Manila

No. 49

January 1953

ϕ = 14° 40' N λ = 121° 05' E h = 70.4 m. Tuff

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INSTRUMENTS

2 Sprengnether horizontal seismometers, Series H (for microseismic work). Sprengnether seismometers, Series D-H : 1 E-W horizontal component and 1 vertical component ; Series H for N-S horizontal component (long period). 1 Wood-Anderson torsion seismometer.

Data taken from Sprengnether Series D-H and Series H N-S component.

No.	DATE	PHASE	Greenwich TIME h	m	s	DISTANCE kms.	REMARKS
	1953 JAN.						
1	2	e	03	18.9			
2	3	e	17	53	05		
3	4	eP	09	22	28		
4	4	e	11	12.5			Felt at Mambajao Int. I.
5	4	e	11	54.6			Felt at Mambajao Int. I.
6	4	iP	12	37	22	245	
		iS			50		
7	4	e	12	50	34		
		eS?			40		
8	4	e	14	22.0			Felt at Mambajao Int. II.
9	5	eP	07	57	57		
		ePR_1		59	53		Teleseismic.
		ePR_2	08	01	00		
10	5	iP	10	14	43	4940	Compressional.
		iPR_1		16	20	or 44°5	
		eS		21	16		
11.	5	eP	15	51	51		Teleseismic?
12.	6	eP	02	23	18	65	
		eS			26		
13	7	eP	04	34	50	255	
		eS		35	19		
14	7	eP	05	57	57		Teleseismic.
15	7	eP	12	20	19		
16	7	iP	14	15	32	3760	Compressional.
		ePR_1		16	35	or 35°6ca.	
17	10	e	14	37	08		
18	11	eP	01	12	52		
19	11	eP	10	23	49		Teleseismic.

No.	DATE	PHASE	Greenwich TIME h	m	s	DISTANCE kms.	REMARKS
	1953 JAN.						
21	11	iP eS	23	05 16	58 22	9200 or 82°.8	
22	12	eP eS	17	31 38	55 35	5050 or 45°.5	Slightly deeper than normal.
23	12	eP eS	23	59	22 42	175	
24	13	eP iS	12	11	13 35	190	
25	14	eP eS	02	19 20	52 23	275	
26	14	iP iS	10	58	07 26	165	Compressional.
27	14	eP	23	19.5			
28	15	eP	07	09	25		
29	15	iP	22	16	00		
30	16	eP e eS	12	33 34 37	51 28 46	2420 Or 21°.8ca.	
31	16	eP	15	57	45		
32	18	eP	19	40	24		
33	19	e	05	04.1			Teleseismic.
34	19	eP	14	54	08		
35	20	iP iS	12	44	09 33	210	
36	20	eP eS	17	36 39	30 13	1600 ∓ or 14°.40	Magnitude 6½ .
37	21	eP	01	51	14		Teleseismic.
38	23	eP	09	38	55		
39	23	eP	18	44	52		
40	26	iP iS	04	53	04 34	265	
41	26	e	05	13.7			
42	26	iP e	09	12 14	27 14		
43	27	e	00	04	04		
44	27	eP eS	02	07 08	49 24	310	
45	27	eP eS	03	21 28	46 52	5400 or 48°.6	
46	27	eP	03	22	18		Previous quake still record-

No.	DATE	PHASE	Greenwich TIME h	m	s	DISTANCE kms.	REMARKS
	1953 JAN.						
47	27	e	08	27	12		
48	27	eP	15	57.0			
49	28	eP eS	04	11 12	58 15	148	
50	28	eP eS	06	47	21 38	148	
51	28	eP	06	59.0			
52	30	iP iS	07	01 02	58 16	155	
53	30	iS	07	10	19		
54	30	eS	15	39.4			
55	30	iP iS	21 22	55 03	56 12	5650 or 50°.9 52°.7	Additional readings for No. 55 ipP 21 56 20 ipcP 57 05 ipPR 58 00 Teleseismic; Dilatational.
56	31	iS	07	44	16		

The following macroseismic tremors were reported felt but were not recorded at Manila:

		h	m (GMT)	
Dumaguete City	Jan. 5	07	27	Intensity II
" " "	5	07	54	" " I
Mambajao	5	13	47	" " I
Dumaguete City	6	05	52	" " III
" " "	6	07	11	" " IV
" " "	6	07	15	" " IV
Mambajao "	8	12	19	" " II
" "	25	23	54	" " I
Butuan	27	07	10	" " II
Mambajao	27	07	22	" " I
" "	30	11	57	" " I

Manila

No. 50

February, 1953

$\phi = 14^\circ\ 40'$ N $\lambda = 121^\circ\ 05'$ E h = 70.4 m. Tuff

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INSTRUMENTS

Sprengnether horizontal seismometers, Series H (for microseismic work). Sprengnether seismometers, Series D-H : 1 E-W horizontal component and 1 vertical component; Series H for N-S horizontal component (long period). 1 Wood-Anderson torsion seismometer.

Data taken from Sprengnether Series D-H and Series H N-S component.

No.	DATE	PHASE	Greenwich TIME h	m	s	DISTANCE KMS.	REMARKS
	1953 FEB.						Note: Nc record from 0505 GMT to 0835 GMT Feb. 1 due to power failure.
57	1	eP iS	12	40	12 49	325	
58	1	e	14	22.5			
59	2	e	09	38	14		Teleseismic.
60	2	iP e	10	18 22	21 15		
61	3	e	14	56.2			
62	3	e	18	57.2			
63	4	eP eS	20	01	26 57	275	
64	4	e	20	03	22		
65	6	e	12	38.0			Teleseismic.
66	6	iP ePR1 eS	13	19 20 25	44 54 30	3780 ± or 34°0 ±	
67	6	iS	16	50	37		
68	7	e	18	31	29		
69	8	iP iS	15	27	04 23	165	
70	8	iP iS	15	41 42	42 01	165	
71	9	iP iS	01	47	34 47	110	Felt at Manila Int. II.
72	9	eP	21	54	46		
73	10	e	17	54	14		
74	12	iP iS	08	25 34	54 26	6980 or 62°8	
75	12	iP	08	37	49	6980	Previous quake still recording

SEISMOLOGICAL BULLETIN ... Cont'd.

No.	DATE	PHASE	Greenwich TIME h	m.	s	DISTANCE Kms.	REMARKS
	1953 FEB.						
76	13	eP	12	09.9			Felt at Baguio Int. I.
		iS		10	00		
77	13	eP	14	57	17	2340	
		eS	15	01	02		
78	14	iS	05	52	02		
79	14	e	09	04.5			
80	14	eP	21	53	36	2760	Slightly deeper than normal.
		eS		57	56	or 24°.8	
81	15	eP	22	00	30	740	
		eS		01	53		
82	16	eP	10	30	09		
83	18	e	05	15	58		
84	18	iS	09	15	14		
85	18	iP	16	25	37	175	
		iS			57		
86	19	eP	01	03	52	40	
		iS			57		
87	19	eP	13	17	09		Teleseismic.
88	20	eP	08	22	09		
89	20	eP	18	39	14		Felt at: Borongan, Int. III
		eS?		40	46		Surigao, Int. III.
90	23	e	10	25.7			
91	24	e	04	48	18		
		e		49	22		
92	24	eP	11	14	04	215	Felt at Baguio, Int. IV
		eS			28		San Fernando, Int. III
93	25	eP	02	13.5			
94	25	eP	21	27	49		Teleseismic.
95	26	eP	00	40	51	5100	Dilatational.
		e		42	43	Or 4599	
		eS		47	35		
96	26	eP	10	23	05		
97	26	iP	11	51	21	5560	
		iPR_1		53	20	or 50. ±	
		iPR_2		54	04		
		eS		58	26		
		eSR_1	12	02	06		
		eL		04	56		
98	27	eP	01	31	18	255	

SEISMOLOGICAL BULLETIN .... Cont'd.

No.	DATE	PHASE	Greenwich TIME h	m	s	DISTANCE	REMARKS
	1953 FEB.						
99	27	eP	05	52	22		Teleseismic.
100	27	e	18	37	18		
101	28	iP iS	03	34	25 43	155	
102	28	e	14	20	37		

The following macroseismic tremors were reported felt but were not recorded at Manila:

	Day	- Hours	- Minutes (GMT)	
Mambajao	Feb. 10	20	15	Intensity II
Masbate	16	02	35	II
Mambajao	21	05	12	I
Mambajao	22	11	36	II
Mambajao	26	17	28	I

Geophysical Division
Manila

No. 51

March 1953

ϕ = 14° 40' N λ = 121° 05' E h = 70.4 m. Tuff

International Seismological Centre

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INSTRUMENTS

Sprengnether horizontal seismometers, Series H (for microseismic work). Sprengnether seismometers, Series D-H : 1 E-W horizontal component and 1 vertical component; Series H for N-S horizontal component (long period). 1 Wood-Anderson torsion seismometer.

Data taken from Sprengnether Series D-H and Series H N-S component.

No.	DATE 1953 MAR.	PHASE	Greenwich TIME h	m	s	DISTANCE Kms.	REMARKS
103	1	eP	01	19	35	495	
		eS		20	31		
104	1	eP	10	03.2			
		eS		03	39		
105	1	eP	20	18	16		
106	1	eP	23	06.4			Teleseismic.
107	2	eP	02	20	31	4700 ±	Slightly deeper than normal.
		eS		26	35	or 42°.3 ±	
108	2	eP	15	08	56	685	
		eS		10	13		
109	3	eP	11	37	02	6540 ±	
		ePR_1		39	06	or 58°.9 ±	
		ePR_2		40	24		
		eS		45	11		
110	3	eP	13	51	24		Teleseismic.
111	3	eP	23	02.0			Teleseismic.
112	4	esP	01	20	11		Teleseismic, deep focused.
113	4	eP	14	48	03	795	
		eS		49	32		
114	5	eP	06	59.9			Teleseismic.
115	5	eP	21	09	57	5220	Slightly deeper than normal.
		eS		16	43	or 47°.	
		eG		19	11		
116	5	eP	21	30	01		Teleseismic.
117	6	eP	11	12	04	85	
		iS			14		
118	6	eP	19	54	38	945	Felt at Zamboanga, Int. IV
		eS		56	24		Jolo, Int. III.
119	6	iP	22	01	10	1055	
		iS		03	02	or 9°.5.	
120	7	e	12	45.6			Felt at: Surigao, Int. III

SEISMOLOGICAL BULLETIN ... Cont'd.

No.	DATE	PHASE	Greenwich TIME h	m	s	DISTANCE KMS.	REMARKS
	1953 MAR.						
121	7	eP	23	50	06	810	
		eS		51	37		
122	8	eP	18	16	46		
123	9	iP	10	11	00	4150	
		iPR_1		12	26	or 37°.4.	
		eS		16	33		
		eL		20.7			
124	9	eP	14	38	30	165	
		eS			49		
125	9	eP	15	18.7			
126	10	e	04	38.7			
127	10	eP	06	08	42		Teleseismic.
128	11	e	10	58	15		Teleseismic.
129	12	e	00	06	XX		
130	12	iS	02	01	36		
131	12	eP	21	29	06	435	Epicenter at 18°N, 120°E.
		eS			48		Felt at: Laoag, Int. II
							Vigan, Int. II
132	13	e	18	22	04		
133	14	iP	17	02	52	990	Compressional?; Magnitude:
		eS		04	21		5 3/4 to 6. *Epicenter at
							6°.8 N 124°.25 E.
							Felt at: Dadiangas, Int. VI
							Davao, Int. V
							Cotabato, " IV
							Malaybalay, " III
							Cagayan, M. O." III
							Mambajao, " III.
134	14	eP	21	27	50	440	
		iS		28	40		
135	15	e	00	32	16		
136	15	eP	08	55	13		
		e		59.2			
137	15	e	13	00.0			Felt at: Tacloban, Int. II.
138	15	e	18	03	43		
139	16	eP	00	53	08		Felt at: Surigao, Int. III.
140	16	eP	06	24	48	280	
		eS		25	20		
141	16	eP	08	32	15	6330 ±.	Teleseismic.
				40	08		

No.	DATE	PHASE	Greenwich TIME h	m	s	DISTANCE KMS.	REMARKS
	1953 MAR.						
142	16	iP	17	29	20	210	Compressional; Felt at:
		iS			44		Casiguran, Int. II
							Epicenter at 16°.4 N 121°.6 E.
143	17	iP	12	30	49	315	Felt at: Romblon, Int. IV
		eS		31	25		Roxas City, Int. III.
144	17	iP	13	12	59	5000	Deep focused.
		ePR_1		14	39	or 45°.	
		ePR_2		15	26		
		eS		19	38		
145	17	e	18	10	19		
146	17	e	23	37	XX		
147	18	eP	19	18	43	9350	Normal depth.
		e		20	04	or 84°.2	
		ePR_1		22	06		
		ePR_2		24	10		
		eS		29	06		
		eL_R		45	00		
148	19	eP	01	42	09		
149	19	iP'	08	47	29	17200 ±	Depth: 200 kms. ca.
		iP'_2		48	06	or 154°.8.	Magnitude: 8 +.
		ipP'			24		
		e			55		
		ePR_1		51	28		
		$isPR_1$		52	45		
		eSICS		54	03		
		$isPR_1$		55	40		
		e	09	00	32		
150	19	iP	10	19	06	1520	
		iS		21	38	or 13°.7.	
151	19	eP	13	03	37		Teleseismic.
152	19	eP?	19	03	37		Teleseismic.
153	20	eP	05	17	55	232	
		eS		18	30		
							Note: No record from March 20 from 05h 35m to 09h 52m due to power failure.
154	20	e	15	15	13		
155	20	eP	20	21	45	2630	
		eS		25	56	or 23°.7	
156	21	eS	14	27	53		
157	22	eP	23	44	12	230	Felt at: Casiguran, Int. IV.
		eS			38		
158	23	eP	04	38.2			Teleseismic.

SEISMOLOGICAL BULLETIN ... Cont'd.

No.	DATE	PHASE	Greenwich TIME h	m	s	DISTANCE KMS.	REMARKS
	1953 MAR.						
159	25	eP eS	20	23 24	59 40	465	Felt at: Calayan, Int. I.
160	26	eP	02	18	26		Teleseismic.
161	26	e	05	12.0			
162	28	e e	00	23 24	XX 24		Teleseismic.
163	28	eP	03	08	51		Teleseismic?
164	30	eP eS	06	59	25 42	140	
165	31	eP	04	29	42	130	
166	31	eP	05	35	33		

NOTE : *Epicentral determination based on intersections with Baguio readings.

The following tremors were reported but were not recorded at this station:

	Date	(G M T) h	m	Intensity	Remarks
Butuan	March 10	23	20	IV	
Dadiangas	14	17	02	III	Aftershock of March 14 quake.
Borongan	16	10	10	III	
Tacloban	16	10	10	III	
Cotabato	19	21	56	II	
Cagayan, Mis. Or.	20	05	49	V	
Malaybalay	20	05	49	IV	
Butuan	20	05	49	III	
Hinatuan	20	05	49	II	
Basco	21	10	03	V	
Tacloban	21	21	10	III	
Catbalogan	21	21	10	II	
Basco	21	20	27	IV	
Tacloban	24	23	07	II	
Mambajao	28	03	00	II	
Mambajao	29	05	51	II .	

Manila

No.52

April 1953

ϕ = 14° 40' N λ = 121° 05' E h = 70.4 m. Tuff

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INSTRUMENTS

Sprengnether horizontal seismometers, Series H (for microseismic work). Sprengnether seismometers, Series D-H : 1 E-W horizontal component and 1 vertical component; Series H for N-S horizontal component (long period). 1 Wood-Anderson torsion seismometer.

Data taken from Sprengnether Series D-H and Series H N-S component.

No.	DATE	PHASE	Greenwich TIME h	m	s	DISTANCE KMS.	REMARKS
	1953 APR.						
167	1	eP	07	45	35	2,900 ±?	Teleseismic.
		eS		50	08	or 26° ±.	
168	1	iP	18	16	38		
169	2	iP	04	03	08	4,400 -	Compressional.
		e			45	or 39.6°-.	
		ePR_1		04	38		
		eS		09	10		
		eSR_1		11	41		
		eL		13	30		
170	3	eP	04	29	16		Teleseismic.
171	4	iP	05	57	58	3,200	
		e		58	43	or 28.8°.	
		eS	06	02	32		
172	5	eP	09	05	59		Teleseismic.
173	5	eP	10	17	57	1,020 ±	
		eS		20	15	9.25°.	
174	5	iP	19	04	08	295	
		iS			28		
175	5	eP	19	11	01	235	Very Small.
		eS			28		
176	6	e	00	02.5			Teleseismic.
177	6	iP	00	41	36	2,700	
		e		42	24	Or 24.3°.	
				45	48		
178	6	iP	03	51	21	740	Felt at: Surigao, Int. IV
		iS		52	44		Borongan, " IV
							Catbalogan, " III
							Hinatuan, " III
							Mambajao, " III
							Tacloban, " III
							Tentative epicenter 10½° N, 125½° E.
179	6	eP	12	23	31		Very small; Teleseismic.
		eS		30	32		
180	6	eP	15	36	57		

No.	DATE	PHASE	Greenwich TIME h	m	s	DISTANCE KMS.	REMARKS
	1953 APR.						
181	6	e	20	00.3			Very small.
182	7	iP eS	17	38 46	35 53	7,200 ± or 65° ±.	
183	7	iS	20	04	39		Local.
184	7	e	20	43.8			Very small.
185	8	iP iS	00	01 03	20 45	1,456 or 13.1°.	
186	9	iP iS	07	59	38 55	150	
187	9	eP	20	11.5			
188	10	iP iS	07	04 05	47 30	380	
189	10	e	09	27.7			
190	10	iP iS	10	43 44	50 06	143	
191	10	eP	17	07	34		Teleseismic.
192	10	e	19	04	XX		
193	11	e	02	42	13		
194	11	e	03	24	16		
195	11	iP iS	14	14	26 32	50	
196	12	e	22	39	25		
197	13	eP eS	02	18	20 52	285	
198	13	iP iS	22	55	37 57	175	
199	14	eP iS	04	40	25 57	280	
200	14	iPR_1 ePR_2 iSR_1 eSR_2 e	13 14 14	48 52 59 05 13	23 05 04 16 XX	18,350 or 165° ±	Deep focus.
201	14	eP	20	07.5			
202	14	eP	21	39	32		
203	15	eP	01	25	19		Teleseismic.
204	15	e	21	57	17		
205	16	e	10	11	44		Felt at: Borongan, Int. III Tacloban, " III

SEISMOLOGICAL BULLETIN ... Cont'd.

No.	DATE	PHASE	Greenwich TIME h	m	s	DISTANCE KMS.	REMARKS
	1953 APR.						
206	16	eP	11	54	57	320	
		eS		55	33		
207	16	eP	21	08	48		
208	17	e	00	22	51		Teleseismic.
209	17	e	03	52	20		
210	17	iP	04	22	14	490	
		eS		23	05		
211	17	iP	09	52	04	75	
		eS		52	13		
212	17	eP	11	17	22		
213	17	eP	13	58	13	280	
		eS			45		
214	17	eP	18	08	11	280	
		eS			43		
215	19	iP	03	27	40	290	
		iS		28	13		
216	19	eP	15	58	19		
217	19	eP	22	58	00		Teleseismic.
218	20	eP	11	11	32?		Teleseismic.
		eS		15	41		
219	21	eP	10	01	51	765	Felt at: Basco, Int. V.
		eS		03	21		
220	21	iP	17	34	37	2,560	
		eS		38	42	or 23°.	
221	21	iP	21	07	49	490	Felt at: Catbalogan, Int. II
		eS		08	44		Tacloban, " III.
222	21	eP	22	36	10	530	Felt at: Basco, Int. IV.
		eS		37	10		
223	22	eP	06	39	00		Teleseismic.
224	22	iP	13	58	36	110	
		iS			53		
225	22	eP	19	06	45	685	
		eS		08	02		
226	23	eP	03	56	45	1,780	
		eS		59	44	or 16°.	
227	23	eP	16	31	29	3,300	
		iP			42	or 29.7°.	
		ePR_1		32	39		
		ePR_2			46		
		eS		36	29		

SEISMOLOGICAL BULLETIN ... Cont'd.

No.	DATE	PHASE	Greenwich TIME h	m	s	DISTANCE KMS.	REMARKS
	1953 APR.						
228	23	eP	20	51	30		
229	24	e	02	21	56		
230	25	e	09	33	37		
231	26	e	05	43.4			
232	26	e	15	12.0			
233	27	iP	01	45	37	295	
		iS		46	10		
234	27	iP	07	40	29	290	
		iS		41	01		
235	28	e	16	11	XX		
236	29	iP	03	39	38	5,100	Slightly deeper than normal.
		e			55	Or 45.9°.	
		iPR_1		41	18		
		iPR_2		42	20		
		eS		45	03		
		eLq		49	38		
237	29	e	14	55	52		
238	29	eP	20	57	41		
239	29	e	22	01	57		
240	30	iP	06	36	47	6,500	
		ePR_1		38	44	or 58.5°	
		ePR_2		40	17		
		iS		44	49		

The following macroseismic tremors were reported felt but were not recorded at Manila:

		h	m	(GMT)	Intensity	Remarks
Mambajao,	April 6,	02	10	-	I	- volcanic
Butuan,	8,	02	10	-	III	- -------
Mambajao,	8,	02	10	-	I	- volcanic
" "	15,	09	26	-	I	- " "
" "	20,	05	58	-	I	- " "
" "	20,	06	05	-	I	- " "
" "	20,	06	11	-	I	- " "
" "	20,	07	41	-	I	- " "

No. 53

May 1953

ϕ = 14° 40' N λ = 121° 05' E h = 70.4 m. Tuff

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INSTRUMENT

2 Sprengnether horizontal seismometers, Series H (for Microseismic work). Sprengnether seismometers, Series D-H : 1 E-W horizontal component and 1 vertical compnnent ; Series H for N-S horizontal compnnent (long period). 1 Wood-Anderson torsion seismometer.

Data taken from Sprengnether Series D-H and Series H N-S component.

No.	DATE	PHASE	Greenwich TIME h	m	s	DISTANCE KMS.	REMARKS
	1953 MAY						
241	1	e	10	21	46		Local.
242	2	e	08	59	28		
243	2	e	18	45	50		Teleseismic.
244	3	e	09	53	32		
245	4	eP	01	01	28		
		eS?		04	30		
246	4	iP	11	38	08	5590	Very Small.
		eS		45	21	or 51.2°	
247	4	e	21	33	XX		
248	4	eP	22	07	58	460	
		iS		08	50		
249	5	e	04	02	16		Very Small.
250	5	eiP	04	03	46	345	
		iS		04	26		
251	6	iP'	17	36	36	17600	Phases taken from N-S
		epP'		37	00	or 158.4°	component.
		iPR_1		40	46		
		$epPR_1$		41	22		
		eSKS		43	51		
		iSKKS		47	04		
		eSS	18	00	46		
252	8	eP	09	26	03	155	
		eS			21		
253	9	eiP	11	37	28	415	Felt at Catbalogan; Int. III
		iS		38	13		Virac, Int. III.
254	10	e	19	55	00		
255	11	iP	10	26	43	7000	Deeper than Normal.
		ePR_1		28	58	or 63°	
		iPR		30	33		
		iS		34	54		
		eSR_1		38	50		
		eG		41	50		
256	11	eP	18	01	52	695	

No.	DATE	PHASE	Greenwich TIME h	m	s	DISTANCE KMS.	REMARKS
	1953 MAY						
257	17	iP	09	49	01	420	Felt at Virac, Int. II.
		iS			48		
		i*		54	26		*Probably another quake superimposed.
258	17	eP	13	17	25	2480?	
		eS		21	24		
259	18	iP	08	01	04		
		eS		02	44		
260	18	eP	08	21	12	2400	
		eS		25	05	or 21.6°	
261	18	iP	13	27	30	240	
		iS			59		
262	19	iP	03	19	51	4850	
		ePR_1		21	31	or 43.65°	
		iPR_2		22	01		
		eS		26	21		
		eL		31	43		
263	19	iP	16	55	38	4900	
		eS	17	01	00	or 44.1°	
		eLq		05	03		
264	20	iP	10	47	53	1845	
		iS		50	18	or 15.7°	
265	20	eP	20	39	50	560	
		eS		40	53		
266	22	iP	03	43	53	430	
		iS		44	36		
267	22	eP	09	46	01	95	
		eS			12		
268	22	iP	11	01	28	2900	
		iS		05	43	or 26.1°	
269	22	e	20	24	19		Teleseismic.
270	22	e	21	57	08		Teleseismic.
271	23	eP	04	31	36	400	
		iS		32	21		
272	24	e	01	37	13		Teleseismic.
273	24	eP	05	59	44		Small, maybe local quake.
274	25	iP	06	12	59	110	
		eS		13	12		
275	25	eP	12	23	51		
276	25	eP	12	43	54	3000	
		e		44	03	or 27.0°	
		eS		48	09		
277	25	eP	17	49	06		

SEISMOLOGICAL BULLETIN ... Cont'd.

No.	DATE	PHASE	Greenwich TIME h	m	s	DISTANCE KMS.	REMARKS
	1953 MAY						
278	26	eP	01	49	45	3900	
		eS		55	05	or 35.1°	
		e		57	25		
279	26	eP	22	4	31	2200	
		eS		37	55	Or 19.8	
280	28	eP	00	09	08	165	
		eS			28		
281	28	e	18	08	53		Teleseismic.
282	29	eP	10	24	58	515	
		eS		25	56		
283	29	eP	10	49	10	535	
		eS		50	10		
284	30	eP	07	21	33	2230	
		iS		25	13	or 20.1°	
285	30	eP	15	05	10	185	
		iS			31		
286	30	eP	15	59	24		
		e	16	01	35		
287	31	iP	05	05	17	2400	
		ipP		.	33	or 21.6°	
		ePR_1			51		
		iS		09	33		
288	31	e	19	46	13		
289	31	eP	20	10	08		Meteorological disturbance superimposed starting from 1500 GMT. Determination not accurate.
		eS		16	13		
290	31	eP	21	01	32		Very Small.
291	31	eP	21	21	02		Very Small.

The following macroseismic tremors were reported felt but were not recorded at Manila:

		HOUR	MINUTE	(GMT)	INTENSITY	REMARKS
Mambajao,	May 2,	14	55	-	I	- volcanic
Mambajao,	16,	09	52	-	I	- " "
Mambajao,	22,	10	36	-	I	- " "
Tacloban,	22,	18	22	-	II	- --------

Manila

No. 54

June 1953

$\phi = 14^\circ\ 40'$ N $\lambda = 121^\circ\ 05'$ E h = 70.4 m.

Tuff

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INSTRUMENTS

2 Sprengnether horizontal seismometers, Series H (for Microseismic work). Sprengnether seismometers, Series D-H ; 1 E-W horizontal component and 1 vertical component ; Series H for N-S horizontal component (long period). 1 Wood-Anderson torsion seismometer.

Data taken from Sprengnether Series D-H and Series H N-S component.

No.	DATE	PHASE	Greenwich TIME h	m	s	DISTANCE KMS.	REMARKS
	1953 JUNE						
292	1	eP eS?	07	36 41	12 32		
293	1	eP eS	19	58	06 20	120	Very Small; local.
294	2	eP	17	55	36		Record superimposed on large microseisms from June 2 to June 5.
295	3	eP	02	23	02		
296	4	iP eS	03	12 13	58 13	130	Felt at Manila, Int. II.
297	4	iP iS	10	49	15 33	150	
298	5	eP eS	16	12	08 28	175	
299	5	eP eS	16	36	02 22	175	Record small; but biggest of the series.
300	5	eP eS	18	20 21	48 08	175	
301	5	eP eS	19	09	11 31	175	
302	5	e	19	49	30		
303	5	eP eS	20	48	38 58	175	
304	6	iP iS	01	15 16	15 09	480	
305	6	iP e iS	13	00 02 04	43 00 37	2400 or 21.6°	
306	6	eP	19	00	42		
307	6	eP eS	22	08 09	40 26	415	

No.	DATE	PHASE	GREENWICH TIME H	M	S	DISTANCE KMS.	REMARKS
	1953 JUNE						
309	7	eP eS	03	05 06	58 20	195	
310	7	eP eS	07	43	18 50	280	
311	8	eP e ePR_1 ePR_2 eS	11	49 50 51 55	15 53 33 47 58	5200 or 46.8°	
312	9	iP iS? iL	00	43 45 51	23 43 00	1410 or 12.7°	Normal depth.
313	9	iP eTP_1 iS	01	47 49 54	55 30 55	5430 or 48.9°	
314	9	iP iS	20	09 10	46 24	335	
315	9	eP iS	20	12 13	42 20	335	Similar to shock No. 314; very close to each other.
316	10	e	07	18	49		
317	10	e	10	45	24		Teleseismic.
318	10	iP i iS	18	28 29 31	23 01 59	2190 or 19.7°	
319	11	e	03	51	43		
320	11	eP? eS	05	11 18	18 55		
321	11	e	05	58	25		
322	11	iP iS	22	35	17 38	180	
323	11	eP eS	22	51	13 34	180	
324	11	iP iS	23	41	33 54	180	
325	12	e	02	05	13		
326	12	eP iS	02	22 23	48 11	200	
327	13	iP iS	03	15 16	51 07	140	Moderate size record.
328	13	eP iS	17	01 02	43 15	280	
329	13	eP	21	06	46		
330	13	e	21	52	50		
331	13	eP	22	58	29	6100	

No.	DATE	PHASE	Greenwich TIME h	m	s	DISTANCE KMS.	REMARKS
	1953 JUNE						
332	14	e	23	28	32		
333	15	eP	17	59	00		
334	16	eP	09	58	30	2570	
		eS	10	02	36	or 23.1°	
335	16	eP	19	59	40		
336	17	eP	01	14	34		
337	18	iP	10	12	25	4400	
		ePR_1		13	46	or 39.6°	
		iS		18	25		
		iL_r		23	53		
338	18	eP	13	20	40	515	
		iS		21	36		
339	19	eiP	09	40	49	1380	
		iS?		43	05	or 12.4°	
340	19	iP	12	15	19	1600	
		eS?		17	59	or 14.4°	
341	19	eP	18	34	00	1430	
		eS		36	22	or 12.9°	
342	21	eP	10	01	01	380	
		eS			44		
343	21	e	19	43	07		Very small; local.
344	22	eP	00	05	14	490	
		eS		06	09		
345	22	e	02	23	11		
346	23	eP	01	10	48	143	
		iS		11	04		
347	23	iP	14	02	06	5400	Record superimposed on thunderstorm.
		ePR_1		03	58	or 48.6°	
		iPR_2		04	53		
		iS		09	14		
348	23	eP	21	14	48	4400±	
		eS		20	48	or 39.6°	
349	24	eP	14	40	11	265	
		iS		[illegible]	41		
350	24	e	19	41	XX		
351	25	iP	06	03	37	2600	
		eS		07	37	or 23.4°	
352	25	iP	06	28	12	2640	
		iS		32	22	or 23.8°	
353	25	iP	10	49	10	2780	Large size on record.
		i		50	13	or 25.0°	
		iS?		53	32		
							Moderate size on record.

SEISMOLOGICAL BULLETIN ... Cont'd.

No.	DATE	PHASE	Greenwich TIME h	m	s	Distance KMS.	R E M A R K S
	1953 JUNE						
355	27	eP iS	06	21 22	39 16	320	Large microseisms on horizontal components from June 27 to June 30, 1953.
356	28	e	05	42	31		
357	28	e	23	10	53		
358	29	e	14	01	31		
359	30	e	09	15	15		
360	30	e	09	38	48		

The following macroseismic tremors were reported felt but were not recorded at Manila :

			HOUR	MINUTES (GMT)	INTENSITY	REMARKS
Borongan	JUNE	3,	11	55	III	N-S direction
Mambajao		8,	05	48	II	volcanic
Surigao		13,	18	17	III	---------
Mambajao		13,	20	58	I	volcanic
Baguio		14,	23	27	III	---------
Mambajao		24,	03	30	I	volcanic
" "		26,	01	39	I	" "
" "		26,	18	51	I	" "
" "		27,	04	40	I	" "
" "		27,	11	45	I	" "
" "		27,	13	34	I	" "
" "		27,	17	33	I	" "
" "		27,	19	33	I	" "
Butuan		29,	18	45	IV	NE-SW direction

NO. 55

July, 1953

ϕ = 14° 40' N λ = 121° 05' E h = 70.4 m. Tuff

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INSTRUMENTS

2 Sprengnether horizontal seismometers, Series H (for microseismic work). Sprengnether seismometers, Series D-H ; 1 E-W horizontal component and 1 verical component; Series H for N-S horizontal component (long period). 1 Wood-Anderson torsion seismometer.

Data taken from Sprengnether Series D-H and Series H N-S component.

NO.	DATE	PHASE	Greenwich TIME h	m	s	DISTANCE Kms.	REMARKS
	1953 JULY						
361	1	iPZ	03	07	59		Large microseisms.
		e		09	32		
362	2	iPZ	07	06	33	6,220	Large microseisms.
		ePcP		07	33	or 56°	
		ePR_1		08	36		
		ePR_2		10	03		
		iSZ		14	17		
		eSR_1		18	09		
363	3	eiPZ	05	33	51	1,030	Large microseisms.
		eSZ	06	04	46		
364	4	iPZ	09	56	55	280	Large microseisms superimposed on records since June 27. Data taken from vertical component only,
		iSZ			50		
365	6	ePNEZ	22	02	19	3,800	
		ePR_1		03	33	or 34.2°	
		eS		07	50		
		eLr		11	34		
366	7	iPNEZ	04	12	51	2,600	
		ePR_1Z		13	24	or 23.4°	
		iSNEZ		16	50		
367	7	ePNEZ	17	33	46	2,750	
		ePR_1		34	18	or 24.8°	
		iS		37	56		
368	8	eZ	05	17	24		Local
369	8	eZ	15	23	18		
370	9	ePNE	06	52	43	1,500	
		eSNE		55	26	or 13.5°	
371	9	ePNE	19	10	37	4,300	
		ePR_2		12	45	or 38.7°	
		iSNE		17	20		
372	9	ePR_1	21	45	40		
		iPKS?		46	56		
		e		56	30		
373	10	eP?	08	13	29		Very Small.
374	10	ePNE	09	21	59	85	

NO.	DATE	PHASE	Greenwich TIME H	M	S	DISTANCE Kms.	REMARKS
	1953 JULY						
375	10	iPNEZ	15	14	57	4 500+	
		eSP		16	06	or 40.5°	
		eSNE		20	51		
376	11	eP	07	16	22		
		e		18	52		
377	11	iP	10	38	40	1,800	
		eS		40	24	or 16.2°	
378	11	eP	15	40	30		Small; Teleseismic.
379	11	e	20	23	20		Very Small.
380	12	iPNEZ	06	48	25	2,750	Well recorded on three components.
		ePR_1		49	05	or 24.8°	
		iSNEZ		52	43		
		eLq		57	45		
381	12	iPNEZ	08	56	00		Smaller record; probable aftershock of preceeding quake.
		iSNEZ	09	00	12		
382	12	iPNEZ	09	12	04		Probable aftershock of preceeding larger quake.
		iSNEZ		16	24		
383	12	e	16	29	31		
384	13	ePNEZ	21	38	27	6,200	P' wave very small.
		iSNEZ		46	09	Or 55.8°	
385	13	e	22	03	33		Very small; local?
386	15	eP	13	33	20		Very small; teleseismic.
387	15	ePNEZ	18	55	22	140	
		eSNE			39		
388	15	ePNEZ	22	34	51	900	
		iSNEZ		36	41	or 8.1°	
389	16	eP	02	32	48		Very small; local.
390	16	e	03	04	02		" " "
391	16	e	16	04	40		" " "
392	17	e	17	08	31		Very small; teleseismic.
393	18	ePNEZ	05	30	42	280	Small.
		iSNEZ		31	14		
394	19	e	19	37	XX		Very Small.
395	20	ePNEZ	08	19	50	8,200	
		ePR_1		21	00	or 73.8°	
		iSNE		29	23		
396	20	ePNEZ	09	22	18	94	Very Small.
		iSNEZ			29		
397	21	e	14	28	15		
398	21	ePNEZ	17	26	01	1,650	
		iSNEZ		28	47	or 14.9°	

NO.	DATE	PHASE	Greenwich TIME h	m	s	DISTANCE Kms.	REMARKS
	1953 JULY						
399	22	iPNEZ iPcP iSNEZ	05	19 21 26	39 05 46	5,350 or 48.2°	
400	22	e	13	49	18		Very small, local.
401	22	ePNE eSNE	16	15	07 56	435	Small.
402	22	ePNEZ iSNEZ	21	39 40	27 19	460	Small to moderate.
403	22	ePNEZ iSNEZ	23	00	21 41	175	Small.
404	23	iPNEZ iSNEZ	02	03 07	27 27	2,520 or 22.7°	
405	23	ePNEZ iSNEZ	11	23	00± 95		Small.
406	23	e	18	23	XX		Very small; teleseismic.
407	24	e	11	00	51		Very small; teleseismic.
408	24	iPNEZ iSNEZ	18	19	22 41	165	Moderate size.
409	25	ePNEZ	07	46	27		
410	26	iPNEZ iSNE	11	25 28	46 58	1,850 or 16.7°	Small to moderate size.
411	26	iPNEZ iSNEZ	16 17	58 02	17 29	2,650 or 23.85°	Moderate size record.
412	27	ePNEZ iSNE	02	46	24 44	173	Small.
413	28	iPNEZ ePR_1 iSNEZ	07	49 52 58	57 18 47	7,200 or 64.2°	
414	28	e	14	04	23		Very Small.
415	28	ePNEZ ePR_1 iSNEZ	18	02 03 07	50 50 24	3,400 or 30.6°	
416	28	eP?	21	24	20±		Very small; teleseismic.
417	29	eP	17	05	02		Very small.
418	29	e	18	37	50		Very small; teleseismic.
419	29	iP	23	29	26		Small.
420	29	iSE	23	51	37		Local
421	30	eiPNEZ eSNEZ	03	48 50	23 10	1,200± or 10.8°	Felt at: Mambajao Int. III Butuan, " III Hinatuan, " II
422	30	eP eS	08	28	05 17	100	Small.

SEISMOLOGICAL BULLETIN ... Cont'd.

NO.	DATE	PHASE	Greenwich TIME h	m	s	DISTANCE Kms.	REMARKS
	1953 JULY						
424	30	eZ	18	53	11		Very small.
425	30	eP e	19	44	04 56		Very small.
426	30	iPNEZ iPR1 iSNEZ	23	49 50 53	51 29 46	2,500 or 22.5°	Moderate size record.
427	31	iPNEZ iSNEZ	14	05 06	47 04	148	

The following tremors were reported felt but were not recorded at this station:

	DATE	(GMT) h	m	INTENSITY
Butuan	July 22	15	43	II
Hinatuan	22	19	23	II
Butuan	24	09	43	II

NOTE: Increase in size of Microseisms from June 27 to July 4, 1953 is due to the passage of TYPHOON KIT.

Weather Bureau
GEOPHYSICAL DIVISION
Manila

NO. 56

August 1953

ϕ = 14° 40' N = 121° 05' E h = 70.4 m. Tuff

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INSTRUMENTS

2 Sprengnether horizontal seismometers, Series H (for microseismic work). Sprengnether seismometers Series D-H ; 1 E-W horizontal component and 1 vertical component; Series H for N-S horizontal component (long period). 1 Wood-Anderson torsion seismometer.

Data taken from Sprengnether Series D-H and Series H N-S component

NO.	DATE	PHASE	Greenwich TIME h	m	s	DISTANCE KMS.	R E M A R K S
	1953 AUG						
428	1	eZ	00	41	53		Very small; teleseismic.
429	1	ePE	03	54	41	190	Very small.
430	1	iPNEZ iSNEZ	18	14 18	20 32	2 800 or 25.2°	Small.
431	2	ePNEZ iSNZ	01	51 52	33 26	470	Felt at CALAPAN, Mindoro, Int. I.
432	2	iPZ eS?	17	06	03 11	67	Very small; local.
433	2	ePE eE eE	17	21 23 30	13 41 08		Very small; probably two quakes.
434	2	eE	17	53	10		Very small; local
435	2	eZ	20	23	46		Very small.
436	2	eZ	21	04	15		Very small; teleseismic.
437	3	iPNEZ iSNEZ	21	33	30 56	230	Moderate size record. Felt at: Aurora, Int. V Daet Int. IV.
438	4	e	14	01	50		Very small; teleseismic
439	4	iPNEZ iSNEZ	18	08	35 53	190	
440	4	e	19	01	21		Very small.
441	5	ePNEZ eSNEZ	06	33 34	32 00	245	
442	5	ePNEZ eSNEZ	06	50	12 44	280	
443	5	ePNEZ eSNEZ	11	55	01 34	290	
444	5	iPNEZ iSNEZ	13	56	29 44	150	

NO.	DATE	PHASE	Greenwich TIME h	m	s	DISTANCE KMS.	REMARKS
	1953 AUG.						
445	5	iSNEZ	14	02	28		Probable after shock of preceeding quake.
446	7	PNEZ iSNEZ	01	31 32	51 07	140	
447	7	eZ	10	38	12		
448	9	ePZ eSZ	15	10 11	50 07	148	Microseisms starting to increase in amplitude. Most readings taken from Vertical component.
449	9	eZ	16	15	03		Felt at Casiguran, Int. II. Teleseismic.
450	10	iPNEZ iSNEZ	11	27 28	38 08	270	
451	10	eZ	14	35	32		
452	11	e	03	54	33		Teleseismic.
453	12	ePZ eSZ	20	14	07 46	345	Felt at Tuguegarao, Int. III
454	12	iPZ iSZ	20	22 23	41 20	345	Felt at Tuguegarao, Int. III.
455	12	iPZ iSZ	22	27	15 57	370	Felt at Tuguegarao, Int. IV Aparri, Int. III Baguio, Int. II Casiguran, Int. III.
456	13	ePZ eZ eZ	09	03 05 11	22 22 32		Very large microseisms.
457	13	iPZ iSZ	22	08 09	45 27	280	
458	17	e	01	18	12		
459	17	iPZ	03	19	28		
460	18	iPZ iSZ	15	16 17	43 16	290	Small to moderate size on record.
461	21	iPZ eSZ	12	41 42	46 27	360	Small.
462	22	eZ	00	27	44		Large microseisms superimposed on records from August 9 to August 22 due to Typhoons Nina, Ophelia, and Phyllis.
463	23	ePEZ e iPR1 eS? eL	02	11 12 17 22	27 45 59 31 37	4,600 or 41.4°	
464	25	iPNEZ	19	54	39	140	Moderate size on record.

SEISMOLOGICAL BULLETIN Cont'd...

NO.	DATE	PHASE	Greenwich TIME h	m	s	DISTANCE KMS.	REMARKS
	1953 AUG.						
465	27	eP e	20	51 55	50 50		Small.
466	27	eZ	21	29	30±		Very small, teleseismic.
467	27	eP eS?	22	23 28	10 20		Very small.
468	27	iP	22	54	20		Very small; local.
469	29	ePEZ eE ePR_1 iSE	02	05 06 07 11	54 37 14 35	4,300 or 38.7°	Small.
470	29	ePEZ iSEZ	13	59	18 40	190	Small.
							AUGUST 30 - Microseisms started to increase in amplitude.

Weather Bureau
GEOPHYSICAL DIVISION
Manila

No. 57

September 1953

ϕ = 14° 40' N λ = 121° 05' E h = 70.4 m. Tuff

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INSTRUMENTS

2 Sprengnether horizontal seismometer, Series H (for microseismic work). Sprengnether seismometers Series D-H ; 1 E-W horizontal component and 1 vertical component; Series H for N-S horizontal component (long period). 1 Wood-Anderson torsion seismometer.

Data taken from Sprengnether Series D-H and Series H N-S component

NO.	DATE	PHASE	Greenwich TIME h	m	s	DISTANCE KMS.	REMARKS
	1953 SEPT.						
471	1	e	21	17	29		
472	1	e	23	42	08		Masked by large microseisms
473	2	eP	22	08	38	622	
		eS		09	48		
474	2	e	22	26	11		
475	3	eP	02	37	16	573	[illegible]
		eS?		38	21		Felt at: Laoag Int. IV.
476	3	eP	10	23	16	570	Similar to preceeding quake
		eS		24	24		
477	4	iPNZ	07	31	25	4,955	
		ePR_1		33	08	or 44.6°	
		ePR_2		33	49		
		iSE		38	07		
478	5	e	14	38	45		
479	5	iPE	19	07	43	5,410	
		ePR_1		09	33	or 48.7°	
		ePR_2		10	26		
		iSE		14	51		
480	6	e	01	48	00		Very small; teleseismic.
481	6	eP	02	14	45	232	Probable aftershock.
		eS		15	12		
482	7	e	04	11	10		
483	7	e	05	04	27		
484	7	e	07	59	24		
485	8	e	00	15	05		
486	8	eP	06	14	39	720	
		iSN		16	01		
487	9	eP	00	12	40	2,800	
		eS		15	56	or 25.2°	

NO.	DATE	PHASE	Greenwich TIME h	m	s	DISTANCE KMS.	REMARKS
488	9	e	15	33	26		Very small!
489	9	ePNEZ	15	56	42	3,120	Felt at: Central Sumatra.
		eS	16	01	25	or 28.1°	
		Lq	16	02	53		
490	10	iPNEZ	04	28	19	8,800	
		ePR_1		31	29	or 80.1°	
		ePR_2		32	17		
		iSNE		38	21		
		L		43	16		
491	10	eP	09	46	18	628	
		iS		47	28		
492	10	eP	11	19	48	587	Probable aftershock.
		eSN		20	54		
493	10	ePZ	18	37	42	2,515	
		eSNEZ		41	44	or 21.8°	
494	12	ePNZ	19	13	25	296	
		iSNE		14	13		
495	12	e	20	30	34		
496	13	iPNEZ	02	29	42	142	
		iSNEZ		29	59		
497	14	ePEZ	00	37	15	7,400	
		PR_1		39	45	or 66.6°	
		PR_2		41	16		
		iSE		46	08		
		LR		56	31		
498	14	e	09	07	04		Very small; teleseismic.
499	14	eP?	11	29	56	7,440	
		eS		29	49	or 66.9°	
500	15	ePNEZ	11	09	41	880	
		iSNEZ		11	20		
501	15	iPNEZ	21	28	47	155	
		iSNEZ		29	05		
502	16	e	01	40	33		Very small.
503	16	e	02	00	00		Teleseismic.
504	17	ePNEZ	03	37	46	588	
		eSNEZ		38	52		
505	17	ePNEZ	21	23	15	8,900	
		eSNEZ		33	24	or 80.1°	
506	19	iPNEZ	03	48	16	2,520	
		iSNEZ		52	16		
507	19	iPNEZ	19	12	18	132	
		iSNEZ			40		

NO.	DATE	PHASE	Greenwich TIME h	m	s	DISTANCE KMS.	REMARKS
	1953 SEPT						
508	23	iPZ	02	23	32		Masked by large microseisms from September 23 to September 29.
509	24	eP	08	44	43	415	
		eS		45	31		
510	25	e	00	50	26		
511	25	ePZ	13	46	12	2,910	
		eS?		50	37		
512	25	eP	21	43	25		
513	26	ePZ	02	10	58		
514	26	ePZ	19	41	48		
		eSZ		43	04		
515	29	iP	01	38	52	540	
		eS		39	58		
516	29	iPNEZ	01	47	48	7,650	
		ePR_1		50	16	or 68.8°	
		ePR_2		52	57		
		eS		56	54		
517	30	iPNEZ	05	00	02	3,400	
		ePNE		04	51	or 30.6°	
		Lq		06	11		
518	30	iPNEZ	15	00	11	250	
		iSNEZ			40		

The following macroseismic tremors were reported felt but were not recorded at Manila:

		(GMT) HOUR	MINUTES	INTENSITY
Iloilo	SEPT. 25	08	42	II
Surigao	28	23	00	III
Cagayan City	30	07	28	III

GEOPHYSICAL DIVISION
Manila

NO. 58

OCTOBER 1953

ϕ = 14° 40' N λ = 121° 05' E h = 70.4 m. Tuar

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INSTRUMENTS

2 Sprengnether horizontal seismometers, Series H (for Microseismic work). Sprengnether seismometers, Series D-H ; 1 E-W horizontal component and 1 vertical component ; Series H for N-S horizontal component (long period). 1 Wood-Anderson torsion seismometer.

Data taken from Sprengnether Series D-H and Series H N-S componet.

NO.	DATE	PHASE	Greenwich TIME h	m	s	DISTANCE	R E M A R K S
	1953 OCT.						
519	1	iP	14	04	59		Teleseismic.
		i		06	57		
520	2	eP	01	15	34	8,600	
		iS		25	23	or 77.4°	
521	3	eP	23	05	24		Teleseismic.
522	4	e	14	47	38		Teleseismic.
523	4	iP	16	23	30	380	
		eS		24	13		
524	4	iP	18	29	24	230	
		iS			50		
525	4	e	22	06	10		Very small.
526	4	eP	22	11	44	345	
		iS		12	13		
527	4	e	22	28	44		Very small; local.
528	5	iP	04	40	43	5,600	
		iPR_1		42	25	or 50.4°	
		iPR_2		43	19		
		iS		47	54		
529	5	e	06	47	38		Very small.
530	5	e	10	03	19		Teleseismic.
531	5	iP	12	50	38	505	Felt at: Virac Int. IV
		iS		51	34		
532	5	e	15	05	19		Very small.
533	5	e	16	17	16		Very small.
534	5	iP	23	23	56	4,200	
		ePR_2		25	34	or 37.8°	
		iS		29	46		
535	6	e	00	39	23		Very small.

NO.	DATE	PHASE	Greenwich TIME h	m	s	DISTANCE KMS.	REMARKS
	1953 OCT.						
536	6	eP eS	03	53 53	08 26	156	[illegible]
537	6	e	07	06	45		Teleseismic.
538	6	e	07	29	47		Very small; teleseismic.
539	6	e	09	08	42		Very small.
540	6	e	11	30	16		Very small.
541	6	iP eS	21	45 50	08 41	3,780 or 34.0°	
542	6	eP eS	23	03 12	54 14	6,750 or 60.8°	
543	7	eP eS?	06	57	37 54.5	150	
544	8	eP eS	03 04	58 01	32 29	1,700 or 15.3°	
545	8	e	04	20	21		Very small; teleseismic.
546	8	e	09	28	35		Very small.
547	8	iP iS	14	16	07 23.2	140	
548	8	eP eS?	16	25 30	48 36	3,200 or 28.8°	
549	8	eP iS	18	26	05 22	140	
550	8	eP eS	19	18 24	28 48	4,650 or 41.8°	
551	8	e	20	05	39		Very small.
552	10	e	00	21	05		Very small.
553	10	e	21	45	20		Very small; teleseismic.
554	10	eP eS	22	03 09	29 57	4,820 or 43.4°	
555	11	e	07	50	50		Very small; teleseismic.
556	11	iP ePR_1 ePR_2 eS Lq	13	16 18 19 23 26	48 21 03 09 10	4,880 or 43.9°	
557	11	eP eS	17	15 23	36 06	4,580 or 41.2°	
558	12	eP iS	17	55	14 49	220	

NO.	DATE	PHASE	Greenwich TIME h	m	s	DISTANCE KMS.	REMARKS
	1953 OCT.						
559	13	e	05	15	44		Very small.
560	13	e	07	06	19		Very small.
561	13	iP eS	13 14	57 01	00 07	2,650 or 23.9°	
562	14	iP iS	14	54 59	09 31	3,760 or 33.9°	
563	15	e	19	49	12		Very small.
564	15	iP eS	21	27 28	56 19	138	
565	16	iP iS	04	30 30	30 57	237	
566	17	iP iS	17	00	31 57	228	
567	17	eP eS	21	36 43	08 03	5,300 or 47.7°	
568	19	iP iS	11	52 52	02 26	210	
569	19	e	13	39	36		Very small.
570	19	eP eS?	16	47 48	37 25	410	
571	20	e	06	48	06		Very small; teleseismic.
572	20	e	16	12	00		Very small; teleseismic.
573	21	e	05	30	00		Very small.
574	21	iP iS	05	34	21 55	285	
575	22	e	03	50	10		Very small.
576	22	e	04	08	20		Very small.
577	22	e	04	17	57		Very small.
578	22	e	13	10	49		Very small; teleseismic.
579	24	e	23	31	20		Very small; teleseismic.
580	26	iP iS	00	43 44	37 02	220	
581	26	eP eS	13	43	20 53	292	
582	27	eP eS	03	47 53	41 27	4,020 or 36.2°	Microseisms began to increase in amplitude up to the 31st.

SEISMOLOGICAL BULLETIN . . . Cont'd.

NO.	DATE	PHASE	Greenwich TIME h	m	s	DISTANCE KMS.	R E M A R K S
583	1953 OCT. 27	e	18	41	47		Phase of one teloseismic quake.
		e		45	42		Very small; teleseismic.
		e		52	15		Masked by large microseisms.
584	28	e	02	12	55		Masked by large microseisms.
585	30	e	06	08	01		Masked by large microseisms.
586	30	e	17	02	54		Masked by large microseisms.
587	31	e	03	08	15		Masked by large microseisms.

The follwing macroseismic trémors were reported felt but were not recorded at Manila :

		(GMT) HOUR	MINUTES	INTENSITY
Virac	OCTOBER 5	12	56	III
Davao	16	10	16	II

GEOPHYSICAL DIVISION
Manila

NO. 59

NOVEMBER 1953

ϕ = 14° 40' N

λ = 121° 05' E

h = 70.4 m.

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INSTRUMENTS

2 Sprengnether horizontal seismometers, Series M (for Microseismic work). Sprengnether seismometers, Series D-H; 1 E-W horizontal component and 1 vertical component; Series K for N-S horizontal component (long period). 1 Wood-Anderson torsion seismometer.

Data taken from Sprengnether Series D-H and Series K N-S component.

NO.	DATE	PHASE	GREENWICH TIME h	m	s	DISTANCE KMS.	R E M A R K S
	1953 NOV.						
588	1	IP IS	09	50 51	20 16	495	
589	1	IP IS	18	18 20	55 26	810	
590	1	e	21	03	36		Very small; local.
591	2	e	05	39	46		Very small.
592	4	IP IPR_1 IPR_2 IS	03 04	58 00 01 05	25 25 37 25	5,780 or 52.0°	
593	4	IP IPR_2	04	14 16	06 26		S masked by the tail end of the preceeding quake and aftershock.
594	4	IP IS	06	10 13	03 49	2,400 or 21.6°	
595	4	IP IS	12	37 44	00 23		Aftershock.
596	5	eP	08	30	11		Very small; teleseismic.
597	6	e	16	27	00		Very small; teleseismic.
598	7	e	13	08	50		Very small; teleseismic.
599	7	e	15	52	45		Very small; local.
600	8	e	03	18	34		Very small; teleseismic.
601	8	e	15	35	34		Very small; teleseismic.
602	9	e	07	36	47		Very small; teleseismic.
603	9	e	10	59	46		Very small; local.
604	9	eP eS	12	12 12	25 35	805	Felt at Cotabato.
605	9	e	13	58	47		Very small; local.

NO.	DATE	PHASE	GREENWICH TIME H	M	S	DISTANCE KMS.	REMARKS
[illegible]	1953 NOV.						
606	9	e	15	24	38		Very small; local.
607	9	iP iS	15	40 41	59 34	310	
608	9	iP iPR1 iPR2 iS	17	34 36 37 41	23 17 11 33	5 600 or 50.4°	
609	9	iP iS	19	34	31 50	165	
610	9	eP eS	21	14 15	50 07	238	
611	10	iP eS	04	41 12	41 22	360	
612	10	iP iS	05	14 15	23 43	718	
613	10	e	06	16	25		Very small.
614	10	e	06	19	41		Very small.
615	10	e	11	07	20		Very small.
616	10	e	11	55	10		Very small. NOTE: Power failure at: 22 36 23 Power on at: 23 51 57 with tail end of teleseismic quake.
617	11	iP iS	06	35 36	50 23	290	
618	11	iP iS	07	29 31	10 42	1,600 or 14.3°	NOTE: Power failure at: 07 40 00 Power on at: 07 55 00
619	13	iP eS	11	14 19	51 23	3 000 or 27.0°	
620	13	iP eS	16	22 26	55 25	3,000 or 27.0°	
621	13	iP ePR1 iS	19	24 26 32	55 56 29	6 000 or 54.0°	
622	14	e	20	12	18		Very small; teleseismic. NOTE: Large microseisms superimposed on records since Nov. 12 due to Typhoon CORA.
623	17	e	13	52	XX		Very small; teleseismic.

SEISMOLOGICAL BULLETIN . . . Cont'd.

NO.	DATE	PHASE	GREENWICH TIME h	m	s	DISTANCE KMS.	R E M A R K S
	1953 NOV.						
624	19	e	23	00	18		Very mall; local.
625	20	iP	02	15	35	130	
		iS			50		
626	23	eP	03	47	03	2 600	
		eS		51	08	or 23.4°	
627	23	iP	18	34	32	140	
		eS?			48		
628	24	e	02	07	37		Very small.
629	25	e	17	46	31		Very small; teleseismic.
630	25	iP	17	54	27	2,900	
		iS	18	58	57	or 26.1°	
631	25	e	19	08	00		Very small; teleseismic.
632	25	e	21	54	00		Very small.
633	26	eP	00	09	06	2,880	
		eS		13	18	or 25.9°	
		e		17	41		
634	26	iP	01	53	06	3,000	
		eS		57	38	or 27.0°	
		e	02	03	20		
635	26	e	04	27	20		Very small; teleseismic.
636	26	eP	08	19	48	2,950	
		eS		24	16	or 26.5°	
		Lr		26	08		
		Lq		27	41		
637	26	e	19	30	25		Very small.
638	27	e	02	28	16		Very small; teleseismic.
639	27	e	02	42	25		Very small; teleseismic.
640	27	eP	11	35	39	2,880	Very small.
		eS		39	51	or 25.9°	
641	28	e	04	32	24		Very small.

NOTE: Large microseisms from the 12th to the 22nd of November. Microseisms gradually increased again from the 26th until the 30th of November.

REPUBLIC OF THE PHILIPPINES
Department of Commerce and Industry
Weather Bureau
GEOPHYSICAL DIVISION
Manila

NO. 60

DECEMBER 1953

ϕ = 14° 40' N λ = 121° 05' E h = 70.4 m. Tuff

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INSTRUMENTS

2 Sprengnether horizontal seismometers Series H (for Microseismic work). Sprengnether seismometers Series D-H; 1 E-W horizontal component and one vertical component; Series H for N-S horizontal component (long period). 1 Wood - Anderson torsion seismometer.

Data taken from Sprengnether Series D - H and Series H N - S component.

NO.	DATE	PHASE	GREENWICH TIME h	m	s	DISTANCE KMS.	R E M A R K S
	1953 DEC.						
642	1	iPNEZ iSNZ	05	12 15	21 17	1,700 or 15.4°	
643	1	e	21	32	15		Very small; teleseismic.
644	2	iP iS	04	16	42 59	150	
645	2	iPNZ eSN	04	30 35	36 00	2,800 or 26.0°	Small to moderate.
646	3	e	04	27	39		Very small; local.
647	3	e	05	08	19		Very small; local.
648	3	e	05	46	20		Very small; local.
649	3	e	09	09	02		Very small.
650	3	iPNE iPR2 iSNE Lq	15	01 02 06 08	10 38 51 23	3 860 or 34.9°	
651	4	iPNEZ iSNEZ	02	05 06	11 12	535	
652	5	e	09	56	59		Very small.
653	6	ePEZ eSE	08	46 52	44 15	3,950 or 35.5°	Very small.
654	6	e	15	31	30		Very small.
655	6	iPNZ iSN	17	27 30	44 41	1 750	
656	6	eP eS	18	49	30 53	200	
657	7	e	02	09	06		Very small; teleseismic.
658	7	ePZ eSZ	02	25 30	29 25	3,450 or 31.0°	

NO.	DATE	PHASE	GREENWICH TIME h	m	s	DISTANCE KMS.	REMARKS
	1953 DEC.						
659	7	iPZ eSZ	14	47 52	40 48	3,500 or 31.5°	
660	8	ePE i SEZ	02	02	22 56	300	
661	8	iPEZ eSE	02	46 50	11 25	2,750 or 24.8°	
662	8	e	20	17	09		Felt at: Surigao, Int. III
663	9	e	15	40	43		Very small; local;
664	10	iPZ iSNEZ	17	59	03 25	200	
665	11	e	05	33	29		Very small; local.
666	12	e	01	05	56		Very small; local.
667	12	e	05	35	13		Very small; teleseismic.
668	12	e e	17	51 55	22 40		
669	13	ePZ iSNZ	12	24 25	41 13	285	Felt at: Lepanto, Mt. Province Intensity I
670	14	iPNEZ iSNZ	10	38 39	15 15	530	Felt at: Aparri, Cagayan Intensity III
671	14	eP	10	55	53		Very small; probable aftershock.
672	14	iPNEZ iSNEZ	13	40 41	57 50	470	Felt at: Aparri, Cagayan Intensity II
673	14	e	17	27	38		Very small.
674	14	e	19	16	33		Very small; local;
675	15	e	04	03	54		Very small.
676	17	eP eS	19	48 49	51 11	120	Felt at: Sta. Cruz Zambales Intensity IV
677	19	eP iS	05	15 16	37 01	210	
678	19	ePZ eSZ	14	32	25 53	245	
679	19	iPNEZ eSEZ	17	31 32	13 05	460	
680	19	ePNZ eSZ	18	01	15 35	175	

NO.	DATE	PHASE	GREENWICH TIME h	m	s	DISTANCE KMS.	REMARKS
	1953 DEC.						
681	19	ePNZ eSZ	23	51	06 37	275	
682	20	iPNEZ eSZ	06	35	27 56	175	Felt at: Iba, Zambales Intensity II
683	20	e	07	23	08		Very small; local.
684	20	e	09	45	07		Very small; teleseismic.
685	20	e	10	22	00		Very small; teleseismic.
686	20	e	10	36	18		Very small; teleseismic.
687	20	e	10	45	55		Very small; teleseismic.
688	20	eP iS	12	00 01	49 22	290	
689	20	iPNEZ iSNZ	16	56 57	55 35	355	Felt at: Vigan, Ilocos Sur Intensity III
690	20	ePNEZ iSEZ	21	19	21 51	265	
691	20	e	20	37	29		Very small; local.
692	20	ePZ esZ	21	25 26	51 34	385	
693	20	e	21	36	04		Very small; teleseismic.
694	20	e	22	57	11		Very small; local.
695	21	ePZ eSZ	00	52 53	04 00	495	
696	21	e	17	42	44		Very small; teleseismic.
697	22	eP eS	02	09 10	14 21	540	
698	22	iPNEZ eSEZ	18	45 46	52 46	480	
699	22	ePNEZ eSNZ	20	04 05	56 47	450	Probable aftershock.
700	22	iPNEZ iSNZ	20	37 38	19 12	480	Probable aftershock.
701	22	iPNEZ eSEZ	20	43 44	44 39	480	Probable aftershock.
702	23	ePZ eSZ	03	52 53	06 11	540	
703	23	e	16	39	06		Very small; local;
704	23	e	22	53	02		Very small; local.

NO.	DATE	PHASE	GREENWICH TIME H	M	S	DISTANCE KMS.	REMARKS
	1953 DEC.						
705	24	e	01	21	03		Very small; local.
706	24	ePNZ eSNE	02	42 49	17 22	5,400 or 48.6°	
707	24	ePNEZ eSN	09	50 52	58 16	550	
708	24	ePZ eS	23	29 36	57 43	5,200 or 46.8°	
709	25	iPZ iSZ	02	00 07	16 16	5,400 or 48.6°	
710	25	e	03	20	30		Very small; local.
711	25	e	16	18	53		Very small; teleseismic.
712	25	ePZ eSZ	21	52 54	17 26	1,400 or 12.3°	
713	26	e	13	21	25		Very small; teleseismic. NOTE: Microseisms started to increase in amplitude
714	27	iPNEZ iSNEZ	07 08	59 59	15 37	195	Felt At: Iba Zambales Intensity II
715	27	iPNEZ eSNZ	09	08 09	56 18	195	Probable aftershock.
716	28	e	02	00	08		Very small; local.
717	29	iPNE iSNE	02	08 09	58 28	265	
718	29	e	15	12	00		Very small; local. Felt at: Masbate Intensity III
719	30	e	09	31	23		Very small; local.
720	30	e	11	26	14		Very small; local.
721	31	ePNEZ eSNEZ	12	21 22	52 46	480	Felt at: Aparri, Cagayan Intensity III
722	31	e	21	20	34		Very small; local.

The following macroseismic tremors were reported felt but were not recorded at Manila:

		HOUR (GMT)	MINUTES (GMT)	INTENSITY	DIRECTION
Butuan	DEC. 8	20	30	IV	------
Sta. Ana, Cagayan	13	22	10	IV	NE - SW
Baggao, Cagayan	15	11	37	I	N - S
Butuan	18	16	40	III	WSW - ENE