



TOKYO JAPAN.

L. & G. SUNDAY
L & A
JUL 15 1921
Acc. No.

SEISMIC BULLETIN

of the Central Meteorological Observatory of Japan.

$\phi = 35^\circ 41' 06''$ $\lambda = 139^\circ 45' 04''$ $h = 21.3$ m Underground :

Instruments: Wiechert Astatic Inverted Pendulum. 10
 Omori Horizontal Pendulum.

	T_0	ϵ	$\frac{r}{T_0^2}$	V
A_N :	3.0	3.2	0.0001	117
A_E :	3.0	5.2	0.0001	129
A_H :	17.7	-	0.007	20

Omori

No.	Date		Phase	Time			Period	Amplitude			Δ	Remarks
	Day	Month		h	m	s		A_N	A_E	A_z		
							μ	μ	μ	km.		
1	2	Janu	P	7	09	10					300	
			S		10	10						
			L		11	19						
			MN		11	30	1.1	129				
			ME		11	30	0.9		155			
			MN		13	11	1.4	145				
			ME		13	12	1.3		193			
			MN		13	52	3.1	252				
			ME		13	52	4.0		160			
			CH		15	03	1.4	100				
			CE		15	05	3.5		90			
			CH		15	56	1.1	-51				
			CH		15	55	1.9		11			
			CN		18	44	2.7	-17				
CE		18	45	2.5		-14						
F		22	55									
2	3		P	12	25	11					230	
			S		25	28						
			L		25	42						
			MN		25	44	0.7	-21				
			ME		25	45	-		18			
			CH		25	59	0.3	-8				
			CH		26	02	0.4		6			
			F		26	35						
3	5		P	13	28	03						
			L		28	40						
			MN		28	41	1.4	14				
			ME		28	42	2.1		-12			
			F		33	13						
4	7		P	9	52	54						
			eS		56	23						
			eL		58	44						
			H		58	59	0.9		500			
			ME	10	02	24	11.4		344			
			CH		04	59	10.3		-115			
			MP		11	12						

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Underground:

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Omori Horizontal Pendulum.

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A_E A_Z :	17.7	-	0.007	20

No.	Date		Phase	Time			Period	Amplitude			Δ	Remarks
	Day	Month		h	m	s		A_N	A_E	A_Z		
5	7	Jan	P	19	54	13					98	
			L		54	27						
			MN		54	27			21			
			ME		54	29				17		
			MN		54	34			-11			
			ME		54	35	0.6			8		
			F	57	48							
6	8		P	21	39	45						
			L		39	55						
			MN		39	55	1.0		19			
			ME		39	56	0.7			-18		
					43	41						
			F									
7	9		P	18	57	05					109	
			L		57	30						
			MN		?							
			ME		?							
			CN	19	13	12	2.1		-98			
			CE		13	14	2.3			70		
			CN		17	24	3.1		24			
			CE		17	25	4.2			35		
					23	14						
			F									
8	14		P	7	12	14						
			S		-							
			eL		21	03						
			ME		21	51	8.9			-54		
			ME		22	11	7.3		31			
			F		34	44						
9	25		P	3	08	24					111	
			L		08	39						
			MN		08	41	2.1		23			
			ME		08	40	1.3			17		
					14	54						
			F									

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Omori Horizontal Pendulum.

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A_E :	3.0	3.2	0.0001	129
A_{AE} :	17.7	-	0.007	20

Omori

No.	Date		Phase	Time			Period	Amplitude			Δ km.	Remarks
	Day	Month		h	m	s		A_N μ	A_E μ	A_z μ		
10	25	Jan	P	10	29	17						
			cL		29	48						
			MN		29	50	-	18				
			ME		29	51	-		-12			
			F		31	04						
11	30		P	10	49	16						
			cL		49	25						
			MN		49	25	-	-18				
			ME		49	25	-		19			
			F		55	55						

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Ômori Horizontal Pendulum.

Omori

	T_0	ϵ	$\frac{r}{T^2}$	V
A_N :	3.0	3.2	0.0001	117
A_E :	3.0	3.2	0.0001	129
A_H :	17.7	-	0.007	20
A_z :				

No.	Date		Phase	Time			Period	Amplitude			Δ	Remarks
	Day	Month		h	m	s		A_N	A_E	A_z		
12	1	Feb	P	0	07	51		μ	μ	μ	km. 135	
			L		08	09						
			ME		08	12	0.8		80			
			MN		08	14	1.2	-71				
			CN		09	10	1.0	14				
			CE		09	13	1.1		11			
F		13	20									
13	5		P	5	02	29						
			eL		02	42						
			MN		02	45	0.8	9				
			ME		02	46	1.4		-11			
			CN		03	00	1.0	4				
			CE		03	01	1.1		6			
F		05	55									
14	5		P	18	00	42						
			eL		01	01						
			MN		01	01	0.8	8				
			ME		01	02	1.1		-6			
			F		01	36						
15	6		eP	4	32	21						
			eL		36	15						
			eMN		37	44	2.8	18				
			ME		37	44	3.1		-21			
			MN		38	18	2.9	11				
			ME		38	28	3.1		9			
			eCN		40	19	3.6	5				
			eCE		40	43	3.4		-5			
eF		45	54									

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Underground:

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Omori Horizontal Pendulum.

Omori

	T_0	ϵ	$\frac{r}{T_0^2}$	V
A_N :	3.0	3.2	0.0001	117
A_E :	3.0	3.2	0.0001	129
A_{Az}^{AE} :	17.7	-	0.007	20

No.	Date		Phase	Time			Period	Amplitude			Δ	Remarks
	Day	Month		h	m	s		A_N	A_E	A_z		
16	8	Feb	P	2	37	04					km.	
			S		37	10						
					37	18						
			ME		37	18	0.4		15			
			MN		37	18	0.6	-11				
F		39	25									
17	9		P	15	17	44					52	
			S		17	47						
			L		17	51						
			MN		17	51	-	-8				
			ME		17	51	-		9			
			F		19	11						
18	10		P	6	18	19					82	
			L		18	29						
			MN		18	29	-	8				
			ME		18	30	-		6			
			F		20	15						
19	10		P	23	58	10					1880	Is, Mar'ana
			OS		59	00						
			L	24	01	04						
			ME		02	18	2.4		85			
			MN		02	20	3.0	51				
			ME		03	09	3.0		-97			
			MN		03	11	2.9	69				
			ME		03	28	2.2		90			
			MN		03	31	2.4	-59				
			ME		09	35	2.6		73			
			MN		05	35	2.6	70				
			CE		07	09	2.8		-67			
			CE		07	13	2.7		-59			
			CE		08	24	3.8		-47			
			CN		08	33	2.9	30				
			CE		10	36	3.4		16			
CN		10	41	2.2	-10							
CE		12	45	3.6		-11						
CE		13	53	3.9		9						
CE		14	36	3.9		8						
F		43										

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h = 21.3 m

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Ômori Horizontal Pendulum.

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A_N :	3.0	3.2	0.0001	117
A_E :	3.0	3.2	0.1	129
A_z A_E :	17.7	-	0.007	20

Omori

No.	Date		Phase	Time			Period	Amplitude			Δ km.	Remarks
	Day	Month		h	m	s		A_N μ	A_E μ	A_z μ		
20	12	Feb	P	21	41	35						
			L		41	53						
			MN		41	54	2.0	24				
			ME		41	55	1.4		-21			
			F		45	50						
21	13		P	22	47	56					31	
			L		48	02						
			MN		48	02	0.3	40				
			ME		48	02	-		38			
			F		49	40						
22	13		P	23	42	59						
			eL		43	56						
			MN		43	49	2.4	51				
			eNE		43	51	2.1		-64			
			F		46							
23	14		eP	1	08	18						
			eL		02	45						
			eMN		02	51	2.4	34				
			eME		02	54	2.5		40			
			F		14	25						
24	14		P	3	00	39					109	
			L		00	53						
			MN		00	54	0.5	-2400				
			ME		00	54	0.2		-1080			
			MN		01	44	2.0	-344				
			ME		01	41	1.7		160			
			F		08	20						
25	14		P	8	26	31					32	
			L		26	42						
			MN		26	46	1.4	210				
			ME		26	47	1.6		200			
			F		28	40						



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A_N :	3.0	3.2	0.0001	117
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Omori A_z : AE	17.7	-	0.007	20



No.	Date		Phase	Time			Period	Amplitude			Δ	Remarks
	Day	Month		h	m	s		A_N	A_E	A_z		
											km.	
32	19	Feba	P	18	21	18					124	
			S		21	29						
			L		21	55						
			ME		21	56	0.4		-35			
			MN		21	57	0.7	-34				
F		25	50									
33	19		P	21	01	21					27	
			L		01	25						
			MN		01	25		6				
			ME		01	25			-5			
			F		01	51						
34	24		P	8	58	26					49	
			L		58	32						
			MN		58	32	-	4				
			ME		58	32			5			
			F		58	50						
35	24		P	21	53	14					64	
			L		53	23						
			MN		53	25	1.2	43				
			ME		53	23	0.8		44			
			F		55	30						
36	25		P	11	55	11						
			eL		55	22						
			MN		55	22	-	11				
			ME		55	22	-		9			
			F		58							
37	25		P	15	33	11					165	
			S		33	24						
			L		33	54						
			MN		33	59	1.8	-19				
			ME		33	50	1.2		21			
			MN		33	55	1.4	15				
			ME		34	01	1.6		11			
			F		36	25						

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	T_0	ϵ	$\frac{r}{T_0^2}$	V
AN:	3.0	3.2	0.0001	117
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AE: AZ:	17.7	-	0.007	20

No.	Date		Phase	Time			Period	Amplitude			Δ	Remarks
	Day	Month		h	m	s		AN	AE	Az		
38	26	Feb	P S L MN ME CE CN F	12	14	30					67	
					14	35						
					14	39	0.2	41				
					14	39	0.6		34			
					15	44	0.8		12			
					15	45	1.1	-7				
					17							
39	27		P S L ME MN C CF	18	34	52						
					44	09						
					?							Near Ūs, Samoa
					46	14	4.1		37			
					46	09	3.2	-10				
					?							
				19	44							
40	28		P L MN ME CN CE eF	9	29	24					121	Felt only Cope Awa
					29	41						
					29	41	0.7	31				
					29	41	0.8		-29			
					29	58	1.0	18				
					29	59	0.9		10			
					32	10						
41	March 1		eP L ME MN F	2	21	59						Felt at Ka- nayama (NE Japan)
					22	11						
					22	21	0.9		10			
					22	22	0.8	-9				
					24	18						
42	3		P F M F	3	02	57					194	Felt stron- ly. Eqke of N, part Iwaki. Maxima lost by the force of the shock.
					03	23						
					-	-						
					-	-						

* F on next earthquake.

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AN:	3.0	3.2	0.0001	117
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Omori AAE	17.7	.	0.007	20

No.	Date		Phase	Time			Period	Amplitude			Δ km.	Remarks
	Day	Month		h	m	s		AN	AE	Az		
43	3	March	eP	3	21	41					Felt at Mito. (N part Iwaki)	
			eL		22	06						
			ME		22	10	-					
			MN		22	08	-	-66	-32			
			eF		32	54						
44	4		P	1	19	50					208 {E. part of Iwaki.) Nat felt in Land.	
			eL		20	18						
			ME		20	47	1.6		59			
			MN		20	48	1.4	40				
			ME		21	57	2.0		61			
			MN		21	57	2.1	87				
			ME		21	57	1.9		57			
			MN		23	20	2.1	46				
			CN		26	27	4.8	-33				
			F		33	05						
45	3		e	8	27	42				Near New Guinea.		
46	4		P	12	52	36					542 (Off the SSE. sea of Is, Hch- jo.)	
			S		53	10						
			L		53	50						
			MN		53	52	0.7	-320				
			ME		53	51	0.8		168			
			MN		55	23	2.5	107				
			ME		55	22	2.5		100			
			MN		57	08	2.8	77				
			ME		57	11	3.1		87			
			CE	13	00	52	3.7		53			
F		08	55									
47	6		P	1	39	37					500 Felt at Hak- odate. (Off the eas- teran coast of Mutsu)	
			eL		40	45						
			MN		40	59	1.4	-97				
			ME		41	00	1.6		-32			
			MN		42	01	2.1	49				
			ME		42	02	2.4		41			
			CN		43	29	2.2	27				
			CE		44	34	2.3		20			
			F		50	49						

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	Day	Month		h	m	s		AN	AE	Az		
48	7	Mar	P	14	30	06					69	(Near Tsukuba.)
			L		30	16						
			MN		30	16	-	67				No felt.
			ME		30	17	-		59			
			F		31	28						
49	9		P	16	37	30					417	Felt at Na-
			L		38	26						goya.
			MN		38	26	-	39				(Near River
			ME		38	26	-		55			of Yahagi.)
			F		38	50						
50	14		P	17	51	48						Felt Tsukuba.
			eL		51	10						(Near Tsukuba,
			MN		51	14	0.7	19				
			ME		51	28	0.5		45			
			F		54	40						
51	15		P	5	30	04					97	(Lake Kasumi-
			L		30	16						gawra, Near)
			MN		30	17	1.2	15				
			ME		30	22	1.0		16			
			F		32	25						
52	15		P	4	32	29					341	Felt Tokyo. Yo-
			L		32	45						hama. Asio. and
			ME		33	17	1.4		144			Mout, Tsukuba.
			MN		33	17	1.5	197				(Near Is, Izu
			ME		34	09	1.8		880			sitito.)
			MN		34	10	1.1	910				
			CE		34	51	1.9		21			
			CN		34	51	2.1	24				
			F		38	40						
53	18		P	23	32	03					37	(Seems a No felt.
			L		32	08						near shock)
			MN		32	09	-	5				
			ME		32	09	-		6			
			F		33	20						



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	Day	Month		h	m	s		s	AN	AE			Az	
											μ	μ	μ	km.
54	19	March	P	11	17	42							Seems to a local shock. (Near shock.)	
			eL	?	17	48								
			ME		17	48	-		15					
			MN		17	49	-	11						
			F		19	25								
55	20		P	12	00	51					67	(Near Tsukuba Mount) Seem to a local shock. No felt.		
			L		01	00								
			ME		01	02	0.4		23					
			MN		01	02	0.9	16						
			F		02	20								
56	20		P	20	54	10					74	(Near of Lake, Kasumigawra) A local shock. no felt.		
			L		54	20								
			MN		54	21	0.9	45						
			ME		54	40	1.7		170					
			F		57	30								
57	24		P	14	47?	Time	signal not working.						(Near Is, Chishima (Shimizu) Clear record.	
			S		49	07								
			L		51	05								
			MN		51	16	3.8	179						
			ME		51	32	2.4		147					
			MN		52	27	2.1	338						
			ME		52	41	2.8		-100					
			MN		53	50	1.7	-109						
			ME		54	48	2.8		-27					
			ME		55	59	2.8		-93					
			F	15	57									
58	25		P	23	20	55					51	(Near of Lake, kasumigawra) Felt lightly at Mt. Tsukuba. A local shock.		
			eL		20	06								
			eMN		20	08	2.1	21						
			eMN		20	09	2.2							
			eF		24	20								

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 $\lambda = 139^{\circ} 45'' 04''$
 $h = 21.3 \text{ m}$

Underground :

Instruments: Wiechert Astatic Inverted Pendulum.

Omori Horizontal Pendulum.

Omori

	T_0	ϵ	$\frac{r}{T_0^2}$	V
AN:	3.0	3.2	0.0001	117
AE:	3.0	3.2	0.0001	129
Az:	17.7	-	0.007	20

No.	Date		Phase	Time			Period	Amplitude			Δ km.	Remarks	
	Day	Month		h	m	s		AN	AE	Az			
59	27	March	P	21	32	55					76	Felt at Tsukuba. (A local shock) Near Lake, Kasuma- igawa.	
			L		33	06							
			MN		33	06	0.8	88					
			ME		33	06	0.8		97				
			F		37	10							
60	29		P	16	13	04					74	Seems to be a local, shock.	
			L		13	05							
			MN		13	05	1.1	-15					
			ME		13	05	1.2		-16				
			F		14	50							
61	23		e	22	14	06						coast of Kamchatka.	
			eL		19	28							
			eF		58								
62	30		P	15	09	56						Near New-G- inia.	
			S		16	25							
			L		?								
			eF		25								
63	1	April	eP	4	14	59	(Omori	Pendulum)					Near Carol- ine Islands.
			S		26	45							
			L		36	47							
			ME		37	28	8.0		-100				
			ME		41	33	7.0		-155				
			ME		42	13	6.2		-150				
			ME		44	32	6.4		-100				
			ME		45	04	6.9		-90				
			CE		48	43	7.8		-50				
			CE		51	41	6.7		-47				
			CE		54	43	5.6		-35				
			CE		57	01	5.6		20				
			F	5	20								

TÔKYÔ JAPAN.



SEISMIC BULLETIN

of the Central Meteorological Observatory of Japan.

$\varphi = 35^{\circ} 41'' 06''$

$\lambda = 139^{\circ} 45'' 04''$

$h = 21.3 \text{ m}$

Underground :

Instruments :

Wiechert Astatic Inverted Pendulum.

Omori Horizontal Pendulum.

	T_0	ϵ	$\frac{r}{T_0^2}$	V
AN:	3.0	3.2	0.0001	140
AE:	3.0	3.2	0.0001	155
Az:				
Omori AE	17.7	-	0.007	20

No.	Date		Phase	Time			Period	Amplitude			Δ	Remarks
	Day	Month		h	m	s		AN	AE	Az		
64	1	April	P iS L ME ME CE F	12	09 15 24 26 30 37	44 19 14 38 12 31	(Omori Pendulum) 16.0 18.4 12.0				km.	Seems to be near Mindanao.
65	2		P S L ME ME ME MN MN MN MN CE CE CN CN CN F	9	40 43 44 44 45 46 44 45 46 46 47 48 47 47 48	59 25 24 54 35 32 42 19 01 27 22 42 18 43 10	2.5 2.3 4.0 2.0 4.2 2.3 1.8 4.3 4.3 2.1 4.3 3.3	-25 28 -13 -53 -63 55 27 -15 -10 9	-27 -27 8	8 3	1660	Felt strongly at Is, Isigaki. (Near Is, Isigaki.)
66	2		P L MN ME F	23	07 07 07 07 09	34 48 48 52 25	- 0.4	7	5			A local shock. Seems to be a near shock.
67	4		P eS eL MN MN F	9	47 48 48 48 48 53	52 00 06 15 56	1.0 1.4	-41	24			Felt at Mount Tsukuba, a local shock (Near River Nakagawa)



TOKYO JAPAN.

SEISMIC BULLETIN

of the Central Meteorological Observatory of Japan.

$\phi = 35^{\circ} 41'' 06''$ $\lambda = 139^{\circ} 45'' 04''$ $h = 21.3 \text{ m}$ Underground:

Instruments: Wiechert Astatic Inverted Pendulum.
 Omori Horizontal Pendulum.

	T_0	ϵ	$\frac{r}{T_0^2}$	V
AN:	3.0	3.2	0.0001	140
AE:	3.0	3.2	0.0001	155
Az:				20
Omori AE	17.7	-	0.007	

No.	Date		Phase	Time			Period	Amplitude			Δ	Remarks
	Day	Month		h	m	s		s	AN	AE		
68	7	April	P L ME MN F	13	50	45					km.	Seemes a local shock. (Near Lake, Kasumigawura. No felt.)
69	8		eP eS eL eME eF	4	53	30						Felt at Hakodate and in the N, part of Honsuu. (Off the eastern coast of Rikuoku)
70	11		P L ME MN eF	12	02	54						Felt strongly. (N part of Bay, Tokyo.)
71	17		P L ME MN MN F	16	33	57						Felt lightly. (W part of Simoosa.)
72	18		P S L MN F	18	00	50						Far off in the coast of Iwaki. No felt in Land.
73	19		e eRF	0	17	42						Time uncertain. Record scant and difficult to interpret. (Far off the coast SE of Hokkaido)
74	24		eP eL MN ME F	12	05	55						Felt lightly at Tsu(Y-se). (Near Matuzaka(Y-se). Local Quake.)

TÔKYÔ JAPAN.

SEISMIC BULLETIN

of the Central Meteorological Observatory of Japan.

 $\phi = 35^{\circ} 41' 06''$
 $\lambda = 139^{\circ} 45' 04''$
 $h = 21.3 \text{ m}$

Underground :

Instruments : Wiechert Astatic Inverted Pendulum.

Omori Horizontal Pendulum.

	T_0	ϵ	$\frac{r}{T_0^2}$	V
AN:	3.0	3.2	0.0001	140
AE:	3.0	3.2	0.0001	155
Omori AZ:	17.7	-	0.007	20

No.	Date		Phase	Time			Period	Amplitude			Δ km.	Remarks
	Day	Month		h	m	s		AN	AE	Az		
75	27	April	P	13	21	40					Felt lightly. Seems to be a near shock.	
			L		21	44						
			MN		21	44	0.8	28				
			ME		21	44	0.9		-27			
			F		24	0						
76	30		P	6	52	24					Near Mount Tsukuba. Felt lightly at Tsukuba. seems to be a local shock.	
			L		52	34						
			MN		52	35	0.8	21				
			ME		52	34	0.4		20			
			F		54	44						
77	1	May	P	18	35	01					57 Near Lake, Kasunigawra. Seems local shock. no felt in land.	
			L		35	08						
			MN		35	12	0.7	26				
			ME		35	09	-		19			
			MN		35	22	0.5	-28				
			CN		35	40	0.9	-9				
			F		39	10						
78	4		e	5	07	50					No definite phases.	
			eF		20							
79	5		e	18	28	50					Phases lost by pulsatory oscillations during the day. Felt lightly at Utsumomiya and Tsukuba. seems to be a local shock. (near Mito.)	
			eL		29	08						
			cF		-							

TÔKYÔ JAPAN.



SEISMIC BULLETIN

of the Central Meteorological Observatory of Japan.

 $\phi = 35^{\circ} 41'' 06''$ $\lambda = 139^{\circ} 45'' 04''$

h = 21.3 m

Underground :

Instruments :

Wiechert Astatic Inverted Pendulum.

Omori Horizontal Pendulum.

	T_0	ϵ	$\frac{r}{T_0^2}$	V
AN:	3.0	3.2	0.0001	140
AE:	3.0	3.2	0.0001	155
Omori AAE	17.7	-	0.007	20

No.	Date		Phase	Time			Period	Amplitude			Δ	Remarks
	Day	Month		h	m	s		AN	AE	Az		
80	11	May	P S L ME ME CE F	12	29	54					204	(Eastern part of Iwaki.) Felt strongly in Kanayama.
81	12		e	3 4	57 25							No definite phases. (Very distant.)
82	12		P eL MN F	18	21 22 22 23	44 00 01 20	1.0	9				Far off eastern coast of Bōsō.
83	13		P L ME MN F	11	52 52 53 53	51 59 00 00	0.6	-7		-9		Felt strongly at Yokohama. (Near Sagami.)
84	13		P L ME ME F	11	53 53 53 54 59	30 37 37 01 15	0.4 1.2			-1250 -395		(Near Sagami.) Maxima lost by the force of the shock. E maxima from Omori Pendulum. Felt strongly in Tokyo yokosuka yokohama.
85	14		e	12	26	27						(Very distant.) Near Is, Mindanao?
86	17		eP eS eL eMN ME eMN MN ME	23	20 21 24 24 24 28 29 30	16 59 38 54 59 48 59 14	6.3 2.4 7.3 6.0 4.1	14 13 11				Phases lost by pulse oscillations during the day. Reported by the observer felt at Nase and S, Cope of Kyūshū.

TOKYO JAPAN.

SEISMIC BULLETIN

of the Central Meteorological Observatory of Japan.

 $\phi = 35^{\circ} 41' 06''$
 $\lambda = 139^{\circ} 45' 04''$
 $h = 21.3 \text{ m}$

Underground :

Instruments : Wiechert Astatic Inverted Pendulum.

Omori Horizontal Pendulum.

	T_0	ϵ	$\frac{r}{T_0^2}$	V
AN:	3.0	3.2	0.0001	140
AE:	3.0	3.2	0.0001	155
Omori AE	17.7	-	0.007	20

No.	Date		Phase	Time			Period	Amplitude			Δ	Remarks
	Day	Month		h	m	s		AN	AE	Az		
				h	m	s	s	μ	μ	μ	km.	
			CN	23	32	47	8.0	7				
			CN		35	01	7.7	8				
			F		50							
87	18	May	P	7	16	51					83	Seems to be
			S		17	00						a local shock.
			L		17	05						(Near Mount
			MN		17	06	--	-10				Tsukuba)
			ME		17	07	-		9			
			F		19	10						
88	20		P	1	52	31						Record diff-
			eF	2	14							icult to in-
												terpret.
89	20		eP	4	39	57						(P uncertain by pulsatory oscillations duri-
			S		41	18						ng the day.
			eL		42	24						
			MN		42	30	5.3	42				Near Is, Hac-
			ME		42	51	3.4		-27			hizyo.
			MN		44	38	4.0	-30				
			ME		43	43	4.9		-26			
			MN		45	46	4.6	28				
			MN		47	01	5.6	21				
			CN		48	47	4.6	4				
			CN		49	58	3.6	6				
			CN		51	19	5.3	3				
												End overtaken by following earthquake.
90	20		eP	5	06	29						(P and F uncertain by pulsatory)
			S		07	38						osillations during the day.
			L		-							Off the
			ME		09	31	3.8		15			coast of
			MN		09	55	5.4	-32				Hamamatsu.
			ME		10	31	4.7		-11			(No felt in
			ME		11	12	5.3		14			land.)
			MN		11	18	5.4	-15				
			MN		12	06	4.1	-13				
			CN		13	59	3.8	-7				
			eF	6	20							

TÔKYÔ JAPAN.

SEISMIC BULLETIN

of the Central Meteorological Observatory of Japan.

 $\varphi = 35^{\circ} 41'' 06''$ $\lambda = 139^{\circ} 45'' 04''$

h = 21.3 m

Underground :

Instruments : Wiechert Astatic Inverted Pendulum.

Omori Horizontal Pendulum.

	T_0	ϵ	$\frac{r}{T_0^2}$	V
AN:	3.0	3.2	0.0001	140
AE:	3.0	3.2	0.0001	155
Omori AE	17.7	-	0.007	20

No.	Date		Phase	Time			Period	Amplitude			Δ	Remarks
	Day	Month		h	m	s		AN	AE	Az		
91	21	May	P	2	28	18					61	Near Mount, Tsukuba. Seems to be a local shock.
			L		28	26						
			MN		28	26	-	7				
			ME		28	27	-		6			
			F		29	50						
92	21		P	8	48	00						Off the eastern coast of Is. Mani- ra.
			S		53	20						
			eL		57	28						
			MN		58	00	4.6	41				
			ME		58	17	3.5		-18			
			MN		59	43	7.7	23				
			ME		59	47	6.0		-12			
			MN		9	00	23	7.2	-22			
			ME		00	37	8.3		-13			
			MN		01	24	6.9	18				
			ME		03	09	8.0		-10			
			CE		06	24	7.5		-8			
			CN		03	40	5.5	12				
			CE		07	41	6.4		-9			
CE	12	49	5.6		7							
CE	16	38	6.1		-6							
			F		55							
93	21		P	22	30	01					Off the S; coast of Is, chisima (Ku- rile Islan- ds)	
			S		33	20						
			eLE		35	13						
			LN		-							
			MN		34	49	5.2	44				
			ME		35	34	5.0		32			
			MN		35	57	5.2	-43				
			ME		37	39	3.8		23			
			MN		39	29	7.6	-30				
			ME		40	13	6.3		-22			
			MN		41	41	9.5	-29				
			ME		41	45	6.7		-19			
			MN		43	12	9.9	25				
			ME		43	42	6.8		15			
			MN	44	07	8.8	21					

TÔKYÔ JAPAN.

SEISMIC BULLETIN

of the Central Meteorological Observatory of Japan.

 $\varphi = 35^{\circ} 41' 06''$
 $\lambda = 139^{\circ} 45' 04''$
 $h = 21.3 \text{ m}$

Underground:

Instruments: Wiechert Astatic Inverted Pendulum.

Omori Horizontal Pendulum.

Omori

	T_0	ϵ	$\frac{r}{T_0^2}$	V
AN:	3.0	3.2	0.0001	140
AE:	3.0	3.2	0.0001	155
AE Az:	17.7	-	0.007	20

No.	Date		Phase	Time	Period	Amplitude			Δ	Remarks		
	Day	Month				AN	AE	Az				
				h	m	s	s	μ	μ	μ	km.	
			MN	22	46	53	8.8	-14				
			ME		50	01	8.3		13			
			CN		50	54	9.5	-15				
			CN		54	41	10.6	-16				
			CE		56	55	7.7		-3			
			CN		57	27	9.6	15				
			CN		59	35	9.3	11				
			CN	23	02	06	9.2	-10				
			CN		03	27	9.3	9				
			CE		04	20	8.7		-4			
			CN		05	11	9.2	-10				
			CN		06	58	9.8	9				
			CN		09	37	6.4	-6				
			CE		09	54		3				
			CN		10	41	-4					
			CN		13	52	5					
			CN		14	43	-6					
			F	24	25							
94	22		P	23	11	39					316	Off the W, coast of Is, Hamachizyo.
			L		12	22						
			S		11	50						
			MN		12	26	0.6	22				
			ME		12	24	0.4		13			
			MN		13	04	2.4	-12				
			ME		13	09	3.5		11			
			MN		13	43	3.5	14				
			ME		13	39	3.2		-5			
			MN		14	11	3.2	-7				
			ME		14	28	2.3		-5			
			CN		14	48	4.1	-4				
			CE		15	48	4.4		-2			
			F		19	30						
95	22		P	23	31	15						Seems to be a near shock. (Slight record)
			L		31	22						
			MN		31	23	-	1				
			ME		31	23	-		2			
			F		32							

TÔKYÔ JAPAN.

SEISMIC BULLETIN

of the Central Meteorological Observatory of Japan.

 $\varphi = 35^{\circ} 41'' 06''$
 $\lambda = 139^{\circ} 45'' 04''$
 $h = 21.3 \text{ m}$

Underground :

Instruments : Wiechert Astatic Inverted Pendulum.

Omori Horizontal Pendulum.

Omori

	T_0	ϵ	$\frac{r}{T_0^2}$	V
	3.0	3.2	0.0001	140
AN:	3.0	3.2	0.0001	155
AE:				
AE: Az:	17.7	-	0.007	20

No.	Date		Phase	Time		Period	Amplitude			Δ km.	Remarks
	Day	Month		h	m		AN	AE	Az		
96	23	May	eP eF	4 ^h 5	18 ^m 10	51	(No distinct phases)				Seems to be near Is. Mariana.
97	23		eP eL MN ME eF	12	14 15 16 16 28	48 33 3.2 3.8	30		-4		P and L uncertain by pulsatory osci- llations during t- he day. (Off the coast of Rikuchyu (NE Japan))
98	27		P L MN ME MN ME F	19	17 18 18 18 18 21	46 08 09 11 51 59	0.7 17		11 -8	159	Off the coast of Yzu. (No felt in Land)
99	28		e	19	30		(Record difficult to interpret. Very distant (pr obably in near Marshall Islands))				
100	29		e eF	21 22	49 02	20	Waves not clearly present. (Nothing on Wiechert Pendulum) Very distant.				
101	30		P L MN ME F	20 20 20 20 27	25 25 28 25 40	34 43 48 51 40	0.4 9		9		Seems to be near Mount Tsukuba.

TOKYO JAPAN.

SEISMIC BULLETIN

of the Central Meteorological Observatory of Japan.

 $\phi = 35^{\circ} 41'' 06''$
 $\lambda = 139^{\circ} 45'' 04''$
 $h = 21.3 \text{ m}$

Underground:

Instruments: Wiechert Astatic Inverted Pendulum.

Omori Horizontal Pendulum.

	T_0	ϵ	$\frac{r}{T_0^2}$	V
AN:	3.0	3.2	0.0001	140
AE:	3.0	3.2	0.0001	155
Omori AE:	17.7	-	0.007	20

No.	Date		Phase	Time		Period	Amplitude			Δ	Remarks	
	Day	Month		AN	AE		Az					
102	31	May	P	21	25	32	s	μ	μ	μ	km.	Seems to be a near shock.
			L		25	41					68	
			MN		25	42	-	4				
			ME		25	42	0.4			-3		
			eF		40	43						
103	1	June	e	19	40	41	Phases lost by pulsatory oscillations during the day.				(Asama volcanic earthquake?)	
104	3		eP	6	39	41					Phases was lost, because the pulsatory oscillations. (Seems to be a near shock)	
			MN		39	24	-	9				
			eME		39	31	1.1			-8		
			eF		43							
105	3		eP	12	18	20	Phases lost by pulsatory oscillations.				Felt in Fukushima. origin is central part of Y-waki. (Seems a local shock)	
			eL		18	42						
106	5		P	20	13	51					Epicenter is near of Lake-Kasumigawara.	
			S		14	01						
			L		14	10						
			MN		14	10	1.9	-8				
			ME		14	11	1.8		-5			
			MN		14	14	1.9	11				
			F		17	20						
107	9		P	1	03	25					Epicenter is far off in the eastern coast of Rikuoku. No felt in land.	
			eL		06	10						
			MN		06	32	2.4	-8				
			ME		09	06	2.2		9			
			MN		07	05	2.5	-5				
			ME		07	34	2.7		-4			
108	9		F		12	20					Felt at Mout, Tukuba Mito Utunomiya Asio & Fukushima origin is near River, Nakagawa. L uncertain and end obscured by microseisms.	
			iP	2	08	38						
			eL		09	06						
			MN		09	07	0.7	-19				
			ME		09	06	0.6		-8			
			MN		09	11	0.8	-11				
			CN		09	12	1.1		7			



TÔKYÔ JAPAN.

SEISMIC BULLETIN

of the Central Meteorological Observatory of Japan.

$\phi = 35^{\circ} 41'' 06''$

$\lambda = 139^{\circ} 45'' 04''$

$h = 21.3 \text{ m}$

Underground :

Instruments : Wiechert Astatic Inverted Pendulum.

Omori Horizontal Pendulum.

	T_0	ϵ	$\frac{r}{T_0^2}$	V
AN:	3.0	3.2	0.0000	140
AE:	3.6	3.2	0.0001	155
Az:	17.7	-	0.007	20

Omori

No.	Date		Phase	Time			Period	Amplitude			Δ	Remarks
	Day	Month		h	m	s		s	AN	AE		
108	9	June	P L MN ME F	21	24	15 27 28 27 10	0.2	-10	-6	89	Seems to be a local shock.	
109	9		P L MN ME F	22	28	48 56 57 57 30			13		Time uncertain for this record. Origin is central part of Sagami. Seems to be a local shock.	
110	12		eE	19	25	50					No distinct record. (Nothing on Wiechert pendulum) Very distant earthquake.	
111	14		P S L MN MN MN ME ME CN CN F	4	47	41 08 32 35 44 19 38 41 37 01 00	1.6 3.1 2.4	-15 -62 51	58 45		Felt at Mount, Tsukuba, Mito, Utsunomiya, Asio, and Fukushima. Origin is the eastern coast of Ywaki. Phases well marked on E.	
112	14		e	8	48	54					Forephases too uncertain for use. Distant earthquake (probably near Arask) ^a	
113	18		P S L ME ME CE eF	23	22	10 30 39 46 55 27 28	1.4 1.7 1.8	-10 -6		1	Nothing on Wiechert-pendulum. Epicenter is the eastern Ywaki, felt in Sirakawa (Ywaki) (Seems a local shock). The first recorded motion is NE. Ended in pulsation of doubtful...	

TÔKYÔ JAPAN.

SEISMIC BULLETIN

of the Central Meteorological Observatory of Japan.

 $\varphi = 35^{\circ} 41' 06''$
 $\lambda = 139^{\circ} 45' 04''$
 $h = 21.3 \text{ m}$

Underground :

Instruments :

Wiechert Astatic Inverted Pendulum.

Omori Horizontal Pendulum.

	T_0	ϵ	$\frac{r}{T_0^2}$	V
AN:	3.0	3.2	0.0001	140
AE:	3.0	3.2	0.0001	155
Omori AAE	17.7	-	0.007	20

No.	Date		Phase	Time			Period	Amplitude			Δ	Remarks
	Day	Month		h	m	s		AN	AE	Az		
114	19	June	P	12	01	51					km.	Phases is faint and small micros. Probably occurred in near part.
			L		01	58						
			MN		01	58		-4				
			ME		01	58						
			eF		02	25			3			
115	19		P	16	09	09						Epicenter in eastern Kai. Felt at Uenohara (Kai) Seems a local shock.
			S		09	10						
			L		09	18						
			ME		09	18	0.4		-7			
			MN		09	19	0.5	-9				
			F		10	45						
116	21		eP	8	41	48						
117	21		P	11	16	11						Origin is near Is, Hachzyo probably of the order of 203.k.m.
			L		16	39						
			ME		16	39	0.7	13				
			MN		16	34	0.6		11			
			eF		19					End in pulsations.		
118	22		P	11	24	52						The first recorded motion is E. (No on Wiechert, Pen.) Epicenter in far off the east of Obisiro (Hokkaido) Felt over Hokkaido and NE Japan. --- Over 14100K.m.Sq.
			S		25	36						
			L		26	50						
			ME		27	12	3.4		75			
			ME		28	07	3.4		-87			
			ME		30	04	3.1		80			
			CE		32	57	5.2		57			
			F		46	20						
119	23		eP	18	24	32						and faint Phases ill-defined on N-E component. Felt strongly at Is, Nase (Ryuku Islands)
			eS		25	47						
			eL		27	42						
			MN		28	55	8.2	17				
			MN		31	03	4.5	16				
			CN		33	26	5.8	-9				
			eF									
										48End loss Pulsations.		



TÔKYÔ JAPAN.

SEISMIC BULLETIN

of the Central Meteorological Observatory of Japan.

$\phi = 35^{\circ} 41'' 06''$ $\lambda = 139^{\circ} 45'' 04''$ $h = 21.3 \text{ m}$ Underground :

Instruments : Wiechert Astatic Inverted Pendulum.
 Omori Horizontal Pendulum.

	T_0	ϵ	$\frac{r}{T_0^2}$	V
AN:	3.0	3.2	0.0001	140
AE:	3.0	3.2	0.0001	155
Az:	17.7	-	0.007	20

No.	Date		Phase	Time			Period	Amplitude			Δ	Remarks		
	Day	Month		h	m	s		s	AN	AE			Az	
											μ	μ	μ	km.
120	25	June	eP L eMN	15	33	28	-	-	-	-	-	-	Epicent Off the coast of Totomi, Phases lost by very marked irregular pulsations from early a.m. 25th until near midnight of 27th.	
121	26		eP eL eMN eMN	16	12	14	2.1	-41	38			(Asama Volcanic earthquake Phases no definite.		
122	28		eP eP	14	10	20						Record of a distant earthquake. Impossible to assign a value for Δ .		

TÔKYÔ JAPAN.

SEISMIC BULLETIN

of the Central Meteorological Observatory of Japan.

 $\phi = 35^{\circ} 41' 06''$
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 $h = 21.3 \text{ m}$

Underground:

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	T_0	ϵ	$\frac{r}{T_0^2}$	V
AN:	3.0	3.2	0.0001	140
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Omori AE:	17.7	-	0.007	20

No.	Date		Phase	Time			Period s	Amplitude			Δ km.	Remarks
	Day	Month		h	m	s		AN μ	AE μ	Az μ		
120	26	June	ePS eL eMN eMI eF	16	12	14 55 57 58 23	2.1 1.8	-41	38		Phases lost by pulsatory oscillations during the day. (Asama volcanic earthquake?)	
121	28		e	14	10	20	(by Omori+Pendulum)				Phases too uncertain for use. Seems a distant earthquake.	
122	30		PS eL ME MN eF	14	24	45 51 52 53 04	-	35	-11		Felt at Asio Mito and mount-Tsukuba, (Near Asio)	
123	3	July	PS eL MN ME eF	14	53	31 18 16 - 50	4.6	29			Felt at Naze Naha. (origin is I.S., Ima+mi-osima)	
124	4		1P eS L ME MN MN MN MN ME CN CE F	14	20	32 23 32 41 50 52 01 13 29 29 51 32 50	1.0 1.2 2.1 3.2 2.8 2.3		-41 53 -51 -28 24 20 10	225	Near Vladivostok. Felt at Hakodate Fukushima and Mito.	
125	6		PS eL MN ME CN CE F	1	24	41 13 18 19 12 19 50	1.3 1.9	-9	11		Near I.S., Hachizyo.?	

TOKYO JAPAN. 1921



SEISMIC BULLETIN

of the Central Meteorological Observatory of Japan.

 $\varphi = 35^{\circ} 41' 06''$ $\lambda = 139^{\circ} 45' 04''$

h = 21.3 m

Underground :

Instruments :

Wiechert Astatic Inverted Pendulum.

Omori Horizontal Pendulum.

	T_0	ϵ	$\frac{r}{T_0^2}$	V
AN:				
AE:	3.0	3.2	0.0001	140
Az:	3.0	3.2	0.0001	155

No.	Date		Omori Phase	AE Time			L7.7 - Period	Amplitude			Δ	Remarks
	Day	Month		h	m	s		AN	AE	Az		
126	6	July	PS L MN ME CN CE F	12	03	40					97	Epicenter is near Lake, Kasumigaura. Felt at Chosh MitO and Mount-Tsukuba.
127	7		iPS L MN ME F	9	56	41						Seems near shock.
128	11		iPS L MN ME F	20	07	43						Origin is far off in the coast of Kasima.
129	12		iPS L MN ME F	17	49	08					119	Near Hakone (Volcanic earthquake)
130	15		eP S L MN ME MN eF	18	13	15						Origin is eastern of LUZON.
131	17		e	10	18	12						Nothing on Wiechert pendulum. Very distant earthquake, no distinct record.
132	18		e	17	07	25						From OMORI-pendulum, Origin is central part of FORMOSA, felt in all Formosa.

TÔKYÔ JAPAN.

SEISMIC BULLETIN

of the Central Meteorological Observatory of Japan.

 $\phi = 35^{\circ} 41' 06''$
 $\lambda = 139^{\circ} 45' 04''$
 $h = 21.3\text{m}$

Underground:

Instruments: Wiechert Astatic Inverted Pendulum.
Omori Horizontal Pendulum.

Omori

	T_0	ϵ	$\frac{r}{T_0^2}$	V
AN:	3.0	3.2	0.0001	140
AE:	3.0	3.2	0.0001	155
AE Az:	17.7	-	0.007	20

No.	Date		Phase	Time			Period	Amplitude			Δ km.	Remarks
	Day	Month		h	m	s		AN	AE	Az		
133	23 22	July	PS L MN eF	8	44	18 36 36 44	0.3	-8			54	Near Mount-Tsukuba.
134	25		e	18	34	46	No record on Wiechert-pendulum, phases too faint for use.					
135	25		1P 1S 1L ME MN F	22	45	49 54 01 01 01 50	(Felt in Tokyo) 0.8 0.4		935 485		85	The first motion is first Epicenter is near the Mount-Tsukuba.
136	26		P MN ME F	6	38	19 37 38 55	S L is faint and small micros, -	-8	7			epicenter in the NE coast of Japan.
137	26		e	10	43	08	No on Wiechert-pendulum, Record of a distant earthquake.					
138	27		1PS L MN ME F	9	45	48 02 03 03 35	- -	5	6		102	Epicenter is near Mount-Tsukuba.
139	27		PS L MN ME F	17	22	36 49 50 52 25	1.2 1.8	10	-7		166	Origin is far off in the east of Hokkaido.
140	27		P L MN ME F	20	55	17 39 41 42 15	0.7 0.9	12	-9			Near Hakuyama.