

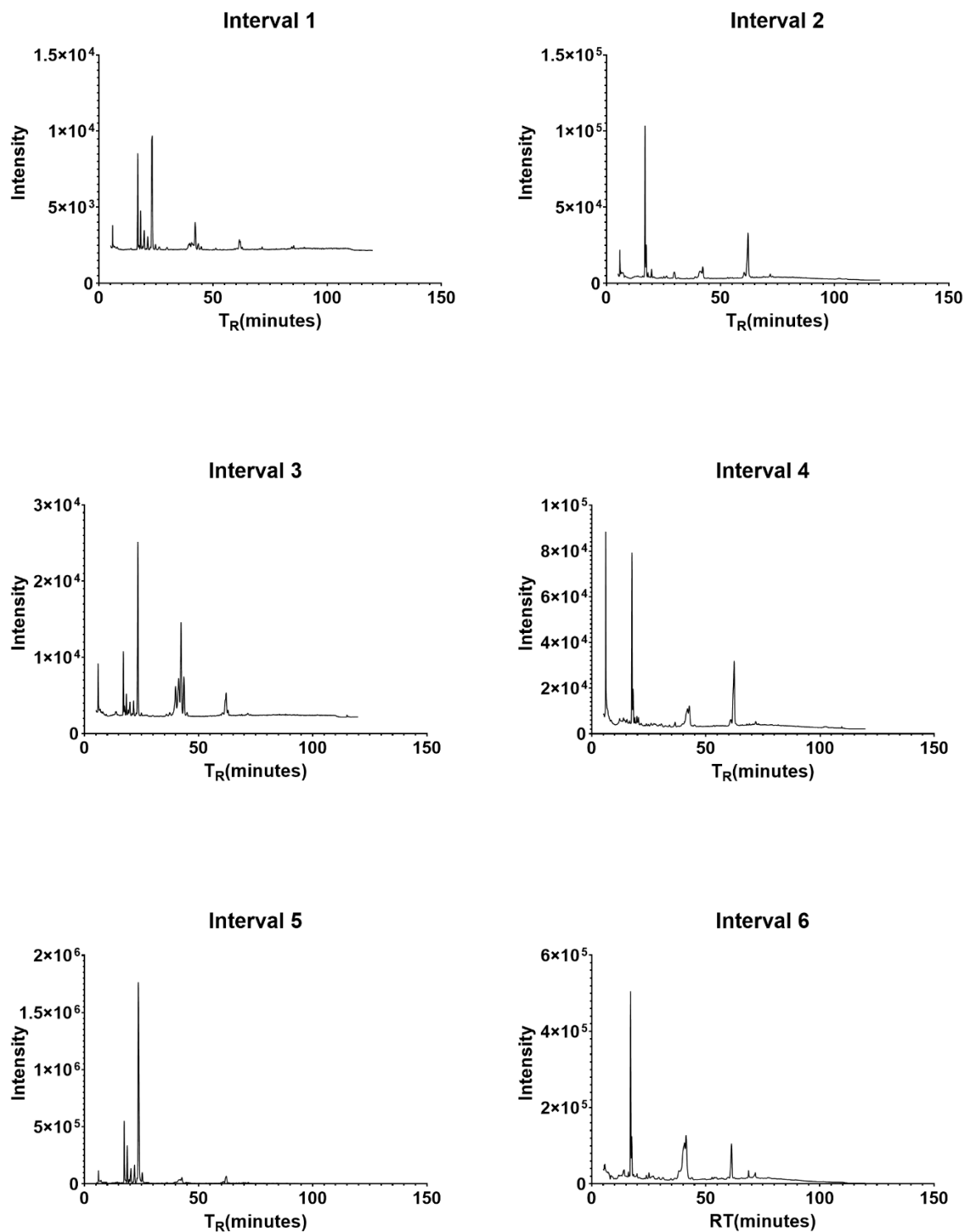


Fig. S1 Representative chromatograms from each Interval in the Magadi core.

	Depth (mbs)	Age (ka)	% GDGT-0	% GDGT-1	% GDGT-2	% GDGT-3	% Cren	% Cren'	% 0/Cren	% 2/Cren	MI	[2]/[3]	Ca/Na	Bulk $\delta^{13}\text{C}_{\text{org}}$ (‰)	% LOI ₅₀₀	% TOC
			<i>m/z</i> =1302	<i>m/z</i> =1300	<i>m/z</i> =1298	<i>m/z</i> =1296	<i>m/z</i> =1292	<i>m/z</i> =1292								
Interval 1	32.61	14.94	34.1%	6.6%	3.4%	2.6%	51.5%	1.8%	39.9%	6.2%	0.19	1.30	0.07	-21.9	14.1	19.7
	32.79	14.96	26.3%	7.8%	5.4%	3.2%	55.8%	1.5%	32.0%	8.8%	0.22	1.66	0.11	-18.5	11.9	18.7
	33.03	14.99	40.4%	12.1%	10.4%	2.2%	34.0%	1.0%	54.3%	23.4%	0.41	4.63	0.11	-18.8	17.1	17.2
	33.28	15.02	38.5%	10.8%	9.6%	2.6%	37.6%	0.9%	50.6%	20.4%	0.37	3.74	0.07	-	14.1	16.8
	33.55	15.05	31.4%	7.9%	5.4%	3.1%	50.9%	1.3%	38.1%	9.6%	0.24	1.72	0.08	-17.7	13.6	17.4
	33.76	15.07	27.0%	7.5%	5.0%	3.2%	55.7%	1.6%	32.6%	8.3%	0.21	1.57	0.08	-18.3	14.4	24.7
	34.06	15.10	26.2%	8.0%	5.5%	3.3%	55.8%	1.4%	31.9%	8.9%	0.23	1.67	0.07	-18.7	-	18.1
	34.15	15.10	29.5%	8.7%	5.7%	3.2%	51.4%	1.5%	36.5%	10.0%	0.25	1.82	0.08	-18.1	9.4	19.3
	35.07	15.45	22.6%	7.8%	4.9%	3.0%	60.4%	1.5%	27.2%	7.4%	0.20	1.63	0.10	-16.8	11.6	19.2
	35.42	16.81	23.0%	7.8%	4.6%	2.8%	60.3%	1.6%	27.6%	7.1%	0.20	1.67	0.11	-17.2	12.8	17.6
	35.67	17.77	23.9%	7.9%	4.1%	2.9%	59.6%	1.6%	28.7%	6.5%	0.20	1.43	0.10	-17.9	12.1	18.5
Interval 2	43.51	38.99	78.5%	8.9%	10.9%	0.8%	1.0%	0.1%	98.8%	91.9%	0.95	14.13	0.06	-28.6	-	-
	43.55	39.05	81.1%	8.3%	8.9%	0.6%	1.0%	0.1%	98.7%	89.5%	0.94	15.60	0.17	-28.1	-	-
	46.68	48.70	85.2%	6.7%	6.8%	0.5%	0.8%	0.1%	99.1%	89.9%	0.94	14.21	0.17	-28.0	11.6	21.8
	46.96	50.00	81.1%	8.8%	8.5%	0.5%	1.1%	0.1%	98.6%	88.3%	0.94	16.94	0.12	-28.6	13.5	21.8
	47.75	53.61	81.0%	8.2%	9.3%	0.6%	0.9%	0.1%	98.9%	91.0%	0.95	16.26	0.16	-29.4	10.8	20.5
	48.08	55.11	81.3%	7.6%	9.5%	0.7%	0.8%	0.1%	99.1%	92.6%	0.96	13.77	0.19	-29.5	11.5	16.0
	49.55	61.83	83.7%	6.8%	8.4%	0.5%	0.4%	0.1%	99.5%	95.3%	0.97	15.92	0.16	-28.0	10.7	19.2
	49.68	62.45	82.9%	7.7%	8.2%	0.4%	0.7%	0.1%	99.2%	92.7%	0.96	21.68	0.12	-27.3	3.9	20.4
	50.36	65.22	79.0%	9.0%	10.9%	0.7%	0.3%	0.1%	99.7%	97.6%	0.98	14.88	0.92	-29.0	9.0	3.9
	58.74	97.72	84.9%	7.5%	6.4%	0.2%	1.0%	0.1%	98.8%	86.3%	0.93	28.86	0.00	-	35.5	19.0
	58.80	97.97	88.3%	6.0%	5.1%	0.1%	0.4%	0.0%	99.5%	92.3%	0.96	39.23	0.00	-48.1	-	5.4
	59.06	99.04	90.7%	4.5%	4.6%	0.1%	0.2%	0.0%	99.8%	96.1%	0.98	50.56	0.57	-64.2	36.8	60.6
	59.40	100.46	92.6%	2.3%	4.5%	0.2%	0.3%	0.1%	99.6%	93.0%	0.95	29.87	0.19	-89.4	35.3	59.3
	62.06	106.05	86.9%	3.6%	8.7%	0.2%	0.5%	0.1%	99.4%	94.1%	0.95	45.63	0.21	-28.1	19.4	29.5
	62.65	106.93	82.0%	3.7%	13.4%	0.5%	0.3%	0.1%	99.7%	98.1%	0.98	26.88	0.21	-27.9	5.1	33.5
	64.52	109.73	77.2%	5.0%	17.1%	0.4%	0.3%	0.1%	99.6%	98.4%	0.98	46.24	0.24	-31.0	5.1	11.5
	65.98	116.93	84.1%	3.6%	11.2%	0.7%	0.3%	0.0%	99.7%	97.5%	0.98	15.77	0.38	-26.9	5.4	11.5
	67.82	129.05	90.5%	4.4%	4.7%	0.4%	0.0%	0.0%	100.0%	100.0%	1.00	10.91	0.18	-24.7	10.0	15.2
Interval 3	70.78	149.74	30.9%	6.0%	4.2%	3.3%	54.1%	1.5%	36.4%	7.1%	0.19	1.26	0.28	-21.5	-	17.5
	70.86	150.43	23.6%	9.3%	5.1%	4.6%	54.9%	2.6%	30.1%	8.4%	0.25	1.09	0.28	-21.4	-	11.0
	70.97	151.29	84.4%	2.3%	2.8%	0.8%	9.4%	0.3%	89.9%	22.7%	0.37	3.48	0.31	-23.4	-	15.7
	71.08	152.17	75.4%	2.8%	3.0%	3.0%	15.5%	0.4%	82.9%	16.0%	0.35	1.00	0.19	-22.4	-	14.3
	71.19	153.06	38.2%	5.4%	4.8%	4.3%	46.1%	1.2%	45.3%	9.4%	0.23	1.12	0.19	-21.4	16.2	13.8
	73.70	173.42	24.2%	5.9%	5.5%	5.2%	57.9%	1.4%	29.5%	8.7%	0.22	1.07	0.23	-	7.2	10.1
	75.93	184.48	29.3%	5.3%	4.9%	4.9%	54.3%	1.3%	35.0%	8.3%	0.21	1.00	0.77	-21.8	3.4	9.4
	77.32	185.23	90.1%	3.9%	5.5%	0.2%	0.4%	0.1%	99.6%	93.8%	0.96	36.73	0.34	-24.4	0.0	19.8
	86.07	197.23	33.4%	6.7%	5.0%	2.6%	51.0%	1.3%	39.5%	8.9%	0.22	1.90	0.48	-23.8	6.7	7.2
Interval 4	94.92	315.79	95.3%	1.2%	3.0%	0.2%	0.2%	0.0%	99.8%	93.7%	0.95	12.54	0.19	-25.4	-	-
	95.05	317.40	95.7%	1.3%	2.6%	0.1%	0.3%	0.0%	99.7%	89.9%	0.93	23.45	0.95	-25.5	-	-
	95.15	317.50	92.4%	3.5%	3.7%	0.2%	0.3%	0.0%	99.7%	92.4%	0.96	22.81	0.58	-27.0	5.5	24.8
	96.38	318.74	65.5%	11.5%	15.6%	2.7%	4.7%	0.0%	93.3%	76.8%	0.86	5.73	1.67	-	3.7	7.4
Interval 5	103.16	323.77	57.3%	3.4%	3.8%	1.7%	32.7%	1.1%	63.7%	10.4%	0.21	2.18	0.41	-25.0	-	20.9
	103.49	323.92	44.2%	3.9%	3.3%	2.4%	44.5%	1.7%	49.8%	6.9%	0.17	1.40	1.30	-25.0	7.1	20.0
	103.79	324.05	17.6%	7.7%	4.3%	4.4%	62.8%	3.2%	21.9%	6.4%	0.20	0.97	0.52	-18.1	11.7	21.2
	104.10	324.19	17.3%	10.5%	7.6%	7.5%	51.5%	5.7%	25.1%	12.8%	0.31	1.01	0.29	-20.5	2.6	23.9
Interval 6	119.64	391.05	45.1%	9.5%	31.3%	7.9%	5.7%	0.5%	88.8%	84.7%	0.89	3.95	0.20	-	8.2	15.7
	119.75	391.79	19.2%	8.0%	53.8%	17.5%	1.5%	0.0%	93.0%	97.4%	0.98	3.08	0.15	-	8.1	13.8
	121.66	403.66	52.0%	11.6%	28.2%	7.4%	0.8%	0.1%	98.6%	97.4%	0.98	3.81	0.92	-24.3	7.4	9.9
	123.43	414.42	39.9%	9.9%	38.7%	9.4%	1.8%	0.2%	95.7%	95.5%	0.97	4.11	0.42	-22.2	4.7	15.2
	123.82	416.86	92.5%	3.6%	3.4%	0.2%	0.3%	0.1%	99.7%	92.6%	0.96	16.85	0.47	-25.6	11.4	12.7
	124.02	418.06	65.1%	12.1%	21.6%	0.7%	0.4%	0.1%	99.5%	98.4%	0.99	29.62		-22.1	6.3	10.1
	128.74	447.02	96.4%	1.5%	1.5%	0.1%	0.5%	0.1%	99.5%	75.6%	0.83	13.27	0.74	-	4.0	10.9
	129.77	453.32	83.8%	14.6%	1.1%	0.1%	0.3%	0.1%	99.6%	77.3%	0.97	15.71		-26.8	6.5	26.6
	129.84	453.73	83.8%	14.7%	1.1%	0.1%	0.3%	0.1%	99.7%	81.6%	0.98	8.54	0.15	-25.2	6.5	-
	129.96	454.42	83.4%	13.6%	2.3%	0.2%	0.4%	0.1%	99.6%	86.2%	0.97	9.91		-27.3	4.1	24.5
	130.21	456.18	84.5%	7.2%	7.5%	0.5%	0.2%	0.1%	99.7%	96.9%	0.98	16.30		-28.2	20.3	6.8

Table S1 Table showing values in Magadi for GDGT relative abundances, index values, and bulk geochemistry. Additionally, indices related to methane cycling (i.e., % GDGT-0/cren, % GDGT-2/cren, [2]/[3], and MI).