

Contrasted Hydrothermal Activity Along the South-East Indian Ridge (130°E-140°E): From Crustal to Ultramafic Circulation

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Introduction

This supporting information provides data for CTD profiles carried out along the South East Indian Ridge during the STORM Cruise. The Table includes locations of the CTD casts, depths and methane and manganese concentrations, which were used to calculate the CH₄ to Mn ratios and determine the type of underlying hydrothermal processes.

Samples	Latitude	Longitude	Depth (m)	Plume	Eq. CTD
STR-WXC-01	50°12.35' S	137° 20.90' E	2700	n.a.	-
STR-WXC-02	50°13.48'S	137°01'32'E	2600	Yes	CTD03
STR-WXC-03	50°15.07'S	139°24.50'E	2800	Yes	CTD05
STR-WXC-04	50°16.50'S	139°07.50'E	2650	No	-
STR-WXC-05	50°17.20'S	138°48.50'E	2400	?	-
STR-WXC-06	50°16.80'S	138°33,30'E	2200	Yes	-
STR-WXC-07	50°15.80'S	138°16.50'E	2250	Yes	CTD06
STR-WXC-08	50°13.70'S	138°01.00'E	2700	No	-
STR-WXC-09	50°13.65'S	137°44.70'E	2600	No	-
STR-WXC-10	50°12.80'S	136°46'E	2700	No	-
STR-WXC-11	50°12.50'S	136°31.60'E	2600	No	-
STR-WXC-12	50°11.70'S	136°14'E	2400	Yes	-
STR-WXC-13	50°19.35'S	135°58.50'E	2250	No	-
STR-WXC-14	50°11.65'S	135°42.50'E	3000	No	-
STR-WXC-15	50°12.00'S	135°28.09'E	2750	yes	CTD08
STR-WXC-16	50°12'S	135°14.76'E	3064	?	-
STR-WXC-17	50°20.30'S	133°47.50'E	2756	Yes	-
STR-WXC-18	50°19'S	133°32'E	2815	No	-
STR-WXC-19	50°17.70'S	133°16.25'E	2721	?	-
STR-WXC-20	50°16.09'S	133°01'E	2802	No	-
STR-WXC-21	50°15.80'S	132°45.70'E	2842	?	-
STR-WXC-22	50°13.25'S	132°13.85'E	2950	Yes	CTD09
STR-WXC-23	50°20.69'S	129°57'E	2918	No	-
STR-WXC-24	50°24.69'S	130°37.52'E	2965	No	-
STR-WXC-25	50°11.50'S	131°57.40'E	2926	?	-
STR-WXC-26	50°21.20'S	134°02.52'E	2749	No	-
STR-WXC-27	50°22.41'S	134°18.51'E	2723	Yes	-
STR-WXC-28	50°23.89'S	134°33.53'E	2703	No	-
STR-WXC-29	50°25.31'S	134°49.54'E	2830	No	-

Table S1. Positions and seafloor depth of the waxcore stations during which MAPRs were deployed. The 'Plume' column indicates whether a plume was found (Yes), suspected (?) or not (No). N.a. not available.

Sample name	Latitude °S	Longitude °E	Depth mbsl	CH4 [nM]	Mn [nM]	CH4/Mn
STRM CTD01						
STRM-CTD01-B1	50°10.577	137°25.281	2365	n.m.	n.m.	n.a.
STRM-CTD01-B2	50°10.577	137°25.281	2365	0.76	n.m.	n.a.
STRM-CTD01-B3	50°10.577	137°25.281	2185	0.53	n.m.	n.a.
STRM-CTD01-B4	50°10.577	137°25.281	2185	0.81	n.m.	n.a.
STRM-CTD01-B5	50°10.577	137°25.281	1985	0.50	n.m.	n.a.
STRM-CTD01-B6	50°10.577	137°25.281	1985	0.76	n.m.	n.a.
STRM CTD02						
STRM-CTD02-1	50°13.391	137°14.468	2705	0.62	n.m.	n.a.
STRM-CTD02-2	50°13.391	137°14.468	2683	5.30	n.m.	n.a.
STRM-CTD02-3	50°13.391	137°14.468	2665	7.32	14.5	0.50
STRM-CTD02-4	50°13.391	137°14.468	2644	12.49	26.0	0.48
STRM-CTD02-5	50°13.391	137°14.468	2623	9.07	15.8	0.57
STRM-CTD02-6	50°13.391	137°14.468	2605	8.16	15.0	0.54
STRM-CTD02-7	50°13.391	137°14.468	2583	10.13	16.9	0.60
STRM-CTD02-8	50°13.391	137°14.468	2565	11.55	17.6	0.66
STRM-CTD02-10	50°13.391	137°14.468	2523	12.11	17.9	0.68
STRM-CTD02-11	50°13.391	137°14.468	2506	6.80	19.1	0.36
STRM-CTD02-13	50°13.391	137°14.468	2455	7.78	n.m.	n.a.
STRM-CTD02-14	50°13.391	137°14.468	2431	5.39	n.m.	n.a.
STRM-CTD02-15	50°13.391	137°14.468	2405	6.71	n.m.	n.a.
STRM-CTD02-16	50°13.391	137°14.468	1889	0.67	n.m.	n.a.
STRM CTD03						
STRM-CTD03-1	50°13.494	137°1.332	2485	0.45	12.4	0.04
STRM-CTD03-2	50°13.494	137°1.332	2485	1.78	29.1	0.06
STRM-CTD03-3	50°13.494	137°1.332	2480	18.50	21.5	0.86
STRM-CTD03-4	50°13.494	137°1.332	2480	13.74	13.7	1.00
STRM-CTD03-5	50°13.494	137°1.332	2475	20.00	21.9	0.91
STRM-CTD03-6	50°13.494	137°1.332	2475	18.01	21.7	0.83
STRM-CTD03-7	50°13.494	137°1.332	2465	12.48	10.6	1.18
STRM-CTD03-8	50°13.494	137°1.332	2465	5.97	8.8	0.68
STRM-CTD03-9	50°13.494	137°1.332	2450	n.m.	n.m.	n.a.
STRM-CTD03-10	50°13.494	137°1.332	2450	n.m.	n.m.	n.a.
STRM-CTD03-11	50°13.494	137°1.332	2200	0.46	n.m.	n.a.
STRM-CTD03-12	50°13.494	137°1.332	2200	n.m.	n.m.	n.a.

STRM CTD04						
STRM-CTD04-1	50°46.458	139°29.03	1513	0.52	n.m.	n.a.
STRM-CTD04-2	50°46.458	139°29.03	1508	0.63	n.m.	n.a.
STRM-CTD04-3	50°46.458	139°29.03	1503	0.66	n.m.	n.a.
STRM-CTD04-4	50°46.458	139°29.03	1498	0.66	n.m.	n.a.
STRM-CTD04-5	50°46.458	139°29.03	1488	0.53	n.m.	n.a.
STRM-CTD04-6	50°46.458	139°29.03	1468	0.61	n.m.	n.a.
STRM-CTD04-7	50°46.458	139°29.03	1448	1.22	n.m.	n.a.
STRM-CTD04-8	50°46.458	139°29.03	1428	0.83	n.m.	n.a.
STRM-CTD04-10	50°46.458	139°29.03	1388	0.73	n.m.	n.a.
STRM-CTD04-11	50°46.458	139°29.03	1188	0.76	n.m.	n.a.

STRM CTD05						
STRM-CTD05-1	50°15.678	139°02.401	2725	0.63	n.m.	n.a.
STRM-CTD05-2	50°15.678	139°02.401	2660	0.62	n.m.	n.a.
STRM-CTD05-3	50°15.678	139°02.401	2600	0.89	n.m.	n.a.
STRM-CTD05-4	50°15.678	139°02.401	2560	0.89	n.m.	n.a.
STRM-CTD05-5	50°15.678	139°02.401	2520	n.m.	n.m.	n.a.
STRM-CTD05-6	50°15.678	139°02.401	2450	1.18	n.m.	n.a.
STRM-CTD05-7	50°15.678	139°02.401	2400	0.93	n.m.	n.a.

STRM CTD07						
STRM-CTD07-1	50°13.408	137°14.525	2620	20.72	20.5	1.01
STRM-CTD07-2	50°13.406	137°14.545	2620	24.25	19.4	1.25
STRM-CTD07-3	50°13.409	137°14.568	2591	21.57	15.6	1.38
STRM-CTD07-4	50°13.408	137°14.495	2620	20.08	31.4	0.64
STRM-CTD07-5	50°13.402	137°14.472	2620	21.06	28.8	0.73
STRM-CTD07-7	50°13.391	137°14.515	2619	24.15	18.6	1.30
STRM-CTD07-8	50°13.393	137°14.519	2710	6.24	8.2	0.76
STRM-CTD07-10	50°13.393	137°14.519	2680	10.66	10.1	1.06
STRM-CTD07-11	50°13.393	137°14.519	2660	7.90	4.3	1.84
STRM-CTD07-13	50°13.393	137°14.519	2640	14.98	14.5	1.03
STRM-CTD07-14	50°13.393	137°14.519	2620	20.23	19.9	1.02
STRM-CTD07-15	50°13.393	137°14.519	2480	6.43	7.2	0.89

STRM CTD08						
STRM-CTD08-1	50°11.996	135°28.944	2730	0.49	n.m.	n.a.
STRM-CTD08-2	50°11.996	135°28.944	2680	7.91	n.m.	n.a.
STRM-CTD08-3	50°11.996	135°28.944	2670	1.49	n.m.	n.a.

STRM-CTD08-4	50°11.996	135°28.944	2660	8.72	n.m.	n.a.
STRM-CTD08-5	50°11.996	135°28.944	2650	2.49	n.m.	n.a.
STRM-CTD08-6	50°11.996	135°28.944	2640	8.91	n.m.	n.a.
STRM-CTD08-7	50°11.996	135°28.944	2630	3.49	n.m.	n.a.
STRM-CTD08-8	50°11.996	135°28.944	2620	8.46	n.m.	n.a.
STRM-CTD08-10	50°11.996	135°28.944	2610	4.49	n.m.	n.a.
STRM-CTD08-11	50°11.996	135°28.944	2600	7.52	n.m.	n.a.
STRM-CTD08-13	50°11.996	135°28.944	2580	8.39	n.m.	n.a.
STRM-CTD08-14	50°11.996	135°28.944	2530	0.76	n.m.	n.a.
STRM-CTD08-15	50°11.996	135°28.944	2380	0.60	n.m.	n.a.
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STRM CTD09						
STRM-CTD09-1	50°13.251	132°13.885	2900	0.64	21.7	0.50
STRM-CTD09-2	50°13.251	132°13.885	2860	5.88	13.6	0.48
STRM-CTD09-3	50°13.251	132°13.885	2820	5.92	12.7	0.57
STRM-CTD09-4	50°13.251	132°13.885	2801	15.85	37.8	0.54
STRM-CTD09-5	50°13.251	132°13.885	2792	10.56	41.2	0.60
STRM-CTD09-6	50°13.251	132°13.885	2781	14.64	44.1	0.66
STRM-CTD09-7	50°13.251	132°13.885	2773	11.56	32.7	0.68
STRM-CTD09-8	50°13.251	132°13.885	2752	8.59	20.5	0.36
STRM-CTD09-10	50°13.251	132°13.885	2732	4.78	8.3	0.57
STRM-CTD09-11	50°13.251	132°13.885	2681	3.72	7.8	0.57
STRM-CTD09-13	50°13.251	132°13.885	2633	0.89	10.4	0.58
STRM-CTD09-14	50°13.251	132°13.885	2582	0.43	n.m.	n.a.
STRM-CTD09-15	50°13.251	132°13.885	2533	0.34	n.m.	n.a.
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STRM CTD10						
STRM-CTD10-1	49°40.009	135°40.028	2981	0.27	7.3	0.04
STRM-CTD10-2	49°40.009	135°40.028	2879	0.43	8.1	0.05
STRM-CTD10-3	49°40.009	135°40.028	2778	0.28	n.m.	n.a.
STRM-CTD10-4	49°40.009	135°40.028	2681	n.m.	n.m.	n.a.

Table S2. CTD hydrocast observations. Concentrations are given in nmol/L. Note that data for CTD06 are not available due to a communication problem between the surface and the firing bottle system.