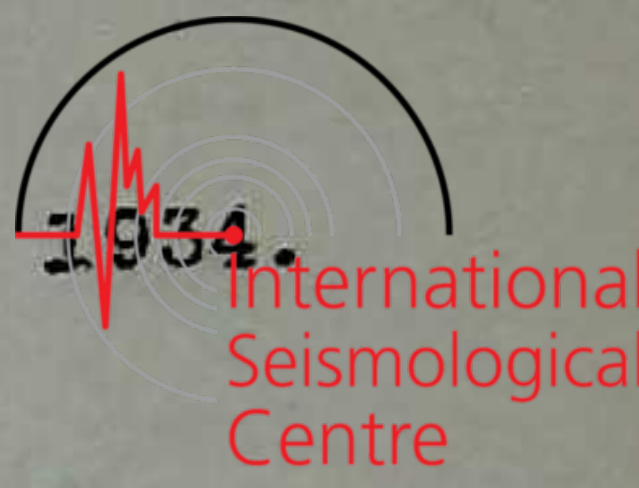


No. 1.

January, 1934.



MANILA, P. I.

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY

$\phi=14^{\circ} 34' 42''$  N.

$\lambda=120^{\circ} 58' 41''$  E.

h=2.40 m.

Alluvium.

GALITZIN-WILIP

WIECHERT. M=1000 Kg.

January 3, 1934.

$\phi$	$T_0$	D	$T_1$	$\lambda$	$\psi^2$	K
N-S	12.4	100.5	12.6	11.5	0.017	97
E-W	11.8	100.5	11.9	11.4	-0.075	80
Z	11.6	100.5	9.0	14.8	1.250	200

	$T_0$	V	$\epsilon$	$\frac{r}{T_0^2}$
N-S	4.5	193	2.5	0.026
E-W	4.3	203	2.7	0.029

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks
1934 January				
No. 1 1st	iPZ ePNE iE iN iSNEZ F	6 21 40 6 21 41 6 21 44 6 21 45 6 25 42 7 20	2535	In region of $11^{\circ}$ N; $137^{\circ}$ E by Manila, Hong Kong, Chiufeng.
No. 2 2nd	PNE SNE F	3 14 09 3 15 09 3 23	395	
No. 6 2nd	iPNEZ iSNE LN MN F	17 29 49 17 34 19 17 37 09 17 39 44 18 00	2980	
No. 7 2nd	ePNEZ SNE LNE F	19 11 34 19 15 49 19 18 25 19 35	2745	
No. 9 2nd	iPNE SNE LNE MNE F	21 05 21 21 14 03 21 25 50ca 21 31 ca 22 20	7165	
No. 10 3rd	iPZ ePNE iSNE F	9 50 42 9 50 42 9 57 16 11 20	4948	Dilatation. Kamtschatka according to Koti. $53^{\circ}$ N; $155^{\circ}$ E; $\phi=9:42.0$ by U.S.C.G.S. Disturbed by 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.
1934 January				
No. 13 8th	PNEZ SNE F	19 53 54 19 54 41 20 06	390	17° 50'N; 122° 15'E by Manila and Baguio.
No. 14 8th	PNEZ SNEZ F	23 12 18 23 16 11 23 26	2435	34°N; 133.8°E according to Kofu. Felt in Kofu, Japan.
No. 15 9th	PNEZ SNE F	21 43 04 21 43 32 21 47	215	
No. 16 10th	PNEZ SNEZ F	3 36 58 3 37 46 3 55	390	
No. 18 11th	PNEZ SNE F	8 24 37 8 26 36 8 50	1150	
No. 19 11th	P?NEZ SNE LN F	10 31 40 10 38 57 10 47 02 11 30	5720?	
No. 20 12th	PNEZ SNE LNE F	13 36 21 13 40 14 13 42 30ca 14 45	2435	L from the Wiechert. 23°N; 103°E according to Chiufeng.
No. 23 13th	PNE SNE LNE F	22 16 01 22 19 10 22 20 36 22 35	1845	
No. 28 15th	iPZ iPE PN iN SNE L?N MN F	8 50 08 8 50 09 8 50 10 8 51 55 8 55 33 8 59 55ca 9 02 50ca 12 30	3845	Compression. Valley of the Ganges, India. Data after P from the Wiechert. 25°N; 86°E; O=8:43.3 by U.S.C.G.S.



## SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1934 January				
No. 32 15th	PNEZ SNEZ F	21 34 51 21 35 18 21 39	215	Felt at Baguio with intensity I. Approx. $16^{\circ} 30' N$ ; $121^{\circ} E$ by Manila and Baguio.
No. 33 16th	iPNEZ SNE LNE MNE F	18 42 02 18 45 14 18 46 50ca. 18 48 40 20 20	1900	
No. 34 16th	ePNE SNE LNE F	23 03 45 23 05 50 23 06 44 23 50	1200	Felt at Davao with Intensity I.
No. 38 19th	ePZ SNE SNE LNE F	12 38 26 12 38 32 12 42 57 12 45 50 13 40	2990	In region of $27^{\circ} N$ ; $98^{\circ} E$ by Hong Kong, Manila, Chiufeng.
No. 39 19th	PNE SNE LN F	17 59 27 18 01 56 18 03 12 19 19	1435	
No. 40 20th	PNE SNE LE F	18 02 03 18 06 55 18 10 13 19 10	3310	Felt at Tai-Yuan, Shansi. Disturbed by microseisms.
No. 41 20th	SN F	22 06 51 22 26		P lost in microseisms.
No. 42 20th 21st	P?EZ F	22 29 26 0 35		Disturbed by microseisms.
No. 43 21st	ePZ S?EZ F	6 57 37 7 01 14 8 30	2200?	Disturbed by microseisms.
No. 44 22nd	P?E S?E LE F	7 51 46 7 56 46 8 00 20ca. 9 10	3435?	Disturbed by 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.
1934				
January				
No. 47 25th	iPZ	18 21 22	215	Lingayen Gulf. 16° 23' N; 120° 08' E
	ePNE	18 21 24		by Manila and Baguio.
	SNEZ	18 21 50		Dilatation at Baguio and Manila.
	F	18 31		Felt at Baguio and along coast of Lingayen Gulf.
No. 48 28th	ePNEZ	19 31 46		Disturbed by strong microseisms.
	F	21 40		
No. 49 29th	ePNEZ	5 29 41	220	Felt at Daet with intensity VI.
	SNEZ	5 30 11		
	F	5 55		
No. 50 29th	ePNE	12 55 07	2710	Deep. Probably in region of New Guinea.
	SNEZ	12 59 19		
	F	13 22		Butuan, $\Delta = 16.1^\circ$ .
No. 52 31st	PNE	10 17 56	7765?	
	iPZ	10 17 56		
	S?N	10 27 13		
	F	11 15		

Twenty-two insignificant or undecipherable disturbances on the following days of January: 2nd(4), 6th, 7th, 10th, 13th(2), 14th(4), 15th(3), 17th(2), 18th, 23rd(2), and 30th.



Feb-Apr '34

Ret 2826



No. 5.

February, 1934.

M A N I L A , P . I .

## SEISMOLOGICAL BULLETIN OF THE OBSERVATORY

 $\phi=14^{\circ} 34' 42''$  N. $\lambda=120^{\circ} 58' 41''$  E.

h=2.40 m.

Alluvium.

GALITZIN-WILIP

WIECHERT. M=1000 Kg.

February 2, 1934.

	$T_0$	D	$T_1$	$\lambda$	$\mu^2$	K
N-S	12.4	100.5	12.6	11.5	0.017	97
E-W	11.8	100.5	11.9	11.4	-0.075	80
Z	11.6	100.5	9.0	14.8	1.250	200

	$T_0$	V	$\epsilon$	$\frac{r}{T_0^2}$
N-S	4.4	192	2.3	0.031
E-W	4.9	202	2.7	0.030

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Kmr.	Remarks.
1934 February				
No. 53 2nd	iPZ ePNE iE iN iSNE LNE ME F	15 10 28 15 10 28 15 10 33 15 10 40 15 14 40 15 17 19 15 19 29 16 50	2710	Compression, Data after S from the Wiechert.
No. 56 3rd	P?NEZ SN F	13 44 57 13 46 40 13 55	970?	Felt in Davao with intensity II. Butuan $\Delta=250$ Km. Disturbed by microseisms.
NO. 57 3rd	iPEZ ePN SNE LNE F	14 40 14 14 40 15 14 46 23 14 52 05ca 15 45	4535	Compression. Data after S from the Wiechert.
No. 58 4th	P?E SNEZ F	3 14 26 3 17 57 3 58		P doubtful because of microseisms. Butuan $\Delta=16^{\circ}5$ . Deep focus.
No. 59 4th	PE S?NE L?NE F	13 46 04 13 54 09 14 05 30ca 14 43	7555?	Disturbed by microseisms.
No. 60 4th	iPNEZ SNEZ F	22 06 06 22 10 04 23 42	2490	Dilatation from <del>SE</del> SE. Disturbed by microseisms.
No. 61 6th	P?E SE F	20 09 29 20 11 08 20 23	930	Felt at Butuan with intensity I. N-S recording lamp burned out.





## 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.
1934 February				
No. 62 7th	iPNEZ SNEZ mZ F	9 55 09 9 55 31 9 55 41 10 15	175	Dilatation from NE. Felt in Manila Observatory.
No. 64 9th	iPZ ePNE SNE LNE MNE F	9 34 51 9 34 51 9 38 03 9 39 35ca 9 41 15ca 10 30	1900	
No. 68 11th	iPEZ SNE LNE F	9 07 01 9 12 31 9 16 20ca 9 50	3875	Compression. In region of Bougainville Island by Manila, Hong Kong, Riverview.
No. 73 12th	iPZ PNE SNE LNEZ MNE F	11 35 24 11 35 26 11 39 14 11 41 14 11 43 20ca 13 20	2380	Compression.
No. 76 14th	iPZ ePNE SNE F	1 26 07 1 26 08 1 26 51 1 54	300	
No. 77 14th	iPNZ iPE	4 00 32 4 00 33	345	Dilatation at Manila and Baguio. Felt over all of Luzon north of Ma- nila. Slight damage in some towns on NW coast of Luzon. Max. intensity V at Vigan and Laoag. Surge of sea observed south of Vigan. Epicenter 17° 20' N; 119° 22' E by Ma- nila and Baguio. 17 aftershocks until No. 95. Between 4:01 and 4:02 the Manila- Shanghai cable broke near 18° N; 119° 25' E in 1350 fathoms of water.



## SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks
1934				
February				
No. 95	PNE	17 <del>30</del> 40	345	Compression at Manila and Baguio. Epicenter, 17° 15' N; 119° 12' E by Manila and Baguio. Followed by 8 aftershocks until No. 104.
14th	SNE	17 16 24		
	F	17 54		
No. 104	PNEZ	3 12 06	8690	Distance subject to correction for depth of focus.
15th	SNE	3 22 09		
	F	3 55		
No. 105 to No. 112, and No. 114 to No. 117 are aftershocks of No. 77.				
No. 113	PNE	6 38 34	1190	In the region of the Sakishima Is- lands by Manila and Baguio. From the Wiechert. No. 112 still recording.
16th	SNE	6 40 38		
	F	7 40		
No. 118	PNEZ	21 06 34	2255	Dilatation.
17th	SNE	21 10 15		
	F	22 15		
No. 124	PNEZ	20 16 33	895	
18th	SNE	20 18 09		
	F	20 35		
No. 126	iPZ	10 30 28	4140	
19th	ePNE	10 30 28		
	SNE	10 36 13		
	INE	10 41 05		
	F	12 40		
No. 128	PNEZ	4 15 05	680	
20th	SE	4 16 21		
	F	4 33		
No. 129	PNEZ	15 11 22	630	
20th	SNEZ	15 12 33		
	F	15 31		
No. 130	PNE	3 35 44	985	
21st	SNEZ	3 37 29		
	F	3 51		
No. 132	iPZ	18 49 25	160	Dilatation. Baguio 120 Km.
21st	•PNE	18 49 25		
	iNE	18 49 26		
	SNE	18 49 45		
	F	18 56		



## 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.
1934 February				
No. 133 22nd	PNEZ iNE iNE L?NE F	8 12 38 8 16 34 8 27 43 8 50 ca 10 25		
No. 137 24th	iPNEZ PR <sub>1</sub> NE iSNE SR <sub>1</sub> NE SR <sub>5</sub> NE LNE MNE F	6 28 53 6 29 28 6 33 09 6 34 19 6 34 47 6 35 45ca 6 38 ca 9 50	2765	Compression from NE.  21°N; 145°E; O=6:23.7 by U.S.C.G.S.
No. 138 25th	iPNEZ iSNE F	16 23 52 16 24 39 17 52	370	Compression from NW.
No. 139 25th	PNEZ SNEZ F	19 10 52 19 11 24 19 26	235	
No. 142 27th	iPZ ePNE S?NE MN F	21 36 47 21 36 47 21 38 44 21 50 37 22 40	1155?	Compression.
No. 143 28th	PNEZ SNEZ F	8 38 02 8 38 17 8 46	120	
No. 144 28th	PNEZ SNEZ F	9 34 35 9 37 14 9 56	1535	
No. 145 28th	PNEZ SNE LN MNE F	14 28 37 14 34 17 14 39 ca 14 43 ca 16 20	4055	In region of 4°S; 153°E by Manila, Riverview, Hong Kong.

Sixty-two insignificant or undecipherable disturbances on the following days of February: 2nd(2), 7th, 9th, 10th(2), 11th(3), 12th(3), 14th(22), 15th(11), 16th(4), 18th(5), 19th(2), 21st, 22nd, 23rd(2), 25th, and 26th.





MANILA, P. I.

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY

$\phi=14^{\circ} 34' 32''$  N.  $\lambda=120^{\circ} 58' 41''$  E.  $h=2.40$  m. Alluvium.

GALITZIN-WILIP.

WIECHERT. M=1000 Kg.

March 2, 1934.

	$T_0$	D	$T_1$	$l$	$\mu^2$	K
N-S	12.4	100.5	12.6	11.5	0.017	97
E-W	11.8	100.5	11.9	11.4	-0.075	80
Z	11.6	100.5	9.0	14.8	1.250	200

	$T_0$	V	$\epsilon$	$\frac{r}{T_0^2}$
N-S	4.4	192	2.3	0.031
E-W	4.8	206	2.7	0.034

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1934 March				
No. 146 1st	PNEZ S?E LNE ME F	3 55 11 4 01 00 4 05 50ca 4 09 ca 5 10	4210?	
No. 148 1st	PNEZ SNE LNEZ MNE F	19 48 03 19 53 42 19 58 30 20 01 30ca 21 30	4045	In the region of New Britain by Manila, Hong Kong, Chiufeng.
No. 149 1st	iPZ ePNE iN iEZ iN LE	22 05 04 22 05 04 22 06 05 22 28 10 22 29 09 22 45 ca	13980	Dilatation. 39°S; 73°W; $O=21:45.4$ by U.S.C.G.S.
2nd	F	0 10 ca		
No. 151 2nd	ePNEZ S?NE MN	19 57 29 20 01 24 20 06 05ca	2465?	Continues into following quake.
No. 154 3rd	PNE SNE LN MN F	0 38 42 0 42 14 0 44 05 0 45 ca 1 15	2135	Japan.
No. 155 3rd	eNEZ iE iE F	16 16 05 16 27 42 16 28 00 17 10		Conspicuous group of 19 seconds peri- od waves on E component from 16:36 to 16:41.



## 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.
1934 March				
No. 156 3rd	PNEZ S?NEZ F	18 38 27 18 39 20 18 50	435?	Baguio, $\Delta=175$ Km.
No. 157 4th	PNEZ SNEZ LNE F	6 04 44 6 12 22 6 21 36 7 30	6080	Compression. In region of New Hebrides by Manila, Hong Kong, Riverview, Chiu-feng.
No. 158 4th	iPZ ePNE SNEZ LE ME F	11 26 50 11 26 50 11 34 19 11 42 ca 11 47 ca 13 05	5925	Compression.
No. 161 5th	PNE SNE F	0 01 29 0 01 59 0 09	220	From the Wiechert. No time marks on Galitzin records.
No. 163 5th	iPZ PNE SNE LNE MNE F	11 57 56 11 57 57 12 07 28 12 21 30 ca 12 26 40 ca 14 50	8065	Compression from SE. New Zealand. Data after P from the Wiechert.
No. 165 6th	PNEZ SNE F	4 39 01 4 40 02 4 50	400	
No. 173 11th	ePNEZ iSNE iE LE F	10 44 36 10 49 15 10 50 13 10 52 24 11 20	3110	Epicenter in Nero Deep, SE of Guam. Felt at Guam, $\Delta=135$ Km.
No. 174 11th	PNEZ SNE LNE F	19 20 18 19 24 37 19 27 40 ca 19 59	2810	



## 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.
1934 March				
No. 177 12th	ePNE PR <sub>1</sub> Z PSNE LNE MNE PPSS'NE? F	15 20 00 15 24 10 15 33 30 15 55 00 16 04 00 16 09 00 17 40	11685	Interpretation by Macelwane's New Tables. 41.7°N; 112.6°W; $\Delta=15:05.8$ by U.S.C.G.S.
No. 179 13th	iPZ ePE SNE LNE F	13 20 48 13 20 49 13 29 24 15 41 00ca 15 25	7060	Compression from SE.
No. 181 15th	iPZ ePNE iSNEZ LNE MNE F	10 58 17 10 58 17 11 07 51 11 21 05ca 11 27 ca 12 25	8080	Compression.
No. 183 16th	PNEZ SNEZ F	8 47 21 8 48 09 8 56	390	Baguio, $\Delta=200$ Km.
No. 184 16th	iPZ ePNE SNE F	14 20 02 14 20 04 14 26 00 15 34	4355	From the SE. L and M not distinguishable.
No. 186 18th	ePNEZ SNE LNE MNE F	0 23 44 0 25 45 0 26 40ca 0 28 ca 0 46	1165	
No. 187 18th	iPZ ePNE SNE F	4 41 30 4 41 30 4 48 10 5 55	5065	From the NE. In region of 50°N; 150°E by Chiufeng and Manila.
No. 188 18th	PNEZ SNEZ F	7 14 30 7 15 32 8 07	525	Butuan, $\Delta=325$ Km.





## SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1934 March				
No. 189 18th	PEZ SNEZ F	12 35 56 12 38 43 13 16	1605	Netherlands East Indies. Butuan, $\Delta = 6.4^\circ$ .
No. 192 20th	PNEZ SNEZ LE MNE F	2 45 21 2 50 45 2 55 20ca 2 58 40ca 4 40	3810	From the SE.
No. 193 20th	PNEZ SNEZ F	20 54 17 20 55 47 21 33	835	$9^\circ 20' N$ ; $126^\circ 30' E$ by Manila, Butuan. Felt at Surigao and Butuan with intensity III and at Talisayan (Oriental Misamis) with intensity II-III.
No. 196 21st	PN SNEZ F	9 14 11 9 14 16 9 24	250	
No. 199 24th	PNEZ SNE LNE F	12 12 58 12 19 56 12 27 40ca 15 20	5400	L from the Wiechert. $10^\circ S$ ; $161^\circ E$ ; $O=12:04:30$ by U.S.C.G.S.

Twenty-nine insignificant or undecipherable disturbances on the following days of March: 1st, 2nd(3), 4th(2), 5th(2), 6th, 7th(2), 9th(2), 10th(2), 12th(3), 14th, 16th(2), 18th, 19th, 21st(2), 22nd, 23rd, 28th, and 29th.





SEISMOLOGICAL BULLETIN OF THE OBSERVATORY

$\phi=14^{\circ} 34' 42''$  N.  $\lambda=120^{\circ} 58' 49''$  E.  $h=2.40$  m. Alluvium.

WIECHERT.  $M=1000$  Kg.  
April 1, 1934.

GALITZIN-WILIP

	$T_0$	D	$T_1$	$\lambda$	$\mu^2$	K
N-S	12.4	100.5	12.6	11.5	0.017	97
E-W	11.8	100.5	11.9	11.4	-0.075	80
Z	11.6	100.5	9.0	14.8	1.250	200

	$T_0$	V	$\epsilon$	$\frac{r}{T_0^2}$
N-S	4.5	181	2.3	0.035
E-W	4.8	209	2.7	0.036

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1934 April				
No. 202 1st	PNEZ SNE F	2 49 04 2 50 00 3 02	470	Dilatation. Felt at Iloilo.
No. 203 1st	iPNEZ SNEZ F	21 56 22 21 57 04 22 35	320	Compression from NW.
No. 204 2nd	iPZ ePNE S?NE F	5 01 25 5 01 25 5 04 36 5 45	1880?	Dilatation.
No. 206 3rd	PNEZ SNEZ L?E MNE F	8 36 35 8 43 04 8 49 15ca 8 54 ca 9 48	4880	
No. 207 3rd 4th	iPZ ePNE SNE F	22 37 02 22 37 03 22 41 10 0 05	2645	Compression. Felt in Hukushima according to Koti
No. 208 4th	PNEZ SNE F	21 31 21 21 31 50 21 39	215	
No. 209 4th	PNE SNE F	21 42 35 21 43 00 21 53	195	
No. 211 6th	PNEZ SNEZ LE F	19 15 30 19 20 13 19 23 40ca 20 30	3165	Dilatation. Japan.





## SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued,

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1934 April				
No. 215 9th	P?NEZ L?NE F	15 50 30 16 15 10ca 18 10	8380?	
No. 216 10th	iPZ iPNE PR <sub>1</sub> E PR <sub>2</sub> E iSNE SR <sub>1</sub> N? F	10 27 56 10 27 57 10 28 26 10 28 53 10 32 03 10 33 13 12 20	2635	Compression. Deep focus. Probably in Netherlands East Indies. Data after P from the Wiechert.
No. 218 11th	ePNEZ iNE iSNEZ	21 21 57 21 22 52 21 29 34	6490	Deep focus. In region of New Hebrides by Manila, Riverview, Adelaide.
No. 219 11th	PNEZ SNEZ F	22 01 00 22 05 00 23 10	2535	No. 218 still recording. P and S in minute gap. Deep focus.
No. 220 12th	iPZ ePNE SNE F	3 22 03 3 22 05 3 22 58 4 30	450	From the north. S from the Wiechert. Baguio, $\Delta=270$ Km.
No. 221 12th	PNEZ SNE ME F	9 15 57 9 20 29 9 26 ca 10 05	5310	
No. 224 13th	iPNZ ePE SNE F	22 06 36 22 06 36 22 09 00 22 32	1390	Compression.
No. 225 15th	PNEZ S?N iE LE F	10 38 46 10 43 47 10 44 34 10 46 55 11 30	3440?	
No. 227 15th 16th	iPNEZ iSNE F	22 17 29 22 19 24 1 20	1090	Compression. 6°N; 127°E by Manila, Hong Kong, Koti, Chiufeng. Felt in central and eastern Minda- nao and southeastern Visayas. S from the Wiechert.



## 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.
1934 April				
No. 229 16th	PNEZ SNE F	4 01 29 4 03 25 5 55	1100	Compression. Aftershock of No. 227. Felt at Davao with intensity I. S from the Wiechert.
No. 231 16th	PNEZ SNEZ F	13 42 05 13 44 01 15 00	1100	In region of Formosa.
No. 232 18th	PNEZ SNEZ F	4 10 08 4 12 03 4 50	1100	
No. 236 18th	PNEZ SNEZ F	5 22 10 5 22 57 5 41	370	Felt at Capiz with intensity II.
No. 238 18th	PNEZ SNEZ MNE F	21 32 47 21 34 36 21 38 20ca 22 28	1030	
No. 239 19th	iPNEZ SNE F	7 50 33 7 51 07 8 30	250	Compression. Approx. $121^{\circ} 20' E$ ; $16^{\circ} 50' N$ by Manila and Baguio. Felt at Aparri, Vigan and Baguio with intensity III. S from the Horizontal Pendulums.
No. 240 19th	ePNEZ S?NE	16 17 59 16 20 43	1580?	$30.5^{\circ} N$ ; $140^{\circ} E$ according to Koti.
No. 243 20th	PNEZ SNEZ F	17 55 38 17 58 14 18 25	1510	
No. 246 22nd	PNEZ SNEZ F	9 52 28 9 52 52 10 20	190	Compression. Felt at Baguio with intensity II. Baguio, $\Delta=100$ Km.
No. 247 22nd	PNEZ SNEZ F	20 16 09 20 16 48 20 29	290	Felt at Vigan with intensity III. Baguio, $\Delta=100$ Km.
No. 248 24th	iPZ ePNE iSNEZ F	2 04 15 2 04 15 2 08 17 2 45	2560	Compression. Deep focus.



No. 16.

April, 1934.



M A N I L A , P . I .

## SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase.	Greenwich Time			Dist. Km.	Remarks.
		h.	m.	s.		
1934 April No. 249 24th	iPZ	17	47	54	6490	
	ePNE	17	47	57		
	eSE	17	55	56		
	LNE	18	06	ca		
	MNE	18	10	20ca		
	F	19	45			
No. 250 25th	ePNEZ	5	07	54	1820	Compression.
	SEZ	5	11	00		
	F	5	50			
No. 252 26th	iPZ	5	42	14	6790	Compression. 25°S; 173°E by Manila and Riverview.
	ePNE	5	42	14		
	SNE	5	50	32		
	LNE	6	01	30ca		
	MN	6	06	00		
	F	7	15			
No. 253 26th	ePNE	8	07	33	6710	P on Z component lost in local disturbance.
	SNE	8	15	48		
	F	9	40			
No. 254 26th	iPZ	13	42	52	2920	Dilatation.
	iPNE	13	42	54		
	SNE	13	47	19		
	LNE	13	50	ca		
	MNE	13	52	20ca		
	F	15	20			
No. 255 26th	iPZ	21	09	42	6165	Dilatation. In region of New Hebrides by Manila and Riverview.
	iPNE	21	09	43		
	SNE	21	17	26		
	LNE	21	27	ca		
	MNE	21	31	20ca		
	F	23	15			
No. 256 27th	PNEZ	3	15	35	2635	Compression. Deep focus.
	SNEZ	3	19	42		
	F	3	40			
No. 258 27th	PNEZ	11	35	16	295	
	SNE	11	35	56		
	F	11	54			



## SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.



No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1934 April				
No. 259 27th	iPZ	20 57 22	7055	Dilatation.
	ePNE	20 57 22		23°S; 173°E by Riverview, Manila, Hong Kong, Chiufeng.
	SNE	21 05 58		
	iN	21 06 14		
	iE	21 06 23		
	iN	21 13 14		
	LNE	21 17 30ca		
	MNE	21 22 30ca		
28th	F	0 15		
No. 260 28th	ePNEZ	15 15 07	4575	Compression.
	SNE	15 21 19		
	LNE	15 27 20ca		
	F	17 05		
No. 261 28th	P?NEZ	18 07 42	4275?	
	S?NE	18 13 35		
	iE	18 14 02		
	F	19 20		
No. 264 29th	PNEZ	4 43 02	1622	
	SNE	4 45 50		
	F	5 40		
No. 266 29th	PNEZ	12 35 00	1600?	
	S?NE	12 37 46		
	LNE	12 39 12ca		
	F	13 40		
No. 268 30th	PNEZ	15 24 36	2435	Compression.
	SNEZ	15 28 29		
	F	16 40		

Twenty-six insignificant or undecipherable disturbances on the following days of April: 2nd, 4th, 8th(3), 10th, 13th(2), 15th, 16th(2), 17th(2), 18th(2), 19th, 20th, 21st(2), 25th, 27th, 28th(2), 29th and 30th(2).





M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY

$\phi=14^{\circ} 34' 42''$  N.

$\lambda=120^{\circ} 58' 41''$  E.

$h=2.40$  m.

Alluvium.

GALITZIN-WILIP

WIECHERT.  $M=1000$  Kg.  
May 1, 1934.

	$T_0$	D	$T_1$	$\lambda$	$\mu^2$	K
N-S	12.4	100.5	12.6	11.5	0.017	97
E-W	11.8	100.5	11.9	11.4	-0.075	80
Z	11.6	100.5	9.0	14.8	1.250	200

	$T_0$	V	$\epsilon$	$\frac{F}{T_0^2}$
N-S	4.4	192	2.4	0.030
E-W	4.8	202	2.7	0.034

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks
1934 May				
No. 271 1st	iPEZ SNE? F	3 49 58 3 57 05 4 34	5540?	Conspicuous group of about 22 second period waves on E component from 4:13 to 4:16.
No. 272 1st	iPNEZ S?NE ME F	7 10 12 7 15 30 7 22 30ca 8 40	3710?	Compression from SW. $6^{\circ} 30'S$ ; $94^{\circ}E$ by Hong Kong, Manila, Chiufeng, Oosaka.
No. 275 3rd	PNEZ SNZ LE ME F	1 36 25 1 41 18 1 44 30ca 1 47 30ca 3 17	3325	$27^{\circ} 45'N$ ; $145^{\circ}E$ by Oosaka, Manila, Chiufeng, Hong Kong.
No. 277 4th	iPNEZ iSNE LE MN F	4 48 04 4 57 55 5 12 40ca 5 20 30ca 7 40	8450	Dilatation from NE. $61^{\circ}N$ ; $148^{\circ}W$ ; $O=4:36:06$ by U.S.C.G.S.
No. 278 5th	eNE F	5 30 25 5 40		
No. 279 5th	ePN iZ S?NE F	14 43 33 14 43 54 14 53 19 16 10	8345?	
No. 280 5th	iPZ ePNE iSNEZ F	16 47 38 16 47 38 16 51 15 17 40	2200	Dilatation.
No. 284 6th	PNEZ SNE F	21 57 12 21 58 58 22 35	1000	



## SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1934 May				
No. 286 7th	PNE SNE F	1 57 06 1 59 39 3 30	1480	Felt at Butuan with intensity II. P on Z component lost in local disturbance.
No. 287 7th	iPNEZ SNE LNE F	4 08 38 4 11 18 4 12 30ca 5 40	1545	Dilatation. Felt at Butuan with intensity II.
No. 289 7th	PNEZ SNE F	7 28 12 7 30 19 7 59	1220	Felt at Butuan with intensity II.
No. 290 8th	PNEZ SNEZ F	1 02 27 1 03 26 1 42	500	
No. 295 9th	iPNEZ iSNEZ F	15 39 21 15 39 28 15 52	50	Compression from SE. Felt in Canlabang with intensity III and at Manila, II.
No. 301 11th	PNEZ SNE F	9 06 31 9 10 39 9 45	2645	
No. 304 11th	ePNE S?NE F	18 28 48 18 38 00 19 15	7665?	
No. 305 12th	iPZ ePNE iSNEZ	10 39 53 10 39 53 10 41 36	970	Deep focus. Compression.
No. 306 12th	PNEZ SNE F	10 56 52 11 00 47 12 06	2465	No. 305 still recording.
No. 308 12th	ePEZ iZ SNE LNE MNE F	20 32 10 20 33 00 20 37 28 20 42 ca 20 44 30ca 21 20	3710	
No. 312 13th	iPEZ ePN SNE LNE F	9 09 23 9 09 23 9 15 31 9 21 25ca 11 45	4520	Compression from SSE. 5°S; 154°E; O=9:01.9 by U.S.C.G.S.



## SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1934 May				
No. 313 13th	PNEZ SNE F	14 37 29 14 41 38 15 40	2655	A second earthquake about 14:54:00.
No. 314 13th	iPZ ePNE SNE F	17 03 49 17 03 49 17 04 45 18 15	400	Compression. Epicenter in mountains of northern Luzon by Manila and Baguio. Felt throughout northern Luzon. S from the Wiechert and Horizontals.
No. 317 14th	$\bar{P}$ NEZ SNEZ F	10 48 29 10 48 43 10 54	180	
No. 319 14th	iPZ ePNE iSNE LNE F	22 24 35 22 24 35 22 34 18 22 49 30ca 23 35	8300	Compression. Deep. 59°N; 150°W; O=22:13.0 by U.S.C.G.S.
No. 322 16th	$\bar{P}$ NEZ SNEZ F	3 42 19 3 43 07 3 49	325	
No. 325 16th	PNEZ SNE mNE F	23 10 32 23 11 34 23 13 30ca 23 33	520	
No. 326 17th	$\bar{P}$ NEZ SNEZ F	9 21 31 9 21 48 9 51	135	
No. 329 17th	PNEZ SNE MNE F	22 16 14 22 20 27 22 25 ca 22 55	2725	
No. 330 19th	$\bar{P}$ NEZ SNEZ? F	8 57 11 8 58 32 9 15	515?	Felt in Aparri with intensity IV.
No. 331 19th	PNEZ SNEZ F	10 49 38 10 53 54 12 30	2755	
No. 332 21st	P?NEZ SNEZ LNE F	4 39 22 4 43 00 4 44 40ca 5 50	2210?	P doubtful: disturbed by micro-seisms.



MANILA, P. I.

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1934 May No. 333 22nd	P?NEZ SNEZ LNE ME F	1 28 43 1 33 17 1 36 20ca 1 38 ca 2 20	3030?	P disturbed by wind.
No. 336 23rd	$\bar{1}$ PNEZ $\bar{S}$ NEZ F	15 33 34 15 33 46 15 36	90	
No. 337 23rd	P?NEZ S?N F	23 14 09 23 16 42 23 46	1480?	Disturbed by wind.
No. 341 26th	P?NEZ SNEZ F	4 25 12 4 28 25 5 00	1910?	
No. 342 27th	PNEZ SNE F	6 56 30 6 57 20 7 28	400	
No. 344 27th	$\bar{P}$ NEZ $\bar{S}$ NE F	20 20 54 20 22 25 20 35	575	
No. 347 31st	$\bar{P}$ NEZ $\bar{S}$ NEZ F	5 08 42 5 09 03 5 12	165	

Forty-one insignificant or undecipherable disturbances on the following days of May: 1st, 2nd(2), 4th, 6th(3), 7th(2), 8th(2), 9th(3), 10th(2), 11th(4), 12th(2), 13th(2), 14th(3), 15th, 16th(3), 17th(2), 22nd(2), 24th(2), 25th, 27th, 28th, and 30th.



No. 22.



M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY

$\phi=14^{\circ} 34' 42''$  N.  $\lambda=120^{\circ} 58' 41''$  E.  $h=2.40$  m. Alluvium.

GALITZIN-WILIP

WIECHERT. M=1000 Kg.

June 1, 1934

	$T_0$	D	$T_1$	$l$	$\mu^2$	K
N-S	12.4	100.5	12.6	11.5	0.017	97
E-W	11.8	100.5	11.9	11.4	-0.075	80
Z	11.6	100.5	9.0	14.8	1.250	200

	$T_0$	V	$\epsilon$	$\frac{r}{T_0^2}$
N-S	4.4	189	2.4	0.035
E-W	4.8	202	2.7	0.035

No. and Date	Phase	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1934 June No. 349 2nd	PNEZ SN LN F	6 00 02 6 05 15 6 09 15ca 6 55	5635	Region of Bengal, India.
No. 350 2nd	PZ S?N ME F	13 59 52 14 06 29 14 16 55 15 40	5020?	
No. 352 2nd	iPZ ePNE SNE	21 05 30 21 05 30 21 12 45	5645	Dilatation. In region of New Hebrides by Manila and Riverview.
No. 353 2nd	eP?NE SNEZ F	21 33 42 21 37 29 22 35	2335?	No. 352 still recording.
No. 355 3rd	ePNE iSNE F	16 25 02 16 32 34 17 20	5980	Deep focus. No record on Z component.
No. 356 3rd	ePNE SNE LNE F	21 07 22 21 12 06 21 15 30ca 22 40	3180	No record on Z component.
No. 364 6th	iPZ ePE SNEZ SN F	9 43 54 9 43 54 9 45 04 9 45 27 10 05	595	Felt at Borongan with intensity VII. Dilatation.
No. 365 6th	PNEZ SN F	10 17 53 10 26 46 11 00	7350	Deep focus.



MANILA, P. I.

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY

$\phi=14^{\circ} 34' 42''$  N.  $\lambda=120^{\circ} 58' 41''$  E.  $h=2.40$  m. Alluvium.

GALITZIN-WILIP

WIECHERT. M=1000 Kg.  
June 1, 1934

	$T_0$	D	$T_1$	$l$	$\mu^2$	K
N-S	12.4	100.5	12.6	11.5	0.017	97
E-W	11.8	100.5	11.9	11.4	-0.075	80
Z	11.6	100.5	9.0	14.8	1.250	200

	$T_0$	V	$\epsilon$	$\frac{r}{T_0^2}$
N-S	4.4	189	2.4	0.035
E-W	4.8	202	2.7	0.035

No. and Date	Phase	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1934 June				
No. 349 2nd	PNEZ SN LN F	6 00 02 6 05 15 6 09 15ca 6 55	3635	Region of Bengal, India.
No. 350 2nd	PZ S?N ME F	13 59 52 14 06 29 14 16 55 15 40	5020?	
No. 352 2nd	iPZ ePNE SNE	21 05 30 21 05 30 21 12 43	5645	Dilatation. In region of New Hebrides by Manila and Riverview.
No. 353 2nd	eP?NE SNEZ F	21 33 42 21 37 29 22 35	3335?	No. 352 still recording.
No. 355 3rd	ePNE iSNE F	16 25 02 16 32 34 17 20	5980	Deep focus. No record on Z component
No. 356 3rd	ePNE SNE LNE F	21 07 22 21 12 06 21 15 30ca 22 40	3180	No record on Z component.
No. 364 6th	iPZ ePE SNEZ SN F	9 43 54 9 43 54 9 45 04 9 45 27 10 05	595	Felt at Borongan with intensity VII. Dilatation.
No. 365 6th	PNEZ SN F	10 17 53 10 26 46 11 00	7350	Deep focus.



## SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase.	Greenwich Time			Dist. Km.	Remarks.
		h.	m.	s.		
1934 June						
No. 369 7th	iPZ	20	22	52	2545	Compression. Deep focus.
	ePNE	20	22	52		
	iSNEZ	20	26	53		
	F	21	07			
No. 370 8th	PEZ	18	34	41	8010	
	SNE	18	44	10		
	F	19	20			
No. 372 9th	PNE	2	27	45	470	Felt at Aparri with intensity IV. Epicenter in the Babuyan Channel by Manila and Baguio. S from the Wiechert.
	SNE	2	28	41		
	F	3	25			
No. 373 9th	PEZ	13	05	13	3570?	Dilatation. 6° 30'S; 145° 30'E by Riverview, Adelaide, Manila, Chiufeng.
	SNE	13	10	21		
	F	15	00			
No. 375 12th	PNEZ	7	44	50	150	Epicenter in Caraballo Mt. by Mani- la and Baguio.
	SNEZ	7	45	09		
	F	7	50			
No. 376 13th	iPNEZ	1	58	02	4055	Dilatation from NE. 43° 30'N; 147°E; 0=1:50:40 by Mani- la and Chiufeng.
	iSNEZ	2	03	42		
	LNE	2	08	27		
	F	4	00			
No. 378 13th  14th	iPZ	22	19	59	6200	Dilatation. Approx. 32°N; 61° 30'E; 0=22:10:11 By Manila, Chiufeng, Hong Kong.
	iPN	22	20	00		
	PR <sub>1</sub> N	22	22	24		
	SNEZ	22	27	44		
	LNE	22	37	30ca		
	MNE	22	41	30ca		
No. 379 14th	PNEZ	19	11	43	1520	
	SNE	19	14	20		
	F	20	20			
No. 380 15th	PEZ	2	59	02	3235	Compression.
	SE	3	03	49		
	LN	3	07	25ca		
	F	3	57			
No. 382 15th	PNEZ	21	36	51	1520	
	SNE	21	39	29		
	F	22	25			
No. 386 16th	PNEZ	18	48	30	390	Felt in Iloilo with intensity III.
	SNEZ	18	49	18		
	S <sub>1</sub> NZ	18	49	28		
	F	19	30			



## SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks
1934 June				
No. 387 17th	$\bar{P}$ NEZ SNEZ F	1 43 47 1 44 12 1 55	195	Compression.
No. 391 18th	PNEZ iZ SE iE iN F	9 25 34 9 25 53 9 55 17 9 56 58 9 57 16 10 30	8290	62°N; 150°W; O=9:13.8 by U.S.C.G.S.
No. 392 19th	PNEZ SNEZ LNE F	2 50 12 2 53 02 2 54 30 ca 3 25	1635	
No. 393 19th	PNEZ iZ SNEZ iN F	3 55 41 3 55 47 4 00 06 4 00 54 4 50	2890	
No. 394 19th	PNEZ SN F	15 51 26 15 53 45 16 42	1345	
No. 400 22nd	PNZ PE iE iSNE F	18 02 18 18 02 19 18 07 50 18 10 20 19 50	6490	Compression from the north.
No. 403 23rd	PNEZ PR <sub>1</sub> E SNE SR <sub>1</sub> E LNE iMN iME iME F	5 26 20 5 27 22 5 31 39 5 33 44 5 36 19 5 37 36 5 38 00 5 39 10 7 00	3735	32° 30'N; 90° 12'E; O=5:19:25 by Chiufeng, Hong Kong, Manila.
No. 404 23rd	PNEZ $\bar{S}$ NEZ F	9 39 21 9 39 47 9 44	200	
No. 406 24th	iPZ iPE iPN LNE F	6 19 31 6 19 33 6 19 34 7 19 ca 9 25	18800?	Dilatation. 23°S; 68°W; O=5:59:33 by Honolulu.



## SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.



No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1934 June				
No. 417 28th	iPZ ePNE iNE SNE iNE ME F	1 05 17 1 05 17 1 10 30 1 12 44 1 21 30 ca 1 26 ca 2 50	5890	Dilatation. 16° 30'S; 165°E; 0:0:55:50 by Manila, Hong Kong, Chiufeng.
No. 421 29th	iPZ iPNE SNE F	8 29 21 8 29 22 8 52 29 10 30	1825	Compression from SE. 8° 30'N; 137° 30'E by Manila and Chiufeng.
No. 422 29th	iPEZ ePN iN SE MN F	12 38 42 12 38 42 12 38 47 12 41 36 12 44 40 ca 13 50	1690	
No. 426 30th	PNEZ iN SNE iE F	17 12 30 17 17 11 17 18 02 17 23 10 17 57	3945	Disturbed by microseisms.

Forty-nine insignificant or undecipherable disturbances on the following days of June: 2nd(2), 3rd, 4th(3), 5th(2), 6th(3), 7th(2), 8th, 10th, 13th, 15th, 16th(3), 17th, 18th(2), 20th, 21st(4), 23rd(2), 24th(3), 25th(3), 26th(3), 27th(2), 28th(3), and 30th(5).

## CORRECTION TO EARTHQUAKES OF MAY 7, 1934.

Nos. 285, 287 and 289. Epicenter at 10°N; 127° 30'E by Manila, Hong Kong, Sikawei.

Correction to No. 142, February 27, 1934: Epicenter approximately 10°S; 150°E by Pelew, Manila, Chiufeng.

Hong Kong (PR<sub>2</sub>)

Amboina (PR<sub>1</sub>)

Correction to No. 144, February 28, 1934.

P 9:34:36

iS 9:38:09





SEISMOLOGICAL BULLETIN OF THE OBSERVATORY

$\phi=14^{\circ} 34' 42''$  N.  $\lambda=120^{\circ} 58' 41''$  E.  $h=2.40$  m. Alluvium.

GALITZIN-WILIP

WIECHERT.  $M=1000$  Kg.  
July 3, 1934.

	$T_0$	D	$T_1$	$\lambda$	$\mu^2$	K
N-S	12.4	100.5	12.6	11.5	0.017	97
E-W	11.8	100.5	11.9	11.4	0.075	80
Z	11.6	100.5	9.0	14.8	1.250	200

	$T_0$	V	$\epsilon$	$\frac{r}{T_0^2}$
N-S	4.4	194	2.4	0.046
E-W	4.8	199	2.7	0.038

No. and Date	Phase	Greenwich Time h. m. s.	Dist. Km.	Remarks
1934 July				
No. 432 3rd	iPZ ePNE SNZ LNE F	3 48 36 3 48 36 3 52 14 3 54 15ca 4 45	2210	Disturbed by microseisms.
No. 433 3rd	PNEZ SNE F	17 53 52 17 54 18 17 58	200	Disturbed by microseisms.
No. 434 4th	PNEZ SNEZ F	2 04 51 2 08 41 3 30	2380	Disturbed by microseisms.
No. 435 4th	PNEZ iE SNE F	13 24 40 13 24 46 13 28 51 14 05	2700	Disturbed by microseisms.
No. 436 6th	PNEZ PR <sub>1</sub> S <sub>C</sub> P <sub>C</sub> SNE PS LNEZ MNEZ	23 02 30 23 06 27 23 13 10 23 15 18 23 34 ca 23 41 ca	10800	41.5N; 124.9W; H=22;48:56 by J.S.A. 41.3 N; 125.3 W; O=22:48:51 by U.S.C.G.S. M ends at 23:56:00
7th	F	1 52		
No. 438 8th	iPNEZ iSNEZ F	0 11 34 0 11 59 0 25	195	Compression from SE.
No. 439 8th	PNEZ SNEZ F	14 32 15 14 32 49 14 48	245	
No. 440 8th	PNEZ SNEZ F	16 05 34 16 06 01 16 20	210	Baguio 35 Km. Probably south side of Mt. Pulog.



## SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1934 July				
No. 442 10th	PNEZ SNE F	21 21 17 21 28 37 22 05	5765	Disturbed by microseisms.
No. 444 11th	PNEZ SNEZ F	4 01 26 4 02 52 4 15	780	Disturbed by microseisms.
No. 446 12th	$\bar{P}$ NEZ $\bar{S}$ NE F	8 05 46 8 06 10 8 26	190	Dilatation. Baguio, 35 Km. 16° 20' N; 120° 57' E by Baguio and Manila.
No. 447 12th	P?NEZ SNE ME F	9 58 14 10 03 33 10 10 40ca 10 55	3735	Probably in Japan.
No. 448 12th	PNEZ SNE F	14 30 40 14 31 49 15 30	610	Compression from SE.
No. 450 12th	PNEZ $\bar{S}$ NE F	19 30 13 19 31 39 20 08	550	
No. 451 12th	$\bar{P}$ NEZ $\bar{S}$ NE F	21 14 58 21 15 19 21 18	165	
No. 452 12th	PNEZ $\bar{S}$ NEZ F	21 36 46 21 37 14 21 46	215	Compression.
No. 457 18th	P'NEZ LE F	1 56 11 2 50 00 4 15	16410	Compression. P strong. L from the Wiechert. No Other definite phases. Disturbed by microseisms. 7.8N; 82.5W; O=1:36:54 by U.S.C.G.S.
No. 459 18th	PNEZ SNE LNE MNE F	19 49 33 19 57 12 20 05 00 20 08 ca 22 00	6120	Data after P from the Wiechert. 12° 30' S; 169° 30' E by Adelaide, Manila, Hong Kong, Chiufeng. O=19:35:55 14°S; 167°E; O=19:40:00 by U.S.C.G.S.
No. 460 19th	PNEZ SNE F	0 16 01 0 23 27 1 07	5880	In region of 11.4 S; 166° E by Chiu- feng. P in minute gap. Disturbed by micro- seisms.
No. 461 19th	iPNEZ iSNE F	1 31 57 1 35 42 3 40	2310	In region of 2°S; 133°E by Hong Kong, Chiufeng, Adelaide, Manila, Butuan. S from the Wiechert. Disturbed by microseisms.



## SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.



No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1934 July				
No. 462 19th	PNEZ SN F	5 54 43 6 02 03 7 00	5780	13°S; 165° 30'E by Adelaide, Manila, Chiufeng. Disturbed by microseisms.
No. 463 19th	PNEZ SNE LE ME F	7 46 13 7 53 49 8 02 50ca 8 08 20ca 9 50	6060	13° 45'S; 168°E by Adelaide, Manila, Hong Kong, Chiufeng. Disturbed by microseisms.
No. 467 20th	PEZ SNE F	16 57 31 17 05 01 17 35	5945	
No. 468 20th	PNZ SNE LNE MN	18 19 28 18 26 01 18 31 00ca 18 35 30ca	4945	
No. 469 20th	P?EZ SNE LNE MNE F	18 56 12 19 04 26 19 15 00ca 19 19 00ca 20 40	6700?	No. 468 still recording.
No. 470 21st	iPNEZ SNE F	4 38 05 4 38 36 5 20	230	Compression from the northeast. Felt in North and Central Luzon. S from Wiechert and Horizontals.
No. 471 21st	iPZ PNE SNE LNE MNE	6 27 19 6 27 21 6 35 18 6 44 15ca 6 48 40ca	6455	Dilatation. In region of 12°S; 173°E by Adelaide, Manila, Hong Kong, Chiufeng. Data after P from the Wiechert.
No. 472 21st	PNE SNE F	7 31 46 7 39 28 8 50	6155	No. 471 still recording. From the Wiechert.
No. 473 21st	iPZ iPNE F	10 58 54 10 59 00 14 15	16410	Compression. Panama. Disturbed by microseisms. 7°8N; 82°5W; O=10h 38.7m U.S.C.G.S.
No. 474 21st	PZ PNE SNE ME F	20 20 31 20 20 36 20 28 00 20 41 20ca 21 35	5925	Disturbed by microseisms.
No. 475 22nd	iPZ ePNE SNE LN F	3 06 55 3 06 57 3 14 09 3 21 30ca 4 40	5660	



No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1934 July				
No. 476 22nd	$\bar{P}$ NEZ $\bar{S}$ NE F	10 30 18 10 30 37 10 36	150	
No. 477 22nd	P?Z SNE LN F	18 47 08 18 50 46 18 52 40 19 55	2210?	
No. 478 22nd	ePNEZ iNE iSNEZ iE iN LN F	20 05 20 20 06 51 20 12 16 20 12 33 20 16 44 20 19 52 21 30	5355	In region of $47^{\circ}$ N; $162^{\circ}$ E by Chiufeng and Manila.
No. 488 25th	$\bar{P}$ ?NEZ $\bar{S}$ NE mNE F	20 40 01 20 40 25 20 43 30 20 50	190	$16^{\circ} 20'$ N; $121^{\circ} 22'$ E by Baguio (80 Km) and Manila.
No. 491 27th	PNEZ SNE F	12 34 52 12 41 55 14 30	5470	
No. 492 28th	1PZ iSNE LN F	2 14 51 2 21 34 2 28 30 3 15	5110	
No. 493 28th	1PZ ePNE PR <sub>1</sub> E iSNE LNE MNE F	21 48 34 21 48 34 21 51 38 21 58 07 22 12 30 22 18 20ca 0 50	8080	Compression. $56^{\circ}$ N; $157^{\circ}$ W; O=21h 37m U.S.C.G.S.
No. 494 29th	$\bar{P}$ NEZ $\bar{S}$ NE F	5 33 05 5 33 24 5 41	150	Felt in Baguio with intensity II.
No. 495 29th	$\bar{P}$ NEZ $\bar{S}$ NE F	5 50 05 5 50 28 6 00	185	Compression. $16^{\circ} 15'$ N; $120^{\circ} 50'$ E by Baguio (30 Km.) and Manila.
No. 498 30th	PNEZ SNE LNE F	3 41 07 3 45 18 3 47 30ca 4 20	2700	



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.
1934 July				
No. 500 30th	PNEZ	14 37 03	440	
	SNEZ	14 38 57		
	F	14 51		
No. 501 31st	iPNEZ	5 59 06	140	Dilatation. Epicenter in the China Sea at 15° 08' N; 119° 47' E by Manila and Baguio (165 Km.)
	SNE	5 59 24		Felt in Central Luzon. Intensity VI at Iba.
	F	7 20		S from the Horizontal Pendulums.
No. 502 31st	PNEZ	11 05 21	2780	
	SNE	11 09 38		
	F	11 35		
No. 503 31st	iPEZ	11 55 01	3745	P in minute gap. Probably dilatation
	ePN	11 55 01		3° 30' S; 92° 30' E by Hong Kong, Manila, Chiufeng.
	SNE	12 00 21		
	LNE	12 05 ca		
	MNE	12 07 40ca		
	F	13 12		

Thirty-two insignificant or undecipherable disturbances on the following days of July: 1st, 2nd(2), 7th, 9th, 11th, 12th(2), 13th, 14th, 16th(2), 18th, 19th, 20th(2), 23rd(6), 24th, 25th(2), 26th(2), 29th, 30th(2), and 31st(2).

## CORRECTION TO NUMBER 350.

PEZ	13h 56m 02s	Distance 10570 Km.
PR <sub>1</sub> Z	59 52	
S <sub>c</sub> P <sub>c</sub> SN	14 06 35	
LNE	28 00	
MNE	36 00	

65°N; 20°W; H=13:42:46 G.M.T. by J.S.A.



No. 31.

August, 1934.



MANILA, P. I.

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.

$\phi=14^{\circ} 34' 42''$  N.  $\lambda=120^{\circ} 58' 41''$  E.  $h=2.40$  m. Alluvium.

GALITZIN-WILIP.

WIECHERT.  $M=1000$  Kg.  
August 1, 1934.

	$T_0$	D	$T_1$	$\lambda$	$\mu^2$	K
N-S	12.4	100.5	12.6	11.5	0.017	97
E-W	11.8	100.5	11.9	11.4	-0.075	80
Z	11.6	100.5	9.0	14.8	1.250	200

	$T_0$	V	$\epsilon$	$\frac{r}{T_0^2}$
N-S	4.6	190	2.3	0.045
E-W	4.9	202	2.7	0.032

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1934 August No. 507 1st	iN eE iZ iZ L?NE F	9 31 52 9 31 54 9 32 52 9 34 14 9 34 28 10 22		
No. 512 2nd	iPZ ePE ePN SNE F	7 00 42 7 00 42 7 00 45 7 06 04 8 32	3780	Dilatation.
No. 520 4th	iPEZ iPN SNE LNE iN LN F	13 14 23 13 14 25 13 19 35 13 22 01 13 22 12 13 23 40 15 10	3700	$6^{\circ} 45'$ S; $145^{\circ} 45'$ E by Manila, Hong Kong, Chiufeng.
No. 521 7th	PNEZ SNE LE MNE F	3 49 23 3 56 34 4 04 10ca 4 09 00ca 5 05	5610	Compression. $15^{\circ}$ S; $162^{\circ} 30'$ E by Manila, Hong-Kong, Chiufeng, Taihoku.
No. 522 7th	iPNZ iSNZ F	9 23 20 9 23 37 9 40	135	Compression from southwest. Felt in Manila with intensity II.
No. 523 7th	P?NEZ SN LNE iN iME F F	11 59 31 12 06 42 12 13 38ca 12 15 39 12 17 20 13 02	5610?	Disturbed by microseisms.



No. 32.

August, 1934.

M A N I L A , P . I .

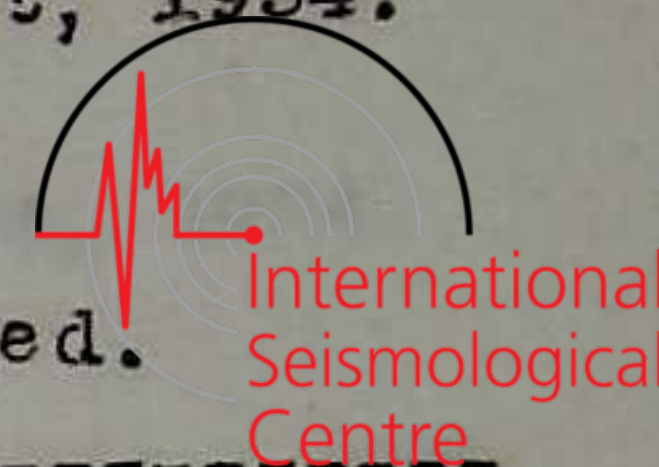
SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1934 August No. 525 8th	PNEZ iN SNE LNE ME F	21 45 10 21 48 48 21 49 14 21 51 20ca 21 53 50ca 22 37	2600	Dilatation.
No. 527 9th	PNEZ SNE LNE MN F	13 20 12 13 26 24 13 32 30ca 13 36 ca 14 50	4610	
No. 528 9th	PNEZ SNE LN MN F	19 41 02 19 46 40 19 51 ca 19 54 40ca 21 30	4020	P in minute gap,
No. 529 9th	PNEZ SNEZ	20 03 21 20 03 40	150	No. 528 still recording.
No. 533 10th	PNE SN LNE F	22 43 48 22 49 05 22 53 00 23 45	3690	
No. 534 11th	PNEZ SNEZ F	0 49 50 0 50 14 0 56	190	
No. 535 11th	PNEZ SNE LE MNE F	8 20 49 8 23 17 8 25 ca 8 27 ca 10 40	1120	Dilatation. 24° 40' N; 121° 45' E by Zikawei, Hong Kong, Manila, Chiufeng, Taihoku Felt at Giran, Taihoku Pref. Taiwan. Data after P from the Wiechert.
No. 536 11th	iPZ PNE SNE LNE MN F	12 04 48 12 04 49 12 10 49 12 14 20ca 12 18 ca 14 10	4420	Dilatation. 14° S; 149° E by Manila, Hong Kong, Chiufeng.
No. 541 12th	PNEZ SNE LN MNE F	13 49 33 13 55 13 13 59 05ca 14 03 ca 15 00	4045	Compression.



MANILA, P. I.

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.



No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1934 August No. 542 12th 13th	iPNEZ iSNEZ F	23 51 28 23 53 08 2 30	940	Compression from SE. Dilatation from E at Butuan. Epicenter at 8° 20' N; 126° 50' E by Manila and Butuan as on Apr. 29, 1932 and June 13, 1929. Felt over of central and eastern Mindanao and southeastern Visayas.
No. 544 13th	iPZ ePNE S?NE LN MN F	10 46 44 10 46 44 10 52 25 10 57 10ca 11 00 40ca 12 00	4080?	
No. 545 13th	PNEZ SEZ F	16 47 09 16 47 34 17 01	195	
No. 546 13th	PNEZ SNEZ F	23 19 10 23 20 55 23 40	985	Felt at Davao with intensity II, and in Butuan with intensity I.
No. 548 14th	iPZ ePNE SNE LN MNE F	8 59 47 8 59 47 9 08 14 9 19 15ca 9 24 20ca 10 25	6910	
No. 550 15th	PNEZ SNEZ SNE F	15 12 36 15 13 24 15 13 35 15 30	390	Baguio, Δ=230 Km. Probably in NE Luzon.
No. 552 16th	PE SNEZ F	17 11 36 17 12 18 17 30	290	Felt at Naga with intensity II.
No. 553 17th	PEZ SNE F	1 38 53 1 40 08 1 53	670	
No. 554 18th	PNEZ SNE F	2 44 20 2 48 42 3 25	2855	Japan. Disturbed by microseisms.
No. 559 21st	PNEZ SNE L?NE MNE F	19 31 58 19 36 58 19 40 35ca 19 43 42 20 40	3420	Compression. In region of 1° S; 94° E by Manila, Hong Kong, Chiufeng.
No. 563 22nd	PNEZ SNE LNE MN F	18 42 42 18 47 16 18 50 15ca 18 52 42 20 15	3035	



SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1934 August No. 564 23rd	PNEZ SNEZ LE MN F	22 39 49 22 47 26 22 56 51 23 01 51 23 20	6065	
No. 565 23rd	PNEZ SNEZ	23 39 44 23 47 21	6065	Continues into following earthquake.
No. 566 23rd 24th	iPNZ ePE iSNEZ LNEZ MNE F	23 58 08 23 58 08 0 05 41 0 14 15 0 19 00 1 25	6000	Compression. No. 565 still recording.
No. 572 28th	PNEZ S?NEZ MN ME F	18 27 05 18 30 43 18 41 14 18 42 09 19 40	2255?	
No. 575 30th	PNEZ SNEZ F	12 04 38 12 05 03 12 11	195	
No. 579 30th	PNEZ SE LNE MN F	16 31 22 16 35 20 16 37 30ca 16 39 50ca 17 25	2500	
No. 582 31st	PEZ PN iZ S?NE F	5 16 00 5 16 01 5 19 41 5 21 00 7 40		Compression.
No. 583 31st	iPZ ePNE iSNEZ LNE MNE F	15 06 41 15 06 41 15 14 00 15 22 15ca 15 26 45ca 17 10	5745	

Forty-four insignificant or undecipherable disturbances on the following days of August: 1st(3), 2nd(4), 3rd(5), 8th, 9th, 10th(3), 12th(4), 13th, 14th, 15th, 16th, 18th(2), 21st(2), 22nd(3), 24th, 25th, 26th, 27th, 28th, 29th(2), and 30th(5).



M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY

$\phi=14^{\circ} 34' 42''$  N.  $\lambda=120^{\circ} 58' 41''$  E.  $h=2.40$  m. Alluvium.

GALITZIN-WILIF.

WIECHERT. M=1000 Kg.

September 3, 1934.

	$T_0$	D	$T_1$		$\gamma^2$	K
N-S	12.4	100.5	12.6	11.5	0.017	97
E-W	11.8	100.5	11.9	11.4	-0.075	80
Z	11.6	100.5	9.0	14.8	1.250	200

	$T_0$	V	$\epsilon$	$\frac{r}{T_0^2}$
N-S	4.6	183	2.3	0.032
E-W	4.9	201	2.8	0.030

No. and Date	Phase.	Greenwich Time			Dist. Km.	Remarks.
		h.	m.	s.		
1934						
September						
No. 586	iPEZ	8	15	52	1700	Dilatation.
1st	PN	8	15	52		Butuan, $\Delta=8^{\circ}$ .
	iSNEZ	8	18	48		Probably in N.E.I.
	LN	8	20	35ca		
	F	9	30			
No. 591	P?NE	11	35	09	6880?	
2nd	SNE	11	43	34		
	F	12	30			
No. 592	P?NEZ	16	44	57	6290?	In region of $21^{\circ}$ S; $169^{\circ}$ E by River-
4th	SNE	16	52	47		view and Manila.
	F	17	40			Disturbed by strong microseisms.
No. 593	$\bar{P}$ NEZ	0	45	26	150	Probably in Caraballo Mountains.
5th	$\bar{S}$ NEZ	0	45	45		Disturbed by microseisms.
	F	0	57			
No. 594	PNEZ	2	19	08	945	Felt at Davao with intensity II, and
6th	SNEZ	2	20	49		at Butuan with I-II.
	F	3	15			
No. 595	i $\bar{P}$ NEZ	7	07	16	135	Dilatation.
6th	i $\bar{S}$ NEZ	7	07	33		
	F	7	12			
No. 598	iPNZ	8	17	11	1690	Dilatation.
11th	ePE	8	17	11		
	SNEZ	8	20	06		
	LNE	8	21	30		
	F	9	50			



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.
1934 Sept. No. 600 12th	$\bar{P}Z$ $\bar{P}NE$ $\bar{S}NEZ$ F	9 37 23 9 37 25 9 37 45 9 43	175	Disturbed by microseisms.
No. 601 12th	PNEZ iSNEZ LEZ MN F	14 31 17 14 34 44 14 36 30 14 38 25ca 16 10	2075	Disturbed by microseisms.
No. 602 12th	PZ SNE F	17 47 09 17 50 35 18 50	2065	Disturbed by microseisms.
No. 605 13th	PNZ SNZ F	14 22 41 14 26 00 15 03	1980	Disturbed by microseisms.
No. 609 15th	eNZ LNE F	7 16 13 7 54 ca 9 20	12580	Disturbed by microseisms. Mexico? Group of long waves from 7:56 to 8:10. 20°N; 105°W; O=6:56.9 by U.S.C.G.S.
No. 611 15th	PNEZ SNEZ F	17 50 17 17 54 05 18 03	2355	
No. 612 16th	ePNEZ SNE ME F	13 19 40 13 23 08 13 27 30ca 14 20	2090	Dilatation.
No. 614 17th	$\bar{P}NE$ $\bar{S}NE$ F	6 13 03 6 13 19 6 17	125	
No. 619 21st	iPZ ePNE SNEZ LNE MNE F	12 44 18 12 44 18 12 49 23 12 53 10ca 12 57 ca 13 30	3510	Compression.



## SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1934 Sept.				
No. 625 23rd	PNEZ	16 49 12	235	
	SNEZ	16 49 44		
	F	16 58		
No. 628 24th	PNEZ	15 27 39	520	Felt at Borongan with intensity VI and at Tacloban with IV.
	SNE	15 28 40		
	SNEZ	15 29 01		
	F	15 36		
No. 632 25th	iPEZ	19 21 29	3045?	Compression.
	ePN	19 21 29		
	S?NE	19 26 04		
	LN	19 28 40ca		
	MNE	19 31 20ca		
	F	20 20		
No. 633 26th	iPE	7 47 30	660	
	ePN	7 47 30		
	SE	7 48 44		
	SNE	7 49 15		
	F	8 13		

Thirty-two insignificant or undecipherable disturbances on the following days of September: 1st(3), 2nd(3), 8th, 9th, 11th, 13th(2), 14th(2), 15th(2), 16th, 17th(2), 21st(3), 22nd(2), 23rd(2), 24th(3), 25th(2), 27th, and 28th.

## CORRECTION TO NO. 220, APRIL 12, 1934.

H = 3:20:23

S at 3:23:26

Epicenter  $21^{\circ} 10' N$ ;  $122^{\circ} 15' E$  by Manila, Hong Kong, Phu-Lien, Batavia, Medan.

## CORRECTIONS TO AUGUST REPORT.

- No. 521, August 7th.  $13^{\circ} 45' S$ ;  $164^{\circ} E$  by Riverview, Adelaide, Pelew, Manila, Hong Kong, Chiufeng.  
 No. 536, August 11th.  $4^{\circ} S$ ;  $155^{\circ} 30' E$  by Riverview, Manila, Hong Kong.  
 No. 554, August 18th.  $35^{\circ} 30' N$ ;  $137^{\circ} E$  by Osaka, Chiufeng, Manila.  
 No. 565, August 23rd.  $14^{\circ} S$ ;  $167^{\circ} E$  by Riverview, Manila, Chiufeng.  
 No. 566, August 23rd. Same epicenter as No. 565 by same stations.





MANILA, P. I.

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY

$\phi=14^{\circ} 34' 42''$  N.  $\lambda=120^{\circ} 58' 41''$  E.  $h=2.40$  m. Alluvium

GALITZIN-WILIP

WIECHERT.  $M=1000$  Kg.  
October 1, 1934.

	$T_0$	D	$T_1$	$l$	$\mu^2$	K
N-S	12.4	100.5	12.6	11.5	0.017	97
E-W	11.8	100.5	11.9	11.4	-0.075	80
Z	11.6	100.5	9.0	14.8	1.250	200

	$T_0$	V	$\epsilon$	$\frac{r}{T_0^2}$
N-S	4.6	191	2.3	0.046
E-W	4.8	205	2.6	0.030

No. and Date	Phase.	Greenwich Time			Dist. Km.	Remarks.
		h.	m.	s.		
1934						
October						
No. 636	$\overline{PNEZ}$	18	25	20	160	
1st	SNEZ	18	25	40		
	F	18	32			
No. 637	$\overline{PNEZ}$	21	54	34	190	Dilatation.
1st	SNEZ	21	54	58		$16^{\circ} 20' N$ ; $121^{\circ} 15' E$ by Manila and Baguio.
	F	22	07			Felt very slightly in Manila.
No. 641	$\overline{PNEZ}$	17	35	04	135	
4th	SNEZ	17	35	21		
	F	17	39			
No. 644	PNE	20	33	02	3400	Disturbed by microseisms.
5th	SNE	20	38	00		
	F	21	28			
No. 649	iPEZ	15	52	22	6865	Dilatation.
10th	ePN	15	52	24		$21^{\circ} S$ ; $172^{\circ} E$ by Manila, Riverview, Taihoku, Hong Kong, Adelaide.
	SNEZ	16	00	46		
	LN	16	11	54		
	F	17	12			
No. 650	iPZ	17	36	50	1915	Compression.
11th	ePNE	17	36	50		
	SNE	17	40	04		
	F	17	53			
No. 653	$\overline{PNE}$	17	30	23	185	From the Wiechert. No records in the Galitzin, owing to interruption of electric service by typhoon.
16th	SNE	17	30	46		Disturbed by microseisms.
	F	17	35			



MANILA, P. I.

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1934 October				
No. 654 18th	$\bar{i}$ PNEZ $\bar{i}$ SNEZ F	7 01 56 7 02 00 7 04	20	Compression from SE. Felt in Manila with intensity II.
No. 655 18th	$\bar{i}$ PZ ePNE SNE LNE MNE F	7 57 25 7 57 25 8 04 52 8 15 25ca 8 18 ca 9 30	5900	Dilatation. 11°S; 167°E by Riverview, Manila, Hong Kong, Adelaide.
No. 659 19th	PNEZ SE F	11 54 04 11 57 09 12 21	1810	Disturbed by microseisms.
No. 660 19th	$\bar{P}$ NEZ $\bar{S}$ NEZ F	21 36 22 21 36 26 21 38	20	Felt in Manila by some persons. Disturbed by microseisms.
No. 661 21st	PNEZ SNEZ LE F	17 58 40 18 03 44 18 06 45ca 18 40	3510	Region of 16°N; 153°E by Guam, Manila, Hong Kong. Disturbed by microseisms.
No. 662 24th	PNEZ $\bar{i}$ SNE F	6 12 59 6 13 14 6 17	120	After P from the Wiechert.
No. 663 26th	PEZ SNE F	14 48 22 14 51 54 15 20	2135	Butuan. $\Delta=15^\circ$ .
No. 664 26th	$\bar{i}$ PNEZ SNE LNE F	17 15 16 17 18 31 17 20 05 18 30	1925	Compression from NE. 30.5°N; 132°E according to Chiufeng.
No. 666 28th 29th	PNEZ SNEZ F	23 38 20 23 40 26 0 50	1210	24°N; 126°E by Taihoku, Manila, Hong Kong. Felt in Taihoku.





MANILA, P. I.

## SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1934 October				
No. 668 30th	PNEZ	20 55 04	1000	Compression from SE. $7^{\circ} 40' N$ ; $127^{\circ} 05' E$ . Felt at Davao with intensity III. Strong at Cateel.
	SNEZ	20 56 50		
	imN	20 58 11		
	imE	20 59 35		
	F	21 45		

Seventeen insignificant or undecipherable disturbances on the following days of October; 2nd, 3rd, 4th(2), 5th, 6th(3), 8th, 15th(2), 19th(3), 28th, 29th, and 30th.

## A D D I T I O N S

August 14, 1934. No. 548:

Epicenter  $19^{\circ} 30' S$ ;  $174^{\circ} 30' E$  by Wellington, Manila, Batavia, Chiufeng.

August 23, 1934. No. 566:

Epicenter  $14^{\circ} S$ ;  $167^{\circ} E$  by Riverview, Manila, Chiufeng, Batavia.

## C O R R E C T I O N

September 4, 1934. No. 592:

 $23^{\circ} S$ ;  $171^{\circ} 30' E$  by Riverview, Manila, Batavia, Hong Kong, Chiufeng.



SEISMOLOGICAL BULLETIN OF THE OBSERVATORY



$\phi=14^{\circ} 34' 42''$  N.  $\lambda=120^{\circ} 58' 41''$  E.  $h=2.40$  m. Alluvium.

GALITZIN-WILIP

WIECHERT. M=1000 Kg.  
November 1, 1934

	$T_0$	D	$T_1$	$\lambda$	$\mu^2$	K
N-S	12.4	100.5	12.6	11.5	0.017	97
E-W	11.8	100.5	11.9	11.4	-0.075	80
Z	11.6	100.5	9.0	14.8	1.250	200

	$T_0$	V	$\epsilon$	$\frac{\pi}{T_0^2}$
N-S	4.4	192	2.3	0.035
E-W	4.8	198	2.7	0.036

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1934				
November				
No. 673	$\bar{P}$ NEZ	0 07 39	120	
2nd	SNEZ	0 07 54		
	F	0 11		
No. 679	PNEZ	14 53 39	3520?	Disturbed by microseisms.
3rd	S?NE	14 58 45		
	F	15 35		
No. 680	PNEZ	2 04 23?	4720?	Probably in region of $15^{\circ}$ S; $169^{\circ}$ E by Riverview and Manila.
4th	SE	2 10 43		Disturbed by microseisms.
	LNE	2 17 45ca		
	MNE	2 20 30ca		
No. 681	PNEZ	3 24 42?	7500?	$23^{\circ} 30'$ S; $178^{\circ}$ E by Riverview and Manila.
4th	SEZ	3 33 46		No. 680 still recording. Disturbed by microseisms.
	F	5 23		
No. 682	PNEZ	15 10 46	215	
4th	SNEZ	15 11 14		
	F	15 23		
No. 685	PNEZ	13 27 23	1155	
5th	SNE	12 29 23		
	F	14 15		
No. 686	iPZ	23 12 45	6900	Compression.
5th	ePNE	23 12 45		
	iN	23 12 51		$52^{\circ}$ N; $176^{\circ}$ W; $O=23:02.4$ by U.S.C.G.S.
	SNE	23 21 18		
	PSNE	23 21 34		
	LNE	23 30 45ca		
6th	F	0 42		
No. 691	PNEZ	21 20 07	2220	$24^{\circ}.5$ N; $121^{\circ}.6$ E according to Taihoku.
11th	SNE	21 23 46		Felt in northern Taiwan.
	LE	21 25 38		
	F	21 50		
No. 692	$\bar{P}$ NEZ	23 42 55	200	Felt at Baguio with intensity II.
11th	SNEZ	23 43 21		15 Km. from Baguio.
	F	23 49		
No. 693	PNEZ	3 06 23	215	
12th	SNEZ	3 06 51		
	F	3 10		



## SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1934 November				
No. 694 12th	P?NEZ SN LN F	7 32 25 7 40 27 7 50 ca 8 46	6490?	
No. 695 12th	PNEZ SNEZ	22 27 56 22 28 20	190	
No. 696 12th	PNEZ SNE F	22 29 50 22 30 21 22 40	230	No. 695 still recording.
No. 699 16th	P?NEZ SNE F	12 17 44 12 22 03 12 53	2810?	Disturbed by microseisms.
No. 700 16th	PNEZ SNEZ LNE F	13 49 45 13 54 17 13 57 10ca 15 05	3000	Probably in Netherlands East Indies. Disturbed by microseisms.
No. 701 18th	PNEZ 1Z SNEZ LNE MNE F	3 29 59 3 31 11 3 36 53 3 44 30 3 48 20 4 57	5310	Compression. In region of 50°N; 160°E by Chiufeng and Manila.
No. 702 18th	1PZ PNE SN F	9 27 30 9 27 31 9 34 40 10 20	5590	Compression.
No. 704 18th 19th	1PEZ SNE L?NE F	22 47 25 22 50 33 22 52 ca 0 42	1340	Compression from SE. In region of Halmahera, N.E.I. by Manila and Guam.
No. 705 19th	PNEZ SNE F	4 17 13 4 20 32 4 40	1980	
No. 709 22nd	PNEZ SNE LNE F	3 31 10 3 35 01 3 37 11 4 00	2400	
No. 711 22nd	1PNEZ 1SNE F	22 25 19 22 27 06 23 07	1010	Compression from SE. 11° 35' N; 129° 40' E by Batuan and Manila.
No. 712 23rd	PNE SNE F	4 51 38 4 52 12 5 04	245	





## 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.
1934 November				
No. 716 24th	iPZ ePNE iSNEZ iNE iNEZ F	12 45 46 12 45 46 12 55 27 13 00 16 13 10 00ca 14 20	8255	Dilatation. In region of $30^{\circ}\text{S}$ ; $174^{\circ}\text{E}$ by River- view and Manila, subject to cor- rection $\phi/H$ due to depth of focus.
No. 719 26th	iPNEZ	12 09 35	100	Dilatation. Felt at Lubang Island. with intensity VII and at Manila intensity VI. Felt strongly on the "Empress of Asia" which was 15 miles north of the epicenter. All instruments put out of service by the shocks. $14^{\circ} 10' \text{N}$ ; $120^{\circ} 10' \text{E}$ by Manila and Baguio. Aftershocks of No. 719: Nos. 720 to 733; 740, 741, 743, 745 to 756.
No. 739 27th	iPNEZ iSNEZ F	1 15 37 1 16 39 2 40	405	Compression. $13^{\circ} 25' \text{N}$ ; $124^{\circ} 30' \text{E}$ by Manila, Baguio and Butuan. Felt at Legaspi with intensity IV and at Naga and Virac with III. Time uncertain.
No. 742 27th	iPNEZ eSNE iSN(?) iNE	6 17 34 6 20 00 6 20 15 6 21 30ca	1410	Approx. $3^{\circ}\text{N}$ ; $125^{\circ}\text{E}$ by Manila, Hong Kong, Guam. Compression at Manila and Butuan. Felt at Davao with intensity II. Data after P from the Wiechert.
No. 744 27th	PNEZ SNEZ F	7 49 01 7 50 09 8 59	595	$11^{\circ} 05' \text{N}$ ; $125^{\circ} 05' \text{E}$ by Butuan and Manila. Felt at Tacloban with intensity VII and at Guiuan with V.
No. 757 28th	PNE SNE F	14 36 16 14 36 27 14 37	85	From the Wiechert. Disturbed by mi- croseisms.
No. 758 28th	PNE SNE F	16 46 26 16 46 37 16 48	85	From the Wiechert. Disturbed by mi- croseisms.
No. 759 29th	PNE S NE F	13 13 20 13 13 32 13 15	95	From the Wiechert. Disturbed by mi- croseisms.
No. 760 29th 30th	P?NE S?NE F	23 57 17 23 59 01 0 11	660?	Disturbed by microseisms. Butuan 730 Km.
No. 761 30th	iNEZ	2 12 13		Trace. Disturbed by microseisms.



## SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1934 November				
No. 762 30th	P?N 1NE F	2 21 + 2 43 00 4 24	13760	Disturbed by strong microseisms. 20°N; 104°W by U.S.C.G.S. P due at 2:21:06

Sixty insignificant or undecipherable disturbances on the following days of November: 1st(3), 2nd(4), 3rd, 4th, 5th, 6th, 9th(2), 11th, 13th, 15th, 18th, 19th, 20th, 21st, 22nd, 23rd(3), 25th(2), 26th(19), 27th(11), and 28th(4).

## CORRECTION TO NO. 649, OCTOBER 10th, 1934.

The epicenter as given in the October bulletin was determined before the receipt of New Zealand data, and on the assumption of normal focal depth. The arrival of New Zealand data made it evident that the focal depth must be great.

A tentative epicenter was determined from the S-P intervals of Manila and Wellington, using the table derived by the writer from the Philippine earthquake of April 8th 1929, and published in the Seismological Bulletin for July-December, 1933, Weather Bureau, Manila Central Observatory. The depth of focus of this earthquake was of the order of 600 Km.

The epicenter determined for October 10th was 23° S and 179° W.

Distances were calculated to Observatories whose reports had been received and satisfactory residuals were obtained.

The corrected data are now:

23° S; 179° W.

H=15h 42m 07s

h=600 Km. more or less.

## Residuals:

Arapuni	15° 46'	15 45 30	+10s
Wellington	19° 00'	45 50	0
Christchurch	21° 26'	46 11	-4
Riverview	28° 15'	47 13	-7
Adelaide	38° 40'	48 45	-2
Manila	69° 42'	52 22	0
Osaka	72° 00'	52 40	+4
Taihoku	75° 00'	52 54	+2
Hong Kong	79° 15'	53 19	+4
Chiufeng	87° 18'	53 58	+5



M A N I L A , P . I .

## SEISMOLOGICAL BULLETIN OF THE OBSERVATORY

 $\phi=14^{\circ} 34' 42''$  N. $\lambda=120^{\circ} 58' 41''$  E.

h=2.40 m.

Alluvium.

GALITZIN-WILIP

WIECHERT. M=1000 Kg.

December 10, 1934.

	$T_0$	D	$T_1$		$\mu^2$	K
N-S	12.4	100.5	12.6	11.5	0.017	97
E-W	11.8	100.5	11.9	11.4	0.075	80
Z	11.6	100.5	9.0	14.8	1.250	200

	$T_0$	V		$\frac{r}{T_0^2}$
N-S	4.5	197	2.2	0.040
E-W	4.6	196	2.7	0.036

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
1934 December				
No. 767 9th	ePNEZ SNEZ L?NE F	11 25 21 11 31 27 11 37 ca 12 30	4490	
No. 770 10th	iPNEZ SNEZ F	10 00 01 10 01 01 10 36	510	Compression from the SE. P and S in minute gap.
No. 772 11th	$\bar{P}$ NE SNE F	15 55 02 15 55 14 15 59	90	Z component defective.
No. 775 12th	iPZ ePNE SNE F	8 50 58 8 50 58 8 58 45 9 25	6220	Dilatation. In region of New Hebrides by River- view, Manila, Chiufeng.
No. 786 14th	eNE S?NE F	20 49 30 20 57 30 21 21	8000	Asia Minor.
No. 790 15th	PNEZ SNE LNE MNE F	2 04 19 2 09 50 2 13 50ca 2 17 30ca 4 45	3920	Compression. Tibet. $32^{\circ}$ N; $89^{\circ}$ E by Chiufeng, Hong Kong, Manila. Data after P from the Wiechert.
No. 795 15th	PNEZ SNE LNE F	19 24 47 19 33 17 19 41 ca 20 45	6970	Dilatation. $21^{\circ}$ S; $171^{\circ}$ E By Manila and Riverview. Subject to correction for depth of Focus.
No. 796 16th	$\bar{P}$ NEZ SNE F	7 45 29 7 45 36 7 46 45	50	





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.
1934 December No. 798 16th	PNEZ SNE F	9 46 04 9 46 28 9 49	190	
No. 799 16th	PNEZ SNEZ F	11 00 38 11 02 15 11 12	900	Felt at Surigao and Butuan with intensity II. 9°N: 126° 45'E by Manila and Butuan.
No. 802 17th	PNEZ SNEZ LNE F	3 38 47 3 40 56 3 42 40ca 4 10	1245	24.2°N: 121.4°E according to Taihoku.
No. 804 17th	1PZ ePNE SNE LNE F	15 59 10 15 59 10 16 04 26 16 07 20ca 18 00	3675	Compression. Eastern New Guinea by Guam, Manila, Hong Kong, Chiufeng, Adelaide.
No. 806 17th	PNEZ SNEZ F	18 13 38 18 13 55 18 19	135	
No. 808 18th	PEZ SNE MNE F	11 29 00 11 34 23 11 38 ca 12 20	3610	
No. 809 18th	P?NE SNE F	14 31 02 14 32 52 15 00	1040?	
No. 811 19th	PNEZ SNE F	16 09 46 16 11 03 16 32	690	
No. 819 21st	PNEZ SN LNE ME F	12 45 46 12 52 35 12 58 25ca 13 02 ca 13 30	5220	Compression.
No. 820 21st	P?NEZ SNEZ F	17 35 08 17 37 41 17 57	1480?	P may be earlier.
No. 821 21st	PNE SNEZ F	18 53 36 18 54 41 19 15	560	Felt at Aparri with intensity III.
No. 822 22nd	PNE SNE IME F	11 02 54 11 06 11 11 10 26 12 02	1945	



## 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
1934				
December				
No. 823 22nd	P'N PPE LNE MNE F	14 48 45 14 51 30 15 37 ca 15 47 ca 17 05	15850	Dilatation? 8°N: 89°W: 0-14:29:00 by U.S.C.G.S.
No. 824 23rd	PNE SEZ F	2 24 48 2 25 28 2 45	295	
No. 825 23rd	PNEZ SN LN 1MN F	10 13 17 10 18 02 10 21 ca 10 28 34 12 10	3190	
No. 827 24th	PNEZ SNE F	10 56 56 11 00 51 11 30	2465	
No. 828 24th	PNEZ SE LE F	15 43 18 15 48 00 15 51 ca 17 20	3145	
No. 831 25th	PNEZ SEZ F	2 01 20 2 03 19 2 44	1145	
No. 833 25th	PNEZ SNEZ LNE	6 32 52 6 37 35 6 40 40ca	3155	
No. 834 25th	PNEZ SNE LNE MNE F	7 55 08 7 59 14 8 01 35ca 8 03 30ca 9 15	2620	No. 833 still recording.
No. 835 25th	PNEZ SNE LNE F	12 53 12 12 57 42 13 00 30ca 14 02	2980	
No. 836 26th	PNE SNE F	14 14 53 14 15 44 14 28	410	
No. 838 27th	PNEZ SNEZ F	8 54 59 8 55 12 9 01	100	
No. 841 27th	iPNEZ iSNEZ	17 43 28 17 43 43	120	Compression. Felt in Manila with intensity IV and at Botocan Falls, Laguna, strong. 14° 30'N: 122° 05'E by Manila and Baguio.



## 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
1934 December				
No. 843 27th	$\overline{\text{PNE}}$ $\overline{\text{SNE}}$	18 07 09 18 07 22	110	From the Wiechert.
No. 847 28th	PNEZ SNE LNE ME F	11 34 54 11 44 49 12 00 ca 12 06 ca 13 07	8535	Approximately 20°S: 170°W by River- view, Manila, Chiufeng.
No. 849 29th	$\overline{\text{PNEZ}}$ $\overline{\text{SNE}}$ F	9 23 18 9 23 43 9 39	200	Compression.
No. 852 30th	ePR <sub>1</sub> NE PS <sub>1</sub> NE LNE MNE F	14 11 05 14 20 38 14 42 20ca 14 52 20ca 16 35	12080	31°N: 116°W: $\theta=13:51:52$ , U.S.C.G.S.
No. 854 31st	1PZ ePNE SNEZ F	9 03 34 9 03 34 9 04 46 9 40	640	In the region of southern Leyte by Manila and Putuan.
No. 856 31st	ePNEZ eP N ePR <sub>1</sub> NEZ iNZ PSNE LNE MNE F	19 00 43 19 04 00 19 04 43 19 05 15 19 14 00 19 36 ea 19 44 30ca 22 28	12145	California. 30°N: 116°W: $\theta=18:45:50$ , U.S.C.G.S.

Fifty-six insignificant or undecipherable disturbances on the following days of December: 3rd, 7th(2), 8th, 9th, 10th(2), 11th(2), 13th, 14th(9), 15th(7), 16th(2), 17th(4), 19th(4), 20th(3), 21st, 23rd, 24th, 25th(2), 26th, 27th(4), 28th(3), 30th(2), and 31st(2).



M A N I L A   O B S E R V A T O R Y  
SPECIAL BULLETIN OF PRINCIPAL EARTHQUAKES



F E B R U A R Y ,   1 9 3 4

2nd	iPZ iSNE	15 10 28 15 14 40	Compression.
3rd	iPEZ SNE	14 40 14 14 46 23	Compression.
4th	PE S?NE	13 46 04 13 54 09	Disturbed by microseisms.
4th	iPNEZ SNEZ	22 06 06 22 10 04	Dilatation from SE.
9th	iPZ SNE	9 34 51 9 38 03	
11th	iPEZ SNE	9 07 01 9 12 31	Compression.
12th	iPZ SNE	11 35 24 11 39 14	Compression.
14th	iPNZ	4 00 32	Dilatation at Manila and Baguio. Felt over all of Luzon north of Manila. Slight damage in some towns on NW coast of Luzon. Maximum intensity V at Vigan and Laoag. Surge of sea observed south of Vigan. Epicenter 17° 20' N; 119° 22' E by Manila and Baguio. Followed by 17 aftershocks.
14th	PNE SNE	17 15 40 17 16 24	Compression at Manila and Baguio. Epicenter 17° 15' N; 119° 12' E by Manila and Baguio. Followed by 8 aftershocks.
15th	PNEZ SNE	3 12 06 3 22 09	Distance subject to correction for depth of focus.
16th	PNE SNE	6 38 34 6 40 38	In <del>620000</del> the region of the Sakishima Islands by Manila and Baguio.
17th	PNEZ SNE	21 06 34 21 10 15	Dilatation.
19th	iPZ SNE	10 30 28 10 36 13	
22nd	PEZ L?NE	8 12 38 8 50 ca	
24th	iPNEZ iSNE	6 28 53 6 33 09	Compression from NE.
25th	iPNEZ iSNE	16 23 52 16 24 39	Compression from NW.
27th	iPZ S?NE	21 36 47 21 38 44	Compression.
28th	PNEZ SNE	14 28 37 14 34 56	



MANILA OBSERVATORY

SPECIAL BULLETIN OF PRINCIPAL EARTHQUAKES

M A Y , 1 9 3 4 .

1st	iPNEZ S?NE	7 10 12 7 15 30	Compression from SW.	3570
3rd	PNEZ SNZ	1 36 25 1 41 18		3140
4th	iPNEZ iSNE	4 48 04 4 57 55	Dilatation from NE.	8420
5th	ePN S?NE	14 43 33 14 53 19		8520
5th	iPZ iSNEZ	16 47 38 16 51 15	Dilatation.	2160
7th	PNE SNE	1 57 06 1 59 39		1460
12th	PNEZ SNE	10 56 52 11 00 47		2370
12th	ePEZ SNE	20 32 10 20 37 28		3270
13th	iPEZ SNE	9 09 23 9 15 31	Compression from SSE.	4370
13th	iPZ SNE	17 03 49 17 04 45	Compression. Epicenter probably in Babuyan Channel. Felt in N Luzon.	570
14th	iPZ iSNE	22 24 35 22 34 13	Compression. Deep focus.	8470
17th	PNEZ SNE	22 16 14 22 20 27		2600
19th	PNEZ SNEZ	10 49 38 10 53 54		2640
21st	P?NEZ SNEZ	4 39 22 4 43 00		2170
22nd	P?NEZ SNEZ	1 28 43 1 33 17		2880
27th	PNEZ SNE	6 56 30 6 58 28		1160



M A N I L A   O B S E R V A T O R Y  
SPECIAL BULLETIN OF PRINCIPAL EARTHQUAKES.



J U L Y ,   1 9 3 4

3rd	1PZ	3 48 36	2170
	ePNE	3 48 36	
	SNZ	3 52 14	
4th	PNEZ	2 04 51	2320
	SNEZ	2 08 41	
4th	PNEZ	13 24 40	2170
	SNE	13 28 51	
6th	ePNEZ?	23 06 35	7280
	iSNEZ	23 15 18	
10th	PNEZ	21 21 17	5700
	SNE	21 28 37	
12th	P?NEZ	9 58 14	3530
	SNE	10 03 33	
18th	PNEZ	1 56 11	Compression, apparently from SE. P strong. No definite phases.
18th	PNEZ	19 49 33	5350
	SNE	19 56 34	
19th	PNEZ	0 16 01	5810
	SNE	0 23 27	
19th	iPNEZ	1 31 57	2260
	iSNE	1 35 42	
19th	PNEZ	7 46 13	6000
	SNE	7 53 49	
20th	P?EZ	18 56 12	6710
	SNE	19 04 26	
21st	iPZ	6 27 19	6430
	PNE	6 27 21	
	SNE	6 35 13	
22nd	iPZ	3 06 55	5590
	ePNE	3 06 57	
	SNE	3 14 09	
22nd	ePNEZ	20 05 20?	5250
	iSNEZ	20 12 16	
31st	iPNEZ	5 59 06	160
	SNE	5 59 24	
			Epicenter in the China Sea, off west coast of Luzon. Felt in Central Luzon. Intensity VI at Iba.
31st	iPEZ	11 55 01	2960
	ePN	11 55 01	
	SEN	12 00 21	
			P in minute gap. Probably dilatation.



WEATHER BUREAU  
CENTRAL OFFICE  
MANILA



MANILA OBSERVATORY  
SPECIAL BULLETIN OF PRINCIPAL EARTHQUAKES

OCTOBER, 1934

5th	PNE SNE	20 33 02 20 38 00		3200
10th	iPEZ SNEZ	15 52 22 16 00 46	Dilatation.	6900
18th	iPZ SNE	7 57 25 8 04 52	Dilatation.	5800
21st	PNEZ SNEZ	17 58 40 18 03 44		3290
26th	iPNEZ SNE	17 15 16 17 20 03	Compression from NE.	3050
28th	PNEZ SNEZ	23 38 20 23 41 35		1910



THE GOVERNMENT OF THE PHILIPPINE ISLANDS  
DEPARTMENT OF AGRICULTURE AND COMMERCE

WEATHER BUREAU  
CENTRAL OFFICE  
MANILA



November 28th 1934.

Earthquake felt in Manila with intensity VI,  
R.-F. scale, at 12:09:35, G.M.T., November  
26th. Perceptible about one minute. Epicenter  
about 95 kilometers to the southwest in the  
China Sea ( $14^{\circ} 10' N$ :  $120^{\circ} 15' E$ ). People  
badly frightened but no serious damage. 23  
small aftershocks recorded but not felt.

Manila Observatory.



M A N I L A O B S E R V A T O R Y  
SPECIAL BULLETIN OF PRINCIPAL EARTHQUAKES  
D E C E M B E R , 1 9 3 4

9th	ePNEZ	11 25 21	4330
	SNEZ	11 31 27	
15th	PNEZ	2 04 19	Compression. 3720
	SNE	2 09 50	
15th	PNEZ	19 24 47	Dilatation. Deeper than normal. (7020)
	SNE	19 33 17	
17th	iPEZ	15 59 10	Compression. 2480
	SNE	16 04 26	
18th	PNEZ	11 34 23	1690
	SNE	11 37 18	
21st	PNEZ	12 45 46	Compression. 5130
	SN	12 52 35	
22nd	P'NEZ	14 49 07	Dilatation? 18080-
	PR <sub>1</sub> NE	14 53 50	
	LNE	15 35 ca	
23rd	PNEZ	10 13 17	3030
	SN	10 18 02	
24th	PNEZ	15 43 18	2490
	SE	15 48 00	
25th	PNEZ	6 32 52	3000
	SNEZ	6 37 35	
25th	PNEZ	7 55 08	2570
	SNE	7 59 14	
27th	iPNEZ	17 43 28	Compression. Felt in Manila with intensity IV, and at Botocan Falls, Laguna. 120-
	iSNEZ	17 43 43	
28th	PNEZ	11 34 54	8900
	SNE	11 44 49	
30th	PNE	14 11 09	4020
	SNE?	14 11 19	
31st	PNE	19 00 45	2470
	SNE	19 04 48	