

# NAGASAKI, JAPAN.

## SEISMIC BULLETIN

NAGASAKI METEOROLOGICAL OBSERVATORY

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

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

$h = 130.6\text{m.}$

Lithologic foundation :

Volcanic Agglomerate.



### INSTRUMENTAL CONSTANTS

INSTRUMENT	COMPONENT	MASS	DAMPING	To	$\frac{r}{To^2}$	$\mathcal{E}$	V
Wiechert	N-S	200kg	Air	6.3	0.046	2.4	100
	E-W	„	„	6.3	0.063	3.0	100
Wiechert	U-D	80	„	7.1	0.049	2.9	73
Omori	N-S	16	Magnetic	17.0	0.004	2.7	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			Period	Amplitude			$\Delta$ km.	Remarks
			135° E				AN	AE	Az		
			h.	m.	s.		$\mu$	$\mu$	$\mu$		
1	Jan. 1	P	0	6	59		+	8		Microseisms	
2	„	P	13	54	21	±	1	-	3	do	
3	„	P	16	14	50		±	3		do	
4	„ 2	P	20	46	47	+	2	±	7	do	
5	„	P	22	15	43	-	1	-	3	do	
6	„	P	23	43	58	-	3	±	3	do	
7	„ 3	P	9	55	21	-	8	+	5	do	
8	„	P	11	6	16	-	4	-	7	do	
9	„ 4	P	12	18	31	-	2	-	1	do	
10	„	P	12	48	25	±	3	-	7	do	
11	„	P	14	59	41	-	3	-	7	do	
12	„	P	16	21	37			±	3	do	
13	„	P	17	23	41	-	3	-	3	do	
14	„	P	19	52	1	-	2	+	3	do	
15	„	P	20	13	25			-	2	do	
16	„	P	21	00	21	-	3	-	3	do	
17	„ 5	P	10	1	52	-	4	±	7	do	
18	„	P	13	35	38	±	2	-	3	do	
19	„	P	14	28	13	±	2			do	
20	„	P	14	28	35	±	3			do	
21	„	P	14	28	51	-	4			do	
22	„	P	14	29	24	-	2			do	
23	„	P	14	29	52	±	3			do	
24	„	P	14	30	38	±	2			do	
25	„	P	14	31	45	±	3			do	
26	„	P	14	32	3	±	3			do	
27	„	P	14	32	15	±	3			do	
28	„	P	20	2	7	±	7	-	4	do	
29	„	P	21	8	40	+	2	-	4	do	
30	„ 6	P	0	1	32	±	5	±	7	do	
31	„	P	0	41	39	±	2	±	5	do	
32	„	P	0	46	50	-	7	-	2	do	
33	„	P	2	39	40	±	7	-	2	do	
34	„	P	3	6	58	±	3	±	7	do	
35	„	P	11	6	44	-	3	+	10	do	
36	„	P	14	6	52	±	5	+	3	do	
37	„	P	23	0	15	±	6	-	10	do	
38	„ 7	P	0	46	19	±	4	±	8	do	
39	„	P	6	3	22	-	5	-	3	do	

# SEISMIC BULLETIN

## NAGASAKI METEOROLOGICAL OBSERVATORY JAPAN

No.	Date	Phase	Time 135° E			Period s.	Amplitude			△ km.	Remarks	
			h.	m.	s.		AN μ	AE μ	Az μ			
40	Jan. 7	P	6	30	8		-	7	+	8		Microseisms
41	" "	P	7	44	7		±	4	-	7		do
42	" "	P	16	29	11		-	4	±	6		do
43	" "	P	17	15	6		-	5	+	3		do
44	" "	P	19	30	45		+	2	±	4		do
45	" "	P	21	19	3		-	7	±	10		do
46	" 8	P	4	1	10		±	4	-	7		do
47	" "	P	4	52	59		±	6	±	10		do
48	" "	P	5	21	1		-	6	±	10		do
49	" "	P	6	48	43		±	1				Local shock
		S	"	"	43.7		±	7				
		F	"	"	46							
50	" "	P	15	15	33				±	9		Microseisms
51	" "	P	23	56	59		±	2	-	5		do
52	" 9	P	4	43	15		±	7	±	4		do
53	" "	P	11	10	55		±	9	-	4		
54	" "	P	12	14	53		+	9	+	2		
55	" "	P	20	10	19				±	5		
56	" "	P	23	58	19		±	1	+	1	59	Local shock
		S	"	"	27		-	1	+	1		
		F	"	"	36							
57	" 10	P	0	20	8.5		+	2	-	3	81	Felt in Nagasaki (class: 1)
		S	"	"	19.4	0.2	+	14	-	13		a little sound.
		M	"	"	20.2	0.2	+	37	-	25		Origin, Sea Yatusiro.
		C	"	"	34							
		F	"	21	21							
58	" "	P	0	29	39		±	5	±	3		Microseisms
59	" 11	P	11	34	21		-	5	±	6		do
60	" "	P	12	6	55		-	2	±	6		do
61	" "	P	16	20	8		-	3	+	9		do
62	" "	P	16	52	39		+	6	±	8		do
63	" "	P	20	52	16		-	7	-	5		do
64	" 14	P	20	16	40		-	4	-	8		do
65	" 15	P	1	41	37		-	4	+	6		do
66	" "	eP	18	2	16	4			+	50		Distant earthquake
		M	18	9	32	7			+	300		
		F	18	20	30							
67	" 18	eP	7	00	58		±	1	+	1	1187	Eastern sea of Honsiu.
		eL	"	03	38				-	11		
		M	"	05	04				+	25		
		C	"	08	39							
		F	"	15	41							
68	" "	P	12	27	44		-	3	-	7		Microseisms
69	" "	P	13	28	17		±	6	±	6		do
70	" "	P	14	27	13		±	10	+	3		do
71	" 19	P	21	31	51		-	4	+	9		do
72	" 20	P	3	13	55		±	5	+	3		do
73	" "	P	11	45	31				+	9		do
74	" "	P	12	54	42		-	4	-	10		do
75	" 21	P	11	1	41		-	4	+	3		do
76	" 22	P	14	37	19		±	4	+	12		do
77	" "	P	15	31	47		±	1	-	4		do
78	" "	P	15	46	37		±	6	±	10		do
79	" 23	P	11	9	00		±	3	+	4		do

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NAGASAKI METEOROLOGICAL OBSERVATORY JAPAN



International  
Seismological  
Centre

No.	Date	Phase	Time 135° E			Period s.	Amplitude			△ km.	Remarks
			h.	m.	s.		AN μ	AE μ	Az μ		
80	Jan. 23	P	12	28	6		± 4	± 3		Microseisms	
81	" "	P	13	7	44		+ 4	+ 3		do	
82	" "	P	14	43	28		- 4	± 7		do	
83	" "	P	17	38	44		± 3	± 5		do	
84	" "	P	19	3	58		- 3	+ 5		do	
85	" "	P	21	9	7		- 4	+ 10		do	
86	" "	P	22	5	37		+ 2	± 4		do	
87	" "	P	23	49	26		± 6	+ 8		do	
88	" 24	P	4	38	46		- 2	+ 7	15	Tijiwa Bay	
		S	"	"	48	0.1	- 10	+ 12			
		M	"	"	49	0.1	- 9	+ 13			
		C	"	"	54						
		F	"	39	8						
89	" "	eP	10	16	7	3		+ 5	5650	South ocean.	
		eS	"	24	36	7		+ 15			
		eL	"	28	41	20		+ 15			
		M	"	38	00	24		+ 60			
		F	14	20	00						
90	" "	P	10	27	4		± 4	+ 6		Microseisms	
91	" "	P	11	37	42		+ 2	+ 6		do	
92	" "	P	13	12	55		+ 2	± 4		do	
93	" "	P	18	24	18		± 3	+ 2		do	
94	" "	P	19	33	34		± 3	+ 6		do	
95	" "	P	20	44	7		- 3	+ 9		do	
96	" "	P	22	42	49		+ 2	+ 10		do	
97	" 25	P	0	10	2		± 5	+ 8		do	
98	" "	P	11	52	59		± 5	± 5		do	
99	" "	P	14	38	19		± 3	± 4		do	
100	" "	P	16	48	23		+ 2	+ 3		do	
101	" "	P	17	33	8			± 3		do	
102	" "	P	22	6	48			+ 5		do	
103	" 26	P	10	35	50		- 2	± 5		do	
104	" "	P	12	54	1		± 5	± 5		do	
105	" "	P	14	20	46		± 4	± 6		do	
106	" "	P	15	52	16			± 1	114	Local shock	
		S	"	"	31.4			± 2			
		F	"	"	44						
107	" "	P	16	48	28		± 3	± 4		Microseisms	
108	" 27	P	10	6	4		+ 1	± 3		do	
109	" "	P	11	17	33		- 2	+ 5		do	
110	" "	P	11	46	47		+ 2	+ 1		do	
111	" "	P	12	50	21		± 2	± 3		do	
112	" "	P	20	49	35		± 1	± 2	15	Local shock	
		S	"	"	37		+ 3	± 3			
		F	"	"	46						
113	" 28	P	15	26	31		- 5	+ 10		Microseisms	
114	" "	P	22	10	2		- 4	+ 8		do	
115	" 29	P	1	40	13		± 5	± 7		do	
116	" "	P	3	53	22		+ 8	+ 12		do	
117	" "	P	16	31	40		± 1	± 9		do	
118	" "	P	19	42	21		± 4	± 4		do	
119	" 30	P	0	39	18		± 5	± 4		do	
120	" "	P	10	1	00		± 4	+ 9		do	
121	" "	P	10	57	30		+ 5	± 8		do	
122	" "	P	18	32	51		- 1	± 1	7	Local shock	
		S	"	"	51.9	0.1	± 2	± 2			
		F	"	33	3						
123	" "	P	23	00	6		± 2	± 4			
124	" 31	P	20	53	41		- 4	+ 7			

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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	200kg	Air	6.3	0.046	2.4	100
	E-W	"	"	6.3	0.063	3.0	100
Wiechert	U-D	80	"	7.1	0.049	2.9	73
Omori	N-S	16	Magnetic	17.0	0.004	2.7	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			Period	Amplitude			$\Delta$	Remarks
			135° E				AN	AE	Az		
			h.	m.	s.						
125	Feb. 1	$\bar{P}$	11	27	35		$\pm 1$		4	Local shock	
		$\bar{S}$	"	"	35.6	$\pm 2$	$\pm 4$				
		F	"	"	37						
126	" "	$\bar{P}$	13	21	47		+ 1		4	do	
		$\bar{S}$	"	"	47.6	$\pm 3$	- 7				
		F	"	"	49						
127	" "	$\bar{P}$	14	57	12	$\pm 4$	$\pm 3$			Microseisms	
128	" "	$\bar{P}$	20	35	21		$\pm 7$			do	
124	" "	$\bar{P}$	23	37	2	$\pm 1$	+ 9			do	
130	" 2	$\bar{P}$	2	18	3	$\pm 8$	$\pm 5$			do	
131	" "	$\bar{P}$	10	16	13	$\pm 7$	$\pm 9$			do	
132	" "	$\bar{P}$	10	21	49	$\pm 3$	$\pm 8$			do	
133	" "	$\bar{P}$	14	51	11	$\pm 1$	$\pm 5$			do	
134	" "	eP	21	28	25	+ 1					
		M	"	30	24	12	+50				
		F	"	33	22						
135	" 3	$\bar{P}$	12	15	46	$\pm 7$	+10	$\pm 1$	29	Tijiwa Bay	
		$\bar{S}$	"	"	49.9	+22	-20	$\pm 3$		Felt in Nagasaki. class: (1)	
		F	"	16	12						
136	" "	P	12	55	16	1	+ 1		898		
		S	"	56	49	2	+ 2				
		L	"	57	17	4	-22				
		M	"	58	38	6	-70				
		C	13	2	36						
		F	"	25	00						
137	" "	P	13	54	16	0.2	+ 1		779		
		S	"	55	53	2	-10				
		L	"	56	1	3	+ 8	-25			
		M	"	56	21	3	-50	+55			
		F	14	55	00						
138	" 4	$\bar{P}$	15	22	17				13	Felt in Nagasaki. class: (1)	
		$\bar{S}$	"	"	18.7	0.1	+15	+ 1			
		F	"	"	39						
139	" "	$\bar{P}$	23	37	11		+ 3	+10		Microseisms	
140	" 5	P	0	39	41		$\pm 4$	- 8		do	
141	" "	P	1	1	00		$\pm 5$	+ 8		do	
142	" "	P	2	14	30		$\pm 5$	+10		do	
143	" "	P	3	7	19		$\pm 5$	+12		do	

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## NAGASAKI METEOROLOGICAL OBSERVATORY JAPAN

No.	Date	Phase	Time 135° E			Period s.	Amplitude			△ km.	Remarks
			h.	m.	s.		AN μ	AE μ	Az μ		
144	Feb. 5	P̄	4	16	47					Microseisms	
145	" "	P̄	10	22	49					do	
146	" "	P̄	11	48	20					do	
147	" "	P̄	12	32	33					do	
148	" "	P̄	12	37	35				25	Tijiwa Bay	
		S̄	"	"	38.4						
		M	"	"	39	0.3					
		F	"	"	59						
149	" "	P̄	13	14	23					Microseisms	
150	" "	P̄	23	2	48					do	
151	" 6	P̄	1	1	7					do	
152	" "	P	1	47	33				3	Local shock	
		S̄	"	"	34						
		F	"	"	36						
153	" "	P̄	2	3	33					Microseisms	
154	" "	P̄	4	9	37					do	
155	" "	P̄	5	37	11					do	
156	" "	P̄	6	4	28					do	
157	" "	P̄	7	37	8					do	
158	" "	P̄	8	10	43					do	
159	" "	P̄	8	56	53					do	
160	" "	P̄	9	24	43					do	
161	" "	P̄	10	2	44					do	
162	" "	P̄	12	22	30					do	
163	" "	P̄	14	27	1					do	
164	" "	P̄	19	46	50					do	
165	" "	P̄	22	19	39					do	
		M	"	"	39.1						
		F	"	"	41						
166	" 7	P̄	0	6	28					do	
		M	"	"	23.1						
		F	"	"	30						
167	" "	P̄	6	22	41					do	
168	" "	P̄	8	46	7					do	
169	" "	P̄	13	36	18					do	
		M	"	"	18.1						
		F	"	"	20						
170	" "	P̄	15	13	35					do	
171	" "	P̄	19	5	5					do	
172	" "	P̄	21	46	39					do	
173	" "	P̄	22	18	14					do	
174	" "	P̄	23	32	48					do	
		M	"	"	48.1						
		F	"	"	50						
17	" 8	P̄	2	10	13					do	
176	" "	P̄	20	32	18					do	
		M	"	"	18.1						
		F	"	"	20						
177	" "	P̄	22	6	55					do	
178	" 9	P̄	4	21	28					do	
		M	"	"	28.1						
		F	"	"	30						
179	" "	P̄	17	27	38					do	
		F	"	"	40						



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No.	Date	Phase	Time 135° E			Period	Amplitude			△ km.	Remarks
			h.	m.	s.		AN μ	AE μ	Az μ		
180	Feb. 9	P	17	46	41		- 1	+ 1		200	
		S	"	47	8	0.6	+ 3	+ 4			
		L	"	"	10	2	- 5	+ 6			
		F	"	48	58						
181	" 10	P	2	44	20		± 1	± 1		452	
		L	"	45	21	<sup>E 6</sup> <sub>N 2</sub>	+ 4	-12			
		M	"	"	26	7		+26			
		F	"	49	40						
182	" "	P̄	13	56	5	- 4	+ <sup>2</sup> / <sub>7</sub>		21	Microseisms	
183	" "	P̄	15	2	59	- 3	- 6			do	
184	" "	P̄	19	2	13	- 4	-11			do	
185	" "	P̄	22	1	27	- 6	-10				
186	" 11	P̄	0	23	5		+10	- 7	- 4	21	Felt in Nagasaki of Mie. class: (1)
		S̄	"	"	7.8		+40	+40	+12		Origin neighbouring sea of Mie,
		C	"	"	27						
		F	"	"	30						
187	" "	P̄	1	4	25		- 1	- 3	- 2	7	Local shock
		S̄	"	"	26	0.1	+10	+15	- 5		
		F	"	"	49						
188	" "	P̄	2	6	17	- 3	- 2				
189	" "	P̄	6	5	10	- 3	- 3				
190	" "	P̄	14	52	43		± 0	± 1		15	Local shock
		S̄	"	"	45	0.1	+ 1	+ 6			
		F	"	"	56						
191	" "	P̄	15	27	2	- 4	- 4			Microseisms	
192	" "	P̄	16	45	51	- 4	- 4			do	
193	" "	P̄	23	1	18	- 4	- 2			do	
194	" "	P̄	2	49	7	- 3	+ 2			do	
195	" "	P̄	18	40	17	- 4	- 2			do	
166	" "	P̄	13	16	22	+ 1	-10			do	
197	" "	P̄	14	54	34	- 5	± 5			do	
198	" 14	P̄	5	22	33			- 1		15	Tijiwa Bay
		S̄	"	"	35			± 3			
		F	"	"	51						
199	" "	P̄	12	3	10	- 3	+ 3			Microseisms	
200	" "	P̄	12	57	11	- 1	± 0			do	
201	" "	P̄	12	59	17	+ 1	± 2			do	
202	" "	P̄	13	10	31	± 1	- 1			do	
203	" "	P̄	13	11	1	± 1	± 1			do	
204	" "	P̄	13	11	16	± 1	- 1			do	
205	" "	P̄	13	11	28	- 1	± 1			do	
206	" "	P̄	13	11	29	± 1	- 1			do	
207	" "	P̄	13	11	39	± 1	± 1			do	
208	" "	P̄	13	11	49	± 1	± 1			do	
209	" "	P̄	13	12	6	± 1	± 1			do	
210	" "	P	18	25	51		± 1	± 1		690	
		L	"	27	24		- 4	+ 9			
		F	"	30	35						
211	" "	P̄	13	52	17	± 1	± 1			Microseisms	
212	" "	P̄	13	52	45	± 1	± 1			do	
213	" "	P̄	13	55	2	- 1	± 1			do	
214	" "	P̄	13	55	6	± 1	+ 5			do	
215	" "	P̄	14	10	31	± 1				do	
216	" "	P̄	14	10	46	± 1				do	

# SEISMIC BULLETIN

## NAGASAKI METEOROLOGICAL OBSERVATORY JAPAN



No.	Date	Phase	Time 135° E			Period s.	Amplitude			△ km.	Remarks
			h.	m.	s.		AN μ	AE μ	Az μ		
217	Feb. 14	P̄	14	11	2		± 1				Microseisms
218	" "	P̄	14	11	12		± 1				do
219	" "	P̄	14	17	23		- 2				do
220	" "	P̄	14	17	27		± 2				do
221	" "	P̄	14	55	31		± 2	- 3			do
222	" "	P̄	14	58	52		- 3	- 3			do
223	" "	P̄	15	20	25		± 3	± 1			do
224	" "	P̄	16	22	4		± 3	± 3			do
225	" "	P̄	16	22	15		- 5	± 3			do
226	" 16	P	2	50	12		+ 1	+ 1		460	
		S	"	"	55	2	- 3	+ 3			
		L	"	51	14	4	- 2	- 1			
		M	"	"	21	4	+ 3	-10			
		C	"	"	47						
		F	"	53	42						
227	" "	P̄	4	9	1		- 5	± 5			Microseisms
228	" "	P	10	40	27	3.5	- 2	-10		3545	Neighbouring Kamtchatka.
		S	"	44	45	11	+40	+200			
		L	"	47	39	15	- 2	+35			
		M <sub>1</sub>	"	51	41	E 15 N 12	+30	-60			
		M <sub>2</sub>	"	54	56	12	-10	+20			
		F	next shock								
229	" "	P	12	1	33		± 1	- 5		3340	Neighbouring Kamtchatka.
		S	"	5	45	9	- 4	+16			
		L	"	8	30	14	- 3	-25			
		M <sub>1</sub>	"	9	23	14	+ 6	-30			
		M <sub>2</sub>	"	12	10	14	+12	-20			
		M <sub>3</sub>	"	23	13	14	-10	+12			
		M <sub>4</sub>	"	25	30	13	- 8	+15			
		F	13	57	52						
230	" "	P̄	15	2	18		- 3	- 4			Microseisms
231	" "	P̄	16	9	16		- 3	- 5			do
232	" "	P̄	20	51	26		- 3	- 7			do
233	" "	P̄	21	33	46		- 4	- 5			do
234	" "	P̄	23	27	54		- 4	- 5			do
235	" 17	P̄	10	17	31		- 5	- 6			do
236	" "	P̄	22	37	54		- 4	± 3			do
237	" "	P̄	23	54	52		- 5	- 2			do
238	" 16	P̄	0	59	58		- 5	-15			do
239	" "	P	21	12	0	0.2	- 2	- 1		111	Time is in correct.
		L	"	"	15	2.2	-12	+30			
		C	"	"	48						
		F	"	14	17						
240	" 20	P̄	0	38	22		+ 2	- 3		15	Tijiwa Bay
		S̄	"	"	24		- 7	+10			Felt in Unyen.
		M	"	"	25		- 8	+11			
		C	"	"	36						
		F	"	"	54						
241	" 20	P̄	0	44	55		- 2	+ 2		15	Tijiwa Bay
		S̄	"	"	57		- 6	± 7			
		F	"	45	13						
242	" "	P̄	1	29	49		± 1	± 1		15	do
		S̄	"	"	51		+ 3	+ 7			
		F	"	30	00						



## SEISMIC BULLETIN

NAGASAKI METEOROLOGICAL OBSERVATORY JAPAN

No.	Date	Phase	Time 135° E			Period s.	Amplitude			△ km.	Remarks
			h.	m.	s.		AN μ	AE μ	Az μ		
243	Feb. 20	P̄	17	1	3		- 2	± 2	+ 1	10	Local shock
		S̄	"	"	4.3		+ 9	-10	+ 3		
		F	"	"	18						
244	" 21	P̄	1	10	52		- 5	- 5			Microseisms
245	" "	P̄	12	41	50		- 4	± 5			do
246	" 22	P̄	0	40	32		- 4	- 8			do
247	" "	P̄	2	0	30		- 4	- 9			do
248	" "	P̄	3	27	52		- 2	± 4			do
249	" "	P̄	4	54	59		± 1	± 1		15	Local shock
		S̄	"	55	1		+ 2	+ 3			
		F	"	"	10						
250	" "	eP	7	9	5		+0.1	-0.2		230	
		S	"	"	24	1	- 1	+ 1			
		L	"	"	36	2	- 1	+ 2			
		M	"	"	44	2	- 5	+ 4			
		C	"	10	37						
		F	"	11	58						
251	" 24	P̄	20	59	41		- 3	- 5			Microseisms
252	" "	P̄	22	31	37		- 3	- 2			do
253	" 25	P̄	1	44	16		+ 1	+ 4			do
254	" "	P	7	50	10		± 2	± 7			do
255	" "	P̄	11	16	10		- 5	- 3			do
256	" "	P̄	11	53	4		± 2	± 2			do
257	" "	P̄	12	28	44		- 3	- 2			do
258	" "	P̄	14	18	56		± 3	+ 3			do
259	" "	P̄	18	46	12		- 4	± 5			do
260	" 26	P̄	0	7	39		- 2	- 5			do
261	" "	P̄	1	13	46		- 5	+ 5			do
262	" "	P̄	8	40	53		+ 2	± 2			do
263	" "	P	22	25	9	0.2	- 1	+ 1		541	
		S	"	"	49	3	- 6	- 1			
		L	"	26	22	9	-20	-10			
		M <sub>1</sub>	"	27	36	10	+15	-30			
		M <sub>2</sub>	"	29	35		+20	+10			
264	" 27	P̄	2	1	49		± 5	-12			Microseisms
265	" "	P̄	3	10	45		- 5	+ 5			do
265(b)	" "	P	10	10	45		- 2	- 2			do
266	" 28	P̄	11	35	14		- 2	+ 4			do
267	" "	P̄	12	50	35		- 3	- 5			do
268	" "	P̄	14	26	22		± 4	- 7			do
269	" "	P̄	16	58	48		- 3	- 3			do
270	" "	P̄	18	11	33		- 5	+ 5			do



## NAGASAKI, JAPAN.

## SEISMIC BULLETIN

NAGASAKI METEOROLOGICAL OBSERVATORY

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

h = 130.6m.

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## INSTRUMENTAL CONSTANTS

INSTRUMENT	COMPONENT	MASS	DAMPING	To	$\frac{r}{T_0^2}$	$\mathcal{E}$	V
Wiechert	N-S	200kg	Air	6.3	0.046	2.4	100
	E-W	"	"	6.3	0.063	3.0	100
Wiechert	U-D	80	"	7.1	0.049	2.9	73
Ómori	N-S	16	Magnetic	17.0	0.004	2.7	20
Ómori	E-W	16	"	15.4	0.007	1.9	20
Ómori	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			Period	Amplitude			$\Delta$	Remarks
			135° E				AN	AE	Az		
			h.	m.	s.	s.	$\mu$	$\mu$	$\mu$	km.	
271	Mar. 1	$\bar{P}$	12	11	58		-4	-11			Microseisms
272	" "	$\bar{P}$	12	57	59		+6	+6			do
273	" "	$\bar{P}$	19	22	59		-3	-6			do
274	" 3	P	10	11	43		+3	$\pm 0$		4800	
		S	"	18	57	10	+45	+74			
		L	"	22	9	20	-40	+40			
		ME	"	24	10	14		-110			
		MN	"	25	41	26	-150				
		F	11	36	18						
275	" 4	P	1	54	57		-5	$\pm 0$		3690	
		S	"	59	00	10	+10	-10			
		L	2	2	38	15	-20	-60			
		M	2	6	45	15	-40	-30			
		F	3	17	55						
276	" "	$\bar{P}$	12	45	35		-4	-2			Microseisms
277	" "	$\bar{P}$	14	31	35			+1		37	Local shock
		$\bar{S}$	"	"	40			+4			
		F	"	"	48						
278	" "	$\bar{P}$	15	42	23		-3	+3			Microseisms
279	" "	$\bar{P}$	18	40	19		-4	+4			do
280	" 5	$\bar{P}$	0	39	56		+2	-7			do
281	" "	$\bar{P}$	3	1	43		-2	+5			do
282	" "	$\bar{P}$	8	5	37		+2	-6			do
283	" "	$\bar{P}$	8	56	18		+4	+3			do
284	" "	$\bar{P}$	14	56	43			+2		16	Local shock
		$\bar{S}$	"	"	45 <sup>2</sup>			+3			
		F	"	57	1						
285	" "	$\bar{P}$	15	27	18		-4	$\pm 3$			Microseisms
286	" "	$\bar{P}$	19	26	57		-4	-6			do
287	" "	$\bar{P}$	20	2	20		-2	+4			do
288	" "	$\bar{P}$	21	7	48		-3	-13			do
289	" "	$\bar{P}$	22	8	2		-4	-13			do
290	" 6	$\bar{P}$	10	32	56		-5	-8			do
291	" "	$\bar{P}$	12	15	17		$\pm 4$	-8			do
292	" "	$\bar{P}$	14	40	54		$\pm 1$	-5			do
293	" "	$\bar{P}$	16	28	57		$\pm 3$	-9			do
294	" "	$\bar{P}$	18	43	42		$\pm 3$	+3			do

# SEISMIC BULLETIN

## NAGASAKI METEOROLOGICAL OBSERVATORY JAPAN

No.	Date	Phase	Time 135° E			Period s.	Amplitude			△ km.	Remarks
			h.	m.	s.		AN μ	AE μ	Az μ		
295	Mar. 6	$\bar{P}$	19	18	50		-4	-9		Microseisms	
296	" "	$\bar{P}$	19	44	11		-5	-10		do	
297	" "	$\bar{P}$	20	31	16		-5	-10		do	
298	" "	$\bar{P}$	22	26	10		-2	± 5		do	
299	" "	$\bar{P}$	23	32	9		-2	± 4		do	
300	" 7	$\bar{P}$	1	19	9		-1	-4		do	
301	" "	$\bar{P}$	2	48	31		± 4	-7		do	
302	" "	$\bar{P}$	6	18	9		± 1	-4		do	
303	" "	$\bar{P}$	7	19	43		-1	-7		do	
304	" "	$\bar{P}$	10	40	53		+2	-5		do	
305	" "	$\bar{P}$	11	12	17		± 2	± 6		do	
306	" 7	P	18	29	6	2	-1.6	-6	+ 3	571	A great earthquake of Northern sea of Tango.
		S	"	30	10		+560	-10	+ 715		P-S observed by Weichert. and L.-M is c.
		L	"	30	23		NE1000	NW850	+ 500		M. o. strong motion seismograph
		M <sub>1</sub>	"	"	50.7		NE 750	NW5200	-1500		
		M <sub>2</sub>	"	"	55.4		NE 900	NW4200	+4600		
		M <sub>3</sub>	"	31	6		SW1900	NW1400	+ 500		
		F	next shock								
307	" "	eP	19	35	4		-0.1				After shock
		F	"	38	29						
308	" "	P	19	49	25			+ 5		527	After shock
		L	"	50	36			+10			
		M	"	51	28	15		-25			
		F	next shock								
309	" "	P	22	25	52		-0.1			527	After shock
		L	"	27	3		+ 5				
		F	"	31	17						
310	" "	eP	23	13	21		-0.1			520	After shock
		S	"	14	1		+0.1				
		L	"	"	31		-0.2				
		F	"	17	40						
311	" 8	P	0	37	51		-0.1			512	After shock
		S	"	38	52		+ 6				
		L	"	39	00		-16				
		M	"	"	6		-20				
		F	"	43	50						
312	" "	P	23	16	7		+ 1			520	After shock
		L	"	17	17	3	+12				
		M	"	"	19	2	+12				
		F	"	19	22						
313	" 11	$\bar{P}$	19	25	49		-5	-13			Microseisms
314	" "	$\bar{P}$	21	1	49		-5	-7			do
315	" "	$\bar{P}$	23	16	35		-5	-10			do
316	" 12	eP	6	33	38		-0.1	-0.1		74	Local shock
		L	"	"	48		-10	-4			
		F	"	35	40						
317	" "	$\bar{P}$	7	31	4		± 1	± 1		22	Local shock
		$\bar{S}$	"	"	7		-3	± 2			
		F	"	"	25						
318	" 13	$\bar{P}$	1	31	14		-5	-4			Microseisms
319	" "	$\bar{P}$	2	37	31		-6	+ 6			do
320	" "	$\bar{P}$	3	47	32		-4	± 4			do
321	" 15	$\bar{P}$	20	52	40		-3	+ 3			do
		M	"	"	40.1			-8			
		F	"	"	42						

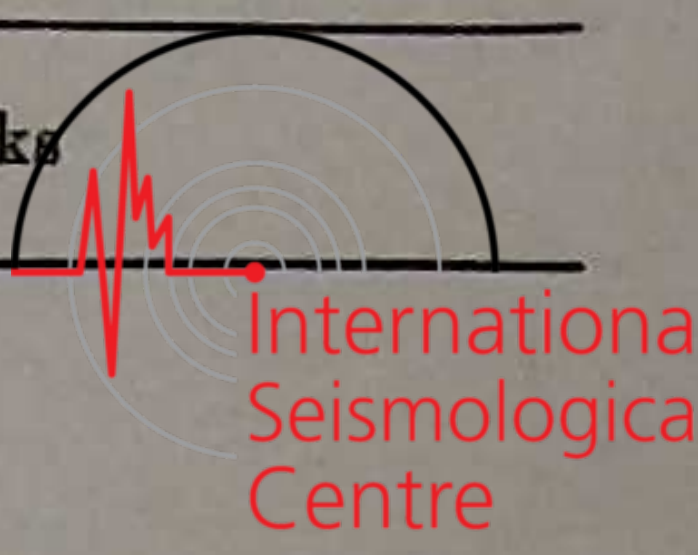


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# SEISMIC BULLETIN

## NAGASAKI METEOROLOGICAL OBSERVATORY JAPAN

No.	Date	Phase	Time 135° E			Period s.	Amplitude			△ km.	Remarks
			h.	m.	s.		AN μ	AE μ	Az μ		
322	Mar.16	P̄	0	33	55				3800	Microseisms	
323	" "	P̄	3	49	56	- 8	+ 4			do	
324	" "	P̄	4	56	3	- 3	+ 6			do	
325	" "	P̄	4	56	3	± 5	± 5			do	
326	" "	P̄	5	23	33	- 6	- 5			do	
327	" "	P̄	5	32	32	- 6	± 6			do	
	" "	cP	6	28	16	± 0	- 1				
	" "	S	"	33	27	+ 3	- 4				
	" "	I	"	34	48	- 2	- 5				
	" "	M	"	36	32	± 0	+10				
	" "	C	"	42	27						
	" "	F	"	54	45						
328	" 16	P̄	7	8	19	± 5	+ 4	8	Microseisms		
329	" "	P̄	8	1	12	+ 5	± 5		do		
330	" "	P̄	12	34	47	+ 2	+ 4	5	do		
331	" "	P̄	14	25	2	+ 4	+ 4		do		
332	" "	P̄	15	26	39	- 2	- 2		do		
	" "	M	"	"	39.1	± 6	- 6				
	" "	F	"	"	41						
333	" "	P̄	16	24	50	- 6	+ 8	6	do		
334	" "	P̄	17	30	48	+ 3	- 5	10	do		
335	" 18	P̄	12	38	10	+ 2	± 1	4	do		
336	" "	P̄	12	53	8	- 4	- 6		do		
337	" "	P̄	16	52	49	± 3	± 1		do		
338	" "	P̄	18	7	28	± 6	+ 7		do		
339	" "	P̄	19	8	44	- 5	± 5		do		
340	" "	P̄	23	4	43	- 5	-10		do		
341	" 19	P̄	7	26	7	- 2	± 0		do		
342	" "	P̄	10	34	3	± 0	+ 1		32 Local shock		
	" "	S̄	"	"	7	- 2	+ 2		Felt at Unzen.		
	" "	F	"	"	17						
343	" "	P̄	10	37	3	- 3	- 2		Microseisms		
344	" "	P̄	11	47	45	- 4	± 5		do		
345	" "	P̄	11	55	58	-0.2	+ 1		32 Local shock.		
	" "	S̄	"	56	"	± 1	+ 1		Felt at Unzen.		
	" "	F	"	"	10						
346	" "	P̄	12	17	24	- 3	+ 4		Microseisms		
347	" "	P̄	14	33	22	± 4	± 5		do		
348	" "	P̄	15	43	24	- 5	± 6		do		
349	" "	P̄	16	44	11	- 5	+ 6		do		
350	" 20	P̄	15	10	51	- 3	+ 5	10	do		
351	" 21	P̄	0	8	46	- 3	± 5		do		
352	" "	P̄	1	18	13	- 5	- 4		do		
353	" "	P̄	2	21	34	± 4	± 4		do		
354	" "	P̄	10	23	9	± 4	± 4		do		
355	" "	P̄	10	29	39	- 5	+ 5		do		
356	" "	P̄	10	54	32	- 4	± 5		do		
357	" "	P̄	13	10	53	± 4	+ 4		do		
358	" "	P̄	14	22	44	± 5	± 5		do		
359	" "	P̄	15	26	16	± 4	± 3		do		
360	" 22	P̄	3	9	16	+ 1			15 Local shock. Felt in Nagasaki. class:(1)		
	" "	S̄	"	"	18	0.5 - 5					
	" "	F	"	"	33						
361	" "	P̄	16	5	41	- 6	± 5		Microseisms		
362	" "	P̄	18	58	33	- 3	+ 4		do		
363	" "	P̄	19	46	46	- 4	+ 4	8	do		



# SEISMIC BULLETIN

## NAGASAKI METEOROLOGICAL OBSERVATORY JAPAN

No.	Date	Phase	Time 135° E			Period s.	Amplitude			△ km.	Remarks
			h.	m.	s.		AN μ	AE μ	Az μ		
364	Mar.22	P̄	22	28	00		+ 3 - 7	± 4			Microseisms
365	" "	P̄	23	31	2		± 6	+ 5 - 9			do
366	" 23	P̄	6	39	17		+ 5 - 4	± 5			do
367	" "	P̄	11	00	00		+ 2				do
368	" "	P̄	15	36	40		± 3	± 2			do
369	" "	P̄	15	36	57		- 5	- 2			do
370	" "	P̄	15	57	6		± 5	+ 6 - 10			do
371	" "	P̄	20	26	6		+ 2 - 4				do
372	" "	P̄	21	33	1		± 2				do
373	" 24	P̄	2	12	1		- 3				do
374	" "	P̄	4	21	57		- 5				do
375	" "	P̄	8	8	56		± 6				do
376	" "	P̄	10	26	36		+ 4	+ 4			do
377	" "	P̄	14	3	52		- 4	+ 6 - 11			do
378	" "	P̄	16	8	48		- 5	± 5			do
379	" 25	P̄	3	9	29		- 3	- 3			do
380	" "	P̄	7	16	27		- 6	- 11			do
381	" "	P̄	9	59	13		± 4	± 5			do
382	" "	P̄	12	26	39		+ 5	- 10			do
383	" "	P̄	12	49	11		- 3	- 5			do
384	" "	P̄	13	19	33		- 3	- 11			do
385	" "	P̄	13	32	41		- 2	+ 2			do
386	" "	P̄	13	45	16		- 5	+ 8 - 12			do
387	" "	P̄	20	1	56		- 3	- 8			do
388	" "	P̄	21	20	26		- 3	- 6			do
389	" "	P̄	23	54	43		+ 2	± 8			do
390	" 26	P̄	2	12	37		- 3	- 5			do
391	" "	P̄	5	35	18		± 5	± 5			do
392	" "	P̄	9	11	54			- 10			do
393	" "	P̄	11	46	11		± 5	- 6			do
394	" "	P̄	12	46	46		- 4	+ 8 - 13			do
395	" "	P̄	13	57	00		- 2	- 8			do
396	" 27	P̄	0	9	47		- 5	- 12			do
397	" "	P̄	4	42	45		± 4	- 6			do
398	" "	P̄	11	46	48		- 4	± 3			do
399	" "	P̄	11	47	25		± 4	± 4			do
400	" "	P̄	11	49	41		± 2	± 2			do
401	" "	P̄	12	36	24		± 3	- 2			do
402	" "	P̄	12	36	59		- 3	± 3			do
403	" "	P̄	19	41	48		- 3	+ 5			do
		M	"	"	48.2		+ 4				
		F	"	"	50						
404	" "	P̄	22	54	19		- 5	+ 6 - 11			do
405	" "	P̄	23	58	33		- 4	- 8			do
406	" 28	P̄	4	36	40		± 5	- 4			do
407	" "	P̄	9	37	37		± 4	± 4			do
408	" "	P̄	9	38	26		- 4	+ 8 - 11			do
409	" "	P̄	12	31	31		- 4	- 11			do
410	" "	P̄	13	39	31		- 5	+ 6 - 9			do
411	" "	P̄	14	42	54		± 2	± 4			do
412	" "	P	15	42	13		- 5	- 4			do
413	" "	P	17	0	3		± 4	- 5			do
414	" "	P̄	18	55	15		- 3	± 3			do
415	" "	P̄	19	11	48		- 4	- 12			do



# SEISMIC BULLETIN

## NAGASAKI METEOROLOGICAL OBSERVATORY JAPAN

No.	Date	Phase	Time 135° E			Period s.	Amplitude			△ km.	Remarks
			h.	m.	s.		AN μ	AE μ	Az μ		
416	Mar.28	$\bar{P}$	19	43	23		± 3	- 4			Microseisms
417	" "	$\bar{P}$	20	6	23		- 3	-11			do
418	" "	$\bar{P}$	21	20	21		+ 2	+ 5			do
		M	"	"	21.1		± 5	-13			
		F	"	"	23						
419	" 29	$\bar{P}$	4	17	24		± 4	± 6			do
420	" "	$\bar{P}$	14	2	31		- 3	+ 6 - 9			do
421	" "	$\bar{P}$	14	59	23		- 6	+ 6			do
422	" "	$\bar{P}$	16	8	4		- 5	± 7			do
423	" "	$\bar{P}$	16	55	39		- 6	± 5			do
424	" "	$\bar{P}$	19	5	20		± 3	- 4			do
425	" "	$\bar{P}$	20	2	49		± 5	± 4			do
426	" "	$\bar{P}$	23	38	36		+ 2	+ 2			do
427	" 30	$\bar{P}$	1	59	35		- 7	± 7			do
428	" "	$\bar{P}$	5	23	58		± 5	± 4			do
429	" "	$\bar{P}$	10	47	16		± 3	± 5			do
430	" "	$\bar{P}$	11	35	35		± 4	± 5			do
431	" "	$\bar{P}$	12	43	29		+ 1 - 4	- 7			do
432	" "	$\bar{P}$	16	7	1		- 5	± 5			do
433	" 31	$\bar{P}$	4	52	49		± 2	- 4			do
434	" "	$\bar{P}$	6	3	36		± 1	± 1	13		Local shock
		$\bar{S}$	"	"	37.8		± 0	± 1			
		F	"	"	42						
435	" "	$\bar{P}$	9	11	10		- 2	± 3			Microseisms
436	" "	$\bar{P}$	10	10	11		- 3	± 5			do
437	" "	$\bar{P}$	10	39	3		± 3	± 4			do
438	" "	$\bar{P}$	12	52	21		± 5	- 5			do
439	" "	$\bar{P}$	14	24	9		- 6	± 5			do
440	" "	$\bar{P}$	15	29	16		± 4	± 5			do
441	" "	$\bar{P}$	16	25	3		- 5	± 5			do
442	" "	$\bar{P}$	19	49	54		- 3	- 3			do



# NAGASAKI, JAPAN.

## SEISMIC BULLETIN

NAGASAKI METEOROLOGICAL OBSERVATORY

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

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

$h = 130.6\text{m.}$

Lithologic foundation :

Volcanic Agglomerate.

### INSTRUMENTAL CONSTANTS

INSTRUMENT	COMPONENT	MASS	DAMPING	To	$\frac{r}{T_0^2}$	$\mathcal{J}$	V
Wiechert	N-S	200kg	Air	6.3	0.046	2.4	100
	E-W	"	"	6.3	0.063	3.0	100
Wiechert	U-D	80	"	7.1	0.049	2.9	73
Omori	N-S	16	Magnetic	17.0	0.004	2.7	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	AE	Az		
							$\mu$	$\mu$	$\mu$		
36	Mar. 3	P	10	11	43.0				4800		
"	"	S	"	18	57.0	10	+ 3	+ 0			
"	"	L	"	22	09.0	20	+ 45	+ 74			
"	"	ME	"	24	10.0	14	- 40	+ 40			
"	"	MN	"	25	41.0	26		- 110			
"	"	F	11	36	18.0						
37	" 4	P	1	54	57.0						
"	"	S	"	59	00.0	10	- 150	+ 0	3690		
"	"	L	2	2	38.0	15	+ 10	- 10			
"	"	M	2	6	45.0	15	- 20	- 60			
"	"	F	3	17	55.0		- 40	- 30			
38	"	P	14	31	35.0			+ 1	37	Local shock	
"	"	S	"	"	40.0			+ 4			
"	"	F	"	"	48.0						
39	" 5	P	14	56	43.0			+ 2	16	Local shock	
"	"	S	"	"	45.0			+ 3			
"	"	F	"	57	01.0						
40	" 7	P	18	29	06.0	2	- 1.6	- 6	+ 3	571	A great earthquake of neighbouring
"	"	S	"	30	10.0		+ 360	- 10	+ 715		Sea of Tango
"	"	L	"	"	23.0		NW 850	NE 1000	+ 500		P-S mere observed by
"	"	M <sub>1</sub>	"	"	50.7		NW 5200	NE 750	- 1500		Wiechert type and L-M <sub>3</sub>
"	"	M <sub>2</sub>	"	"	55.4		NW 4200	NE 900	+ 4600		C. M. O. strong motion seismograph
"	"	M <sub>3</sub>	"	31	06.0		NW 1400	SW 1900	+ 500		
"	"	F	Lost by next quakes								
41	"	eP	19	35	04.0		- 0.1			527	After shock
"	"	F	"	38	29.0						
42	"	P	19	49	25.0			+ 5	527	After shock	
"	"	L	"	50	36.0			+ 10			
"	"	M	"	51	28.0	15		- 25			
"	"	F	Lost by next quakes								
43	"	P	22	25	52.0		- 0.1		527	After shock	
"	"	L	"	27	03.0		+ 0.5				
"	"	F	"	31	17.0						
44	"	eP	23	13	21.0						
"	"	S	"	14	01.0						
"	"	L	"	"	31.0						
"	"	F	"	17	40.0						
45	" 8	P	0	37	51.0		- 0.1		512	After shock	
"	"	S	"	38	52.0		+ 6				
"	"	L	"	39	00.0		- 16				
"	"	M	"	"	06.0		- 20				
"	"	F	"	43	50.0						
46	"	P	23	16	07.0		+ 1		520	After shock	
"	"	L	"	17	17.0	3	+ 12				
"	"	M	"	"	19.0	2	+ 12				
"	"	F	"	19	22.0						
47	" 12	eP	6	33	38.0		- 0.1	- 0.1	74	Local shock	
"	"	L	"	"	48.0		- 10	- 4			
"	"	F	"	35	40.0						
48	"	P	7	31	04.0				22	Local shock	
"	"	S	"	"	07.0						
"	"	F	"	"	25.0						

## SEISMIC BULLETIN

NAGASAKI METEOROLOGICAL OBSERVATORY JAPAN

No.	Date	Phase	Time 135° E			Period s.	Amplitude			△ km.	Remarks
			h.	m.	s.		AN μ	AE μ	Az μ		
49	" 16	eP	6	28	16.0			— 1	3800		
"	" "	S	"	33	27.0		+ 3	— 4			
"	" "	L	"	34	48.0		— 2	— 5			
"	" "	M	"	36	32.0			+ 10			
"	" "	C	"	42	27.0						
"	" "	F	"	54	45.0						
50	" 19	P̄	10	34	03.0		— 2	+ 1	32	Local shock	
"	" "	S̄	"	"	07.0			+ 2			
"	" "	F	"	"	17.0						
51	" "	P̄	11	55	58.0		— 0.2	+ 1	32	Local shock	
"	" "	S̄	"	56	02.0			+ 1			
"	" "	F	"	"	10.0		+ 1		15	Local shock	
52	" 22	P̄	3	9	16.0		— 5				
"	" "	S̄	"	"	18.0	0.5					
"	" "	F	"	"	33.0				13	Local shock	
53	" 31	P̄	6	3	36.0						
"	" "	S̄	"	"	37.8						
"	" "	F	"	"	42.0						

## 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	$T_0$	$\frac{r}{T_0^2}$	$\mathcal{E}$	V
Wiechert	N-S	200kg	Air	6.3	0.046	2.4	100
	E-W	"	"	6.3	0.063	3.0	100
Wiechert	U-D	80	"	7.1	0.049	2.9	73
Omori	N-S	16	Magnetic	17.0	0.004	2.7	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

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No.	Date	Phase	Time 135° E			Period s.	Amplitude			$\Delta$ km.	Remarks
			h.	m.	s.		AN	AE	Az		
							$\mu$	$\mu$	$\mu$		
54	Apr. 1	P	6	10	7.7				579	After shock of Amino	
"	"	S	"	"	15.0					Great earthquak	
"	"	L	"	11	27.1	2	- 155	+ 140			
"	"	M	"	"	36.7	2	+ 300	- 260			
"	"	C	"	15	41.0						
"	"	F	"	36	37.0						
55	"	8	P	22	7	1.0	1	+ 0.1	+ 0.1	519	
"	"	S	"	8	5.0	1	+ 3	+ 2			
"	"	L	"	"	11.0	1.4	- 8	+ 7			
"	"	M	"	"	28.0	2	- 11	- 11			
"	"	C	"	9	39.0						
"	"	F	"	15	05.0						
56	"	9	P	15	33	19.0				15	Twin Earthquak
"	"	S	"	"	21.0	0.1	+ 8	+ 11			
"	"	S	"	"	25.0	0.2	+ 18	+ 9	+ 10		
"	"	C	"	"	35.0						
"	"	F	"	"	54.0						
57	"	11	P	11	24	34.0				10	Local shock
"	"	S	"	"	35.4			- 2			
"	"	M	"	"	36.0			- 3			
"	"	F	"	"	41.0						
58	"	13	P	23	48	26.0		+ 1	- 1	364	
"	"	L	"	49	15.0			+ 7	+ 3		
"	"	M	"	"	17.0	5	- 40	- 10			
"	"	C	"	50	10.0						
"	"	F	Lost by to next quak								
59	"	"	P	23	51	04.0		- 1	+ 1	378	
"	"	L	"	"	55.0			+ 10	+ 2		
"	"	M	"	52	05.0			+ 10	- 3		
"	"	C	"	53	15.0						
"	"	F	"	56	40.0						
60	"	18	P	20	35	16.0		+ 1		74	Local shock
"	"	S	"	"	17.0	0.1	+ 2				
"	"	F	"	"	23.0						
61	"	20	P	2	34	24.0		+ 1			
"	"	S	"	37	57.0	2	- 3				
"	"	SM	"	38	08.0	3	+ 36				
"	"	L	"	40	52.0	7	+ 3				
"	"	C	"	46	03.0						
"	"	F	"	58	50.0						
62	"	28	eP	4	18	49.0		- 0.1	- 0.1	2000	
"	"	L	"	22	05.0			+ 1	+ 2		
"	"	M	"	23	36.0	N 12 E 15	+ 1	- 3			
"	"	C	"	29	16.0						
"	"	F	"	34	40.0						



## NAGASAKI, JAPAN.

## SEISMIC BULLETIN

NAGASAKI METEOROLOGICAL OBSERVATORY

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

Lithologic foundation :

Volcanic Agglomerate.

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## INSTRUMENTAL CONSTANTS

INSTRUMENT	COMPONENT	MASS	DAMPING	$T_0$	$\frac{r}{T_0^2}$	$\mathcal{J}$	V
Wiechert	N-S	200kg	Air	6.3	0.046	2.4	100
	E-W	"	"	6.3	0.063	3.0	100
Wiechert	U-D	80	"	7.1	0.049	2.9	73
Ômori	N-S	16	Magnetic	17.0	0.004	2.7	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 s.	Amplitude			$\Delta$ km.	Remarks
			h.	m.	s.		AN	AE	AZ		
							$\mu$	$\mu$	$\mu$		
63	8 May	P	16	57	59.1				423	Off the coast of Kisyû	
"	"	S	"	58	44.3						
"	"	L	"	"	48.7						
"	"	M <sub>1</sub>	"	"	53.0	3.3	+ 2.3				
"	"	M <sub>2</sub>	"	59	01.2	3.8		- 1.2			
"	"	M <sub>3</sub>	"	"	07.2	3.3		- 1.7			
"	"	C	"	"	59.6						
"	"	F	17	2	20.3						
64	"	P	20	15	59.2				88	Kagosima Bay	
"	"	S	"	16	11.0						
"	"	C	"	"	32.6						
"	"	F	"	"	43.4						
65	16	eP	20	55	03.3				1040	Distant quak	
"	"	L	"	58	08.9						
"	"	C	21	15	57.5						
"	"	F	"	24	47.8						
66	18	eL	6	47	43.9					Ditto	
"	"	F	7	1	54.7						
67	19	eP	7	52	49.0				275		
"	"	eS	"	53	15.9						
"	"	L	"	"	26.1						
"	"	M	"	"	33.2	E 6.1 N 4.2	- 1.0	+ 3.0			
"	"	C	"	55	15.7						
"	"	F	"	57	43.9						
68	20	eL	4	22	10.2					Surface wave of distant quak	
"	"	F	"	23	10.2						
69	22	eL	21	4	41.1					Ditto	
"	"	F	"	16	53.3						
70	23	eP	7	38	34.8		- 0.3	+ 0.9	3600	Tango trench	
"	"	S	"	42	47.0						
"	"	L	"	45	47.0						
"	"	Time of scale out	"	46	00.5						
"	"	C	8	44	21.3						
"	"	F	9	26	17.4						
71	23	eL	11	49	57.1					Surface wave of distant quak	
"	"	F	12	5	42.0						
72	"	eL	23	4	22.8					Ditto	
"	"	F	"	16	36.0						
73	24	eL	8	57	18.0					Ditto	
"	"	F	9	23	07.4						

# NAGASAKI, JAPAN.

## SEISMIC BULLETIN

NAGASAKI METEOROLOGICAL OBSERVATORY

$\phi = 32^{\circ} 41' 03''$   $\lambda = 129^{\circ} 52' 31''$   $h = 130.6m.$  Lithologic foundation: Volcanic Agglomerate.



### INSTRUMENTAL CONSTANTS

INSTRUMENT	COMPONENT	MASS	DAMPING	To	$\frac{r}{T_0^2}$	$\mathcal{E}$	V
Wiechert	N-S	200kg	Air	6.3	0.046	2.4	100
	E-W	"	"	6.3	0.063	3.0	100
Wiechert	U-D	80	"	7.1	0.049	2.9	73
Omori	N-S	16	Magnetic	17.0	0.004	2.7	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		
						s.	$\mu$	$\mu$	$\mu$	km.	
74	3 June	eP	16	19	34.2		- 0.3	+ 0.3		3420	Southern sea of Saipan islands
"	"	S	"	25	24.6						
"	"	L	"	28	17.1						
"	"	M <sub>1</sub>	"	29	40.0	29.4			- 155		
"	"	M <sub>2</sub>	"	31	35.6	29.4	+ 100				
"	"	C	"	48	12.5						
"	"	F	17	16	59.3						
75	10 "	P	2	50	28.0					161	off the coast of Nomosaki.
"	"	L	"	50	49.8						
"	"	C	"	51	12.5						
"	"	F	"	"	20.3						Local shock
76	18 "	eP	11	35	52.4						Ditto
"	"	L	"	"	57.1						
"	"	F	"	39	33.6						
77	19 "	eP	8	9	31.2						Ditto
"	"	L	"	"	33.7						
"	"	F	"	"	48.9						
78	27 "	eP	10	38	07.5						Ditto P phase is uncertain
"	"	eL	"	"	16.7						
"	"	C	"	"	28.3						
"	"	F	"	"	16.5						

## NAGASAKI, JAPAN.

## SEISMIC BULLETIN



## NAGASAKI, JAPAN.

## SEISMIC BULLETIN

## NAGASAKI METEOROLOGICAL OBSERVATORY

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

Lithologic foundation: Volcanic Agglomerate.

## INSTRUMENTAL CONSTANTS

INSTRUMENT	COMPONENT	MASS	DAMPING	$T_0$	$\frac{r}{T_0^2}$	$\mathcal{E}$	V
Wiechert	N-S	200kg	Air	7.0	0.104	4.0	100
	E-W	"	"	6.2	0.082	6.1	100
Wiechert	U-D	80	"	5.9	0.052	3.4	52
Omori	N-S	16	Magnetic	17.0	0.004	2.7	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.		$A_N$ $\mu$	$A_E$ $\mu$	$A_Z$ $\mu$		
79	3 July	eP	17	21	10.2				2375	Neighbourhood of Yap island	
"	"	S	"	23	58.9						
"	"	L	"	26	02.0						
"	"	C	"	28	05.4						
"	"	F	"	32	04.2						
80	13 "	eP	6	11	49.0	+0.7	+0.6	+1.3	1840	Off the cape Otuisi.	
"	"	S	"	14	58.3						
"	"	M	"	"	58.5	6.1	-5.2				
"	"	C	"	17	53.1						
"	"	F	"	24	57.0						
81	"	eP	10	11	26.0					Amakusa Nada.	
"	"	L	"	"	42.1						
"	"	F	"	12	00.0						
82	22 "	eL	13	22	?					Time is uncertain	
"	"	F	13	44	?						

## NAGASAKI, JAPAN.

## SEISMIC BULLETIN

## NAGASAKI METEOROLOGICAL OBSERVATORY

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

h = 130.6m.

Lithologic foundation :

Volcanic Agglomerate.

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## INSTRUMENTAL CONSTANTS

INSTRUMENT	COMPONENT	MASS	DAMPING	To	$\frac{r}{T_0^2}$	$\mathcal{J}$	V
Wiechert	N-S	200kg	Air	7.0	0.104	4.0	100
	E-W	"	"	6.2	0.082	6.1	100
Wiechert	U-D	80	"	5.9	0.052	3.4	52
Omori	N-S	16	Magnetic	17.0	0.004	2.7	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.		A <sub>N</sub>	A <sub>E</sub>	A <sub>Z</sub>		
							$\mu$	$\mu$	$\mu$		
83	6 Aug.	eP	6	15	38.3				1230	Off the mouth of the Abu River in Miyagi Prefecture.	
"	"	S	"	17	49.1	+1.2	+2.7	-1.3			
"	"	L	"	18	28.0						
"	"	M <sub>1</sub>	"	19	15.2	10.3	+259				
"	"	M <sub>2</sub>	"	"	24.6	10.3	+259				
"	"	M <sub>3</sub>	"	"	51.5	20.9	+960				
"	"	M <sub>4</sub>	"	20	0.43	11.7	+357				
"	"	M <sub>5</sub>	"	"	13.4	12.3		-144			
"	"	C	"	29	12.6						
"	"	F	"	55	12.6						
84	10 "	eP	20	42	48.0		-0.4	+1.3	2030	Trace of distant earthquake. epicenter is probably South Ocean.	
"	"	eS	"	46	13.8						
"	"	L	"	48	06.1						
"	"	M <sub>1</sub>	"	51	26.8	20.8		+355			
"	"	M <sub>2</sub>	"	53	07.4	17.8		-14.5			
"	"	C	21	11	07.4						
"	"	F	"	21	02.3						
85	12 "	iP	9	36	06.7		-24.1	+90.0	1020	NW off Titizima.	
"	"	S	"	37	57.8						
"	"	M <sub>1</sub>	"	38	00.5	4.5		-16.6			
"	"	M <sub>2</sub>	"	"	03.3	8.0		-30.4			
"	"	F	"	43	20.9						
86	19 "	eP	4	30	01.5				1440	Direction of first tremor is faint. Epicenter is Off Kazusa in Tiba prefecture.	
"	"	eS	"	32	32.0						
"	"	L	"	33	44.6						
"	"	M <sub>1</sub>	"	35	13.5	12.5	+831	-946			
"	"	M <sub>2</sub>	"	"	41.0	12.5		+1218			
"	"	M <sub>3</sub>	"	36	00.9	11.5	+969				
"	"	M <sub>4</sub>	"	"	43.5	13.1		+1174			
"	"	C	"	41	57.2						
"	"	F	5	25	21.0						
"	"	F	"	51	55.3						
87	20 "	eL	8	18	28.3						
"	"	F	"	51	55.3						
88	21 "	eL	6	42	02.0						
"	"	F	7	09	42.4						
89	21 "	iP	12	35	23.5		+12.3	+8.9	74		
"	"	L	"	"	31.9						
"	"	M <sub>1</sub>	"	"	34.5	0.8	+47.7	-59.4			
"	"	C	"	"	46.8					Amakusa Nada.	
"	"	F	"	38	24.0						

## NAGASAKI, JAPAN.

No. 16

From 23 to 31 Aug. 1927

## SEISMIC BULLETIN

NAGASAKI METEOROLOGICAL OBSERVATORY JAPAN



No.	Date	Phase	Time 135° E			Period s.	Amplitude			△ km.	Remarks
			h.	m.	s.		AN μ	AE μ	Az μ		
90	23 Aug.	eP	15	31	19.9				2120	NNE of Titizima.	
"	" "	eS	"	34	53.8						
"	" "	L	"	36	38.4						
"	" "	M <sub>1</sub>	"	"	47.2	12.3		+320			
"	" "	M <sub>2</sub>	"	37	12.2	10.5	-58				
"	" "	M <sub>3</sub>	"	"	47.2	10.8			+115		
"	" "	M <sub>4</sub>	"	"	51.3	11.0		+254			
"	" "	M <sub>5</sub>	"	38	23.0	12.3	-37				
"	" "	M <sub>6</sub>	"	"	56.4	11.4		+191			
"	" "	C	"	39	08.9						
"	" "	F	16	21	25.5						
91	24 "	eP	17	58	02.8				2245	E off Sioyasaki.	
"	" "	eS	18	01	46.9						
"	" "	eL	"	03	50.5						
"	" "	F	"	22	31.7						
92	25 "	eP	1	04	?				1530	Time is poor.	
"	" "	S	1	07	?						
"	" "	F	"	34	?						
93	31 "	eP	17	36	48.2				17	Tijiwa Nada.	
"	" "	L	"	"	50.5						
"	" "	M	"	"	51.8		+11	-21	-4		
"	" "	C	"	"	54.3						
"	" "	F	"	37	21.5						
94	" "	eP	20	03	36.7				13	Ditto	
"	" "	L	"	"	38.4		+8	-16			
"	" "	C	"	"	44.1						
"	" "	F	"	04	03.9						
95	" "	eP	20	18	10.8				17	Ditto	
"	" "	L	"	"	13.1						
"	" "	F	"	"	24.2						

# 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	$\frac{r}{To^2}$	$\mathcal{J}$	V
Wiechert	{ N-S	200kg	Air	7.0	0.104	4.0	100
	{ E-W	"	"	6.2	0.082	6.1	100
Wiechert	U-D	80	"	5.9	0.052	3.4	52
Omori	N-S	16	Magnetic	17.0	0.004	2.7	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 $\mu$		
96	1 Spet.	eP	1	46	26.9				10	Tijiwa Nada. Local shock.	
"	"	S	"	"	28.2						
"	"	F	"	"	43.9						
97	8 "	eP	8	04	44.7				13	Ditto	
"	"	S	"	"	46.4						
"	"	F	"	"	56.7						
98	11 "	iP	15	54	46.7		+0.8	-2.7	162	Neighbourhood of Mt. Kirisima in Miyazaki Prefecture.	
"	"	S	"	55	08.3						
"	"	M	"	"	09.3	2.5	-15.9	-14.9			
"	"	C	"	"	18.5						
"	"	F	"	57	49.6						
99	12 "	eL	7	50	24.4						
"	"	F	8	30	10.1						
100	12 "	iP	17	37	03.4		+3.2	-10.0	+6.4	17	Slightly shock were felt in Nagasaki. Epicenter is Tijiwa Nada
"	"	S	"	37	06.1		-26.5	+30.0			
"	"	C	"	"	08.6						
"	"	F	"	"	19.5						
101	17 "	eP	21	20	44.9				268	S off Makurazaki in Kagosima prefecture.	
"	"	L	"	21	21.0						
"	"	F	"	23	07.8						
102	18 "	eP	0	10	30.0		-0.4	+0.8	+1.3	314	W off Yakusima in Kagosima Prefecture.
"	"	S	"	"	59.4						
"	"	L	"	11	12.2						
"	"	M <sub>1</sub>	"	"	14.0	{ E 3.5 N 4.3	-22.6	-36.9			
"	"	M <sub>2</sub>	"	"	28.7	{ E 7.0 N 9.6 Z 8.4	-43.3	+33.0	-27.2		
"	"	M <sub>3</sub>	"	"	52.6	{ E 3.5 N 5.2 Z 6.4	-21.6	-44.3	-16.2		
"	"	C	"	12	10.6						
"	"	F	"	20	53.8						
103	18 "	eP	3	07	58.6				329	After shock of No. 103.	
"	"	L	"	08	38.0						
"	"	F	"	09	58.4						
104	23 "	eL	22	45	17.8						
"	"	F	23	03	01.0						
105	25 "	eP	14	42	39.6		-0.8	+1.1	-0.9	127	Neighbourhood of Mt. Kirisima.
"	"	L	"	"	56.7						
"	"	F	"	43	54.7						
106	30 "	eP	16	41	43.3				1745	Trace of distant Earthquak :	
"	"	eS	"	44	43.3						
"	"	L	"	45	35.8						
"	"	C	"	50	43.5						
"	"	F	"	58	07.5						
"	"	W <sub>2</sub>	19	16	15.9						
"	"	F	"	23	05.0						

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	$\frac{r}{T_0^2}$	$\mathcal{E}$	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

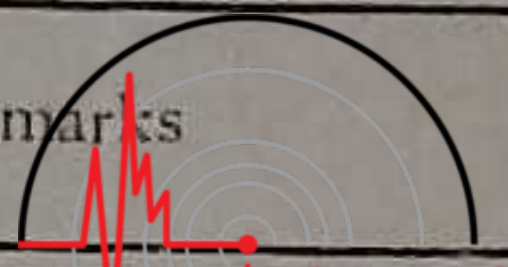


No.	Date	Phase	Time 135° E			Period	Amplitude			$\Delta$	Remarks	
			h.	m.	s.		AN	AE	Az			
									km.			
107	4 Oct.	$\bar{P}$	19	05	53.6				17	Local shock.		
		$\bar{S}$	"	"	55.9					Epicenter is Tiziwa-nada.		
		F	"	06	02.5							
108	8 "	eP	21	29	57.4				1420	E far off the Tyōsi in Tiba prefecture.		
		L	"	33	50.4							
		C	"	37	05.6							
		F	22	07	39.6							
109	11 "	i $\bar{P}$	18	10	03.3		-0.8	-0.4	+0.3	92	In Southern part of Amakusanada.	
		i $\bar{S}$	"	"	14.4							
		M	"	"	16.3		+5.3	-5.7				
		C	"	"	18.7							
		F	"	11	08.5							
110	12 "	eL	16	00	40.0					Faint each phases. By Oomori tromometer		
	" "	F	"	17	30.6							
111	" "	eL	17	00	09.2					Ditto		
		F	"	16	24.9							
112	15 "	$\bar{P}$	2	21	32.5							
		$\bar{S}$	"	"	35.5							
		F	"	"	47.1							
113	17 "	i $\bar{P}$	6	07	11.6		+39.7	-19.5	+100.0	16	Felt in Nagasaki moderately strong.	
		i $\bar{S}$	"	"	13.5		-124	+110	-48		Epicenter is western part of Tiziwa-nada.	
		C	"	"	49.5							
		F	"	09	41.9							
114	" "	eP	15	04	36.5		+0.6	+0.7	+0.8	238	In the Hyūga-nada	
		$\bar{P}$	"	"	42.8							
		L	"	05	08.2							
		M	"	"	14.1	3.4	+9	-9	-4			
		C	"	"	19.6							
		F	"	07	56.8							
115	" "	eP	"	14	58.1					215	After shock of No. 114.	
		$\bar{P}$	"	15	03.0							
		L	"	"	27.3							
		C	"	"	38.5							
		F	"	21	10.9							
116	18 "	i $\bar{P}$	21	44	48.7		+42.5	-8.6	+41.6	68	Felt in Nagasaki moderately strong.	
		i $\bar{S}$	"	"	56.9							
		M	"	"	59.4		-143	+154	+70		Epicenter is Southern part of Amakusa-nada.	
		C	"	45	26.8							
		F	"	58	47.9							
117	" "	e $\bar{P}$	22	59	41.4					84	After shock of No. 116.	
		i $\bar{S}$	"	"	51.6							
		F	23	00	04.8							
118	19 "	e $\bar{P}$	0	46	16.0					75	Ditto	
		i $\bar{S}$	"	"	25.1							
		F	"	47	05.5							
119	" "	i $\bar{P}$	0	47	26.2		+1.2	+0.8	+1.7	74	Ditto	
		i $\bar{S}$	"	"	35.1		-8.3	+9.8	-5.2			
		M	"	"	37.0							
		C	"	"	58.1							
		F								Continue to next quake		

# SEISMIC BULLETIN

## NAGASAKI METEOROLOGICAL OBSERVATORY JAPAN

No.	Date	Phase	Time 135° E			Period s.	Amplitude			△ km.	Remarks
			h.	m.	s.		AN μ	AE μ	Az μ		
120	19 Oct.	iP	0	48	47.2				64	After shock of No. 116.	
		iS	"	"	55.0						
		C	"	49	02.0						
		F	"	49	38.2						
121	" "	eP	1	48	14.2				72	Ditto	
		S	"	48	22.7						
		C	"	"	27.8						
		F	"	"	59.3						
122	" "	iP	21	48	11.4				17	Felt in Nagasaki perceptibly. Epicenter is Tiziwa-nada.	
		S	"	"	13.5						
		F	"	"	16.0						
123	20 "	P	0	32	35.4					Microseisms.	
		F	"	36	04.9						
124	" "	iP	20	55	30.1		+2.8	-1.5	+7.4	17	Felt in Nagasaki perceptibly. Epicenter is Western part of Tiziwa-nada.
		iS	"	"	32.1		-32	+40	-6		
		C	"	"	38.9						
		F	"	56	19.1						
125	23 "	iP	3	19	03.3				15	Felt in Nagasaki perceptibly. In Tiziwa-nada.	
		iS	"	"	05.1						
		C	"	"	11.4						
		F	"	"	21.1						
126	25 "	eP	1	15	13.3				7370	Trace of distant earthquake. By Oomori tromometer. Time is poor.	
		S	"	24	01.7						
		L	"	28	09.2						
		F	4	05	39.1						
127	25 "	eP	4	10	10.4				1730	Ditto	
		L	"	15	19.1						
		F	5	09	35.4						
128	" "	iP	9	08	54.1				24	Microseisms.	
		iS	"	"	57.0						
		F	"	09	03.2						
129	26 "	eL	6	43	06.6					Trace of distant earthquake. By Oomori tromometer.	
		F	6	57	06.6						
130	29 "	eP	0	23	07.5				1970	SE off the Katuura in Tiba prefecture.	
		eS	"	26	27.7						
		L	"	28	14.1						
		F	"	58	47.1						
131	30 "	eP	8	43	42.8				66	In Southern part of Arakusa-nada.	
		S	"	"	50.8						
		F	"	44	15.6						
132	" "	iP	10	03	12.0				77	Ditto	
		S	"	"	21.3		+5.9	-7.3			
		F	"	06	39.5						



International  
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## 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
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

International  
Seismological  
Centre

No.	Date	Phase	Time 135° E			Period s.	Amplitude			$\Delta$ km.	Remarks
			h.	m.	s.		AN	AE	Az		
							$\mu$	$\mu$	$\mu$		
133	3 Nov.	eP	7	57	55.2				620	To E. off Naze in Ōsima. Slightly shock were felt in epicentral region.	
		S	8	59	03.2						
		L	"	"	40.9						
		M	"	01	30.7	8.1	+2.9	-2.8			
		C	"	04	36.8						
		F	"	22	25.7						
134	4 "	eP	23	09	28.8				570	Each phase faint	
		F	0	11	45.8						
135	" "	iP	15	40	05.4	6.9	+5.2	+2.1	570	Amplitude of P phase is large compared with S and L phase. To W off Naze in Ōsima.	
		M <sub>1</sub>	"	"	09.5	6.9	-4.4	-3.9			-5.0
		S	"	41	08.3						
		L	"	"	40.0						
		F	"	51	48.4						
136	6 "	eP	19	43	16.1				398	To NE off Naze in Ōsima.	
		$\bar{P}$	"	"	37.5	2.9	+1.0	-0.7			-0.6
		L	"	44	09.7						
		M	"	"	14.5	3.1	-2.4	+6.2			+2.4
		C	"	"	27.5						
		F	"	45	58.7						
137	9 "	i $\bar{P}$	16	15	32.5				16	Local shock	
		i $\bar{S}$	"	"	34.4		-5.0	+4.1			
		F	"	"	42.0						
138	14 "	eP?	9	33	20.8					P phase is uncertain.	
		L	"	34	29.0						
		C	"	37	33.6						
		F	"	"	51.2						
139	" "	iP	14	11	20.3		+1.8	+4.9	2030	Trace of distant earthquake.	
		S	"	14	46.1						
		L	"	15	20.8	10.0	-5.8	+8.2			
		M	"	17	28.7	10.0	+8.3	+4.1			
		C	"	18	08.5						
140	15 "	eL	4	50	25.1					Each phase is faint.	
		F	"	59	52.2						
141	" "	iP	17	36	59.4		+1.8	+2.4	2120	Eastern sea of cape Otuisi.	
		L	"	43	07.0						
		M	"	"	11.6	6.8	+2.0	-1.9			
142	17 "	eP	6	15	49.1		+0.9	-1.2	1888	In south ocean.	
		L	"	21	26.1						
		C	"	32	53.8						
		F	"	7	03	13.1					
143	18 "	iP	12	29	51.2		-2.7		1580	Eastern sea of Philippin.	
		L	"	34	33.6	8.2	+1.0	+5.9			
		F	"	47	48.8						
144	23 "	eP	9	14	08.7				482	To ENE off Naze in Ōsima In epicentral region were felt slightly.	
		S	"	"	55.2						
		L	"	15	13.8						
		M	"	"	33.2	3.8	+2.0	-3.8			
		C	"	17	04.2						
F	"	23	23.2								

# 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	$\frac{r}{T_0^2}$	$\mathcal{E}$	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		
						s.	$\mu$	$\mu$	$\mu$	km.	
145	1 Dec.	eP	12	07	45.7					2716	Trace of distant Earthquake by Omori seismograph.
		L	"	15	50.5						
		F	"	39	02.5						
146	2 "	iP	15	56	29.5					570	Time poor.
		S	"	57	32.6						
		L	"	"	55.6						
147	4 "	C	"	58	45.7					30	To W off Tomioka in Amakusa-jima. In S phase the needle of Wiechert pendu were scaled out, the following phases were observed by another instruments. Rather strongly shock were felt at Nagasaki.
		F	16	01	09.5						
		iP	12	53	10.7	+442.0	-24.0	+346.0			
148	" "	S	"	"	14.3	+650.0	-370.0	-470.0		31	After shock of No. 147.
		C	"	54	45.9						
		F	13	03	50.2						
149	" "	iP	13	03	16.6					30	Ditto
		S	"	"	20.3						
		C	"	"	24.4						
150	" "	F	"	"	34.4					34	Ditto
		iP	13	03	47.0						
		S	"	"	50.6						
151	" "	C	"	"	54.2					33	After shock of No. 147.
		F	"	04	31.5						
		eP	13	15	11.3						
152	" "	S	"	"	15.4					27	Ditto
		C	"	"	26.1						
		F	"	18	20.0						
153	" "	eP	13	17	41.8					40	Ditto
		S	"	"	45.8						
		F	"	"	55.6						
154	" "	eP	13	20	31.4					32	Ditto
		S	"	"	34.7						
		F	"	"	43.5						
155	" "	C	13	35	23.9					25	Ditto
		F	"	"	28.7						
		"	"	"	47.9						
156	" "	eP	13	36	56.4					31	Ditto
		S	"	37	00.3						
		F	"	"	12.5						
155	" "	iP	13	48	01.0	+35.4	-4.9	+23.4		25	Ditto
		S	"	"	04.0	+43.7	+67.1	-29.9			
		C	"	"	20.8						
156	" "	F	"	51	23.8					31	Ditto
		eP	13	49	11.9						
		S	"	"	15.7						
		F	"	"	23.6						

# SEISMIC BULLETIN

## NAGASAKI METEOROLOGICAL OBSERVATORY JAPAN



International  
Seismological  
Centre

No.	Date	Phase	Time 135° E			Period s.	Amplitude			△ km.	Remarks			
			h.	m.	s.		AN μ	AE μ	Az μ					
157	4 Dec.	eP	14	35	38.4				41	After shock of No.147				
		S	"	"	43.3									
		F	"	36	09.5									
158	" "	eP	14	38	08.2				37	Ditto				
		S	"	"	12.7									
		F	"	"	28.6									
159	" "	eP	14	43	47.3					Ditto				
		F	"	"	53.7									
160	" "	eP	14	44	04.0					Ditto				
		F	"	"	10.5									
161	" "	eP	"	44	57.0				21	Ditto				
		S	"	"	59.6									
		F	"	45	10.0									
162	" "	eP	"	45	15.3					Ditto				
		F	"	"	24.0									
163	" "	eP	"	"	40.8					Ditto				
		F	"	"	48.9									
164	" "	eP	"	48	50.9				34	Ditto				
		S	"	"	55.0									
		F	"	49	05.6									
165	" "	iP	"	53	37.3		+80	-3.7	+10.4	35	Ditto			
		S	"	"	41.5							-33.6	+48.8	+22.1
		C	"	"	52.2									
		F	"	55	32.2									
		eP	15	04	23.7									
F	"	"	29.2											
167	" "	eP	"	14	02.7				44	Ditto				
		S	"	"	08.0									
		F	"	"	25.1									
168	" "	eP	"	39	40.6				36	Ditto				
		S	"	"	45.0									
		F	"	"	54.8									
169	" "	eP	"	45	28.7				33	Ditto				
		S	"	"	32.7									
		F	"	"	38.1									
170	" "	eP	15	58	00.2				31	Ditto				
		S	"	"	04.0									
		F	"	"	08.7									
171	" "	iP	16	12	51.9				29	Ditto				
		S	"	"	55.4									
		F	"	13	24.0									
172	" "	iP	17	12	17.5				32	Ditto				
		S	"	"	21.4									
		C	"	"	34.2									
		F	"	"	50.4									
		iP	18	43	12.8						+7.1	-2.4	+14.3	
S	"	"	16.9	-15.9	-17.1	+10.4								
C	"	"	29.2											
F	"	44	34.3											
eP	19	14	04.4											
174	" "	S	"				"	06.8				20	Ditto	
		F	"	"	14.7									

In Tijiwa-nada.

## SEISMIC BULLETIN

### NAGASAKI METEOROLOGICAL OBSERVATORY JAPAN

No.	Date	Phase	Time 135° E			Period s.	Amplitude			△ km.	Remarks
			h.	m.	s.		AN μ	AE μ	Az μ		
175	4 Dec.	eP	19	17	55.5				21	Ditto Epicenter in Tijiwa nada.	
		S	"	"	58.0						
		F	"	18	07.7						
176	" "	iP	"	37	04.0				31	Ditto	
		S	"	"	07.8						
		C	"	"	11.9						
		F	"	"	51.8						
177	" "	iP	19	44	01.0				33	Ditto	
		S	"	"	05.0						
		C	"	"	09.4						
		F	"	"	21.1						
178	" "	iP	20	11	27.7				34	Ditto	
		S	"	"	31.3						
		C	"	"	34.9						
		F	"	"	38.3						
179	" "	iP	21	18	26.8	+295.0	-171.0	+303.0	37	Greatest after shock of No 147. Epicenter in toW off Tomioka. Needle of wiechert Pendulum were scale At Nagasaki were felt rather strongly.	
		S	"	"	31.3	+615.0	-365.0	-260.0			
		C	"	20	00.6						
		F	"	29	25.8						
180	" "	eP	21	22	08.8				30	After shock of No. 147.	
		S	"	"	12.4						
		F	"	"	20.9						
181	" "	eP	21	22	59.8	+0.8	+1.2		31	Ditto	
		S	"	23	03.5	+7.1	+14.6	+7.8			
		C	"	"	08.7						
		F	"	"	30.9						
182	" "	eP	21	32	00.9				29	Ditto	
		S	"	"	04.4						
		F	"	"	15.9						
183	" "	eP	21	33	15.4				21	Ditto	
		S	"	"	18.0						
		F	"	"	23.6						
184	" "	eP	21	34	29.4				18	Ditto	
		S	"	"	31.6						
		F	"	"	39.9						
185	" "	eP	21	38	08.7				29	Ditto	
		S	"	"	12.2						
		F	"	"	28.8						
186	" "	eP	21	40	09.9				27	Ditto	
		S	"	"	13.2						
		F	"	"	18.7						

# SEISMIC BULLETIN

## NAGASAKI METEOROLOGICAL OBSERVATORY JAPAN

No.	Date	Phase	Time 135° E			Period s.	Amplitude			△ km.	Remarks
			h.	m.	s.		AN μ	AE μ	Az μ		
187	4 Dec.	eP	23	01	28.8				31	After shock of No. 147.	
		S	"	"	32.6						
188	" "	F	"	"	39.5				41	Ditto In Hayasaki channel in Simabara, slight shock were felt at Nagasaki.	
		iP	23	13	16.3	+1.8	-2.7	+6.5			
		S	"	"	21.2	+7.1	-6.1	+3.9			
		C	"	"	23.1						
189	6 "	F	"	14	27.8				27	Ditto Slightly shock were felt at Nagasaki.	
		iP	0	56	43.4	+2.7	-1.2	+9.1			
		S	"	"	46.7	-10.6	-13.3	-13.0			
		C	"	"	51.8						
190	" "	F	"	57	31.0				23	Ditto	
		eP	2	45	44.3						
		S	"	"	47.1						
		C	"	"	51.3						
191	7 "	F	"	"	58.5				24	Ditto In Tijiwa-nada.	
		iP	4	44	52.9						
		S	"	"	55.7						
		C	"	45	01.6						
192	11 "	F	"	"	25.4				238	In Hyuga-nada. First phase faint.	
		eP	22	13	12.9						
		P	"	"	15.9						
		L	"	"	44.6	2.1	-5.0	+4.5			-3.6
193	15 "	C	"	14	03.8				119	In Hyuga-nada.	
		F	"	15	05.0						
		P	13	43	13.1						
		L	"	"	29.4						
194	18 "	F	"	45	14.4				39	After shock of No. 147.	
		eP	10	35	13.6						
		S	"	"	18.3						
		C	"	"	23.5						
195	" "	F	"	"	49.9				40	Ditto	
		eP	11	55	07.3						
196	" "	F	"	"	25.4				787	To SSE off Wladiwostock.	
		eP	13	10	08.4						
		S	"	"	13.3						
		C	"	"	20.5						
197	19 "	F	"	"	41.8				49	Western part of Amakusa-nada, slight shock were felt at Nagasaki.	
		iP	4	51	25.2	-3.5	+1.2				
		L	"	53	11.6						
		F	"	55	28.9						
198	26 "	iP	23	31	46.4	+8.0	+4.9	+10.3	49	Western part of Amakusa-nada, slight shock were felt at Nagasaki.	
		S	"	"	52.1	-15.9	+17.1	+12.3			
		C	"	32	05.7						
		F	"	"	43.7						
199	28 "	eP	17	25	58.1				3435	Epicenter in neighbouring sea of Kurile islands.	
		F	18	09	38.2						
200	29 "	eP	3	26	58.1	15.7			3435	Epicenter in neighbouring sea of Kurile islands.	
		S	"	32	11.1						
		L	"	35	59.7						
		M <sub>1</sub>	"	36	36.7	18.0		-22.1			
		M <sub>2</sub>	"	37	44.3	20.5	-184				
		M <sub>3</sub>	"	39	01.2	16.7		+30.8			
		M <sub>4</sub>	"	"	02.1	12.2					-12.7
		M <sub>5</sub>	"	"	18.8	20.5	+28.8				
		M <sub>6</sub>	"	40	16.3	17.0	+18.0				
		M <sub>7</sub>	"	"	36.1	15.4		+21.4			
		M <sub>8</sub>	"	42	03.6	14.9					+15.8
		M <sub>9</sub>	"	43	26.8	17.0	+14.4				
M <sub>10</sub>	"	44	31.6	15.4	-20.4						
		C	"	45	21.4						
		F	4	15	05.9						

