No. 4

KÔTI Meteorological Observatory

Jan.5~Mar.9, 1930

SEISMOLOGICAL BULLETIN

$\varphi = 33°33'$ N $\lambda = 133°32'$ E h = 40.4 m

Underground : Serpentin

Constants of the Seismographs

Date	Apparatus	Component	T_o	ε	$\frac{r}{T_o^2}\left(\frac{mm}{sec^2}\right)$	V
Jan.1,1930	Wiechert 200	N	5.5	4.4	0.002	80
	〃	E	6.0	5.0	3	70
	〃 80	Z	4.1	4.4	13	72
Nov.7,1929	Omori 16	N	17.8	3.2	0.007	20
	〃	E	18.0	3.8	3	〃

No.	Date	Phase	G.M.C.T. h	m	s	Period s	Amplitude A_E μ	A_N μ	A_Z μ	Remarks
1	Jan. 5	eP	01	24	30.5	40	+2	+3	−2	Kamchatka quake
		iP			34.0	4.0, 4.0, 2.3	−10	−10	+18	
		iS_E		28	27.2	8	+23			
		eS_Z			30					
		eSR_{IH}		29	24	6, 7	*−40	*±40		
		F		43±						
2	Jan. 5	eP	18	56.4						Microseismos prevailing 43°.1N; 147°.8E (C.M.O.)
		eS		39	39					
3	Jan. 10	ePz	18	15	05	0.5				Hyuga-nada quake 31°.1N; 132°.0E (C.M.O.)
		iz			18.1	ca 1				
		iH			20.0					
		i			24.6	2.6			*±7	△=307km
		iEZ			28.1					
		iE			39.6					
		iz			40.3					
		$iN(S?)$			48.1	3.0		−18		
		$eN(S*?)$		16	11.8	ca 6				
		$eN(L?)$			23.5					
		eN			29.1	4		*±16		
		iz			43.6	3			*±10	
		F		28±						
4	Jan. 14	eP	16	10	32					
		eS			47					
		F		14±						
5	Jan. 18	eS	07	21	47	7				
6	Feb. 5	ePz	13	29	07					
		$*eP_H$			13					
		e(L?)			57					
7	Feb. 7	eP_E	03	35	28					
		iS_N		36	06					
8	Feb. 11	iP	00	12	28±1	ca 3	+7.6	+5.2	−3.0	Felt slightly at Koti city, nofelt at the office. Epic. ; Mouth of R. Arita
		iS			47		+33	−14	−10	
		$*S_N$			57					
		$*S_E$		13	00					
		M_{N1}		12	57	4.5		*−50		
		M_{N2}		13	03	6		*−60		
		M_E			08	5	*−55			
		C_N			14					
		F		21±						
9	Feb. 14	eP	22	54	38					
		eS			44					
		F		55.3						
10	Feb. 21	eP	23	39	04					
		eS			37					
		F		43±						
11	Feb. 22	eP	11	24	00					
		F		28±						
12	Feb. 24	iP_N	20	58	02			−		
		eS_N		59	08					
13	Mar. 3	e	20	13±						
14	Mar. 6	eP	03	33	34.5	3	−1.0	+1.0	+2.8	
		eS_E		35	07.0		+			
		iS_N			08.0	4		+8		
		M_N			11					
		M_E			14					
		F		38±						
15	Mar. 7	ePz	10	53	36					
		iH		54	31.6					
		ez			33					
		eL_H		55	13					
16	Mar. 8	e	19	42±						
17	Mar. 9	eS?	09	05.6						

M. Miyamoto

Shikoku

KÔTI JAPAN

SEISMOLOGICAL BULLETIN

of the Kôti Meteorological Observatory

No. 1

January, 1930

$\varphi = 33°33'N$ $\lambda = 133°32'E$ $h = 40.4m$

Underground : Serpentine

Constants of the Seismographs

Date	Apparatus	Component	T_0	ε	$\frac{r}{T_0^2}\left(\frac{mm}{sec^2}\right)$	V
Jan. 1st, '30	Wiechert 200kg	N	5.5	4.4	0.002	80
	"	E	6.0	5.0	0.003	70
	Wiechert 80kg	Z	4.1	4.4	0.013	72
Nov. 7th, '29	Omori 16kg	N	17.8	3.2	0.007	20
	" "	E	18.0	3.8	0.003	20
Feb. 22nd, '30	Wiechert	Z	4.3	4.4	0.013	72
Time :	Civil Meantime of	135° E				

No.	Date	Phase	Time h	m	s	Period s	Amplitude A^E μ	A^N μ	A^Z μ	△ km.	Remarks
1	Jan. 5	$eP_{H.Z}$	10	24	31	4.0	+2	+3	−2		$eP-S_E = 3^m57^s$
		$iP_{H.Z}$			34	4.0	−10	−10	+18		$eP-eSS = 4\ 56$
		iS_E		28	27	7.8	+23 −10				
		eS_Z			30		+3				
		eSS_H		29	24	7	*−40	*±40			* : Maximum Amplitude
		F		43	±						no mark : First Motion
2	6	eP	03	56.4							
		eS		59	39						
3	11	eP_Z	03	15	05	0.45					
		iZ			18	1.					
		iH			20						
		$iH_{.Z}$			25				*±7		
		$iE_{.Z}$			28						
		$iE_{.Z}$			40						
		S			48	3.0		−18			
		S*		16	12	6.					
		L			24						
		eN			29	4.3		*±16			
		iZ			44	3.2			*±10		
		F		28	±						
4	15	eP	01	10	32						
		eS			47						
		F		14	±						

KÔTI JAPAN

SEISMOLOGICAL BULLETIN

no. 2

No.	Date	Phase	Time	Period	Amplitude			△	Remarks
					AE	AN	AZ		
			h m s	s	μ	μ	μ	km.	
5	Jan. 18	P	unknown						
		eS	16 21 47	6.6					
		F	unknown by pulsation						
6	Feb. 5	ePZ	22 29 07						
		ePH or P*?	13						
		L?	57						
		F	unknown by pulsation						
7	7	ePE	12 35 28						
		iSN	36 06						
		F	unknown by pulsation						
8	11	iPZ.H	09 12 28	3.	+7.6	+5.2	−3.0		
		eSZ.H	47	0.5	+33	−14	−10		
		S*N (or L)	57						
		S*E (or L)	13 00						
		MN1	12 57	4.5		*−52			This phase earlier by 0s.5 than S*N
		MN2	13 03	6.2		*63			
		ME	08	5.3	*−55				
		C	14						
		F	21 ±						
9	15	eP	07 54 38						
		eS	44						
		F	55.3						
10	21	eP	08 39 04						
		eS	37						
		F	43 ±						
11	22	eP	20 24 00						
		F	28 ±						
12	25	iPN	05 58 02						
		eSN	59 08						
		F	unknown by pulsation						

KÔTI JAPAN

SEISMOLOGICAL BULLETIN

of the Kôti Meteorological Observatory

No. 3 March, 1930

$\varphi = 33°33'N$ $\lambda = 133°32'E$ $h = 40.4m$

Underground : Serpentine

Constants of the Seismographs

Date	Apparatus	Component	T_0	ε	$\frac{r}{T_0^2}\left(\frac{mm}{sec^2}\right)$	V
Mar. 22, 1930	Wiechert 200kg	N	5.4	12	0.002	76
	"	E	6.3	10	3	68
	Wiechert 80kg	Z	4.3	7.5	13	72
Mar. 4,	Omori 16kg	N	20.0	4.8	4	20
	"	E	20.0	6.9	3	20
	Ômori P.S. 11.6	N	4.	1.0	—	50
	" 11.3	E	4.	1.0	—	50

Time: G.M.C.T.

No.	Date	Phase	Time	Period	Amplitude A^E	Amplitude A^N	Amplitude A^Z	△	Remarks
			h m s	s	μ	μ	μ	km.	
13	Mar. 3	e	20 13 ±						
14	6	$eP_{Z.H}$	03 33 34.5	3.	−1.0	+1.0	+2.8		eP_Z by W.V.S.
		eS_E	35 07.0		+ε				eP_H O.P.S.
		iS_N	08.0	4.		+8.			
		M_N	11	4.		*−17			
		M_E	14	4.	*−15				
		F	38 ±						
15	7	eP_Z	10 53 36						
		$i_{N.E}$	54 31.6						
		e_Z	33						
		$eL_{N.E}$	55 13						
		F	—						
16	8	e	19 42 ±						
17	9	eS?	09 05.6						
18	9	eS	10 56 51						
		L	57 33						
		F	11 03 ±						
19	10	eP_Z	16 31 21.0				−1.3		
		$eP_{N.E}$	21.5		+ε	+1.1			
		iP_Z	23.8				about −10.		
		iS_E	34 25	7.	+16				
		eS_N	"						
		L	35.7						
		F	—						

KÔTI JAPAN

SEISMOLOGICAL BULLETIN

NO. 4 — March, 1930

No.	Date	Phase	Time h	m	s	Period s	Amplitude A^E μ	A^N μ	A^Z μ	△ km.	Remarks
20	Mar. 22	ePE	08	51	45.4						Epicentre: off Ito, Sizuoka.
		ePZ			49.5						
		eE		52	43.0						
		$iS_{H.Z}$			57.4	2.3.2	-7.	+5.	-2.5		
		iE									
		eN		53	10.7						
		L			23						
		M_N			25	13.		*±62			
		M_E			43	7.1	*±40				
		F	09	12	±						
21	26	$S?$	05	25	24						
		L_N			44	7.					
		Q_N		26	30	6.					
					19 54,7						
22	26	ePZ	07	25	48.5						
		iPZ									
		ePN			57.5	6					
		eS_N		26	12						
		eL		32.0		19-20					
		$Q_{N.Z}$		33	31	20		*±140	*±140		Very regular ~~sinuous~~ waves, group of 10 waves on N
		eN		36	45						
		F	08	35							
23	26	eP	11	41.1							
		eS		46.1							
24	26	PZ	16	43	03						
		eS			34						
		L		44	29	7					
		F		52±							
25	26	$\bar{P}_Z$	19	12	02.0						
		$\bar{S}$			13.5						
		F		13.1							
26	28	$\bar{P}$	11	37	19						
		$\bar{S}$			22.3						
		M_N			"	0.4		*±8			
		F		38.1							
27	28	$\bar{S}$	15	50	26						
28	30	eP	00	31	53						
		eS		35.8							
29	30	eP	15	27	16						
		S		33	29						
		SS		36	49						

No. 5

KÔTI JAPAN

SEISMOLOGICAL BULLETIN

March, 1930

No.	Date	Phase	Time	Period	Amplitude			△	Remarks
			h m s	s	A^E μ	A^N μ	A^Z μ	km.	
30	Mar. 30	$iP_{H.Z}$	20 09 45.4	0.8	+3.7	+1.7	+5.5		
		$i_{H.Z}$	48.7						
		e_E	57						
		i	10 01.1	0.4, 0.8	−5.9	+12.2			
		M_E	02	0.3	*± 15				
		M_N	02	0.3		*± 20			
		C	24						
		F	12.4						

Errata

No.	for	read
22	$07^h\ 25^m\ 48^s.5$	$07^h\ 19^m\ 54^s.7$

KÔTI Meteorological Observatory

SEISMOLOGICAL BULLETIN

$\varphi = 33°33'$ N $\lambda = 133°32'$ E h = 40.4 m

Underground : Serpentin

Constants of the Seismographs

Date	Apparatus	Component	T_o	ε	$\frac{r}{T_o^2}\left(\frac{mm}{sec^2}\right)$	V
March 22,	Wiechert 200	N	5.4	10	0.002	76
〃 〃	〃	E	6.3	12	3	68
〃 25,	〃 80	Z	4.3	7.5	13	72
〃 4,	Omori 16	N	20.0	4.8	0.004	20
〃 〃	〃 〃	E	〃	6.9	3	〃

No.	Date	Phase	G.M.C.T. h	m	s	Period s	Amplitude A_E μ	A_N μ	A_Z μ	Remarks
45	May 1	eP	00	59	29.8	5	— 3.0	— 2.	+1.5	Very gradual beginning
		eSZ	01	00	46					
		iN		01	01.0	8		--50		Mean of W.and O.
		MN1			05	10		*±100		
		MN2			56	15		*±120		
		eE			48					Entrance of ME
		ME		02	04	19～20	* ±145			Two waves
		CN			12					
		F		30±						
46	May 1	eP?	04	22	04?					Very weak
		eS?		23	23?					Very weak
		F		30±						May be aftershock of no.45
47	May 5	PE	13	52.9						Very weak both on Z and H
		eSH		58	47					
		eE		59.6		30				Two waves
		eLN	14	03.7		34				Irregular
		eE		05.8						
		iN		05	48					J.S.A.; 19°N, 96°5E; 0=13 45 44
		ME1		06.1		25	*±300			Destructive in Burma
		MN1		06.6		20		*±1,400		
		eE		06	50					
		ME2		07.0		18	*±450			
		eN		06	52					
		MN2		07.1		15.5		*±1,300		Max. on N
		eZ		07	49	11			*±450	Mean amplitude of five waves on Z
		MN3		08.1		14		*±900		
		ME3		08.2		17	*±500			
		ME4		08.8		15	*±700			
		iN		10	12					
		MN4		10.3		18		*±600		
		ME5		10.9		15	*±650			
		ME6		12.0		15	*±500			
		MN5		13.4		13		*±400		
		ME7		14 2		14	*±450			
		MZ1		14.6		13			*±500	
		ME8		15.7		13	*±450			
		MN6		16.2		15		*±400		
		ME9		18.6		14	*±250			
		eZ		20	47					Entrance of MZ 2 series
		MZ2		21.0		13			*±300	Three sinous waves
		MN7		21.6		18		*±300		
		ME10		22.1		15	* ±050			
		ME11		24.4		15	* ±200			
		MN8		25.1		15		*±350		
		eZ		26.0		13				Ten sinous waves
		ME12		26.2		15	* ±100			
		ME13		28.1		15	* ±200			
		MN9				16		*±170		
		MN10		30.0		16		*±130		
		MN11		34.4		15		*±150		
		F	15	30±						
48	May 6	PE.Z	22	45	34～35					Time break
		eS		54	41					
		ePSN		55	40					Destructive in the vicinity of the Lake
		SR1		59.5		10				
		eE (L)	23	04±		24				Urumiyah, Persia
		eN		09±		45				
		eN.E		12	15					△= 7730km
		M1		13.4		20～23	* ±100	*±180		
		eE		15.6						
		M2		15.8		22;25	* ±230	*±440		
		eE		17.5						
		ME3		17.8		19	*±300			Two waves
		MN3		17.9		19		*±330		
		eN		20	33					
		MN4		21.0		19		*±300		
		ME4		22.5		16	*±100			
		eN		23.6		16		*±60		Four waves
		eN		26.0						

M.Miyamoto

KÔTI Meteorological Observatory

May6～31, 1930

SEISMOLOGICAL BULLETIN

No.	Date	Phase	G.M.C.T. h	m	s	Period	Amplitude A_E	A_N	A_Z	Remarks
Continued						s	μ	μ	μ	
48	May 6	M_{N5}	23	26.2		19		*±140		Three waves
		M_{N6}		30.7		16		*± 80		
	May 7	F	00.0							
49	May 8	$eP_{E,Z}$	15	47	34					of Distant quake
50	May 9	e	02	55.0						
51	May10	eP	12	04	35					Time break
		P			39					
		S		05	06	1.5				
		eL_E			27	4～6				
		F		07.0						
52	May12	P_Z	12	28	05					Very weak, may have begun earlier
		S		29	01					
		Q_N		30.8						
		F		37±						
53	May13	e	23	58.9						
54	May14	i_Z(P)	08	36	03					
		i_N(S)			48					
55	May14	e	16	36.5						
56	May14	e_E	19	58.9						These may be surface phases
		e_N	20	03.2						
57	May16	P_Z	20	15	21.7				+	Compression, may correspond to iP
		e_Z			32					
		i_H			45.3					Epic. ; λ=139°.1E; φ= 35°.0N (C.M.O.)
		e_Z								
		eS_E		16	23					
		e_Z			30					△=536km
		i_N			32					
		e_Z			45					
		e_E			47					
		$e_{E,N}$		17	11					Entrance of $M_{E,N}$
		$M_{E,N}$			17	7;5	*±40	*±20		
		Q_E			43					Regular five waves
			to	18	25					There no trace on N correspond to Q_E, Q_Z
		Q_Z		17	56					
			to	18	16					
		M_Z		18.0		6			*±10	
		M_{EZ}		18.3		7.0	*±30			
		F		35±						
58	May18	P	00	10	15					
		S		16	14					
59	May19	eP	03	57	46					Time of comm. doubtful
		S		59	05					
		F	04	05±						
60	May19	eP_Z	15	07	32.0					
		iP			38.0	5;5;4	−13	−.9	−17	Shorter Tp wave superposed
		eS_N		10	20					
		$S_{E\cdot Z}$			35					Epic. ; λ=120°.9E; φ= 23°.2N (C.M.O.)
		$SR_{1E\cdot Z}$			50.5					
		F		30±						△=1680km
61	May21	eP_Z	11	22	10.5					
		S		28	01					
		eL		31±						
		F	12.1							
62	May23	iP	16	39	24.7	E;34,Z;2.5	+14.6	+ 2.2	−12.0	SE off Ōsima, Kwanto
		iS_N		40	22.9					
		iS_Z			25.1					
		M_N			40	4.0		*−130		
		M_E			42	4.0	*−40			
		i_Z			50					Entrance of M_Z
		M_Z			53	4.0			*+70	
		Q_Z		41	15	3.				Epic. ; λ=139°.6E; φ= 34°.2N (C.M.O.)
			to	41	33					
		F	17	20±						△=570km
63	May31	eP	17	59	57.4		+	+	−	Dilatation
		$iP_{Z\cdot E}$	18	00	00.7	Z=2	+ 8	+	−10	Strong Shock were felt in Kwanto,
		$e_{Z\cdot E}$			35					Epic. ; Near Mito city △=ca 680km
		eS_Z		01	16					Trapezoidal waves, usually appear
		eS_E			18.5					in front of Surface phase
		eN (S*?)			25					
		i_Z (S)			42					Entrance of M_1 series
		i_N (S)			48					
		M_{N1}			56	3.0		*± 55		
		$M_{Z\cdot E\cdot 1}$			57	3.0;3.0	*±5.5		*±85	
		M_{N2}		02	06	5		*+200		
		M_{Z2}			08	3.5			*±90	Regular waves, last to 02m 20s
		M_{E2}			24	6	*± 50			
		$e_{E,Z}$		02.7						Entrances of M_3 series
		M_{Z3}		02	50	6			*±60	Irregular, last to 03m.1
		M_{E3}			58	6	*± 50			
		F	18.6							

M. Miyamoto

No. 10

KÔTI Meteorological Observatory

June 1～July 2, 1930

SEISMOLOGICAL BULLETIN

$\varphi = 33°33'$ N $\lambda = 133°32'$ E h = 40.4 m

Underground : Serpentin

Constants of the Seismographs

Date	Apparatus		Component	T_o	ε	$\frac{r}{T_o^2}\left(\frac{mm}{sec^2}\right)$	V
June 1,	W	200	N	5.1	12	0.002	76
〃	〃		E	6.4	10	3	68
〃	〃	80	Z	4.7	9.5	5	72
〃	Omori	16	N	20.0	4.3	0.005	20
〃	〃	〃	E	22.0	5.0	5	〃

No.	Date	Phase	G.M.C.T. h	m	s	Period s	Amplitude A_E μ	A_N μ	A_Z μ	Remarks
64	June 1	$\bar{P}$	12	30	13					魚梁瀬:微震
		$\bar{S}$			19					
		F		30.7						
65	June 4	ePz	09	57	32.6					
		$iz \cdot N$			34.0			+	+	
		$iPz \cdot N$			35.6		±0	+3	+7	
		iz		02	41	3				No trace on E correspond to this phase
		e_N								
		eS_E?		03	11					No trace on Z
		$e_H(L)$		06	29					
		F	10.3							
66	June 5	e	11	53	17					Predominent on Z than H.
		e_N	12	01.8						
		F	12.5							
67	June 11	$ePz \cdot N$	00	57	26					
		e_1			31	(7)				There exist 7ˢ wave in the interval of
		e_2			45	3				e_1 and e_2
		e_H	01	03	56	18				Superposed each other
		e		04	12	4				Superposed each other
		M_{E1}		09.5		20	*±30			
		e_N		09.6						
		e_Z		09.9		26			*±30	Mean amp.
		M_{N1}		10.2		30		*±50		
		M_{N2}		11.4		20		*±20		
		M_{E2}		12.4		23	*±40			
		M_{Z1}		13.5		20			*±150	
		M_{N3}				20		*±30		
		M_{Z2}		14.8		19			*±100	Mean amp.
			to	15.5						
		M_{E3}		15.0		20	*±40			Ditto
			to	16.3						
		M_{N4}		15.3						
		M_{Z3}		16.0						
			to	17.6		17				
		F		02±						
69	June 18	$eP_{E \cdot Z}$	20	46	25.5					Very weak beginning
		eP_N			28.0					
		e			31.0					
		i			52.5					
		i_N			57					Entrance of M_N
		M		47.0		1.0;1.5		*±4	*±5	
		F		50±						
71	June 21	eP	09	48	07					
		eP*			08?					Covered with 0.ˢ4 waves
		e			13.7					
		$ez \cdot E$			32					Entrance of M series
		M			38	2		*±7	*±5	Epic.; Bungo—strait
		F		56±						
73	July 2	$eP_{E \cdot Z}$	21	11	00.0		+			Indistinct on N
		$e_{E \cdot Z}$			12	5,—;6				
		P_CP_E		12	28					There exist ca 1ˢ.waves of amplitude 4μ
		P_CS_H		16	47					on each comp.s in the interval from 11.ᵐ2
		e_E		19	45	14				to 12.ᵐ6
		SR_{1E}		21.8		12				
		eL_N	from	22.0						Coverd with 5ˢ waves,
			to	26.3		45～13				Nine waves. Tp gradually decreasing
		M_N		25.6		19		*±70		It seems more probable to take this max. amp. as the mean amp. of wave series in the interval from eL_N to 26.ᵐ3
		e_E		25.0						
		e_E		27.0						
		e_E		28	09					Entrance of M_E series
		e_Z			13					〃 〃 M_Z 〃
		$M_{E \cdot Z}$		28.6		17,16	*±380		*±340	
		$C_{E \cdot Z}$		29.4						
		F	22.5							△=47°.

M.Miyamoto

No. 11

KÔTI Meteorological Observatory

July 10～Aug. 23, 1930

SEISMOLOGICAL BULLETIN

$\varphi = 33°33'$ N $\lambda = 133°32'$ E $h = 40.4$ m

Undergrund : Serpentin

Constants of the Seismographs

Date	Apparatus		Component	T_o	ε	$\frac{r}{T_o^2}\left(\frac{mm}{sec^2}\right)$	V
June 1,	W	200	N	5.1	12	0.002	76
〃	〃		E	6.4	10	3	68
〃	〃	80	Z	4.7	9.5	5	72
〃	Omori	16	N	20.0	4.3	0.005	20
〃	〃	〃	E	22.0	5.0	5	〃

No.	Date	Phase	G.M.C.T. h	m	s	Period s	Amplitude A_E μ	A_N μ	A_Z μ	Remarks
74	July 10	iP	04	15	22					
		S			34					
		F		16.0						
75	July 10	P_Z	12	40	47					
		e		41	39					
		F		47±						
76	July 13	e_E	19	41	26					
		e_N		43	00					
		e_N			24					Entrance of M_N
		M_N			41	14		*±70		3waves
		C_N		44.2						
		$e_{Z.E}$		45	23	12	*±55		*±30	Regular 4 waves
		$e_{Z.E}$		46.4						
77	July 14	e_E	23	39.8		26				
78	July 23	eP	19	29	22.7	4	+	−	−	
		iP			29.3	1.5				
		e		30	04	4～5				
		S_H		32	31					
		L?		34.8						Surface waves are indistinct as general
		F	20	00±						
79	July 23	e_Z(P)	00	20	20					
		e_E(PS)		32	10					
		e_E		59.8		15	*±20			
		to	01	01±						Destructive in South Italy
		F	01.5							
80	Aug. 4	e	05	23	10					
81	Aug. 17	P_E	09	29	59.2					
		P_Z		30	00.5					
		$S_{N,Z}$		31	10.5					
		L_N			31	5		*±8		
		F		38±						
82	Aug. 18	e_Z(S)	10	13	19					
		M		14	06					
83	Aug. 18	e_E	19	41	31					Near quake
84	Aug. 19	e_N	12	42	40					Ditto
		S		43	04					
85	Aug. 19	S	17	44	57.5					Ditto
		L_N		45	08	4		*±4		
		F		49±						
86	Aug. 20	P	20	57	10					
		eL	21	00.0		35～21				Supperposed 5s～6swaves
			to	02.2						
		M_{N1}		01.8		21		*±100		E, Z unknown by instrumental defect
		M_{E1}		03.0						
			to	04.6		14	*±110			Uncertain
		M_{N2}		03.0						
			to	04.1		17		*±150		
		i_N		04	31					Entrance of M_{N3}
		M_{N3}		04.9		12		*±320		
		M_{E2}		05.8		12	*±120			
		M_{N4}		06.3		14		*±180		
		M_{E3}		07.0		11	*±100			
		C_E		07.4						
		M_{N5}		07.6		16		*±100		
			to	09.3						
		M_{N6}		11.1		11		*±60		
			to	12.3						
		F	22.0							
87	Aug. 21	e	10	50±						Near qnake
88	Aug. 23	P_Z	10	33	59.0					△=66°.5=7,400Km
		S_E		42	50					
		M_E	11	01.7		20				M. Miyamoto

No. 12

KÔTI Meteorological Observatory

Sept. 19～Oct 16, 1930

SEISMOLOGICAL BULLETIN

$\varphi = 33°33'$ N $\lambda = 133°32'$ E h = 40.4 m

Underground : Serpentin

Constants of the Seismographs

Date	Apparatus		Component	T_o	ε	$\frac{r}{T_o^2}\left(\frac{mm}{sec^2}\right)$	V
Sept .3	W.	200	N	5.0	12	0.002	76
〃	〃		E	6.4	10	3	68
〃	〃	80	Z	4.3	9.5	4	72
June 1	Omori	16	N	20.0	4.3	0.005	20
〃	〃	〃	E	22.0	5.0	5	〃

No.	Date	Phase	G.M.C.T. h	m	s	Period s	Amplitude A_E μ	A_N μ	A_Z μ	Remarks
89	Sept. 19	P	08	00	48					
		S		01	07					
		F		02±						
90	Sept. 21	eL_N	23	19.7		36				
		e_N		20.7						
		M_N		21.9		18		*±300		
		C_N		22.2						
		M_E, M_Z		24.1		14, 13	*±250		*±280	No trace on N
		F	23.7							
91	Sept. 22	e	14.6							P and S unknown.
92	Sept. 24	P	12	12	17					
		S		16	43					
		M_E		20.4		9				
93	Sept. 25	e	16	50.3						Record of near quak
94	Sept. 25	e_E	18	49.7						
		M_N		50.8						
		M_E		53.7						
95	Sept. 26	P_Z	19	57	12					
		S		58	18					
		L_E		58.7						
96	Sept. 29	P	04	53	31.9		+5.2	+2.6	+4.2	Slightly felt by PM and M
		iP_H			32.9					
		iP_Z			33.1					
		PM			33～35	0.4	*—15	*—15	*±20	
		eS		54	22.3					
		iS			23.9					
		M			27	0.6	*±25	*±35	*±10	
		C			30					
		F		56±						
97	Sept. 30	P_Z	21	28	20					Very slight on H
		S_E		34	17					
		SR_{2E}		37	19	26	*±110			Rather distinct, Very slight on N
		e_E (M)		38.1		15	*±50			
			to	39.7						
		e_N		40.9		20		*±20		
		F	22.5							
98	Oct. 1	ePz	02	57	33					Very slight
		e			54					
		S?	03	01	09					
99	Oct. 2	e(P?)	00	47	35					
		S		50.7						
		F	01.4							
100	Oct. 6	P	20	51	35.5					
		iS			50.0					櫻原 微震 急
		M			54	0.5	*±3	*± 5	*± 3	
		F		53±						
101	Oct. 8	P	10	29	10					
		S		37	11					
102	Oct. 16	e(P?)	21	33	27					For-shock of No. 103
		S*		34	04					
		M		34.3		2	*±7	*± 7	*± 7	
103	Oct. 16	e(P?)	21	36	59.6					
		iP*		37	06.0		+10	+12	—12	
		eS^*_E			46					
		e		37.8		15	*±80	*±40		{Entrance of long wave,(2 waves), superposed 2～4s waves
		M_E		37	54	4	*±70			
		M_N			58	2		*±60		Strongly felt in Hokuriku, Japan
		M_Z		38	00	2			*±40	△=ca 380km
		C_E			26					
		F	21.9							M. Miyamoto

No. 13

KÔTI Meteorological Observatory

Oct.24～Nov.4, 1930

SEISMOLOGICAL BULLETIN

$\varphi = 33°33'$ N $\lambda = 133°32'$ E h = 40.4 m

Underground : Serpentin

Constants of the Seismographs

Date	Apparatus	Component	T_o	ε	$\frac{r}{T_o^2}\left(\frac{mm}{sec^2}\right)$	V
Sept. 3	Wiechert 200	N	5.0	1.2	0.002	76
	〃	E	6.4	1.0	3	68
	〃 80	Z	4.3	9.5	4	72
Jnue 1	Omori 16	N	20.0	4.3	5	20
	〃	E	22.0	5.0	5	〃

No.	Date	Phase	G.M.C.T. h	m	s	Period s	Amplitude A_E μ	A_N μ	A_Z μ	Remarks
105	Oct. 24	iP	20	19	33.5	5, 5, 4	+32	−29	−38	E +70 (8s) N −70 (8s) by Ō. H. S.
		eS_H		23	03					
		iS_E			04.0	10	−500			
		iS_Z			06.8	5			−40	
		M_E			11	6	*+280			
		M_Z			12	5			*±100	by W.
		M_E			24	8	*+400			
		M_E			20	9	*±500			
		M_N			22	12		*±250		Ō. H. S.
		M_N			48	13		*±300		
		L_E		23.7		25	*±300			
		(M_{E2})	to	24.7						
		L_N		23.8		29		*±200		
		M_E		24.7						Ō. H. S.
			to	27.7						
		(M_{E3})		26	02	13	*±600			
		M_N		24.9		22		*±500		Regular two waves
			to	25.8						
		M_N		26.	24	18		*±500		
		L_Z?		24.7		22～16			±0.5 (mm)	W. Graclually decreasing
			to	29.±						
		F	22.±							
106	Oct. 26	eP	13	45	32.7					
		S			53.0					
		$\bar{S}$			58					
		M		46.0		0.6	*±6	*±10	*±7	
		F		47.6						
107	Oct. 28	e	12	55	33					
		S			42					
		M			44					
		F		56±		1.4	*±2	*±3		
108	Oct. 28	eP	18	08	01					
		S			14					
		M			—		*±1	*±1	*±1	Compression
109	Oct. 28	eP	21	14	44.8					
		i			51.8					
		eS_E		18	16					
		eS_N			18					
		L_N		21.0		20				
		L_Z		21.1		20				
		M_N		22.4		15		*±0.1		
		M_E		22.6		16	*±0.07 (mm)	(mm)		
		F	22±							
110	Oct. 29	eP	14	27	53.0					櫻原 微震、急
		S		28	13					
		M			—	0.6	*±2	*±3		
		F		29±						
111	Oct. 29	P	23	24	50.0					
		S		25	00					
		M		25.0		<0.5	*±1	*±2	*±0	
		F		25.5						
112	Nov. 4	L_N	15	55.1						
		M_E		57.6		10	*±15			Only two wave

M. Miyamoto

No. 14

KOTI Meteorological Observatory

Nov.8～12, 1930

SEISMOLOGICAL BULLETIN

$\varphi = 33°33'28''N$ $\lambda = 133°31'52''E$ $h = 40.4\,m$

Underground : Serpentin

Constants of the Seismographs

Date	Apparatus	Component	T_o	ε	$\frac{r}{T_o^2}\left(\frac{mm}{sec^2}\right)$	V
Sept. 3	Wiechert 200	N	5.0	12	0.002	76
〃	〃	E	6.4	10	3	68
〃	〃 80	Z	4.3	9.5	4	72
June 1	Omori 16	N	20.0	4.3	5	20
〃	〃	E	22.0	5.0	5	〃

No.	Date	Phase	G.M.C.T. h	m	s	Period s	Amplitude A_E μ	A_N μ	A_Z μ	Remarks
113	Nov. 8	e(S?)	03	32	37					
		e		37	30					
		e_E		38	47					
114	Nov. 8	$\bar{S}$	04	02	43					
		M			—		*±1	*±1	*±1	
		F		03.6						
115	Nov. 9	P	19	15	27.4					Very weak
		S_N		20	43					SR_1 ?
		L_E		22.6		0.5 m	*±150			
		M_1		27.6		19 s		(mm) *±0.04		
		M_2		31.1		17		*±0.04		
		M_3		32.6		18		*±0.07		
		M_4		34.1		18		*±0.05		
		M_5		36.6		18.5		*±0.05		
		to		27.6						
		M_6		40.6		17		*±0.04		Regular wave group
		M_7		42.1		17		*±0.09		
		M_8		43.3		17		*±0.05		
		M_9		45.4		16		*±0.04		
		to		47.6						
		M_1		25.8		16	(mm) *±0.08			Very irregular form
		M_2		28.2		17	*±0.04			
		M_3		28.9		12	*±0.05			
		F	20.5							
116	Nov. 10	P_Z	13	51.1						
		PR_1		51	14					
		S		56	51					
		M_1	14	01.7		21		(mm) *±0.04		
		M_2		03.6		16		*±0.04		
		to		05.8						
		M_3		06.6		18		*±0.03		
		M_4		08.0		16		*±0.03		
		M_5		09.6		16～17		*±0.03		
		to		13.4						
		M_1		00.0		21	(mm) *±0.02			
		to		00.9						
		M_E		00.9		14	*±0.02			Tp discontinuously changed
		to		02.2						
117	Nov. 11	eP	08	32	53.					
		PR_{1Z}								
		iPR_{1N}		33	07					
		ePR_{1E}								
		$e\bar{S}_N$		35	38					
		eS_E			42					
		F	09.0							
118	Nov. 12	$e\bar{P}$	13	01	20					Weak beginning
		$i\bar{S}$			27.6					
		M			—	<0.6	*±4	*±5	*±4	
		F		01.7						

M. Miyamoto

No. 15

KÔTI Meteorological Observatory

Nov. 17～27, 1930

SEISMOLOGICAL BULLETIN

φ = 33°33'28" N λ = 133°31'52" E h = 40.4 m

Underground : Serpentin

Constants of the Seismographs

Date	Apparatus	Component	T_0	ε	$\frac{r}{T_0^2}\left(\frac{mm}{sec^2}\right)$	V
Sept. 3	Wiechert 200	N	5.0	12	0.002	76
"	"	E	6.4	10	3	68
"	" 80	Z	4.3	9.5	4	72
June 1	Omori 16	N	20.0	4.3	5	20
"	"	E	22.0	5.0	5	"

No.	Date	Phase	G.M.C.T. h	m	s	Period s	Amplitude A_E μ	A_N μ	A_Z μ	Remarks
119	Nov. 17	$ePz.N$	15	16	09.3			$-\varepsilon$	$+\varepsilon$?	Beginnigs of very small amp.
		iS			28.5					Clear beginning
		iS^*_E			31.8					
		M_Z			28.5					
		to			44	1.3			*±13	
		M_H			33	2,—	*±30	*±20		
		C_H			35					
		F		18±						
120	Nov. 22	$i\bar{P}$	21	59	42.7	<0.2	+5.0	—3.0	—5.5	Felt slightly at the office
		e_E			45.8	0.2	*±5			Epicentre : off Aki;
		$i\bar{S}_N$			47.2	0.2		+44		震央は安藝町の沖合にして各地の震度は次の如し
		iS^*_E			47.6		+23			
		M_Z			47.2				*±11	安藝町 3, 美良布 2, 大栃 2, 高知市 1,
		M_H			—					First motion of iS_N and iS^*_E
		F	22	01.7						
121	Nov. 23	iP	20	00	33.0		unknown	+1.5	—3.0	Deep quake?
		iS		01	08.4					Alike to the seismograms of No.128
		i			11.0					
		M			11.5	0.6	*±4	*±5	*±1	
122	Nov. 24	P	06	46	10.3					
		S_E			28.0					
		M			—	0.5	*±3	*±4	*±3	
		F		47±						
123	Nov. 25	e_E(P?)	07	07	58					
		S		08	29					
		F		09±						
124	Nov. 25	e	14	25.8						
125	Nov. 25	eP	19	03	59.0	0.6	$-\varepsilon$	unknown		W. Destructive in the northpart of Izu
		P_E		04	02.1	10	—70	clitto		W. pend., Sizuoka prefecuture
		P			02.		—100	—20		O. λ=139°.1 E (C.M.O.)
		$P^*_{Z.E}$			08.8					W. φ=35°.2 N
		e_E			57	1				
		iS^*_N		05	04.9					W. S? Superposed on long wave
		S^*_H			05					O. There exist 24^s waves in the intervals
		S^*_Z			09					W. of P and iS*, ^{a}nd therir Amp.
		$i\bar{S}_N$			25		(mm)	(mm)	(mm)	W. E N Z
		M_H			40	18;20	*±4	*>±5		O. (W.) *±0.6(mm) difficult ±0.6(mm)
		M_Z		06	04	8			*±2.0	O. (O.) *±500μ *±100μ
		M_Z		07	09	8			*±1.6	W.
		C_H		06.3						W. △=520 Km
		M_N		05	41	14		*±4		O.
		M_N		05.7		14		*±2		O. P. S.
		M_E		06	06	7	*±0.8			I. L. S.
		to		06.5						Rather regular 3waves
		F	21±							1ndistinct on E.
										O. P. S. E N
										s s
										T_0 4.0 4.0
										ε >10 4
										V 40 40
126	Nov. 26	M_E	01	09.4		3	*±1			
127	Nov. 26	M_E	15	18.8		3	*±1			
128	Nov. 27	iP	21	55	03.2		+1.3	+1.5	+3.0	cf. No. 121
		iS			33.6					
		i			36.1					
		M			36.5	0.4	*±3	*±5	*±1	
		F		56						

M. Miyamoto

No. 16

KÔTI Meteorological Observatory

Dec. 2~3, 1930

SEISMOLOGICAL BULLETIN

$\varphi = 33°33'28''N$ $\lambda = 133°32'52''E$ $h = 40.4\,m$

Underground : Serpentin

Constants of the Seismographs

Date	Apparatus	Component	T_o	ε	$\frac{r}{T_o^2}\left(\frac{mm}{sec^2}\right)$	V
Dec. 2	Wiechert 200	N	4.6	12	0.002	76
〃	〃	E	6.3	10	3	68
〃	〃 80	Z	3.9	9.5	4	72
June 1	Omori 16	N	20.0	4.3	5	20
〃	〃	E	22.0	5.0	5	〃

No.	Date	Phase	G.M.C.T. h	m	s	Period s	Amplitude A_E μ	A_N μ	A_Z μ	Remarks
129	Dec. 2	L_N	07	17.6		33				
		M_N		18	49	17		*±30		
		M_E		20	56	10	*±30			
								*±40		
130	Dec. 3	M_N	16	56.7		14				3 Waves
131	Dec. 3	P_Z	18	58	59					b } W.
		e_E		59	03					
		eS_E		04	31					O.
		S_N			33					W. Next to this there are 2 waves of
		iS_E			41					Tp. 30^s an A±270μ
		L_N		08.4		47	(mm)	(mm)	(mm)	From this pt. A. gradually increasing
		M		09	18	37		*±0.8		Tp decreasing
		M			54	35		*±1.0		
		M		10	27	30		*±1.5		
		M			54	28,27	*±0.4	*±1.7		
		M_E			19	24	*±0.3			
		M_N		11	21	25		*±1.9		
		M_E			41	22	*±0.4			
		M_N			44	22		*±2.2		
		M		12	03	20,19	*±0.5	*±2.5		
		M			20	15,16	*±0.3	*±2.5		
		M_E			33	12	*±0.2			
		M_N			34	14		*±2.1		
		M			47	13	*±0.	*±2.5		O.
		M_E		13	58	17	*±1.0			
		M_N		14	00	19		*±1.0		
		M			20	19		*±1.0		
		M			44	12	*±0.5			
		M			57	12	*±0.8			
		M		15	07	8	*±0.2			
		M_E			18	14	*±1.2			
		M_N			20	15		*±1.3		
		M			33	17,13	*±0.9	*±0.8		
		M_N			46	15		*±0.5		
		M_E			50	19	*±1.1			
		M_N		16	03	16		*±1.0		
		M_E			08	18	*±0.7			
		M		11	22	23	*±0.5	*±2.2	↑Small↓	
		M			44	21	*±0.6	*±2.7		
		M		12	04	18	*±0.6	*±2.3		
		M			20	16	*±0.6	*±2.6		
		M			34	13	*±0.3	*±2.1	*±0.4	
		M			47	13,12	*±0.	*±2.5	*±0.7	
		M		13	58	15,12	*±0.6		*±0.5	
		M		14	46	10,10	*±0.3	*±0.		
		M_H			58	11	*±0.8	*±0.3		
		M_Z		15	00	10			±0.9	
		M_E			08	9	*±0.5			
		M_N			09	9		*±0.2		
		M_Z			10	10			*±0.6	
		M_E			18	12	*±1.1			W.
		M_Z			19	13			*±1.9	
		M_N			20	13		*±1.1		
		M_E			32	17	*±1.3			
		M_N			34	13		*±0.9		
		M_Z			37	17			*±2.3	
		M_N			46	13		*±0.7		
		M_E			50	15	*±1.0			
		M_Z			52	14			*±1.1	
		M		17	50	13	*±0.7	*±0.9		
		M_N			49	14		*±0.7		O.
		M_Z			57	12			*±0.4	W.

(to be continued)

No. 17

KOTI Meteorological Observatory

Dec.3～13, 1930

SEISMOLOGICAL BULLETIN

$\varphi = 33°33'28''$N $\quad \lambda = 133°32'52''$E $\quad h = 40.4$ m

Underground : Serpentin

Constants of the Seismographs

Date	Apparatus	Component	T_o	ε	$\frac{r}{T_o^2}\left(\frac{mm}{sec^2}\right)$	V
Dec. 2	Wiechert 200	N	4.6	12	0.002	76
〃	〃	E	6.3	10	3	68
〃	〃 80	Z	3.9	9.5	4	72
June 1	Omori 16	N	20.0	4.3	5	20
〃	〃	E	22.0	5.0	5	〃

No.	Date	Phase	G.M.C.T. h	m	s	Period s	Amplitude A_E	A_N	A_Z	Remarks
131 (Continued)	Dec. 3	M_N	19	18	29	16	(mm)	*±0.6	(mm)	O.
		M_Z		19	27	12		(mm)	*±0.5	
		M_E			30	11	*±0.3			
		$M_{E\cdot Z}$		20	36	12, 13	*±0.3		*±0.4	
		$M_{E\cdot Z}$		21	23	13, 12	*±0.3		*±0.4	W
		M_Z		23	10	12			±0.2	
		M_Z		24	32	10			±0.1	
		M_Z		26	06	12			±0.1	
		M_Z		27	17	9			±0.1	
		F	20.5							
132	Dec. 5	eP	20	32	11.3		μ —	μ unknown	μ +	Felt moderatly.
		iP*			12.9		−6	−6	+6	東豐永, 本山 弱震
		iS_H			28.2					美艮布, 馬路, 高知, 弱震(弱き方)
		iS*			29.1					安藝, 伊野, 微震
		M_Z			30	2			*±35	震央 : 播磨灘.
		M_Z			38	1			*±30	
		M_H			32	0, 6	*±40	*±40		
		F		36±						
133	Dec. 8	M_E	06	31.8		11	*±20			P and. S discernible
		to		32.8						Fore-shock of No. 134
134	Dec. 8	P?	08	05	03～05					Occured timebreak
		S		08	10					
		L		11.1		14				Destructive in the vicinity of Tainan,
		M		13	03	12, 11, 11	*±60	*±30	*±50	Taiwan
		M			13	11, 12, 11	*±50	*±40	*±50	
		M			24	10, 10	*±30	*±20		
		C		13.5						
		M		13	51	10,—,10	*±20	*±00	*±15	
		to		14	33					
		M		14	27					
		to		15.1		10		*±20		
		M_N		15	23	13		*±30		
		F	08.5							
135	Dec. 10	L_N	16	10.0		30				
136	Dec. 11	eP	17	12	37					Moderatly Felt.
		iS_E			59.0					Deep quake?
		M_E			59.0					There are no surface phase.
		to		13	00.5	0.3	*±1.0			高知 : 弱震の弱き方
		M_Z, M_N		12	59.7	0.4		*±1.1	*±0.4	
		F		13.9						
137	Dec. 12	L	03	13±						
138	Dec. 12	M_N	13	55	47	1.		*±1.5		
		F		56.1						
139	Dec. 12	P_Z?	16	02	37					
		P			43					
		S_N		03	06					
		L_N			16	2.0				
		e_N			18					Entrance of M_N
		M_N			19	1.3		*±5		Tp decreasing
		M			—		*±1		*±2	
		F		04.0						
140	Dec. 12	eP_Z	19	43	42.0					
		S_N		44	04					
		e_N		44	18.0					Entrance of M_N
		M_N			19	1.9		*±4		Tp decreasing
		M			—		*±1		*±2	No. 138, 139 and 140 are the earthquakes occured near Kumamoto City
141	Dec. 13	P_Z	14	25	25					Difficult to determin S, L and M etc.
		F		36±						