

Matuyama JAPAN

SEISMIC BULLETIN

of the Matuyama Meteorological Observatory of Japan.

$\phi = 33^{\circ}50'N$ $\lambda = 132^{\circ}45'E$ $h = 31.4m$

Wicthert Seismograph
(Horizontal & Vertical)

	T ₀	E	V T ₀ ²	V
A E:	20	30	0.04	30
A N:	20	27	0.12	75
A Z:	50	12	0.04	76

Omori seismograph
Horizontal Pendulum

	T ₀	E	V T ₀ ²	V
A E:	75	—	0.3	108
A N:	95	—	1.0	108



Time : all determinations are reduced to green-wich civil time

From January 11, 1930 to June 1, 1930,
Matuyama Observatory

1)

No.	Date	Phase	Time G.M.C.T.				Period	Amplitude			Δ k.m	Remarks
			h	m	s	s		AE micron	AN micron	AZ micron		
1	Jan 11	ep	3	14	52.9	?				259.0		
		SPZ	3	15	34	?			-1.3			
		SESE	3	15	16.9	14	+4.6		-6.4			
		L	3	15	27.8	15	+37.0	-15.7				
		M,N	3	15	29.7	25		-30.6				
		M,E	3	15	33.4	25	+62.0					
		M,E	3	15	37.1	16			-24.4			
		M2N	3	15	40.4	16		+50.9				
		M2E	3	15	42.7	16			-14.1			
		M2E	3	15	44.4	25	-52.8					
2	" 25	F	3	20	3.8				192.9			
		F	3	20	17.4							
		SP	11	34	49.5	?	-23?	-14				
		SE	11	35	2.5	?	+1.9					
		L	11	35	15.5	10	+3.7					
		M1	11	35	16.2	?	+6.5					
3	Feb 5	M2	11	35	18.3	?	+13.0		224.1	The province of Seburi Mt. in Kyushu.		
		F	11	36	41.5							
		SP	22	28	57.3	?	-2.8	-0.9				
		SPZ	22	28	59.5	?					-1.3	
		ME	22	29	31.7	12					+14.5	
		ME	22	29	32.2	?	-27.8					
4	" 7	M2	22	29	33.5	?			223.3	Ditto		
		F	22	32	14.2							
		ep	12	35	13.5							
		L	12	35	43.6	?	?	+4.5				
5	" 11	M	12	35	48.9	12	+16.4	+12.5	218.9	The Kii R. side, Yakayama prefecture.		
		F	12	37	15.3							
		ep	1	29	46.6							
6	" 11	F	1	30	59.6				218.9	The Kii R. side, Yakayama prefecture.		
		SP	9	12	33.9	?	-7.2	-15.6				
		M,N	9	13	3.4			+85.1				
7	" 15	ME	9	13	8.9		+46.2		77.9	in the Bungo channel		
		F	9	15	12.7							
		ep	3	29	7.9							
8	" 15	F	3	30	10.5				96.5			
		ep	7	54	16.8	?	?	?				
		ME	7	54	27.3	?	+20.4					
9	" 16	M,N	7	54	30.9	20		+27.8	222.6			
		F	7	55	44.8							
		ep	14	18	7.8							
10	" 27	SE	14	18	20.8	?	+2.8		222.6			
		F	14	19	15.6							
		ep	21	11	46.4		?	-1.5				
11	Mar 7	SP	21	11	53.1	1.5			522.4			
		L	21	12	16.4	?	?	+3.7				
		M	21	12	18.8	1.2	-5.3	+13.4				
		F	21	13	21.5							
12	" 11	OPEN	19	53	47.2				77.2	in the Bungo channel.		
		ELAN	19	54	57.6	?	-2.3					
		F	19	56	47.7							
13	" 20	ep	1	31	17.2	1.5	+0.9	?	260.4			
		US	1	31	19.9	0.8	+5.6	+5.9				
		L	1	31	27.6	0.7	+3.7	+7.4				
		M	1	31	29.7	0.7	+5.3	+10.4				
		F	1	34	45.4							
		ep	0	30	23.1	?	?	-1.0				
13	" 20	SEN	0	30	40.3	0.6	+3.5	+3.8	260.4			
		L	0	30	58.2	1.0	+8.8	+8.8				
		M	0	31	1.1	0.6	+17.8	+14.7				
		M	0	31	6.6	0.6	+14.2	+11.8				
		CU	0	31	36.6	1.0		+4.9				
		F	0	32	55.4							

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Wicthert Seismograph
(Horizontal & Vertical)

	T ₀	ϵ	$\frac{V}{T_0^2}$	V
A E:				
A N:				
A Z:				

Omori seismograph
Horizontal Pendulum

	T ₀	ϵ	$\frac{V}{T_0^2}$	V
A E:				
A N:				



Time : all determinations are reduced to green-wich civil time

Matuyama Observatory

2)

No.	Date	Phase	Time G.M.C.T.			Period	Amplitude			Δ k.m	Remarks	
							A E	A N	A Z			
							micron	micron	micron			
14	Mar.	22	ep	h	m	s	s					Eastern Coast of Ito.
			iL	17	51	55.4	0.8	+7.1	+2.5		648.5	
			iM	17	53	22.8	?	+7.1	+4.9			
			iCN	17	53	25.2	?		+1.9			
			F	17	54	35.5						
			epZ	17	54	34.4						
			FZ	17	52	17.8						
15	Mar.	26	FZ	17	56	19.1						Iyo nada.
			ep	22	02	54.1	0.8	+3.3	+5.3		53.4	
			S	22	03	1.3	0.8	+20.0	+13.3			
			iM	22	03	1.9	0.8		+4.0			
			iCN	22	03	2.9	1.0					
			F	22	03	33.3						
16	"	27	ip	4	11	51.4	1.0	+10.0	+8.0			Iyo nada, slight.
			ipZ	4	11	53.7	0.8			+13.1	53.4	
			S	4	11	58.6	0.8	+16.7	+16.0			
			iM ₁ Z	4	12	3.3	1.0	+50.0	+49.3	+52.6		
			iM ₁	4	12	0.2	0.8	+40.0	+40.0			
			iM ₂	4	12	2.7	0.8	+33.3	+33.3			
			iM ₃	4	12	4.8	0.8					
			iC	4	12	20.3	1.0	+8.3	+4.0			
			FZ	4	12	36.8						
			F	4	13	27.5						
17	"	28	ep	20	37	23.6	?	+4.6	?			100.2
			iM	20	37	37.1						
18	"	29	F	20	38	52.7						
			ep	0	50	11.4						
			F	0	51	41.1						
19	"	31	ip	5	09	37.4	0.8	+2.0	+3.3			in the Bungo channel moderate.
			S	5	09	48.8	0.5	+6.6	+8.0		84.6	
			iM ₁	5	09	50.9	0.3	-3/3.3	-44.67			
			iM ₂	5	09	52.2	0.6			+100.0		
			iC	5	10	17.4	1.0	± 6.6	± 6.7			
			FZ	5	10	14.0						
			F	5	13	9.1						
20	Apr.	4	ip	3	30	10.8	1.6	-16.6	-13.8			Iyo nada slight.
			ipZ	3	30	13.5	0.5			-6.6	57.9	
			S	3	30	18.6	1.0	-50.0	-40.7			
			iM	3	30	19.3	1.2	-53.3	-60.0			
			iM ₂	3	30	22.5	1.0			-21.0		
			iC	3	30	36.8	?	± 10.0	+6.6			
			FZ	3	31	29.5						
			F	3	31	58.2						
21	"	24	ip	22	32	39.9	1.0	+3.3	-4.0			in the inland sea slight.
			iS	22	32	46.2	1.0	+33.0	+20.0		46.7	
			iM ₁	22	32	47.2	0.8	-70.0	+80.0			
			iC	22	33	27	1.0	+3.3	+4.0			
			F	22	34	23.0						
			FZ	22	34	23.0						
22	"	25	ip	18	16	26.5	1.0	-6.7	-4.0			134.3
			ip	18	16	29.4	0.8	+8.3	+12.0		134.3	
			iS	18	16	44.6	1.0	+3.3	+4.0			
			iM ₁	18	16	46.9	1.2	-16.6	-20.0			
			iM ₂	18	16	53.2	1.0	+20.0	-24.0			
			iC	18	16	58.45	?	+8.3	+5.3			
			F	18	18	34.8						
			FZ	18	18	34.8						
23	"	25	epZ	21	32	2.8						
			ipN	21	32	3.8					147.7	
			PN	21	32	5.7						
			iCN	21	32	23.7	0.8		+13.3			
			M ₁ N	21	32	24.5	0.8		+13.3			
			M ₂ N	21	32	28.7	0.8		-24.0			
			M ₃ N	21	32	31.9	0.8		± 10.6			
			iCN	21	32	34.6	0.8		+13.3			
			FZ	21	33	30.9			+6.6			
			F	21	33	35.2						

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Wiechert Seismograph
(Horizontal & Vertical)

	T_0	ϵ	$\frac{V}{T_0^2}$	V
A E:	1.7	2	4.07	30
A N:	1.7	2	4.08	84
A Z:	4.8	5	2.06	119

→ from June 19, 1930

Omori seismograph
Horizontal Pendulum

	T_0	ϵ	$\frac{V}{T_0^2}$	V
A E:				
A N:				



Time : all determinations are reduced to green-wich civil time

From April 25, 1930 to July 3, 1930,

Matuyama Observatory

No.	Date	Phase	Time G.M.C.T.			Period	Amplitude			Δ	Remarks	
							A E	A N	A Z			
							micron	micron	micron	k.m		
24	Apr.	25	ep	h	m	s				143.3		
				21	58	28.0						
			P	21	58	30.1	?	± 16.6	-12.0			
			iL	21	58	47.3	1.0	-10.0	-6.6			
			iM	21	58	49.3	0.8	-10.0	-10.6			
25	,	25	iC	21	58	50.6	0.9	?	± 3.3			
			F	21	59	46.5						
26	May	1	ep	9	59	38.6				982.4	in Kasima nada.	
			SN	10	0	56.3	?		-2.6			
			iLN	10	1	51.0	1.0	+5.0	+6.6			
			iLE	10	1	52.0	1.0					
27	,	5	iCN	10	2	6.8	1.2		-4.0	4303.9	Distant shock, The province of Rangoon, in Burma.	
			F	10	3	34.2						
			ipZ	23	1	50.1	?	-slight				
			ep	23	1	48.3	?	-slight				
			S	23	5	48.3	13.0					-9.1
			RE	23	7	48.0	10.3					
			iM	23	8	35.1	14.5	-13.8	+4.6			+10.4
			iW, F	23	14	59.5	14.5					-0.5
28	,	24	CZ	23	20	32.6	?			678.9		
			F	23	34	49.8						
			FZ	23	36	47.1						
			ip	1	39	36.5	1.0	-3.3	+1.6			
			ipZ	1	39	36.7	2.8					+8.4
			iS	1	40	6.0	0.8	+3.3	+4.0			
			iLN	1	41	8.0	1.0	?	+3.3			
29	Jun.	1	iLZ	1	41	11.0	2.3		-4.2	799.9	The province of Konuma Ibaragi prefecture.	
			MZ	1	41	16.9	3.3					+16.7
			F	1	45	8.0						
			FZ	1	46	53.3						
			ipZ	3	0	38.0	?	+1.8	+0.9			
			ip	3	0	40.7	?					
			iLN	3	2	28.5	1.9		-2.3			
			M, N	3	2	35.9	1.6		+37.0			
30	,	19	M, Z	3	2	34.5	2.0		-8.4	217.4	South-western part of Kyushu.	
			M, Z	3	2	46.0	2.6	+27.0	+42.6			
			M, Z	3	2	44.2	2.0					-9.1
			iC	3	3	18.2	?	+4.5	+4.6			
			F	3	7	11.7						
			FZ	3	7	49.5						
			ep	5	46	20.5						
			epZ	5	46	20.1						
			iL	5	46	49.8	0.6	+16.6	+10.7			
			QZ	5	46	50.3	1.0					+1.7
31	,	21	iM, Z	5	46	51.6	1.0	+43.3	+32.7	262.6		
			iM, Z	5	46	54.2	1.0	+4.16	+28.5			
			iM, Z	5	46	51.5	0.6					+4.2
			iC	5	47	11.3	1.0	+8.3	+5.9			
			FZ	5	48	49.4						
			F	5	49	7.6						
			epN	18	47	57.4						
			epE	18	47	57.6						
32	Jul.	2	iSN	18	48	18.8	0.8		+5.8	545.4		
			iLN	18	48	32.8	1.0		+7.1			
			iMN	18	48	38.8	1.0		-14.9			
			iC	18	48	41.8	1.0		+5.8			
			FZ	18	51	4.2						
			F	18	51	57.6						
			ep	17	18	51.7?						
33	,	3	iL	17	20	5.2	1.0		+2.3	483.0		
			M, N	17	20	7.3	1.0		+4.7			
			M, E	17	20	9.7	1.0	+5.5				
			F	17	21	26.6						
			ep	6	11	59.8?						
34	,	3	SN	6	11	31.1	1.5		+2.3	483.0		
			iLN	6	12	4.9	1.4		+2.9			
			iM	6	12	8.0		+3.3	+3.5			
			F	6	13	22.0						

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Wicthert Seismograph
(Horizontal & Vertical)

	T_0	ϵ	$\frac{V}{T_0^2}$	V
A E:	17	2	0.07	30
A N:	17	2	0.08	84
A Z:	48	5	0.06	11.9

Omori seismograph
Horizontal Pendulum

	T_0	ϵ	$\frac{V}{T_0^2}$	V
A E:				
A N:				



Time : all determinations are reduced to green-wich civil time

From July 7, 1930 to September 29, 1930.

Matuyama Observatory

No.	Date	Phase	Time G.M.C.T.			Period	Amplitude			Δ k.m	Remarks
							AE	AN	AZ		
			h	m	s	s	micron	micron	micron		
34	Jul. 7	ep	22	35	50.3					46.0	local shock.
		iMN	22	36	0.0	0.6		+3.6			
35	" 9	F	22	36	32.5					133.5	near shock.
		ep	10	25	14						
		iS	10	25	19.4	1.0	+3.3	+2.9			
		iM	10	25	21.4	1.0	+8.0	-5.9			
		F	10	26	13.4						
36	" 10	ep	12	38	47.1						
		F	12	39	47.1						
37	" 10	ep	13	15	12.0					63.9	inland sea.
		iS	13	15	20.6	0.8	+13.3	+5.9			
		iM	13	15	22.9	0.8	+16.6	+7.1			
		iC	13	15	26.1	1.0	+10.0	+3.5			
		F	13	16	39.0						
38	" 10	ep	15	19	54.2						
		F	15	20	29.1						
39	" 10	ep	21	35	24.8					822.1	ditto
		iLN	21	37	15.6	1.0		+1.1			
		iMN	21	37	19.7	1.4		-5.9			
		F	21	39	10.5						
40	" 18	ep	18	43	31.8	1.0		+0.6		188.5	
		iL	18	43	57.2	1.2	+6.6	+4.7			
		iM	18	44	0.4	0.8	-10.0	-6.0			
		iC	18	44	8.4	1.0	+3.3	+2.3			
		F	18	45	39.4						
41	" 18	ep	19	22	20.0	1.0		+0.6		170.7	
		iL	19	22	43.0	0.8	+5.0	+3.0			
		M1	19	22	48.2	0.6	-13.3	-10.7			
		M2	19	22	51.2	0.7	-16.6	-11.9			
		iC	19	23	12	1.0	+5.6	+3.0			
		F	19	25	16.4						
42	Aug. 6	ep	11	37	50.3					99.4	
		iMN	11	38	3.7	0.7		-10.1			
		F	11	38	44.6						
43	" 8	ep	18	59	16.0					100.9	
		iMN	18	59	29.8	?		-2.7			
		F	17	0	29.8						
44	" 16	ep	15	5	41.0						
		F	15	6	12.3						
45	" 17	ep	18	30	11.4?					890.4	
		iEP	18	30	11.9?						
		iS	18	31	10.9?	0.8	+2.6	+1.1			
		iL	18	32	11.9?	0.7	+3.3	+2.3			
		iM	18	32	15.4?	0.8	-5.0	-2.6			
		iC	18	32	29.6?	?	+3.3	+1.1			
		F	18	34	5.2?						
		FZ	18	34	2.4?						
46	" 21	ep	5	57	41.2?					3326.2	distant shock.
		iSB	6	01	2.6	6.0		+0.8?			
		LZ	6	04	19.7?	15.2		+1.6			
		MZ	6	05	44.3?	15.0		+6.7			
		iHEV	6	05	55.6?	15.8	-4.6	+2.3			
		FZ	6	18	3.6?						
47	" 26	ep	1	29	44.7					26.0	local shock.
		iS	1	29	48.2	0.8	-8.3	-4.8			
		iM	1	29	48.9	1.0	-13.3	-8.9			
		F	1	30	25.8						
48	Sept. 29	ep	13	53	25.9	0.8	+3.3	+2.3	+3.4	374.7	
		iL	13	54	16.4	1.0	-33.3	-25.0			
		iZ	13	54	14.9	1.0					
		iM	13	54	19.2	0.8	+46.6	+29.7	-4.1		
		iMZ	13	54	17.9	1.2			+14.4		
		iC	13	54	26.6	0.8	+16.7	+11.9			
		F	13	56	56.1						
		FZ	13	55	24.9						

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(Horizontal & Vertical)

	T_0	ϵ	$\frac{V}{T_0^2}$	V
A E:	20	12	0.05	29
A N:	18	15	0.08	57
A Z:	48	5	0.06	119

Omori seismograph
Horizontal Pendulum

	T_0	ϵ	$\frac{V}{T_0^2}$	V
A E:				
A N:				



Time : all determinations are reduced to green-wich civil time
From October 7, 1930 to October 26, 1930,
Matuyama Observatory

No.	Date	Phase	Time G.M.C.T.			Period	Amplitude			Δ	Remarks
							AE	AN	AZ		
49	Oct. 7	$\sim P$ $\sim S$ $\sim SB$ $\sim ME$ $\sim C$ F FB	h 5	m 51	s 27.4	s 1.0	micron +13.3	micron +7.1	micron +10.0	72.7	72.7 Iyo Nada, Western part of the Inland sea, (moderate)
50	" 15	$\sim P$ $\sim S$ $\sim M$ $\sim C$ F	2	02	7.0	0.8	+3.4	+1.7		58.6	ditto.
51	" 16	ep F	15	25	26						
52	" 16	$\sim P$ $\sim S$ F	2	31	37.0	0.8	?	+1.8		72.0	ditto
53	" 17	$\sim P$ $\sim L$ $\sim M$ $\sim C$ F	6	33	18.3	1.0	?	+1.8		414.8	The province of Kuzumaru R. Fukui prefecture.
54	" 17	$\sim P$ $\sim L$ $\sim M$ $\sim ME$ $\sim M2$ $\sim M2Z$ $\sim M3$ $\sim M3Z$ $\sim M4$ $\sim C$ F FB	6	36	56.7	1.0	+4.1	+4.3	-1.6	411.1	ditto
55	" 21	ep $\sim P2Z$ $\sim P2$ $\sim S$ $\sim SB$ $\sim M$ $\sim C$ FB F	14	25	35.4	0.6	+3.4	+5.3	-6.7	61.6	The western sea of Yakatahama, Chime prefecture.
56	" 22	$\sim P$ $\sim S$ $\sim M$ F	13	0	56.0	1.0	?	+1.7		59.4	ditto.
57	" 23	ep $\sim P2Z$ $\sim P2$ $\sim S$ $\sim M$ F FB	11	53	16.2	1.0	+0.9	+1.2?		64.6	ditto.
58	" 25	$\sim P2Z$ $\sim P$ $\sim L$ $\sim MZ$ $\sim ME$ F FB	5	19	38.5	3.3			+18.9	2160.8	distant shock.
59	" 26	$\sim P2Z$ $\sim P$ $\sim L$ $\sim M1$ $\sim M2$ $\sim C$ F FB	22	45	44.3	?	+5.9	+6.1	-2.0	209.2	The province of the City of Wakayama.

Matuyama JAPAN

SEISMIC BULLETIN

of the Matuyama Meteorological Observatory of Japan.

$\varphi = 33^{\circ} 50' N$ $\lambda = 132^{\circ} 45' E$ $h = 31.4m$

Wiechert Seismograph
(Horizontal & Vertical)

	T_0	ϵ	$\frac{V}{T_0^2}$	V
A E:	16	16	202	9
A N:	16	13	205	31
A Z:	48	27	407	72

Omori seismograph
Horizontal Pendulum

	T_0	ϵ	$\frac{V}{T_0^2}$	V
A E:	55	-	09	92
A N:	117	-	25	90



Time : all determinations are reduced to green-wich civil time

From November 12, 1930 to November 24, 1930

Matuyama Observatory

No.	Date	Phase	Time G.M.C.T.			Period s	Amplitude			Δ k.m	Remarks
			h	m	s		AE micron	AN micron	AZ micron		
60	Nov. 12	P	22	01	123	0.7	?	+14		37.1	
		S	22	01	170	0.6	-6.9	-8.8			
		MN			184	0.6		-17.5			
		ME			180	0.7	-13.8				
		ic			240	1.1	+24	+35			
		F	22	01	49.6						
61	Nov. 18	ip	0	16	0.3	?			-0.2	112	
		ip			16	1.9	0.6	+1.7			
		S			16	1.70	0.6	+1.7	+2.6		
		ME			16	18.3	0.8	+55.2			
		MN			16	18.7	0.8		-84.2		
		F	0	19	31.0						
62	" 23	ip	6	59	59.2	1.1		-3.5		108	
		S	7	0	13.8	1.1	-6.9	-14.0			
		M	7	0	14.9	0.7	+37.8	+57.9			
		ic	7	01	39.1	1.1		-5.3			
		EF	7	02	4.7						
63	" 24	ip	15	46	20.0		(slight) +1.2	(slight) +1.2		20.1	
		S			47.1	0.8	+8.6	+10.5			
		M			48.4	1.1	-20.7	-33.3			
		F		48	5.2						

Matuyama JAPAN

SEISMIC BULLETIN

of the Matuyama Meteorological Observatory of Japan.

$\phi = 33^{\circ} 50' N$ $\lambda = 132^{\circ} 45' E$ $h = 31.4m$

Wiechert Seismograph
(Horizontal & Vertical)

	T_0	E	$\frac{V}{T_0^2}$	V
A E:	16	16	0.02	9
A N:	16	13.5	0.05	31
A Z:	48	2.7	0.09	72

Omori seismograph
Horizontal Pendulum

	T_0	E	$\frac{V}{T_0^2}$	V
A E:	55	-	0.9	92
A N:	117	-	2.5	90



Time : all determinations are reduced to green-wich civil time
From November 26 1930 to December 12 1930

Matuyama Observatory

No.	Date	Phase	Time G.M.C.T.		Period	Amplitude			Δ k.m	Remarks		
						AE	AN	AZ				
						micron	micron	micron				
64	Nov.	26	$\tilde{p}Z$	4	04	5.7	1.0		+28	128.5	slight shock, North Izu.	
			$\tilde{p}EN$	4	04	10.2	1.0	-111	-32			
			$\tilde{s}Z$	4	04	54.6	2.3					-444
			$\tilde{s}EN$	4	04	59.6	1.0	+833	+74.1			
			$\tilde{L}EN$	4	05	34.9	0.8	-133.3	-120.9			
			$\tilde{M}E$	4	05	54.0	1.4	+1307.7				
			$\tilde{M}N$	4	05	56.3	0.8		-651.6			
			$\tilde{M}Z$	4	06	25.5	6.6					+1054.1
			$\tilde{M}2E$	4	06	6.9	1.0	-355.5				
			$\tilde{M}2N$	4	06	7.6	1.0		-322.5			
			$\tilde{M}3E$	4	06	15.9	1.0	+388.8				
			$\tilde{M}3N$	4	06	16.6	1.1		+341.9			
			$\tilde{M}4EN$	4	07	17.7	1.2	-122.2				-96.8
			$\tilde{M}Z2$	4	07	14.7	8.4					+886.2
			$\tilde{C}EN$	4	08	57.3	2.2	+33.0				+19.3
$\tilde{E}FN$	4	28	43.0									
$\tilde{E}FZ$	5	02	18.2									
65	"	29	$\tilde{e}P$	23	22	37.1				80.9		
			$\tilde{s}EN$	23	22	48.0	0.9	-16.6	-9.7			
			$\tilde{M}EN$	23	22	49.1	0.7	-55.5	-32.2			
			$\tilde{C}N$	23	22	58.0	1.0		+5.0			
			$\tilde{E}FN$	23	24	11.1						
66	Dec.	4	$\tilde{p}F$	4	04	26.9	?	-1.7		3644.0		
			$\tilde{p}Z$	4	04	26.9	4.2					-13
			$\tilde{s}Z$	4	11	43.7	13.7					-50.0
			$\tilde{L}EN$	4	11	54.0		+5.4				
			$\tilde{M}Z$	4	13	59.5	10.5					-395.8
			$\tilde{M}E$	4	14	1.8	12.0	-300.0				
			$\tilde{M}N$	4	16	18.6	13.2					+250.0
			$\tilde{C}Z$	4	16	31.6	14.7					+18.0
			$\tilde{E}F$	4	44	38.3						
			$\tilde{E}FZ$	4	47	28.4						
67	"	6	$\tilde{e}P$	5	32	31.1	1.3	-12.5	-1.1	201.8	The eastern sea of Awaji isl.	
			$\tilde{s}E$	5	32	43.3	1.0	+16.3				
			\tilde{L}	5	32	58.3	1.0	+28.2	-19.4			
			$\tilde{M}EN$	5	33	2.7	0.6	-141.3	+95.5			
			$\tilde{M}2EN$	5	33	8.2	0.6	+105.4	-63.3			
			\tilde{F}	5	35	27.3						
68	"	12	$\tilde{p}Z$	2	12	29.1			-2.3	115.8		
			$\tilde{p}N$	2	12	30.7						-2.5
			$\tilde{s}N$	2	12	46.3	0.7					-7.7
			$\tilde{M}N$	2	12	47.3	0.6					+30.0
			$\tilde{M}Z$	2	12	49.2	0.5					+16.6
			$\tilde{E}Z$	2	13	47.6						
$\tilde{E}FN$	2	13	31.9									

Matuyama JAPAN SEISMIC BULLETIN

of the Matuyama Meteorological Observatory of Japan.

$\phi = 33^{\circ}50'N$ $\lambda = 132^{\circ}45'E$ $h = 31.4m$

Wiechert Seismograph
(Horizontal & Vertical)

	T ₀	E	$\frac{V}{T^2}$	V
A E:	1.6	1.6	0.02	9
A N:	1.6	1.3	0.05	31
A Z:	4.8	2.7	0.09	72

Omori seismograph
Horizontal Pendulum

	T ₀	E	$\frac{V}{T^2}$	V
A E:	5.5	-	0.9	92
A N:	11.7	-	2.5	90



Time : all determinations are reduced to green-wich civil time
From December 12, 1930 to December 21 (no. 81) 1930

Matuyama Observatory

No.	Date	Phase	Time G.M.C.T.			Period	Amplitude			Δ	Remarks
			h	m	s		AE	AN	AZ		
							micron	micron	micron	k.m	
69	Dec. 12	ipv	22	54	53.3	0.8		+0.5		166.5	
		isv		55	15.6	0.8		-5.5			
		imv			18.0	0.7		+6.7			
		efv		56	12.9						
70	Dec. 13	ipv	1	02	26.2	1.0		+0.5		164.0	
		isv			148.3	0.8		-7.3			
		Mv			50.7	0.7		+16.7			
		efv		03	42.6						
71	" 13	ep	4	43	28.5					139.0	
		is			47.8	1.0		-5.5			
		Mv			49.8	0.9		-10.0			
		efv		44	36.5						
72	" 20	ipz	23	02	43.0	0.6			+5.0	107.6	strong shock.
		ip			44.0	0.5	-11.9	-40.0			
		is			58.5	0.6	-300.0	-275.0			
		ME		03	2.3	0.6			-850.0		
		ME1			1.7	0.6	-2050.0				
		Mv1		03	2.7	0.6		-1650.0			
		M2F			3.4	0.6	-2200.0				
		M2v			4.5	0.6		-1400.0			
		M3v			5.7	0.5		-1250.0			
		M3F			6.4	0.6	+1300.0				
		ic			14.0	1.2	+300.0	+325.0			
		ef		07	33.3						
		efz		04	17.4						
73	" 20	ep	23	20	10.7						ditto
		Mv			39.6	0.6		+6.4			
		ef		23	21	45.0					
74	" 20	ip	23	23	21.3	0.6		-3.2		103.1	ditto
		isv		23	35.2	0.6		+9.0			
		M1			36.5	0.6	-44.4	+35.4			
		M2			38.2	0.6	+90.0	+31.9			
		ic			46.6	0.8	+3.3	+7.9			
		ef		24	34.0						
75	" 20	ip	23	43	21.0	0.8	-11.1	-3.2	+2.8	108.3	ditto
		ipz			21.2	?					
		is			35.6	0.8	+27.7	+24.2			
		M1			37.0	1.2	+233.3	+169.3			
		M2			40.9	1.1	+133.3	+106.4			
		M3			46.3	1.0	+155.5	+120.9			
		ic		44	12.0	1.2	+27.7	+16.1			
		F		47	9.0						
76	" 21	ipv	0	37	8.2	0.6		-1.6		101.7	ditto
		is			21.9	0.6	-5.5	-3.2			
		M			23.6						
		A		39	26.8						
77	" 21	ip	0	49	16.3	0.6	-0.2	-1.6		95.0	
		isv			29.1	0.6		-4.8			
		im			30.5	0.7	-4.3	-7.7			
		ef		51	4.5						
78	" 21	ep	3	15	41.1						
		ef		17	24.0						
79	" 21	ep	5	23	1.3						
		ef		5	24	43.5					
80	" 21	ep	6	08	59.9						
		is		09	12.9	0.9	-2.1	-3.2		96.5	
		ef		10	33.9						
81	" 21	ip	8	27	0.0	1.1	-1.1	-1.3		109.8	ditto
		is			14.8	0.7	-5.5	-9.3			
		M1			16.3	0.6	-148.9	+145.5			
		M2			20.2	1.1	-155.4	+145.5			
		ic			50.2	1.0	+44.4	+32.2			
		ef		31	35.0						slight shock

Matuyama JAPAN

SEISMIC BULLETIN

of the Matuyama Meteorological Observatory of Japan.

$\phi = 33^{\circ}50'N$ $\lambda = 132^{\circ}45'E$ $h = 31.4m$

Wichert Seismograph
(Horizontal & Vertical)

	T_0	E	$\frac{V}{T_0^2}$	V
A E:	1.6	1.6	0.02	9
A N:	1.6	1.3	0.05	31
A Z:	4.8	2.7	0.09	72

Omori seismograph
Horizontal Pendulum

	T_0	E	$\frac{V}{T_0^2}$	V
A E:	5.5	--	99	92
A N:	11.7	--	25	90



Time : all determinations are reduced to green-wich civil time

From December 21, 1930 to December 26, 1930.

Matuyama Observatory

No.	Date	Phase	Time G.M.C.T.		Period	Amplitude			Δ	Remarks	
						AE	AN	AZ			
82	Dec. 21	SPZ	h	m	44.9	1.2	micron	micron	micron	k.m	moderate shock
		SP	21	14	46.2	0.6	-22	-32.7	115		
		IS		15	47	0.7	-350.0	-150.0			
		ISN			41	0.6		-112.50			
		MEI			34	0.7	-102.50				
		MEN			5.8	0.7		-1150.0			
83	" 21	MZE	21	16	42.4	0.7	+102.50	+400.0		slight ditto	
		C	21	18	12.3	0.5			+1.3		
		SP	21	18	12.7	0.6	-11.1	-12.9	109		
		IS			28.4	0.6	+166.6	+137.1			
		M1			28.1	0.6	-600.0	-503.2			
		M2			30.3	0.6	-611.1	-491.9			
		M3			31.8	0.5			-138.9		
		C			31.9	0.6	+500.0	+387.1			
		F	21	19	2.9	0.6	-22.0	-17.7			
		84	" 21	SP	22	09	39.9	1.0	-10		-3.2
ISN				09	54.5	0.8		-7.9	108		
85	" 21	SP	22	17	16.0	0.9	?	-3.2		ditto	
		IS			31.1	0.7	-11.1	-9.6	112		
86	" 21	F		19	21.3	0.7	+33.3	+22.5		ditto	
		SPV	23	09	52.6	1.0		-0.6	108		
87	" 22	ISV		10	7.2	0.6		+8.0		ditto	
		M			8.9	0.8	+27.7	+20.9			
88	" 22	F	1	04	57.0					ditto	
		SP	1	05	49.7						
89	" 22	M		07	22.8	0.7	+27.7	-19.3		ditto	
		F	1	30	53.3						
90	" 22	SPZ	1	30	43.9	1.0			-0.7	111	ditto
		IS		30	44.2	0.6	+22	+9.1			
		M		31	57.2	0.6	-24.4	+6.1			
		C		31	0.9	0.6	+166.6	+137.1	-20.8		
91	" 22	F		33	17.4	1.0		-8.1		104	ditto
		SPZ	2	38	39.4	0.8			-1.3		
		IS			30.6	1.0	+slight	+4.0			
		M			31.3	0.6	+16.6	+12.9			
92	" 22	C		39	47.0	0.7	+83.3	+67.7		111	ditto
		F	5	41	07.0	0.8	-16.6	-16.1			
93	" 23	SP		48	17.0					103	ditto
		IS			32.0	0.6	+27.7	+24.2			
94	" 23	M		48	33.7	0.6	-100.0	-83.8		106	ditto
		C			50.2	1.0		-6.4			
95	" 23	F		50	38.9					108	ditto
		SP	12	23	44.3	0.8	-22	-3.2			
96	" 23	IS		24	58.2	0.6	+27.7	+29.0		112	ditto
		M1			4.0	0.8	+166.6	+125.8			
97	" 23	M2		24	2.1	0.8	-177.7	-132.2		112	ditto
		F	2	08	29.4						
98	" 23	ISN		08	32.2	0.8				111	ditto
		M			46.5	0.8		-6.4			
99	" 23	CF	2	09	47.7	0.8	+27.7	+17.0		114	ditto
		F	2	57	14	0.8		-6.4			
100	" 26	SP		57	52.8					108	ditto
		F			1.3						
100	" 26	SP	8	07	1.3					106	ditto
		IS			25.3						