

MANILA, P. I.

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY



$\phi=14^{\circ} 34' 42''$ N. $\lambda=120^{\circ} 58' 41''$ E. $h=3$ m. Alluvium.

CONSTANTS OF THE GALITZIN-WILIP

CONSTANTS OF THE WIECHERT INVERTED PENDULUM. M $\phi 55$ Kg.

January 1, 1940.

	T_1	T	μ^2	V_s
N-S	12.6	12.9	0	400
E-W	11.6	11.9	.08	229
Z	11.6	9.0		

	T_0	V	ϵ	$\frac{r}{T_0^2}$
N-S	4.2	211	2.4	0.087
E-W	4.2	268	2.8	0.086

Cf. Theoretical Seismology.
Sohn. S.J.

No. and Date	Phase	Greenwich Time			Dist. Km.	Remarks
		h.	m.	s.		
Jan. 1940 #1 1st	ePNEZ SNEZ F	0	22	22 39 25	135	Deeper than normal.
#2 1st	iPZ ePNE S?NE F	12	25	20 20 29 31 13 03	2,700?	Dilatation.
#3 2nd	eP?NE SNE F	5	05	25 08 20 30	1,700?	
#5 2nd	ePPNE LNE F	11	29	36 12 08 ca 13 36	14,710 $\frac{1}{2}$	31 $^{\circ}$ $\frac{1}{2}$ -S; 108 $^{\circ}$ $\frac{1}{2}$ -W; H=11:07.6 by USCGS.
#8 6th	ePNEZ SNEZ F	0	29	59 51 21 55	740	
#9 6th	iPZ ePE SN LN F	8	23	16 16 28 50 33 25ca 9 35	3,965	Dilatation.
#10 6th	ePNEZ SNE LNE MN F	10	46	30 49 23 50 45ca 52 ca 11 50	1,670	
#12 6th	iPZ iPE iSNE LNE MN F	14	13	34 36 21 44 32 20ca 37 25ca 17 30	6,620	Dilatation. Deep focus. Between New Hebrides and New Caledonia by Riverview and Manila. 22 $^{\circ}$ S; 170 $^{\circ}$ E by USCGS.

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.

No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
Jan. 1940 #14 7th	ePNEZ SNE LNE F	3 28 24 33 28 37 10ca 5 25	3,490	
#17 9th	iPZ ePNE S?E F	6 36 18 18 39 26 55	1,835?	Dilatation.
#19 10th	ePZ ePN SNE LNE MN F	11 23 33 37 28 47 32 30ca 35 05ca 12 46	3,640	Disturbed by microseisms.
#20 11th	ePNE SN F	10 30 48 31 42 44	440	
#21 12th	ePZ ePNE SNEZ F	17 16 32 34 17 29 37	480	Deeper than normal. Baguio 150 Km.
#24 14th	ePNEZ S?NE F	8 03 37 07 14 9 40	2,200?	Disturbed by another movemwnts.
#25 14th	eP?NE SN F	9 51 16 10 00 33 11 25	7,750?	Disturbed by another movements.
#27 14th	eP?N SNE F	13 35 25 41 13 14 17	4,180?	
#29 15th	iPZ ePNE SNE F	11 11 04 04 14 40 33	2,190	Dilatation. Deep focus.
#33 16th	ePNEZ SNEZ F	5 05 40 06 31 16	340	

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.



No. and Date	Phase.	Greenwich Time			Dist. Km.	Remarks.
		h.	m.	s.		
Jan. 1940 36 17th	iPZ PNE SNE LE F	1	20	31 34 25 16 39 55ca 5 00	3,020	Dilatation. 18°N: 148.2°E by Manila, Hong Kong and Riverview. S-P at Guam 50 seconds. Data after P from the Wiechert and Horizontals. 17°N: 148°E by USCGS.
38 17th	PNEZ SNE F	12	12	43 17 50 58	3,530	
43 19th	ePZ SE F	0	49	58 53 14 1 04	1,935	
44 19th	ePNEZ SNE ME F	5	34	38 38 47 43 25ca 6 46	2,655	
45 20th	ePNEZ S?NE F	10.	17.	31 26 35 12 30	7,530?	
46 21st	iPZ ePN iPE iSNEZ F	2	48	42 43 44 51 34 3 22	1,655	Compression. Deep focus.
47 21st	ePNEZ SNE F	4	39	18 41 42 5 00	1,390	
48 21st 22nd	iPZ ePNE SNE F	23	50	15 15 53 54 0 20	2,220	
49 23rd	iPNEZ SNE F	11	30	14 28 44	110	Dilatation. Felt at Infanta and in Manila. Data after P from the Wiechert.
52 26th	ePZ ePNE SNE F	6	51	11 13 58 45 7 42	6,010	Deep focus.

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.



No. and Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
Jan. 1940 53 26th	iPZ iPE iPN iSNE LNE F	17 08 10 11 12 14 01 19 20ca 19 25	4,255	Dilatation.
54 27th	ePNEZ SE F	14 54 56 15 01 14 40	4,690	
55 27th	ePNEZ SE F	23 05 36 07 30 20	1,080	
57 28th	ePNEZ SN F	11 10 44 12 37 21	1,070	

Twenty-eight insignificant or undecipherable disturbances on the following days of January: 2nd, 3rd, 4th, 6th(2), 7th(2), 9th, 14th(3), 15th(2), 16th(4), 17th(3), 18th, 19th, 24th, 25th, 27th, 29th, 30th, and 31st.

M A N I L A , P . I .

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.

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

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

h=3 m.

Alluvium.

CONSTANTS OF THE GALITZIN-WILIP

CONSTANTS OF THE WIECHERT INVERTED PENDULUM. M=955 Kg.
February 1, 1940

	T_1	T	μ^2	V_s
N-S	12.6	12.9	0	400
E-W	11.8	11.9	.08	229
Z	11.6	9.0		

	T_0	V	ϵ	$\frac{F}{T_0 Z}$
N-S	4.3	205	2.4	0.088
E-W	4.2	268	2.6	0.099

Cf. Theoretical Seismology.
Schoen S.J.

No.	Date	Station	Greenwich Time			Dist. Km.	Remarks.
			h.	m.	s.		
61	1st	ePNE SNEZ F	18	24	02 19 29	135	
62	1st	ePN SNEZ F	20	48	54 49 11 52	135	
64	5th	iPZ SNE	6	34	01 38 04	2,635	
65	5th	eP?Z iSNE F	7	07	48 12 53 37	3,510?	No. 64 still recording.
71	7th	iPEZ ePN iSNE LNE MNE F	17	25	40 40 33 49 43 30ca 48 ca 19 28	6,500	Dilatation. 52° N: 174.5° E by U.S.C.G.S.
73	8th	ePNEZ SNE F	15	13	40 16 10 40	1,445	
74	9th	ePNEZ SNEZ F	8	06	56 09 27 25	1,455	
77	10th	ePNE SNE F	22	44	08 45 24 57	680	Felt at Dumaguete.
81	11th	iPEZ ePN iSNEZ LNE MN F	21	30	28 28 33 22 34 50ca 36 25ca 22 08	1,690	Compression.
82	12th	ePNEZ SNE LE MNE F	0	21	27 26 07 30 35ca 32 40ca 1 17	3,120	Disturbed by microseisms.



SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.



No.	Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks
	Feb. 1940				
83	12th	iPZ ePNE LNE	8 31 59 59 41 00	8,710	Dilatation. Disturbed by microseisms
84	12th	ePNEZ SNE F	9 29 53 38 24 10 30	7,920	No. 83 still recording. Disturbed by microseisms.
85	12th	iPZ ePNE SNE LNE F	16 36 44 44 40 24 42 35ca 17 22	2,265	Dilatation. Disturbed by microseisms.
88	14th	ePNE S?N F	2 20 14 24 03 3 12	2,365?	No records on Z Component throughout the 14th.
90	14th	ePNE SE F	11 54 29 58 38 12 20	2,655	
93	16th	ePNEZ SNE MNE F	1 14 11 16 50 19 35ca 38	1,530	
95	17th	ePNEZ SNE F	1 06 54 10 03 42	1,845	
96	18th	ePNEZ SNE F	10 43 30 46 52 55	2,010	
99	20th	iPZ iPNE iNEZ iSNE LNE MNE F	2 27 26 28 28 30 34 45 41 30ca 45 45ca 4 40	5,610	Compression. 12°S; 167°E by USCGS.
100	20th	ePNE SN LNE F	13 06 16 13 52 22 ca 14 40	6,000	
102	21st	ePNEZ iSN F	13 28 41 32 51 14 02	2,665	Deep focus.
103	22nd	iPNEZ iSNEZ F	13 32 06 33 09 14 37	510	Compression. Felt in northern Luzon. About 19° 10' N; 121° 15' E by Manila and Hong Kong.

M A N I L A , P . I .

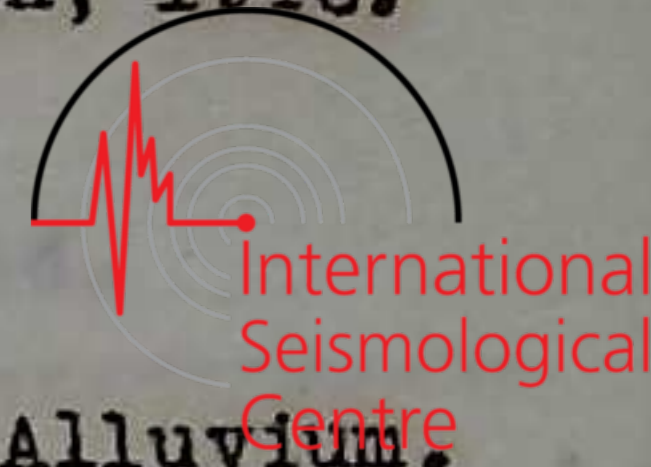
SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.



No.	Date	Phase	Greenwich Time h. m. s.	Dist. Km.	Remarks.
	Feb. 1940				
104	24th	ePNEZ SNE iNE LNE F	12 05 52 10 28 12 13 13 05 14 10	3,065	
109	27th	ePNEZ SNEZ iE iN LNE F	19 15 23 19 20 20 40 54 21 40ca 20 45	2,490	
110	28th	ePNEZ SNEZ F	13 13 23 14 57 22	880	
111	28th	ePNEZ SNE iN F	19 37 09 40 01 41 15 50	1,630	
112	29th	PNEZ iSN eSE iN MN ME F	16 20 25 30 57 57 31 23 54 30ca 58 ca 17 45	9,460	

Twenty-five insignificant or undecipherable disturbances on the following days of February: 4th, 5th(2), 6th(2), 7th, 8th, 9th(2), 10th, 11th(2), 13th, 14th(5), 15th, 16th, 18th, 19th, 20th, 25th(2), 26th, and 27th.

MANILA, P. I.
SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.



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

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

$h=3$ m.

Alluvium.

CONSTANTS OF THE
GALITZIN-WILIP

	T_1	T
N-S	12.6	12.9
E-W	11.8	11.9
Z	11.6	9.0

CONSTANTS OF THE WIECHERT
INVERTED PENDULUM. M 955 Kg.
March 1, 1940.

	T	V	ϵ	$\frac{-T}{T_0} Z$
N-S	4.3	202	2.5	0.079
E-W	4.2	275	2.4	0.093

No.	Date	Phase.	Greenwich Time			Dist. Km.	Remarks.
			h.	m.	s.		
113	1st	ePNEZ SNE F	10	43	47 48 08	520	
116	2nd	ePNEZ SNE F	6	35	21 27 10	580	Felt in the eastern part of Visayas
117	3rd	ePN iSNE F	0	15	21 13 40	6,320	Near 17° S: 165° E by Riverview and Manila. P in E and Z components lost in changing records.
119	3rd	iPZ ePNE iSN LN F	12	03	26 26 15 45ca 13	3,250	
121	4th	iPZ ePNE SNEZ F	15	49	48 48 49 23	2,545	
125	6th	iPZ ePNE SN LNE F	18	34	30 30 06 ca 45	8,220	Dilatation.
127	9th	iPZ ePNE SNE F	10	51	22 22 27 10	1,810	Dilatation.
130	10th	ePNEZ SNE F	10	12	28 29 32	630	
132	12th	ePNEZ SNEZ F	22	19	44 52 19	600	Approx. 20° N: 121° E by Manila and Hong Kong. Felt in northern Luzon.
133	12th 13th	ePNEZ SNEZ F	23	56	36 27 10	420	Felt at Prieto-Diaz, Sorsogon.

MANILA, P. I.

SEISMOLOGICAL BULLETIN OF THE OBSERVATORY.--Continued.



No.	Date	Phase.	Greenwich Time			Dist. Km.	Remarks.
			h.	m.	s.		
137	Mar. 1940 14th	ePEZ	18	34	14	8,190	In region of New Zealand by River- view and Manila.
		ePN			18		
		iSNE		43	52		
		LNE		58	40ca		
		MNE	19	05	ca		
		F	21	15			
139	15th	ePNEZ	5	33	23	2,880	
		SN		37	47		
		LE		40	30ca		
		ME		43	ca		
		F	7	10			
141	16th	ePEZ	17	29	25	150	Felt at Iba, Zambales.
		SNE			44		
		F		38			
146	19th	iPEZ	4	44	44	5,520	
		iSN		51	50		
		LE	5	00	ca		
		F		52			
147	19th	ePNEZ	10	52	25	3,365?	
		S?NE		57	33		
		F	12	10			
150	21st	iPEZ	13	58	45	3,730	Compression.
		ePN			45		
		iSNE	14	04	04		
		LNE		08	05ca		
		MNE		11	05ca		
		F	16	00			
151	22nd	ePNEZ	20	31	32	8,980	
		SN		41	40		
		LN		52	30ca		
		MNE		59	ca		
		F	22	00			
153	27th	iPZ	12	41	20	6,620	Compression. 51°N: 180° by U.S.C.G.S
		ePNE			22		
		iSNE		49	34		
		LNE	13	00	ca		
		ME		04	50		
		F	14	38			
155	28th	ePNEZ	14	18	26	410	Felt at Virac, Catanduanes and Naga, Camarines Sur.
		SNEZ		19	17		
		F		47			
156	28th	iPNEZ	15	49	22	175	Compression. Epicenter probably to the SW. Felt in southwestern Luzon, Mindoro, Culion and Marinduque. S from Horizontal Pendulums.
		S			44		
		F	18	20			
161	29th	ePNEZ	21	43	12	3,920	
		SNE		48	43		
		LNE		53	50		
		F	22	25			



No.	Date	Phase.	Greenwich Time h. m. s.	Dist. Km.	Remarks.
162	Mar. 1940 30th	ePZ ePNE SNE F	4 18 59 59 19 21 27	175	
163	30th	iPZ ePNE SNE INE F	6 26 50 50 31 06 33 20 7 43	2,630	
164	30th	ePNE SNE F	8 42 51 43 36 9 13	350	Felt in northern part of Luzon. Z cylinder stopped at 7:38.
165	30th	ePNE SNE F	13 00 51 01 13 07	175	
167	30th	ePNE SNE F	21 36 37 37 00 44	180	

Thirty insignificant or undecipherable disturbances on the following days of March: 1st(2), 3rd, 4th(2), 5th, 6th, 7th, 9th(2), 11th, 13th, 14th(2), 15th(2), 17th(2), 18th(2), 19th, 21st, 25th, 27th, 29th(4), 30th, and 31st.

February 12th, 8:31:59
Near 22°S: 176°E by Riverview and Manila.

February 20th, 2:27:26
13°S: 162°E by Riverview and Manila.