



# SEISMOLOGICAL BULLETIN

OF THE

IMPERIAL MARINE OBSERVATORY

AND

KOBE METEOROLOGICAL OBSERVATORY.

KOBE, JAPAN.

VOL. II. No. I.

From January 1, 1926 to March 31, 1926.

KOBE

June, 1926.

昭和二年四月二十五日印刷  
昭和二年四月二十六日發行

神戸市中山手通七丁目  
神戸市  
候所

印刷者 神戸市楠町三丁目一  
番屋敷吉

印刷所 神戸市楠町三丁目一  
番五ノ六印刷所



# KOBE JAPAN.

## SEISMOLOGICAL BULLETIN

of the Imperial Marine Observatory and the Kobe Meteorological Observatory of Japan.  
 $\phi = 34^{\circ} 41' 18''$   $\lambda = 135^{\circ} 10' 51''$   $h = 53.3$  m Underground: Diluvial Series.  
 Instrument: Omori's Seismograph (Horizontal Pendulum.)  
 Wiechert Seismograph (Horizontal & Vertical)

### CONTENTS

Seismological Bulletin of Kobe	Page.	1.
Seismological Bulletin of Sumoto		7.
Seismological Bulletin of Toyooka		16.

	$T_0$	$\epsilon'$	$\frac{r}{T_0^2}$	V		$T_0$	$\epsilon$	$\frac{r}{T_0^2}$	V
AN:	20	0.44		20.0	AN:	Aperiodic			80
AE:	20	0.24		20.0	AE:	"			80
AE:	25	0.11		42.7	AZ:	"			80

No.	Date	Phase	Time			Period	Amplitude			J	Remarks
			G.	M.	T.		AE	AN	AZ		
			h	m	s	s	$\mu$	$\mu$	$\mu$	km.	
1	Jan. 10	eP	9	04	07						In Kashima nada. A weak shock was felt at Chōshi.
		S	9	05	28						
		L	9	06	26						
		M <sub>1</sub> E	9	06	48	2.5	±25				
		M <sub>N</sub>	9	06	49	1.9		±10			
		M <sub>2</sub> E	9	07	01	2.8	±13				
		C <sub>E</sub>	9	08	10	4.1	±10				
		F <sub>E</sub>	9	11	±						
F <sub>N</sub>	9	11	±								
2	Jan. 14	P	8	52	37					159	In the course of the River Mononobe, Tosa province.
		L	8	52	58						
		M <sub>1</sub> E	8	52	59		±31				
		M <sub>1</sub> N	8	52	59			±31			
		M <sub>Z</sub>	8	52	59				±15		
		M <sub>2</sub> E	8	53	07		±25				
		M <sub>2</sub> N	8	53	04	1.0		±38			
		F <sub>E</sub>	8	55	±						
		F <sub>N</sub>	8	55	±						
		F <sub>Z</sub>	8	53	±						

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			J km.	Remarks
					AE μ	AN μ	AZ μ		
3	Jan. 16	P	14 55 31	1.5	±5	±8	316	Small amplitude. Near Ishinomaki.	
		ME	14 57 39						
		MN	14 57 51						
		FE	15 00 ±						
		FN	15 00 ±						
4	Jan. 17	ME	9 38 39	1.4	±6	±9	316	P phase not distinct. In the Kii channel.	
		MN	9 38 39						
		FE	9 39 ±						
		FN	9 39 ±						
5	Jan. 18	M <sub>1</sub> N	21 38 17	16.1	±125	±80	316	By the Omori's seismo- meter. Local shock.	
		M <sub>2</sub> N	21 41 17						
		FN	21 58 ±						
6	Jan. 21	P	21 27 42	1.4	±25	±25	316	In northern part of the Bungo straits.	
		L	21 28 20						
		M <sub>1</sub> E	21 28 28						
		M <sub>1</sub> N	21 28 28						
		M <sub>2</sub> E	21 28 38						
		M <sub>2</sub> N	21 28 36						
		FE	21 32 ±						
		FN	21 31 ±						
7	Jan. 22	ME	7 41 47	1.4	±11	±5	316	P and S phases not distinct. In the Kii channel.	
		MN	7 41 44						
		FE	7 42 ±						
		FN	7 42 ±						
8	Jan. 25	P	0 45 18	15.3	±20	±21	6110	N off of Pescadores island, Formosa.	
		PR <sub>1</sub>	0 45 44						
		PR <sub>2</sub>	0 46 57						
		S	0 52 28						
		L	0 59 02						
		M <sub>1</sub> E	1 01 22						
		M <sub>2</sub> E	1 03 54						

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			J km.	Remarks
					AE μ	AN μ	AZ μ		
9	Jan. 25	M <sub>1</sub> N	1 04 03	12.8	±46	±13	22	In the Kii channel.	
		M <sub>2</sub> E	1 08 46	14.2					
		M <sub>2</sub> N	1 08 56	13.9					
		CE	1 35 07	14.9					
		FE	1 40 ±						
		FN	1 36 ±						
10	Jan. 26	P	13 48 54	1.4	±20	76	Near Hinomisaki in Kii province.		
		L	13 49 05						
		ME	13 49 05						
		MN	13 49 05						
		FE	13 49 40						
11	Jan. 30	P	9 37 18	1.4	±8	755	Small amplitude, SW part off Hinomisaki.		
		M	9 37 32						
		F	9 38 ±						
12	Jan. 30	M	11 55 12	1.4	±8	755	Faint record.		
		F	11 56 ±						
13	Feb. 3	P	21 47 40	1.4	±8	755	NE off Hachijo island.		
		ME	21 48 47						
		MN	21 49 02						
		FE	21 51 30						
		FN	21 51 30						
14	Feb. 4	P	6 46 14	1.4	±8	755	Eastern part of the Tsugaru Straits. A weak		
		S	6 46 47						

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					AE μ	AN μ	AZ μ		
		L	6 47 53						shock was felt at the epicentral region.
		M <sub>1</sub> E	6 47 57	3.2	±50				
		M <sub>1</sub> N	6 48 07	2.6		±23			
		M <sub>2</sub> E	6 48 23	2.9	±28				
		M <sub>2</sub> N	6 48 23	1.9		±21			
		C <sub>E</sub>	6 50 20	2.9	±44				
		C <sub>N</sub>	6 50 28						
		F <sub>E</sub>	6 55 30						
		F <sub>N</sub>	6 55 30						
		F <sub>Z</sub>	6 49 30						
15	Feb. 8	M	16 39 22						Faint record.
		F	16 48 ±						
16	Feb. 8	P	22 49 11				53		S part of the Kii channal.
		L	22 49 19						
		M <sub>E</sub>	22 49 23		±8				
		M <sub>N</sub>	22 49 19			±8			
		F <sub>E</sub>	22 50 ±						
		F <sub>N</sub>	22 50 ±						
17	Feb. 13	P	3 05 43						Very small amplitude. In the Bungo straits.
		F	3 06 ±						
18	Feb. 24	eP	11 33 07						Near the Maruyama river in Tajima province.
		F	11 33 30						
19	Mar. 2	e	2 40 35						P and S phases not clear. In the Kii channal.
		F	2 41 ±						
20	Mar. 4	P	9 37 05				3891		Near Hakodate.
		L	9 45 10						
		M <sub>E</sub>	9 46 01	14.0	±5				
		M <sub>N</sub>	9 49 03	17.9		±6			
		F <sub>E</sub>	9 57 ±						
		F <sub>N</sub>	9 57 ±						

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					AE μ	AN μ	AZ μ		
21	Mar. 8	eP	20 24 45						Off the cape of Erimo.
		M <sub>E</sub>	20 31 25	9.3	±25				
		M <sub>N</sub>	20 30 09	9.1		±40			
		F <sub>E</sub>	20 42 ±						
		F <sub>N</sub>	20 52 ±						
22	Mar. 15	P	8 00 12				284		Upper course of the River Toyo in Mikawa province.
		L	8 00 46						
		M <sub>E</sub>	8 00 47	1.0	±115				
		M <sub>N</sub>	8 00 50	1.3		±119			
		M <sub>Z</sub>	8 00 49	1.5			±75		
		F <sub>E</sub>	8 05 ±						
		F <sub>N</sub>	8 05 ±						
		F <sub>Z</sub>	8 02 ±						
23	Mar. 15	P	19 06 47						Upper course of the Yasaku river, Mikawa province.
		F	19 08 ±						
24	Mar. 17	P	4 38 14						NE off Nase, Amami-ōshima.
		eL	4 41 21						
		M <sub>1</sub> E	4 43 42	6.7	±30				
		M <sub>2</sub> E	4 44 51	8.1	±21				
		F <sub>E</sub>	4 55 30						
25	Mar. 18	M	15 01 59						P and S phases not distinct.
		F	15 16 30						
26	Mar. 19	L	20 35 19						E part of the Tsugaru Straits. A strong shock was felt at the epicentral region.
		M <sub>1</sub> E	20 35 20	1.0	±10				
		M <sub>1</sub> N	20 35 20	1.0		±8			
		M <sub>2</sub> E	20 35 36	1.0	±8				
		M <sub>2</sub> N	20 35 22	1.0		±5			
		F <sub>E</sub>	20 37 ±						
		F <sub>N</sub>	20 37 ±						
27	Mar. 21	L	17 03 23						Near Toyooka, Tajima



# SUMOTO JAPAN.

## SEISMOLOGICAL BULLETIN

A Branch Station of the Kobe Meteorological Observatory of Japan.  
 •  $\phi=34^{\circ} 21'$   $\lambda=134^{\circ} 53'$   $h=109.0$  m. Underground: Cretaceous.  
 Instruments: Wiechert Seismograph.

(Horizontal)

	$T_o$	$\epsilon$	$\frac{r}{T_o^2}$	V
AE:	3.3	0.15		80
AN:	3.3	0.15		80

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			$\Delta$ km.	Remarks	
					AE $\mu$	AN $\mu$	AZ $\mu$			
28	Mar. 23	ME	17 03 24		$\pm 6$			36	In the Kii channel.	
		MN	17 03 24							$\pm 8$
		FE	17 04 $\pm$							
		FN	17 04 $\pm$							
		P	17 54 12							
		L	17 54 16							
		ME	17 54 17							$\pm 28$
29	Mar. 27	MN	17 54 17	13.7	$\pm 200$	$\pm 40$		5256	A distance earthquake.	
		FE	17 54 39							
		FN	17 54 39							
		P	10 57 17							
		S	11 04 15							
		L	11 08 50							
		ME	11 09 31							
30	Mar. 29	MN	11 16 03	0.7	$\pm 11$	$\pm 270$			Near Kobe.	
		FE	11 27 30							
		FN	11 33 30							
		eP	21 01 11							
		L	21 01 20							
		ME	21 01 21							
		MN	21 01 21							
FE	21 02 $\pm$									
FN	21 02 $\pm$									

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			$\Delta$ km.	Remarks		
					AE $\mu$	AN $\mu$	AZ $\mu$				
1	Jan. 1	P	18 01 04					28	In the Kii channel.		
		L	18 01 08								
		M	18 01 08							+4	-6
		F	18 02 00								
2	Jan. 7	P	18 34 20					30	In the course of the Arita River, Kii province.		
		L	18 34 24								
		M	18 34 25							-10	+16
		F	18 35 17								
3	Jan. 7	P	18 36 02					30	Ditto.		
		L	18 36 07								
		M	18 36 07							$\pm 3$	+5
		F	18 36 21								
4	Jan. 7	P	21 27 57					42	In Akinada, the Seto island sea.		
		L	21 28 03								
		F	21 28 21								
5	Jan. 12	P	2 47 14					64	In the Kii channel.		
		L	2 47 23								
		M	2 47 24							+13	+13

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					AE μ	AN μ	AZ μ		
6	Jan. 12	F	2 48 07				25	Local shock.	
		P	14 59 16						
		L	14 59 19						
		M	14 59 20	-9	+14				
		F	15 01 02						
*7	Jan. 14	P	8 52 32			131	In the course of the River Mononobe, Tosa province.		
		L	8 52 50						
		M	8 52 51	-38	+44				
		F	8 54 31						
8	Jan. 15	eP	14 54 44						
		L	14 55 14						
		eM	...						
		eF	14 59 21						
9	Jan. 16	P	18 53 25			96	In Mizushimanada, Okayama Prefecture.		
		L	18 53 48						
		M	18 53 49	-5	+5				
		F	18 54 16						
10	Jan. 17	P	8 41 03			45	In the Kii channel.		
		L	8 41 09						
		M	8 41 10	+6	-11				
		F	8 41 24						
11	Jan. 17	P	9 38 28			46	Ditto.		
		L	9 38 34						
		M	9 38 34	-6	+13				
		F	9 38 54						
12	Jan. 21	P	21 27 15			272	N part of the Bungo straits.		
		S	21 27 19						
		SR <sub>1</sub>	21 27 31						
		SR <sub>2</sub>	21 27 41						

\* Earthquake felt.

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					AE μ	AN μ	AZ μ		
		L	21 27 52						
		M	21 27 57	+35	+34				
		C <sub>1</sub>	21 28 40	-4	+4				
		C <sub>2</sub>	21 29 37	-4	-1				
		F	21 33 26						
13	Jan. 22	P	2 17 41			24	In the Kii channel.		
		L	2 17 44						
		M	2 17 45	-18	-19				
		F	2 18 13						
14	Jan. 22	P	7 39 36			89	Ditto.		
		L	7 39 48	-3	-6				
		M	7 39 49	±10	±14				
		F	7 40 08						
15	Jan. 22	P	7 41 22			111	Ditto.		
		L	7 41 37						
		M	7 41 38	-15	-23				
		F	7 41 58						
16	Jan. 25	P	0 45 12			268	In Kii province.		
		P̄	0 45 20						
		S	0 46 05						
		L	0 46 36	-4	+1				
		M	0 46 48	+11	+14				
		eF	0 49 32						
17	Jan. 25	eP	0 49 32				A distant earthquake.		
		L	0 58 42						
		eF	1 44 ±						
18	Jan. 25	P	0 53 22				In the Kii channel.		
		L	0 53 25						
		eF	0 54 27						

No	Date	Phase	Time G. M. T.	Period s	Amplitude			$\Delta$ km.	Remarks	
					AE $\mu$	AN $\mu$	AZ $\mu$			
19	Jan. 25	P	11 51 47				25	Local shock.		
		L	11 51 49							
		M	11 51 50						$\pm 5$	$+4$
		F	11 52 10							
*20	Jan. 26	P	13 48 50				68	In the Kii channel.		
		L	13 48 59							
		M	13 48 59						$+48$	$+59$
		F	13 50 27							
21	Jan. 27	P	3 10 45				40	Ditto.		
		L	3 10 51							
		M	3 10 51							
		F	3 11 20							
22	Jan. 29	P	13 43 56				12	Ditto.		
		L	13 43 58							
		M	13 43 59						$+15$	$-19$
		F	13 44 26							
23	Jan. 30	P	1 54 34				165	Ditto.		
		L	1 54 56							
		eF	1 56 $\pm$							
*24	Jan. 30	P	9 36 13				38	Ditto.		
		L	9 36 18							
		M	9 36 19						$+30$	$-64$
		F	9 37 50							
*25	Jan. 30	P	11 54 21				217	N part of the Bungo straits.		
		L	11 54 51							
		M	11 54 52						$\pm 18$	$\pm 25$
		F	11 55 50							
26	Feb. 3	P	21 47 40				47	Small amplitude. Local shock.		
		L	21 47 47							

No	Date	Phase	Time G. M. T.	Period s	Amplitude			$\Delta$ km.	Remarks		
					AE $\mu$	AN $\mu$	AZ $\mu$				
		M	21 47 47								
		F	21 49 36							$\pm 4$	$+1$
27	Feb. 4	P	6 46 16				782	NE part of the Tsugaru straits.			
		S	6 47 03								
		L	6 48 02								
		M	6 48 40						3.5	$+15$	$-3$
		C	6 50 00						4.5		
eF	6 54 $\pm$										
28	Feb. 7	eP	18 06 32					In the Kii channel.			
		L	18 06 39								
		M	18 06 40						$-6$	$-6$	
		F	18 06 59								
*29	Feb. 8	P	22 49 05				46	Ditto.			
		L	22 49 11								
		M	22 49 11						$-14$	$+24$	
		F	22 50 16								
30	Feb. 9	P	6 08 11				28	Ditto.			
		L	6 08 15								
		M	6 08 16						$-16$	$-23$	
		F	6 09 32								
31	Feb. 12	P	1 20 57				111	In Harima nada.			
		L	1 21 12								
		M	1 21 13						$-5$	$-5$	
		F	1 22 16								
32	Feb. 12	P	13 07 25				36	Near Wakayama.			
		L	13 07 30								
		M	13 07 31						$-3$	$-4$	
		F	13 08 22								
33	Feb. 13	P	3 05 58				147	Ditto.			

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		AE	AN	AZ		
			h	m	s	s	μ	μ	μ	km.	
34	Feb. 23	L	3	06	18					38	In the Kii channel.
		M	3	06	19		+5	-5			
		F	3	06	51						
35	Feb. 23	P	20	44	12					36	Ditto.
		L	20	44	17						
		M	20	44	17		±3	±4			
36	Feb. 24	P	20	44	24					36	Ditto.
		L	20	44	29						
		M	20	44	30		±10	±14			
		FE	20	44	42						
37	Feb. 25	P	10	20	17					35	Ditto.
		eL	10	20	22						
		M	?								
		FE	10	20	33						
38	Feb. 25	P	8	25	01					35	Ditto.
		L	8	25	06						
		ME	8	25	08		±5				
		MN	8	25	07			±5			
39	Mar. 1	eP	15	26	21					35	Ditto.
		L	15	26	25						
		ME	15	26	26		±2				
		MN	15	26	25			±4			
39	Mar. 1	eP	1	40	43					35	Near the course of the Arita River.
		L	1	40	47						
		M	1	40	48		+3	+4			
		F	1	41	02						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		AE	AN	AZ		
			h	m	s	s	μ	μ	μ	km.	
40	Mar. 2	P	2	39	24					36	In the Kii channel.
		L	2	39	29						
		M	2	39	29		+8	+16			
		F	2	40	20						
41	Mar. 3	P	3	22	11					25	Ditto.
		L	3	22	14						
		M	3	22	15		+10	-16			
		F	3	22	32						
42	Mar. 4	P	9	36	59					25	Near Hakodate.
		S	9	39	21						
		eL	9	41	53						
		eF	10	00	26						
43	Mar. 6	P	10	11	28					22	In the Kitan straits.
		L	10	11	30						
		M	10	11	31		+4	-10			
		F	10	11	40						
44	Mar. 8	P	21	26	14					47	In the Kii channel.
		L	21	26	20						
		M	21	26	21		+3	-5			
		eF	21	26	48						
45	Mar. 15	eP	8	00	21					1715	Upper course of the River Toyo in Mikawa province.
		L	8	00	41						
		M	8	00	58		-39	-33			
		F	8	05	40						
46	Mar. 17	P	4	38	38					1715	NE of Nase, Amamio-sima.
		S	4	39	23						
		SR	4	40	09						
		L	4	41	10						
46	Mar. 17	eF	5	00	05					1715	NE of Nase, Amamio-sima.



No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		AE	AN	AZ		
			h	m	s	s	μ	μ	μ	km.	
47	Mar. 17	P	6	16	01					39	Near Wakayama.
		L	6	16	06						
		M	6	16	07		-4	+7			
		F	6	18	09						
48	Mar. 20	P	21	50	52					38	Ditto.
		L	21	50	57						
		M	21	50	57		-5	-6			
		F	21	51	14						
*49	Mar. 23	P	17	54	09					26	In the Kitan straits.
		L	17	54	11						
		M	17	54	15		+55	-46			
		F	17	54	42						
50	Mar. 24	P	19	52	57					26	Ditto.
		L	19	53	01						
		M	19	53	02		-12	-30			
		F	19	53	54						
51	Mar. 26	P	1	47	18					25	Ditto.
		L	1	47	22						
		M	1	47	22		-13	-11			
		F	1	47	50						
52	Mar. 27	eP	11	01	07						Very small amplitude. Local shock.
		S	11	04	17						
		SR	11	06	20						
		L	11	09	21						
		eF	11	32	07						
53	Mar. 28	P	5	57	11					50	In the Kii channel.
		L	5	57	17						
		M	5	57	18		±5	±9			
		F	5	58	42						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		AE	AN	AZ		
			h	m	s	s	μ	μ	μ	km.	
54	Mar. 28	P	15	44	41					57	Ditto.
		L	15	44	49						
		M	15	44	49		-3	-5			
		F	15	45	39						
*55	Mar. 29	eP	18	28	59						Ditto.
		$\bar{P}$	18	29	00						
		L	18	29	04						
		M	18	29	05		-20	-39			
		eF	18	29	39						
56	Mar. 30	P	7	10	47					26	In the Kitan straits.
		L	7	10	50						
		M	7	10	50		+14	-15			
		F	7	11	54						
*57	Mar. 31	P	9	02	06					22	Ditto.
		L	9	02	08						
		M	9	02	10		±20	-33			
		F	9	03	08						

# TOYOOKA JAPAN.

## SEISMOLOGICAL BULLETIN

A Branch Station of the Kobe Meteorological Observatory of Japan.  
 $\varphi=35^{\circ} 32'$   $\lambda=134^{\circ} 49'$   $h=22.3$  m. Underground: Diluvial Series.  
 Instruments: Omori's Seismograph.

(Horizontal Pendulum.)


	$T_o$	$\xi$	$\frac{r}{T_o^2}$	V
AE:	3.0	0.15		20
AN:	3.0	0.15		20

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			J km.	Remarks	
					AE	AN	AZ			
1	Jan. 5	P	15 09 54		±95			23	Near the mouth of the Maruyama river.	
		L	15 09 56							
		eME	15 09 57							
		eMN	15 09 57							±25
		eFE	15 10 12							
		eFN	15 10 09							
2	Jan. 6	P	6 54 59					28	Ditto.	
		L	6 55 02							
		MN	6 55 03							±35
		eF	6 55 09							
3	Jan. 6	P	?						Ditto. P phase not distinct.	
		L	9 17 22							
		eME	9 17 23							
		eF	9 17 26							
4	Jan. 6	P	10 17 08		±110			28	Near the mouth of the Maruyama river.	
		L	10 17 11							
		eME	10 17 12							
		eMN	10 17 12							±50
		C	10 17 12							

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			J km.	Remarks		
					AE	AN	AZ				
*5	Jan. 6	FE	10 17 22						Ditto. (Severe shocks were felt at the epicentral region.)		
		FN	10 17 22								
		P	10 50 30							±230	±75
		L	10 50 33								
		eME	10 50 34								
		eMN	10 50 34								
		CE	10 50 35								
		CN	10 50 36								
		eFE	10 50 51								
		FN	10 50 46								
6	Jan. 8	P	23 17 46						5 In the course of the Maruyama river.		
		L	23 17 47								
		eME	23 17 48							±35	
		eMN	23 17 47							±30	
		F	23 17 52								
7	Jan. 9	P	7 50 55						22 Ditto.		
		L	7 50 58								
		eME	7 50 58							±65	
		MN	7 50 58							±35	
		CN	7 51 01								
		FE	7 51 09								
FN	7 51 06										
8	Jan. 25	P	0 45 21						Very small amplitude, A distant earthquake.		
		eS	0 52 44								
		eL	1 02 37								
		eM <sub>1</sub> N	1 04 33								
9	Jan. 29	P	1 53 26						22 Near the mouth of the Maruyama river.		
		LM	1 53 29							±40	±40
		CE	1 53 41								
		CN	1 53 43								

\* Earthquake felt.

No	Date	Phase	Time			Period	Amplitude			J	Remarks
			G.	M.	T.		AE	AN	AZ		
			h	m	s	s	$\mu$	$\mu$	$\mu$	km.	
10	Feb. 4	P	6	46	06	3.8 3.2	+85		+100	1311	NE part of the Tsuga straits.
		L	6	47	37						
		ME	6	47	42						
		MN	6	47	50						
		CE	6	47	50						
		CN	6	48	00						
		FE	6	52	44						
		FN	6	53	00						
11	Feb. 6	P	5	57	57					10	Near the mouth of the Maruyama river.
		L	5	57	58						
		M	5	57	59						
		eF	5	58	07						
12	Feb. 6	P	5	58	07					10	Ditto.
		LM	5	58	08						
		F	5	58	16						
*13	Feb. 6	P	7	43	59					19	A strong shocks were felt in the epicentral region. Near the Maruyama river.
		L	7	44	01						
		M	7	44	02						
		FN	7	44	13						
		eFE	7	44	18						
14	Feb. 6	P	16	07	02					7	Near Toyooka.
		L	16	07	03						
		eME	16	07	03						
		eMN	16	07	03						
		FE	16	07	13						
		eFN	16	07	08						
15	Feb. 9	P	10	03	58						Ditto.
		eL	10	03	59						
		eM	10	03	59						
		eF	10	04	10						



No.	Date	Phase	Time			Period	Amplitude			J	Remarks
			G.	M.	T.		AE	AN	AZ		
			h	m	s	s	$\mu$	$\mu$	$\mu$	km.	
*16	Feb. 11	P	10	03	19					10	Disturbed strongly in epicentral region, Near Toyooka.
		L	10	03	20						
		ME	10	03	21						
		CE	10	03	23						
		CN	10	03	24						
		eFE	10	03	41						
		eFN	10	03	55						
*17	Feb. 11	P	12	28	00					9	Ditto.
		L	12	28	01						
		eME	12	28	01						
		eMN	12	28	01						
		C	12	28	03						
		eFE	12	28	11						
18	Feb. 11	P	13	00	15						S phase not clear.
		eFE	13	00	21						
*19	Feb. 24	P	11	32	41					21	In the course of the Maruyama river. Near epicenter strong shocks were felt.
		L	11	32	43						
		ME	11	32	44						
		CE	11	32	45						
		FE	11	33	30						
		FN	11	33	21						
*20	Mar. 7	P	21	36	24					21	Off Tsuyama. Strong shocks were felt near origin.
		L	21	36	26						
		eMN	21	36	26						
		eME	21	36	28						
		CE	21	36	28						
		CN	21	36	27						
		FE	21	37	00						
		FN	21	37	14						
*21	Mar. 21	P	17	02	56					16	Near Toyooka.

No.	Date	Phase	Time			Period	Amplitude			$\Delta$	Remarks
			G.	M.	T.		AE	AN	AZ		
			h	m	s	s	$\mu$	$\mu$	$\mu$	km.	
		L	17	02	58						Disturbed strongly in the epicentral region.
		eME	17	02	58		$\pm 525$				
		eMN	17	02	58						
		F	17	03	37						



# SEISMOLOGICAL BULLETIN

OF THE

IMPERIAL MARINE OBSERVATORY

AND

KOBE METEOROLOGICAL OBSERVATORY.

KOBE, JAPAN.

VOL. II. No. 2.

From April 1, 1926 to June 30, 1926.

KOBE

October. 1926.

大正十五年六月二十二日發行  
神戸測候所  
印刷者 廣川梅園三丁目一五ノ六  
網干種彦製版所  
印刷所 神戸市楠町三丁目一五ノ六製版印刷所

**CONTENTS**

	Page.
Seismological Bulletin of Kobe.....	21.
Seismological Bulletin of Sumoto.....	27.
Seismological Bulletin of Toyooka.....	36.



No.	Date	Phase	Time			Period	Amplitude			J	Remarks
			G.	M.	T.		A <sub>E</sub>	A <sub>N</sub>	A <sub>Z</sub>		
			h	m	s	s	μ	μ	μ	km.	
50	June 14	eP	23	34	21					70	SSE off Mt. Kinka, Miyagi prefecture.
		eL	23	36	12						
		M <sub>1</sub> N	23	36	16			±25			
		M <sub>E</sub>	23	37	46	2.6	±21				
		M <sub>2</sub> N	23	37	39	2.6		±9			
		F <sub>E</sub>	23	39	±						
		F <sub>N</sub>	23	41	±						
51	June 21	P	12	58	22					70	Near the mouth of the Arita River.
		L	12	58	31						
		M <sub>E</sub>	12	58	36		±26				
		M <sub>N</sub>	12	58	36			±19			
		F <sub>E</sub>	12	59	30						
		F <sub>N</sub>	12	59	30						
52	June 24	M <sub>E</sub>	21	33	06	1.0	±6			70	Near Wakayama.
		M <sub>N</sub>	21	33	10	1.0		±5			
		F <sub>E</sub>	21	35	45						
		F <sub>N</sub>	21	35	45						
53	June 26	L	20	07	21					70	Ditto.
		M <sub>E</sub>	20	07	21		±15				
		M <sub>N</sub>	20	07	21			±13			
		F <sub>E</sub>	20	07	30						
		F <sub>N</sub>	20	07	30						
54	June 26	M <sub>1</sub> E	20	09	27	2.8	±45			70	A local shock.
		M <sub>1</sub> N	20	09	10	3.1		±20			
		M <sub>2</sub> E	20	11	27		±25				
		M <sub>2</sub> N	20	10	24	2.6		±18			
		F <sub>E</sub>	20	16	30						
		F <sub>N</sub>	20	17	30						
55	June 26	eP	22	40	55					70	
		eL	22	41	45						
		M <sub>E</sub>	22	42	13	1.2	±15				

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			$\Delta$ km.	Remarks	
					AE $\mu$	AN $\mu$	AZ $\mu$			
		MN	22 42 10	1.5		$\pm 15$				
		FE	22 46 30							
		FN	22 46 30							
56	June 23	MN	3 58 27	12.0		$\pm 50$		By Omori's seismograph.		
		FN	4 06 30							
57	June 29	P	14 29 25				1164	SW off the Loo-choo islands.		
		PR <sub>1</sub>	14 29 39							
		PR <sub>2</sub>	14 30 05							
		S	14 31 08							
		SR <sub>1</sub>	14 31 15							
		SR <sub>2</sub>	14 31 33							
		L	14 32 00							
		M <sub>1</sub> E	14 32 27						2.3	$\pm 30$
		M <sub>1</sub> N	14 32 24						2.9	$\pm 20$
		M <sub>2</sub> E	14 33 40						3.0	$\pm 25$
		M <sub>2</sub> N	14 33 14						2.9	$\pm 34$
		CE	14 42 28						5.2	$\pm 28$
		CN	14 42 28						5.2	$\pm 25$
		FE	14 56 ±							
FN	14 56 ±									

## SUMOTO JAPAN.

## SEISMOLOGICAL BULLETIN

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

(Horizontal)

	$T_0$	$\epsilon$	$\frac{r}{T_0^2}$	V
AE:	3.3		0.015	80
AN:	3.3		0.015	80

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			$\Delta$ km.	Remarks
					AE $\mu$	AN $\mu$	AZ $\mu$		
58	Apr. 1	P	16 04 40	0.9				291	In the Ensyū-nada.
		L	16 05 19	1.9	+40	-31			
		M <sub>1</sub> E	16 05 21	1.9	+87				
		M <sub>1</sub> N	16 05 21	1.9		+90			
		M <sub>2</sub> E	16 05 50	1.9	+65				
		M <sub>2</sub> N	16 05 47	1.9		$\pm 62$			
		CE	16 06 37	2.5	+25				
		CN	16 06 13	2.6		+26			
		F	16 20 14						
59	Apr. 2	eP	18 44 39				25	A local shock.	
		L	18 44 42						
		M	18 44 42	$\pm 5$	-3				
		eF	18 45 15						
60	Apr. 3	eP	20 22 04				22	Ditto.	
		L	20 22 07						
		ME	20 22 09	$\pm 4$					
		MN	20 22 11		$\pm 8$				
		eF	20 22 49						
61	Apr. 6	eP	23 46 42				373	In northern part of the	

No.	Date	Phase	Time	Period	Amplitude			Δ	Remarks
					AE	AN	Az		
					μ	μ	μ		
			G. M. T. h m s	s			km.		
		L	23 47 32					Hyūga-nada.	
		M <sub>1</sub> E	23 47 40		+15				
		M <sub>2</sub> E	23 47 57		±15				
		eF	23 49 27						
62	Apr. 6	eP	23 57 33				371	Ditto.	
		L	23 58 23						
		eF	0 00 24						
63	Apr. 10	P	3 36 39				22	Near Wakayama.	
		L	3 36 42		+4	+4			
		M	3 36 43		-14	-19			
		F	3 37 20						
64	Apr. 12	P	8 41 46				5850	A distant earthquake.	
		S	8 49 00						
		L	8 55 00						
		ME	8 57 14		+16				
		eF	9 26 00						
65	Apr. 12	P	13 05 14				27	Near Wakayama.	
		L	13 05 17						
		F	13 05 55						
66	Apr. 14	P	23 43 03				33	In the Kii channel.	
		L	23 43 08		-3	+4			
		M	23 43 08		-8	+16			
		eF	23 43 33						
67	Apr. 18	P	6 55 31				399	In the Bay of Tokyo	
		L	6 56 25						
		ME	6 56 55		±10				
		M <sub>N</sub>	6 56 43			±6			
		eF	7 02 25						
68	Apr. 22	P	20 48 23				26	In the Kii channel.	

No.	Date	Phase	Time	Period	Amplitude			Δ	Remarks
					AE	AN	Az		
					μ	μ	μ		
			G. M. T. h m s	s			km.		
		L	20 48 27		+9	+9			
		M	20 48 28		+23	+16			
		F	20 49 04						
69	Apr. 24	P	20 03 12				32	Ditto.	
		L	20 03 17						
		M	20 03 17		-8	-10			
		F	20 03 40						
70	Apr. 25	P	13 53 53		+3	-2	23	Ditto.	
		L	13 53 56		+11	+8			
		M	13 53 56		-19	-37			
		F	13 54 28						
71	May 4	P	9 06 39				46	In Wakayama prefecture.	
		L	9 06 45						
		M	9 06 45		±10	±14			
		eF <sub>N</sub>	9 07 19						
		eF <sub>E</sub>	9 07 30						
72	May 4	eP	21 11 15				29	In the Kii channel.	
		L	21 11 19						
		M	21 11 19		±5	±6			
		eF	21 11 38						
73	May 5	P	1 50 54				59	Ditto.	
		L	1 51 02						
		M	1 51 02		+4	+8			
		F	1 51 32						
74	May 5	P	15 49 04				32	Ditto.	
		L	15 49 08		-3	+4			
		M	15 49 09		+4	-8			
		F	15 49 38						
75	May 6	P	7 36 23		-1	+1	65	Ditto.	



No.	Date	Phase	Time			Period	Amplitude			$\Delta$	Remarks
			G.	M.	T.		AE	AN	AZ		
			h	m	s	s	$\mu$	$\mu$	$\mu$	km.	
76	May 6	L	7	36	32		-1	-3		44	A local shock.
		M	7	36	33		+6	+8			
		F	7	36	54						
		P	16	48	28		-2	-3			
		L	16	48	34		+7	+4			
		M	16	48	35		+11	+16			
77	May 7	eP	6	12	02					2680	A distant earthquake.
		eS	6	14	37						
		L	6	17	02						
		MN	6	17	57	9.7		-8			
		ME	6	18	34	9.7	+15				
		eF	6	42	23						
78	May 10	P	7	37	57					28	In the Kitan straits.
		L	7	38	01		+8	+3			
		M	7	38	01		-19	-15			
		F	7	38	12						
79	May 10	P	8	03	35					135	Ditto.
		L	8	03	53						
		F	8	04	28						
80	May 17	P	17	45	28					68	A local shock.
		L	17	45	37						
		M	17	45	38		-25	+45			
		F	17	46	38						
81	May 20	P	20	19	08					113	In the course of the Maruyama River.
		L	20	19	23						
		F	20	20	17						
82	May 21	P	17	49	07					69	In the Kii channel.
		L	17	49	17		-3	-3			

No.	Date	Phase	Time			Period	Amplitude			$\Delta$	Remarks
			G.	M.	T.		AE	AN	AZ		
			h	m	s	s	$\mu$	$\mu$	$\mu$	km.	
		M	17	49	18		+12	$\pm 31$			
		F	17	49	46						
83	May 22	P	23	10	50		+1	+2		328	NW off the Noto peninsula.
		L	23	11	34		+4	+1			
		M	23	11	35		-7	+3			
		F	23	18	15						
84	May 24	P	0	02	17					62	Near Tokusima.
		L	0	02	25		-2	-3			
		M	0	02	27		-12	-35			
		eF	0	03	$\pm$						
85	May 25	P	2	12	17					44	A local shock.
		L	2	12	23						
		M	2	12	23		$\pm 5$	+6			
		F	2	12	58						
86	May 25	P	12	50	54		-3	-1		29	In the Bay of Osaka.
		L	12	50	58		+3	+7			
		M	12	50	59		-9	-20			
		F	12	51	30						
87	May 25	P	23	33	00		-2	+2		29	Ditto.
		L	23	33	03						
		M	23	33	04		-4	-9			
		F	23	33	26						
88	May 26	P	18	13	02					29	Ditto.
		L	18	13	06		-2	+4			
		M	18	13	06		$\pm 5$	+5			
		F	18	14	$\pm$						
89	May 26	eP	19	47	29					758	SW of the Erimo cape.
		L	19	49	11						
		eF	20	03	$\pm$						



No.	Date	Phase	Time G. M. T.	Period s	Amplitude			$\Delta$ km.	Remarks
					AE $\mu$	AN $\mu$	AZ $\mu$		
90	May 27	P	5 27 47		-1	-1	30	In the Kii channel.	
		L	5 27 51		+1	-4			
		M	5 27 51		$\pm 5$	$\pm 6$			
		F	5 28 28						

Instruments: Wiechert Seismograph.  
(Horizontal & Vertical.)

	$T_0$	$\epsilon$	$\frac{r}{T_0^2}$	V
AN	6.0	Aperiodic	0.003	80
AE	6.0	"	0.004	80
AZ	4.1	"	0.006	80

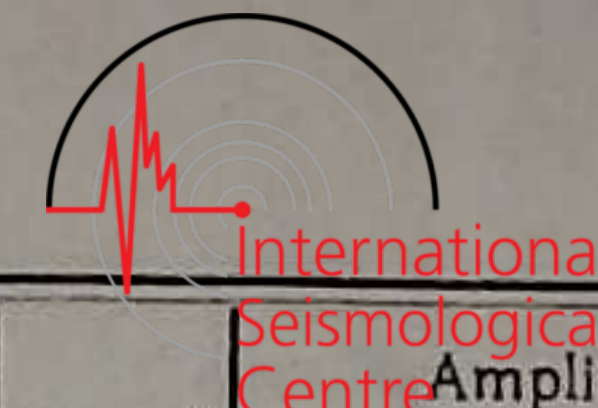
No.	Date	Phase	Time G. M. T.	Period s	Amplitude			$\Delta$ km.	Remarks
					AE $\mu$	AN $\mu$	AZ $\mu$		
91	June 1	P	19 28 27	0.4	+1	-1	36	Near Wakayama.	
		L	19 28 31		+5	+8			
		M	19 28 33		+8	-15			
		F	19 29 56			-6			
92	June 2	P	19 45 55	0.4	+3	-1	36	Ditto.	
		L	19 46 00		+6	+5			
		M	19 46 02		+19	+18			
		F	19 48 11			-6			
93	June 3	P	4 56 52	16.8	+3	-1	2470	NE of the Bonin islands.	
		eS	5 01 24						
		eL	5 05 09						
		eM	5 07 01		+3	+1			
		eF	5 34 ±						
94	June 5	P	1 51 38		+3	-1	40	In the Kii channel.	
		L	1 51 44		-2	+3			

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			$\Delta$ km.	Remarks
					AE $\mu$	AN $\mu$	AZ $\mu$		
95	June 5	M	1 51 44	0.4	-10	+15	421	NE off Naze, Amamiōsima.	
		F	1 52 30			$\pm 4$			
		P	9 10 56		+8	+10			
		L	9 11 53		+34	-69			
96	June 7	M	9 11 54	2.0	-106	+156	7	A local shock.	
		F	9 26 01			$\pm 30$			
		P	12 00 36						
		L	12 00 37		+2	+3			
97	June 7	M	12 00 37	2.0	+6	-10	30	In the Kii channel.	
		eF	12 00 58						
		P	17 24 53						
		L	17 24 57		+2	-10			
98	June 14	M	17 24 57	0.4	+13	-24	130	Upper course of Yosino River, Yamato province.	
		F	17 25 49			-3			
		P	15 06 50						
		S	15 06 58						
99	June 14	L	15 07 07	0.4			723	SSE off Mt. Kinka.	
		M <sub>1</sub> N	15 07 08		$\pm 16$	$\pm 16$			
		MZ	15 07 09			$\pm 5$			
		M <sub>2</sub> N	15 07 10		$\pm 15$	$\pm 14$			
		CN	15 07 24		$\pm 5$	$\pm 3$			
		FE	15 07 56						
		FN	15 07 46						
		FZ	15 07 24						
100	June 20	eP	23 34 14	3.7			50	In the Bingo straits.	
		L	23 35 51						
		M	23 36 40		$\pm 31$	$\pm 11$			
		eF	23 43 51						



No.	Date	Phase	Time			Period	Amplitude			D	Remarks
			G.	M.	T.		AE	AN	AZ		
			h	m	s	s	μ	μ	μ	km.	
*101	June 21	eF	17	33	02					42	In the course of the Arita River.
		P	12	58	16		+1	-1	-1		
		L	12	58	22	0.3	+23	+24	-5		
		M	12	58	23	0.3	+60	+61	±9		
		eF	13	03	±						
102	June 24	P	2	07	24					11	In the Kii channel.
		L	2	07	25	0.3	+4	+3			
		M	2	07	26	0.3	+5	+8			
		eF	2	07	54						
103	June 26	P	18	19	46					57	Ditto.
		L	18	19	54	0.6	-4	-4			
		M	18	19	54	0.6	-6	-8			
		F	18	20	20						
104	June 26	P	19	59	40					510	
		S	20	00	06						
		L	20	00	49	5.5					
		M <sub>1</sub> E	20	00	49	5.5	+11				
		M <sub>1</sub> N	20	00	49	5.5		+13			
		M <sub>2</sub> E	20	03	54	5.5	+8				
		M <sub>2</sub> N	20	03	58	5.5		+8			
		F	20	07	49						
105	June 26	P	20	07	49					59	A local shock.
		L	20	07	56	0.4	-18	-16			
		M	20	07	57	0.4	-20	-20			
		F	20	08	16						
106	June 26	P	20	08	44					453	
		L	20	09	45	7.1	-14	+4			
		M <sub>1</sub> N	20	10	13	7.1		-54			
		M <sub>1</sub> E	20	10	16	7.1	-75				

No.	Date	Phase	Time			Period	Amplitude			D	Remarks
			G.	M.	T.		AE	AN	AZ		
			h	m	s	s	μ	μ	μ	km.	
		M <sub>2</sub> N	20	10	41	7.1		+25			
		M <sub>1</sub> E	20	11	03	7.1	-40				
		eF	20	26	±						
107	June 26	P	22	40	50						
		eS	22	41	47						
		eL	22	42	15	3.9	+6	+5			
		F	22	45	38						
108	June 29	P	14	29	15					773	SW off the Loo-choo islands.
		S	14	30	05						
		L	14	30	59	6.1					
		M <sub>E</sub>	14	32	31	6.1	-119				
		C <sub>E</sub>	14	40	23	7.0	-69				
		F	15	07	±						
109	June 30	eP	3	48	35					30	Near Wakayama.
		L	3	48	39	0.2	+2	+5			
		M	3	48	40	0.2	±5	+11			
		M <sub>Z</sub>	3	48	43	0.2			±3		
		eF	3	48	58						
		eF <sub>Z</sub>	3	49	±						
110	June 30	P	5	16	58					24	Ditto.
		L	5	17	02						
		M	5	17	02	0.2	-5	-6			
		F	5	17	20						



# TOYOOKA JAPAN.

## SEISMOLOGICAL BULLETIN

A Branch Station of the Kobe Meteorological Observatory of Japan.  
 $\varphi=35^{\circ} 32'$   $\lambda=134^{\circ} 49'$   $h=23.3$  m. Underground: Diluvial Series,  
 Instruments: Omori's Seismograph.

(Horizontal Pendulum.)

	$T_0$	$\xi$	$\frac{r}{T_0^2}$	V
AE:	3.0		0.017	20
AN:	3.0		0.017	20

No.	Date	Phase	Time	Period	Amplitude			$\Delta$	Remarks
					AE	AN	AZ		
			G. M. T.		$\mu$	$\mu$	$\mu$	km.	
22	Apr. 1	P	16 04 47					339	In the Ensyū-nada.
		L	16 05 28						
		ME	16 05 34	3.8	-350				
		MN	16 05 38	3.8		+435			
		CE	16 05 59						
		CN	16 06 13						
		eFE	16 10 43						
		eFN	16 10 57						
23	Apr. 12	P	8 41 38				6107	A distant earthquake	
		S	8 49 07						
		eL	8 55 22						
		eME	8 59 06						
*24	May 5	P	21 27 07				±90	Near Toyooka. Disturbed strongly in the epicentral region.	
		L	21 27 10						
		eME	21 27 11						
		MN	21 27 11			+95			
		CN	21 27 12						
		FN	21 27 20						
25	May 7	P	6 13 34				1857	A distant earthquake.	

No.	Date	Phase	Time	Period	Amplitude			$\Delta$	Remarks					
					AE	AN	AZ							
			G. M. T.		$\mu$	$\mu$	$\mu$	km.						
26	May 17	eL	6 16 28					132	Near Wakayama.					
		eM <sub>1</sub> N	6 17 28			-25								
		eM <sub>2</sub> N	6 20 34			-15								
		F	?											
		P	17 45 42											
		L	17 46 00											
		ME	17 46 01	±40										
		MN	17 46 01			+45								
		CE	17 46 02											
		CN	17 46 02											
*27	May 20	P	20 18 35				±90	23	A local shock. Near Toyooka.					
		L	20 18 38											
		ME	20 18 41											
		eMN	20 18 39			±45								
		CE	20 18 44											
		CN	20 18 42											
		eFE	20 19 15											
		FN	20 19 34											
		28	May 26	eP	19 47 05							+50		SW off the cape of Erimo, Hokkaido.
				L	19 48 39									
ME	19 48 44													
eFE	19 53 25													
29	June 1	P	21 33 16				±160	21	A local shock.					
		L	21 33 19											
		eME	21 33 20											
		eMN	21 33 20			+60								
		F	21 33 35											
30	June 5	P	9 08 58					504	In the Hyūga-nada.					
		L	9 10 06											



No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		AE	AN	AZ		
			h	m	s	s	μ	μ	μ	km.	
		ME	9	10	34	3.5	-120				
		MN	9	10	40	3.8		-120			
		eFE	9	16	21						
		eFN	9	16	12						
*31	June 8	P	3	44	31					19	Near the mouth of the Maruyama River.
		L	3	44	34						Strong shock was felt near origin.
		eME	3	44	35		±315				
		eMN	3	44	34						
		FE	3	45	28						
		FN	3	45	28						
*32	June 19	P	23	20	34					22	A local shock.
		L	23	20	37						
		eME	23	20	37		±275				
		MN	23	20	37			±260			
		CN	23	20	41						
		FE	23	21	57						
		FN	23	21	25						
33	June 21	P	8	08	15					16	Near Toyooka.
		L	8	08	17						
		ME	8	08	17		±75				
		MN	8	08	17			-65			
		FE	8	08	36						
		FN	8	08	34						
34	June 26	P	19	58	54					4650	A distant earthquake.
		L	20	08	54						
		ME	20	09	08		-220				
		MN	20	09	05			+140			
		eFE	20	22	31						
		eFN	20	22	06						
35	June 29	P	14	29	31					3034	SW off the Loo-choo Islands.
		PR	14	31	06						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		AE	AN	AZ		
			h	m	s	s	μ	μ	μ	km.	
		S	14	32	18						
		eL	14	36	21						
		eFE	14	56	40						
		eFN	14	56	06						

\* Earthquake felt.



# SEISMOLOGICAL BULLETIN

OF THE

IMPERIAL MARINE OBSERVATORY

AND

KOBE METEOROLOGICAL OBSERVATORY.

KOBE, JAPAN.

VOL. II. No. 3.

From July 1, 1926 to September 30, 1926.

KOBE

December, 1926.

大正十五年十月十三日發行

神戸測候所

印刷者

網千種吉

印刷所

網千製版印刷所

# KÔBE JAPAN.

## SEISMOLOGICAL BULLETIN

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

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

Instrument: Omori's Seismograph

Wiechert Seismograph

(Horizontal Pendulum.)

(Horizontal & Vertical)

### CONTENTS

	Page.
Seismological Bulletin of Kobe .....	41.
Seismological Bulletin of Sumoto .....	48.
Seismological Bulletin of Toyooka .....	59.

	$T_0$	$\epsilon$	$\frac{r}{T_0^2}$	V		$T_0$	$\epsilon$	$\frac{r}{T_0^2}$	V
AN:	20		0.003	20.0	AN:	5.0	Aperiodic		80
AE:	20		0.008	20.0	AE:	5.0	"		80
AE:	25		0.001	42.7	AZ:	2.8	"		80

No.	Date	Phase	Time			Period	Amplitude			$\Delta$	Remarks
			G.	M.	T.		AE	AN	AZ		
			h	m	s	s	$\mu$	$\mu$	$\mu$	km.	
58	July 1	MN	14	43	18	12.6		$\pm 100$			By Omori's seismographs.
		FN	15	00	$\pm$						
59	July 6	P	5	03	26					151	In the Kii channel.
		L	5	03	46						
		ME	5	03	47		$\pm 44$				
		MN	5	03	47		$\pm 40$				
		FE	5	04	30						
		FN	5	04	30						
60	July 10	P	9	28	56	0.6				47	In the Kitan straits.
		L	9	29	02						
		M <sub>1</sub> E	9	29	03		$\pm 50$				
		M <sub>1</sub> N	9	29	03		$\pm 38$				
		M <sub>2</sub> E	9	29	09		$\pm 19$				
		M <sub>2</sub> N	9	29	09		$\pm 31$				
		FE	9	30	25						
		FN	9	30	25						
61	July 10	eP	10	58	02	1.5					A distant earthquake.
		ME	10	59	52		$\pm 6$				

No.	Date	Phase	Time G. M. T. h m s	Period s	Amplitude			$\Delta$ km.	Remarks
					AE $\mu$	AN $\mu$	AZ $\mu$		
62	July 10	MN	16 59 44	2.4		$\pm 6$		539	Southern off Chōshi.
		FE	11 02 20						
		FN	11 02 20						
		P	23 02 34						
		L	23 03 43						
		M <sub>1</sub> E	23 03 59	2.6	$\pm 71$				
		M <sub>1</sub> N	23 03 59	3.5		$\pm 96$			
		M <sub>2</sub> E	23 04 25	3.7	$\pm 90$				
		M <sub>2</sub> N	23 04 05	2.6		$\pm 134$			
		M <sub>3</sub> E	23 05 18	3.1	$\pm 94$				
		C <sub>1</sub> N	23 06 23	3.0		$\pm 25$			
		C <sub>1</sub> E	23 07 31	2.6	$\pm 23$				
		C <sub>2</sub> N	23 07 23	2.3		$\pm 38$			
		FE	23 09 20						
		FN	23 09 20						
63	July 14	P	6 40 30		$+1.2$	$-43$	$-15.0$	102	Near the mouth of the River Maruyama.
		L	6 40 44						
		M <sub>1</sub> E	6 40 46	0.9	$\pm 76$				
		M <sub>1</sub> N	6 40 48	1.5		$\pm 63$			
		M <sub>2</sub> E	6 40 49	0.9	$\pm 69$				
		M <sub>2</sub> N	6 40 58	2.4		$\pm 76$			
		FE	6 44 $\pm$						
		FN	6 44 $\pm$						
		64	July 16	P	0 53 03				
L	0 53 21								
M <sub>1</sub> E	0 53 22			1.5	$\pm 19$				
MN	0 53 22					$\pm 14$			
M <sub>2</sub> E	0 53 31			1.5	$\pm 15$				
FE	0 54 $\pm$								
FN	0 54 $\pm$								
65	July 16	eP	16 30 19					Southern part of the Kii channel.	
		L	16 30 42						

No.	Date	Phase	Time G. M. T. h m s	Period s	Amplitude			$\Delta$ km.	Remarks
					AE $\mu$	AN $\mu$	AZ $\mu$		
66	July 19	ME	16 30 44		$\pm 15$			100	In the Kii channel.
		MN	16 30 43	1.0		$\pm 13$			
		FE	16 31 30						
		FN	16 31 30						
		P	9 56 11						
		L	9 56 24						
		M <sub>1</sub> E	9 56 26		$\pm 43$				
		M <sub>1</sub> N	9 56 26	0.9		$\pm 38$			
		M <sub>2</sub> E	9 56 37	1.1	$\pm 28$				
		M <sub>2</sub> N	9 56 37	1.1		$\pm 29$			
67	July 20	FE	9 59 $\pm$					156	Upper course of the River Ibi, Gifu prefecture.
		FN	9 58 30						
		P	14 00 04						
		L	14 00 25						
		M <sub>1</sub> E	14 00 26	0.9	$\pm 20$				
		M <sub>1</sub> N	14 00 25			$\pm 25$			
		M <sub>2</sub> E	14 00 41		$\pm 25$				
		M <sub>2</sub> N	14 00 42	0.9		$\pm 24$			
68	July 22	FE	14 02 50					72	Near the mouth of the River Arita.
		FN	14 01 50						
		P	6 37 13						
		L	6 37 23						
		ME	6 37 24		$\pm 61$				
		M <sub>1</sub> N	6 37 24			$\pm 35$			
		M <sub>2</sub> N	6 37 31	0.7		$\pm 25$			
69	July 26	FE	6 39 $\pm$					Near the Kumano-Nada	
		FN	6 39 $\pm$						
		eP	6 40 13						
		L	6 40 26						
		ME	6 40 29		$\pm 14$				
		MN	6 40 29			$\pm 14$			
		FE	6 41 $\pm$						



No.	Date	Phase	Time G. M. T.	Period s	Amplitude			$\Delta$ km.	Remarks
					AE $\mu$	AN $\mu$	AZ $\mu$		
70	July 26	FN	6 41 ±					275	Far southern off Kumano-Nada.
		P	18 55 38		-80	+125	-188		
		L	18 56 11						
		M <sub>1</sub> E	18 56 18	2.6	±1244				
		M <sub>1</sub> N	18 56 16	2.6		±708			
		M <sub>1</sub> Z	18 56 15	1.8			±178		
		M <sub>2</sub> E	18 57 54	3.1	±463				
		M <sub>2</sub> N	18 57 17	3.1		±575			
		M <sub>2</sub> Z	18 56 27	1.8			±44		
		M <sub>3</sub> E	18 58 33	2.8	±550				
		M <sub>3</sub> N	18 57 32	3.1		±675			
		C <sub>1</sub> E	19 01 15	3.3	±75				
		C <sub>1</sub> N	19 00 27	3.3		±90			
		C <sub>2</sub> E	19 01 40	3.3	±68				
		C <sub>2</sub> N	19 01 35	3.3		±50			
		FE	19 06 ±						
		FN	19 06 ±						
FZ	18 56 48								
71	Aug. 2	P	5 06 46				2370	A distant earthquake.	
		L	5 10 58						
		M <sub>1</sub> E	5 11 34		±23				
		MN	5 11 32			±6			
		M <sub>2</sub> E	5 14 02		±10				
		FE	5 32 30						
		FN	5 32 30						
72	Aug. 3	P	9 27 13				449	In Tokyo Bay.	
		L	9 28 10						
		M <sub>1</sub> E	9 28 21	2.5	±250				
		M <sub>1</sub> N	9 28 22	2.5		±338			
		M <sub>2</sub> E	9 29 35	2.9	±203				
		M <sub>2</sub> N	9 28 32	2.6		±268			
		CE	9 31 37	3.9	±75				
		CN	9 31 54	3.9		±48			

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			$\Delta$ km.	Remarks
					AE $\mu$	AN $\mu$	AZ $\mu$		
73	Aug. 7	FE	9 34 ±				463	Southern off Mera, Chiba prefecture.	
		FN	9 34 ±						
		P	6 15 55						
		L	6 16 54						
		ME	6 17 08	2.4	±88				
		MN	6 17 21	2.4		±88			
		CE	6 20 34		±20				
		FE	6 27 30						
74	Aug. 9	P	4 39 59				82	Upper course of the River Hidaka, Wakayama prefecture.	
		L	4 40 10						
		ME	4 40 11	0.6	±119				
		MN	4 40 11	0.6		±169			
		FE	4 42 ±						
		FN	4 42 ±						
75	Aug. 9	eP	14 08 00				59	In the Kii channel.	
		eL	14 17 12						
		ME	14 18 51	9.5	±4				
		MN	14 18 33	9.8		±4			
		FE	14 26 ±						
		FN	14 26 ±						
76	Aug. 12	P	11 09 16				913	Eastern off the cape	
		L	11 09 24						
		ME	11 09 29		±13				
		MN	11 09 29			±23			
		FE	11 10 ±						
		FN	11 10 ±						
77	Aug. 27	eP	2 06 37				913	A trace only.	
		F	2 07 ±						
78	Sept. 4	P	15 39 30				913	Eastern off the cape	

No.	Date	Phase	Time			Period	Amplitude			$\Delta$	Remarks
			G.	M.	T.		AE	AN	AZ		
			h	m	s	s	$\mu$	$\mu$	$\mu$	km.	
79	Sept. 7	S	15	40	25					3137	of Erimo.  By Omori's tromometer. Epicenter in the eastern off the Philippines.
		L	15	41	31						
		ME	15	43	34	3.0	$\pm 66$				
		MN	15	42	49	2.5		$\pm 23$			
		FE	15	53	30						
		FN	15	49	30						
		P	12	30	43						
		L	12	36	53						
		M <sub>1</sub> E	12	36	57	3.2	$\pm 70$				
		M <sub>2</sub> E	12	37	52	4.1	$\pm 56$				
FE	12	39	30								
80	Sept. 9	P	3	12	40					48	In the Kitan straits.
		L	3	12	47						
		ME	3	12	49		$\pm 9$				
		MN	3	12	49			$\pm 13$			
		FE	3	13	30						
		FN	3	13	30						
81	Sept. 10	P	10	43	13					3465	A distant earthquake.
		L	10	50	13						
		MN	10	50	37	1.9		$\pm 6$			
		FN	10	56	30						
82	Sept. 12	ME	15	58	08	14.0	$\pm 4$				P and L phases not distinct.
		MN	15	57	38	12.4		$\pm 6$			
		FE	16	02	$\pm$						
		FN	16	02	$\pm$						
83	Sept. 16	P	18	08	12					5631	A distant earthquake.
		eS	18	15	14						
		L	19	20	43						
		ME	18	25	51	14.9	$\pm 13$				
		MN	18	26	34	14.9		$\pm 25$			
		FE	18	35	30						

No.	Date	Phase	Time			Period	Amplitude			$\Delta$	Remarks
			G.	M.	T.		AE	AN	AZ		
			h	m	s	s	$\mu$	$\mu$	$\mu$	km.	
84	Sept. 26	FN	18	34	30					446	Northern off Hatijyo island.
		P	1	01	45						
		$\bar{P}$	1	01	59						
		L	1	02	41						
		M <sub>1</sub> E	1	02	52	1.3	$\pm 15$				
		MN	1	03	10	2.0		$\pm 16$			
		M <sub>2</sub> E	1	03	43	1.9	$\pm 25$				
		FE	1	08	30						
		FN	1	07	30						

# SUMOTO JAPAN.

## SEISMOLOGICAL BULLETIN

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

(Horizontal)

	$T_0$	$\xi$	$\frac{r}{T_0^2}$	V
AE:	6.0	Aperiodic	0.003	80
AN:	6.0	"	0.004	80
AZ:	4.1	"	0.006	80

No.	Date	Phase	Time	Period	Amplitude			$\Delta$	Remarks
					AE	AN	AZ		
			G. M. T.						
			h m s	s	$\mu$	$\mu$	$\mu$	km.	
111	July 1	P	14 17 46					3440	A distant earthquake.
		L	14 24 42						
		eF	15 05 ±						
112	July 6	P	5 03 29					79	In the Kii channel.
		$\bar{P}$	5 03 29		-1	-1			
		$\bar{S}$	5 03 37		-2	±6			
		L	5 03 40	0.5	+9	-18			
		ME	5 03 40	0.5	-23				
		MN	5 03 40	0.5		+44			
		MZ	5 03 42	0.4					
F	5 04 46			+8					
113	July 9	P	1 50 27					42	In the Kitan straits.
		L	1 50 33		+2	+2			
		M	1 50 34		-4	-5			
		F	1 51 11						
114	July 10	P	9 28 54		+6	-2		29	Ditto.
		L	9 28 58	0.3	-26	-29			
		ME	9 29 00	0.3	-48				

No.	Date	Phase	Time	Period	Amplitude			$\Delta$	Remarks
					AE	AN	AZ		
			G. M. T.						
			h m s	s	$\mu$	$\mu$	$\mu$	km.	
		MN	9 28 59	0.3		-41		2730	A distant earthquake. Epicenter probably in the eastern part of the Philippine islands.
		MZ	9 29 01				-18		
		C	9 29 35		-6	-7			
		F	9 32 41						
115	July 10	P	10 58 10						
		L	11 03 33						
		eF	11 22 ±						
116	July 10	P	11 04 14					56	In the Kitan straits.
		L	11 04 21						
		F	11 04 39						
117	July 10	P	23 02 38					578	Southern offing of Tyosi.
		L	23 03 56						
		ME	23 04 14	3.8	+53				
		MN	23 04 14	3.8		-24			
		MZ	23 04 37	3.2			-8		
eF	23 12 18								
118	July 12	eP	3 23 32					40	In the Kii channel.
		L	3 23 37						
		M	3 23 38	0.5	-3	-13			
		eF	3 24 03						
119	July 12	eP	16 23 48					33	A local shock.
		L	16 23 52						
		M	16 23 53		+3	+5			
		eF	16 24 35						
*120	July 14	P	6 40 42					128	Near the mouth of the Maruyama river.
		L	6 41 00	0.3	+3	+3			
		M	6 41 01	0.3	+9	-12			
		eF	6 46 43		+19	+32			
121	July 16	P	0 53 07					156	Near Yonago, Shimane

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		AE	AN	AZ		
			h	m	s	s	μ	μ	μ	km.	
		L	0	53	28	0.8	+1	-3			prefecture.
		M	0	53	28	0.8	+4	+5			
		F	0	54	58						
122	July 16	P	14	48	23					36	In the Kitan straits.
		L	14	48	27	0.5	-4	+1			
		M	14	48	28	0.5	±8	-31			
		eF	14	49	06						
123	July 16	P	16	30	04					57	Southern part of the Kii channel.
		L	16	30	12						
		M	16	30	20	0.6	±3	+6			
		F	16	32	01						
124	July 18	P	15	02	06					31	A local shock.
		L	15	02	10						
		F	15	02	37						
*125	July 19	P	9	56	08					82	In the Kii channel.
		L	9	56	19	0.4	-1	+4			
		ME	9	56	21	0.4	-15				
		MN	9	56	21	0.4		+18			
		MZ	9	56	23	0.4					
		F	9	58	24					-2	
126	July 20	P	14	00	06					169	Upper course of the Ibi river, Gifu prefecture.
		S	14	00	19						
		L	14	00	29	0.6	+3	+4			
		ME	14	00	43	0.6	+13				
		MN	14	00	37	0.6		-14			
		F	14	03	44						
127	July 21	P	11	04	25					26	In the Kitan straits.
		L	11	04	29	0.4	+4	+10			
		F	11	05	16						

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		AE	AN	AZ		
			h	m	s	s	μ	μ	μ	km.	
128	July 22	P	6	37	06		+3	-2		42	Near the mouth of the Arita river.
		L	6	37	12	0.6	+8	+18			
		ME	6	37	13	0.6	-69				
		MN	6	37	13	0.6		-109			
		MZ	6	37	12	0.6				+13	
		F	6	39	09						
129	July 22	P	7	24	29					11	A local shock.
		L	7	24	31	0.4	+4	+3			
		ME	7	24	32	0.4	+11				
		MN	7	24	32	0.4		+19			
		MZ	7	24	32	0.4				+3	
		F	7	25	15						
130	July 23	P	0	53	09					45	Ditto.
		L	0	53	15	0.5	+2	+5			
		M	0	53	15	0.5	-5	-10			
		F	0	53	58						
131	July 26	P	6	40	08					162	Epicenter in Kumano-Nada.
		L	6	40	30	0.5	+1	+2			
		ME	6	40	33	0.5	-2				
		MN	6	40	34	0.5		-5			
		MZ	6	40	34	0.5				-1	
		F	6	43	28						
132	July 26	P	17	56	38					25	A local shock.
		L	17	56	41	0.4	+1	+3			
		ME	17	56	42	0.4					
		MN	17	56	41	0.4		-8			
		MZ	17	56	42					+1	
		F	17	57	24						
*133	July 26	P	18	55	46		-20	+64		289	A little far off Kumano-Nada.
		S	18	56	20	1.4	+388	+15			
		L	18	56	25						

No.	Date	Phase	Time			Period	Amplitude			$\Delta$	Remarks	
							AE	AN	AZ			
			G.	M.	T.				km.			
			h	m	s	s	$\mu$	$\mu$	$\mu$			
134	July 27	ME	18	56	26	1.4	-975			22	In the Kitan straits.	
		MN	18	56	32	1.4		-188				
		MZ	18	56	24	3.0			-300			
		eF	18	13	01							
		P	12	13	34							
		L	12	13	37	0.3	+5	+8				
		ME	12	13	38	0.3	+14					
135	July 29	MN	12	13	38	0.3		+27		36	Epicenter in Wakayama	
		MZ	12	13	36	0.3			+4			
		F	12	15	55							
		P	7	56	30							
		L	7	56	35	0.4	+2	-3				
		ME	7	56	35	0.4	-5					
		MN	7	56	35	0.4		+9				
136	Aug. 2	MZ	7	56	36				-1	2390	A distant earthquake.	
		F	7	58	54							
		P	5	06	37							
		L	5	10	52							
		ME	5	11	51	13.0	+15					
		MZ	5	12	01							-1
		eF	5	46	$\pm$							
137	Aug. 2	P	12	50	35					2570	Ditto.	
		L	12	55	18							
		F	13	18	55							
138	Aug. 3	P	3	45	34					2070	Off the south coast of Taiwan.	
		L	3	49	02	13.2	+8	-5				
		M <sub>1</sub>	3	56	46	13.2	+33	-45				
		M <sub>2</sub>	3	59	21	13.2	-38	-23				
		eF	4	31	$\pm$							
139	Aug. 3	P	9	27	15				487	In Tokyo Bay.		

No.	Date	Phase	Time			Period	Amplitude			$\Delta$	Remarks	
							AE	AN	AZ			
			G.	M.	T.				km.			
			h	m	s	s	$\mu$	$\mu$	$\mu$			
140	Aug. 3	L	9	28	20	2.0	-5	-6		5370	A distant earthquake.	
		M <sub>1</sub> EN	9	28	25	2.0	-55	-51				
		M <sub>1</sub> Z	9	28	35	1.7			+19			
		M <sub>2</sub>	9	30	36	2.0	+46	-31				
		eF	9	36	49							
		P	10	39	30							
141	Aug. 6	S	10	45	13	6.0				249	SW part of the Shikoku Island.	
		L	10	51	23	9.6						
		F	11	28	38							
		P	11	09	38							
		S	11	09	58							
142	Aug. 7	L	11	10	12	0.8	-3	+2		451	Off the southwest coast of Chiba prefecture.	
		MEN	11	10	18	0.8	-4	-8				
		MZ	11	10	18	-			-1			
		eF	11	11	18							
		P	6	16	00							
*143	Aug. 9	L	6	17	01	2.2	+4	+5		71	Upper course of the Hidaka river, Wakayama prefecture.	
		ME	6	17	53	2.2	-18					
		MN	6	18	49	2.2		-13				
		MZ	6	17	00	2.0			-8			
		Fe	6	33	00							
		P	4	39	58		+3	-5	-3			
144	Aug. 9	L	4	40	07	0.5	-14	-40		1840	Near Ryukyu islands.	
		ME	4	40	08	0.5	-100					
		MN	4	40	08	0.5		-65				
		MZ	4	40	10				+14			
		eF	4	41	19							
		eP	14	05	49							
144	Aug. 9	L	14	08	40	11.5		-15		1840	Near Ryukyu islands.	
		M <sub>1</sub> E	14	11	31	11.5	+100					
		M <sub>1</sub> N	14	10	20	11.5		-150				

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			$\Delta$ km.	Remarks
					AE $\mu$	AN $\mu$	AZ $\mu$		
145	Aug. 11	M <sub>2</sub> E	14 18 22		-155			41	Near the Arita river.
		M <sub>2</sub> N	14 16 07			+275			
		F	14 57 ±						
		P	4 14 42						
		L	4 14 48	0.4	+3	+3			
		MEN	4 14 49	0.4	-5	-6			
146	Aug. 12	MZ	4 14 49	0.3			28	A local shock.	
		F	4 15 11			-1			
		P	8 54 34						
		L	8 54 37	0.3	+3	+1			
		MEN	8 54 38	0.3	-6	-9			
		MZ	8 54 42	0.2					±3
*147	Aug. 12	F	8 55 11				25	In the Kii channel.	
		P	11 09 11						
		L	11 09 14	0.4	-6	-9			
		MEN	11 09 15	0.4	+60	-64			
		MZ	11 09 17	0.2					-14
148	Aug. 14	F	11 10 50				23	Ditto.	
		P	19 48 48						
		L	19 48 51	0.3	-1	-3			
		MEN	19 48 51	0.3	-3	-5			
		MZ	19 48 51						-2
149	Aug. 14	F	19 49 37				23	Ditto.	
		P	19 52 02						
		L	19 52 05	0.3	+1	+2			
		MEN	19 52 05	0.3	+6	+11			
		MZ	19 52 06						-3
150	Aug. 21	F	19 52 48				44	Near Wakayama.	
		P	1 09 35						
		L	1 09 41						

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			$\Delta$ km.	Remarks
					AE $\mu$	AN $\mu$	AZ $\mu$		
151	Aug. 21	MEN	1 09 47		±3	±5		39	Ditto.
		MZ	1 09 46						
		F	1 10 34						
		P	2 29 44						
		L	2 29 49						
152	Aug. 26	MEN	2 29 51		-3	+3		37	Ditto.
		eF	2 30 02						
		P	15 26 08						
		L	15 26 13	0.3	+1	-1			
153	Aug. 27	MEN	15 26 14		-4	-6		127	Upper course of the Maruyama river.
		F	15 26 50						
		eP	2 06 36						
154	Aug. 30	L	2 06 53	0.6	-4	+2		32	Near Wakayama.
		M	2 06 57	0.6	-4	+6			
		eF	2 07 37						
		P	10 19 55						
155	Sept. 4	L	10 20 00	0.4	+4	+3		1637	L wave could not be distinguished. △ doubtful.
		M	10 20 00	0.4	+5	±18			
		eF	10 21 ±						
		P	15 39 34						
		S	15 40 45						
156	Sept. 5	L	15 41 54	4.5	-10	-4		15	A local shock.
		ME	15 42 30	4.5	+28				
		MN	15 42 13			+8			
		MZ	15 41 59	4.0			-6		
		F	15 58 17						
		P	6 09 53						
156	Sept. 5	L	6 09 55	0.3	-1	-4		15	A local shock.
		MEN	6 09 55	0.3	±2	+9			
		MZ	6 09 58	0.2			±3		

No.	Date	Phase	Time G. M. T. h m s	Period s	Amplitude			$\Delta$ km.	Remarks	No.	Date	Phase	Time G. M. T. h m s	Period s	Amplitude			$\Delta$ km.	Remarks		
					AE $\mu$	AN $\mu$	AZ $\mu$								AE $\mu$	AN $\mu$	AZ $\mu$				
157	Sept. 5	F	6 10 23					15	Ditto.												
		P	6 10 29																		
		L	6 10 31	0.3	-1	-4															
		MEN	6 10 31	0.3	+9	+19															
		MZ	6 10 34	0.2			$\pm 4$														
		F	6 11 20																		
158	Sept. 5	P	7 22 00				14	Ditto.													
		L	7 22 02	0.3	+2	-4															
		F	7 22 17																		
159	Sept. 7	P	9 15 36				31	In the Kii channel.													
		L	9 15 40	0.4	+1	-2															
		MEN	9 15 40	0.4	$\pm 3$	$\pm 5$															
		MZ	9 15 49	0.3																$\pm 3$	
		F	9 16 10																		
160	Sept. 7	P	12 30 40				3130	Probably in the eastern sea of the Philippines.													
		S	12 33 30																		
		L	12 36 49	7.5	-60	+20															
		M <sub>1</sub> EN	12 37 21	7.5	+125	-165															
		M <sub>2</sub> E	12 40 40	7.5	-80																
		M <sub>2</sub> N	12 38 35	7.5																+45	
		eF	13 09 $\pm$																		
161	Sept. 10	P	10 43 12				3430	A distant earthquake.													
		S	10 46 42																		
		L	10 50 07	6.0																	
		M <sub>1</sub> E	10 50 58	6.0	-10																
		M <sub>2</sub> E	10 53 24	6.0	-9																
		eF	11 34 57																		
162	Sept. 12	eP	15 47 56				3360	Ditto.													
		eS	15 50 55	6.8																	
		eL	15 54 39	14.1																	
163	Sept. 15	ME	15 56 55	14.1			32	In the Kii channel.													
		MN	15 56 01	14.1																+125	
		eF	16 37 $\pm$																		
		P	9 52 25																		
		L	9 52 30	0.3	+8	+3															
164	Sept. 16	MEN	9 52 30	0.3	$\pm 15$	$\pm 16$			5770	A distant earthquake.											
		MZ	9 52 30	0.2				$\pm 3$													
		F	9 53 16																		
		P	18 07 58																		
		S	18 13 57	4.5																	
165	Sept. 24	L	18 20 50	17.2			53	Upper course of the Arita river.													
		ME	18 26 10	17.2	-28																
		MZ	18 26 29	15.7																	-11
		F	18 57 58																		
		P	0 58 11																		
166	Sept. 24	L	0 58 18	0.2	+2	+2			56	In the Kitan straits.											
		MEN	0 58 19	0.2	-4	-4															
		MZ	0 58 18	0.2				-2													
		F	0 59 12																		
		P	4 57 10																		
167	Sept. 25	L	4 57 18	0.3	+4	-10			36	Ditto.											
		M	4 57 18	0.3	-8	+19															
		eF	4 57 50																		
		P	1 27 34																		
		L	1 27 39	0.2	+1	+1															
168	Sept. 26	MEN	1 27 39	0.2	-3	-5			399	Northern sea of Hatizyosima.											
		MZ	1 27 42	0.2				-1													
		eF	1 27 59																		
		P	1 01 40		+1	+1															
		S	1 02 24	1.1																	

# TOYOOKA JAPAN.

## SEISMOLOGICAL BULLETIN

A Branch Station of the Kobe Meteorological Observatory of Japan.  
 $\phi=35^{\circ} 32'$   $\lambda=134^{\circ} 49'$   $h=23.3$  m. Underground: Diluvial Series.  
 Instruments: Omori's Seismograph.

(Horizontal Pendulum.)

	$T_o$	$\epsilon$	$\frac{r}{T_o^2}$	V
AE:	3.0		0.017	20
AN:	3.0		0.017	20

No.	Date	Phase	Time			Period	Amplitude			$\Delta$	Remarks
			G.	M.	T.		AE	AN	AZ		
			h	m	s	s	$\mu$	$\mu$	$\mu$	km.	
169	Sept. 26	L	1	02	42	1.5	-6	+6		53	Near Wakayama.
		MEN	1	02	45	1.5	+9	+9			
		MZ	1	02	44	1.4			+2		
		F	1	09	24						
		P	12	47	23		-1	+1			
		L	12	47	30	0.3	-9	-7			
		MEN	12	47	31	0.3	-13	-15			
		MZ	12	47	30	0.2			-3		
		F	12	47	57						
		170	Sept. 28	P	18	46	52		-1		
L	18			47	01	0.6	+1	+1			
ME	18			47	27	0.6	-4				
MN	18			47	18	0.6		+5			
F	18			48	01						
171	Sept. 29	P	23	20	45					34	Ditto.
		L	23	20	49	0.2	+2	-2			
		MEN	23	20	49	0.2	+3	+6			
		F	23	21	13						

No.	Date	Phase	Time			Period	Amplitude			$\Delta$	Remarks	
			G.	M.	T.		AE	AN	AZ			
			h	m	s	s	$\mu$	$\mu$	$\mu$	km.		
36	July 10	eP	23	03	01					3.2	+280	Southern offing of Tyosi.
		L	23	04	09							
		MN	23	04	20							
		CN	23	04	31							
		eFN	23	09	51							
37	July 14	P	6	40	15					21	Near the mouth of the River Arita. A strong shock was felt at the epicentral regions.	
		(LM)	6	40	17		$\pm 1325$	$\pm 2100$				
		eF	6	42	49							
38	July 16	P	0	50	47					40	Near Yonago, Shimane prefecture.	
		L	0	50	52							
		ME	0	50	52		$\pm 55$					
		MN	0	50	52			$\pm 80$				
		FE	0	51	30							
		FN	0	50	17							
39	July 20	P	14	00	07					200	Upper course of the River Ibi, Gifu prefecture.	
		L	14	00	35							
		ME	14	00	37							
		MN	14	00	32			$+30$				
		FE	14	01	42							



(Horizontal)

	$T_0$	$\epsilon$	$\frac{r}{T_0^2}$	V
AE:	6.5		0.004	80
AN:	7.0		0.004	80

No.	Date	Phase	Time			Period	Amplitude			$\Delta$	Remarks
			G.	M.	T.		AE	AN	AZ		
			h	m	s	s	$\mu$	$\mu$	$\mu$	km.	
*40	July 26	FN	14	01	34					10	Near Toyooka.
		P	2	24	52						
		L	2	24	53						
		eME	2	24	54						
		eF	2	25	20		$\pm 210$				
41	July 26	eP	18	54							A faint record.
42	Aug. 3	eP	9	27	47						In the Bay of Tokyo
		eL	9	28	36						
		eMN	9	28	49						
		eC <sub>1</sub> N	9	29	08						
		eC <sub>2</sub> N	9	30	08						
		eFN	9	33	37						
43	Aug. 9	P	8	40	14					138	A local shock.
		L	8	40	33						
		ME	8	40	33						
		eMN	8	40	34						
		eFE	8	40	49						
		FN	8	41	14						
*44	Aug. 27	P	2	06	11					23	Upper course of the River Maruyama. Strongly disturbed in epicentral regions.
		L	2	06	14						
		ME	2	06	14						
		MN	2	06	16						
		eCN	2	06	21						
		eFE	2	07	03						
		FN	2	06	51						

No.	Date	Phase	Time			Period	Amplitude			$\Delta$	Remarks	
			G.	M.	T.		AE	AN	AZ			
			h	m	s	s	$\mu$	$\mu$	$\mu$	km.		
45	Sept. 1	P	3	33	49						21	A local shock.
		L	3	33	52							
		eME	3	33	52							
		eMN	3	33	52							
		eFE	3	34	14							
		eFN	3	34	13							
						$\pm 75$	$\pm 80$					
46	Sept. 4	P	14	57	21						2319	A distant earthquake.
		PR	14	58	35							
		S	14	59	12							
		L	15	01	42							
		ME	15	03	34							
		eFE	15	17	38							
47	Sept. 5	P	8	37	01						22	A local shock. Near Toyooka.
		L	8	37	04							
		ME	8	37	05							
		eFE	8	37	11							
		eFN	8	37	12							
48	Sept. 7	P	12	30	51						3154	Epicenter near the Philippine Islands.
		ePR	12	31	45							
		eS	12	33	34							
		eL	12	37	03							
		eFE	12	49	39							
		eFN	12	48	38							
*49	Sept. 7	P	14	10	28						16	In the course of the

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		AE	AN	AZ		
			h	m	s	s	μ	μ	μ	km.	
50	Sept. 7	L	14	10	31					20	River Maruyama.
		M	14	10	31		±88	±125			
		CE	14	10	37						
		CN	14	10	37						
		FE	14	10	50						
		FN	14	10	56						
		P	14	49	34						
51	Sept. 9	L	14	49	37					145	A local shock.
		eME	14	49	37		±6				
		MN	14	49	37			±5			
		FE	14	49	50						
		FN	14	49	57						
		P	1	12	25						
		L	1	12	45						
52	Sept. 10	ME	1	12	46		±58			10	Epicenter in the mouth of the River Maruyama
		eMN	1	12	45			±54			
		CE	1	12	53						
		CN	1	12	49						
		FE	1	13	19						
		FN	1	13	49						
		P	3	51	45						
53	Sept. 10	L	3	51	46					3195	A distant earthquake
		ME	3	51	47		±6				
		MN	3	51	46			±11			
		F	3	51	56						
		P	10	43	15						
S	...										
L	10	49	33								
eM <sub>1</sub>	10	57	48	20.0							
eM <sub>2</sub>	11	01	27	20.0							
eM <sub>3</sub>	11	07	44	20.0							
eM <sub>4</sub>	11	10	37	20.0							

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		AE	AN	AZ		
			h	m	s	s	μ	μ	μ	km.	
54	Sept. 10	C	...							8	A local shock.
		eFE	11	23	57						
		eFN	11	24	00						
		P	11	10	16						
55	Sept. 14	L	11	10	17					9	Ditto.
		M	11	10	17		±5	±9			
		CN	11	10	19						
		FE	11	10	22						
		eFN	11	10	21						
		P	0	32	44						
56	Sept. 16	L	0	32	45					5730	A distant earthquake, probably in the eastern sea of the Philippine Islands.
		ME	0	32	46		±21				
		MN	0	32	46			±20			
		eF	0	32	53						
		P	18	08	16						
		S	18	15	22						
*57	Sept. 21	L	18	21	02					18	A local quake with strong shocks at the epicenter.
		ME	18	26	42	15.0	-19				
		MN	18	26	57	15.0		-15			
		CE	18	28	50						
		eFE	18	58	50						
		eFN	18	52	50						
		P	8	20	02						
58	Sept. 24	L	8	20	05					9	Near the River Maruyama.
		eME	8	20	05		±263				
		MN	8	20	05			±213			
		CE	8	20	16						
		CN	8	20	21						
		eFE	8	20	53						
		FN	8	20	53						
P	19	25	03								

No.	Date	Phase	Time			Period	Amplitude			Δ	Remarks
			G.	M.	T.		A <sub>E</sub>	A <sub>N</sub>	A <sub>Z</sub>		
			h	m	s	s	μ	μ	μ	km.	
59	Sept. 28	L	19	25	04						
		M	19	25	04						
		C	19	25	08						
		P	15	34	02					24	Near Toyooka.
		L	15	34	05						
		ME	15	34	05		±20				
		MN	15	34	05			±23			
60	Sept. 30	FE	15	34	17						
		FN	15	34	20						
		P	8	44	15					24	Ditto.
		L	8	44	18						
		ME	8	44	18		±18				
		MN	8	44	18			±28			
		CE	8	44	21						
		CN	8	44	21						
		FE	8	44	28						
FN	8	44	30								



# SEISMOLOGICAL BULLETIN

OF THE

IMPERIAL MARINE OBSERVATORY

AND

KOBE METEOROLOGICAL OBSERVATORY.

KOBE, JAPAN.

VOL. II. No. 4.

From October 1, 1926 to December 31, 1926.

KOBE

April, 1927.

大正十五年十二月二十八日發行

神戸市中山手通七丁目候所

印刷者 神戸市楠町三丁目一番屋敷吉

印刷所 神戸市楠町三丁目一五ノ六

# KÔBE JAPAN.

## SEISMOLOGICAL BULLETIN

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

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

Instrument: Omori's Seismograph  
(Horizontal Pendulum.)

Wiechert Seismograph  
(Horizontal & Vertical)

### CONTENTS

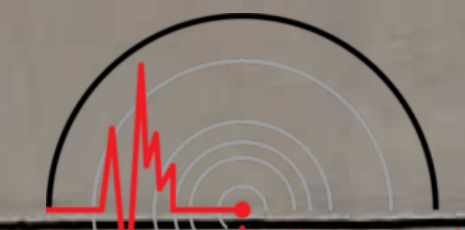
	Page.
Seismological Bulletin of Kobe .....	65.
Seismological Bulletin of Sumoto .....	71.
Seismological Bulletin of Toyooka .....	80.

	$T_0$	$\epsilon$	$\frac{r}{T_0^2}$	V		$T_0$	$\epsilon$	$\frac{r}{T_0^2}$	V
AN:	20		0.003	20.0	AN:	5.1	Aperiodic	0.004	80
AE:	20		0.008	20.0	AE:	5.2	"	0.004	80
AE:	25		0.001	42.7	AZ:	4.1	"	0.006	80

No.	Date	Phase	Time			Period	Amplitude			J	Remarks
			G.	M.	T.		AE	AN	AZ		
85	Oct. 2	P	19	04	17					689	In Kasima-nada. Near the epicenter, strong or moderate shock was felt.
		L	19	05	46						
		ME	19	05	59	1.6	±19				
		MN	19	05	56	2.0		±15			
		FE	19	11	30						
		FN	19	10	30						
86	Oct. 3	P	8	28	20					834	Sea coast of Iwaki.
		L	8	30	09						
		M <sub>1</sub> E	8	30	36	2.1	±48				
		M <sub>1</sub> N	8	30	27	2.1		±50			
		M <sub>2</sub> E	8	31	55	3.4	±44				
		M <sub>2</sub> N	8	31	13	3.5		±50			
		FE	8	39	30						
		FN	8	40	30						
87	Oct. 3	MN	20	27	44						Faint record.
		FN	20	31	30						
88	Oct. 13	ME	6	21	39	20.0	±4				Ditto.
		FE	6	27	±						

No.	Date	Phase	Time	Period	Amplitude			Δ	Remarks
					AE	AN	AZ		
			G. M. T.		μ	μ	μ	km.	
			h m s	s					
89	Oct. 13	P	19 15 41					4466	Trace of a distant earthquake.
		L	19 25 13						
		ME	19 29 21	19.6	±5				
		MN	19 31 21	15.7		±5			
		FE	19 52 ±						
		FN	19 50 ±						
90	Oct. 19	P	0 32 11						Epicenter probably in Hokkaido.
		FE	0 39 ±						
		FN	0 39 ±						
91	Oct. 19	P	14 05 03					70	In Nara province. Strong shock was felt in the epicentral region. L phase was very clear.
		L	14 05 12						
		ME	14 05 13		±56				
		MN	14 05 13			±118			
		CE	14 06 29	1.8	±15				
		CN	14 06 31	1.2		±10			
		FE	14 09 ±						
FN	14 09 ±								
92	Oct. 20	P	1 41 35					129	In the upper course of Kuzuryu river, Fukui province.
		L	1 41 53						
		M <sub>1</sub> E	1 41 54	1.0	±178				
		M <sub>1</sub> N	1 41 54	1.0		±148			
		M <sub>2</sub> E	1 41 58	1.6	±116				
		M <sub>2</sub> N	1 41 58	1.6		±13			
		CE	1 44 15	2.2	±25				
		CN	1 44 12	1.9		±13			
		FE	1 48 ±						
		FN	1 48 ±						
		93	Oct. 26	P	3 51 56				
S	3 57 46								
L	4 02 56								
ME	4 07 40			21.5	±8				
MN	4 03 29			21.1		±31			

No.	Date	Phase	Time	Period	Amplitude			Δ	Remarks	
					AE	AN	AZ			
			G. M. T.		μ	μ	μ	km.		
			h m s	s						
					eFE	4 28 25				
					eFN	4 28 25				
94	Oct. 30	P	13 51 33						Ditto.	
		FE	13 52 ±							
		FN	13 52 ±							
95	Nov. 4	P	6 30 43						105	In Wakayama province.
		L	6 30 57							
		M	6 31 04		±20					
		eF	6 32 15							
96	Nov. 5	ME	19 07 59	1.8	±6					Trace only.
		MN	19 07 55	2.5		±9				
		FE	19 11 ±							
		FN	19 11 ±							
97	Nov. 10	P	8 57 06						74	Northern part of Kyoto. P and L phases were very distinct.
		L	8 57 16							
		ME	8 57 27	2.4	±421					
		MZ	8 57 25	2.6		±111				
		CE	8 59 40	2.3	±50					
		CN	8 59 34	1.9		±46				
		eFE	9 03 30							
eFN	9 03 30									
eFZ	9 01 30									
98	Nov. 10	P	18 06 47						46	Local shock.
		L	18 06 53							
		eF	18 07 30							
99	Nov. 11	P	3 03 06						724	Off the coast of Iwaki.
		L	3 04 40							
		M <sub>1</sub> E	3 06 27	2.6	±64					
		MN	3 06 13	3.0		±51				
		M <sub>2</sub> E	3 07 14	2.6	±51					



International  
Seismological  
Centre

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					AE μ	AN μ	AZ μ		
100	Nov. 17	CE	3 07 48	2.2	±25			45	An after shock of No. 97.
		CN	3 07 51	2.2		±34			
		FE	3 12 ±						
		FN	3 12 ±						
		P	11 15 ±						
		L	11 15 ±						
101	Nov. 23	ME	11 15 ±		±15			Faint record.	
		MN	11 15 ±			±15			
		F	11 16 ±						
		eL	11 05 35						
		ME	11 05 39	0.9	±18				
102	Nov. 27	MN	11 05 38	1.2		±18		As the record was overlapped by the pulsatory motion, P and L phases could not distinguished.	
		FE	11 09 ±						
		FN	11 09 ±						
		ME	5 33 32		±13				
103	Nov. 27	MN	5 31 30			±13		Trace only.	
		FE	5 40 ±						
		FN	5 40 ±						
		eP	9 26 24						
		L	9 26 50						
		ME	9 26 53	1.0	±30				
104	Dec. 1	MN	9 26 52			±20		Ditto.	
		eF	9 27 30						
		eF	9 27 30						
		eP	3 58 00						
		P	4 58 21						
105	Dec. 1	L	4 58 59				286	Off the coast of Izumo, Simane prefecture.	
		M <sub>1</sub> E	4 59 00		±31				
		M <sub>1</sub> N	4 59 01	2.3		±63			
		M <sub>1</sub> Z	4 59 03	1.5					
									±24

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks	
					AE μ	AN μ	AZ μ			
106	Dec. 5	M <sub>2</sub> E	4 59 20	2.2	±39			576	Northern off of Hattiyosima.	
		M <sub>2</sub> N	4 59 35			±40				
		M <sub>2</sub> Z	4 59 20	1.2			±20			
		FE	5 07 ±							
		FN	5 07 ±							
		FZ	5 03 ±							
		eP	5 53 59							
107	Dec. 5	L	5 55 13					Trace only.		
		M <sub>1</sub> E	5 55 17	2.7	±29					
		M <sub>1</sub> N	5 55 17	2.7		±51				
		M <sub>2</sub> E	5 56 05	3.4	±13					
		M <sub>2</sub> N	5 56 06	3.8		±44				
		FE	6 02 ±							
		FN	6 02 ±							
108	Dec. 12	ME	21 16 41	1.8	±11			441	Near Kasumigaura. A weak shock was felt near the epicenter.	
		MN	21 16 29	1.8		±13				
		FE	21 18 ±							
		FN	21 19 ±							
		P	22 02 30							
109	Dec. 17	L	22 03 26					74	Faint record. In Kii channel.	
		M <sub>1</sub> E	22 03 36	2.6	±84					
		M <sub>1</sub> N	22 03 32	2.3		±30				
		MZ	22 03 35	2.3			±35			
		M <sub>2</sub> E	22 04 32	2.2	±81					
		M <sub>2</sub> N	22 04 37	3.3		±31				
		eFE	22 10 20							
		eFN	22 10 20							
		eFZ	22 10 20							
		P	9 06 24							
109	Dec. 17	L	9 06 34					74	Faint record. In Kii channel.	
		ME	9 06 36		±10					
		MN	9 06 39	0.6		±9				



# SUMOTO JAPAN.

## SEISMOLOGICAL BULLETIN

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

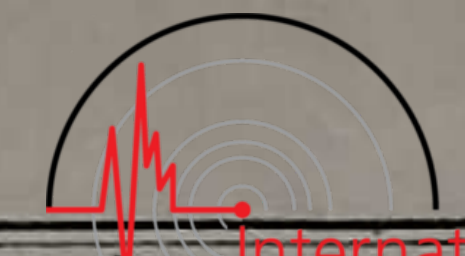
(Horizontal)

	$T_0$	$\xi$	$\frac{r}{T_0^2}$	V
AE:	6.0	Aperiodic	0.003	80
AN:	6.0	"	0.004	80
AZ:	4.1	"	0.006	80

No.	Date	Phase	Time			Period	Amplitude			$\Delta$	Remarks	
			G.	M.	T.		AE	AN	AZ			
			h	m	s	s	$\mu$	$\mu$	$\mu$	km.		
110	Dec. 23	FE	9	07	±					66	Faint record.	
		FN	9	07	±							
		P	5	07	30							
		L	5	07	39							
		ME	5	07	41							±15
		MN	5	07	41							±20
		FE	5	08	±							
FN	5	08	±									
111	Dec. 27	P	0	14	58	1.3	±13	±20		174	In Simane prefecture.	
		L	0	15	22							
		ME	0	15	27							
		MN	0	15	25							
		FE	0	16	±							
		FN	0	16	±							
		112	Dec. 27	ME	18							46
MN	18			46	26							
eFE	18			46	50							
eFN	18			46	50							

No.	Date	Phase	Time			Period	Amplitude			$\Delta$	Remarks
			G.	M.	T.		AE	AN	AZ		
			h	m	s	s	$\mu$	$\mu$	$\mu$	km.	
172	Oct. 2	P	2	59	40	0.2	-1	-1		97	In Kii channel.
		L	2	59	54		+9	+5			
		ME	2	59	54		+15				
		MN	2	59	54			-13			
		MZ	2	59	56				-2		
		F	3	00	38						
173	Oct. 2	P	6	11	50	0.2				65	Ditto.
		L	6	11	59		-1	+2			
		ME	6	12	00		±6				
		MN	6	12	08			±9			
		MZ	6	12	00				±3		
		F	6	12	39						
174	Oct. 2	eP	19	04	20	1.5				626	In Kasima-nada.
		L	19	05	44		-4	-3			
		ME	19	06	11		-5				
		MN	19	06	11			-6			
		F	19	10	16						
175	Oct. 3	P	8	28	26		+1	+1		711	Off the coast of Iwaki.





International  
Seismological  
Centre

No	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					AE μ	AN μ	AZ μ		
		S	8 29 31		-3	-1			
		L	8 30 12		-6	-9			
		M <sub>1</sub> E	8 30 30	4.1	±32				
		M <sub>1</sub> N	8 30 30	4.1		±18			
		M <sub>1</sub> Z	8 30 39	3.2			±5		
		M <sub>2</sub> E	8 31 27	4.1	+24				
		M <sub>2</sub> N	8 31 02	4.1		+25			
		M <sub>2</sub> Z	8 31 30	3.2			-6		
		C <sub>E</sub>	8 34 38						
		C <sub>N</sub>	8 33 52						
		F	8 44 34						
176	Oct. 3	eP	19 50 52				4769	A distant earthquake	
		eS	19 55 28						
		eL	20 01 28						
		M <sub>E</sub>	20 02 08	8.2	-4				
		M <sub>N</sub>	20 02 08	8.2		+5			
		M <sub>Z</sub>	20 02 06						
		F	20 31 40						
177	Oct. 12	P	12 12 06		-1	-1	22	Local shock. Near Sumoto.	
		L	12 12 09		+3	+3			
		M	12 12 09		-4	-4			
		F	12 12 25						
178	Oct. 13	P	6 09 23				5538	A distant earthquake	
		S	6 15 13						
		L	6 21 39						
		M <sub>E</sub>	6 23 52	16.0	-6				
		M <sub>N</sub>	6 23 57	16.0		+9			
		F	7 02 22						
179	Oct. 13	P	19 15 44		-1	-1	5231	Ditto.	
		S	19 21 49		-4	+4			
		L	19 27 14		-9	-6			
		M <sub>E</sub>	19 29 14	15.5	-30				

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					AE μ	AN μ	AZ μ		
		M <sub>N</sub>	19 29 14	15.5		+15			
		eF	20 48 ±						
180	Oct. 17	eP	7 26 50				31	In Kidan straits.	
		L	7 26 55		-1	+3			
		M <sub>E</sub>	7 26 57	0.3	±9				
		M <sub>N</sub>	7 26 57	0.3		±11			
		M <sub>Z</sub>	7 26 56	0.2			±3		
		eF	7 27 17						
181	Oct. 19	eP	14 05 03				74	Near Yagi, Nara province.	
		P̄	14 05 04		-1	+1			
		S	14 05 08		-2	+3	+1		
		S̄	14 05 13		-19	-78			
		L	14 05 13						
		M <sub>E</sub>	14 05 13	0.5	+48				
		M <sub>N</sub>	14 05 13	0.5		-112			
		M <sub>Z</sub>	14 05 17	0.5			-18		
		F <sub>E</sub>	14 06 19						
		F <sub>N</sub>	14 06 28						
182	Oct. 20	P	1 41 40		+1	+1	-1	194	In the course of Kuzuryu river.
		L	1 42 06		-5	+11	+1		
		M <sub>1</sub> E	1 42 39	1.0	±18				
		M <sub>1</sub> N	1 42 39	1.0		±20			
		M <sub>1</sub> Z	1 42 11	1.0			+5		
		M <sub>2</sub> E	1 42 45	1.0	±14				
		M <sub>2</sub> N	1 42 37	1.0		±18			
		M <sub>2</sub> Z	1 42 23	1.0			+5		
		F	1 44 35						
183	Oct. 26	P	3 51 54				3777	Trace of a distant earthquake.	
		S	3 53 45		-4	-15			
		S <sub>R</sub>	3 56 17		-8	-10			
		L	3 56 41		-3	+8			
		M <sub>1</sub> E	4 00 53	18.4	-25				

\* Earthquake felt.

No.	Date	Phase	Time	Period	Amplitude			$\Delta$	Remarks
					AE	AN	AZ		
			G. M. T.		$\mu$	$\mu$	$\mu$	km.	
			h m s	s					
184	Oct. 26	M <sub>1</sub> N	4 03 13	18.4		+37		4997	Ditto.
		M <sub>2</sub> E	4 07 07	19.4	+17				
		M <sub>2</sub> N	4 09 30	19.4		-26			
		eF	4 56 ±						
		P	6 18 45						
185	Oct. 26	S	6 24 28				5153	Ditto.	
		L	6 29 39						
		eF	7 00 ±						
		P	14 23 09						
		S	14 25 30						
186	Oct. 29	S <sub>R</sub>	14 29 14				2345	Ditto.	
		L	14 34 27						
		eF	14 55 ±						
		P	0 13 44						
		S	0 15 45						
187	Oct. 30	L	0 17 52		+1	+2	6141	Ditto.	
		F	0 33 ±						
		eP	10 07 04						
		eS	10 11 48						
		eS <sub>R</sub>	10 16 38						
188	Nov. 2	L	10 20 52				3708	Ditto.	
		ME	10 22 07	7.7	-2				
		MN	10 21 53	7.7		-3			
		eF	11 04 ±						
		eP	19 50 27						
189	Nov. 2	S	19 54 08				3569	Ditto.	
		L	19 57 49						
		eF	20 28 ±						
189	Nov. 2	P	21 13 50		-1	+1	3569	Ditto.	
		S	21 16 27		+1	-1			

No.	Date	Phase	Time	Period	Amplitude			$\Delta$	Remarks
					AE	AN	AZ		
			G. M. T.		$\mu$	$\mu$	$\mu$	km.	
			h m s	s					
190	Nov. 4	L	21 21 06					49	In Wakayama.
		eF	21 41 ±						
		P	6 30 31		+1	-1	+1		
		L	6 30 38		+2	+3	+1		
		ME	6 30 38	0.5	+4				
		MN	6 30 38	0.5		+5			
191	Nov. 9	MZ	6 30 38	0.5				42	Near the river of Arita.
		F	6 31 04				-1		
		eP	11 25 23		+1	+1	-3		
		L	11 25 29		+1	+3	-3		
		ME	11 25 29	0.3	+2				
		MN	11 25 29	0.3		+4			
192	Nov. 10	MZ	11 25 30	0.3				118	Near Kyoto.
		F	11 26 27				-1		
		P	8 57 13		-2	-2	+1		
		L	8 57 29		+9	-5	-3		
		ME	8 57 31	0.3	-27				
		MN	8 57 31	0.3		+40			
193	Nov. 10	MZ	8 57 30	0.3				42	Local shock. In the course of Arita river.
		eF	9 06 ±				-5		
		P	18 06 42		+0.3	+1	-0.5		
		L	18 06 47		+1	+3			
		ME	18 06 49		-3				
		MN	18 06 48			-4			
194	Nov. 11	MZ	18 06 48	0.3				503	Off the coast of Iwaki. P and L phase were clear.
		eF	18 07 56				±1		
		P	3 03 10		+1	+1	-1		
		S	3 04 00		+1	-3	-1		
		L	3 05 08		+1	-2	-1		
		M <sub>1</sub> E	3 05 08	3.2	-8				
194	Nov. 11	M <sub>1</sub> N	3 05 15	3.2				503	Off the coast of Iwaki. P and L phase were clear.
							-9		

\* Earthquake felt.

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			$\Delta$ km.	Remarks	
					AE $\mu$	AN $\mu$	AZ $\mu$			
195	Nov. 17	M <sub>1</sub> Z	3 05 25	3.2			-2	19	An after shock of No. 192.	
		M <sub>2</sub> E	3 05 32	3.2	-8					
		M <sub>2</sub> N	3 05 47	3.2		-18				
		M <sub>2</sub> Z	3 05 43	3.2			+2			
		M <sub>3</sub> E	3 05 49	3.2	-9					
		M <sub>3</sub> N	3 06 07	3.2		-14				
		M <sub>3</sub> Z	3 16 26	3.2			-2			
		F	3 33 27							
196	Nov. 18	eP	11 15 12				0.4	39	Local shock.	
		L	11 15 14	+1	-1					
		M	11 15 14							
		eF	11 15 37							
197	Nov. 18	eP	0 59 32					21	Ditto.	
		L	0 59 37	+1	+1					
		M	0 59 38	-2	-3					
		eF	1 00 00							
198	Nov. 23	eP	16 34 00				0.6	96	Local shock. In the Bay of Ise.	
		L	16 34 03	-1	+1					
		eF	16 34 34							
		M <sub>E</sub>	11 05 43	+1	-1	+1				
		M <sub>N</sub>	11 05 43	-3		+3				
199	Nov. 27	M <sub>Z</sub>	11 05 47	0.6			0.6	4220	Trace of a distant earthquake.	
		eF	11 07 08							-1
		P	5 24 51							
		S	5 29 43							
200	Nov. 27	L	5 33 46					56	Local shock.	
		F	6 35 ±							
		eP	8 52 39							

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			$\Delta$ km.	Remarks	
					AE $\mu$	AN $\mu$	AZ $\mu$			
201	Nov. 27	L	8 52 46		-1	+1		173	Faint record.	
		M	8 52 46		-1	+3				
		eF	8 53 ±							
		P	9 26 25		-1	+1	-0.5			
		L	9 26 49		-1	-1	+1			
		M <sub>E</sub>	9 26 52	0.6	±4					
		M <sub>N</sub>	9 26 51	0.6		±6				
202	Dec. 1	M <sub>Z</sub>	9 26 51	0.6				183	Off the coast of Izumo, Simane prefecture.	
		F	9 28 47				-1			
		P	3 57 50		-1	+1	-0.3			
		L	3 58 16		-1	+1	+1			
		M <sub>E</sub>	3 58 42	0.4	-2					
203	Dec. 1	M <sub>N</sub>	3 58 42	0.4				296	Ditto.	
		M <sub>Z</sub>	3 58 41	0.4						-1
		F	3 59 52							
		P	4 58 44		+1	+1	+1			
		L	4 59 24		-6	+7	-1			
204	Dec. 1	M <sub>E</sub>	4 59 28	1.3	+17			39	Near the course of Arita river.	
		M <sub>N</sub>	4 59 28	1.3			-16			
		M <sub>Z</sub>	4 59 38	1.6						+4
		eF	5 05 ±							
		eP	6 37 47							
205	Dec. 4	L	6 37 52		+5	+5	-1	32	Near Sumoto.	
		M <sub>E</sub>	6 37 53	0.3	-8					
		M <sub>N</sub>	6 37 53	0.3			-12			
		M <sub>Z</sub>	6 37 54	0.3						-3
		eF	6 38 36							
205	Dec. 4	P	21 00 04					32	Near Sumoto.	
		L	21 00 08		-1	-1				
		M	21 00 09		-1	-2				
		F	21 00 31							

No.	Date	Phase	Time	Period	Amplitude			$\Delta$	Remarks
					AE	AN	AZ		
			G. M. T.		$\mu$	$\mu$	$\mu$	km.	
*206	Dec. 5	P	3 03 34		+1	-1	-1	31	Ditto.
		L	3 03 38		+3	+6	-1		
		M	3 03 39	0.3	-9	-8			
		F	3 04 47						
207	Dec. 5	P	5 54 38					466	Northern off of Hallsima.
		S	5 55 14						
		L	5 55 51		+1	-1			
		M	5 55 52	3.1	+5	-8			
*208	Dec. 5	eP	5 56 06					30	Near Sumoto.
		L	5 56 10		+3	+3	+1		
		ME	5 56 10	0.3	-6				
		MN	5 56 10	0.3		-8			
		MZ	5 56 11	0.3			+1		
		eF	5 56 49						
209	Dec. 12	eP	22 02 42					502	Near Kasumigaura.
		L	22 03 49		-3	-1			
		ME	22 04 12		+11				
		MN	22 04 12			+13			
		MZ	22 04 12				-3		
		F	22 12 ±						
210	Dec. 17	P	9 06 58					42	In Kidan straits.
		L	9 07 04		-1	+4	-1		
		ME	9 07 04	0.3	+8				
		MN	9 07 04	0.3		±19			
		MZ	9 07 05	0.3			+1		
		eF	9 08 14						
211	Dec. 21	eP	17 54 51					34	Near Wakayama.
		L	17 54 56		+3	+3	-1		
		ME	17 54 56		-4				
		MN	17 54 56			±7			
		MZ	17 54 56				-1		

No.	Date	Phase	Time	Period	Amplitude			$\Delta$	Remarks
					AE	AN	AZ		
			G. M. T.		$\mu$	$\mu$	$\mu$	km.	
212	Dec. 22	eF	17 55 26					35	Ditto.
		P	19 50 27		+1	+1	+1		
		L	19 50 32		-1	+3	-1		
		M	19 50 32	0.4	+3	±6	±1		
213	Dec. 23	P	5 07 25		+0.5	-1	-0.5	39	Ditto.
		L	5 07 30		-2	-3	+1		
		ME	5 07 31		-6				
		MN	5 07 31			±9			
214	Dec. 27	MZ	5 07 31				+2	294	In Simane prefecture.
		eF	5 08 25						
		P	0 14 39						
		L	0 15 18		-1	+3	+1		
215	Dec. 27	M	0 15 21	0.4	-3	-4	+1	150	In Bingo-nada.
		F	0 18 07						
		eP	14 14 19		+1	+1			
		L	14 14 39		±1	±3			
216	Dec. 27	M	14 14 42	0.2				111	In the course of Arita river.
		F	14 17 02						
		eP	18 45 54		-1	+1			
		L	18 46 19		+1	-2	-1		
217	Dec. 28	M	18 46 23	0.5				43	Near Sumoto.
		F	18 48 25						
		eP	10 00 38		-1	-1			
		L	10 00 44		±1	±3			
218	Dec. 28	M	10 00 44					43	Near Sumoto.
		F	10 01 30						



# TOYOOKA JAPAN.

## SEISMOLOGICAL BULLETIN

A Branch Station of the Kobe Meteorological Observatory of Japan.  
 $\phi=35^{\circ} 32'$   $\lambda=134^{\circ} 49'$   $h=23.3$  m. Underground: Diluvial Series.  
 Instruments: Wiechert Seismograph.

(Horizontal Pendulum.)

	$T_0$	$\epsilon$	$\frac{r}{T_0^2}$	V
AE:	3.2		0.008	80
AN:	3.4		0.013	80

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			$\Delta$ km.	Remarks
					AE $\mu$	AN $\mu$	AZ $\mu$		
61	Oct. 2	eP	19 04 31	2.0	$\pm 8$			494	In Kashima-nada.
		L	19 05 38						
		ME	19 05 58						
		MN	19 05 57						
		eF	19 08 $\pm$						
62	Oct. 3	eP	8 26 58	3.7	$\pm 15$				P and L phases were not distinct. Off the coast of Iwaki.
		eL	8 28 18						
		ME	8 30 36						
		M <sub>1</sub> N	8 30 33						
		M <sub>2</sub> N	8 31 39						
		eF	8 42 $\pm$						
63	Oct. 3	eME	20 17 10	20.0					Trace of a distant earthquake.
		eMN	20 21 32						
		eFE	20 42 $\pm$						
		eFN	20 39 $\pm$						
64	Oct. 8	P	1 31 45					30	Near Toyooka.
		L	1 31 49						
		ME	1 31 50						
		MN	1 31 49						

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			$\Delta$ km.	Remarks								
					AE $\mu$	AN $\mu$	AZ $\mu$										
65	Oct. 12	FE	1 32 37		$\pm 10$			22	Ditto.								
		FN	1 32 40														
		P	5 19 45														
		L	5 19 48														
		ME	5 19 48														
		MN	5 19 48														
		FE	5 20 06														
		FN	5 20 08														
		66	Oct. 13							P	6 10 34	15.2	$\pm 5$			3950	Trace of a distant earthquake.
										eL	6 18 48						
ME	6 21 59																
MN	6 20 38																
FE	6 33 $\pm$																
FN	6 35 $\pm$																
67	Oct. 13	P	19 15 37	24.6	$\pm 9$			4348	Ditto.								
		S	19 21 32														
		eL	19 24 52														
		ME	19 29 38														
		MN	19 26 22														
		CN	19 42 31														
68	Oct. 17	P	21 30 19					81	Near Kyoto.								
		L	21 30 30														
		M	21 30 30														
		F	21 30 46														
69	Oct. 19	P	14 05 14					145	Near Yagi.								
		L	14 05 34														
		ME	14 05 35														
		MN	14 05 36														
		FE	14 06 31														

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					AE μ	AN μ	AZ μ		
*70	Oct. 20	P	1 41 33		±298	±400		111	Near the river of Kuzuryu.
		L	1 41 48						
		M	1 41 49						
		eF	1 44 27						
71	Oct. 26	P	3 52 05						A distant earthquake.
		S	3 57 55						
		L	4 01 00						
		MN	4 03 54						
		F	4 40 ±						
72	Nov. 8	P	4 38 53		-10			18	Local shock.
		L	4 38 55						
		ME	4 38 55						
		MN	4 38 55						
		eFE	4 39 05						
		eFN	4 39 08						
*73	Nov. 10	P	8 57 38		±313			80	Near Kyoto. Strong shock was felt near the epicenter.
		L	8 57 39						
		eME	8 57 45						
		eMN	8 57 45						
		eFE	8 59 51						
		eFN	8 59 57						
74	Nov. 11	P	3 03 06						Off the coast of Iwaki.
		S	3 04 47						
		eL	3 05 46						
		eF	3 20 46						
75	Nov. 16	P	20 28 53		±14			25	Near Toyooka.
		L	20 28 56						
		ME	20 28 56						
		MN	20 28 57						
		eF	20 29 12						

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			Δ km.	Remarks
					AE μ	AN μ	AZ μ		
76	Nov. 17	P	11 15 03					79	Near Kyoto.
		L	11 15 13						
		eME	11 15 15						
		eFE	11 15 38						
77	Nov. 19	P	10 05 45					22	Local shock.
		L	10 05 48						
		eM	10 05 48						
		eF	10 05 57						
78	Nov. 20	P	2 36 23					19	Ditto. Near the epicenter moderate shock was felt.
		L	2 36 25						
		M	2 36 26						
		F	2 37 02						
79	Nov. 22	P	18 21 00					22	Ditto.
		L	18 21 03						
		eM	18 21 03						
		FE	18 21 15						
80	Nov. 23	P	11 05 24					234	Epicenter in Ise Bay.
		L	11 05 55						
		ME	11 05 58						
		eFE	11 06 30						
81	Nov. 27	P	9 26 22					161	Trace only.
		L	9 26 43						
		eME	9 26 46						
		MN	9 26 45						
82	Dec. 1	P	9 27 34					188	Off the coast of Izumo.
		L	9 27 35						
		FE	9 27 34						
		FN	9 27 35						

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			$\Delta$ km.	Remarks
					AE $\mu$	AN $\mu$	AZ $\mu$		
83	Dec. 1	ME	3 57 44		-13			223	Ditto.
		FE	3 58 57						
		eFN	3 59 02						
		P	4 58 03						
		L	4 58 33						
		ME	4 58 42	1.0	+55				
		MN	4 58 55	2.0		+43			
		CE	4 59 09						
84	Dec. 1	FE	5 01 07				202	Faint record.	
		eFN	4 59 51						
		P	9 51 04						
		L	9 51 31						
		eME	9 51 35		-13				
		FN	9 52 07						
85	Dec. 5	P	5 54 11					Near Hatizyosima.	
		S	5 55 33						
		eL	5 56 36						
86	Dec. 12	P	22 02 33				450	Near Kasumigaura.	
		L	22 03 33						
		ME	22 03 45	1.6	+23				
		MN	22 03 41	2.6		+55			
		eCN	22 03 46						
eF	22 06 57								
87	Dec. 15	P	18 35 50				176	Local.	
		L	18 36 14						
		ME	18 36 15		$\pm 24$				
		MN	18 36 15			$\pm 15$			
		C	18 36 18						
		F	18 36 38						

No.	Date	Phase	Time G. M. T.	Period s	Amplitude			$\Delta$ km.	Remarks
					AE $\mu$	AN $\mu$	AZ $\mu$		
*88	Dec. 27	P	0 14 54				164	In Simane prefecture. The end was overlapped by the following earth- quake.	
		L	0 15 16						
		eME	0 15 19		$\pm 40$				
		CE	0 15 27						
		CN	0 15 28						
		F	0 16 07						
89	Dec. 27	P	0 20 32				19	Near Toyooka.	
		L	0 20 34						
		ME	0 20 34		$\pm 7$				
		F	0 20 44						
90	Dec. 27	P	18 46 54				170	In the course of Arita river.	
		L	18 47 17						
		M	18 47 18	$\pm 10$	$\pm 15$				
		F	18 47 47						