

ANNUAL REPORT
OF THE
METEOROLOGICAL
AND THE
SEISMOLOGICAL OBSERVATIONS
MADE AT THE
INTERNATIONAL LATITUDE OBSERVATORY
OF MIZUSAWA
FOR
THE YEAR 1929.

LATITUDE 39° 8' N., LONGITUDE 141° 8' E.,
HEIGHT ABOVE MEAN SEA LEVEL 61 METRES.

PUBLISHED BY THE INTERNATIONAL LATITUDE OBSERVATORY
OF MIZUSAWA.

1 9 3 0.

The present report gives the results of the meteorological and seismological observations made at this observatory during the year 1929. No alteration has been made in the nature and methods of observation. The observations and the calculations were made by Messrs. S. Satô, I. Kumagai, and G. Obata under the superintendence of Dr. T. Ikeda.

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

Hours of observations—*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. In the total number of days only those, on which the amount is 0.1mm or more in the day, are reckoned. But all the days, on which snow, hail, or graupel fell, are included without reference to the amount.

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	⊕	Snow drift	C	Cirrus
×	Snow	←	Ice crystal	CS	Cirro-stratus
⊞	Thunder storm	⊙	Solar corona	CK	Cirro-cumulus
T	Thunder without lightning	⊕	Solar halo	KC	Alto-cumulus
<	Lightning without thunder	∪	Lunar corona	SC	Alto-stratus
△	Graupel	∩	Lunar halo	SK	Strato-cumulus
▲	Hail	⌘	Gales	N	Nimbus
≡	Mist, fog	∩	Rainbow	K	Cumulus
□	Hoar frost	∩	Aurora	KN	Cumulo-nimbus
∩	Dew	∞	Dust haze	S	Stratus
∇	Silver thaw	⊞	Snow lying	∞	Wave cloud
~	Glazed frost	⌘	Ice Column in the ground	∩	Zodiacal light

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.

The *time* adopted in the Seismological observations is *Greenwich Local Time*.

	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

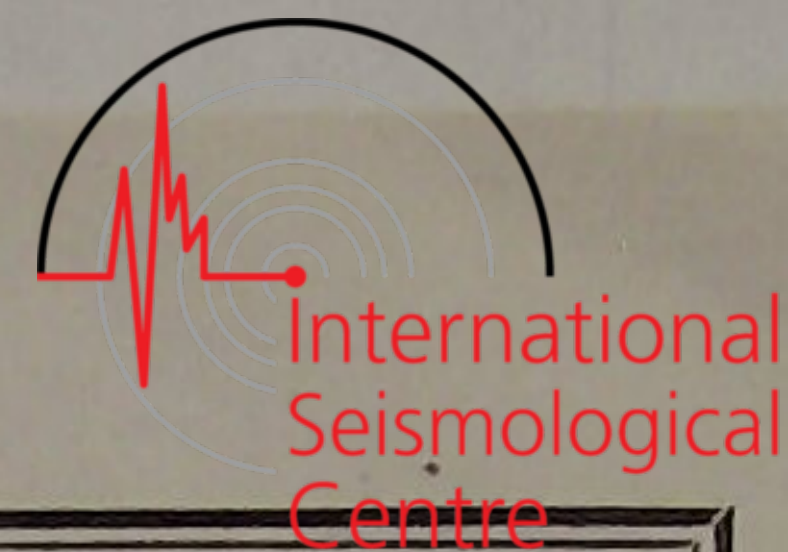
July, 1930

H. Kimura, *Rigakuhakushi*

*Director of the International Latitude Observatory
in Mizusawa.*

SEISMOLOGICAL OBSERVATIONS

EARTHQUAKES.
(1 9 2 9)



No.	Date 1929	P				S				L				Duration of Total Earthquake (mean)	Maximum Range of Motion			Character of Motion	Intensity	Remarks
		E	W	N	S	E	W	N	S	E	W	N	S		E	W	N			
1	Jan. 2	h	m	s	m	s	m	s	m	s	m	s	m	mm	mm					
2	2	6	?		?		04	25	04	25	-	-	-	?	0.05	0.05	Slow	Feeble		
3	8	18	?		?		08	25	08	24	-	-	-	?	0.13	0.05	"	"		
4	10	16	59	10	?		59	35	59	34	-	-	-	4.6	0.04	0.06	"	"		
5	10	17	27	20	?		27	38	27	38	-	-	-	2.6	0.08	0.10	"	"		
6	10	22	52	51	52	53	53	29	53	29	-	-	-	4.9	0.09	0.10	"	"		
7	13	0	06	34	06	30	09	27	09	13	13	52	13	05	137.5	0.47	0.62	"	"	
8	14	8	05	39	?		05	55	?		-	-	-	3.7	0.02	0.03	"	"		
9	16	8	12	07	12	08	16	59	16	53	-	-	-	?	?	?	"	"		
10	17	22	?		?		35.5	?	?		39.2	?	?	?	?	0.25	"	"		
11	20	0	10	31	?		11	03	11	02	-	-	-	4.8	0.02	0.03	"	"		
12	20	10	?		-	-	26	15	-	-	-	-	-	?	0.01	-	"	"		
13	20	14	55	44	?		61	48	61	45	67	33	67	35	?	0.01	0.05	"	"	
14	21	2	23	17	-	-	23	56	-	-	-	-	-	4.7	0.01	-	"	"		
15	21	3	05	09	?		05	48	05	48	-	-	-	5.9	0.03	0.04	"	"		
16	24	6	57	30	?		58	42	58.6		-	-	-	?	0.03	?	"	"		
17	27	5	?		-	-	04	42	-	-	-	-	-	?	0.02	-	"	"		
18	30	21	38	09	-	-	38	24	-	-	-	-	-	3.1	0.01	-	"	"		
19	31	16	?		?		03	23	03	27	-	-	-	?	0.02	0.05	"	"		
20	Feb. 1	17	23	34	23	34	31	02	31	02	?	?	?	?	?	?	"	"		
21	4	8	07	00	-	-	07	14	-	-	-	-	-	?	0.02		"	"		
22	4	10	?		-	-	10	08	-	-	-	-	-	?	0.01		"	"		
23	6	6	07	53	-	-	08	20	-	-	-	-	-	3.6	0.01		"	"		
24	6	6	52	07	52	08	54	22	54	24	-	-	-	?	0.04	0.04	"	"		
25	6	18	24	49	24	49	25	01	25	01	-	-	-	9.5	0.16	0.20	Quick	Weak Felt		
26	9	10	53	02	?		53	12	?		-	-	-	1.4	0.04	0.03	Slow	Feeble		
27	15	5	47	39	?		52	58	53	04	57	42	?	?	0.00	?	"	"		
28	15	6	55	25	?		56	38	?		-	-	-	7.1	0.02	0.03	"	"		
29	16	9	16	04	?		17	51	17	52	-	-	-	8.0	0.03	0.03	"	"		
30	17	22	?		?		37	17	?		-	-	-	?	0.02	?	"	"		
31	21	9	?		-	-	37	49	-	-	-	-	-	?	0.01	-	"	"		
32	21	12	?		?		47	47	47.9		-	-	-	?	0.05	0.04	"	"		
33	21	18	18	56	18	58	19	20	19	23	-	-	-	3.5	0.04	0.05	"	"		
34	22	4	00	40	00	40	00	59	00	59	-	-	-	7.5	0.14	0.13	Quick	Weak Felt		
35	24	17	36	14	?		36	42	36	43	-	-	-	7.2	0.09	0.09	Slow	Feeble		
36	25	17	05	10	?		05	48	05	53	-	-	-	6.3	0.05	0.05	"	"		
37	27	0	52	11	52	09	52	31	52	31	-	-	-	2.2	0.03	0.04	"	"		
38	28	14	?		-	-	55	08	-	-	-	-	-	?	0.01	-	"	"		
39	Mar. 1	17	?		-	-	10	40	-	-	-	-	-	?	0.01	-	"	"		
40	2	14	18	16	18	15	18	36	18	37	-	-	-	2.9	0.06	0.06	"	"		
41	4	3	?		-	-	17	47	-	-	-	-	-	?	0.01	-	"	"		
42	6	0	?		-	-	38	36	-	-	-	-	-	?	0.01	-	"	"		
43	7	1	41	41	41	43	47	24	47	20	50	10	50	09	151.9	0.83	2.28	"	"	
44	10	14	-		39	15	-	-	42	59	-	-	-	?	-	?	"	"		
45	13	2	50	50	-	-	51	03	-	-	-	-	-	2.9	0.03	-	"	"		
46	13	6	?		-	-	41	16	-	-	-	-	-	?	0.02	-	"	"		
47	14	6	?		-	-	19	21	-	-	-	-	-	?	0.01	-	"	"		
48	14	14	15	58	15	58	16	27	16	27	-	-	-	?	0.01	-	"	"		
49	15	1	57	29	57	31	?		57	58	-	-	-	8.8	0.46	0.45	Quick	Weak Felt		
50	17	12	?		?		18	08	18	06	-	-	-	8.1	0.79	1.12	"	"		
														?	0.03	0.03	Slow	Feeble		
51	18	11	30	42	30	44	30	54	30	55	-	-	-	4.7	0.20	0.30	Quick	Weak Felt		
52	18	23	21	34	21	33	22	13	22	15	-	-	-	22.2	?	0.84	Slow	Feeble		
53	19	2	43	26	-	-	43	46	-	-	-	-	-	?	0.01	-	"	"		
54	19	13	?		?		40	38	40	39	-	-	-	?	0.04	0.04	"	"		
55	19	22	41	26	?		41	38	41	39	-	-	-	?	0.04	0.05	"	"		

EARTHQUAKES.

(1 9 2 9)



No.	Date 1929	P				S				L				Duration of Total Earthquake (mean)	Maximum Range of Motion				Character of Motion	Intensity	Remarks
		E	W	N	S	E	W	N	S	E	W	N	S		E	W	N	S			
56	Mar. 20	h	m	s	m	s	m	s	m	s	m	s	m	mm	mm			Slow	Feeble		
57	26	18	24	46	-	-	24	56	-	-	-	-	?	0.02	-			⌘	⌘		
58	26	8	?		-	-	20	28	-	-	-	-	?	0.01	-			⌘	⌘		
59	26	23	37	19	-	-	37	53	-	-	-	-	13.3	0.18	-			⌘	⌘		
60	27	5	03	08	03	09	03	34	03	35	-	-	?	0.11	0.08			⌘	⌘		
	27	5	11.5		?		11	53	11	50	-	-	?	0.06	0.03			⌘	⌘		
61	27	6	?		-	-	01	48	-	-	-	-	?	0.02	-			⌘	⌘		
62	27	9	23	57	23	58	24	19	24	20	-	-	12.4	0.33	0.26			⌘	⌘		
63	27	10	?		-	-	59	10	-	-	-	-	?	0.01	-			⌘	⌘		
64	27	11	?		-	-	?		-	-	-	-	?	0.01	-			⌘	⌘		
65	27	15	?		-	-	49	59	-	-	-	-	?	0.01	-			⌘	⌘		
66	27	16	33.6		?		34	23	34	24	-	-	?	0.04	0.03			⌘	⌘		
67	27	18	?		-	-	?		-	-	-	-	?	0.01	-			⌘	⌘		
68	27	21	?		-	-	41	15	-	-	-	-	?	0.01	-			⌘	⌘		
69	28	13	03	06	?		03	27	03.5		-	-	6.2	0.04	0.02			⌘	⌘		
70	28	15	?		-	-	12	16	-	-	-	-	?	0.01	-			⌘	⌘		
71	29	6	28	24	28.3		28	48	28	46	-	-	?	0.04	0.05			⌘	⌘		
72	31	20	17	58	18	02	18	45	18	52	-	-	24.6	0.16	0.66			⌘	⌘		
73	31	22	?		-	-	?		-	-	-	-	?	0.01	-			⌘	⌘		
74	Apr. 2	11	08	53	08	53	09	13	09	17	-	-	6.4	0.09	0.05			⌘	⌘		
75	2	17	45	27	-	-	45	56	-	-	-	-	3.1	0.01	-			⌘	⌘		
76	2	20	03	34	?		04	00	?		-	-	5.9	0.03	0.05			⌘	⌘		
77	6	18	06	10	?		06	40	06	44	-	-	6.2	0.04	0.06			⌘	⌘		
78	7	4	04	34	-	-	04	50	-	-	-	-	?	0.01	-			⌘	⌘		
79	8	10	23	03	?		27	51	27	54	-	-	?	0.04	0.07			⌘	⌘		
80	11	5	48	46	-	-	49	26	-	-	-	-	?	0.01	-			⌘	⌘		
81	14	12	15	51	-	-	16	03	-	-	-	-	?	0.02	-			⌘	⌘		
82	16	0	53	43	53.7		54	10	54	05	-	-	13.3	0.46	0.49			Quick	Weak	Felt	
83	16	2	25	07	?		25	19	25	19	-	-	?	0.09	0.06			Slow	Feeble		
84	17	18	34	50	34	51	35	18	35	18	-	-	15.2	0.39	0.35			⌘	⌘		
85	21	2	21.5		?		22	07	?		-	-	?	0.04	0.03			⌘	⌘		
86	23	14	16	49	16.8		17	27	17.4		-	-	6.6	0.09	0.10			⌘	⌘		
87	23	16	?		-	-	?		-	-	-	-	?	?	-			⌘	⌘		
88	May 1	7	44	21	-	-	49	01	-	-	-	-	?	?	-			⌘	⌘		
89	1	15	48	04	48	07	56	35	56	34	71	43	71	37	68.4	0.30	0.87	⌘	⌘		
90	2	14	27	58	28	00	29	27	29	28	-	-	11.6	0.13	0.15			⌘	⌘		
91	3	5	23.7		-	-	24	10	-	-	-	-	?	0.02	-			⌘	⌘		
92	3	16	?		-	-	35	37	-	-	-	-	?	0.02	-			⌘	⌘		
93	4	12	?		-	-	24	16	-	-	-	-	?	?	-			⌘	⌘		
94	4	13	30.1		-	-	30	26	-	-	-	-	?	0.01	-			⌘	⌘		
95	5	10	10	00	?		10	39	10.6		-	-	3.3	0.05	0.04			⌘	⌘		
96	6	5	17.0		-	-	17	28	-	-	-	-	?	0.01	-			⌘	⌘		
97	7	6	?		-	-	40	53	-	-	-	-	?	0.01	-			⌘	⌘		
98	7	16	43	12	43	15	49	19	49	21	55	22	55	25	?	0.04	0.15	⌘	⌘		
99	7	21	18	14	?		18	34	18	32	-	-	7.2	0.25	0.26			Quick	Weak	Felt	
100	9	9	?		-	-	29	56	-	-	-	-	?	0.02	-			Slow	Feeble		
101	10	12	03	27	-	-	03	44	-	-	-	-	3.1	0.01	-			⌘	⌘		
102	15	9	30	44	?		31	01	31	05	-	-	3.7	0.03	?			⌘	⌘		
103	16	1	49	20	?		49	35	49	34	-	-	4.0	0.07	0.10			⌘	⌘		
104	20	3	?		?		06	25	06	25	-	-	?	0.01	?			⌘	⌘		
105	20	4	59	30	59	36	64	39	64	39	-	-	?	?	0.24			⌘	⌘		
106	21	16	38	09	38	09	41	02	40.9		-	-	38.0	0.45	4.65			⌘	⌘		
107	23	12	05	24	-	-	05	57	-	-	-	-	?	0.02	-			⌘	⌘		
108	26	3	?		-	-	09	13	-	-	-	-	?	0.02	-			⌘	⌘		
109	26	8	50	35	50	38	57	02	57	07	-	-	?	?	?			⌘	⌘		
110	26	17	?		-	-	09	08	-	-	-	-	?	0.01	-			⌘	⌘		

EARTHQUAKES.
(1 9 2 9)



No.	Date 1929	P				S				L				Duration of Total Earthquake (mean)	Maximum Range of Motion				Character of Motion	Intensity	Remarks
		E	W	N	S	E	W	N	S	E	W	N	S		E	W	N	S			
111	May 26	h	m	s	m	s	m	s	m	s	m	s	m	s	m	mm	mm	Slow	Feeble		
112	30	22	50	17	50	16	58	28	58.5	64	48	64	55	?	0.08	0.70	Slow	Feeble			
113	30	14	31	33	?		32	11	32.2	-	-	-	-	4.1	0.05	0.03	Slow	Feeble			
114	31	17	?		-	-	02	01	-	-	-	-	-	?	?	-	Slow	Feeble			
115	June 2	30	17	?	-	-	02	01	-	-	-	-	-	?	?	-	Slow	Feeble			
		31	0	11	00	10	59	11	35	-	-	-	-	17.7	0.66	0.90	Quick	Weak	Felt		
		2	21	40	07	40	08	41	16	-	-	-	-	22.4	0.99	0.82	Quick	Weak	Felt		
116	3	14	?		-	-	44	22	-	-	-	-	-	?	0.01	-	Slow	Feeble			
117	4	15	22	29	?		27	32	27	34	?		?	20.3	0.05	?	Slow	Feeble			
118	4	19	?		-	-	58	37	-	-	-	-	-	?	0.01	-	Slow	Feeble			
119	6	20	?		-	-	07	21	-	-	-	-	-	?	0.03	-	Slow	Feeble			
120	7	14	29	33	?		29	48	?		-	-	-	3.8	0.03	?	Slow	Feeble			
121	8	0	?		-	-	22	54	-	-	-	-	-	?	0.01	-	Slow	Feeble			
122	9	9	10	20	10	21	12	09	12	10	-	-	-	14.3	?	?	Slow	Feeble			
123	9	23	?		-	-	19	29	-	-	-	-	-	?	0.01	-	Slow	Feeble			
124	10	12	?		-	-	43	20	-	-	-	-	-	?	0.01	-	Slow	Feeble			
125	12	11	50	56	50	56	57	18	57	18	?		?	?	?	?	Slow	Feeble			
126	13	0	14	40	14	42	16	24	16	23	-	-	-	?	0.52	1.02	Slow	Feeble			
127	13	0	28.4		?		30	07	29	58	-	-	-	?	0.70	1.43	Slow	Feeble			
128	13	0	?		-	-	?		-	-	-	-	-	?	?	-	Slow	Feeble			
129	13	1	?		-	-	?		-	-	-	-	-	?	0.01	-	Slow	Feeble			
130	13	1	?		-	-	59.3		-	-	-	-	-	?	0.01	-	Slow	Feeble			
131	13	2	19	22	-	-	21	17	-	-	-	-	-	6.1	0.02	-	Slow	Feeble			
132	13	4	?		-	-	?		-	-	-	-	-	?	0.00	-	Slow	Feeble			
133	13	5	?		-	-	?		-	-	-	-	-	?	0.01	-	Slow	Feeble			
134	13	7	?		-	-	?		-	-	-	-	-	?	0.00	-	Slow	Feeble			
135	13	8	01	23	01	25	01	41	01	42	-	-	-	6.0	0.23	0.26	Quick	Weak	Felt		
136	13	9	31	19	31	18	36	41	36	42	41	38	40	33	81.3	?	1.27	Slow	Feeble		
137	13	14	?		-	-	?		-	-	-	-	-	?	0.01	-	Slow	Feeble			
138	13	18	?		-	-	?		-	-	-	-	-	?	0.01	-	Slow	Feeble			
139	13	20	23	47	23	47	24	08	24	08	-	-	-	8.9	0.28	0.29	Quick	Weak	Felt		
140	13	22	?		-	-	?		-	-	-	-	-	?	0.01	-	Slow	Feeble			
141	13	23	?		-	-	?		-	-	-	-	-	?	0.01	-	Slow	Feeble			
142	13	23	43	59	-	-	44	15	-	-	-	-	-	5.6	0.02	-	Slow	Feeble			
143	14	6	?		-	-	13	43	-	-	-	-	-	?	0.01	-	Slow	Feeble			
144	14	13	?		?		19	43	?		-	-	-	?	0.01	?	Slow	Feeble			
145	15	0	?		-	-	11	30	-	-	-	-	-	?	0.01	-	Slow	Feeble			
146	16	23	00	07	00	07	03	37	03	35	10	35	10	41	?	0.05	0.65	Slow	Feeble		
147	17	12	?		-	-	00	37	-	-	-	-	-	?	?	-	Slow	Feeble			
148	17	13	?		-	-	34	48	-	-	-	-	-	?	0.01	-	Slow	Feeble			
149	20	10	?		-	-	07	41	-	-	-	-	-	?	?	-	Slow	Feeble			
150	20	11	?		-	-	12	38	-	-	-	-	-	?	0.00	-	Slow	Feeble			
151	20	14	?		-	-	07	08	-	-	-	-	-	?	?	-	Slow	Feeble			
152	20	18	28	24	-	-	28	40	-	-	-	-	-	1.8	?	-	Slow	Feeble			
153	20	18	33	06	-	-	40	34	-	-	?		?	?	-	-	Slow	Feeble			
154	20	21	33	22	-	-	33	41	-	-	-	-	-	2.4	0.01	-	Slow	Feeble			
155	23	9	16	35	-	-	16	59	-	-	-	-	-	3.1	0.01	-	Slow	Feeble			
156	24	2	05	03	05	04	05	38	05	38	-	-	-	9.3	0.35	0.43	Slow	Feeble			
157	26	16	50	06	50	05	50	59	50.9		-	-	-	17.7	0.51	0.75	Slow	Feeble			
158	27	13	07	19	07	20	11	48	11	54	17	48	18	05	139.6	?	0.95	Slow	Feeble		
159	30	2	51	13	52.0		61	41	?		?		?	?	?	0.05	Slow	Feeble			
160	30	11	?		-	-	?		-	-	-	-	-	?	?	-	Slow	Feeble			
161	July 2	4	04	12	-	-	05	05	-	-	-	-	-	5.9	0.02	-	Slow	Feeble			
162	5	5	08	58	?		09	55	?		-	-	-	5.9	0.02	?	Slow	Feeble			
163	5	14	25	23	25	23	30	26	30	28	?		?	?	?	0.11	Slow	Feeble			
164	5	22	41	49	?		47	50	47	54	?		?	?	?	0.10	Slow	Feeble			
165	6	2	10	15	?		15	15	?		?		?	50.1	?	0.03	Slow	Feeble			

EARTHQUAKES.
(1 9 2 9)



No.	Date 1929	P				S				L				Duration of Total Earthquake (mean)	Maximum Range of Motion				Character of Motion	Intensity	Remarks
		E	W	N	S	E	W	N	S	E	W	N	S		E	W	N	S			
166	July 7	h	m	s	m	s	m	s	m	s	m	s	m	s	m	mm	mm	Slow	Feeble		
167	7	6	45	16	-	-	45	35	-	-	-	-	-	-	3.3	0.01	-	"	"		
168	9	17	47	26	29	28	34	39	34	40	?	?	-	-	132.5	0.05	2.80	"	"		
169	13	14	?		?		47	48	47	50	-	-	-	-	3.4	0.03	0.02	"	"		
170	14	9	40	01	40.1		58	54	58	56	-	-	-	-	?	0.01	?	"	"		
							42	35	42	37	-	-	-	-	26.0	0.07	0.34	"	"		
171	15	22	46	39	?		47	19	?		-	-	-	-	6.5	0.01	?	"	"		
172	17	10	50	12	50	13	50	46	50	48	-	-	-	-	5.9	0.07	0.11	"	"		
173	17	22	07	11	?		07	43	?		-	-	-	-	?	0.03	?	"	"		
174	17	22	12	06	?		12	38	?		-	-	-	-	7.5	0.04	?	"	"		
175	23	0	?		-	-	52	11	-	-	-	-	-	-	?	?	-	"	"		
176	24	19	?		-	-	10	29	-	-	-	-	-	-	?	0.01	-	"	"		
177	25	7	05	43	?		06	03	?		-	-	-	-	5.4	0.04	0.02	"	"		
178	25	15	?		-	-	12	52	-	-	-	-	-	-	?	0.01	-	"	"		
179	26	22	49	21	49	21	50	08	50	08	-	-	-	-	17.3	?	0.60	"	"		
180	29	20	07	47	?		08	22	?		-	-	-	-	6.2	0.05	0.03	"	"		
181	Aug. 31	1	04	03	?		04	33	?		-	-	-	-	3.5	0.04	?	"	"		
182	1	5	10	59	10	59	18	16	18	12	?	?	-	-	?	0.02	?	"	"		
183	1	5	59	27	59	26	59	48	59	47	-	-	-	-	9.0	0.36	0.50	Quick	Weak	Felt	
184	1	12	?		-	-	22	04	-	-	-	-	-	-	?	?	-	Slow	Feeble		
185	3	9	59	17	?		59	29	?		-	-	-	-	4.3	0.03	0.03	"	"		
186	3	13	?		-	-	?		-	-	-	-	-	-	?	0.00	-	"	"		
187	3	15	?		-	-	?		-	-	-	-	-	-	?	0.00	-	"	"		
188	8	13	05	19	?		11	23	?		17	58	-	-	34.1	0.01	0.18	"	"		
189	10	4	28	08	?		28	46	28.7		-	-	-	-	6.1	0.05	0.03	"	"		
190	16	13	22	13	22	13	22	45	22	45	-	-	-	-	3.9	0.10	0.15	Quick	Weak	Felt	
191	19	2	48	13	?		52	01	52	01	55	44	55	41	?	0.01	0.28	Slow	Feeble		
192	21	?			?		?		?		-	-	-	-	?	0.01	0.01	"	"		
193	26	2	?		-	-	03	05	-	-	-	-	-	-	?	0.01	-	"	"		
194	27	1	?		?		52	49	52	53	-	-	-	-	?	0.02	0.01	"	"		
195	27	3	15	30	?		15	48	?		-	-	-	-	4.2	0.04	?	"	"		
196	28	18	52	18	52	19	52	42	52	44	-	-	-	-	43.6	?	3.50	"	"		
197	28	21	?		-	-	15	56	-	-	-	-	-	-	?	0.00	-	"	"		
198	28	22	?		-	-	?		-	-	-	-	-	-	?	0.00	-	"	"		
199	29	0	43	18	43	20	43	47	43	45	-	-	-	-	6.0	0.08	0.13	"	"		
200	29	9	?		-	-	43	56	-	-	-	-	-	-	?	0.01	-	"	"		
201	29	15	?		-	-	13	40	-	-	-	-	-	-	?	0.00	-	"	"		
202	31	0	?		-	-	45	45	-	-	-	-	-	-	?	0.01	-	"	"		
203	31	1	?		-	-	?		-	-	-	-	-	-	?	0.01	-	"	"		
204	31	3	?		-	-	?		-	-	-	-	-	-	?	?	-	"	"		
205	31	3	?		-	-	?		-	-	-	-	-	-	?	0.00	-	"	"		
206	Sept. 31	17	?		?		42	27	?		-	-	-	-	?	0.01	0.01	"	"		
207	1	0	38.9		?		39	26	?		-	-	-	-	?	0.02	0.01	"	"		
208	1	1	48	38	?		49	08	?		-	-	-	-	3.2	0.02	0.01	"	"		
209	1	8	?		-	-	09	05	-	-	-	-	-	-	?	0.01	-	"	"		
210	1	9	44	16	?		45	49	45	50	-	-	-	-	5.8	0.02	0.02	"	"		
211	1	22	55	40	?		55	58	55	59	-	-	-	-	4.9	0.03	0.03	"	"		
212	1	23	?		-	-	?		-	-	-	-	-	-	?	0.01	-	"	"		
213	6	12	10	00	?		11	48	11	50	13	04	13	05	11.0	0.03	0.02	"	"		
214	8	8	36	45	?		38	30	38	29	-	-	-	-	5.9	0.03	0.05	"	"		
215	8	17	12	05	?		13	06	13.2		-	-	-	-	9.5	0.02	?	"	"		
216	9	9	?		-	-	41	37	-	-	-	-	-	-	?	?	-	"	"		
217	13	0	22	34	?		23	23	23	23	-	-	-	-	4.6	0.03	0.01	"	"		
218	13	1	?		-	-	12	36	-	-	-	-	-	-	?	?	-	"	"		
219	16	12	?		?		51	39	51	39	-	-	-	-	?	0.02	?	"	"		
220	23	7	?		-	-	32	40	-	-	-	-	-	-	?	0.01	-	"	"		

EARTHQUAKES.

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International
Seismological
Centre

No.	Date 1929	P				S				L				Duration of Total Earthquake (mean)	Maximum Range of Motion		Character of Motion	Intensity	Remarks
		E	W	N	S	E	W	N	S	E	W	N	S		E	W			
221	Sept. 25	h	m	s	m	s	m	s	m	s	m	s	m	mm	mm				
222	28	17	?		-	-	27	49	-	-	-	-	?	?	-	Slow	Feeble		
223	Oct. 1	14	58	29	?		59	58	59	59	-	-	6.8	0.06	0.07	"	"		
224	2	19	?		-	-	23	28	-	-	-	-	?	0.01	-	"	"		
225	3	5	?		-	-	05	46	-	-	-	-	?	0.02	-	"	"		
		18	33	32	33	32	33	50	33	49	-	-	3.7	0.07	0.08	Quick	Weak	Felt	
226	4	1	46	30	46	30	46	48	46	49	-	-	5.9	0.09	0.07	Slow	Feeble		
227	5	17	04	21	04	16	07	27	07	27	-	-	?	?	?	"	"		
228	5	19	02	25	02	23	03	32	03	32	-	-	10.8	0.54	0.72	"	"		
229	6	8	01.2		?		09.5		?		-	-	?	?	0.04	"	"		
230	6	12	56	08	?		56	29	56	22	-	-	3.8	0.02	0.02	"	"		
231	6	21	?		?		53	40	?		-	-	?	0.01	?	"	"		
232	8	10	52	03	?		57.3		?		-	-	?	?	?	"	"		
233	8	17	27.8		?		37.7		?		-	-	?	?	?	"	"		
234	12	1	?		-	-	23	25	-	-	-	-	?	0.01	-	"	"		
235	14	8	?		-	-	30	55	-	-	-	-	?	0.00	-	"	"		
236	14	12	42.6		?		43	13	?		-	-	?	0.02	0.02	"	"		
237	19	10	32	45	?		?		32.9		-	-	?	?	0.05	"	"		
238	19	18	?		-	-	?		-	-	-	-	?	0.01	-	"	"		
239	21	16	30	03	30	02	30	31	30	28	-	-	9.0	0.06	0.07	"	"		
240	22	14	00	17	00	17	03	57	03	56	-	-	?	?	?	"	"		
241	22	16	?		-	-	23	11	-	-	-	-	?	0.01	-	"	"		
242	23	17	49.6		?		50	10	?		-	-	?	0.01	0.01	"	"		
243	24	6	08	06	?		13	54	?		21	48	?	?	0.07	"	"		
244	25	17	?		-	-	08	27	-	-	-	-	?	0.01	-	"	"		
245	27	2	31	49	?		32	39	32	41	-	-	?	0.10	0.11	"	"		
246	27	19	?		-	-	37	03	-	-	-	-	?	0.03	-	"	"		
247	29	4	?		-	-	06	51	-	-	-	-	?	0.01	-	"	"		
248	Nov. 1	1	09.9		-	-	10	37	-	-	-	-	?	0.01	-	"	"		
249	2	1	?		-	-	38	00	-	-	-	-	?	0.01	-	"	"		
250	4	10	37	27	?		37	41	?		-	-	2.2	0.01	?	"	"		
251	5	11	?		-	-	44	49	-	-	-	-	?	0.01	-	"	"		
252	5	23	33	51	-	-	34	47	-	-	-	-	4.1	0.01	-	"	"		
253	6	8	?		-	-	06	30	-	-	-	-	?	0.01	-	"	"		
254	6	11	?		-	-	?		-	-	-	-	?	0.01	-	"	"		
255	8	5	17	41	-	-	18	14	-	-	-	-	4.0	0.02	-	"	"		
256	11	19	?		?		12	19	12	17	-	-	?	0.04	0.02	"	"		
257	13	1	32	02	31	59	33	57	33	59	-	-	5.7	0.08	0.06	"	"		
258	14	20	?		?		19	11	?		-	-	?	0.01	?	"	"		
259	15	18	56.8		56	48	62	02	62	02	68.4		95.0	0.86	0.95	"	"		
260	17	3	50	07	50	06	55	37	55	39	?		52.4	?	0.57	"	"		
261	18	21	08	39	?		?		?		-	-	?	0.04	0.35	"	"		
262	19	16	32	18	?		32	57	?		-	-	4.6	0.01	0.02	"	"		
263	19	19	?		-	-	32	11	-	-	-	-	?	0.00	-	"	"		
264	20	1	?		-	-	07	26	-	-	-	-	?	0.02	-	"	"		
265	20	5	56	22	?		58	22	58	20	-	-	7.5	0.02	0.05	"	"		
266	22	1	05	33	-	-	05	45	-	-	-	-	2.5	0.02	-	"	"		
267	23	0	10	00	?		15	59	16	01	-	-	?	?	0.05	"	"		
268	30	6	35	26	?		35	39	35	41	?		2.5	0.02	0.02	"	"		
269	30	13	?		?		08	24	?		-	-	?	0.02	0.01	"	"		
270	30	22	39	07	-	-	39	19	-	-	-	-	?	0.03	-	"	"		
271	Dec. 6	4	16	36	?		17	25	17	25	-	-	5.5	0.02	0.03	"	"		
272	9	6	59	27	59.5		67	08	67.1		?		?	?	0.12	"	"		
273	9	9	?		?		34	40	?		-	-	109.3	?	?	"	"		
274	13	13	?		?		46	25	46	25	-	-	?	0.02	0.01	"	"		
275	17	11	04	05	04	05	08	42	08	40	-	-	?	0.01	0.02	"	"		
											-	-	?	?	5.75	"	"		

EARTHQUAKES.

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No.	Date 1929	P				S				L				Duration of Total Earthquake (mean)	Maximum Range of Motion				Character of Motion	Intensity	Remarks	
		E	W	N	S	E	W	N	S	E	W	N	S		E	W	N	S				
276	Dec. 17	h	m	s	m	s	m	s	m	s	m	s	m	mm	mm							
		12	?		17	39	?		?		22	32	?			0.35		Slow		Feeble		
277	18	9	20	31	?		?		-	-	-	-	?	?	0.03		≌		≌			
278	22	17	57	50	?		58	04	58	04	-	-	-	-	0.02	0.03		≌		≌		
279	27	13	?		-	-	40	04	-	-	-	-	-	?	0.03	-		≌		≌		
280	31	1	09	58	?		14	54	14	53	-	-	-	-	?	?		≌		≌		
281	31	4	51	46	-	-	58	15	-	-	-	-	-	-	?	?		≌		≌		

PULSATORY OSCILLATIONS.

(1 9 2 9) (EW Component)

No.	Beginning			Ending			Maximum				Double Amplitude
	Date			Date			Date				
	Month	Day	Hour	Month	Day	Hour	Day	Hour	Day	Hour	
1	December	31	14	January	4	1	1	19	2	2	μ 26
2	January	5	16		8	1	6	10	6	14	11
3		10	15		13	15	12	17	12	23	4
4		14	14		17	8	15	10	15	15	14
5		18	16		20	4	18	21	19	0	6
6		26	18		27	17	26	21	27	1	5
7	February	2	0	February	3	21	2	11	2	20	5
8		8	23		11	22	9	8	9	12	4
9		12	9		14	12	13	10	13	16	10
10		18	6		20	18	19	7	19	12	13
11		21	8		22	9	21	19	21	23	4
12		22	21		24	20	23	9	23	14	7
13		24	22		27	1	25	1	25	6	3
14		28	18	March	2	21	2	9	2	12	5
15	March	5	16		6	19	5	21	6	1	6
16		13	0		15	8	14	5	14	11	9
17		19	0		22	11	20	4	20	10	10
18		24	13		25	16	25	2	25	7	9
19		27	20		31	10	29	2	29	8	5
20		31	23	April	2	2	1	8	1	14	5
21	April	6	21		8	10	7	11	7	15	9
22		9	2		10	1	9	8	9	12	11
23		12	12		15	11	14	9	14	16	6
24		20	16		23	14	21	11	21	17	30
25		28	1		29	1	28	16	28	20	4
26	May	2	1	May	2	16	2	8	2	11	4
27		3	18		5	15	4	12	4	19	6
28		23	8		25	14	23	17	23	22	30
29	June	6	1	June	8	0	6	11	6	17	17
30		18	22		19	14	19	6	19	10	6
31	July	3	10	July	5	3	4	5	4	11	3
32	August	15	20	August	20	1	18	6	18	11	7
33	September	9	1	September	13	4	10	11	10	17	15
34		12	13		14	16	13	10	13	17	24
35		29	13		30	14	29	22	30	2	5
36	October	4	0	October	5	17	4	22	5	3	11
37		9	7		11	12	10	17	10	21	4
38		17	0		18	0	17	18	17	22	3
39		20	14		21	11	20	20	21	0	4
40		21	18		22	11	22	0	22	4	4
41		25	9		28	4	26	18	27	0	14
42		31	12	November	1	2	30	17	30	21	4
43	November	11	12		12	16	11	19	11	23	6
44		18	0		19	12	18	8	18	14	10
45		25	14		28	17	26	21	27	1	30
46		29	20	December	3	6	1	1	1	5	6
47	December	3	20		5	20	4	2	4	5	11
48		7	13		8	19	7	21	8	0	5
49		14	11		17	10	15	19	15	22	5
50		20	13		23	15	20	20	21	0	10
51		23	23		25	21	24	16	24	21	9
52		26	0		28	1	27	6	27	10	11