

ANNUAL REPORT
OF THE
METEOROLOGICAL
AND THE
SEISMOLOGICAL OBSERVATIONS
MADE AT THE
INTERNATIONAL LATITUDE OBSERVATORY
OF MIZUSAWA
FOR
THE YEAR 1933.

LATITUDE $39^{\circ} 8' N.$, LONGITUDE $141^{\circ} 8' E.$,
HEIGHT ABOVE MEAN SEA LEVEL 61 METRES.

PUBLISHED BY THE INTERNATIONAL LATITUDE OBSERVATORY
OF MIZUSAWA.

1934.

The present report gives the results of the meteorological and seismological observations made at this observatory during the year 1933. No alteration has been made in the nature and methods of observation. The observations and the calculations were made by Messers. M. Uchida, S. Satô, and I. Kumagai, under the superintendence of Mr. T. Ikeda.

The followings are to be noted with respect to the meteorological observations :

Hours of observation—*Japanese Central Standard Time* (i.e. mean time of the meridian 9h east from Greenwich) is adopted.

Air Pressure.—The barometric readings in millimetres are reduced to the freezing point of water, the corrections to sea level and to standard gravity are given at the bottom of the page for each month.

Air and Earth Temperatures.—The degrees are given in Centigrade.

* *Wind*.—The velocity is expressed in metres per second. The direction was observed relative to the sixteen points of the compass.

Cloud.—The amount is estimated by the scale 0-10, the forms are those of the *International classification*, and the direction of motion is indicated relative to the sixteen points of the compass.

Tension of Water Vapour.—is given in millimetres.

Relative Humidity.—is given in percentages.

Precipitation.—The amount is given in millimetres.

Clear and Cloudy Days.—The amount of cloud is less than 2 exclusive, for the former ; and more than 8 inclusive, for the latter.

Duration of Sunshine.—is recorded by a Jordan sunshine-recorder.

Amount of Evaporation.—is given in millimetres, for each day,—that is from 10h of the preceding day to 10h of the day in question, according to the instruction of the Central Meteorological Observatory in Tôkyô.

The heights of the meteorological instruments are as follows,

Barometer—63.1m above sea level.

Air temperature thermometer.—1.3m above the ground.

Anemometer.—15.4m above the ground.

Wind vane.—16.6m above the ground.

* Note:—The wind velocity is measured by the Robinson anemometer. Since January first of the year 1925 a new factor for this instrument has been used. The ratio of new factor to the old one is 0.7/1.0.

In recording meteorological phenomena the following symbols are used :—

○	Rain	∇	Silver thaw	≡	Oceanic noise
✱	Snow	~	Glazed frost	∞	Yellow dust
⊠	Thunder storm	⊠	Ice	0	Visibility
⊥	Thunder without lightning	⊕	Snow drift	∞	Red sky
⋈	Lightning without thunder	←	Ice cristals	C	Cirrus
△	Graupel	⊙	Earthquake	CS	Cirro-stratus
▲	Hail	⊙	Solar corona	CK	Cirro-Cumulus
≡	Mist, Fog.	⊕	Solar halo	KC	Alto-Cumulus
⊥	Hoar frost	∪	Lunar Corona	SC	Alto-stratus
⊥	Ice column in ground	∪	Lunar halo	SK	Strato-cumulus
∩	Dew	∩	Gale	N	Nimbus
⊥	Frozen dew	∩	Rainbow	K	Cumulus
⊙	Frozen rain	∩	Aurora	KN	Cumulo-nimbus
∞	Wave cloud	∩	Zodiacal light	S	Stratus
⊠	Snow lying	∞	Haze		

The descriptions of the meteorological instruments are found in the annual reports for the years 1902, 1904, 1905, 1910, and 1916.

The seismological instruments in use are two Omori's horizontal pendulums, of the same type as that described in p. 8 of No. 5, "Publication of the Earthquake Investigation Committee in Foreign Language," one serving to register the EW component, and the other the NS component, of seismological movements.

	EW Component Apparatus	NS Component Apparatus
Period of free oscillation	16 seconds	36 seconds
Multiplication of the pointer	100 times	20 times
Weight of heavy cylinder	45.0 kilograms	17.6 kilograms
Horizontal distance of the centre of the cylinder from the point of support.	20 Centimetres	75 Centimetres
Vertical distance between the points of support and suspension.	104 Centimetres	104 Centimetres

April, 1934

H. KIMURA, *Rigakuhakushi*
Director of the International Latitude Observatory
in Mizusawa.

SEISMOLOGICAL OBSERVATIONS

Remarks :—

1. The intensities of the earthquakes are divided into the following seven classes according to the Central Meteorological Observatory of Japan.

Not felt	0.
Felt	1. slight
	2. moderate
	3. rather strong
	4. strong
	5. very strong
	6. disastrous

2. The approximate epicentres of the chief earthquakes are given, which are extracted from the "Kisyoyoran" issued monthly by the Central Meteorological Observatory of Japan.
3. The time adopted in the Seismological observations is Greenwich Civil Time.
4. Symbols and notations.

- i* Sudden beginning of the motion
- e* Gradual beginning of the motion
- ? Doubtful phase
- * Time is not accurate due to the disorder of the instrument
- ⊕ Out of the range of the instrument

EARTHQUAKES, 1933.



No.	Date 1933	P				S				L				Maximum Range of Motion				Duration of Total Earthquake (mean)	Intensity	Approximate Epicenter							
		E	W	N	S	E	W	N	S	E	W	N	S	E	W	N	S										
1	Jan. 1	h 8	m 58	s 40	?	m 58	s 53	?	m 66	s 52	?	m 66	s 10	-	-	-	-	?	m 77	s 25	-	-	-	-	46.1	0	
2	1	10	-	-	-	-	-	-	e 10	43	e 10	44	-	-	-	-	-	-	-	-	0.02	0.02	-	-	4.5	0	
3	3	i 15	27	46	i 27	46	i 28	24	i 28	26	-	-	-	-	-	-	-	-	-	⊕	1.28	-	-	21.8	3	ENE off Miyako	
4	3	? 22	41	38	-	-	? 42	44	? 42	04	-	-	-	-	-	-	-	-	-	0.04	0.04	-	-	7.6	0		
5	4	i 0	54	51	e 54	51	i 55	29	e 55	31	-	-	-	-	-	-	-	-	-	0.05	0.05	-	-	6.3	0		
6	4	i 1	27	59	e 28	06	i 30	14	i 30	16	-	-	-	-	-	-	-	-	-	0.12	0.10	-	-	41.4	0	SE off Titizima	
7	4	4	-	-	-	-	? 08	25	-	-	-	-	-	-	-	-	-	-	-	0.01	-	-	-	6.2	0		
8	4	16	-	-	-	-	e 41	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.8	0		
9	5	? 4	27	03	-	-	e 27	36	-	-	-	-	-	-	-	-	-	-	-	0.01	-	-	-	3.0	0		
10	5	e 11	12	08	-	-	12	49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	0		
11	6	e 15	57	36	-	-	e 58	15	-	-	-	-	-	-	-	-	-	-	-	0.01	-	-	-	3.0	0	Abukuma	
12	6	e 16	00	51	e 00	47	i 01	08	i 01	08	-	-	-	-	-	-	-	-	-	0.06	0.06	-	-	2.7	0	off mouth of the R.]	
13	7	4	07	17	i 07	18	⊕	-	i 08	05	-	-	-	-	-	-	-	-	-	⊕	4.39	-	-	3.4	1	ENE off Miyako	
14	7	e 4	24	34	-	-	i 25	11	? 25	11	-	-	-	-	-	-	-	-	-	0.05	0.08	-	-	1.4	0	"	
15	7	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	
16	7	4	-	-	-	-	i 36	27	? 36	28	-	-	-	-	-	-	-	-	-	0.03	0.03	-	-	1.7	0	ENE off Miyako	
17	7	4	-	-	-	-	e 40	14	-	-	-	-	-	-	-	-	-	-	-	0.01	-	-	-	2.2	0		
18	7	4	-	-	-	-	e 45	34	-	-	-	-	-	-	-	-	-	-	-	0.01	-	-	-	2.4	0		
19	7	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.0	0		
20	7	4	-	-	-	-	e 51	56	-	-	-	-	-	-	-	-	-	-	-	0.01	-	-	-	2.3	0		
21	7	i 4	54	24	e 54	22	i 54	50	i 54	52	-	-	-	-	-	-	-	-	-	0.18	0.21	-	-	6.3	0	ENE off Miyako	
22	7	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.01	-	-	-	1.6	0		
23	7	5	-	-	-	-	e 11	23	-	-	-	-	-	-	-	-	-	-	-	0.01	-	-	-	3.6	0		
24	7	5	-	-	-	-	e 28	27	-	-	-	-	-	-	-	-	-	-	-	0.01	-	-	-	2.1	0		
25	7	e 5	31	40	e 31	42	i 32	14	e 32	16	-	-	-	-	-	-	-	-	-	0.08	0.11	-	-	6.9	0	ENE off Miyako	
26	7	? 5	41	00	-	-	e 41	57	-	-	-	-	-	-	-	-	-	-	-	0.01	-	-	-	3.1	0		
27	7	5	-	-	-	-	e 44	26	-	-	-	-	-	-	-	-	-	-	-	0.01	-	-	-	1.9	0		
28	7	e 5	46	54	-	-	i 47	30	e 47	28	-	-	-	-	-	-	-	-	-	0.02	0.02	-	-	3.5	0		
29	7	5	-	-	-	-	e 58	53	-	-	-	-	-	-	-	-	-	-	-	0.01	-	-	-	1.7	0		
30	7	i 6	24	19	e 24	27	i 24	50	i 24	55	-	-	-	-	-	-	-	-	-	0.10	0.12	-	-	6.1	0	ENE off Miyako	
31	7	e 6	38	37	-	-	i 39	09	e 39	09	-	-	-	-	-	-	-	-	-	0.01	-	-	-	3.1	0		
32	7	e 7	37	07	-	-	i 38	14	e 37	17	-	-	-	-	-	-	-	-	-	0.02	-	-	-	4.9	0		
33	7	7	-	-	-	-	e 54	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	0		
34	7	7	-	-	-	-	e 56	44	-	-	-	-	-	-	-	-	-	-	-	0.01	-	-	-	1.6	0		
35	7	8	-	-	-	-	e 04	55	e 04	56	-	-	-	-	-	-	-	-	-	0.01	-	-	-	2.4	0		
36	7	8	-	-	-	-	e 23	15	-	-	-	-	-	-	-	-	-	-	-	0.00	-	-	-	1.6	0		
37	7	8	-	-	-	-	e 26	05	e 26	14	-	-	-	-	-	-	-	-	-	0.01	0.01	-	-	2.2	0		
38	7	e 8	39	37	-	-	i 40	03	-	-	-	-	-	-	-	-	-	-	-	0.01	-	-	-	3.0	0		
39	7	8	-	-	-	-	e 53	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	0		
40	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.9	0		
41	7	e 9	04	25	-	-	i 04	57	e 04	56	-	-	-	-	-	-	-	-	-	0.01	0.02	-	-	3.5	0		
42	7	e 9	15	57	e 15	52	i 16	26	e 16	20	-	-	-	-	-	-	-	-	-	0.03	0.01	-	-	3.2	0		
43	7	9	-	-	-	-	? 19	44	-	-	-	-	-	-	-	-	-	-	-	0.01	-	-	-	2.3	0		
44	7	e 9	29	37	-	-	i 30	13	e 30	08	-	-	-	-	-	-	-	-	-	0.02	-	-	-	3.3	0		
45	7	9	-	-	-	-	e 47	46	-	-	-	-	-	-	-	-	-	-	-	0.01	-	-	-	2.5	0		
46	7	9	-	-	-	-	e 59	05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.6	0		
47	7	10	-	-	-	-	e 29	06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.0	0		
48	7	e 10	36	40	-	-	e 37	20	e 37	25	-	-	-	-	-	-	-	-	-	0.01	-	-	-	3.8	0		
49	7	e 10	41	26	-	-	i 41	53	-	-	-	-	-	-	-	-	-	-	-	0.01	-	-	-	3.4	0		
50	7	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	0		
51	7	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	0		
52	7	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.0	0		
53	7	e 12	06	28	-	-	i 06	55	-	-	-	-	-	-	-	-	-	-	-	0.01	-	-	-	2.6	0		
54	7	e 12	35	19	-	-	i 35	52	e 35	52	-	-	-	-	-	-	-	-	-	0.03	0.05	-	-	4.2	0		
55	7	13	-	-	-	-	e 44	34	-	-	-	-	-	-	-	-	-	-	-	0.01	-	-	-	2.3	0		

EARTHQUAKES, 1933.



No.	Date 1933	P				S				L				Maximum Range of Motion				Duration of Total Earthquake (mean)	Intensity	Approximate Epicenter
		E	W	N	S	E	W	N	S	E	W	N	S	E	W	N	S			
56	Jan. 7	h	m	s	m	s	m	s	m	s	m	s	mm	mm	m	0				
		e 15	49	25	--	--	i 49	59	e 49	54	--	--	0.01	0.01	2.9	0				
57	7	15			--	--	--	--	--	--	--	--	--	--	0.8	0				
58	7	15			--	--	e 59	42	--	--	--	--	--	--	2.3	0				
59	7	18			--	--	e 15	55	--	--	--	--	0.01	--	1.9	0				
60	7	e 19	37	52	--	--	i 38	27	--	--	--	--	0.01	--	3.8	0				
61	7	i 20	08	28	e 08	27	i 09	06	i 08	56	--	--	0.08	0.08	6.5	0	Mabuti			
62	7	e 20	53	44	--	--	i 54	06	--	--	--	--	0.01	--	2.5	0	E off mouth of the R.]			
63	7	21			--	--	e 42	42	--	--	--	--	--	--	1.6	0	ENE off Miyako			
64	8	e 4	27	14	--	--	i 27	46	e 27	44	--	--	0.02	0.01	4.5	0				
65	8	e 5	44	39	--	--	e 45	14	--	--	--	--	0.01	--	2.2	0				
66	8	i 6	29	34	i 29	34	i 30	17	i 30	21	--	--	0.81	1.18	16.0	0	E off mouth of the R.			
67	8	i 6	47	30	--	--	i 48	10	e 48	09	--	--	0.03	0.04	6.2	0	Mabuti			
68	8	e 6	55	13	--	--	i 55	41	--	--	--	--	0.01	--	2.2	0				
69	8	7			--	--	e 40	52	--	--	--	--	--	--	2.0	0				
70	8	9			--	--	e 07	05	--	--	--	--	--	--	2.2	0				
71	8	10			--	--	e 30	02	--	--	--	--	--	--	1.5	0				
72	8	e 12	27	22	--	--	e 27	48	--	--	--	--	0.01	--	3.1	0				
73	8	e 12	59	19	--	--	i 59	53	e 59	51	--	--	0.02	0.01	3.8	0	ENE off Miyako			
74	8	15			--	--	e 43	26	--	--	--	--	0.00	--	2.2	0				
75	8	e 16	53	39	--	--	i 54	09	? 54	13	--	--	0.01	--	3.0	0				
76	8	i 18	29	00	e 29	02	i 29	27	i 29	27	--	--	0.12	0.20	9.4	0	ENE off Miyako			
77	8	18			--	--	e 34	37	e 34	41	--	--	0.01	--	2.4	0				
78	8	18			--	--	e 48	01	--	--	--	--	0.01	--	2.8	0				
79	8	18			--	--	e 59	06	--	--	--	--	--	--	1.8	0				
80	8	i 20	55	34	? 55	37	i 56	03	i 56	08	--	--	0.12	0.13	7.4	0	ENE off Miyako			
81	8	e 21	46	11	--	--	i 46	38	e 46	48	--	--	0.03	0.04	4.7	0	ENE off Miyako			
82	8	e 22	08	57	--	--	i 09	32	--	--	--	--	0.02	--	4.7	0				
83	9	e 2	09	22	e 09	29	e 10	48	? 10	52	--	--	0.01	--	6.6	0				
84	9	2			--	--	? 18	16	? 19	13	--	--	0.01	0.05	5.5	0				
85	9	2			--	--	e 37	56	--	--	--	--	0.01	--	2.4	0				
86	9	e 16	57	15	--	--	i 58	15	e 58	16	--	--	0.01	--	5.3	0				
87	10	e 0	40	11	--	--	i 40	50	e 40	58	--	--	0.02	0.03	4.6	0				
88	10	3			--	--	e 11	48	--	--	--	--	0.00	--	3.0	0				
89	10	e 5	00	26	--	--	i 01	09	e 01	12	--	--	0.04	0.05	6.4	0	ENE off Miyako			
90	10	e 10	09	30	--	--	i 10	06	e 10	06	--	--	0.01	--	4.3	0				
91	11	e 14	56	06	--	--	e 56	29	--	--	--	--	0.01	--	2.9	0				
92	12	e 10	07	27	--	--	i 08	06	e 08	07	--	--	0.02	0.03	4.6	0				
93	12	i 14	10	41	e 10	41	i 11	00	i 10	59	--	--	0.14	0.16	6.6	0	SE off Kinkazan			
94	13	e 4	01	32	--	--	e 02	02	--	--	--	--	0.01	--	2.9	0				
95	13	e 9	54	16	--	--	i 54	33	e 54	32	--	--	--	--	1.8	0				
96	14	e 6	43	51	--	--	i 44	08	--	--	--	--	0.01	--	2.6	0				
97	15	e 13	35	24	--	--	e 35	42	--	--	--	--	0.00	--	2.5	0				
98	15	i 18	10	10	e 10	08	e 16	36	e 16	40	--	--	--	--	31.6	0	New Guinea			
99	16	e 4	53	31	--	--	e 53	54	--	--	--	--	0.00	--	2.0	0				
100	17	i 5	16	09	e 16	09	i 16	41	i 16	40	--	--	0.10	0.13	6.2	0	ENE off Miyako			
101	17	18			--	--	i 49	19	e 49	30	--	--	0.03	--	2.1	0				
102	18	? 13	31	15	--	--	? 32	06	? 31	56	--	--	0.02	0.02	4.7	0				
103	18	e 17	17	45	--	--	i 19	52	? 19	53	--	--	0.02	0.04	6.7	0				
104	20	e 23	49	53	--	--	i 50	19	e 50	22	--	--	0.02	0.02	3.6	0				
105	21	? 19	39	05	? 38	18	? 49	08	? 49	07	? 58	34	? 59	00	16.1	0				
106	22	e 5	05	55	e 06	01	i 06	56	e 07	00	--	--	0.03	0.04	5.9	0				
107	23	4			--	--	* 43	20	--	--	--	--	0.00	--	1.9	0				
108	23	e 12	54	53	--	--	e 55	25	e 55	34	--	--	0.02	--	4.2	0				
109	23	18			--	--	e 24	55	--	--	--	--	0.00	--	2.1	0				
110	24	e 6	30	09	--	--	i 30	39	--	--	--	--	--	--	1.8	0				

EARTHQUAKES, 1933.

No.	Date 1933	P				S				L				Maximum Range of Motion		Duration of Total Earthquake (mean)	Intensity	Approximate Epicenter
		E	W	N	S	E	W	N	S	E	W	N	S	E	W			
111	Jan. 24	h 21 10 53		m 11 06		m 11 31		m 11 34						0.03	0.02	6.3	0	
112	27	e 10 22 40		- -		i 23 01		e 23 02						0.02	-	2.7	0	
113	29	8		- -		e 25 54		- -						-	-	0.7	0	
114	29	e 11 09 59		- -		i 10 22		e 10 24						0.02	-	3.8	0	
115	29	14		- -		e 36 04		- -						0.00	-	2.3	0	
116	29	21		- -		e 01 13		- -						0.00	-	2.0	0	
117	31	e 2 50 43		- -		e 51 27		- -						0.01	-	3.7	0	
118	Feb. 1	i 9 45 26		e 45 24		i 45 36		e 45 37						0.10	0.04	2.7	0	E off Kinkazan
119	3	i 22 14 19		e 14 15		i 16 11		i 16 12						0.08	0.08	7.7	0	N off Uruppu
120	4	i 6 20 26		e 20 23		i 22 23		i 22 23						0.04	0.04	7.8	0	WNW off Titizima
121	7	e 0 13 38		- -		14 14		- -						0.00	-	3.2	0	
122	7	e 21 07 42		- -		07 54		- -						0.01	-	2.0	0	
123	8	i 12 50 08		e 50 07		i 50 18		i 50 18						0.04	-	3.1	0	Neighbourhood of Bay of Yamada (Iwate pref.)
124	9	i 3 58 45		e 58 43		i 60 10		i 60 11						0.06	0.05	8.4	0	SW off Hatizyozima
125	9	8		- -		- -		- -						-	-	-	0	(deep)
126	11	3		- -		e 53 47		- -						-	-	0.8	0	
127	12	i 1 51 23		- -		i 51 39		- -						0.01	-	1.9	0	
128	13	? 2 56 34		? 57 24		? 69 23		? 69 16						-	-	32.1	0	Distant
129	13	e 6 51 43		e 51 44		i 52 18		i 52 22						0.14	0.15	8.6	0	Kasima-nada
130	13	i 17 28 47		e 28 43		i 29 21		e 29 20						0.04	0.04	5.6	0	
131	13	18		- -		- -		- -						-	-	1.9	0	
132	13	e 23 09 02		? 09 08		e 10 52		? 10 53						0.01	-	9.3	0	
133	14	4		- -		e 32 42		- -						-	-	2.1	0	
134	14	4		- -		i 45 12		- -						0.01	-	2.2	0	
135	15	e 20 23 17		- -		e 23 42		- -						0.01	-	1.8	0	
136	16	e 0 30 43		- -		i 31 08		- -						0.01	-	3.0	0	
137	16	e 1 31 05		- -		i 31 32		- -						0.01	-	2.5	0	
138	16	e 22 11 06		- -		i 11 32		e 11 31						0.02	-	3.4	0	
139	17	i 13 52 38		e 52 33		i 52 52		i 52 51						0.03	0.04	3.1	0	Tairadate (Iwate pref.)
140	17	e 18 36 03		- -		e 36 43		- -						-	-	2.9	0	
141	18	i 3 22 04		- -		i 22 37		e 22 37						0.02	0.01	3.2	0	SE far off Kinkazan
142	20	i 9 51 47		e 51 47		i 52 20		i 52 17						0.27	0.24	8.5	0	E far off Sioyasaki
143	20	e 11 06 10		- -		e 06 47		- -						0.01	-	2.5	0	
144	20	11		- -		- -		- -						0.00	-	1.8	0	
145	20	i 14 18 17		e 18 18		i 18 48		i 18 49						0.06	0.05	6.1	0	E off Sioyasaki
146	20	15		- -		e 23 49		- -						-	-	2.2	0	
147	20	e 22 02 29		- -		i 03 11		e 03 11						0.02	0.02	5.0	0	
148	21	e 2 54 17		- -		e 55 00		e 55 05						0.02	0.02	5.3	0	
149	22	20		- -		- -		- -						0.01	-	1.2	0	
150	23	e 8 28 59		e 29 03		- -		- -						-	-	48.0	0	Chile
151	24	5		- -		e 10 06		e 10 05						0.01	-	2.5	0	
152	25	e 13 19 31		- -		i 19 51		e 19 53						0.03	-	3.6	0	
153	Mar. 1	e 14 21 56		- -		i 22 38		- -						0.01	-	3.1	0	
154	2	i 17 31 39		i 31 40		⊕		⊕						⊕	⊕	⊕	4	off Kamaisi

Four moderate earthquakes and a number of unfelt are missed between the earthquakes No. 154 (epicenter off Kamaishi, and caused great tsunami) and No. 155 due to the damage of the seismograph.

155	2	e 20 15 45		- -		e 16 09		- -						0.07	-	5.2	0	After shock of Mar. 2nd
156	2	i 20 23 03		- -		i 23 32		- -						0.09	-	7.7	0	"
157	2	e 20 34 21		- -		i 34 39		- -						0.01	-	3.1	0	"
158	2	20		- -		- -		- -						0.01	-	2.5	0	
159	2	i 20 43 25		i 43 27		⊕		i 43 53						⊕	-	19.8	3	Aft. sk. of Mar. 2nd

EARTHQUAKES, 1933.

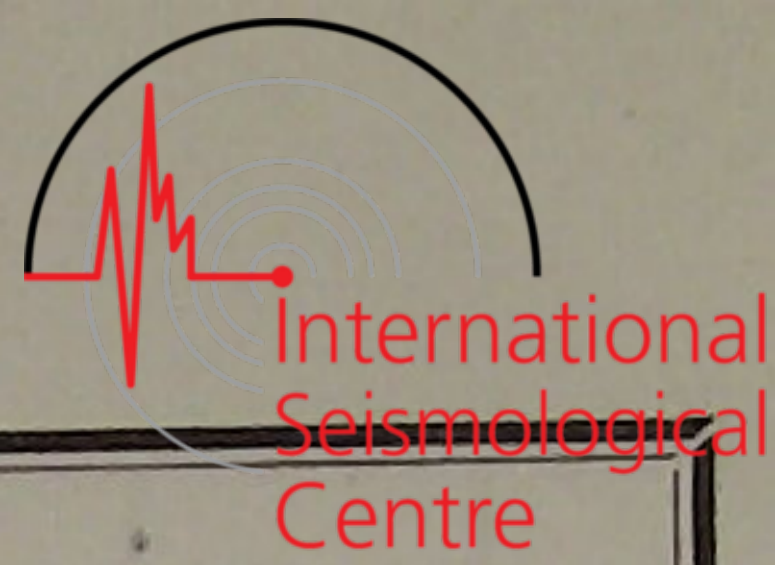
No.	Date 1933	P				S				L				Maximum Range of Motion			Duration of Total Earthquake (mean)	Intensity	Approximate Epicenter
		E	W	N	S	E	W	N	S	E	W	N	S	E	W	N			
160	Mar. 2	h	m	s	m	s	m	s	m	s	m	s	m	mm	mm	m	0	Aft. sk. of Mar. 2nd	
161	2	? 21	05	33	-	-	i 05	59	-	-	-	-	0.05	-	4.0	0			
162	2	21			-	-	-	-	-	-	-	-	0.01	-		0			
163	2	e 21	18	25	-	-	e 18	50	-	-	-	-	0.01	-	2.4	0			
164	2	i 21	21	42	-	-	i 22	04	-	-	-	-	0.03	-	1.4	0	Aft. sk. of Mar. 2nd		
165	2	21			-	-	-	-	-	-	-	-	0.02	-		0	Aft. sk. of Mar. 2nd		
166	2	21			-	-	-	-	-	-	-	-	0.00	-		0			
167	2	21			-	-	-	-	-	-	-	-	0.01	-		0			
168	2	21			-	-	-	-	-	-	-	-	-	-		0			
169	2	21			-	-	-	-	-	-	-	-	-	-		0			
170	2	21			-	-	-	-	-	-	-	-	-	-		0			
171	2	i 21	48	52	-	-	i 49	09	? 49	16	-	-	0.13	0.16	5.9	0	Aft. sk. of Mar. 2nd		
172	2	21			-	-	e 56	49	-	-	-	-	0.00	-		0			
173	2	i 21	59	10	-	-	i 59	38	-	-	-	-	0.06	-		0	Aft. sk. of Mar. 2nd		
174	2	i 22	01	58	-	-	i 02	23	-	-	-	-	0.13	0.14	4.6	0	Aft. sk. of Mar. 2nd		
175	2	i 22	12	13	-	-	e 12	30	-	-	-	-	0.01	-	2.7	0			
176	2	e 22	16	25	-	-	i 16	47	-	-	-	-	0.02	-	3.4	0	Aft. sk. of Mar. 2nd		
177	2	e 22	22	31	-	-	e 23	00	-	-	-	-	0.01	-	3.6	0			
178	2	e 22	27	19	-	-	e 27	49	-	-	-	-	0.01	-		0			
179	2	22			-	-	e 31	36	-	-	-	-	0.01	-		0			
180	2	i 22	35	23	? 35	26	i 35	59	* 35	50	-	-	0.28	0.40	7.8	0	Aft. sk. of Mar. 2nd		
181	2	e 22	43	46	-	-	e 44	13	-	-	-	-	0.01	-		0			
182	2	22			-	-	e 47	01	-	-	-	-	0.01	-		0			
183	2	22			-	-	-	-	-	-	-	-	-	-		0			
184	2	22			-	-	e 54	36	-	-	-	-	-	-		0			
185	2	22			-	-	e 56	54	-	-	-	-	0.01	-	2.2	0			
186	2	23			-	-	e 00	56	-	-	-	-	0.01	-	3.1	0			
187	2	e 23	11	53	-	-	e 12	16	-	-	-	-	0.01	-	3.4	0			
188	2	23			-	-	e 23	00	-	-	-	-	0.01	-	3.5	0			
189	2	23			-	-	-	-	-	-	-	-	0.01	-		0			
190	2	23			-	-	e 39	34	-	-	-	-	-	-		0			
191	2	23			-	-	e 41	35	-	-	-	-	0.01	-	2.8	0			
192	2	e 23	48	12	-	-	e 48	45	-	-	-	-	-	-	3.0	0			
193	2	23			-	-	e 52	52	-	-	-	-	0.01	-	3.2	0			
194	2	e 23	58	05	-	-	i 58	28	-	-	-	-	0.04	-	3.0	0	Aft. sk. of Mar. 2nd		
195	3	0			-	-	e 03	28	-	-	-	-	0.03	-	5.0	0			
196	3	e 0	11	15	-	-	i 11	45	-	-	-	-	0.03	-	5.4	0	"		
197	3	0			? 19	05	-	-	? 19	26	-	-	0.30	0.31	4.0	0	"		
198	3	? 0	25	01	-	-	? 25	27	-	-	-	-	0.02	-		0	"		
199	3	? 0	26	36	-	-	e 26	50	-	-	-	-	0.06	-		0	"		
200	3	? 0	28	08	-	-	i 28	31	? 28	37	-	-	0.15	0.09	7.4	0	"		
201	3	0			-	-	e 39	41	-	-	-	-	0.01	-	3.1	0			
202	3	i 0	43	57	-	-	i 44	23	-	-	-	-	0.05	-	4.8	0	Aft. sk. of Mar. 2nd		
203	3	0			-	-	-	-	-	-	-	-	0.01	-		0			
204	3	i 0	55	04	-	-	i 55	29	-	-	-	-	0.02	-	4.0	0	Aft. sk. of Mar. 2nd		
205	3	1			-	-	-	-	-	-	-	-	-	-		0			
206	3	1			-	-	? 05	36	-	-	-	-	0.01	-	2.3	0			
207	3	e 1	19	58	-	-	e 20	30	-	-	-	-	0.01	-		0			
208	3	1			-	-	-	-	-	-	-	-	-	-		0			
209	3	e 1	47	40	-	-	e 48	01	-	-	-	-	0.01	-	2.1	0			
210	3	1			-	-	-	-	-	-	-	-	-	-		0			
211	3	1			-	-	-	-	-	-	-	-	-	-		0			
212	3	e 2	21	49	-	-	e 22	11	-	-	-	-	0.01	-	2.2	0			
213	3	2			-	-	-	-	-	-	-	-	0.01	-		0			
214	3	e 2	28	02	-	-	e 28	29	-	-	-	-	0.01	0.02	3.2	0	Aft. sk. of Mar. 2nd		

EARTHQUAKES, 1933.



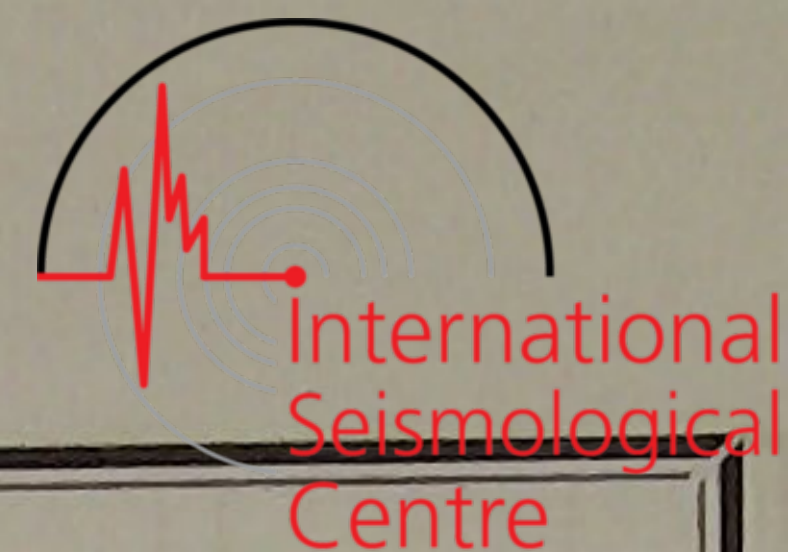
No.	Date 1933	P				S				L				Maximum Range of Motion				Duration of Total Earthquake (mean)	Intensity	Approximate Epicenter
		E	W	N	S	E	W	N	S	E	W	N	S	E	W	N	S			
270	Mar. 3	i 9 39 13		i 39 15		i 39 37		i 39 38		-	-	-	-	⊕	1.09		12.9	2	Aft. sk. of Mar. 2nd	
271	3	e 9 53 04		-		i 53 45		e 53 52		-	-	-	-	0.03	0.04		7.6	0	"	
272	3	e 10 04 11		e 04 19		i 04 35		e 04 42		-	-	-	-	0.72	0.73		7.7	2	"	
273	3	* 10 22 34		-		* 23 00		-		-	-	-	-	0.01	-		3.1	0		
274	3	* 10		-		* 28 12		-		-	-	-	-	0.01	-		1.6	0		
275	3	* 10 30 22		-		* 30 48		-		-	-	-	-	0.01	-		2.0	0		
276	3	* 10 32 48		* 32 51		* 33 16		* 33 16		-	-	-	-	0.35	0.54		10.4	2	Aft. sk. of Mar. 2nd	
277	3	e 10 46 26		-		e 46 56		-		-	-	-	-	0.01	-		5.3	0		
278	3	e 10 57 25		-		i 58 05		-		-	-	-	-	0.01	0.03		5.0	0	Aft. sk. of Mar. 2nd	
279	3	e 11 02 57		-		e 03 26		-		-	-	-	-	0.00	-		3.7	0		
280	3	11		-		-		-		-	-	-	-	0.00	-			0		
281	3	e 11 24 27		-		i 24 53		-		-	-	-	-	0.01	-		2.7	0		
282	3	e 11 38 12		-		e 38 39		-		-	-	-	-	0.01	-		2.3	0		
283	3	e 11 47 34		-		i 48 13		* 48 28		-	-	-	-	0.04	0.05		3.8	0	Aft. sk. of Mar. 2nd	
284	3	e 11 52 00		-		i 52 32		* 52 23		-	-	-	-	0.04	0.04		4.7	0	"	
285	3	i 11 57 10		e 57 10		i 57 34		i 57 34		-	-	-	-	0.42	0.40		10.0	2	"	
286	3	i 12 14 33		e 14 34		i 15 01		i 15 03		-	-	-	-	0.19	0.19		6.8	0	"	
287	3	* 12 21 26		-		* 21 50		* 21 49		-	-	-	-	0.10	0.05		9.2	0	"	
288	3	* 12		-		* 31 38		-		-	-	-	-	0.01	-			0		
289	3	* 12 32 57		-		* 33 27		-		-	-	-	-	0.01	-		5.5	0		
290	3	12		-		-		-		-	-	-	-	0.00	-			0		
291	3	e 12 43 31		-		e 43 58		-		-	-	-	-	-	-		2.5	0		
292	3	e 12 56 31		-		e 57 05		-		-	-	-	-	0.00	-		3.7	0		
293	3	e 13 02 11		-		e 02 38		e 02 58		-	-	-	-	0.02	0.02		3.7	0	Aft. sk. of Mar. 2nd	
294	3	13		-		e 13 40		-		-	-	-	-	0.00	-		1.6	0		
295	3	e 13 16 39		-		e 17 05		-		-	-	-	-	0.01	-		2.7	0		
296	3	13		-		-		-		-	-	-	-	-	-			0		
297	3	13		-		-		-		-	-	-	-	-	-			0		
298	3	13		-		-		-		-	-	-	-	0.00	-		1.4	0		
299	3	13		-		-		-		-	-	-	-	-	-		1.9	0		
300	3	13		-		e 55 51		-		-	-	-	-	-	-		1.6	0		
301	3	e 14 14 15		-		e 14 46		-		-	-	-	-	0.01	-		3.9	0		
302	3	14		-		e 20 44		-		-	-	-	-	0.00	-		3.0	0		
303	3	14		-		e 27 35		-		-	-	-	-	0.00	-		2.0	0		
304	3	e 14 56 37		-		e 57 13		-		-	-	-	-	0.01	-		2.6	0		
305	3	i 15 02 48		i 02 49		i 03 16		i 03 16		-	-	-	-	0.59	0.60			2	Aft. sk. of Mar. 2nd	
306	3	? 15 07 40		-		i 08 03		i 08 06		-	-	-	-	0.48	0.75		10.5	2	"	
307	3	* 15		-		* 18 06		-		-	-	-	-	0.01	-		6.3	0		
308	3	* 15 27 04		-		* 27 50		-		-	-	-	-	0.01	-		4.0	0		
309	3	* 15		-		-		-		-	-	-	-	-	-			0		
310	3	* 15 45 15		-		* 45 49		-		-	-	-	-	0.01	-		4.6	0		
311	3	* 15 50 51		* 51 14		* 51 21		* 51 40		-	-	-	-	0.24	0.21		9.4	0	Aft. sk. of Mar. 2nd	
312	3	* 15 58 17		-		* 58 50		-		-	-	-	-	0.01	-		3.2	0		
313	3	16 12 29		i 12 32		13 04		i 13 00		-	-	-	-	0.26	0.25		11.8	0	Aft. sk. of Mar. 2nd	
314	3	16		-		-		-		-	-	-	-	0.00	-			0		
315	3	e 16 32 20		e 32 27		i 32 48		e 32 49		-	-	-	-	0.02	0.04		3.7	0	Aft. sk. of Mar. 2nd	
316	3	16		-		-		-		-	-	-	-	-	-			0		
317	3	e 16 42 21		-		i 42 50		-		-	-	-	-	0.01	0.01		3.3	0		
318	3	16		-		-		-		-	-	-	-	-	-			0		
319	3	i 17 01 39		-		i 02 03		e 02 03		-	-	-	-	0.02	0.03		3.4	0	Aft. sk. of Mar. 2nd	
320	3	17		-		e 13 30		-		-	-	-	-	-	-		2.3	0		
321	3	e 17 16 07		-		e 16 32		-		-	-	-	-	0.00	-		2.9	0		
322	3	e 17 22 04		-		e 22 42		-		-	-	-	-	0.01	-		4.5	0		
323	3	17		-		e 26 58		-		-	-	-	-	-	-		1.7	0		
324	3	17		-		-		-		-	-	-	-	-	-			0		

EARTHQUAKES, 1933.



No.	Date 1933	P				S				L				Maximum Range of Motion			Duration of Total Earthquake (mean)	Intensity	Approximate Epicenter
		E	W	N	S	E	W	N	S	E	W	N	S	E	W	N			
325	Mar. 3	h	m	s	m	s	m	s	m	s	m	s	m	s	mm	mm	m	0	
326	3	e 17	50	19	-	-	e 50	56	-	-	-	-	-	0.01	-	3.4	0		
327	3	17	-	-	-	-	-	-	-	-	-	-	-	0.00	-	-	0		
328	3	18	-	-	e 01	18	e 01	22	-	-	-	-	-	0.01	0.03	4.2	0	Aft. sk. of Mar. 2nd	
329	3	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0		
330	3	18	-	-	-	-	-	-	-	-	-	-	-	-	-	2.3	0		
331	3	e 18	31	33	-	-	e 31	58	-	-	-	-	-	0.00	-	8.0	0	Aft. sk. of Mar. 2nd	
332	3	i 18	47	55	e 47	57	i 48	35	e 48	30	-	-	-	0.16	0.21	1.6	0		
333	3	18	-	-	-	-	e 57	54	-	-	-	-	-	0.01	-	12.7	2	Aft. sk. of Mar. 2nd	
334	3	i 19	08	00	i 08	01	i 08	27	i 08	29	-	-	-	0.62	0.62	4.9	0		
335	3	e 19	32	18	-	-	e 32	49	-	-	-	-	-	0.00	-	7.7	2	Aft. sk. of Mar. 2nd	
336	3	i 19	51	04	i 51	06	i 51	35	i 51	32	-	-	-	0.35	0.32	3.7	0		
337	3	i 20	11	14	e 11	20	i 11	41	e 11	45	-	-	-	0.03	0.02	8.6	0	"	
338	3	i 20	20	56	i 20	57	? 21	33	? 21	25	-	-	-	0.20	0.20	5.7	0	"	
339	3	e 20	41	48	-	-	i 42	13	e 42	14	-	-	-	0.02	0.02	-	0	"	
340	3	21	-	-	-	-	-	-	-	-	-	-	-	-	-	2.0	0		
341	3	21	-	-	e 12	35	-	-	-	-	-	-	0.00	-	-	0			
342	3	21	-	-	-	-	-	-	-	-	-	-	0.00	-	-	0			
343	3	21	-	-	-	-	-	-	-	-	-	-	-	-	1.3	0			
344	3	21	-	-	e 26	12	-	-	-	-	-	-	-	-	-	1.7	0		
345	3	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0		
346	3	e 21	54	55	-	-	i 55	32	e 55	33	-	-	-	0.01	0.02	4.4	0	Aft. sk. of Mar. 2nd	
347	3	e 22	19	36	-	-	e 20	05	-	-	-	-	-	0.00	-	3.2	0		
348	3	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0		
349	3	22	-	-	-	-	-	-	-	-	-	-	-	0.01	-	-	0		
350	3	i 22	31	35	e 31	36	i 32	03	e 31	57	-	-	-	0.03	0.04	5.4	0	Aft. sk. of Mar. 2nd	
351	3	22	-	-	-	-	e 46	01	-	-	-	-	-	0.01	-	2.0	0		
352	3	e 22	49	09	-	-	e 49	37	-	-	-	-	-	0.00	-	2.5	0		
353	3	e 22	54	00	-	-	e 54	27	-	-	-	-	-	0.00	-	2.3	0		
354	3	e 23	04	25	-	-	e 05	03	-	-	-	-	-	0.01	0.01	3.6	0		
355	3	i 23	11	28	-	-	i 11	52	e 11	47	-	-	-	0.02	0.03	4.8	0	Aft. sk. of Mar. 2nd	
356	3	i 23	18	50	e 18	57	i 19	17	e 19	21	-	-	-	0.02	0.03	4.6	0	"	
357	3	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0		
358	3	i 23	45	42	-	-	i 46	14	e 46	14	-	-	-	0.03	0.02	5.3	0	Aft. sk. of Mar. 2nd	
359	3	23	-	-	-	-	e 53	44	-	-	-	-	-	-	-	1.8	0		
360	4	e 0 00	14	-	-	-	e 00	38	-	-	-	-	-	0.00	-	-	0		
361	4	e 0 01	43	-	-	-	e 02	12	-	-	-	-	-	0.01	-	2.3	0		
362	4	e 0 18	34	-	-	-	e 19	02	-	-	-	-	-	0.01	-	4.0	0		
363	4	i 0 23	52	-	-	-	i 24	25	e 24	18	-	-	-	0.02	0.03	5.5	0	Aft. sk. of Mar. 2nd	
364	4	e 0 47	54	-	-	-	e 48	37	-	-	-	-	-	0.00	-	3.6	0		
365	4	e 0 59	21	-	-	-	e 59	52	e 59	52	-	-	-	0.01	-	4.4	0		
366	4	1	-	-	-	-	e 56	14	-	-	-	-	-	-	-	1.7	0		
367	4	e 2 02	13	-	-	-	e 02	40	-	-	-	-	-	0.00	-	2.8	0		
368	4	2	-	-	-	-	-	-	-	-	-	-	-	-	-	1.7	0		
369	4	e 2 21	46	-	-	-	e 22	18	-	-	-	-	-	0.01	-	3.5	0		
370	4	e 2 25	33	-	-	-	e 25	59	-	-	-	-	-	0.00	-	2.5	0		
371	4	e 2 36	02	-	-	-	e 36	44	-	-	-	-	-	-	-	4.7	0		
372	4	3	-	-	-	-	e 17	15	-	-	-	-	-	0.00	-	1.3	0		
373	4	e 3 32	28	-	-	-	i 33	06	-	-	-	-	-	0.01	-	3.3	0		
374	4	e 3 48	45	-	-	-	i 49	15	-	-	-	-	-	0.01	-	2.9	0		
375	4	e 3 52	06	-	-	-	e 52	34	-	-	-	-	-	-	-	2.6	0		
376	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	0.9	0		
377	4	4	-	-	-	-	e 39	25	-	-	-	-	-	-	-	1.5	0		
378	4	e 4 41	47	-	-	-	e 42	27	-	-	-	-	-	0.01	0.02	4.1	0	Aft. sk. of Mar. 2nd	
379	4	e 5 04	38	-	-	-	e 05	07	-	-	-	-	-	-	-	2.0	0		

EARTHQUAKES, 1933.



No.	Date 1933	P				S				L				Maximum Range of Motion				Duration of Total Earthquake (mean)	Intensity	Approximate Epicenter
		E	W	N	S	E	W	N	S	E	W	N	S	E	W	N	S			
435	Mar. 5	h	m	s	m	s	m	s	m	s	m	s	m	s	mm	mm	m	0		
436	5	e 5	37	45	-	-	i 38	15	-	-	-	-	-	-	0.01	-	2.4	0		
437	5	e 5	48	51	-	-	i 49	09	-	-	-	-	-	-	0.01	-	2.0	0		
438	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.5	0	Aft. sk. of Mar. 2nd	
439	5	e 6	38	50	-	-	i 39	08	-	-	-	-	-	-	0.03	-		0		
440	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-		0		
441	5	6	-	-	-	-	-	-	-	-	-	-	-	-	0.01	-		0		
442	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-		0		
443	5	e 7	01	25	-	-	e 01	56	-	-	-	-	-	-	0.02	-	3.6	0	Aft. sk. of Mar. 2nd	
444	5	7	-	-	-	-	e 48	11	-	-	-	-	-	-	0.01	-	1.5	0		
445	5	8	-	-	-	-	-	-	-	-	-	-	-	-	0.01	-		0		
446	5	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-		0		
447	5	10	-	-	-	-	-	-	-	-	-	-	-	-	0.00	-		0		
448	5	10	-	-	-	-	e 39	29	-	-	-	-	-	-	0.00	-	2.3	0		
449	5	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-		0		
450	5	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-		0		
451	5	11	-	-	-	-	e 22	06	-	-	-	-	-	-	0.01	-	1.7	0		
452	5	11	-	-	-	-	e 53	54	-	-	-	-	-	-	0.00	-	1.7	0		
453	5	11	-	-	-	-	e 58	59	-	-	-	-	-	-	0.01	-	2.3	0		
454	5	12	-	-	-	-	e 15	41	-	-	-	-	-	-	0.01	-	2.2	0		
455	5	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-		0		
456	5	e 13	17	53	e 17	53	i 18	14	e 18	21	-	-	-	-	0.04	0.04	5.2	0	Aft. sk. of Mar. 2nd	
457	5	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-		0		
458	5	e 14	52	24	-	-	e 52	42	-	-	-	-	-	-	0.01	-	2.2	0		
459	5	e 16	23	26	-	-	e 23	59	-	-	-	-	-	-	0.01	-	4.3	0		
460	5	e 16	28	21	-	-	e 28	51	-	-	-	-	-	-	0.01	-	3.5	0		
461	5	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-		0		
462	5	17	-	-	-	-	e 12	27	-	-	-	-	-	-	0.01	-	1.5	0		
463	5	17	-	-	-	-	e 27	36	-	-	-	-	-	-	0.01	-	2.7	0		
464	5	e 17	42	55	-	-	e 43	29	-	-	-	-	-	-	0.01	-	3.2	0		
465	5	17	-	-	-	-	e 52	38	-	-	-	-	-	-	-	-	2.5	0		
466	5	18	-	-	-	-	e 07	19	-	-	-	-	-	-	0.00	-	2.2	0		
467	5	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-		0		
468	5	19	-	-	-	-	e 28	12	-	-	-	-	-	-	0.00	-	1.2	0		
469	5	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-		0		
470	5	e 19	44	19	-	-	i 44	45	-	-	-	-	-	-	0.01	-	2.0	0		
471	5	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-		0		
472	5	20	-	-	-	-	e 45	58	-	-	-	-	-	-	0.00	-	1.2	0		
473	5	i 20	47	45	e 47	44	i 48	06	i 48	13	-	-	-	-	0.08	0.06	7.3	0	Aft. sk. of Mar. 2nd	
474	5	20	-	-	-	-	e 55	58	-	-	-	-	-	-	-	-	2.7	0		
475	5	21	-	-	-	-	e 36	15	-	-	-	-	-	-	-	-	1.6	0		
476	5	22	-	-	-	-	e 09	40	-	-	-	-	-	-	-	-	2.0	0		
477	5	22	-	-	-	-	e 58	19	-	-	-	-	-	-	0.01	-	2.3	0		
478	5	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-		0		
479	5	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-		0		
480	5	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-		0		
481	6	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-		0		
482	6	1	-	-	-	-	e 49	53	-	-	-	-	-	-	-	-	3.2	0		
483	6	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.0	0		
484	6	3	-	-	-	-	e 01	29	-	-	-	-	-	-	-	-	1.2	0		
485	6	e 3	10	23	-	-	e 11	17	-	-	-	-	-	-	0.01	-	3.0	0		
486	6	e 4	03	02	-	-	i 03	35	e 03	35	-	-	-	-	0.03	0.03	4.2	0	Aft. sk. of Mar. 2nd	
487	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-		0		
488	6	5	-	-	-	-	e 00	11	-	-	-	-	-	-	-	-	3.2	0		
489	6	e 5	36	32	-	-	e 36	58	-	-	-	-	-	-	0.01	-	2.6	0		

EARTHQUAKES, 1933.



No.	Date 1933	P				S				L				Maximum Range of Motion		Duration of Total Earthquake (mean)	Intensity	Approximate Epicenter	
		E	W	N	S	E	W	N	S	E	W	N	S	E	W				N
545	Mar. 7	h	m	s	m	s	m	s	m	s	m	s	m	s	mm	mm	m	0	
546	7	11			-	-	e 59	03	-	-	-	-	-	-	0.00	-	1.4	0	
547	7	13			-	-	-	-	-	-	-	-	-	-	0.00	-		0	
548	7	15			-	-	-	-	-	-	-	-	-	-	-	-	0.9	0	
549	7	15			-	-	-	-	-	-	-	-	-	-	-	-	2.5	0	
	7	e 16	57	25	-	-	e 57	53	-	-	-	-	-	0.01	0.01				
550	7	i 17	03	31	-	-	i 04	02	e 04	01	-	-	-	-	0.01	0.02	4.3	0	Aft. sk. of Mar. 2nd
551	7	e 17	26	05	-	-	i 26	32	e 26	27	-	-	-	-	0.01	0.02	3.5	0	"
552	7	i 17	39	55	-	-	i 40	26	e 40	22	-	-	-	-	0.03	0.03	5.8	0	"
553	7	17			-	-	-	-	-	-	-	-	-	-	-	-			
554	7	e 18	01	57	-	-	i 02	26	-	-	-	-	-	-	0.01	-	2.7	0	
555	7	15			-	-	-	-	-	-	-	-	-	-	-	-			
556	7	19			-	-	-	-	-	-	-	-	-	-	-	-			
557	7	e 19	58	05	-	-	e 58	42	-	-	-	-	-	-	0.01	-	2.9	0	
558	7	i 20	05	55	e 05	57	i 06	22	e 06	27	-	-	-	-	0.02	0.02	3.8	0	Aft. sk. of Mar. 2nd
559	7	i 22	22	08	e 22	09	i 22	38	i 22	38	-	-	-	-	0.12	0.02	8.3	0	Aft. sk. of Mar. 2nd
560	7	22			-	-	-	-	-	-	-	-	-	-	-	-	2.0	0	
561	7	i 22	48	17	e 48	28	i 48	47	e 48	55	-	-	-	-	0.03	0.03	5.0	0	Aft. sk. of Mar. 2nd
562	7	23			-	-	e 24	58	-	-	-	-	-	-	0.00	-	2.7	0	
563	7	e 23	29	16	-	-	e 29	46	e 29	45	-	-	-	-	0.01	0.02	3.8	0	Aft. sk. of Mar. 2nd
564	7	e 23	33	39	e 33	56	e 34	11	e 34	18	-	-	-	-	0.02	0.02	4.6	0	"
565	7	23			-	-	-	-	-	-	-	-	-	-	0.01	-	1.6	0	
566	8	0			-	-	-	-	-	-	-	-	-	-	-	-	0.8	0	
567	8	i 1	36	13	i 36	11	i 36	35	i 36	33	-	-	-	-	⊕	1.72	11.4	2	Aft. sk. of Mar. 2nd
568	8	1			-	-	e 53	32	-	-	-	-	-	-	-	-	3.7	0	
569	8	2			-	-	-	-	-	-	-	-	-	-	-	-			
570	8	2			-	-	-	-	-	-	-	-	-	-	-	-			
571	8	2			-	-	e 48	53	-	-	-	-	-	-	-	-	1.7	0	
572	8	3			-	-	-	-	-	-	-	-	-	-	-	-			
573	8	i 3	30	46	e 30	46	i 31	10	e 31	06	-	-	-	-	0.09	0.02	4.8	0	Aft. sk. of Mar. 2nd
574	8	4			-	-	-	-	-	-	-	-	-	-	-	-			
575	8	4			-	-	-	-	-	-	-	-	-	-	-	-			
576	8	4			-	-	-	-	-	-	-	-	-	-	-	-			
577	8	5			-	-	-	-	-	-	-	-	-	-	-	-			
578	8	6			-	-	-	-	-	-	-	-	-	-	-	-			
579	8	8			-	-	e 09	30	-	-	-	-	-	-	0.01	-	2.9	0	
580	8	e 8	22	46	-	-	e 23	12	-	-	-	-	-	-	0.01	-	2.6	0	
581	8	e 8	44	05	-	-	e 44	30	-	-	-	-	-	-	0.01	-	2.3	0	
582	8	e 8	52	05	-	-	e 52	35	-	-	-	-	-	-	0.01	-	2.9	0	
583	8	9			-	-	-	-	-	-	-	-	-	-	-	-			
584	8	9			-	-	-	-	-	-	-	-	-	-	-	-			
585	8	9			-	-	-	-	-	-	-	-	-	-	-	-			
586	8	e 10	20	39	-	-	e 21	07	-	-	-	-	-	-	0.01	-	3.1	0	
587	8	10			-	-	e 32	35	-	-	-	-	-	-	-	-			
588	8	e 11	07	41	-	-	i 08	12	e 08	12	-	-	-	-	0.02	0.01	4.5	0	Aft. sk. of Mar. 2nd
589	8	e 11	36	52	-	-	e 37	23	-	-	-	-	-	-	0.01	-	3.4	0	
590	8	11			-	-	e 46	41	-	-	-	-	-	-	0.00	-	1.8	0	
591	8	e 12	26	31	-	-	e 27	03	-	-	-	-	-	-	0.00	-	2.8	0	
592	8	12			-	-	-	-	-	-	-	-	-	-	-	-	1.6	0	
593	8	i 12	42	56	e 42	56	i 43	23	e 43	23	-	-	-	-	0.06	0.05	5.4	0	
594	8	13			-	-	e 04	18	-	-	-	-	-	-	0.01	-	2.2	0	
595	8	13			-	-	e 13	11	-	-	-	-	-	-	-	-			
596	8	e 13	24	18	-	-	i 24	47	-	-	-	-	-	-	0.02	-	4.0	0	Aft. sk. of Mar. 2nd
597	8	13			-	-	-	-	-	-	-	-	-	-	-	-	1.2	0	
598	8	i 13	48	47	-	-	i 49	13	e 49	08	-	-	-	-	0.05	0.04	5.8	0	Aft. sk. of Mar. 2nd
599	8	14			-	-	-	-	-	-	-	-	-	-	-	-			

EARTHQUAKES, 1933.



No.	Date 1932	P				S				L				Maximum Range of Motion				Duration of Total Earthquake (mean)	Intensity	Approximate Epicenter
		E	W	N	S	E	W	N	S	E	W	N	S	E	W	N	S			
600	Mar. 8	e 14	33	49	-	-	e 34	25	-	-	-	-	0.01	-	-	-	4.7	0		
601	8	e 15	13	42	-	-	e 14	08	-	-	-	-	0.01	-	-	-	2.9	0		
602	8	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0		
603	8	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0		
604	8	e 21	25	02	-	-	e 25	37	-	-	-	-	0.01	-	-	-	3.3	0		
605	8	e 23	03	29	-	-	e 04	00	-	-	-	-	0.00	-	-	-	3.0	0		
606	9	0	-	-	-	-	e 24	25	-	-	-	-	-	-	-	-	2.1	0		
607	9	2	-	-	-	-	-	-	-	-	-	-	0.00	-	-	-	2.1	0		
608	9	e 3	08	54	-	-	e 09	23	-	-	-	-	0.00	-	-	-	3.6	0		
609	9	e 5	35	00	e 35	05	i 35	33	e 35	34	-	-	0.04	0.05	-	-	6.9	0	Aft. sk. of Mar. 2nd	
610	9	6	-	-	-	-	e 42	53	-	-	-	-	-	-	-	-	2.4	0		
611	9	7	-	-	-	-	e 16	25	-	-	-	-	-	-	-	-	1.6	0		
612	9	7	-	-	-	-	e 31	55	-	-	-	-	0.00	-	-	-	2.5	0		
613	9	8	-	-	-	-	e 51	58	-	-	-	-	-	-	-	-	3.2	0		
614	9	i 9	55	43	e 55	43	i 56	08	e 56	12	-	-	0.06	0.04	-	-	5.5	0	Aft. sk. of Mar. 2nd	
615	9	10	-	-	-	-	e 40	38	-	-	-	-	-	-	-	-	1.6	0		
616	9	10	-	-	-	-	e 43	06	-	-	-	-	-	-	-	-	2.3	0		
617	9	e 14	05	58	-	-	i 06	40	-	-	-	-	0.01	0.01	-	-	3.4	0		
618	9	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.7	0		
619	9	15	-	-	-	-	e 46	50	-	-	-	-	-	-	-	-	1.6	0		
620	9	e 16	02	58	-	-	e 03	22	-	-	-	-	0.01	0.01	-	-	2.9	0		
621	9	e 16	06	46	-	-	i 07	10	-	-	-	-	0.01	-	-	-	3.2	0		
622	9	e 17	05	49	-	-	e 06	18	-	-	-	-	0.01	0.01	-	-	3.3	0		
623	9	e 17	45	13	-	-	i 45	30	-	-	-	-	0.01	-	-	-	2.3	0		
624	9	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.3	0		
625	9	e 19	16	00	-	-	i 16	29	-	-	-	-	0.01	-	-	-	3.4	0		
626	10	1	-	-	-	-	e 22	59	-	-	-	-	-	-	-	-	2.5	0		
627	10	1	-	-	-	-	e 27	02	-	-	-	-	-	-	-	-	0.9	0		
628	10	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0		
629	10	e 2	49	07	-	-	e 49	42	-	-	-	-	0.01	-	-	-	4.1	0		
630	10	e 3	34	10	-	-	e 34	40	-	-	-	-	0.01	-	-	-	3.1	0		
631	10	e 5	08	27	-	-	e 08	57	-	-	-	-	-	-	-	-	1.9	0		
632	10	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.3	0		
633	10	6	-	-	-	-	-	-	-	-	-	-	0.00	-	-	-	2.0	0		
634	10	i 7	35	39	i 35	39	i 36	12	i 36	08	-	-	0.09	0.11	-	-	11.4	0	Aft. sk. of Mar. 2nd	
635	10	7	-	-	-	-	e 47	53	-	-	-	-	-	-	-	-	2.2	0		
636	10	e 8	00	08	-	-	e 00	39	-	-	-	-	0.01	0.01	-	-	3.7	0		
637	10	i 8	04	17	e 04	19	i 04	46	e 04	53	-	-	0.03	0.01	-	-	5.0	0	Aft. sk. of Mar. 2nd	
638	10	9	-	-	-	-	e 03	46	-	-	-	-	-	-	-	-	2.6	0		
639	10	9	-	-	-	-	e 51	03	-	-	-	-	-	-	-	-	2.1	0		
640	10	e 11	59	41	e 59	56	i 60	12	e 60	17	-	-	0.03	0.05	-	-	4.6	0	Aft. sk. of Mar. 2nd	
641	10	e 12	16	56	-	-	e 17	30	-	-	-	-	0.01	0.02	-	-	4.7	0		
642	10	e 13	44	10	-	-	e 44	29	-	-	-	-	0.01	-	-	-	2.5	0		
643	10	e 14	50	28	-	-	e 50	59	-	-	-	-	-	-	-	-	3.2	0		
644	10	e 15	08	39	-	-	e 09	01	-	-	-	-	-	-	-	-	2.3	0		
645	10	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.3	0		
646	10	i 19	51	17	e 51	18	i 51	46	e 51	49	-	-	0.03	0.04	-	-	5.4	0	Aft. sk. of Mar. 2nd	
647	10	20	-	-	-	-	e 01	51	-	-	-	-	0.00	-	-	-	2.1	0		
648	10	e 21	29	30	-	-	e 29	59	-	-	-	-	0.01	-	-	-	3.3	0		
649	10	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	0		
650	10	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	0		
651	10	e 22	33	55	-	-	i 34	45	e 34	45	-	-	0.02	0.02	-	-	4.2	0	Aft. sk. of Mar. 2nd	
652	10	e 23	16	21	-	-	e 16	45	-	-	-	-	-	-	-	-	4.3	0		
653	10	e 23	22	57	-	-	e 23	27	-	-	-	-	0.01	-	-	-	4.6	0		
654	11	e 4	18	56	-	-	i 19	30	e 19	27	-	-	0.01	-	-	-	5.0	0		

EARTHQUAKES, 1933.



No.	Date 1933	P				S				L				Maximum Range of Motion			Duration of Total Earthquake (mean)	Intensity	Approximate Epicenter
		E	W	N	S	E	W	N	S	E	W	N	S	E	W	N			
		h	m	s	m	s	m	s	m	s	m	s	m	s	mm	mm	m		
655	Mar. 11	7	-	-	-	-	-	-	-	-	-	-	-	-	-	2.2	0		
656	11	10	-	-	e 28	19	-	-	-	-	-	-	-	0.00	-	3.2	0		
657	11	11	-	-	-	-	-	-	-	-	-	-	-	-	-	1.4	0		
658	11	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0		
659	11	e 11	52	33	-	-	e 52	58	-	-	-	-	-	0.00	-	2.5	0		
660	11	13	-	-	e 42	37	-	-	-	-	-	-	-	0.01	-	3.0	0		
661	11	14	-	-	e 00	47	-	-	-	-	-	-	-	-	-	1.9	0		
662	11	e 14	23	36	e 23	36	i 24	37	e 24	37	-	-	-	0.07	-	34.9	0	Aft. sk. of Mar. 2nd	
663	11	16	-	-	-	-	-	-	-	-	-	-	-	-	-	1.2	0		
664	11	16	-	-	e 47	43	-	-	-	-	-	-	-	-	-	1.8	0		
665	11	i 19	35	27	i 35	26	i 37	38	i 37	38	-	-	-	0.75	0.53	37.4	0	WNW off Titizima	
666	11	23	-	-	e 20	29	-	-	-	-	-	-	-	0.01	-	4.0	0		
667	11	23	-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	0		
668	12	0	-	-	e 38	39	-	-	-	-	-	-	-	-	-	2.4	0		
669	12	e 0	41	53	-	-	i 42	23	e 42	23	-	-	-	0.02	0.03	4.2	0	Aft. sk. of Mar. 2nd	
670	12	e 2	36	19	-	-	i 36	52	e 36	46	-	-	-	0.02	0.03	4.0	0		
671	12	e 3	27	52	-	-	e 28	29	-	-	-	-	-	0.02	-	4.3	0	"	
672	12	3	-	-	-	-	-	-	-	-	-	-	-	-	-	0.8	0		
673	12	4	-	-	e 38	44	-	-	-	-	-	-	-	0.01	-	2.9	0		
674	12	i 5	06	31	e 06	31	i 07	10	e 07	09	-	-	-	0.24	0.24	12.1	0	Aft. sk. of Mar. 2nd	
675	12	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0		
676	12	5	-	-	-	-	-	-	-	-	-	-	-	0.01	-	3.6	0		
677	12	e 5	54	28	-	-	e 55	01	-	-	-	-	-	0.00	-	3.3	0		
678	12	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0		
679	12	i 8	45	22	-	-	i 45	44	e 45	42	-	-	-	0.03	0.05	4.0	0	Aft. sk. of Mar. 2nd	
680	12	e 10	20	00	-	-	e 20	29	-	-	-	-	-	0.01	-	2.6	0		
681	12	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0		
682	12	13	-	-	e 43	42	-	-	-	-	-	-	-	-	-	1.5	0		
683	12	e 14	08	28	-	-	e 08	47	-	-	-	-	-	0.00	-	2.2	0		
684	12	16	-	-	e 19	17	-	-	-	-	-	-	-	-	-	0.7	0		
685	12	16	-	-	e 20	40	-	-	-	-	-	-	-	-	-	1.7	0		
686	12	17	-	-	e 45	51	-	-	-	-	-	-	-	-	-	2.2	0		
687	12	19	-	-	-	-	-	-	-	-	-	-	-	-	-	1.0	0		
688	12	22	-	-	e 27	02	-	-	-	-	-	-	-	-	-	2.1	0		
689	13	e 1	29	15	-	-	e 30	10	-	-	-	-	-	0.00	-	3.7	0		
690	13	2	-	-	e 48	38	-	-	-	-	-	-	-	-	-	1.5	0		
691	13	4	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	0		
692	13	6	-	-	e 56	22	-	-	-	-	-	-	-	0.01	-	2.1	0		
693	13	e 7	16	00	e 16	00	e 16	39	e 16	46	-	-	-	0.06	0.06	14.5	0	Kasimanada ?	
694	13	e 9	29	41	-	-	e 30	12	-	-	-	-	-	0.01	-	2.8	0		
695	13	12	-	-	-	-	-	-	-	-	-	-	-	-	-	1.3	0		
696	13	e 12	32	23	-	-	i 32	52	-	-	-	-	-	0.01	-	3.0	0		
697	13	e 12	38	51	-	-	i 39	20	-	-	-	-	-	0.02	-	4.1	0	Aft. sk. of Mar. 2nd	
698	13	i 15	57	49	e 57	52	i 58	19	i 58	19	-	-	-	0.05	0.06	7.3	0	"	
699	13	16	-	-	e 21	44	-	-	-	-	-	-	-	-	-	2.2	0		
700	13	e 16	57	28	-	-	e 57	59	-	-	-	-	-	0.01	-	4.3	0		
701	13	e 17	37	42	-	-	e 38	08	-	-	-	-	-	0.02	-	4.4	0	Aft. sk. of Mar. 2nd	
702	13	18	-	-	e 42	45	-	-	-	-	-	-	-	-	-	1.7	0		
703	13	i 21	03	59	-	-	i 04	25	e 04	12	-	-	-	0.04	0.04	5.0	0	Aft. sk. of Mar. 2nd	
704	13	23	-	-	e 18	37	-	-	-	-	-	-	-	-	-	1.9	0		
705	14	e 1	23	35	-	-	e 24	12	-	-	-	-	-	0.01	-	4.2	0		
706	14	e 4	04	13	-	-	e 04	47	-	-	-	-	-	-	-	3.3	0		
707	14	i 4	28	16	e 28	16	i 28	38	e 28	38	-	-	-	0.05	0.05	5.1	0	Aft. sk. of Mar. 2nd	
708	14	e 5	36	43	-	-	i 37	28	-	-	-	-	-	0.01	-	3.9	0		
709	14	e 7	18	52	-	-	e 19	23	-	-	-	-	-	-	-	3.3	0		

EARTHQUAKES, 1933.



Table with columns: No., Date 1933, P (E W N S), S (E W N S), L (E W N S), Maximum Range of Motion (E W N S), Duration of Total Earthquake (mean), Intensity, Approximate Epicenter. Rows include earthquake data from April 9 to April 23, 1933, with various magnitudes and epicenter locations.

EARTHQUAKES, 1933.

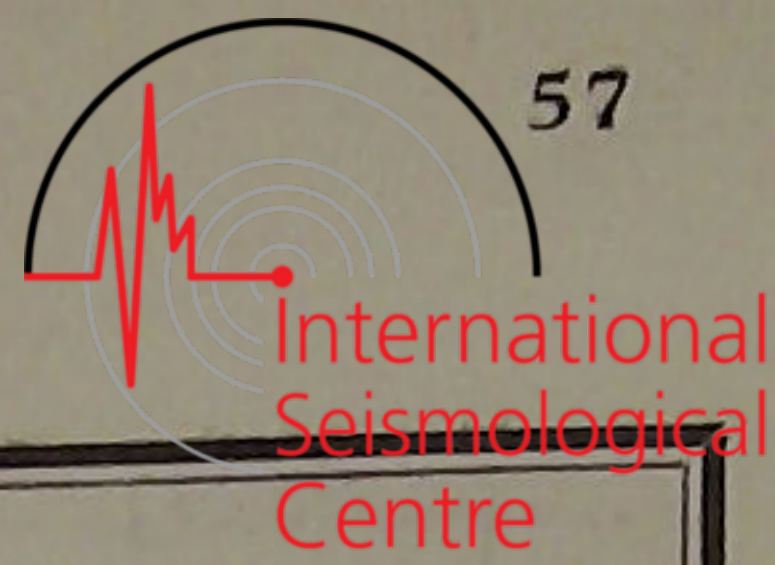
No.	Date 1933	P				S				L				Maximum Range of Mbtion				Duration of Total Earthquake (mean)	Intensity	Approximate Epicenter
		E	W	N	S	E	W	N	S	E	W	N	S	E	W	N	S			
1095	June 13	h	m	s	m	s	m	s	m	s	m	s	m	s	mm	mm	m	0	E off mouth of the R. Mabuti	
1096	13	10	-	-	-	-	e 48	51	-	-	-	-	-	-	-	1.4	0			
1097	13	e 11	34	24	-	-	e 34	54	-	-	-	-	-	0.01	-	4.9	0			
1098	13	e 12	58	19	-	-	e 58	41	e 58	48	-	-	-	0.01	0.02	4.4	0			
1099	13	e 14	41	04	-	-	e 41	45	-	-	-	-	-	0.01	-	5.5	0			
		i 20	34	20	i 34	19	i 34	48	i 34	48	-	-	-	⊕	1.82	19.6	2			
1100	15	e 2	46	57	-	-	e 47	48	-	-	-	-	-	0.00	-	4.2	0	E off mouth of the R. Mabuti		
1101	15	7	-	-	-	-	e 02	43	-	-	-	-	-	0.01	-	3.7	0			
1102	16	e 12	26	01	-	-	i 26	30	e 26	31	-	-	-	0.01	0.02	5.0	0			
1103	17	i 14	02	38	e 02	38	i 03	07	e 03	07	-	-	-	0.14	0.10	8.4	0			
1104	18	10	-	-	-	-	-	-	-	-	-	-	-	0.00	-	2.4	0			
1105	18	e 13	13	31	-	-	i 15	12	e 15	12	-	-	-	0.02	0.02	13.8	0	E off Kinkwasan		
1106	18	e 19	41	44	-	-	e 42	17	-	-	-	-	-	0.01	-	4.6	0			
1107	18	i 21	37	58	i 37	58	⊕	-	⊕	-	-	-	-	⊕	⊕	75.5	4			
1108	18	22	-	-	-	-	-	-	-	-	-	-	-	-	-	0.6	0			
1109	18	e 22	28	07	-	-	e 28	19	-	-	-	-	-	0.01	-	2.3	0			
1110	18	22	-	-	-	-	e 53	52	-	-	-	-	-	0.01	-	2.2	0			
1111	19	0	-	-	-	-	-	-	-	-	-	-	-	-	-	0.6	0			
1112	19	e 0	24	30	-	-	e 24	41	e 24	43	-	-	-	0.01	-	2.5	0			
1113	19	e 1	02	06	-	-	e 02	19	-	-	-	-	-	-	-	1.3	0			
1114	19	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	0			
1115	19	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1.2	0	E off Kinkwasan		
1116	19	2	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	0			
1117	19	e 3	06	01	-	-	e 06	14	-	-	-	-	-	0.01	-	2.4	0			
1118	19	i 6	18	22	e 18	22	i 18	36	i 18	36	-	-	-	0.06	0.03	5.1	1			
1119	19	e 7	13	57	e 13	57	i 14	13	e 14	11	-	-	-	0.01	0.01	3.2	0			
1120	19	8	-	-	-	-	e 51	51	-	-	-	-	-	0.01	-	2.6	0			
1121	19	e 11	08	54	-	-	e 09	19	-	-	-	-	-	0.01	-	3.7	0			
1122	19	e 12	40	26	-	-	i 40	47	-	-	-	-	-	0.01	-	2.8	0			
1123	19	i 14	10	36	-	-	i 10	50	e 10	50	-	-	-	0.01	-	3.1	0			
1124	19	18	-	-	-	-	e 28	15	-	-	-	-	-	-	-	1.0	0			
1125	19	18	-	-	-	-	-	-	-	-	-	-	-	-	-	1.0	0			
1126	20	0	-	-	-	-	-	-	-	-	-	-	-	0.00	-	1.7	0			
1127	20	e 14	58	54	-	-	i 59	27	e 59	29	-	-	-	0.01	0.02	4.3	0			
1128	20	23	-	-	-	-	e 56	39	-	-	-	-	-	0.00	-	2.1	0			
1129	21	0	-	-	-	-	-	-	-	-	-	-	-	-	-	0.8	0			
1130	21	13	-	-	-	-	e 51	21	-	-	-	-	-	0.00	-	2.4	0			
1131	21	e 13	57	43	-	-	i 57	56	-	-	-	-	-	0.00	-	1.6	0			
1132	21	e 19	35	23	-	-	i 35	51	e 35	52	-	-	-	0.01	0.02	3.2	0			
1133	21	19	-	-	-	-	e 39	01	-	-	-	-	-	0.01	0.01	2.5	0			
1134	21	23	-	-	-	-	-	-	-	-	-	-	-	0.00	-	1.4	0			
1135	23	i 2	59	29	e 59	32	i 59	54	e 59	56	-	-	-	0.04	0.05	5.2	0	E off Miyako ESE off Kinkwasan		
1136	23	i 3	27	11	e 27	10	i 27	33	i 27	32	-	-	-	0.04	0.04	5.7	0			
1137	23	e 13	24	51	-	-	i 25	10	e 25	10	-	-	-	0.02	0.02	5.0	0			
1138	23	23	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	0			
1139	24	7	-	-	-	-	e 24	17	-	-	-	-	-	0.00	-	2.8	0			
1140	24	8	-	-	-	-	e 54	13	-	-	-	-	-	0.01	-	2.9	0	Distant ESE off Miyako		
1141	24	e 22	04	24	e 04	24	e 12	31	e 12	45	19	57	20	32	-	-	74.3		0	
1142	25	e 1	48	32	e 48	32	i 48	58	i 48	58	-	-	-	0.05	0.05	4.7	0			
1143	25	7	-	-	-	-	e 59	33	-	-	-	-	-	0.00	-	2.8	0			
1144	26	e 0	47	41	e 47	45	i 48	04	e 48	06	-	-	-	0.03	0.04	4.8	0			
1145	27	1	-	-	-	-	e 35	01	-	-	-	-	-	0.00	-	1.3	0			
1146	27	1	-	-	-	-	e 36	42	-	-	-	-	-	0.01	-	2.4	0			
1147	27	e 7	32	37	-	-	e 33	09	-	-	-	-	-	0.00	-	3.3	0			
1148	27	15	-	-	-	-	e 20	20	-	-	-	-	-	0.02	0.02	1.8	0			
1149	28	i 6	21	20	e 21	20	i 21	40	i 21	38	-	-	-	0.09	0.06	7.5	0			

EARTHQUAKES, 1933.



No.	Date 1933	P				S				L				Maximum Range of Motion				Duration of Total Earthquake (mean)	Intensity	Approximate Epicenter
		E	W	N	S	E	W	N	S	E	W	N	S	E	W	N	S			
1150	June 30	h	m	s	m	s	m	s	m	s	m	s	m	s	mm	mm	m	0		
		6			-	-	-	-	-	-	-	-	-	-	-	-	0.6	0		
1151	30	17			-	-	e 09	18	-	-	-	-	-	-	-	-	2.3	0		
1152	30	18			-	-	e 47	55	-	-	-	-	-	-	-	-	1.9	0		
1153	July 1	0			-	-	e 05	25	-	-	-	-	-	-	-	-	1.6	0		
1154	1	7			-	-	e 07	31	-	-	-	-	-	0.00	-	-	11.2	0		
1155	1	14			-	-	e 53	52	-	-	-	-	-	0.00	-	-	2.3	0		
1156	2	0			-	-	e 56	34	-	-	-	-	-	0.00	-	-	2.0	0		
1157	2	e 3	22	27	-	-	e 22	57	-	-	-	-	-	0.01	-	-	3.3	0		
1158	2	10			-	-	-	-	-	-	-	-	-	-	-	-	1.3	0		
1159	2	12			-	-	e 20	19	-	-	-	-	-	-	-	-	1.4	0		
1160	2	16			-	-	e 20	54	-	-	-	-	-	0.00	-	-	3.2	0		
1161	2	i 16	48	42	i 48	42	i 49	03	i 49	03	-	-	-	0.19	0.25	-	9.7	0	NE off Miyako	
1162	2	e 18	43	35	-	-	i 43	55	-	-	-	-	-	0.01	-	-	2.7	0		
1163	2	e 19	31	24	-	-	e 31	44	-	-	-	-	-	0.00	-	-	2.6	0		
1164	3	e 0	47	14	e 47	12	i 47	32	e 47	32	-	-	-	0.02	0.01	-	3.8	0		
1165	3	e 19	28	24	-	-	i 28	44	e 28	44	-	-	-	0.02	0.02	-	3.9	0		
1166	4	e 20	34	47	-	-	i 35	06	-	-	-	-	-	0.01	-	-	3.1	0		
1167	5	15			-	-	e 47	57	-	-	-	-	-	0.00	-	-	2.6	0		
1168	5	19			-	-	e 20	42	-	-	-	-	-	0.01	-	-	3.3	0		
1169	6	e 2	00	33	-	-	i 01	12	e 01	13	-	-	-	0.02	0.02	-	5.2	0		
1170	6	13			-	-	e 52	52	-	-	-	-	-	0.00	-	-	2.4	0		
1171	6	i 14	25	29	e 25	29	i 25	57	e 25	57	-	-	-	0.06	0.06	-	5.3	0	NE off Miyako	
1172	6	20			-	-	-	-	-	-	-	-	-	-	-	-	1.7	0		
1173	7	e 3	48	12	-	-	i 48	31	e 48	30	-	-	-	0.01	-	-	2.8	0		
1174	7	e 4	16	41	-	-	i 16	58	e 16	58	-	-	-	0.02	-	-	2.6	0		
1175	7	e 4	19	26	-	-	i 19	45	e 19	46	-	-	-	0.01	-	-	2.5	0		
1176	7	e 11	55	13	-	-	i 56	11	e 56	11	-	-	-	0.01	0.01	-	3.6	0		
1177	7	e 14	16	25	-	-	i 17	32	e 17	32	-	-	-	0.01	0.02	-	3.8	0		
1178	8	3			-	-	e 00	54	-	-	-	-	-	0.00	-	-	3.5	0		
1179	8	3			-	-	-	-	-	-	-	-	-	-	-	-	1.1	0		
1180	8	6			-	-	-	-	-	-	-	-	-	-	-	-	1.8	0		
1181	8	7			-	-	e 29	27	-	-	-	-	-	0.01	-	-	1.2	0		
1182	8	e 7	58	40	-	-	e 59	31	e 59	30	-	-	-	0.01	0.02	-	5.6	0		
1183	9	e 1	32	08	i 32	09	i 33	41	i 33	40	-	-	-	0.13	0.05	-	32.0	0	SE far off Etoroff	
1184	9	1			-	-	e 43	26	-	-	-	-	-	0.00	-	-	2.8	0		
1185	9	2			-	-	e 10	05	-	-	-	-	-	0.00	-	-	3.0	0		
1186	9	3			-	-	e 15	47	-	-	-	-	-	0.00	-	-	1.5	0		
1187	9	e 4	29	03	-	-	i 29	34	e 29	32	-	-	-	0.01	0.01	-	3.9	0		
1188	9	e 9	01	05	-	-	i 02	28	e 02	29	-	-	-	0.01	0.02	-	6.1	0		
1189	9	9			-	-	-	-	-	-	-	-	-	-	-	-	1.9	0		
1190	9	e 9	30	04	e 30	05	i 31	30	e 31	34	-	-	-	0.04	0.05	-	29.2	0	SE off Etoroff	
1191	9	e 9	50	20	e 50	21	i 51	44	e 51	46	-	-	-	0.06	0.06	-		0	SE off Etoroff	
1192	9	9			e 56	44	e 58	23	e 58	24	-	-	-	0.01	0.03	-	12.6	0		
1193	9	10			-	-	-	-	-	-	-	-	-	-	-	-	1.6	0		
1194	9	e 11	23	45	-	-	i 25	14	e 25	15	-	-	-	0.02	0.03	-	9.6	0		
1195	9	11			-	-	e 37	08	-	-	-	-	-	0.00	-	-	3.6	0		
1196	9	e 12	32	45	e 32	45	i 34	27	i 34	28	-	-	-	1.10	1.32	-	55.4	0	SE off Etoroff	
1197	9	13			-	-	-	-	-	-	-	-	-	-	-	-	1.2	0		
1198	9	e 13	29	37	-	-	i 31	09	e 31	08	-	-	-	0.01	0.02	-	12.7	0		
1199	9	14			-	-	e 02	42	-	-	-	-	-	0.00	-	-	4.0	0		
1200	9	14			-	-	e 10	31	-	-	-	-	-	0.00	-	-	4.3	0		
1201	9	14			-	-	-	-	-	-	-	-	-	-	-	-	1.4	0		
1202	9	e 16	09	10	e 09	09	i 10	44	e 10	43	-	-	-	0.02	0.02	-	16.5	0	E off Nasyappuzaki	
1203	9	e 17	53	50	-	-	i 55	14	e 55	16	-	-	-	0.02	0.02	-	11.3	0		
1204	9	e 19	21	02	-	-	i 22	28	e 22	34	-	-	-	0.01	0.02	-	26.8	0		

EARTHQUAKES, 1933.



No.	Date 1933	P				S				L				Maximum Range of Motion			Duration of Total Earthquake (mean)	Intensity	Approximate Epicenter
		E	W	N	S	E	W	N	S	E	W	N	S	E	W	N			
1260	July 18	h 19	m 40	s 43	m -	s -	e 11	m 29	e 11	m 19	-	-	-	-	0.01	-	4.5	0	
1261	19	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.1	0	
1262	19	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	0	
1263	19	15	-	-	-	-	e 06	m 35	-	-	-	-	-	0.01	-	-	8.4	0	
1264	19	20	-	-	-	-	e 00	m 30	-	-	-	-	-	-	-	-	2.0	0	
1265	19	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.6	0	
1266	20	16	-	-	-	-	e 58	m 57	-	-	-	-	-	0.00	-	-	2.8	0	
1267	20	i 23	14	47	i 14	47	i 15	18	i 15	18	-	-	-	0.57	0.60	17.8	1	E off Kinkwasan	
1268	21	4	-	-	-	-	e 10	m 59	-	-	-	-	-	-	-	-	2.2	0	
1269	22	i 6	32	13	e 32	13	i 32	51	i 32	50	-	-	-	0.05	0.08	7.6	0	E off Miyako	
1270	22	e 8	40	43	-	-	i 41	13	i 41	13	-	-	-	0.02	0.04	4.1	0		
1271	22	i 21	32	26	? 32	20	? 38	04	? 38	02	? 42	01	? 40	44	-	-	42.5	0	
1272	23	* 5	01	08	* 01	24	* 01	42	* 01	54	-	-	-	0.01	0.02	4.4	0		
1273	23	* 8	12	47	-	-	* 13	13	-	-	-	-	-	-	-	-	2.0	0	
1274	24	i 8	39	56	e 39	56	i 41	23	? 41	23	-	-	-	0.01	-	6.2	0	S off Vladivostok	
1275	24	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.4	0	
1276	24	e 19	16	01	e 15	51	e 22	16	e 22	36	? 28	00	? 27	19	-	-	23.5	0	
1277	24	23	-	-	-	-	e 20	10	-	-	-	-	-	-	-	-	2.1	0	
1278	26	e 18	46	55	-	-	e 47	25	e 47	28	-	-	-	0.01	-	-	5.6	0	
1279	27	e 18	49	25	-	-	e 50	12	-	-	-	-	-	0.01	-	-	5.4	0	
1280	27	19	-	-	-	-	e 07	54	-	-	-	-	-	0.00	-	-	2.1	0	
1281	28	e 16	45	16	? 45	04	i 47	15	e 47	13	-	-	-	0.03	0.02	7.4	0	Neighbourhood of Kii-Suido	
1282	28	e 20	08	37	-	-	e 09	36	-	-	-	-	-	0.01	-	-	4.9	0	
1283	29	21	-	-	-	-	e 41	27	-	-	-	-	-	-	-	-	1.8	0	
1284	30	e 0	49	49	-	-	i 50	16	e 50	17	-	-	-	0.01	0.02	4.4	0		
1285	30	17	-	-	-	-	e 25	22	-	-	-	-	-	-	-	-	3.2	0	
1286	30	e 17	33	08	-	-	e 34	02	-	-	-	-	-	-	-	-	4.1	0	
1287	30	e 17	39	35	-	-	i 40	26	e 40	27	-	-	-	0.02	0.03	4.7	0		
1288	31	3	-	-	-	-	e 00	45	e 00	47	-	-	-	0.01	-	-	3.2	0	
1289	31	e 9	04	08	-	-	e 04	53	-	-	-	-	-	0.00	-	-	4.6	0	
1290	Aug. 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.7	0	
1291	1	i 12	48	57	e 48	57	i 49	05	e 49	05	-	-	-	0.02	0.02	2.7	0		
1292	2	0	-	-	-	-	e 39	43	-	-	-	-	-	-	-	-	2.4	0	
1293	2	7	-	-	-	-	e 48	23	-	-	-	-	-	0.00	-	-	2.2	0	
1294	2	i 12	19	34	i 19	34	i 19	47	i 19	48	-	-	-	0.24	0.25	6.3	1	Upper valley of the R. Kuzi	
1295	2	20	-	-	-	-	e 47	05	-	-	-	-	-	-	-	-	2.8	0	
1296	2	22	-	-	-	-	e 42	43	-	-	-	-	-	0.01	-	-	3.0	0	
1297	3	20	-	-	-	-	e 36	01	-	-	-	-	-	-	-	-	2.9	0	
1298	3	e 22	10	04	-	-	i 10	20	e 10	21	-	-	-	0.01	-	-	3.6	0	
1299	5	18	-	-	-	-	e 25	01	-	-	-	-	-	0.01	-	-	1.1	0	
1300	6	6	-	-	-	-	e 42	05	-	-	-	-	-	-	-	-	1.4	0	
1301	6	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.6	0	
1302	6	20	-	-	-	-	e 35	26	-	-	-	-	-	0.01	-	-	1.7	0	
1303	6	20	-	-	-	-	e 46	02	-	-	-	-	-	0.01	0.02	3.8	0		
1304	7	i 0	42	35	e 42	35	i 43	06	i 43	06	-	-	-	0.24	0.28	10.0	1	E off Kamaisi	
1305	7	e 11	10	07	-	-	i 10	39	e 10	40	-	-	-	0.03	0.04	6.0	0	Lower part of the R. Niikappu	
1306	7	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	0	
1307	7	19	-	-	-	-	e 17	51	-	-	-	-	-	-	-	-	3.0	0	
1308	8	e 6	03	00	-	-	i 03	35	e 03	33	-	-	-	0.02	-	-	4.1	0	
1309	9	e 4	31	56	-	-	e 32	27	e 32	26	-	-	-	0.01	0.01	3.6	0		
1310	10	e 23	01	38	-	-	e 01	49	e 01	47	-	-	-	0.01	-	-	3.2	0	
1311	11	e 9	01	22	e 01	14	? 07	41	? 08	57	? 13	26	? 13	31	-	-	23.8	0	
1312	11	e 14	05	40	-	-	e 05	52	-	-	-	-	-	-	-	-	1.7	0	
1313	12	12	-	-	-	-	e 47	14	e 47	14	-	-	-	0.01	-	-	2.7	0	
1314	12	22	-	-	-	-	e 03	03	-	-	-	-	-	0.00	-	-	2.6	0	

EARTHQUAKES, 1933.



No.	Date 1933	P				S				L				Maximum Range of Motion			Duration of Total Earthquake (mean)	Intensity	Approximate Epicenter
		E	W	N	S	E	W	N	S	E	W	N	S	E	W	N			
1315	Aug. 12	h	m	s	m	s	m	s	m	s	m	s	m	s	mm	mm	m	0	
		23			-	-	i 09	17	e 09	18	-	-	-	-	0.02	0.02	4.0	0	
1316	13	7			-	-	e 54	31	-	-	-	-	-	0.00	-	2.5	0		
1317	13	e 19	26	05	-	-	i 26	32	e 26	32	-	-	-	0.01	-	3.3	0		
1318	14	e 6	32	30	-	-	e 32	58	-	-	-	-	-	0.01	-	2.7	0		
1319	14	22			-	-	e 32	19	-	-	-	-	-	0.01	-	2.2	0		
1320	15	i 3	00	22	i 00	21	i 02	09	i 02	09	-	-	-	0.13	0.10	9.2	0	NNE off Titizima	
1321	15	e 20	43	37	-	-	e 44	03	-	-	-	-	-	0.00	-	3.0	0		
1322	18	e 4	35	53	-	-	e 36	20	-	-	-	-	-	0.01	-	3.0	0		
1323	19	e 15	58	23	-	-	i 58	54	e 58	49	-	-	-	0.01	0.02	4.8	0		
1324	20	? 11	51	00	? 51	19	? 61	42	? 61	16	-	-	-	-	-	20.5	0	Distant	
1325	20	12			-	-	e 12	16	-	-	-	-	-	-	-	3.0	0		
1326	23	6			-	-	e 46	07	-	-	-	-	-	0.00	-	2.6	0		
1327	23	11			-	-	e 37	10	-	-	-	-	-	-	-	2.2	0		
1328	23	e 23	06	01	-	-	e 06	27	-	-	-	-	-	0.00	-	3.3	0		
1329	24	e 16	36	45	-	-	i 37	27	-	-	-	-	-	0.01	-	3.7	0		
1330	25	e 7	56	49	e 56	54	i 61	39	e 61	50	65	00	65	0.93	2.25	63.8	0	Upper part of Kôga	
1331	26	e 5	21	29	-	-	i 22	25	e 22	28	-	-	-	0.01	0.01	5.5	0		
1332	26	e 17	56	54	-	-	e 57	24	-	-	-	-	-	0.00	-	2.9	0		
1333	28	e 8	49	04	e 49	04	i 50	09	e 50	09	-	-	-	0.03	0.03	5.4	0		
1334	28	12			-	-	e 23	53	-	-	-	-	-	-	-	1.9	0		
1335	28	e 22	39	50	e 40	06	? 44	08	? 44	07	? 47	42	? 47	-	-	95.1	0	Distant	
1336	29	12	31	49	i 31	49	32	08	i 32	09	-	-	-	0.41	0.55	10.7	1	SE off mouth of the R. Abukuma	
1337	29	e 20	27	18	-	-	27	35	-	-	-	-	-	-	-	1.8	0		
1338	30	8			-	-	-	-	-	-	-	-	-	-	-	2.1	0		
1339	30	e 16	41	59	-	-	e 42	26	-	-	-	-	-	0.01	-	3.2	0		
1340	Sept. 31	e 7	55	19	-	-	e 55	58	-	-	-	-	-	0.01	-	3.7	0		
1341	1	5			-	-	e 11	01	-	-	-	-	-	0.00	-	2.1	0		
1342	1	19			-	-	e 29	46	-	-	-	-	-	-	-	1.5	0		
1343	1	20			-	-	-	-	-	-	-	-	-	-	-	1.3	0		
1344	1	23			-	-	e 19	23	-	-	-	-	-	-	-	1.6	0		
1345	2	e 0	07	07	-	-	e 07	48	-	-	-	-	-	0.01	-	4.2	0		
1346	2	e 1	27	52	-	-	i 28	28	e 28	34	-	-	-	0.02	0.01	5.0	0		
1347	2	2			-	-	e 51	33	-	-	-	-	-	0.01	-	3.1	0		
1348	2	4			-	-	-	-	-	-	-	-	-	-	-	1.4	0		
1349	2	7			-	-	-	-	-	-	-	-	-	-	-	1.5	0		
1350	2	8			-	-	-	-	-	-	-	-	-	-	-	2.9	0		
1351	2	i 16	43	26	i 43	26	i 45	04	i 45	06	-	-	-	1.16	1.08	29.7	0	S off Hatizyozima (deep)	
1352	2	e 21	15	45	-	-	i 17	13	e 17	13	-	-	-	0.02	0.02	7.6	0		
1353	3	2			-	-	-	-	-	-	-	-	-	-	-	2.2	0		
1354	3	3			-	-	e 53	38	-	-	-	-	-	0.00	-	3.6	0		
1355	3	12			-	-	-	-	-	-	-	-	-	-	-	1.8	0		
1356	4	e 4	06	51	-	-	i 07	20	-	-	-	-	-	0.01	-	3.0	0		
1357	4	e 19	59	58	-	-	e 59	36	-	-	-	-	-	0.01	-	2.8	0		
1358	4	e 23	06	37	-	-	i 07	38	-	-	-	-	-	0.02	-	5.5	0		
1359	5	e 4	49	50	-	-	e 50	16	-	-	-	-	-	0.01	-	3.4	0		
1360	5	e 7	45	50	-	-	i 46	10	-	-	-	-	-	0.02	-	3.2	0		
1361	5	e 18	28	40	-	-	e 29	04	-	-	-	-	-	0.01	-	2.9	0		
1362	6	e 7	49	46	-	-	i 50	01	e 50	01	-	-	-	0.03	-	3.0	0	Mouth of the R. Uke (Iwate)	
1363	6	e 9	59	57	-	-	i 61	25	-	-	-	-	-	0.02	-	5.0	0		
1364	6	14			-	-	e 07	38	-	-	-	-	-	0.01	-	3.0	0		
1365	6	i 22	18	53	e 18	52	i 27	22	e 27	02	? 32	10	? 31	-	-	33.4	0	Direction of Figi Is.	
1366	7	9			-	-	e 40	21	-	-	-	-	-	0.01	-	2.6	0		
1367	7	14			-	-	e 20	16	-	-	-	-	-	-	-	2.1	0		
1368	7	i 20	14	54	e 14	54	i 15	07	i 15	07	-	-	-	-	-	4.2	0	Yuda (Iwate)	
1369	8	2			-	-	e 33	18	-	-	-	-	-	0.00	-	3.2	0		

EARTHQUAKES, 1933.



No.	Date 1933	P				S				L				Maximum Range of Motion			Duration of Total Earthquake (mean)	Intensity	Approximate Epicenter				
		E	W	N	S	E	W	N	S	E	W	N	S	E	W	N				S			
1425	Sept. 30	h	m	s	m	s	m	s	m	s	m	s	?	40	42	?	40	02	mm	mm	m	0	Kasimanada
1426	30	? 14	28	52	? 28	50	? 34	54	? 35	02	? 40	42	?	40	02	?	40	02	0.01	0.02	29.2	0	
1427	Oct. 1	e 15	45	00	-	-	i 45	21	e 45	18	-	-	-	-	-	-	-	-	0.00	-	4.5	0	
1428	1	2	-	-	-	-	e 23	24	-	-	-	-	-	-	-	-	-	-	0.00	-	3.1	0	
1429	1	e 3	01	38	e 01	41	i 02	03	e 02	05	-	-	-	-	-	-	-	-	0.02	-	4.8	0	
1430	2	e 14	36	04	e 35	59	i 36	34	i 36	32	-	-	-	-	-	-	-	-	0.14	0.17	9.8	0	
1431	2	2	-	-	-	-	e 34	52	-	-	-	-	-	-	-	-	-	-	-	-	2.1	0	
1432	2	e 3	34	09	-	-	e 34	43	e 34	46	-	-	-	-	-	-	-	-	0.01	0.01	5.0	0	
1433	3	e 11	39	26	-	-	i 39	52	e 39	55	-	-	-	-	-	-	-	-	0.01	0.01	4.4	0	
1434	4	8	-	-	-	-	e 05	28	-	-	-	-	-	-	-	-	-	-	0.00	-	3.0	0	
1435	4	i 18	39	35	i 39	35	i 40	11	i 40	12	-	-	-	-	-	-	-	-	0.56	0.65	18.7	0	
1436	4	e 19	28	21	-	-	i 29	18	-	-	-	-	-	-	-	-	-	-	0.01	-	2.7	0	
1437	5	7	-	-	-	-	e 26	14	-	-	-	-	-	-	-	-	-	-	0.00	-	3.3	0	
1438	5	? 13	40	35	? 40	39	? 48	52	? 47	56	-	-	-	-	-	-	-	-	-	-	2.2	0	
1439	6	e 17	26	22	e 26	22	i 26	52	i 26	52	-	-	-	-	-	-	-	-	0.06	0.06	49.6	0	
1440	7	e 7	42	18	-	-	e 42	41	-	-	-	-	-	-	-	-	-	-	0.01	-	5.7	0	
1441	7	e 8	16	13	-	-	e 16	39	-	-	-	-	-	-	-	-	-	-	0.01	-	2.7	0	
1442	8	e 12	38	52	-	-	e 39	22	-	-	-	-	-	-	-	-	-	-	0.01	-	4.6	0	
1443	9	e 12	07	35	e 07	42	i 08	37	e 08	35	-	-	-	-	-	-	-	-	0.03	0.05	3.5	0	
1444	11	i 13	58	00	i 58	00	i 58	14	i 58	14	-	-	-	-	-	-	-	-	0.34	0.31	4.9	0	
1445	12	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.8	0	
1446	12	21	-	-	-	-	e 23	43	-	-	-	-	-	-	-	-	-	-	-	-	10.7	1	
1447	12	21	-	-	-	-	e 38	17	-	-	-	-	-	-	-	-	-	-	0.01	-	4.6	0	
1448	12	e 22	09	47	-	-	e 10	24	-	-	-	-	-	-	-	-	-	-	0.00	-	3.7	0	
1449	13	e 18	40	55	-	-	e 41	23	e 41	22	-	-	-	-	-	-	-	-	0.00	-	3.7	0	
1450	14	e 10	57	48	-	-	e 58	24	-	-	-	-	-	-	-	-	-	-	0.00	-	3.0	0	
1451	14	12	-	-	-	-	i 52	50	e 52	52	-	-	-	-	-	-	-	-	0.01	-	3.0	0	
1452	15	e 8	13	17	-	-	i 13	36	e 13	37	-	-	-	-	-	-	-	-	0.01	-	4.1	0	
1453	15	8	-	-	-	-	e 29	36	-	-	-	-	-	-	-	-	-	-	0.00	-	3.1	0	
1454	15	11	-	-	-	-	e 54	08	-	-	-	-	-	-	-	-	-	-	-	-	0.9	0	
1455	15	e 14	26	09	-	-	i 26	20	-	-	-	-	-	-	-	-	-	-	0.01	-	1.3	0	
1456	16	i 4	42	13	e 42	13	i 42	58	i 42	58	-	-	-	-	-	-	-	-	0.07	0.06	5.8	0	
1457	16	22	-	-	-	-	e 01	27	-	-	-	-	-	-	-	-	-	-	0.01	-	2.0	0	
1458	18	i 10	32	06	e 32	05	i 32	30	i 32	30	-	-	-	-	-	-	-	-	0.04	0.05	5.7	0	
1459	19	e 16	25	28	-	-	i 25	43	-	-	-	-	-	-	-	-	-	-	0.01	-	1.7	0	
1460	19	e 23	06	40	-	-	i 06	54	e 06	55	-	-	-	-	-	-	-	-	0.04	0.05	3.1	0	
1461	21	e 2	46	40	e 46	11	i 47	13	e 47	09	-	-	-	-	-	-	-	-	0.13	0.25	16.1	0	
1462	21	18	-	-	-	-	e 32	52	-	-	-	-	-	-	-	-	-	-	0.01	-	1.8	0	
1493	22	e 19	36	09	-	-	i 36	20	-	-	-	-	-	-	-	-	-	-	0.03	-	2.0	0	
1464	23	i 0	42	09	i 42	09	i 42	37	i 42	35	-	-	-	-	-	-	-	-	0.16	0.21	9.2	0	
1465	24	e 18	15	59	-	-	e 16	39	-	-	-	-	-	-	-	-	-	-	0.01	-	4.5	0	
1466	25	e 23	47	47	e 47	45	i 48	35	e 48	28	-	-	-	-	-	-	-	-	0.01	0.01	5.8	0	
1467	26	8	-	-	-	-	e 08	11	-	-	-	-	-	-	-	-	-	-	-	-	2.1	0	
1468	30	7	-	-	-	-	e 10	11	-	-	-	-	-	-	-	-	-	-	0.01	-	2.1	0	
1469	30	e 18	24	56	-	-	i 25	22	-	-	-	-	-	-	-	-	-	-	0.01	-	2.5	0	
1470	Nov. 1	e 8	22	50	e 22	48	i 23	35	e 23	33	-	-	-	-	-	-	-	-	0.05	0.06	9.9	0	
1471	1	11	-	-	-	-	e 45	23	-	-	-	-	-	-	-	-	-	-	0.01	-	2.2	0	
1472	3	e 10	09	09	-	-	i 09	34	e 09	31	-	-	-	-	-	-	-	-	0.01	0.02	4.4	0	
1473	5	e 3	12	25	-	-	e 12	55	-	-	-	-	-	-	-	-	-	-	0.01	-	2.8	0	
1474	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.6	0	
1475	5	10	-	-	-	-	e 18	52	-	-	-	-	-	-	-	-	-	-	0.00	-	2.0	0	
1476	5	17	-	-	-	-	e 19	49	-	-	-	-	-	-	-	-	-	-	0.00	-	2.4	0	
1477	7	6	-	-	-	-	e 44	46	-	-	-	-	-	-	-	-	-	-	0.01	-	3.6	0	
1478	7	e 17	00	34	-	-	e 01	10	e 01	15	-	-	-	-	-	-	-	-	0.02	0.02	5.1	0	
1479	8	i 5	44	41	e 44	40	i 45	08	i 45	06	-	-	-	-	-	-	-	-	0.12	0.10	6.6	0	

EARTHQUAKES, 1933.



No.	Date 1933	P				S				L				Maximum Range of Motion		Duration of Total Earthquake (mean)	Intensity	Approximate Epicenter	
		E	W	N	S	E	W	N	S	E	W	N	S	E	W				N
1480	Nov. 9	h	m	s	m	s	m	s	m	s	m	s	m	s	mm	mm	m	0	
1481	10	3			-	-	e 43	06	-	-	-	-	-	-	0.00	-	2.9	0	
1482	10	2			-	-	i 13	48	-	-	-	-	-	-	0.01	-	1.3	0	
1483	10	4			-	-	e 59	22	-	-	-	-	-	-	0.01	-	4.5	0	
1484	10	5			-	-	e 45	07	-	-	-	-	-	-	0.00	0.02	3.3	0	
1485	10	12			-	-	e 04	53	-	-	-	-	-	-	-	-	3.0	0	
1486	10	19			-	-	e 35	16	-	-	-	-	-	-	0.01	-	3.2	0	
1487	11	e 14	46	43	-	-	i 47	13	e 47	03	-	-	-	-	0.01	0.03	4.4	0	
1488	14	e 0	26	54	-	-	e 27	57	-	-	-	-	-	-	0.00	-	5.0	0	
1489	14	14			-	-	e 25	15	-	-	-	-	-	-	0.00	-	3.4	0	
1490	19	1			-	-	e 36	30	-	-	-	-	-	-	0.00	-	1.7	0	
1491	19	e 3	21	03	e 21	30	? 29	30	? 29	49	? 37	29	? 36	49	-	0.03	53.8	0	
1492	20	e 8	33	02	e 32	56	i 33	31	i 33	29	-	-	-	-	0.06	0.05	5.7	0	ESE off Siriyazaki
1493	20	i 23	32	24	i 32	22	i 41	06	e 41	04	? 54	14	? 50	31	0.05	0.25	103.3	0	SW of Green-Land
1494	21	1			-	-	e 29	28	-	-	-	-	-	-	-	-	2.1	0	
1495	21	e 15	27	40	-	-	i 28	08	-	-	-	-	-	-	0.01	-	2.4	0	
1496	21	e 18	43	48	-	-	i 44	13	e 44	11	-	-	-	-	0.02	0.02	4.5	0	
1497	22	e 12	50	44	e 50	37	? 56	12	? 56	32	? 60	36	? 61	22	-	0.06	54.3	0	
1498	22	? 22	35	30	? 35	27	? 38	14	? 38	09	-	-	-	-	0.01	-	4.4	0	
1499	27	e 7	50	44	-	-	i 51	23	e 51	22	-	-	-	-	0.03	0.03	6.1	0	
1500	27	i 19	14	55	i 14	55	i 15	15	i 15	15	-	-	-	-	0.54	0.97	11.3	1	E off Miyako
1501	28	e 11	19	42	-	-	e 20	31	-	-	-	-	-	-	0.01	-	4.6	0	
1502	Dec. 2	8			-	-	e 48	49	-	-	-	-	-	-	0.01	0.01	4.2	0	
1503	3	2			-	-	e 56	25	-	-	-	-	-	-	0.01	-	3.0	0	
1504	3	17			-	-	e 27	53	-	-	-	-	-	-	-	-	2.0	0	
1505	3	19			-	-	e 29	45	-	-	-	-	-	-	0.00	-	2.3	0	
1506	4	i 19	35	45	i 35	47	i 37	11	i 37	13	-	-	-	-	0.51	0.57	20.8	0	E off the Strait of Sôya
1507	6	e 19	21	17	e 21	18	i 21	40	i 21	42	-	-	-	-	0.05	0.05	7.8	0	
1508	7	1			-	-	e 57	41	-	-	-	-	-	-	0.00	-	2.0	0	
1509	7	e 3	54	02	-	-	e 54	33	-	-	-	-	-	-	-	-	2.4	0	
1510	7	e 18	36	30	e 36	28	i 37	19	e 37	16	-	-	-	-	0.03	0.03	8.1	0	NE of Izu peninsula
1511	8	4			-	-	e 16	54	-	-	-	-	-	-	0.00	-	3.3	0	
1512	9	23			-	-	e 05	41	-	-	-	-	-	-	0.00	-	1.2	0	
1513	10	i 14	15	08	i 15	08	i 15	26	i 15	27	-	-	-	-	0.09	0.11	5.7	0	Neighbourhood of
1514	11	e 17	03	10	-	-	e 03	39	-	-	-	-	-	-	-	-	2.7	0	Kinkwasan
1515	11	e 22	34	54	-	-	e 35	19	e 35	19	-	-	-	-	0.01	-	3.9	0	
1516	12	11			-	-	e 31	32	-	-	-	-	-	-	0.00	-	2.3	0	
1517	12	e 14	19	24	e 19	21	e 25	43	e 25	59	e 29	48	30	04	-	0.03	24.4	0	
1518	12	e 16	54	07	-	-	e 54	36	e 54	37	-	-	-	-	0.01	-	3.6	0	
1519	12	e 23	56	27	-	-	e 56	53	-	-	-	-	-	-	-	-	3.1	0	
1520	13	e 19	48	06	-	-	e 48	29	e 48	32	-	-	-	-	0.01	0.02	4.4	0	
1521	14	e 14	05	26	-	-	e 05	49	-	-	-	-	-	-	0.01	-	3.4	0	
1522	15	e 22	53	24	-	-	e 53	47	-	-	-	-	-	-	0.00	-	3.2	0	
1523	19	i 17	42	09	i 42	08	i 42	22	i 42	21	-	-	-	-	0.06	0.05	5.5	0	SE off Kinkwasan
1524	20	i 22	42	05	i 42	05	i 42	21	i 42	21	-	-	-	-	0.05	0.05	4.1	1	Mouth of the R. Kuzi (Iwate)
1525	21	23			-	-	? 12	52	-	-	-	-	-	-	0.01	0.01	12.5	0	
1526	25	21			-	-	e 04	18	-	-	-	-	-	-	-	-	1.1	0	
1527	28	e 14	51	14	-	-	i 51	54	-	-	-	-	-	-	0.01	-	5.7	0	
1528	28	e 15	15	57	-	-	e 16	40	-	-	-	-	-	-	0.01	-	4.1	0	
1529	28	e 18	27	57	-	-	i 28	34	e 28	30	-	-	-	-	0.03	0.03	5.3	0	Off mouth of the R. Niikappu
1530	29	e 3	56	46	-	-	e 57	18	-	-	-	-	-	-	0.01	-	4.1	0	
1531	29	6			-	-	-	-	-	-	-	-	-	-	0.01	-	1.3	0	
1532	30	e 2	50	55	e 50	55	i 51	10	i 51	10	-	-	-	-	0.06	0.05	3.6	0	
1533	31	12			-	-	e 48	24	-	-	-	-	-	-	0.01	-	1.9	0	

CHIEF EARTHQUAKES OBSERVED WITH NASU'S SEISMOGRAPH, 1933.

Instrument; Nasu's seismograph with three components.

Remarks:

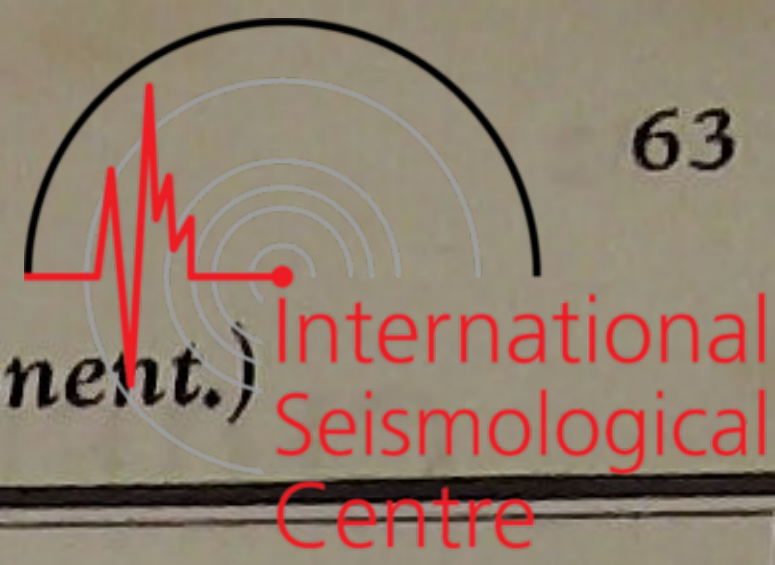
Instrumental constants

Component	V	T ₀	γ/T_0^2	Mass
E-W	25	4.5 s	0.025	7.2 kgr.
N-S	25	5.4	0.013	7.2
Vertical	25	4.9	0.055	4.4

1. Direction of the earth's displacement; positive towards north, east, and upward respectively
2. \oplus out of the range of the instrument
3. \times too feeble to measure
4. \ast out of order of the instrument

No.	Date	P			S		Maximum Amplitude			First Motion			Remarks
		mean of 3 comp.			mean of 3 comp.		E-W	N-S	Vertical	E-W	N-S	Vertical	
		h	m	s	m	s	μ	μ	μ	μ	μ	μ	
3	Jan. 3	15	27	46	28	26	-2000	-1670	+360	-28	-36	-32	ENE of Miyako off mouth of the R. Abukuma E off mouth of the R. Mabuti
13	7	4	07	17	08	07	\oplus	\oplus	\oplus	-40	-32	+36	
66	8	6	29	34	30	15	+1080	\oplus	+340	-40	\ast	+41	
154	Mar. 2	17	31	40	\oplus		\oplus	\oplus	\oplus	-1400	-467	+873	Caused Tsunami Aft. sk. of Mar. 2nd " " " " " " " " " WNW off Titizima Lower part of the R. Kitakami
267	3	9	13	23	13	56	-2154	>2920	+1434	-144	+120	+120	
270	3	9	39	14	39	40	+1130	+934	+538	-88	+96	+76	
272	3	10	04	12	04	37	+692	+780	+328	\times	\times	\times	
285	3	11	57	09	57	33	+380	+258	+208	-40	\times	+25	
305	3	15	02	47	03	11	-500	+520	+190	-32	+20	+32	
306	3	15	07	39	08	07	-590	-880	-208	-48	?	+32	
334	3	19	08	02	08	29	-396	+554	+376	-37	-7	+23	
336	3	19	51	08	51	34	-298	-250	+126	-14	-4	+10	
567	8	1	26	12	36	33	-990	-2720	-436	+44	+20	-56	
665	11	19	35	27	37	39	+762	-948	-132	+16	+40	+41	
773	21	15	54	18	54	31	-230	+416	+140	+7	-12	-30	
826	Apr. 1	15	59	32	59	53	+1190	+1.00	-510	-56	-18	+46	Aft. sk. of Mar. 2nd " " " "
856	9	2	47	13	47	39	>3000	>2860	>2298	-160	-20	+112	
867	9	10	30	58	31	24	-522	-880	+263	-64	-12	+48	
917	19	2	56	18	56	49	-402	-880	+200	-8	+8	+6	
930	23	7	14	16	14	40	-1658	-1616	\oplus	-98	\times	\ast	
1055	May 24	10	38	58	39	14	-70	-80	+32	+8	-6	-10	E off Kinkwasan
1084	June 8	18	11	30	12	04	-540	+936	-168	-14	-8	+20	ENE off Miyako Bay of Kesenuma E off mouth of the R. Mabuti E off Kinkwasan
1089	12	21	08	38	08	47	+2848	+1926	+874	+430	-200	-411	
1099	13	20	34	20	34	49	+2110	+1500	\oplus	-14	-23	+20	
1107	18	21	37	58	38	14	\oplus	\oplus	\oplus	+1715	-1690	-1438	
1161	July 2	16	48	42	49	03	-160	+334	+114	-8	-8	+16	NE off Miyako E off Kamaisi E off Kinkwasan
1208	10	0	22	22	22	51	+568	+1352	-354	+148	-22	-123	
1267	20	23	14	47	15	18	+480	+960	+360	+158	-40	-194	
1294	Aug. 2	12	19	32	19	46	-134	+156	+106	\times	\times	\times	Upper valley of the R. Kuzi E off Kamaisi SE off mouth of the R. Abukuma
1304	7	0	42	35	43	06	-134	+360	+138	+8	\times	-12	
1336	29	12	31	48	32	08	+1280	+484	\oplus				
1351	Sept. 2	16	43	26	45	06	+1308	+2086	-322	+9	+13	+11	S off Hatizyozima (deep) E off Miyako ESE of Miyako
1384	17	4	00	04	00	26	-203	-582	-118	-16	-12	+20	
1392	21	9	48	28	49	12	-880	-1620	-480	-98	+28	+85	
1434	Oct. 3	18	39	34	40	12	+712	-996	\oplus	+12	+8	+6	The central part of Niigata pref. E off Kinkwasan
1444	11	13	58	00	58	13	-200	+592	+108	+23	-26	-36	
1500	Nov. 27	19	14	55	15	16	-352	-890	-460	-31	-6?	+30	E off Miyako
1506	Dec. 4	19	35	46	37	11	+640	+452	+182	-28	-80	+64	E off the strait of Sôya Mouth of the R. Kuzi
1524	20	22	42	05	42	21	+30	+41	-24	\times	\times	\times	

PULSATORY OSCILATIONS, 1933 (EW Component.)



No.	Beginning			Ending			Maximum				Double Amplitude
	Date			Date			Date				
	Month	Day	Hour	Month	Day	Hour	Day	Hour	Day	Hour	
1	January	1	2	January	3	21	2	0	2	3	6
2		6	1		9	20	6	12	6	15	6
3		10	23		16	14	11	23	12	2	10
4		17	9		18	5	17	7	17	11	10
5		26	1		28	24	27	10	27	12	7
6	February	3	0	February	6	15	5	13	5	15	3
7		10	10		12	23	10	20	10	23	4
8		14	0		16	22	15	16	15	19	5
9		18	2		20	23	19	12	19	14	4
10		21	0		27	15	24	21	24	24	10
11		28	0	March	2	13	28	22	28	23	4
12	March	4	9		7	2	5	8	5	11	10
13		16	0		18	17	16	23	17	2	43
14		20	14		24	18	23	15	23	18	12
15		26	18		29	19	27	22	28	1	22
16	April	2	10	April	4	15	3	22	4	1	4
17		5	0		7	8	5	16	5	19	5
18		8	5		12	20	9	13	9	16	5
19		15	2		17	13	15	13	15	16	7
20		26	1		27	16	26	11	26	14	6
21		28	0	May	30	23	28	14	28	16	13
22	May	2	0		4	23	3	16	3	18	11
23		5	2		6	17	6	1	6	3	3
24		7	0		9	1	8	0	8	3	6
25		17	21		19	24	18	1	18	3	3
26	June	6	11	June	8	17	7	13	7	16	7
27		27	0		27	20	27	13	27	15	8
28	July	16	14	July	17	21	17	2	17	4	2
29		25	10		26	16	26	2	26	5	2
30	August	6	0	August	8	20	7	0	7	3	2
31		14	22		15	19	15	1	15	3	2
32		17	12		19	23	18	0	18	3	2
33	September	4	0	September	7	14	6	8	6	12	23
34		15	10		16	20	16	0	16	3	4
35		26	2		29	10	28	6	28	8	6
36	October	6	3	October	8	12	7	13	7	15	18
37		15	20		18	14	16	22	16	24	10
38		19	8		22	10	20	16	20	20	24
39		22	20		25	11	23	4	23	7	11
40	November	1	19	November	4	12	2	12	2	15	10
41		6	4		8	14	6	13	6	16	20
42		10	20		13	13	12	0	12	3	7
43		15	22		18	12	16	11	16	13	20
44		18	21		22	14	19	9	19	12	5
45		27	15		29	10	28	3	28	5	9
46	December	1	0	December	4	5	2	5	2	7	5
47		6	2		7	9	6	10	6	13	7
48		11	23		12	19	12	5	12	7	3
49		16	20		18	17	17	9	17	12	20
50		19	15		23	24	20	10	20	13	5
51		30	14	January (1934)	1	20	31	0	31	3	15