

## NAGASAKI, JAPAN.



## SEISMIC BULLETIN

## NAGASAKI METEOROLOGICAL OBSERVATORY

 $\phi = 32^{\circ} 44' 03''$  $\lambda = 129^{\circ} 52' 31''$ 

h = 130.6m.

Lithologic foundation :

Volcanic Agglomerate.

## INSTRUMENTAL CONSTANTS

INSTRUMENT	COMPONENT	MASS	DAMPING	To	$\frac{r}{T_0^2}$	$\mathcal{J}$	V
Wiechert	N-S	200kg	Air	6.2	0.083	2.9	113
	E-W	"	"	7.6	0.079	2.0	82
Wiechert	U-D	80	"	5.0	0.074	2.2	77
Ômori	N-S	16	Magnetic	19.0	0.001	1.8	20
Ômori	E-W	16	"	15.4	0.007	1.9	20
Ômori	N-S	20		2.9	0.116		50
	E-W	20		2.9	0.163		50
C. M. O.	NE-SW	2.3	Magnetic	3.9	0.097	2.3	2
	NW-SE	2.3	"	3.9	0.055	1.6	2
	U-D	2.3	"	4.8	0.030	1.7	2

No.	Date	Phase	Time 135° E			Period	Amplitude			$\Delta$ km.	Remarks
			h.	m.	s.		AN $\mu$	AE $\mu$	Az $\mu$		
1	1 Jan.	$\bar{i}P$	6	01	25.3	0.9	+7.1	+7.3	+9.1	22	To sw off Nagasaki. slightly shock were felt at Nagasaki.
		$\bar{S}$	"	"	48.0		-6.2	-4.9	-5.2		
		C	"	"	46.6						
		F	"	05	08.6						
2	" "	$\bar{P}$	13	06	43.7	0.9				19	After shock of No. 1.
		$\bar{S}$	"	"	46.0						
		F	"	"	57.4						
3	" "	$\bar{i}P$	15	20	00.2	0.9				22	Ditto Slightly shock were felt at Nagasaki.
		$\bar{S}$	"	"	02.9		-7.1	+14.6	-3.9		
		C	"	"	07.4						
		F	"	22	15.6						
4	" "	eP	16	21	09.7	0.9				17	Each phase faint
		F	"	25	20.3						
5	4 "	$\bar{P}$	15	47	53.0	0.9				17	After shock of No. 1.
		$\bar{S}$	"	"	55.1						
		F	"	48	00.0						
6	9 "	e $\bar{P}$	0	26	48.5	0.9				29	Ditto
		$\bar{S}$	"	"	52.0						
		F	"	27	20.8						
7	12 "	P	0	48	13.3	0.9	-1.2	+0.6		121	Neighbourhood of River Sendai in Kagosima Prefecture
		$\bar{P}$	"	"	15.9		-1.7	+2.4			
		L	"	"	29.5						
		F	"	49	12.8						

8	14	"	$\bar{P}$	10	02	04.3				25	After shock of No 1.
			$\bar{S}$	"	"	07.3					
			C	"	"	13.2					
			F	"	"	25.0					
9	16	"	$i\bar{P}$	9	10	10.9	+1.8			32	Ditto
			$\bar{S}$	"	"	14.8					
			M	"	"	15.4	-8.0	-8.5	-2.6		
			C	"	"	20.5					
			F	"	"	44.6					
10	"	"	eP	10	10	37.5				27	Ditto
			$\bar{S}$	"	"	40.8					
			F	"	"	52.4					
11	"	"	eP	11	06	28.4				17	Ditto
			$\bar{S}$	"	"	30.4					
			F	"	"	40.5					
12	20	"	$i\bar{P}$	6	38	25.5	-2.5	+3.7	+6.5	17	Slightly shock were felt at Nagasaki.
			$\bar{S}$	"	"	27.5	-31.0	+41.5	+13.0		Epicenter in the southern part of Sonoki Peninsula.
			C	"	"	33.5					
			F	"	"	52.8					
13	"	"	eP	19	06	27.6					
			L	"	07	02.4	1.8	+3.3	+3.1		
			F	"	"	23.1					
14	27	"	eP	3	52	52.2				2330	Trace of distant Earthquake by Omori seismograph.
			S	"	56	42.7					
			M	"	57	25.3	13.0	+14.2			
			C	4	04	06.4					
			F	4	26	05.7					
15	27	"	eP	7	07	31.2				2640	Trace of distant earthquake by Omori seismograph.
			S	"	11	47.0					
			F	"	39	45.4					
16	28	"	P	7	30	40.5				680	
			S	"	31	55.2					
			M	"	32	18.4	13.0	+7.1			
			C	"	34	20.1					
			F	"	45	01.2					
17	"	"	$\bar{P}$	11	58	40.1				18	Local shock.
			$\bar{S}$	"	"	42.3					
			F	"	"	51.7					

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	E-W	"	"	7.6	0.079	2.0	82
Wiechert	U-D	80	"	5.0	0.074	2.2	77
Omori	N-S	16	Magnetic	19.0	0.001	1.8	20
Omori	E-W	16	"	15.4	0.007	1.9	20
Omori	N-S	20		2.9	0.116		50
	E-W	20		2.9	0.163		50
C. M. O.	NE-SW	2.3	Magnetic	3.9	0.097	2.3	2
	NW-SE	2.3	"	3.9	0.055	1.6	2
	U-D	2.3	"	4.8	0.030	1.7	2

No.	Date	Phase	Time 135° E			Period s.	Amplitude			$\Delta$ km.	Remarks
			h.	m.	s.		AN $\mu$	AE $\mu$	AZ $\mu$		
18	3 Feb.	P	23	07	48.5				1420	Trace of distant earthquake	
		S	"	10	07.2						
		C	"	15	20.4						
		F	"	25	14.7						
19	4 "	eP	3	49	16.1				1250	Ditto, Off the Kinkwazan.	
		L	"	51	27.5						
		F	"	56	41.9						
20	" "	eP	16	00	54.4				1660	Ditto.	
		L	"	03	46.5						
		F	"	30	37.0						
21	6 "	P	12	57	49.7		+1.5	+2.4	2875	Ditto.	
		S	13	02	24.1						
		L	"	05	01.4	14.6	+2.3				
		C	"	15	19.2						
		F	14	04	38.7						
22	7 "	eP	9	11	01.2				8512	Ditto.	
		S	"	22	37.4						
		L	"	30	52.6						
		M <sub>1</sub>	"	31	18.2	18.0		+32			
		M <sub>2</sub>	"	"	42.8	20.0	+76				
		F	10	02	39.7						
23	10 "	$\bar{P}$	5	40	05.4				28	Local shock. Epicenter is Tijiwa-nada.	
		$\bar{S}$	"	"	09.1						
		C	"	"	17.6						
		F	"	41	06.4						
24	" "	$\bar{P}$	5	58	48.6				28	After shock of No. 23.	
		$\bar{S}$	"	"	52.2						
		F	"	59	22.0						

25	12	"	eP	6	13	12.1				1220	Epicenter is down part of Og
			S	"	15	21.6					
			M	"	16	54.5	1.8	-3.3	+3.4		
			F	"	19	03.5					
26	13	"	eP	14	39	15.1				2135	Trace of distant earthquake.
			S	"	42	50.4					
			F	"	48	06.1					
27	"	"	$\bar{P}$	15	01	28.9				37	Epicenter is Tijiwa-nada.
			$\bar{S}$	"	"	33.9					
			F	"	"	49.8					
28	15	"	$\bar{P}$	1	17	05.4				103	Epicenter is upper part of Oy
			$\bar{S}$	"	"	19.2					
			F	"	18	01.8					
29	"	"	i $\bar{P}$	8	44	55.7				123	Ditto.
			F	"	45	12.3					
			F	"	47	34.2					
30	20	"	$\bar{P}$	22	16	28.8				27	Epicenter
			$\bar{S}$	"	"	32.4					
			F	"	17	00.7					
31	20	"	eP	12	03	38.7				332	Epicenter is upper part of Kō
			$\bar{P}$	"	"	47.2					
			L	"	04	23.3					
			M <sub>N</sub>	"	"	28.7	2.9	+5.8			
			M <sub>E</sub>	"	"	46.3	3.1		-8.3		
			C	"	"	54.9					
			F	"	07	32.8					
32	22	"	eP	4	57	39.2				5877	Trace of distant earthquake.
			S	5	04	42.4					
			L	"	15	33.2					
			M	"	17	17.7	18.0	+48	+88		
			C	"	27	56.7					
			F	"	42	44.0					
33	24	"	eL	23	35	55.4					Ditto.
			F	"	50	16.5					
34	26	"	eP	10	38	36.8				2312	Ditto.
			L	"	45	39.5					
			M	"	47	19.3	19.0	+30			
			C	"	58	17.8					
			F	"	30	55.7					
35	28	"	$\bar{P}$	12	33	38.1				69	Local shock. Ariake sea.
			$\bar{S}$	"	"	47.3					
			C	"	34	06.6					
			F	"	35	07.2					

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INSTRUMENTAL CONSTANTS

INSTRUMENT	COMPONENT	MASS	DAMPING	To	$\frac{r}{To^2}$	$\mathcal{E}$	V
Wiechert	N-S	200kg	Air	6.2	0.083	2.9	113
	E-W	"	"	7.6	0.079	2.0	82
Wiechert	U-D	80	"	5.0	0.074	2.2	77
Omori	N-S	16	Magnetic	19.0	0.001	1.8	20
Omori	E-W	16	"	15.4	0.007	1.9	20
Omori	N-S	20		2.9	0.116		50
	E-W	20		2.9	0.163		50
C. M. O.	NE-SW	2.3	Magnetic	3.9	0.097	2.3	2
	NW-SE	2.3	"	3.9	0.055	1.6	2
	U-D	2.3	"	4.8	0.030	1.7	2

No.	Date	Phase	Time 135° E			Period	Amplitude			$\Delta$	Remarks	
			h.	m.	s		AN	AE	AZ			
									km.			
36	mar.	3	P	18	20	14.5	$\mu$	$\mu$	$\mu$	24	Local shock.	
			S	"	"	17.7						
			C	"	"	21.9						
			F	"	"	37.1						
37	"	4	P	20	35	42.0				30	Local shock. Slight shocks were felt at Nagasaki. class: (1)	
			S	"	"	46.0						
			C	"	"	49.8						
			F	"	36	08.2						
38	"	6	P	1	23	21.3				8	Ditto. class: (1)	
			S	"	"	22.6		+6.7	+5.3			
			C	"	"	26.8						
			F	"	"	43.0						
39	"	8	P	3	02	56.6				19	Ditto. class: (1)	
			S	"	"	59.1						
			C	"	03	04.9						
			F	"	"	23.7						
40	"	"	P	7	52	45.7				1375	Distant earthquake. South Ocean.	
			L	"	55	10.4						
			M <sub>1</sub>	"	56	10.4	20.0		+32			
			M <sub>2</sub>	"	57	28.4	12.5		+91			
			C	"	59	24.7						
			F	8	14	15.7						
41	"	10	eP	3	14	52.7	6.3	+30.4	+6.3	+4.1	5830	Distant earthquake. Indian Ocean.
			PP	"	16	58.0						
			PPP	"	18	01.3						

No.	Date	Phase	Time 135° E			Period s.	Amplitude			Δ Km.	Remarks
			h.	m.	s.		AN μ	AE μ	AZ μ		
	mar.	S	3	22	19.7						
		SS	"	26	46.6						
		L	"	27	59.0						
		M1	"	35	10.9	19.2	+105	+441	-815		
		M2	"	36	08.0	15.9	+26	-112	+731		
		M3	"	"	58.5	17.1	+138	+564	-527		
		M4	"	37	38.2	16.3	+69	+530	-32		
		M5	"	39	35.3	16.2	+207	+702	+16		
		M6	"	40	31.6	15.0	+253	-160	-307		
		M7	"	41	11.3	19.0	-280	+842	-188		
		M8	"	43	33.7	15.2	+147	+359	-180		
		M9	"	45	55.8	12.8	+59	+133	+55		
		M10	"	46	59.4	13.4	+33	+123	+29		
		M11	"	51	06.7	14.2	+27	+188	-12		
		C	"	52	13.4						
		F	4	23	59.4						
42	" 14	eP	3	39	15.0					4225	Distant earthquake.
		S	"	45	15.0						
		L	"	48	38.7						
		F	4	01	46.0						
43	" 15	iP	4	07	10.5		+27.3	+12.2	+13.3	25	Off the coast of Nomo. Moderate shocks were felt at Nagasaki. class: (2)
		S	"	"	13.8		+19.5	+35.3	-18.6		
		C	"	"	25.9						
		F	"	08	24.5						
44	" 16	P	14	12	01.9					7440	Distant earthquake. Pacific, near New Hebrides.
		S	"	20	54.0						
		M	"	21	02.8	13.3		-42.8	-32.5		
		L	"	28	24.6						
		F	15	04	26.6						
45	" 18	P	5	20	21.5					30	Local shock.
		S	"	"	25.5						
		F	"	"	58.5						
46	" 22	L	13	45	31.1						Distant earthquake.
		F	15	11	56.7						
47	" 28	eP	21	18	22.8						Local shock.
		F	"	"	42.0						
48	" 29	P	11	53	30.0						Ditto.
		F	"	"	52.0						
49	" "	P	14	07	50.0					688	SW off Is. Hatizyō.
		P	"	"	52.4						
		i	"	"	56.1						
		S	"	08	07.9						
		S	"	"	24.0						
		i	"	"	38.3						
		L	"	09	12.7						
		M	"	"	19.4	9.6E 4.4N	+894	+196			
		C	"	11	45.1						
		F	"	44	54.0						
50	" 30	iP	3	15	05.4					27	Local shock.
		S	"	"	07.7						
		L	"	"	09.0						
		C	"	"	15.3						
		F	"	"	28.8						



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No.	Date	Phase	Time 135° E			Period	Amplitude			$\Delta$ km.	Remarks
			h.	m.	s		AN $\mu$	AE $\mu$	AZ $\mu$		
51	Apr. 7	iP	4	43	09.0					Tiziwa Bay.	
		C	"	"	12.1						
		F	"	"	33.0						
52	" 9	iP	12	41	02.5				100	Neighbourhood of Is. Isigaki.	
		S	"	"	16.0						
		M <sub>1</sub>	"	"	16.9	{E1.7; N0.6}	+19.3	+43.5			
		M <sub>2</sub>	"	"	21.9	{E1.0 N0.6}	+21.0	-39.1			
		C	"	"	32.6						
		F	"	44	38.5						
53	" 12	P	3	10	44.7				177	Off the mouth of R. Gokase.	
		S	"	11	08.5						
		C	"	"	23.3						
		F	"	13	41.7						
54	" 14	eL	18	39	34.6					Distance earthquake.	
		F	19	10	00.0						
55	" 16	P	22	41	55.4				169	Upper stream of R. Oyodo.	
		S	"	42	16.8						
		F	"	45	13.9						
56	" 17	P	6	43	15.4		+2.8	-2.2	97	Tiziwa Bay.	
		S	"	"	27.1						
		L	"	"	37.7						
		F	"	46	24.0						
57	" 19	P	4	35	05.6				8633	Distant earthquake.	
		eS	"	44	57.9	9.6					
		L	5	05	11.8						
		M <sub>1</sub>	"	06	06.9	21.6					
		M <sub>2</sub>	"	09	24.8	15.6	-2.8				
		M <sub>3</sub>	"	12	06.8	13.2	-6.0				
		M <sub>4</sub>	"	14	26.0	18.0	+6.7				
		F	"	46	23.7		-3.3				
58	" 30	P	23	03	46.7				175	Near Shock.	
		S	"	01	07.8						
		F	"	13	35.3						

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			h.	m.	s		AN $\mu$	AE $\mu$	AZ $\mu$		
59	May 2	eL	4	21	42.2					Distant earthquake.	
		F	"	45	37.1						
60	" "	iP	11	22	01.5				69	NW off Turikakesaki.	
		S	"	"	10.8						
		L	"	"	21.6						
		F	"	29	37.2						
61	" "	iP	11	30	12.1				87	W off Turikakesaki.	
		S	"	"	23.8						
		C	"	31	12.0						
		F	"	34	27.4						
62	" 5	P	8	39	05.0				97	Amakusa-nada.	
		S	"	"	18.1						
		F	"	43	15.0						
63	" 8	P	13	52	47.1				2270	Distant earthquake. off Miyako.	
		S	"	56	33.1						
		F	14	19	26.1						
64	" 13	iP	16	28	45.2		+52	-33	28	Amakusa-nada.	
		S	"	"	48.8		-25	-52		Felt at Nagasaki: Class (2)	
		F	"	30	12.5						
65	" 15	eP	7	34	22.8				3739	Distant earthquake.	
		S	"	39	64.7	5.8					
		F	9	11	27.2	11.7					
66	" 19	eP	18	34	49.8				1192	Distant earthquake.	
		S	"	36	57.0						
		L	"	37	53.4						
		M	18	38	49.8	14.4		-55			
		F	"	58	30.7						
67	" 21	P	1	31	19.6		+5.0	+2.5	983	NE part of Tokyō Bay.	
		S	"	33	05.9						
		M	"	34	53.5		+65				
		F	"	46	50.3						
68	" 27	P	18	53	24.1	18.6	-15	-25	1366	NE off Miyako.	
		S	"	55	48.5	20.0					
		L	"	56	32.6						
		C	19	06	54.1						
		F	21	16	20.2						
69	" 29	eP	0	39	01.6				2341	E off Miyako.	
		PP	"	"	25.8						
		PPP	"	"	34.8						
		S	"	42	53.7						
		C	"	46	11.5						
		F	"	55	54.5						
70	" 31	eP	16	30	31.0				1553	ENE off Miyako.	
		S	"	33	13.3						
		C	"	35	32.9						
		F	17	07	51.6						
71	" "	P	22	50	14.3	8.6		+5	1645	Okinawa Islands.	
		S	"	53	04.8	15.7					
		C	"	58	15.2						
		F	23	23	08.6						



## NAGASAKI, JAPAN.

## SEISMIC BULLETIN

NAGASAKI METEOROLOGICAL OBSERVATORY

 $\phi=32^{\circ} 44'03''$   $\lambda=129^{\circ}52'31''$   $h=130.6m.$ 

Lithologic foundation: Volcanic Agglomerate.



## INSTRUMENTAL CONSTANTS

INSTRUMENT	COMPONENT	MASS	DAMPING	To	$\frac{r}{T_{02}}$	$\mathcal{E}$	V
Wiechert	N-S	180	Air	4.0	0.039	2.0	65
	E-W	"	"	4.0	0.039	2.0	65
Wiechert	U-D	80	"	5.0	0.074	2.2	77
Omori	N-S	16	Magnetic	19.0	0.001	1.8	20
Omori	E-W	16	"	15.4	0.007	1.9	20
Omori	N-S	20		2.9	0.116		50
	E-W	20		2.9	0.163		50
C. M. O.	NE-W	2.3	Magnetic	3.9	0.097	2.3	2
	NW-SE	2.3	"	3.9	0.055	1.6	2
	U-D	2.3	"	4.8	0.030	1.7	2

No.	Date	Phase	Time 135° E			Period s	Amplitude			$\Delta$ km.	Remarks
			h.	m.	s		AN $\mu$	AE $\mu$	AZ $\mu$		
72	1 June	eL	21	30	19.5					E off Miyako.	
		C	"	35	02.4						
		F	"	42	42.5						
73	" "	eP	22	15	22.4		— 5		1628	Ditto.	
		PR <sub>1</sub>	"	"	37.4						
		PR <sub>2</sub>	"	"	43.6						
		S	"	18	10.8						
		L	"	19	11.7						
		F	23	07	07.2						
74	" 3	iP	17	31	25.9	—	—26	—107	126	WSW off Simokosikizima.	
		S	"	"	42.9					Felt slightly in Nagasaki.	
75	" "	P	18	03	13.0				148	After shock.	
		S	"	"	33.0						
		F	into next shock								Ditto.
76	" "	S	18	04	53.0						
77	" "	iP	18	19	14.2	1.1	— 7	—10	134	Ditto. W off Simokosikizima.	
		S	"	"	32.2	1.4	+75	—62			
		C	"	"	53.0	13.7	+123	+200			
		F	7	40	53.0						
78	" 4	P	6	36	45.2				146	Ditto.	
		S	"	37	04.1						
		F	"	38	47.6						
79	" "	S	7	50	—					Ditto. Time is poor.	
80	" "	L	10	03	11.2					Ditto.	
		F	10	04	09.2						
81	" 4	P	12	11	12.3				126	Ditto.	
		S	"	"	29.3						
		F	"	12	48.2						
82	" "	L	13	02	46.7					Ditto.	
		F	"	03	03.8						
83	" "	P	15	50	00.4				151	Ditto.	
		S	"	"	20.8						
84	" "	L	15	51	47.1					Ditto.	
		F	"	53	03.9						
85	" "	P	16	53	22.9				142	Ditto.	
		S	"	"	42.3						
		F	17	00	07.7						
86	" 5	P	6	20	49.2	0.6			144	Ditto.	
		S	"	21	08.7	0.6					
		F	"	23	50.7						

No.	Date	Phase	Time 135° E			Period s.	Amplitude			△ km.	Remarks
			h.	m.	s.		AN μ	AE μ	AZ μ		
87	1 June	L	6	26	49.2					Ditto.	
88	" "	F	"	27	26.7					Ditto.	
		P	9	09	22.4				141		
89	" "	S	"	"	41.4					Ditto. Some men felt in the city of Nagasaki. E off Simokosiki-zima.	
		F	"	13	03.0						
		iP	14	55	54.3	1.2	-7.7	-15.4	138		
		iS	"	56	12.9	1.7	-69	+57			
90	" "	M	"	"	19.4	1.7	-338	+277		After shock.	
		F	15	16	40.9						
		P	15	21	20.5				159		
		S	"	"	41.7						
91	8 "	F	"	23	26.5					Ditto. SE off Simokosiki-zima.	
		P	18	33	23.4	0.7			141		
		S	"	"	42.4	2.0					
		C	"	36	56.4						
92	14 "	F	"	44	02.5					SE off Nomasaki in Nagasaki prefecture.	
		iP	9	28	03.7	1.1	+3.1	-6.2	171		
		iS	"	"	26.7	1.2	+9.3	+10			
		iM	"	"	27.8	1.2	-47	+34			
93	15 "	C	"	29	36.5					Distant earthquake. South Ocean.	
		F	"	31	35.5						
		eP	15	17	29.2	2.1		-2	2505		
		i	"	"	35.9		+8	+20			
94	16 "	PR1	"	"	57.6		+11	+20		Ditto.	
		PR2	15	18	08.4		+11	+20			
		S	"	21	34.7		-14	+2			
		F	16	16	32.9						
95	18 "	eP	2	21	14.8				2397	Ditto. earthquake.	
		S	"	25	11.5						
		C	"	52	21.5						
		F	3	07	30.3						
96	21 "	eP	12	39	04.0				8390	Ditto.	
		ePR1	"	42	04.0						
		eS	"	48	44.0						
		L	13	16	14.0						
97	22 "	M	"	39	07.7	17.5	-260	-420		Ditto.	
		C	14	17	15.2						
		F	"	41	09.7						
		eP	19	51	49.8				7874		
98	30 "	eS	20	01	03.5					Ditto.	
		eL	"	08	25.3						
		F	"	46	26.7						
		eP	1	39	09.6	1.3			7874		
98	" "	eS	"	48	23.3	17.3	+10	+20		Ditto.	
		eSR1	"	52	15.3	14.7		+15			
		M1	2	01	37.6	17.3	+30	-75			
		M2	"	08	20.3	17.3		+50			
		M3	"	10	22.6	14.7		+70			
		C	"	21	22.0						
		F	3	19	16.2						
		eP	8	00	39.8		+5	-8	6108		
98	" "	eS	"	08	22.0		-50	-25		Ditto.	
		M1	"	16	24.3	21.8		+30			
		M2	"	19	49.3	24.5		+28			
		M3	"	22	26.1	25.0		+28			
		C	"	27	38.4						
F	9	20	27.5								



SEISMIC BULLETIN

NAGASAKI METEOROLOGICAL OBSERVATORY

$\phi=32^{\circ} 44'03''$   $\lambda=129^{\circ}52'31''$   $h=130.6m$

Lithologic foundation: Volcanic Agglomerate



No.7

From 1st to 31st July 1928

NAGASAKI, JAPAN.

SEISMIC BULLETIN

NAGASAKI METEOROLOGICAL OBSERVATORY

$\phi=32^{\circ} 44'03''$   $\lambda=129^{\circ}52'31''$   $h=130.6m$

Lithologic foundation: Volcanic Agglomerate.

INSTRUMENTAL CONSTANTS

INSTRUMENT	COMPONENT	MASS	DAMPING	To	$\frac{r}{To^2}$	$\mathcal{E}$	V
Wiechert	N-S	180	Air	4.0	0.039	2.0	65
	E-W	"	"	4.0	0.039	2.0	65
Wiechert	U-D	80	"	5.0	0.074	2.2	77
Omori	N-S	16	Magnetic	19.0	0.001	1.8	20
Omori	E-W	16	"	15.4	0.007	1.9	20
Omori	N-S	20		2.9	0.116		50
	E-W	20		2.9	0.163		50
C. M. O.	NE-W	2.3	Magnetic	3.9	0.097	2.3	2
	NW-SE	2.3	"	3.9	0.055	1.6	2
	U-D	2.3	"	4.8	0.030	1.7	2

No.	Date	Phase	Time 135° E			Period	Amplitude			$\Delta$	Remarks
			h.	m.	s		AN	AE	AZ		
									km.		
99	7 July	P	17	40	35.6	0.9				Middle part of kai-channel.	
		M	"	42	05.3	2.2		-4.9	+4.9		
		C	"	"	07.5						
		F	"	44	48.1						
100	10 "	eP	6	32	38.0	3.3		-1.0	-2.0	5610 South Ocean.	
		Mp	"	"	42.0	4.0			-7.7		
		eS	"	39	53.5	7.4		0.0	+1.0		
		Ms	"	"	58.5	7.4			$\pm 5.0$		
		eL	"	50	06.5	18.5					
		C	"	7	01	20.5					
		F	"	17	17.5						
101	10 "	iP	15	20	25.8	0.4		+6	+18	38 Off nomo.	
		iS	"	"	30.9	0.7		+12	-6		
		M	"	"	32.1	0.7		-7.2	-5.0		
		C	"	"	38.3						
102	17 "	F	"	21	44.1					163 SW off Simokosiki-zima.	
		P	2	51	09.0	0.6					
		S	"	"	30.9	0.8		+5.3	-5.4		
103	19 "	C	"	"	55.9					South ocean.	
		F	"	54	59.0						
		eP <sub>2</sub>	4	12	19.0						
		F	5	17	49.0						

SEISMIC BULLETIN

NAGASAKI METEOROLOGICAL OBSERVATORY

$\phi=32^{\circ} 44'03''$   $\lambda=129^{\circ}52'31''$   $h=130.6m.$

Lithologic foundation:

Volcanic Agglomerate.



INSTRUMENTAL CONSTANTS

INSTRUMENT	COMPONENT	MASS	DAMPING	$T_0$	$\frac{r}{T_0^2}$	$\mathcal{E}$	V
Wiechert	N-S	200	Air	3.0	0.083	2.1	81
	E-W	"	"	3.8	0.077	2.0	67
Wiechert	U-D	80	"	4.7	0.072	3.6	73
Omori	N-S	16	Magnetic	19.0	0.006	2.8	20
Omori	E-W	16	"	15.4	0.005	2.1	20
Omori	N-S	20		2.9	0.116		50
	E-W	20		2.9	0.163		50
C. M. O.	NE-SW	2.3	Magnetic	3.9	0.097	2.3	2
	NW-SE	2.3	"	3.9	0.055	1.6	2
	U-D	2.3	"	4.8	0.030	1.7	2

No.	Date	Phase	Time 135° E			Period	Amplitude			$\Delta$	Remarks
			h.	m.	s		AN	AE	AZ		
									km.		
104	5 Aug.	eP	3	45	15.2					6714	Distant earthquake.
		eS	"	53	29.8						
		M1	4	01	40.7	19.1			-10		
		M2	"	06	08.0	20.0			+10		
		M3	"	32	55.5	20.0			-30		
		M4	"	40	40.9	18.1			-48		
		M5	"	44	58.2	18.7			-31		
		M6	"	47	59.8	17.7			+18		
		M7	"	57	57.0	17.7			+16		
105	9 "	iP	1	34	23.3	0.3		+3.1	+6.0	28	Local shock. Felt slightly and earthquake sound was heard.
		iS	"	"	27.0	0.5		+9.1	-6.0		
		C	"	"	35.5						
		F	"	35	35.5						
106	13 "	eP	17	15	13.3					3570	Distant earthquake. Each phase is faint.
		eS?	"	20	34.6						
		F	"	39	21.0						
107	22 "	iP	10	30	48.8	0.4	-9.6	+9.0	+3.0	83	Lower valley of R. Midori. Felt at Nagasaki, slightly.
		iS	"	"	59.9	0.7	-3.6	-20	+104		
		M	"	31	03.6	0.7		-77	+175		
		C	"	"	45.6						
		F	"	37	47.0						
108	11 "	P	10	34	49.0					79	After shock of No. 107.
		S	"	"	59.6						
		F	"	35	40.0						
109	" "	P	10	36	29.3					76	Ditto.
		S	"	"	29.6						
		F	"	37	07.4						
110	27 "	L	3	06	30.2	3.0					Faint.
		F	"	10	09.2						
111	28 "	P	3	00	28.8	0.9		+1.8	-1.5	726	Off SW coast of Is. Hatizio.
		S	"	01	48.4	2.7		-3.1	-1.0		
		C	"	02	29.8						
		F	"	03	48.8						
112	30 "	P	4	03	16.3	0.3	-1.0	+1.2	+2.2	68	Neighbourhood of R. Midori. Some men felt at Nagasaki.
		iS	"	"	25.5	0.6		-5.6	+6.9		
		M	"	"	26.5	0.6		+9.0	-15.2		
		C	"	"	36.3						
		F	"	04	05.3						
113	30 "	P	15	34	09.2					3035	Distant earthquake.
		S	"	38	54.7						
		F	"	50	11.5						

SEISMIC BULLETIN

NAGASAKI METEOROLOGICAL OBSERVATORY

$\phi=32^{\circ} 44'03''$

$\lambda=129^{\circ}52'31''$

$h=130.6m.$

Lithologic foundation:

Volcanic Agglomerate.

INSTRUMENTAL CONSTANTS

INSTRUMENT	COMPONENT	MASS	DAMPING	To	$\frac{r}{To^2}$	$\mathcal{E}$	V
Wiechert	N-S	200	Air	3.0	0.083	2.1	81
	E-W	"	"	3.8	0.077	2.0	67
Wiechert	U-D	80	"	4.7	0.072	3.6	73
Omori	N-S	16	Magnetic	19.0	0.006	2.8	20
Omori	E-W	16	"	15.4	0.005	2.1	20
Omori	N-S	20		2.9	0.116		50
	E-W	20		2.9	0.163		50
C. M. O.	NE-W	2.3	Magnetic	3.9	0.097	2.3	2
	NW-SE	2.3	"	3.9	0.055	1.6	2
	U-D	2.3	"	4.8	0.030	1.7	2



No.	Date	Phase	Time 135° E			Period	Amplitude			$\Delta$	Remarks
			h.	m.	s		AN	AE	AZ		
									km.		
114	1 Sept.	P	15	25	31.8				5068	Distant earthquake.	
		L	"	36	36.6						
		M1	"	39	46.1						
		M2	"	41	25.5	15.8					-65
		C	"	42	35.0	14.2					-70
		F	16	12	55.5						
115	6 "	eL	15	35	46.5				21	Ditto. Off E coast of Miyako.	
		M	"	"	57.6	16.5					+5
		C	"	37	08.6						
		F	"	46	21.9						
116	10 "	iP	20	03	27.2		+15.1	+7.4	+11.9	21	Off the coast of Nomo. Felt moderately and earthquake-sound was heard at Nagasaki.
		S	"	"	30.1						
		M	"	"	31.4	0.8	-44	+7.6	+82		
		C	"	"	42.8						
117	" "	F	into next shock							25	After shock of No. 116
		P	20	05	52.3						
		S	"	"	55.6						
118	11 "	P	0	03	24.4				20	Ditto.	
		S	"	"	27.1						
		F	"	"	45.6						
119	" "	P	9	45	12.2	1.0			-3	1008	South ocn.
		S	"	47	01.0						
		M	"	"	02.0	3.7E 3.5N					
		F	"	53	05.0		+3	-4			
120	13 "	eP	12	32	32.5				3451	Ditto.	
		eS	12	37	46.3						
		eL	"	41	47.4						
		M	"	42	31.7	31.4					-25
		F	13	03	51.5						
121	19 "	eP	17	18	25.4				1407	Off SW coast of Is. Hatizio.	
		eS	"	20	53.1						
		F	"	33	57.4						
122	22 "	P	16	41	16.6				6371	South ocean	
		S	"	49	13.0						
		L	"	53	16.5						
		M1	"	56	46.5	27.7					-40
		M2	17	00	15.7	21.5					-30
		M3	"	04	13.5	18.5					-50
		C	"	14	42.7						
		F	"	49	02.7						
123	25 "	P	13	59	12.7	0.8	+16.4	-16.7	-16.2	138	Eastern part of Suwo-nada.
		S	"	"	31.2		-32.3	+34.6	+19.4		
		L	"	"	35.8			-42	+62		
		M	"	"	41.6	4.0	-66				
		M	"	"	47.0	{ 2.6E 2.9N		+62	+91		
		C	14	00	30.2						
		F	"	10	17.0						
124	28 "	P	17	06	08.7		-1.5	+25	-2.3	77	Neighbourhood of Kumamoto.
		S	"	"	19.1		-4	-7	+12		
		F	"	08	39.1						

## NAGASAKI, JAPAN.

## SEISMIC BULLETIN

NAGASAKI METEOROLOGICAL OBSERVATORY

 $\phi=32^{\circ} 44'03''$   $\lambda=129^{\circ}52'31''$   $h=130.6m.$ 

Lithologic foundation: Volcanic Agglomerate.



## INSTRUMENTAL CONSTANTS

INSTRUMENT	COMPONENT	MASS	DAMPING	To	$\frac{r}{To^2}$	$\mathcal{E}$	V
Wiechert	N-S	200	Air	3.0	0.083	2.1	81
	E-W	"	"	3.8	0.077	2.0	67
Wiechert	U-D	80	"	4.7	0.072	3.6	73
Omori	N-S	16	Magnetic	19.0	0.006	2.8	20
Omori	E-W	16	"	15.4	0.005	2.1	20
Omori	N-S	20		2.9	0.116		50
	E-W	20		2.9	0.163		50
C. M. O.	NE-W	2.3	Magnetic	3.9	0.097	2.3	2
	NW-SE	2.3	"	3.9	0.055	1.6	2
	U-D	2.8	"	4.8	0.030	1.7	2

No.	Date	Phase	Time 135° E			Period	Amplitude			$\Delta$	Remarks
			h.	m.	s		AN	AE	AZ		
125	2 Oct.	$\bar{P}$	0	31	0.42	0.3	+2.7	+2.5	-4.5	22	Tiziwa-nada.
		$\bar{S}$	"	"	07.1	0.7					Felt at Nagasaki, slightly.
		M	"	"	08.0	0.7		+4.3	+6.0		
126	9 "	F	"	"	34.0					6212	Distant earthquake.
		eP	12	20	42.2						
		eS	"	28	29.8						
		eL	"	29	36.1						
		ME	13	03	24.3	21.8		$\pm 5.0$			
127	10 "	MN	"	15	31.4	25.3			$\pm 4.5$	64	Local shock
		F	14	45	17.0						
		$\bar{P}$	7	42	41.3						
128	12 "	$\bar{S}$	"	"	49.9					2563	Direction of Okhotsk sea.
		F	"	44	23.5						
		P	16	34	38.7						
129	15 "	S	"	38	48.9					5180	Distant earthquake.
		F	17	10	26.0						
		P	23	36	40.5						
130	16 "	L	"	48	02.5					24	Tiziwa-nada.
		MN	"	50	27.8						
		ME	"	54	30.7						
131	17 "	F	0	18	27.5					175	Miyaz aki.
		$\bar{P}$	4	04	51.4	0.3	+16	+10	+15		
		$\bar{S}$	"	"	54.6	0.4	+10	-16	-22		
132	" "	M	"	"	57.0	0.5		+24	-42	258	Away to S coast of Yakusima.
		C	"	05	02.9						
		F	"	06	15.2						
		$\bar{P}$	21	06	35.6						
		$\bar{S}$	"	"	59.3						
		F	"	07	53.0						
		ePN	21	47	36.5						
		ePv	"	"	37.4						
		e $\bar{P}$ v	"	"	40.7						
		Sv	"	48	12.8						
$\bar{S}$ v	"	"	15.3								
Lv	"	"	32.1								
ME	"	"	33.0	3.2			+225				
Mv	"	"	35.9	3.8	+46						
MN	"	"	40.3	3.5				-26.0			
C	"	49	06.0								
F	22	02	49.0								

SEISMIC BULLETIN

NAGASAKI METEOROLOGICAL OBSERVATORY

$\phi=32^{\circ} 44'03''$   $\lambda=129^{\circ}52'31''$   $h=130.6m.$

Lithologic foundation: Volcanic Agglomerate.



INSTRUMENTAL CONSTANTS

INSTRUMENT	COMPONENT	MASS	DAMPING	To	$\frac{r}{To^2}$	$\mathcal{E}$	V
Wiechert	N-S	200	Air	3.0	0.083	2.1	81
	E-W	"	"	3.8	0.077	2.0	67
Wiechert	U-D	80	"	4.7	0.072	3.6	73
Omori	N-S	16	Magnetic	19.0	0.006	2.8	20
Omori	E-W	16	"	15.4	0.005	2.1	20
Omori	N-S	20		2.9	0.116		50
	E-W	20		2.9	0.163		50
C. M. O.	NE-W	2.3	Magnetic	3.9	0.097	2.3	2
	NW-SE	2.3	"	3.9	0.055	1.6	2
	U-D	2.8	"	4.8	0.030	1.7	2

No.	Date	Phase	Time 135° E			Period	Amplitude			$\Delta$	Remarks	
			h.	m.	s.		AN $\mu$	AE $\mu$	AZ $\mu$			
133	5 Nov.	iP	13	41	16.3		-3.7	+4.0	+4.3	106	Upper valley of R. Tikugo. Some men felt in the city of Nagasaki, but not at our observatory.	
		iS	"	"	30.5			-15.6	+18.0			
		M	"	"	31.4	1.0			+24			+37
		M	"	"	32.7	1.1	+10					
		C	"	"	51.7							
		F	"	45	09.7							
134	6 "	eP	13	15	39.6					7047	Distant earthquake, South Ocean.	
		eS	"	24	29.7							
		eL	"	31	58.3							
		F	"	59	16.3							
135	16 "	P	12	13	36.0		+12.3	+2.6	+24.2	29	Amakusa-nada. Felt only in city of Nagasaki.	
		S	"	"	39.9			-34	+14			
		M	"	"	41.3	0.5		+60	+80			
		C	"	14	13.5							
		F	"	16	13.5							
136	" "	P	12	15	15.8						Microseisms, after shock of No. 135.	
		F	"	16	13.5							
137	" "	L	20	07	21.0						Surface <sup>a</sup> wave of a distant earthquake.	
		F	"	12	51.8							
138	17 "	P	18	52	29.0					99	Upper valley of R. Tikugo.	
		S	"	"	42.3							
		F	"	53	29.0							
139	20 "	P	20	01	46.6					7	Tiziwa Bay.	
		S	"	"	47.6							
		F	"	02	05.3							
140	24 "	P	2	49	25.8		-1.4	+2.2	+1.9	383	Away to the coast of Tosa.	
		S	"	50	11.3			+7	-10			
		M	"	"	13.2	2.1			-12			
		M	"	"	17.0	2.5			+9			
		F	"	53	03.2							
141	28 "	iP	3	51	23.0			+4.4	-3.7	81	Tiziwa Bay.	
		iS	"	"	25.4			+4.4	+4.8			
		F	"	"	41.7							
142	" "	eP	15	50	59.5			+0.6	+1.5	4037	South Ocean.	
		eS	"	56	48.6							
		eL	20	00	04.0							
		F	"	34	11.3							

# SEISMIC BULLETIN

NAGASAKI METEOROLOGICAL OBSERVATORY

$\phi=32^{\circ} 44'03''$   $\lambda=129^{\circ}52'31''$   $h=130.6m.$

Lithologic foundation: Volcanic Agglomerate.

## INSTRUMENTAL CONSTANTS

INSTRUMENT	COMPONENT	MASS	DAMPING	$T_0$	$\frac{r}{T_0^2}$	$\mathcal{E}$	$\mathcal{V}$
Wiechert	N-S	200	Air	3.4	0.030	2.4	77
	E-W	"	"	4.4	0.027	2.3	66
Wiechert	U-D	80	"	4.7	0.072	3.6	73
Omori	N-S	16	Magnetic	19.0	0.006	2.8	20
Omori	E-W	16	"	15.4	0.005	2.1	20
Omori	N-S	20	"	2.9	0.116		50
	E-W	20	"	2.9	0.163		50
C. M. O.	NE-W	2.3	Magnetic	3.9	0.097	2.3	2
	NW-SE	2.3	"	3.9	0.055	1.6	2
	U-D	2.3	"	4.8	0.030	1.7	2



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No.	Date	Phase	Time 135° E			Period	Amplitude			$\Delta$	Remarks
			h.	m.	s.		AZ	AE	AN		
143	1 Dec.	P	13	26	16.3					10234	Distant earthquake, Chiric, South America.
		S	"	37	25.0						
		L	"	51	50.8						
		NM1	"	57	58.9	31.6			+30		
		EM1	"	58	02.7	32.7		-100			
		NM2	14	50	31.4	21.1			-25		
		EM2	"	"	56.0	20.0		-110			
		NM3	"	57	58.9	17.8			-40		
		EM3	"	58	48.2	21.0		+80			
		NM4	15	02	10.3	22.7			+50		
		EM4	"	02	44.3	20.9		+70			
		EM5	"	08	41.7	19.6		+85			
		NM5	"	09	26.5	17.8			-50		
F	16	05	57.3								
144	2 "	eP	13	46	45.5				12699	Ditto.	
		eS	12	59	31.8						
		eL	14	38	27.5						
		F	15	51	06.4						
145	4 "	P	1	33	01.5			-2.6	-4.1	128	Off WNW coast of Turikakesaki.
		S	"	"	18.7			+65	-124		
		M	"	"	20.6	1.9		-138	+145		
		C	"	34	06.4						
		F	"	36	46.4						
146	7 "	P	18	21	12.7					416	Distant earthquake.
		S	"	27	09.0						
		L	"	29	42.1						
		M	"	32	27.5	21.2		+17	-9		
		F	"	51	26.0						
147	8 "	P	5	37	32.5					122	Amakusa-nada.
		S	"	"	48.9						
		F	"	41	56.5						
148	9 "	P	11	59	06.5					30	Neighbourhood of Unzendake.
		S	"	"	10.5						
		F	"	"	45.7						
149	10 "	iP	6	20	25.4	0.3	+44	+22	-38	42	Sasebo Bay.
		iS	"	"	31.1	0.6	+41	-106	-61		
		C	"	"	51.5						
		F	"	22	44.9						
150	13 "	P	6	15	48.0			+12.2	$\pm 3.5$	44	Tiziwa Bay. Felt in the city of Nagasaki, slightly.
		S	"	"	53.9			-14	-12		
		F	"	16	27.3						
151	14 "	P	15	42	31.4						Mikrosesims.
		F	"	43	12.7						
152	19 "	P	20	43	05.2			-1.0	-2.3	3027	South Ocean.
		S	"	47	50.0			-10	+30		
		M	"	54	47.0	17.3		-70	+119		
		C	21	02	10.0						



No.	Date	Phase	Time 135° E			Period	Amplitude			Δ	Remarks
			h.	m.	s.		AN	AE	AZ		
									km.		
153	20	"	F	22	33	45.0				1692	Off Coast of Titiziyama
			P	0	19	50.0	-2.5	-1.9	+1.5		
			S	"	22	45.2		-4	-5		
154	21	"	F	"	27	02.0				30	Off E coast of Nagasaki. Felt moderately.
			iP	0	08	07.5	+15.0	+15.7	+28.8		
			S	"	"	11.6		-29	-43		
155	22	"	C	"	"	17.7				106	Upper valley of R. kikuti, Kumamoto Prefecture.
			F	"	09	17.7					
			P	4	36	48.5	-0.2	+1.2	+0.3		
156	"	"	S	"	37	02.8	-4.5	-4.5	-7.6	105	Ditto.
			C	"	"	24.5					
			F	"	38	35.0					
157	"	"	P	8	17	51.6	-0.3	+1.3	+0.6	107	Ditto.
			S	"	18	05.7					
			M	"	"	08.7	7.5	+15	-3.8		
158	29 Dec.	"	C	"	"	27.7				2895	Distant earthquake.
			F	"	22	30.0					
			P	10	00	17.1					
159	"	"	S	"	"	31.6				68	Local shock.
			F	"	01	27.2					
			P	2	55	10.2	3.5	+1.4	-3.0		
160	30	"	S	"	59	45.5	14.1		-9	109	Off NE coast of Turikakesaki.
			M	3	01	14.2	13.8	+12	-12		
			F	"	34	27.4					
161	"	"	P	5	41	09.1				113	Amakusa-nada.
			S	"	"	18.2					
			F	"	"	46.2					
161	"	"	P	14	25	34.6				113	Amakusa-nada.
			S	"	"	49.3		-6	+5		
			M	"	"	53.4	0.7	-20	+23		
161	"	"	C	"	26	05.2				113	Amakusa-nada.
			F	"	29	18.2					
			P	15	43	39.1					
161	"	"	S	"	"	54.3				113	Amakusa-nada.
			F	"	45	09.3					



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