	4.7	9.8	55.1	2.4	148.6	33.0
Core 1 (8-10cm)	19.7	5.4	4.7	2.1	3.2	23.0	0.9	59.0	13.0
Core 1 (10-12cm)	16.4	4.4	3.5	1.5	2.5	19.7	0.8	48.8	10.1
Core 1 (12-15cm)	24.3	7.0	6.6	3.2	8.8	27.7	1.0	78.7	17.8
Core 1 (15-18cm)	13.2	3.8	3.5	1.8	4.2	15.4	0.6	42.6	9.8
Core 1 (18-21cm)	11.7	3.5	3.4	2.0	3.4	13.9	0.6	38.4	9.3
Core 2 (0-2cm)	209.0	58.3	47.8	12.2	17.2	236.3	10.2	591.0	128.5
Core 2 (2-4cm)	94.1	26.7	21.7	5.2	6.7	107.3	4.7	266.3	58.2
Core 2 (4-6cm)	30.9	8.8	6.8	1.9	2.6	34.7	1.7	87.4	19.2
Core 2 (6-8cm)	23.5	5.8	4.7	1.7	3.4	29.4	1.1	69.7	13.4
Core 2 (8-10cm)	16.2	4.1	3.4	1.0	2.3	20.6	0.9	48.4	9.3
Core 2 (10-12cm)	17.2	4.3	3.6	1.2	2.4	22.4	0.9	52.1	10.1
Core 2 (12-15cm)	14.4	3.7	3.0	1.2	2.1	19.1	0.7	44.2	8.5
Core 2 (15-18cm)	7.3	1.9	1.6	0.7	1.4	9.1	0.3	22.3	4.5
Core 2 (18-21cm)	10.2	2.5	2.1	0.9	1.6	13.5	0.5	31.2	6.0
Core 3 (0-2cm)	182.4	58.6	47.3	12.0	14.2	187.8	9.2	511.3	127.0
Core 3 (2-4cm)	109.9	27.0	20.9	4.7	5.6	135.7	5.1	308.9	57.7
Core 3 (4-6cm)	101.5	28.0	22.1	4.9	5.6	116.3	5.1	283.5	60.0
Core 3 (6-8cm)	98.8	27.5	22.4	5.4	6.6	110.2	4.5	275.3	59.8
Core 3 (8-10cm)	89.3	24.7	19.0	4.9	6.2	102.6	4.4	251.1	53.0
Core 3 (10-12cm)	80.4	19.4	15.1	3.9	5.9	99.3	3.7	227.7	42.1
Core 3 (12-15cm)	66.0	17.2	14.0	4.3	0.4	79.0	3.7	184.6	39.2
Core 3 (15-18cm)	154.3	39.0	30.3	9.4	19.6	212.4	8.1	473.1	86.8
Core3 (18-21cm)	60.7	15.8	12.8	4.4	8.8	76.5	3.3	182.3	36.4
Core 4 (0-2cm)	176.5	51.8	42.0	10.0	10.7	185.2	9.1	485.4	112.9
Core 4 (2-4cm)	146.4	39.7	31.2	7.0	8.7	177.3	7.4	417.8	85.3
Core 4 (4-6cm)	169.9	47.4	37.1	9.0	11.1	196.8	9.2	480.6	102.7
Core 4 (6-8cm)	129.7	33.8	26.0	5.6	7.1	152.2	5.4	359.7	70.8
Core 4 (8-10cm)	53.4	12.4	9.4	2.7	3.9	69.6	2.0	153.5	26.6
Core 4 (10-12cm)	166.4	42.7	32.7	8.7	12.0	190.2	6.9	459.5	91.0
Core 4 (12-15cm)	168.8	34.7	25.9	6.7	8.9	263.8	6.5	515.2	73.7

Table S2. Concentrations of *br*GDGTs (in $\mu\text{g g}^{-1}$ sed.).

Core	<i>br</i> GDGT-Ia	<i>br</i> GDGT-Ib	<i>br</i> GDGT-Ic	<i>br</i> GDGT-IIa	<i>br</i> GDGT-IIb	<i>br</i> GDGT-IIc	<i>br</i> GDGT-IIIa	<i>br</i> GDGT-IIIb	<i>br</i> GDGT Sum
Core 1 (0-2cm)	1.26	0.39	0.21	1.06	0.68	0.24	1.35	0.00	5.19
Core 1 (2-4cm)	1.24	0.61	0.25	1.10	0.82	0.24	1.51	0.00	5.75
Core 1 (4-6cm)	0.46	0.24	0.11	0.40	0.32	0.09	0.75	0.00	2.37
Core 1 (6-8cm)	0.44	0.16	0.08	0.40	0.26	0.10	0.55	0.00	1.98
Core 1 (8-10cm)	0.32	0.10	0.04	0.23	0.11	0.00	0.28	0.00	1.07
Core 1 (10-12cm)	0.53	0.08	0.02	0.40	0.10	0.00	0.39	0.00	1.52
Core 1 (12-15cm)	1.32	0.12	0.05	0.93	0.14	0.00	0.74	0.00	3.29
Core 1 (15-18cm)	0.39	0.07	0.03	0.27	0.07	0.00	0.28	0.00	1.12
Core 1 (18-21cm)	0.26	0.08	0.03	0.18	0.09	0.00	0.21	0.00	0.86
Core 2 (0-2cm)	1.49	0.59	0.28	1.27	1.03	0.26	1.91	0.23	7.05
Core 2 (2-4cm)	0.78	0.37	0.16	0.75	0.56	0.17	1.08	0.14	4.00
Core 2 (4-6cm)	0.41	0.14	0.06	0.31	0.21	0.06	0.44	0.05	1.68
Core 2 (6-8cm)	1.24	0.17	0.06	0.47	0.21	0.06	0.54	0.04	2.80
Core 2 (8-10cm)	0.41	0.12	0.05	0.23	0.13	0.04	0.31	0.00	1.29
Core 2 (10-12cm)	0.47	0.16	0.05	0.30	0.13	0.00	0.39	0.00	1.51
Core 2 (12-15cm)	0.32	0.12	0.06	0.25	0.10	0.00	0.27	0.00	1.12
Core 2 (15-18cm)	0.21	0.06	0.03	0.15	0.06	0.00	0.15	0.00	0.66
Core 2 (18-21cm)	0.23	0.09	0.04	0.19	0.16	0.00	0.29	0.00	1.00
Core 3 (0-2cm)	1.39	0.61	0.28	1.45	1.22	0.32	2.21	0.26	7.73
Core 3 (2-4cm)	0.70	0.36	0.15	0.73	0.59	0.18	1.22	0.14	4.07
Core 3 (4-6cm)	0.71	0.36	0.15	0.70	0.50	0.16	1.13	0.12	3.82
Core 3 (6-8cm)	0.83	0.38	0.16	0.73	0.53	0.16	1.27	0.10	4.18
Core 3 (8-10cm)	1.17	0.45	0.19	1.00	0.58	0.18	1.48	0.14	5.19
Core 3 (10-12cm)	1.20	0.47	0.20	1.05	0.55	0.19	1.40	0.15	5.20
Core 3 (12-15cm)	1.31	0.56	0.21	1.09	0.54	0.16	1.14	0.09	5.11
Core 3 (15-18cm)	2.94	1.05	0.43	2.33	1.11	0.38	2.53	0.23	10.99
Core3 (18-21cm)	1.39	0.45	0.20	1.04	0.51	0.06	1.16	0.06	4.88
Core 4 (0-2cm)	1.01	0.51	0.23	1.18	1.02	0.26	1.88	0.27	6.36
Core 4 (2-4cm)	0.91	0.50	0.25	0.99	0.75	0.22	1.65	0.17	5.43
Core 4 (4-6cm)	1.12	0.57	0.27	1.23	0.95	0.30	2.03	0.18	6.64
Core 4 (6-8cm)	0.83	0.46	0.19	0.88	0.66	0.22	1.33	0.11	4.68
Core 4 (8-10cm)	0.49	0.22	0.08	0.44	0.27	0.09	0.58	0.05	2.22
Core 4 (10-12cm)	1.43	0.55	0.27	1.28	0.84	0.26	1.96	0.19	6.77
Core 4 (12-15cm)	1.42	0.63	0.23	1.11	0.77	0.27	1.84	0.00	6.27

Table S3. Concentrations of 1G- and 2G-*i*GDGTs (in $\mu\text{g g}^{-1}$ sed.).

Core	1G- <i>i</i> GDGT-0	1G- <i>i</i> GDGT-1	1G- <i>i</i> GDGT-2	1G- <i>i</i> GDGT-3	1G- <i>i</i> GDGT-4	1G- Cren	1G- Cren'	2G- <i>i</i> GDGT-1	2G- <i>i</i> GDGT-2	1G- & 2G- <i>i</i> GDGT SUM	TEX ₈₆ <i>ipl</i> GDGT SUM
Core 1 (0-2cm)	4.9	1.3	1.0	0.6	0.8	6.1	0.1	0.8	1.0	16.7	4.8
Core 1 (2-4cm)	5.0	0.9	1.0	0.2	0.5	5.7	0.1	0.5	0.7	14.6	3.4
Core 1 (4-6cm)	2.1	0.6	0.4	0.2	0.4	2.2	0.1	0.0	0.0	6.0	1.3
Core 1 (6-8cm)	1.3	0.5	0.4	0.1	0.3	1.5	0.2	0.0	0.0	4.3	1.1
Core 1 (8-10cm)	0.8	0.4	0.5	0.4	0.7	0.3	0.1	0.0	0.0	3.2	1.4
Core 1 (10-12cm)	0.5	0.2	0.3	0.2	0.4	0.1	0.1	0.0	0.0	1.7	0.8
Core 1 (12-15cm)	0.4	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	1.4	0.7
Core 1 (15-18cm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Core 1 (18-21cm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Core 2 (0-2cm)	5.9	1.5	1.0	0.2	0.9	6.6	0.1	0.7	0.8	17.8	4.3
Core 2 (2-4cm)	2.3	0.4	0.4	0.1	0.3	3.1	0.1	0.4	0.4	7.5	1.8
Core 2 (4-6cm)	0.8	0.2	0.2	0.1	0.1	0.9	0.0	0.1	0.2	2.5	0.8
Core 2 (6-8cm)	0.7	0.4	0.4	0.4	1.0	0.5	0.1	0.0	0.1	3.4	1.3
Core 2 (8-10cm)	0.4	0.3	0.3	0.2	0.6	0.2	0.1	0.0	0.0	2.0	0.9
Core 2 (10-12cm)	0.4	0.3	0.4	0.2	0.5	0.2	0.1	0.0	0.0	2.0	0.9
Core 2 (12-15cm)	0.3	0.1	0.2	0.1	0.2	0.1	0.1	0.0	0.0	1.0	0.4
Core 2 (15-18cm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Core 2 (18-21cm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Core 3 (0-2cm)	5.0	1.1	1.2	0.0	0.6	6.3	0.1	0.5	0.7	15.3	3.5
Core 3 (2-4cm)	2.9	0.6	0.3	0.1	0.6	3.0	0.1	0.3	0.4	8.3	1.8
Core 3 (4-6cm)	2.4	0.4	0.3	0.1	0.2	3.0	0.1	0.2	0.3	7.0	1.5
Core 3 (6-8cm)	2.6	0.5	0.3	0.1	0.2	3.0	0.1	0.3	0.4	7.5	1.8
Core 3 (8-10cm)	1.7	0.5	0.5	0.0	0.3	2.0	0.2	0.2	0.3	5.7	1.7
Core 3 (10-12cm)	2.1	0.4	0.8	0.3	0.0	1.6	0.1	0.2	0.3	5.8	2.2
Core 3 (12-15cm)	1.6	0.8	0.8	0.6	0.9	1.6	0.3	0.0	0.0	6.5	2.5
Core 3 (15-18cm)	3.5	1.3	1.7	1.1	1.3	2.8	0.6	0.0	0.0	12.3	4.7
Core3 (18-21cm)	1.5	0.7	0.9	0.3	0.6	1.0	0.2	0.0	0.0	5.2	2.1

Core 4 (0-2cm)	4.3	0.8	0.6	0.3	0.0	5.2	0.0	0.4	0.4	11.9	2.4
Core 4 (2-4cm)	3.7	0.7	0.4	0.0	0.0	4.0	0.0	0.3	0.4	9.5	1.8
Core 4 (4-6cm)	4.3	0.7	0.5	0.0	0.0	5.5	0.0	0.4	0.5	11.9	2.2
Core 4 (6-8cm)	3.8	0.6	0.5	0.0	0.0	3.8	0.0	0.3	0.3	9.4	1.8
Core 4 (8-10cm)	1.3	0.2	0.0	0.0	0.0	0.9	0.0	0.0	0.2	2.6	0.4
Core 4 (10-12cm)	3.7	0.7	0.0	0.0	0.0	2.1	0.0	0.5	1.0	8.0	2.2
Core 4 (12-15cm)	3.0	0.0	0.0	0.0	0.0	3.1	0.0	0.0	0.0	6.1	0.0

Table S4. Kinetic degradation rate changes ($m_{\log k'}$) for TEX₈₆ lipid classes.

TEX ₈₆ Compounds	Core 1	Core 2	Core 3	Core 4	Mean Value
GDGT-1	-0.54	-0.73	-0.11	-0.09	
GDGT-2	-0.55	-0.88	-0.12	-0.11	
GDGT-3	-0.72	-1.74	-0.12	-0.16	
GDGT-5'	-0.62	-2.07	-0.16	-0.01	
Avg.	-0.61	-1.36	-0.13	-0.09	-0.55
SD	0.08	0.65	0.02	0.06	0.20
Var.	0.01	0.42	0.00	0.00	0.11