

附錄六 工址耐震設計參數研究

台北金融中心工址耐震設計參數研究

期末報告修訂版

羅俊雄、張國鎮

台大土木系教授

簡文郁

台大土木系博士後研究

黃正耀

中央氣象局研究助理

國立台灣大學

嚴慶齡工業發展基金會

合設工業研究中心

八十七年二月

表一 各震區 G-R 關係式之 b 值及推估之上限規模， $M_{u,e}$ 為
 能量釋放法估算所得， $M_{u,r}$ 則為歷年紀錄之上限規模

	震區	b-值		$M_{u,e}$	$M_{u,r}$
		最小二乘法評估	最大可信度法評估		
淺 層 震 區	S01	0.4052	0.1394	7.76	7.70
	S02	1.2980	1.1759	7.65	7.50
	S03	1.1606	1.2984	8.10	8.10
	S04	0.9670	0.9486	6.71	6.50
	S05	1.1013	1.1913	7.16	6.80
	S06	1.2641	1.1657	7.41	7.00
	S07	0.9146	0.8257	7.11	7.09
	S08	0.9770	0.9017	7.38	7.20
	S09	0.8017	0.8902	7.15	7.00
	S10	1.1805	1.3371	7.31	7.10
	S11	1.4399	1.5671	7.43	7.30
	S12	0.9691	1.1522	6.54	6.30
	S13	0.8508	0.9524	6.84	6.80
深 層 震 區	D01	0.8170	0.9349	8.12	8.10
	D02	1.2014	1.2101	7.48	7.30
	D03	1.0465	0.8707	7.24	6.90
	D04	0.8580	0.9227	7.53	7.30
	D05	1.1627	1.3581	6.26	5.90

表二：製做反應譜所選用紀錄的基本資料表

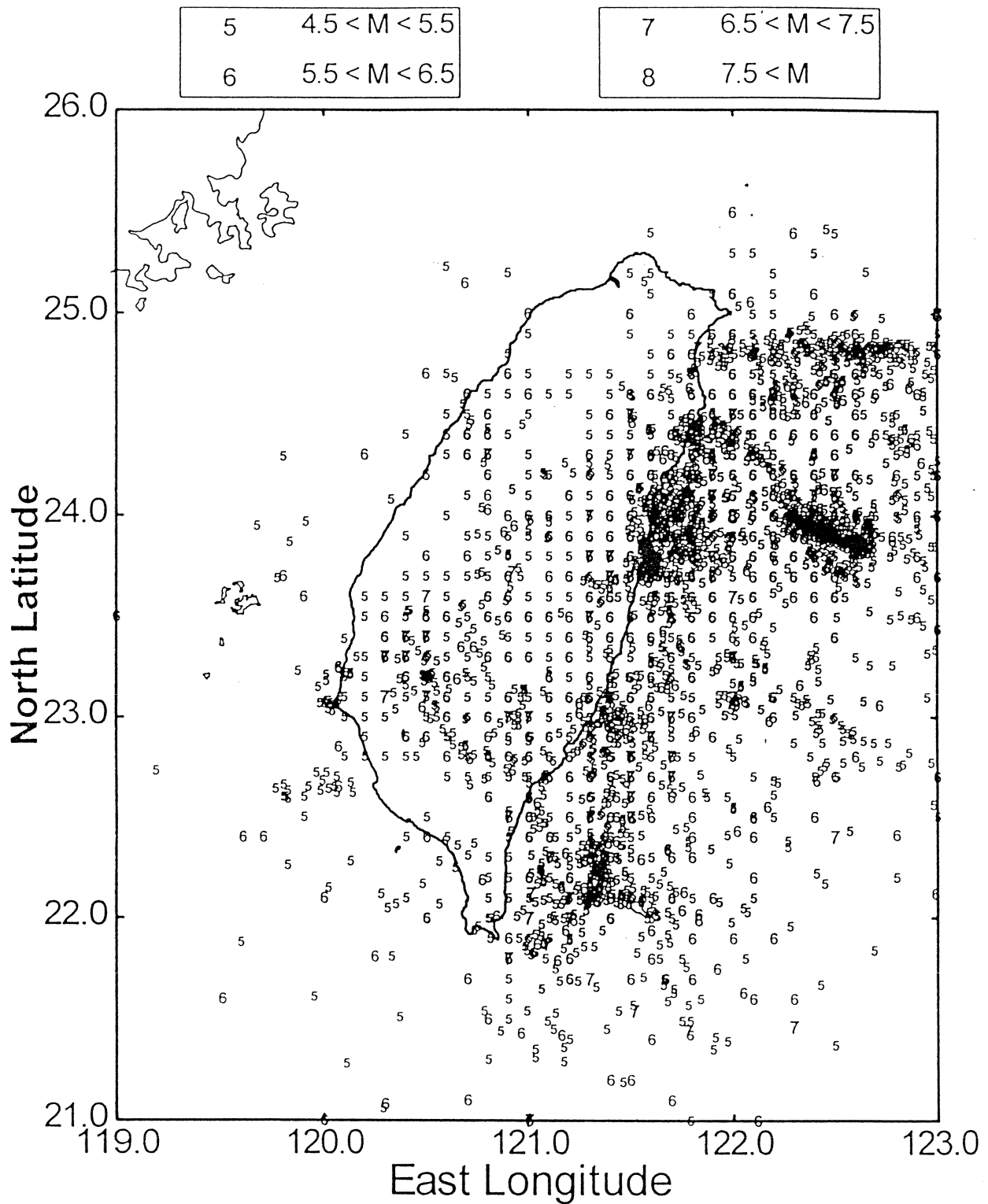
1993/ 1/23	8:59:26.31(UT)	24.08N	121.74E	28.5(KM)	5.40(ML)	01230859.P93
TAP022	107.20	4.66	17.16	14.00	26302300.IDS	IDS
1993/ 1/28	8:10:12.12(UT)	24.71N	121.82E	84.3(KM)	4.96(ML)	01280810.P93
TAP022	44.46	4.55	11.07	13.16	26302800.IDS	IDS
1994/ 1/20	5:50:15.57(UT)	24.06N	121.85E	49.5(KM)	5.58(ML)	01200549.P94
TAP022	111.40	7.18	15.74	21.78	26302000.IDS	IDS
1994/ 2/ 1	22:44:27.66(UT)	24.75N	122.69E	115.6(KM)	6.13(ML)	02012244.P94
TAP022	119.19	9.58	18.12	23.14	26303200.IDS	IDS
1994/ 3/ 6	19:37:20.98(UT)	24.82N	122.02E	97.5(KM)	5.49(ML)	03061937.P94
TAP022	52.60	5.20	18.84	10.94	26306500.IDS	IDS
1994/ 4/18	10:36:41.69(UT)	24.80N	122.03E	94.9(KM)	5.08(ML)	04181036.P94
TAP022	54.28	5.14	15.56	9.80	26310800.IDS	IDS
1994/ 4/30	9:14:17.12(UT)	24.35N	122.07E	3.9(KM)	5.04(ML)	04300913.P94
TAP022	91.70	7.78	28.90	25.48	26312006.IDS	IDS
1994/ 5/19	6: 3:40.99(UT)	24.72N	121.71E	86.8(KM)	4.63(ML)	05190603.P94
TAP022	38.57	3.12	12.32	10.40	26313900.IDS	IDS
1994/ 5/23	5:36: 1.86(UT)	23.92N	122.69E	7.2(KM)	5.77(ML)	05230536.P94
TAP022	168.34	2.64	6.04	8.56	26314306.IDS	IDS
1994/ 5/23	6:24:51.93(UT)	23.84N	122.67E	16.1(KM)	5.72(ML)	05230624.P94
TAP022	173.92	3.28	10.58	11.48	26314308.IDS	IDS
1994/ 5/23	15:16:58.75(UT)	23.86N	122.64E	5.5(KM)	6.00(ML)	05231516.P94
TAP022	169.69	4.90	14.84	19.38	26314309.IDS	IDS
TAP015	170.31	4.60	9.98	12.74	25614300.IDS	IDS
1994/ 5/24	4: 0:40.49(UT)	23.83N	122.60E	4.4(KM)	6.17(ML)	05240400.P94
TAP022	170.71	8.80	38.94	39.42	26314400.IDS	IDS
TAP015	171.40	10.70	11.84	17.88	25614400.IDS	IDS
1994/ 6/ 5	1: 9:30.09(UT)	24.46N	121.84E	5.3(KM)	6.20(ML)	06050109.P94
TAP022	69.37	24.70	97.38	96.66	26315600.IDS	IDS
TAP015	70.70	40.26	40.68	53.66	25615600.IDS	IDS
1994/ 6/ 5	2:39:53.53(UT)	24.48N	121.79E	1.1(KM)	4.73(ML)	06050239.P94
TAP022	66.22	2.70	11.72	9.92	26315606.IDS	IDS
1994/ 6/ 6	8:57:24.49(UT)	24.43N	121.95E	3.5(KM)	5.06(ML)	06060857.P94
TAP022	77.65	5.20	10.52	24.16	26315700.IDS	IDS
1994/ 9/16	6:20:15.62(UT)	22.43N	118.47E	19.1(KM)	6.43(ML)	09160620.P94
TAP022	427.26	1.50	6.64	8.32	26325900.IDS	IDS
1994/10/ 5	1:13:24.47(UT)	23.16N	121.72E	31.3(KM)	5.83(ML)	10050113.P94
TAP022	208.56	7.78	28.90	15.68	26327801.IDS	IDS
TAP015	210.57	8.02	7.06	13.04	25627800.IDS	IDS
1994/10/ 9	21:36: 9.64(UT)	24.96N	122.05E	106.5(KM)	5.10(ML)	10092136.P94
TAP022	50.77	3.58	8.02	10.10	26328200.IDS	IDS
1994/10/12	9: 8:22.13(UT)	24.81N	122.00E	73.1(KM)	5.67(ML)	10120908.P94
TAP022	51.48	10.70	28.60	22.50	26328504.IDS	IDS
1994/10/28	23:51:10.48(UT)	24.64N	122.27E	2.0(KM)	5.66(ML)	10282351.P94
TAP015	84.30	6.76	6.64	10.22	25630100.IDS	IDS
TAP022	84.52	6.64	19.80	14.60	26330100.IDS	IDS
1995/ 2/23	5:19: 2.78(UT)	24.20N	121.69E	21.7(KM)	5.77(ML)	02230518.P95
TAP015	94.76	16.10	21.36	19.86	25605400.IDS	IDS
1995/ 3/24	4:13:51.09(UT)	24.64N	121.86E	76.0(KM)	5.64(ML)	03240413.P95
TAP088	52.80	36.42	78.60	57.12	50008300.IDS	IDS
TAP089	52.88	13.64	26.44	18.54	48508300.IDS	IDS
TAP015	54.42	16.92	24.04	18.84	25608300.IDS	IDS
1995/ 4/ 3	11:54:40.08(UT)	23.94N	122.43E	14.6(KM)	5.88(ML)	04031154.P95
TAP088	149.75	4.12	8.14	6.16	50009300.IDS	IDS
TAP089	149.89	4.06	9.52	4.12	48509300.IDS	IDS
TAP015	151.35	4.72	7.90	6.82	25609300.IDS	IDS
1995/ 4/24	10: 4: 0.96(UT)	24.65N	121.62E	63.1(KM)	5.28(ML)	04241004.P95
TAP089	42.20	5.32	5.38	6.76	48511400.IDS	IDS
TAP088	43.09	0.00	19.92	20.76	50011400.IDS	IDS
TAP015	44.71	9.10	11.36	7.90	25611401.IDS	IDS
1995/ 5/ 2	22:48:20.54(UT)	23.83N	121.97E	23.9(KM)	5.24(ML)	05022248.P95
TAP088	139.40	3.28	8.20	3.28	50012300.IDS	IDS
1995/ 5/15	18:58:38.79(UT)	24.74N	122.36E	79.4(KM)	5.37(ML)	05151858.P95
TAP088	86.07	2.52	8.98	4.06	50013500.IDS	IDS
1995/ 5/30	18:42:43.62(UT)	24.44N	121.89E	13.8(KM)	4.29(ML)	05301842.P95

表二(續)：製做反應譜所選用紀錄的基本資料表

TAP088	73.80	2.58	5.44	2.76	50015000.IDS	IDS		
TAP022	74.26	2.58	6.04	9.40	26315002.IDS	IDS		
1995/ 5/31 14: 9:30.47 (UT)	24.44N	121.88E	37.2 (KM)	4.76 (ML)	05311409.P95			
TAP088	73.05	3.46	6.16	4.66	50015100.IDS	IDS		
TAP022	73.45	4.78	16.68	14.12	26315119.IDS	IDS		
TAP015	74.70	5.38	6.82	16.10	25615101.IDS	IDS		
1995/ 6/25 6:59: 7.09 (UT)	24.61N	121.67E	39.9 (KM)	6.50 (ML)	06250658.P95			
TAP089	48.04	38.76	49.04	40.98	48517600.IDS	IDS		
TAP088	48.77	52.16	119.56	72.38	50017600.IDS	IDS		
TAP015	50.41	51.98	50.30	61.72	25617600.IDS	IDS		
1995/ 7/14 16:52:46.48 (UT)	24.32N	121.85E	8.8 (KM)	5.80 (ML)	07141652.P95			
TAP089	83.79	4.18	6.10	6.70	48519500.IDS	IDS		
TAP088	84.23	10.10	14.96	16.26	50019500.IDS	IDS		
TAP022	84.43	8.08	19.44	22.20	26319501.IDS	IDS		
1995/ 7/14 17:40:48.42 (UT)	24.32N	121.84E	8.6 (KM)	4.87 (ML)	07141740.P95			
TAP022	84.30	2.64	8.14	7.54	26319502.IDS	IDS		
1995/ 7/28 8: 0:31.82 (UT)	24.71N	121.96E	71.5 (KM)	4.71 (ML)	07280800.P95			
TAP088	53.44	3.22	6.16	4.18	50020900.IDS	IDS		
TAP022	54.66	3.88	8.14	9.40	26320901.IDS	IDS		
1995/ 7/30 18: 0:52.96 (UT)	25.17N	121.58E	5.2 (KM)	3.05 (ML)	07301800.P95			
TAP022	14.88	2.34	8.02	7.60	26321100.IDS	IDS		
1995/ 8/20 9:25: 3.00 (UT)	24.69N	121.58E	56.9 (KM)	4.92 (ML)	08200924.P95			
TAP089	37.28	5.14	6.40	6.22	48523200.IDS	IDS		
TAP022	37.85	20.58	42.16	42.10	26323202.IDS	IDS		
TAP088	38.35	27.82	41.34	26.20	50023200.IDS	IDS		
TAP015	39.92	13.46	11.12	15.14	25623200.IDS	IDS		
1995/11/ 6 19:31:27.62 (UT)	24.45N	121.82E	7.9 (KM)	4.64 (ML)	11061931.P95			
TAP088	69.95	3.82	6.16	3.40	50031000.IDS	IDS		
1995/11/30 23:57:17.00 (UT)	24.86N	121.86E	108.0 (KM)	4.55 (ML)	11302357.P95			
TAP088	34.70	3.82	5.92	2.34	50033500.IDS	IDS		
1995/12/ 1 3:17: 4.62 (UT)	24.61N	121.64E	45.1 (KM)	5.72 (ML)	12010316.P95			
TAP089	47.53	5.44	11.12	10.10	48533500.IDS	IDS		
TAP022	48.14	13.40	46.42	63.28	26333500.IDS	IDS		
TAP088	48.36	17.52	33.98	23.50	50033501.IDS	IDS		
1995/12/18 16:17:54.53 (UT)	24.02N	121.69E	22.1 (KM)	5.80 (ML)	12181617.P95			
TAP088	113.59	4.18	8.74	6.52	50035200.IDS	IDS		
1996/ 1/22 19:22:57.53 (UT)	24.93N	121.72E	66.9 (KM)	5.11 (ML)	01221922.P96			
TAP088	19.16	8.68	22.32	21.54	50002200.IDS	IDS		
TAP089	19.93	7.30	9.34	7.90	48502200.IDS	IDS		
TAP022	20.54	9.74	34.22	31.04	26302200.IDS	IDS		
1996/ 3/ 5 14:52:27.13 (UT)	23.93N	122.36E	6.0 (KM)	6.40 (ML)	03051452.P96			
TAP088	146.25	11.96	22.78	15.62	50006600.IDS	IDS		
TAP089	146.30	5.02	12.02	10.70	48506600.IDS	IDS		
TAP022	146.96	10.28	46.90	37.56	26306600.IDS	IDS		
TAP015	147.86	8.62	23.92	24.46	25606600.IDS	IDS		
1996/ 3/ 5 17:32: 8.56 (UT)	23.90N	122.30E	10.8 (KM)	5.96 (ML)	03051732.P96			
TAP088	146.13	3.64	5.98	5.38	50006601.IDS	IDS		
TAP022	146.74	3.52	17.40	12.80	26306601.IDS	IDS		
1996/ 3/29 3:28:53.50 (UT)	23.97N	122.33E	5.8 (KM)	5.64 (ML)	03290328.P96			
TAP088	140.66	2.22	7.00	4.42	50008900.IDS	IDS		
1996/ 7/27 0:26:39.52 (UT)	24.33N	122.03E	7.2 (KM)	4.82 (ML)	07270026.P96			
TAP022	91.49	6.16	10.46	16.14	26320900.IDS	IDS		
1996/ 7/29 20:20:53.53 (UT)	24.49N	122.35E	65.7 (KM)	6.14 (ML)	07292020.P96			
TAP089	99.57	16.56	34.22	21.72	48521100.IDS	IDS		
TAP022	100.19	38.40	141.16	182.80	26321100.IDS	IDS		
TAP015	100.23	19.08	22.08	33.26	25621100.IDS	IDS		
1996/11/26 8:22:23.71 (UT)	24.16N	121.70E	26.2 (KM)	5.35 (ML)	11260822.P96			
TAP022	97.28	4.90	20.64	18.84	26333100.IDS	IDS		
TAP088	97.56	5.74	12.26	8.20	50033100.IDS	IDS		
1997/ 4/ 2 22:36:41.85 (UT)	24.69N	121.74E	11.9 (KM)	4.33 (ML)	04022236.P97			
TAP088	42.40	7.54	8.80	5.02	50009200.IDS	IDS		
1997/ 4/13 17:45:13.99 (UT)	23.81N	121.71E	45.5 (KM)	5.56 (ML)	04131745.P97			
TAP088	137.29	3.76	9.22	5.08	50010300.IDS	IDS		
1997/ 4/27 23:59:32.56 (UT)	24.61N	121.96E	60.6 (KM)	5.15 (ML)	04272359.P97			
TAP088	61.17	7.24	7.72	7.78	50011700.IDS	IDS		
TAP022	62.13	6.28	13.64	21.96	26311700.IDS	IDS		

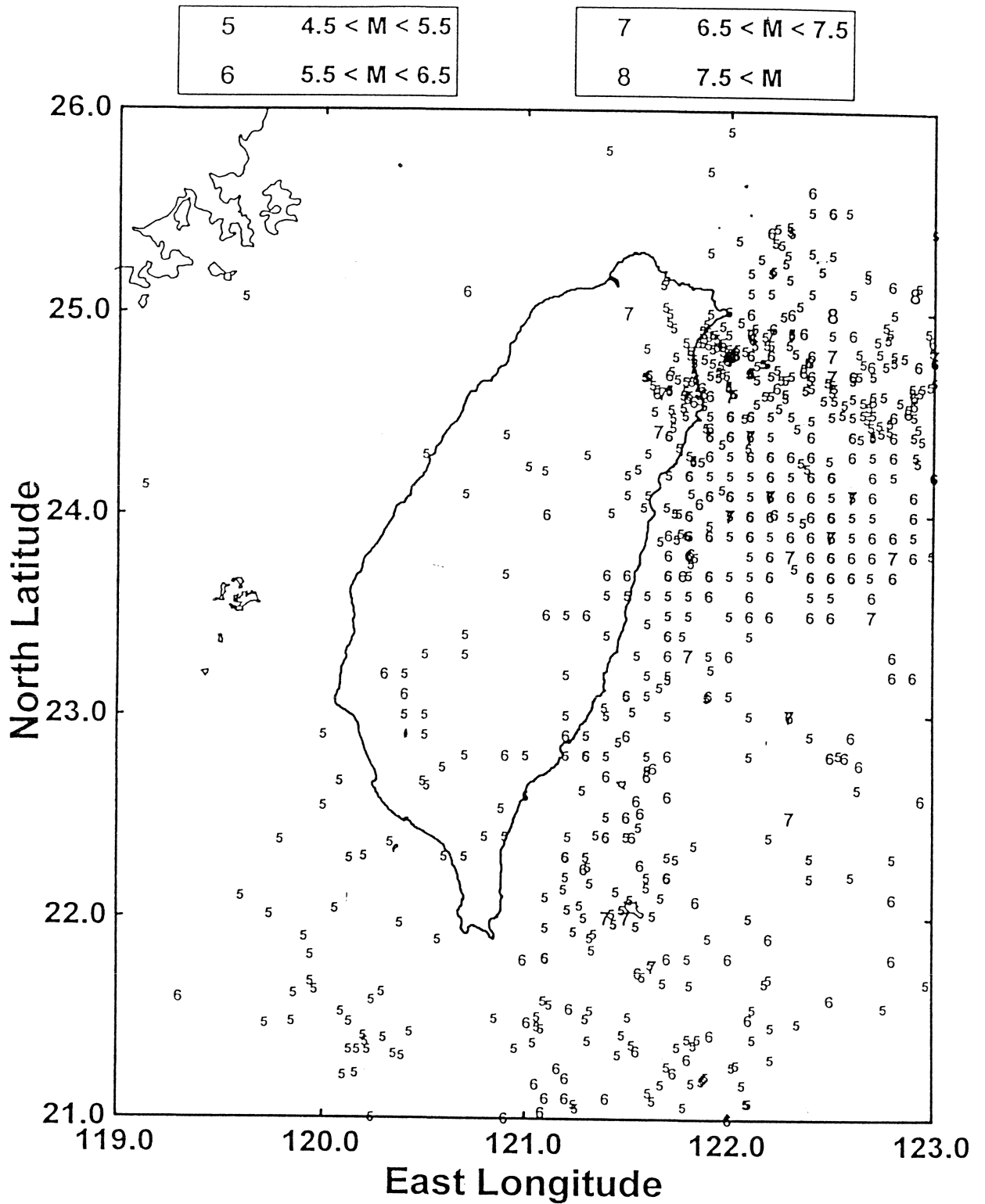
SORTED 48 ENEVTS 82 RECORDS

Shallow Zone (Depth < 35 km)

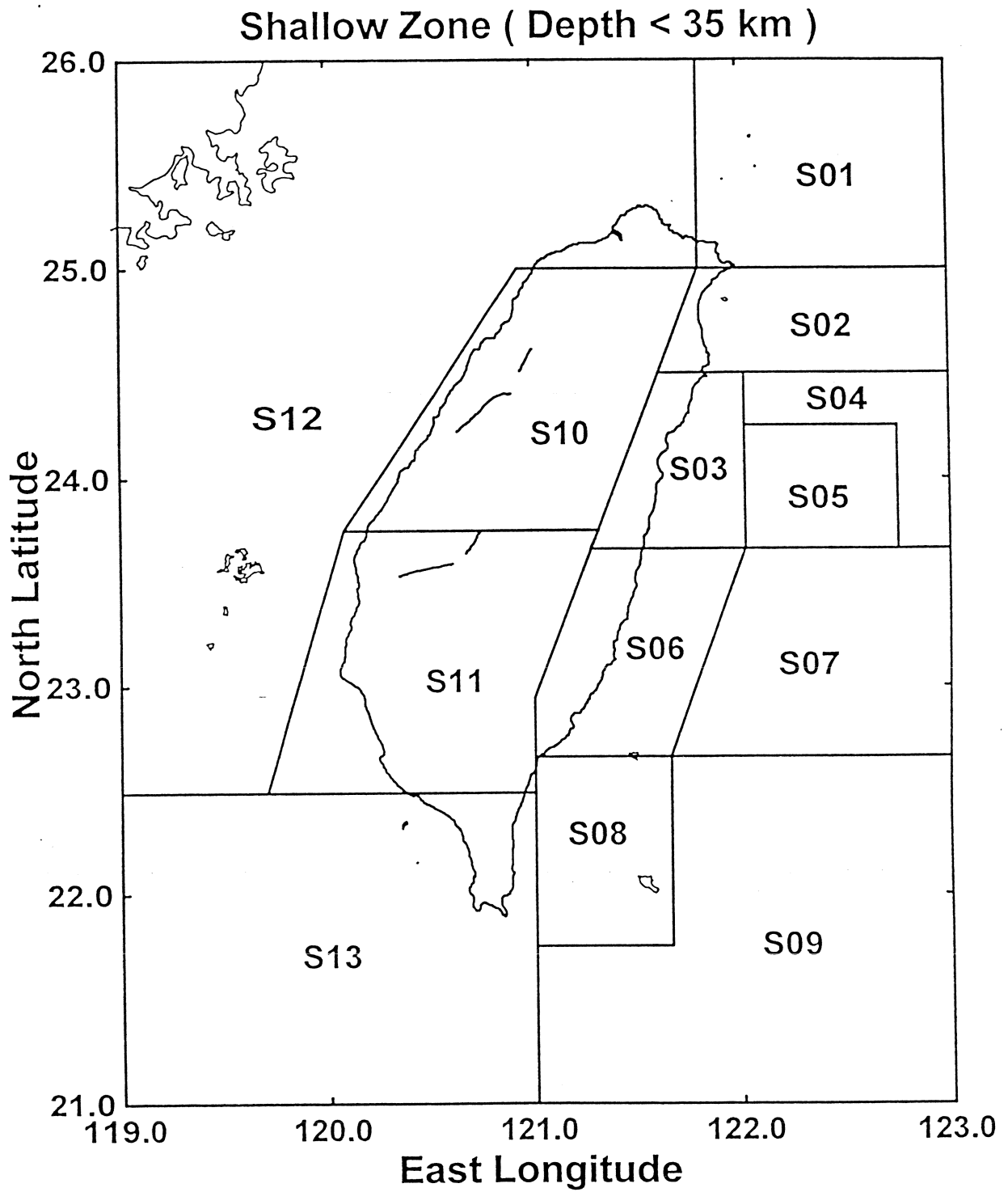


圖六 a：自 1900 年至 1996 年台灣地區地震震央分布圖。
 (淺層，震源深度小於 35 公里。數字代表規模大小)

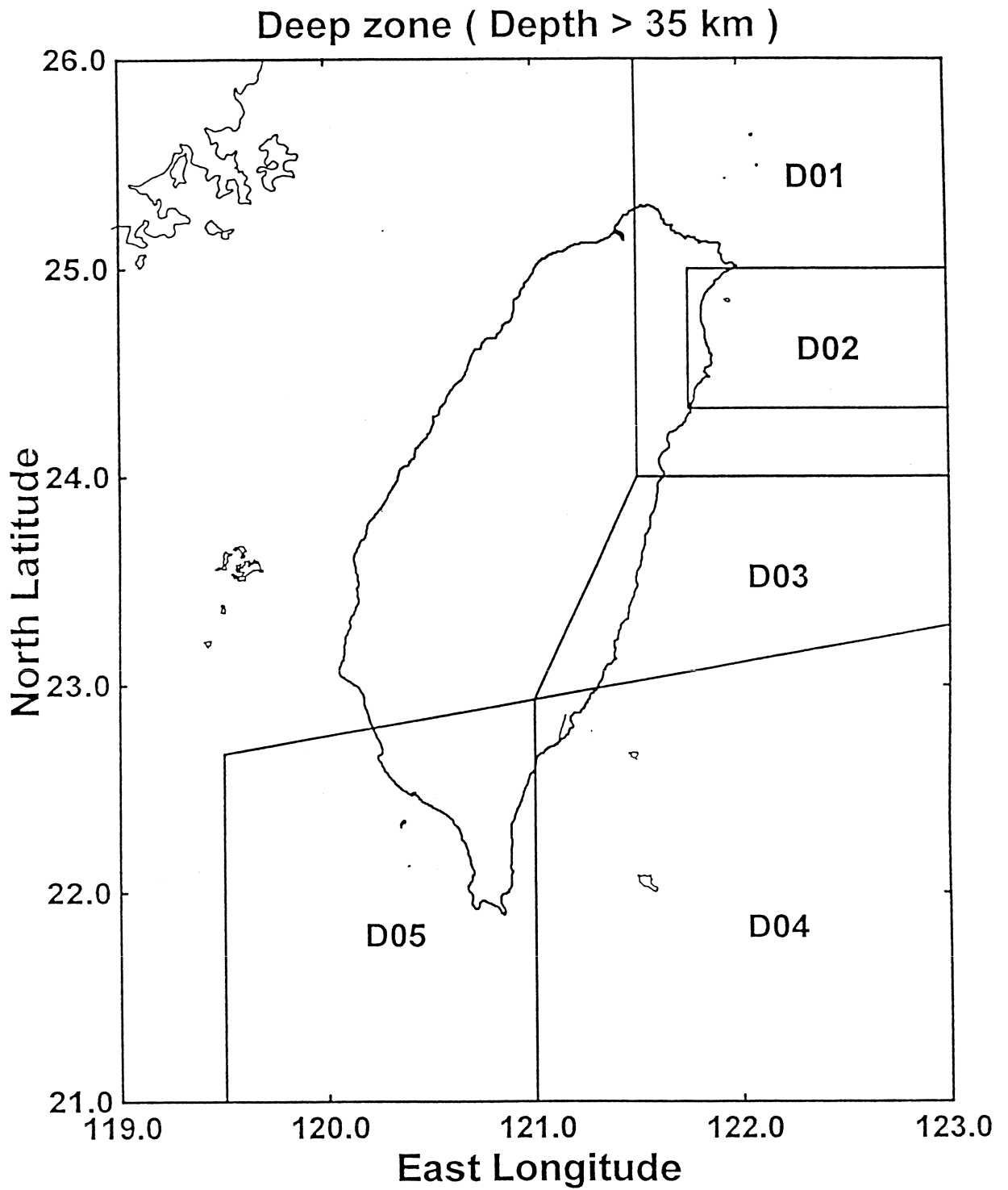
Deep Zone (Depth > 35 km)



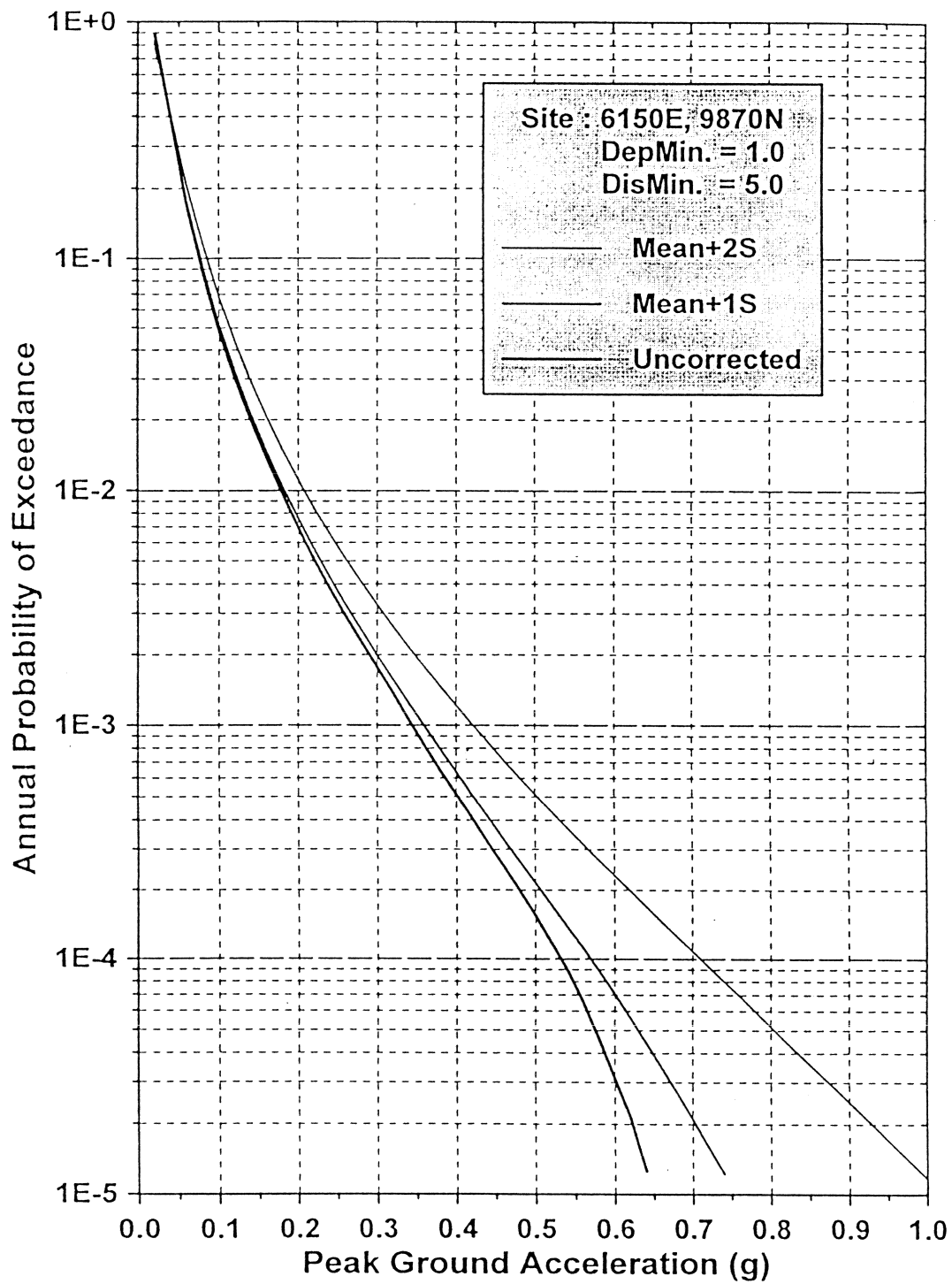
圖六 b：自 1900 年至 1996 年台灣地區地震震央分布圖。
(深層，震源深度大於 35 公里。數字代表規模大小)



圖七 a：地震危害度分析所使用之震區畫分圖（淺層震區）



圖七 b：地震危害度分析所使用之震區畫分圖（深層震區）



圖十一：台北金融中心工址地震危害度曲線