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Old seismologic reports

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SEISMIC OBSERVATIONS
AT FABRA OBSERVATORY IN 1985

by 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) To	Magnification	Damping
Teledyne Geotech	Z (ZT)	5	1	64.000	0,7

2) Electromagnetic seismograph (photographic recording):

Type	Component	Period(s)		Maximum Amplification Vm	Damping
		Tp	Tg		
Hiller-Stuttgart	Z(ZH)	1,61	1,3	7,326	Critical

3) Mechanical seismographs (recording on smoked paper):

Type	Component	Mass (kg)	Period(s) To	Damping E	Friction r/T σ^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

1985

Date	Comp.	Phase	Time TU			Δ Km	Remarks
			h	m	s		
5 Jan	ZT	P	11	23		8.610	Ep.: 10,2 N; 80,0 W; H = 11:11:31,1 h = 33 km; M = 6,1 (GS) North of Panama
8	ZT	Pg	15	36	37,2		Ep.: See pag. 98
	ZT	Sg	15	36	50,7		
10	ZT	Pn	03	01	13,3		Ep.: 39,5 N; 0,1 E; H = 03:00:35 h = - km; M = 3,4 (IGN) Mediterraneo
10	ZT	P	17	56		5.579	Ep.: 10,7 N; 43,4 W; H = 17:47:56,0 h = 10 km; M = 5,8 (GS) North Atlantic Ocean
15	ZT	P	22	56		16.166	Ep.: 10,3 S; 165,0 E; H = 22:36:33,9 h = 33 km; M = 5,5 (GS) Santa Cruz Islands Region
21	ZT	Pg	07	22	34,2		Ep.: Local
23	ZT	Pn	18	11	02,7		Ep.: 38,3 N; 1,5 W; H = 18:10:01 h = - km; M = 3,7 (IGN) Murcia, Spain
	ZT	Sn	18	11	53,0		
25	ZT	Pg	13	11	25,0		Ep.: Local
	ZT	Sg	13	11	26,7		
25	ZT	Pg	13	35	50,7		Ep.: Local
	ZT	Sg	13	35	53,7		
26	ZT	Pg	14	45	42,3		Ep.: See pag. 98
	ZT	Sg	14	45	56,0		
28	ZT	Pg	14	58	00,3		Ep.: Local
	ZT	Sg	14	58	03,5		
30	ZT	Pg	11	26	23,6		Ep.: See pag. 98
	ZT	Sg	11	26	30,3		
3 Feb	ZT	P	05	10		17.666	Ep.: 20,5 S; 174,1 W; H = 04:50:55,2 h = 57 km; M = 5,8 (GS) Tonga Islands
8	ZT	Pn	01	31	41,0		Ep.: See pag. 98
	ZT	Sn	01	32	11,0		
8	ZT	Pn	13	13	47,0		Ep.: See pag. 98
	ZT	Sn	13	14	02,0		



SEISMIC OBSERVATIONS

1985

Date	Comp.	Phase	Time TU			Δ Km	Remarks
			h	m	s		
10 Feb	ZT	P	03	36		5.770	Ep.: 49,9 N; 78,8 E; H = 03:27:07,6 h = - km; M = 5,9 (GS) Eastern Kazakh SSR
20	ZT	Pg	21	39	30,0		Ep.: See pag. 98
	ZT	Sg	21	39	46,2		
23	ZT	P	14	01	19,3	15.970	Ep.: 10,2 S; 161,1 E; H = 13:41:55,0 h = 85 km; M = 6,0 (GS) Solomon Islands
28	ZT	P	11	30	05,2		Ep.: 19,1 S; 168,7 E; H = 11:10:16,8 h = 49 km; M = 5,5 (GS) Vanuatu Islands
1 Mar	ZT	P	16	30	59,0		Ep.: 41,6 N; 4,4 E; H = 16:30:33,7 h = - km; M = 3,2 (LDG) Barcelona, Spain
3	ZT	P	23	00		11.225	Ep.: 33,1 S; 72,0 W; H = 22:47:07,2 h = 33 km; M = 6,7 (GS) Near Coast of Central Chile
3	ZT	P	23	52		11.190	Ep.: 32,7 S; 71,2 W; H = 23:38:31,4 h = 33 km; M = 6,3 (GS) Near Coast of Central Chile
5	ZT	Pn	15	39	24,0	680	Ep.: 35,5 N; 1,4 E; H = 15:37:55,6 h = 10 km; M = 5,0 (GS) Argelia
	ZT	Sn	15	40	25,5		
6	ZT	P	22	44		9.097	Ep.: 55,2 N; 162,0 E; H = 22:31:53,2 h = 47 km; M = 5,8 (GS) Near East Coast of Kamchatka
6	ZT	Pn	23	00	03,5		Ep.: See pag. 98
	ZT	Sn	23	00	23,0		
12	ZT	S	09	05	23,1		Ep.: 43,0 N; 0,5 W; H = 09:04:03,4 h = 5 km; M = 3,4 (LDG) Pau (F) Àrea
12	ZT	S	12	43	46,1		Ep.: 43,0 N; 0,2 W; H = 12:42:33,6 h = 10 km; M = 3,3 (LDG) Pau (F) Àrea
14	ZT	P	04	39		5.450	Ep.: 1,3 S; 23,6 W; H = 04:30:15,7 h = 10 km; M = 6,2 (GS) Central Mid-Atlantic Ridge
14	ZT	Pg	06	39	33,0		Ep.: Local
	ZT	Sg	06	39	45,7		



SEISMIC OBSERVATIONS

1985

Date	Comp.	Phase	Time TU			Δ Km	Remarks
			h	m	s		
14 Mar	ZT	Pg	14	28	32,0		Ep.: Local
	ZT	Sg	14	28	34,1		
14	ZT	P	21	03		9.215	Ep.: 16,0 N; 92,4 W; H = 20:51:24,9
16	ZT	P	15	04		6.650	Ep.: 17,0 N; 62,4 W; H = 14:54:00,7 h = 13 km; M = 6,3 (GS) Leeward Islands
25	ZT	P	09	15		16.319	Ep.: 11,4 S; 165,7 E; H = 08:56:06,1 h = 33 km; M = 5,4 (GS) Santa Cruz Islands
3 Abr	ZT	P	20	38		11.106	Ep.: 28,2 N; 139,5 E; H = 20:21:36,2 h = 469 km; M = 5,9 (GS) Bonin Islands Region
5	ZT	Pn	05	19	19,5		Ep.: 42,8 N; 2,0 W; H = 05:18:33 h = - km; M = 2,8 (IGS) Navarra, Spain
9	ZT	P	02	10		11.272	Ep.: 34,1 S; 71,6 W; H = 01:56:59,4 h = 38 km; M = 6,3 (GS) Near Coast of Central Chile
9	ZT	Pg	23	45	02,0		Ep.: See pag. 98
	ZT	Sg	23	45	17,0		
10	ZT	Pn	00	37	13,1		Ep.: 38,4 N; 2,8 W; H = 00:36:01 h = 10 km; M = 4,2 (IGS) Jaen, Spain
12	ZT	P	06	32		16.306	Ep.: 11,3 S; 165,6 E; H = 06:12:45,0 h = 33 km; M = 5,7 (GS) Santa Cruz Islands
13	ZT	P	03	18		12.665	Ep.: 1,6 N; 126,4 E; H = 03:00:06,7 h = 51 km; M = 6,4 (GS) Molucca Passage
16	ZT	Sg	10	56	02,2		Ep.: See pag. 98
20	ZT	P	18	35		8.487	Ep.: 9,0 N; 77,4 W; H = 18:23:48,0 h = 38 km; M = 5,6 (GS) Panama
22	ZT	Pn	11	26	18,3	487	Ep.: 42,6 N; 7,9 E; H = 11:25:15,7 h = 33 km; M = 3,8 (LDG) S. Nice
23	ZT	P	16	28		11.102	Ep.: 15,3 N; 120,6 E; H = 16:15:12,0 h = 188 km; M = 6,3 (GS) Luzon, Philippine Islands



SEISMIC OBSERVATIONS

1985

Date	Comp.	Phase	Time TU			Δ Km	Remarks
			h	m	s		
25 Abr	ZT	P	01	06		5.777	Ep.: 49,9 N; 78,9 S; H = 00:57:06,5 h = - km; M = 5,9 (GS) Eastern Kazakh SSR
28	ZT	Pg	08	16	18,1		Ep.: See pag. 99
	ZT	Sg	08	16	27,4		
30	ZT	P	18	17		1.764	Ep.: 39,2 N; 22,8 E; H = 18:14:12,7 h = 27 km; M = 5,5 (GS) Greece
1 May	ZT	P	13	39			Ep.: 9,2 S; 71,2 W; H = 13:27:56,0 h = 599 km; M = 6,0 (GS) Peru-Brazil
2	ZT	P	09	07		9.663	Ep.: 48,8 N; 156,3 E; H = 08:55:16,3 h = 43 km; M = 5,9 (GS) Kuril Islands Region
2	ZT	P	15	32		9.265	Ep.: 37,2 N; 116,3 W; H = 15:20:00,0 h = - km; M = 5,7 (GS) Southern Nevada
6	ZT	P	03	13		6.073	Ep.: 30,9 N; 70,3 E; H = 03:04:22,7 h = 37 km; M = 5,6 (GS) Pakistan
10	ZT	P	15	55		14.982	Ep.: 5,6 S; 151,0 E; H = 15:35:50,5 h = 27 km; M = 6,3 (GS) New Britain Region
14	ZT	Pn	16	28	12,3		Ep.: 42,9 N; 0,6 W; H = 16:27:30,0 h = - km; M = 3,4 (LDG) Luz, France
	ZT	Sg	16	28	52,3		
14	ZT	P	18	21		7.039	Ep.: 10,5 S; 41,4 E; H = 18:11:08,9 h = 10 km; M = 6,4 (GS) Northwest of Madagascar
15	ZT	Pn	00	32	51,0		Ep.: 42,9 N; 0,6 W; H = 00:32:09,3 h = - km; M = 3,4 (LDG) Luz, France
	ZT	Sg	00	33	32,2		
15	ZT	Pn	02	50	21,8		Ep.: 42,8 N; 0,8 W; H = 08:49:38,1 h = 5 km; M = 3,3 (LDG) Luz, France
	ZT	Sg	02	50	56,8		
15	ZT	P	11	01	22,8	380	Ep.: 39,2 N; 5,6 E; H = 11:00:31 h = - km; M = 4,0 (IGN) Western Mediterranean Sea
19	ZT	P	18	22		10.960	Ep.: 30,25 S; 71,33 W; H = 18:51:00,5 h = 39 km; M = 5,9 (GS) Near Coast of Central Chile
20	ZT	P	10	38		2.375,6	Ep.: 36,1 N; 28,8 E; H = 10:33:41,2 h = 45 km; M = 4,7 (GS) Dodecanese Islands



SEISMIC OBSERVATIONS

1985

Date	Comp.	Phase	Time TU			Δ Km	Remarks
			h	m	s		
23 May	ZT	P	19	10		16.181	Ep.: 10,2 S; 165,3 E; H = 18:51:00,5 h = 36 km; M = 5,3 (GS) Santa Cruz Islands
25	ZT	P	23	41		9.215	Ep.: 54,1 N; 161,0 E; H = 23:29:21,7 h = 46 km; M = 5,9 (GS) Near East Coast of Kamchatka
26	ZT	P	18	06	42,6		Ep.: 37,8 N; 4,65 W; H = 18:05:10 h = - km; M = 5,2 (IGN) Montilla, Spain
26	ZT	P	19	09	16,1		Ep.: 37,8 N; 4,9 W; H = 19:07:41 h = 24 km; M = - (IGN) Spain
28	ZT	P	00	50	31,6	343	Ep.: 43,3 N; 5,5 E; H = 00:49:42,3 h = 2 km; M = 3,2 (LDG) Monseille
29	ZT	P	01	32	50,2		Ep.: 43,2 N; 2,4 W; H = 01:32:01 h = - km; M = 3,0 (IGN) Guipuzcoa, Spain
30	ZT	P	13	18		9.583	Ep.: 49,1 N; 154,1 E; H = 13:06:21,7 h = 150 km; M = 5,5 (GS) Kuril Islands
31	ZT	Pn Sn	00 00	45 45	33,7 52,2		Ep.: See pag. 99
31	ZT ZT	Pn Sn	01 01	51 51	14,2 54,2		Ep.: 43 N; 0,5 W; H = 01:50:35,5 h = 2 km; M = 3,1 (LDG) Luz, France
3 Jun	ZT	P	12	26		17.081	Ep.: 15,3 S; 173,5 W; H = 12:06:21,1 h = 33 km; M = 6,2 (GS) Tonga Islands
4	ZT	P	12	14		5.134	Ep.: 0,4 S; 19,5 W; H = 12:06:03,7 h = 10 km; M = 5,1 (GS) Central Mid-Atlantic Ridge
4	ZT	P	21	44		3.075	Ep.: 57,0 N; 34,0 W; H = 21:38:46,2 h = 10 km; M = 5,1 (GS) North Atlantic Ocean
5	ZT	P	01	47		3.072,5	Ep.: 56,9 N; 33,7 W; H = 01:41:42,4 h = 10 km; M = 5,1 (GS) North Atlantic Ocean
5	ZT	P	23	24		15.017	Ep.: 4,6 S; 153,2 E; H = 23:04:55,5 h = 68 km; M = 5,6 (GS) New Ireland Region



SEISMIC OBSERVATIONS

1985

Date	Comp.	Phase	Time TU			Δ Km	Remarks
			h	m	s		
6 Jun	ZT	P	02	49		5.445	Ep.: 0,9 N; 28,4 W; H = 02:40:12,9 h = 10 km; M = 6,3 (GS) Central Mid-Atlantic Ridge
15	ZT	Pg	01	00	18,7		Ep.: See pag. 99
	ZT	Sg	01	00	23,0		
15	ZT	P	01	06		5.774	Ep.: 49,9 N; 78,9 E; H = 00:57:00,7 h = - km; M = 6,0 (GS) Eastern Kazakh SSR
23	ZT	P	20	10		16.182	Ep.: 10,9 S; 163,7 E; H = 19:49:54,4 h = 32 km; M = 5,7 (GS) Solomon Islands
3 Jul	ZT	P	16	15		17.001	Ep.: 17,2 S; 167,8 E; H = 15:55:48,7 h = 29 km; M = 5,8 (GS) Vanuatu Islands
4	ZT	Pg	22	10	24,2		Ep.: See pag. 99
	ZT	Sg	22	10	30,6		
6	ZT	P	03	57		18.716	Ep.: 29,7 S; 177,7 W; H = 03:37:18,2 h = 50 km; M = 5,7 (GS) Kermadec Islands
19	ZT	P	00	28		979,5	Ep.: 39,8 N; 13,5 E; H = 00:26:08,4 h = 449 km; M = 4,9 (GS) Tyrrhenian Sea
19	ZT	P	02	02		523	Ep.: 36,9 N; 4,0 E; H = 02:01:24,9 h = 10 km; M = 4,0 (GS) Argelia
20	ZT	P	01	02		5.768	Ep.: 49,9 N; 78,8 E; H = 00:53:14,5 h = - km; M = 5,9 (GS) Eastern Kazakh SSR
22	ZT	P	13	24		2.415	Ep.: 34,4 N; 28,3 E; H = 21:32:28,0 h = 23 km; M = 5,4 (GS) Eastern Mediterranean Sea
29	ZT	P	08	03		5.829	Ep.: 36,2 N; 70,9 E; H = 07:54:44,0 h = 99 km; M = 6,6 (GS) Hindu Kush Region
2 Aug	ZT	P	07	55		5.824	Ep.: 36,2 N; 70,8 E; H = 07:46:51,4 h = 103 km; M = 6,1 (GS) Hindu Kush Region
11	ZT	P	10	12		9.307	Ep.: 54,1 N; 168,7 E; H = 09:59:41,6 h = 30 km; M = 6,0 (GS) Komandirsky Islands Region



SEISMIC OBSERVATIONS

1985

Date	Comp.	Phase	Time TU			Δ Km	Remarks
			h	m	s		
12 Aug	ZT	P	04	02		10.306	Ep.: 37,7 N; 141,7 E; H = 03:49:17,9 h = 51 km; M = 6,0 (GS) Near Coast of Houshu
15	ZT	P	04	31			Ep.: 47,0 N; 18,0 E; H = 04:28:51,3 h = - km; M = 5,1 (LDG)
15	ZT	P	18	59		739	Ep.: 44,5 N; 10,2 E; H = 18:58:02,0 h = - km; M = 4,4 (LGD) Bologna
21	ZT	P	11	39		9.948	Ep.: 9,2 S; 78,9 W; H = 11:26:28,8 h = 61 km; M = 6,1 (GS) Near Coast of Northern Peru
23	ZT	P	12	51		6.002	Ep.: 39,4 N; 75,3 E; H = 12:41:59,7 h = 33 km; M = 6,4 (GS) Southern Xinyiang, China
24	ZT	P	07	12		17.860	Ep.: 22,0 S; 177,8 W; H = 06:53:15,4 h = 354 Km; M = 5,6 (GS) South of Fiji Islands
28	ZT	P	21	09		17.745	Ep.: 21,0 S; 179,0 W; H = 20:50:48,4 h = 625 km; M = 5,9 (GS) Fiji Islands Region
31	ZT ZT	Pn Sn	08 08	10 11	38,9 06,4		Ep.: See pag. 99
7 Sep	ZT	P	09	52	55,8		Ep.: 35,7 N; 1,4 E; H = 09:51:33 h = - km; M = 4,0 (IGN) Argelia
10	ZT	P	01	38		8.627	Ep.: 60,4 N; 168,8 E; H = 01:26:06,4 h = 17 km; M = 5,7 (GS) Eastern Siberia
10	ZT	P	09	27		10.500	Teleseism
10	ZT	P	20	58	30,9		Ep.: 35,6 N; 1,3 E; H = 20:57:08 h = - km; M = 3,7 (IGN) Argelia
11	ZT	P	18	07		17.091	Ep.: 15,4 S; 173,5 W; H = 17:47:35,9 h = 68 km; M = 5,8 (GS) Tonga Islands
11	ZT	P	20	55		6.019	Ep.: 39,3 N; 75,4 E; H = 20:45:49,5 h = 15 km; M = 5,8 (GS) Southern Xinyiang, China
15	ZT	P	08	10		9.442	Ep.: 17,9 N; 97,2 W; H = 07:57:53,5 h = 65 km; M = 5,9 (GS) Oaxaca, Mexico



SEISMIC OBSERVATIONS

1985

Date	Comp.	Phase	Time TU			Δ Km	Remarks
			h	m	s		
17 Sep	ZT	Sg	18	48	58,5		Ep.: See pag
19	ZT	P	13	30		9.844	Ep.: 18,2 N; 102,5 W; H = 13:17:47,3 h = 28 km; M = 6,8 (GS) Michoacan, Mexico
21	ZT	P	01	50		9.803	Ep.: 17,8 N; 101,6 W; H = 01:37:13,4 h = 31 km; M = 6,3 (GS) Near Coast of Guerrero, Mexico
21	ZT	P	11	07		9.921	Ep.: 46,7 S; 13,4 W; H = 10:54:44,4 h = 10 km; M = 5,4 (GS) South Atlantic Ridge
22	ZT	P	18	32		5.521	Ep.: 12,5 N; 44,3 W; H = 18:23:12,2 h = 10 km; M = 5,7 (GS) North Atlantic Ridge
27	ZT	P	03	58		15.878	Ep.: 9,8 S; 159,8 E; H = 03:39:08,5 h = 32 km; M = 6,2 (GS) Solomon Islands
27	ZT	P	16	44	23,5		Ep.: 34,5 N; 26,6 E; H = 16:39:48,7 h = 61 km; M = 5,6 (GS) Crete
30	ZT	Pn	02	28	44,4		Ep.: 43,0 N; 0,5 W; H = 02:28:00,7
	ZT	Sn	02	29	19,6		h = - km; M = 3,8 (LDG) Luz, France
1 Oct	ZT	P	05	54		16.546	Ep.: 13,4 S; 166,2 E; H = 05:35:12,1 h = - km; M = 5,2 (GS) Vanuatu Islands
1	ZT	Pg	05	54	57,1		Ep.: Local
2	ZT	Pn	13	42	16,6		Ep.: See pag 99
	ZT	Sn	13	42	38,1		
4	ZT	P	08	58		11.195	Ep.: 27,6 N; 139,9 E; H = 08:41:37,9 h = 480 km; M = 5,6 (GS) Bonin Islands Region
4	ZT	P	12	39		10.421	Ep.: 35,7 N; 140,0 E; H = 12:25:51,1 h = 80 km; M = 5,8 (GS) Near East Coast of Honshu, Japan
5	ZT	P	15	35		7.537	Ep.: 62,2 N; 124,3 W; H = 15:24:02,2 h = 10 km; M = 6,5 (GS) Northwest Territorie, Canada
9	ZT	P	09	45		9.176	Ep.: 54,8 N; 159,7 W; H = 09:33:32,8 h = 31 km; M = 6,3 (GS) South of Alaska



SEISMIC OBSERVATIONS

1985

Date	Comp.	Phase	Time TU			Δ Km	Remarks
			h	m	s		
12 Oct	ZT	P	02	32		17.811	Ep.: 21,6 S; 176,5 W; H = 02:12:58,3 h = 157 km; M = 5,8 (GS) Fiji Islands Region
12	ZT	P	22	29		5.531	Ep.: 0,9 N; 29,9 W; H = 22:20:37,6 h = 10 km; M = 5,3 (GS) Central Mid-Atlantic Ridge
13	ZT	P	16	08		5.542	Ep.: 40,3 N; 69,8 E; H = 15:59:53,5 h = 33 km; M = 5,8 (GS) Tajik SSR
17	ZT	P	20	17	10,3		Ep.: 43,0 N; 0,4 W; H = 20:16:23,9 h = 5 km; M = 3,4 (LDG) Luz, France
18	ZT	P	04	31		9.637	Ep.: 46,3 N; 146,3 E; H = 04:19:08,3 h = 291 km; M = 6,0 (GS) Northwest of Kuril Islands
21	ZT	P	02	55			Ep.: 13,5 S; 166,0 E; H = 02:36:11,4 h = 46 km; M = 5,5 (GS) Vanuatu Islands
21	ZT	Pn	03	34	51,4		Ep.: 36,7 N; 5,2 E; H = 03:34:33 h = - km; M = 3,8 (IGN) Argelia
	ZT	Sn	03	36	48,4		
23	ZT	P	01	08		13.556	Ep.: 11,1 S; 125,1 E; H = 00:49:13,9 h = 33 km; M = 6,0 (GS) Timor Sea
23	ZT	Pg	07	05	21,6		Ep.: See pag. 100
	ZT	Sg	07	05	32,8		
25	ZT	Pn	04	06	49,0		Ep.: 36,9 N; 4,2 W; H = 04:05:16 h = - km; M = 3,2 (IGN) Malaga, Spain
27	ZT	P	19	35		701	Ep.: 36,4 N; 6,7 E; H = 19:34:57,0 h = 10 km; M = 5,5 (GS) Argelia
29	ZT	P	13	21			Ep.: 36,7 N; 54,8 E; H = 13:13:42,7 h = - km; M = 6,0 (GS) Iran
30	ZT	P	19	18		9.628	Ep.: 71,7 N; 174,5 E; H = 19:05:37,4 h = 33 km; M = 5,6 (GS) Rat Islands
31	ZT	P	19	45		9.435	Ep.: 53,3 N; 166,9 W; H = 19:33:07,1 h = 33 km; M = 5,8 (GS) Fox Islands
31	ZT	P	22	16		10.285	Ep.: 28,7 S; 63,2 W; H = 21:49:20,0 h = 595 km; M = 5,8 (GS) Santiago del Estero, Argentina



SEISMIC OBSERVATIONS

1985

Date	Comp.	Phase	Time TU			Δ Km	Remarks
			h	m	s		
1 Nov	ZT	P	20	47		1.807	Ep.: 31,0 N; 13,4 W; H = 20:44:02,3 h = 10 km; M = 4,7 (GS) Madeira Islands Region
7	ZT	P	19	32		19.314	Ep.: 35,2 S; 179,3 W; H = 19:12:29,8 h = 33 km; M = 6,2 (GS) East of North Islands
14	ZT	P	22	30		9.182	Ep.: 54,7 N; 159,7 W; H = 22:17:44,6 h = 33 km; M = 5,5 (GS) South of Alaska
14	ZT	Pn	23	28	01,2		Ep.: See pag. 100
	ZT	Sn	23	28	21,2		
15	ZT	P	04	30	05,5		Ep.: See pag. 100
	ZT	S	04	30	24,2		
21	ZT	Pn	23	35	49,0		Ep.: 43,2 N; 0,3 W; H = 23:35:8,6 h = 10 km; M = 3,4 (LDG) Pau, France
	ZT	Sn	23	36	45,0		
23	ZT	Pg	13	21	55,0		Ep.: See pag. 100
	ZT	Sg	13	22	12,0		
28	ZT	P	02	45		16.604	Ep.: 14,0 S; 166,2 E; H = 02:25:42,3 h = 33 km; M = 6,1 (GS) Vanuatu Islands
28	ZT	P	04	09		16.595	Ep.: 13,9 S; 166,2 E; H = 03:49:53,9 h = 33 km; M = 6,2 (GS) Vanuatu Islands
28	ZT	P	06	57		16.585	Ep.: 13,8 S; 166,2 E; H = 06:37:48,6 h = 46 km; M = 5,6 (GS) Vanuatu Islands
1 Dec	ZT	P	20	24			Ep.: 13,7 S; 166,7 E; H = 20:05:11,4 h = 33 km; M = 5,3 (GS) Vanuatu Islands
16	ZT	P	08	23		16.623	Ep.: 14,1 S; 166,2 E; H = 08:04:07,0 h = 37 km; M = 6,0 (GS) Vanuatu Islands
16	ZT	Pg	15	28	33,3		Ep.: See pag. 100
	ZT	Sg	15	28	39,3		
21	ZT	P	01	33		16.625	Ep.: 13,9 S; 166,5 E; H = 01:13:22,4 h = 43 km; M = 6,0 (GS) Vanuatu Islands
21	ZT	P	03	06		16.643	Ep.: 14,1 S; 166,6 E; H = 02:46:33,2 h = 33 km; M = 5,8 (GS) Vanuatu Islands



SEISMIC OBSERVATIONS

1985

Date	Comp.	Phase	Time TU			Δ Km	Remarks
			h	m	s		
21 Dec	ZT	P	10	21		1.256	Ep.: 50,3 N; 12,3 E; H = 10:16:17,0 h = 10 km; M = 5,1 (GS) Germany
21	ZT	P	11	29			Ep.: 14,1 S; 166,6 E; H = 11:09:52,0 h = 33 km; M = 5,3 (GS) Vanuatu Islands
23	ZT	P	05	27		7.541	Ep.: 62,2 N; 124,4 W; H = 05:16:03,3 h = 6 km; M = 6,4 (GS) Northwest Territories, Canada
24	ZT	P	04	22		10.035	Ep.: 35,1 S; 54,3 E; H = 04:09:41,2 h = 10 km; M = 6,0 (GS) Central Mid-Atlantic Ridge
28	ZT	P	16	00		16.536	Ep.: 13,2 N; 166,5 E; H = 15:41:03,7 h = 36 km; M = 5,7 (GS) Vanuatu Islands

