

**[Appendix]**

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Appendix Table 1 Sampling Results  
of the Regional Geochemical Survey

Sample No.	Date	Time	Latitude	Longitude	Depth	Sampler	Core length	Remarks
93SRGC01	08/25	23:28:25	9°30.013' S	155°59.765' E	3002.0m	GC	356cm	Recovery Rock 70g, Bit damage
93SRGC02	08/26	03:41:20	9°14.911' S	155°45.110' E	3535.0m	GC	355cm	
93SRGC03	08/28	20:48:55	9°44.985' S	156°15.045' E	3783.0m	GC	198cm	
93SRGC04	08/29	01:14:10	9°59.933' S	155°59.993' E	3612.0m	GC	203cm	
93SRGC05	08/29	20:38:20	8°44.897' S	156°15.142' E	3545.0m	GC	162cm	
93SRGC06	08/29	01:12:50	8°59.993' S	156°00.039' E	3701.0m	LC	295cm	
93SRGC07	08/30	22:54:25	8°15.170' S	156°14.939' E	3644.0m	LC	175cm	
93SRGC08	08/31	03:11:55	8°29.962' S	155°59.960' E	3450.0m	GC	207cm	
93SRGC09	09/03	00:23:50	8°29.908' S	156°30.177' E	2134.0m	GC	199cm	
93SRGC10	09/03	04:19:20	8°44.924' S	156°44.935' E	2228.0m	GC	228cm	
93SRGC11	09/04	23:00:40	9°15.179' S	156°14.973' E	4197.0m	GC	0cm	Recovery Rock 90g, Bit damage
93SRGC12	09/05	03:49:40	8°59.936' S	156°30.087' E	3155.0m	GC	205cm	
93SRGC13	09/05	23:09:35	9°43.890' S	156°45.008' E	3196.0m	GC	213cm	
93SRGC14	09/06	03:11:50	9°29.937' S	156°29.975' E	3663.0m	LC	58cm	Bit damage
93SRGC15	09/06	23:16:05	9°30.037' S	157°00.090' E	3493.0m	GC	212cm	
93SRGC16	09/07	03:24:05	9°15.032' S	156°45.045' E	3181.0m	GC	208cm	
93SRGC17	09/10	01:11:25	9°00.259' S	156°59.952' E	4094.0m	GC	0cm	Sample run off
93SRGC18	09/10	05:36:55	9°01.810' S	156°59.700' E	4172.0m	GC	30cm	Recovery Rock 90g
93SRGC19	09/11	02:23:45	8°29.919' S	157°00.041' E	2253.0m	GC	54cm	
93SRGC20	09/11	20:34:50	9°00.124' S	157°30.061' E	3651.0m	LC	204cm	
93SRGC21	09/12	02:52:50	8°45.041' S	157°15.106' E	2529.0m	GC	0cm	Sample run off
93SRGC22	09/12	04:44:40	8°44.630' S	157°15.356' E	2299.0m	GC	0cm	Bit damage, Rock?
93SRGC23	09/12	22:54:55	9°14.979' S	157°15.076' E	4475.0m	GC	216cm	
93SRGC24	09/13	03:44:55	9°27.976' S	157°29.975' E	4161.0m	GC	183cm	
93SRGC25	09/14	22:58:15	9°04.757' S	157°59.981' E	1997.0m	GC	0cm	Bit damage, Rock?
93SRGC26	09/15	03:12:35	9°15.104' S	157°45.049' E	3662.0m	GC	113cm	

Note: Date and Time represent the GMT. Time is Sampler on bottom.  
Latitude and Longitude are GPS Vessel position and Depth by NBS.

Appendix Table 2 Sampling Results of the Detailed Survey

Sample No.		Date	Time	Latitude	Longitude	Depth	Recovery (kg)
93SDCB01	On Bottom	10/07	22:18:05	9° 33.462' S	155° 59.993' E	3,852m	33
	Off Bottom		22:57:15	9° 34.050' S	156° 00.391' E	3,768m	
93SDCB02	On Bottom	10/08	02:23:25	9° 26.722' S	156° 02.184' E	2,575m	0.112
	Off Bottom		02:57:10	9° 27.277' S	156° 02.509' E	2,606m	
93SDCB03	On Bottom	10/08	05:55:55	9° 27.091' S	156° 06.428' E	4,652m	-
	Off Bottom		06:41:15	9° 27.915' S	156° 06.938' E	4,632m	
93SDCB04	On Bottom	10/08	21:45:10	9° 15.330' S	156° 13.668' E	4,214m	0.097
	Off Bottom		22:30:15	9° 15.973' S	156° 14.394' E	4,172m	
93SDCB05	On Bottom	10/09	01:56:20	9° 12.318' S	156° 18.521' E	3,726m	127
	Off Bottom		02:41:20	9° 13.275' S	156° 19.366' E	3,589m	
93SDCB06	On Bottom	10/09	05:52:20	9° 15.229' S	156° 25.954' E	3,851m	0.059
	Off Bottom		06:40:05	9° 15.789' S	156° 26.807' E	3,560m	
93SDCB07	On Bottom	10/09	21:19:10	8° 59.781' S	156° 12.389' E	2,388m	127
	Off Bottom		22:08:10	9° 00.269' S	156° 12.704' E	2,478m	
93SDCB08	On Bottom	10/10	01:30:45	8° 54.932' S	156° 29.040' E	2,755m	1.2
	Off Bottom		12:17:00	8° 55.717' S	156° 29.529' E	2,004m	
93SDCB09	On Bottom	10/10	05:48:30	8° 41.456' S	156° 42.694' E	2,048m	48
	Off Bottom		06:32:50	8° 42.123' S	156° 43.145' E	1,914m	
93SDPG01	On Bottom	10/10	22:30:25	8° 50.419' S	157° 09.426' E	618m	900
93SDPG02	On Bottom	10/11	01:45:05	8° 45.449' S	157° 03.066' E	764m	500
93SDPG03	On Bottom	10/11	04:39:50	8° 44.880' S	157° 01.557' E	879m	600
93SDPG04	On Bottom	10/11	07:16:25	8° 44.221' S	157° 00.589' E	707m	1,100
93SDCB10	On Bottom	10/11	21:25:55	8° 42.831' S	157° 00.547' E	1,466m	200
	Off Bottom		22:05:30	8° 43.205' S	157° 00.742' E	1,099m	
93SDCB11	On Bottom	10/11	23:23:35	8° 44.185' S	157° 00.434' E	770m	154
	Off Bottom		23:55:50	8° 44.664' S	157° 00.687' E	635m	
93SDCB12	On Bottom	10/12	02:04:05	8° 47.934' S	157° 05.948' E	2,691m	0.16
	Off Bottom		02:49:45	8° 48.472' S	157° 06.244' E	2,632m	

Note: Date and Time the represent GMT.

Latitude and Longitude are GPS vessel position and Depth by NBS.



Appendix Table 3 List of Sampling Sediments (2)

Sample No.	S. Lat. (°)	E. Lon. (°)	Dp. (m)	Sediment		Sub-sediment	Munsell No. & Colour	Size	Munsell No. & Colour	Under microscopic observation	Analysis	Description
				TOP	BTM							
93RC08-01	8 29.962	155 59.960	3450	0 15	3	5Y5/1 grey	clay	10YR6/4 light yellowish brown clay	△	X	keeping much water	
93RC08-02	26 33			26 33	33	10YR6/4 light yellowish brown clay	clay		△	X		
93RC08-03	66 76			66 76	71	10YR6/2 greyish brown clay	clay		△	X		
93RC08-04	93 100			93 100	97	5Y5/2 olive grey clay	clay		△	X		
93RC08-05	125 137			125 137	131	5Y6/2 light olive grey clay	clay		△	X		
93RC08-06	186 200			186 200	193	5Y6/2 light olive grey clay	clay		△	X	bearing compact green clay	
93RC09-01	8 29.908	156 30.177	2134	0 9	5	10YR5/3 brown clay	clay		△	X		
93RC09-02	27 37			27 37	32	10YR5/3 brown clay	clay		△	X		
93RC09-03	53 58			53 58	56	5Y5/2 olive grey clay	clay		△	X		
93RC09-04	74 81			74 81	78	10YR6/3 pale brown sand	sand		△	X		
93RC09-05	189 199			189 199	194	5Y5/1 grey clay	clay		△	X	ooze Dm: large size (silt)	
93RC10-01	8 44.924	156 44.935	2223	0 15	3	10YR6/3 pale brown clay	clay		△	X	ooze	
93RC10-02	37 45			37 45	41	10YR6/3 pale brown clay	clay		△	X	ooze	
93RC10-03	90 100			90 100	95	2.5YR6/4 light yellowish brown clay	clay		△	X	ooze	
93RC10-04	135 145			135 145	149	2.5YR5/4 light olive brown clay	clay		△	X	ooze	
93RC10-05	177 186			177 186	183	5Y5/3 pale olive clay	clay		△	X	ooze	
93RC10-06	203 213			203 213	208	5Y6/2 light olive grey clay	clay		△	X	ooze	
93RC12-01	8 56.936	156 30.087	3155	0 5	3	10YR6/4 light yellowish brown clay	clay		△	X	insoluble to some degree	
93RC12-02	50 60			50 60	55	10YR6/3 pale brown clay	clay		△	X		
93RC12-03	77 80			77 80	79	10YR7/2 light grey clay	clay		△	X		
93RC12-04	111 121			111 121	115	5Y5/1 light grey clay	clay		△	X	insoluble to some degree Dm: large (silt size)	
93RC12-05	173 183			173 183	178	5Y6/1 light grey clay	clay		△	X		
93RC13-01	9 43.890	156 45.008	3196	0 5	3	10YR5/4 yellowish brown clay	clay		△	X		
93RC13-02	18 23			18 23	21	10YR4/3 dark brown clay	clay		△	X		
93RC13-03	30 35			30 35	33	2.5YR6/2 brownish grey clay	clay		△	X		
93RC13-04	60 66			60 66	63	10YR6/3 pale brown clay	clay		△	X		
93RC13-05	90 96			90 96	95	10YR6/4 light yellowish brown clay	clay		△	X		
93RC13-06	127 134			127 134	131	2.5YR6/2 light brownish grey clay	clay		△	X		
93RC13-07	165 173			165 173	169	10YR4/2 dark greyish brown clay	clay		△	X		
93RC13-08	190 199			190 199	195	5Y6/2 light olive grey clay	clay		△	X		
93RC14-01	9 26.937	156 26.975	3663	0 20	10	10YR5/3 brown clay	clay		△	X		
93RC14-02	20 40			20 40	36	10YR6/3 pale brown clay	clay		△	X		
93RC14-03	40 58			40 58	49	10YR6/3 pale brown clay	clay		△	X		
93RC15-01	9 30.087	157 0.090	3493	0 13	7	10YR6/4 light yellowish brown clay	clay		△	X		
93RC15-02	21 28			21 28	25	10YR6/4 light yellowish brown clay	clay		△	X		
93RC15-03	57 65			57 65	61	10YR5/2 greyish brown clay	clay		△	X		
93RC15-04	82 90			82 90	86	5Y6/2 light olive grey clay	clay		△	X		
93RC15-05	120 129			120 129	125	5Y6/1 light grey clay	clay		△	X		
93RC15-06	172 180			172 180	176	5Y6/1 light grey clay	clay		△	X		
93RC16-01	9 15.082	156 45.045	3181	0 10	5	10YR6/3 pale brown clay	clay		△	X		
93RC16-02	20 30			20 30	25	10YR6/3 pale brown clay	clay		△	X		
93RC16-03	51 58			51 58	55	10YR5/3 brown clay	clay		△	X		
93RC16-04	81 80			81 80	86	5Y5/2 olive grey clay	clay		△	X		
93RC16-05	154 167			154 167	161	5Y5/2 olive grey clay	clay		△	X		
93RC18-01	9 1.810	156 39.700	4172	0 6	3	10YR4/2 dark greyish brown clay	clay		△	X		
93RC18-02	6 15			6 15	11	black clay	sand		△	X		
93RC18-03	17 21			17 21	19	10YR5/3 brown clay	clay		△	X		
93RC18-04	21 25			21 25	23	black sand	sand		△	X		
93RC19-01	8 29.919	157 0.041	2253	0 6	3	2.5YR4/2 dark yellowish brown clay	clay		△	X		
93RC19-02	13 23			13 23	18	2.5YR4/2 dark yellowish brown clay	clay		△	X		
93RC19-03	39 46			39 46	43	5Y4/1 dark grey clay	clay		△	X		
93RC19-04	50 54			50 54	52	5Y6/1 light grey clay	clay		△	X		
93RC20-01	9 0.124	157 30.061	3651	0 8	4	2.5YR5/3 light olive brown clay	clay		△	X		
93RC20-02	8 28			8 28	18	2.5YR5/3 light olive brown clay	clay		△	X		
93RC20-03	28 48			28 48	38	2.5YR5/3 light olive brown clay	clay		△	X		
93RC20-04	48 68			48 68	58	2.5YR5/3 light olive brown clay	clay		△	X		
93RC20-05	68 88			68 88	78	5Y4/1 dark grey clay	clay		△	X		
93RC20-06	88 108			88 108	88	5Y4/1 dark grey clay	clay		△	X		
93RC20-07	108 128			108 128	118	5Y4/1 dark grey clay	clay		△	X		
93RC20-08	128 148			128 148	138	5Y4/1 dark grey clay	clay		△	X		
93RC20-09	148 168			148 168	158	5Y3/1 very dark grey clay	clay		△	X		
93RC20-10	168 188			168 188	178	5Y3/1 very dark grey clay	clay		△	X		







Appendix Table 4 Results of Chemical Analysis for Sampling Sediments (2)

Sample No.	93SRGC03	93SRGC04	93SRGC04	93SRGC04	93SRGC04	93SRGC04	93SRGC04	93SRGC04	93SRGC04	93SRGC05	93SRGC05	93SRGC05	93SRGC05	93SRGC05	93SRGC06	93SRGC06	93SRGC06	93SRGC06	93SRGC06		
	-06	-01	-02	-03	-04	-05	-06	-07	-01	-02	-03	-04	-05	-06	-07	-01	-02	-03	-04	-05	-06
SiO <sub>2</sub> (%)	32.00	23.67	18.60	24.90	25.18	22.53	34.87	25.90	34.10	30.30	36.20	39.62	39.96	53.67	33.71	24.20	19.78	31.38	23.79	28.98	33.29
TiO <sub>2</sub> (%)	0.50	0.42	0.37	0.46	0.41	0.38	0.58	0.42	0.43	0.42	0.48	0.40	0.44	0.33	0.40	0.35	0.28	0.39	0.31	0.36	0.36
Al <sub>2</sub> O <sub>3</sub> (%)	10.65	8.19	7.59	9.61	8.00	7.28	11.21	8.36	10.62	9.96	11.55	10.84	11.70	12.56	10.13	7.71	6.32	9.85	7.32	9.13	9.88
Fe <sub>2</sub> O <sub>3</sub> (%)	4.56	4.43	4.40	5.84	4.00	3.23	4.89	3.90	4.20	4.06	5.08	5.06	3.80	2.68	3.31	3.52	2.79	3.39	3.14	3.36	3.26
PbO (%)	1.12	0.35	0.43	0.13	0.55	0.90	1.33	0.65	0.82	0.82	0.28	0.96	1.22	0.45	0.81	0.61	0.41	0.81	0.36	0.70	0.90
MnO (%)	0.11	0.47	0.21	1.40	0.23	0.18	0.14	0.16	0.18	0.17	0.92	0.13	0.10	0.09	0.09	0.16	0.15	0.17	0.18	0.16	0.17
MgO (%)	2.63	2.42	2.19	2.59	2.20	2.06	3.04	2.31	2.68	2.82	2.68	1.63	2.56	1.44	2.26	2.22	1.64	2.05	1.79	1.96	2.12
CaO (%)	21.89	27.09	31.03	24.42	28.57	30.48	18.37	27.79	20.35	23.76	18.51	16.34	16.38	10.92	21.70	28.00	34.36	24.94	31.21	27.36	24.27
BaO (%)	0.06	0.05	0.04	0.07	0.06	0.05	0.07	0.05	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.03	0.03	0.04	0.03	0.03	0.04
Ni <sub>2</sub> O (%)	3.08	3.48	3.10	3.21	2.77	2.63	3.29	2.64	3.43	2.99	3.18	3.39	3.63	4.01	3.38	3.40	2.55	3.03	2.66	2.96	3.12
K <sub>2</sub> O (%)	2.00	0.80	0.65	0.85	0.80	0.75	1.13	0.98	1.13	1.03	1.26	1.50	1.47	2.20	1.16	0.79	0.66	1.01	0.78	0.84	1.01
P <sub>2</sub> O <sub>5</sub> (%)	0.24	0.20	0.14	0.16	0.17	0.09	0.17	0.14	0.18	0.17	0.19	0.33	0.19	0.20	0.18	0.17	0.12	0.19	0.12	0.13	0.15
LOI (%)	22.63	28.96	31.87	26.61	28.74	30.45	22.11	27.98	22.51	24.35	20.05	19.58	19.08	12.13	22.89	29.73	31.59	23.29	28.24	24.54	21.73
Total (%)	100.96	100.53	100.62	100.24	101.68	101.01	101.24	101.18	100.67	100.69	100.43	100.53	100.58	100.74	100.23	100.89	100.68	100.34	100.16	100.52	100.30
CO <sub>2</sub> (%)	14.5	18.9	22.1	16.6	19.3	21.6	11.8	19.6	12.5	15.4	11.4	10.5	10.4	6.0	14.1	19.3	25.3	16.6	23.2	19.0	15.5
SO <sub>4</sub> (%)	0.219	0.342	0.336	0.264	0.268	0.249	0.232	0.189	0.282	0.231	0.189	0.186	0.216	<0.010	0.252	0.327	0.204	0.132	0.150	0.036	0.096
S (%)	0.070	0.090	0.068	0.079	0.068	0.076	0.077	0.077	0.091	0.078	0.071	0.069	0.072	0.052	0.083	0.083	0.062	0.052	0.057	0.067	0.059
Cl (ppm)	>10000	>10000	>10000	>10000	>10000	>10000	>10000	>10000	>10000	>10000	>10000	>10000	>10000	>10000	>10000	>10000	>10000	>10000	>10000	>10000	>10000
Ag (ppm)	<0.02	0.02	<0.02	<0.02	<0.02	0.02	0.04	<0.02	<0.02	<0.02	<0.02	0.02	0.04	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Cu (ppm)	98.8	79.8	83.6	89.2	70.4	44.8	67.6	48.2	81.2	83.0	76.2	32.0	64.4	35.8	59.0	75.6	50.0	53.2	50.6	48.4	54.8
Pb (ppm)	14.5	15.5	11.0	11.5	10.5	10.5	14.0	9.5	7.5	12.0	8.5	5.5	10.5	7.5	7.5	9.0	6.5	7.5	6.0	6.5	7.0
Zn (ppm)	75	74	58	84	60	59	93	69	58	65	66	29	2	34	53	48	38	48	47	45	42
As (ppm)	4.4	5.6	6.4	6.2	5.2	5.4	4.8	4.4	6.2	5.6	6.2	10.4	2.2	2.2	2.2	6.0	3.4	3.0	2.4	2.4	2.0
Hg (ppb)	70	120	90	60	130	80	100	50	110	70	120	90	120	80	100	90	50	50	40	40	40
Sb (ppm)	<0.2	0.2	<0.2	1.0	<0.2	<0.2	0.2	<0.2	<0.2	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cd (ppm)	0.1	0.1	0.1	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.1	0.1	0.1	0.1	0.1
Co (ppm)	16	19	16	26	21	16	23	14	14	14	19	11	14	4	15	15	12	15	12	14	14
Cr (ppm)	43	64	59	63	38	46	72	60	56	60	65	61	70	62	51	58	35	28	36	50	38
Ni (ppm)	40	49	35	82	43	43	63	41	32	32	50	25	38	18	31	29	27	30	39	25	22
V (ppm)	126	119	105	141	118	111	174	114	125	123	133	106	129	68	122	109	87	115	92	108	112
Rb (ppm)	20	15	15	20	15	15	25	20	20	20	20	30	25	45	15	10	10	15	10	15	15
Sr (ppm)	804	928	1020	877	1005	990	664	936	779	865	731	700	698	600	834	927	979	875	959	904	851
Mn (ppm)	810	3590	1580	>10000	1820	1320	1035	1210	1270	1225	6710	950	780	630	715	1240	1120	1255	1375	1220	1265
P (ppm)	780	800	810	840	810	740	840	790	880	890	910	1300	800	780	820	820	650	800	640	710	740
Ba (ppm)	530	510	365	630	570	485	665	520	393	390	505	510	525	500	470	305	275	410	370	355	360
Li (ppm)	18	15	12	25	13	14	23	17	14	14	15	14	18	16	11	11	8	11	9	9	9
B (ppm)	50	40	40	35	40	40	40	35	35	35	45	50	40	45	45	40	30	30	35	45	50
U (ppm)	0.6	0.6	0.6	0.6	0.2	0.4	0.8	0.4	0.6	0.2	0.6	2.6	1.0	1.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Tl (ppm)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.0	<0.5	<0.5	<0.5



Appendix Table 4 Results of Chemical Analysis for Sampling Sediments (4)

Sample No.	93SRCC8 -04	93SRCC8 -05	93SRCC8 -06	93SRCC8 -01	93SRCC8 -02	93SRCC8 -03	93SRCC8 -04	93SRCC8 -05	93SRCC9 -01	93SRCC9 -02	93SRCC9 -03	93SRCC9 -04	93SRCC9 -05	93SRCC9 -06	93SRCC10 -01	93SRCC10 -02	93SRCC10 -03	93SRCC10 -04	93SRCC10 -05	93SRCC10 -06	93SRCC12 -01	93SRCC12 -02	93SRCC12 -03	93SRCC12 -04	93SRCC12 -05	93SRCC13 -01	93SRCC12 -02	
SiO <sub>2</sub> (%)	41.24	32.96	31.25	37.80	38.56	38.42	33.38	44.66	23.86	17.83	20.73	18.21	27.73	30.83	29.17	31.50	29.96	29.96	33.05	29.96	29.17	31.50	33.05	29.96	38.21	25.83	27.03	
TiO <sub>2</sub> (%)	0.39	0.39	0.35	0.40	0.42	0.43	0.31	0.42	0.33	0.23	0.27	0.22	0.35	0.33	0.38	0.42	0.34	0.34	0.37	0.33	0.38	0.42	0.37	0.34	0.40	0.46	0.42	
Al <sub>2</sub> O <sub>3</sub> (%)	10.97	9.79	9.03	11.01	11.53	11.30	9.15	13.00	7.80	5.81	6.74	5.88	9.30	9.19	9.08	9.99	8.73	8.73	9.39	9.19	9.08	9.99	9.39	8.73	10.91	8.71	8.69	
FeO (%)	1.11	0.85	0.92	1.25	1.21	1.54	1.40	2.11	1.16	0.72	0.97	0.71	1.51	1.41	1.06	0.76	1.28	1.55	0.45	1.06	1.06	0.76	0.45	1.28	2.76	4.11	4.03	
MnO (%)	0.09	0.11	0.12	0.14	0.12	0.09	0.06	0.08	0.11	0.10	0.09	0.11	0.12	0.10	0.14	0.38	0.14	0.07	0.09	0.10	0.14	0.38	0.10	0.07	1.55	0.93	0.72	
MgO (%)	2.01	2.08	1.90	3.12	2.95	3.36	2.66	3.21	2.27	1.58	1.97	1.67	2.21	2.42	2.61	2.48	2.39	2.10	2.36	2.39	2.48	2.39	2.10	2.36	2.36	2.56	2.42	
CaO (%)	15.37	21.08	23.14	19.23	18.38	18.62	24.49	15.78	29.88	35.71	32.25	35.60	28.05	25.82	23.22	21.86	24.92	24.92	20.51	20.51	23.22	21.86	20.51	24.92	19.35	26.87	26.31	
BaO (%)	0.06	0.06	0.05	0.03	0.03	0.03	0.02	0.03	0.03	0.02	0.03	0.02	0.03	0.03	0.04	0.04	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	
Na <sub>2</sub> O (%)	4.07	3.40	3.22	2.96	2.96	2.92	2.82	2.96	2.82	2.36	2.40	2.47	2.80	2.75	3.91	2.92	2.90	2.90	2.97	2.97	3.91	2.92	2.97	2.90	3.14	2.74	2.89	
K <sub>2</sub> O (%)	1.65	1.26	1.18	1.10	1.33	1.22	0.91	1.12	0.74	0.49	0.60	0.49	0.70	0.93	1.01	1.14	1.10	1.10	1.14	1.14	1.01	1.14	1.14	1.10	1.29	0.77	0.83	
P <sub>2</sub> O <sub>5</sub> (%)	0.20	0.17	0.15	0.19	0.19	0.22	0.15	0.26	0.20	0.17	0.21	0.17	0.23	0.22	0.27	0.19	0.19	0.17	0.37	0.37	0.27	0.19	0.37	0.19	0.18	0.19	0.21	
LOI (%)	19.47	23.45	24.97	18.25	17.73	17.20	21.36	12.79	27.11	31.60	29.61	31.40	23.46	21.81	26.05	22.56	24.41	24.41	21.52	21.52	26.05	22.56	21.52	24.41	18.79	23.29	25.67	
Total (%)	99.81	98.01	98.24	98.91	98.92	99.04	99.01	99.22	98.91	98.70	98.26	99.11	99.30	98.87	100.22	98.01	98.89	98.89	98.00	98.00	100.22	98.01	98.00	98.89	99.07	99.69	99.86	
CO <sub>2</sub> (%)	10.4	14.9	16.2	11.1	11.5	11.3	15.8	8.3	21.4	26.9	23.8	26.9	19.0	17.5	16.7	15.3	18.7	18.7	14.1	14.1	16.7	15.3	14.1	18.7	12.6	18.7	17.9	
SO <sub>4</sub> (%)	0.342	0.330	0.383	0.228	0.213	0.132	0.075	0.030	0.210	0.048	0.057	0.141	0.021	0.021	0.276	0.081	0.267	0.267	0.009	0.009	0.276	0.081	0.009	0.267	0.201	0.276	0.318	
S (%)	0.063	0.102	0.100	0.066	0.066	0.062	0.077	0.081	0.086	0.064	0.068	0.053	0.049	0.049	0.089	0.071	0.089	0.089	0.062	0.062	0.089	0.071	0.062	0.089	0.075	0.073	0.081	
Cl (ppm)	>10000	>10000	>10000	>10000	>10000	9500	>10000	8500	>10000	>10000	>10000	>10000	>10000	>10000	>10000	>10000	>10000	>10000	>10000	>10000	>10000	>10000	>10000	>10000	>10000	>10000	>10000	>10000
Ag (ppm)	0.1	0.04	0.12	0.02	0.02	0.08	0.12	0.1	0.02	0.02	0.04	0.02	0.04	0.02	0.02	0.02	0.02	0.02	0.04	0.02	0.02	0.02	0.04	0.02	0.02	<0.02	<0.02	
Cu (ppm)	63.0	68.8	67.4	49.6	58.6	41.0	37.8	51.8	41.2	27.2	41.6	24.0	35.0	33.4	65.6	65.6	46.0	46.0	46.0	46.0	65.6	65.6	46.0	46.0	45.4	73.4	62.0	
Pb (ppm)	5.5	7.5	6.0	3.5	3.0	2.5	3.0	3.0	4.5	3.5	3.5	3.0	3.0	1.5	5.0	4.5	4.0	4.0	4.5	4.5	5.0	4.5	4.5	4.0	4.0	8.0	5.5	
Zn (ppm)	65	61	59	43	49	45	30	35	39	28	35	27	32	34	47	51	39	39	45	45	47	51	45	45	43	60	55	
As (ppm)	2.0	4.0	4.0	3.2	3.2	2.0	0.8	2.2	2.8	2.8	3.0	2.4	2.0	2.0	4.8	4.2	1.8	1.8	15.0	15.0	4.8	4.2	15.0	1.8	1.2	4.2	3.8	
Hg (ppb)	130	130	110	70	60	60	60	60	50	70	80	60	60	40	80	70	100	90	100	100	80	70	100	90	80	50	50	
Sb (ppm)	0.6	0.2	0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Cd (ppm)	0.2	<0.1	0.3	<0.1	<0.1	<0.1	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	<0.2	<0.2	<0.2	
Co (ppm)	11	14	13	15	14	15	11	14	13	12	7	6	13	13	15	18	12	12	13	13	15	18	13	12	12	17	19	
Cr (ppm)	31	95	41	67	64	65	62	67	42	30	35	63	34	46	40	42	40	34	40	40	40	42	40	34	27	50	61	
Ni (ppm)	35	37	40	33	34	34	26	25	28	16	21	18	17	20	29	39	26	26	27	27	26	39	27	26	26	40	47	
V (ppm)	107	115	120	146	139	157	131	163	115	87	89	69	134	133	122	131	117	117	112	112	122	131	112	117	116	123	130	
Rb (ppm)	20	10	10	10	20	15	10	15	5	5	5	5	10	5	10	15	15	15	20	20	10	15	20	15	20	10	15	
Sr (ppm)	701	863	973	829	865	901	819	828	1015	1015	1010	1085	882	907	829	793	873	873	797	797	829	793	797	873	695	879	913	
Mn (ppm)	665	790	895	995	865	625	470	510	790	705	630	790	860	745	1045	2860	505	505	720	720	1045	2860	720	505	595	1345	3920	
P (ppm)	690	720	770	820	820	780	520	680	650	590	590	470	790	850	880	4400	800	800	1400	1400	880	4400	800	800	430	760	780	
Ba (ppm)	605	580	530	335	370	300	270	310	265	235	320	260	285	365	345	430	450	450	400	400	345	430	400	450	430	385	545	
Li (ppm)	17	18	17	11	12	11	9	11	8	6	8	6	7	8	11	13	12	12	12	12	11	13	12	12	12	15	14	
B (ppm)	45	45	40	30	30	30	20	30	25	20	20	20	20	20	30	30	20	20	45	45	30	30	45	30	35	25	40	
U (ppm)	3.6	0.6	2.2	0.8	0.4	0.5	0.8	2.2	0.4	0.2	0.2	0.2	<0.2	<0.2	0.6	0.2	0.2	0.2	2.6	2.6	0.6	0.2	2.6	1.4	0.6	0.4	0.2	
Tl (ppm)	<0.5	<0.5	0.5	1.0	0.5	1.0	<0.5	1.0	0.5	<0.5	0.5	<0.5	<0.5	<0.5	1.0	<0.5	<0.5	<0.5	0.5	0.5	1.0	<0.5	0.5	<0.5	1.0	0.5	<0.5	





Appendix Table 4 Results of Chemical Analysis for Sampling Sediments (7)

Sample No.	93SRGC23 -05	93SRGC23 -06	93SRGC24 -01	93SRGC24 -02	93SRGC24 -03	93SRGC24 -04	93SRGC24 -05	93SRGC24 -06	93SRGC25 -01	93SRGC26 -02	93SRGC26 -03	93SRGC26 -04	93SRGC24 -05
SiO <sub>2</sub> (%)	43.26	45.91	36.60	36.98	38.15	38.81	36.85	45.58	40.72	48.57	48.25	46.61	44.00
TiO <sub>2</sub> (%)	0.61	0.65	0.64	0.58	0.61	0.66	0.56	0.79	0.63	0.64	0.65	0.64	0.67
Al <sub>2</sub> O <sub>3</sub> (%)	13.33	13.87	12.29	12.14	12.03	12.96	12.09	15.03	13.62	15.76	15.46	14.99	14.27
Fe <sub>2</sub> O <sub>3</sub> (%)	4.32	5.54	5.47	4.95	4.58	4.62	4.41	6.07	5.35	4.17	4.90	5.26	5.79
FeO (%)	2.33	2.47	1.41	1.42	1.84	2.37	1.80	2.75	1.94	4.13	3.61	2.32	2.12
MnO (%)	0.17	0.17	0.53	0.20	0.21	0.13	0.16	0.14	0.48	0.27	0.45	0.15	0.19
MgO (%)	3.59	5.86	3.73	3.56	3.43	3.89	3.32	4.74	4.23	5.76	5.76	5.12	4.35
BaO (%)	11.50	8.20	16.03	16.17	14.92	14.03	17.85	6.85	14.78	10.65	11.04	10.35	11.87
Na <sub>2</sub> O (%)	3.93	4.08	3.46	3.23	3.33	3.20	3.34	3.58	3.31	3.12	3.03	3.71	3.80
K <sub>2</sub> O (%)	1.36	1.66	0.98	1.01	1.15	1.08	1.01	1.21	1.06	1.13	1.08	2.00	2.00
P <sub>2</sub> O <sub>5</sub> (%)	0.15	0.28	0.09	0.09	0.09	0.10	0.16	0.19	0.24	0.22	0.23	0.30	0.36
LOI (%)	14.93	10.40	18.19	17.81	17.65	16.40	17.55	10.40	12.72	3.13	3.54	8.73	11.01
Total (%)	99.54	99.11	99.46	98.18	98.05	98.00	99.15	97.39	99.11	97.56	98.03	100.21	100.46
CO <sub>2</sub> (%)	5.2	3.2	9.1	9.2	8.8	7.3	10.3	1.8	6.8	1.0	1.7	2.3	5.7
SO <sub>4</sub> (%)	0.321	0.213	0.306	0.195	0.201	0.132	0.114	0.108	0.063	0.024	0.015	0.063	0.054
S (%)	0.090	0.075	0.078	0.073	0.071	0.064	0.071	0.053	0.053	0.029	0.029	0.055	0.049
Cl (ppm)	>10000	>10000	>10000	>10000	>10000	>10000	>10000	>10000	>10000	5900	5100	9100	>10000
Ag (ppm)	0.06	0.04	<0.02	<0.02	0.04	0.04	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	0.06
Cu (ppm)	93.2	130.5	89.8	95.2	82.4	73.0	61.2	111.0	85.6	44.8	73.2	84.8	66.8
Pb (ppm)	7.0	3.5	6.0	6.0	7.0	8.0	6.5	10.5	4.0	1.5	1.5	4.5	5.0
Zn (ppm)	76	71	73	67	73	87	62	109	60	38	38	63	66
As (ppm)	2.8	1.2	4.0	4.8	3.6	2.6	3.4	5.4	3.2	0.8	0.4	3.0	2.6
Hg (ppb)	110	60	60	70	150	60	80	120	70	50	50	70	60
Sb (ppm)	0.2	<0.2	0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cd (ppm)	0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Co (ppm)	22	27	28	23	21	27	21	29	23	27	30	22	18
Cr (ppm)	65	75	75	88	74	82	64	108	84	126	115	133	79
Ni (ppm)	61	106	61	50	51	67	44	81	50	51	47	63	48
V (ppm)	180	210	193	178	162	206	170	212	210	282	301	224	210
Rb (ppm)	20	25	20	20	20	20	15	20	15	10	15	20	20
Sr (ppm)	482	549	604	641	584	511	670	300	567	442	436	498	514
Mn (ppm)	1160	1155	3820	1460	1465	930	1095	1005	3390	1900	3250	1030	1165
P (ppm)	870	1460	850	850	790	810	780	810	940	840	860	1080	1230
Ba (ppm)	530	240	380	330	570	500	430	545	280	140	155	200	300
Li (ppm)	22	16	18	16	18	23	16	25	11	5	5	8	13
B (ppm)	35	40	25	35	10	35	30	40	20	5	25	30	35
U (ppm)	1.8	0.4	0.4	0.4	0.4	0.4	0.2	0.6	0.2	<0.2	<0.2	0.4	0.4
Tl (ppm)	<0.5	<0.5	0.5	<0.5	0.5	0.5	0.5	0.5	0.5	1.0	0.5	0.5	0.5

Appendix Table 5 Sea-water Sound Velocity Using MBES

Water depth (m)	Sound velocity ( $\text{ms}^{-1}$ )
10.0	1,536.5
15.0	1,536.7
20.0	1,536.8
30.0	1,536.7
50.0	1,536.9
100.0	1,532.4
150.0	1,523.9
200.0	1,510.9
300.0	1,497.9
515.0	1,488.2
710.0	1,484.6
800.0	1,484.4
900.0	1,484.2
1,000.0	1,484.2
1,500.0	1,486.4
2,000.0	1,491.4
2,500.0	1,499.0
3,000.0	1,507.3
4,000.0	1,525.2
4,424.0	1,532.9

Measured value by CTD. (SBE Product).

Date : 1993.08.25.

Position: Lat. 8° 49.231' S, Long. 155° 33.074' E

## Appendix Table 6 Weather and Sea-state Data

### Monthly Frequency Distribution of Wind Direction in 1993

W.D	C A L M	N	N N E	N E	E N E	E	E S E	S E	S S E	S	S S W	S W	W S W	W	W N W	N W	N N W	Total
Month																		
August %	1 0.60					1 0.60	32 19.05	56 33.33	68 40.47	10 5.95								168 100.00
September %		1 0.16		2 0.33		19 3.17	119 19.83	366 61.02	86 14.33	6 1.00						1 0.16		600 100.00
October %	5 1.85		1 0.37		3 1.11	3 1.11	7 2.59	214 79.27	27 10.00	8 2.96							2 0.74	270 100.00

### Monthly Frequency Distribution of Wind Velocity in 1993

(W.V:m/sec)

W.V	C A L M	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
Month																	
August %	1 0.60			1 0.60	6 3.57	22 13.09	25 14.88	26 15.48	45 26.78	32 19.05	10 5.95						168 100
September %				9 1.50	5 0.83	9 1.50	29 4.83	61 10.17	82 13.67	98 16.34	150 25.00	94 15.67	38 6.33	23 3.83	2 0.33		600 100
October %	5 1.85		3 1.11	6 2.22	3 1.11	5 1.85	19 7.04	32 11.85	64 23.72	59 21.85	39 14.44	21 7.78	11 4.07	1 0.37	1 0.37	1 0.37	270 100.00

### Monthly Frequency Distribution of Weather in 1993

Weather	Fine	Cloudy	Rain	Total	Light rain
Month					
August %	6 85.71	1 14.29		7 100	1 14.29
September %	8 32.00	15 60.00	2 8.00	25 100	9 36.00
October %	7 63.64	4 36.36		11 100	3 27.27

### Monthly Frequency Distribution of Atmospheric Pressure (daily average) in 1993

(AP:hPa)

A.P	1005.0	1006.0	1007.0	1008.0	1009.0	1010.0	1011.0	1012.0	1013.0	1014.0	1015.0	1016.0	1017.0	1018.0	Not Clear	Total
Month	?	?	?	?	?	?	?	?	?	?	?	?	?	?		
	1005.9	1006.9	1007.9	1008.9	1009.9	1010.9	1011.9	1012.9	1013.9	1014.9	1015.9	1016.9	1017.9	1018.9		
August %						7 4.17	20 11.90	38 22.62	49 29.16	40 23.81	13 7.74	1 0.60				168 100.00
September %					4 0.67	37 6.17	86 14.33	146 24.33	147 24.50	117 19.50	55 9.17	8 1.33				600 100.00
October %						9 3.33	47 17.41	67 24.81	82 30.37	45 16.67	17 6.30	3 1.11				270 100.00



Monthly Frequency Distribution of Swell Direction in 1993

S.D	N	N E	N E	E N	E	E S	S E	S S	S E	S	S S	S W	W S	W	W N	N W	N W	Not Clear	Total
Month																			
August %							20 11.90	73 43.45										75 44.65	168 100
September %				1 0.17			206 34.34	107 17.83	5 0.83									281 46.83	600 100
October %							106 39.26	45 16.67										119 44.07	270 100

Monthly Frequency Distribution of Swell Cycle in 1993

(S.C:sec)

S.C	2	3	4	5	6	7	8	9	10	11	Not Clear	Total
Month												
August %						42 25.00	28 16.67	11 6.55	12 7.14		75 44.64	168 100
September %						62 10.33	229 38.17	13 2.17	15 2.50		281 46.83	600 100
October %							151 55.93				119 44.07	270 100

Monthly Frequency Distribution of Swell Height in 1993

(S.H:m)

S.H	1	2	3	4	5	6	7	Not Clear	Total
Month									
August %		68 40.48	25 14.88					75 44.64	168 100
September %		114 19.01	152 25.33	51 8.50	2 0.33			281 46.83	600 100
October %	13 4.81	56 24.44	46 17.04	25 9.63				119 44.08	270 100

Monthly Frequency Distribution of Degree of Cloudiness in 1993

D.C	1	2	3	4	5	6	7	8	9	Not Clear	Total
Month											
August %	4 2.38	8 4.76	42 25.00	50 29.76	28 16.67	18 10.71	7 4.17	7 4.17		4 2.38	168 100
September %		15 2.50	50 8.33	62 10.33	93 15.50	88 14.67	73 12.17	219 36.50			600 100
October %	1 0.37	13 4.81	36 13.33	47 17.41	62 22.96	33 12.22	28 10.37	48 17.78		2 0.75	270 100

**[List of Annexed Figures]**

Annexed Figure 1-1 MBES Track Line Map

Annexed Figure 1-2 PGM Track Line Map

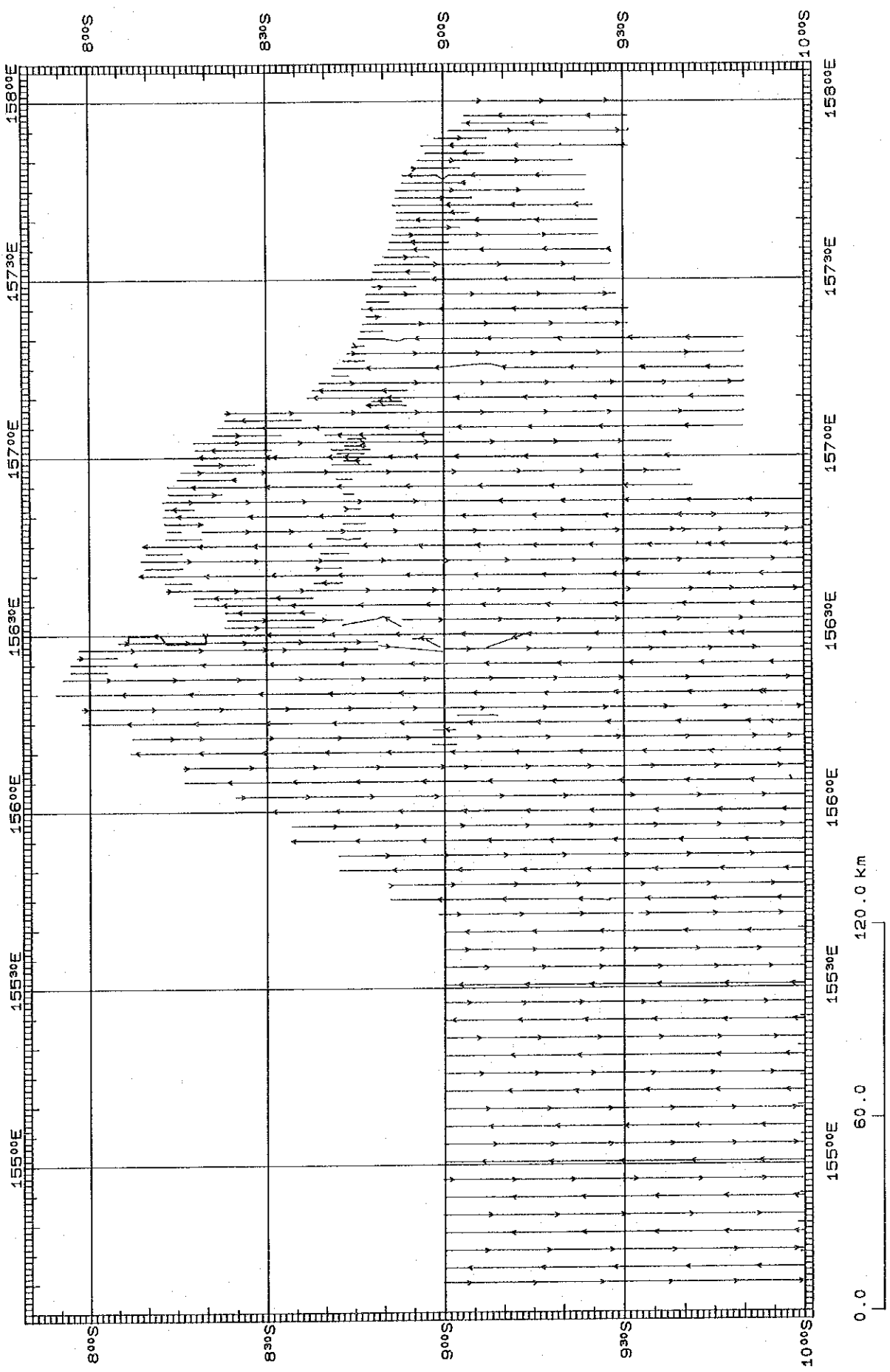
Annexed Figure 2 Bathymetric Map

Annexed Figure 3 Location Map of FDC Line (1) ~ (9)

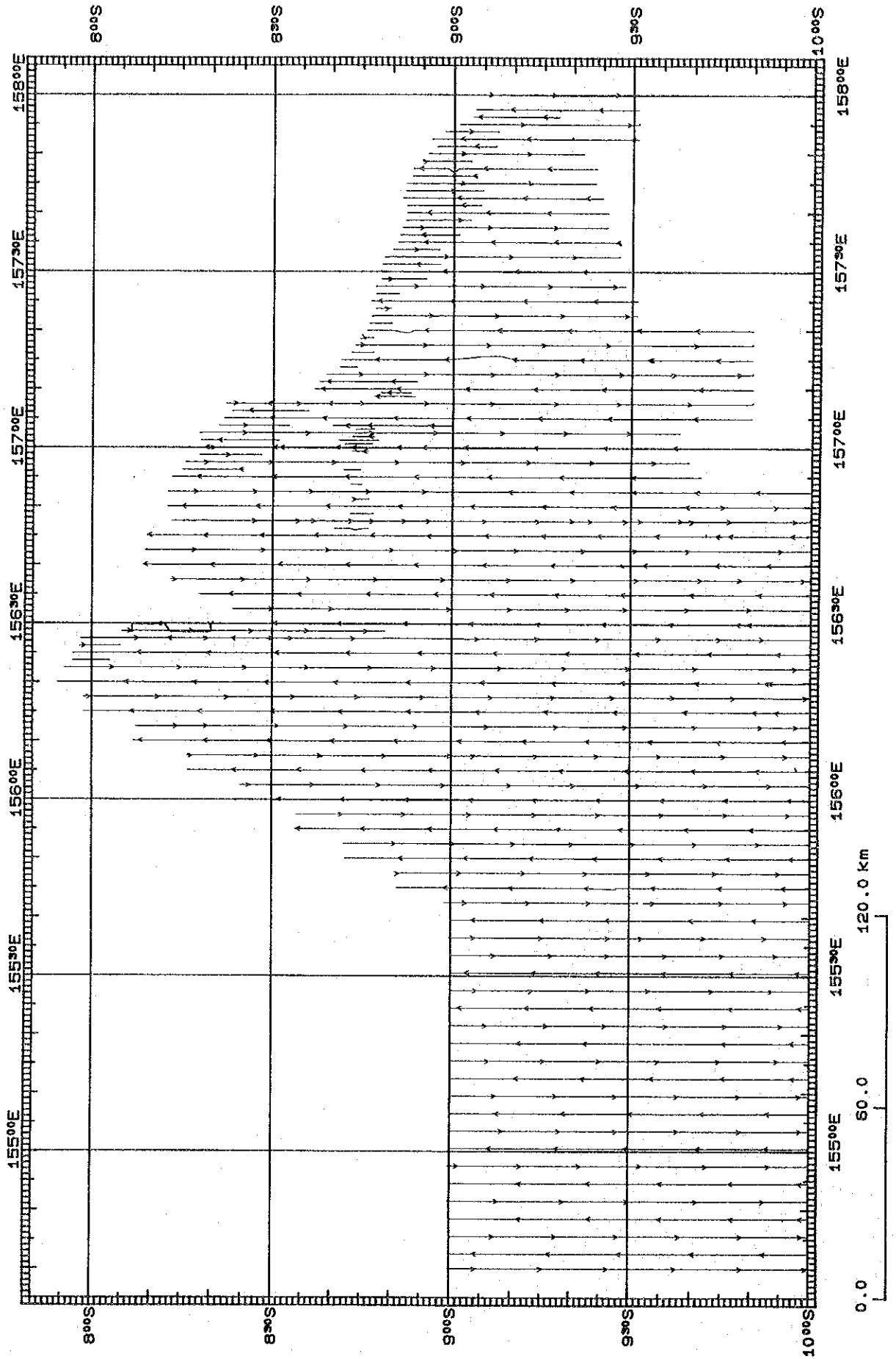
Annexed Figure 4 FDC Route Map (1) ~ (9)

Annexed Figure 5-1 Location Map of Sampling Stations (CB, FPG)

Annexed Figure 5-2 Location Map of Sampling Stations

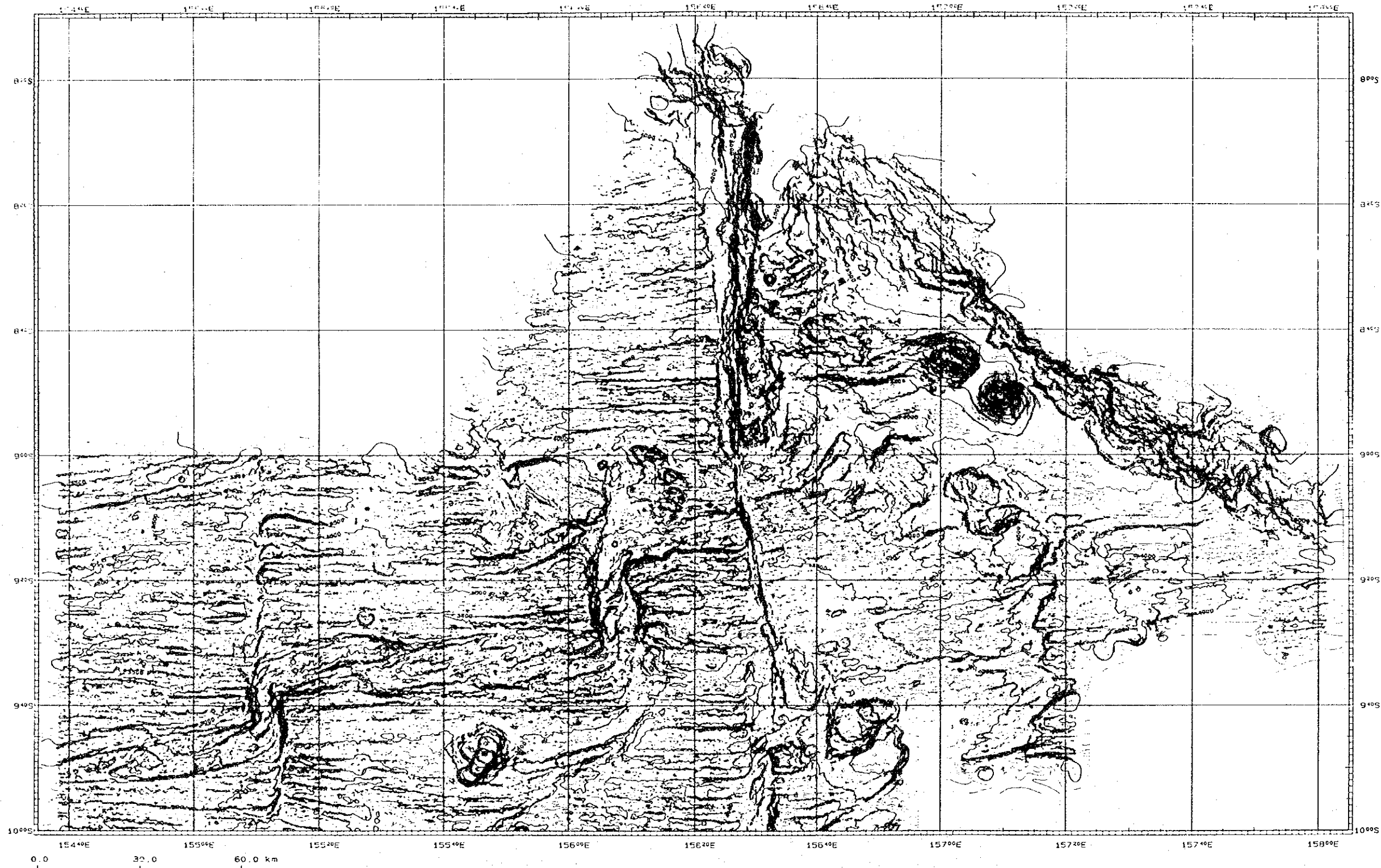


Annexed Figure 1-1 MBES Track Line Map

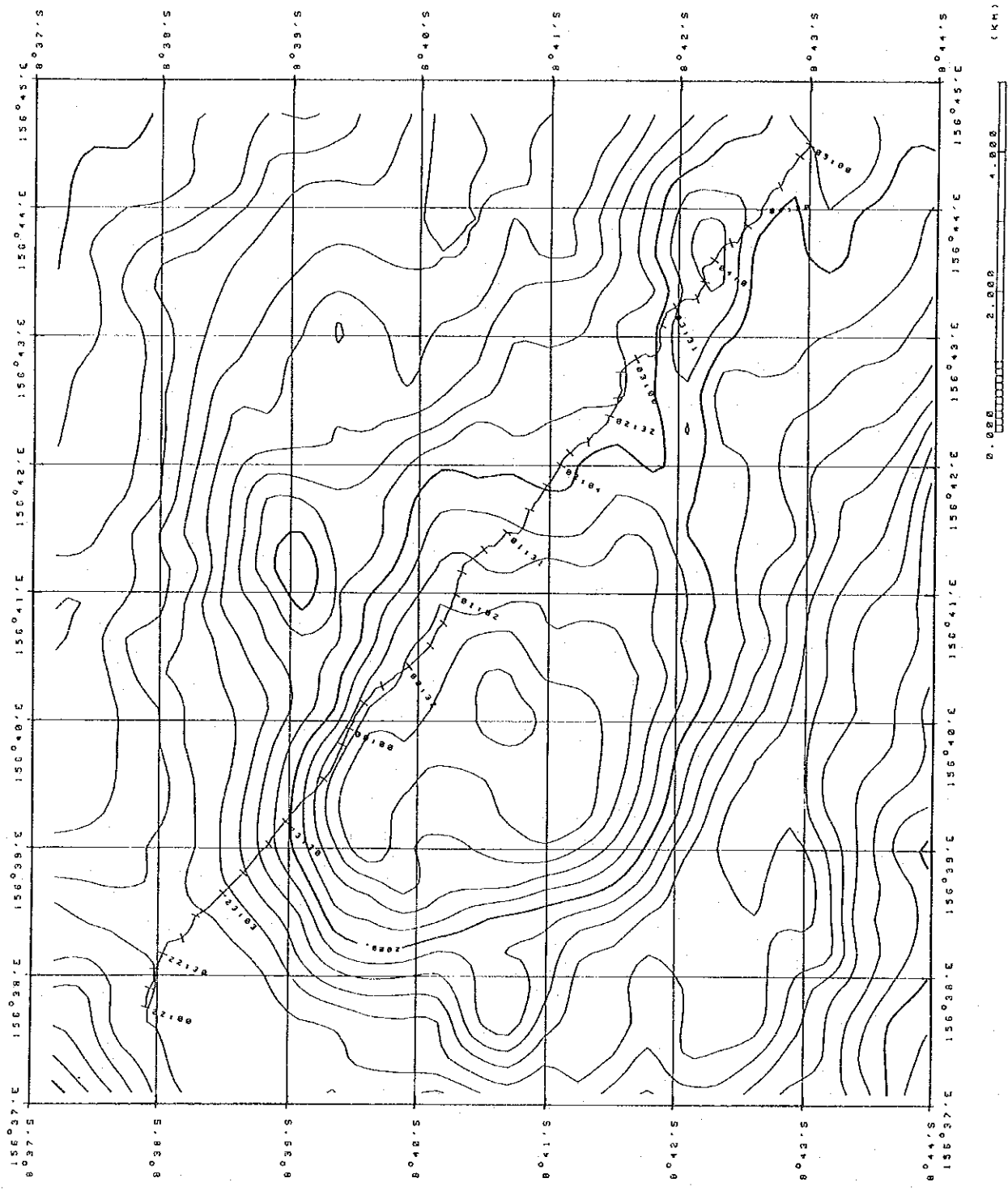


Annexed Figure 1-2 PGM Track Line Map

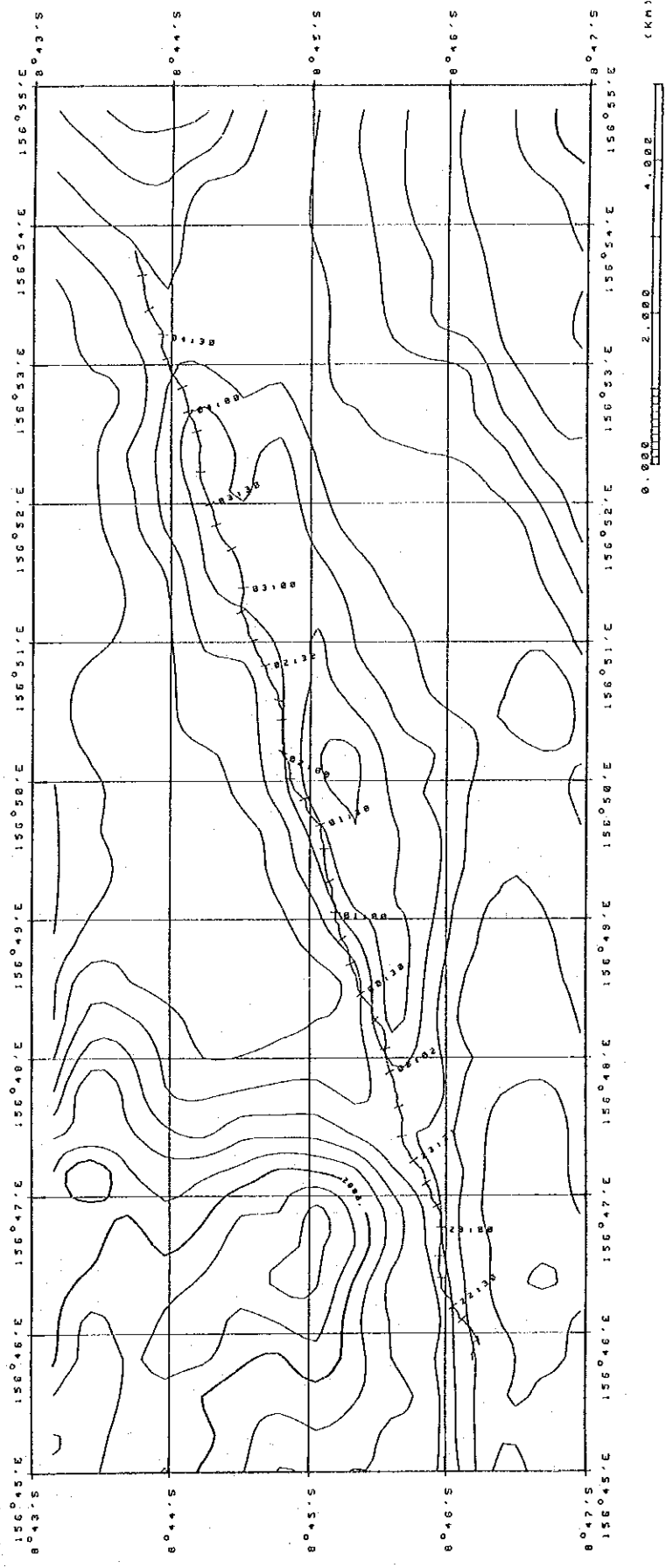




Annexed Figure 2 Bathymetric map of area 1+2 based on MBES. MBES data are gridded at an about 0.5-km spacing. Contour interval is 50m.

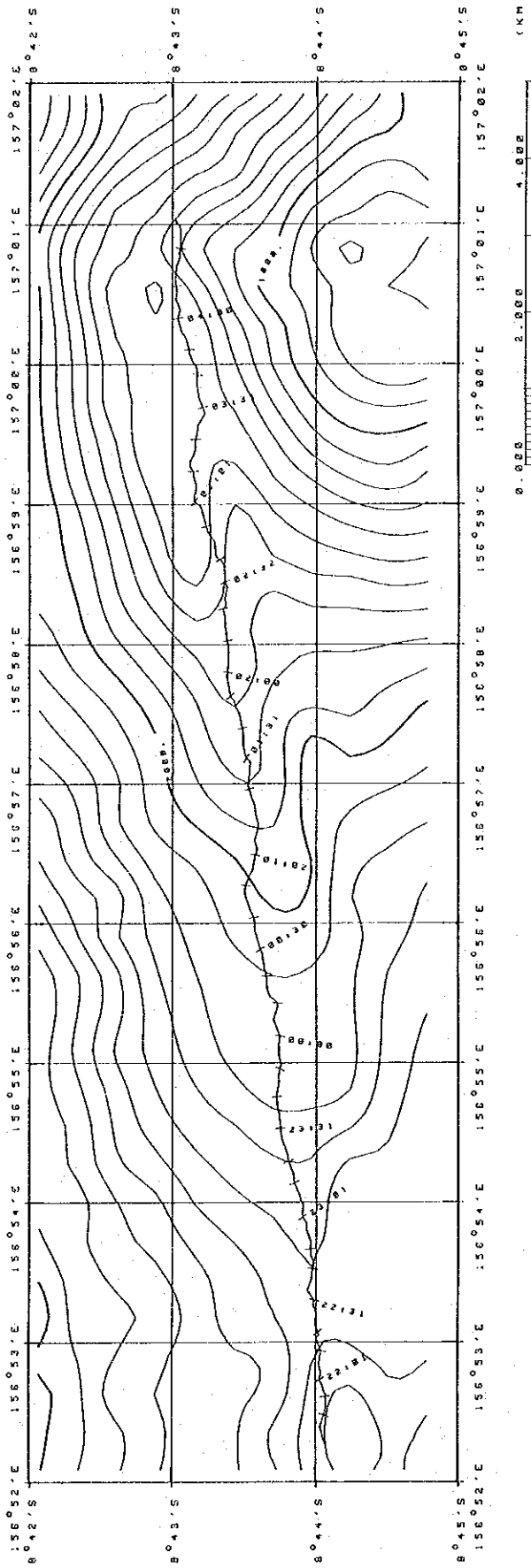


Annexed Figure 3 Location Map of FDC Line (Line 93SFDC01) (1)



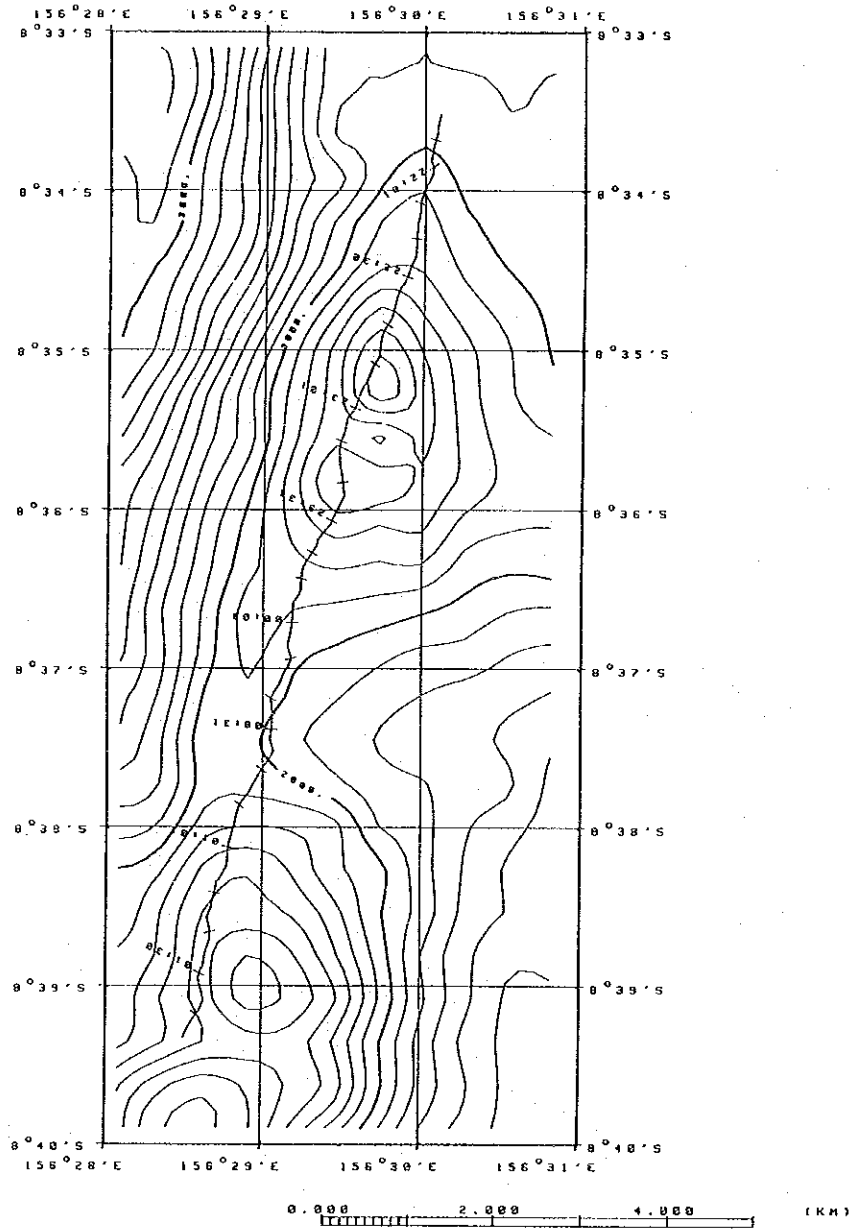
Annexed Figure 3 Location Map of FDC Line (Line 93SFDC02) (2)



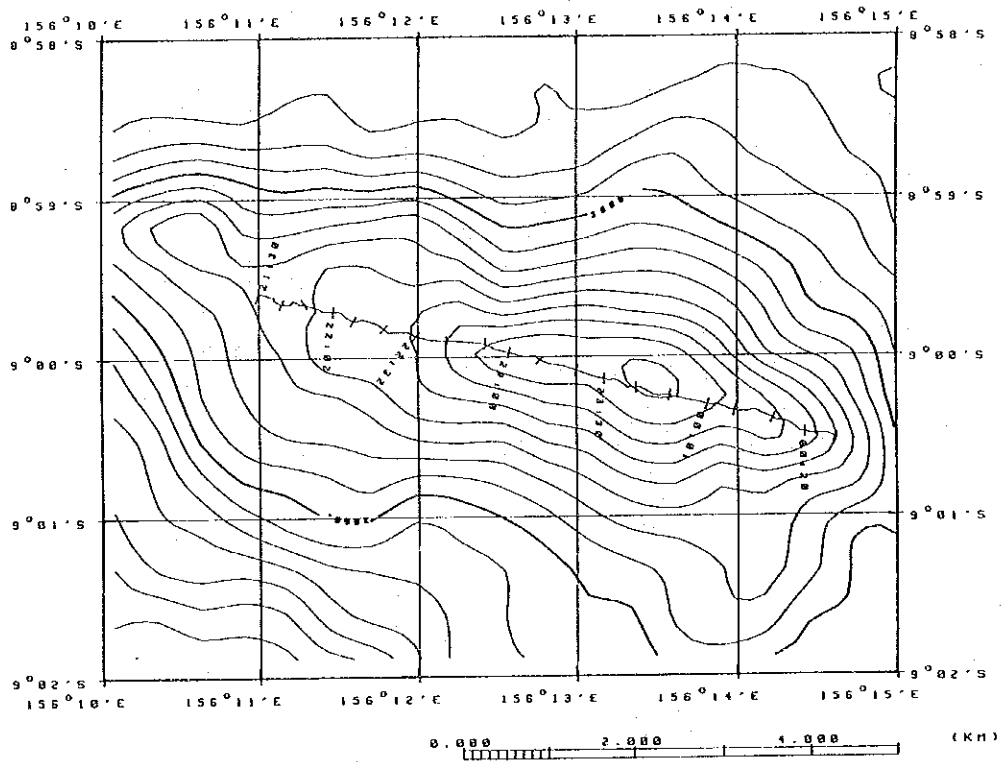


Annexed Figure 3 Location Map of FDC Line (Line 93SFDC03) (3)

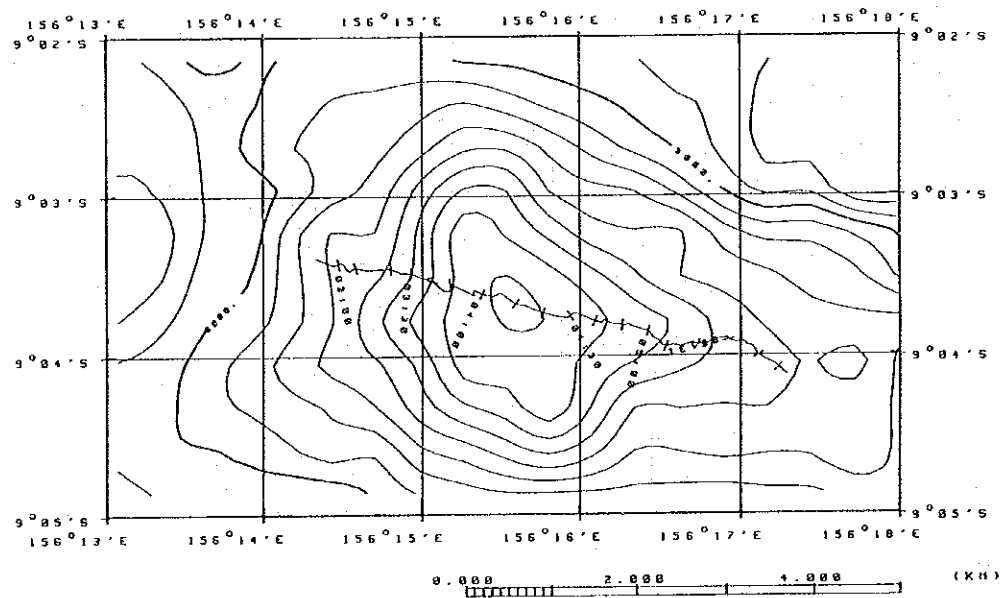




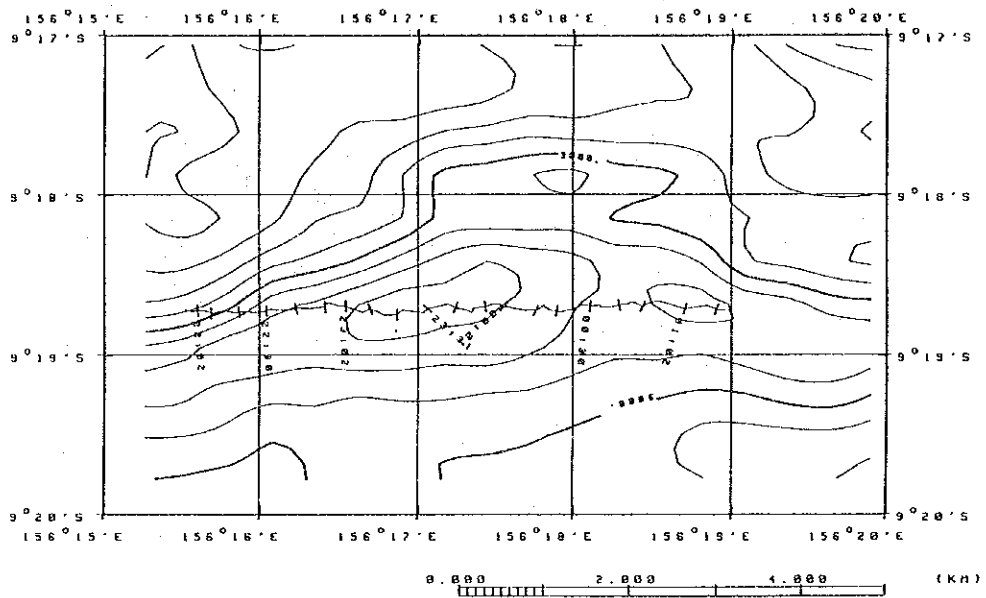
Annexed Figure 3 Location Map of FDC Line (Line 93SFDC05) (5)



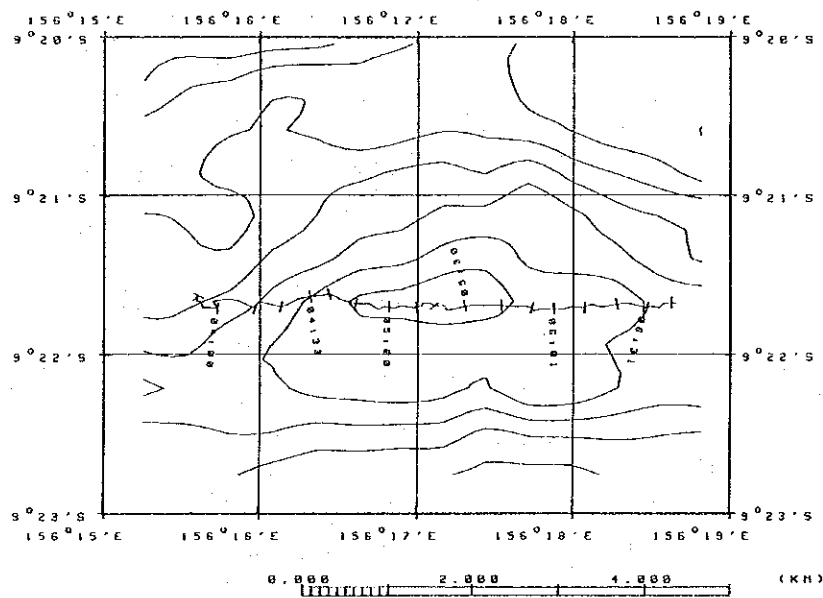
Annexed Figure 3 Location Map of FDC Line (Line 93SFDC06) (6)



Annexed Figure 3 Location Map of FDC Line (Line 93SFDC07) (7)

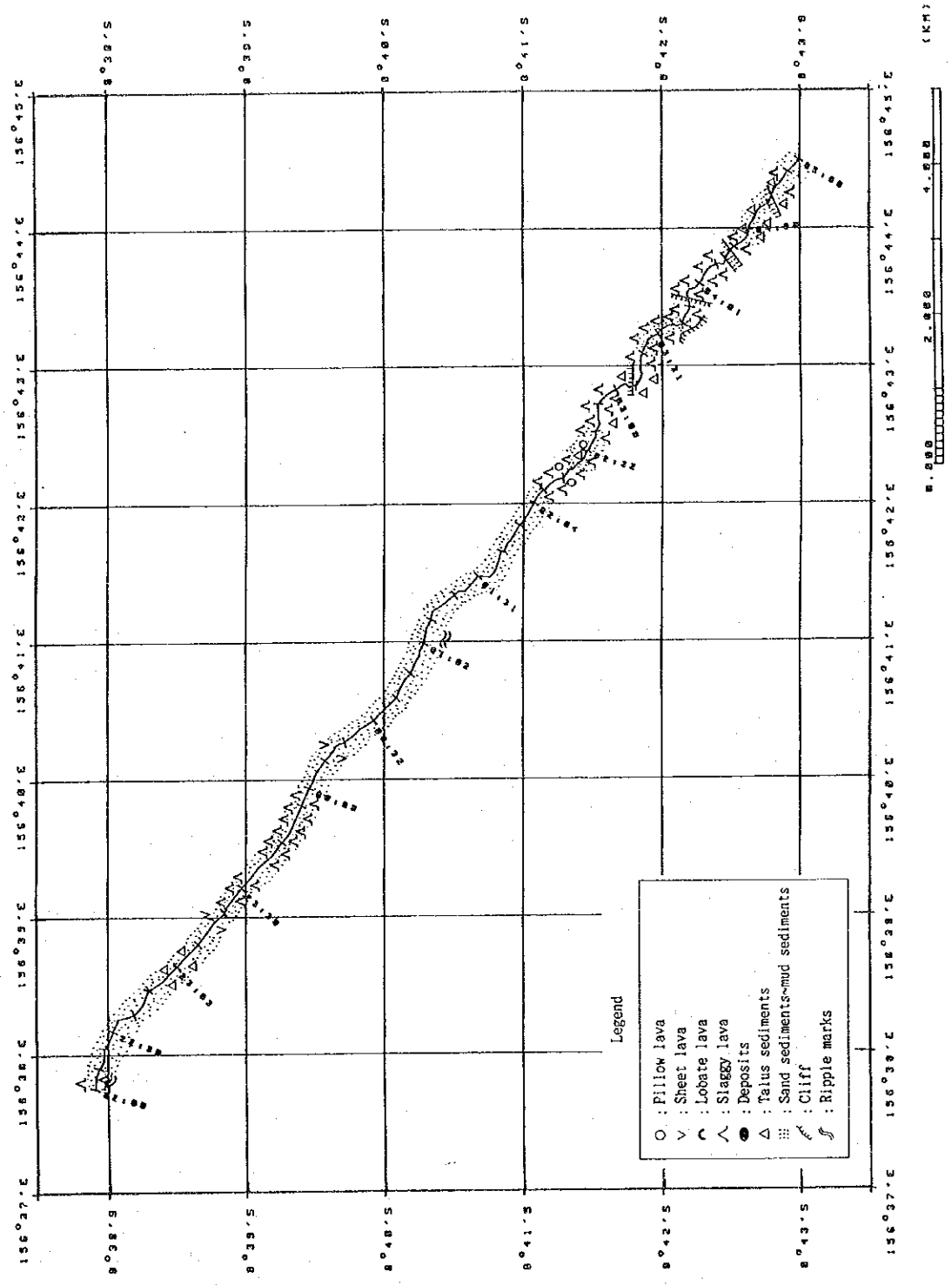


Annexed Figure 3 Location Map of FDC Line (Line 93SFDC08) (8)

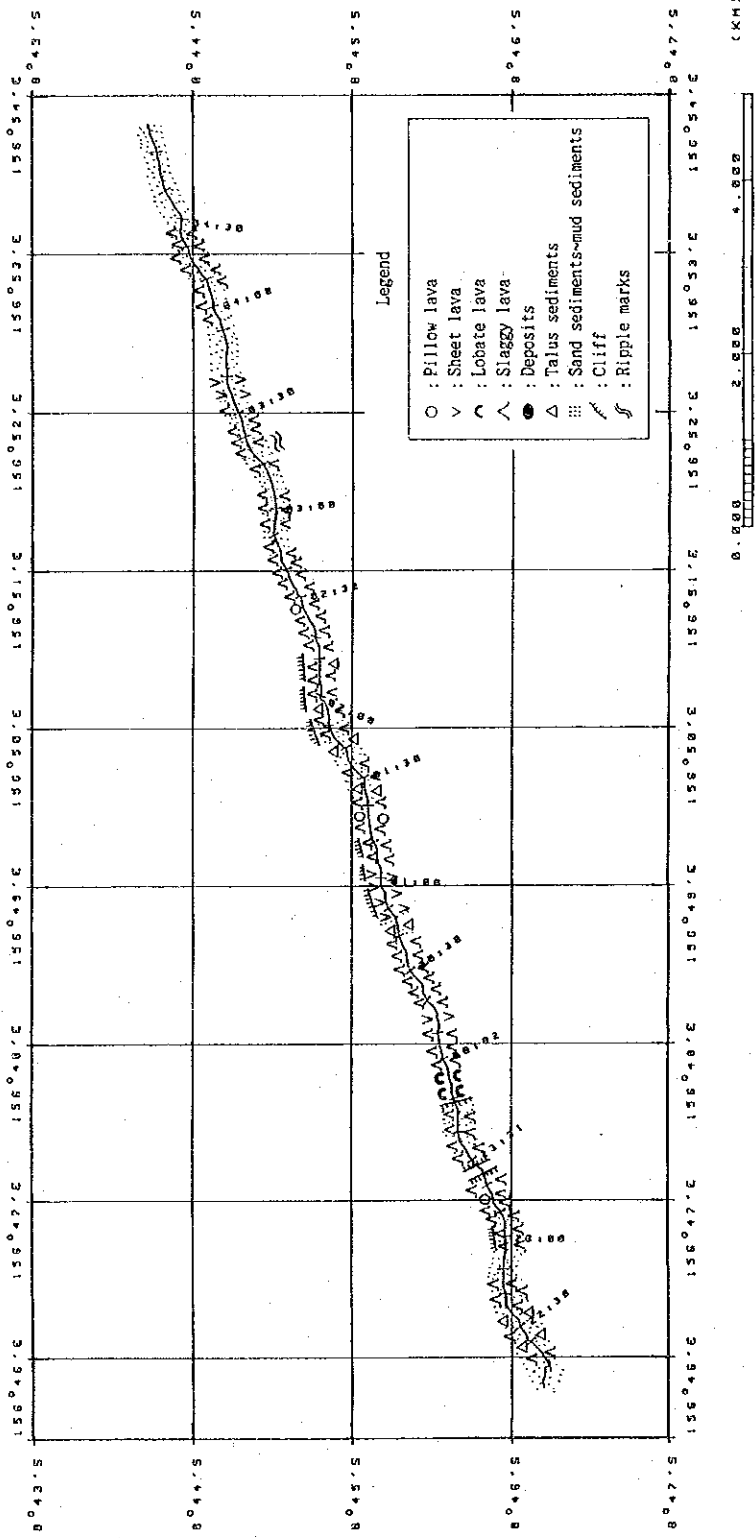


Annexed Figure 3 Location Map of FDC Line (Line 93SFDC09) (9)

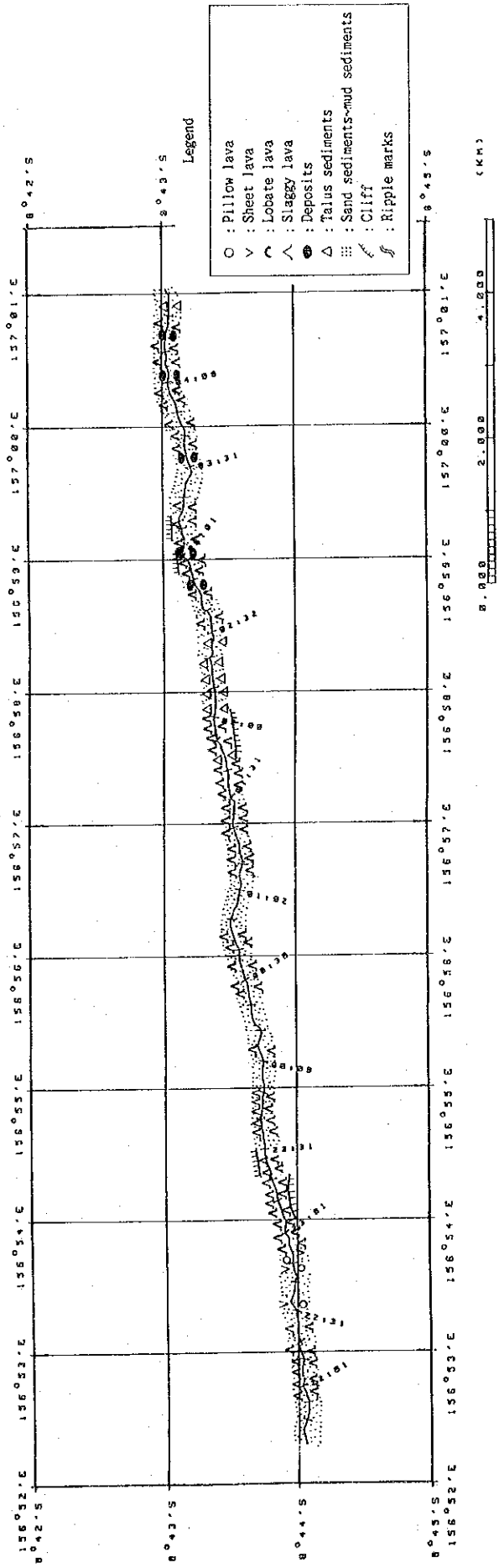
UTM



Annexed Figure 4 FDC Route Map (Line 93SFDC01) (1)

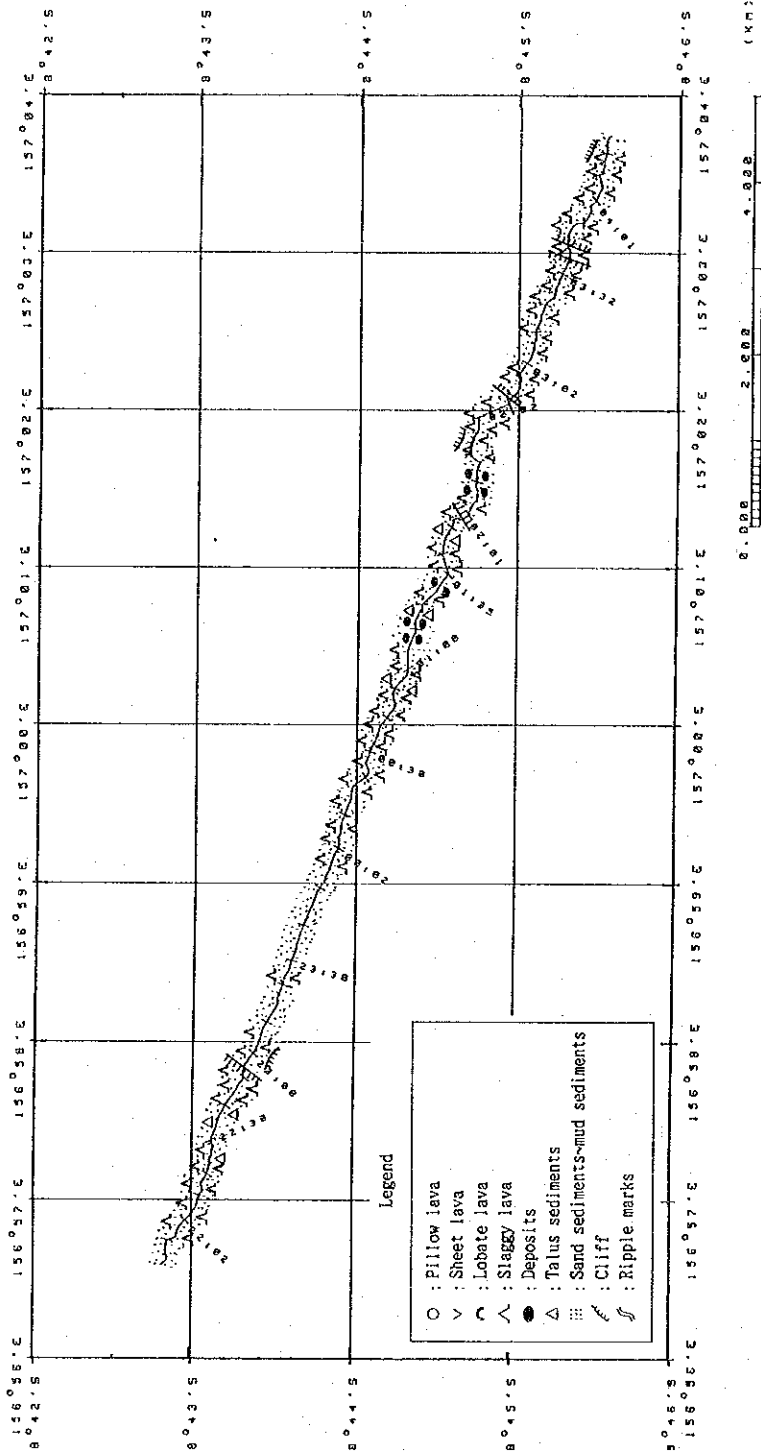


Annexed Figure 4 FDC Route Map (Line 93SFDC02) (2)

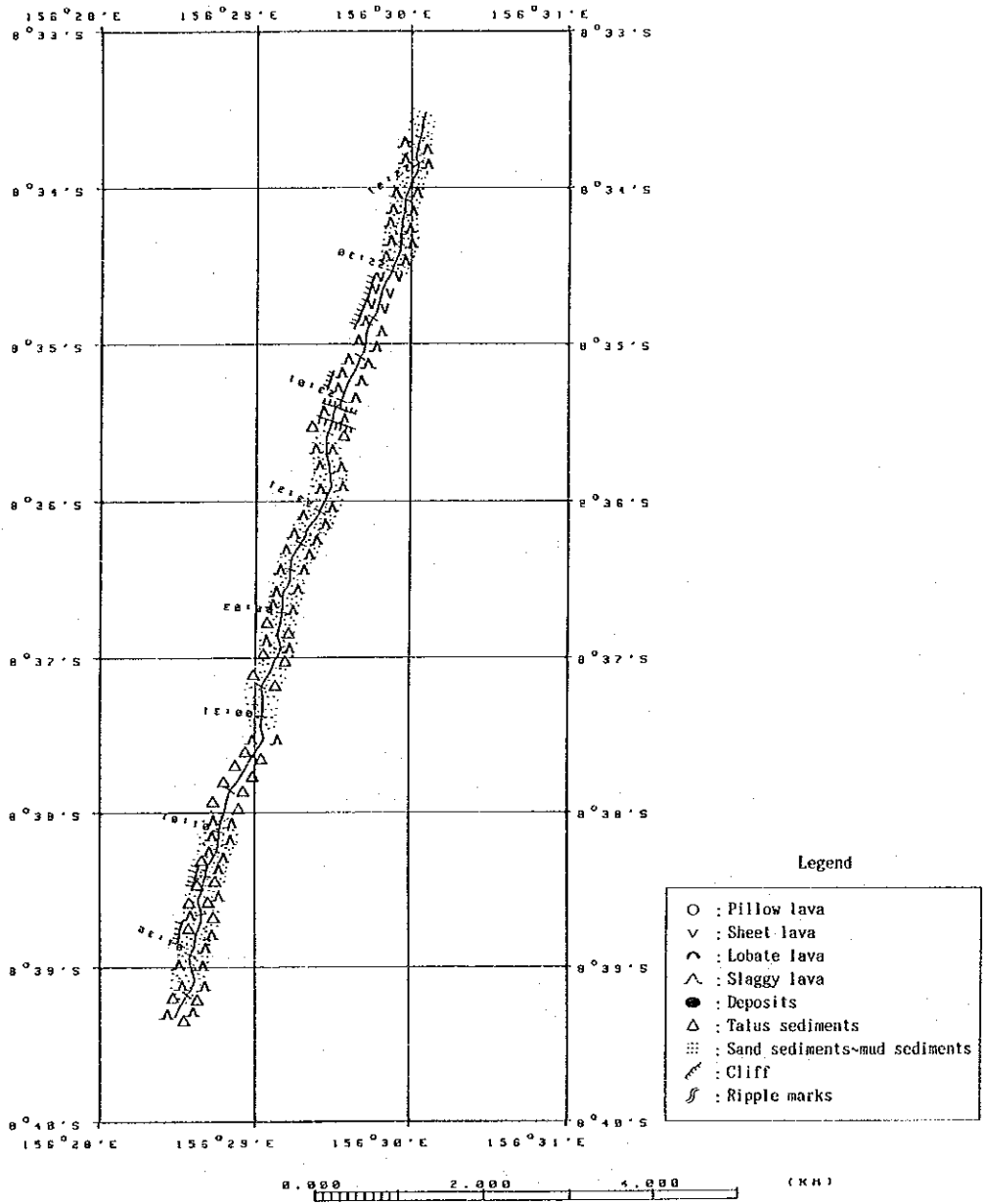


Annexed Figure 4 FDC Route Map (Line 93SFDC03) (3)

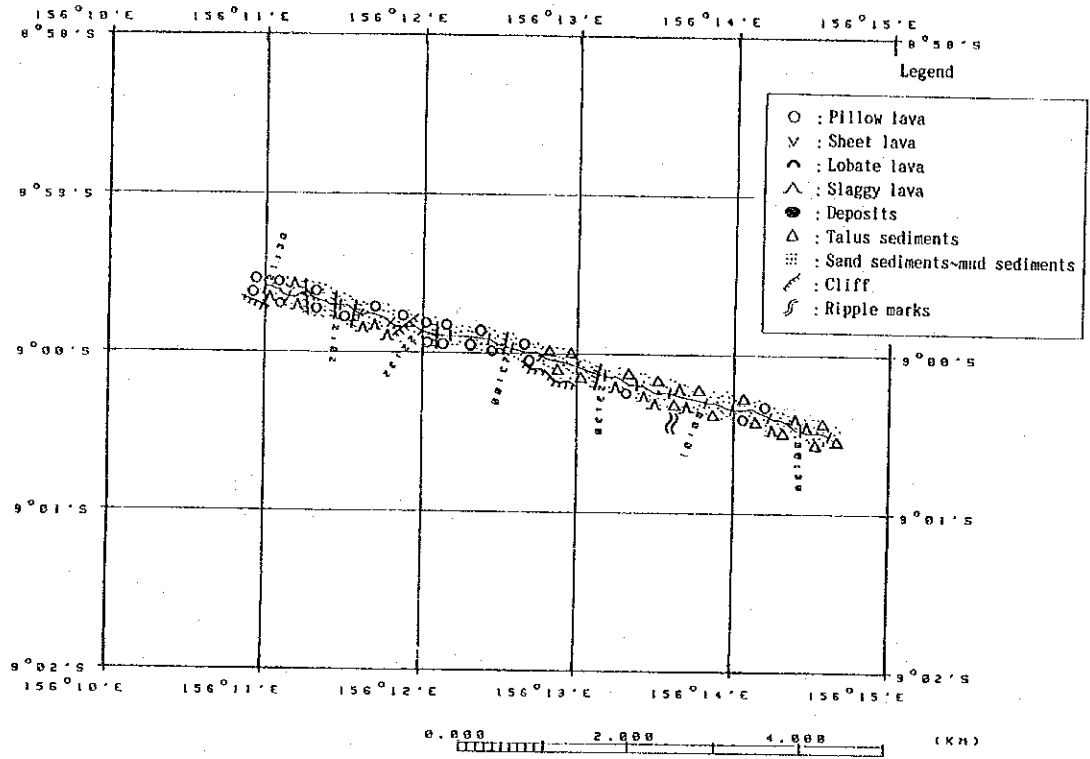




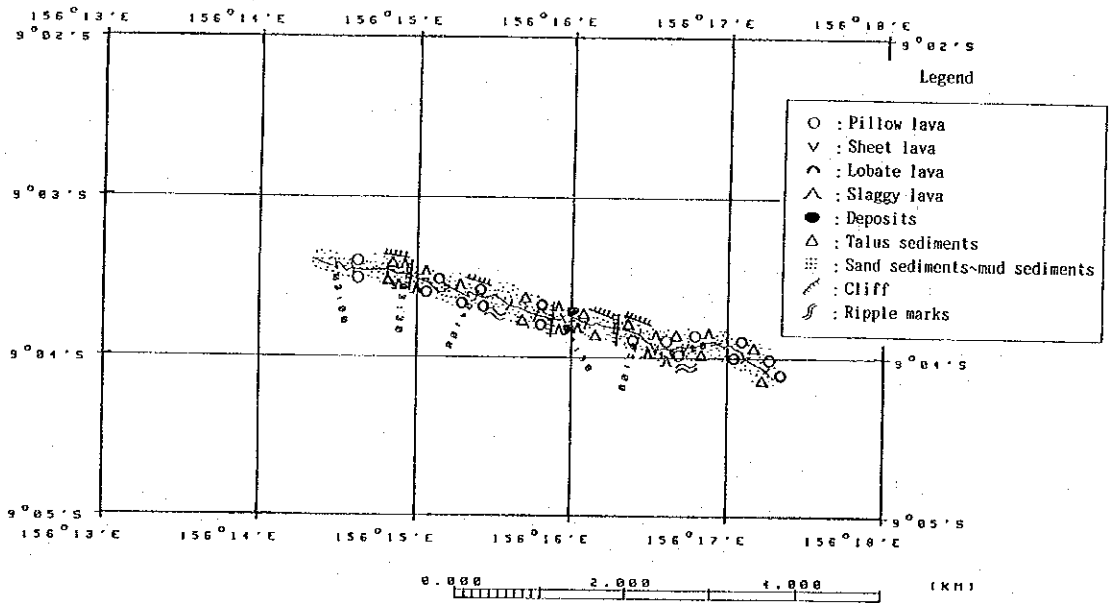
Annexed Figure 4 FDC Route Map (Line 93SFDC04) (4)



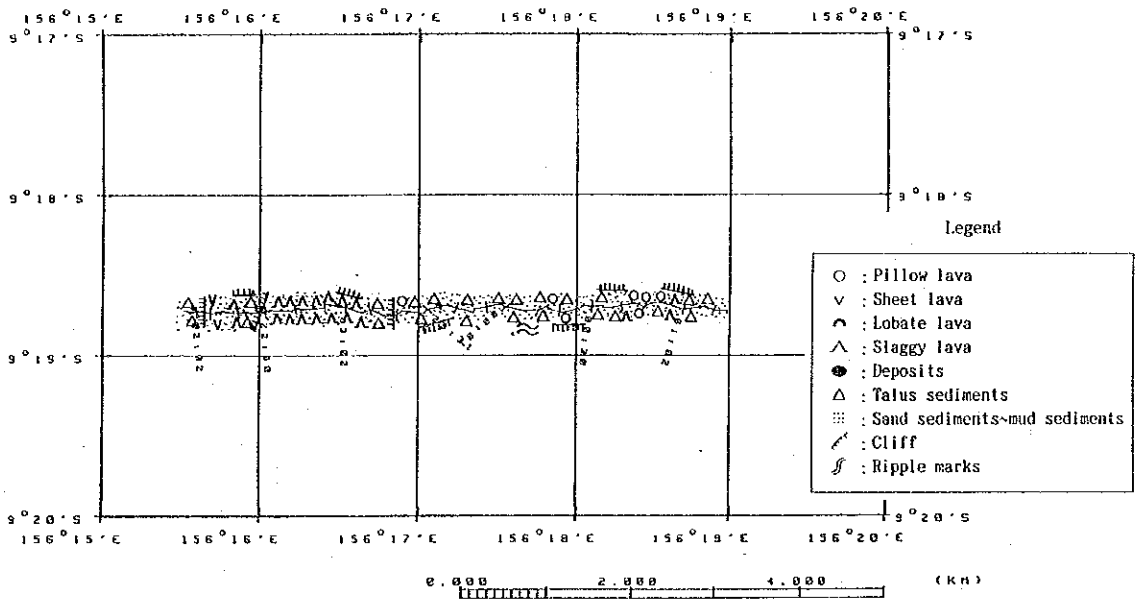
Annexed Figure 4 FDC Route Map (Line 93SFDC05) (5)



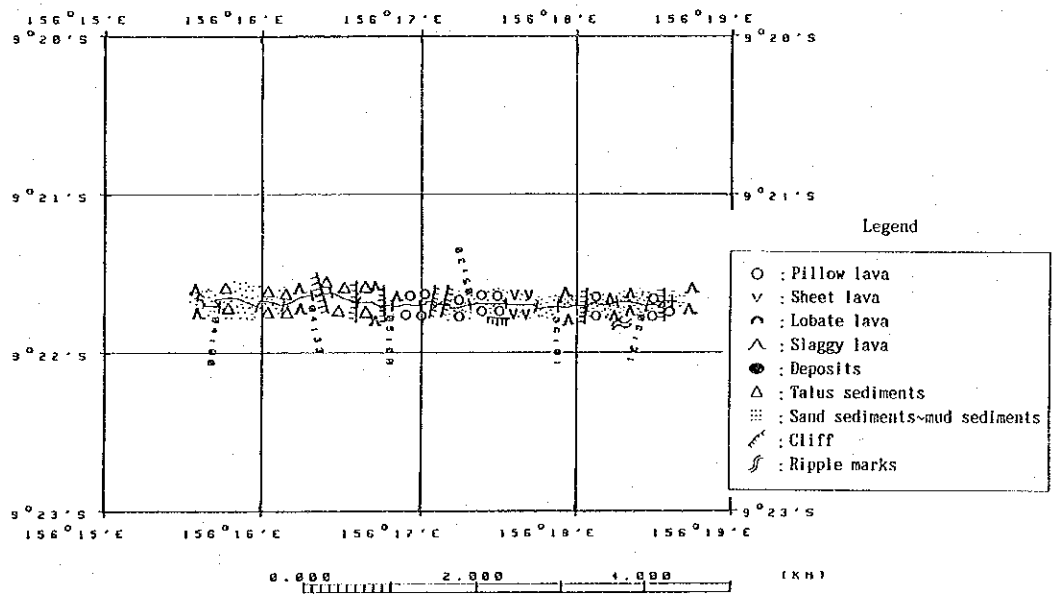
Annexed Figure 4 FDC Route Map (Line 93SFDC06) (6)



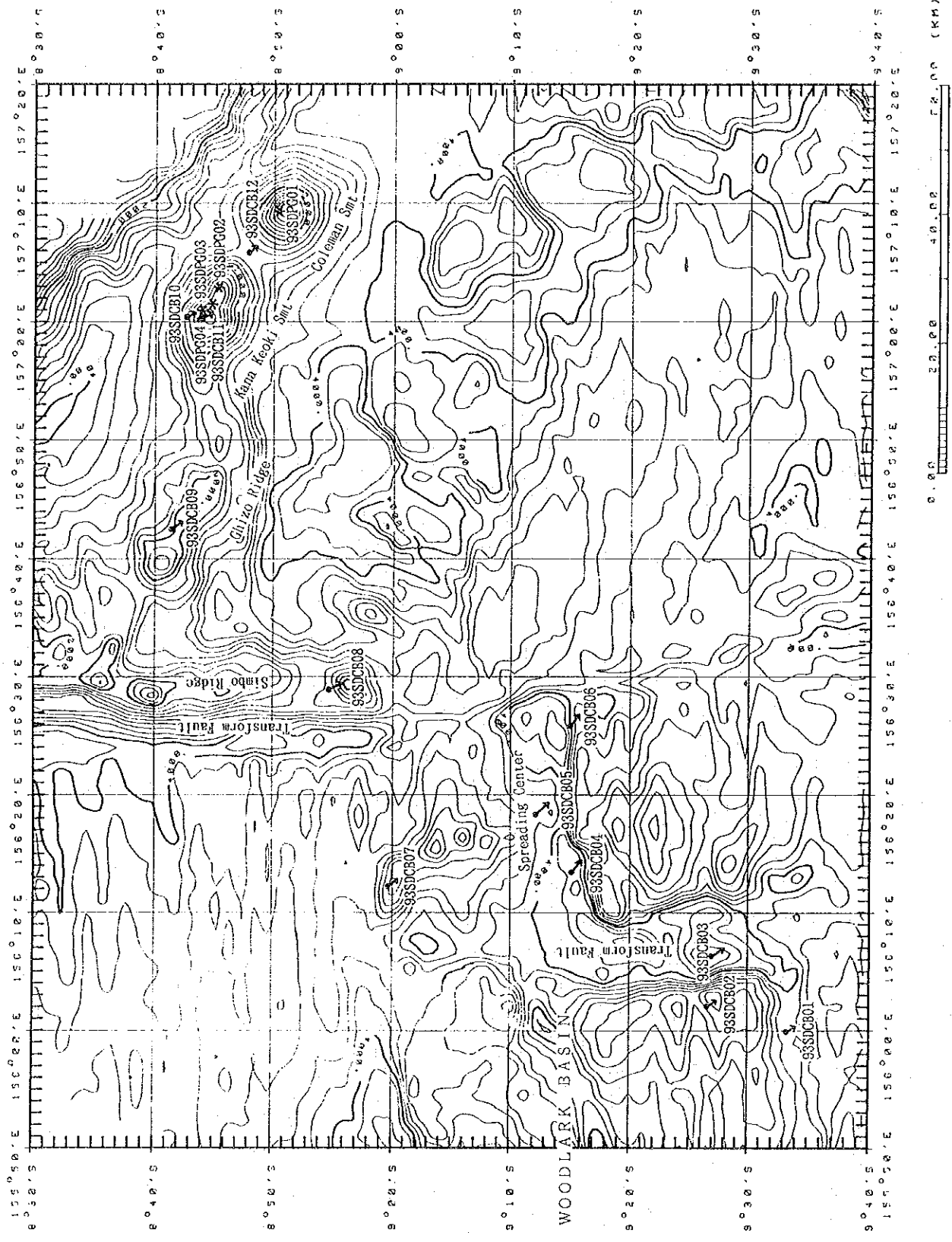
Annexed Figure 4 FDC Route Map (Line 93SFDC07) (7)



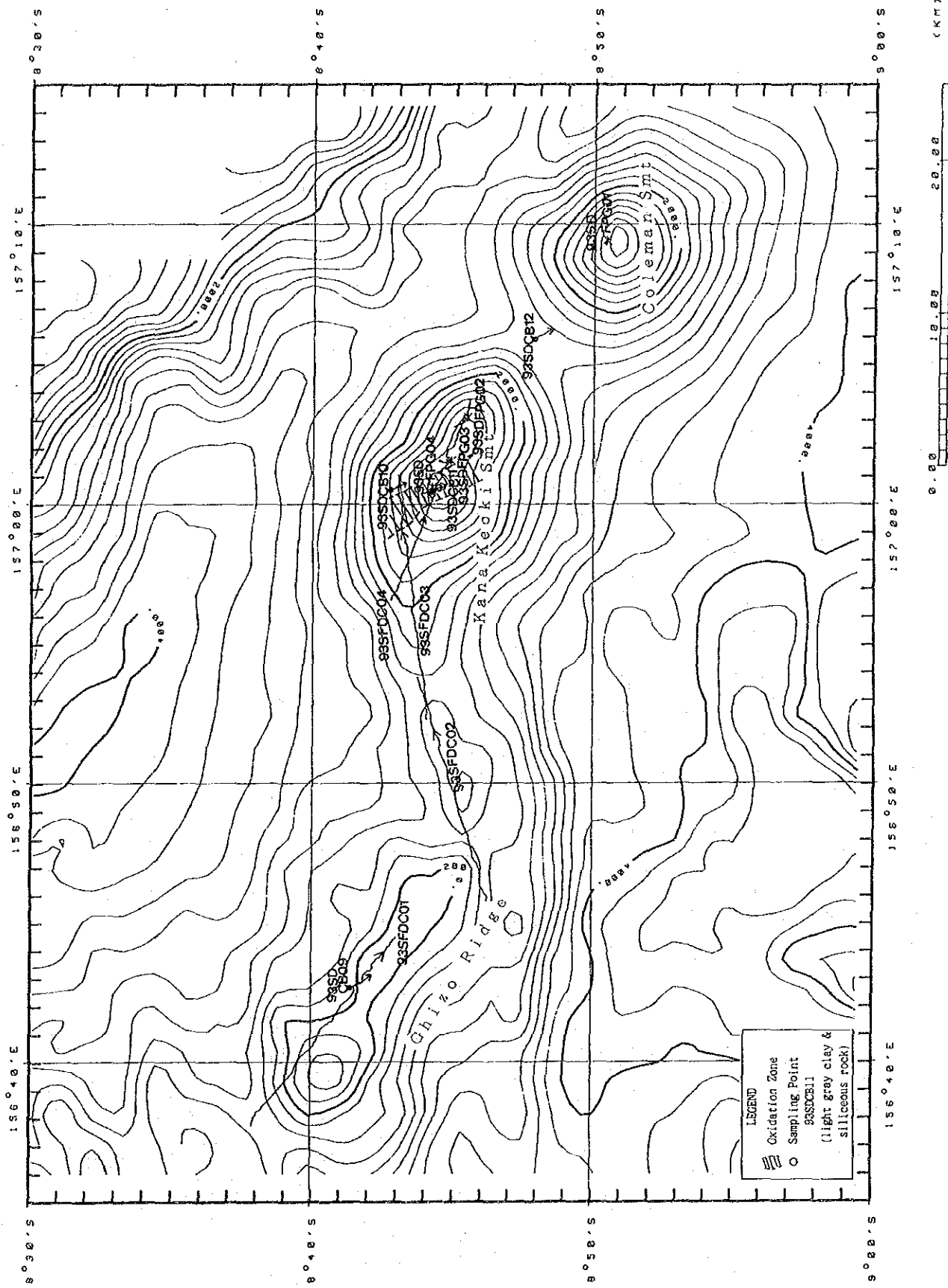
Annexed Figure 4 FDC Route Map (Line 93SFDC08) (8)



Annexed Figure 4 FDC Route Map (Line 93SFDC09) (9)



Annexed Figure 5-1 Location Map of Sampling Stations (CB, FPG)



Annexed Figure 5-2 Location Map of Sampling Stations

JICA