No. 1. January, 1932.

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY

Ø=14° 34' 42" N. λ=120° 58' 41" E. h=2.40 m. Alluvium.

GALITZIN-WILIP WIECHERT. M=1000 Kg.

	T_o	D	T_1	
N-S	12.43	100.5	12.59	11.52
E-W	11.80	100.5	11.91	11.40
Z	11.60	100.5	9.00	14.82

	T_o	V	ε	$\frac{r}{T_o^2}$
N-S	4.4	189	2.4	0.026
E-W	4.6	202	2.7	0.029

No. and Date	Phase	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 January				
No. 1 1st	PNE	8 41 47	530	Disturbed by microseisms. Z records
	SNE	8 42 49		light-struck.
	F	8 59		
No. 2 3rd	PNEZ	8 00 12	2310	Disturbed by microseisms.
	SNE	8 03 57		
	MNE	8 08 ca		
	F	8 30		
No. 4 5th	PNEZ	0 38 48	1905?	Disturbed by microseisms.
	SNE?	0 42 01		
	LNE?	0 43 39		
	MNE	0 45 24		
	F	1 16		
No. 6 5th	PNEZ	11 27 44	2578	Epicenter 13° N, 144° E by Manila and Guam. Felt in Guam.
	iSNE	11 31 47		Disturbed by microseisms.
	MNE	11 36 ca		
	F	11 46		
No. 7 6th	PNEZ	5 22 27	760	
	SNE	5 23 50		
	F	5 33		
No. 8 6th	PNEZ	14 31 18	3300?	Disturbed by microseisms.
	SNE?	14 36 10		
	ME	14 42 11		
	F	15 06		
No. 9 6th	PNEZ	17 02 40	3165	Disturbed by microseisms.
	SNE	17 07 23		
	LNE	17 10 30		
	F	17 43		
No. 11 9th	PNEZ	10 23 40	3925	0:10:21:26. 3° S, 152° E by Manila,
	SNE	10 34 11		Zikawei, Phu-Lien, Amboina, Hong Kong,
	LN	10 38 45		Kotta, Fordham.
	F	11 35		Baguio, dilatation. S-P=4010 Km.
				Horizontal data from the Wiechert.
				Disturbed by microseisms.
No. 12 10th	PNEZ	9 53 45	215	S and F from the Wiechert. Disturbed
	SNE	9 54 13		by microseisms.
	F	9 58		Baguio, 150 Km.

M A N I L A O B S E R V A T O R Y

SPECIAL BULLETIN OF PRINCIPAL EARTHQUAKES

J A N U A R Y , 1 9 3 2

3rd	PNEZ	8	00	12	
	SNE	8	03	57	
5th	PNEZ	0	38	48	
	S?NE	0	42	01	
5th	PNEZ	11	27	44	Epicenter 13° N; 144° E by Manila and Guam. Felt in Guam.
	1SNE	11	31	47	
6th	PNEZ	14	31	18	
	S?NE	14	36	10	
6th	PNEZ	17	02	40	
	SNE	17	07	23	
9th	PNEZ	10	28	40	3° S; 152° E by Manila, Zikawei, Phu-Lien.
	SNE	10	34	11	
17th	PNEZ	7	54	04	
	S?NE	8	01	00	
17th	PNE	17	17	19	Felt at Guiuan, S of Samar.
	SNE	17	18	41	
18th	PNE	20	27	33	Compression. Felt at Basco (Batanes Islands), Aparri, and Cape Bojeador (N Luzon).
	SNE	20	28	46	
20th	PNEZ	15	12	17	
	SN	15	16	18	
24th	ePNEZ	3	54	04	Dilatation.
	SNE	4	02	02	
25th	PNEZ	2	02	33	
	SNE	2	11	00	
29th	PNEZ	13	48	44	Compression.
	SNE	13	54	50	
29th	PNE	15	46	43	Compression.
	SNE	15	52	44	
30th	PNEZ	3	12	26	
	SNE	3	18	35	
30th	PNEZ	7	20	04	
	SNE	7	26	16	
30th	PNEZ	12	48	31	
	SNE	12	53	23	
31st	PNEZ	1	25	02	
	SNE	1	31	02	
31st	PNEZ	4	42	33	
	SNE	4	48	34	
31st	PNEZ	16	08	43	
	SNE	16	14	49	

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase	Greenwich Time h. m. s.	Dist. Km.	Remarks
1932 January				
No. 13 11th	PNEZ	18 05 36	440	S and F from the Wiechert. Disturbed by microseisms.
	SNE	18 06 30		
	F	18 12		
No. 16 13th	eNEZ	8 00 16		Disturbed by microseisms.
	SN?	8 08 14		
	MNE	8 11 ca		
	F	8 30		
No. 19 16th	$\bar{P}$NEZ	4 13 12	140	Disturbed by microseisms.
	$\bar{S}$NE	4 13 30		
	F	4 15		
No. 20 16th	$\bar{P}$NEZ	4 19 03	110	Felt in Manila by some persons. Compression.
	$\bar{S}$NE	4 19 17		
	F	28		
No. 22 17th	PNEZ	7 54 04	5355?	Disturbed by microseisms.
	SNE?	8 01 00		
	F	8 52		
No. 23 17th	PNE	17 17 19	740	10° 30' N, 126° 25' E by Manila and Butuan. Felt at Guiuan S of Samar. P and S from the Wiechert.
	SNE	17 18 41		
	F	17 49		
No. 24 18th	PNE	20 27 33	650	Compression. Felt at Basco, Batanes Islands, Aparri and Cape Bojeador, N Luzon. From the Wiechert.
	SNE	20 28 46		
	F	20 50		
No. 26 20th	PNEZ	15 12 17	2545	Disturbed by microseisms.
	SN	15 16 18		
	MN	15 20 48		
	F	15 33		
No. 29 24th	ePNEZ	3 54 04	6000	O=3:44:08. Dilatation. In region of 3° N, 175° E by Manila, Hong Kong, Batavia.
	SNE	4 01 37		
	LNE	4 10 30		
	F	5 32		Disturbed by microseisms.
No. 31 25th	PNEZ	2 02 33	6910	Disturbed by microseisms.
	SNE	2 11 00		
	LNE?	2 16 29		
	ME	2 20 49		
	F	3 12		
No. 32 25th	$\bar{P}$Z	4 55 32	195	
	$\bar{S}$NZ	4 55 57		
	F	4 58		
No. 34 26th	PNE	5 04 03	5370?	
	SNE?	5 11 00		
	F	5 37		
No. 35 27th	PNEZ	12 23 04	220	
	$\bar{S}$NEZ	12 23 33		
	F	12 29		

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 January				
No. 36 29th	PNEZ	13 48 44	4490	0=13:40:00. Compression. 7° 30' S, 155° E by Manila, Phu-Lien, Hong Kong, Zikawei, Batavia, Amboina, Medan.
	PR_1N	13 50 14		
	PR_3N	13 50 56		
	SNE	13 54 50		
	LNE	14 00 30		Hodgson's Travel Times.
	F	15 43		Horizontal data from the Wiechert. Baguio, S-P=4590 Km. Butuan, S-P= 3710 Km.
No. 37 29th	PNE	15 46 43	4420	Compression. Same epicenter as No. 36, by Manila, Hong Kong, Batavia, Medan, Amboina.
	SNE	15 52 44		
	F	16 53		From the Wiechert. Baguio, S-P=4580 Km. Butuan, S-P= 3710 Km.
No. 38 29th	PNEZ	19 07 27	4200?	
	SE?	19 13 15		
	F	19 35		
No. 39 29th	eNEZ	21 55 06	4480?	
	SNE?	22 01 11		
	F	22 44		
No. 40 30th	PNEZ	2 25 30	330	Baguio S-P=200 Km.
	SNEZ	2 26 13		
	F	2 35		
No. 41 30th	PNEZ	3 12 26	4560	Epicenter probably same as No. 36. Other phases very difficult to determine because overlapping with the preceding quake. Baguio, S-P= 4590 Km.
	SNEZ	3 18 37		
	F	5 20		
No. 42 30th	PNZ	7 19 11	5505?	Epicenter probably same as No. 36.
	SNE?	7 26 16		
	MNE	7 38 30		
	F	8 34		
No. 43 30th	PNZ	12 48 22	2655	
	SNE	12 52 31		
	F	13 12		
No. 44 30th	PNEZ	21 26 52	3560	
	SNE	21 32 00		In minute gap.
	F	22 11		

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 January				
No. 45 31st	PNEZ	1 25 02	4390	Epicenter probably same as No. 36.
	SNE	1 31 02		
	LNE	1 36 39		
	MN	1 39 32		
	F	2 23		
No. 46 31st	PNEZ	4 42 33	4400	Epicenter probably same as No. 36.
	SNE	4 48 34		
	LNE	4 54 23		
	ME	4 57 58		
	F	5 44		
No. 47 31st	PNEZ	16 08 43	4490	Epicenter probably same as No. 36.
	SNE	16 14 49		
	LE?	16 20 18		
	ME	16 24 11		
	F	17 32		
No. 48 31st	PNEZ	21 42 15	2745?	
	SNE?	21 46 30		
	F	22 12		
No. 49 31st	ePNEZ	23 22 26	400	Felt at Aparri, N Luzon.
	SNE	23 23 16		
	F	23 38		

Thirteen insignificant or undecipherable disturbances in the following days of January: 4th, 5th, 8th, 12th(2), 13th(2), 16th, 20th(3), 24th and 25th.

No. 5. February, 1932.

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY

Ø=14° 34' 42" N. λ=120° 58' 41" E. h=2.40 m. Alluvium.

GALITZIN-WILIP

	T_o	D	T_1	l
N-S	12.43	100.5	12.59	11.52
E-W	11.80	100.5	11.91	11.40
Z	11.60	100.5	9.00	14.82

WIECHERT. M=1000 Kg.

	T_o	V	ε	$\frac{r}{T_o^2}$
N-S	4.3	196	2.4	0.029
E-W	4.7	202	2.6	0.028

No. and Date	Phase	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932				
February				
No. 52	PNEZ	14 24 53	540	
1st	SNE	14 25 56		
	F	14 37		
No. 53	PNEZ?	21 46 23	730?	
1st	SNEZ?	21 47 44		
	F	22 14		
No. 54	PNEZ	7 10 18	4180?	
2nd	SNE?	7 16 05		
	F	7 37		
No. 56	PNEZ	6 35 31		O=6:15.8, 19.3° N, 75° W by U.S.C.G.S.
3rd	iNE	6 38 28		
	iNEZ	6 39 20		
	LNE	7 31 ca		
No. 57	PNE	7 38 57	1550?	No. 56 still recording.
3rd	SNE?	7 41 38		
	F	8 40		
No. 58	PEZ	14 39 07	4690	N-S cylinder stopped at 12:13.
3rd	SE	14 45 25		
	F	15 10		
No. 59	PNEZ	7 22 20	4645	
4th	iSNE	7 28 35		
	LNE	7 34 29		
	F	8 20		
No. 61	PNEZ	13 49 00	3080	
5th	SNE	13 53 37		
	LNE	13 56 30		
	F	14 44		
No. 63	PNZ	17 50 30	4820	
6th	SNE	17 56 56		
	LNE	18 03 22		
	F	18 16		
No. 65	PNZ	19 41 11	1850	E-W cylinder stopped at 7:04.
8th	SN	19 44 20		
	MN	19 48 00		
	F	20 12		

M A N I L A , P . I .

SEISMOLOGICAL BULIETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 February				
No. 66	PNZ	21 21 54	820	
8th	SN	21 23 23		
	mN	21 26 32		
	F	21 33		
No. 67	PNE	17 07 46	4235	
9th	SE	17 13 36		
	F	17 46		
No. 68	PNEZ	20 34 12	2545	
9th	SNE	20 38 13		
	F	20 54		
No. 69	eNEZ	11 06 28		
10th	ME	11 18 25		
	MN	11 19 ca		
	F	11 43		
No. 71	PNEZ	1 08 31	7390	Train of long waves in E-W compon-
12th	SNE	1 17 26		ent from 1:35 to 1:38.
	LNE	1 28 ca		
	MNE	1 34 43		
No. 72	PNEZ	2 07 13	1410	No. 71 still recording.
12th	SNE	2 09 39		
	LNE	2 10 51		
	F	2 38		
No. 73	PNEZ	19 17 42	2655	
13th	SNE	19 21 51		
	LNE	19 24 ca		
	MNE	19 26 30		
	F	20 3o		
No. 77	PNEZ	12 00 45	5880	
14th	SNE	12 08 11		
	LNE	12 17 ca		
	MNE	12 21 ca		
	F	12 54		
No. 78	PNEZ	23 2[illegible] 16	6735	O=23:14:04. Dilatation.
14th	SNE	23 3[illegible] 33		
	PSNE	23 32 49		
	SR_1E	23 37 10		
	P_cSS_cPNE?	23 40 06		
	LNE	23 43 20		
	ME	23 48 13		
15th	F	0 37		
No. 79	PNEZ	0 46 20	2635	
15th	SNE	0 50 27		
	F	1 19		
No. 81	$\overline{P}NZ$	18 23 34	145	Compression. Felt at Ambulong very
15th	$\overline{P}E$	18 23 36		slightly.
	$\overline{S}NE$	18 23 52		
	F	18 31		

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 February				
No. 82 16th	ePN	13 59 43	7270	0=13:49:00. Dilatation.
	iPEZ	13 59 43		
	PR_1EZ	14 02 30		
	PR_2N	14 03 50		
	SNE	14 08 31		
	SR_3N	14 17 15		
	LNE	14 20 16		
	F	15 56		
No. 83 16th	$\overline{P}NEZ$	19 42 25	195	
	$\overline{S}NE$	19 42 50		
	F	19 45		
No. 84 17th	$\overline{P}NEZ$	15 51 22	145	
	$\overline{S}NE$	15 51 40		
	F	15 57		
No. 85 19th	ePNEZ	13 30 03	4120	
	SNE	13 35 47		
	F	13 50		
No. 86 21st	PNEZ	1 38 41	3035	
	SNE	1 43 15		
	LNE	1 46 07		
	ME	1 48 36		
	F	2 22		
No. 87 21st	PNEZ	4 23 13	265	
	$\overline{S}NEZ$	4 23 50		
	F	4 30		
No. 88 21st	PNEZ	7 33 17	495	Felt in northern Luzon.
	SNE	7 34 15		
	F	7 44		
No. 92 21st	$\overline{P}NE$	20 59 40	160	S in minute gap.
	$\overline{S}NE$	21 00 00		
	F	21 05		
No. 95 22nd	PNEZ	0 18 40	1280	
	SNE	0 20 53		
	LNE	0 22 06		
	MNE	0 23 46		
No. 96 22nd	PNE	0 38 24	1625	No. 95 still recording.
	SNE	0 41 13		
	LNE	0 42 37		
	MNE	0 44 12		
	F	1 25		
No. 98 22nd	PNEZ	14 03 24	280	Felt at Naga, SE Luzon.
	$\overline{S}NE$	14 04 04		
	F	14 06		

M A N I L A , P . I .

SIEMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 February				
No. 99 23rd	PNEZ	0 33 40	9560	0=0;20:59
	SNE	0 44 20		
	SR_2E	0 54 33		
	SR_3E	0 56 40		
	LNE	1 02 42		
	MNE	1 09 23		
	F	2 50		
No. 100 23rd	PNEZ	20 19 56	5100	0=20:11:21. Compression.
	SNE	20 26 38		
	LNE	20 33 30		
	F	21 45		
No. 104 26th	PNEZ	11 33 27	1080	
	SNE	11 35 21		
	F	12 04		
No. 105 27th	$\overline{P}NEZ$	10 05 27	110	
	$\overline{S}NE$	10 05 41		
	F	10 08		

Twenty insignificant or undecipherable disturbances on the following days of February: 1st(2), 2nd, 4th, 6th, 7th, 11th, 13th, 14th(2), 15th, 21st(5), 22nd, 24th, 25th and 26th.

MANILA OBSERVATORY

SPECIAL BULLETIN OF PRINCIPAL EARTHQUAKES

MARCH, 1932

		h. m. s.	
6th	PNEZ	21 49 40	
	SNE	21 53 35	
8th	PNEZ	3 18 35	L and M not apparent.
	SNE	3 25 27	
8th	ePNE	18 12 03	
	SNE	18 21 26	
12th	PNEZ	8 55 59	
	SN	8 58 31	
14th	P'NEZ	23 02 46	7° N; 74° W by U.S.C.G.S. Continuous oscillations with no definite phases.
15th	iPZ	4 37 24	Dilatation. O=4:31:45. Felt in Guam,
	SN	4 41 43	Distance 215 Km.
	SE	4 41 51	Epicenter, approx. 12.6° N; 146.3° E as on July 17, 1931 and Nov. 3, 1931. Southeast slope of Nero Deep.
19th	PNEZ	11 05 11	Compression. O=10:59:03. Felt in
	SNE	11 09 51	Guam, distance 370 Km.
26th	PNEZ	0 10 24	63°N; 156°W, O=23:58:30 by U.S.C.
	SNEZ	0 20 06	G.S.
			Preceded at 0:06:38 by a slight disturbance from another earthquake.
			Zikawei P=0:08:41, dist. 6911 Km.
28th	PEZ	0 42 04	Compression.
	SNE	0 48 16	
30th	PNEZ	15 09 05	Compression.
	SNE	15 15 05	

No. 9. March, 1932

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY

Ø=14° 34' 42" N. λ=120° 58' 41" E. h=2.40 m. Alluvium.

GALITZIN-WILIP

	T_o	D	T_1	l
N-S	12.43	100.5	12.59	11.52
E-W	11.80	100.5	11.91	11.40
Z	11.60	100.5	9.00	14.82

WIECHERT. M=1000 Kg.

	T_o	V	ε	$\frac{r}{T_o^2}$
N-S	4.4	190	2.3	0.029
E-W	4.6	197	2.5	0.033

No. and Date	Phase	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 March				
No. 107 3rd	iPNEZ	22 50 48	390	Felt at Calbayog, Samar.
	SEZ	22 51 36		Dilatation.
	SN	22 51 40		
	F	23 16		
No. 108 4th	PNEZ	23 28 33	5050	
	SNE	23 35 12		
	LNE?	23 42 31		
	MNE	23 45 56		
5th	F	0 09		
No. 109 6th	PNE	0 29 01	6540?	
	SNE?	0 37 06		
	F	1 00		
No. 110 6th	PNEZ	21 49 40	2470	
	SNE	21 53 35		
	LNE	21 55 40?		
	iMNE	21 57 47		
	F	22 42		
No. 111 7th	PNE	1 06 40	190	Felt slightly at Ambulong, Batangas.
	SNE	1 07 04		P in Z component defective.
	F	1 31		
No. 112 8th	PNEZ	3 18 35	5270	L and M not apparent.
	SNE	3 25 27		
	F	4 30		
No. 113 8th	PNEZ	4 39 43	6100	Compression.
	SNE	4 47 22		
	LNE	4 56 40		
	ME	5 01 ca		
	F	5 38		
No. 114 8th	ePNE	18 12 03	7890	0=18:00:48
	iPZ	18 12 03		
	SNE	18 21 26		
	PSNE	18 21 52		
	LN	18 34 51		
	MNE	18 40 28		
	F	19 40		

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 March				
No. 115 10th	eNE?	5 42 34		From the Wiechert. Galitzin no records in this time, because the galvanometers were adjusting.
	F?	6 11		
No. 116 12th	PNEZ	6 36 11	530	Dilatation.
	SNE	6 37 13		
	F	6 42		
No. 117 12th	PNEZ	8 55 59	1465	
	SN	8 58 31		
	LNE	8 59 37		
	F	9 17		
No. 118 12th	P̄NEZ	12 31 17	135	
	S̄NE	12 31 34		
	F	12 34		
No. 119 12th	PNEZ	13 21 59	640	P in minute gap.
	SNE	13 23 11		Felt at Cape Bojeador, northern Luzon.
	mNE	13 25 24		
	F	14 02		
No. 121 14th	P̲NEZ	10 06 36	220	
	S̲NEZ	10 07 05		
	F	10 24		
No. 122 14th	PNE?	21 04 24	3835?	P and S not clear.
	SNE?	21 09 50		
	F	21 30		
No. 123 14th	P'NEZ	23 02 46	17090	7° N; 74° W; O=22:42:34 by U.S.C. G.S.
15th	F	1 02		Continuous oscillations with no definite phases.
No. 124 15th	iPZ	4 37 24	2810	O=4:31:45 Dilatation.
	ePNE	4 37 24		Epicenter, approx. 12.6° N; 146.3° E as on July 17, 1931 and Nov. 3, 1931. Southeast slope of Nero Deep.
	PR_1NE?	4 37 54		
	SN	4 41 43		
	SE	4 41 51		Felt in Guam, Δ=215 Km.
	SR_1NE	4 42 31		
	LNE	4 44 39		
	F	6 50		
No. 126 16th	PNEZ?	5 28 34	5170?	Disturbed by microseisms.
	SNE	5 35 19		
	LNE	5 42 30ca		
	F	6 25		

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 March				
No. 127 19th	PNEZ	11 05 11	3120	0-10:59:03 Compression. Disturbed by microseisms.
	PR_2N	11 06 06		
	SNE	11 09 51		Approx. 16.5° N; 149° E by Manila. HongKong, Batavia.
	SR_1N	11 11 21		
	SR_2N	11 11 45		Felt in Guam, Dist. 370 Km.
	LNE	11 13 00		
	F	13 18		
No. 128 19th	PZ	23 17 00	3650?	Disturbed by microseisms.
	PNE	23 17 03		
	SNE?	23 22 17		
	MNE	23 25 00		
20th	F	0 40		
No. 130 22nd	PNEZ	14 04 16	3745	Disturbed by microseisms.
	SNE	14 09 36		
	F	14 41		
No. 132 24th	PNEZ	16 15 45	3495?	Disturbed by microseisms.
	SNE?	16 20 49		
	F	16 50		
No. 136 26th	PNEZ	0 10 24	8270	63° N; 156° W; 0-23:58:30 by U.S. C.G.S.
	SNEZ	0 20 06		
	LNE	0 34 40		Preceded at 0:06:38 by a slight disturbance from another earthquake.
	MNE	0 40 00ca		
	F	3 02		
No. 137 26th	PNE	9 56 59	2390	In the Banda Sea, N.E.I. by Manila, Batavia, HongKong.
	SNE	10 00 49		
	LNE	10 02 50		From the Wiechert.
	MNE	10 05 00		
	F	12 26		
No. 138 27th	PNEZ?	8 51 31	3020.	Disturbed by microseisms.
	SNE	8 56 04		
	LN	8 59 07		
	LE?	8 59 07		
	F	9 34		
No. 139 27th	PNEZ	9 59 01	2165	Disturbed by microseisms.
	SNE	10 02 35		
	F	10 38		
No. 140 27th	PNEZ	13 34 31	970	Butuan $\Delta = 2^\circ - 3^\circ$.
	SNE	13 36 04		
	LE	13 37 19		
	F	13 53		
No. 141 28th	PEZ	0 42 04	4590	Compression. Netherlands East Indies earthquake.
	PN	0 42 08		
	SNE	0 48 16		
	LE	0 57 40		
	F	2 18		

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 March				
No. 144 30th	PNEZ	15 09 05	4390	Compression.
	SNE	15 15 05		
	LE	15 20 24		
	F	15 52		
No. 147 31st	PNEZ?	16 12 27	1480?	Disturbed by microseisms.
	SNE	16 15 00		
	F	16 32		

Fourteen insignificant or undecipherable disturbances in the following days of March: 2nd, 13th, 16th, 20th, 23rd, 25th(2), 26th, 29th, 30th(2), and 31st(3).

No. 13. April, 1932

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY

φ=14° 34' 42" N. λ=120° 58' 41" E. h=2.40 m. Alluvium.

GALITZIN-WILIP WIECHERT. M=1000 Kg.

	T_o	D	T_1	μ^2	λ	K
N-S	12.43	100.5	12.59	.017	11.52	97
E-W	11.80	100.5	11.91	-.075	11.40	80
Z	11.60	100.5	9.00	1.250	14.82	200

	T_o	V	ε	$\frac{r}{T_o^2}$
N-S	4.4	201	2.3	0.029
E-W	4.6	200	2.6	0.026

No. and Date	Phase	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 April				
No. 150 1st	PNEZ	8 35 20	2020	
	SEZ	8 38 43		
No. 151 1st	PNEZ?	8 56 22	2545?	No. 150 still recording.
	SNE	9 00 23		
No. 152 1st	PNE?	9 20 23	2535	No. 151 still recording.
	SNE	9 24 23		
	F	9 49		
No. 156 3rd	PNEZ	20 50 34	8510	Compression.
	SNE	21 00 30		
	LNE	21 15 30ca		
	F	22 04		
No. 158 4th	iPNEZ	19 21 06	2000?	Dilatation from NE. In region of 27° N; 135° E by Zikawei, Manila, Hong Kong. Waves of 10 sec. period persist until 19:30:00.
	SNE?	19 24 27?		
	F	21 00		
No. 159 5th	PNEZ	5 09 52	2920	
	SNE	5 14 19		
	F	5 37		
No. 160 6th	PNEZ	0 49 37	1000	
	SNE	0 51 23		
	F	1 07		
No. 161 6th	ePNEZ	1 47 07	200	Disturbed by microseisms.
	SEZ	1 47 33		
	F	1 50		
No. 162 6th	PNEZ	8 22 37	245	Disturbed by microseisms.
	SNE	8 23 11		
	F	8 28		
No. 163 6th	PNEZ	9 15 25	2165	Dilatation. 31° N; 116° E by Zikawei, Hong Kong, Manila.
	SNE	9 19 00		S in minute gap.
	LNE	9 20 49		
	MNE	9 22 42		
	F	10 16		

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 April				
No. 165 7th	PNEZ	21 37 14	1630	
	SNE	21 40 04		
	F	22 02		
No. 166 8th	PNEZ	12 03 36	3535?	
	SNE?	12 08 43		
	F	13 04		
No. 167 9th	P̄EZ	14 31 42	160	
	S̄NEZ	14 32 02		
	F	14 37		
No. 171 11th	PNEZ	1 04 00	220	Compression.
	S̄NEZ	1 04 29		
	F	1 11		
No. 172 12th	PNEZ	12 31 02	260	Probably east of Luzon, by Manila and Baguio.
	S̄NEZ	12 31 39		
	F	12 40		
No. 173 12th 13th	iPZ	23 59 40	3970	Compression.
	ePNE	23 59 41		
	SNE	0 05 19		
	LN	0 10 ca		
	F	1 25		
No. 174 13th	iPZ	4 03 40	2265	Dilatation. Moluccas according to Batavia.
	PNE	4 03 40		
	SNE	4 07 22		
	LN	4 09 19		
	F	5 06		
No. 175 14th	PNEZ	11 36 36	1800	
	SNE	11 39 40		
	LNE	11 41 20		
	MNE	11 42 44		
	F	12 06		
No. 176 14th	iPZ	17 03 20	2300	Compression.
	ePNE	17 03 20		
	SNEZ	17 07 04		
	LNE	17 09 02		
	MNE	17 11 07		
	F	17 45		
No. 177 15th	ePNEZ	3 23 08	230	Compression. Slightly felt at Naga, SE Luzon.
	iS̄NEZ	3 23 39		
	F	3 31		
No. 178 15th	ePNEZ	4 31 24	235	
	iS̄NEZ	4 31 56		
	F	4 38		

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 April				
No. 180 17th	PNEZ	1 03 42	1120	Dilatation.
	SNEZ	1 05 39		
	LNE	1 06 47		
	ME	1 07 48		
	F	1 46		
No. 181 18th	PNEZ	4 54 42	2365	Compression from SE. Moluccas according to Batavia.
	SNEZ	4 58 31		
	F	5 45		
No. 182 18th	PNEZ	11 32 54	6165	
	SNE	11 40 37		
	LN	11 50 00		
	MNE	11 54 30		
	F	12 27		
No. 183 19th	PEZ	15 28 20	110	Dilatation.
	SEZ	15 28 34		N-S component not recording, 8:15 to 24:00.
	F	15 34		
No. 184 21st	PNEZ	13 58 08	440	
	SNEZ	13 59 02		
	F	14 06		
No. 185 22nd	PNEZ	5 03 40	3320	West Java according to Batavia.
	SNE	5 08 33		
	LNE?	5 11 00		
	F	6 10		
No. 186 22nd	PNEZ	7 26 31	215	
	SNE	7 26 59		
	F	7 30		
No. 188 23rd	cPEZ	4 22 24	5	
	iSNE	4 22 27		
	F	4 24		
No. 190 25th	PNEZ?	17 54 08	4360	
	SNE?	18 00 06		
No. 191 25th	eNEZ	18 17 39		No. 190 still recording.
	SNE	18 19 28		
	F	18 29		
No. 192 25th	ePNEZ	21 02 50	400	Felt in northern Luzon.
	iSNE	21 03 41		
	F	21 11		
No. 193 26th	PNEZ	8 15 04	10555	
	SNE	8 26 23		
	F	9 07		
No. 194 26th	PNEZ	10 59 18	90	
	SNE	10 59 30		
	F	11 01		

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase	Greenwich Time h. m. s.	Dist.	Remarks.
1932 April				
No. 196 26th	ePNE?	12 45 07	5455	Disturbed by microseisms.
	SNE	12 52 09		
	F	13 02		
No. 197 26th	PNEZ?	13 43 19	1300?	Disturbed by microseisms.
	SNE	13 45 34		
	F	14 07		
No. 200 27th	PNE	14 37 41	970	Disturbed by microseisms.
	SNE	14 39 24		
	F	14 50		
No. 203 27th	PNEZ	17 24 17	1925	Disturbed by microseisms.
	SNE	17 27 33		
	F	17 39		
No. 217 29th	PNEZ	17 32 56	950	Compression.
	SNE	17 34 38		Compression at Butuan.
	F	19 56		Felt in eastern Mindanao. Epicenter in Philippine Deep, probably at 8° 20' N; 126° 53' E.
No. 218 29th	PNEZ	21 09 01	470	Felt in northern Luzon. Dilatation.
	SNE	21 09 57		
	F	21 27		

Thirty-one insignificant or undecipherable disturbances in the following days of April: 1st(3), 4th, 6ht, 9th(2), 10th, 16th, 22nd, 25th, 26th, 27th(4), 28th(11), 29th(2) and 30th(2).

M A N I L A O B S E R V A T O R Y

SPECIAL BULLETIN OF PRINCIPAL EARTHQUAKES

M A Y , 1 9 3 2

2nd	PNEZ	23 33 39	
	SNE	23 37 34	
4th	iPNEZ	5 08 26	Dilatation from SE. Molucoas
	SNE	5 11 19	by Manila and Butuan.
5th	iPEZ	4 15 46	Dilatation.
	ePN	4 15 46	
	SNEZ	4 19 33	
5th	PNE	8 35 56	
	SNE	8 45 21	
6th	iPZ	5 38 35	
	SNEZ	5 41 34	
10th	iPZ	14 27 55	Dilatation.
	SEZ	14 31 51	
11th	PNEZ	6 59 48	
	SE	7 05 20	
12th	iPNEZ	6 11 23	Dilatation from SE. Butuan △=
	SNEZ	6 14 31	1155km. Probably in rigion of 4° N; 134° E.
14th	iPNEZ	13 14 41	Celebes. N.E.I.
	SZ?	13 17 38	
17th	iPZ	13 01 39	Compression.
	ePNE	13 01 42	
	SNE	13 06 56	
17th	ePNEZ	17 34 11	
	SNE?	17 37 50	
17th	ePNE	22 26 06	
	SNE?	22 29 03	
18th	ePNEZ	18 56 17	
	SNE	19 04 46	
19th	ePNEZ	2 12 24	
	SNE	2 15 40	
20th	PNEZ	7 19 01	
	SNE	7 21 25	
21st	PNEZ	10 29 29	San Salvador, Central America.
	P'NE?	10 32 19	
22nd	PNEZ	11 40 46	Compression.
	SNE	11 50 17	
26th	PNEZ	5 20 12	
	SNE?	5 23 18	
26th	iPNEZ	16 19 48	Dilatation.
	iSNE	16 28 19	
26th	iPNEZ	20 33 54	
	iSNE	20 37 41	
26th	PNEZ	22 32 02	
	SNE	22 40 26	
27th	PNEZ	1 39 55	Dilatation.
	SNE	1 45 33	

M A N I L A O B S E R V A T O R Y

SPECIAL BULLETIN OF PRINCIPAL EARTHQUAKES

A P R I L , 1 9 3 2

		h.	m.	s.	
4th	iPNEZ	19	21	06	Dilatation.
	iSN	19	23	05	
6th	PNEZ	9	15	25	Dilatation.
	SNE	9	19	00	In minute gap.
12th	iPZ	23	59	40	Compression.
	ePiE	23	59	41	
13th	SiE	0	05	19	
13th	iPZ	4	03	40	Dilatation.
	PNE	4	03	40	
	SNE	4	07	22	
14th	PNEZ	11	36	36	
	SNE	11	39	40	
14th	iPZ	17	o3	20	Compression.
	ePNE	17	03	20	
	SNEZ	17	07	04	
17th	PNEZ	1	03	42	Dilatation.
	SNEZ	1	05	39	
18th	PNEZ	4	54	42	Compression from SE.
	SNEZ	4	58	31	
18th	PNEZ	11	32	54	
	SNE	11	40	37	
26th	PNEZ	8	15	04	
	SNE	8	26	23	

No. 17. May, 1932

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY

Ø=14° 34' 42" N. λ=120° 58' 41" E. h=2.40 m. Alluvium.

GALITZIN-WILIP WIECHERT. M=1000 Kg.

	T_o	D	T_1	l	μ^2	K
N-S	12.43	100.5	12.59	11.52	0.017	97
E-W	11.80	100.5	11.91	11.40	-0.075	80
Z	11.60	100.5	9.00	14.82	1.250	200

	T_o	V	ϵ	$\frac{r}{T_o^2}$
N-S	4.4	201	2.3	0.029
E-W	4.6	200	2.6	0.026

No. and Date	Phase	Greenwich Time h. m. s.	Distance Km.	Remarks.
1932 May				
No. 225 1st	ePNEZ?	15 53 27	2020?	No. 224 still recording.
	SNE	15 56 50		
	F	16 18		
No. 226 2nd	$\overline{P}$NEZ	8 30 21	180	
	$\overline{S}$NE	8 30 44		
	F	8 34		
No. 227 2nd	PNEZ	23 33 39	2480	In region of 30° N; 135° E by Osaka, Zikawei, Hong Kong, Manila.
	SNE	23 37 34		
	LN?	23 40 37		
	MNE	23 43 ca		
3rd	F	0 21		
No. 228 4th	iPNEZ	5 08 26	1675	Dilatation from SE. Boeol, N Celebes according to Batavia. Butuan △=960 Km.
	SNE	5 11 19		
	F	5 44		
No. 229 5th	iPEZ	4 15 46	2340	Dilatation. In region of 30° N; 136° E by Osaka, Zikawei, Hong Kong, Manila.
	ePN	4 15 46		
	SNEZ	4 19 33		
	LNEZ	4 21 36		
	F	4 53		
No. 230 5th	PNE	8 55 56	7930	
	SNE	8 45 21		
	LNE	8 59 ca		
	MNE	9 04 ca		
	F	9 27		
No. 231 6th	iPZ	5 38 35	1735	N. Celebes according to Batavia.
	ePNE	5 38 35		
	SNEZ	5 41 34		
	LNEZ	5 43 13		
	F	6 08		
No. 232 9th	iPZ	0 08 41	2430	Dilatation. Guam △=125 Km. Disturbed by microseisms.
	ePNE	0 08 41		
	SNEZ	0 12 34		
	F	0 19		

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase	Greenwich Time h. m. s.	Distance Km.	Remarks.
1932 May				
No. 233 9th	eNEZ	14 08 42		Disturbed by microseisms.
	SN?	14 11 29		
	MNE	14 14 35		
	F	14 33		
No. 234 10th	iPZ	14 27 55	2480	Dilatation.
	ePNE	14 27 55		Probably in N.E.I.
	SEZ	14 31 51		
	iNE	14 32 48		
	F	15 23		
No. 235 11th	iP̄Z	6 00 22	125	Dilatation.
	eP̄NE	6 00 22		Felt very slightly at Ambulong.
	S̄NE	6 00 38		
	F	6 12		
No. 236 11th	PNEZ	6 59 48	3780	
	SE	7 05 20		
	LNE	7 09 ca		
	F	8 20		
No. 237 11th	ePNEZ	9 40 52	880	Butuan △=220 Km.
	SNE	9 42 26		
	F	10 05		
No. 238 12th	iPNEZ	6 11 23	1840	Dilatation from SE. Ternate and N. Celbes according to Batavia.
	SNEZ	6 14 31		Butuan △=1155 Km.
	LNE	6 16 15ca		
	F	7 31		
No. 240 14th	iPNEZ	13 14 41	1720?	In region of 1° N; 129° E. Felt in southern and eastern Mindanao.
	SZ?	13 17 38		Destructive in ternate and Minahasa, according to Batavia.
	F	18 08		1° N; 124° E by J.S.A.
				3° N; 129° E; O=13:11:23 by U.S. C.G.S.
				Guam △=25°.
No. 241 15th	PNEZ	8 52 23	1535	Disturbed by microseisms.
	SNE	8 55 02		
	F	9 13		
No. 243 16th	P̄NEZ	22 13 08	235	Felt very slightly at Ambulong.
	S̄NE	22 13 40		
	F	22 17		
No. 244 17th	iPZ	13 01 39	3690	Compression.
	ePNE	13 01 42		18° S; 117° E by Manila and Batavia.
	SNE	13 06 56		Felt in E Java, Bali, Lombok, according to Batavia.
	LE	13 11 00		
	F	13 32		
No. 245 17th	ePNEZ	17 34 11	2230?	N. Celebes according to Batavia.
	SNE?	17 37 50		
	LNE	17 39 30ca		
	F	18 16		

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase	Greenwich Time h. m. s.	Distance Km.	Remarks.
1932 May				
No. 246 17th	ePNEZ	19 13 12	235	Dilatation.
	SNEZ	19 13 44		Felt at Daet and Naga, SE Luzon.
	F	19 26		
No. 248 17th	ePNE	22 26 06	1710?	N. Celebes, according to Batavia.
	SNE?	22 29 03		
	LN?	22 30 31		
	F	22 53		
No. 251 18th	ePNEZ	18 56 17	6940	
	SNE	19 04 46		
	LNE	19 15 ca		
	F	20 32		
No. 252 19th	ePNEZ	2 12 24	1935	
	SNE	2 15 40		
	LNE	2 17 23		
	F	2 34		
No. 253 20th	PNEZ	7 19 01	1390	
	SNE	7 21 25		
	MN	7 24 10		
No. 254 20th	PNEZ	7 56 20	510	No 253 still recording.
	SNE	7 57 20		
	SNE	7 57 39		
	F	8 13		
No. 256 21st	PNEZ	10 29 29	15580	San Salvador, Central America.
	P NE?	10 32 19		13° N; 88° W; 0=10:10:11 by U.S. C.G.S.
	LNE	11 16 ca		
	MNE	11 26 ca		13.8° N; 88.5 W; 0=10:10:17 by J.S.A.
	F	12 47		
No. 257 21st	PNEZ	21 45 12	3420	
	SNE	21 50 12		
	F	22 20		
No. 258 22nd	PNEZ	11 40 46	8045	Compression.
	SNE	11 50 17		
	LNE	12 04 25		
	MNE	12 10 ca		
	F	13 36		
No. 259 24th	ePNEZ	11 14 24	490	Felt at Calbayog, NW Samar.
	SNEZ	11 15 22		
	F	11 26		
No. 260 24th	PNE	17 27 08	565	
	SNE	17 28 13		
	F	17 43		

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase	Greenwich Time h. m. s.	Distance Km.	Remarks
1932 May				
No. 262 26th	PNEZ	5 20 12	1820?	Disturbed by microseisms.
	SNE?	5 23 18		
	LNE?	5 24 52		
	F	6 12		
No. 263 26th	PNEZ	9 12 00	505	P in minute gap.
	SNEZ	9 13 19		
	F	9 27		
No. 264 26th	iPNEZ	16 19 48	6980	Dilatation. 23° S; 173° E by Amboina, Manila, Batavia, PhuLien, Zikawei.
	SNE	16 28 19		16° S; 173° E; O=16:09:33 by U.S. C.G.S.
	LNE	16 39 ca		S and L from the Wiechert.
	F	19 40		Guam △=45°.
No. 265 26th	iPNEZ	20 33 54	2340	N. Celebes, according to Batavia.
	iSNE	20 37 41		
	LNE?	20 39 44		
	F	21 10		
No. 266 26th	PNEZ	22 32 02	6855	
	SNE	22 40 26		
	F	23 15		
No. 267 27th	PNEZ	1 39 55	4030	Dilatation.
	SNE	1 45 33		
	F	2 10		
No. 268 27th	PNEZ	12 46 17	710	Dilatation.
	SNE	12 47 35		Felt at Surigao, NE Mindanao.
	F	13 29		
No. 269 28th	PNEZ	2 25 14	3600?	Dilatation.
	SNE?	2 30 25		Guam, △=21°.
	LNE?	2 34 23		
	MNE?	2 37 45		
	F	4 34		
No. 270 28th	PNEZ	5 06 45	1865	
	SNEZ	5 09 55		
	LNE	5 11 31		
	MN	5 13 13		
	F	6 18		
No. 271 28th	PNEZ	10 17 06	1320	Registered at Butuan, △= ±540 Km.
	SNEZ	10 19 23		
	LNE	10 20 40		
	MNE	10 22 00		
	F	10 55		

M A N I L A , P . I .

SEISMOLOGICAL BULIETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase	Greenwich Time h. m. s.	Distance Km.	Remarks.
1932 May				
No. 273	iPNEZ	4 37 32	40	
31st	$\bar{S}$NE	4 37 38		
	F	4 38		
No. 274	eNEZ	10 17 30	1580?	Disturbed by microseisms.
31st	SNE?	10 20 14		
	F	10 35		
No. 275	ePNEZ	13 57 37	2720	Felt in Guam, Δ=200 Km.
31st	iSNE	14 01 50		
	LNE?	14 04 48		
	F	14 48		

Twelve insignificant or undecipherable disturbances in the following days of May: 1st(4), 14th, 15th, 17th, 18th(2), 20th, 25th and 30th.

No. 26. July, 1932.

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY

φ=14° 34' 42" N. λ=120° 58' 41" E. h=2.40 m. Alluvium.

GALITZIN-WILIP WIECHERT. M=1000 Kg.

	T_o	D	T_1		Δ^2	K
N-S	12.43	100.5	12.59	11.52	0.017	97
E-W	11.80	100.5	11.91	11.40	-0.075	80
Z	11.60	100.5	9.00	14.82	1.250	200

	T_o	V	ε	$\frac{r}{T_o^2}$
N-S	4.2	200	2.3	0.029
E-W	4.4	229	2.6	0.033

No. and Date	Phase	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 July				
No. 343 1st	PNEZ	10 13 56	2645	
	SNEZ	10 18 04		
	LNE	10 20 29		
	F	10 44		
No. 345 2nd	PNEZ	2 15 55	2310	Dilatation.
	SNE	2 19 40		
	LN	2 21 42		
	MN	2 23 44		
	F	3 20		
No. 346 2nd	PZ	10 18 50	1650	Disturbed by microseisms.
	SNE	10 21 41		
	F	10 41		
No. 348 3rd	P̄NEZ	6 51 55	160	
	S̄NE	6 52 15		
	F	6 58		
No. 350 4th	PNEZ	1 43 53	1365	
	SNE	1 46 15		
	F	2 04		
No. 351 4th	PEZ	6 02 46	1000	
	SEZ	6 04 32		
	F	6 11		
No. 352 5th	PNEZ	10 57 53	3880	
	SNE	11 03 21		
	LNE	11 07 ca		
	MNE	11 11 07		
	F	12 24		
No. 357 7th	P'NE	16 35 08	13920	27.4°N, 113°W, 0=16:15:57 by U.S.C.G.S.
	L?NE	17 07 42		28°N, 113.5°W, 0=16:15:44 by J.S.A.
	F	19 12		
No. 365 9th	PNEZ	13 05 26	6015	Cpmpression. 0=12:55:54
	SNE	13 13 01		15°S, 167°E by Riverview, Manila, Amboina, Osaka.
	LNE	13 22 06		
	F	14 32		

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 July				
No. 366 9th	iPNEZ	20 26 24	950	Dilatation from southeast.
	iSNEZ	20 28 05		Felt at Davao.
	F	21 42		
No. 367 10th	PNEZ	0 58 00	3135	P in minute gap.
	SNE	1 02 41		
	LE	1 05 47		
	F	1 50		
No. 368 10th	PNEZ	7 52 14	3480	East of Japan.
	SNE	7 57 17		
	LNE	8 01 ca		
	ME	8 04 00		
	F	9 45		
No. 369 11th	iPEZ	8 22 45	555	Compression. Felt in Samar and SE Luzon.
	ePN	8 22 45		12° 38'N, 125° 40'E by Manila, Osaka,
	SNE	8 23 50		Baguio, as on July 19, 1922.
	$\bar{S}$NE	8 24 12		S ans $\bar{S}$ from the Wiechert.
	F	10 15		
No. 370 12th	P?NEZ	19 44 10		25°N, 110°W, 0=19:24:06 by U.S.C.G.S.
	iNE	19 53 40		25.6°N, 110.5°, 0=19:34:13 by J.B.A.
	LNE	20 17 51		
	F	22 06		
No. 372 14th	PNEZ	9 00 30	3035	Compression. In region of 5°N, 148°E
	SNE	9 05 04		by Amboina, Manila, Hong Kong.
	F	9 44		Disturbed by microseosms.
No. 375 16ht	PNEZ	21 12 48	5865	Disturbed by microseisms.
	SNE	21 20 13		
	F	22 15		
No. 377 17th	PNEZ	11 33 25	1625	
	SNE	11 36 14		
	F	11 48		
No. 378 17th	PNEZ	16 53 38	1145	Disturbed by microseisms.
	SNE	16 55 37		Butuan Δ=300 Km.
	F	17 40		
No. 379 17th	$\bar{P}$NEZ	19 17 17	135	
	$\bar{S}$NE	19 17 34		
	F	19 21		
No. 380 17th	PNEZ	21 34 08	2545	Disturbed by microseisms.
	SNE	21 38 09		
	F	21 52		
No. 381 17th	eNEZ	22 11 07		
	F	22 20		

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 July				
No. 382 18th	iPNEZ	5 02 26	130	Felt in western and southwestern Luzon. In Manila with intensity V. 14° 33' N, 119° 54' E by Manila and Baguio. Wiechert pens disjointed.
	F	5 53		
No. 384 20th	PNEZ	20 17 42	7320	
	SNE	20 26 33		
	F	21 15		
No. 386 21st	iPEZ	12 45 08	2735	Compression from E. 2° S, 140° E by Riverview, Manila, Hong Kong, Koti.
	ePN	12 45 08		
	SNE	12 49 22		L from the Wiechert.
	L?NE	12 51 ca		Baguio $\Delta=25.7^{\circ}$.
	F	14 12		
No. 388 24th	PNEZ	8 54 01	1040	
	SNE	8 55 51		
	L?NE	8 56 45		
	F	9 38		
No. 391 25th	PNEZ	8 30 11	3610	Japan.
	SNE	8 35 23		Disturbed by microseisms.
	LNE	8 39 31		
	ME	8 42 22		
No. 392 25th	P?NEZ	9 33 27		Other phases not distinguishable.
	F	11 57		No. 391 still recording. 18.5° N, 103.5° W, O=9:12:40 by U.S. C.G.S.
No. 395 27th	PNEZ	21 24 37	2560	Netherlands East Indies. Felt at Darwin, Australia according to Adelaide.
	SNE	21 28 39		Horizontal data from the Wiechert.
	LNE	21 31 ca		Disturbed by microseisms.
	F	22 15		Baguio $\Delta=23.8^{\circ}$. Butuan $\Delta=17^{\circ}$.
No. 397 29th	PNE	1 29 29	480	18° 40' N, 122° 35' E by Manila and Baguio. Disturbed by microseisms.
	SNE	1 30 26		
	F	1 49		Baguio Δ=325 Km.

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 July				
No. 399 29th	PNEZ	21 01 59	1780	1°S, 123° 30'E by Manila and Riverview.
	SNE	21 05 01		
	F	21 42		S from the Wiechert. Disturbed by microseisms.
				Butuan △=12°.
No. 400 30th	PNEZ	7 07 04	575	Disturbed by microseisms.
	SNEZ	7 07 35		
	F	7 30		
No. 401 30th	PNEZ	12 17 23	1835	Dilatation.
	SNE	12 20 31		Disturbed by microseisms.
	F	13 01		

Twenty-eight insignificant or undecipherable disturbances in the following days of July: 1st(2), 2nd, 4th, 5th, 6th(2), 7th, 8th(4), 9th(3), 14th, 15th(2), 17th, 20th, 21st, 23rd, 24th(2), 26th(2), 28th 29th.

B U L L E T I N S R E C E I V E D

N O V E M B E R , 1 9 3 2

We thankfully acknowledge the receipt of the following and hope their continuance in the future.

S T A T I O N S	B U L L E T I N S
Barcelona	August 15, 1931 to May 26, 1932.
Riverview, Coll. Oby.	September, 1932.
Adelaide	October 1 to December 31, 1929 and September, 1932.
Wellington	March, 1931 and September, 1932.
Zurich	August 3 to September 29, 1932.
Osaka	August 24 to October 10, 1932.
U.S.C.G.S.	Radiogramof earthquakeof Oct. 30,1932
Saint Louis, Mo. J.S.A.	Prel. Bull. of earthquakes of Sept. 23, 26 and 29, and Oct. 2, 11, and 16, 1932, and Bull. of August and September, 1932.
Florissant	July and September, 1932.
Pasadena, Cal.	August and September, 1932.
Ottawa	September, 1932.
STRASBOURG:	
L'Institut	August, 1932.
Bureau Central	August, 1932.
Union International	August, 1932.
Parc St. Maur	August, 1932.
Hong Kong	Principal earthquakes of October, 1932 and Bulletin of August, 1932.
Apia	July to September, 1932.
Zikawei	Nos. 9 to 11: June 22 to September 26, 1932.
Peichiko, Nanking	Vol. 1, No. 1, July to September,1932.
Fordham	June to September, 1932.
Batavia	September 30 to October 16, 1932.
Melbourne	July 1 to September, 29, 1932.
Koti	Oct. 2 to Nov. 1, 1931, and Jan. 9 to February 25, 1932.
Georgetown, Washington	September, 1932.
Chiufeng	Pricipal earthquakes of September and October, 1932.
Palau, West Caroline Is.	Year, 1931.
Madagascar	May and June, 1932.
L'URSS, Central Asia	Nos. 1-4: January-December, 1931.
L'HRSS, Leningrad	Nos. 8-10: August-October, 1931.

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WILLIAM C. REPETTI, S.J.,
Seismologist.

No. 26. July, 1932.

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY

φ=14° 34' 42" N. λ=120° 58' 41" E. h=2.40 m. Alluvium.

GALITZIN-WILIP WIECHERT. M=1000 Kg.

	T_o	D	T_1		Ψ^2	K
N-S	12.43	100.5	12.59	11.52	0.017	97
E-W	11.80	100.5	11.91	11.40	-0.075	80
Z	11.60	100.5	9.00	14.82	1.250	200

	T_o	V	ε	$\frac{r}{T_o^2}$
N-S	4.2	200	2.3	0.029
E-W	4.4	229	2.6	0.033

No. and Date	Phase	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 July				
No. 343 1st	PNEZ	10 13 56	2645	
	SNEZ	10 18 04		
	LNE	10 20 29		
	F	10 44		
No. 345 2nd	PNEZ	2 15 55	2310	Dilatation.
	SNE	2 19 40		
	LN	2 21 42		
	MN	2 23 44		
	F	3 20		
No. 346 2nd	PZ	10 18 50	1650	Disturbed by microseisms.
	SNE	10 21 41		
	F	10 41		
No. 348 3rd	$\overline{P}$NEZ	6 51 55	160	
	$\overline{S}$NE	6 52 15		
	F	6 58		
No. 350 4th	PNEZ	1 43 53	1365	
	SNE	1 46 15		
	F	2 04		
No. 351 4th	PEZ	6 02 46	1000	
	SEZ	6 04 32		
	F	6 11		
No. 352 5th	PNEZ	10 57 53	3880	
	SNE	11 03 21		
	LNE	11 07 ca		
	MNE	11 11 07		
	F	12 24		
No. 357 7th	P'NE	16 35 08	13920	27.4°N, 113°W, O=16:15:57 by U.S.C.G.S.
	L?NE	17 07 42		28°N, 113.5°W, O=16:15:44 by J.S.A.
	F	19 12		
No. 365 9th	PNEZ	13 05 26	6015	Cpmpression. O=12:55:54
	SNE	13 13 01		15°S, 167°E by Riverview, Manila, Amboina, Osaka.
	LNE	13 22 06		
	F	14 32		

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 July				
No. 366 9th	iPNEZ	20 26 24	950	Dilatation from southeast.
	iSNEZ	20 28 05		Felt at Davao.
	F	21 42		
No. 367 10th	PNEZ	0 58 00	3135	P in minute gap.
	SNE	1 02 41		
	LE	1 05 47		
	F	1 50		
No. 368 10th	PNEZ	7 52 14	3480	East of Japan.
	SNE	7 57 17		
	LNE	8 01 ca		
	ME	8 04 00		
	F	9 45		
No. 369 11th	iPEZ	8 22 45	555	Compression. Felt in Samar and SE Luzon.
	ePN	8 22 45		12° 38'N, 125° 40'E by Manila, Osaka,
	SNE	8 23 50		Baguio, as on July 19, 1922.
	$\bar{S}$NE	8 24 12		S ans $\bar{S}$ from the Wiechert.
	F	10 15		
No. 370 12th	P?NEZ	19 44 10		25°N, 110°W, 0=19:24:06 by U.S.C.G.S.
	iNE	19 53 40		25.6°N, 110.5°, 0=19:34:13 by J.B.A.
	LNE	20 17 51		
	F	22 06		
No. 372 14th	PNEZ	9 00 30	3035	Compression. In region of 5°N, 148°E
	SNE	9 05 04		by Amboina, Manila, Hong Kong.
	F	9 44		Disturbed by microseosms.
No. 375 16ht	PNEZ	21 12 48	5865	Disturbed by microseisms.
	SNE	21 20 13		
	F	22 15		
No. 377 17th	PNEZ	11 33 25	1625	
	SNE	11 36 14		
	F	11 48		
No. 378 17th	PNEZ	16 53 38	1145	Disturbed by microseisms.
	SNE	16 55 37		Butuan Δ=300 Km.
	F	17 40		
No. 379 17th	$\bar{P}$NEZ	19 17 17	135	
	$\bar{S}$NE	19 17 34		
	F	19 21		
No. 380 17th	PNEZ	21 34 08	2545	Disturbed by microseisms.
	SNE	21 38 09		
	F	21 52		
No. 381 17th	eNEZ	22 11 07		
	F	22 20		

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 July				
No. 382 18th	iPNEZ	5 02 26	130	Felt in western and southwestern Luzon. In Manila with intensity V. 14° 33' N, 119° 54' E by Manila and Baguio. Wiechert pens disjointed.
	F	5 53		
No. 384 20th	PNEZ	20 17 42	7320	
	SNE	20 26 33		
	F	21 15		
No. 386 21st	iPEZ	12 45 08	2735	Compression from E. 2° S, 140° E by Riverview, Manila, Hong Kong, Koti.
	ePN	12 45 08		
	SNE	12 49 22		L from the Wiechert.
	L?NE	12 51 ca		Baguio $\Delta=25.7^{\circ}$.
	F	14 12		
No. 388 24th	PNEZ	8 54 01	1040	
	SNE	8 55 51		
	L?NE	8 56 45		
	F	9 38		
No. 391 25th	PNEZ	8 30 11	3610	Japan.
	SNE	8 35 23		Disturbed by microseisms.
	LNE	8 39 31		
	ME	8 42 22		
No. 392 25th	P?NEZ	9 33 27		Other phases not distinguishable.
	F	11 57		No. 391 still recording. 18.5° N, 103.5° W, O=9:12:40 by U.S. C.G.S.
No. 395 27th	PNEZ	21 24 37	2560	Netherlands East Indies. Felt at Darwin, Australia according to Adelaide. Horizontal data from the Wiechert.
	SNE	21 28 39		
	LNE	21 31 ca		Disturbed by microseisms.
	F	22 15		Baguio $\Delta=23.8^{\circ}$. Butuan $\Delta=17^{\circ}$.
No. 397 29th	PNE	1 29 29	480	18° 40' N, 122° 35' E by Manila and Baguio. Disturbed by microseisms.
	SNE	1 30 26		
	F	1 49		Baguio Δ=325 Km.

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 July				
No. 399 29th	PNEZ	21 01 59	1780	1°S, 123° 30'E by Manila and Riverview.
	SNE	21 05 01		S from the Wiechert. Disturbed by microseisms.
	F	21 42		Butuan △=12°.
No. 400 30th	PNEZ	7 07 04	575	Disturbed by microseisms.
	SNEZ	7 07 35		
	F	7 30		
No. 401 30th	PNEZ	12 17 23	1835	Dilatation.
	SNE	12 20 31		Disturbed by microseisms.
	F	13 01		

Twenty-eight insignificant or undecipherable disturbances in the following days of July: 1st(2), 2nd, 4th, 5th, 6th(2), 7th, 8th(4), 9th(3), 14th, 15th(2), 17th, 20th, 21st, 23rd, 24th(2), 26th(2), 28th 29th.

M A N I L A O B S E R V A T O R Y

SPECIAL BULLETIN OF PRINCIPAL EARTHQUAKES

A u g u s t , 1 9 3 2

3rd	PNEZ	9 37 17	
	SNE	9 41 11	
4th	PNEZ	5 14 30	
	SNE	5 18 14	
5th	PNEZ	0 48 17	Felt at Basco, Batan Islands.
	SNEZ	0 49 31	
11th	PNEZ	11 53 34	
	SNEZ	11 56 45	
12th	PNE	3 34 52	
	SNE	3 43 53	
13th	PNEZ	21 07 52	
	SNE	21 17 19	
14th	PNEZ	0 49 04	
	SNEZ	0 53 22	
14th	PNEZ	4 45 02	
	SNE	4 50 00	
20th	PZ	2 14 17	
	SNE	2 16 46	
21st	iPZ	4 17 53	Dilatation.
	iPNE	4 17 54	
	SNE	4 19 51?	
21st	PNEZ	12 40 05	
	SNEZ	12 42 38	
22nd	iPZ	11 17 31	Compression.
	SNE	11 21 34	
24th	iPNEZ	12 11 07	Dilatation. Seismograph in Baguio
	SNE	12 11 38	damged by the shock.
30th	PEZ	16 46 02	Felt on NW coast of Luzon.
	SE	16 46 46	

B U L L E T I N-S R E C E I V E D

S E P T E M B E R , 1 9 3 2

We thankfully acknowledge the receipt of the following and hope their continuance in the future.

S T A T I O N S	B U L L E T I N S
Riverview College Observatory	July 2 to Sept. 30,1930 & July, 1932.
Adelaide	May 1 to Sept. 28, 1929; and July and August, 1932.
Apia, Samoa	April 1 to June 30, 1932.
San Fernando, Spain	May and June, 1932.
Oxford	The International Seismological Summary for 1928: July, August, September.
Madagascar	November and December, 1931, and March and April, 1932.
Ottawa	July, 1932.
Zurich	June and July, 1932.
Denver	May 14 to June 22, 1932.
St. Louis, J.S.A.	July, 1932, and Preliminary Bulletin of earthquakes of July 25 and August 12, 1932.
Buffalo,N.Y.	March 14 to April 29, 1932.
Little Rock,Ark.	April 4 to May 22, 1932.
Wellington and Christchurch	July, 1932.
Batavia	July 27 to August 14, 1932.
Hong Kong	April, May and June, 1932, and Principal earthquakes of August, 1932.
New Zealand	February, 1931.
Vienna	November 2, 1931 to May 27, 1932.
Graz	January 1 to March 31, 1932.
Innsbruck	April 14 to November 1, 1931.
Zikawei	May 28 to June 18, 1932, and Principal earthquakes of July and August, 1932.
Gottingen	April, May and June, 1932.
Stuttgart	January 1 to June 30, 1932.
U.S.C.G.S.	Radiogram of the earthquake of September 14, 1932.
Granada	January, February and March, 1932.
Sydney	July, 1932.
Osaka	Jan, Feb., March and April, 1932.
Zagreb	October 1, 1931 to March 31, 1932.
Toronto	June, 1932.
Taunus	May 20 to December, 1931.

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No. 34. September, 1932

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY

Ø=14° 34' 42" N. λ=120° 58' 41" E h=2.40 m. Alluvium.

GALITZIN-WILIP WIECHERT. M=1000 Kg.

	T_o	D	T_1	λ	χ^2	K
N-S	12.43	100.5	12.59	11.52	0.017	97
E-W	11.80	100.5	11.91	11.40	-0.075	80
Z	11.60	100.5	9.00	14.82	1.250	200

	T_o	V	ε	$\frac{x}{T_o^2}$
N-S	4.4	190	2.5	0.023
E-W	4.8	211	2.8	0.029

No. and Date	Phase	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 September				
No. 463 1st	PNEZ	1 58 35	2745	Compression.
	SNE	2 02 50		
	F	2 32		
No. 465 2nd	PNEZ	13 01 15	2920	Compression.
	SNEZ	13 05 42		
	F	13 48		
No. 468 3rd	PNEZ	12 05 26	3695	
	SNE	12 10 43		
	LNE	12 14 51		
	F	14 04		
No. 478 6th	$\overline{P}$NEZ	23 14 09	165	Compression.
	$\overline{S}$NE	23 14 30		
	F	23 25		
No. 479 7th	$\underline{P}$NEZ	0 54 56	345	
	$\overline{S}$NE	0 55 47		
	F	1 07		
No. 484 8th	eNE	7 42 09		Disturbed by microseisms.
	mN	8 01 30		
	mE	8 02 05		
	F	8 28		
No. 487 9th	PNEZ	6 50 32	2090	Laboeha, Batjan, Moluccas according to Batavia.
	SNE	6 54 00		
	LNE	6 55 38		
	MNE	6 57 40ca		
	F	8 18		
No. 489 9th	PNEZ	13 43 35	2165	Compression. Data after P from the Wiechert.
	SNE	13 47 09		
	LNE	13 49 ca		
	MNE	13 51 ca		
	F	15 38		
No. 490 9th	PN	22 34 41	1480	
	SNE	22 37 14		
	F	22 52		

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 September				
No. 491 9th	PNEZ	23 04 54	2365	
	SNE	23 08 43		
	LNE	23 10 50		
	F	23 46		
No. 493 10th	PNEZ	22 52 54	1255?	
	S?NE	22 55 04		
	L?E	22 56 14		
	F	23 21		
No. 495 11th	PNEZ	4 19 36	1415	
	SNE	4 22 03		
	LNE	4 23 21		
	MNE	4 24 46		
	F	4 52		
No. 497 11th	ePNEZ	14 21 16	4820	
	SNEZ	14 27 42		
	LN	14 34 ?		
	MNE	14 37 30ca		
	F	15 13		
No. 507 15th	PNE	11 15 38	960	Felt in SW Mindanao and Sulu Archipelago. Intensity VI in Zamboanga, V in Jolo. In region 5° N, 122° E.
	SNE	11 17 20		From the Wiechert. Disturbed by microseisms.
	F	12 17		
No. 508 15th	P?NE	11 57 07		Aftershock. Felt at Zamboanga and Jolo. From the Wiechert. No. 507 still recording.
No. 509 15th	eN	14 15 34		From the Wiechert. Disturbed by microseisms.
	iN	14 18 03		New Zealand.
	F	14 54		39°S, 175°W, O=13:55.3 by U.S.C.G.S.
No. 513 18th	$\overline{P}$NEZ	11 58 20	75	Disturbed by microseisms.
	$\overline{S}$EZ	11 58 30		
No. 515 19th	$\overline{P}$NE	1 13 51	95	From the Wiechert.
	$\overline{S}$NE	1 14 03		
	F	1 16		
No. 516 19th	PNEZ	2 47 42	950?	Disturbed by microseisms.
	S?N	2 48 23		
	F	3 07		

M A N I L A , P. I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 September				
No. 518 20th	eNEZ	10 52 28		Disturbed by microseisms.
No. 520 20th	PNEZ	15 49 44	4465?	Disturbed by microseisms.
	SNE?	15 55 48		
	LNE?	16 00 ca		
	F	16 45		
No. 524 23rd	P?NE	9 14 54	1845?	
	S?NE	9 18 03		
	iN	9 20 28		
	F	9 43		
No. 525 23rd	PZ	14 28 27	3520	O=14:21:45. Dilatation.
	PNE	14 28 29		Data after P from the Wiechert.
	SNE	14 33 34		45°N, 134°E, O=14:22:18 by U.S.C.G.S.
	LNE	14 37 22		
	MNE	14 40 ca		
	F	17 09		
No. 526 24th	eNEZ	4 35 42	2470	
	SNE	4 39 37		
	F	4 54		
No. 530 25th	eNEZ	7 13 04	2355?	
	S?NE	7 16 52		
	MN	7 21 04		
	F	7 35		
No. 531 25th	eNEZ	7 45 43	1480	
	SNE	7 48 16		
	F	8 05		
No. 533 25th	PNEZ	9 00 52	8175?	
	S?NE	9 10 29		
	F	10 07		
No. 537 25th	PNEZ	22 04 34	2065	Dilatation.
	SNE	22 08 00		
	LNE	22 09 42		
	F	23 54		
No. 538 25th	P̄NEZ	22 41 54	140	No. No. 537 still recording.
	S̄NE	22 42 12		

M A N I L A , P , I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 September				
No. 539 26th	PNEZ	5 20 09	1030	Felt in eastern Mindanao.
	SNE	5 21 58		
	mN	5 23 40		
	mE	5 23 42		
	F	6 30		
No. 541 26th	PNEZ	19 33 26	9425	O=19:20:52. Dilatation?
	SNE	19 44 00		Greece.
	LNE	20 01 20		39.5°N,24°E, O=19:20:48 by U.S.C.G.S..
	MNE	20 07 56		
	F	23 05		
No. 545 27th	ePNZ	7 50 30	1265	E-W cylinder stopped at 4:04.
	SNZ	7 52 42		
	F	8 44		
No. 550 28th	ePNEZ	11 06 20	250	Compression.
	SNEZ	11 06 55		
	F	11 19		
No. 556 28th	PEZ	22 22 46	235	
	SNE	22 23 18		
	F	22 32		
No. 557 29th	iPZ	0 31 00	2310	Dilatation.
	ePNE	0 31 00		
	SNEZ	0 34 45		
	LE	0 36 51		
No. 559 29th	PEZ	4 10 04	9055	L and M not definite.
	PN	4 10 06		
	SNE	4 20 23		
	F	5 48		
No. 560 29th	eZ	10 48 40		
	F	11 23		
No. 564 29th	P?NEZ	17 28 16	2795?	
	SNE	17 32 34		
No. 565 29th	PNEZ	17 54 22	4435	No. 564 still recording.
	SNE	18 00 25		
	LNE	18 05 50		
	F	20 23		

Seventy insignificant or undecipherable disturbances on the following days of September: 1st, 3rd(2), 4th(4), 5th(5), 7th(3), 8th(3) 9th, 10th, 11th(6), 13th(3), 14th(2), 17th(3), 18th, 19th, 20th, 21st, 22nd, 23rd, 24th(3), 25th(4), 26th(3), 27th(4), 28th(6), 29th(4) and 30th(6).

B U L L E T I N S R E C E I V E D

O C T O B E R , 1 9 3 2

We thankfully acknowledge the receipt of the following and hope their continuance in the future.

STATIONS	BULLETINS
[illegible]ew	July and August, 1932.
[illegible].S.C.G.S.	Radiograms of the earthquakes of September 23 and 26, 1932.
Saint Louis, Mo.,J.S.A.	Priliminary Bulletin of earthquakes of August 25, and September 8, 14 and 15, 1932.
Riverview College Oby.	August, 1932.
STRASBOURG:	
L'Institut	June and July, 1932.
Bureau Central	June and July, 1932.
Union International	June and July, 1932.
Parc St. Maur	June and July, 1932.
Moncalieri	Seismic observations of 1929.
Kiadvanyai, Budapest	Earthquake Catalogue of 1930 and 1931.
Budapest	Seismic observations of 1930 and 1931.
Mizusawa, Japan	Seismological observations of 1931.
Spain	Seismological Service of September to December, 1931.
Hong Kong	July, 1932, and Principal earthquakes of September, 1932.
[illegible]erth	April 25 to May 26, 1932.
[illegible]ydney Observatory	August, 1932.
Wellington	August, 1932.
Phu-Lien	April, May, June and July, 1932.
Pasadena	June and July, 1932, and monthly Report on local earthquakes of July, 1932.
Ottawa	August, 1932.
Firenze	April, May and June, 1932.
Ksara, Syria	Annual Report of Seismic Observations of 1922, 1923, 1925 and 1931.
Batavia	August 14 to September 30, 1932.
Berkeley	April 1 to September 30, 1931.
Madison, Wisc.	April 8 to June 30, 1932.
Georgetown, Washington	July and August, 1932.
Toronto	July and August, 1932.
La Plata	April, May, June and July, 1932.
Tokyo	January to March, 1932.

MIGUEL SELGA, S.J.,
Director, Weather Bureau,
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WILLIAM C. REPETTI, S.J.,
Seismologist.

No. 38. October, 1932.

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY

Ø=14° 34' 42" N. λ=120° 58' 41" E. h=2.40 m. Alluvium.

GALITZIN-WILIP WIECHERT. M=1000 Kg.

	T_o	D	T_1	i	γ^2	K
N-S	12.43	100.5	12.59	11.52	0.017	97
E-W	11.80	100.5	11.91	11.40	0.075	80
Z	11.60	100.5	9.00	14.82	1.250	200

	T_o	V	ε	$\frac{r}{T_o^2}$
N-S	4.4	190	2.4	0.021
E-W	4.8	199	2.7	0.024

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 October				
No. 575 1st	PEZ	15 12 31	1195	
	SNEZ	15 14 35		
	LE	15 15 44		
	F	15 46		
No. 578 2nd	P'Z	3 18 40	14065?	O=2:59:25
	P'NE	3 18 43		Disturbed by microseisms.
	SPSE?	3 40 34		12°N, 86°W, O=2:59:20 by U.S.C.G.S.
	iNE	4 00 11		10.9°N, 86.5°W, O=2:59:07 by J.S.A.
	LNE	4 07 ca		Group of 13.5 sec. waves, large amplitude.
	MNE	4 18 ca		
	F	5 44 ca		
No. 582 3rd	PEZ	4 57 22	400	Disturbed by micriseisms.
	SNE	4 58 23		
	F	5 07		
No. 583 3rd	PZ	5 14 11	200	Disturbed by microseisms.
	PNE	5 14 13		
	SNEZ	5 14 37		
	F	5 20		
No. 593 9th	PNEZ	12 52 00	1630	Disturbed by microseisms.
	SNE	12 54 49		
	LNE	12 56 11		
	ME	12 57 47		
	F	14 10		
No. 601 12th	PEZ	16 18 10	2560	Disturbed by microseisms.
	SNE	16 22 12		
	F	16 37		

M A N I L A , P . I .

SEISMOLOGICAL BULIETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 October				
No. 602 12th	PNEZ	19 48 08	3160?	Disturbed by microseisms.
	S?NE	19 52 51		
	F	20 24		
No. 603 13th	cNEZ	10 42 47	1980?	Disturbed by microseisms.
	S?N	10 46 06		
	F	10 59		
No. 616 15th	c$\overline{P}$NE	23 12 44	125	Dilatation.
	i$\overline{P}$Z	23 12 44		
	$\overline{S}$NE	23 13 00		
	F	23 23		
No. 617 16th	iPZ	12 19 29	7890	0=12:08:08. Compression.
	cPNE	12 19 29		54°N, 158°W, 0=12:08:08 by U.S.C.G.S.
	SNE	12 28 52		55°N, 155°W, 0=12:08:35 by J.S.A.
	PSE	12 29 18		
	PPPSE	12 29 34		
	LNE	12 42 ca		
	MNE	12 47 30ca		
	F	14 44		
No. 621 17th	PNEZ	13 33 10	4880	In region of New Britain by Manila and Riverview.
	SNE	13 39 39		
	LNE	13 46 00ca		
	F	15 25		
No. 624 18th	PNEZ	4 13 13	1635	Compression from SE. N.E.I.
	SNE	4 16 03		After P from the Wiechert.
	F	4 55		
No. 651 21st	PNEZ	18 27 30	1700	0=18:23:53
	SNE	18 30 26		Disturbed by microsiesms.
	LNE	18 31 50ca		
	F	20 10		
No. 653 23rd	P?NEZ	0 15 35	3610?	Disturbed by microseisms.
	S?NE	0 20 47		
	L?E	0 25 34		
	F	1 25		
No. 654 23rd	$\overline{P}$NE	9 57 02	95?	From the Wiechert. Disturbed by strong microsiesms.
	$\overline{S}$?NE	9 57 14		
	F	10 00		

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 October				
No. 655 23rd	P?NE	21 30 36	3745?	From the Wiechert. Disturbed by strong microseisms.
	S?N	21 35 56		
	F	22 ca		
No. 661 29th	eP?NEZ	11 24 06	3840?	Disturbed by microseisms.
	S?NE	11 29 32		
	LNE	11 33 44		
	F	12 16		
No. 662 30th	PZ	20 58 22	8235	0=20:46:48. Compression.
	PNE	20 58 23		Disturbed by microseisms.
	SNE	21 08 02		54°N, 156°W, 0=20:47:18 by U.S.C.G.S.
	LNE	21 22 34		
	F	23 10		
No. 664 31st	PNEZ	8 20 49	270	Disturbed by microseisms.
	SNEZ	8 21 27		
	F	8 24		

Seventy-four insignificant or undecipherable disturbances on the following days of October: 1st(4), 2nd(2), 3rd(5), 4th, 5th, 7th(2), 9th(3), 10th(3), 12th(3), 14th(7), 15th(5), 16th, 17th(3), 18th(3), 19th(11), 20th(7), 21st(6), 22nd, 24th(3), 25th, 29th and 31st.

No. 41. November, 1932.

M A N I L A , P . I .

SEISMOLOGICAL BULIETIN OF THE OBSERVATORY

ϕ=14° 34' 42" N. λ=120° 58' 41" E. h=2.40 m. Alluvium.

GALITZIN-WILIP WIECHERT. M=1000 Kg.

	T_o	D	T_1	λ	μ^2	K
N-S	12.43	100.5	12.59	11.52	0.017	97
E-W	11.80	100.5	11.91	11.40	-0.075	80
Z	11.60	100.5	9.00	14.82	1.250	200

	T_o	V	ε	$\frac{r}{T_o^2}$
N-S	4.4	191	2.5	0.025
E-W	4.8	205	2.7	0.028

No. and Date	Phase	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 November				
No. 665 1st	ePNEZ	8 31 09	470	Felt in Calbayog, Samar.
	SNE	8 32 05		Epicenter near 11° 50'N, 124° 10'
	F	8 45		E by Manila and Butuan.
No. 669 2nd	ePNEZ	11 22 40	13870?	0=11:06:49
	iP'NE	11 26 00		Disturbed by microseisms. P' in minute gap.
	$\overline{S_cP_c}\ \overline{P_cSN}$	11 34 31		
	LNE	12 06 14ca		23°S, 111°W, 0=11:03:25 by U.S. C. and G. S.
	MNE	12 16 06ca		
	F	13 30		23°S, 111°W, 0=11:03:27 by J.S.A.
No. 671 3rd	PZ	19 47 53	3445	Dilatation.
	PNE	19 47 56		
	SNEZ	19 52 54		
	LNE	19 56 30		
	F	21 09		
No. 672 4th	ePNEZ	8 15 37	295	
	SNE	8 16 17		
	mN	8 18 06		
	F	8 27		
No. 679 6th	$e\overline{P}NEZ$	21 51 13	135	
	$i\overline{S}NE$	21 51 30		
	F	22 20		

November 8 to 16 Galitzin records illegible by strong microseisms, due a typhoon in the Pacific, East of Luzon.

No. 682 8th	$\overline{P}NEZ$	1 18 40	180	Disturbed by microseisms.
	$\overline{S}NEZ$	1 19 03		
No. 683 8th	e?NEZ	1 20 20		Disturbed by microseisms.
	SNE	1 23 07		
	F	2 12		
No. 692 13th	PNE	4 53 02	3245	From the Wiechert. Disturbed by microseisms.
	SNE	4 57 50		0=4:46:43
	LNE	5 01 22		45°N, 137°E, 0=4:46:31 by U.S.C.G.S.
	iE	5 02 55		41°N, 135°E, 0=4;46:51, deep focus,
	F	5 30ca		by J.S.A.

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 November				
No. 693 14th	ePNE	1 12 40	630	From the Wiechert. Disturbed by microseisms.
	SNE	1 13 51		
	SNE	1 14 21		Felt in Samar and eastern Leyte.
	mN	1 15 01		Epicenter probably in the Philippine Deep.
	F	1 22		
No. 695 18th	PNE	2 49 55	130	From the Wiechert.
	SNE	2 50 12		
	F	2 55		
No. 696 18th	iPNEZ	13 50 13		Compression from SE. S unrecognizable.
	mE	13 52 50		After P from the Wiechert.
	mN	13 52 56		Felt in Ternate and Minahasa, N.E.I.
	F	14 46		
No. 701 21st	P?NEZ	3 09 42	1260?	Disturbed by microseisms.
	S?NE	3 11 23		Butuan Δ=580 Km.
	F	3 46		
No. 702 21st	PNEZ	22 28 59	650	Felt at Basco, Batan Islands.
	SNE	22 30 12		Disturbed by microseisms.
	SNE	22 30 42		
	mE	22 31 56		
	F	22 46		
No. 704 22nd	iPZ	14 56 14	2585	Compression. Disturbed by microseisms.
	ePNE	14 56 14		In the Banda Sea by Batavia, Amboina,
	SNE	15 00 17		Hong Kong, Manila.
	F	16 00		
No. 708 26th	iPZ	4 30 36	3610	Dilatation. Disturbed by microseisms.
	ePNE	4 30 36		
	SNE	4 35 48		
	LNE	4 39 45		
	F	6 10		
No. 709 27th	PNEZ	3 42 47	3145	Disturbed by microseisms.
	SNE	3 47 29		
	LNE	3 50 41		
	MN	3 53 47ca		
	F	4 46		
No. 712 27th	PNEZ	7 52 09	125	Disturbed by microseisms.
	SNE	7 52 25		
	F	7 56		
No. 714 29th	PNE	9 51 10	150	From the Wiechert. Disturbed by strong mocroseisms.
	SNE	9 51 29		
	F	9 54		Baguio Δ=165 Km.
No. 716 30th	P?NEZ	18 51 21	1535?	Disturbed by microseisms.
	SNE	18 54 00		
	L?E	18 55 20		
	F?	19 10		

Thirty-three insignificant or undecipherable disturbances in the following days of November: 1st(3), 3rd, 4th(2), 5th(2), 6th(2), 8th(8), 10th, 12th, 16th, 18th, 19th(3), 22nd, 25th(3), 27th(3) and 29th.

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY

Ø=14° 34' 42" N. λ=120° 58' 41" E. h=2.40 m. Alluvium.

GALITZIN-WILIP

	T_o	D	T_1	l	μ^2	K
N-S	12.43	100.5	12.59	11.52	0.017	97
E-W	11.80	100.5	11.91	11.40	-0.075	80
Z	11.60	100.5	9.00	14.82	1.250	200

WIECHERT. M=1000 Kg.

	T_o	V	ε	$\frac{r}{T_o^2}$
N-S	4.4	193	2.4	0.026
E-W	4.8	209	2.5	0.034

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 December				
No. 717 2nd	PNE	2 34 31	930	
	SE	2 36 10		
	F	2 42		
No. 718 2nd	PNEZ	11 43 08	270	Felt at Baguio with intensity IV.
	SNEZ	11 43 46		
	F	11 49		
No. 720 3rd	ePNEZ	6 31 12		Disturbed by microseisms.
	S?E	6 41 43		
	iN	6 45 51		
	F	7 15		
No. 722 4th	eNEZ	5 07 10		
	S?NE	5 12 23		
	F	5 32		
No. 723 4th	PNEZ	8 14 13	1545	Dilatation. Minahasa and E Borneo according to Batavia.
	PR_1NE	8 14 20		
	SNE	8 16 53		Felt at Zamboanga and Jolo with intensity IV.
	LNE	8 18 10		
	F	10 00		After P from the Wiechert.
No. 724 4th	PNEZ	10 35 56	1545	Felt at Jolo with intensity III.
	SNE	10 38 36		After P from the Wiechert.
	F	11 40		

5th. Typhoon in the Pacific, southeast of Luzon. 6th to the east of Luzon. Galitzin records illegible.

December 7th and 8th Galitzin records illegible, because of strong microseisms due to northeast monsoosn.

No. 726 7th	PZ	23 45 18	245	Disturbed by strong microseisms.
	SZ	23 45 52		
No. 727 8th	eNE	12 43 52		From the Wiechert. Disturbed by strong microseisms.

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 December				
No. 733 11th	P?NEZ	4 33 08	2980?	Disturbed by microseisms.
	S?NZ	4 37 38		
	MNE	4 42 58ca		
	F	5 16		
No. 734 11th	PNEZ	8 56 43	550	Disturbed by microseisms.
	SNE	8 58 09		
	F	9 08		
No. 736 15th	PNEZ	19 35 15	580	After P from the Wiechert. Disturbed by microseisms.
	SNE	19 36 21		
	SNE	19 36 47		
	mN	19 37 01		
	mE	19 38 08		
	F	20 10		
No. 737 16th	PNE	7 16 49	880	Felt at Davao, intensity III and in Butuan, intensity I.
	SNE	7 18 23		From the Wiechert. Disturbed by microseisms.
	F	7 30		
No. 738 20th	PNEZ	7 16 54	580	Disturbed by microseisms.
	SNE	7 18 00		
	F	7 25		
No 740 20th	iPZ	15 17 34	980	Dilatation.
	ePNE	15 17 34		Disturbed by microseisms.
	SNE	15 19 18		
	LNE	15 20 14		
	F	16 10		
No. 742 21st	PNEZ	6 28 29	7280	Disturbed by microseisms.
	SNE	6 37 17		Galitzin horizontal records undecipherable after S because of overlapping swings. Conspicuous group of 26 seconds period waves on Z component from 6:58 to 7:03.
	F	9 38		38.7°N, 117.8°W, O=6:10:15 by U. S. C.G.S.
No. 744 23rd	P?NZ	18 25 22	3735?	Disturbed by microseisms.
	SNE	18 30 41		
	LNE	18 35 07		
	F	19 07		
No. 747 24th	PNEZ	6 36 50	3510	Dilatation. Eastern New Guinea by Manila, Hong Kong, Chiufeng.
	SNE	6 41 55		After P from the Wiechert. Disturbed by microseisms.
	LNE	6 45 30ca		
	F	7 57		
No. 749 25th	iPNEZ	2 11 04	3670	Compression from NW. In the region of 39°N, 100°E.
	SNE	2 16 19		After P from the Wiechert.
	LNE	2 20 19		38°N, 96.5°E, O=2:04:33 by U.S.C.G.S.
	MNE	2 23 30ca		
	F	4 43		

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1932 December				
No. 757 26th	PNEZ	16 10 10	1290	
	SNE	16 12 24		
	LNE	16 13 50ca		
	F	16 26		
No. 758 26th	eNEZ	16 38 00	3320?	
	SNE	16 42 53		
	F	17 08		
No. 761 26th	PNEZ	21 17 36	1270	Compression from the North.
	SNE	21 19 48		After P from the Wiechert.
	LNE	21 21 00		
	MNE	21 22 17		
	F	22 00		
No. 762 26th	PNEZ	22 35 40	1745	
	SNE	22 38 40		
	LNE	22 40 10		
	MNE	22 42 00		
	F	23 28		
No. 763 27th	PNEZ	8 45 36	390	
	SNE	8 46 24		
	F	9 02		
No. 764 27th	PNEZ	10 20 13	220	
	SNE	10 20 42		
	F	10 25		
No. 766 28th	PNEZ	11 39 57	135	Compression. Felt at Iba, west coast of Luzon.
	SNE	11 40 14		
	F	11 54		
No. 768 28th	PNEZ	18 18 13	1820	Dilatation.
	SNE	18 20 30		
	ME	18 23 40		
	F	18 40		
No. 774 30th	iPNEZ	20 31 52	540	Compression from SE. Felt at Tacloban, intensity VI.
	SNE	20 32 55		
	SNE	20 33 19		
	F	20 56		

Thirty-three insignificant or undecipherable disturbances in the following days of December: 2nd, 3rd, 6th, 9th(2), 10th(3), 12th, 20th(2), 23rd, 24th(3), 25th(7), 26th(2), 28th(2), 30th(4) and 31st.