

THE
SEISMOLOGICAL
BULLETIN

O F

The Hukuoka Meteorological Observatory

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J A P A N

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From January to December, 1929.

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January 1930.

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
Omori's Horizontal Seismograph 15kg	E-W	21	0.009	20
Omori's Tromometer 47kg	N-S	14	0.025	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 = Prominent waves among after tremors.

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 = 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 Omori's formula

$\Delta = 7.42t$, 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		△	Epicenter and Remarks	
			G.	M.	T.		A _E	A _N			
			h	m	s	s	μ	μ	km.		
1	Jan.	1	\bar{P}	16	40	18				70	Near Minami-Oguni, Kumamoto prefecture. Felt at places in the Hukuoka prefecture.
			\bar{S}	16	40	28					
			M _E	16	40	32	0.8	-250			
			M _N	16	40	32	0.9		+304		
			F	16	52	—					
2	Jan.	4	P	2	09	51				144	In the Bungo channel.
			S	2	10	10					
			M _N	2	10	12	0.5		-3		
			F	2	12	00					
3	Jan.	11	\bar{P}	15	33	21				79	After shock of No.1.
			\bar{S}	15	33	32					
			M _E	15	33	33	<0.5	±13			
			M _N	15	33	32	0.4		-13		
			F	15	36	10					
4	Jan.	13	P	0	08	19				2720	L phase could not be distinguished. NErn part of the Okhotsk sea.
			S	0	12	34					
			M _{1E}	0	13	35	14.9	+735			
			M _{2E}	0	20	51	19.2	+470			
			M _{1N}	0	13	49	24.5		>738		
			M _{2N}	0	22	32	15.5		-197		
			C _{1E}	0	25	36	15.6	-123			
			C _{2F}	0	29	30	12.5	+100			
			C _{1N}	0	26	35	12.2		-21		
			C _{2N}	0	29	52	12.7		-35		
			F	2	25	30					
5	Jan.	16	iP	8	10	32				2220	Neighbouring sea of Luzon.
			iS	8	14	11					
			F	9	14	20					
6	Jan.	18	\bar{P}	16	16	30				73	After shock of No.1.
			\bar{S}	16	16	40					
			M _E	16	16	40	0.4	+13			
			M _N	16	16	40	0.3		-14		
			F	16	17	50					
7	Feb.	3	P	2	45	26			623	Near Naze, Kagosima	

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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.	
		S	2	46	30					
		L	2	46	50					prefecture.
		M_E	2	46	55	12.0	-80			
		M_N	2	47	27	10.6		-59		
		F	2	57	10					
8	Feb. 3	e	7	06	05				—	After shock of No.7.
		F	7	11	50					Small amplitudes.
9	Feb. 6	P	6	54	03				2520	E. off Iturup island.
		S	6	58	04					
		F	7	06	10					
10	Feb. 9	\bar{P}	12	27	58				93	Near Kumamoto.
		\bar{S}	12	28	11					Felt at Kumamoto, Hukuoka,
		M_E	12	28	12	0.5	+203			\hat{O} ita, Saga, Miyazaki,
		M_N	12	28	11	0.4		+171		Kagosima and Simonoseki.
		F	12	34	30					First motion $\left\{ \begin{array}{l} 22 \mu \text{ to W.} \\ 32 \mu \text{ to N.} \end{array} \right.$
11	Feb. 11	\bar{P}	11	27	42				82	After shock of No. 10.
		\bar{S}	11	27	53					Slight shock was felt
		F	11	29	40					at \hat{O} muta and Akiduki,
										Hukuoka prefecture.
12	Feb. 14	eP	14	40	34				663	In the neighbouring sea
		L	14	42	03					of Naze, Kagosima
		M_E	14	42	46	12.5	-70			prefecture.
		F	14	57	00					
13	Feb. 15	\bar{P}	12	01	09				93	In the course of River
		\bar{S}	12	01	22					Kikuti, Kumamoto
		M_N	12	01	24	<0.5		± 6		prefecture.
		F	12	02	29					
14	Feb. 24	\bar{S}	2	29	21				—	After shock of No. 10.
		F	2	29	57					Small amplitudes.
15	Feb. 24	eP?	12	20	09				70	P phase not distinct.
		S	12	20	18					Δ doubtful.
		M_N	12	20	20	0.6		+2		Probably in the middle

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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.	
16	Feb. 28	F	12	21	02					course of River Gôno-gawa.
		\bar{P}	6	29	43				22	Slight shock was felt at Magaributi, Sahara district.
		\bar{S}	6	29	46					
		M _N	6	29	46	0.2		+6		
F	6	31	03							
17	Mar. 3	\bar{P}	9	17	31				85	Lower course of the River Midori-gawa, Kumamoto prefecture. Felt at Kumamoto
		\bar{S}	9	17	42					
		M _N	9	17	45	0.5		+6		
		F	9	18	31					
18	Mar. 4	\bar{P}	9	25	33				89	Ditto.
		\bar{S}	9	25	45					
		M _N	9	25	47	0.5		± 4		
		F	9	26	40					
19	Mar. 7	iP	1	43	08				5200	Wrn part of Aleutian Is.
		ePR ₁	1	45	03					
		iS	1	49	54					
		SR ₁	1	53	27					
		L	1	55	33					
		M _{1E}	1	56	41	15.2	-306			
		M _{2E}	2	04	55	17.1	-465			
		M _{1N}	1	56	49	15.6		-342		
		M _{2N}	1	59	40	14.7		-377		
		M _{3N}	2	04	44	14.4		-200		
F	5	00	—							
20	Mar. 9	P	2	15	16				1650	S. far off Islet Hatidyo.
		S	2	18	02					
		eL	2	19	22					
		M _E	2	19	51	19.2		± 30		
		F	3	04	30					
21	Mar. 10	eP	14	39	06				2265	SE. off Bonin Is.
		S	14	42	48					
		F	15	02	50					
22	Mar. 15	P	10	14	14			145	In the Bungo channel.	

No.	Date	Phase	Time			Period	Amplitude		Δ	Epicenter and Remarks
			G.	M.	T.		A _E	A _N		
			h	m	s	s	μ	μ	km.	
23	Mar. 31	\bar{P}	10	14	15	0.6		-8		Felt at Ôita.
		eS	10	14	33					
		\bar{S}	10	14	38					
		M _N	10	14	39					
		F	10	16	12					
23	Mar. 31	eP?	20	16	01	16.0	± 19		-	All phases not distinct. Distant earthquake.
		eS?	20	20	10					
		eL?	20	22	36					
		M _E	20	24	55					
		F	20	49	00					
24	Apr. 15	P	5	59	25	3.7	-23		148	Srn part of the Amakusa-nada.
		S	5	59	45					
		M _E	5	59	57					
		M _N	5	59	50					
		F	6	02	25					
25	Apr. 16	e	0	57	00				-	phase could not be distinguished. In the Kasima-nada.
		eL	0	57	53					
		F	1	02	50					
26	Apr. 17	e	18	38	17				-	All phases could not be distinguished.
		F	18	43	50					
27	May 1	eP	15	47	29	14.9	+240		6780	In the Khorassan, Persia. A very strong shock was felt at the epicentral regions.
		eS	15	55	47					
		L	16	10	43					
		M _E	16	12	39					
		M _N	16	13	28					
27	May 1	F	17	02	00	15.3	+471			
		P	2	36	34	1.2			191	W. off Amakusa-nada.
		S	2	36	59					
		M _N	2	37	08					
F	2	38	05							
28	May 6	P	2	36	34				191	W. off Amakusa-nada.
		S	2	36	59					
29	May 8	\bar{P}	5	22	30				84	Near Kumamoto. Felt at all prefectures
		\bar{S}	5	22	42					

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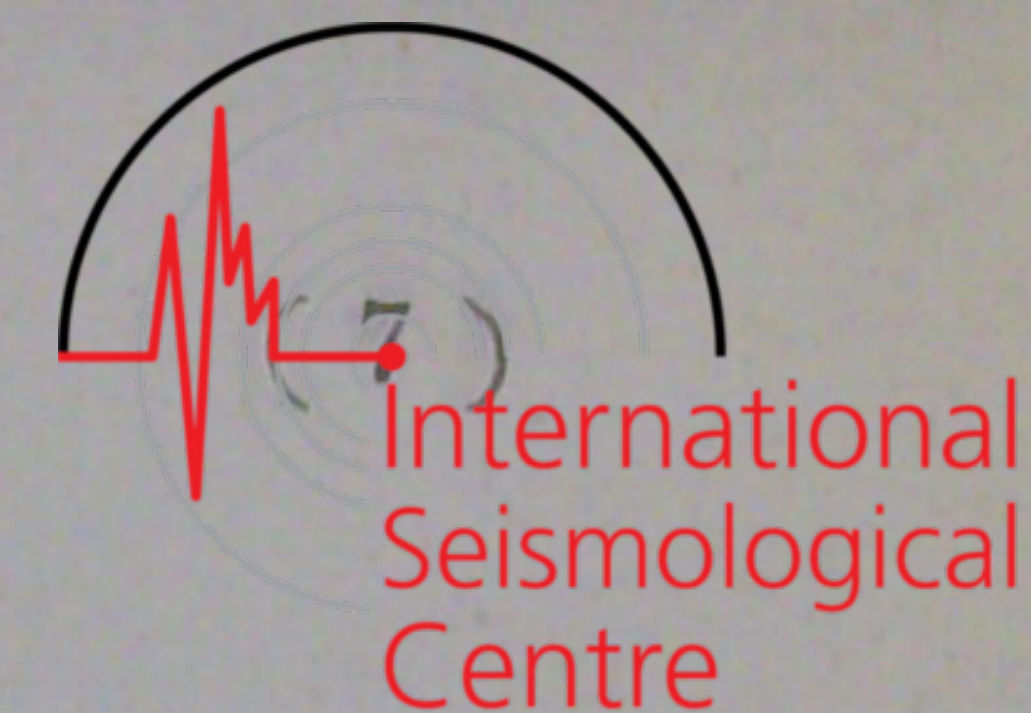


No.	Date	Phase	Time			Period	Amplitude		△	Epicenter and Remarks
			G.	M.	T.		A _E	A _N		
			h	m	s	s	μ	μ	km.	
30	May 20	ME	5	22	42	< 0.5	-13		123	of Kumamoto, Hukuoka, Saga, Nagasaki and Miyazaki.
		MN	5	22	43	0.5		-20		
		F	5	24	10					
		P	14	37	03					
		S	14	37	20					
		MN	14	37	22	0.4		-16		
31	May 21	eP	9	15	27				235	W. far off Amakusa-nada.
		S	9	15	59					
		F	9	18	30					
32	May 21	P	16	36	04				243	ESE. off Miyazaki. Felt at Kyushu, Sikoku, Sanyō and Sanin. First motion { 2 μ to W. 3 μ to N.
		S	16	36	37					
		ME	16	37	08	21.5	-2975			
		MN	16	37	09	13.2		< 800		
		F	17	18	—					
33	May 21	P	16	58	40				226	After shock of No. 32.
		S	16	59	10					
		F	17	01	00					
34	May 21	P	17	11	00				183	Ditto.
		S	17	11	25					
		ME	17	11	36	1.8	-36			
		MN	17	11	37	1.7		-23		
		F	17	19	30					
35	May 21	P	17	21	36				215	Ditto.
		S	17	22	05					
		ME	17	22	14	1.2	+10			
		MN	17	22	08	1.7		-11		
		F	17	31	30					
36	May 21	eP	21	28	23				187	Ditto.
		S	21	28	49					
		F	21	30	00					

No.	Date	Phase	Time			Period	Amplitude		Δ	Epicenter and Remarks
			G.	M.	T.		A _E	A _N		
			h	m	s	s	μ	μ	km.	
37	May 22	eP	0	20	32				237	W. far off Amakusa-nada.
		S	0	21	04					
		M _N	0	21	10					
		F	0	23	20					
38	May 24	eP	5	26	18				211	After shock of No. 32.
		S	5	26	46					
		M _N	5	26	50	0.9		+ 5		
		F	5	27	45					
39	May 26	P	22	51	14				8220	Distant earthquake.
		S	23	00	45					
		L	23	16	36					
		M _{1E}	23	18	35	24.0	-150			
		M _{2E}	23	20	58	21.0	+193			
	M _{3E}	23	23	34	19.6	+315				
		May 27	F	0	50	00				
40	June 1	P	18	00	16				740	SE. off Okinawa. Small amplitudes. Felt at Naze, Kagosima prefecture.
		eS	18	01	37					
		eL	18	02	02					
		F	18	10	40					
41	June 2	P	21	40	05				517	In the mouth of Ise bay. Felt at places in Kwansai, Kwantô and Tôhoku. First motion $\left\{ \begin{array}{l} 8 \mu \text{ to W.} \\ 4 \mu \text{ to S.} \end{array} \right.$
		L	21	41	14					
		M _E	21	41	23	14.0	-1875			
		M _N	21	41	36	6.0		-508		
		F	22	04	40					
42	June 7	P	19	53	24				208	Srn part of the Bungo channel.
		S	19	53	52					
		M _N	19	53	58	0.5		-10		
		F	19	56	30					
43	June 8	\bar{P}	23	18	24				97	Upper course of River Midori-gawa, Kumamoto prefecture. Felt at Kumamoto.
		\bar{S}	23	18	37					
		M _F	23	18	41	0.6	+10			
		M _N	23	18	37	0.4		+10		
		F	23	20	35					

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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.	
44	June 9	P	9	12	33				2285	SE. off Iturup island.
		S	9	16	20					
		eL	9	17	54					
		M _E	9	22	10	16.1	+84			
		F	10	19	00					
45	June 11	P	19	33	01				209	In the Hiuga-nada. Slight shock was felt at Miyazaki.
		S	19	33	29					
		M _E	19	33	37	1.7	+10			
		M _N	19	33	32	2.0		+13		
		F	19	36	30					
46	June 13	P	0	16	49				2315	SE. off Iturup island.
		S	0	20	39					
		L	0	22	11					
		M _{1E}	0	26	54	18.5	-475			
		M _{2E}	0	28	24	19.4	±488			
		M _{3E}	0	40	18	19.2	-683			
		MN	0	26	30	17.3		+120		
		F	2	17	00					
47	June 13	P	9	30	09				3350	Neighbouring sea of Philippine islands.
		S	9	35	17					
		L	9	38	48					
		M _E	9	39	41	20.5	-308			
		M _N	9	41	31	16.5		-215		
		C _E	9	49	45	16.5	±158			
		C _N	10	00	31	14.1		-68		
		F	10	54	00					
48	June 13	eP	23	06	13				2950	In the South Seas.
		eS	23	10	52					
		F	23	53	—					
49	June 16	P	23	00	09				9430	Neighbourhood of New Zealand. Strong shock was felt at the epicentral regions.
		S	23	10	41					
		L	23	22	04					
		M _E	23	29	35	28.8	+209			
		M _N	23	25	47	18.7		+48		

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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.	
	June. 17	F	0	30	00					
50	June. 17	eP	10	21	53				—	Small amplitudes. Probably in the South Seas.
	"	F	11	02	00					
51	June. 19	P	7	36	12				3070	In the South Seas.
		eS	7	41	00					
		F	8	17	00					
52	June. 26	P	8	46	30				154	In the middle part of Suo-nada.
		S	8	46	50					
		M _E	8	46	51	0.4	-15			
		M _N	8	46	53	0.7		-15		
		F	8	52	00					
53	June. 26	P	16	51	32				1018	NE. off the cape of Inubô, Tiba prefecture.
		L	16	53	49					
		F	17	08	00					
54	June. 27	P	13	07	08				9760	Distant earthquake. Epicenter unknown.
		eS	13	17	55					
		eL	13	30	39					
		M _E	14	16	53	22.0	+51			
		M _N	14	23	20	18.5		-28		
		F	15	15	00					
55	June. 30	P	2	50	10				2780	In the South Seas.
		eS	2	54	36					
		eL	2	57	39					
		F	3	15	00					
56	July. 3	P	20	03	30				581	Upper valley of River Arita-gawa, Wakayama prefecture.
		L	20	04	41					
		M _N	20	04	44	2.4		-5		
		F	20	09	20					
57	July. 5	P	22	44	07				4530	In Kamtchatka.
		eS	22	50	24					
		L	22	55	35					

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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.	
58	July 7	M _E	23	00	45	21.0	± 13		4310	Ditto.
		F	23	44	20					
		iP	21	31	00					
		S	21	37	05					
		L	21	41	48					
		M _{1E}	21	43	59	24.3	+90			
		M _{2E}	21	48	10	18.0	+113			
		M _{1N}	21	42	49	22.5		+58		
		M _{2N}	21	48	12	21.0		-57		
F	23	34	30							
59	July 10	P	16	59	22				111	In the Aki sea.
		S	16	59	37					
		M _E	16	59	39	0.5	-9			
		M _N	16	59	37	0.5		+7		
		F	17	00	40					
60	July 12	eP	18	00	47				499	NE. off Naze, Amami-Ōsima, Kagosima prefecture.
		eL	18	01	54					
		F	18	08	50					
61	July 14	P	9	42	01				2610	In Kamtchatka.
		S	9	46	15					
		L	9	48	16					
		M _E	9	49	55	24.0	± 55			
		F	10	27	00					
62	July 26	eP	22	50	14				870	Near Mt. Tanzawa. Strong shock was felt at Tokyo, Yokohama and Yokosuka.
		L	22	52	12					
		M _E	22	52	56	14.4	-180			
		M _N	22	52	32	6.7		-208		
		F	23	14	00					
63	Aug. 3	\bar{P}	16	00	18		-19	-31	65	NW. off Kwammon strait. Felt at Nrn part of Kyūsyū and Wrn part of Tyūgoku.
		\bar{S}	16	00	27					
		M _E	16	00	30	0.4	-85			
		M _N	16	00	31	0.4		+119		
		F	16	07	30					

No.	Date	Phase	Time			Period	Amplitude		△	Epicenter and Remarks
			G.	M.	T.		A _E	A _N		
			h	m	s	s	μ	μ	km.	
64	Aug. 6	P̄	20	39	28				65	After shock of No. 63.
		S̄	20	39	37					
		F	20	40	30					
65	Aug. 8	ME	13	18	42	9.2	-58		—	Distant earthquake.
		MN	13	16	23	15.2		+62		
		F	13	29	29					
66	Aug. 8	P̄	13	29	29.3				17	Near Mt. Kanayama, Sahara district; Hukuoka prefecture. Felt at Hukuoka slightly.
		S̄	13	29	31.6					
		ME	13	29	33.3	0.7	-43			
		MN	13	29	31.8	0.4		-68		
		F	13	31	00.0					
67	Aug. 8	P̄	13	33	21.1		-105	-8	19	Ditto. Rather strong shock was felt at the epicentral regions.
		S̄	13	33	23.7					
		ME	13	33	24.6	0.5	-1925			
		MN	13	33	28.0	—		>1163		
		F	13	37	20.0					
68	Aug. 10	P̄	13	23	31.9				14	After shock of No. 67.
		S̄	13	23	33.8					
		MN	13	23	34.0	0.7		-4		
		F	13	24	00.0					
69	Aug. 17	P̄	15	07	51.4				17	Ditto.
		S̄	15	07	53.7					
		MN	15	07	53.8	<0.5		-6		
		F	15	08	40.0					
70	Aug. 19	iP	2	46	03				1290	SE. off Sowô bay, Formosa.
		iS	2	48	20					
		L	2	49	56					
		ME	2	51	10	16.6	-460			
		F	3	24	00					
71	Aug. 19	eP	20	47	28				1380	Ditto.
		eS	20	49	53					
		eL	20	51	36					

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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.			
72	Aug. 20	M _E	20	55	28	10.8	±14		1300	Ditto.		
		F	21	10	00							
		P	16	41	16	15.9	+25					
		eS	16	43	34							
		L	16	45	22							
		M _E	16	46	29							
		F	17	07	00							
73	Aug. 28	P	18	54	39	13.3	+140		2170	S. off the cape of Erimo, Hokkaidô.		
		S	18	58	17							
		L	18	59	42							
		M _E	19	00	56							
		F	19	29	10							
74	Aug. 31	P̄	3	03	16	< 0.5	+50		97	NW. off Kwammon strait. Felt at Mozi, Kokura and Nakatani.		
		S̄	3	03	29							
		M _E	3	03	31							
		M _N	3	03	30						0.4	-51
		F	3	04	10							
75	Aug. 31	P̄	3	07	43	0.7	+55		99	Ditto.		
		S̄	3	07	57							
		M _E	3	07	57							
		M _N	3	07	57						0.5	-67
		F	3	09	20							
76	Sept. 2	P	11	18	03	9.3	±13		2880	In the neighbouring sea of Philippine Is.		
		S	11	22	37							
		M _E	11	30	35							
		F	11	45	10							
77	Sept. 5	P	12	56	31				142	Ern part of Iyo-nada. Felt at Hirosima.		
		S	12	56	51							
		F	12	57	30							
78	Sept. 11	P	22	21	44				1260	E. off Kwarenkô, Formosa.		
		eS	22	23	58							
		eL	22	25	25							

No.	Date	Phase	Time			Period	Amplitude		Δ	Epicenter and Remarks
			G.	M.	T.		A _E	A _N		
			h	m	s	s	μ	μ	km.	
		M _E	22	28	46	9.8	+33			
		F	22	46	30					
79	Sept. 20	eP	4	10	18				278	N. off Yaku-zima Is, Kagosima prefecture.
		eS	4	16	55					
		F	4	14	00					
80	Sept. 30	P	15	58	59				105	Wrn part of Iyo-nada.
		S	15	59	13					
		M _E	15	59	15	0.8	± 5			
	Sept. 30	M _N	15	59	13	1.1	+11			
		F	16	01	00					
81	Oct. 6	eP?	7	57	29				7335	All phases not distinct. Probably in the Alaska.
		eS?	8	06	15					
		eSR ₁ ?	8	11	14					
		eL	8	22	14					
		F	9	12	—					
82	Oct. 9	P	19	45	51			- 1	131	Near Mt. Aso, Kumamoto prefecture.
		S	19	46	09					
		M _E	19	46	10	1.1	+28			
		M _N	19	46	09	1.2	-53			
		F	19	48	30					
83	Oct. 16	S	20	39	30				—	Distant earthquake.
		L	20	43	52					
		F	21	08	—					
84	Oct. 19	eP	10	33	30				—	Ditto.
		e	10	37	50					
		e	10	45	11					
		e	10	58	39					
		M _E	11	05	24	22.5	± 5			
		F	11	31	00					
85	Oct. 24	eP	6	37	19				1765	Ditto.
		eS	6	40	21					
		L	6	43	24					

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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.	
86	Oct. 24	M _E	6	45	01	17.3	±53		102	Near Unzen-dake, Nagasaki prefecture. Felt at all places in Kyûsyû.
		F	7	10	±					
		P̄	18	57	39			-4		
		S̄	18	57	52					
		M _E	18	57	55	0.5	+145			
		M _N	18	57	59	0.7		-69		
87	Oct. 24	P̄	23	01	23				102	After shock of No. 86.
		S̄	23	01	36					
	Oct. 24	F	23	02	30					
88	Oct. 25	P̄	12	34	19		+5	+3	88	After shock of No. 86.
		S̄	12	34	31					
		M _E	12	34	33	—	+11			
		M _N	12	34	35	0.5		+13		
		F	12	36	00					
89	Oct. 25	P̄	15	32	00				86	Ditto.
		S̄	15	32	12					
		M _E	15	32	14	0.5		±4		
		F	15	32	45					
90	Oct. 25	P̄	21	40	36				89	Ditto.
		S̄	21	40	48					
		M _N	21	40	50	0.4		±5		
		F	21	41	10					
91	Nov. 1	P	16	03	30				209	In the Hiuga-nada.
		P̄	16	03	33					
		S	16	03	59					
		S̄	16	04	01					
		M _E	16	04	06	1.5	±5			
		M _N	16	04	06	1.4		-9		
92	Nov. 15	P	18	56	19				1895	In the South Seas.
		eS	18	59	33					

No.	Date	Phase	Time			Period	Amplitude		△	Epicenter and Remarks	
			G.	M.	T.		A _E	A _N			
			h	m	s	s	μ	μ	km.		
93	Nov. 17	L	19	01	09						
		M _{1E}	19	05	06	21.9	+408				
		M _{2E}	19	11	22	17.1	-343				
		F	20	07	±						
		eP?	3	49	26					2780	P phase not distinct. Probably in the South Seas.
94	Nov. 18	S	3	53	52						
		M _E	3	56	06	25.0	±125				
		F	4	57	±						
		eP?	20	46	54					12125	All phases not distinct. Very distant earthquake. △doubtful.
		eS?	20	59	20						
95	Nov. 20	eL?	21	14	34						
		M _{1E}	21	34	43	21.8	±20				
		M _{2E}	21	40	11	20.0	+28				
		F	22	21	±						
		P	5	55	43					404	Near the mouth of River Arita-gawa, Wakayama prefecture.
96	Dec. 9	S	5	56	37						
		M _E	5	57	07	6.6	+50				
		M _E	5	56	48	3.1		-78			
		F	6	07	40						
		eP	6	58	30					4375	
97	Dec. 13	eS	7	04	39						
		eL	7	10	15						
		M _{1E}	7	14	20	22.7	-38				
		M _{2E}	7	19	01	19.1	+70				
		M _N	7	15	45	18.8		+13			
98	Dec. 17	F	7	49	±						
		M _E	9	45	54	11.2	±23			—	P and S phases could not be distinguished.
		M _N	9	46	49	9.6		-20			Distant earthquake.
99	Dec. 17	F	10	01	±						
		iP	11	05	37					3930	
		iS	11	11	21						
		M _{1E}	11	18	20	22.5	-2125				
		M _{2E}	11	20	25	18.2	-1075				

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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		
		M _{3E}	11	23	05	19.6	-1943			
		M _{1N}	11	16	21	21.6		> 860		
		M _{2N}	11	20	36	18.7		+490		
		M _{3N}	11	22	53	16.3		-280		
		M _{4N}	11	26	40	13.9		+246		
		F	14	28	±					
99	Dec. 18	i	7	01	31				-	
		M _E	7	07	24	14.0	±18			
		F	7	22	-					
100	Dec. 22	eP	8	36	35				45	
		iS	8	36	41					
		M _N	8	36	41	0.5		+25		
		F	8	37	27					
101	Dec. 24	P	10	47	34				84	
		eS	10	47	46					
		M _N	10	47	47	0.3		±4		
		F	10	48	27					