

SEISMOLOGICAL BULLETIN
OF THE
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AND
KOBE METEOROLOGICAL OBSERVATORY.

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SEISMOLOGICAL BULLETIN

of the Imperial Marine Observatory and the Kōbe Meteorological Observatory of Japan.

$\phi=34^{\circ} 41' 18''$ $\lambda=135^{\circ} 10' 51''$ $h=58.3$ m. Underground: Diluvial Series.

Instruments: Ōmori's Seismograph.
(Horizontal)

Wiechert Seismograph.
(Horizontal & Vertical)

Jan.

	T_0	ϵ	$\frac{r}{T_0^2}$	V
AE:	19.8		0.001	20
AN:	18.9		0.001	20

	T_0	ϵ	$\frac{r}{T_0^2}$	V
AE:	5.8	6	0.006	107
AN:	6.0	7	0.007	103
Az:	5.1	9	0.004	84

Feb.

	T_0	ϵ	$\frac{r}{T_0^2}$	V
AE:	19.5		0.001	20
AN:	19.9		0.001	20

	T_0	ϵ	$\frac{r}{T_0^2}$	V
AE:	5.8	5	0.006	108
AN:	5.7	7	0.006	111
Az:	5.2	7	0.003	83

Mar.

	T_0	ϵ	$\frac{r}{T_0^2}$	V
AE:	19.1		0.001	20
AN:	19.5		0.001	20

	T_0	ϵ	$\frac{r}{T_0^2}$	V
AE:	5.7	6	0.006	107
AN:	5.9	7	0.007	102
Az:	5.2	8	0.004	83

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No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		AE	AN	Az		
1	Jan. 1	ePEZ	h	m	s	s	μ	μ	μ	km. 20	Local shock.
		ePN	17	03	14						
		S	17	03	17		+1	-1	+1		
		Mz	17	03	17	0.3			-1		
		MEN	17	03	18	0.3	-1	-3			
		F	17	03	47						

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					A _E μ	A _N μ	A _Z μ		
2	Jan. 3	ePz	0 13 11					71	In the Kii Channel.
		ePEN	0 13 12						
		Sz	0 13 21			+3			
		iSE	0 13 22	+7					
		SN	0 13 22		+2				
		MEN	0 13 22	0.5	-8	-10			
		F	0 13 57						
3	Jan. 5	iP	11 11 04.2		-2.2	+3.2	+3.0	820	Epicenter: 28°.0N 139°.6E, to the WNW of Bonin IIs. Focal depth about 500km. by ScS-P travel time curve. Felt in Titi-zima, Bonin IIs.
		iE	11 12 00	-8					
		eN	11 12 01		-4				
		eEZ	11 12 20						
		eN	11 12 21						
		iSN	11 12 33.6		+22				
		iSEZ	11 12 33.8	-20		-15			
		SM _E	11 12 36	+23					
		SM _Z	11 12 36	4.3		+15			
		SM _N	11 12 40		-27				
		M _E	11 13 41	3.6	+25				
		iScSEN	11 23 02						
		eEN	11 24 50						
		eF	11 33 ±						
4	Jan. 5	P	14 51 24				58	Lower basin of the Arita River, Wakayama Prefecture.	
		S _E	14 51 32	-4					
		eS _Z	14 51 32						
		eS _N	14 51 33						
		M _Z	14 51 36	0.5		+2			
		M _E	14 51 37	0.4	+5				
		M _N	14 51 37	0.6		+5			
		eF	14 54 ±						
5	Jan. 5	eP _N	21 06 39					Southern part of the Hyūga- nada, to the SE of Kyūsyū.	
		eP _E	21 06 40						
		eS _{NZ}	21 07 23						
		eS _E	21 07 24						

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					A _E μ	A _N μ	A _Z μ		
		eM _E	21 09 23	2.5	-3				
		ez	21 11 04	2.1		±1			
		eF	21 19 ±						
6	Jan. 5	eE	21 34 31					Ditto. Before the waves of this earthquake had ended the next one began.	
		eE	21 37 56	3.0	±1				
		eN	21 38 34	4.7		±1			
		ez	21 38 38	6.6		±1			
7	Jan. 5	P	21 39 06		+7.0	+11.2	+11.2	580	Ditto. Felt in Kyūsyū & Sikoku districts.
		S _Z	21 39 58				-20		
		S _E	21 40 09		-53				
		S _N	21 40 11			-23			
		iE	21 40 33		+70				
		M _{1E}	21 41 54	5.5	+120				
		M _{1N}	21 42 26	7.5		-140			
		M _{2N}	21 43 35	7.3		-130			
		M _{2E}	21 43 39	6.3	-118				
		M _Z	21 43 41	7.3			-125		
		M _{3E}	21 44 31	7.4	+200				
M _{1E}	21 47 09	8.5	-170						
eF	22 34 ±								
8	Jan. 5	eP _{EN}	21 54 48					Ditto.	
		eP _Z	21 54 52						
		eE	21 55 26						
		eM _N	21 58 13	8.4		+18			
		eM _E	21 58 18	10.1	+20				
		eM _Z	21 58 19	10.3		±13			
eF	22 34 ±								
9	Jan. 7	eE	4 30 45					Ditto. Faint record.	
		ez	4 31 30						
		eN	4 31 57						
		eM _Z	4 32 19	8.2		±4			
		eM _N	4 32 36	8.6		±5			

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
10	Jan. 7	eME	4	32	55	10.0	± 7			770	To the east of the Koizumi Bay, Miyagi Prefecture. Felt in Oou and Kwantō districts.
		eF	4	41	\pm						
		PEZ	6	13	46				+2		
		iPN	6	13	46.3			+3			
		iN	6	13	55			+8			
		iSNZ	6	15	11			+40	+20		
		iSE	6	15	12		-37				
		MZ	6	15	43	5.7			-47		
		MN	6	15	48			-70			
11	Jan. 7	ME	6	16	00	5.6	-78			3470	Kansu, China.
		eF	6	34	\pm						
		ePN	13	26	39						
		ePz	13	26	40						
		PN	13	26	54			+3			
		iPEZ	13	26	55		-7		-15		
		eSz	13	31	48						
		SE	13	31	54		+36				
		eSN	13	31	54						
12	Jan. 7	SM _E	13	32	30	19.5	-1400			195	Near Takayama City, Gihu Prefecture.
		SM _Z	13	32	37	20.0			-690		
		eL ^(R)	13	36	09						
		LN	13	36	42						
		LE	13	37	13						
		ME	13	39	40	17.5	+3000				
		MZ	13	39	45	18.0			+2300		
		MN	13	40	09	12.5		+1300			
		eF	15	20	\pm						
		iPz	19	01	09				+1		
		iPEN	19	01	10		+0.3	+0.5			
		iPEN	19	01	10		+1	-1			
12	Jan. 7	eS	19	01	36					1.4	
		ME	19	01	40		± 4				
		eF	19	05	\pm						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks		
			G.	M.	T.		A _E	A _N	A _Z				
			h	m	s	s	μ	μ	μ	km.			
13	Jan. 20	ez	0	05	08					4.2	± 10	To the SW of the Erimo Cape, Hokkaidō. Disturbed by microseisms.	
		eE	0	07	16								
		ez	0	07	27								
		eME	0	07	47								
		eMz	0	09	33	3.4			± 5				
14	Jan. 20	eF	0	15	\pm					0.5	+10	35	Near Sumoto, Awazi Province.
		eP	18	04	38								
		iSE	18	04	42		-6						
		SN	18	04	42			-2					
		eSz	18	04	42								
		MEZ	18	04	43	0.5	+10		+3				
		MN	18	04	44	0.5		-6					
15	Jan. 23	F	18	06	19					0.5	-3	269	Near Ōita City, Kyūsyū. Focal depth about 100km.
		ePN	8	50	44								
		ePEZ	8	50	48								
		Sz	8	51	19				-2				
		SEN	8	51	20		-3	+4					
		ME	8	51	23	0.5	± 5						
		Mz	8	51	38	0.8			± 3				
16	Jan. 23	MN	8	51	40	0.5			± 6	1.7		364	Near Suikaidō, Ibaraki Prefecture.
		eF	8	58	\pm								
		ePz	8	59	15								
		ePEN	8	59	16								
		eSz	9	00	00								
		SE	9	00	04								
		SN	9	00	05								
16	Jan. 23	Mz	9	00	11	2.1			± 3	2.1	± 5		
		MN	9	00	30			+5					
		ME	9	00	26								
17	Jan. 23	eF	9	15	\pm					11	03	42	Near New-Britain Isl., Melanesia.
		ePN	11	03	42								
		ePz	11	03	50								

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks	
			G.	M.	T.		A _E	A _N	A _Z			
			h	m	s	s	μ	μ	μ	km.		
18	Jan. 23	ePE	11	03	51							
		eSN	11	09	07							
		eSz	11	09	11							
		eLz	11	12	16							
		eLN	11	13	31							
		eLE	11	13	50							
		Mz	11	17	21	28.7			±880			
		MN	11	17	24	27.0			±700			
		ME	11	17	28	27.5	±300					
		eF	11	39	±							
19	Jan. 25	ePEZ	23	53	08					48	Near Wakayama City.	
		P _N	23	53	08							
		iSEN	23	53	14		+2	+5				
		eSz	23	53	14							
		MEN	23	53	15	0.3	±3	+4				
		eF	23	57	±							
20	Jan. 26	eP	6	43	11					5660	South-eastern part of Solomon IIs., SW Pacific.	
		Pz	6	43	13			+5				
		PEN	6	43	14		-3	+3				
		SE	6	50	29		-5					
		ez	6	50	32							
		iSN	6	50	38			-11				
		eLE	6	55	47							
		eLN	6	55	59							
		M _{1E}	6	59	35	17.0	-210					
		M _{2E}	7	01	28	16.5	-270					
20	Jan. 26	M _N	7	01	23	15.5		+210				
		Mz	7	01	23	20.5			-210			
		eF	8	08	±							
		eN	22	42	51						Tremors.	
20	Jan. 26	M _N	22	44	55	32.0		±20				
		eF	23	04	±							

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks	
			G.	M.	T.		A _E	A _N	A _Z			
			h	m	s	s	μ	μ	μ	km.		
21	Jan. 27	eP	7	06	04						403	Near Kumamoto City, Kyūsyū.
		eEN	7	06	48							
		ez	7	06	49							
		Mz	7	07	06	1.6			+6			
		ME	7	07	08	1.9	±14					
		MN	7	07	12	1.9		±12				
		eF	7	17	±							
22	Jan. 28	ePEN	0	44	58						423	Ditto.
		ePz	0	45	00							
		S	0	45	55		+5	+4	+5			
		ME	0	45	59	0.5	+12					
		MN	0	46	02	1.4		-11				
		Mz	0	46	02	1.6			-8			
23	Jan. 29	iP	17	29	10							To the SE of Bonin IIs.
		iN	17	30	04	3.7		+8				
		iE	17	30	27	2.3	-10					
		eF	17	51	±							
24	Jan. 30	ePE	1	10	48						254	To the south of the Onmae-zaki, Sizuoka Prefecture.
		ePN	1	10	49							
		ePz	1	10	51							
		Sz	1	11	21					+10		
		iSEN	1	11	22		+10	-7				
		ME	1	11	26	2.2	+31					
		MN	1	11	27	2.6		+23				
		Mz	1	11	37	2.8			±14			
eF	1	29	±									
25	Jan. 30	iEN	22	52	25	0.8	+5	+4				Local shock.
26	Feb. 1	ePz	17	45	58						58	In the Kii Channel.
		ePEN	17	45	59							
		SEN	17	46	07		+3	+3				

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks	
			G.	M.	T.		A _E	A _N	A _Z			
			h	m	s	s	μ	μ	μ	km.		
27	Feb. 3	ME	17	46	10	0.8	-7					
		MN	17	46	10	0.3		± 5				
		eF	17	46	36							
		iPz	23	33	25					+7.5	76	Near Hinomisaki, Wakayama Prefecture.
		iPEN	23	33	26		-7.3	+7.5				
		iS	23	33	36		+27	-7	-8			
		MEN	23	33	38	0.5	± 29	+45				
28	Feb. 5	MZ	23	33	40	0.5			+16			
		eF	23	57	\pm							
		eP	1	02	42							Near Toyooka, Hyōgo Prefecture.
		SEN	1	02	53		-4	-3				
		eSZ	1	02	53							
29	Feb. 8	ME	1	02	55	1.1	+8					
		MZ	1	02	56	0.8			-4			
		eF	1	05	\pm							
		PN	2	33	12			-1.5			97	Near Mineyama, Kyōto Prefecture.
		ePz	2	33	12							
		ePE	2	33	13							
30	Feb. 8	S	2	33	26		-3	-5	-2			
		MZ	2	33	28	0.6			-4			
		ME	2	33	31	0.6	-13					
		eF	2	05	\pm							
		iPN	12	19	06			+5.0			311	In the Bungo Channel.
		ePEZ	12	19	06							
		SEN	12	19	48		+4	-4				
31	Feb. 10	Sz	12	19	49				+2			
		MZ	12	19	53	1.6			-9			
		MN	12	20	02	2.3		-13				
		ME	12	20	03	1.3	+19					
		eF	12	26	\pm							
		ez	21	01	48							To the east of the Inubō-

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks	
			G.	M.	T.		A _E	A _N	A _Z			
			h	m	s	s	μ	μ	μ	km.		
32	Feb. 11	eE	21	02	01							zaki, Tiba Prefecture.
		eN	21	02	51							
		eMz	21	03	10	4.4			± 2			
		eF	21	10	\pm							
33	Feb. 14	ez	3	14	20							Near Mt. Kirisima, Kyūsyū. Short period wave.
		eEN	3	14	21							
		ez	3	14	26							
		eEN	3	14	28							
		M?E	3	14	32	0.7	+3					
		eF	3	16	\pm							
34	Feb. 18	ePE	1	06	08						328	In the Bungo Channel.
		ePz	1	06	10							
		iEN	1	06	14		-5	-4				
		eSE	1	06	47							
		Sz	1	06	49							
		SN	1	06	52							
		MN	1	06	55	2.5		+22				
		ME	1	07	03	1.3	+29					
		Mz	1	07	07	1.8			-9			
		iz	1	08	04				+8			
		iEN	1	08	07		-15	+11				
		iMN	1	08	17	2.6		± 23				
		iMz	1	08	17	3.0			± 13			
iME	1	08	20	3.2	-20							
eF	1	14	\pm									
35	Feb. 18	eN	22	48	20							Local shock.
		eE	22	48	21							
		iSME	22	48	24	0.9	+8					
		iSMN	22	48	24	1.0		+5				
		F	22	48	39							
35	Feb. 18	SMEN	22	49	14		+4	+2			Ditto.	
		MN	22	49	15	0.8		± 2				
		F	22	49	29							

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
36	Feb. 19	eP _N	8	23	49						Near Ōsaka City.
		SE _N	8	23	53		±3	+2			
		M _Z	8	23	53	0.9			±2		
		ME	8	23	54	0.6	±4				
		M _N	8	23	55	0.5		±2			
		F	8	24	34						
37	Feb. 21	eP _Z	7	06	04					1920	Epicenter: 44°5N 150°0E. To the SE of Etofu Isl., Kurile IIs. Felt in the Pacific coast of Hokkaidō and Oou district. The end part was overlapped by the next earthquake.
		eP _{EN}	7	06	08						
		eS _Z	7	09	12						
		SE	7	09	14		-45				
		S _N	7	09	19			-24			
		L _N ^(Q)	7	09	25						
		L _E ^(Q)	7	09	28	31.0					
		L _Z ^(Q)	7	10	31	24.0					
		L _N ^(R)	7	11	25						
		L _E ^(R)	7	11	49						
		M _{IN}	7	12	32	19.0		+1590			
		M _{IE}	7	12	38	16.5	-2480				
		M _Z	7	13	07	19.0			+1410		
		M _{ZE}	7	14	52	16.0	+2060				
M _{EN}	7	15	13	16.0		+1240					
38	Feb. 21	eP _N	7	30	06					1700	An after-shock of the previous earthquake. The end part was overlapped by the next and subnext earthquakes.
		eP _E	7	30	08						
		eP _Z	7	30	14						
		SE	7	32	55		-22				
		S _N	7	33	02			-30			
		L _E ^(Q)	7	33	38	20.0					
		L _N ^(Q)	7	33	51	20.5					
		LE	7	34	40						
		L _N	7	35	14						
		eL _Z	7	35	13						
		M _{IZ}	7	36	48	15.0			-400		
		M _N	7	36	50	17.0		+780			
		ME	7	36	56	15.5	+1820				

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		M _{ZZ}	7	38	35	15.5			-500		
		eF	9	56							
39	Feb. 21	eP _{EZ}	7	53	13						An after-shock of No.37.
		eP _N	7	53	16						
40	Feb. 21	eP _{NZ}	8	02	47						Ditto.
		eP _{?E}	8	02	56						
41	Feb. 21	eP _E	10	55	24						Ditto.
		eP _N	10	55	25						
		eP _Z	10	55	26						
		M _Z	11	01	12	18.5			±14		
		M _N	11	02	44	13.0		±7			
		M _E	11	04	56	13.5	±6				
		eF	11	15	±						
42	Feb. 21	L _N	22	35	45						Ditto.
		M _E	22	39	07	18.0	±20				
		M _Z	22	40	22	15.0			±10		
		eF	22	49	±						
43	Feb. 22	eE	2	58	43						Ditto.
		eN	3	01	28						
		eZ	3	01	53						
		M _E	3	03	53	16.5	±3				
		M _N	3	03	53	15.0		±10			
		M _Z	3	05	01	16.5			±18		
44	Feb. 22	eP _{?NZ}	4	38	53						Ditto.
		eP _{?E}	4	38	58						
		M _E	4	46	06	18.0	±15				
		M _Z	4	46	37	15.0			±9		
		eF	4	59	±						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
45	Feb. 22	eP _E	13	27	33						Ditto.
		eP _N	13	27	34						
		eP _Z	13	27	36						
		eL _E	13	32	52						
		M _{EN}	13	34	15	17.5	± 22	± 22			
		eF	13	49	\pm						
46	Feb. 23	eP _N	0	51	26					1930	Ditto.
		eP _E	0	51	29						
		eP _Z	0	51	38						
		S _N	0	54	45			+4			
		S _E	0	54	46		-7				
		eL _E	0	55	28						
		eL _N	0	55	31						
		eL _Z	0	56	49						
		M _N	0	58	08	21.0		± 30			
		M _Z	0	58	11	20.0			± 50		
		M _E	1	01	27	16.0	± 40				
		eF	2	05	\pm						
		47	Feb. 26	eP _E	4	16	53				
eM _E	4			24	10						
eM _Z	4			26	35	14.5			± 6		
eF	4			35	\pm						
48	Feb. 28	iP	13	43	45		+2.5	-1.8	-1.5	42	Near Kyōto City.
		iS _{EN}	13	43	50		+1.5	+6			
		S _Z	13	43	51				-3		
		M _E	13	43	51	0.5	± 12				
		M _N	13	43	51	0.6		± 14			
		M _Z	13	43	52	0.7			-7		
		eF	13	48	\pm						
49	Feb. 26	eP	14	27	53					42	Ditto.
		S _{EN}	14	27	59		-2	+2			
		M _E	14	28	00	0.3	-5				
		M _N	14	28	00	0.4		+8			

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		M _Z	14	28	00	0.6			-3		
		eF	14	30	\pm						
50	Feb. 27	eP _E	1	16	46						820 In the Kasima-nada.
		eP _Z	1	16	49						
		eP _N	1	16	54						
		eS _{NZ}	1	18	15						
		eS _E	1	18	17						
		M _Z	1	18	46	5.0			+8		
		M _E	1	18	47	4.3	-27				
51	Feb. 27	M _N	1	18	51	4.4		+15			215 Epicenter: 33° 7'N 132° 1'E. Iyo-nada, Inland Sea. Moderate shocks were felt in the western coast of the Inland Sea. Felt in SW Japan.
		eF	1	43	\pm						
		P	14	42	40		+1.4	(-)	+2.5		
		iP _Z	14	42	40				+6.3		
		iP _{EN}	14	42	41		+2.7	+10.9			
		iz	14	42	48				-37		
		i _E	14	42	50		-33				
52	Mar. 2	i _N	14	42	51			+23			Near Kirime, coast of the Kii Channel, Wakayama Prefecture.
		iz	14	42	57				-70		
		i _{EN}	14	42	59		-30	+69			
		iS _{NZ}	14	43	08			-50	+50		
		iS _E	14	43	09		+60				
		M _{IE}	14	43	12	0.8	-116				
		M _N	14	43	25	1.2		+98			
		M _Z	14	43	31	1.3			-105		
		M _{ZE}	14	43	56	2.4	+106				
		eF	15	15	\pm						
53	Mar. 8	S _N	14	41	09			-1		Near Kaiden, north-eastern foot of Mt. Ontake, Nagano Prefecture.	
		M _{EN}	14	41	10	0.5	-2	± 1			
		F	14	41	22						
54	Mar. 8	S _E	14	26	54			-3		Near Kaiden, north-eastern foot of Mt. Ontake, Nagano Prefecture.	
		eS _N	14	26	54						
		M _E	14	26	55	0.6	+4				

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
54	Mar. 8	M _N	14	26	55	0.5		+4			
		F	14	27	18						
		eS _E	17	44	21						Near Onomiti, Hiroshima Prefecture.
		eS _N	17	44	22						
		M _E	17	44	24	0.8	±3				
55	Mar. 12	eP _Z	15	45	44.3					76	Near the mouth of Hidaka River, Wakayama Prefecture.
		eP _{EN}	15	45	44.5						
		iP	15	45	44.9		+4.0	-3.0	+2.5		
		i _E	15	45	50		+2				
		iS _N	15	45	54			-5			
		iS _E	15	45	55		+4				
		eS _Z	15	45	56						
		M _N	15	45	57	0.7		-22			
		M _Z	15	45	57	0.6			+5		
		M _E	15	45	58	0.7	±6				
eF	15	47	±								
56	Mar. 16	eP	12	15	35					68	Lower basin of the Hidaka River, Wakayama Prefecture.
		iS _E	12	15	44		+2				
		S _N	12	15	44			+2			
		M _Z	12	15	46	0.6			±1		
		M _E	12	15	47	0.5	+3				
		M _N	12	15	47	0.7		-9			
		eF	12	17	±						
57	Mar. 16	P _Z	15	50	28				-6	2340	Felt in northern part of Luzon, Philippine.
		P _{EN}	15	50	29		-2	-5			
		S _E	15	54	21		+5				
		eF	16	13	±						
58	Mar. 21	P _{?NZ}	18	15	09						Near Celebes Isl.
		eF	18	25	±						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks	
			G.	M.	T.		A _E	A _N	A _Z			
			k	m	s	s	μ	μ	μ	km.		
59	Mar. 21	eP _E	19	31	21						870	Epicenter: 40°2N 142°2E. To the east of Kuzi, Iwate Prefecture. Felt in Oou district.
		eP _{NZ}	19	31	22							
		S _Z	19	32	56				+5			
		S _N	19	32	59				-6			
		S _E	19	33	01				-8			
		M _E	19	34	46	3.3	+25					
		M _Z	19	33	09	2.4				+12		
eF	19	48	±									
60	Mar. 22	eP _E	8	39	08							To the south of Yaku Isl., Ryūkyū IIs.
		eP _Z	8	39	11							
		e _E	8	41	05							
		eF	8	50	±							
61	Mar. 22	eP	10	00	47						900	Ditto.
		eP _N	10	00	55							
		eS _E	10	02	33							
		eS _Z	10	02	39							
		eS _N	10	02	40							
		eM _Z	10	03	08	4.5				±2		
		eM _{EN}	10	03	10	2.9	±2	±2				
eF	10	12	±									
62	Mar. 22	eP _{?E}	17	01	09							In the Hyūga-nada, to the SE of Kyūsyū.
		eP _{?Z}	17	01	12							
		eS _N	17	01	42							
		eS _E	17	01	43							
		eM _E	17	01	50	1.1	+3					
		eM _Z	17	01	50	1.3				±1		
		eF	17	08	±							
63	Mar. 22	eP _N	20	27	08						48	Near Yuasa, Wakayama Prefecture.
		S _N	20	27	15							
		F	20	27	47							
64	Mar. 24	eP _{NZ}	6	19	25					67	In the Kii Channel.	

From No. 1 to No. 83, 1937.

SUMOTO JAPAN.

SEISMOLOGICAL BULLETIN

A Branch Station of the Kōbe Meteorological Observatory of Japan.
 $\varphi=34^{\circ} 21'$ $\lambda=134^{\circ} 53'$ $h=109.0$ m. Underground: Cretaceous.

Instrument: Omori's Seismograph.
 (Horizontal)

Wiechert Seismograph.
 (Horizontal & Vertical)

Jan.

	T_0	ϵ	$\frac{r}{T_0^2}$	V
A _E :	15.9	2.3	0.0001	20
A _N :	18.8	3.8	0.0003	20

	T_0	ϵ	$\frac{r}{T_0^2}$	V
A _E :	4.6	Aperiodic	0.001	97
A _N :	4.5	"	0.001	99
A _Z :	4.3	"	0.001	60

Feb.

	T_0	ϵ	$\frac{r}{T_0^2}$	V
A _E :	15.5	4.6	0.0002	20
A _N :	20.4	2.7	0.0003	20

	T_0	ϵ	$\frac{r}{T_0^2}$	V
A _E :	4.5	Aperiodic	0.002	98
A _N :	4.6	"	0.002	100
A _Z :	4.2	"	0.001	63

Mar.

	T_0	ϵ	$\frac{r}{T_0^2}$	V
A _E :	16.7	3.2	0.0002	20
A _N :	20.0	3.4	0.0003	20

	T_0	ϵ	$\frac{r}{T_0^2}$	V
A _E :	4.6	Aperiodic	0.001	94
A _N :	4.5	"	0.002	101
A _Z :	3.7	"	0.002	72

No.	Date	Phase	Time -			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
65	Mar. 24	eS _N	6	19	34	0.7		± 1			
		M _N	6	19	35						
		F	6	19	57						
		eP _N	18	04	48						
		eE	18	05	21						
66	Mar. 26	eN	18	05	28	0.9		± 2			Near Uwazima, Ehime Prefecture.
		eM _N	18	05	41						
		eF	18	07	\pm						
		eP _N	13	40	41						
		S _N	13	40	51						
67	Mar. 27	M _N	13	40	51	0.5		± 1			Near Isigaki, middle basin of the Arita R., Wakayama Prefecture.
		F	13	41	05						
		eP _Z	0	25	24						
		eP _N	0	25	25						
		S _{EN}	0	25	32						
68	Mar. 27	eF	0	27	\pm	1.0		$+2$	$+3$		Basin of the Arita R., Wakayama Prefecture.
		eE	21	12	03						
		eE	21	12	19						
		eS _Z	21	12	24						
		eS _N	21	12	26						
		M _Z	21	12	35	1.9		± 3			Near Haneda, Tōkyō City.
		M _N	21	12	36						
		eF	21	17	\pm						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
1	Jan. 3	P	0	13	05	0.4	-11	-1.0	(-)	46	In the Kii Channel.
		S	0	13	11						
		M _E	0	13	12						
		M _N	0	13	12						
		M _Z	0	13	12						
		F	0	13	26						

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					A _E μ	A _N μ	A _Z μ		
2	Jan. 5	ez	4 52 21					Near Caroline IIs, Pacific Ocean?	
		eE	4 52 22						
		eN	4 52 23						
		eF	5 00						
3	Jan. 5	ePEN	7 01 28				367	Near Kumamoto City, Kyūsyū.	
		ez	7 01 32						
		SE	7 02 17						
		SN	7 02 18						
		eSZ	7 02 20						
		MZ	7 02 24	1.7		+1			
		MN	7 02 25	1.9		-1			
		ME	7 02 39	1.9	+2				
eF	7 07 ±								
4	Jan. 5	ePEN	8 36 33				34	Near Wakayama City.	
		S	8 36 37						
		ME	8 36 37		+1				
		MN	8 36 38	0.4		-2			
		F	8 37 04						
5	Jan. 5	iPZ	11 11 01			+1.7	623	Epicenter: 28°.0N 139°.6E. To the WNW of Bonin IIs. Focal depth about 500km. by ScS-P travel time curve. Felt in Titi-zima, Bonin IIs.	
		iPEN	11 11 03		-1.0	+1.0			
		SEN	11 12 26						
		SZ	11 12 27						
		MZ	11 12 31	4.2		+7			
		ME	11 12 34	5.3	+31				
		MN	11 12 34	5.6		-23			
eF	11 31 ±								
6	Jan. 5	P	14 51 18		+1.0	-1.0	-1.7	42	Lower basin of the Arita River, Wakayama Prefecture.
		S	14 51 24						
		MN	14 51 24	0.4		-12			
		ME	14 51 25	0.4	-6				
		MZ	14 51 26	0.5			±2		
		F	14 52 30						

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					A _E μ	A _N μ	A _Z μ		
7	Jan. 5	P	21 06 31					337	Southern part of the Hyūga-nada, to the SE of Kyūsyū.
		SN	21 07 15						
		SEZ	21 07 17						
		MN	21 07 26	2.6		±2			
		ME	21 07 31	2.1	-2				
		eF	21 12 ±						
8	Jan. 5	PZ	21 38 57					499	Ditto. Felt in Kyūsyū & Sikoku districts.
		PEN	21 38 58		-2.1	-2.5			
		eSE	21 39 58						
		eSN	21 40 05						
		eSZ	21 40 11						
		MIE	21 40 42	9.0	-60				
		MZ	21 40 58	8.3		-28			
		MIN	21 41 26	6.6		+57			
		ME	21 44 12	8.4	-72				
		ME	21 44 20	8.3		+53			
eF	22 40 ±								
9	Jan. 5	P?EN	21 53 57					Ditto.	
		P?Z	21 53 59						
		eSEN	21 54 38						
		eSZ	21 54 42						
		F	21 59 ±						
10	Jan. 7	PZ	4 30 12					711	Ditto.
		PEN	4 30 13						
		SE	4 31 39						
		SZ	4 31 51						
		SN	4 31 56						
		eF	4 42 ±						
11	Jan. 7	PZ	6 13 49					636	To the east of the Koizumi Bay, Miyagi Prefecture. Felt in Oou & Kwantō districts.
		PEN	6 13 50						
		SEZ	6 15 15						
		SN	6 15 16						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		M _N	6	15	51	3.8		-27			
		M _Z	6	16	06	2.9			-13		
		M _E	6	16	13	3.4	-34				
		eF	6	31	±						
12	Jan. 7	P _E	7	05	53					603	Ditto.
		P _N	7	05	55						
		S _N	7	07	14						
		S _E	7	07	16						
		F	7	14	±						
13	Jan. 7	P _E	13	26	48					3170	Kansu China
		P _Z	13	26	50						
		P _N	13	26	51						
		S _Z	13	31	44						
		S _E	13	31	45						
		S _N	13	31	46						
		L _E	13	32	01						
		L _Z	13	32	20						
		M _{1E}	13	32	29	19.5	-1514				
		L _N	13	32	37						
		M _{1N}	13	37	16	12.2		-936			
		M _{2E}	13	39	28	15.9	+1655				
		M _{2N}	13	39	31	12.4		+1555			
		M _{3N}	13	40	34	11.3		-1076			
		M _Z	13	40	55	12.9			-1200		
		M _{3E}	13	41	05	14.1	-1850				
		eF	15	39	±						
14	Jan. 8	eP _{EN}	23	55	26					33	In the Kii Channel.
		S _{EN}	23	55	31						
		M _{EN}	23	55	32	0.6	-2	-3			
		F	23	56	10						
15	Jan. 9	S _{EN}	0	29	59						Ditto.
		M _N	0	30	00			±1			

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		M _E	0	30	01	0.3	+1				
		F	0	30	19						
16	Jan. 11	eP _{EN}	1	31	17						Southern part of the Hyūga-nada, to the SE of Kyūsyū.
		e _{EN}	1	31	59						
		e _{EN}	1	32	31						
		M _N	1	33	52	2.8		±2			
		M _E	1	34	10	2.1	-2				
		eF	1	42	±						
17	Jan. 13	eP _{EN}	8	10	38					45	In the Kii Channel.
		S _{EN}	8	10	44						
		M _E	8	10	46		+2				
		M _N	8	10	46	0.3		±3			
		F	8	11	27						
18	Jan. 15	eP _N	14	23	58						In the Hyūga-nada, to the SE of Kyūsyū.
		eP _E	14	24	00						
		P _N	14	24	17						
		e _Z	14	24	41						
		S _N	14	25	10						
		S _E	14	25	14						
		S _Z	14	25	15						
		M _E	14	25	22	2.0	±2				
		M _N	14	25	33	2.4		±2			
		eF	14	30	±						
19	Jan. 15	e _E	16	39	03						Ditto.
		e _N	16	39	06						
		S _N	16	39	25						
		S _E	16	39	33						
		e _Z	16	39	34						
		M _N	16	39	38	2.4		±1			
		M _E	16	39	52	2.1	±1				
		eF	16	42	±						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
20	Jan. 20	eP _N	1	58	06					38	Near Yuasa, Wakayama Prefecture.
		SEN	1	58	11						
		M _{EN}	1	58	13	0.4	± 1	± 2			
		F	1	58	43						
21	Jan. 20	P	18	04	34					13	Local shock.
		iS	18	04	35						
		M _{EN}	18	04	36	0.4	+26	+30			
		M _Z	18	04	36				-7		
		eF	18	05	18						
22	Jan. 23	eP	8	28	25					220	In the Bungo Channel.
		S _N	8	28	54						
		SM _N	8	28	55	1.6		-2			
		S _E	8	28	56						
		S _Z	8	28	56						
		M _Z	8	28	57	1.6			± 1		
		M _E	8	29	06	1.8	± 1				
		eF	8	32	\pm						
*23	Jan. 23	P	8	50	37					247	Near Ōita City, Kyūsyū. Focal depth about 100km. Felt in Sumoto.
		eE	8	51	06						
		eN	8	51	07						
		eZ	8	51	10						
		S	8	51	10						
		M _Z	8	51	11				± 4		
		M _E	8	51	13	0.4	+16				
		M _N	8	51	13	0.5		+19			
24	Jan. 23	eP _E	8	59	29					352	Near Suikaidō, Ibaraki Prefecture.
		eP _N	8	59	31						
		eZ	8	59	48						
		eS _N	9	00	17						
		eS _E	9	00	18						
eS _Z	9	00	21								

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		M _Z	9	00	28	2.1			± 1		
		M _N	9	00	30	1.8		-3			
		M _E	9	00	36	2.3	-4				
		eF	9	05	\pm						
25	Jan. 23	eP _N	9	13	16					28	Near Wakayama City.
		SEN	9	13	20						
		M _E	9	13	21		-2				
		M _N	9	13	21	0.2		± 2			
		F	9	13	56						
26	Jan. 23	eP _Z	11	03	54						Near New-Britain Isl., Melanesia.
		eP _E	11	03	55						
		eP _N	11	03	56						
		eN	11	10	11						
		eE _N	11	13	36						
		eL _E	11	14	12						
		eL _Z	11	14	36						
		eL _N	11	14	44						
		M _N	11	16	58	30.0		+3			
		M _E	11	17	04	30.0	± 2				
		M _Z	11	17	25	27.9			± 3		
		eF	11	34	\pm						
*27	Jan. 23	iP	23	52	59		+1.0	-1.5	-1.7	28	Near Wakayama City. Felt in Sumoto.
		iS	23	53	03						
		M _Z	23	53	03	0.5			-3		
		M _E	23	53	04	0.3	-8				
		M _N	23	53	04	0.4		-16			
28	Jan. 25	F	23	54	39						South eastern part of Solomon IIs., SW Pacific.
		P _Z	6	43	10				+5.0		
		P _{E_N}	6	43	11		-4.1	+2.0			
		eS _N	6	47	50						
		L _N	6	50	33						
LE	6	50	40								

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
29	Jan. 27	M _Z	7	00	58	20.7			-200		
		M _E	7	01	36	16.9	+186				
		M _N	7	02	23	13.3		-107			
		eF	8	01	±						
		iP _E	7	05	55		-3.1			381	Near Kumamoto City,
		P _Z	7	05	56				+2.5		Kyūsyū.
		eP _N	7	05	58						
		SE _Z	7	06	47						
		S _N	7	06	49						
		M _N	7	06	52	2.7		+14			
30	Jan. 28	M _Z	7	06	54	2.3			+8		
		M _E	7	07	00	2.1	-10				
		eF	7	14	±						
		P _N	0	44	50					381	Ditto.
		iP _{EZ}	0	44	53		-1.0		+1.6		
		S _N	0	45	41						
		SE	0	45	44						
31	Jan. 29	S _Z	0	45	45						
		M _N	0	45	52	2.4		±15			
		M _Z	0	45	54	2.1			+8		
		M _E	0	45	57	2.1	-11				
		F	0	51	30						
		i _{EN}	17	29	06		+1.0	-1.0			To the SE of Bonin Is.
		i _Z	17	29	06				(-)		
32	Jan. 30	M _E	17	29	08	3.1	-6				
		M _N	17	29	09	3.1		±3			
		M _Z	17	29	09	2.3			+5		
		eF	17	47	±						
		iP _Z	1	10	49				+1.6	248	To the south of the Onmaezaki, Sizuoka Prefecture.
33	Jan. 31	iP _{EN}	1	10	50		-2.0	-2.0			
		S _N	1	11	22						
		iS _E	1	11	23						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
33	Jan. 31	iS _Z	1	11	24						
		M _E	1	11	27	2.3	±15				
		M _N	1	11	28	2.4		-18			
		M _Z	1	11	29	1.9			±6		
		eF	1	24	±						
34	Jan. 31	eP _{EN}	8	00	43					40	Near Hunatuki, Wakayama Prefecture.
		S	8	00	49						
		M _{EN}	8	00	50	0.4	-3	-5			
35	Feb. 1	F	8	01	38						
		eP _N	12	23	48					22	Ditto.
		S _{EN}	12	23	51						
36	Feb. 1	M _{EN}	12	23	51	0.4	±1	-2			
		F	12	24	24						
		S _{EN}	0	44	19						
37	Feb. 1	M _{EN}	0	44	20		±3	±2			
		F	0	44	31						
		P	17	45	53					38	In the Kii Channel.
38	Feb. 3	S	17	45	58						
		M _{EZ}	17	45	58	0.5	-10		±2		
		M _N	17	45	59	0.5		+8			
		F	17	46	55						
		iP	23	33	18					48	Near Hinomisaki, Wakayama Prefecture.
*38	Feb. 3	iS	23	33	25						
		M _{EN}	23	33	25	0.4	-44	-73			
		F	23	33	25						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		M _Z	23	33	26	0.5			-13		
		F	23	38	01						
39	Feb. 4	eP _{EN}	3	18	23						Hyūga-nada, to the SE of Kyūsyū.
		e _E	3	19	27						
		e _F	3	26	±						
40	Feb. 5	P _{EN}	1	02	47					114	Near Toyooka, Hyōgo Prefecture.
		S	1	03	03						
		M _N	1	03	04	0.4		-6			
		M _E	1	03	05	1.1	-4				
		F	1	04	12						
41	Feb. 6	eP _N	1	25	03					232	Southern part of the Hyūga-nada, to the SE of Kyūsyū.
		eP _E	1	25	05						
		eS _N	1	25	34						
		eS _{EZ}	1	25	37						
		M _Z	1	25	37	1.4			±1		
		M _E	1	25	39	1.9	+2				
		M _N	1	26	05	1.9		±1			
		e _F	1	29	±						
42	Feb. 8	eP _{EN}	2	33	11					180	Near Mineyama, Kyōto Prefecture.
		eP _Z	2	33	13						
		S _{EN}	2	33	35						
		eS _Z	2	33	37						
		M _Z	2	33	38	1.1			-2		
		M _E	2	33	39	1.3	±4				
		M _N	2	33	39	0.8		-4			
		F	2	34	53						
43	Feb. 8	P	12	19	01					278	In the Bungo Channel.
		S _{EN}	12	19	38						
		eS _Z	12	19	39						
		M _N	12	19	45	1.5		-27			
		M _E	12	19	46	2.1	-18				

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	r.		A _E	A _N	A _Z		
			h	m	a	s	μ	μ	μ	km.	
		M _Z	12	19	49	1.9			-14		
		F	12	25	04						
44	Feb. 11	e _N	3	14	11						Near Mt. Kirisima, Kyūsyū.
		e _E	3	14	12						
		e _Z	3	14	12						
		P _{?EN}	3	14	18						
		eS _N	3	14	41						
		M _N	3	14	42	1.5		±2			
		M _E	3	14	54	0.9	±1				
		M _Z	3	14	55	1.7			+1		
		F	3	16	05						
45	Feb. 14	P _N	1	05	57					306	In the Bungo Channel.
		eP _Z	1	05	58						
		P _E	1	05	58						
		S	1	06	39						
		M _E	1	06	44	2.2	+20				
		M _N	1	06	49	1.8		+46			
		M _Z	1	06	49	2.6			+18		
		e _F	1	13	±						
46	Feb. 14	eP _{EN}	3	29	40					280	Near Sin-sima, to the south of the Izu Peninsula.
		eS _{EN}	3	30	18						
		M _N	3	30	29	2.5		-3			
		M _E	3	30	31	2.1	±5				
		e _F	3	35	±						
47	Feb. 19	eP _N	8	23	48					39	Near Ōsaka City.
		S	8	23	53						
		M _E	8	23	53	0.4	-3				
		M _N	8	23	54	0.4		+4			
		M _Z	8	23	55				±1		
		F	8	24	32						
48	Feb. 21	P _{EN}	7	06	11		-0.5?	-1.0		1890	Epicenter : 44°.5N 150°.0E.

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		P _Z	7	06	12				+0.8		To the SE of Etorofu Isl., Kurile IIs. Felt in the Pacific coast of Hokkaidō and Oou districts. The end part was overlapped by the next earthquake.
		S _N	7	09	23						
		S _E	7	09	25						
		eS _Z	7	09	26						
		L _N	7	09	51						
		L _E	7	09	52						
		L _Z	7	10	29						
		M _{1N}	7	12	48	17.4		-2171			
		M _{1E}	7	12	55	17.4	-1922				
		M _Z	7	13	23	17.0			+1250		
		M _{2E}	7	15	08	15.6	+1127				
		M _{2N}	7	15	54	17.0		+1175			
49	Feb. 21	eP _Z	7	30	14					2210	
		P _E	7	30	24						
		P _N	7	30	26						
		S _E	7	34	00						
		S _N	7	34	11						
		eS _Z	7	34	37						
		M _{EN}	7	36	55	15.6	+1391	±1000			
		M _Z	7	39	53	14.9			+311		
		F	9	50	±						
50	Feb. 21	eN?	10	55	13						Ditto.
		P	10	55	48						
		e	11	01	48						
		eF	11	12	±						
51	Feb. 21	eL _E	22	38	37						Ditto.
		eL _N	22	39	01						
		eZ	22	39	15						
		eF	22	49	±						
52	Feb. 22	eE	2	57	10						Ditto.
		eN	2	57	19						
		eE	3	00	23						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		e _N	3	00	28						2270? Ditto.
		e _Z	3	03	±						
		eL _Z	3	03	05						
		eL _E	3	03	20						
		eL _N	3	03	50						
		F	3	29	±						
53	Feb. 22	eP _N	13	27	50						
		eP _E	13	27	54						
		e _Z	13	31	10						
		eS _{EN}	13	31	38						
		eL _Z	13	34	±						
		M _N	13	34	34	16.9		-25			
		M _E	13	34	36	14.2	-27				
		eF	13	48	±						
54	Feb. 23	eP _{EN}	0	51	41						1890 Ditto.
		e _Z	0	51	58						
		eS _N	0	54	53						
		eS _E	0	54	54						
		eL _E	0	56	14						
		eL _Z	0	56	43						
		eL _N	0	57	02						
		M _Z	0	58	45	17.1				-75	
		M _N	1	01	24	11.3		-35			
		M _E	1	01	43	13.5	-36				
		eF	1	56	±						
55	Feb. 23	e _N	13	58	10						Ditto.
		e _E	13	58	11						
		e _Z	14	01	28						
		L _E	14	01	33						
		eF	14	08	±						
56	Feb. 26	P	13	43	51					94	Near Kyōto City.
		S	13	44	02						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		M _E	13	44	03	0.6	+4				
		M _N	13	44	03	0.4		-6			
		M _Z	13	44	03	1.0			+1		
		F	13	45	04						
57	Feb. 26	e _{EN}	13	55	42					In the Iyo-nada, Inland Sea.	
e _{SEN}	13	55	51								
M _N	13	55	56	0.6		+1					
F	13	56	06								
58	Feb. 26	e _{PEN}	14	27	56					106	Near Kyōto City.
		e _S	14	28	11						
		M _N	14	28	11	0.5		-3			
		M _E	14	28	11	0.8		-2			
		M _Z	14	28	11	0.7			-1		
F	14	28	51								
59	Feb. 26	e _P	22	53	51					80	In the Tanabe Bay, Kii Channel.
		S	22	54	01						
		M _{EN}	22	54	02	0.4		-2	-3		
		M _Z	22	54	02				-1		
		F	22	55	04						
60	Feb. 27	e _{PEN}	1	17	10					655	In the Kasima-nada.
		e _{Pz}	1	17	11						
		i _{PEN}	1	17	13						
		S _E	1	18	38						
		e _{Sz}	1	18	39						
		S _N	1	18	39						
		M _E	1	18	57	3.2		+11			
		M _N	1	19	05	4.3			-20		
		M _Z	1	19	42	4.1			+6		
e _F	1	31	±								
*61	Feb. 27	i _{PE}	14	42	34		+10.6			140	Epicenter: 33°.7N 132°.1E. Felt in Sumoto.
		i _{Pz}	14	42	35			+5.0	+8.9		

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		i _{SE}	14	42	51						Iyo-nada, Inland Sea. Moderate shocks were felt in the western coast of the Inland Sea. Felt in SW Japan.
		i _{Sz}	14	42	53						
		i _{SN}	14	42	57						
		M _{IE}	14	53	02	3.0		-162			
		M _Z	14	53	17	4.3			-125		
		M _{IN}	14	53	20	2.8			-131		
		M _{2E}	14	53	30	2.8		-160			
		M _{2N}	14	53	32	2.8			-139		
e _F	15	01	±								
62	Mar. 2	e _{PEN}	14	40	53						Near Kirime, coast of the Kii Channel, Wakayama Prefecture.
		S	14	40	56						
		M	14	40	56	0.4		-1	-2		
		F	14	41	26						
63	Mar. 4	e _{PEN}	16	38	49					44	Near Gobō, Wakayama Prefecture.
		S	16	38	54						
		M _{EN}	16	38	55	0.4		-2	-3		
64	Mar. 8	e _{Pz}	17	43	53					146	Near Onomiti City, Hiroshima Prefecture.
		P _{EN}	17	43	54						
		S _{EN}	17	44	13						
		S _Z	17	44	14						
		M _E	17	44	16	0.5		±2			
		M _N	17	44	17	0.4			-5		
M _Z	17	44	18				-1				
F	17	45	14								
65	Mar. 12	i _P	15	45	39		+1.1	-2.0	-4.0	51	Near the mouth of Hidaka River, Wakayama Prefecture.
		i _S	15	45	45						
		M _Z	15	45	46	0.6			-4		
		M _E	15	45	46	0.5		+5			
		M _N	15	45	49	0.4			-8		
		F	15	47	15						

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					A _E μ	A _N μ	A _Z μ		
66	Mar. 14	e _E	11 17 51					In the Ariake Bay, Kagosima Prefecture.	
		e _N	11 17 53						
		i _E	11 18 04						
		i _N	11 18 05						
		F	11 19 10						
67	Mar. 14	P _Z	12 15 38					Northern part of Chile.	
		eP _E	12 15 40						
		eP _N	12 15 41						
		i _{NZ}	12 16 08						
		i _E	12 16 12						
		e _E	12 19 39						
		e _F	12 23 ±						
68	Mar. 16	P	12 15 31	0.4	+0.5	-1.0	+1.4?	46	Lower basin of the Hidaka River, Wakayama Prefecture.
		S	12 15 37						
		M _Z	12 15 37						
		M _E	12 15 38						
		M _N	12 15 40						
		F	12 16 19						
69	Mar. 16	iP _{EN}	15 50 22					2360	Felt in northern part of Luzon, Philippine.
		iP _Z	15 50 23						
		S _N	15 54 15						
		S _E	15 54 17						
		e _F	16 10 ±						
70	Mar. 20	eP _{EN}	7 09 41	0.5	+2	+3		25	Local shock.
		S _{EN}	7 09 45						
		M _{EN}	7 09 45						
		F	7 10 13						
71	Mar. 21	P _E	18 15 06		(+)				Near Celebes Isl.
		P _{NZ}	18 15 05						
		e _F	18 21 ±						

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					A _E μ	A _N μ	A _Z μ		
72	Mar. 21	P	19 31 27		-0.5	-0.5	+0.7	870	Epicenter: 40°.2N 142°.2E. To the east of Kuzi, Iwate Prefecture. Felt in Oou district.
		S _E	19 32 58						
		eS _Z	19 33 02						
		S _N	19 33 02						
		L _Z	19 33 48						
		L _{EN}	19 33 53						
		M _Z	19 33 53						
		M _N	19 34 04						
		M _E	19 34 09						
		e _F	19 43 ±						
73	Mar. 22	P _N	8 39 09		+0.5	-1.0	(+)	894	To the south of Yaku Isl., Ryūkyū IIs.
		P _{EZ}	8 39 10						
		S _{EN}	8 41 10						
		M _N	8 41 15						
		M _E	8 41 27						
		M _Z	8 41 31						
74	Mar. 22	P _Z	10 00 41		+1.0	-0.5		804	Ditto.
		P _{EN}	10 00 42						
		eS _E	10 02 19						
		eS _N	10 02 24						
		eS _Z	10 02 47						
		M _Z	10 02 47						
75	Mar. 22	M _E	10 02 57	2.1	-2			378	In the Hyūga-nada, to the SE of Kyūsyū.
		M _N	10 02 58						
		e _F	10 08 ±						
		eP _N	17 00 30						
		eP _E	17 00 38						
		eP _Z	17 00 44						
		eS _N	17 01 18	1.7	+2				
		eS _E	17 01 24						
		M _E	17 01 36						
		eS _Z	17 01 44						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
76	Mar. 22	Mz	17	01	46	1.7			+1.0	42	Near Yuasa, Wakayama Prefecture.
		M _N	17	01	50	1.7		±2			
		eF	17	06	±						
		eP	20	27	01						
		S	20	27	06						
		Mz	20	27	07	0.3			±1		
		M _E	20	27	07	0.4	+2				
M _N	20	27	08	0.4		+5					
F	20	27	50								
77	Mar. 23	eP _{EN}	20	43	15					22	Near Hinomisaki, Wakayama Prefecture.
		S	20	43	18						
		M _E	20	43	18		±1				
		M _N	20	43	19	0.3		-3			
		Mz	20	43	19				±1		
F	20	43	38								
78	Mar. 24	P	6	19	17					50	In the Kii Channel.
		S	6	19	24						
		M _{EN}	6	19	24	0.4	+5	-6			
		Mz	6	19	24				±1		
		F	6	20	02						
79	Mar. 24	eP _{EN}	6	54	07					34	Near Wakayama City.
		S _{EN}	6	54	12						
		M _E	6	54	12		±1				
		M _N	6	54	12	0.4		-2			
		F	6	54	47						
80	Mar. 24	eP	18	04	51					228	Near Uwazima, Ehime Prefecture.
		eS _{EN}	18	05	21						
		eS _Z	18	05	23						
		M _E	18	05	28		±1				
		Mz	18	05	29				±1		
		M _N	18	05	32	0.6		±2			

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
81	Mar. 26	F	18	06	18						
		S _{EN}	13	40	39						
		M _E	13	40	40	0.4	-2				
		M _N	13	40	41	0.4		-2			
F	13	41	04								
*82	Mar. 27	iP	0	25	18		+	-1.5	-1.4	33	Basin of the Arita R., Wakayama Prefecture. Felt in Sumoto.
		iS	0	25	22						
		ME _Z	0	25	23	0.4	-11		-6		
		M _N	0	25	23	0.3			+13		
		F	0	26	33						
83	Mar. 27	eP _Z	21	12	30					97	Near Haneda, Tōkyō City.
		eP _E	21	12	31						
		eP _N	21	12	32						
		eS _E	21	12	43						
		eS _{NZ}	21	12	45						
		Mz	21	12	55	1.7			±1		
		M _E	21	12	56	1.3	±2				
M _N	21	13	01	1.3		±1					
eF	21	16	±								

From No. 1 to No. 42, 1937.

TOYOOKA JAPAN.

SEISMOLOGICAL BULLETIN

A Branch Station of the Kōbe Meteorological Observatory of Japan.
 $\varphi=35^{\circ} 32'$ $\lambda=134^{\circ} 49'$ $h=32.2$ m. Underground: Tertiary.

Instrument: Ōmori's Seismograph.
 (Horizontal)

Wiechert Seismograph.
 (Horizontal & Vertical)

Jan.

	T_0	ϵ	$\frac{r}{T_0^2}$	V
AE:	21.6	3.0	0.001	20
AN:	21.3	3.0	0.002	20

	T_0	ϵ	$\frac{r}{T_0^2}$	V
AE:	5.8	10.0	0.008	78
AN:	6.3	10.0	0.006	87
Az:	2.9	3.5	0.005	57

Feb.

	T_0	ϵ	$\frac{r}{T_0^2}$	V
AE:	21.6	3.0	0.001	20
AN:	21.3	3.0	0.002	20

	T_0	ϵ	$\frac{r}{T_0^2}$	V
AE:	5.6	10.0	0.009	93
AN:	6.2	10.0	0.007	92
Az:	2.9	2.8	0.004	56

Mar.

	T_0	ϵ	$\frac{r}{T_0^2}$	V
AE:	21.6	3.0	0.001	20
AN:	21.3	3.0	0.002	20

	T_0	ϵ	$\frac{r}{T_0^2}$	V
AE:	5.6	10.0	0.009	93
AN:	6.2	10.0	0.007	92
Az:	2.9	3.3	0.004	56

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					AE μ	AN μ	Az μ		
1	Jan. 5	P	11 11 13	s	-1.1	+1.5	+1.0	700	Epicenter: $28^{\circ}.0N$ $139^{\circ}.6E$. To the WNW of Bonin IIs. Focal depth about 500 km. by ScS-P travel time curve. Felt in Titi-zima, Bonin IIs.
		S	11 12 47						
		SM _N	11 12 55						
		eF	11 17 ±						
2	Jan. 5	P _N	21 39 14	s					Southern part of the Hyūga-nada, to the SE of Kyūsyū.
		P _Z	21 39 15						

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					AE μ	AN μ	Az μ		
3	Jan. 5	P _E	21 39 16	7.8	+92	-110	+16	580	Felt in Kyūsyū & Sikoku districts.
		i _N	21 40 07						
		i _Z	21 40 10						
		eS _N	21 40 45						
		M _E	21 41 24						
		M _Z	21 42 29						
		M _N	21 42 33						
		eF	22 10 ±						
4	Jan. 7	P _N	21 54 11	1.9	-2.8	-53	-2.6	580	To the east of the Koizumi Bay, Miyagi Prefecture. Felt in Oou & Kwantō districts.
		P _Z	21 54 12						
		P _E	21 54 13						
		eF	21 58 ±						
		eP _Z	6 13 43						
		iP _Z	6 13 44						
		i	6 13 58						
		S _N	6 15 01						
S _E	6 15 02								
5	Jan. 7	S _Z	6 15 05	2.3	-90	+92	-47	3270	Kansu, China.
		M _Z	6 15 11						
		M _E	6 15 12						
		M _N	6 15 15						
		eF	6 27 ±						
		P _N	13 26 48						
		P _Z	13 26 49						
		P _E	13 26 51						
S _N	13 31 51								
5	Jan. 7	S _E	13 31 53	2.3	-90	+92	-47	3270	Kansu, China.
		S _Z	13 32 15						
		SME	13 32 38						
		L _Z	13 36 12						
		L _N	13 36 19						
		L _E	13 36 32						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks	
			G.	M.	T.		A _E	A _N	A _Z			
			h	m	s	s	μ	μ	μ	km.		
6	Jan. 23	M _Z	13	40	40				+115			
		M _{1N}	13	40	45	15.9		-818				
		M _{1E}	13	40	47	15.6	-404					
		M _{2N}	13	43	31	11.7		-310				
		M _{2E}	13	44	56	11.9	+286					
		M _{3N}	13	45	34	11.2		-245				
		eF	14	39	±							
		P _{EN}	8	50	44						308	Near Ōita City, Kyūsyū.
		P _Z	8	50	45							Focal depth about 100km.
		S _{EN}	8	51	26							
S _Z	8	51	27									
M _N	8	51	28			-15						
M _Z	8	51	32					-5				
M _E	8	51	35				+13					
F	8	53	09									
7	Jan. 23	P _{EN}	8	59	17					408	Near Suikaidō, Ibaraki Prefecture.	
		P _Z	8	59	22							
		S _N	9	00	12							
		M _N	9	00	15			-8				
		F	9	01	57							
8	Jan. 23	P _N	11	04	07						Near New Britain Isl., Melanesia.	
		L _N	11	14	43						By Ōmori's seismograph.	
		L _E	11	14	48							
		M _E	11	17	50	29.0	+60					
		M _N	11	18	06	30.7		+135				
eF	11	40	±									
9	Jan. 25	P _Z	6	43	19				+5.3	5880	South-western part of Solomon Is., SW Pacific.	
		P _E	6	43	20							
		eP _N	6	43	20							
		iP _N	6	43	21			-3.8				
		S _E	6	50	49							
		S _N	6	50	50							

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		L _N	6	57	00						
		L _E	6	57	10						
		M _{1E}	7	00	14	17.5	-33				
		M _{1N}	7	00	22	16.5		+38			
		M _{1Z}	7	01	41	17.7			+7		
		M _{2E}	7	01	46	17.5	+32				
		M _{2N}	7	02	49	15.6		+46			
		M _{3N}	7	03	50			+32			
		M _{2Z}	7	04	02	16.3			-7		
		eF	7	38	±						
10	Jan. 27	eP _Z	7	05	56						Near Kumamoto City, Kyūsyū.
		eP _E	7	06	01						
		eP _N	7	06	03						
		eS _Z	7	07	01						
		eS _N	7	07	03						
		S _E	7	07	05						
		M _Z	7	07	13					-9	
		M _N	7	07	16				-18		
		M _E	7	07	20		+15				
		eF	7	09	57						
11	Jan. 28	eP _E	0	44	53					477	Ditto.
		P _{NZ}	0	44	53						
		S _Z	0	45	56						
		S _{EN}	0	45	57						
		M _N	0	46	04			+10			
		M _Z	0	46	05				-7		
		M _E	0	46	20		+15				
eF	0	48	±								
12	Jan. 30	P _Z	1	10	58					273	To the south of the Onmaezaki, Sizuoka Prefecture.
		P _{EN}	1	11	00						
		S _N	1	11	37						
		S _E	1	11	38						
		S _Z	1	11	39						

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					A _E μ	A _N μ	A _Z μ		
13	Feb. 3	SME	1 11 40		+23			146	Near Hinomisaki, Wakayama Prefecture.
		MEZ	1 11 53		-12		-16		
		MN	1 12 08			-22			
		eF	1 16 ±						
		PZ	23 33 38						
		PN	23 33 42						
		ePE	23 33 44						
		S	23 34 01						
		ME	23 34 01		-24				
		MN	23 34 03			+15			
MZ	23 34 05				+5				
F	23 35 39								
*14	Feb. 5	PZ	1 02 28				15	Local shock. Felt in Toyooka.	
		PEN	1 02 29		+28.0	+4.3			
		Sz	1 02 30						
		SEN	1 02 31						
		MZ	1 02 31						-27
		MEN	1 02 33		-79	-120			
		F	1 03 56						
15	Feb. 5	PEZ	1 16 12				15	Local shock.	
		S	1 16 14						
		MEN	1 16 14		±5	±8			
		MZ	1 16 15			±2			
		F	1 16 30						
16	Feb. 5	PE	16 47 18				Ditto.		
		SEN	16 47 20						
		MEN	16 47 20		±2	±3			
		F	16 47 29						
*17	Feb. 8	P	2 32 56		+2.2	+1.1	13	Near Mineyama, Kyōto Prefecture. Felt in Toyooka & vicinity.	
		S	2 32 58						
		M	2 32 58		+226	-78			±41

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					A _E μ	A _N μ	A _Z μ		
18	Feb. 8	F	2 35 40				280	In the Bungo Channel.	
		ePEN	12 18 16						
		ePz	12 18 17						
		iP	12 18 19						
		eSN	12 19 55						
		Sz	12 19 55						
		SE	12 19 56						
		MNZ	12 20 02			+19			+16
		ME	12 20 06		+24				
		F	12 21 46						
19	Feb. 13	SMz?	13 08 01				±2	Local shock.	
		SMEN	13 08 04		±5	±4			
		F	13 08 12						
20	Feb. 14	ePz	1 06 15				282	In the Bungo Channel.	
		ePEN	1 06 17						
		Pz	1 06 18						
		PEN	1 06 22						
		Pz	1 06 29						
		Sz	1 06 59						
		SE	1 07 00						
		Mz	1 07 10	1.4					+18
		ME	1 07 13	2.4	+23				
		MN	1 07 19			+30			
F	1 09 46								
21	Feb. 18	PE	5 10 39				14	Local shock.	
		SMN	5 10 40			±3			
		SME	5 10 41		±8				
		F	5 10 49						
22	Feb. 21	PN	7 06 02				1540	Epicenter: 44°5N 150°0E. To the SE of Etorofu Isl., Kurile IIs.	
		ePz	7 06 02						
		PE	7 06 03						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
23	Feb. 21	iPz	7	06	03					1520	Felt in the Pacific coast of Hokkaidō and Oou districts. The end part was overlapped by the next earthquake.
		iz	7	06	21						
		SEN	7	08	44						
		Sz	7	08	55						
		LN	7	09	31						
		LE	7	09	33						
		Mz	7	12	06	19.1			+89		
		MN	7	12	12	19.6		+631			
		ME	7	13	01	17.4	+662				
		PEz	7	29	51						
PN	7	29	52								
eSN	7	32	30								
LE	7	33	41								
M _{1E}	7	36	27	17.7	-443						
MN	7	37	42	16.0		-310					
M _{2E}	7	37	53	16.2	-380						
Mz	7	37	54	13.8			+89				
eF	9	07	±								
24	Feb. 21	PNz	7	52	59					Ditto.	
		PE	7	53	12						
25	Feb. 21	PN	8	02	30					Ditto.	
		Pz	8	02	33						
26	Feb. 21	P	10	55	35					Ditto.	
		eF	11	10	±						
27	Feb. 21	PN	22	31	33					Ditto.	
		MN	22	40	04						
		eF	22	49	±						
28	Feb. 22	PN	2	56	23					Ditto.	
		Pz	2	57	00						
		MN	3	04	31			+3			

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
29	Feb. 22	eF	3	13	±					1470	Ditto.
		PN	13	27	24						
		Pz	13	27	25						
		LE	13	32	43						
		ME	13	34	07		-3				
		MN	13	35	04			-4			
eF	13	47	±								
30	Feb. 23	PEN	0	51	37						Ditto.
		Pz	0	51	38						
		SN	0	54	11						
		SE	0	54	12						
		ME	0	58	12	17.5	+9				
		M _{1N}	0	58	12	19.4		-13			
		M _{2N}	0	59	28	15.5		+13			
		Mz	0	59	30						
		eF	1	24	±						
31	Feb. 26	eLN	4	22	28						Ditto.
		eLE	4	23	01						Faint record.
		MN	4	25	05			+8			
		eF	4	37	±						
32	Feb. 26	P	13	43	51					76	Near Kyōto City.
		SEN	13	44	01						
		MEN	13	44	03		-4	-4			
		F	13	44	51						
33	Feb. 26	SEN	14	28	09						Ditto.
		MEN	14	28	09		-5	-3			
		F	14	28	37						
34	Feb. 27	Pz	1	17	03						In the Kasima-nada.
		PE	1	17	04						
		ePN	1	17	08						

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					AE μ	AN μ	Az μ		
*35	Feb. 27	Sz	1 18 37					232	Epicenter: 33°.7N 132°.1E. Iyo-nada, Inland Sea. Moderate shocks were felt in the western coast of the Inland Sea. Felt in SW Japan.
		SN	1 18 46						
		Mz	1 18 48			+14			
		MEN	1 19 12	-20	-5				
		eF	1 24 ±						
		PEN	14 42 42						
		iz	14 42 59						
		ie	14 43 01						
		in	14 43 06						
		SEN	14 43 14						
36	Mar. 8	Sz	14 43 15				148	Near Kaiden, north-eastern foot of Mt. Ontake, Nagano Prefecture.	
		MN	14 43 28	2.7	+218				
		Mz	14 43 32	2.8		-232			
		ME	14 43 34	1.5	+247				
		eF	14 54 ±						
		F	14 27 32	-2	+2				
37	Mar. 8	Pz	17 44 00				148	Near Onomiti City, Hirosima Prefecture.	
		PEN	17 44 03						
		Sz	17 44 22						
		SEN	17 44 23						
		Mz	17 44 24			+2			
		MN	17 44 26			-3			
		ME	17 44 27	+3					
38	Mar. 12	ePN	15 45 45				148	Near the mouth of Hidaka River, Wakayama Prefecture.	
		ePE	15 45 59						
		Sz	15 46 19						
		SE	15 46 20						

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					AE μ	AN μ	Az μ		
39	Mar. 16	SN	15 46 21				2440	Felt in northern part of Luzon, Philippine.	
		ME	15 46 22	+2					
		MN	15 46 24		+2				
		F	15 46 58						
		ePz	15 50 33			-2.7			
		ePEN	15 50 34	-1.1	-1.6				
40	Mar. 21	iP	15 50 34		+2.2	+6.5	+8.9	677	Epicenter: 40°.2N 142°.2E. To the east of Kuzi, Iwate Prefecture. Felt in Oou district.
		eSE	15 54 34						
		SN	15 54 34						
		eF	16 06 ±						
		P	18 15 15						
41	Mar. 21	eF	18 18 ±?				677	Epicenter: 40°.2N 142°.2E. To the east of Kuzi, Iwate Prefecture. Felt in Oou district.	
		Pz	19 31 14						
		PE	19 31 16						
		ePN	19 31 16						
		SEN	19 32 47						
		Sz	19 32 51						
		SME	19 32 58	-22					
		MN	19 33 53			-14			
		Mz	19 34 00			+8			
		eF	19 39 ±						
42	Mar. 27	PE	21 11 39				404	Near Haneda, Tōkyō City.	
		ePz	21 11 40						
		ePN	21 11 41						
		SN	21 12 32						
		Sz	21 12 33						
		SE	21 12 37						
		MN	21 12 39			+7			
		MEz	21 12 41	+2		-4			
		eF	21 14 ±						



SEISMOLOGICAL BULLETIN

OF THE

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AND

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KOBE, JAPAN.

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KOBE

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of the Imperial Marine Observatory and the Kōbe Meteorological Observatory of Japan.

$\varphi=34^{\circ} 41' 18''N$ $\lambda=135^{\circ} 10' 51''E$ $h=58.3m$. Underground: Diluvial Series.

Ōmori's Seismograph.
(Horizontal)

Wiechert Seismograph.
(Horizontal & Vertical)

Wadati's Long-period
Seismograph. (E-W)

Constants of this seismograph are as follows:-

April

	T_0	ϵ	$\frac{r}{T_0^2}$	V		T_0	ϵ	$\frac{r}{T_0^2}$	V
AE:	19.4		0.001	20	AE:	6.0	6	0.007	105
AN:	20.5		0.001	20	AN:	6.0	5	0.007	104
					AZ:	5.2	9	0.004	81

T_0 20.⁸⁰
 ϵ 2.3
 r/T_0^2 0.0002
 V 850.....for $T=1^S$
 1000..... " " = 5^S
 750..... " " = 10^S
 500..... " " = 20^S

May

	T_0	ϵ	$\frac{r}{T_0^2}$	V		T_0	ϵ	$\frac{r}{T_0^2}$	V
AE:	19.3		0.001	20	AE:	5.8	6	0.006	109
AN:	18.3		0.001	20	AN:	6.0	6	0.007	105
					AZ:	5.3	6	0.004	82

Where T is the period of earthquake oscillation.

June

	T_0	ϵ	$\frac{r}{T_0^2}$	V		T_0	ϵ	$\frac{r}{T_0^2}$	V
AE:	19.3		0.001	20	AE:	5.8	6	0.007	105
AN:	19.3		0.001	20	AN:	6.0	5	0.008	99
					AZ:	5.4	6	0.004	80

This seismograph is principally made after Galitzin's instrument with horizontal pendulum of Zöllner's suspension, but the method of recording is different. It is devised to get seismograms on smoked paper by a mechanically recording galvanometer, by the aid of an amplifier both specially constructed for this purpose. About details for this seismograph see **K. Wadati** and **Z. Kawase**: On long-period Seismographs, Jour. Met. Soc. Japan II Ser. Vol. 14, No. 8 & Vol. 15, No. 10.

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No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		AE	AN	Az		
69	April 3	eP	h	m	s	s	μ	μ	μ	km.	Felt in Formosa and western Luzon, Philippine.
		eE	21	15	47						
		iSE	21	17	27						
		eMN	21	20	01		-7				
		eF	21	24	22						
70	April 4	ePE	5	00	54					To the west off Hatizyō I.	

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					A _E μ	A _N μ	A _Z μ		
71	April 5	eP _N	5 00 55					3740	Felt in northwestern part of New Guinea.
		eP _Z	5 01 00						
		e _N	5 01 33						
		e _E	5 01 37						
		i _E	5 03 42	2.2	+6				
		e _F	5 17 ±						
		P _Z	7 03 31			-3.5			
		P _N	7 03 32			-3.5			
		PR _{1N}	7 04 53	3.1		-15			
		PR _{2E}	7 05 12	2.9	+14				
72	April 7	eS _Z	7 08 41				7405	In region of the Tonga Islands, SW Pacific Ocean. Deep focus earthquake.	
		S _N	7 09 04						
		eS _E	7 09 06						
		M _Z	7 11 56	11.0		-90			
		M _E	7 11 58	12.0	±30				
		M _N	7 22 25	17.5	±70				
		e _F	7 48 ±						
		S _N	2 05 12			-4			
		SE _Z	2 05 13		+5	-1			
		M _{EN}	2 05 15	0.7	±5	±4			
73	April 12	M _Z	2 05 15	0.9		±1	111	In the Kumihama Bay, Japan Sea coast of Kyōto Prefecture.	
		F	2 05 21						
		P _Z	9 50 47.6			-1.6			
		P _{EN}	9 50 48.1		-1.0	+1.5			
		iP _Z	9 50 47.9			+3			
		iP _{EN}	9 50 48.3		+2	-6			
		i _E	9 50 46	0.5	+8				
		i _N	9 50 50	0.6		+6			
		i _S	9 51 03		+7	-5			+6
		M _Z	9 51 04	1.0					+10
74	April 12	M _N	9 51 05	0.6		+11	111	In the Kumihama Bay, Japan Sea coast of Kyōto Prefecture.	
		M _E	9 51 06	0.8	±10				
		e _F	9 54 ±						
		e _E	20 17 57						
		e _F	20 21 ±						
75	April 14	e _N	21 30 51				13.0	±5	A distant earthquake. Inscribed at Batavia & Chiufeng, China.
		M _N	21 33 20						
		e _F	21 39 ±						
		eP _{EN}	12 42 35						
76	April 15	eS _N	12 44 42				1190	To the far east off the Sioya Cape, Hukusima Prefecture.	
		eS _E	12 44 44						
		e _F	12 53 ±						
		P _{EZ}	3 12 20		+2.5	-4.4			
77	April 16	P _N	3 12 21			-1.5	7405	In region of the Tonga Islands, SW Pacific Ocean. Deep focus earthquake.	
		i _Z	3 12 29			-60			
		i _{EN}	3 12 31		+40	-35			
		i _Z	3 12 34	5.7		+35			
		i _E	3 12 38	4.0	+48				
		i _N	3 12 40	4.5		+50			
		eS _E	3 21 07		-7				
		eS _Z	3 21 08			-8			
		eS _N	3 21 10			-9			
		iS _E	3 21 20		-22				
		iS _Z	3 21 21			-12			
		iS _N	3 21 24			-60			
		ScS _E	3 22 02	5.9	+115				
		ScS _{NZ}	3 22 05	4.7		-150			-27
sS _{N?}	3 22 52	4.6		+50					
sS _{E?}	3 22 57	4.3	+80						
sScS _{?EN}	3 23 40	4.3	-100	-75					
i _E	3 24 29	6.2	+18						
i _N	3 24 35			+42					
L _{(Q)N}	3 31 10	34.5							
L _{(Q)E}	3 31 11								
L _{(Q)Z}	3 31 21	28.0							
P'P'Z	3 40 11								

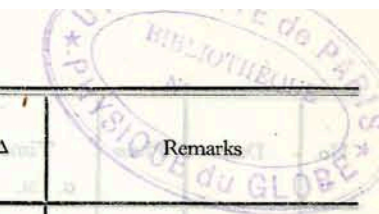
No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					A _E μ	A _N μ	A _Z μ		
74	April 12	e _E	20 17 57				1190	To the N off Bonin I.	
		e _F	20 21 ±						
75	April 14	e _N	21 30 51				13.0	±5	A distant earthquake. Inscribed at Batavia & Chiufeng, China.
		M _N	21 33 20						
		e _F	21 39 ±						
		eP _{EN}	12 42 35						
76	April 15	eS _N	12 44 42				1190	To the far east off the Sioya Cape, Hukusima Prefecture.	
		eS _E	12 44 44						
		e _F	12 53 ±						
		P _{EZ}	3 12 20		+2.5	-4.4			
77	April 16	P _N	3 12 21			-1.5	7405	In region of the Tonga Islands, SW Pacific Ocean. Deep focus earthquake.	
		i _Z	3 12 29			-60			
		i _{EN}	3 12 31		+40	-35			
		i _Z	3 12 34	5.7		+35			
		i _E	3 12 38	4.0	+48				
		i _N	3 12 40	4.5		+50			
		eS _E	3 21 07		-7				
		eS _Z	3 21 08			-8			
		eS _N	3 21 10			-9			
		iS _E	3 21 20		-22				
		iS _Z	3 21 21			-12			
		iS _N	3 21 24			-60			
		ScS _E	3 22 02	5.9	+115				
		ScS _{NZ}	3 22 05	4.7		-150			-27
sS _{N?}	3 22 52	4.6		+50					
sS _{E?}	3 22 57	4.3	+80						
sScS _{?EN}	3 23 40	4.3	-100	-75					
i _E	3 24 29	6.2	+18						
i _N	3 24 35			+42					
L _{(Q)N}	3 31 10	34.5							
L _{(Q)E}	3 31 11								
L _{(Q)Z}	3 31 21	28.0							
P'P'Z	3 40 11								

No.	Date	Phase	Time G. M. r.	Period s	Amplitude			Δ km.	Remarks
					A _E μ	A _N μ	A _Z μ		
78	April 16	P'P'E	3 40 19					134? Near Toyohasi, Aiti Prefecture.	
		eE	3 41 24						
		eN	3 41 26						
		eF	4 27 ±						
		eP _N	19 24 39						
		eP _Z	19 24 41						
		eS _Z	19 24 55						
		S _{EN}	19 24 57	+3	-2				
79	April 17	M _Z	19 25 06	0.8		±2	Local shock.		
		M _{EN}	19 25 07	0.6	±6	+5			
		eF	19 30 ±						
		iS _{EN}	3 16 07	+3	+1				
		eM _N	3 16 09	0.9		±2			
		eM _E	3 16 14	0.9	±3				
80	April 19	F	3 16 20				Near Siomisaki, south end of the Kii Peninsula.		
		eP _N ?	3 36 42						
		M _N	3 37 08	0.8		+2			
		M _E	3 37 09	0.8	±1				
81	April 24	F	3 37 39				65 Near Isigaki, basin of the Arita River, Wakayama Prefecture.		
		eP _N	21 07 41						
		iS _{M_E}	21 07 50		+11				
		iS _N	21 07 50			+6			
		M _N	21 07 51	0.5		-8			
		M _Z	21 07 54	1.1		±4			
		C _N	21 08 58	2.1		±4			
82	April 27	eF	21 12 ±				Far off the Bōsō Peninsula.		
		eP _N ?	12 44 15						
		eP _E ?	12 44 16						
		eE	12 45 18						
		M _N	12 47 30	9.3		±3			
		eF	12 57 ±						

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					A _E μ	A _N μ	A _Z μ		
83	April 28	eP _E	14 04 37	6.0				6500? A distant earthquake. Inscribed at Manila and Chiufeng, China. By Wadati's Seismograph.	
		eE	14 05 17		±2				
		eE	14 11 33						
		eS _E	14 12 35	9.0					
		eM _E ?	14 14 50	21.0	±1				
		eF	14 22 ±						
84	April 29	eP _{EN}	0 16 14				61 Near Yuasa, Wakayama Prefecture.		
		P _Z	0 16 15			+1.2			
		S _{EN}	0 16 23		+2	-2			
		eS _Z	0 16 23						
		M _N	0 16 24	0.4		-5			
		M _Z	0 16 25	0.3		+2			
		M _E	0 16 26	0.6	±6				
		eF	0 19 ±						
85	April 29	iP _{NZ}	19 01 10			-1.0	5195 Eastern part of the Aleutian Islands. 53°.8N 160°.5W (J.S.A.) * By Wadati's Seismograph.		
		iP _E	19 01 11		-2.2	+5.0			
		eS _Z	19 08 03						
		eS _{EN}	19 08 04						
		eE	19 10 58						
		eZ	19 11 03						
		* ScS	19 11 26						
		eL _N	19 12 46						
		eL _E	19 13 41						
		eL _Z	19 14 21						
86	April 29	M _Z	19 17 16	25.8			1140 Northern part of the Japan Sea, 45°.7N 137°.3E. Focal depth about 370km. Felt in the Pacific coast of Hokkaidō and Oou districts.		
		M _E	19 17 23	23.5	±25				
		M _N	19 18 00	19.0		±12			
		eF	19 46 ±						
		P	20 21 29		+1.8	-3.2		+3.5	
		iP	20 21 30		-13	+10		+10	
		iE	20 22 47		+9				
		S	20 23 32		-28	+17		+12	
87	April 29	M _E	20 23 40	3.9	-108				
		M _Z	20 23 40	3.7		-48			

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
87	May 3	M _N	20	23	42	5.3		+180		315	Northern part of the Bungo Channel. Felt in the coast of Bungo Channel.
		eF	20	43	±						
		eP _Z	15	51	18						
		P _N	15	51	18			+0.9			
		eP _E	15	51	19						
		S	15	52	01		+8	+6	+4		
		M _E	15	52	14	-	-10				
		M _N	15	52	15	1.8		+8			
		M _Z	15	52	18	1.4			-8		
		e _{EN}	15	53	27	2.3	-6	-6			
e _Z	15	53	27	2.8			±4				
eF	16	00	±								
88	May 4	e _E	5	25	08					Alaska. By Wadati's Seismograph.	
		eS _E ?	5	29	35						
		M _E	5	35	15	25.0	±3				
		eF	6	23	±						
89	May 4	P _N	16	32	02				414	Near Suikaidō, Ibaraki Prefecture. Focal depth about 50km. Moderate shocks were felt in the epicentral region, felt in all Kwantō district.	
		eP _{EZ}	16	32	02						
		e _E	16	32	08						
		i _E	16	32	13		+5				
		i _Z	16	32	14						+3
		i _N	16	32	15			-2			
		S _Z	16	32	55						+4
		S _E	16	32	56		-10				
		S _N	16	32	58			+10			
		M _Z	16	33	08	1.3					+15
M _N	16	33	09	2.3		±24					
M _E	16	33	27	2.1	-31						
i _E	16	35	12	2.4	±18						
eF	16	46	±								
90	May 5	eP _E	21	20	42				1250?	Northern part of the Mariana Islands, Pacific Ocean.	
		eS _Z	21	22	43						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
91	May 6	eS _E	21	22	55					77	* By Wadati's Seismograph. In the Kii Channel.
		M _Z	21	23	14	1.8			±3		
		* M _E	21	23	50	4.5	±3				
		eF	21	33	±						
		eP _N ?	3	10	54						
92	May 6	eP _{EZ}	3	10	56					25	Northern part of Awazi Province, Hyōgo Prefecture. Felt in near Akasi Channel.
		iS _E	3	11	06		+2				
		eS _Z	3	11	06				-2		
		iS _N	3	11	07				-5		
		M _E	3	11	08	0.6	±3				
		M _N	3	11	08	1.0		+5			
		eF	3	15	±						
		iP	9	31	55		-3.3	-2.3	-8.7		
93	May 6	iS	9	31	58		-23	-27	-15	25	Northern part of Awazi Province, Hyōgo Prefecture. Felt in near Akasi Channel.
		M _E	9	31	59	0.7	+50				
		M _N	9	31	59	0.6			-71		
		M _Z	9	31	59	0.8			-22		
94	May 6	eF	9	38	±					25	Northern part of Awazi Province, Hyōgo Prefecture. Felt in near Akasi Channel.
		e _E	13	19	32	3.0					
95	May 7	eF	13	26	±					25	Northern part of Awazi Province, Hyōgo Prefecture. Felt in near Akasi Channel.
		e _E	17	52	49						
96	May 9	M _E	17	58	04	15.0	±3			1570	Near Etrofu I, Kurile Is.
		eF	18	26	±						
		e _E	14	19	13						
97	May 7	eF	14	23	±					1570	Near Etrofu I, Kurile Is.
		e _E	14	19	13						
		eF	14	23	±						
		eP _N	14	50	20						
		eP _E	14	50	25						
98	May 9	eP _Z	14	50	26					1570	Near Etrofu I, Kurile Is.
		eS _E	14	53	04						
		eS _Z	14	53	05						



No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
97	May 10	eLN	14	53	52						
		eLE	14	54	08						
		MN	14	57	01	19.0		±30			
		ME	14	57	03	19.0	±20				
		MZ	14	57	06	18.0			±24		
		eF	15	30	±						
98	May 10	eEN	7	45	52						To the ENE off the Sioya Cape, Hukusima Prefecture. Felt in the Pacific coast of Kwantō & Oou districts.
		eZ	7	45	56						
		eE	7	47	55	2.8	±2				
		eF	7	54	±						
99	May 10	eME	10	55	26	6.7	±1				Inscribed at Manila. By Wadati's Seismograph.
		eF	11	05	±						
100	May 11	ePZ	15	36	08					7420	South of Fiji Is., SW Pacific Ocean?
		ePE	15	36	10						
		ePN	15	36	11						
		eSZ	15	44	48						
		SN	15	44	50			-3			
		SE	15	44	51			-4			
101	May 11	eEN	3	33	39						Local shock.
		MEN	3	33	46	0.8	±2	-4			
		eF	3	35	±						
102	May 12	ePE?	21	00	16					139	Near Sakai, western part of Tottori Prefecture.
		ePZ	21	00	17						
		ePN	21	00	18						
		iPN	21	00	19	0.6		±1			
		eSN	21	00	37						
		iSNZ	21	00	39			-3	-2		
		iSE	21	00	40			+2			
		MEN	21	00	41	0.5	±3	+5			
103	May 11	MZ	21	00	41	0.6			±2		

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks	
			G.	M.	T.		A _E	A _N	A _Z			
			h	m	s	s	μ	μ	μ	km.		
102	May 12	eF	21	04	±							
		ePZ	2	52	19					4105	New Guinea. * By Wadati's Seismograph.	
		iPZ	2	52	20				+5.0			
		iPEN	2	52	21			-2.3	+3.6			
		SN	2	58	13							
		eSZ	2	58	13							
		SE	2	58	14			-3				
		*ME	3	02	39	30.0		±4				
		eF	3	11	±							
		103	May 12	PE	13	17	12					
SE	13			24	28							
ME	13			40	45	14.5	±1					
eF	14			10	±							
104	May 13	eE	1	51	49						Local shock.	
		eN	1	51	50							
		eSN	1	51	53							
		SE	1	51	54			+2				
		ME	1	51	55	0.8	±2					
		MN	1	51	55	0.7		-2				
105	May 13	F	1	52	02							
		PZ	18	54	42				+1.2	3585	South China Sea? Deep focus type.	
		ePEN	18	54	43							
		SEN	19	00	06			+2	+2			
SZ	19	00	07					+1				
106	May 13	eF	19	06	±							
		ePE	21	10	27					69?	Local shock? By Wadati's Seismograph.	
		iSE	21	10	37			-1				
ME	21	10	37	0.6	±1							
107	May 14	F	21	10	41							
		eSN?	13	04	26						Local shock.	

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks	
			G.	M.	T.		A _E	A _N	A _Z			
			h	m	s	s	μ	μ	μ	km.		
108	May 14	M _N	13	04	27	1.0		± 1				
		M _E	13	04	28	0.6	± 1					
		F	13	04	55							
		eP _Z	22	02	09						66	In the Kii Channel.
		eP _N	22	02	10							
		S _N	22	02	19							
		eS _Z	22	02	19							
109	May 15	M _N	22	02	20	0.6		-2				
		F	22	02	55							
		eEN	8	26	13							Local shock.
110	May 15	M _N	8	26	17	0.8		± 1				
		M _E	8	26	20	0.6	± 1					
		F	8	36	25							
		P	12	23	50		+1.1		+1.2	243		Near Ōsima, to the SE off the Izu Peninsula. Focal depth about 80km. Felt in Kwantō and Tyūbu districts.
111	May 15	S _E	12	24	23		+3					
		S _Z	12	24	24							
		S _N	12	24	29				+3			
		M _E	12	24	34	1.3	+11					
		M _N	12	24	34	1.6			± 4			
		M _Z	12	24	34	1.2			+4			
		eF	12	33	±							
112	May 15	eP _E	17	26	12					111	In the Owasi Bay, Pacific coast of Mie Prefecture.	
		S _{EN}	17	26	27		+1.5	+3				
		M _{EN}	17	26	27	0.5	+3	-4				
		F	17	26	55							
113	May 19	eE	23	25	19						To the SE off Bonin I. Very faint record.	
		eF	23	32	±							
114	May 20	S _{EN}	1	17	59		+2	+1			Local shock.	
		M _E	1	18	00	1.0	± 2					
		M _N	1	18	00	1.1		-2				

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks	
			G.	M.	T.		A _E	A _N	A _Z			
			h	m	s	s	μ	μ	μ	km.		
114	May 20	M _Z	1	18	00	0.5			± 0.5			
		F	1	18	33							
		eN	12	17	18							To the east off Hatizyō Island.
		eE _Z	12	17	25							In microseisms.
		eZ	12	18	09							
115	May 21	M _N	12	19	52	9.0		± 7				
		eF	12	28	±							
		eP _E	1	59	06						1180	To the SE off Katuura, Tiba Prefecture.
		eP _N	1	59	07							
		S _E	2	01	12			-7				
116	May 21	S _N	2	01	13			+5				
		M _E	2	02	06	10.5	+10					
		M _N	2	02	26	11.0			+14			
		eF	2	20	±							
117	May 21	M _E	5	28	23	1.0	± 2					Near Motoyama, Kōti Prefecture.
		M _N	5	28	24	1.1			± 2			
		F	5	28	55							
118	May 25	P _N	5	36	29					164	Near Kuze, Okayama Prefecture.	
		eP _E	5	36	32							
		S _N	5	36	51				-2			
		S _E	5	36	52		+2					
		M _E	5	36	53	0.6	+5					
119	May 25	M _N	5	36	54	0.8		± 6				
		F	5	37	45							
		eP _N	0	39	09						620	Near Tōgane, Tiba Prefecture.
		eP _E	0	39	11							
		eZ	0	39	19							
		eZ	0	39	32							
120	May 25	eE	0	39	38							
		S _Z	0	40	16				+2			
		S _N	0	40	18				-4			

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		SE	0	40	19		+6				
		MZ	0	40	25	2.0			±3		
		ME	0	40	26	1.4	±8				
		MN	0	40	27	1.9		+6			
		eF	0	58	±						
119	May 25	SE	4	56	15		+1				Local shock.
		ME	4	56	16	0.8	±2				
		F	4	56	36						
120	May 27	ePE?	3	47	53					45?	Ditto.
		SN	3	47	59			-2			
		SME	3	48	00	1.1	+3				
		F	3	48	32						
121	May 27	iPN	4	11	37			+1.6		31?	Near Wakayama City.
		SN	4	11	41			-1			
		MN	4	11	41	0.6		±1			
		F	4	11	57						
122	May 27	eP	4	36	43					850	To the ENE far off Hatizyō Island.
		eE	4	37	47						
		eSz	4	38	15						
		eSE?	4	38	22						
		MN	4	38	58	15.5		±18			
		ME	4	39	04	12.5	±23				
		MZ	4	39	08	13.0			±15		
		eF	4	56	±						
123	May 27	ez	9	36	27						To the ENE off Hatizyō I.
		eE	9	36	36						Faint record.
		eF	9	49	±						
124	May 27	ePN	17	11	49					154	Off mouth of the Maruyama River, Japan Sea coast of Hyōgo Prefecture.
		ePz	17	11	50						
		ePE	17	11	51						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		SN	17	12	10			+3			
		Sz	17	12	11				+2		
		iSE	17	12	12		-4				
		MZ	17	12	13	1.1			-5		
		ME	17	12	14	1.3	+7				
		MN	17	12	17	0.9		+6			
		eF	17	18	±						
125	May 28	ee	7	18	24						Inscribed at Manila.
		eF	7	27	±						Masked by microseisms.
126	May 28	eLE	13	47	49						Off the Etofu Island, Kurile Islands.
		ME	13	49	04	16.0	±3				
		eF	14	06	±						
127	May 28	iP	19	58	49		-1.9	+2.9	+3.5	1170	Epicenter; 24°.0N 142°.5E, to the SSE off Bonin I. Focal depth about 450km. Abnormal felt area in Kwantō district.
		eN	20	00	40			+4			
		ez	20	00	44						
		S	20	00	54		-4	-7	+8		
		iz	20	01	07	3.1			±19		
		iN	20	01	08	3.4		-32			
		iE	20	01	08	3.1	+27				
		MN	20	02	07	3.9		-27			
		ME	20	02	53	3.6	+25				
		ScSE	20	10	02	2.5	±4				
		ScSN	20	10	03	2.3		±5			
		eScSz	20	10	02	1.5			±1		
		eF	20	18	±						
128	May 29	eN?	2	04	08						To the south off Bonin Island.
		ee?	2	04	12						
		eSN	2	04	51						
		eSz	2	04	52						
		eSE	2	04	53						
		MN	2	05	06	3.0		+5			
		ME	2	05	07	3.3	±5				

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
129	May 30	M _Z	2	05	10	2.2			+2		
		eF	2	13	±						
		eP _E ?	11	29	48						
		eS _E	11	33	54						
		M _E	11	38	26	17.5	±1				A distant earthquake. Very faint record. By Wadati's Seismograph.
130	June 2	eS _Z	23	10	49						In the Kii Channel.
		iS _{EN}	23	10	50		+3	+4			
		M _E	23	17	50	0.9	-4				
		M _N	23	17	50	1.0		-5			
131	June 7	F	23	18	14						
		eE	7	12	29						Local shock.
		iS _E	7	12	31		+3				
		M _E	7	12	32	0.6	-5				
132	June 8	F	7	12	47						
		P	18	04	16		+2	+1	-2		To the SE off Etofu I., Kurile Islands.
		PM _{EZ}	18	04	21	1.9	-11		+12		
		iE	18	13	49		-4				
133	June 8	eF	18	28	±						
		ez	20	06	00						Near the Yosihama Bay, Iwate Prefecture.
		eE	20	06	01						
		eN	20	06	03						
		ez	20	06	20						
		eN	20	06	21						
		eN	20	07	18						
ez	20	07	32								
134	June 9	eF	20	13	±						
		eP	10	22	48					82	In the Yuasa Bay, Waka- yama Prefecture.
		S _{EN}	10	22	59			+2			
		M _N	10	23	00	0.5		-3			

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
135	June 10	M _E	10	23	01	0.8	+5				
		F	10	24	00						
		eE	14	11	40						Near Wakayama City.
		eN	14	11	43						
		M _E	14	11	48	0.4	+2				
136	June 10	M _N	14	11	48	0.5		±1			
		F	14	11	58						
		eE	14	25	48						Ditto.
		iS _E	14	25	49				-2		
137	June 12	M _E	14	25	50	0.6	+2				
		F	14	26	03						
		eP _{NZ}	18	10	27					980	To the SE off Bonin I. Deep focus earthquake.
		eP _E	18	10	29						
		eE	18	11	30						
		S _N	18	12	14				-4		
138	June 13	S _E	18	12	15				-6		
		S _{M_E}	18	12	22				-11		
		eF	18	21	±						
		eP _E ?	4	35	21					345	In the Hyūga-nada, to the SE off Kyūsyū.
		eP _N	4	35	27						
139	June 14	eP _Z	4	35	28						
		eS _Z	4	36	09						
		eS _N	4	36	13						
		eS _E	4	36	16						
		eM _E	4	36	34	1.2	-2				
		eM _N	4	36	35	1.5			-3		
		eM _Z	4	36	39	1.7				+2	
eF	4	43	±								
139	June 14	eE	14	49	03						Local shock.
		eM _E	14	49	50	1.0	±0.5				
		eF	14	50	20						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks	
			G.	M.	T.		A _E	A _N	A _Z			
			h	m	s	s	μ	μ	μ	km.		
140	June 15	eE	20	13	21						Traces.	
		eME	20	13	51	4.3	± 1				By Wadati's Seismograph.	
		F	30	14	51							
141	June 17	iE	6	33	20						Local shock.	
		ME	6	33	25	0.8	± 0.8					
		F	6	33	29							
142	June 17	ePN?	8	08	58						To the east off Hatizyō	
		ePZ	8	09	03						Island.	
		ePE	8	09	05							
		eSE?	8	09	51							
		eF	8	17	\pm							
143	June 19	eE	2	39	02						A distant earthquake?	
		eME	2	42	54	12.0	± 0.8				Very faint record.	
		eF	2	48	\pm							
144	June 19	ePE	17	17	52					7170	South off Fiji Islands, SW	
		ePNZ	17	17	53						Pacific Ocean.	
		eSE	17	26	30						Deep focus type.	
		eSz	17	26	31							
		ScSE	17	27	31	10.0	+3					
		eF	17	34	\pm							
145	June 21	Pz	15	32	28						+3	Some damages at coastal
		eN	15	32	44							cities in Peru, South Ame-
		eN	15	32	51							rica.
		ez	15	34	55							6°.8S 79°.9W (J.S.A.)
		P'N	15	36	01							By Wadati's Seismograph.
		P'E	15	36	06							
		P'Z?	15	47	18							
		eLz	16	15	44							
		eLN	16	16	15							
		eLE	16	16	39							
M'z	16	20	41	24.5						± 6		

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		M ¹ E	16	21	12	22.5	± 23				
		M ² N	16	21	26	23.0		± 15			
		M ² E	16	24	41	19.0	± 25				
		M ² Z	16	24	56	19.0				± 34	
		W _{2N}	17	15	07	20.0		± 8			
		W _{2E}	17	15	46	22.5	± 6				
		W _{2Z}	17	16	08	22.5				± 10	
		* W _{3E}	19	17	17	15.0	± 3				
		eF	18	10	\pm						
146	June 23	eE	2	09	41						
		eSE	2	10	22						
		eSN	2	10	25						
		ME	2	10	46	1.7	+4				
		eF	2	16	\pm						
147	June 23	ePEZ	20	42	46					680	Southern part of Miyazaki
		P _N	20	42	48						Prefecture.
		eE	20	43	55						Felt in southern part of
		eSz	20	43	59						Kyūsyū.
		eSN	20	44	00						
		M _N	20	44	15	2.6		+17			
		M _Z	20	44	15	1.8				± 8	
		ME	20	44	32	1.6	-14				
		iz	20	45	25	2.4				± 5	
		iN	20	45	46	2.4				+12	
148	June 24	eF	20	55	\pm						
		eE	14	26	48						Very faint long period
		M ¹ E	14	29	17	17.5	± 1				waves.
		M ² E	14	35	11	20.0	± 1				By Wadati's Seismograph.
		eF	14	48	\pm						
149	June 25	ePE	13	58	25					91	In the Kii Channel.
		iSMEN	13	58	37	0.5	-7	-4			
		F	13	59	03						

From No. 84 to No. 168, 1937.

SUMOTO JAPAN.

SEISMOLOGICAL BULLETIN

A Branch Station of the Kōbe Meteorological Observatory of Japan.
 $\varphi=34^{\circ} 21'$ $\lambda=134^{\circ} 53'$ $h=109.0$ m. Underground: Cretaceous.

Instrument: Omori's Seismograph. (Horizontal) Wiechert Seismograph. (Horizontal & Vertical)

April

	T_0	ϵ	$\frac{r}{T_0^2}$	V		T_0	ϵ	$\frac{r}{T_0^2}$	V
AE:	16.1	2.4	0.0002	20	AE:	4.4	Aperiodic	0.002	111
AN:	19.9	2.1	0.0003	20	AN:	4.5	"	0.002	106
					Az:	3.8	"	0.002	70

May

	T_0	ϵ	$\frac{r}{T_0^2}$	V		T_0	ϵ	$\frac{r}{T_0^2}$	V
AE:	16.1	2.4	0.0002	20	AE:	4.5	Aperiodic	0.002	107
AN:	20.0	2.1	0.0003	20	AN:	4.7	"	0.002	94
					Az:	4.2	"	0.002	74

June

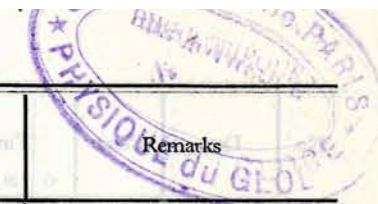
	T_0	ϵ	$\frac{r}{T_0^2}$	V		T_0	ϵ	$\frac{r}{T_0^2}$	V
AE:	16.1	2.4	0.0002	20	AE:	4.6	Aperiodic	0.002	96
AN:	20.0	2.1	0.0003	20	AN:	4.7	"	0.002	98
					Az:	3.6	"	0.002	79

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
150	June 26	SEN	13	58	39		+1	-1			Near Nakamura, felt in central part of Hyōgo Prefecture.
		MN	13	58	40	0.4		-4			
		F	13	59	12						
151	June 27	iSN?	3	48	05					1.0	Local shock.
		MN	3	48	06			±4			
		F	3	48	14						
152	June 28	iEN	2	38	03		+2	-1			Local shock.
		F	2	38	11						
153	June 28	ePEN	16	29	13					0.3	82? In the Wakaura Bay.
		Pz	16	29	13						
		eSEN	16	29	24						
		MNZ	16	29	26			±5	-2		
		ME	16	29	27	0.5	+4				
		F	16	30	30						
154	June 30	ePE	17	50	37					1.2	Off the Kuzyūkuri-hama, Tiba Prefecture.
		cSN	17	50	38						
		ez	17	50	40						
		eSNZ	17	51	14						
		eSE	17	51	15						
		eME	17	51	21	2.5	+3				
		eMz	17	51	22				±1		
eF	17	55	±								

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
84	April 2	eEN	5	40	25						Southern part of the Pacific Ocean?
		ez	5	40	39						
		eF?	5	42	±						
85	April 2	ePEN	13	40	42					0.3	Near Wakayama City.
		SEN	13	40	43						
		MEN	13	40	43		±1	±1			

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					A _E μ	A _N μ	A _Z μ		
86	April 3	F	13 40 57						Felt in Formosa and western part of Luzon, Philippine.
		ePEN	21 11 38						
		ePz	21 11 43						
		eN	21 15 50						
		eE	21 15 52						
87	April 4	eF	21 23 ±						To the west of Hatizyō Island.
		PEN	5 00 59		+0.9	+0.9	+1.4	298	
		Pz	5 01 00						
		SEN	5 01 39						
		eSz	5 01 41						
		ME	5 01 42	1.9	-3				
		Mz	5 01 51	2.3			±1		
		MN	5 01 54	1.9			-4		
		eF	5 10 ±						
		88	April 5	Pz	7 03 26		-	-1.4	
PN	7 03 28								
PE	7 03 30								
eSz	7 06 36								
eN	7 08 56								
eE	7 09 05								
MN	7 09 15			14.4			+67		
ME	7 11 44			10.9	-32				
Mz	7 11 50			11.4			-60		
89	April 12	eF	7 48 ±						In the Kumihama Bay, Japan Sea coast of Kyoto Prefecture.
		ePE	9 50 52				143		
		PNZ	9 50 53						
		SEN	9 51 12						
		eSz	9 51 13						
		MN	9 51 13	0.9			-7		
		ME	9 51 16	1.3	+4				
90	April 15	Mz	9 51 19	1.0			±2		Near Wakayama City.
		F	9 53 17						
		ePEN	10 55 39						
		S	10 55 42						
		ME	10 55 42	0.4	-2				
91	April 16	MNZ	10 55 42	0.2		-3	±1		In region of the Tonga Islands, SW Pacific Ocean.
		F	10 56 11						
		Pz	3 12 18				-2.9	6400	
		PE	3 12 20		+0.9				
		ePN	3 12 22			+0.9			
92	April 16	PMz	3 12 35	3.5			+71		Near Toyohasi, Aiti Prefecture.
		PM _E	3 12 36	1.9	-44				
		PM _N	3 12 43	2.9		-18			
		eSE	3 20 18						
		eSN	3 20 20						
		LE	3 21 16						
		LN	3 21 21						
		Lz	3 21 22						
		ME	3 22 12	5.0	-57				
		MN	3 22 13	4.8		+31			
		Mz	3 22 14	4.8			+17		
		eEN	3 31 09						
		eZ	3 31 22						
eF	4 12 ±								
93	April 18	eP	19 25 01						Near Wakayama City.
		eS	19 25 10						
		Mz	19 25 11	0.7			±1		
		MEN	19 25 13	0.6	±1	+2			
94	April 19	F	19 26 10						Near Siomisaki, south end
		SEN	12 31 18						
		ME	12 31 18		+2				
		MN	12 31 19			-3			
94	April 19	F	12 31 44						Near Siomisaki, south end
		ePN	3 36 42				96		

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					A _E μ	A _N μ	A _Z μ		
90	April 15	ePEN	10 55 39						Near Wakayama City.
		S	10 55 42						
		ME	10 55 42	0.4	-2				
		MNZ	10 55 42	0.2		-3	±1		
		F	10 56 11						
91	April 16	Pz	3 12 18				-2.9	6400	In region of the Tonga Islands, SW Pacific Ocean.
		PE	3 12 20		+0.9				
		ePN	3 12 22			+0.9			
		PMz	3 12 35	3.5			+71		
		PM _E	3 12 36	1.9	-44				
		PM _N	3 12 43	2.9		-18			
		eSE	3 20 18						
		eSN	3 20 20						
		LE	3 21 16						
		LN	3 21 21						
		Lz	3 21 22						
		ME	3 22 12	5.0	-57				
		MN	3 22 13	4.8		+31			
Mz	3 22 14	4.8			+17				
92	April 16	eP	19 25 01						Near Toyohasi, Aiti Prefecture.
		eS	19 25 10						
		Mz	19 25 11	0.7			±1		
		MEN	19 25 13	0.6	±1	+2			
93	April 18	F	19 26 10						Near Wakayama City.
		SEN	12 31 18						
		ME	12 31 18		+2				
		MN	12 31 19			-3			
94	April 19	F	12 31 44						Near Siomisaki, south end
		ePN	3 36 42				96		



No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					A _E μ	A _N μ	A _Z μ		
		ePEZ	3 36 43						of the Kii Peninsula.
		eSN	3 36 54						
		eSE	3 36 55						
		eSz	3 36 57						
		MN	3 37 01	1.0		-1			
		ME	3 37 02	0.8	-1				
		Mz	3 37 05	1.0			± 1		
		F	3 38 28						
95	April 23	SEN	18 47 52		+0.5	+1.9		Local shock.	
		ME	18 47 53	0.5	+2				
		MN	18 47 55	0.7		-3			
		eF	18 48 \pm						
96	April 24	S	21 06 35					Near Wakayama City.	
		ME	21 06 37	0.4	+2				
		MN	21 06 38	0.5		-3			
		Mz	21 06 40	0.5			± 1		
		F	21 07 26						
97	April 24	iPNZ	21 07 37				44	Near Isigaki, basin of the Arita River, Wakayama Prefecture.	
		S	21 07 46						
		MN	21 07 45	0.6		-12			
		ME	21 07 46	0.8	+8				
		Mz	21 07 50	1.2			± 3		
		F	21 11 05						
98	April 29	P	0 16 07		+0.5	-1.9	41	Near Yuasa, Wakayama Prefecture.	
		S	0 16 12						
		MEZ	0 16 12	0.4	-4		± 1		
		MN	0 16 13	0.4		+9			
		F	0 17 41						
99	April 29	SEN	0 45 13					Ditto.	
		MEN	0 45 14	0.4	+1	-1			
		F	0 45 35						

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					A _E μ	A _N μ	A _Z μ		
100	April 29	ePEN?	1 01 07				39?	Local shock.	
		eSEN	1 01 12						
		MEN	1 01 13		± 1	± 1			
		F	1 01 24						
101	April 29	ePEN	19 01 12					Eastern part of the Aleutian Islands.	
		iPz	19 01 12					53° 8N 160° 5W. (J.S.A.)	
		eN	19 08 02						
		eE	19 08 06						
		LEN	19 12 48						
		eF	19 33 \pm						
102	April 29	iP	20 21 34		-1.9	-3.6	+4.3	018	Northern part of the Japan Sea, 45° 7N 137° 3E.
		iSEN	20 23 37						
		iSz	20 23 38						
		ME	20 23 45	2.7	-30				
		Mz	20 23 46	2.3			-14		
		MN	20 23 47	3.3		+43			
		eF	20 39 \pm						
103	May 1	SEN	0 52 06					Near Siga, Wakayama Prefecture.	
		MEN	0 52 07	0.5	± 0.5	+1			
		F	0 52 26	0.6					
104	May 1	ePN	1 10 05					Near Tokitu, Gihu Prefecture.	
		ePE	1 10 09						
		eSN	1 10 24						
		SMN	1 10 26			± 1			
		eSE	1 10 29						
		ME	1 10 29	1.0	-1				
		F	1 12 14						
105	May 3	ePN	15 51 13				286	Northern part of the Bungo Channel.	
		ePE	15 51 14						
		ePz	15 51 15					Felt in the coast of Bungo Channel.	
		iPEN	15 51 17						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
106	May 4	SN	15	51	52						
		SEZ	15	51	53						
		M _N	15	51	55	1.7		-19			
		M _Z	15	51	58	2.1			±8		
		M _E	15	51	59	1.4	-16				
		eF	15	58	±						
107	May 4	eP _{EN}	10	33	15					40	Near Gobō, Wakayama Prefecture.
		S _{EN}	10	33	21						
		M _E	10	33	21	0.4	-1				
		M _N	10	33	21	0.6		+2			
		F	10	34	01						
108	May 5	eP _N	16	32	09					456	Near Suikaidō, Ibaraki Prefecture.
		eP _{EZ}	16	32	10						Focal depth about 50km.
		S _Z	16	33	10						Moderate shocks were felt in the epicentral region.
		S _E	16	33	11						Felt in all Kwantō district.
		S _N	16	33	12						
		M _N	16	33	21	2.3		-15			
		M _Z	16	33	23	2.3			-8		
M _E	16	33	32	2.1	+13						
109	May 5	eF	16	41	±						
		P _{EN}	21	17	19					33	Near Wakayama City.
		S _{EN}	21	17	23						
		M _E	21	17	24	0.3	+2				
		M _N	21	17	24	0.5		-4			
109	May 5	F	21	18	04						
		eP _Z	21	19	39				-1.4	1930	Northern part of the Mariana Islands, Pacific Ocean.
		eP _{EN}	21	19	41		+0.9				
		S _N	21	22	56						
		S _E	21	22	57						
		S _Z	21	22	58						
		M _E	21	23	00	3.1	-3				
M _Z	21	23	00	2.1			±1				

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
110	May 6	M _N	21	23	06	3.1		-2			
		eF	21	31	±						
		iP	3	10	50		+0.9	-2.1	-1.4	47	In the Kii Channel.
		iS	3	10	56						
		M _E	3	10	57	0.4	+13				
		M _N	3	10	57	0.6		-26			
111	May 6	M _Z	3	10	57	0.5			-5		
		eF	3	14	±						
		P	9	31	56					27	Northern part of the Awazi Province, Hyōgo Prefecture.
		S	9	31	59						Felt in the coast of Akasi Channel.
		M _E	9	32	00	0.3	+4				
112	May 8	M _N	9	32	00	0.4		+5			
		F	9	33	43						
		S	14	40	45						In the Kii Channel.
		M _E	14	40	45	0.4	-2				
113	May 9	M _{NZ}	14	40	45			±2	+1		
		F	14	41	14						
		P _{EN}	8	49	03					42	Ditto.
		S _{EN}	8	49	09						
114	May 9	M _{EN}	8	49	12	0.5	±1	±2			
		F	8	49	47						
		S _{EN}	11	39	48						Local shock.
		M _E	11	39	48	0.4	±1				
115	May 9	M _N	11	39	48	0.2		-2			
		F	11	40	06						
		P _N	14	50	41				-1.1	1690	Near Etrofu Island, Kurile Islands.
		P _E	14	50	42		+0.5				
		eP _Z	14	50	44						
115	May 9	eS _E	14	53	35						
		S _N	14	53	37						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks	
			G.	M.	T.		A _E	A _N	A _Z			
			h	m	s	s	μ	μ	μ	km.		
116	May 11	LEN	14	54	29					65	Near Sakai, western part of Tottori Prefecture.	
		M _N	14	57	23	15.5		+40				
		M _Z	14	59	30	15.5			±20			
		M _E	15	00	17	13.8	+39					
		eF	15	37	±							
		eP _N	21	00	30							
117	May 12	SEN	21	00	39					65	Near Sakai, western part of Tottori Prefecture.	
		M _E	21	00	39	0.4	+3					
		M _N	21	00	41	0.4		-4				
		F	21	01	47							
		iP	2	52	18		-1.4	+2.1	+2.7			
		iNZ	2	53	51							
118	May 13	eS _N	2	58	07					36	Near Wakayama City.	
		eS _E	2	58	09							
		eF	3	04	±							
		eP _{EN}	8	12	17							
		S	8	12	22							
		M _E	8	12	22	0.4	±1					
119	May 13	M _N	8	12	22	0.3		±1		36	Near Wakayama City.	
		F	8	12	51							
		eENZ	18	59	59							
		eF	19	04	±							
		eP _{EN}	22	02	04							
		S	22	02	09							
120	May 14	M _E	22	02	09	0.4	-2			36	In the Kii Channel.	
		M _N	22	02	10	0.4		-3				
		F	22	02	56							
		eP _{EN}	22	02	04							
		S	22	02	09							
		M _E	22	02	09	0.4	-2					
121	May 15	M _N	22	02	10	0.4		-3		354	Near Ōsima, to the SE off the Izu Peninsula. Focal depth about 80km.	
		F	22	02	56							
		eP _E	12	23	50							
eP _N	12	23	51									
eP _Z	12	23	52									

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
122	May 15	S	12	24	39					-6	Felt in Kwantō & Tyūbu districts.
		M _N	12	24	49	1.7		-7			
		M _Z	12	24	50	1.9			-3		
		M _E	12	24	50	2.3					
		eF	12	29	±						
123	May 17	SEN	17	26	27					0.4	In the Owasi Bay, Pacific coast of Mie Prefecture.
		M _{EN}	17	26	27	0.4	±1	±1			
		F	17	26	46						
124	May 19	SEN	15	42	31					0.4	Near Gobō, Wakayama Prefecture.
		M _{EN}	15	42	31	0.4	+2	+2			
		F	15	42	55						
125	May 20	eP _N	21	18	52					±1	Off the Sata Cape, Sikoku district.
		eP _E	21	18	54						
		iP _E	21	19	11						
		iP _N	21	19	14						
		eS _N	21	19	19						
		ez	21	19	19						
		eS _E	21	19	20						
		M _Z	21	19	20	1.4			±1		
		M _E	21	19	21	1.5	±1				
		M _N	21	19	22	1.9		±2			
126	May 21	F	21	22	27					-2	To the east off Hatizyō Island.
		P _Z	12	16	18						
		eP _{EN}	12	16	22						
		ez	12	18	05						
		eN	12	18	59						
127	May 21	M _Z	12	19	18	10.8			±1	-2	To the SE far off Katuura,
		M _N	12	21	00	9.4		±2			
		M _E	12	21	17						
eF	12	28	±								
eP _N	1	58	56						1090		

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		P _E	1	59	03						Tiba Prefecture.
		P _Z	1	59	06						
		eS _Z	2	00	55						
		eS _E	2	00	58						
		eS _N	2	01	02						
		M _Z	2	01	34	11.4			+2		
		M _N	2	03	49	9.2		±4			
		M _E	2	05	01	8.6	-4				
		eF	2	14	±						
127	May 21	eP _{EN}	5	27	58					111	Near Motoyama, Kōti Prefecture.
		S	5	28	13						
		M _E	5	28	14	0.4	-3				
		M _N	5	28	16	0.4		-3			
		F	5	29	05						
128	May 21	eP _{EN}	5	33	30					146	Near Kuze, Okayama Prefecture.
		S	5	36	50						
		M _E	5	36	50	0.4	+5				
		M _N	5	36	52	0.4		-7			
		M _Z	5	36	52	1.2			±1		
		F	5	37	45						
129	May 25	eP _N	0	39	27					353?	Near Tōgane, Tiba Prefecture.
		eP _E	0	39	28						
		eS _N	0	40	15						
		S _E	0	40	15						
		M _E	0	40	52	2.1	±3				
		M _N	0	41	01	2.1		-3			
		eF	0	46	±						
130	May 27	P	4	11	23					30	Near Wakayama City.
		S	4	11	27						
		M _E	4	11	27	0.3	±4				
		M _N	4	11	28	0.4		-10			
		M _Z	4	11	28				±3		

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		F	4	12	43						
131	May 27	P _Z	4	36	35					1340	To the NE far off Hatizyō Island.
		P _E	4	36	36						
		P _N	4	36	38						
		S _Z	4	38	58						
		S _{EN}	4	38	59						
		M _E	4	39	26	13.5	-29				
		M _Z	4	39	29	12.8			±25		
		M _N	4	40	45	10.6		±5			
		eF	4	53	±						
132	May 27	e _{EN}	17	12	13						Off mouth of the Maruyama River, Japan Sea coast of Hyōgo Prefecture.
		e _Z	17	12	19						
		S	17	12	22						
		M _E	17	12	23	0.5	+4				
		M _{NZ}	17	12	23	0.7		-3	±1		
		F	17	13	28						
133	May 28	eP _{EN}	19	58	43		-	+	-	946	Epicenter; 24°0N 142°5E, to the SSE off Bonin I. Focal depth about 450km. Abnormal felt area in Kwantō district.
		iP	19	58	45		-0.5	+1.0	+1.3		
		iS _N	20	00	50						
		iS _E	20	00	52						
		S _Z	20	00	52						
		M _N	20	01	06	2.7		-12			
		M _E	20	01	07	4.3	-16				
		M _Z	20	01	14	4.3			+4		
		S _{cS}	20	10	01						
		eF	20	23	±						
134	May 29	e _E	2	02	49						South off Bonin Island.
		e _N	2	02	51						
		S _E	2	04	49						
		S _N	2	04	50						
		M _N	2	05	02	2.8		-3			
		e _Z	2	05	04						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	S.		A _E	A _N	A _Z		
			h.	m.	s.	s.	μ	μ	μ	km.	
135	May 29	ME	2	05	05	2.8	-3				
		eF	2	11	±						
		S	4	37	12						Local shock.
		M _N	4	37	12			±1			
		ME	4	37	13	0.5	±1				
136	May 31	F	4	37	33						
		ePEN	2	03	51					50	Near Wakayama City.
		S	2	03	57						
		MEZ	2	03	58		-2		±1		
		M _N	2	03	58	0.4		-4			
137	May 31	F	2	04	31						
		ePEN	2	19	27					14	Local shock.
		S	2	19	29						
		ME	2	19	30	0.4	±1				
		M _N	2	19	30	0.3		±2			
138	June 1	F	2	19	53						
		eN	4	25	28						Ditto.
		S	4	25	39						
		ME	4	25	39		±1				
		M _N	4	25	39	0.4		-2			
139	June 1	F	4	25	58						
		SEN	17	35	44						Near Wakayama City.
		M _N	17	35	44			±1			
		ME	17	35	45	0.4	-2				
		F	17	36	11						
140	June 2										
		ePE	23	17	42					49	In the Kii Channel.
		SEZ	23	17	48						
		ME	23	17	49	0.5	+2				
		M _Z	23	17	50	0.6			-1		
		F	23	18	33						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks	
			G.	M.	S.		A _E	A _N	A _Z			
			h.	m.	s.	s.	μ	μ	μ	km.		
141	June 5	ePEN	11	49	47						71	Near Wakayama City.
		S	11	49	57							
		ME	11	49	57	0.6	±1					
		M _{NZ}	11	49	58	0.4		-3	+1			
		F	11	50	28							
142	June 5	S	17	12	20							Local shock.
		ME	17	12	20		+2					
		M _N	17	12	21			±1				
143	June 5	F	17	12	38							
		eP	17	15	11						7	Ditto.
		S	17	15	12							
		ME	17	15	12	0.4	+3					
		M _N	17	15	12	0.6		±2				
144	June 8	M _Z	17	15	12							±1
		F	17	15	35							
		eE	18	04	00		-					
		eN	18	04	05			-1				To the SE off Etofu I., Kurile Islands.
		i	18	04	21		-2.1?	+0.5	+2.5			
145	June 8	eF	18	17	±							
		eN	20	05	57							Near the Yosihama Bay, Iwate Prefecture.
		eE	20	06	07							
		eZ	20	06	16							
		eN	20	07	42							
146	June 9	eE	20	07	46							
		eF	20	14	±							
		PEN	10	22	45						58	In the Yuasa Bay, Wakayama Prefecture.
		SEN	10	22	51							
		MEN	10	22	52	0.5	-5	+7				
		F	10	24	09							
147	June 10	iP	14	11	30					34	Near Wakayama City.	

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			g.	m.	s.		A _E	A _N	A _Z		
		iS	14	11	34						
		ME	14	11	35	0.4	-4				
		MN	14	11	35	0.3		+5			
		MZ	14	11	36	0.4					
		F	14	12	23						
148	June 12	ePz	18	10	24				782	To the SE off Bonin I.	
		iPz	18	10	25			+1.3?			
		iPEN	18	10	26		-1.0	+1.0			
		iS	18	12	12						
		MN	18	12	13	2.7		-11			
		ME	18	12	15	2.7	-7				
		MZ	18	12	20	2.6					
		eF	18	23	±						
149	June 13	ePEN	4	35	19				29	In the Hyūga-nada, to the SE off Kyūsyū.	
		ez	4	35	22						
		eSEN	4	35	59						
		eSZ	4	36	00						
		MZ	4	36	22	1.9					
		MEN	4	36	28	1.9	±3	±2			
		eF	4	42	±						
150	June 13	ePEN	7	22	37				257	Ditto.	
		ez	7	22	46						
		eSE	7	23	11						
		eSN	7	23	12						
		ME	7	23	29	1.8	±1				
		MN	7	23	34	2.0		±1			
		eF	7	27	±						
151	June 15	P	23	50	57				35	Near Wakayama City.	
		S	23	51	02						
		M	23	51	02	0.4	+3	-3			
		F	23	51	57			±1			

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			g.	m.	s.		A _E	A _N	A _Z		
152	June 17	ePz	8	09	06						
		PEN	8	09	07		-1.0	-0.5		409	To the east off Hatizyō Is-land.
		SN	8	10	01						
		SE	8	10	03						
		MN	8	10	08	2.1		±1			
		MZ	8	10	21	2.5					
		ME	8	10	28	2.3	±2				
		eF	8	15	±						
153	June 18	ePEN	14	07	34					33	Local shock.
		eSEN	14	07	38						
		MEN	14	07	39		±1	±1			
		F	14	08	03						
154	June 20	ePEN	18	42	05						Near Hamada, Simane Prefecture.
		S	18	42	11						
		MNZ	18	42	12	1.0		±1	±1		
		ME	18	42	12	0.5	-2				
		F	18	42	55						
155	June 21	Pz	15	32	28						Some damages at coastal cities in Peru, South America.
		PEN	15	32	29						
		P'E	15	36	00						
		P'N	15	36	02						
		ee	15	59	16						
		en	15	59	22						
		eEN	16	19	41						
		ez	16	23	47						
		ee	16	29	47						
		en	16	33	08						
		eF	17	18	±						
156	June 22	ePe	21	06	52					408	Near Aburatu, Miyazaki Prefecture.
		ePN	21	06	54						
		SN	21	07	47						
		SE	21	07	49						

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					A _E μ	A _N μ	A _Z μ		
157	June 23	M _N	21 07 57	1.7		± 1		413 Southern part of Miyazaki Prefecture. Felt in southern part of Kyūsyū.	
		M _E	21 08 00	1.7	± 1				
		eF	21 10 ±						
		eP _N	2 09 12						
		eP _E	2 09 14						
		eZ	2 09 34						
		S _N	2 10 08						
		S _E	2 10 09						
		S _Z	2 10 12						
		M _Z	2 10 18	2.1			± 1		
158	June 23	M _E	2 10 24	1.7	± 2			543 Ditto.	
		M _N	2 10 26	1.9		-2			
		eF	2 15 ±						
		iP	20 42 42		+1.6	+1.0	+1.9		
		iS _N	20 43 53						
		S _E	20 43 56						
		eS _Z	20 43 56						
		M _E	20 44 07	2.3	+13				
159	June 24	M _N	20 44 15	1.7		-10		46 Near Wakayama City.	
		M _Z	20 44 18	2.4			+8		
		eF	20 55 ±						
		eP _{EN}	12 14 56						
		S _{EN}	12 15 02						
		M _E	12 15 03	0.3	-1				
160	June 25	M _N	12 15 03				± 2	In the Kii Channel.	
		F	12 15 23						
		P	13 58 18						
		S	13 58 26						
		M _{EN}	13 58 27	0.4	-6	-8			
160	June 25	M _Z	13 58 27				± 3	In the Kii Channel.	
		F	13 59 29						

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					A _E μ	A _N μ	A _Z μ		
161	June 25	P	17 51 16				29 Near Wakayama City.		
		S	17 51 20						
		M _{EN}	17 51 20	0.4	+2	-3			
		M _Z	17 51 20					+6	
		F	17 51 57						
162	June 26	eP _{EN}	9 29 21				33 Ditto.		
		S	9 29 25						
		M _{EN}	9 29 26	0.4	-3	-5			
		M _Z	9 29 26					± 1	
		F	9 30 07						
163	June 26	S _{EN}	13 58 48				Near Nakamura, felt in central part of Hyōgo Prefecture.		
		M _{EN}	13 58 48		-1	± 1			
		F	13 59 10						
164	June 28	eE _N ?	2 25 31				Local shock.		
		F	2 25 49						
165	June 28	eP _{EN}	7 21 23				40 Near Wakayama City.		
		S	7 21 28						
		M _E	7 21 29	0.5	-2				
		M _N	7 21 29	0.4		2-			
		M _Z	7 21 29					± 1	
166	June 28	F	7 22 02				31 In the Wakaura Bay.		
		P	16 29 07						
		S	16 29 11						
		M _E	16 29 11	0.4	+10				
		M _N	16 29 12	0.5		± 17			
167	June 29	M _Z	16 29 13				In the Aki-nada, Inland Sea.		
		F	16 30 35					± 3	
		eP	8 40 41						
		S	8 40 47						
167	June 29	M _N	8 40 48	0.4		-2			

No.	Date	Phase	Time G. M. r.	Period s	Amplitude			Δ km.	Remarks	
					AE μ	AN μ	Az μ			
168	June 30	ME	8 40 49	0.4	± 1					
		Mz	8 40 53				± 1			
		F	8 41 41							
		eN	14 03 46						Near Mindanao, Philippine.	
		eE	14 04 26							
		eZ	14 04 28							
		eN	14 04 45							
		eF	14 12 \pm							

From No. 43 to No. 66, 1937.

TOYOOKA JAPAN.

SEISMOLOGICAL BULLETIN

A Branch Station of the Kōbe Meteorological Observatory of Japan.
 $\varphi=35^{\circ} 32'$ $\lambda=134^{\circ} 49'$ $h=32.2$ m. Underground: Tertiary.

Instrument: Ōmori's Seismograph.
(Horizontal)

Wiechert Seismograph.
(Horizontal & Vertical)

April — June

	T_0	ϵ	$\frac{r}{T_0^2}$	V		T_0	ϵ	$\frac{r}{T_0^2}$	V
AE:	22.3	3.0	0.001	20	AE:	5.6	10.0	0.008	105
AN:	21.6	3.0	0.001	20	AN:	6.5	10.0	0.007	100
					Az:	3.8	6.6	0.004	60

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					AE μ	AN μ	Az μ		
43	April 5	ePN	7 03 31					3810	Felt in northwestern part of New Guinea.
		ePz	7 03 40						
		iPN	7 03 45						
		ePE	7 03 48						
		iPz	7 03 48						
		iSN	7 09 21						
		SE	7 09 29						
		SRIE	7 12 03						
		SRINZ	7 12 06						
eLN	7 13 56								
eF	7 44 \pm								
*44	April 12	P	9 50 32		+11.0	+30.5	-35.6	18	In the Kumihama Bay, Japan Sea coast of Kyōto Prefecture. Felt slightly in Toyooka.
		S	9 50 35						
		MEZ	9 50 36		-166		+56		
		MN	9 50 38			+392			
		F	9 52 55						
45	April 16	Pz	3 12 15				7640	In region of the Tonga Islands, SW Pacific Ocean.	
		PEN	3 12 16						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks	
			G.	M.	T.		A _E	A _N	A _Z			
			h	m	s	s	μ	μ	μ	km.		
46	April 29	iz	3	12	25							
		SE	3	21	18							
		SN	3	21	20							
		eSZ	3	21	40							
		iE	3	22	06							
		eLz	3	30	40							
		LN	3	31	34							
		LE	3	31	36							
		eF	4	35	±							
		Pz	19	01	06							Eastern part of the Aleutian
PEN	19	01	07			-1.8				Islands.		
eSN	19	08	14							Faint record.		
LN	19	13	08									
MN	19	18	07	21.3		+10						
eF	19	45	±									
47	April 29	P	20	21	21		+1.6	-11.0	+6.8	861	Northern part of the Japan	
		SEN	20	23	17						Sea, 45°.7N 137°.3E.	
		Sz	20	23	18						Focal depth about 370km.	
		SME	20	23	19		+27				Felt in the Pacific coast of	
		SMz	20	23	23				+65		Kwantō and Oou districts.	
		SMN	20	23	25			+230				
		MN	20	23	40			+37				
		ME	20	23	44	2.9	-33					
		Mz	20	24	10				-16			
eF	20	38	±									
48	May 3	P	15	51	30					304	Northern part of the Bungo	
		S	15	52	11						Channel.	
		ME	15	52	13	0.8	-22				Felt in the coast of Bungo	
		Mz	15	52	13				-9		Channel.	
		MN	15	52	17	1.3		-33				
		F	15	54	22							
49	May 4	Pz	16	32	00				420	Near Suikaidō, Ibaraki Pre-		

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		PEN	16	32	02						
		SE	16	32	58						
		SNZ	16	32	59						
		MN	16	33	14				-35		
		ME	16	34	00		+12				
		eF	16	38	±						
50	May 5	PN	21	32	09					83	Local shock?
		PE	21	32	10						
		SEN	21	32	21						
		ME	21	32	21		-6				
		MN	21	32	25				+3		
F	21	32	49								
51	May 6	ePE	3	11	09					97	In the Kii Channel.
		PN	3	11	12						
		Sz	3	11	20						
		SEN	3	11	25				+3		
		MN	3	11	26						
ME	3	11	27		-4						
F	3	12	17								
52	May 9	ePz	14	50	03					1500	Near Etrofu Island, Kurile
		PE	14	50	05						Islands.
		PN	14	50	06						
		eSN	14	52	43						
		eSz	14	52	56						
		LN	14	54	00						
		LE	14	54	02						
		MN	14	56	45	19.9			-13		
		ME	14	57	03	16.9	-13				
Mz	14	57	44					-7			
eF	15	17	±								
53	May 15	ePz	12	23	53					336	Near Ōsima, to the SE off

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks								
			G.	M.	T.		A _E	A _N	A _Z										
			h	m	s	s	μ	μ	μ	km.									
54	May 20	P _N	12	23	55	1.2	+4	+3	+1	581	the Izu Peninsula. Focal depth about 80km. Felt in Kwantō & Tyūbu districts. To the E off Hatizyō I.								
		P _E	12	23	56														
		S _N	12	24	40														
		eS _Z	12	24	42														
		M _N	12	24	57														
		M _Z	12	24	59														
		M _E	12	25	10														
		eF	12	27	±														
55	May 21	P _Z	1	59	22	1.8	-4	-3	-4	555?	To the SE far off Katuura, Tiba Prefecture.								
		P _E	1	59	28														
		P _N	1	59	29														
		eS _N	2	00	43														
		eS _E	2	00	44														
		eS _Z	2	00	45														
		i _N	2	01	39														
		M _Z	2	02	36														
56	May 21	P _E	5	28	29	3.3	-5	-3	-4	116?	Near Motoyama, Kōti Prefecture.								
		eP _N	5	28	29														
		S _E	5	28	45														
		eS _N	5	28	49														
		F	5	29	14														
		57	May 21	P	5							36	22	2.8	-5	-3	-4	116	Near Kuze, Okayama Prefecture.
				S _{EN}	5							36	37						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
58	May 25	eS _Z	5	36	39	1.8	-4	+6	+10	-5	Near Tōgane, Tiba Prefecture.
		M _E	5	36	42						
		M _N	5	36	43						
		F	5	37	34						
		eP _Z	0	39	19						
		eP _{EN}	0	39	31						
		S	0	40	24						
		M _N	0	40	35						
59	May 27	M _E	0	40	45	0.6	-6	+7	-5	68	To the ENE far off Hatizyō Island.
		M _Z	0	40	47						
		F	0	43	04						
		P	4	36	50						
		eL _E	4	39	01						
		eL _Z	4	39	07						
		M _E	4	39	42						
		M _N	4	40	05						
*60	May 27	eF	4	53	±	0.6	+34	±12	-5	68	Off mouth of the Maruyama River, Japan Sea coast of Hyōgo Prefecture. Felt in Toyooka.
		P _Z	17	11	35						
		P _{EN}	17	11	36						
		S	17	11	45						
		M _Z	17	11	48						
		M _N	17	12	17						
		M _E	17	12	19						
		F	17	14	19						
61	May 28	P _Z	19	58	57	3.3	+21	-51	+8	1320	Epicenter; 124°0N 142°5E, to the SSE off Bonin I. Focal depth about 450km. Abnormal felt area in Kwantō district.
		eP _E	19	58	59						
		P _N	19	59	00						
		S _{EZ}	20	01	18						
		S _N	20	01	20						
		M _E	20	01	22						
		M _N	20	01	22						
		M _Z	20	01	30						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
62	May 29	eF	20	09	±						
		i _N	2	04	30						South off Bonin Island.
		eZ	2	04	36						
		S _{EN}	2	05	18						
		S _Z	2	05	19						
		M _{EN}	2	05	19		+3	+3			
		eF	2	09	±						
63	June 12	P _{NZ}	18	10	37					853	To the SE off Bonin I.
		P _E	18	10	38						
		S _{EN}	18	12	32						
		S _Z	18	12	33						
		M _Z	18	12	37					-4	
		M _N	18	12	38	3.0		-21			
		M _E	18	12	39	2.9	+16				
		eF	18	17	±						
64	June 21	eP _N	15	35	10						Some damages at coastal cities in Peru, South America.
		eP _Z	15	35	16						
		eL _E	16	18	26						
		eL _N	16	18	31						
		eL _Z	16	18	48						
		eF	16	56	±						
65	June 23	P _E	20	42	58					606	Southern part of Miyazaki Prefecture. Felt in Southern part of Kyūsyū.
		P _N	20	42	59						
		eP _Z	20	43	11						
		S _N	20	44	20						
		eS _E	20	44	25						
		M ¹ _N	20	44	29			-21			
		M _Z	20	44	34					+9	
		M _E	20	44	40	1.5	+13				
		M ² _N	20	44	41	2.2		-14			
eF	20	48	±								

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks	
			G.	M.	T.		A _E	A _N	A _Z			
			h	m	s	s	μ	μ	μ	km.		
66	June 26	eP _{EN}	13	58	30						35	Near Nakamura, felt in central part of Hyōgo Prefecture.
		SM _{EN}	13	58	35		±11	±5				
		SM _Z	13	58	36					±4		
		F	13	59	05							



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AND

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KOBE, JAPAN.

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SEISMOLOGICAL BULLETIN

of the Imperial Marine Observatory and the Kōbe Meteorological Observatory of Japan.

$\phi=34^{\circ} 41' 18''N$ $\lambda=135^{\circ} 10' 51''E$ $h=58.3$ m. Underground: Diluvial Series.

Instrument: Ōmori's Seismograph. (Horizontal) Wiechert Seismograph. (Horizontal & Vertical) Wadati's Long-period Seismograph. (E-W)

Constants of this seismograph are as follows:-

T_0	20.50
ϵ	2.3
r/T_0^2	0.0002
V	850..... for $T=1^S$
	1000..... " " $=5^S$
	750..... " " $=10^S$
	500..... " " $=20^S$

Where T is the period of earthquake oscillation.

This seismograph is principally made after Galitzin's instrument with horizontal pendulum of Zöllner's suspension, but the method of recording is different. It is devised to get seismograms on smoked paper by a mechanically recording galvanometer, by the aid of an amplifier both specially constructed for this purpose. About details for this seismograph see **K. Wadati** and **Z. Kawase**: On long-period Seismographs, Jour. Met. Soc. Japan II Ser. Vol. 14, No. 8 & Vol. 15, No. 10.

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July

	T_0	ϵ	$\frac{r}{T_0^2}$	V		T_0	ϵ	$\frac{r}{T_0^2}$	V
AE:	20.0		0.001	20	AE:	5.8	5	0.007	114
AN:	20.0		0.001	20	AN:	5.7	5	0.007	112
					Az:	5.0	6	0.004	94

Aug.

	T_0	ϵ	$\frac{r}{T_0^2}$	V		T_0	ϵ	$\frac{r}{T_0^2}$	V
AE:	18.9		0.001	20	AE:	5.8	5	0.007	109
AN:	18.9		0.001	20	AN:	5.9	5	0.007	107
					Az:	5.4	5	0.004	81

Sept.

	T_0	ϵ	$\frac{r}{T_0^2}$	V		T_0	ϵ	$\frac{r}{T_0^2}$	V
AE:	19.5		0.001	20	AE:	5.9	5	0.007	110
AN:	20.3		0.001	20	AN:	5.8	5	0.007	104
					Az:	5.2	5	0.003	88

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			h	m	s		AE	AN	Az		
155	July 1	ePNZ	10	01	00	s	μ	μ	μ	km.	Near Wakayama City.
		eSE	10	01	09						
		SN	10	01	09			+1			
		ME	10	01	12	0.6	-5				
		MN	10	01	12	0.7		-3			
		F	10	01	47						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
156	July 1	ePz	11	58	06					5215	Felt in N. Sumatra.
		eP _E	11	58	12						
		eN	12	00	13						
		S _E	12	05	00		+2				
		eLz	12	16	37						
		Mz	12	22	37	16.5			±27		
		M _E	12	23	03	16.0	±8				
		eF	12	37	±						
157	July 1	P	21	03	05				+1.0	68	Near Wakayama City.
		iS _{EN}	21	03	14		-8	-5			
		eS _Z	21	03	16						
		M _E	21	03	18	0.5	+6				
		Mz	21	03	18	0.4			±3		
		M _N	21	03	19	0.3		-6			
		eF	21	06	±						
158	July 2	P	2	46	59		-1.0	+1.5	+2.1	6105	Near Santa Cruz I., 13°S. 166°E, according to Apia report.
		eS _E	2	54	36						
		eS _N	2	54	38						
		eS _Z	2	54	41						
		M _N	3	07	02	18.0			±7		
		Mz	3	07	44	23.0			±18		
		eF	3	25	±						
159	July 2	i _{EN}	3	51	29		-1	-1		0.6	Southern part of the Kii Channel.
		eM _N	3	51	39			-2			
		F	3	52	21						
160	July 2	e _E	9	48	53					18.0	Sumatra. By Wadati's Seismograph.
		M _E	9	50	26		±1				
		eF	9	56	±						
161	July 2	eP _N	9	56	43					74?	Near Kamisanzi, upper valley of the Hidaka River, Wakayama Prefecture.
		Pz	9	56	43				+0.5		

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks	
			G.	M.	T.		A _E	A _N	A _Z			
			h	m	s	s	μ	μ	μ	km.		
162	July 3	eS _Z	9	56	51					0.5	-2	Near Aburatu, Miyazaki Prefecture.
		eS _{EN}	9	56	53							
		M _N	9	56	55							
		F	9	57	21							
		eP _N	13	52	35							
163	July 3	eEz	13	53	18					1.3	±2	Near Yakeyama, felt in Niigata and Nagano Prefectures. By Wadati's Seismograph. F in No. 164.
		eE	13	53	29							
		eZ	13	53	32							
		M _E	13	53	44							
		eF	13	57	±							
164	July 3	P _E	15	24	13					5.9	-37	337 Near Yakeyama, felt in Niigata and Nagano Prefectures. By Wadati's Seismograph. F in No. 164.
		iS _E	15	24	59							
		M _E	15	25	04							
165	July 3	P _E	15	28	57					6.0	-22	340 Ditto. By Wadati's Seismograph.
		iS _E	15	29	43							
		M _E	15	29	52							
166	July 4	eP _E	6	04	12					21.5	±17	6270 Near Solomon Island, Merania, SW. Pacific Ocean. 12°S. 162°E. (Apia). F in No. 166.
		ePz	6	04	15							
		eP _N	6	04	19							
		eS _Z	6	12	00							
		eS _N	6	12	01							
		eS _E	6	12	03							
		M _E	6	19	50							
167	July 4	M _N	6	23	05					16.5	±8	6140 Ditto. F in No. 167.
		Mz	6	24	42				19.5			
		eP _E	6	47	55							
		ePz	6	47	58							
		eS _E	6	55	39							
168	July 4	eZ	6	55	42					19.5	±16	6140 Ditto. F in No. 167.
		eZ	6	55	42							

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					A _E μ	A _N μ	A _Z μ		
167	July 4	M _E	7 04 33	19.0	± 19			5790	Ditto.
		M _Z	7 06 24	20.5			± 2		
		M _N	7 06 45	14.5		± 14			
		eP _Z	7 35 32						
		eP _E	7 35 34						
		eP _N	7 35 36						
		eS _N	7 42 57						
		eS _E	7 42 59						
		eS _Z	7 43 00						
M _E	7 50 45	24.5	± 30						
M _Z	7 54 36	19.5			± 16				
M _N	7 54 58	18.0		± 19					
eF	8 17 \pm								
168	July 7	eP _E	18 08 52				62?	Local shock. Very small movement. By Wadati's Seismograph.	
		i _E	18 08 54						
		S _E	18 09 01						
		M _E	18 09 02	0.4	± 1				
		F	18 09 35						
169	July 8	eP _E	18 09 57				62?	Ditto. By Wadati's Seismograph.	
		S _E	18 10 05						
		eM _E	18 10 10	0.4	-1				
		F	18 10 40						
170	July 9	eP _{EZ}	4 09 41				408	Northern part of the Tizi- iwa Bay, felt in NW. Kyū- syū.	
		S _Z	4 10 36				$+2$		
		S _N	4 10 37				-1		
		S _E	4 10 38			$+2$			
		M _Z	4 10 40	3.2			± 2		
		M _E	4 10 49	1.6	$+4$				
		M _N	4 10 52	1.3					
		eF	4 17 \pm						

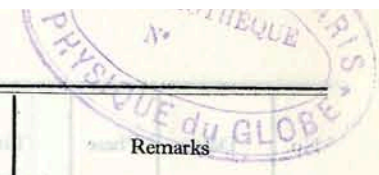
No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					A _E μ	A _N μ	A _Z μ		
171	July 9	eP _E	5 15 51				375?	Near Simotuma, Ibaraki Pre- fecture. Felt in Kwantō district. By Wadati's Seismograph.	
		e _E	5 16 22						
		eS _E	5 16 41						
		M _E	5 17 05	2.4	-2				
		eF	5 21 \pm						
172	July 9	e _E	13 36 01					In the SSE sea of the Ottisi Cape. Felt in eastern part of Ho- kkaidō. By Wadati's Seismograph.	
		eS _E	13 38 32						
		M _E	13 42 00	16.0	-8				
		eF	13 52 \pm						
173	July 10	eP _E	20 50 28					Felt in N. Celebes. By Wadati's Seismograph.	
		eS _E	20 55 08						
		M _E	21 01 00	15.0	± 6				
		eF	21 16 \pm						
174	July 11	eP _Z	13 40 57				680	In the ESE sea of Hatizyō I.	
		P _E	13 41 01						
		eS _Z	13 42 12						
		eS _E	13 42 14						
		M _Z	13 43 13	14.0		-90			
		M _E	13 43 22	13.9	-117				
175	July 12	e _E	0 17 51					Felt in N. Sumatra. By Wadati's Seismograph.	
		eS _E	0 21 48						
		M _E	0 30 29	17.5	-35				
		eF	0 57 \pm						
176	July 14	eP _E	22 29 41				670	In the ENE sea of Hatizyō I.	
		eP _Z	22 29 42						
		eS _E	22 30 54						
		eS _Z	22 30 55						
		eS _N	22 30 58						
		M _N	22 31 45	17.5		+48			
		M _E	22 31 58	14.0	-95				

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					A _E μ	A _N μ	A _Z μ		
177	July 15	MZ	22 31 58	15.0			-108		
		eF	23 19 ±						
		eSE	19 13 07						
		ME	19 21 01	15.0	±6				
178	July 16	eF	19 28 ±						
		ePE	10 19 51			930	In the E sea of Hatizyō I.		
		ePz	10 19 54						
		eS	10 21 32						
		eMZ	10 22 21	16.0		±17			
		ME	10 23 08	11.5	-27				
179	July 16	eF	10 41 ±						
		PE?	16 21 37				Local shock?		
		ME	16 21 44	0.9	±1		By Wadati's Seismograph.		
180	July 16	eF	16 23 ±						
		ePE?	19 33 32				In the SE sea of Hatizyō I.?		
		eE	19 36 15				By Wadati's Seismograph.		
		eSE?	19 37 38						
		ME	19 42 57	13.0	±4				
181	July 17	eF	19 51 ±						
		ePE	18 42 09			680	In the E sea of Miyake I.,		
		ePz	18 42 10				to the S of the Izu Peninsula.		
		ePN	18 42 11						
		eE	18 42 18						
		eSz	18 42 25						
		eSN	18 42 30						
182	July 19	eF	18 52 ±						
		ePz	3 01 35			4420?	A distant earthquake.		
		ePN	3 01 37				Inscribed at Sumoto, Manila,		
		ePE	3 01 38				Wellington and River-view.		
		*SE	3 07 48	13.3			*By Wadati's Seismograph.		

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					A _E μ	A _N μ	A _Z μ		
183	July 19	*ME	3 12 18	13.5	±2				
		*eF	3 35 ±						
		eE	18 10 59						
		eN	18 11 02						
		eS	18 11 06						
184	July 19	MN	18 11 06	0.3		±2			
		F	18 11 32						
		eP'E	19 55 09						
		iP'z	19 55 18				+3		
		PRIE	19 57 49						
		PRIZ	19 57 50						
185	July 20	eF?	20 06 ±						
		SE	2 24 21				Local shock.		
		ME	2 24 23	0.8	-1		By Wadati's Seismograph.		
		F	2 25 25						
186	July 20	eF?	20 06 ±						
		ePE	5 29 35			75	In the Kii Channel.		
		ePNZ	5 29 36						
		SEN	5 29 46						
		ME	5 29 47	0.5	±2				
		MN	5 29 48	0.7		±1			
187	July 21	F	5 30 08						
		iPz	0 10 28				+2		
		iPE	0 10 29		-2		1240		
		PN	0 10 29			+2	In the E sea of the Nakasire- toko Cape, Sakuhalin. 46°N. 155°E.		
		eSE	0 12 41				Deep focus type.		
		eSz	0 12 45						
		eSN	0 12 48						
		eME	0 13 42	3.1	±1				
188	July 22	eF	0 20 ±						
		ePE?	5 04 09			424?	In the NE sea of the Sioya		

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		eS _{EN}	5	05	06						Cape, Hukusima Prefecture.
		eS _Z	5	05	09						
		eM _E	5	05	15	1.7	± 2				
		eM _Z	5	05	18	2.1		± 2			
		eF	5	11	\pm						
189	July 22	eE	7	41	17						Near Palau?
		M _E	7	42	21	4.4	± 0.5				By Wadati's Seismograph.
		eF	7	46	\pm						
190	July 22	eP _Z	17	18	57					5880	Alaska.
		eP _N	17	19	04						65°5N. 145°1W. (J.S.A.).
		eP _E	17	19	13						
		eS _E	17	26	27						
		eS _Z	17	26	38						
		eS _N	17	26	41						
		eL _N	17	30	26						
		eL _E	17	30	59						
		eL _Z	17	31	03						
		M _E	17	38	07	24.5	± 980				
		M _Z	17	40	13	22.5		± 395			
		M _N	17	41	54	20.5		± 630			
		eF	18	55	\pm						
191	July 24	eP _E ?	15	21	49						In the SE sea of Bonin I.
		eS _E	15	24	42						
		eF	15	29	\pm						
192	July 26	eP _E	4	02	03						Damages at cities along the Gulf coast of Mexico.
		iP _E	4	04	49						18°6N. 95°8W. (J.S.A.).
		SkS _E	4	12	47		+5				
		S _E	4	15	05						
		eM _E	4	25	51	16.0	± 3				
		eF	5	10	\pm						
193	July 26	P _Z	19	58	11					+5.6	680 In the E sea of Kinkwazan

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		P _{EN}	19	58	12		-3.8	+1.7			about 35km.
		i _Z	19	58	16				-48		Strong shocks were felt in Isinomaki City, Miyagi Prefecture.
		i _{EN}	19	58	17		+58	+25			Felt in all NE. Japan.
		iS _N	19	59	27			+128			
		iS _E	19	59	28						
		iS _Z	19	59	29				+73		
		M _N	20	00	09	7.6		-500			
		M _Z	20	00	11	7.0			-270		
		M _E	20	00	25	5.7	+330				
		eF	20	47	\pm						
194	July 29	eE	17	31	51						In the E sea of Kinkwazan, Miyagi Prefecture.
		eM _E	17	33	39	5.3	± 1				By Wadati's Seismograph.
		eF	17	37	\pm						
195	July 30	P _Z	1	06	15					68	Near Simokōno, to the east of Wakayama City.
		iP _{EN}	1	06	16		+2.2	-1.8			
		eS _Z	1	06	24						
		S _{EN}	1	06	26						
		M _N	1	06	27	1.5		-4			
		M _E	1	06	28	0.5	+3				
		F	1	06	58						
196	July 30	eP _E	6	54	14					66	Near Kyōto City.
		P _{NZ}	6	54	14						
		iS _{EN}	6	54	23		-2	+3			
		eS _Z	6	54	23						
		M _{EN}	6	54	24	0.4	-5	+4			
		F	6	55	48						
197	July 30	eP _E ?	14	23	39						A distant earthquake.
		eE	14	38	31						Inscribed at River-view.
		M _E	14	43	19	18.5	-1				By Wadati's Seismograph.
		eF	15	03	\pm						
198	July 31	P _Z	2	10	04					-2.4	82 Near the mouth of the Naka



No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		P _{EN}	2	10	05		-1.8	-1.6			R., Tokushima Prefecture.
		iS _Z	2	10	15				+48		
		iS _{EN}	2	10	16		+40	+51			
		M ¹ _E	2	10	19	0.7	-90				
		M ¹ _N	2	10	19	0.6		+60			
		M ¹ _Z	2	10	19	0.9			-48		
		M ² _N	2	10	33	0.6		-74			
		M ² _Z	2	11	31	2.9			+37		
		M ² _N	2	11	32	2.5		+53			
		M ² _E	2	11	34	2.3	-42				
		eF	2	29	±						
199	July 31	eP _{EN}	10	50	36						In the SE sea of Hatizyō I.
		e _E	10	52	00						
		e _N	10	52	05						
		e _Z	10	52	09						
		eS _{NZ?}	10	52	29						
		eS _{E?}	10	52	44						
		eF	11	08	±						
200	July 31	P _Z	20	39	36					1860	Inner Mongolia.
		P _E	20	39	37		-1.5				41°N, 113°E.
		e _N	20	39	48						Felt in North China.
		S _Z	20	42	47						
		S _E	20	42	48						
		S _N	20	42	50						
		M _Z	20	44	59	4.4			-40		
		M _N	20	45	02	4.8		+136			
		M _E	20	45	33	5.7	-68				
		eF	21	25	±						
201	Aug. 1	eP _{E?}	10	44	43						Ditto.
		eS _E	10	47	39						
		e _N	10	48	07						
		M _N	10	49	16	6.4		-60			
		M _E	10	51	34	5.1	+45				

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		eF	11	27	±						
202	Aug. 2	eP _Z	15	50	14					2280	Southern part of the Okhotsk Sea.
		eP _E	15	50	15						
		eP _N	15	50	16						
		eS _N	15	54	01						
		eS _E	15	54	02						
		eS _Z	15	54	07						
		M _Z	15	59	06	15.0				±9	
		M _E	15	59	09	14.5	±6				
		eF	16	07	±						
203	Aug. 3	eP _{E?}	23	10	06						In the near sea of the Inubō Cape, Tiba Prefecture.
		eS _N	23	11	31						
		eS _Z	23	11	33						
		eS _E	23	11	34						
		M _{NZ}	23	12	04	2.2		+10		±5	
		M ¹ _E	23	12	13	2.2	±7				
		M ² _E	23	13	11	3.3	±8				
		eF	23	26	±						
204	Aug. 4-5	e _E	23	43	51						Near Nicobar I., Bengal Bay.
		eF	0	10	±						Faint record.
205	Aug. 5	iP _Z	14	51	41					+3.3	SE. New Guinea.
		eP _{EN}	14	51	43						
		eS _{E?}	14	57	54						
		eS _{N?}	14	57	56						
		eS _{Z?}	14	58	01						
		eF	15	14	±						
206	Aug. 7	e _E	20	48	42						In the Hyūga-nada.
		eF	21	08	±						
207	Aug. 8	eP _{EN}	10	16	09					1940	Mariana Island, Pacific Ocean.
		eP _Z	10	16	10						
		eS _E	10	19	27						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		AE	AN	Az		
			h	m	s	s	μ	μ	μ	km.	
208	Aug. 8	cSNZ	10	19	28						
		eF	10	28	±						
		eE	21	42	35						In the near sea of Iwaki Province.
		eF	21	51	±						
209	Aug. 9	ePN	12	39	42						Near Bonin Island.
		eSEZ	12	39	46						
		eSN	12	41	04						
		eSE	12	41	05						
		ME	12	42	35	9.8	±5				
		eF	13	06	±						
		eF	13	06	±						
210	Aug. 9	ePz	14	41	42						Ditto.
		ePEN	14	41	43						
		eSE?	14	43	31						
		ME	14	44	36	11.5	-10				
		eMz	14	46	03	10.5		±6			
		eF	15	15	±						
211	Aug. 9	ePE	16	40	51						Ditto.
		eE	16	42	44						By Wadati's Seismograph.
		ME	16	45	42	10.8	±3				
		eF	17	29	±						
212	Aug. 9	ePE	19	21	00						Ditto.
		ME	19	23	50	9.9	±2				By Wadati's Seismograph.
		eF	20	00	±						
213	Aug. 10	ePE?	2	48	11						Ditto.
		eSE	2	49	58						By Wadati's Seismograph.
		ME	2	51	21	10.8	±2				
		eF	3	15	±						
214	Aug. 10	ePE?	21	06	48						Lower basin of the Hidaka River, Wakayama Prefecture.
		eSN	21	06	56						
		ME	21	06	57	0.7	-4				

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks		
			G.	M.	T.		AE	AN	Az				
			h	m	s	s	μ	μ	μ	km.			
215	Aug. 11	F	21	07	18								
		ePNZ	1	03	12						4195	Southern part of Celebes I.	
		ePE	1	03	13								
		iPNZ	1	03	21				-6	-8			
		iPE	1	03	22				-5				
		eSz	1	09	04								
		SEN	1	09	10				-7	-10			
		SMN	1	09	15	4.4			+68				
		SMZ	1	09	21	4.1					+36		
		SME	1	09	24	6.3			+50				
216	Aug. 11	ME	1	17	24	14.0				±13			
		MN	1	19	05	16.0					±12		
		Mz	1	19	22	16.0					±10		
		eF	1	44	±								
		ePE	4	14	12							38	Local shock.
		ePN	4	14	13								
		eS	4	14	17								
		ME	4	14	20	0.8			±2				
		MN	4	14	21	0.9				-4			
		F	4	14	48								
217	Aug. 13	iSE	6	03	11					-1		Ditto.	
		ME	6	03	11	0.5			±1				
		eF	6	03	25								
218	Aug. 14	eN	13	09	36							Southern part of Mie Prefecture.	
		eSE	13	09	38								
		iSN	13	09	38					+3			
		ME	13	09	39	0.6			-4				
		MN	13	09	39	0.3				+4			
219	Aug. 15	F	13	10	04								
		ePz	4	31	42							Felt in northern part of Luzon, Philippine.	
		ePEN	4	31	44								

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks	
			G.	M.	T.		A _E	A _N	A _Z			
			h	m	s	s	μ	μ	μ	km.		
220	Aug. 15	iPz	4	31	47				+2			
		P _{EN}	4	31	48		+2	+1				
		eZ	4	35	47							
		eE	4	35	48							
		eF	4	50	±							
		eS _Z ?	10	01	15							In the NE sea of Hatizyō I.
		eS _E ?	10	01	20							
221	Aug. 16	eS _N ?	10	01	21							
		eM _Z	10	03	46	10.7			±4			
		eM _E	10	04	07	8.5	±6					
		eF	10	14	±							
		iPz	6	40	24				-1.3	79	Southwestern part of Nara Prefecture.	
*222	Aug. 16	eP _E	6	40	25							
		P _N	6	40	25							
		Sz	6	40	35				-2			
		iS _{EN}	6	40	36		-5	-10				
		M _N	6	40	36	0.8		+20				
		M _Z	6	40	37	0.4			+4			
		M _E	6	41	48	1.8	±3					
223	Aug. 16	eF	6	45	±							
		iP	16	38	52		-12.5	+28.2	-36.7	85	Epicenter; 35°23'N. 135°51'E., near Mt. Hira, western part of Siga Prefecture.	
		iS _{EN}	16	39	03		+110	+60				
		iS _Z	16	39	04				+31		Felt in all Kinki and some places in Tyūbu and Tyū-goku districts.	
		M _N	16	39	05	1.1		+140				
		M _Z	16	39	05	0.9			-135			
		M _E	16	39	06	1.1	-195				Weak shocks and earth-sound were felt in Kōbe.	
		iz	16	40	22	1.6			+35			
223	Aug. 17	iE	16	40	21	2.1	+80					
		eF	16	53	±							
		eP _Z	13	11	34					860	In the ESE sea of Hatizyō I.	
		eP _{EN}	13	11	35							
		eS _E	13	13	06							

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
224	Aug. 18	eS _N	13	13	07						
		M _Z	13	14	12	16.0			±40		
		M _E	13	14	15	16.0	+65				
		eF	13	30	±						
225	Aug. 18	eE	17	57	15						In the near sea of Kuzi, Iwate Prefecture.
		eN	17	57	19						Felt in northern part of Oou district.
		eZ	17	57	35						
		eE	17	58	56	3.4	±1				
226	Aug. 19	eF	18	03	±						
		eP _{EN}	8	49	01						Local shock.
		eS _{EN}	8	49	07						
		M _N	8	49	09	1.0		±1			
227	Aug. 19	M _E	8	49	10	0.8	±2				
		F	8	49	29						
		eP _Z	20	32	56					700	In the Ariake Bay, Kagosima Prefecture.
		eP _E	20	32	59						
		eS _Z	20	34	14						
		eS _N	20	34	16						
		eS _E	20	34	17						
227	Aug. 20	eM _Z	20	34	33	1.7			-3		
		eM _N	20	34	34	1.7		+3			
		eM _E	20	34	36	1.3	±3				
		eF	20	42	±						
		eP _{EN}	12	04	28					2770	Epicenter; 14°10'N. 122°05'E. Considerable damage in Manila.
227	Aug. 20	P _Z	12	04	28					+4	Felt in S. Luzon and NW. Visayan Island, Philippine.
		PM _{EN}	12	04	44	4.2	+60	-115			
		PM _Z	12	04	46	4.6				+73	
		iS _{EN}	12	08	54		+101	+116			
		Sz	12	09	05					+55	
		SM _N	12	09	00	11.0				-375	
		SM _E	12	09	01	13.5	-840				
SM _Z	12	09	24	11.5				+330			

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
228	Aug. 21	eF	13	54	±						
		eP _N	23	03	10					1120?	In the SE sea of Hatizyō I.
		eP _E	23	03	12						
		eS _N	23	05	11						
		eS _E	23	05	12						
		M _N	23	06	02	19.0		±52			
		M _Z	23	06	32	15.5			-50		
		M _E	23	06	36	14.5	-68				
eF	23	22	±								
229	Aug. 24	eP _N	18	39	11						Near Solomon I, SW. Pacific Ocean.
		eP _E	18	39	13						
		eP _Z	18	39	21						
		e _N	18	48	50						
		e _E	18	48	51						
		eF	18	55	±						
230	Aug. 25	eS _E ?	11	04	39						Near Bonin Island.
		eM _E ?	11	06	02	8.9	±1				By Wadati's Seismograph.
		eF	11	33	±						
231	Aug. 25	P _N	16	44	55					313	In the Kumano-nada, to the SE of Kii Peninsula.
		eP _{EZ}	16	44	56						
		eS _E	16	45	37						
		S _Z	16	45	37					-2	
		S _N	16	45	38					-1	
		SM _Z	16	45	38	1.7				+3	
		SM _{EN}	16	45	40	1.7	+5	+5			
		eF	16	52	±						
232	Aug. 25	e _E	21	59	55						Felt in Davao, Philippine.
		eF	22	39	±						By Wadati's Seismograph.
233	Aug. 26	eP _Z	15	37	44						In the SE sea of Hatizyō I.
		eP _{EN}	15	37	45						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks	
			G.	M.	T.		A _E	A _N	A _Z			
			h	m	s	s	μ	μ	μ	km.		
234	Aug. 26	e _E	15	38	51							
		M _E	15	40	57	12.0	±3					
		eF	15	55	±							
		eP _Z	18	55	19						740?	Southern part of the Hyūga-nada.
		eP _{EN}	18	55	21							Felt in all Kyūsyū.
		e _{EZ}	18	55	33							
		e _N	18	55	34							
		i _N	18	56	01							
		i _E	18	56	04							
		i _Z	18	56	06							
		S _Z ?	18	56	36							
		iS _E ?	18	56	42			-25				
iS _N ?	18	56	47				-33					
M _Z	18	57	09	2.1				+60				
M ¹ _E	18	57	14	2.1	+60							
M ¹ _N	18	57	16	4.5			+86					
M ² _N	18	58	30	4.0			+63					
M ² _E	18	58	35	4.6	+57							
eF	19	22	±									
235	Aug. 29	eP _N	7	08	03						417	Ditto.
		eP _Z	7	08	04							
		eP _E	7	08	05							
		eS _Z	7	08	59							
		eS _E	7	09	01							
		eS _N	7	09	03							
		M _E	7	09	21	2.8	-6					
		eF	7	16	±							
236	Aug. 29	e _E	18	06	50						North China.	
		eM _E	18	09	46	9.8	±1				By Wadati's Seismograph.	
		eF	18	23	±							
237	Aug. 29	e _E	22	30	26	4.0	±0.2				Traces.	
		eF	22	34	±						By Wadati's Seismograph.	

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
238	Aug. 31	eP _E	1	17	47					76	Near Yuasa, Wakayama Prefecture.
		eP _{NZ}	1	17	48						
		eS _E	1	17	57						
		eS _N	1	17	58						
		eS _Z	1	17	59						
		M _E	1	18	00	0.7	± 2				
		M _N	1	18	00	0.4		-4			
F	1	18	50								
239	Aug. 31	eP _E	2	38	30						A distant earthquake. By Wadati's Seismograph.
		e _E	2	46	18						
		M _E	2	57	53	18.0	± 1				
		eF	3	19	\pm						
240	Aug. 31	eP _N	14	21	45						Tibet, China.
		eP _E	14	21	47						
		eS _E ?	14	28	00						
		M _N	14	34	21	15.5		+115			
		M _E	14	35	09	16.0	± 45				
		eF	14	59	\pm						
241	Sept. 1	eP _N	8	50	50					8590	Felt in Kermadec Is., to the NNE of New-Zealand.
		iP _Z	8	50	51				+3		
		eP _E	8	50	52						
		eS _Z ?	9	00	39						
		eS _N ?	9	00	41						
		eS _E ?	9	00	42						
		eF	9	32	\pm						
242	Sept. 1	eP _E	17	51	57						In the SE sea of Amami- Ōsima, Ryūkyū Islands.
		eP _N	17	52	03						
		e _E	17	53	38						
		eF	18	04	\pm						
243	Sept. 1	e _E	21	58	39						Near the epicenter of the above No. 241.
		e _E	22	02	01						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
244	Sept. 2	eF	22	11	\pm						Near the mouth of the Naka R., Ibaraki Prefecture.
		M _{1Z}	4	20	16	2.3			± 1		
		M _{1N}	4	20	18	2.3			± 1		
		M _{2N}	4	21	24	2.1			± 1		
		M _E	4	21	30	2.0	± 1				
		M _{2Z}	4	21	33	2.0			± 1		
		eF	4	25	\pm						
245	Sept. 3	P _E	18	55	20					4000	Aleutian Islands. 52°5N, 177°5W. (J.S.A.). Deep focus earthquake.
		eP _N	18	55	20						
		iP _Z	18	55	24				-4		
		P _N	18	55	26				+4		
		iP _E	18	55	27			-9			
		i _Z	18	55	39				+23		
		i _E	18	55	40			-19			
		i _Z	18	55	57				+43		
		i _E	18	55	58			-30			
		i _E	18	57	55	3.4		-35			
		S _{EN}	19	01	07			-12	+10		
		eS _Z	19	01	09						
		i _E	19	01	54			+32			
i _E	19	02	02	5.8		+57					
i _N	19	02	03	5.8			-60				
e _Z	19	03	59								
e _{EN}	19	04	03								
eF	20	09	\pm								
246	Sept. 4	eP	6	24	04					6960	In the N sea of Fiji Is., SW. Pacific Ocean.
		eS _E	6	32	31						
		eS _Z	6	32	35						
		eF	6	54	\pm						
247	Sept. 4	S _E	17	45	03				+2		Near Kyōto City.
		iS _N	17	45	03				-3		
		M _E	17	45	03	0.3		-2			

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		M _N	17	45	03	0.5		+4			
		F	17	45	27						
248	Sept. 5	eE	21	02	07						Felt in Babar and Kei Islands, Dutch East Indies. By Wadati's Seismograph.
		eE	21	06	47						
		eM _E	21	11	31	9.5					
		eF	21	27	±						
249	Sept. 6	P	0	56	52					11	Local shock.
		S _E	0	56	53		-3				
		eS _N	0	56	53						
		M _E	0	56	53	0.5	±3				
		F	0	57	19						
250	Sept. 6	eP _E	16	04	03					435	Near the mouth of the Naka R., Ibaraki Prefecture. Focal depth about 50km. Felt in all Kwantō district.
		eP _N	16	04	04						
		eP _Z	16	04	05						
		S _N	16	05	02			+5			
		eS _{EZ}	16	05	02						
		M _{NZ}	16	05	24	2.1		+13	±6		
		M _E	16	05	29	2.2	+6				
		eF	16	14	±						
251	Sept. 8	eE	1	01	44						Near the Cape Horn, south end of S. America. Disturbed by heavy micro-seisms. By Wadati's Seismograph.
		eM _E	1	23	34	20.5	±4				
		eF	2	15	±						
252	Sept. 8	e _N	21	26	59						In the northern sea of Waka-sa Province, Japan Sea.
		iS _{NZ}	21	27	00			-2	-2		
		M _Z	21	27	00	0.5			±2		
		M _N	21	27	01	0.6		-3			
		F	21	27	29						
253	Sept. 9	eP _N ?	18	29	10					38?	Local shock.
		S _{M_E}	18	29	15		+5				
		S _N	18	29	15			+2			

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		M _N	18	29	16	0.5		-3			
		F	18	29	27						
254	Sept. 15	iP	12	36	35		-3.8	+5.6	+11.1	5510	Near Solomon Island, Meranisia, Pacific Ocean.
		eS _E	12	43	45						
		S _Z	12	43	46				-6		
		iS _N	12	43	47			+10			
		iS _E	12	43	49		+17				
		eL _N	12	49	11						
		eL _E	12	49	57						
		M _E	12	55	47	18.5	±40				
		M _Z	12	56	03	20.5			±23		
		M _N	12	56	07	16.0		±10			
		eF	13	25	±						
255	Sept. 16	eE	0	41	37						Central America. 14°.2N. 91°.6W. (J.S.A.). By Wadati's Seismograph.
		eL _E	0	47	20						
		M _E	0	51	17	23.0	±1				
		eF	1	43	±						
256	Sept. 17	eS _{EN}	4	49	18						Local shock.
		M _N	4	49	24	0.9		+4			
		M _E	4	49	25	0.8	±2				
		eF	4	52	±						
257	Sept. 19	eE	0	55	39						Near Mt. Aso, Kyūsyū.
		eF	0	59	±						
258	Sept. 20	eS _N	3	54	36						Local shock.
		eS _E	3	54	37						
		M _E	3	54	39	0.8	±1				
		M _N	3	54	40	0.8		±2			
		F	3	55	18						
259	Sept. 21	eS _Z	8	03	45						Near Tonkin, French Indo-China.
		eS _E	8	03	47						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
260	Sept. 21	eF	8	17	±						
		eP _N	9	46	28						Felt in N. Celebes & Sangir Islands.
		eP _Z	9	46	30						
		eP _E	9	46	31						
		eS _Z	9	51	47						
		eS _N	9	51	49						
		eS _E	9	51	50						
		eF	10	05	±						
261	Sept. 21	PEZ	18	54	31					74	
		iP _N	18	54	31			-2.5			
		SE	18	54	41		+2				
		iS _N	18	54	41			+3			
		ME	18	54	42	0.6	±2				
		M _N	18	54	43	0.4		-3			
		F	18	55	15						
262	Sept. 21	eE	21	10	25						A distant earthquake. By Wadati's Seismograph.
		eE	21	15	44						
		ME	21	18	25	19.0	±2				
		eF	21	54	±						
263	Sept. 22	PZ	3	16	27				-1.9	2690	Felt in eastern Visayas, Philippine.
		eP _{EN}	3	16	28						
		eS _Z	3	20	42						
		eS _E	3	20	48						
		eS _N	3	20	54						
		M _N	3	21	41	11.5		±5			
		M _Z	3	23	44	18.5			±12		
eF	3	38	±								
264	Sept. 23	eP _E	10	59	49					56	Near the mouth of the Arita R., Wakayama Prefecture.
		eP _N	10	59	50						
		eE	10	59	53						
		eN	10	59	54						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
265	Sept. 23	eS _N	10	59	57			+1			
		eS _E	10	59	57		-1				
		ME	11	00	00	0.5	±1				
		F	11	00	17						
		P	13	14	13		-2	+2	+3		Near Solomon Island, Merania, SW. Pacific Ocean.
		iP	13	14	23		+11	+20	+30		
		eZ	13	19	14						
		eE	13	19	27						
		eE	13	20	53						
		eN	13	20	59						
eZ	13	21	04								
iE	13	24	29	8.3	+45						
LE	13	24	53	39.0	±135						
eL _N	13	25	03								
*266	Sept. 25	MZ	13	29	07	20.0			±38		
		M _N	13	31	07	13.5		±25			
		ME	13	33	31	15.5	±33				
		eF	13	54	±						
		P _{EN}	17	56	34		-	+2.7		20	In the Ōsaka Bay. Weak shocks and earth-sound were felt in Kōbe City. Felt in coast of the Ōsaka Bay.
		iP _{EZ}	17	56	35		-14		-15.2		
		iS	17	56	37		-36	+19	-34		
		ME	17	56	38	0.5	+164				
M _N	17	56	38	0.6		+218					
MZ	17	56	39	0.6			+63				
eF	18	02	±								
267	Sept. 27	eP _Z	9	03	58					5380	
		P	9	04	02		+1	+2	-8		
		iP _Z	9	04	03				+30		
		iP _N	9	04	04				-24		
		iP _E	9	04	06		-12				
		P _{RIE}	9	06	03	3.4	±8				
		P _{RIN}	9	06	03	3.9		±10			
P _{RIZ}	9	06	04	4.8			+8				

From No. 169 to No. 282, 1937.

SUMOTO JAPAN.

SEISMOLOGICAL BULLETIN

A Branch Station of the Kōbe Meteorological Observatory of Japan.
 $\varphi=34^{\circ} 21'$ $\lambda=134^{\circ} 53'$ $h=109.0$ m. Underground: Cretaceous.

Instrument: Omori's Seismograph. (Horizontal)
 Wiechert Seismograph. (Horizontal & Vertical)

July

	T_0	ϵ	$\frac{r}{T_0^2}$	V	T_0	ϵ	$\frac{r}{T_0^2}$	V	
AE:	16.2	2.4	0.0002	20	4.6	Aperiodic	0.001	97	
AN:	19.7	2.9	0.0003	20	4.7	"	0.001	98	
					Az:	3.8	"	0.003	70

Aug.

	T_0	ϵ	$\frac{r}{T_0^2}$	V	T_0	ϵ	$\frac{r}{T_0^2}$	V	
AE:	16.5	2.5	0.0002	20	4.5	Aperiodic	0.001	104	
AN:	19.8	3.0	0.0003	20	4.5	"	0.002	105	
					Az:	3.8	"	0.003	70

Sept.

	T_0	ϵ	$\frac{r}{T_0^2}$	V	T_0	ϵ	$\frac{r}{T_0^2}$	V	
AE:	16.6	2.6	0.0002	20	4.6	Aperiodic	0.002	104	
AN:	19.6	2.5	0.0003	20	4.9	"	0.002	100	
					Az:	3.7	"	0.002	71

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
		iS	9	11	01		-28	+4	+19		
		SM _N	9	11	02			-35			
		ScS _E	9	13	51	3.3	+30				
		ScS _N	9	13	52	4.7		-12			
		eL _Z	9	17	57						
		M _Z	9	22	30	23.0			± 23		
		M _N	9	25	12	19.0		± 12			
		M _E	9	25	26	21.0	± 8				
		eF	9	46	\pm						
268	Sept. 28	S	13	29	50		-4	+2	+4		Felt in E. Celebes I.
		e _N	13	31	32	3.0		± 1			
		e _E	13	31	37	3.2	± 3				
		eF	13	37	\pm						
269	Sept. 28	eP _Z	22	56	11						Near Yūki, Ibaraki Prefecture.
		eP _N	22	56	12						Focal depth about 50km.
		P _E	22	56	15						Moderate shocks were felt in Kwantō district.
		S _{NZ}	22	56	55			+5	-4		
		S _E	22	56	57		-5				
		M _Z	22	57	03	1.8			-6		
		M _N	22	57	04	1.9		± 8			
		M _E	22	57	05	2.0	-10				
		eF	23	05	\pm						
270	Sept. 30	e _E	12	58	27						A distant earthquake.
		e _E	13	07	28	12.0	± 1				Inscribed at Zi-ka-wai.
		eF	14	56	\pm						By Wadati's Seismograph.

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
169	July 1	P	10	00	54						
		S	10	01	00						
		M	10	01	01	0.4	+2	+2	+1		
		F	10	01	42						
170	July 1	eP _{EN}	11	58	15					5560	Felt in N. Sumatra.
		P _Z	11	58	21						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		eS _N	12	05	25						
		eS _E	12	05	30						
		e	12	17	26						
		M _N	12	21	57	13.5		± 8			
		M _E	12	23	19	14.5	± 13				
		eF	12	38	\pm						
171	July 1	PEN	14	29	54				27	Near Wakayama City.	
		S	14	29	57						
		MEZ	14	29	57	0.4	-2	± 1			
		M _N	14	29	58	0.3		-4			
		F	14	30	32						
172	July 1	iP	21	02	58		-1.0	-1.5	-1.4	29	Ditto.
		iS	21	03	02						
		M _E	21	03	03	0.5	+33				
		M _N	21	03	03	0.4		-32			
		M _Z	21	03	03	0.3			-9		
		eF	21	06	\pm						
173	July 2	P	2	46	57		-1.0	+05	+1.4	6220	Near Santa-Cruz Island. 13°S. 166°E., according to Apia report.
		SEN	2	54	46						
		ez	3	07	11						
		eF	3	23	\pm						
174	July 2	ePEN	3	51	06					88	Southern part of the Kii Channel.
		S	3	51	18						
		MEN	3	51	19	0.4	-2	-3			
		M _Z	3	51	22	0.5			± 1		
		F	3	52	09						
175	July 2	eEN	9	31	25						Near Yuasa, Wakayama Pre- fecture.
		SEN	9	31	31						
		MEN	9	31	31	0.4	-1	+1			
		F	9	32	01						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
176	July 2	P	9	56	37					50	Near Kamisanzi, upper va- lley of the Hidaka River, Wakayama Prefecture.
		S	9	56	44						
		M _N	9	56	44	0.5		± 4			
		M _E	9	56	45	0.5	-4				
		M _Z	9	56	46				± 1		
		F	9	57	43						
177	July 2	SEN	9	59	58						Near Gobō, Wakayama Pre- fecture.
		M _E	9	59	58	0.5	± 1				
		M _N	9	59	58	0.4		± 1			
		F	10	00	21						
178	July 2	ePEN	15	04	30					33	Ditto.
		S	15	04	35						
		M _E	15	04	35	0.5	-3				
		M _N	15	04	35	0.6		+3			
		F	15	05	12						
179	July 3	ePEN	6	55	59					34	Near Kirime, northern part of the Tanabe Bay, Wakaya- ma Prefecture.
		S	6	56	04						
		M _E	6	56	04	0.4	± 1				
		M _N	6	56	05	0.4		-3			
		M _Z	6	56	05				± 1		
		F	6	56	34						
180	July 3	eP _E	13	52	20					374	Near Aburatu, Miyazaki Pre- fecture.
		eP _Z	13	52	21						
		eP _N	13	52	22						
		eS _E	13	53	10						
		eS _N	13	53	11						
		eS _Z	13	53	12						
		M _N	13	53	27	1.9		-3			
		M _E	13	53	31	1.9	-3				
		M _Z	13	53	33	3.0			± 1		
		eF	13	57	\pm						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
181	July 3	ePz	15	24	14					470	Near Yakeyama, felt in Niigata and Nagano Prefectures. F in No. 182.
		ePN	15	24	16						
		ePE	15	24	18						
		SE	15	25	15						
		SN	15	25	16						
		ME	15	25	22	3.5	-15				
		MN	15	25	22	5.8		+7			
MZ	15	25	29	5.6			-4				
182	July 3	Pz	15	29	04					401	Ditto.
		ePEN	15	29	07						
		eSE	15	29	55						
		eSNZ	15	29	58						
		MN	15	30	01	3.2		+3			
		MZ	15	30	13	3.2			-2		
		ME	15	30	17	3.9	+4				
eF	15	38	±								
183	July 4	ePEN	3	51	11					45	Near Siga, Wakayama Prefecture.
		S	3	51	17						
		MN	3	51	17	0.4		-2			
		ME	3	51	18	0.4	-2				
		MZ	3	51	18				±1		
		F	3	51	46						
184	July 4	ePz	6	04	40					5675	Near Solomon Islands, SW. Pacific Ocean.
		ePEN	6	04	44						
		SN	6	12	00						
		SE	6	12	06						
		eLEN	6	18	12						
		ez	6	22	15						
		eF	6	53	±						
185	July 4	ePN	6	48	04					5920	Ditto.
		ePE	6	48	06						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		ePz	6	48	12						
		SN	6	55	35						
		SE	6	55	39						
		eF	7	30	±						
186	July 4	ePz	7	35	26						5770 Ditto.
		ePEN	7	35	31						
		en	7	38	40						
		SE	7	42	52						
		SN	7	42	58						
		ez	7	52	52						
		MN	7	54	41	15.5		±10			
ME	7	59	00	12.6	+6						
eF	8	19	±								
187	July 6	SEN	15	31	21						Near Wakayama City.
		MEN	15	31	22						
		eF	15	31	±						
188	July 9	PE	4	09	27						414 Northern part of the Tiziwa Bay, Nagasaki Prefecture. Felt in N. Kyūsyū.
		Pz	4	09	29						
		ePN	4	09	30						
		SN	4	10	23						
		SE	4	10	24						
		Sz	4	10	26						
		ME	4	10	33	1.7	-4				
MN	4	10	36	2.1		+4					
MZ	4	10	38	2.3			+3				
eF	4	15	±								
189	July 9	ePEN	5	16	16						291 Near Simotuma, Ibaraki Prefecture. Felt in Kwantō district.
		SE	5	16	54						
		SN	5	16	57						
		ME	5	16	57	1.7	±1				
		MN	5	17	01	1.9		±1			
ez	5	17	01								

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			g.	m.	s.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
190	July 10	eF	5	21	±						
		eP _{EN}	18	49	06					31	Near Gobō, Wakayama Prefecture.
		S	18	49	10						
		M _{EN}	18	49	11	0.4	-2	-3			
F	18	49	56								
191	July 11	iP _Z	13	41	00				+2.1	574	In the ESE sea of Hatizyō I.
		iP _{EN}	13	41	01		-4.0	-0.5			
		S _Z	13	42	18						
		eS _N	13	42	18						
		eS _E	13	42	19						
		M _E	13	43	22	14.7	+11				
		M _N	13	43	27	13.7		-6			
		M _Z	13	43	33	12.2			±9		
		eF	14	13	±						
192	July 14	eP	22	29	43		-1.0			740	In the ENE sea of Hatizyō I.
		eS	22	31	23						
		M _N	22	31	38	14.5		±64			
		M _E	22	32	11	13.5	-114				
		M _Z	22	32	14	13.2			±143		
		eF	23	04	±						
193	July 16	P	10	19	56				+1.4	1018	In the E sea of Hatizyō I.
		S _E	10	22	10						
		S _Z	10	22	13						
		eS _N	10	22	17						
		M _Z	10	22	26	13.9			±29		
		M _N	10	23	16	10.0		±7			
		M _E	10	23	31	10.8	+14				
		eF	10	43	±						
194	July 17	S _{EN}	3	28	18						Near Kirime, northern coast of the Tanabe Bay, Wakayama Prefecture.
		M _N	3	28	18	0.3		-2			
		M _E	3	28	19		±1				

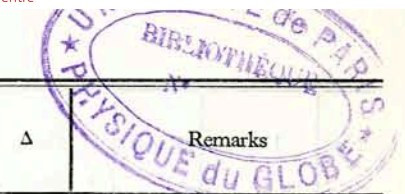
No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			g.	m.	s.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
195	July 17	F	3	28	55						
		iP	7	58	54		+2.0	+1.0	+1.0		Near Naze, Ryūkyū Is.
		e _N	8	01	10						
eF	8	11	±								
196	July 17	P _E	18	42	10						In the E sea of Miyake I., to the S of the Izu Peninsula.
		P _Z	18	42	13						
		eP _N	18	42	14						
		e _N	18	43	13						
		e _E	18	43	14						
		e _Z	18	43	48						
		e _Z	18	44	28						
		e _{EN}	18	44	39						
		eF	18	55	±						
197	July 19	P _Z	3	01	33						A distant earthquake.
		P _{EN}	3	01	35		-0.5	+1.0			
		e _{EN}	3	07	47						
		eF	3	21	±						
198	July 19	eP _{EN}	18	10	49					35	Near the mouth of the Kii R., Wakayama Prefecture.
		S	18	10	54						
		M _E	18	10	54	0.3	±2				
		M _N	18	10	54	0.4		-4			
		M _Z	18	10	54				±1		
199	July 20	F	18	11	45						
		S	5	29	37						In the Kii Channel.
		M _N	5	29	37			±2			
		M _Z	5	29	38				±1		
		M _E	5	29	38	0.5	±1				
F	5	29	55								
200	July 20	P _{EN}	7	21	58					26	Near Wakayama City.
		S	7	22	02						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
201	July 21	ME	7	22	02	0.6	-2				Epicenter; 46°N. 154°E. In the E sea of the Naka-Siretoko Cape, Sakhalin.
		MNZ	7	22	02			-3	±1		
		F	7	22	26						
		P _{NZ}	0	10	32						
		P _E	0	10	33						
		e _E	0	13	01						
		e _N	0	13	04						
e _F	0	20	±								
202	July 22	e _N	5	04	39						In the NE sea of the Sioya Cape, Hukushima Prefecture.
		e _Z	5	04	44						
		e _{EN}	5	05	04						
		M _N	5	05	21	2.3		-1			
		M _E	5	05	22	1.4		-1			
		e _F	5	09	±						
203	July 22	P _Z	17	19	01					6030	Alaska.
		P _{EN}	17	19	02						
		S _{EN}	17	26	38						
		e _{SZ}	17	26	42						
		L _{EN}	17	30	44						
		e _{LZ}	17	30	51						
		M _E	17	39	16	19.0		+143			
		M _N	17	43	20	16.1			+156		
		M _Z	17	43	25	16.0				-60	
		e _F	19	00	±						
204	July 24	P _{EN}	15	22	04					1510	In the SE sea of Ponin I.
		e _Z	15	22	12						
		S _{EN}	15	24	42						
		M _N	15	24	47	2.3		-3			
		M _E	15	24	48	2.3		±2			
		e _F	15	29	±						
205	July 25	e _{PEN}	2	04	09				26	Near Wakayama City.	

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		S	2	04	12						
		M _E	2	04	13			-2			
		M _N	2	04	13	0.4			±2		
		F	2	04	46						
206	July 26	S _{EN}	3	21	02						Near Wakayama City.
		M _E	3	21	03			-2			
		M _N	3	21	03	0.3			+2		
		F	3	21	23						
207	July 26	P _{EN}	19	58	14					653?	In the E sea of Kinkwazan about 35km. Strong shocks were felt in Isinomaki City, Miyagi Prefecture. Felt in all NE. Japan.
		P _Z	19	58	15						
		S _E	19	59	39						
		S _N	19	59	42						
		S _Z	19	59	46						
		M _N	20	00	26	3.9			+153		
		M _Z	20	00	31	3.9				+69	
		M _E	20	00	40	5.2		+107			
		e _F	20	35	±						
208	July 28	S _{EN}	21	43	12						Local shock.
		M _E	21	43	13			-1			
		M _N	21	43	13	0.5			±1		
		F	21	43	42						
209	July 29	S _{EN}	0	08	54						Local shock.
		M _E	0	08	54			±1			
		M _N	0	08	54	0.4			±1		
		F	0	09	15						
210	July 30	P	1	06	10					52	Near Simokōno, Wakayama Prefecture.
		S	1	06	17						
		M _{EN}	1	06	17	0.5		-6	+10		
		M _Z	1	06	17	6.6				+2	
		F	1	07	29						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
211	July 30	P _E	6	54	20					100	Near Kyōto City.
		P _N	6	54	21						
		S	6	54	34						
		M _N	6	54	37			±2			
		M _E	6	54	42	0.8	+2				
		F	6	55	35						
*212	July 31	iP	2	09	58		-3.0	-4.1	-7.1	58	Near the mouth of the Naka R., Tokushima Prefecture. Weak shocks were felt at Sumoto.
		iS	2	10	06						
		M	3	10	07	0.4	+217	-837	-161		
		eF	2	23	±						
213	July 31	eP _N	10	50	51					1010	In the SE sea of Hatizyō I.
		eP _{EZ}	10	50	52						
		eS	10	53	06						
		eF	11	09	±						
214	July 31	P _E	20	39	33		-1.0			1910	Epicenter: 41°N. 113°E. Felt in North China.
		P _Z	20	39	34				(-)		
		P _N	20	39	35				(-)		
		S	20	42	49						
		L _N	20	44	19						
		L _Z	20	44	21						
		L _E	20	44	24						
		M _Z	20	44	44	3.8			-33		
		M _N	20	44	52	3.7		+81			
		M _E	20	44	57	4.5	+43				
eF	21	19	±								
215	Aug. 1	P _{EZ}	10	44	53		+1.0		(+)	1875	Ditto.
		P _N	10	44	55			+0.5			
		S _E	10	48	05						
		S _{NZ}	10	48	06						
		L _N	10	49	33						
		L _Z	10	49	37						
		L _E	10	49	40						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
216	Aug. 2	M _N	10	49	56	3.9		-52			49 Near Gobō, Wakayama Prefecture.
		M _Z	10	50	05	3.7			-17		
		M _E	10	50	12	3.9	+29				
		eF	11	18	±						
		P	9	27	11						
217	Aug. 2	S	9	27	18						S. Okhotsk Sea.
		M _E	9	27	18	0.4	±2				
		M _N	9	27	19	0.3		-2			
		M _Z	9	27	20				±1		
218	Aug. 3	F	9	27	58						36 In the Yuasa Bay, Wakayama Prefecture.
		P	15	50	23						
		eS	15	54	26						
219	Aug. 3	eF	16	07	±						633 In the near sea of the Inubō Cape, Tiba Prefecture.
		P	11	19	56						
		S	11	20	01						
		M _N	11	20	01	0.4		-3			
		M _E	11	20	02	0.3	-2				
220	Aug. 4	M _Z	11	20	02				±1		47 Near Wakayama City.
		F	11	20	38						
		P _Z	23	10	31				-0.7		
		eP _E	23	10	31						
		eP _N	23	10	32						
		S _E	23	11	56						
		eS _Z	23	11	56						
		S _N	23	11	58						
		M _Z	23	12	15	2.0			+3		
		M _E	23	12	16	2.5	-5				
M _N	23	12	17	3.3		-5					
eF	23	20	±								
220	Aug. 4	eP _{EN}	10	06	23						47 Near Wakayama City.
		S	10	06	29						



No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
221	Aug. 4	MEN	10	06	29	0.4	+1	+2			
		F	10	06	59						
		SEN	23	02	06						Local shock.
		MN	23	02	06				-2		
		ME	23	02	06	0.4	-1				
222	Aug. 4	F	23	02	39						
		Pz	23	43	46						Near Nicobar Islands, Bengal Bay.
		Pe	23	43	49						
		Pn	23	43	50						
		ez	23	45	42						
223	Aug. 5	eE	23	45	42						
		eF	23	58	±						
		P	3	53	04					25	Near Simotu, Wakayama Prefecture.
		eS	3	53	08						
		MEN	3	53	08	0.4	+3	-4			
224	Aug. 5	Mz	3	53	10	0.4			±1		
		F	3	53	40						
		ePEN	11	02	34					29	Local shock.
		S	11	02	37						
		ME	11	02	38	0.4	-2				
225	Aug. 5	MNZ	11	02	38			±2	±1		
		F	11	03	09						
		iPEN	14	51	39		-1.0	+1.0			SE. New Guinea.
		iPz	14	51	40					+4.3	
		eN	14	54	27						
226	Aug. 6	eE	14	54	31						
		ez	14	54	34						
		eN	14	57	51						
		eE	14	57	52						
		eF	15	24	±						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks	
			G.	M.	T.		A _E	A _N	A _Z			
			h	m	s	s	μ	μ	μ	km.		
226	Aug. 6	eP	15	30	30						23	Near Wakayama City.
		S	15	30	33							
		ME	15	30	33	0.4	-4					
		MN	15	30	34	0.4		-5				
		MZ	15	30	34					±1		
227	Aug. 7	F	15	31	11							
		ePEN	20	47	52						581	In the Hyūga-nada.
		ePz	20	47	54							
		SN	20	49	10							
		SE	20	49	11							
228	Aug. 8	Sz	20	49	12							
		Mz	20	49	25	2.1			±1			
		ME	20	49	28	2.6	-2					
		MN	20	49	32	2.6		±1				
		eF	20	54	±							
229	Aug. 8	ez	0	00	40							Local shock.
		eF	0	01	19							
		Pz	10	16	07							Mariana Islands, Pacific Ocean.
		ePe	10	16	07							
		ePN	10	16	08							
230	Aug. 9	eEN	10	19	24							
		eF	10	26	±							
		iS	0	09	35							Near Wakayama City.
		MEZ	0	09	35	0.4	+5		+1			
		MN	0	09	36	0.4		-6				
231	Aug. 9	eF	0	10	18							
		P	14	40	54						1700	Times are uncertain. Near Bonin Island.
		S	14	43	48							
		eF	15	11	±							
		PEN	21	06	38						53	Lower basin of the Hidaka

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
233	Aug. 11	SEN	21	06	45						R., Wakayama Prefecture.
		ME	21	06	45	0.4	+2				
		MN	21	06	47	0.4		-2			
		F	21	07	25						
		PZ	1	03	13				+1.4	4000	Southern part of Celebes I.
		PE	1	03	15		+0.5				
		PN	1	03	17			-1.0			
		PR2	1	05	04						
		ez	1	05	30						
		eE	1	05	47						
		eN	1	06	00						
		Sz	1	09	00						
		SE	1	09	03						
		SN	1	09	04						
		MN	1	09	10	3.2		+39			
		MZ	1	09	15	3.2				-10	
ME	1	09	16	4.6		+23					
eF	1	41	±								
234	Aug. 14	ePEN	2	19	07					39	Near Siga, Wakayama Prefecture.
		SEZ	2	19	13						
		ME	2	19	13	0.4	-1				
		MN	2	19	18	0.4		+2			
		F	2	19	47						
235	Aug. 14	S	13	09	40						Southern part of Mie Prefecture.
		ME	13	09	40		-1				
		MN	13	09	43	0.4		±1			
		F	13	10	13						
236	Aug. 15	P	4	31	42						Felt in northern part of Luzon, Philippine.
		eN	4	35	10						
		eE	4	35	25						
		eF	4	52	±						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks			
			G.	M.	T.		A _E	A _N	A _Z					
			h	m	s	s	μ	μ	μ	km.				
237	Aug. 15	eP	9	59	00							In the NE sea of Hatizyō I.		
		eEN	10	00	21									
		eE	10	02	10									
		eN	10	02	15									
		eF	10	16	±									
238	Aug. 16	iP	6	40	22					+1.4	81	Southwestern part of Nara Prefecture.		
		iS	6	40	33									
		ME _N	6	40	34	0.4	-8	+10						
		MZ	6	40	34	0.6				±3				
*239	Aug. 16	iP	16	38	58					+1.0	+1.9	-2.9	136	Perceptible. Epicenter; 35°23'N. 135°51'E. Near Mt. Hira, western part of Siga Prefecture. Felt in all Kinki and some places in Tyūbu and Tyū-goku districts.
		iS	16	39	16									
		MN	16	39	16	0.4		-65						
		MEZ	16	39	18	1.0	-87			+26				
		eF	16	53	±									
240	Aug. 17	ePEN	13	11	34							974	In the ESE sea of Hatizyō I.	
		PZ	13	11	35									
		iP	13	11	41		-2.9	+1.0	+1.4					
		eS	13	13	46									
		MZ	13	14	16	12.9				+250				
241	Aug. 19	MN	13	16	06	8.1		±5						
		ME	13	17	53	8.3	-5							
		eF	13	32	±									
		PN	20	32	55							504	In the Ariake Bay, Kagosima, Kyūsyū.	
		PE	20	32	56									
ez	20	33	03											
eSN	20	34	03											
eSE	20	34	04											
241	Aug. 19	eSz	20	34	10									
		MZ	20	34	17	1.9				-3				
		MN	20	34	24	2.0		+3						
		ME	20	34	25	2.0	-4							

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					A _E μ	A _N μ	A _Z μ		
242	Aug. 20	eF	20 40 \pm					2510 Epicenter; 14°10'N, 122°05'E. Considerable damage in Manila. Felt in S. Luzon and NW. Visayan Island, Philippine. * An after-shock?	
		iP _Z	12 04 25			+4.3			
		iP _{EN}	12 04 26	+1.9	+3.8				
		S _Z	12 08 26						
		S _N	12 08 31						
		S _E	12 08 36						
		M ¹ _E	12 08 56	9.7	-361				
		M ¹ _Z	12 09 00	9.4		+120			
		M ² _E	12 09 24	9.7	-290				
		M ¹ _N	12 09 39	9.7		-256			
		M ³ _E	12 10 25	11.6	-367				
		M ² _N	12 10 41	10.8		+310			
		M ³ _N	12 11 25	11.2		+389			
		M ⁴ _E	12 14 11	11.0	-357				
		M ² _Z	12 16 58	12.2		-300			
* e _N	12 25 02								
* e _{EZ}	12 25 04								
eF	14 19 \pm								
243	Aug. 21	P _{EN}	6 36 15				51?	Local shock.	
		S _{EN}	6 36 22						
		M _{EN}	6 36 22	0.4	± 1	± 1			
		F	6 36 54						
244	Aug. 21	eP _{EZ}	23 03 41				909	In the SE sea of Hatizyō I.	
		eP _N	23 03 42						
		eS _N	23 05 39						
		eS _{EZ}	23 05 46						
		eF	23 21 \pm						
245	Aug. 23	eP _{EN}	22 12 52				45	Near Gobō, Wakayama Prefecture.	
		S	22 12 58						
		M _N	22 12 59	0.3		+5			
		M _E	22 12 59	0.4	+3				
		M _Z	22 12 59			± 1			

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					A _E μ	A _N μ	A _Z μ		
246	Aug. 24	F	22 13 38					Near Samoa Islands, SW. Pacific Ocean.	
		eP _Z	18 39 24						
		P _E	18 39 24						
		P _N	18 39 25						
		e _{EN}	18 48 51						
		e _N	18 54 36						
		eF	19 01 \pm						
247	Aug. 25	e _{EN}	1 34 00				Near Gobō, Wakayama Prefecture.		
		S	1 34 04						
		M _E	1 34 04	0.3	+1				
		M _N	1 34 05			-1			
248	Aug. 25	eP	16 44 57				303	In the Kumano-nada, to the SE of Kii Peninsula.	
		S _{EN}	16 45 37						
		S _Z	16 45 38						
		M _E	16 45 38	1.4	-3				
		M _Z	16 45 38	1.3		+1			
		M _N	16 45 39	1.4		-2			
249	Aug. 26	iP	18 54 15		+1.0	+1.0	+1.4	603	Southern part of the Hyūga-nada. Felt in all Kyūsyū.
		S	18 55 37						
		M _N	18 55 45	2.5		+65			
		M _Z	18 55 47	2.5			-68		
		M _E	18 55 51	2.7	+64				
eF	19 24 \pm								
250	Aug. 28	eP _N	10 42 01				63	In the Tanabe Bay, Wakayama Prefecture.	
		S	10 42 09						
		M _N	10 42 09	0.4		-4			
		M _Z	10 42 09			± 1			
		M _E	10 42 10	0.3	+5				
F	10 43 14								

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
251	Aug. 29	P	7	07	38						Southern part of the Hyūganada.
		SEZ	7	08	52						
		eSN ₁	7	08	53						
		M _N	7	09	05	2.2		+7			
		M _Z	7	09	05	1.9			+4		
		M _E	7	09	06	2.2	-6				
		eF	7	15	±						
252	Aug. 30	eEN	13	20	15						Near Kyōto City.
		S	13	20	19						
		M _E	13	20	19		-1				
		M _N	13	20	19	0.4		±1			
		F	13	20	49						
253	Aug. 31	P	1	17	43					50	Near Yuasa, Wakayama Prefecture.
		S	1	17	50						
		M _E	1	17	50	0.3	-4				
		M _{NZ}	1	17	51			-6	-1		
		F	1	19	06						
254	Aug. 31	PEZ	14	21	51						Tibet, China.
		ePN	14	21	52						
		eE	14	30	35						
		eN	14	30	53						
		eN	14	32	16						
		L _N	14	33	09						
		ez	14	33	43						
		L _E	14	33	47						
		M _N	14	34	18	14.7		-83			
		M _Z	14	36	41	11.3			+30		
		M _E	14	36	45	12.2	-30				
		eF	14	59	±						
255	Sept. 1	iP	17	51	58					975	In the SE sea of Amami-Ōsima, Ryūkyū Is.
			17	54	10						
		M _{EN}	17	54	15	2.4	-1	±1			

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
256	Sept. 1	F	17	58	40						40 Near Wakayama City.
		P	19	34	43						
		S	19	34	48						
		M _E	19	34	49	0.4	-3				
		M _N	19	34	49	0.3		±2			
		M _Z	19	34	49				±1		
		F	19	35	36						
257	Sept. 3	P	18	55	26						3945 Aleutian Islands. 52°.5N. 177°.5W. (J.S.A.).
		eSEN	19	01	10						
		Sz	19	01	10						
		M _N	19	02	12	6.0		+13			
		M _Z	19	02	17	7.7			+6		
		M _E	19	02	32	5.2	-13				
		ez	19	04	17						
		ee	19	04	29						
eN	19	04	31								
		eF	20	18	±						
258	Sept. 6	eN	3	39	37						Local shock?
		ee	3	39	52						
		eSN	3	40	09						
		eSz	3	40	11						
		M _Z	3	40	24	1.9			±1		
		M _N	3	40	26	1.9		±1			
		eF	3	43	±						
259	Sept. 6	ePE	16	04	00						526 Near the mouth of the Naka R., Ibaraki Prefecture. Focal depth about 50km. Felt in all Kwantō district.
		ePN	16	04	05						
		SE	16	05	07						
		SN	16	05	12						
		Sz	16	05	18						
		M _N	16	05	25	1.9		-4			
		M _Z	16	05	35	1.9			+1		
		M _E	16	05	36	2.4	-5				

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
260	Sept. 8	eF	16	12	±						
		ez	0	59	35						Near the Cape Horn, south end of South America.
		Pz	0	59	53						
		ez	1	03	39						
		eEN	1	03	41						
		ee	1	06	59						
		eN	1	07	12						
		eEN	1	10	48						
eF	1	27	±								
261	Sept. 9	SEN	18	29	27						Near Kōbe City.
		MN	18	29	27	0.2		±2			
		ME	18	29	28		-1				
		F	18	29	50						
262	Sept. 11	eP	16	50	43					29?	Near Simotu, Wakayama Prefecture.
		S	16	50	47						
		MEN	16	50	48	0.3	-4	+5			
		MZ	16	50	48	0.4			±2		
		F	16	51	10						
263	Sept. 12	iPz	11	58	40					1770	Near Mariana Islands, Pacific Ocean.
		PEN	11	58	41						
		eSEN	12	01	43						
		ME	12	01	49	2.5	±1				
		MN	12	01	55	2.5		+2			
		eF	12	08	±						
264	Sept. 13	ePEN	12	15	09					28	Near Wakayama City.
		S	12	15	13						
		MN	12	15	13	0.2		-3			
		MZ	12	15	13	0.4			±1		
		ME	12	15	14	0.4	±2				
		F	12	16	01						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
265	Sept. 14	eN	14	17	24						Local shock.
		eS	14	17	29						
		ME	14	17	29	0.2	-1				
		MN	14	17	29			+2			
266	Sept. 14	SEN	16	12	16						Near Wakayama City.
		MN	16	12	16	0.6		±1			
		ME	16	12	16	0.4	-1				
		F	16	12	41						
267	Sept. 15	ePEN	12	36	31						Near Solomon Is., Meranesia, Pacific Ocean.
		iPEN	12	36	32						
		SEN	12	43	44						
		Sz	12	43	45						
		LEN	12	49	55						
		ME	12	55	51	15.5	-27				
268	Sept. 16	MZ	12	56	09	17.8				±50	Southern part of Nara Prefecture.
		MN	13	00	06	15.5		±20			
		eF	13	22	±						
		P	16	46	24		+0.5			82	
269	Sept. 17	S	16	46	35						Near the mouth of the Arita R., Wakayama Prefecture.
		MEN	16	46	35	0.4	-3	-3			
		MZ	16	46	37				±1		
		F	16	47	38						
		PEN	12	39	41					40	
270	Sept. 19	SEN	12	39	46						Near Mt. Aso, Kyūsyū.
		ME	12	39	46	0.3	-2				
		MN	12	39	46	0.4		-4			
		F	13	40	25						
270	Sept. 19	ePN	0	53	15					353	Near Mt. Aso, Kyūsyū.
		ePEZ	0	53	22						
		eSN	0	54	06						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		eSEZ	0	54	08						
		M _N	0	54	09	1.5		± 2			
		M _Z	0	54	11	1.5			± 1		
		M _E	0	54	12	1.7	± 2				
		F	0	56	28						
271	Sept. 20	eP _{EN}	3	07	03				33	Ditto.	
		S	3	07	08						
		M _E	3	07	08	0.4	-2				
		M _N	3	07	08	0.3		± 2			
		F	3	07	53						
272	Sept. 21	e _{EN}	8	03	15					Near Tonking, French Indo-China.	
		e _Z	8	04	00						
		L _N	8	04	22						
		e _F	8	21	\pm						
273	Sept. 21	P	18	54	25				44	In the Kii Channel.	
		S	18	54	31						
		M _N	18	54	32	0.3		-6			
		M _{EZ}	18	54	33	0.4	-6	± 1			
		F	18	55	33						
274	Sept. 22	P _Z	3	16	22				2875	Felt in eastern Visayas, Philippine.	
		P _{EN}	3	16	23		-0.5	-1.0			
		S _N	3	20	55						
		S _E	3	20	57						
		M _E	3	22	25	9.5	-7				
		M _N	3	22	40	9.5		-7			
		e _F	3	44	\pm						
275	Sept. 22	S _{EN}	17	34	26					Near Siga, Wakayama Prefecture.	
		M _N	17	34	26			± 1			
		M _E	17	34	27		± 1				
		F	17	34	52						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
276	Sept. 23	P	10	59	40						Near the mouth of the Arita R., Wakayama Prefecture.
		S	10	59	45						
		M _N	10	59	45	0.4		-12			
		M _{EZ}	10	59	46	0.2	-6		± 3		
		F	11	00	55						
277	Sept. 23	e _P	13	14	04					5035	Near Solomon Islands, SW. Pacific Ocean.
		i _P	13	14	11		-1.9	+1.0	+4.2		
		e _E	13	19	04						
		e _N	13	19	14						
		S _N	13	20	45						
		S _E	13	20	50						
		e _{LE}	13	23	55						
		M _E	13	25	53	15.0	+109				
		M _N	13	29	11	15.0		-80			
		M _Z	13	31	18	13.9			-67		
		e _F	14	50	\pm						
278	Sept. 25	P	17	56	37					28	In the Ōsaka Bay. Felt in coast of the Ōsaka Bay.
		S	17	56	41						
		M _E	17	56	41	0.4	+9				
		M _{NZ}	17	56	42	0.4		-10	± 4		
		F	17	58	59						
279	Sept. 26	e _{PEN}	3	33	56						Mt. Kōya, Wakayama Prefecture.
		S	3	34	03						
		M	3	34	03	0.4	± 1	± 1	± 1		
		F	3	34	58						
280	Sept. 27	P	8	14	48					28	Local shock.
		S	8	14	52						
		M _E	8	14	53	0.4	-4				
		M _N	8	14	53	0.3		-4			
		M _Z	8	14	54				± 1		
		F	8	15	40						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
281	Sept. 27	Pz	9	03	58				+2.8	5195	Central Java.
		PEN	9	03	59		+2.9	+15			
		Sz	9	10	49						
		SEZ	9	10	52						
		SMN	9	10	57	5.7		-20			
		SME	9	10	59	2.6	+9				
		SMZ	9	11	01	6.0			-4		
		eLNZ	9	20	12						
		eLE	9	20	20						
		eF	9	42	±						
282	Sept. 28	eP	22	56	10					Near Yūki, Ibaraki Prefecture. Focal depth about 50km. Moderate shocks were felt in Kwantō district.	
		SN	22	57	02						
		SEZ	22	57	04						
		ME	22	57	15	2.1	-5				
		MZ	22	57	19	1.5			±3		
		MN	22	57	20	1.9		-7			
		eF	23	02	±						

From No. 67 to No. 110, 1937.

TOYOOKA JAPAN.

SEISMOLOGICAL BULLETIN

A Branch Station of the Kōbe Meteorological Observatory of Japan.
 $\varphi=35^{\circ} 32'$ $\lambda=134^{\circ} 49'$ $h=32.2$ m. Underground: Tertiary.

Instrument: Ōmori's Seismograph.
 (Horizontal)

Wiechert Seismograph.
 (Horizontal & Vertical)

July — Sept.

	T_0	ϵ	$\frac{r}{T_0^2}$	V		T_0	ϵ	$\frac{r}{T_0^2}$	V
A _E :	22.3	3.0	0.001	20	A _E :	5.6	10.0	0.008	105
A _N :	21.6	3.0	0.001	20	A _N :	6.5	10.0	0.007	100
					A _Z :	3.8	6.6	0.004	60

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
67	July 1	eSN?	12	09	46					274	Felt in N. Sumatra. By Ōmori's Seismograph.
		LN	12	17	38						
		M ₁ N	12	21	35						
		M ₂ N	12	23	34						
		eF	12	45	±						
68	July 3	ePz	15	24	05					-6	Near Yakeyama, felt in Niigata and Nagano Prefectures.
		PEN	15	24	18						
		eSE	15	24	38						
		eSN	15	24	43						
		ME	15	25	08						
		MN	15	25	10				+16		
		F	15	28	51						
69	July 3	PEN	15	28	50					274	Ditto.
		Pz	15	28	51						
		SN	15	29	26						
		F	15	32	34						
70	July 4	PN?	6	04	55				5750	Near Solomon Is., SW. Paci-	

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
71	July 4	S _N	6	12	18	25.6	-34				fic Ocean. * By Ōmori's Seismograph.
		* L _N	6	19	26						
		* M _E	6	20	07						
		* eF	6	40	±						
72	July 4	eL _E	7	02	04						Ditto By Ōmori's Seismograph.
		eM _E	7	05	16						
		eF	7	23	±						
73	July 9	eS _E	7	43	17						Ditto.
		eL _E	7	50	11						
		eM _E	7	53	26						
		eF	8	20	±						
74	July 11	P _Z	4	09	41	0.6	-5	-12	-6	417	Northern part of the Tiziiwa Bay. Felt in NW. Kyūsyū.
		P _{EN}	4	09	42						
		eS _E	4	10	38						
		S _N	4	10	38						
		S _Z	4	10	43						
		M _E	4	10	44						
		M _N	4	10	46						
		M _Z	4	10	54						
		eF	4	15	±						
		75	July 12	eE?	13						
P _Z	13			41	10						
P _N	13			41	11						
P _E	13			41	13						
S _{EN}	13			42	29						
S _Z	13			42	35						
eM _N	13			43	34						
M _E	13			44	03						
M _Z	13			44	05						
eF	14			00	±						
76	July 12	eL _E	0	33	±					Felt in N. Sumatra.	

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	μ	
76	July 14	eF	0	42	±						By Ōmori's Seismograph.
		P _E	22	29	56						
		P _Z	22	29	57						
		P _N	22	30	01						
		S _E	22	31	15						
		S _N	22	31	16						
77	July 16	S _Z	22	31	18	13.9	-35	-41	-29	571	In the ENE sea of Hatizyō I.
		M _N	22	32	12						
		M _Z	22	32	12						
		M _E	22	32	46						
		eF	22	52	±						
		P _N	10	23	00						
78	July 21	P _Z	10	23	05	14.0	-6	-10	+4	1310	In the E sea of Hatizyō I. Times are uncertain?
		P _E	10	23	13						
		eS _E	10	24	32						
		M _N	10	25	36						
		M _E	10	25	49						
		M _Z	10	26	29						
		eF	10	36	±						
		P _N	0	10	21						
		P _{EZ}	0	10	22						
		S _{EN}	0	12	40						
eF	0	16	±								
79	July 22	P _{NZ}	17	18	52	17.2	+7	-18	-6	1310	Alaska. 65°5N. 145°1W. (J.S.A.).
		eP _E	17	19	06						
		eS _N ?	17	23	33						
		L _E	17	35	30						
		L _Z	17	36	44						
		L _N	17	36	45						
		M ¹ _E	17	41	24						
		M ¹ _N	17	42	33						
		M _Z	17	42	47						

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					A _E μ	A _N μ	A _Z μ		
80	July 24	M ² _N	17 46 07	15.0		-16			
		M ³ _N	17 52 58	13.2		-12			
		M ² _E	17 53 21	16.9	+5				
		eF	18 22 ±						
		P _N	15 22 23						In the SE sea of Bonin I.
81	July 26	P _E	15 22 25						
		M _N	15 25 06						
		eF	15 31 ±						
		eP	19 58 08.5		+1.5	+2.0	-3.8	544	In the E sea of Kinkwazan about 35km.
		iP _Z	19 58 09.2				+14.1		Strong shocks were felt in Isinomaki City, Miyagi Prefecture.
82	July 30	iP _{EN}	19 58 09.5		-10.0	-7.0			Felt in NE. Japan.
		P _{RI}	19 58 13						
		S _N	19 59 21						
		S _E	19 59 22						
		S _Z	19 59 23						
		M ¹ _N	19 59 29	5.1		+372			
		M _Z	19 59 31	2.5			+204		
		M _E	19 59 32	4.8	+325				
		M ² _N	20 00 11			+392			
		eF	20 43 ±						
83	July 31	P	6 54 20				94	Near Kyōto City.	
		S _N	6 54 32						
		S _{EZ}	6 54 33						
		M _{EN}	6 54 35		+11	±5			
		F	6 55 34						
83	July 31	P _Z	2 10 13				130	Near the mouth of the Naka R., Tokushima Prefecture.	
		P _{EN}	2 10 14			-5.5			
		S _N	2 10 31						
		S _E	2 10 32						
		S _Z	2 10 33						
		M _E	2 10 48	1.0	-38				
		M _Z	2 10 48	1.4			-11		

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					A _E μ	A _N μ	A _Z μ		
84	July 31	M _N	2 10 49	1.1		-30			
		F	2 16 ±						
		eP _E	10 48 48						In the SE sea of Hatizyō I.
85	July 31	eP _N	10 48 54						
		F	11 01 21						
		P _Z	20 39 32				1790	Epicenter 41°N. 113°E.	
		P _{EN}	20 39 33					Felt in North China.	
		S _N	20 42 37						
86	Aug. 1	S _Z	20 42 41						
		S _{RI}	20 44 39						
		M _N	20 46 19						
		M _{EZ}	20 46 27						
		eF	21 14 ±						
		P _Z	10 44 52				1680	Ditto.	
		P _N	10 44 55						
		P _E	10 44 58						
		eS _N	10 47 52						
		i _N	10 49 53						
87	Aug. 3	M _E	10 49 53		-29				
		M _N	10 51 22						
		M _Z	10 51 35						
		eF	11 12 ±						
		P _N	23 10 29				614	In the near sea of the Inubō Cape, Tiba Prefecture.	
		P _Z	23 10 30						
		P _E	23 10 31						
87	Aug. 3	S _N	23 11 52						
		S _Z	23 11 56						
		M _Z	23 12 16						
		M _N	23 12 26						
		M _E	23 12 27						
		eF	23 16 ±						
							+3		

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
88	Aug. 5	P	14	51	50						SE. New Guinea.
		eF	15	06	±						
89	Aug. 9	P _E	12	37	57						Near Bonin Island.
		P _N	12	37	58						
		eF	13	10	±						
90	Aug. 9	P _Z	14	41	53						Ditto.
		P _E	14	41	55						
		P _N	14	41	57						
		eF	15	40	±						
91	Aug. 11	P _N	1	03	15					5280	Southern part of Celebes Island.
		P _Z	1	03	19						
		eP _E	1	03	21						
		P _{R2N}	1	05	13						
		P _{R2Z}	1	05	16						
		S _E	1	09	18						
		S _N	1	09	21						
		S _Z	1	09	22						
		L _N	1	11	45						
		eF	1	36	±						
		*92	Aug. 16	P	16	38	51		+154.8		
S	16			39	01						
M _E	16			39	03	0.4	±451				
M _N	16			39	03	0.8		±600			
M _Z	16			39	03				±271		
eF	16			43	±						
93	Aug. 17	eP _E	13	11	46						In the ESE sea of Hatizyō I.
		P _{NZ}	13	11	46						
		S _N	13	13	21						
		eL _Z	13	14	37						
		eL _N	13	14	39						
		eF	13	24	±						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
94	Aug. 19	P _Z	20	32	58					664	In the Ariake Bay, Kagosima, Kyūsyū.
		P _N	20	33	01						
		eP _E	20	33	19						
		S	20	34	30						
		M _E	20	34	42		-3				
		M _{NZ}	20	34	59			-4	-4		
95	Aug. 20	eF	20	36	±						
		eP _E	12	04	25		-1.0			2760	Epicenter 14°10'N. 122°05'E. Considerable damage in Manila. Felt in S. Luzon and NW. Visayan Island, Philippine.
		eP _{NZ}	12	04	34			+2.5	+40		
		iP	12	04	40		-6.3	-16.0	-23.7		
		S _E	12	08	59						
		S _N	12	09	00						
		S _{M_E}	12	09	14		-196				
		S _{M_N}	12	09	23			+330			
		eL _N	12	09	38						
		eL _E	12	09	41						
		M _E	12	11	17	16.0	-134				
		M _N	12	11	51	18.0		-160			
		M _N ²	12	13	46	12.0		+150			
		M _N ³	12	16	01	20.0		-100			
		M _Z	12	16	01	15.5			-49		
M _E ²	12	18	36	17.0	-72						
M _N ⁴	12	18	47	12.0		-118					
M _Z ²	12	20	56	14.0			-42				
eF	13	24	±								
96	Aug. 20	P _Z	12	25	12						An after-shock of No. 95. Each phases masked by No. 95.
		P _N	12	25	16						
		P _E	12	25	17						
97	Aug. 21	P _{EN}	23	03	55						In the SE sea of Hatizyō I.
		eL _E	23	06	01						
		eL _N	23	06	49						
		eF	23	14	±						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
98	Aug. 26	P _Z	18	55	28					631	Southern part of the Hyūga-nada. Felt in all Kyūsyū.
		P _E	18	55	30						
		P _N	18	55	31						
		eS _{NZ}	18	56	45						
		eS _E	18	56	46						
		S _Z	18	56	51						
		S _N	18	56	55						
		S _E	18	56	57						
		M _N	18	57	08	2.9		+128			
		M _Z	18	57	08	2.5			+75		
M _E	18	57	20			-93					
eF	19	17	±								
99	Aug. 29	P _E	7	07	51					608	Ditto.
		eP _Z	7	07	53						
		eP _N	7	07	55						
		S _Z	7	09	10						
		S _N	7	09	12						
		S _E	7	09	13						
		M _E	7	09	21			+7			
		M _N	7	09	24	2.2		-12			
		M _Z	7	09	25				+5		
		eF	7	13	±						
100	Aug. 31	P _Z	14	21	48					3585?	Tibet, China.
		P _{EN}	14	21	52						
		eS _N	14	27	15						
		L _N	14	31	48						
		M _N	14	35	16	13.7		-28			
		M _Z	14	37	42	10.8			-4		
		M _E	14	37	46			+8			
		eF	15	03	±						
101	Sept. 3	P _Z	18	55	21					4035?	Aleutian Islands. 52°.5N. 177°.5W. (J.S.A.).
		P _N	18	55	22						
		P _E	18	55	23						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		S _Z	19	01	02						
		S _E	19	01	11						
		S _N	19	01	12						
		eL _N	19	04	12						
		eL _Z	19	06	11						
		eF	19	31	±						
102	Sept. 6	P _Z	16	03	56					425	Near the mouth of the Naka R., Ibaraki Prefecture. Felt in all Kwantō district.
		P _{EN}	16	03	57						
		S _N	16	04	53						
		S _E	16	04	55						
		eS _Z	16	04	56						
		M _N	16	05	23				-13		
		M _E	16	05	31			+4			
eF	16	11	±								
103	Sept. 15	eP _{NZ}	12	36	41					5660	Near Solomon Islands, SW. Pacific Ocean. * By Ōmori's Seismograph.
		eP _E	12	36	42			+6.5			
		iP _{NZ}	12	36	42				-11.2		
		S _E	12	43	58				-17.6		
		S _{NZ}	12	44	00						
		* L _E	12	49	59						
		* L _N	12	50	20						
		* M _E	12	53	23	22.8		+38			
		* M _N	12	54	36				+32		
		* M _N	12	56	57	22.5		+30			
* eF	13	18	±								
104	Sept. 21	eP _N	7	58	29						Near Tonking, French Indo-China.
		eS _N	8	05	52						
		eF	8	16	±						
105	Sept. 21	P _N	9	46	34						Felt in Celebes and Sangir Islands.
		P _Z	9	46	36						
		eP _E	9	46	40						
		S _N	9	52	01						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
106	Sept. 22	eF	10	14	±						
		P _N	3	16	35						Felt in eastern Visayas, Philippine.
		eS _N	3	21	08						
		eF	3	36	±						
107	Sept. 23	eP _Z	13	14	16						Near Solomon Islands, SW. Pacific Ocean.
		P _Z	13	14	20						
		P _{EN}	13	14	21						
		i _Z	13	14	28						
		i _N	13	14	30						
		i _E	13	14	31						
		SEN?	13	20	03						
		L _N	13	25	37						
		L _E	13	25	56						
		M _E	13	33	40		-7				
		M _N	13	33	54	14.6		-36			
		eF	14	18	±						
108	Sept. 25	P _{EN}	17	56	51					73	In the Ōsaka Bay.
		S _{EN}	17	57	01						
		M _{EN}	17	57	01		±3	±3			
		F	17	57	45						
109	Sept. 27	P	9	04	07		-6.5	-2.3	-11.7	5310	Central Java.
		S _Z	9	11	05						
		S _E	9	11	06						
		S _N	9	11	07						
		eF	9	49	±						
110	Sept. 28	P _Z	22	55	55					475	Near Yūki, Ibaraki Prefecture.
		P _{EN}	22	55	57						Moderate shocks were felt in Kwantō district.
		eS _Z	22	56	58						
		S _N	22	57	00						
		M _Z	22	57	11						
		M _N	22	57	14						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		M _E	22	57	23						
		eF	23	02	±						



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神戸市神戸區中山手通七丁目

印刷者 竹林正吉

印刷所 神戸市兵庫區湊町四丁目七六番地 巴堂印刷所



KŌBE JAPAN.

SEISMOLOGICAL BULLETIN

of the Imperial Marine Observatory and the Kōbe Meteorological Observatory of Japan.
 $\varphi=34^{\circ} 41' 18''N$ $\lambda=135^{\circ} 10' 51''E$ $h=58.3$ m. Underground: Diluvial Series.

Instrument: Ōmori's Seismograph. (Horizontal) Wiechert Seismograph. (Horizontal & Vertical) Wadati's Long-period Seismograph. (E-W)

Constants of this seismograph are as follows:-

T_0	20. ⁸⁰
ϵ	2.3
r/T_0^2	0.0002
V	850.....for $T=1^S$
	1000....." " $=5^S$
	750....." " $=10^S$
	500....." " $=20^S$

Where T is the period of earthquake oscillation.

This seismograph is principally made after Galitzin's instrument with horizontal pendulum of Zöllner's suspension, but the method of recording is different. It is devised to get seismograms on smoked paper by a mechanically recording galvanometer, by the aid of an amplifier both specially constructed for this purpose. About details for this seismograph see **K. Wadati** and **Z. Kawase**: On long-period Seismographs, Jour. Met. Soc. Japan II Ser. Vol. 14, No. 8 & Vol. 15, No. 10.

Oct.

	T_0	ϵ	$\frac{r}{T_0^2}$	V		T_0	ϵ	$\frac{r}{T_0^2}$	V
AE:	19.4		0.001	20	AE:	5.8	5	0.007	109
AN:	19.9		0.001	20	AN:	5.7	5	0.005	100
					AZ:	5.2	5	0.003	85

Nov.

	T_0	ϵ	$\frac{r}{T_0^2}$	V		T_0	ϵ	$\frac{r}{T_0^2}$	V
AE:	19.7		0.001	20	AE:	6.0	5	0.004	98
AN:	19.0		0.001	20	AN:	5.8	5	0.004	102
					AZ:	5.3	6	0.004	80

Dec.

	T_0	ϵ	$\frac{r}{T_0^2}$	V		T_0	ϵ	$\frac{r}{T_0^2}$	V
AE:	19.7		0.001	20	AE:	5.7	6	0.004	108
AN:	19.7		0.001	20	AN:	5.7	7	0.005	108
					AZ:	5.1	5	0.002	82

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			G.	M.	T.		A _E	A _N	A _Z		
271	Oct. 1	iE	h	m	s	18.5	μ	μ	μ	km.	A distant earthquake. South Pacific Ocean? By Wadati's Seismograph.
		ME	19	37	52		-1				
		eF	20	02	34		± 1				
272	Oct. 3	eP	20	53	\pm				354	Northern part of the Hyūga-nada, to the E of Miyazaki Prefecture.	
		eSz	20	38	42						
		eSE	20	39	28						
			20	39	30						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		S _N	20	39	33			-3			
		M _E	20	39	43	1.6	±5				
		M _{NZ}	20	39	48	1.6		+5	+3		
		eF	20	48	±						
273	Oct. 4	eP _N	10	39	13					293	In the NW sea of Nii-zima, to the S of the Izu Peninsula.
		eP _E	10	39	16						
		eS _{EN}	10	39	53						
		eM _E	10	39	57	2.1	±1				
		eM _N	10	40	06	1.9		±1			
		eF	10	45	±						
274	Oct. 4	iP _{NZ}	20	16	30			+2.1	+2.2	20	Near Iwaya, north end of Awazi Province.
		P _E	20	16	30		+1.8				Felt in the coast of the Akasi Channel.
		iS _{EN}	20	16	33		-13	-9			
		M _E	20	16	34	0.4	+49				
		M _N	20	16	34	0.5		-43			
		F	20	17	49						
275	Oct. 5	S _{EN}	18	02	36		-2	-1			In the Kii Channel.
		M _{EN}	18	02	36	0.6	±2	±1			
		F	18	02	41						
276	Oct 6	eP _E	17	13	07					5750	NW. Solomon Islands, SW. Pacific Ocean.
		eE	17	16	12						Disturbed by microseisms.
		eE	17	18	32						By Wadati's Seismograph.
		eS _E	17	20	30						
		eL ^Q _E	17	23	55	30.0	-8				
		M _E	17	31	43	15.5	±5				
		eF	18	21	±						
277	Oct. 6	eE	22	26	02						Local shock.
		eN	22	26	03						
		M _E	22	26	05	0.8	+5				
		M _N	22	26	05	1.1		±2			
		F	22	26	10						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
278	Oct. 10	eE	4	27	06						Kurile Islands.
		M _E	4	33	11	16.0	±3				By Wadati's Seismograph.
		eF	4	49	±						
279	Oct. 10	eL _E	8	57	00						A distant earthquake.
		M _E	8	59	42	16.0	±2				Ditto?
		eF	9	06	±						By Wadati's Seismograph.
280	Oct. 10	eP _N	16	36	17					188	Near Ōsima, mouth of the Hiroshima Bay, Inland sea.
		eP _Z	16	36	18						
		eP _E	16	36	19						
		eE	16	36	35						
		S _N	16	36	42			+3			
		eS _Z	16	36	42						
		S _E	16	36	43		+4				
		M _E	16	36	49	0.8	-4				
		M _N	16	36	50	0.7		±4			
		M _Z	16	36	50	0.9			±3		
		eF	16	41	±						
281	Oct. 11	eE	17	14	03						In the E sea of the Nosy-ppu Cape, felt in SE. Hokkaidō.
		M _E	17	16	23	19.5	±2				By Wadati's Seismograph.
		eF	17	26	±						
282	Oct. 12	P _Z	12	35	54					116	Near Yokkaiti, Mie Prefecture.
		iP _N	12	35	55			-1.5			
		eP _E	12	35	55						
		eE	12	36	07						
		S _N	12	36	10			-2			
		eS _Z	12	36	10						
		M _E	12	36	11	1.5	+5				
		M _Z	12	36	11	0.8			+2		
		F	12	37	19						
283	Oct. 14	eE	18	23	14						Local shock.
		F	18	23	40						Very small movement.



No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
284	Oct. 15	ePE	0	36	17						Ditto.
		eME	0	36	21	0.5	±2				
		F	0	36	55						
285	Oct. 17	iPz	4	48	19				+4.8	630	In the SE sea of the Inubō Cape, 35°5N. 141°0E. Moderate shocks were felt in southeastern part of Kwantō district.
		PEN	4	48	20		-3.1	+2.5			
		iE	4	48	35						
		iN	4	48	36						
		iE	4	49	16		-75				
		iSz	4	49	27					-60	
		iSN	4	49	28				-143		
		Mz	4	49	56	3.3				+280	
		ME	4	49	51	4.0	+390				
		MN	4	50	00	3.9		+400			
eF	5	15	±								
286	Oct. 17	ePN	13	34	02					640	An after-shock of No. 285.
		ePE	13	34	03						
		SN	13	35	13						
		SE	13	35	14						
		ME	13	35	26	1.8	+15				
		MNZ	13	35	32	3.1		+20	±10		
		eF	13	44	±						
287	Oct. 17	eP	19	10	21					670	Ditto.
		S	19	11	34		+3	-3	-4		
		Mz	19	11	58	2.7				-8	
		ME	19	12	01	1.9	-10				
		MN	19	12	12	2.7		+10			
		eF	19	21	±						
288	Oct. 22	eLE	16	40	00						Felt in N. Sumatra. By Wadati's Seismograph.
		ME	16	45	15	18.0	±2				
		eF	16	58	±						
289	Oct. 23	ePEZ	3	03	04						In the SE sea of Hatizyō I.

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks		
			G.	M.	T.		A _E	A _N	A _Z				
			h	m	s	s	μ	μ	μ	km.			
		ePN	3	03	08								
		eSE	3	03	44								
		eSN	3	03	45								
		Sz	3	03	48						+4		
		MN	3	03	56	1.7			-4				
		ME	3	04	17	2.6	-10						
290	Oct. 23	eE	3	12	15						Ditto. Faint record.		
		eN	3	12	57								
		eF	3	17	±								
*291	Oct. 23	Pz	23	09	54						20	Perceptible. Near Iwaya, north end of Awazi Province. Felt in southern coast of Hyōgo Prefecture.	
		PEN	23	09	55								
		iSEN	23	09	57		+12	+6					
		iSz	23	09	58						-29		
		ME	23	09	58	0.7	+42						
		MN	23	09	58	0.5			-57				
292	Oct. 25	Mz	23	09	58	0.6					-48		
		F	23	10	58								
		ePE	23	25	09							2410	Kamchatka.
		ePz	23	25	14								
eSz	23	29	12										
eF	23	39	±										
293	Oct. 26	eE	13	05	57							A distant and deep focus earthquake? By Wadati's Seismograph.	
		eSE?	13	10	54								
		ME	13	15	36	16.0	±1						
294	Oct. 27	eF	13	20	±								
		Sz	11	35	55						+1	Local shock.	
eSEN	11	35	56										
Mz	11	35	56	0.5					-3				
MN	11	35	57	0.4			±1						
ME	11	35	59	0.3	-3								

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
295	Oct. 29	F	11	36	27						
		eE	4	17	27						Ditto.
		SE	4	17	29		+2				
		ME	4	17	31	0.4	+3				
296	Nov. 1	F	4	18	04						
		eE	4	44	19						Ditto.
		eME	4	44	22	0.5	± 1				Very small movement.
297	Nov. 1	F	4	44	28						
		eN	21	58	30						Ditto.
		eE	21	58	31						
		ME	21	58	35	0.8	+3				
		MN	21	58	35	0.6		+2			
298	Nov. 2	F	21	58	39						
		ePz?	11	05	07						Near New Guinea?
		ePE?	11	05	08						
		ePN?	11	05	21						
		eSE	11	09	17						
		eSN	11	09	18						
		eSz	11	09	23						
		Mz	11	17	31	20.0			± 1		
		ME	11	18	18	16.0	± 1				
299	Nov. 3	eF	11	35	\pm						
		eZ	4	06	21						Local shock.
		eN	4	06	23						
		SN	4	06	25			+1			
		MN	4	06	28	1.0		± 2			
		Mz	4	06	29	0.8			± 1		
300	Nov. 9	F	4	06	51						
		ePN?	1	18	44						Near Noziri, middle basin of the Ōyodo R., Miyazaki Pre-
		eN	1	18	45						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks	
			G.	M.	T.		A _E	A _N	A _Z			
			h	m	s	s	μ	μ	μ	km.		
301	Nov. 12	eEN	1	18	46	0.7	± 2	-4				fecture.
		F?	1	18	54							Disturbed by microseisms.
		ePz	17	11	06							In the E sea of Hatizyō I.
		eZ	17	12	59							Very faint record.
302	Nov. 13	eF	17	21	\pm							
		ePE	10	01	03							In the NE distant sea of New-Zealand.
		eE	10	06	52							By Wadati's Seismograph.
		iE	10	12	38							
		eE	10	17	21							
303	Nov. 14	ME	10	36	11	18.5	± 1					
		eF	11	35	\pm							
		ePz	11	06	57						7015	Pamir, 37°3N. 72 °E.
		iPz	11	06	59					+12		Destructive in NW. India.
		iPEN	11	07	00		+5	-2				Deep focus type.
		PMz	11	07	08	4.1	-28					
		PMz	11	07	04	3.7					-25	
		SN	11	15	26			+11				
		Sz	11	15	27					+6		
		SE	11	15	29		+20					
304	Nov. 14	SMz	11	15	43	6.6	+32					
		SMN	11	15	44	6.8		+90				
		SMz	11	16	00	6.6					-17	
		eN	11	18	53							
		eE	11	19	03							
		eZ	11	19	17							
		MN	11	30	58	15.0		± 9				
		ME	11	32	25	13.0	± 8					
		Mz	11	33	03	13.0					± 9	
		eF	12	13	\pm							
304	Nov. 14	ePz	23	55	55							In the Bashee Channel, to the S of Formosa.
		ePE	23	55	57							
		ePN	23	55	59							

No	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					A _E μ	A _N μ	A _Z μ		
305	Nov. 15	eE	23 59 03	13.5	± 5			5035?	Western part of Tibet. 34°.5N. 77°.5E., According to Bombay report.
		eN	23 59 04						
		eZ	23 59 17						
		ME	0 21 41						
		eF	0 35 ±						
		Pz	21 45 50						
		PN	21 45 51						
		PE	21 45 52						
		eSE	21 52 34						
		eSZ	21 52 36						
306	Nov. 18	SN	21 52 37	15.5	± 23			4540	A distant earthquake.
		MN	22 04 01						
		MZ	22 07 14						
		ME	22 07 58						
		eF	22 29 ±						
		ePE	2 55 48						
		ePz	2 55 50						
		ePN	2 55 55						
		eSE	3 02 05						
		eSZ	3 02 07						
307	Nov. 18	eF	3 24 ±	0.8	+42			96	In the S sea of the Hino- misaki, 33°.7N. 135°.1E. Weak shocks were felt in the coast of the Kii Channel.
		iPN	12 54 20						
		PE	12 54 20						
		iPz	12 54 21						
		iSEN	12 54 32						
		iSZ	12 54 33						
		MN	12 54 34						
		MEZ	12 54 35						
		iN	12 55 43						
		eE	12 56 28						
308	Nov. 21	eF	13 06 ±	2.6	-38			18	In the Kitan Strait.
		ePE	7 00 38						

No	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					A _E μ	A _N μ	A _Z μ		
309	Nov. 22	PN	7 00 38	0.4	-8			274	Near Kyōto City, 35°.1N. 135°.7E. Focal depth about 270km.
		iPz	7 00 38						
		sSEN	7 00 41						
		Sz	7 00 41						
		MEZ	7 00 42						
		MN	7 00 42						
		F	7 01 03						
		iP	4 53 51						
310	Nov. 22	PMEN	4 53 52	2.2	-16			248	Near Komagatake, Kai Pro- vince. 35°.46'N. 138°.15'E. Felt in Tyūbu and Kwantō districts.
		iSEN	4 54 28						
		Sz	4 54 28						
		eF	5 03 ±						
		iPEN	17 40 02						
		Pz	17 40 02						
		iSEZ	17 40 36						
		SN	17 40 37						
311	Nov. 23	MZ	17 40 44	0.6	± 2				Local shock.
		M ¹ N	17 40 46						
		ME	17 40 51						
		M ² N	17 41 48						
		eF	17 59 ±						
		eE	4 51 44						
		ME	4 51 46						
		F	4 51 52						
312	Nov. 23	eN	6 54 15	0.8					Ditto.
		eE	6 54 17						
		ME	6 54 18						
		MN	6 54 18						
		F	6 54 21						
		ePE?	11 36 35						
313	Nov. 23	ME	11 36 38	0.4	± 1				Near Wakayama City.

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
314	Nov. 26	F	11	36	43						
		eP _Z	10	48	46					1860	In the S sea of Yonakuni Island, S. Ryūkyū Is. Felt in SW. Ryūkyū & all Formosa.
		eP _N ?	10	48	54						
		eP _E ?	10	48	56						
		eS _{NZ}	10	51	57						
		eM _E	10	53	02	5.9	±3				
		eM _Z	10	53	16	6.6			±2		
		eF	11	11	±						
315	Nov. 26	eP _Z	15	37	53					680?	Near the Inubō Cape, Tiba Prefecture. 35°.7N. 141°.0E. Felt in Kwantō district.
		eP _{EN}	15	37	54						
		e _N	15	38	48						
		e _E	15	38	51						
		e _Z	15	38	55						
		eS _Z ?	15	39	08						
		M _E	15	39	27	2.6	-22				
		M _Z	15	39	31	2.2			-13		
M _N	15	39	38	2.9		+28					
eF	15	55	±								
316	Nov. 28	P _Z	5	32	53					5510	To the west of Sumatra, 2°.0S. 96°.6E., According to Bombay report.
		eP _N	5	32	53						
		eP _E	5	32	56						
		eS _Z	5	40	03						
		eS _{EN}	5	40	04						
		M _E	5	57	22	15.0	±11				
		M _Z	5	57	53	15.0			±7		
		M _N	5	57	59	15.0		±13			
eF	6	24	±								
317	Nov. 28	eP _E ?	14	35	17						Near the Arita R., Wakayama Prefecture.
		S _{M_E}	14	35	19		-1				
		F	14	35	28						
318	Nov. 28	e _N	22	43	16					Near Wakayama City.	

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		e _E	22	43	16						Very small movement.
		S _N	22	43	17						
		M _N	22	43	17	0.3		-2			
		M _E	22	43	18	0.5	-1				
		F	22	43	22						
319	Nov. 30	eP _Z	0	49	21					5600	Southern part of the Bengal Bay.
		eP _N	0	49	23						
		eP _E	0	49	25						
		eS _N	0	56	36						
		eS _E	0	56	39						
		eS _Z	0	56	41						
		M _E	1	11	58	20.5	±20				
		M _Z	1	12	19	19.0			±6		
M _N	1	16	46	17.5		±8					
eF	1	24	±								
320	Nov. 30	e _E	13	48	39						Southern part of Ethiopia.
		e _N	13	49	47						
		M _N	13	52	43	19.5		±11			
		M _E	13	52	54	20.5	±13				
		eF	14	06	±						
321	Dec. 1	eP _Z	2	50	08						Near the Inubō Cape, Tiba Prefecture.
		eP _N	2	50	12						
		S _{NZ}	2	50	56			-5	-5		
		M _Z	2	50	59	2.3			±9		
		M _E	2	51	00	2.2	+12				
		M _N	2	51	00	3.0		±9			
		eF	2	56	±						
322	Dec. 4	P _Z	2	04	25					94	In the near sea of the Hino-misaki, Kii Channel.
		eP _N	2	04	26						
		eP _E	2	04	28						
		iS _{EZ}	2	04	38		+7		+2		
		S _N	2	04	38			+2			

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
323	Dec. 6	Mz	2	04	38	0.3			± 3		
		ME	2	04	39	0.8	-13				
		F	2	06	32						
		PE	4	35	44					860	In the ESE distant sea of the Inubō Cape, Tiba Prefecture.
		Pz	4	35	45						
		iSz	4	37	15				+16		
		iSN	4	37	16				+22		
		iSE	4	37	18			-25			
		MN	4	37	55	6.7			+43		
		Mz	4	38	29	9.9			+85		
ME	4	38	39	9.0	+135						
eF	5	07	\pm								
324	Dec. 7	ePE	2	31	20					45	
		Pz	2	31	20				+1.0		
		PN	2	31	22						
		SM _E	2	31	26	0.4	-3				
		SN	2	31	26				-1		
		eSz	2	31	26						
		MN	2	31	26	0.5			+2		
		F	2	32	06						
325	Dec. 8	ePz	8	36	12					2020	In the NE sea of Taitō, 22°.9N. 121°.5E. Small damage in the coast of northeastern part of Taitō-chō, Formosa. Felt in all Formosa and SW. Ryūkyū Islands.
		ePN	8	36	13						
		ePE	8	36	14						
		eSz	8	39	39						
		SE	8	39	39			-11			
		SN	8	39	47				+10		
		eLz	8	41	46						
		eLN	8	41	47						
		eLE	8	43	00						
		MN	8	44	47	13.5			+110		
ME	8	46	38	16.0	+80						
Mz	8	46	41	18.0				-77			
eF	9	27	\pm								

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
326	Dec. 8	eE	17	09	42						An after-shock of No. 325. By Wadati's Seismograph.
		ME	17	12	46	15.0	± 1				
		eF	17	20	\pm						
327	Dec. 8	eE	20	45	22						
		MN	20	50	25	14.0		± 10			
		ME	20	53	29	16.5	± 10				
		eF	21	07	\pm						
328	Dec. 10	ePN	13	30	16					660	In the ESE sea of the Inubō Cape, Tiba Prefecture.
		ePz	13	30	18						
		ePE	13	30	19						
		SN	13	31	28				-4		
		eSz	13	31	33						
		SE	13	31	36			-10			
		ME	13	33	13	9.1	+135				
		Mz	13	33	38	10.5			-90		
329	Dec. 13	MN	13	34	13	11.0		-100			
		eF	14	36	\pm						
		ePE	9	08	52					70	Near the Arita River, Wakayama Prefecture.
		Pz	9	08	52				+0.7		
		ePN	9	08	53						
		SE	9	09	01			+2			
iSz	9	09	01					+1			
MN	9	09	03	0.3		+3					
330	Dec. 13	ME	9	09	03	0.6		-4			
		F	9	09	44						
		P	18	58	02		(+)	-1	+1	2120	In the SE sea of Taitō, 22°.7N. 121°.2E. Felt in all Formosa.
		iPEz	18	58	04		-3		-3		
		iPN	18	58	05				-2		
		SEN	19	01	36		-10	-10			
		Sz	19	01	37					-11	
eLz	19	03	55								
eLE	19	04	45								

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		eLN	19	04	53						
		MZ	19	06	29	15.5			±33		
		ME	19	07	41	11.5	-33				
		MN	19	08	59	13.0		±30			
		eF	19	52	±						
331	Dec. 14	ez	7	18	15						In the Amakusa-nada, Kyūsyū. Faint record.
		eE	7	19	04						
		eME	7	20	16	4.2	±2				
		eF	7	26	±						
332	Dec. 15	ePN	13	54	06					37	Near Syūzan, Kyōto Prefecture.
		Sz	13	54	09					-1	
		SEN	13	54	11		+2	-1			
		MN	13	54	14	0.5		±2			
		F	13	54	49						
333	Dec. 16	iP	9	37	01		+9.0	+1.5	-14.0	322	In the SSE sea of the Nozima-zaki, Tiba Prefecture. 34°.3N. 140°.1E. Moderate shocks were felt in the Pacific coast of Kwantō district.
		iSNZ	9	37	44			+8	-7		
		iSE	9	37	45			-14			
		MZ	9	38	01	2.3			±12		
		ME	9	38	00	1.4	+90				
		MN	9	38	31	4.2		+25			
		eF	9	58	±						
334	Dec. 16	ePE	18	30	07					2510	Philippine.
		ePN	18	30	09						
		ePz	18	30	11						
		eSz	18	34	11						
		eSN	18	34	13						
		eSE	18	34	20						
		eF	18	48	±						
335	Dec. 17	eP	9	36	19					1900	An after-shock of No. 325. Felt in all Formosa.
		eSz	9	39	32						
		eSEN	9	39	33						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		eLE	9	40	55						
		eLN	9	41	40						
		Lz	9	41	49						
		MN	9	43	47	16.0		+60			
		Mz	9	46	32	15.5				±33	
		ME	9	46	49	18.0	±40				
		eF	10	22	±						
336	Dec. 18	eE	13	42	59						Turkestan.
		ez	13	43	06						
		ez	12	45	00						
		eLE	13	45	17						
		ME	13	49	37	13.0	±13				
		Mz	13	50	12	15.0			±10		
		eF	14	03	±						
337	Dec. 23	ePE	13	32	14						In the W sea of Guatemala, Central America. 16°.6N. 98°.W. (J.S.A.).
		ePz	13	32	21						
		ez	13	36	46						
		eN	13	43	54						
		ez	13	43	55						
		eE	13	44	05						
		Mz?	14	10	54	25.5			±20		
		ME?	14	18	27	17.5	±33				
		MN?	14	23	52	20.5		±30			
		eF	15	29	±						
338	Dec. 25	eSE?	10	06	27	14.0	±1				A distant earthquake. Disturbed by microseisms.
		eN	10	11	28						
		eN	10	12	02						
		eE	10	12	15						
		MN	10	13	23	9.8		±6			
		ME	10	13	25	7.6	±5				
		Mz	10	13	37	11.5			±8		
		eF	10	19	±						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
339	Dec. 25	ePz	13	53	15					333	Southern part of the Bungo Channel. Felt in Kyūsyū and western part of Sikoku districts.
		ePEN	13	53	17						
		iPN	13	53	17			-4			
		iE	13	53	47		+25				
		iN	13	53	49			+30			
		iSz	13	54	00				-25		
		iSEN	13	54	01		+60	+33			
		Mz	13	54	04	3.0			-33		
		ME	13	54	07	3.1	+103				
		MN	13	54	17	3.3		+53			
		iE	13	55	19	2.8	-38				
		iz	13	55	21	2.8			+33		
		iN	13	55	22	2.7		+38			
eF	14	23	±								

From No. 283, to No. 346, 1937.

SUMOTO JAPAN.

SEISMOLOGICAL BULLETIN

A Branch Station of the Kōbe Meteorological Observatory of Japan.
 $\varphi=34^{\circ} 21'$ $\lambda=134^{\circ} 53'$ $h=109.0$ m. Underground: Cretaceous.

Instrument: Omori's Seismograph.
(Horizontal)

Wiechert Seismograph.
(Horizontal & Vertical)

Oct.

	T_0	ϵ	$\frac{r}{T_0^2}$	V
A _E :	16.4	2.4	0.0002	20
A _N :	18.5	3.9	0.0003	20

	T_0	ϵ	$\frac{r}{T_0^2}$	V
A _E :	4.5	Aperiodic	0.001	99
A _N :	4.7	"	0.002	98
A _Z :	3.7	"	0.004	73

Nov.

	T_0	ϵ	$\frac{r}{T_0^2}$	V
A _E :	17.1	4.1	0.0002	20
A _N :	19.7	2.9	0.0003	20

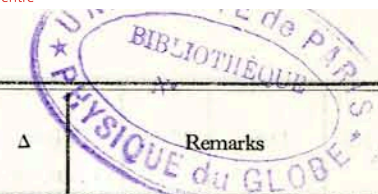
	T_0	ϵ	$\frac{r}{T_0^2}$	V
A _E :	4.6	Aperiodic	0.001	97
A _N :	4.7	"	0.001	100
A _Z :	3.8	"	0.003	72

Dec.

	T_0	ϵ	$\frac{r}{T_0^2}$	V
A _E :	16.5	3.2	0.0002	20
A _N :	19.7	2.2	0.0003	20

	T_0	ϵ	$\frac{r}{T_0^2}$	V
A _E :	4.5	Aperiodic	0.002	103
A _N :	4.5	"	0.001	101
A _Z :	4.3	"	0.001	73

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
283	Oct. 2	e	6	17	05					25	Wakayama. $\Delta=9$ km. Period Amp.
		M _N	6	17	05	0.8		-1.0			
		M _E	6	17	09	1.0	+1.0				
		F	6	17	54						
Blast shock at a quarry near Tanigawa, SW end of Ōsaka Prefecture; 6000 kilogrammes of carlit (a kind of bursting charge) were used.											



No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
284	Oct. 3	ePNZ	20	38	17					440	Northern part of the Hyūganada, to the E of Miyazaki Prefecture.
		ePE	20	38	20						
		eSN	20	39	16						
		eSEZ	20	39	18						
		MZ	20	39	34	1.9			-3		
		ME	20	39	35	2.1	-4				
		MN	20	39	39	1.9		+4			
		eF	20	45	±						
285	Oct. 4	P	20	16	33					28	Near Iwaya, north end of Awazi Province. Felt in the coast of the Akasi Channel.
		S	20	16	37						
		MEN	20	16	37	0.4	+3	-6			
		MZ	20	16	38	0.4			-3		
		F	20	17	32						
286	Oct. 5	S	18	02	24						In the Kii Channel.
		ME	18	02	24		+1				
		MN	18	02	25	0.3		-2			
		F	18	03	04						
287	Oct. 10	P	16	36	09					184	Near Ōsima, mouth of the Hiroshima Bay, Inland Sea.
		S	16	36	33						
		MN	16	36	39	0.8		-8			
		ME	16	36	40	1.0	+8				
		MZ	16	36	41	1.3			+6		
		F	16	39	29						
288	Oct. 17	iP	4	48	23		-3.0	-1.0	+2.7	499	In the SE sea of the Inubō Cape, 35°.5N. 141°.0E. Moderate shocks were felt in southeastern part of Kwantō district.
		SEN	4	49	30						
		SZ	4	49	31						
		LE	4	49	48						
		MZ	4	50	03	4.3			+82		
		MN	4	50	14	4.2		+119			
		ME	4	50	34	3.0	-98				
		eF	5	12	±						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
289	Oct. 17	PN	13	34	11					502	An after-shock of No. 288.
		PE	13	34	16						
		eSEN	13	35	21						
		MN	13	35	45	2.7		-12			
		ME	13	36	07	3.0	-11				
		eF	13	41	±						
290	Oct. 17	ePN	19	10	50					518	Ditto.
		ePE	19	10	53						
		SN	19	12	00						
		SE	19	12	02						
		ME	19	12	09	2.5	-4				
		MN	19	12	10	2.4		+4			
291	Oct. 19	P	2	24	54					28	Near Wakayama City.
		S	2	24	57						
		MEN	2	24	58	0.4	+5	-12			
		MZ	2	24	58	0.5			-3		
		F	2	26	03						
292	Oct. 23	ePE	3	03	00					380	In the SE sea of Hatizyō I.
		ePN	3	03	04						
		ePz	3	03	10						
		SN	3	03	51						
		SE	3	03	53						
		Sz	3	04	03						
		MN	3	04	05	2.7		+4			
		MZ	3	04	09	2.3			±1		
		ME	3	04	14	2.1	-4				
		eN	3	04	53						
293	Oct. 23	F	3	12	39						
		ePz	3	12	36					322	Ditto.
		ePE	3	12	39						
ePN	3	12	40								

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					A _E μ	A _N μ	A _Z μ		
294	Oct. 23	eSE	3 13 22					44	Near Iwaya, north end of Awazi Province. Felt in southern coast of Hyōgo Prefecture.
		eSN	3 13 23						
		ME	3 13 38	1.9	±1				
		MN	3 13 40	2.3		+1			
		MZ	3 13 43	1.9		±1			
		eF	3 18 ±						
295	Oct. 25	P	23 09 57		-1.0	+1.0	-2.1	2510	Kamchatka.
		S	23 10 03						
		MEZ	23 10 04	0.4	+15		+3		
		MN	23 10 04	0.3			-11		
		F	23 11 26						
296	Oct. 26	ePE	23 25 14					22	Near Wakayama City
		ePN	23 25 17						
		iPE	23 25 24						
		iPN	23 25 25						
		iPz	23 25 26						
		eSE	23 29 21						
		eSN	23 29 22						
		eSz	23 29 25						
eF	23 49 ±								
297	Oct. 29	P	13 57 46					32	Near the Arita River, Wakayama Prefecture.
		S	13 57 49						
		MEN	13 57 50	0.4	-3	-4			
		MZ	13 57 50				±1		
		F	13 58 22						
298	Oct. 30	eP	13 17 06					32	Near Wakayama City.
		S	13 17 10						
		MEN	13 17 10	0.4	-3	±2			
		MZ	13 17 10				±1		
		F	13 17 47						

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					A _E μ	A _N μ	A _Z μ		
299	Nov. 2	ME	22 32 13		±1			28	Ditto.
		MN	22 32 13	0.4		±2			
		F	22 32 25						
300	Nov. 9	ePEN	0 38 28					28	Near Noziri, middle basin of the Ōyodo River, Miyazaki Prefecture. Irregular record.
		SEN	0 38 32						
		MN	0 38 33	0.4		-2			
		ME	0 38 33		+2				
		F	0 39 00						
301	Nov. 9	P	1 18 40					28	Near Wakayama City.
		PMEN	1 18 41	0.4	-1	±1			
		eEN	1 19 19						
		SEN?	1 19 25						
		SMN	1 19 27	0.4		±2			
302	Nov. 13	SME	1 19 28	0.4	±1			28	Near Siga, Wakayama Prefecture.
		F	1 20 16						
		S	13 36 43						
		MEN	13 36 44	0.4	-3	+3			
303	Nov. 14	MZ	13 36 44				±1	7090	Pamir, 37°3N. 72°0E. Destructive at NW. India.
		F	13 37 12						
		ePEN	0 07 54						
		S	0 07 58						
304	Nov. 14	ME	0 07 58	0.4	+4			28	Near Siga, Wakayama Prefecture.
		MNZ	0 07 59	0.4		-2	±1		
		F	0 08 33						
		iPEN	11 06 58		+4.1	-2.0			
		iPz	11 06 59				+0.7		
305	Nov. 14	e	11 07 55					28	Near Siga, Wakayama Prefecture.
		eSz	11 15 28						
		SN	11 15 32						
		SE	11 15 36						
		MN	11 15 41	9.4		+32			
306	Nov. 14	MEZ	11 15 44	5.7	-31		+4	28	Near Siga, Wakayama Prefecture.

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
304	Nov. 14	eF	12	09	±						
		eN	23	55	55						The Bashee Channel.
		eE	23	55	57						In the S sea of Formosa.
		eZ	23	55	58						
		eSEN	23	56	10						
305	Nov. 18	eF	0	02	±						
		e	2	55	54						A distant earthquake.
306	Nov. 18	eP	8	56	04						
		S	8	56	09						
		MEZ	8	56	10		±1		±1		
		MN	8	56	11	0.3		-2			
		F	8	56	57						
*307	Nov. 18	iP	12	54	16					72	Perceptible.
		iS	12	54	26						In the S sea of the Hino-
		ME	12	54	26	0.4	+34				misaki, 33°.7N. 135°.1E.
		MZ	12	54	26	0.6			-22		Weak shocks were felt in
		MN	12	54	27	0.5		+44			the coast of the Kii Channel.
308	Nov. 18	eP	16	45	06					78	In the Kii Channel.
		S	16	45	17						
		ME	16	45	17	0.6	-4				
		MN	16	45	17	0.4		±5			
		MZ	16	45	17				±3		
		F	16	45	55						
309	Nov. 20	SEN	1	38	36						Local shock.
		MEN	1	38	36		±1	±1			
		F	1	38	54						
310	Nov. 20	SEN	2	15	49						In the Ariake Bay, Kyūsyū.

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
311	Nov. 21	MN	2	15	51	0.4		±1			
		ME	2	15	51	0.3	±1				
		F?	2	16	13						
311	Nov. 21	eP	7	00	40					34	In the Kitan Strait.
		S	7	00	45						
		MEZ	7	00	45		±1		±1		
		MN	7	00	45	0.4		-2			
		F	7	01	24						
312	Nov. 22	iP	4	53	52		+7.2	+5.0	-11.1	280	Near Kyōto City.
		PMZ	4	53	53	1.2			+15.2		35°.1N. 135°.7E.
		PMZ	4	53	55	0.7	+8.0				Focal depth about 270km.
		PMN	4	53	58	1.0		-8.2			
		iS	4	54	30						
		MN	4	54	31	1.2		+10			
		MZ	4	54	31	2.3			-4		
313	Nov. 22	ME	4	54	32	2.0	-12				
		eF	4	58	±						
		ePz	17	40	06					337	Near Komagatake, Kai Pro-
		PE	17	40	08						vince. 35°.46'N. 138°.15'E.
		ePN	17	40	10						Felt in Tyūbu and Kwantō
		ez	17	40	13						districts.
313	Nov. 22	SNZ	17	40	53						
		SE	17	40	54						
		ME	17	40	57	2.4	+33				
		MZ	17	40	57	2.2			-31		
		MN	17	40	59	2.0		+43			
		eF	17	53	±						
314	Nov. 23	ePEN	11	36	20					29	Near Wakayama City.
		SEN	11	36	24						
		MN	11	36	25	0.4		-2			
		ME	11	36	26	0.3	+1				
		F	11	36	55						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
315	Nov. 24	eP	5	26	38						Ditto.
		S	5	26	39						
		M _E	5	26	39	0.4	+2				
		M _N	5	26	39	0.3		-2			
		M _Z	5	26	39				± 1		
		F	5	27	07						
316	Nov. 26	eP _N	10	48	37					1840	In the S sea of Yonakuni Island, southern part of Ryūkyū Islands. Felt in SW. Ryūkyū Is. and all Formosa.
		eP _{EZ}	10	48	40						
		eS _E	10	51	46						
		S _N	10	51	48						
		M _N	10	52	07	8.4		+2			
		M _E	10	54	31	5.7	± 2				
		eF	11	08	\pm						
317	Nov. 26	P	15	38	02					640	Near the Inubō Cape, Tiba Prefecture. 35°.7N. 141°0E. Felt in Kwantō district.
		S _{NZ}	15	39	27						
		S _E	15	39	31						
		M _E	15	39	34	3.3	-8				
		M _Z	15	39	35	3.4			-6		
		M _N	15	39	38	2.4			-12		
		eF	15	53	\pm						
318	Nov. 28	P	5	32	54					5400	In the W sea of Sumatra.
		eS _{EN}	5	39	57						
		e _N	5	52	07						
		e _E	5	52	11						
		e _Z	5	57	01						
		M _N	5	57	42	13.0		± 7			
		M _E	5	59	59	11.9	± 6				
				eF	6	20	\pm				
319	Nov. 28	eE _N	9	27	10						Near Gobō, Wakayama Prefecture.
		S	9	27	13						
		M _E	9	27	13		± 1				
		M _N	9	27	13	0.3		+1			

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks	
			G.	M.	T.		A _E	A _N	A _Z			
			h	m	s	s	μ	μ	μ	km.		
320	Nov. 28	F	9	27	39						44	Near the Arita River, Wakayama Prefecture.
		P	14	35	01							
			14	35	07							
		M _{EN}	14	35	08	0.4	-2	-2				
		M _Z	14	35	10				± 1			
		F	14	35	43							
321	Nov. 28	P	22	43	06						28	Near Wakayama City.
		S	22	43	09							
		M _{EN}	22	43	10	0.4	-2	+2				
		M _Z	22	43	12				± 1			
		F	22	43	32							
322	Nov. 30	eP	15	38	25						30	Ditto.
		S	15	38	29							
		M _E	15	38	29	0.5	-2					
		M _Z	15	38	29				± 1			
		M _N	15	38	30	0.4		-2				
		F	15	38	55							
323	Dec. 1	eP _E	2	50	08						433	Near the Inubō Cape, Tiba Prefecture.
		eP _N	2	50	10							
		eP _Z	2	50	11							
		eS _E	2	51	05							
		eS _N	2	51	10							
		M _N	2	51	25	2.6		-4				
		M _E	2	51	32	3.3	-3					
		M _Z	2	51	40	2.1			± 1			
		eF	2	58	\pm							
324	Dec. 4	iP	2	04	20		+10	-2.5	-2.7		69	In the near sea of the Hinomisaki, Kii Channel.
		iS	2	04	29							
		M _E	2	04	29	0.5	-8					
		M _{NZ}	2	04	30	0.4		-9	± 3			
		F	2	05	46							

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
325	Dec. 6	eP _N	4	35	36					570	In the ESE distant sea of the Inubō Cape, Tiba Prefecture.
		P _Z	4	35	43						
		P _E	4	35	45						
		eS _N	4	36	57						
		eS _Z	4	36	58						
		eS _E	4	36	59						
		eL _N	4	37	41						
		eL _E	4	37	51						
		M _N	4	38	08	3.1		+23			
		M _Z	4	38	15	8.1			-18		
M _E	4	38	46	8.3	-29						
eF	5	03	±								
326	Dec. 6	P	23	58	54					19	Local shock.
		S	23	58	56						
		M _E	23	58	56	0.2	+3				
		M _N	23	58	56	0.4		-4			
		M _Z	23	58	57				±1		
		F	23	59	27						
327	Dec. 7	P	2	30	59					87	In the Kii Channel.
		S	2	31	11						
		M _E	2	31	12	0.7	+3				
		M _Z	2	31	12	1.0			-3		
		M _N	2	31	12	0.4		-5			
		F	2	32	10						
328	Dec. 7	S _{EN}	16	18	07						Near Siga, Wakayama Prefecture.
		M _N	16	18	08	0.4		-1			
		M _E	16	18	09	0.8	-1				
		F	16	18	36						
329	Dec. 8	P _Z	8	36	05				+?	1980	In the NE sea of Taitō, 22°.9N, 121°.5E. Small damage in the coast of northeastern part of Taitō-chō, Formosa.
		P _{EN}	8	36	08		-1.0	-1.0			
		S _E	8	39	27						
		S _N	8	39	31						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks	
			G.	M.	T.		A _E	A _N	A _Z			
			h	m	s	s	μ	μ	μ	km.		
330	Dec. 10	eZ	8	40	55						Felt in all Formosa and SW. Ryūkyū Is.	
		L _E	8	43	12							
		L _N	8	44	13							
		L _Z	8	44	15							
		M _E	8	44	28	13.3	-188					
		M _N	8	44	31	13.7		-200				
		M _Z	8	44	40	13.5			+114			
		eF	9	30	±							
		eP _Z	13	30	23					784		In the ESE sea of the Inubō Cape, Tiba Prefecture.
		P _{EN}	13	30	24		+1.0	+1.0				
S _{EN}	13	32	09									
eS _Z	13	32	10									
L _E	13	32	52									
L _Z	13	32	59									
L _N	13	33	10									
M _E	13	33	02	12.4	-106							
M _N	13	33	39	11.2		-111						
M _Z	13	33	47	13.0			+88					
eF	14	06	±									
331	Dec. 11	e _N	13	43	37						In the E sea of Kuzi, Iwate Prefecture.	
		e _N	13	44	16							
		eF	13	47	±							
332	Dec. 13	eP	9	08	42					47	Near the Arita River, Wakayama Prefecture.	
		S	9	08	48							
		M _N	9	08	49	0.4	+10					
		M _Z	9	08	50	0.2			-3			
		M _E	9	08	55		+5					
F	9	09	48									
333	Dec. 13	eP _N	18	57	51					2170	In the SE sea of Taitō, 22°.7N, 121°.2E. Felt in all Formosa.	
		eP _E	18	57	52							
		eP _Z	18	57	54							
		S _{EN}	19	01	29							

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					A _E μ	A _N μ	A _Z μ		
334	Dec. 14	Sz	19 01 33						
		LN	19 04 37						
		LE	19 04 40						
		LZ	19 05 08						
		MN	19 06 36	11.6		+40			
		ME	19 06 38	14.1	-67				
		MZ	19 06 58	14.1					
335	Dec. 15	eF	19 40 ±				±33		
		eN	7 18 31						In the Amakusa-nada, Kyū-
		e	7 18 41						syū.
		ez	7 19 12						
		SEN	7 19 12						
		MN	7 19 21	1.5		±2			
		MEZ	7 19 32	2.1	±2		+1		
336	Dec. 16	eF	7 24 ±						
		SEN	13 54 22						Near Syūzan, Kyōto Prefec-
		ME	13 54 23	1.2	±1				ture.
		MN	13 54 23	0.4		+1			
337	Dec. 16	F	13 55 01						
		iPz	9 37 03				-6.8	343	In the SSE sea of the Nozima-
		iPEN	9 37 04		+3.9	+1.0			zaki, about 60km, Tiba Pre-
		SE	9 37 48						fecture.
		eSN	9 37 50						Moderate shocks were felt in
		Sz	9 37 52						the Pacific coast of Kwantō
		MN	9 38 04	2.0		+17			district.
338	Dec. 17	ME	9 38 05	2.0	-21				
		MZ	9 38 05	1.9			+16		
		eF	9 48 ±						
		P	18 30 07					2485	Philippine.
		eSN	18 34 12						
339	Dec. 16	eF	18 48 ±						
		eF	18 48 ±						

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks	
					A _E μ	A _N μ	A _Z μ			
338	Dec. 17	P	2 50 01		+1.9	+1.5	-1.4	68	Near Gobō, Wakayama Pre-	
		S	2 50 11						fecture.	
		MNZ	2 50 11	0.4		-10	-1			
		ME	2 50 11	0.6	+4					
		F	2 51 25							
339	Dec. 17	ePEN	9 36 12		+	+		1930	An after-shock of No. 329.	
		Pz	9 39 13				+1.4		Felt in all Formosa.	
		SN	9 39 28							
		SE	9 39 31							
		LN	9 43 09							
		LE	9 43 18							
		Lz	9 43 23							
		Mz	9 44 44	13.0			+25			
		ME	9 44 46	12.3	+22					
		MN	9 45 57	10.4		-32				
340	Dec. 17	eF	10 09 ±							
		P	10 51 19					48	In the Tanabe Bay, Waka-	
		S	10 51 26						yama Prefecture.	
		ME	10 51 26	0.2	+1					
		MN	10 51 26	0.4		+4				
341	Dec. 21	Mz	10 51 29					±1		
		F	10 52 10							
		ePEN	16 17 17						43	Near Wakayama City.
		S	16 17 23							
		ME	16 17 23		±1					
342	Dec. 22	MN	16 17 23	0.4		-2				
		F	16 17 53							
		ePN	17 51 55						72	In the Tanabe Bay, Waka-
		S	17 52 04							yama Prefecture.
		ME	17 52 04	0.3	+2					
343	Dec. 22	MNZ	17 52 04			+2	±1			
		F	17 52 37							
		F	17 52 37							



From No. 111 to No. 138, 1937.

TOYOOKA JAPAN.

SEISMOLOGICAL BULLETIN

A Branch Station of the Kōbe Meteorological Observatory of Japan.
 $\phi=35^{\circ} 32'$ $\lambda=134^{\circ} 49'$ $h=32.2$ m. Underground: Tertiary.

Instrument: Ōmori's Seismograph. (Horizontal)
 Wiechert Seismograph. (Horizontal & Vertical)

Oct. — Dec.

	T_0	ϵ	$\frac{r}{T_0^2}$	V		T_0	ϵ	$\frac{r}{T_0^2}$	V
A _E :	22.3	3.0	0.001	20	A _E :	5.6	10.0	0.007	99
A _N :	21.6	3.0	0.001	20	A _N :	6.5	10.0	0.005	88
					A _Z :	4.0	7.0	0.006	51

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
343	Dec. 23	e	13	36	29						In the W sea of Guatemala, Central America. 16°.6N. 98°.0W. (J.S.A.).
		eZ	13	36	52						
		eE	13	36	53						
		eN	13	36	56						
		eEN	13	44	12						
		eN	13	52	29						
		MZ?	14	23	47	16.5			+30		
		ME?	14	24	45	15.9	±30				
		MN?	14	31	18	15.0		±31			
		eF	15	07	±						
344	Dec. 25	eP	6	16	35					31	Near Wakayama City.
		S	6	16	39						
		ME	6	16	39	0.4	+2				
		MN	6	16	50	0.4		±1			
		MZ	6	16	51				±1		
		F	6	17	11						
345	Dec. 25	ePN	13	52	47					377	Southern part of the Bungo Channel. Felt in Kyūsyū and W. Sikoku districts.
		ePE	13	52	48						
		ePZ	13	52	54						
		eN	13	53	04						
		eE	13	53	05						
		SN	13	53	38						
		SE	13	53	39						
		SZ	13	53	43						
		MZ	13	53	52	2.7			+34		
		ME	13	53	53	3.5	-40				
		MN	13	53	53	3.0		+44			
		eF	14	07	±						
		346	Dec. 27	eP	0	34	24				
S	0			34	30						
ME	0			34	30	0.4	+2				
MN	0			34	30	0.3		-4			
MZ	0			34	33				±1		
F	0			35	03						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
111	Oct. 3	PEN	20	38	49					376	Northern part of the Hyūga-nada.
		PZ	20	38	51						
		SEZ	20	39	39						
		SN	20	39	40						
		MZ	20	39	51					-4	
		MN	20	39	52				-7		
		ME	20	39	57		+5				
		eF	20	42	±						
112	Oct. 10	ePE	16	36	14						Near Ōsima, mouth of the Hiroshima Bay, Inland Sea.
		ePN	16	36	21						
		SEN	16	36	47						
		eSZ	16	36	50						
		MZ?	16	36	46					-4	
		ME	16	36	55		-5				
		MN	16	36	56			+6			
eF	16	38	±								
113	Oct. 12	ePE	12	36	02					156	Near Yokkaiti, Mie Prefecture.
		SN	12	36	22						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
114	Oct. 17	SE	12	36	23					539	In the SE sea of the Inubō Cape, 35°.5N. 141°0E. Moderate shocks were felt in SE. Kwantō district.
		MN	12	36	22		-5				
		ME	12	36	23		+3				
		F	12	36	59						
		P	4	48	22		-2.0	+	+2.0		
		iE	4	48	22						
		SEN	4	49	34						
		Sz	4	49	37						
		Mz	4	50	02	4.9			+367		
		ME	4	50	03	3.5	-280				
115	Oct. 17	MN	4	50	07	3.5		+624			
		eF	5	16	±						
116	Oct. 17	ePN	5	30	00						An after shock of No. 114.
		ePE	5	30	01						
		eF	5	33	±						
117	Oct. 17	ePE	13	34	17					476	Ditto.
		P	13	34	18						
		eSE	13	35	19						
		SN	13	35	22						
		Sz	13	35	23						
		Mz	13	35	27				-10		
		MEN	13	35	52		-13	-34			
		eF	13	40	±						
117	Oct. 17	PE	19	10	40					503	Ditto.
		ePz	19	10	45						
		Sz	19	11	43						
		SN	19	11	48						
		eSE	19	11	50						
		ME	19	12	02		+10				
		MN	19	12	09			-11			
		eF	19	15	±						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
118	Oct. 23	Pz	3	03	13					561	In the SE sea of Hatizyō I.
		PEN	3	03	15						
		eSN	3	04	31						
		eF	3	22	±						
119	Oct. 23	ePN	3	12	38						Ditto. Faint record.
		PEZ	3	12	39						
		eF	3	22	±						
120	Oct. 23	PEN	23	10	05					68	Near Iwaya, north end of Awazi Province. Felt in southern coast of Hyōgo Prefecture.
		S	23	10	14						
		MEN	23	10	15		+22	+8			
		F	23	11	05						
121	Nov. 14	Pz	11	06	55					6880	Pamir, 37°3N. 72°0E. Destructive at NW. India.
		PEN	11	06	58						
		SEZ	11	15	21						
		eSN	11	15	32						
		SMN	11	15	35			-55			
		SME	11	15	54		+28				
122	Nov. 15	eF	11	58	±						
		LN	22	02	40						W. Tibet.
123	Nov. 15	eF	22	40	±						
		ePN	22	52	06					Western part of Tokyō City.	
		ePE	22	52	09						
		eSN	22	52	35						
		SE	22	52	37						
MEN	22	52	40		+1	-2					
124	Nov. 18	eF	22	54	±						
		Pz	12	54	33					171	Southern part of the Kii Channel. 33°7N. 135°1E. Weak shocks were felt in the coast of the Kii channel.
		PEN	12	54	34		-1.0	-3.0			
		iz	12	54	46						
		in	12	54	57						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
125	Nov. 22	S	12	54	57					272	Near Kyōto City. 35°.1N. 135°.7E. Focal depth about 270km:
		M _N	12	55	05	1.2		-9			
		M _Z	12	55	11				-7		
		M _E	12	55	12	0.9	-9				
		eF	12	57	±						
		P	4	53	51		+3.0	+3.1	-20.4		
		S _{EN}	4	54	27						
126	Nov. 22	S _Z	4	54	29					267	Near Komagatake, Kai Province. 35°.46'N. 138°.15'E. Felt in Tyūbu and Kwantō districts.
		S _{M_N}	4	54	29			-43			
		M _E	4	54	39		+5				
		M _N	4	54	46	1.7		-13			
		eF	4	57	±						
		P _{EN}	17	40	02						
		P _Z	17	40	03				+		
127	Nov. 26	S	17	40	38					529	Near the Inubō Cape, Tiba Prefecture. 35°.7N. 141°.0E. Felt in Kwantō district.
		M _N	17	40	47	1.9		-102			
		M _Z	17	40	48	1.7			+68		
		M _E	17	40	54	1.5	-58				
		eF	17	44	±						
		eP _Z	15	38	04						
		eP _N	15	38	09						
128	Nov. 28	P _E	15	38	12					12.6	In the west sea of Sumatra.
		iP _Z	15	38	17						
		S _{EN}	15	39	23						
		S _Z	15	39	30						
		M _Z	15	39	33	2.0			-16		
		M _E	15	39	39	1.7	+17				
		M _N	15	39	43			-33			
128	Nov. 28	eF	15	44	±						
		e _N	5	42	30						
		eL _N	5	54	23						
128	Nov. 28	M _N	5	59	42	12.6		+6			

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
129	Dec. 1	eF	6	12	±					439	In the near sea of the Inubō Cape, Tiba Prefecture.
		P _E	2	50	02						
		P _Z	2	50	07						
		P _N	2	50	09						
		eS _E	2	51	00						
		S _Z	2	51	06						
		S _N	2	51	08						
130	Dec. 6	M _Z	2	51	06				+5	4.7	In the ESE distant sea of the Inubō Cape, Tiba Prefecture. Disturbed by microseisms.
		M _N	2	51	21			-10			
		M _E	2	51	38		+4				
		eF	2	53	±						
		eP _E	4	36	00						
		P _Z	4	36	04						
		eP _N	4	36	15						
131	Dec. 8	S _{EN}	4	37	28					13.8	In the NE sea of Taito, Formosa, 22°.9N. 121°.5E. Small damage in the coast of northeastern part of Taitō-chō, felt in all Formosa and SW. Ryūkyū Islands.
		S _Z	4	37	38						
		M _Z	4	38	09				+22		
		M _E	4	38	15		+46				
		M _N	4	38	21	4.7		-62			
		eF	4	55	±						
		P _Z	8	36	26						
131	Dec. 8	eP _N	8	36	34					13.8	In the NE sea of Taito, Formosa, 22°.9N. 121°.5E. Small damage in the coast of northeastern part of Taitō-chō, felt in all Formosa and SW. Ryūkyū Islands.
		eP _E	8	36	37						
		S _N	8	39	57						
		S _E	8	39	58						
		L _N	8	41	12						
		L _Z	8	41	41						
		L _E	8	41	52						
131	Dec. 8	M ¹ _E	8	44	33	13.8	+35			13.8	In the NE sea of Taito, Formosa, 22°.9N. 121°.5E. Small damage in the coast of northeastern part of Taitō-chō, felt in all Formosa and SW. Ryūkyū Islands.
		M ¹ _N	8	44	34	13.8		+26			
		M ² _N	8	45	15	11.8		-27			
		M ² _E	8	46	46	9.8	+21				
131	Dec. 8	eF	9	18	±						

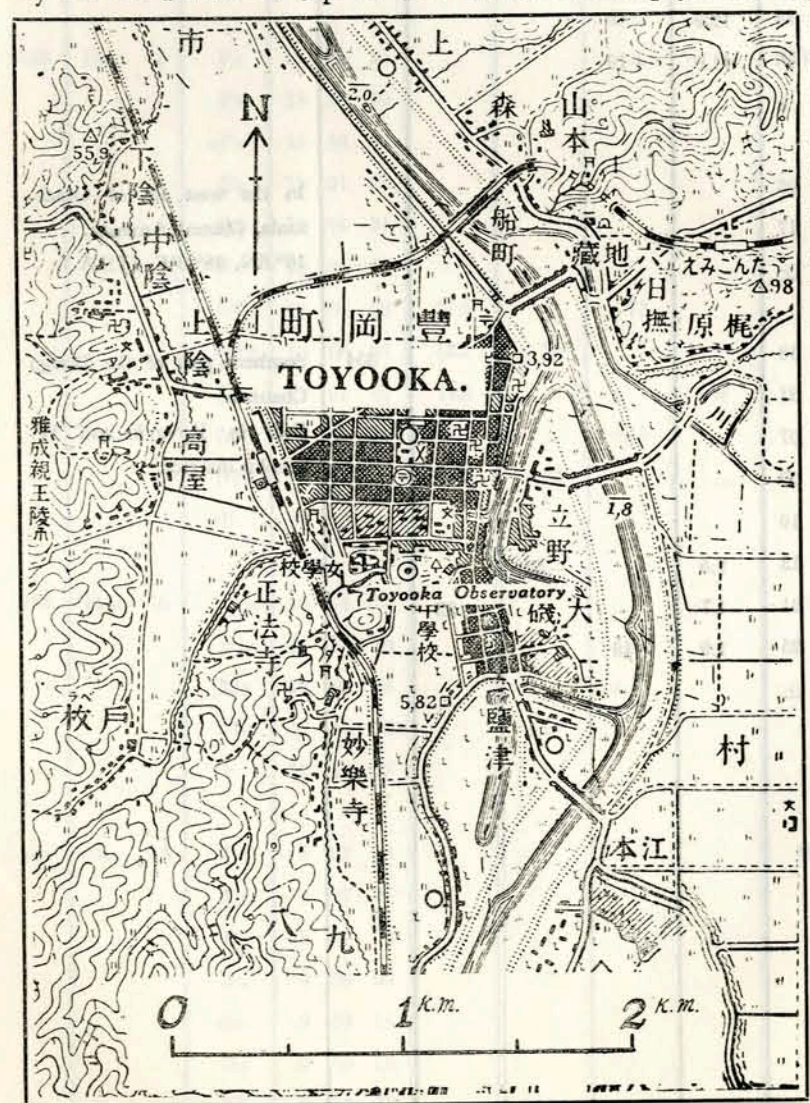
No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
132	Dec. 10	P _Z	13	30	37					651	In the ESE sea of the Inubō Cape, Tiba Prefecture.
		P _E	13	30	39						
		P _N	13	30	41						
		S _E	13	32	07						
		S _N	13	32	08						
		eS _Z	13	32	15						
		M _E	13	35	31	7.8	-15				
		M _N	13	35	52	9.7		+52			
eF	14	00	±								
133	Dec. 13	P _Z	18	58	15					2100	In the SE sea of Taitō, 22°.7N. 121°.2E. Felt in all Formosa.
		P _E	18	58	19						
		eP _N	18	58	31						
		S _N	19	01	38						
		S _E	19	01	51						
		S _Z	19	01	52						
		M ¹ _N	19	06	22	17.5		+13			
		M ¹ _E	19	06	28	13.7	+12				
		M _Z	19	07	01	14.2			-8		
		M ² _N	19	08	25	13.7		+15			
M ² _E	19	08	38	12.7	-10						
eF	19	35	±								
134	Dec. 15	P _{EN}	13	54	11					32	Near Syūzan, Kyōto Prefecture.
		S _{EN}	13	54	15						
		M _N	13	54	15			±4			
		M _E	13	54	16		±3				
		F	13	54	33						
135	Dec. 16	P _E	9	37	06					455	In the SSE sea of the Nozima-zaki, about 60km, Tiba Prefecture. 34°.3N. 140°.1E. Moderate shocks were felt in the Pacific coast of Kwantō district.
		P _Z	9	37	07						
		P _N	9	37	08						
		S _N	9	38	09						
		eS _E	9	38	11						
		S _Z	9	38	12						
		M _Z	9	38	18				-16		

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A _E	A _N	A _Z		
			h	m	s	s	μ	μ	μ	km.	
		M _N	9	38	34			+40			
		M _E	9	38	58		+17				
		eF	9	43	±						
136	Dec. 17	P _{EN}	9	36	34					2100	An after-shock of No. 131.
		S _N	9	40	03						
		S _E	9	40	05						
		L _E	9	41	53						
		M _N	9	44	21	15.9		-16			
		M ¹ _E	9	44	44	12.9	-10				
		M ² _E	9	46	50	11.0	+10				
eF	10	02	±								
137	Dec. 23	eL _N	14	10	02						In the west sea of Guatemala, Central America. 16°.6N. 98°.0W. (J.S.A.).
		eL _E	14	12	17						
		eF	14	57	±						
138	Dec. 25	P _Z	13	53	18					354	Southern part of the Bungo Channel. Felt in Kyūsyū and W. Sikoku district.
		P _{EN}	13	53	21						
		S _E	13	54	07						
		S _N	13	54	09						
		S _Z	13	54	10						
		M _N	13	54	13	2.5		-57			
		M _Z	13	54	21	1.7			+32		
M _E	13	54	25	1.9	+48						
eF	13	59	±								

TOYOOKA JAPAN.

The Observation of the Tilting of the Earth Crust at the Toyooka Observatory.

On the 23rd May, 1925 there occurred a great earthquake at the northern part of the Tazima Province, the epicenter was 13 kilometers north of Toyooka, and on the 7th March, 1927 again a destructive earthquake occurred at the northern part of the Tazima and Tango Provinces and its epicenter was about 22 kilometers east of Toyooka. To investigate the after effects of those earthquakes, the Observations of the tilting of the earth surface were made at the Toyooka Observatory by the Isimoto's tiltmeter. The details of the instrument was described by Dr. M. Isimoto in Jap. Journ. of Astro. and Geophys. Vol. 6, p. 83, (1928). The Toyooka



Observatory is the branch office of the Kōbe Met. Observatory, and is situated at the western part of the hill Zimmu-yama, Toyooka. The instruments were installed in the seismometer house of the Observatory, in which the temperature is kept nearly constant. Topographical features of the neighbourhood of Toyooka can be seen in the figure, in which the site of the Observatory is indicated by ⊙. The next tables are the results of the observations, which were made by Mr. Hyōzirō Yamazaki, the superintendent of the Toyooka Observatory.

TOYOOKA JAPAN.

Tilting of the Earth at Toyooka (1937).

$\phi = 35^\circ 32'$ $\lambda = 134^\circ 49'$ $h = 32.2m$. Underground: Tertiary.

Instrument: Isimoto's Tiltmeter. Constants:
Component T
E-W 15.0s
S-N 16.7s

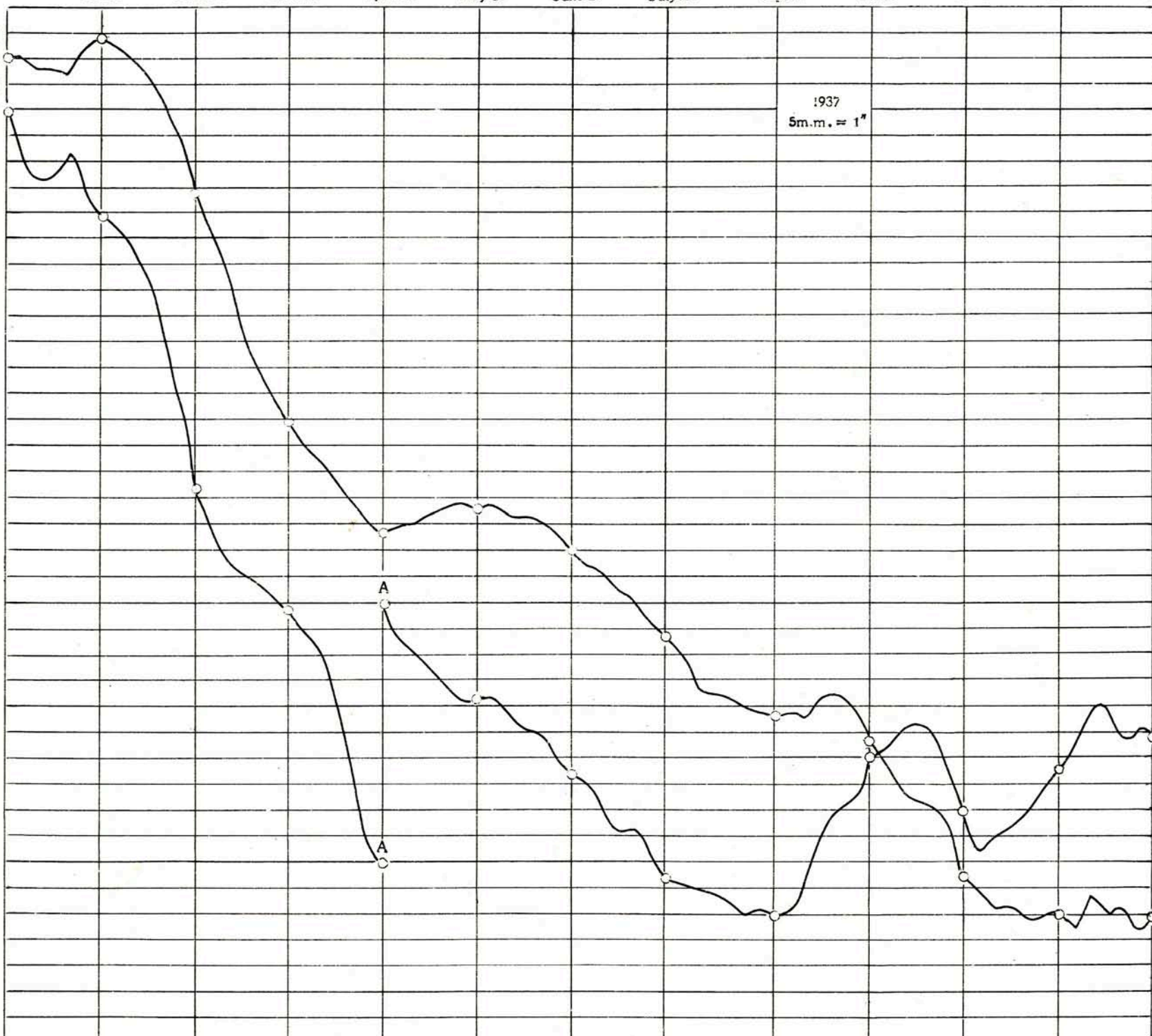
The reading are expressed in millimeters and 10m.m. corresponds to the tilting of 1".

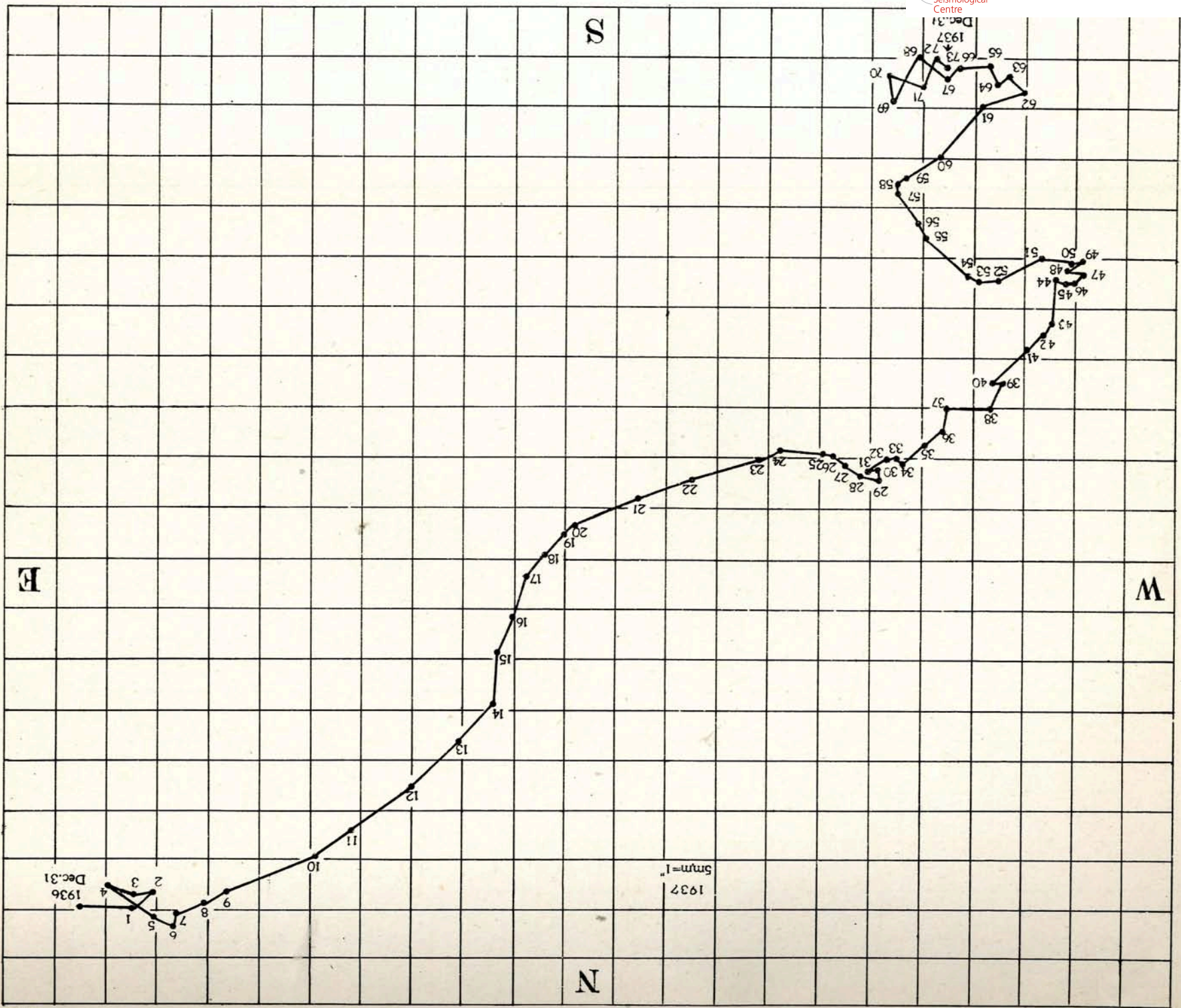
No.	Period	Component (downward)				Tilting	No.	Period	Component (downward)				Tilting
		E	W	N	S				E	W	N	S	
1	Dec. 1936 31-5	m.m. 20.0	m.m. 0.0	m.m. —	m.m. —	W 20.0	37	30-4	m.m. 1.5	m.m. —	m.m. 8.5	m.m. —	S10°W 8.7
2	6-10	9.5	—	5.5	—	S54°W 11.0	38	5-9	16.5	0.5	—	—	N88°W 16.5
3	11-15	6.5	—	1.0	—	N78°E 7.1	39	10-14	5.0	—	10.5	—	S26°W 11.7
4	16-20	11.5	—	2.5	—	S78°E 11.8	40	15-19	3.0	—	0.0	—	E 3.0
5	21-25	19.0	12.0	—	—	N58°W 22.6	41	20-24	13.0	—	13.5	—	S44°W 18.8
6	26-30	9.0	3.0	—	—	N72°W 9.5	42	25-29	6.0	—	4.5	—	S48°W 7.5
7	31-4	2.5	—	4.5	—	S29°W 5.2	43	30-3	3.5	—	5.0	—	S35°W 6.1
8	5-9	10.0	—	5.0	—	S64°W 11.3	44	4-8	2.0	—	17.0	—	S7°W 17.2
9	10-14	10.0	—	4.5	—	S66°W 11.0	45	9-13	2.5	1.5	—	—	N59°W 3.0
10	15-19	35.0	—	15.0	—	S67°W 38.0	46	14-18	3.5	—	0.5	—	S82°W 3.5
11	20-24	15.5	—	9.5	—	S58°W 18.2	47	19-23	4.5	—	3.5	—	S52°W 5.8
12	25-1	30.0	—	22.0	—	S54°W 37.5	48	24-28	5.0	—	1.5	—	S74°W 5.3
13	2-6	14.0	—	13.5	—	S46°W 19.5	49	29-2	5.0	—	2.5	—	S64°W 5.6
14	7-11	14.5	—	15.5	—	S42°W 20.9	50	3-7	3.5	—	1.5	—	N67°W 3.8
15	12-16	2.0	—	20.5	—	S6°W 20.8	51	8-12	13.0	—	3.0	—	S77°W 13.3
16	17-21	5.5	—	14.5	—	S21°W 15.6	52	13-17	16.5	—	10.0	—	N59°W 19.3
17	22-26	5.0	—	15.5	—	S18°W 16.4	53	18-22	6.5	—	0.5	—	N86°W 6.5
18	27-31	8.0	—	9.0	—	S41.5°W 12.0	54	23-27	4.5	—	3.0	—	S56°E 5.4
19	1-5	7.5	—	8.0	—	S43°W 10.9	55	28-2	16.5	—	15.0	—	S48°E 22.4
20	6-10	6.0	—	4.5	—	S53°W 7.5	56	3-7	3.0	—	6.5	—	S25°E 7.2
21	11-15	25.5	—	9.5	—	S70°W 27.4	57	8-12	9.0	—	12.0	—	S37°E 15.5
22	16-20	21.5	—	8.0	—	S70°W 23.1	58	13-17	0.5	—	4.0	—	S7°W 4.1
23	21-25	27.0	—	7.5	—	S75°W 28.0	59	18-22	3.5	—	1.5	—	S66°W 3.8
24	26-30	7.5	—	4.0	—	S62°W 8.6	60	23-27	14.5	—	8.0	—	S61°W 16.5
25	1-5	17.5	2.5	—	—	N82°W 17.8	61	28-1	16.5	—	20.5	—	S40°W 25.9
26	6-10	3.5	0.0	—	—	W 3.5	62	2-6	16.5	—	6.0	—	S70°W 17.5
27	11-15	5.0	5.0	—	—	NW 7.1	63	7-11	5.0	—	6.0	—	S40°E 7.9
28	16-20	6.0	3.5	—	—	N60°W 7.0	64	12-16	5.0	—	2.0	—	N68°E 5.4
29	21-25	8.5	1.5	—	—	N80°W 8.7	65	17-21	3.5	—	7.0	—	S27°E 7.8
30	26-30	0.5	—	4.0	—	S7°E 4.0	66	22-26	11.5	—	1.0	—	N85°E 11.6
31	31-4	3.0	—	1.5	—	N64°E 3.4	67	27-1	4.5	—	4.0	—	N49°E 6.0
32	5-9	9.0	—	3.0	—	S62°W 9.5	68	2-6	11.5	—	8.0	—	S55°E 14.1
33	10-14	5.0	—	0.5	—	S84°W 5.1	69	7-11	14.0	—	15.5	—	N32°E 20.9
34	15-19	0.5	1.5	—	—	N19°W 1.7	70	12-16	0.0	—	9.0	—	S 9.0
35	20-24	10.0	—	7.0	—	S55°W 12.3	71	17-21	14.0	4.5	—	—	N72°W 14.7
36	25-29	7.0	—	5.5	—	S55°W 8.7	72	22-26	5.5	—	10.5	—	S27°W 11.9
							73	27-31	3.5	4.5	—	—	N38°W 5.7

1936 Dec.31 1937 Jan.30 1937 March 1 1937 March 31 1937 April 30 1937 May 31 1937 June.29 1937 July.29 1937 Sept.2 1937 Oct.2

N
S
E
W

1937
5m.m. = 1"





1937