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Old seismologic reports

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SEISMIC OBSERVATIONS
AT FABRA OBSERVATORY IN 1984

by JAVIER PAVIA SEGURA
and M.^a TERESA SUSAGNA VIDAL

The Observatory has now the following seismographs:

— One short period «Teledyne Geotech» seismograph, vertical component, with ink recording.

— One short period «Hiller-Stuttgart» seismograph, vertical component, with photographic recording.

— Two long period «Mainka» seismograph, horizontal components, with mechanic recording.

— One short period «Vicentini» seismograph, vertical component, with mechanic recording.

We symbolize by ZT Teledyne Geotech vertical component, by ZH the Hiller-Stuttgart vertical component, by NM and EM the Mainka horizontal components and by ZV the Vicentini vertical component.

For the most outstanding earthquakes, we describe their epicentral characteristics, calculated by the Seismic Section of this Observatory (FBR), together with «Servei Geològic de Catalunya» (SGC) or provided by the United States Geological Survey (GS), by the «Centre Seismologique Europeo-Mediterranean» (CSEM), by the «Instituto Geográfico Nacional» (I.G.N) or by the Laboratoire de Détection et de Géophysique (LDG) or by P. Sthal (PS).

The average instrumental constants have been:

1) Electromagnetic seismograph (electronic and ink recording):

Type	Component	Mass (kg)	Period(s) T_0	Magnification	Damping
Teledyne Geotech	Z (ZT)	5	1	64.000	0,7

2) Electromagnetic seismograph (photographic recording):

Type	Component	Period(s)		Maximun Amplification V_m	Damping
		T_p	T_g		
Hiller-Stuttgart	Z(ZH)	1,61	1,3	7,326	Critical

3) Mechanical seismographs (recording on smoked paper):

Type	Component	Mass (kg)	Period(s) T_0	Damping E	Friction $r/T \sigma^2$	Amplification V
Mainka	N-S (NM)	141	7,0	3,00	0,015	37,9
	E-W (EM)	144	6,2	3,91	0,013	58,9
Vicentini	Z (ZV)	56	0,9	—	—	125



SEISMIC OBSERVATIONS

1984

Date	Comp.	Phase	Time TU			Δ Km	Remarks
			h	m	s		
1 Jan	ZT	eP	09	16	17,5		Ep.: 33,7 N; 136,9 E; H = 09:03:38.8 h = 368 Km; M = 6,5 (GS) Near S. Coast of Southern Honshu
14	ZT	eP	22	19	16,0		Ep.: 35,2 N; 245 E; H = 22:15:03.6 h = 64 km; M = 5,0 (GS) Crete.
17	ZH	Pg	13	40	27,8		Ep.: Local.
26	ZT	iPg	14	43	13,5		Ep.: Local.
27	ZT	i	13	01	24,0		Ep.: Local.
27	ZT	iP	13	10	38,0		Ep.: 36,4 N; 71,0 E; H = 13:01:40,2 h = 172 km; M = 5,8 (GS) Afghanistan-URSS border region
27	ZT	iPg	14	30	21,0		Ep.: Local.
28	ZT	i	11	43	07,5		Ep.: Local.
1 Feb	ZT	iP	07	40	02,5		Ep.: 49,1 N. 146,4 E; H = 07:28:28,7 h = 573 km; M = 5,9 (GS) Sakhahin Island
1	ZT	iP	14	31	22,5		Ep.: 34,6 N; 70,5 E; H = 14:22:07,9 h = 33 km; M = 5,9 (GS) Afghanistan
3	ZT	iPn	01	42	40,5		See pag. 100
	ZT	i Sn	01	42	59,0		
16	ZT	iP	17	27	33,5		Ep.: 36,4 N; 70,8 E; H = 17:18:41,6 h = 208 km; M = 6,1 (GS) Hindu Kush Region
17	ZT	iPkP	16	50	59,0		Ep.: 6,6 S; 130,1 E; H = 16:32:21,3 h = 158 km; M = 6,1 (GS) Banda Sea
18	ZT	iPg	15	27	11,5		Ep.: 42,6 N; 0,9 E; H = 15:26:44,9 h = 10 km; M = 2,5 (LDG) Foix,F
19	ZT	iP	21	15	26,5		Ep.: 43,4 N; 5,6 E; H = 21:14:37,2 h = 5 km; M = 4,3 (LDG) Marseille
23	ZT	iPn	05	52	21,5		Ep.: 43,0 N; 0,1 E; H = 05:51:43,3 h = 5km; M = 4,5 (LDG) Toulouse Area



SEISMIC OBSERVATIONS

1984

Date	Comp.	Phase	Time TU			Δ Km	Remarks
			h	m	s		
25 Feb	ZT	P	02	04	06,0		Ep. 43,2 N; 1,2 W; H = 02:03:17,5 h = 5 km; M = 4,7 (LDG) Pau
27	ZT	iPn	21	36	15,5		Ep.: 43,3 N; 1,1 W; H = 21:35:29,9 h = 5 km; M = 3,2 (LDG) Pau Area
	ZT	iSn	21	37	00,5		
5 Mar	ZT	iPkP	03	51	06,0		Ep.: 8,1 N; 123,8 E; H = 03:33:50,9 h = 649 km; M = 6,5 (GS) Mindanao, Philippine Islands
5	ZT	iPg	16	50	07,5		Ep.: Local.
		iSg	16	50	10,0		
6	ZT	eP	02	30	13,0		Ep.: 29,4 N; 138,9, E; H = 02:17:21,2 h = 457 km; M = 6,2 (GS) South of Honshu, Japan
16	ZT	iPg	13	10	14,0		Ep.: Local.
		iSg	13	10	17,0		
19	ZT	iPc	20	36	57,0		Ep.: 40,3 N; 63,3 E; H = 20:28:38,2 h = 15 km; M = 6,5 (GS) Uzbek SSR
	ME	P	20	37	39,7		
	MN	P	20	37	44,2		
	ZV	P	20	37	39,0		
19	ZT	iPg	23	52	48,0		Ep.: See pag. 100
20	ZT	iP	23	33	40,0		Ep.: 38,0 N; 0,2 W; H = 23:32:39,5 h = 10 km; M = 3,2 (IGN) Mediterranean Sea
21	ZT	iP	01	15	05,0		Ep.: 39,4 N; 15,2 E; H = 01:12:43,6 h = 281 km; M = 5,1 (GS) Southern Italy
21	ZT	iP	02	57	04,0		Ep.: 49,2 N; 155,4 E; H = 02:44:24,3 h = 41 km; M = 6 (GS) Kuril Islands
22	ZT	ePn	04	36	58,0		Ep.: 43,3 N; 1,1 W; H = 04:36:12,7 h = 10 km; M = 3,1 (LDG) Pau
	ZT	eSn	04	37	33,5		
22	ZT	iPg	14	00	16,7		Ep.: Local.
	ZT	iSg	14	00	20,2		
22	ZT	eP	22	23	08,0		Ep.: 36,6 N; 71,2 E; H = 22:14:20,1 h = 254 km; M = 5,3 (GS) Afghanistan-USSR Border region
23	ZT	iPg	11	50	37,0		Ep.: Local.
	ZT	iSg	11	50	40,0		



SEISMIC OBSERVATIONS

1984

Date	Comp.	Phase	Time TU			Δ Km	Remarks
			h	m	s		
24 Mar	ZT	iP	09	56	57,0		Ep.: 44,2 N; 148,2 E; H = 09:44:02,6 h = 44 km; M = 6,1 (GS) Kuril Islands
29	ZT	ePn	23	59	23,0		Ep.: 39,4 N; 0,3 E; H = 23:58:47,6 h = 31 km; M = 3,0 (IGN) Mediterranean Sea
31	ZT	ePn	03	33	08,0		Ep.: 36,4 N; 1,7 E; H = 03:31:55,1 h = 13 km; M = 4,6 (IGN) Algeria
	ZT	eSn	03	34	05,0		
31	ZT	ePn	04	46	46,0		Ep.: 36,3 N; 1,7 E; N = 04:45:32,9 h = 30 km; M = 4,2 (IGN) Algeria
	ZT	eSn	04	47	42,0		
1 Apr	ZT	ePn	00	35	31,0		Ep.: 36,9 N; 1,4 E; H = 00:34:23,7 h = 10 km; M = 3,8 (GS) Algeria
	ZT	eSn	00	36	27,5		
3	ZT	iP	03	29	18,0		Ep.: 35,5 N; 140,7 E; H = 03:18:05,1 h = 58 km; M = 5,1 (GS) Near east coast of Honshu, Japan
3	ZT	ePg	05	41	03,0		Ep.: 43,1 N; 0,4 W; H = 05:40:20,5 h = 5 km; M = 3,6 (LDG) Pau
3	ZT	ePn	13	43	33,0		Ep.: 43,0 N; 0,4 W; H = 13:42:58,8 h = 5 km; M = 3,5 (LDG) Pau
	ZT	eSn	13	44	16,5		
4	ZT	ePn	05	03	04,0		Ep.: 43,1 N; 0,4 W; H = 05:02:16,5 h = 10 km; M = 3,2 (LDG) Pau
	ZT	eSn	05	03	33,0		
5	ZT	iPg	12	30	11,5		Ep.: Local.
6	ZT	eP	23	27	07		Ep.: 18,9 S; 168,8 E; H = 23:08:22,3 h = 182 km; M = 5,7 (GS) Vanuatu Islands
12	ZT	iPg	17	43	37,0		Ep.: See pag. 100
	ZT	eSg	17	44	42,0		
17	ZT	iPg	12	07	55,0		Ep.: Local.
	ZT	iSg	12	07	57,0		
17	ZT	ePn	08	54	42,0		Ep.: 45,0 N; 5,2 E; H = 08:53:38,7 h = 0 km; M = 4,4 (LDG) Valence (F)
	ZT	eSn	08	55	31,0		



SEISMIC OBSERVATIONS

1984

Date	Comp.	Phase	Time TU			Δ Km	Remarks
			h	m	s		
18 Apr	ZT	P	07	08	52,0		Ep.:15,9 S; 174,3 W; H = 06:49:13,9 h = 150 km; M = 6,0 (GS) Tonga Islands
19	ZT	eP	03	02	05,0		Ep.: 36,4 N; 70,9 E; H = 02:53:12,7 h = 202 km; M = 5,7 (GS) Hindu Kush region
19	ZT	eP	20	43	21,0		Ep.: 45,0 N; 5,2 E; H = 20:41:16,7 h = 11 km; M = 4,2 (LDG) France
20	ZT	eP	06	42	41,5		Ep.: 50,1 N; 148,7 E; H = 06:31:10,6 h = 582 Km; M = 6,0 (GS) Sea of Okhotsk
21	ZT	Pc	01	29	44,0		Ep.: 36,1 N; 27,2 E; H = 01:25:12,1 h = 43 km; M = 4,6 (GS) Dodecanese Islands
22	ZT	iP	03	51	53,0		Ep.: 21,9 S; 179,4 W; H = 03:33:00,5 h = 593 km; M = 5,7 (GS) Fiji Islands region
22	ZT	eP	06	22	48,0		Ep.: 0,5 S; 19,8 W; H = 06:14:21,5 h = 10 km; M = 5,8 (GS) Central Mid-Atlàntic Ridge
22	ZT	eP	17	41	00,0		Ep.: 43,6 N; 10,2 E; H = 17:39:23,1 h = 15 km; M = 4,3 (GS) Central Italy
23	ZT	eP	21	52	31,0		Ep.: 47,4 N; 146,7 E; H = 21:40:35,5 h = 414 km; M = 6,0 (GS) Northwest of Kuril Islands
24	ZT	eP	04	24	18,0		Ep.: 30,9 N; 138,4 E; H = 04:11:29,0 h = 403 km; M = 6,1 (GS) South of Honshu, Japan
24	ZT	iPg	14	50	18,0		Ep.: Local.
	ZT	iSg	14	50	20,0		
25	ZT	eP	01	18	15,8		Ep.: 49,9 N; 78,9 E; H = 01:09:03,5 h = 0 km; M = 5,9 (GS) Eastern Kazah SSR
29	ZT	eP	05	05	00,0		Ep.: 43,3 N; 12,6 E; H = 05:30:00,0 h = 12 km; M = 5,2 (GS) Area de Assisi-Gubbio-Perugia
2 May	ZT	ePn	18	54	10,5		Ep.: See pag. 100
	ZT	eSn	18	54	28,5		
6	ZT	eP	09	16	15,0		Ep.: 38,8 N; 25,6 E; H = 09:12:02,2 h = 12 km; M = 5,1 (GS) Aegean Sea



SEISMIC OBSERVATIONS

1984

Date	Comp.	Phase	Time TU			Δ Km	Remarks
			h	m	s		
6 May	ZT	eP	15	31	08,5		Ep.: 24,3 N; 93,5 E; H = 15:19:11,4 h = 33 km; M = 5,7 (GS) Burma-India-Border Region
7	ZT	eP	17	51	49,0		Ep.: 41,8 N; 13,9 E; H = 17:49:41,6 h = 10 km; M = 5,5 (GS) Southern Italy
11	ZT	eP	10	43	57,0		Ep.: 41,8 N; 14,0 E; H = 10:41:49,9 h = 14 km; M = 5,2 (GS) Southern Italy
17	ZT	P	09	41	43,0		Ep.: 14,0 S; 166,6 E; H = 09:21:55,0 h = 25 km; M = 5,5 (GS) Vanuatu Islands
17	ZT	iPg	10	48	22,5		Ep.: Local.
	ZT	iSg	10	48	43,0		
17	ZT	iPg	12	09	12,0		Ep.: Local.
17	ZH	P	17	06	25,0		Ep.: 36,4 S; 52,4 E; H = 16:53:46,3 h = 10 km; M = 5,7 (GS) Atlantic-Indian-Rise
26	ZT	P	03	22	18,0		Ep.: 50,0 N; 79,0 E; H = 03:13:12,4 h = 0 km; M = 6,0 (GS) Eastern Kazakh SSR
26	ZT	eP	04	12	02,0		Ep.: 43,5 S; 38,9 E; H = 03:58:56,9 h = 10 km; M = 5,7 (GS) Prince Edward Islands Region
26	ZT	eP	23	02	29,0		Ep.: 10,9 S; 164,1 E; H = 22:42:47,3 h = 39 km; M = 5,5 (GS) Santa Cruz Islands Region
28	ZT	iPg	13	07	05,0		Ep.: Local.
	ZT	iSg	13	07	07,0		
30	ZH	P	08	08	41,0		Ep.: 4,8 S; 151,6 E; H = 07:49:43,6 h = 174 km; M = 6,2 (GS) New Britain region
3 Jun	ZT	iPg	17	21	02,0		Ep.: Local.
	ZT	iSg	17	21	17,0		
6	ZT	iPg	16	08	20,0		Ep.: Local.
		iSg	16	08	21,5		



SEISMIC OBSERVATIONS

1984

Date	Comp.	Phase	Time TU			Δ Km	Remarks
			h	m	s		
11 Jun	ZT	eP	02	19	08,5		Ep.: 30,7 S; 71,2 W; H = 02:05:34,0 h = 46 km; M = 6,3 (GS) Near Coast of central Chile
13	ZT	ePn	12	24	54,0		Ep.: 42,8 N; 1,9 W; H = 12:24:05,5
	ZT	eSn	12	25	43,0		h = 20 km M = 3,2 (IGN) Pamplona
15	ZT	ePKP	14	41	47,0		Ep.: 15,8 S; 174, 8 W; H = 14:22:23,0 h = 247 km; M = 6,1 (GS) Tonga Islands
15	ZT	ePn	23	04	03,5		Ep.: 36,4; 1,8 E; H = 23:02:50,5
	ZT	eSn	23	04	55,0		h = 17 km; M = 4,5 (IGN) Algeria
17	ZT	eP	07	52	13,0		Ep.: 38,9 N; 25,7; H = 07:48:02,6 h = 23 km; M = 5,0 (GS) Aegean Sea
19	ZT	eP	11	41	38,0		Ep.: 44,0 N; 6,2 E; H = 11:40:37,1 h = 5 km; M = 4,1 (LDG) Gap. Area
21	ZT	P	10	47	48,0		Ep.: 35,4 N; 23,2 E; H = 10:43: 42,1 h = 39 km; M = 5,8 (GS) Crete
24	ZT	P	11	28	48,5		Ep.: 18,0 N; 69,3 W; H = 11:17:11,9 h = 24 km; M = 6,0 (GS) Dominican Republic region
24	ZT	iPn	14	32	25,5		Ep.: 36,8 N; 3,7 W; H = 14:30:51,1
	ZT	iSn	14	33	36,0		h = 5 km; M = 5,0 (IGN) Granada
24	ZT	iPg	17	34	21,5		Ep.: Local.
	ZT	iSg	17	34	29,5		
25	ZT	iPg	11	24	11,5		Ep.: Local.
26	ZT	iPg	11	24	12,0		Ep.: Local.
	ZT	iSg	11	24	14,0		
26	ZT	iPg	16	58	46,0		Ep.: Local.
	ZT	iSg	16	58	49,0		
1 Jul	ZT	P	10	21	14,0		Ep.: 36,5 N; 70,9 E; H = 10:12:20,0 h = 204 km; M = 5,8 (GS) Hindu Kush region
2	ZT	P	05	03	24,0		Ep.: 16,8 N; 98,4 W; H = 04:50:44,1 h = 47 km; M = 5,9 (GS) Near coast of Guernero, Mexico



SEISMIC OBSERVATIONS

1984

Date	Comp.	Phase	Time TU			Δ Km	Remarks
			h	m	s		
9 Jul	ZT	iPg	15	28	05,0		Ep.: Local.
	ZT	iSg	15	28	08,5		
13	ZT	iPg	12	07	07,5		Ep.: See pag. 100
14	ZT	P	01	18	23,0		Ep.: 49,9 N; 79,0 E; H = 01:09:10,5 h = 0 km; M = 6,2 (GS) Eastern Kazakh SSR
17	ZT	iS	04	20	27,0		Ep.: 43,1 N; 0,2 W; H = 04:19:12,4 h = - ; M = 3,2 (LDG) Pau
19	ZT	P	06	59	04,5		Ep.: 52,9 N; 4,2 W; H = 06:56:10,4 h = 13 Km; M = 5,0 (GS)
19	ZT	iPg	15	26	20,5		Ep.: Local.
	ZT	iSg	15	26	23,0		
29	ZT	P	02	02	52,0		Ep.: 40,4 N; 26,0 F; H = 01:58:42,2 h = 21 km; M = 4,9 (GS) Aegean Sea
2 Aug	ZT	iPn	13	41	12,5		Ep.: 38,8 U; 0,4 W; H = 13:40:22,9 h = 9 km; M = 4,0 (IGN) Muro, Alicante
	ZT	iSn	13	41	49,5		
3	ZT	iPg	12	55	36,5		Ep.: Local.
	ZT	iSg	12	55	39,0		
6	ZT	P	12	20	-		Ep.: 0,1 S; 122,5 E; H = 12:01:52,4 h = 242 Km; M = 6,2 (GS) Minahassa
7	ZT	Pg	11	06	50,0		Ep.: Local.
9	ZT	iPg	09	23	07,5		Ep.: Local.
	ZT	iSg	09	23	10,0		
10	ZT	iPg	04	14	43,0		Ep.: See pag. 100
	ZT	iSg	04	14	48,5		
14	ZT	eP	01	13	52,0		Ep.: 61,9 N; 149,1 W; H = 01:02:08,4 h = 20 km; M = 5,7 (GS) Southern Alaska
14	ZT	iPg	14	49	31,9		Ep.: See pag. 100



SEISMIC OBSERVATIONS

1984

Date	Comp.	Phase	Time TU			Δ Km	Remarks
			h	m	s		
16 Aug	ZT	iPg	13	11	57,0		Ep.: Local.
19	ZT	eP	06	47	47,5		Ep.: 41,0 S; 43,2 E; H = 06:34:45,3 h = 10 km; M = 5,5 (GS) Prince Edward Islands Region
21	ZT	iPn	12	47	35,0		Ep.: 43,0 N; 0,2 W; H = 12:47:51,5 h = 0 km; M = 3,1 (GS) Pau
	ZT	iSn	12	18	05,5		
22	ZT	iP	18	09	53,5		Ep.: 36,1 N; 70,5 E; H = 18:00:54,0 h = 137 km; M = 5,4 (GS) Hindu Kush region
26	ZT	iPn	05	19	45,5		Ep.: 23,6 S; 179,1 E; H = 05:00:45,6 h = 560 km; M = 5,9 (GS) South of Fiji Islands
29	ZT	iPg	15	51	21,5		Ep.: Local.
	ZT	iSg	15	51	23,5		
29	ZT	iPn	23	30	58,5		Ep.: 43,2 N; 1,0 W; H = 23:30:12,5 h = 10 km; M = 3,8 (LDG) Pau
	ZT	iSn	23	31	42,5		
30	ZT	iPkp	16	25	19,5		Ep.: 33,3 S; 149,4 W; H = 16:06:13,9 h = 33 km; M = 5,9 (GS) South of Kermadec Islands
31	ZT	PkP	16	03	28,0		Ep.: 18,0 S; 172,1 E; H = 15:42:11,7 h = 29 km; M = 6,1 (GS) Vanuatu Islands region
1 Sep	ZT	eP	11	43	34,0		Ep. 47,8 N; 27,6 W; H = 11:38:34,9 h = 10 km; M = 4,7 (GS) North Atlantic Ridge.
1	ZT	eP	17	18	50,5		Ep.: 44,4 N; 149,6 E; H = 17:05:54,3 h = 26 km; M = 5,7 (GS) Kuril Islands
1	ZT	ePn	18	48	41,5		Ep. 43,1 N; 07, W; H = 18:47:57,4 h = 3 km; M = 3,2 (LDG); Pau
	ZT	eSn	18	49	13,0		
6	ZT	P	11	54	2,9		Ep.: See pag. 100
9	ZT	iPg	05	30	36,8		Ep. See pag. 100
	ZT	iSg	05	30	43,8		



SEISMIC OBSERVATIONS

1984

Date	Comp.	Phase	Time TU			Δ Km	Remarks
			h	m	s		
9 Sep	ZT	eP	13	11	58,0		Ep.: 36,9 N; 24,6 W; H = 13:06:31,5 h = 10 km; M = 5,3 (GS) Azores Islands region
9	ZT	Pg	05	30	36,8		Ep.: See pag. 100
	ZT	Sg	05	30	49,3		
10	ZT	eP	03	26	53,0		Ep.: 40,5 N; 126,8 W; H = 03:14:10,1 h = 10 km; M = 6,1 (GS) Off Coast of Northern California
11	ZT	iP	07	36	14,0		Ep.: 15,5 S; 167,7 E; H = 07:16:35,1 h = 126 km; M = 5,6 (GS) Vanuatu Islands
12	ZT	iPg	11	02	20,5		Ep.: Local.
	ZT	iSg	11	02	23,0		
13	ZT	iPn	04	50	32,0		Ep.: 37,0 N; 23 W; H = 04:34:10,5 h = 9 km; M = 5,0 (IGN) Almeria
	ZT	iSn	04	51	36,0		
13	ZT	iPn	09	09	29,0		Ep.: 36,9 N; 2,3 W; H = 09:08:06,4 h = 10 km; M = 4,4 (IGN) Almeria
13	ZT	iPn	11	41	26,0		Ep.: 37,0 N; 2,4 W; H = 11:40:03,9 h = 5 km; M = 4,8 (IGN) Almeria
	ZT	iSn	11	42	28,0		
13	ZT	iPg	14	32	18,5		Ep.: Local.
	ZT	iSg	14	32	21,0		
14	ZT	eP	00	02	06,0		Ep.: 35,8 N; 137,5 E; H = 23:48:49,9 h = 10 km; M = 6,0 (GS) Honshu, Japan
17	ZT	iPg	13	13	50,0		Ep.: Local.
	ZT	iSg	13	13	51,5		
18	ZT	iPg	12	44	59,9		Ep.: See pag. 100
	ZT	iSg	12	44	09,2		
26	ZT	iPg	04	54	42,5		Ep.: See pag. 100
	ZT	iSg	04	54	55,5		
26	ZT	iPg	05	06	48,0		Ep.: See pag. 101
	ZT	iSg	05	07	01,0		



SEISMIC OBSERVATIONS

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Date	Comp.	Phase	Time TU			Δ Km	Remarks
			h	m	s		
26 Sep	ZT	iPg	05	01	41,5	Ep.: See pag. 101	
	ZT	iSg	05	01	53,5		
26	ZT	iPg	05	34	29,2	Ep.: See pag. 100	
	ZT	iSg	05	34	42,0		
28	ZT	ePkP	00	23	37,5	Ep.: 25,8 S; 175,9 W; H = 00:03:34,5 h = 21 km; M = 6,4 (GS) South of Tonga Islands	
28	ZT	eP	03	23	45,5	Ep.: 21,5 S; 177,8 W; H = 03:03:46,8 h = 364 km; M = 5,8 (GS) Fiji Islands region	
28	ZT	iPg	11	04	09,5	Ep.: Local.	
	ZT	iSg	11	04	12,0		
1 Oct	ZT	iPg	14	13	49,5	Ep.: Local.	
8	ZT	iPg	20	05	08,3	Ep.: See pag. 100	
10	ZT	iPg	11	58	08,0	Ep.: Local.	
	ZT	iSg	11	58	09,5		
13	ZT	eP	17	30	47,5	Ep.: 15,0 N; 94,3 W; H = 17:18:13,8 h = 31 km; M = 6,1 (GS) Near Coast of Oaxaca, México	
15	ZT	PkP	10	40	47,0	Ep.: 15,9 S; 173,6 W; H = 10:21:07,5 h = 128 km; M = 6,4 (GS) Tonga Islands	
25	ZT	P	06	37	38,0	Ep.: 73,4 N; 54,9 E; H = 06:29:57,7 h = 0 km; M = 5,9 (GS) Novaya Zemlya	
26	ZT	P	20	31	25,5	Ep.: 39,1 N; 71,3 E; H = 20:22:21,8 h = 33 km; M = 6,0 (GS) Tajik SSR	
27	ZT	P	01	59	22,5	Ep.: 49,9 N; 78,8 E; H = 01:50:10,6 h = 0 km; M = 6,2 (GS) Eastern Kazakh SSR	
28	ZT	Pg	05	13	40,2	Ep.: See pag. 100	
	ZT	Sg	05	14	07,2		
29	ZT	P	23	36	57,25	Ep.: 5,7 N; 125,5 E; H = 23:18:05,1 h = 15,3 km; M = 5,9 (GS) Mindanao, Philippine Islands	



SEISMIC OBSERVATIONS

1984

Date	Comp.	Phase	Time TU			Δ Km	Remarks
			h	m	s		
30 Oct	ZT	PkP	01	25	29,5		Ep.: 17,1 S; 174,1 W; H = 01:05:49,9 h = 141 km; M = 6,0 (GS) Tonga Islands
1 Nov	ZT	iPc	04	57	39,1		Ep.: 8,2 N; 38,8 W; H = 04:48:50,2 h = 10 km; M = 6,5 (GS) Central Mid Atlantic Ridge
1	ZH ZT	iPc iPc	18 18	56 56	03,3 03,0		Ep.: 55,2 N; 163,7 E; H = 18:43:44,1 h = 49 km; M = 5,8 (GS) off east coast of Kamchatka
2	ZT ZT	iPg iSg	16 16	03 03	47,5 50,5		Ep.: Local.
4	ZT	iPg	06	25	34,2		Ep.: Local.
6	ZT ZT	iPg iSg	14 14	09 09	27,0 28,5		Ep.: Local.
15	ZT	iPg	12	04	59,0		Ep.: Local.
15	ZT	iPg	12	08	23,5		Ep.: Local.
17	ZT ZT	iPn iSn	04 04	11 11	22,2 49,2		Ep.: 43,1 N; 0,1 E; H = 04:10:42,0 h = 7 km; M = 3,8 (LDG) Toulouse
17	ZT	eP	07	02	56,0		Ep.: 0,2 N; 98,0 E; M = 06:49:30,0 h = 33 km; M = 6,3 (GS) Northern Sumatera
20	ZT	e	08	33	30,0		Ep.: 5,2 N; 125,1 E; H = 08:15:16,2 h = 202 km; M = 6,4 (GS) Mindanao, Philippine Islands
21	ZT	P	18	37	45,0		Ep.: 14,5 S; 171,1 E; H = 18:17:51,3 h = 24 km; M = 5,6 (GS); Vanuatu Islands
22	ZT	eP	01	02	16,5		Ep.: 31,0 S; 13,2 W; N = 00:50:43,4 h = 10 km; M = 5,9 (GS) South Atlantic Ridge
23	ZH	iP	05	06	23,5		Ep.: 14,3 S; 171,3 E; H = 04:46:06,3 h = 33 km; M = 6,0 (GS) Vanuatu Islands Region
23	ZT	P	18	52	45,0		Ep.: 8,2 S; 76,1 W; H = 18:40:14,4 h = 122 km; M = 5,9 (GS) Perú
27	ZT ZT	iPg iSg	13 13	53 53	29,0 34,5		Ep.: Local.



SEISMIC OBSERVATIONS

1984

Date	Comp.	Phase	Time TU			Δ Km	Remarks
			h	m	s		
28 Nov	ZT	eP	10	41	14		Ep.: 26,7 N; 97,1 E; H = 10:29:21,8 h = 18 km; M = 5,9 (GS) Burma
30	ZT	iPg	12	40	13,5		Ep. Local.
	ZT	iSg	12	40	16,0		
2 Dec	ZT	iPn	21	49	36,2		Ep.: See pag. 100
3	ZT	iPg	15	25	49,0		Ep.: Local.
3	ZT	iP	04	21	27,0		Ep.: 44,2 N; 148,1 E; H = 04:08:35,1 h = 65 km; M = 6,4 (GS) Kuril Islands
6	ZT	Pg	11	03	43,0		Ep.: See pag. 100
7	ZT	iPc	10	27	31,0		Ep.: 1,4 S; 15,0 W; H = 10:19:10,7 h = 10 km; M = 5,9 (GS) North of Ascension Island
16	ZT	iPc	04	04	16,0		Ep.: 50,0 N; 78,9 E; H = 03:55:02,7 h = 0 km; M = 6,1 (GS) Eastern Kazakh SSR
16	ZT	e	20	11	11,5		Ep.: 4,7 S; 153,2 E; H = 19:51:53,2 h = 50 km; M = 5,5 (GS) New Ireland region
17	ZT	iP	23	43	20,0		Ep.: 44,4 N; 149,2 E; H = 23:30:21,2 H = 29 km; M = 5,7 (GS) Kuril Islands
18	ZT	iP	00	09	53,0		Ep.: 44,2 N; 149,2 E; H = 23:56:57,5 h = 33 km; M = 5,9 (GS) Kuril Islands
19	ZT	iP	11	57	46,5		Ep.: Local.
24	ZT	iPg	12	40	37,5		Ep.: Local.
28	ZT	iP	03	59	23,0		Ep.: 49,9 N; 78,8 E; H = 03:50:10,7 h = 0 km; M = 6,0 (GS) Eastern Kazakh SSR
28	ZT	iPc	10	50	10,0		Ep.: 56,2 N; 163,6 E; H = 10:37:53,7 h = 33 km; M = 6,2 (GS) Near east coast of Kamchatka.

