

THE
SEISMOLOGICAL
BULLETIN

L32

OF

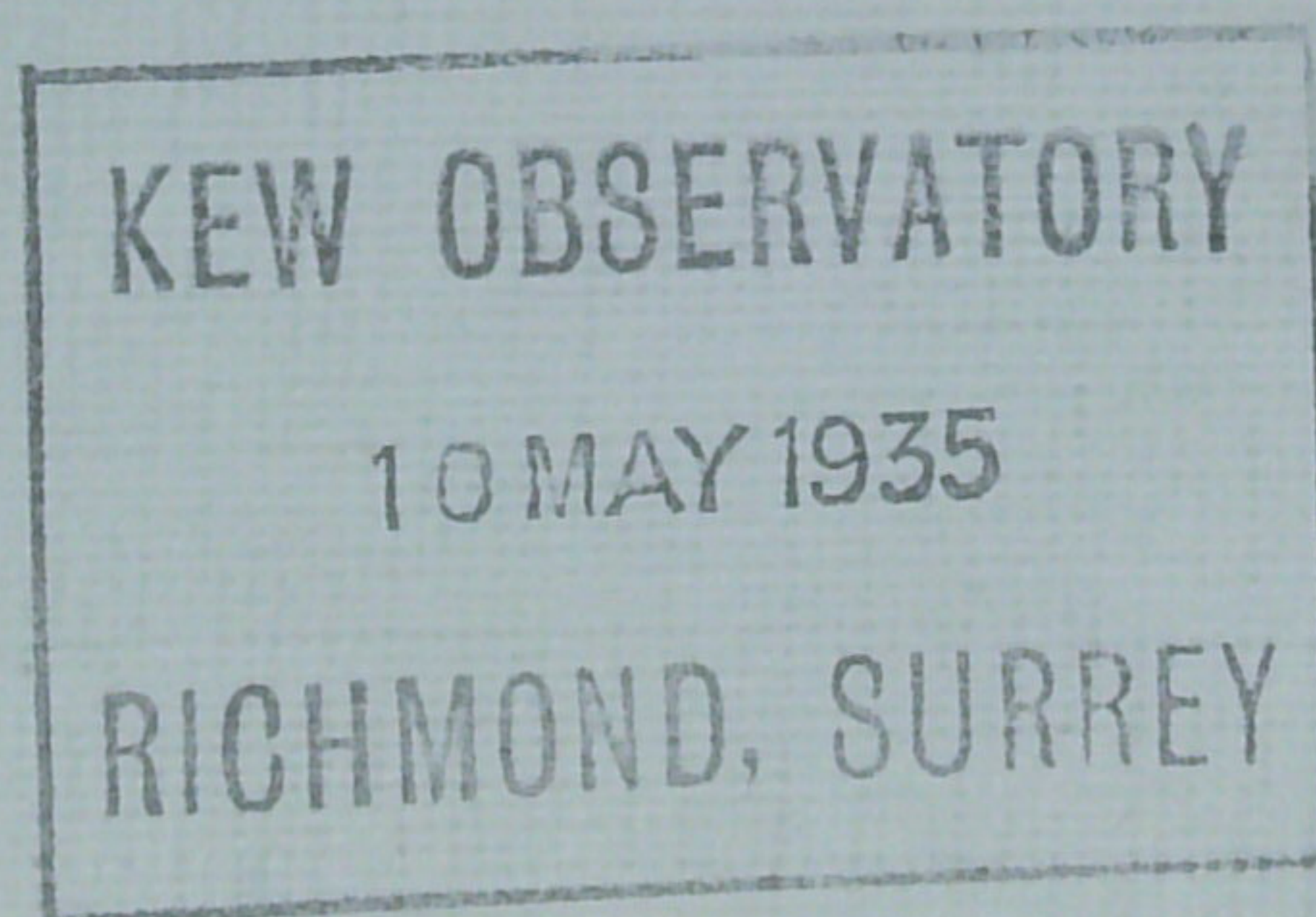
THE HUKUOKA METEOROLOGICAL OBSERVATORY

OF

JAPAN

VOL. V

FROM JANUARY TO DECEMBER, 1934.



PUBLISHED BY

THE HUKUOKA METEOROLOGICAL OBSERVATORY

March 1935.

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Constants

Position of Observatory:

Longitude: 130° 25'.4 E

Latitude: 33° 34'.8 N

Height from mean sea level: 4.3 m

Underground: Alluvium.

Seismographs:

Apparatus	Component	T_0	$\frac{r}{T_0^2}$	V
Ômori's Horizontal Seismograph 15kg	E—W	22	0.014	20
Ômori's Tromometer 47kg	N—S	15	0.090	120

Symbols and Notations

1. Phases of the seismogram.

P = First preliminary tremors (longitudinal).

\bar{P} = Individual, or upper first preliminary tremors.

PR_n = Longitudinal waves n times reflected at the earth's surface.

S = Second preliminary tremors (transverse).

\bar{S} = Individual, or upper second preliminary tremors.

SR_n = Transverse waves n times reflected at the earth's surface.

PS = Waves changed from longitudinal to transverse oscillation, or vice versa, through reflection at the earth's surface.

L = Long waves at the beginning of the surface phase.

M = Maximum Amplitude in principal phase.

C = Waves of the tail or end portion.

F = End of discernible movements.

2. Nature of the motion.

i = Sudden beginning of the motion.

e = Gradual beginning of the motion.

A = Amplitude of the earth's motion in microns.

A = E—W component of A.

A_N = N—S component of A.

Period = Time of one complete oscillation.

3. Distance of epicenter.

Δ = Distance of epicenter; for the near earthquakes calculated by the Ômori's formula

$\Delta = 7.42t$, and for the distant earthquakes by the Wiechert's, Zoeppritz's and Zeissig's time distance curve.

4. Time used. Greenwich mean civil time is adopted for all determinations.

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No.	Date	Phase	Time			Period	Amplitude		Δ	Epicenter and Remarks
			G.	M.	T.		A _E	A _N		
			h	m	s	s	μ	μ	km.	
1	Jan. 3	P	9	47	49.3				2625	SW off Kamtchatka.
		S	9	52	04.4					
		F	10	15	40.—					
2	Jan. 8	P	23	07	50.4				330	Upper valley of River Yosino, Tokushima Prefecture. 133°.9E, 34°.0N. Shallow focus earthquake. Felt in the greater parts of Sikoku, Tyugoku and Kinki district.
		S	23	08	34.9					
		M _E	23	08	46.9	1.7	+35			
		M _N	23	08	45.4	2.6		-77		
		C _N	23	09	37.0					
F	23	19	30.—							
3	Jan. 12	e	13	43	36.0				—	SSE off Okinawa Is.
		F	14	04	—					
4	Jan. 14	P	21	36	27.3				79	Near Volcano Aso, Kumamoto Prefecture.
		S	21	36	38.0					
		M _N	21	36	38.1	0.4		+ 6		
		F	21	38	00.—					
5	Jan. 15	P	8	50	40.3				4290	Eern part of India. Felt in the epicentral regions disastrously.
		S	8	56	43.7					
		L	9	04	43.1					
		M _E	9	08	20.8	17.5	+4470			
		F	11	51	—					
6	Jan. 20	e	22	55	01.4				—	S off Formosa.
		eS	22	57	09.4					
		M _E	23	00	56.8	10.3	+25			
		F	23	18	—					
7	Jan. 20	P	23	44	31.9				151	Near Saigô, Miyazaki Prefecture.
		S	23	44	52.3					
		M _N	23	44	54.0	1.2		+ 6		
		F	23	48	—					
8	Jan. 21	e	6	56	23.0				—	Sern part of Taiwan

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No.	Date	Phase	Time			Period	Amplitude		Δ km.	Epicenter and Remarks
			G.	M.	T.		A _E	A _N		
			h	m	s	s	μ	μ		
	Jan. 21	e	6	58	01.3					straits. All phases could not be distinguished.
		e	7	00	22.0					
		F	7	36	—					
9	Jan. 22	P	7	52	23.0				1610	Bashi channel.
		eS	7	55	09.7					
		F	8	27	—					
10	Jan. 29	iP	1	38	59.9		- 5	+29	74	Wern foot of Volcano Aso, Kumamoto Prefecture. 130°.97E, 32°.95N. Shallow focus earthquake. Focal depth within 10 km. Felt in the Nern half of Kyûsyû and a part of Sikoku district.
		S	1	39	09.8					
		M _E	1	39	10.4	0.8	+730			
		M _N	1	39	10.0	1.0		+600		
		M ^z	1	39	11.0	0.8	to U	250		
		F	1	50	30.—					
11	Feb. 4	P	16	09	50.0				291	Near Okayama City. 133°.9E, 34°.9N. Felt in the Eern half of Tyûgoku, Wern part of Kinki and a part of Sikoku district.
		S	16	10	29.2					
		M _N	16	10	30.3	1.4		+18		
		C _N	16	10	52.7					
		F	16	13	20.—					
12	Feb. 7	P	22	30	05.8				272	SW off yaku-sima Is., Kagosima Prefecture. Felt at Naze, Kagosima Prefecture.
		S	22	30	42.5					
		F	22	35	—					
13	Feb. 12	e	11	38	12.5				—	Distant earthquake. All phases could not be distinguished.
		e	11	42	54.3					
		e	11	45	58.0					
		M _E	11	49	49.0	9.9	-35			
		F	12	13	—					
14	Feb. 14	P	4	04	02.1				2080	W off Luzon.
		S	4	07	32.2					
		M	4	13	11.1	20.0	+1590			
		F	5	57	—					

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			G.	M.	T.		A _E	A _N		
			h	m	s	s	μ	μ	km.	
15	Feb. 24 ✓	P	6	27	29.1		to W	to N	1830	SSE off Bonin Is. 143°.0E, 24°.5N. Deep focus earthquake. Abnormal felt area in Kwantô district.
		S	6	30	36.9					
		L	6	31	58.7					
		M _{E1}	6	33	45.0	16.6	-735			
		M _{E2}	6	35	18.2	15.8	-440			
		M _{E3}	6	36	16.4	15.6	±530			
		M _N	6	33	15.0	15.1		-300		
16	Feb. 28	eP?	14	29	29.3				-	Eern New Guinea.
		F	15	11	-					
17	Mar. 4	e	11	31	53.7				-	Aleutian Is.
		e	11	34	07.5					
		F	12	06	-					
18	Mar. 5	e	12	09	33.2				-	Distant earthquake.
		e	12	22	09.6					
		M _E	12	39	33.9	16.7	+20			
		F	13	21	-					
19	Mar. 18	i	4	38	36.5		-10	+17	-	Epicenter unknown.
		M _E	4	38	40.7	4.3	+35			
		M _N	4	38	40.7	5.0		-18		
		F	4	49	-					
20	Mar. 24	P	12	13	47.6				5600	Distant earthquake.
		S	12	21	02.4					
		L	12	28	56.6					
		F	13	31	-					
21	Mar. 30	P	14	54	35.9				218	In the Hiuga-nada. 132°.1E, 32°.3N. Felt at a part of Miyazaki Prefecture.
		S	14	55	05.3					
		M _N	14	55	09.3	2.4		+14		
		C _N	14	55	47.3					
		F	14	57	10.-					

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No.	Date	Phase	Time			Period	Amplitude		Δ	Epicenter and Remarks
			G.	M.	T.		A _E	A _N		
			h	m	s	s	μ	μ	km.	
22	Apr. 3	eP?	22	33	13.5				-	NW off Bōnin Is.
		F	23	07	-					
23	Apr. 6	eP	0	22	31.7				106	Misumi peninsula, Kumamoto Prefecture.
		S	0	22	46.0					
		F	0	24	30.-					
24	Apr. 6	eP	19	11	52.4				1280	NE off the cape of Sioya, Hukusima prefecture. 141°.7E, 37°.3N. Felt in the greater parts of Tōhoku and Kwantō.
		S	19	14	08.4					
		F	19	25	-					
25	Apr. 15	eP	10	35	18.1				813	SSE off the cape of Nozima, Tiba Prefecture. 140°.0E, 34°.5N. Focal depth about 60 km.
		eS	10	37	07.6					
		F	10	52	-					
26	Apr. 15	P	22	20	48.2		to E	to N	2960	In the neighbouring sea of Mindanao Is.
		S	22	25	27.8					
		M _E	22	32	16.4	20.0	+125			
		M _N	22	33	22.7	16.8		+50		
		F	23	54	-					
27	Apr. 18	eP?	11	56	53.5				-	In the Hiuga-nada. P phase not distinct.
		S	11	57	26.1					
		M _N	11	57	32.2	2.3		- 7		
		F	12	00	-					
28	Apr. 19	iP	16	15	29.9		-13		703	S off Hatizyō Is. 139°.5E, 30°.0N. Record is deep focus type. Focal depth about 350 km. Felt at places in Kwantō district.
		iS _E	16	17	04.7	5.0	+100			
		iS _N	16	17	04.7	4.7		+104		
		F	16	26	-					
29	Apr. 28	P	2	01	24.3				17	Sern part of Tikusi district, Hukuoka Prefecture. Focal depth is very shallow. Felt in the greater parts of Hukuoka and Saga Prefecture.
		S	2	01	26.6					
		M _E	2	01	26.8	< 0.5	-1450			
		M _N	2	01	26.9	0.5		-600		
		M _Z	2	01	27.0	0.6	to U	250		

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			G.	M.	T.		A _E	A _N		
			h	m	s	s	μ	μ	km.	
	Apr. 28	C _F	2	01	42.7					
		F	2	03	-					
30	Apr. 28	P	2	02	27.4				17	After shock of No. 29.
		S _E	2	02	29.7	0.3	+115			Felt at Hukuoka City
		S _N	2	02	29.7	0.4		+46		slightly.
		F	2	03	30.-					
31	Apr. 28	P	9	55	30.9				18	Ditto.
		S _E	9	55	33.3	0.4	+100			
		S _N	9	55	33.3	0.5		+50		
		F	9	56	17.-					
32	Apr. 28	P	15	14	55.0				18	After shock of No. 29.
		S	15	14	57.4					
		M _N	15	14	57.6	0.4		+ 6		
		F	15	15	20.-					
33	May 1	P	17	05	11.1				18	Ditto.
		S	17	05	13.5					
		F	17	05	36.-					
34	May 3	P	1	34	09.2				1590	NNW off Bonin Is.
		eS	1	36	54.5					
		F	2	09	-					
35	May 4	P	4	45	56.4				6290	Alaska.
		S	4	53	48.4					
		eL	5	01	58.1					
		M _E	5	06	59.2	28.0	-25			
		M _N	5	07	32.6	26.0		+ 8		
		F	5	39	-					
36	May 11	eP	0	00	40.3				144	In the Bungo channel.
		S	0	00	59.7					
		M _N	0	01	00.4	0.5		- 8		

No.	Date	Phase	Time			Period	Amplitude		Δ	Epicenter and Remarks
			G.	M.	T.		A _E	A _N		
			h	m	s	s	μ	μ	km.	
	May 11	F	0	02	30.-					
37	May 18	P	11	17	47.6				97	Near Nagasaki City.
		S	11	18	00.6					
		M _N	11	18	04.1	1.0		+15		
		F	11	20	00.-					
38	May 30	P	23	06	03.7				930	Near Mito city. 140. ^o 5E, 36. ^o 3N.
		S	23	08	09.0					Focal depth about 50 km. Felt
		F	23	16	-					in Kwantô, Tôhoku and Tyûbu
										district.
39	June 2	P	21	29	37.9		- 2	+ 2	237	Sern part of Hiuga-nada.
		S	21	30	09.8					Felt at places in S Kyûsyû.
		M _E	21	30	19.6	1.1	-100			
		M _N	21	30	17.9	1.2		+83		
		F	21	37	20.-					
40	June 9	P	13	06	21.4				4620	Neighbourhood of New
		S	13	12	43.1					Guinea. 147 ^o E, 4 ^o S.
		F	13	37	-					
41	June 13	P	1	54	49.-				1930	N off Sikotan Is., Hokkaidô.
		S	1	58	06.-					146. ^o 7E, 43. ^o 8N. Felt at places
		F	2	22	-					in Hokkaidô, Tôhoku and
										Kwantô district.
42	June 13	P	22	20	14.-				6500	Distant earthquake.
		S	22	28	17.-					Time is doubtful.
		F	23	30	-					
43	June 24	P	14	59	26.1				111	Near Ooita City.
		S	14	59	41.1					
		F	15	01	10.-					
44	June 26	P	20	34	38.3		- 3	+ 2	121	In the Bungo channel.
		S	20	34	54.6					
		M _N	20	34	54.8	0.5		-10		

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			G.	M.	T.		A _E	A _N		
			h	m	s	s	μ	μ	km.	
	June 26	F	20	39	40.-					
45	June 29	P	8	32	04.8				3620	In the neighbouring sea of New Guinea.
		S	8	37	29.5					
		F	8	53	-					
46	July 18	e	1	57	44.3				-	Distant earthquake.
47	July 18	P	19	50	06.2				6440	Ditto.
		S	19	58	06.2					
		i	20	04	23.1					
		L	20	08	06.6					
		M _E	20	10	57.6	22.4	+2930			
		M _N	20	09	56.8	21.6		+470		
		F	21	30	-					
48	July 19	eP	1	34	20.1				3560	Ditto.
		eS	1	39	40.9					
		L	1	41	55.8					
		M _E	1	43	38.1	18.2	-50			
		F	2	26	-					
49	July 21	P	6	28	10.9				6450	Ditto.
		S	6	36	11.4					
		L	6	42	35.1					
		M _E	6	42	55.7	34.0	+165			
		M _N	6	42	56.9	31.7		+33		
		F	8	22	-					
50	Aug. 11	P	8	21	15.4				-	Near Giran, Formosa. 121°.8E, 24°.7N. Focal depth is very shallow. Felt in the greater part of Formosa.
		L	8	25	32.7					
		M _E	8	26	20.6	16.0	-50			
		M _N	8	26	31.7	13.0		+40		
		F	8	56	-					
51	Aug. 12	P	23	54	49.6				2750	Neighbourhood of Mindanao Is.

No.	Date	Phase	Time			Period	Amplitude		△	Epicenter and Remarks
			G.	M.	T.		A _E	A _N		
			h	m	s	s	μ	μ	km.	
	Aug. 12	S	23	59	13.8					
	13	F	0	37	-					
52	Aug. 15	P	15	56	13.0				76	In the Kwanmon straits.
		S	15	56	23.3					Felt at Mozi City slightly.
		F	15	57	10.-					
53	Aug. 18	eP	2	40	09.6				668	Near Hatiman, Gihu
		iS	2	41	39.6		-70	-63		Prefecture. 137°.03E, 35°.72N.
		M _N	2	41	50.3	9.5		+273		Focal depth about 15 km.
		F	3	04	-					Felt area in Tyûbu, Kinki. Tyûgoku, Sikoku and Kwantô.
54	Aug. 28	P	22	37	14.4				18	Local shock.
		S	22	37	16.9					
		M _E	22	37	19.3	0.3	+14			
		M _N	22	37	17.6	0.3		- 8		
		F	22	37	35.-					
55	Aug. 31	P	23	05	45.0				79	In the Suô-nada. 131°.4E, 33°.8N.
		S	23	05	55.6					Shallow focus earthquake.
		M _E	23	05	56.3	0.4	+130			Felt at Hukuoka slightly
		M _N	23	05	58.1	0.6		- 118		
		F	23	09	-					
56	Sept. 1	P	2	45	27.2				200	In the Hiuga-nada.
		S	2	45	54.1					
		M _E	2	46	03.2	1.4	±13			
		M _N	2	46	02.8	1.7		+ 8		
		F	2	48	30.-					
57	Sept. 12	e	14	21	32.2				-	Neighbourhood of Yuwô Is., Kagosima Prefecture.
58	Sept. 12	P	14	24	58.8				301	Ditto. The end part overlaped by the following earthquake.
		eS	14	25	39.3					
59	Sept. 12	P	14	27	48.6				322	Ditto.

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No.	Date	Phase	Time			Period	Amplitude		△	Epicenter and Remarks
			G.	M.	T.		A _E	A _N		
			h	m	s	s	μ	μ	km.	
	Sept. 12	S	14	28	32.0					
		M _F	14	28	46.3	12.2	±160			
		M _N	14	29	00.1	10.0		+172		
60	Sept. 12	eP	14	33	04.0				-	After shock of No. 59.
		F	14	44	-					
61	Sept. 12	P	15	36	47.7				301	Ditto.
		eS	15	37	28.3					
		F	15	50	-					
62	Sept. 12	P	17	43	37.1				307	Ditto.
		S	17	44	18.5					
		F	17	59	40.-					
63	Sept. 13	P	3	05	45.7				255	Ditto.
		eS	3	06	20.0					
		F	3	12	20.-					
64	Sept. 13	P _N	14	19	00.4				264	Ditto.
		S _E	14	19	36.0					
		F	14	27	-					
65	Sept. 15	P	13	09	24.2				352	Ditto.
		eS	13	10	11.6					
		F	13	16	-					
66	Sept. 16.	P	1	29	45.3				79	Off the mouth of River
		S	1	29	56.0					Sira-kawa, Kumamoto
		M _N	1	29	56.4	0.4		+ 7		Prefecture.
		F	1	31	15.-					
67	Sept. 16	P	13	16	08.1				328	After shock of No. 59.
		P?	13	16	14.9		- 7	- 5		
		eS	13	16	52.3					
		M _F	13	17	10.0	9.8	±90			

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No.	Date	Phase	Time			Period	Amplitude		Δ	Epicenter and Remarks
			G.	M.	T.		AE	AN		
			h	m	s	s	μ	μ	km.	
	Sept. 16	M _N	13	17	17.5	5.6		+34		
		F	13	31	-					
68	Oct. 10	P	15	52	49.6				7380	Neighbourhood of Fiji Is., South Pacific Ocean.
		S	16	01	38.0					
		F	16	23	-					
69	Oct. 15	e	8	29	56.3				-	Distant earthquake.
		F	8	38	-					
70	Oct. 21	eP?	17	58	03.9				-	S off Bonin Is.
		eS?	18	01	22.3					All phases not distinct.
		F	18	20	-					
71	Oct. 23	P	7	46	40.5		to W	to N	143	Near Volcano Aso, Kumamoto Prefecture. Rather deep?
		S	7	46	59.7					
		F	7	48	40.-					
72	Oct. 26	P	17	12	17.6		+ 2	- 2	371	E off Tane-ga-sima Is., Kagosima Prefecture. 132°.0E, 30°.5N. Felt in the greater parts of Kyûsyû and Sikoku.
		S	17	13	07.6					
		M _E	17	15	17.4	17.0	+355			
		M _N	17	14	44.4	16.6				
		F	17	50	-					
73	Oct. 26	P	20	52	15.6				352	After shock of No. 72.
		S	20	53	03.1					
		F	20	59	-					
74	Oct. 27	P	12	39	34.1				79	Near Kitaoguni, Kumamoto Prefecture.
		S	12	39	44.7					
		M _N	12	39	50.5	0.5				
		F	12	41	30.-				-10	
75	Oct. 27	P	16	08	47.7				85	Ditto.
		S	16	08	59.1					
		F	16	09	50.-					

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			G.	M.	T.		A _E	A _N		
			h	m	s	s	μ	μ	km.	
76	Oct. 27	P	17	04	47.8	0.6			83	Near Kitaoguni, Kumamoto Prefecture.
		S	17	04	59.0					
		M _N	17	05	03.9					
		F	17	06	50.-					
77	Nov. 10	P	20	47	39.7	0.4			30	Local shock.
		S	20	47	43.8					
		M _N	20	47	44.5					
		F	20	48	40.-					
78	Nov. 26	P	12	14	01.9				2305	Neighbourhood of Philippine Is.
		S	12	17	50.9					
		F	12	39	-					
79	Dec. 15	eP	2	04	34.0	16.5	-285		3705	Tibet.
		eS	2	10	04.0					
		L?	2	14	47.9					
		M _E	2	18	22.9					
		M _N	2	17	12.7					
		F	3	30	-					

昭和十年三月二十五日印刷

昭和十年三月三十一日發行

發行所 福岡測候所
福岡市大字住吉

印刷人 大隈龍介
福岡市東職人町十八番地

印刷所 福岡印刷株式會社
福岡市上名島町五十三番地