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SEISMIC BULLETIN

(地震報告)

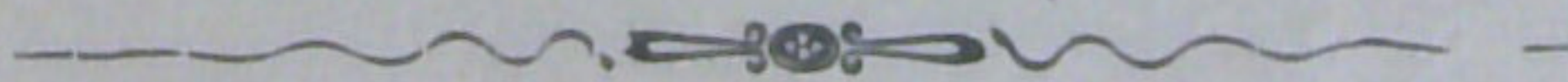
OF THE

NIIGATA

METEOROLOGICAL OBSERVATORY

FOR THE YEAR

1928.



PUBLISHED BY THE NIIGATA METEOROLOGICAL OBSERVATORY

INTRODUCTORY REMARKS

Distinctive name of station: The Niigata meteorological observatory lies on the west coast of Niigata port, at No 5932, Hamaura Nishfunami street in Niigata city and Niigata prefecture.

Lithologic foundation: Sands of the alluvial series—On the Northern slope of the sandy hill were founded in delta of the river Shinano.

Station Constants:
 $L = 37^{\circ} 56'$ (North Latitude)
 $\lambda = 139^{\circ} 03'$ (From greenwich)
 $h = 7^{\circ}, 9^m$ (From mean sea level)

Seismographical constants: (To 11 of April.)

Instrument	Component	Mass	Dampper	T_0	$\frac{r}{T_0^2}$	ξ	V
Omori's	N — S	15 kg	—	4.8	0.048	—	30
	E — W	15	—	4.0	0.023	—	30
Imamura's	N — S	2.5 kg	Magnetic	8.0	0.051	4.47	1
	E — W	2.4	"	7.0	0.049	2.89	1
	U — D	0.4	"	2.5	0.011	1.60	1

(From 12 of April.)

Omori's	N — S	15 kg	—	3.3	0.053	—	30
	E — W	"	—	2.7	0.068	—	30
Imamura's	N — S	2.5 kg	Magnetic	5.7	0.019	2.14	1
	E — W	2.4	"	7.1	0.019	2.58	1
	U — D	2.4	"	2.3	0.059	1.55	1

EARTHQUAKE OF JANUARY 1928.

No.	Date	Phase	Long 135°E			Time	Period	Amplitude			Δ	Remarks
			h.	m.	s.			A_E	A_N	A_Z		
1	1 Jan.	P	16	17	49.0					285.7	Lower course of the river Kinu.	
		S	"	18	08.5							
		L	"	18	27.5							
		M _E	"	18	55.	4.5	-783					
		M _N	"	18	"							
		C	"	23	36.	5.0	+440					
F	16	30	4.5									

2	2 Jan.	eP S L M _E M _N C F	3 " " " " " 3	47 48 50 " " 51 55	29.0 54. 02. 70. " 50. 58.	1.6 3.0	± 75 ± 94	1135.3	North ocean of the chisima islands.
3	16 Jan.	P S L M _E M _N C F	13 " " " " " 13	09 " " 10 " 13 16	10.0 18.3 32.6 30. 41. 17. 02.	3.5 3.5	± 50 ± 73	167.7	Western part of lake kasumi, probably kasama vicinity.
4	18 Jan.	L M _N C eF	22 " " 22	13 " " 13	05.0 07. 27. 22.	4.0	± 17		About west ^{ly} 120 km of the Hachijo Islands.
5	25 Jan.	ePS eL C F	6 " " 6	37 " 40 44	01.0 44. 10. 42.			319.1	
6	27 Jan.	eP C F	3 4 4	54 00 11	29.0 16. 28.				About ssw ^{ly} 120 ^{km} of the Bonin Islands.

EARTHQUAKE OF FEBURUARY 1928

No.	Date	Phase	Long 135°E Time			Period s	Amplitude			Km △	Remarks
			h.	m.	s.		A _E	A _N	A _Z		
7	3 Feb.	ePS eL C F	7 " " 7	38 " 39 43	14.0 43. 50. 27.				215.2	Lower course of the river kinu, about far 20 ^{km} from Mt Tukuba.	
8	4 Feb.	iP iS iL M _{1E} M _{1N} M _{2E} M _{2N} M _{3E} M _{4N} C F	3 " " " " " " " " " " 4	49 " " " " 50 " " 51 53 00	06.0 20.5 41. 45. " 40. " 42. 14. 41. 04.	2.0 2.5 2.0 2.5 2.7 3.5	-200 -227 +433 +450 -450 -300		259.7	South ocean of Cape kinkasan.	

9	12 Feb.	iPS	6 ^h	10 ^m	45.0 ^s				178.1	Lower course of the river Kokai.
		L	"	11	09.					
		M _{1N}	"	"	25.	2.5	-1300			
		M _{1E}	"	"	26.	2.5	-1133			
		M _{2N}	"	12	04.	3.4	+1476			
		M _{2E}	"	"	31.	3.4	+1473			
		M _{3N}	"	"	57.	3.5	-1267			
		M _{3E}	"	13	21.	3.2	+1440			
		M _{4N}	"	"	31.	3.5	-1083			
		C _{1E}	"	16	28.	4.0	± 258			
		C _{1N}	"	"	33.	3.8	± 133			
		C _{2N}	"	17	26.	4.0	± 183			
		C _{3E}	"	"	27.	4.0	± 142			
		C _{2E}	"	"	55.	4.0	± 133			
F	6	25	48.							
10	13 Feb.	ePS	14	38	38.0					can not obs A far distant earthquake.
		eL								
		M _{1E}	14	39	25.	3.2	± 75			
		M _{1N}	"	"	"	2.5	± 22			
		C	"	42	11.					
F	14	47	57.							

EARTHQUAKE OF MARCH 1928

No.	Date	Phase	Long 135°E Time			Period s	Amplitude			Km △	Remarks
			h.	a.	s.		A _E	A _N	A _Z		
11	2. March	ePS	6	28	44.0					Epicenter in neighbouring the foot of Tukuba Mount Ps phase is very faint.	
		eL	"	"	50.						
		M _{1E}	"	30	00.	1.5	± 40				
		C	"	"	43.						
		F	6	32	30.						
12	9 March	P	3	15	23.5				148.4	In middle course of the River Mogami.	
		S	"	"	45.0						
		L	"	"	52.5						
		M _{1E}	"	"	54.0	2.5	+377				
		M _{1N}	"	"	"	2.5	-100				
		C	"	18	37.						
F	3	21	07.								
13	9. March	P	9	29	48.0				348.7	SE off the Tyosi in Tiba prefecture.	
		S	"	30	08.0						
		L	"	"	35.0	3.5					
		M _{1E}	"	31	0.0	1.8	± 137				
		M _{1N}	"	"	"	3.2	± 137				
		M _{2E}	"	"	37.0	2.2	± 200				
		M _{2N}	"	"	57.0	2.5	± 193				
		C	"	34	53.0	4.0					
F	9	46	23.0								

14	10. March	PS L M _E M _N C F	h 2 " " " 2	m 44 " " 46 50	s 32 59 19 30 27 10			200.3	E ocean of the coast kujukurihama.
						3.0 ± 38 3.5 ± 87			
15	10. March	P PR ₁ PR ₂ S PS SR ₁ SR ₂ L M _N C F	3 " " " " " " " " " 4	16 " 18 20 21 26 30 36 40 58 18	01.5 33 38 58 50 23 24 24 29 00 30			8711.9	Trace of distant earthquake, almost in Oceania.
						16.8 ± 73			
16	16. March	P PR ₁ PR ₂ S PS L M _N C F	14 " " " " " " " 14	11 13 15 16 18 20 " 26 48	55 36 12 31 35 06 25 53 55			3931.1	Ditto. Time is poor.
						4.0 ± 67			
17	21. March	ePS eL M _E M _N C F	5 " " " " 5	49 50 51 " 53 56	28.7 59 18 03 07 43			670.3	The open sea of cape Erino.
						3.5 ± 80 4.0 ± 80			
18	23. March	P S L M _{1E} M _{1N} M _{2E} M _{2N} C F	10 " " " " " " " " 10	22 " " 23 " " " 26 30	19.5 41.5 56.5 03 13 53 56 11 14			274.5	Upper course of the river Naka in the country Musasi.
						1.8 -137 3.5 +183 2.0 ± 617 2.5 ± 223			
19	29. March	P S L M _{1E} M _{1N} M _{2E} M _{2N} C F	14 " " " " " " " " 14	08 " 09 " " 10 " 17 46	07.4 31.5 24.2 29 " 00 " 44 50			569.8	SW ern sea of the Hatijo islands. No felt in Niigata
						3.0 +1750 3.6 -2500 2.5 +1500 3.6 +1850			
20	29. March	ePS F	15 16	58 01	42 53				Lower course of the river Kokai.

EARTHQUAKE OF APRIL 1928.

No.	Date	Phase	Long 135° E Time			Period s	Amplitude			K _m Δ	Remarks
			h.	m.	s.		A _E	A _N	A _Z		
21	6. April	Ps	19	33	51.9				227.0	About 52 ^k m Southern part from Utinomiya city.	
		L	19	34	22.4						
		F	19	39	39.0						
22	6. April	ePS	23	07	33.6				445.0	SW ^{ly} ocean of Mela.	
		L	23	08	33.5						
		F	23	13	26.0						
23	8. April	ePS	17	58	10.3				272.0	Lower course of the river Kokai.	
		L	17	58	46.9						
		F	18	05	45.0						
24	13. April	P	1	36	56.3				142.0	SW ^{ly} 10 ^k m from Mt Tukuba.	
		S	1	37	6.1						
		L	1	37	15.5						
		M _{1N}	1	37	46.0	3.3		+17			
		M _{1E}	1	37	46.0	2.3	-70				
		M _{2E}	1	38	9.9	1.8	-103				
		M _{2N}	1	38	30.6	2.8		+127			
		F	1	46	03.0						
"	Imamura's	P	1	37	6.8						
		F	1	44	02.0						
25	14. April	P	18	12	27.4				13241.0	A far distant earthquake. Every phase distinct.	
		PR ₁	"	13	55.7						
		PR ₂	"	15	20.3						
		PR ₃	"	16	43.0						
		S	"	29	18.5						
		L	"	44	21.9						
		F	19	19	40.0						
26	16. April	ePS	12	50	48.0				270.0	West part of lake Kasumi	
		L	"	51	24.4						
		M _F	"	51	26.8	1.9	+30				
		F	12	56	02.0						
27	19. April	P	4	35	11.0				13384.0	A far distant earthquake.	
		PR ₁	"	35	43.6						
		PR ₂	"	37	37.9						
		eS	"	48	55.2						
		L	5	07	27.4						
		F	5	38	25.0						
28	21. April	eP	20	0	50.0?				1732.0	A far distant earthquake.	
		iL	"	03	24.8						
		M _N	"	03	42.9	2.8		-42			
		M _E	"	04	26.5	1.8	-30				
		F	20	10	42.0						
29	22. April	iP	13	57	18.7				715.0	About SSE ^{ly} 60 ^k m from Cape Ochiishi in Hokaido.	
		P	"	"	56.1	N 2.9 E 1.9	-37	+27			
		S	13	58	9.4						
		S _N	13	"	33.3	2.8		-50			
		S _E	"	"	42.6	1.9	-40				
		iL	13	58	55.1						
		M _{E1}	13	59	10.1	1.9	-190				
		M _{N1}	"	"	24.5	2.9		+242			
		M _{E2}	13	59	37.5	1.9	-167				
		M _{E3}	"	"	18.6	2.3	-150				
		M _{N2}	14	00	24.1	2.8		-630			
		M _{N3}	"	01	37.7	2.8		-183			
		C	14	04	39.4						
F	14	12	24.0								

EARTHQUAKE OF MAY 1928.

No.	Date	Phase	Long 135°E Time			Period s	Amplitude			Km Δ	Remarks
			h.	m.	s.		A _E	A _N	A _Z		
30	8. May	P	13	49	15.8	2.5	± 150	± 183	1110.8	NNE Ocean of the Kunishiri islands.	
		P̄	"	"	37.0						
		S	"	50	40.5						
		L	"	51	36.5						
		M _{1E}	"	"	41.2						
		M _{1N}	"	52	01.5						
C	"	56	07.0								
F	Continue on No 31.										
31	8. May	ePS	13	58	05.0	3.0	± 113		853.3	West ocean from the town of Miyako.	
		iL	"	"	59.6						
		M _{1N}	14	00	0.0						
		F	14	08	47.0						
32	15. May	P	7	33	38.5				2547.9	A far distant earth- quake.	
		P̄	"	34	57.0						
		P _{R1}	"	35	23.0						
		S	"	36	33.0						
		PS	"	37	24.0						
		L	"	38	38.0						
		C	"	42	37.0						
F	8	46	54.0								
33	18. May	ePS	1	56	53.0				—	South ocean of cape Mela.	
		C	1	59	41.0						
		F	2	03	05.0						
34	19. May	P	18	32	40.8	2.4	+ 533		381.4	Epicenter: placed long 140,°3'E lat 36, 6'N. slight feeling.	
		P̄	"	32	10.5						
		S	"	33	11.2						
		L	"	"	32.0						
		M _{1E}	"	"	34.5						
		M _{1N}	"	"	"						
		M _{2E}	"	34	0.0						
		M _{2N}	"	33	57.0						
C	"	41	0.0								
F	18	58	23.0								
"	Imamura's	P	18	32	41	3.4	3.4 (N51°E)			ditto. A faint record on Z.	
		L	"	33	34						
		M	"	32	53						
		F	18	48	32						
35	12. May	P	1	29	42.6	3.0	- 1667		274.5	Epicenter: placed long 140,°1'E lat 35, 6'N about NE part of the Bay of Tokyo.	
		S	"	"	57.1						
		L	"	30	19.6						
		M _{1N}	"	"	45.0						
		M _{1E}	"	"	57.0						
		C	"	38	30.0						
F	1	55	58.0								

No.	Date	Phase	Long 135°E Time			Period s	Amplitude			Km △	Remarks
			h.	m.	s.		A _E	A _N	A _Z		
36	21. May	ePS	2	32	43.0	1.8	± 133			244.9	An after shock of No35.
		eL	2	33	16.0						
		M _{1E}	2	34	01.0						
		C	2	35	58.0						
		F	2	41	24.0						
37	21. May	PS	2	59	36.0					274.5	Ditto.
		L	3	00	13.0						
		C	3	01	12.0						
		F	3	04	44.0						
38	21. May	P	4	24	24.0	2.4	+ 92			311.6	Ditto.
		S	"	"	46.5						
		L	"	25	06.0						
		M _{1E}	"	"	21.0						
		M _{1N}	"	"	23.0						
		C	"	28	35.0						
		F	4	35	27.0						
39	23. May	PS	5	24	29.0	3.0	± 72			267.1	Epicenter : the sea of Kajima.
		eL	"	25	05.0						
		M _{1N}	"	"	11.0						
		M _{1E}	"	"	16.0						
		C	"	"	65.0						
40	23. May	ePS	5	41	28.0					—	An after shock of No35.
		F	5	44	04.0						
41	27. May	P	5	03	59.0	3.0	+ 27			571.3	The sea of the mouth of the river Mabuchi.
		P	"	04	17.0						
		S	"	"	44.0						
		L	"	05	16.0						
		M _{1N}	"	"	28.0						
		C	"	06	22.0						
42	27. May	P	14	41	30.0	2.7	- 217			445.2	The East sea of Miyako.
		S	"	"	16.5						
		L	"	42	30.0						
		M _{1E}	"	42	42.0						
		M _{1N}	"	"	"						
		M _{2N}	"	"	59.0						
43	27. May	C	"	45	52.0	3.0	± 242				
		F	14	52	08.0						
43	27. May	P	18	51	29.3	10.0	+ 200			433.4	The NE sea of Mi- yako. slight feeling.
		S	"	"	54.8						
		L	"	52	27.7						
		M _{1E}	"	"	32.3						
		M _{1N}	"	"	"						
		C	19	00	32.0						
"	Imamura's	P	18	51	30	3.0	m 30.6 (S56°W)			Ditto.	
L	"	52	29								
M	"	53	00								
M _Z	"	52	50								
F	19	17	41								

No.	Date	Phase	Long 135°E Time			Period s	Amplitude			Km Δ	Remarks	
			h.	m.	s.		A _E	A _N	A _Z			
44	27. May	ePS F	19	50	22.0				—	The vicinity of Ashio copper mine.		
45	27. May	ePS	19	58	35.0	2.0	± 92		408.1	An after shock of No43.		
		eL	"	59	30.0							
		M _{1E}	"	"	41.0							
		C	20	00	35.0							
		F	20	18	58.0							
46	27. May	eP	21	00	28.0	2.4	± 75		400.7	Ditto.		
		S	"	"	53.0							
		L	"	01	20.0							
		M _{1E}	"	"	26.0							
		C	"	02	13.0							
		F	21	08	17.0							
47	28. May	ePS	7	47	31.0 ?				289.4	The middle part Iwade prefecture.		
		L	"	48	10.0							
		C	"	49	12.0							
		F	7	52	49.0							
48	28. May	ePS	12	57	23.0				445.2	The sea of choshi.		
		L	"	58	23.0							
		C	"	59	08.0							
		F	13	06	47.0							
49	28. May	ePS	16	58	57.8	3.1	± 113		319.1	An after shock No43		
		L	"	59	41.0							
		M _{1N}	"	"	59.0							
		M _{1E}	17	00	08.0							
		C	"	01	07.0							
		F	17	07	34.0							
50	28. May	iP	22	35	37.5				451.1	Ditto.		
		iS	"	36	04.5							
		L	"	"	38.3							
		C	"	38	38.0							
		F	22	45	15.0							
51	29. May	iP	0	36	39.4	(E2.5) (N3.0)	+850	-750	441.5	The East ocean of Miyako.		
		S	"	37	09.5							
		iL	0	37	38.9							
		M _{1N}	"	"	50.0						2.7	-2800
		M _{1E}	"	"	51.0						3.0	-1500
		M _{2E}	"	38	36.0						3.0	+1600
		M _{2N}	"	39	0.0						3.4	+2367
C	0	44	32.0									
F	Continue on No52.											
"	Imamura's	P	0	36	40	5.4				A faint record on Z. ditto.		
		L	"	37	17							
		M	"	38	09							
		F	0	51	38							

No.	Date	Phase	Long 135°E Time			Period s	Amplitude			Km Δ	Remarks
			h.	m.	s.		A _F	A _N	A _Z		
52	29. May	P	0	53	27.5			0.02	385.8	The NE ocean of Miyako.	
		S	"	54	04.5			0.10	"		
		L	"	"	19.5			0.41	"		
		M _{1E}	"	"	28.0	1.8	+290	0.42	"		
		M _{1N}	"	"	34.0	3.0	-377	0.42	"		
		C	"	56	55.0			0.8	"		
F	1	08	39.0			0.11	16				
53	29. May	ePS	1	36	12.5			0.70	—	An after shock No52.	
		C	"	38	04.0			0.2	16		
		F	1	41	16.0			0.1	28		
54	29. May	eP	4	30	53.0			0.0	474.9	Ditto.	
		P	"	"	08.0			0.2	"		
		S	"	31	35.0			0.4	33		
		L	"	31	57.0			0.4	33		
		M _{1N}	"	32	05.0	2.4	±130	0.2	16		
		M _{1E}	"	"	11.0	3.0	±150	0.10	30		
C	"	34	04.0			0.30	04				
F	4	42	43.0			0.32	20				
55	29. May	P	6	10	47.0			0.40	430.4	Lower course of the river Kinu.	
		S	"	11	16.0			0.72	"		
		L	"	"	45.0			0.45	"		
		M _{1N}	"	"	50.0	3.0	±80	0.2	"		
		C	"	12	44.0			0.7	28		
		F	6	19	54.0			0.10	40		
56	29. May	ePS	15	56	26.0			0.81	—	The SE ocean of Miyako.	
		C	"	58	11.0			0.71	36		
		F	16	01	43.0			0.11	73		
57	29. May	P	18	51	19.0			0.36	460.0	Ditto.	
		S	"	"	58.0			0.31	36		
		L	"	52	21.0			0.22	00		
		M _{1N}	"	"	24.0	3.0	±55	0.2	19		
		C	"	54	13.0			0.10	40		
		F	18	59	29.0			0.73	"		
58	30. May	ePS	7	29	18.0			0.2	278.2	The ocean of Miyako.	
		L	"	29	55.5			0.10	30		
		C	"	30	27.0			0.31	70		
		F	7	33	49.0			0.33	11		
59	30. May	P	12	35	56.0			0.0	289.4	The sea of Miyako.	
		S	"	36	17.0			0.74	"		
		L	"	"	35.0			0.55	"		
		M _{1N}	"	"	44.0	3.0	±75	0.2	"		
		M _{1E}	"	"	46.0	2.4	±75	0.22	73		
		C	"	38	14.0			0.02	21		
E	12	43	32.0								
60	30. May	eP	21	33	44.0				347.3	An after shock of No 52.	
		eS	"	34	06.0						
		eL	"	"	30.0						
		C	"	36	21.0						
		F	21	41	19.0						
61	31. May	ePS	10	0.0	02.0				—	A Local shock.	
		S	"	01	49.0						
		F	01	06	11.0						

No.	Date	Phase	Long 135°E			Time	Period	Amplitude			Δ ^{Km}	Remarks
			h.	m.	s.			A _E	A _N	A _Z		
62	31. May	PS	16	27	20.0					304.2	Epicenter: apparently long 143°E lat 40°N no felt.	
		L	"	28	01.0					"		
		M _{1E}	"	"	14.0	2.5	-633			"		
		M _{1N}	"	"	24.0	2.6	± 467			"		
		M _{3E}	"	29	06.0	2.9	+617			"		
		M _{3N}	"	"	46.0	3.0	± 933			"		
		C	16	32	11.0					"		
"	Imamura's	F	16	48	07.0					"	Ditto.	
		P	16	27	20					"		
		L	"	28	01					"		
		M _Z	"	29	00	1.4	(^m -1.8 N55°E)	±0.5		"		
		M	"	"	24	5.0				"		
		F _Z	"	33	43					"		
63	31. May	F	16	33	43					"	An after shock of No62.	
		PS	17	02	29.5					256.0		
		L	"	03	04.0					"		
		C	"	04	06.0					"		
64	31. May	F	17	08	23.0					"	The East ocean of Miyako. Imamura's is very faint.	
		iP	17	37	0.47					291.6		
		S	"	"	27.0					"		
		L	"	"	54.0					"		
		M _{1E}	"	"	30.0	3.0	-350			"		
		M _{1N}	"	38	17.0	3.0	-357			"		
		C	"	40	01.0					"		
65	31. May	F	17	50	18.0					"	An after shock of No62.	
		ePS	17	56	17.5					397.0		
		eL	"	57	11.0					"		
66	31. May	F	18	01	53.0					"	Ditto.	
		ePS	18	56	16.3					"		
		C	19	00	29.0					"		
67	31. May	F	Continue on No67.							"	Ditto.	
		ePS	19	04	10.0					348.7		
		eL	"	"	57.0					"		
		M _{1N}	"	"	58.0	2.9	± 80			"		
		M _{1E}	"	05	01.0	2.5	± 77			"		
		C	"	07	16.0					"		
68	31. May	F	19	11	58.0					"	The sea of Kajima.	
		PS	21	34	0.0					348.7		
		L	"	"	47.0					"		
		M _{1E}	"	"	55.0	2.7	+217			"		
		M _{1N}	"	"	"	3.0	± 143			"		
		C	"	37	32.0					"		

Ömoris instrumental constants changed from June 3 day.

Component	V. and Mass.	T ₀	$\frac{r}{T^2}$
E-W	Ditto	3.7 ^s	0.0029 ^{Cm}
N-S	Ditto	3.7 ^s	0.0025 ^{Cm}

From May 31 Continued

NIIGATA JAPAN

Seismic Bulletin

of the Niigata Meteorological Observatory of Japan.

From June 1. to september 30 1928.

C. M. O. type instrument increased afterward. and its constants are follows :

Name	Component	Mass	Damper	T°	$\frac{r}{T_0^2}$	ξ	V
C M. O.	E-W	2.19 ^{kg}	Oil	7.0	0.017	1.03	2
	N-S	2.17	Oil	7.0	0.020	1.49	2
	U-D	0.21	Oil	1.5	0.006	0.87	2

Observed— from July 14, 1928.

No.	Date	Phase	Long 135°E Time			Period s	Amplitude			Δ ^{km}	Remarks
			h.	m.	s.		A _E	A _N	A _Z		
69	1. June	ePS	5	46	36					Neighbouring the port of Murolan, Hokkaido.	
		F	5	50	40						
70	1. June	ePS	6	31	58					A Local shock at Niigata.	
		F	6	36	30						
71	1. June	ePS	11	46	40					The SE sea off Miyako.	
		F	11	49	25						
72	1. June	PS	13	57	56				367.3	The NE sea off Miyako.	
		L	"	58	45.5						
		M _{1E}	"	59	00	2.7	± 157				
		M _{1N}	"	"	09	2.7		± 217			
		C	"	01	29						
		F	13	08	22						
73	1. June	PS	21	24	26				400.7	The E sea off Miyako.	
		L	"	25	20						
		M _{1E}	"	25	36	2.1	- 633				
		M _{1N}	"	"	"	1.8		- 1033			
		M _{3E}	"	26	18	3.0	+ 683				
		M _{2N}	"	"	27	3.0		± 1100			
		C	"	30	26						
F	Conitnue on No74										
"	Imamura's	P	21	24	25					Ditto.	
		ZF	"	28	41						
		F	21	35	48						

No.	Date	Phase	Long 135°E Time			Period s	Amplitude			km Δ	Remarks
			m.	h.	s.		A_E	A_N	A_Z		
74	1. June	PS	21	42	28	2.1 3.0	- 200 \pm 400		356.2	The NE sea off Miyako	
		L	"	43	16						
		M_{1E}	"	"	20						
		M_{3N}	"	"	41						
		C	"	46	45						
		F	21	57	19						
75	1. June	P	22	02	45.6	2.2 3.0	\pm 16 \pm 12		314.6	Ditto.	
		S	"	03	02						
		L	"	"	28						
		M_{1E}	"	"	42						
		M_{1N}	"	"	33						
		C	"	05	31						
		F	22	10	06						
76	1. June	P	22	13	26.0	3.0 3.0 3.0	\pm 425		371.0	A remarkable earthquake, Epicenter : placed Long 143,°3'E Lat 39°8'N, that E sea of Miyako and in Niigata felt slight.	
		S	"	"	45.0						
		L	22	14	16.0						
		M_{1N}	"	"	20.5						
		M_{1E}	"	"	25.0						
		C	"	19	50						
		C_{1E}	"	20	08						
		F	Conitnue on No77								
"	Imamura's	P	22	13	27	4.0 8.0	15.5 0.28			Ditto.	
		L	"	14	16						
		ZM	"	"	52						
		Z	"	16	05						
		ZF	"	20	59						
		F	22	35	25						
77	1. June	PS	22	47	17	2.5 3.0	\pm 100 - 133		374.7	The NE sea off Miyako.	
		L	"	48	07.5						
		M_{1E}	"	"	23						
		M_{1N}	"	49	09						
		C	"	50	14						
		F	Conitnue on No78								
78	1. June	PS	22	57	18					The E sea of Hachinohe.	
		eL	obscurity								
		F	Continue on No79								
79	1. June	ePS	23	02	13					Almost ditto, and not clearly defined.	
		L	obcurity								
		F	23	04	32						
80	1. June	ePS	23	51	43					The NE sea off Miyako.	
		L	obscurity								
		C	23	53	25						
		F	23	56	12						
81	2. June	P	0	06	53	2.1 1.8 2.1 3.0 3.0	\pm 400 - 233 - 300 - 317 \pm 1000		422.9	The E sea off Miyako. and not clearey difined.	
		S	"	07	12						
		L	"	"	50						
		M_{1N}	"	"	56						
		M_{2E}	"	08	24						
		M_{2N}	"	"	23						
		M_{3N}	"	09	20						
		C	"	11	15						
		F	0	21	12						

No.	Date	Phase	Long 135°E Time			Period s	Amplitude			△ ^{km}	Remarks
			k.	m.	s.		A _E	A _N	A _Z		
82	2.June	ePS	1	14	23					Ditto.	
		C	"	16	09						
		F	1	21	12	3.0 ±	8.0				
83	2.June	P	3	22	50				467.5	The E sea off Miyako.	
		P	"	23	13						
		S	"	"	37						
		L	"	"	53						
		M _{1N}	"	"	56	3.0		+ 317			
		M _{1E}	"	24	00	3.0	- 357				
		M _{2N}	"	"	29	3.0		+ 617			
		C	"	28	39						
84	2.June	ePS	6	30	10.5					Ditto.	
		C	"	32	13						
		F	6	36	00						
85	2.June	PS	7	07	37				333.9	Ditto.	
		L	"	08	22						
		M _{1E}	"	"	36	2.4	- 450				
		M _{1N}	"	"	44	3.2		- 883			
		C	"	12	07	4.7					
86	2.June	ePS	7	57	21					The sea off Kajima.	
		C	"	58	35						
		F	8	02	13						
87	2.June	PS	9	03	30				363.6	The E sea off Miyako.	
		L	"	04	19						
		M _{1N}	"	05	03	2.7		± 75			
		M _{1E}	"	"	06	2.2		± 75			
		C	"	07	52						
88	2.June	F	9	11	36					Ditto.	
		PS	18	09	35.5				356.2		
		L	"	10	23.5						
		C	"	11	57						
89	2.June	F	18	17	18					Ditto.	
		ePS	20	12	02				393.3		
		eL	"	"	55						
		C	"	13	46						
90	3.June	F	20	16	15					Ditto.	
		ePS	2	31	48				333.9		
		eL	"	32	33						
		M _{1E}	"	33	34	2.6	- 153				
		C	"	34	40						
91	3.June	F	"	40	31					467.5 Epicenter: Long N 129°1'E, Lat 31°4' but no felt at Niigata city.	
		eP	17	35	44						
		eS	"	36	16						
		eL	"	"	47						
		M _{1N}	"	37	11	3.2		± 177			
		M _{1E}	"	"	17	3.5	+ 277				
		M _{2E}	"	"	54	3.2	+ 350				
		M _{1N}	"	38	05	3.5		+ 440			
		C _{1E}	"	42	04	7.8	+ 123				
C _{1N}	"	"	"	8.3		+ 107					
F	18	05	25								

No.	Date	Phase	Long 135°E Time			Period s	Amplitude			km Δ	Remarks
			h.	s.	m.		A_E	A_N	A_Z		
92	3.June	ePS	18	24	52	5.8	± 35		422.9	Ditto, and not clearly.	
		eL	"	25	49						
		M _{IE}	"	26	"						
		C	"	27	58						
		F	18	31	30						
93	5.June	iPS	15	01	16.8					Ditto.	
		C	"	04	07						
		F	15	11	00						
94	7.June	PS	15	26	39.8	2.7	± 158		684	Near at Aomori.	
		L	"	28	12						
		M _{IE}	"	"	15						
		M _{IN}	"	"	24						
		C	"	32	12						
		F	15	39	47						
95	10.June	ePS	1	22	06					The NE sea off Miyako, and not clearly.	
		C	"	23	18						
		F	1	26	01						
96	11.June	ePS	18	07	19					Lower course of the river Iinuma.	
		C	"	09	34						
		F	18	12	23						
97	14.June	ePS	7	58	44					The NE sea off Miyako.	
		C	8	00	20						
		F	8	03	39						
98	14.June	ePS	22	09	24					Ditto.	
		C	"	11	20						
		F	22	15	28						
99	15.June	P	15	18	58	2.7			2989.44	A far distant earthquake.	
		P _{R1}	"	20	17						
		P _{R2}	"	21	49						
		S	"	24	16						
		PS	"	25	28						
		L	"	26	34						
		F	16	21	09						
100	16.June	P	2	23	02	2.7			3623.82	Ditto.	
		P _{R1}	"	"	50						
		P _{R2}	"	24	23						
		S	"	26	04						
		PS	"	27	13						
		S _{R1}	"	30	13						
		L	"	32	15						
		F	2	56	50						
101	17.June	ePS	3	34	57	3.2	± 25		348.7	Epicenter unknown. All phases are not clearly.	
		eL	"	35	44						
		M _{IE}	"	"	47						
		M _{IN}	"	"	"						
		C	"	38	05						
		F	3	51	56						
102	17.June	eP	12	38	20	3.0	± 30		3727.8	A far distant earthquake.	
		ePR	"	39	50						
		eS	"	43	58						
		eSR	"	46	05						
		eL	"	47	50						
		F	13	54	36						

No.	Date	Phase	Long 135°E Time			Period s	Amplitude			Δ ^{km}	Remarks
			h.	m.	s.		A _E	A _N	A _Z		
103	17. June	ePS	15	52	26					311.6	Ditto.
		eL	"	53	08						
		C	"	54	41						
		F	Continue on No 104								
104	17. June	ePS	16	00	19		0.3	10	10		Ditto.
		C	"	02	32	2.2 ±	2.2	20	"		
		F	16	07	17	2.1 ±	2.2	22	"		
105	18. June	ePS	7	41	46		0.3	20	20	400.7	The sea of cape Shioya.
		eL	"	42	40						
		C	"	44	58						
		F	7	48	12						
106	22. June	eP	1	36	48						A far distant earth- quake.
		ePR ₁	"	38	06						
		ePR ₂	"	39	45						
		ePR ₃	"	43	18						
		eS	"	46	10						
		ePS	"	48	16						
		eSR	"	52	48						
		eL	"	56	52						
		F	2	29	0.0?						
107	23. June	ePS	1	26	07					356.2	The sea off Kajima nada.
		C	"	"	55						
		F	1	30	41						
108	24. June	ePS	13	44	10						Neighbouring the port Wladiwostock.
		F	13	50	03						
109	28. June	ePS	3	18	17						The S sea of cape Erimo.
		C	"	20	43	0.3 ±	0.3	12	"		
		F	3	23	35	0.3 ±	0.3	15	"		
110	30. June	eP	8	00	05					3218.3	A far distant earth quake.
		ePR ₁	"	"	47	0.3 ±	0.3	12	"		
		ePR ₂	"	01	43	0.3 ±	0.3	12	"		
		S	"	02	12						
		eSR ₁	"	03	42	0.3 ±	0.3	10	"		
		eSR ₂	"	04	44	0.3 ±	0.3	10	"		
		L	"	06	27						
		F	Continue on No 111								
111	30. June	eP	8	39	17						A Local shock at Takata city.
		L	8	59	55						
112	1. July	ePS	7	29	07		0.3	12	12		In the coast of Coast Siberian.
		C	"	32	59	0.3 ±	0.3	10	"		
		F	7	36	56	0.3 ±	0.3	12	"		
113	3. July	P	9	26	24.1	7.2 ±	5.0 ±	24	24	518.7	The SE sea of cape Erimo.
		eS	"	27	12						
		L	"	"	34						
		C	"	29	37						
		F	9	39	35						
114	3. July	ePS	10	21	48.2						Ditto.
		F	10	26	43						
115	5. July	eP	17	52	53					163.2	The sea of cape Shioya, Hokkaido.
		eL	"	53	15						
		M _{1E}	"	"	41	3.2	±5.0	10	"		
		M _{1N}	"	"	59	3.2	±5.8	10	"		
		C	"	54	55						
		F	18	00	34						
116	7. July	ePS	17	41	29						Epicenter : Long 134°9'E, Lat 33°9'N
		C	"	43	35						
		F	17	49	17						

No.	Date	Phase	Long 135°E Time			Period s	Amplitude			km Δ	Remarks
			h.	m.	s.		A _E	A _N	A _Z		
117	8.July	P	3	02	16.5				656.7	The E sea off Erimo, Hokkaido.	
		\bar{P}	"	"	57.8						
		S	"	03	17						
		L	"	"	45						
		M _{1N}	"	04	01	3.0		± 427			
		M _{1E}	"	"	02	2.8	± 333				
		M _{2E}	"	"	23	3.2	± 473				
		M _{2N}	"	05	05	3.0		± 317			
C	"	07	56								
F	3	23	21								
118	10.July	P	6	32	37.5				7178.3	A far distant earth- quake.	
		PR ₁	"	33	38						
		PR ₂	"	34	43						
		S	"	36	54						
		PS	"	37	57						
		SR ₁	"	41	03						
		SR ₂	"	42	45						
		SR ₃	"	45	40						
		L	"	49	05						
		C	"	59	02						
		F	7	13	50.?						
119	10.July	iP	23	12	42					Upper course of the river Fuji.	
		C	"	13	31						
		F	23	15	55						
120	13.July	P	0	18	13				356.2	The E sea off Miyako, Iwade prefecture.	
		S	"	"	47						
		L	"	19	01	3.0	± 550				
		M _{1E}	"	"	34	3.0		± 300			
		M _{1N}	"	"	37	3.0		± 300			
		M _{2N}	"	20	53	2.8					
		M _{2E}	"	21	19	3.0	± 333				
C	"	22	51								
F	0	55	04								
121	14.July	ePS	17	00	38.7				202.5	Ditto.	
		eL	"	01	06	3.0	± 170				
		M _{1E}	"	"	23	3.6		± 150			
		M _{1N}	"	"	21						
		C	"	03	31						
E	17	12	33								
122	14.July	P	71	25	02.0				35.6	Local Shock at Niigata city. but no felt	
		L	"	"	06.8	3.2	- 70				
		M _{1E}	"	"	17	2.9		+ 270			
		M _{1N}	"	26	02						
		C	"	"	43						
F	17	28	38								
123	14.July	L	17	45	29.5	3.4	- 27			Ditto.	
		C	"	46	00						
		F	17	47	50						
124	15.July	eP	20	33	13.5					Tanzawa mount in the prefecture. Kanagawa.	
		F	20	37	48						
125	1.August	P	4	29	26				512.0	The E ocean off Miyako.	
		S	4	"	58						
		L	"	30	35	3.3	- 367				
		M _{1N}	"	"	47	2.5	± 1167				
		M _{1E}	"	"	51	3.5		± 742			
		M _{2N}	"	31	35	3.3	± 700				
		M _{2E}	"	"	46.5						
C	"	34	11								
F	4	47	43								

No.	Date	Phase	Long 135°E Time			Period s	Amplitude			km Δ	Remarks
			h.	s.	m.		A _E	A _N	A _Z		
125	Imamura's	P	4	29	26					Ditto.	
		C	"	32	44						
		F	4	41	58						
126	1. August	ePS	11	56	17.5					The S ocean off kushiro. Hokkaido.	
		C	"	59	31						
		F	12	03	37						
127	3. August	PS	16	56	57				237.4	The SE ocean off Miyako	
		eL	"	57	29						
		M _{1E}	"	"	42	3.0	± 133				
		M _{1N}	"	"	47	2.9		± 100			
		C	17	00	12						
		F	17	04	59						
128	12. August	ePS	17	15	27					A far distant earth- quake	
		C	"	21	01						
		F	17	31	05						
129	14. August	ePS	17	31	00					The NE coast Tokyo bay in the prefecture Chiba.	
		C	"	33	01						
		F	17	38	04						
130	16. August	ePS	12	51	40					The W ocean off Bonin Islands.	
		eL	"	53	09						
		C	"	55	19						
		F	12	57	59						
131	17. August	ePS	1	45	35				356.2	The E sea off Kunohe, Iwadi prefecture.	
		eL	"	46	23						
		M _{1E}	"	"	40	3.8	± 367				
		M _{1N}	"	"	"	4.0		± 500			
		C	"	50	31						
		F	1	55	49						
132	22. August	ePS	10	22	25				385.8	In the S sea off Shionomisaki, Kie prefecture.	
		eL	"	23	17	3.5	± 153				
		M _{1E}	"	25	05	3.5		± 233			
		M _{1N}	"	"	16						
		C	"	26	08						
		F	10	32	10						
133	25. August	ePS	6	53	17					A far distant earth- quake.	
		eL	"	54	07						
		C	"	57	14						
		F	7	07	16						
134	27. August	PS	3	11	59				289.4	In the sea off Kajimanada.	
		L	"	12	38						
		M _{1N}	"	"	50	3.0	± 633				
		M _{2N}	"	13	47	3.0	± 800				
		C	"	17	24						
		F	3	27	15						
"	Imamura's	P	3	12	04		(Ampl.)			Ditto.	
		L	"	"	34			± 0.8			
		M	"	"	40	5.1					
		ZF	"	14	22						
		F	3	33	35						
135	28. August	ePS	3	00	01.5				359.9	SW, sea off Hatijo island.	
		eL	"	"	50.0						
		C	"	03	00						
		F	3	06	48						

No.	Date	Phase	Long 135°E Time			Period s	Amplitude			km Δ	Remarks
			m.	h.	s.		A _E	A _N	A _Z		
136	6. September	P	15	29	38.2	4.0	±900	±335	503.0	The E sea off Miyako. no felt at Niigata.	
		P	"	"	54						
		S	"	30	28.7						
		L	"	"	46						
		M _{1N}	"	"	50						
		M _{1E}	"	"	53						
		M _{2E}	"	31	40						
		M _{2N}	"	"	44						
		M _{3N}	"	32	15						
		M _{3E}	"	"	"						
		M _{4N}	"	"	45						
M _{4E}	"	33	15	6.0	±850	±315					
C	"	38	44								
F	15	56	25								
"	Imamura's	P	51	29	38					Ditto.	
		L	"	30	43						
		ZF	"	33	40						
		F	51	44	48						
137	7. September	ePS	11	57	26.3				Probably, distant earthquake.		
		eL	"	58	22						
		C	12	01	23						
		E	12	12	03						
138	12. September	ePS	11	14	03			185.5	The sea off Kajima- nada.		
		eL	"	"	28						
		eF	11	17	39						
139	13. September	ePS	18	30	26.5				Middle course of the river Shinano, Niigata Prefecture.		
		eC	"	33	24						
		F	18	36	03						
140	19. September	eP	17	18	17	4.0	±117	1135.3	The SSE sea off Hatijo island.		
		eS	"	20	02						
		eL	"	"	50						
		M _E	"	21	53						
		M _N	"	"	51						
		C	"	24	40						
F	17	35	02	3.5	±233						
141	22. September	ePS	16	41	26.5			463.7	A distant earthquake, and Long waves not clearly defined.		
		eL	"	42	29						
		C	"	45	30						
		F	16	55	16						
142	23. September	ePS	12	52	42				The sea off Kajima- nada.		
		C	"	53	40						
		eF	12	56	13						
143	23. September	P	15	56	24	3.5	+283	363.6	A remarkable earth- quake, felt at Niigata and epicenter off Kojimi bay, Miyagi prefecture.		
		S	"	"	43						
		eL	"	57	13						
		M _{1E}	"	"	18						
		M _{2E}	"	58	00						
		M _{2N}	"	"	36						
C	16	00	45	3.5	±343						
F	16	08	50								
144	30. September	ePS	6	18	48	3.3	±100	230.0	The ESE sea off Shioya in Hokkaido.		
		eL	"	19	19						
		M _{1E}	"	"	30						
		M _{1N}	"	"	42						
		C	"	22	20						
F	6	27	09	4.0	±100						

No.	Date	Phase	Long 135°E Time			Period s	Amplitude			△ ^{Km}	Remarks
			h.	s.	m.		A _E	A _N	A _Z		
145	1. Oct.	ePS	1	03	11				237.4	The sea off Iwaki, -Fukushima prefec- ture.	
		eL	"	"	43						
		C	"	05	04						
		F	1	06	35						
146	1. Oct.	ePS	21	51	11				371.0	The S ocean off Ochieshi-Hookaido.	
		eL	"	52	01						
		C	"	54	20						
		F	22	02	12						
147	4. Oct.	ePS	0	42	58				89.0	The S ocean off Kinkasan-Miyagi prefecture.	
		L	"	43	10						
		C	"	"	46						
		F	0	45	31						
48	5. Oct.	ePS	9	35	21				311.6	The epicenter-Long 139°6E, Lat36°1'N.	
		eL	"	36	03						
		M _{IE}	"	"	21	3.0	± 92				
		M _{IN}	"	"	26	3.3	± 137				
		C	"	37	18						
		F	9	45	07						
149	5. Oct.	P	15	59	00				296.8	Middle course of the river Ara, Saitama profecture. No felt.	
		P	"	"	13						
		S	"	"	30						
		L	"	"	40						
		M _{IE}	"	"	57	3.0	± 333				
		M _{IN}	"	"	"	3.5	± 567				
		C	16	02	35						
		F	16	10	55						
"	C.M.O	P	15	59	00				Ditto.		
		L	"	"	38						
		F	16	05	58						
		FZ	16	01	09						
150	6. Oct.	ePS	5	53	39				2060,7?	The epicenter-Log 142°4'E, Lat41°9'N.	
		C	"	56	40						
		F	6	01	02						
151	12. Oct.	P	16	31	23				9836.8	Almost, in the sea of Okhotsuku.	
		eP	"	34	16						
		S	"	"	29						
		PS	"	"	53						
		eL	"	36	48						
		M _{IE}	"	37	12	3.0	± 25				
		M _{IN}	"	"	"	3.5	± 38				
		F	17	11	47						
152	15. Oct.	P	23	29	45				378.4	A far distant earthquake.	
		PR ₁	"	32	22						
		PR ₂	"	34	55						
		P	"	38	25						
		PS	"	39	51						
		SR	"	44	29						
		eL	"	52	59						
		F	0	36	00						

No.	Date	Phase	Long 135°E Time			Period s	Amplitude			Δ Km	Remarks
			h.	s.	m.		A_E	A_N	A_Z		
153	17. Oct.	eP	9	06	37				378.4	The sea off Kajima.	
		eL	"	07	28						
		C	"	09	03						
		F	9	13	48						
154	17. Oct.	P	12	29	58				178.1	The Lower course of the river Sakao -Kanagawa prefecture.	
		S	"	30	07						
		L	"	"	22						
		M_{IE}	"	"	58	3.5	± 30				
		M_{IN}	"	"	"	3.3		± 42			
		C	"	33	01						
155	20. Oct.	P	21	49	43				1372.7	The S ocean off the Yaku Island.	
		\bar{P}	"	50	18						
		S	"	51	37						
		L	"	52	48						
		M_{IE}	"	53	22	3.5	± 100				
		M_{IN}	"	"	36	3.5		± 77			
		C	"	57	03						
F	22	06	17								
156	23. Oct.	P	13	29	55				319.1	The NE ocean off Miyako, Iwade prefec- ture	
		\bar{P}	"	30	19						
		S	"	"	25						
		L	"	"	38						
		M_{IE}	"	"	45	3.5	± 67				
		M_{IN}	"	"	"	3.5		± 117			
		C	"	32	50						
F	13	38	10								
157	24. Oct.	P	2	56	41				608.4	Almost, in the sea of Okhotsuku.	
		S	"	57	15						
		L	"	58	03						
		C	3	01	24						
		F	3	17	30						
158	24. Oct.	P	22	17	28				252.3	The ESE ocean off cape Shioya.	
		\bar{P}	"	"	33						
		iL	"	18	02						
		M_{IE}	"	"	09	3.7	± 18				
		C	"	"	58						
		F	22	22	00						
159	2. Nov.	P	1	31	36.5				141.0	Uuknown.	
		L	"	"	55.5						
		C	"	33	08						
		F	1	36	58						
160	2. Nov.	P	7	22	24				141.0	The ESE ocean off Miyako.	
		L	"	"	43						
		C	"	24	17						
		F	7	27	29						
161	6. Nov.	P	13	15	17				6749.9	A far distant earthquake.	
		PR_1	"	17	10						
		PR_2	"	20	22						
		PS	"	24	07						
		SR	"	26	31						
		eL	"	30	39						
		eF	13	54	00						

No.	Date	Phase	Long 135°E Time			Period s	Amplitude			△ ^{Km}	Remarks
			h.	s.	m.		A _E	A _N	A _Z		
162	11. Nov.	eP	5	46	37					222.6	The epicenter—Long 142°E, Lat40°4'N.
		S	"	"	47						
		L	"	47	07						
		M _{1E}	"	"	12	3.5	± 158				
		M _{1N}	"	"	"	3.5		± 133			
		eF	5	53	55						
163	28. Nov.	eP	19	51	58						A far distant earth- quake
		eF	20	16	00						
164	1. Dec.	eP	13	26	00.5						A far distant Earth- quake,—chille.
		eS	"	"	37						
		eF	13	44	00						
165	14. Dec.	eP	5	06	07					578.8	The epicenter. Long 140°9'E, Lat35°4'N.
		eS	"	"	53						
		eL	"	07	25						
		M _{1E}	"	08	11	3.5	- 433				
		M _{1N}	"	"	"	3.5		- 7 00			
		M _{2E}	"	09	07	3.2	+ 557				
		M _{2N}	"	"	09	3.5		± 467			
		C	"	11	31	3.7	± 183				
		C _{1ME}	"	12	06	3.5		± 150			
		eF	5	23	00						
166	19. Dec.	eP	20	44	02						A far bistant Earth- quake.
		eF	21	20	00						
167	20. Dec.	eP	0	19	23						
		C	"	21	48						
		eF	0	25	00						
168	21. Dec.	eP	10	41	13					408.1	In the S ocean of Bonin Islauds.
		S	"	"	37						
		L	"	42	08						
		M _{1N}	"	"	46	3.5		± 400			
		M _{1E}	"	"	53	3.2	± 333				
		F	10	48	17						
169	23. Dec.	eP	2	41	48					192.9	The NE ocean off Choshi
		M _{1E}	"	42	14						
		L	"	42	24	3.0	± 100				
		C	"	44	55						
		F	2	47	00						
170	28. Dec.	eP	23	25	58					3885.4	The ENE ocean off Kinkazan, Miyagi prefecture.
		eL	"	34	02						
		C	"	42	51						
		eF	23	56	00						

The End

昭和三年
三月
十日發行

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