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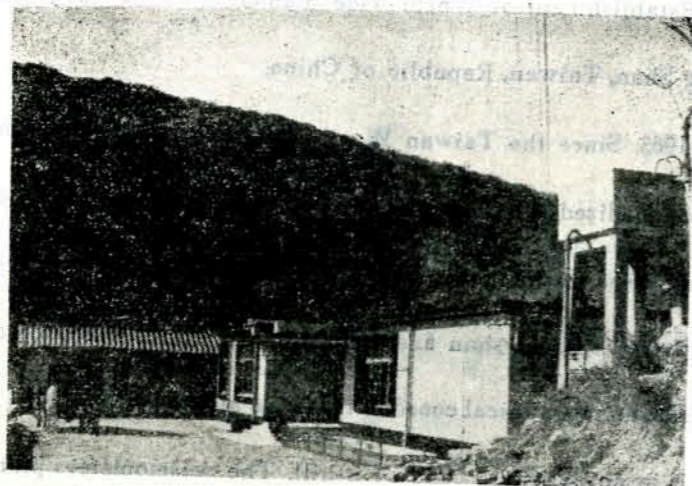
64 KUNG YUAN ROAD, TAIPEI, TAIWAN, CHINA

The New Establishment of World-wide Standardized Seismograph Station at Anpu, Yanming Shan, Taiwan, Republic of China.

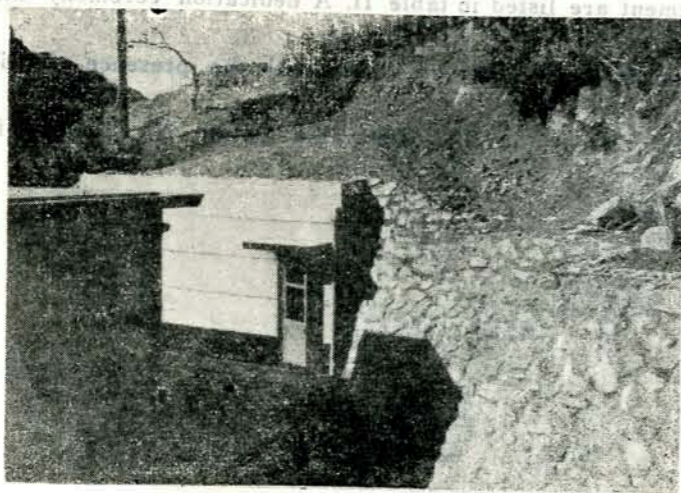
In March, 1963. Since the Taiwan Weather Bureau participated the Project of World-wide Standardized Seismograph Network of U.S. Coast and Geodetic Survey, Anpu had been chosen for the site of this new establishment. The station is located in a saddle between Tatung-shan and Chihsing-shan at a distance about 15 Kms north of Taipei. Its geographical coordinates have already been added into Table I.

The vault is in an artificial cave of a hill. The seismometers piers rest on un-weathered fresh andersite which is 4.0 to 4.7 meter below the surface. The observatory is relatively isolated and the magnifications of the seismometers are SP 6,250 and LP 750. The new station has been installed with three Benioff short-period seismographs and three Sprengnether long-period seismographs. The constants of these instrument are listed in table II. A dedication ceremony had been held at the station of Anpu on March 14, 1963 with the presence of His Excellency Governor Huang Chieh and the Honorable Ralph N. Clough of the U. S. Embassy at Taipei.

Front view of the vault



Side view of the Anpu Station



Front view of the Vault

General Aspect of the Earthquakes during

January to March, 1963.

There were 554 earthquakes happened in the region of Taiwan during the period from January to March 1963. Among them 54 felt earthquakes had been registered and the remains were unfelt ones.

Two remarkable earthquakes had happened on the 13th of February. Its epicenters were located at 50km. SE. and 16km. SSE. of Ilan with focal depth about 10km. and 20km. respectively. Another remarkable earthquake had happened on the 4th of March. Its epicenter was located at 16km. SSE. of Ilan with a focal depth about 5Km

Two moderate earthquakes had occurred on the of 25th February and the 10th, March. Their epicenters were extrapolated at 204km. E. of Hwalien and 19km. SSE. of Ilan respectively. The number of small felt area earthquakes was four and the remains were local ones.

About twenty-one distant earthquakes had been recorded on the seismogram at Taipei. Their epicenters were reported to be at the following places: Marian Islands, Ruykuy Islands, Bastern New Gfinea, Kurle Islands, and the eastcoast or Honsnu Japan, and the rests were unknown.

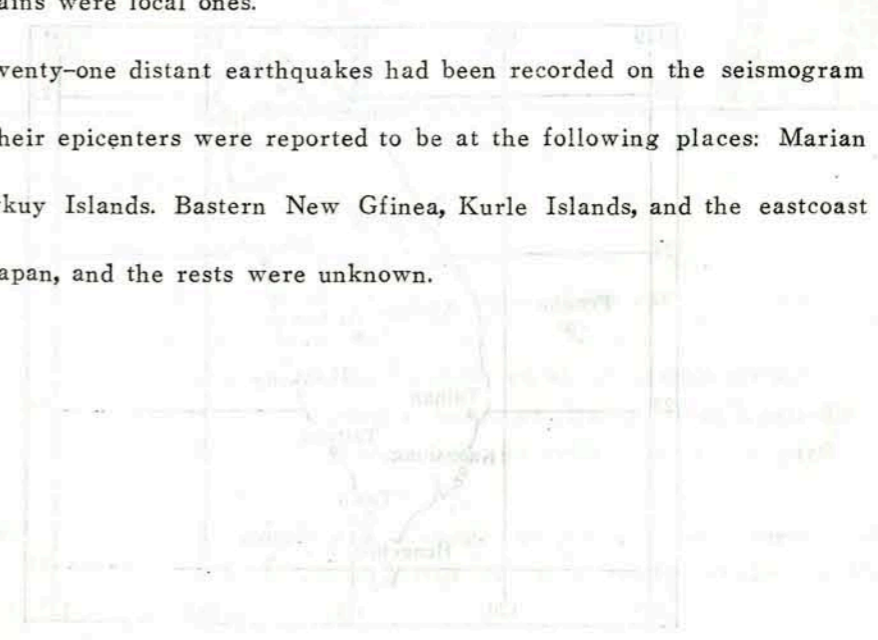


Table I. Geographical coordinates of the Seismological Station, Taiwan China.

λ : Longitude φ : Geographical Latitude
 φ' : Geocentric Latitude
 $a = \cos \varphi' \cos \lambda$ $b = \cos \varphi' \sin \lambda$ $c = \sin \varphi'$

Station	φ ; (N)	λ ; (E)	φ'	Alitude	Subsoil	a	b	c	Seismographs
Anpu	23.11	121.31	23.20	835.2	m Andesite	-0.4736	+0.7725	+0.4231	SP (H. V.) LP (H. L.)
Alishan (mt.)	23.31	120.48	23.22	2405.1	tone	-0.4700	+0.7855	+0.3966	W. (H. V.) O. S ₁ .
Hengchun	22.00	120.45	21.52	22.3	Alluvium	-0.4754	+0.7976	+0.3724	W. (H. V.) S ₂ .
Hsinkong	23.03	121.22	22.58	36.5	"	-0.4793	+0.7862	+0.3901	P ₁ S ₂ W. (H.V.) A ₁ .
Hsinchu	24.48	120.58	24.39	32.8	"	-0.4677	+0.7793	+0.4171	P ₁ S ₂ .
Hwalien	23.58	121.37	23.49	17.6	"	-0.4796	+0.7791	+0.4038	W. (H.V.) P ₁ S ₂ A ₂ .
Ilan	24.46	121.45	24.73	7.4	"	-0.4784	+0.7731	+0.4165	W. (H. V.) P ₁ S ₁ .
Kaohsiung	22.37	120.16	22.29	33.1	"	-0.4657	+0.7981	+0.3824	P ₁ S ₁ .
Lanyu	22.02	121.33	21.54	332.2	Basalt	-0.4881	+0.7950	+0.3730	P ₂ .
Penghu	23.32	119.33	23.23	9.4	"	-0.4527	+0.7985	+0.3969	P ₁ .
Taipei	25.02	121.31	24.53	8.0	Alluvium	-0.4742	+0.7733	+0.4208	W. (H.V.) O. S ₁ P ₃ A ₁ .
Tawu	22.21	120.54	22.13	7.6	"	-0.4754	+0.7944	+0.3781	W. (H. V.) S ₁ .
Taitung	22.45	121.09	22.37	8.9	"	-0.4775	+0.7900	+0.3846	W. (H. V.) S ₂ .
Tainan	23.00	120.13	22.52	12.7	"	-0.4637	+0.7962	+0.3886	W. (H.V.) P ₁ S ₁ A ₁ .
Taichung	24.09	120.41	24.00	77.1	"	-0.4662	+0.7856	+0.4067	W. (H. V.) S ₂ P ₁ .
Yushan (Mt. Marrison)	23.29	120.57	23.21	3850.0	"	-0.4722	+0.7873	+0.3964	P ₁ .

- W(H) : Wiechert's horizontal seismograph.
- W(V) : Wiechert's vertical seismograph.
- O : Omori's horizontal seismograph. (V:20)
- P₁ : C.M.O. type horizontal portable seismograph. (V:40)
- P₂ : Three component portable seismograph. (V:20)
- P₃ : Higuti-C.M.O. type short period, horizontal seismograph. (V:50)
- S₁ : C.M.O. type three component strong motion seismograph. (V:2)
- S₂ : Higuti-C.M.O. type three component strong motion seismograph. (V:1)
- A₁ : Ishimoto's three component acceleration seismograph.
- A₂ : Higuti's three component strong motion accelerometer.
- S.P. : Benioff short-period seismograph.
- L.P. : Sprengnether long-period seismograph.

Map showing the position of Seismological Station in Taiwan, China.

Figure 1

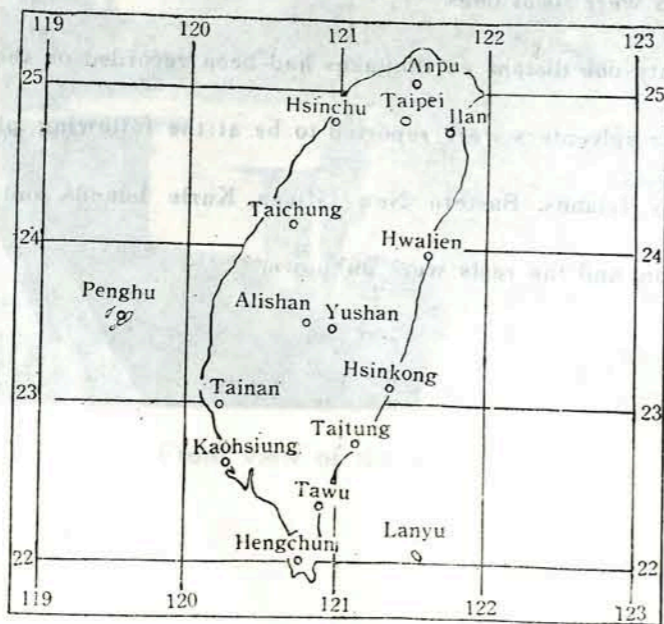


Table II. Specification of instruments:-

Mass of the pendulum M (kg) Friction r (mm.²)
 Magnification V. Proper period of the pendulum T₀(sec.)
 Damping ratio v. Proper period of the galvanometer T_g (sec.)

The Constants of Seismographs are as follows.

Seismograph	Component	M.	V.	v.	r.	To	Tg
W(H)	E-W	200	77	9	0.10	5.1	
	N-S	200	78	9	0.13	5.1	
	U-D	80	75	8	0.08	5.1	
P ₁	E-W	18	40	8	0.13	5.1	
	N-S	18	40	8	0.13	5.1	
P ₂	E-W	10	20	2	0.24	4.0	
	N-S	10	20	2	0.41	4.0	
	U-D	7.5	20	2	0.29	4.0	
P ₃	E-W	20	49	10	0.08	2.2	
	N-S	20	49	10	0.08	2.3	
O	E-W	15	20	3	0.05	15.7	
	N-S	15	20	3	0.08	15.1	
S ₁	E-W	2	2	4	0.06	3.8	
	N-S	2	2	4	0.06	3.8	
	U-D	1.5	2	8	0.06	3.5	
S ₂	E-W	4	1	8	0.04	6.0	
	N-S	4	1	8	0.04	6.0	
	U-D	2	1	8	0.03	5.0	
A ₁	E-W	15	220	10	0.005	0.10	
	N-S	15	220	10	0.009	0.10	
	U-D	15	170	10	0.006	0.08	
A ₂	E-W	1	16	10	0.01	0.11	
	N-S	1	16	10	0.02	0.10	
	U-D	1	16	10	0.01	0.11	
SP	E-W	107.5	6,250	17		1.0	0.75
	N-S	107.5	6,250	17		1.0	0.75
	U-D	107.5	6,250	17		1.0	0.75
LP	E-W	10.75	750	∞		30.0	100.0
	N-S	10.75	750	∞		30.0	100.0
	U-D	11.2	750	∞		30.0	100.0

The present publication inserts the following explanation of the notations only in the first number hereafter.

1. Phase.

- P : Normal first phase (Longitudinal waves)
- pP, PP, PPP,..... : Longitudinal waves reflected at the earth's surface.
- S: Normal second phase (transverse waves).
- sS, SS, SSS,..... : Transverse waves reflected at the earth's surface.
- PS, PPS, : Waves suffered a change or changes from longitudinal to transverse oscillation, on reflection at the earth's surface.
- SP, SPP, : Waves suffered a change or changes from transverse to longitudinal oscillation, on reflection at the earth's surface.

- L : Long waves at the beginning of the surface waves.
 - Q : Shorter and more regular waves in the surface waves.
 - M : Largest motion in the surface waves.
 - C : Tail or end portion.
 - F : End of the discernible movement.
 - Δ : Epicentral distance.
 - ΔH : Focal distance.
 - H : Depth of focus.
 - " : Micron.
 - P-S: Duration of Preliminary tremor.
2. Nature of the motion.
 - i : Sudden commencement of a phase.
 - e : Gradual or indistinct commencement of a phase.
 - ? : Questionable or uncertain.
 3. Period and Initial motion.
 - T : Period, duration of one complete oscillation.
 - I : Amplitude of the true displacement of the ground from the position at rest.
 - I_N : N-S component of I.
 - I_E : E-W component of I.
 - I_z : Vertical component of I.
 - Displacement to the north, east and upward are regarded as positive.
 4. Scales of seismic intensity.

The intensity of the shock is estimated according to the scales O-VI, as follows:

 - O : No feeling: Shocks too weak to cause human feelings, registered only by seismographs.
 - I : Slight: Extremely feeble shocks only felt by persons at rest or by those who are observant to an earthquake.
 - II : Weak: Shocks felt by most persons, slight shaking of doors and latticed sliding doors.
 - III : Rather strong: Slight shaking of houses and buildings, rattling of doors and latticed sliding doors, swinging of hanging objects like the electric lamps, moving of liquids in vessels.
 - IV : Strong: Strong shaking of houses and buildings, overturning of unstable objects, spilling of liquids out of vessels.
 - V : Very Strong: Cracks in the walls, overturning of gravestones, etc, lanterns etc, damaging of chimneys and mud-and-plaster warehouses.
 - VI : Disastrous: Demolition of houses, landslips, fissures on the roads, the ground etc.

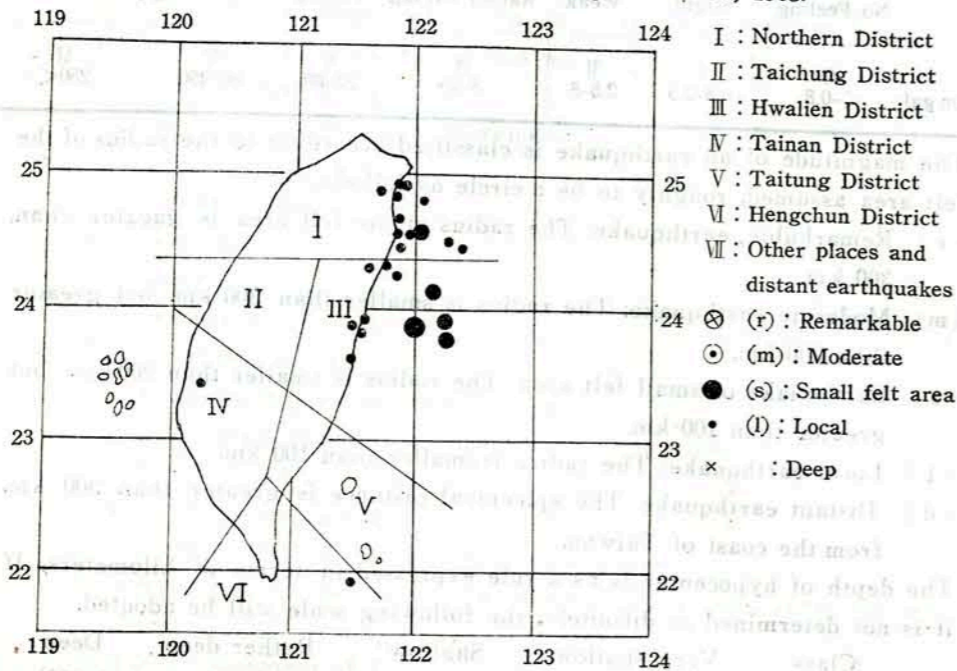
	No Feeling	Slight	Weak	Rather Strong	Strong	Very Strong	Disastrous
Scale Acceleration/gal	O <-0.8	I 0.8-2.5	II 2.5-8	III 8-25	IV 25-80	V 80-250	VI 250<

5. The magnitude of an earthquake is classified according to the radius of the felt area assumed, roughly to be a circle as follows:-
 - (r) Remarkable earthquake: The radius of the felt area is greater than 300 km.
 - (m) Moderate earthquake: The radius is smaller than 300 km. but greater than 200 km.
 - (s) Earthquake of small felt area: The radius is smaller than 200 km. but greater than 100 km.
 - (1) Local earthquake: The radius is smaller than 100 km.
 - (d) Distant earthquake: The epicentral distance is greater than 300 km. from the coast of Taiwan.
6. The depth of hypocenter is as a rule expressed in terms of kilometers, if it is not determined so definitely, the following scale will be adopted.

Class	Very shallow	Shallow	Rather deep	Deep
Depth	0~30km.	30~100km.	100~200km.	>200km.
7. Geographical coordinates:
 - λ : Longitude (E) φ : Latitude (N)
 - The coordinates are been expressed in degrees with one place of decimal.
8. Time

Time is referred to Greenwich Mean Time (G.M.T.)

Epicenters of Felt Earthquakes in January to March, 1963.



Number of earthquakes classified according to it's magnitude and districts January to March, 1963.

Classification	Number of felt earthquakes					Number of unfelt earthquakes	Total
	Magnitudes	Remark-able	Moderate	Small felt area	Local		
Districts							
Northern District		2	1	3	23	29	271
Taichung "		—	—	—	—	0	19
Hwalien "		1	1	1	20	23	107
Tainan "		—	—	—	1	1	2
Taitnug "		—	—	—	—	—	57
Hengchun "		—	—	—	1	1	22
Other places "		—	—	—	—	—	22
Total		3	2	4	45	54	554

Felt earthquakes in the month of January to March, 1963.

No.	Month	P. (G. M. T.)	Mag-nitude	Epicenter	Latiude	Longitude	Depth
		d. h. m.			N.	E.	kms.
1	Jan.	14 02 55	(l)	34km. ESE. of Ilan.	—	—	—
2	"	17 17 38	"	About 30km. ENE. of Hwalien.	—	—	20
3	"	18 04 59	"	Near Hwalien.	—	—	—
4	"	21 17 33	"	"	—	—	—
5	Feb.	04 21 00	"	"	—	—	—
6	"	05 03 05	"	About 30km. ESE. of Hwalien.,	—	—	35
7	"	12 04 47	"	About 37km. SSW. of Hwalien.	—	—	0
8	"	13 08 50	(r)	50km. SE. of Ilan.	24.4	122.1	10
9	"	13 08 53	(l)	ditto.	—	—	—
10	"	13 08 55	"	"	—	—	—
11	"	13 09 09	(s)	50km. SE. of Ilan.	24.4	122.1	45
12	"	13 09 31	(r)	16km. SSE. of Ilan.	24.6	121.9	20
13	"	13 12 17	(s)	About 56km. ESE. of Taipei.	24.9	122.1	0
14	"	13 19 02	"	About 26km. E. of Suao.	24.5	122.1	20
15	"	14 05 03	(l)	Near Hwalien.	—	—	—
16	"	15 14 51	"	ditto.	—	—	—
17	"	17 00 15	"	About 26km. E. of Suao.	—	—	25
18	"	17 02 31	"	About 84km. ENE. of Hwalien.	—	—	80
19	"	18 07 08	"	About 60km. NE. of Hwalien.	—	—	30
20	"	19 03 44	"	Near Tawu.	—	—	—
21	"	20 13 00	"	20km. ESE. of Ilan.	—	—	20
22	"	20 13 46	"	About 20km. W. of Ilan.	—	—	5
23	"	20 13 51	"	About 20km. SE. of Ilan.	—	—	10
24	"	20 19 40	(s)	23km. SE. of Ilan.	24.5	121.9	20
25	"	24 02 12	(l)	25km. SSE. of Ilan.	—	—	10
26	"	25 07 11	(m)	About 204km. E. of Hwalien.	24.0	123.6	80
27	Mar.	01 00 07	"	Near Hwalien.	—	—	—
28	"	01 05 25	"	20km. SE. of Ilan.	—	—	10
29	"	02 09 40	"	About 80km. ENE. near E. of Hwalien.	—	—	5
30	"	04 12 27	"	About 32km. S. of Ilan.	—	—	5
31	"	04 13 38	(r)	16km. SSE. of Ilan.	24.6	121.8	5
32	"	04 14 42	(l)	About 45km. SSE of Ilan.	—	—	10
33	"	04 14 55	"	ditto.	—	—	—
34	"	04 15 38	"	30km. SE. of Ilan.	—	—	15

No.	Month	P. (G. M. T.)			Mag-nitude	Epicenter	Latitude	Longitude	Depth
		d.	h.	m.					
35	Mar.	04	16	14	(1)	About 30km. SSE. of Ilan.	N.	E.	kms. 15
36	"	04	16	43	"	About 25km. SSE. of Ilan			10
37	"	04	21	15	"	ditto			
38	"	05	20	01	"	"			
39	"	05	21	18	"	"			
40	"	06	08	08	"	About 20km. SE. of Ilan.			30
41	"	06	20	33	"	About 22km. SSE. of Ilan.			5
42	"	08	18	08	"	About 12km. SSE. of Ilan.			15
43	"	10	00	55	"	About 16km. SSE. of Ilan.			5
44	"	10	02	53	(m)	About 19km. SSE. of Ilan.	24.5	121.9	5
45	"	10	08	02	(l)	About 21km. WE. of Ilan.			5
46	"	11	14	22	"	About 10km. ENE. of Shinkong.			15
47	"	11	20	57	"	About 18km. ENE. of Ilan.			10
48	"	13	14	05	"	About 46km. SSE. of Ilan.			35
49	"	17	05	06	"	About 26km. ESE. of Ilan.			20
50	"	20	23	20	"	About 10km. SSE. of Ilan.			10
51	"	25	01	40	"	near Ilan.			
52	"	27	18	07	"	About 46km.W. of Yusnan.			0
53	"	29	19	32	"	About 27km. NW. of Hwalien.			0
54	"	29	22	17	"	About 32km. WNW. of Hwalien.			0

Unfelt Earthquakes in the month of January to March, 1963.

No.	Month	P. (G. M. T.)			Epicenter	No.	Month	P. (G. M. T.)			Epicenter
		d.	h.	m.				d.	h.	m.	
1	Jan.	01	02	33	Hwalien district.	11	Jan.	04	05	47	(d)
2	"	01	06	58	Taitung district.	12	"	04	21	16	Hwalien. district.
3	"	01	18	40	near Hwalien.	13	"	05	21	43	Taitung district.
4	"	01	23	50	(d)	14	"	06	09	25	Near Shinkong.
5	"	02	14	06	Taichung district.	15	"	07	11	53	Taitung district.
6	"	02	22	12	Northern district.	16	"	07	18	39	Near Hwalien.
7	"	02	23	39	Hwalien district.	17	"	07	20	19	Near Shinkong.
8	"	03	03	08	(d)	18	"	09	03	44	Near Tawu.
9	"	03	19	51	Taitung district.	19	"	09	04	29	Northern district.
10	"	04	03	00	Hwalien district.	20	"	09	04	45	Hwalien district.

No.	Month	P. (G. M. T.)			Epicenter	No.	Month	P. (G. M. T.)			Epicenter
		d.	h.	m.				d.	h.	m.	
21	Jan.	09	04	52	Northern district.	56	Jan.	25	14	58	Hwalien district.
22	"	09	12	45	Ditto.	57	"	25	16	33	Near Taitung.
23	"	09	18	56	Taitung district.	58	"	25	18	20	Near Shinkong.
24	"	09	19	05	Hwalien district.	59	"	26	01	01	55km. SE. of Hwalien.
25	"	11	07	10	Ditto.	60	"	27	01	09	Hwalien. district.
26	"	11	08	12	Tainan district.	61	"	27	03	53	Near Shinkong.
27	"	12	04	52	Hwalien district.	62	"	27	11	18	Hwalien district.
28	"	12	22	37	Northern district.	63	"	27	23	02	Ditto.
29	"	13	05	46	Ditto.	64	"	28	01	16	"
30	"	13	11	48	18km.SSW of Shinkong.	65	"	28	03	43	40km. EES. of Ilan.
31	"	14	03	13	Northern district.	66	"	28	08	51	Northern. district.
32	"	14	03	35	Taitung district.	67	"	28	12	19	(d)
33	"	14	08	09	Ditto.	68	"	28	13	11	"
34	"	14	23	46	Near Hwalien.	69	"	28	13	26	"
35	"	15	00	46	Hwalien district.	70	"	28	17	26	Near Taitung
36	"	15	01	15	Taitung district.	71	"	28	17	30	Taitung. district.
37	"	15	13	02	Northern district.	72	"	28	17	45	Ditto.
38	"	15	13	09	55km. E. of Taipei.	73	"	28	23	50	145km. ENE. of Shinkong.
39	"	14	18	41	Northern district.	74	"	29	00	21	Taitung district.
40	"	17	14	19	Ditto.	75	"	29	07	36	Northern district.
41	"	17	14	25	"	76	"	29	21	13	Taitung district.
42	"	17	14	51	"	77	"	30	01	30	Hwalien district.
43	"	17	20	42	335km. E. of Ilan.	78	"	31	05	07	Ryukyu Islands.
44	"	18	04	55	Near Hwalien.	79	"	31	14	31	Taitung district.
45	"	18	08	02	Near Alishang	80	Feb.	01	14	06	Near Shinkong.
46	"	20	15	59	Northern	81	"	02	01	44	280km.SSW. of Hengchun.
47	"	21	17	35	Taitung district.	82	"	02	20	15	Near Shinkong.
48	"	22	00	40	110km. E. of Shinkong.	83	"	03	16	17	Taitung district.
49	"	22	20	22	45km. ESE. of Ilan.	84	"	03	19	10	Ditto.
50	"	23	15	45	Hwalien district.	85	"	03	20	10	Hwalien district.
51	"	23	23	25	Ditto.	86	"	04	04	23	Hengchun District.
52	"	24	09	13	Near Hwalien.	87	"	04	07	27	Northern district.
53	"	24	22	32	(d)	88	"	04	16	16	Ditto.
54	"	24	22	37	Taitung district.	89	"	04	20	29	Taitung district.
55	"	25	12	54	Mariana Islands region.	90	"	04	23	28	Ditto.

No.	Month	P.			Epicenter	No.	Month	P.			Epicenter
		(G.	M.	T.)				(G.	M.	T.)	
		d.	h.	m.			d.	h.	m.		
91	Feb.	05	00	16	126	Feb.	13	13	43	31km. ESE. of Ilan.	
92	"	05	23	24	127	"	13	14	07	"	
93	"	08	00	48	128	"	13	14	39	"	
94	"	08	14	33	129	"	13	14	43	"	
95	"	09	07	44	130	"	13	15	02	"	
96	"	09	07	45	131	"	13	15	05	"	
97	"	11	00	54	132	"	13	16	04	"	
98	"	12	00	27	133	"	13	16	23	"	
99	"	12	00	36	134	"	13	17	15	"	
100	"	12	02	31	135	"	13	17	28	"	
101	"	12	02	31	136	"	13	18	03	"	
102	"	12	03	05	137	"	13	18	23	Solomon Islands.	
103	"	12	19	33	138	"	13	18	33	Near Ilan.	
104	"	12	22	53	139	"	13	20	03	Near Suao.	
105	"	13	09	06	140	"	13	20	30	"	
106	"	13	09	25	141	"	13	20	45	"	
107	"	13	09	29	142	"	13	20	53	"	
108	"	13	09	43	143	"	13	21	58	"	
109	"	13	10	04	144	"	13	23	04	"	
110	"	13	10	28	145	"	14	02	38	"	
111	"	13	10	29	146	"	14	02	53	"	
112	"	13	10	35	147	"	14	04	25	"	
113	"	13	10	38	148	"	14	04	26	"	
114	"	13	10	46	149	"	14	02	23	"	
115	"	13	10	59	150	"	14	05	40	"	
116	"	13	11	04	151	"	14	07	11	Bands sea.	
117	"	13	11	10	152	"	14	07	47	Near Suao.	
118	"	13	11	13	153	"	14	09	32	"	
119	"	13	11	44	154	"	14	09	56	"	
120	"	13	11	46	155	"	14	10	11	"	
121	"	13	11	49	156	"	14	10	14	"	
122	"	13	12	12	157	"	14	10	42	"	
123	"	13	13	13	158	"	14	11	41	"	
124	"	13	13	41	159	"	14	12	40	"	
125	"	13	13	41	160	"	14	13	29	"	

No.	Month	P.			Epicenter	No.	Month	P.			Epicenter
		(G.	M.	T.)				(G.	M.	T.)	
		d.	h.	m.			d.	h.	m.		
161	Feb.	14	15	05	196	Feb.	18	12	29	Northern district.	
162	"	14	18	52	197	"	18	15	13	Hwalien district.	
163	"	14	18	59	198	"	19	02	35	Northern district.	
164	"	14	19	45	199	"	19	02	57	Hwalien district.	
165	"	14	20	02	200	"	19	03	28	Ditto.	
166	"	14	20	16	201	"	19	11	31	Near Tawu.	
167	"	14	22	15	202	"	19	04	35	"	
168	"	15	02	26	203	"	19	06	22	Northern district	
169	"	15	03	59	204	"	19	08	23	About 80km. ESE. of Hwalien.	
170	"	15	04	05	205	"	19	09	?	Taichung district	
171	"	15	07	35	206	"	19	10	29	Ditto.	
172	"	15	05	42	207	"	19	10	38	"	
173	"	15	05	45	208	"	19	10	59	"	
174	"	15	08	55	209	"	19	11	04	"	
175	"	15	10	18	210	"	19	11	09	"	
176	"	15	10	22	211	"	19	12	18	"	
177	"	15	13	09	212	"	19	13	13	"	
178	"	15	15	29	213	"	19	13	42	"	
179	"	15	20	03	214	"	19	16	04	"	
180	"	16	01	46	215	"	19	19	02	"	
181	"	16	01	50	216	"	19	21	48	Hwalien district.	
182	"	16	01	52	217	"	19	22	29	About 81km. E. of Taichung.	
183	"	16	03	48	218	"	19	23	04	Ditto.	
184	"	16	09	27	219	"	20	01	47	Hwalien district	
185	"	16	15	26	220	"	20	13	22	Near Suao.	
186	"	16	17	04	221	"	20	13	23	"	
187	"	16	17	56	222	"	20	13	25	"	
188	"	16	18	35	223	"	20	14	00	About 31km. ENE. of Ilan.	
189	"	16	28	40	224	"	20	16	18	Northern district.	
190	"	17	05	18	225	"	20	22	06	Near Suao.(After shock)	
191	"	17	05	33	226	"	21	01	52	"	
192	"	17	06	17	227	"	21	03	40	"	
193	"	17	13	47	228	"	21	04	11	"	
194	"	17	13	54	229	"	21	04	12	"	
195	"	18	01	31	230	"	21	09	26	Hengchun district.	

No.	Month	P. (G. M. T.)			Epicenter	No.	Month	P. (G. M. T.)			Epicenter
		d.	h.	m.				d.	h.	m.	
231	Feb.	21	10	20	Near Suao.(After shock.)	266	Mar.	02	12	30	Ditto.
232	"	21	12	27	About 80km. ESE. of Hwalien.	267	"	02	12	55	Taichung district.
233	"	21	15	58	Ditto.	268	"	02	16	01	Taitung district.
234	"	21	19	38	"	269	"	02	19	47	Northern district.
235	"	21	20	21	Hengchun district.	270	"	02	20	03	Hengchun district.
236	"	21	22	49	Taitung district.	271	"	02	21	02	Northern district.
237	"	22	00	59	Near Shinkong.	272	"	02	21	34	Hwalien district.
238	"	23	05	56	Hwalien district.	273	"	02	21	46	Northern district.
239	"	23	17	11	About 76km. ESE. of Hwalien.	274	"	02	21	49	Ditto.
240	"	23	17	25	Hwalien district.	275	"	02	23	17	"
241	"	23	18	25	Ditto.	276	"	02	23	33	"
242	"	24	02	36	Near Ilan.(After shock)	277	"	03	01	13	"
243	"	24	03	21	Ditto	278	"	03	01	16	"
244	"	24	03	43	"	279	"	03	05	01	"
245	"	25	05	52	"	280	"	03	10	29	"
246	"	25	13	00	"	281	"	03	18	16	"
247	"	25	19	23	Hengchun district.	282	"	03	20	12	"
248	"	25	21	25	Ditto	283	"	03	23	03	Hwalien district.
249	"	25	23	47	"	284	"	03	23	31	Northern district.
250	"	26	02	14	"	285	"	04	00	55	Ditto.
251	"	26	05	21	Taitung district.	286	"	04	02	02	"
252	"	26	20	21	Eastern New Guinea.	287	"	04	04	55	"
253	"	27	01	01	Taichung district.	288	"	04	08	44	About 25km. SSW. of Alishan.
254	"	27	04	23	About 50km. E. of Hwalien.	289	"	04	09	41	Hwalien district.
255	"	27	04	32	Ditto.	290	"	04	11	51	Ditto.
256	"	27	04	37	(d)	291	"	03	13	05	"
257	"	27	14	06	About 47km. E. of Shinkong.	292	"	04	13	49	Near Ilan.(After shock)
258	"	27	20	26	Near Shinkong.	293	"	04	14	00	Ditto.
259	"	28	05	06	About 80km. ESE. of Hwalien.	294	"	04	14	02	"
260	"	28	15	15	Hwalien district.	295	"	04	14	03	About 45km. SE. of Ilan.
261	Mar	01	07	40	Northern. district.	296	"	04	14	04	Ditto.
262	"	01	20	10	"	297	"	04	14	12	"
263	"	02	00	44	"	298	"	04	14	18	"
264	"	02	03	15	"	299	"	04	14	33	"
265	"	02	10	25	Taitung district.	300	"	04	14	47	"

No.	Month	P. (G. M. T.)			Epicenter	No.	Month	P. (G. M. T.)			Epicenter
		d.	h.	m.				d.	h.	m.	
301	Mar.	04	14	53	Ditto.	336	Mar.	05	12	00	Ditto.
302	"	04	14	55	"	337	"	05	14	39	"
303	"	04	14	57	"	338	"	05	19	06	"
304	"	04	14	59	"	339	"	05	20	49	"
305	"	04	15	18	"	340	"	05	21	32	"
306	"	04	15	30	"	341	"	06	00	25	"
307	"	04	15	34	"	342	"	06	00	50	"
308	"	04	15	38	"	343	"	06	04	55	"
309	"	04	16	07	"	344	"	06	13	37	"
310	"	04	16	19	"	345	"	06	20	46	"
311	"	04	16	30	"	346	"	06	20	51	"
312	"	04	17	07	"	347	"	07	11	03	"
313	"	04	17	09	"	348	"	07	14	49	"
314	"	04	17	33	"	349	"	07	15	03	"
315	"	04	18	35	"	350	"	07	15	07	Taitung district.
316	"	04	18	46	"	351	"	07	15	10	Near Ilan.(After shock)
317	"	04	19	26	"	352	"	07	15	45	Ditto.
318	"	04	20	26	"	353	"	07	20	04	"
319	"	04	20	28	"	354	"	07	20	10	"
320	"	04	21	30	"	355	"	08	06	17	"
321	"	04	21	34	"	356	"	08	08	04	"
322	"	04	21	38	"	357	"	08	11	48	About 75km. ENE. of Shinkong.
323	"	04	21	56	"	358	"	08	13	32	About 29km. N. of Hwalien.
324	"	04	21	58	"	359	"	08	15	08	Near Suao
325	"	04	22	54	"	360	"	08	20	33	Near Hwalien.
326	"	05	00	51	"	361	"	08	21	26	"
327	"	05	02	51	"	362	"	09	13	55	(d)
328	"	05	03	44	"	363	"	09	13	58	Northern district.
329	"	05	05	03	"	364	"	09	20	26	Hengchun district.
330	"	05	05	23	"	365	"	09	20	50	About 65km. ESE. of Tawu.
331	"	05	05	32	"	366	"	09	22	42	Hengchun district.
332	"	05	05	59	"	367	"	09	22	45	About 122km. ESE. of Ilan.
333	"	05	07	43	"	368	"	09	23	58	Northern district.
334	"	05	07	51	"	369	"	10	00	13	Taitung district.
335	"	05	11	56	"	370	"	10	00	35	Near Suao.(After snock)

No.	Month	P.			Epicenter	No.	Month	P.			Epicenter
		(G.	M.	T.)				(G.	M.	T.)	
		d.	h.	m.			d.	h.	m.		
371	Mar.	10	03	14	Ditto.	406	Mar.	15	12	52	Hwalien district.
372	"	10	03	16	"	407	"	15	17	52	Ditto.
373	"	10	03	22	"	408	"	16	18	43	Northern district.
374	"	10	04	05	"	409	"	15	18	44	Hwalien district.
375	"	10	04	07	"	410	"	15	19	00	Near Shinkong.
376	"	10	04	14	"	411	"	16	08	51	(d) Near Kurile Islands.
377	"	10	04	33	"	412	"	17	02	47	Northern district.
378	"	10	04	49	"	413	"	17	03	18	Near Ilan.
379	"	10	07	58	"	414	"	17	04	18	Ditto.
380	"	10	07	59	"	415	"	17	05	11	Hwalien district.
381	"	10	08	41	"	416	"	17	05	20	Ditto.
382	"	10	11	00	"	417	"	17	05	45	Northern district.
383	"	10	18	18	"	418	"	17	05	47	Hwalien district.
384	"	10	18	48	"	419	"	17	06	02	Taitung district.
385	"	10	23	43	"	420	"	17	07	17	Northern district.
386	"	10	23	54	"	421	"	17	07	32	Near Taipei.
387	"	11	00	19	"	422	"	17	08	01	Near Taipei.
388	"	11	04	52	"	423	"	17	09	00	Northern district.
389	"	11	05	18	"	424	"	17	09	19	Near Suao.
390	"	11	11	00	Taitung district.	425	"	17	10	17	Northern district.
391	"	11	16	29	Northern district.	426	"	17	10	41	Ditto.
392	"	11	23	19	Near Ilan.	427	"	17	13	28	About 55km. SE. of Ilan.
393	"	12	08	05	Near Shinkong.	428	"	17	18	01	About 60km. SE. of Hwalien.
394	"	12	16	23	Northern district.	429	"	17	10	55	Near Hwalien.
395	"	13	05	03	About 85km. ENE. of Hwalien.	430	"	18	03	57	Northern district.
396	"	13	06	52	Hengchun district.	431	"	18	04	00	Ditto.
397	"	13	11	15	Hwalien district.	432	"	18	08	03	"
398	"	13	15	19	Hengchun district.	433	"	18	09	07	"
399	"	13	16	43	Ditto.	434	"	18	09	56	About 100km. E. of Hengchun
400	"	14	00	32	Near shinkong.	435	"	18	12	59	Northern district.
401	"	14	03	10	Northern district.	436	"	19	00	16	Hwalien district.
402	"	14	08	01	(d)	437	"	19	11	12	Ditto.
403	"	14	12	21	Taitung district.	438	"	19	14	52	Northern district.
404	"	15	09	48	Ditto.	439	"	19	16	31	Taichung district.
405	"	15	10	56	"	440	"	19	16	06	About 33km. ESE. of Taitung

No.	Month	P.			Epicenter	No.	Month	P.			Epicenter
		(G.	M.	T.)				(G.	M.	T.)	
		d.	h.	m.			d.	h.	m.		
441	Mar.	20	16	45	(d)	475	Mar.	26	03	36	Near Shinkong.
442	"	20	17	14	Northern district.	476	"	26	03	38	Northern district
443	"	20	21	43	Ditto.	477	"	26	10	00	(d).
444	"	21	01	11	Near Ilan.	478	"	26	14	47	Northern district.
445	"	21	05	27	Northern district.	479	"	25	21	38	(d).East coast of Honshu, Japan.
446	"	21	05	28	Ditto.	480	"	27	06	30	Northern district.
447	"	21	20	38	"	481	"	27	14	20	Ditto.
448	"	21	21	43	"	482	"	27	18	07	"
449	"	21	23	54	Hwalien district.	483	"	27	18	13	Near Tawu.
450	"	22	03	03	Northern district.	484	"	27	21	53	Hwalien district.
451	"	22	04	09	Ditto.	485	"	28	00	56	(d).
452	"	22	04	19	"	486	"	28	03	11	Near Shinkong.
453	"	22	09	38	"	487	"	28	16	19	Hwalien district.
454	"	22	10	07	"	488	"	28	16	44	Near Hwalien.
455	"	22	10	28	Hwalien district.	489	"	29	09	05	Northern district.
456	"	22	10	42	Northern district.	490	"	29	11	20	Near Hwalien.
457	"	22	17	07	Ditto.	491	"	29	19	38	Near Hwalien.
458	"	22	20	00	Hwalien district.	492	"	29	25	06	"
459	"	23	00	50	Northern district.	493	"	30	02	03	(d)
460	"	23	02	21	Ditto.	494	"	30	02	08	Near Hwalien.
461	"	23	03	07	"	495	"	30	05	26	Hengchun district.
462	"	23	06	02	Taitung district.	496	"	30	11	47	Northern district.
463	"	23	06	16	Northern district.	497	"	30	18	15	About 24km. E. of Suao.
464	"	23	08	56	Hwalien district.	498	"	30	18	18	Ditto.
465	"	23	15	32	Ditto.	499	"	31	06	15	Taitung district.
466	"	24	03	37	"	450	"	31	14	36	Northern district.
467	"	24	19	55	"						
468	"	24	21	45	"						
469	"	24	23	27	"						
470	"	25	01	57	Hengchun district.						
471	"	25	11	59	Near Hwalien.						
472	"	25	14	35	Hwalien district.						
473	"	25	21	16	Ditto.						
474	"	25	22	53	"						

No.	Station	Date	Phase	P. (G. M. T.)	Initial Motion			Maximun Amplitude			Period			P~S	Intensity	Epicenter & Remarks
					N	E	Z	N	E	Z	N	E	Z			
5	Ilan	13	-	h. m. s. 19 02 01.4	+	15	-	8	653			1.6			05.9	II About 26km.
	Hwalien		i		18.3	+ 16.4	- 13.8	- 47.3	560	615	236	1.7	1.8	1.9	10.8	I E. of Suao.
	Shingchu		e		21.0										13.2	I 24. 5N.
	Yushan		"		21.0										13.2	O 122. 1E.
	Taichung		-		31.3										17.0	O H--20
	Shinkong		-		33.3										20.0	O (s)
	Taitung		e		41.3										28.0	O
	Taipei		-		43.4				225	218					09.0	I
	Tawu		e		48.8										30.0	O
	Hengchun		"		55.8										-	O
	Tainan		"		03.1										-	O
6	Shinchu	20	e	19 40 35.0											11.8	O About 23km
	Twaipei		i		38.1	- 20	- 43	+ 83	1000	1000	350				7 1/2	II SE. of Ilan.
	Hwalien		"		40.0	- 68.5	- 17.5	- 35.9	403	595	455	2.3	1.3		8.7	II near Suao.
	Penghu		"		44.3										49.7	O 24. 5N.
	Alishan		"		49.5	+ 33.8	+ 12.0								24.0	I 121. 9E.
	Taichung		"		51.0	+ 24	- 30	400	285	278	1.7	1.8	2.0		15.3	O H--20
	Yushan		e		54.3	+ 42.5	+ 250								26.1	O (s)
	Shinkong		"		56.4			88	136		1.6	3.1			19.7	O
	Taitung		"	41 04.6											22.7	O
	Tainan		"		06.2										37.9	O
	Tawu		-		09.7										29.1	O
	Hengchun		e		18.0										33.2	O
	Ilan		i		31.2	+ 183	+ 5.5								4.2	III
7	Ilan	26	i	17 11 00.4	-	11	+ 28	782				2.4			16.4	II About 204
	Hwalien		"		33.3	- 5	+ 5.6	- 70.5	670	309		3.1	2.5	3.1	16.2	II km. E. of
	Taipei		"		36.1			437	375	162					20.9	I Hwalien.
	Shinkong		"		39.0	+ 20	+ 63.3	118.9	1435	155.5		1.0	0.6		22.6	I 24N. 123.
	Taitung		"		43.1	+ 10	+ 7.1	- 22.2	384	186		2.5	2.2	2.3	03.3	I H-80
	Yushan		"		43.7	+ 25	+ 37.5		506						27.6	O (m)
	Alishan		"		43.7	-	+ 36.1	- 33.0							27.9	I
	Taichung		"		45.2			- 316	461	210		2.6	3.7	2.0	29.2	O
	Tawu		"		49.7	+ 6	+ 6	- 10	72						32.2	O

No.	Station	Date	Phase	P. (G. M. T.)	Initial Motion			Maximun Amplitude			Period			P~S	Intensity	Epicenter & Remarks
					N	E	Z	N	E	Z	N	E	Z			
	Tainan		e	h. m. s. 54.8											26.9	O
	Hengchun		"		54.9			14	27				1.4		40.4	O
	Penghu		-		58.1										41.3	O
	Shingchu		e	12 41.0											30.0	I
	Kaohsiung		-		57.2										40.8	O
8	Shingchu	26	e	20 21 11.0												O Eastern
	Hengchun		"		14.4											O New Guinea.
	Tawu		i		17.2	+ 6	- 8							5	41.2	O 7 1/2 S.
	Taitung		e		20.0											O 146.2E.
	Shinkong		i		20.8	+ 15.3	+ 14.4									O
	Alishan		e		25.0											O
	Tainan		-		25.4											O
	Yushan		-		27.1									5	12.9	O
	Hwalien		i		27.7	+ 24.7	- 30.0	+ 50.0	238	223	132	6	6.8	3.5	50.4	O
	Taichung		-		29.7											O
	Taipei		-		31.3									5	51.7	O
	Penghu		-		38.4											O

Major Earthquakes Which occurred in March, 1963.

No.	Station	Date	Phase	P. (G. M. T.)	Initial Motion			Maximun Amplitude			Period			P~S	Intensity	Epicenter & Remarks
					N	E	Z	N	E	Z	N	E	Z			
1	Ilan	4	i	h. m. s. 17 38 42.0	+	55	+ 23								2.5	IV 16km. SSE.
	Taipei		"		52.6	+ 474	- 168	+ 60	5000	8000	2000	1.2	3.4	3.2	7.8	III of Ilan.
	Hwalien		"		54.2	+ 1000	- 200	- 450	5100	5900	3300	4.2	4.2	2.4	10.8	III 24. 6N.
	Shingchu		e		57.1				1750	1750		1.0	1.1		11.1	III 121. 8E.
	Alishan		i	39 01.0												III H-5
	Taichung		"		02.7	+ 97	+ 545	- 36	3800	3800	2850	3.4	1.8	5.0	15.3	II
	Yushan		"		08.1	+ 600	+ 475									I
	Shinkong		"		09.2	+ 49.4	+ 16.7	+ 64.8	504	478	757	2.8	2.7	4.9	20.3	I
	Taitung		"		15.1	+ 10.9	+ 9.3	- 20.7	668	611	381	2.5	2.5	2.4	19.5	I
	Tawu		"		17.9	+ 5	+ 4	4	538	389	268	3.2	3.7	5.5	29.6	O
	Tainan		"		20.4										39.9	II
	Penghu		-		23.0										29.6	O

地震季報

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TAIWAN WEATHER BUREAU

64 KUNG YUAN ROAD, TAIPEI, TAIWAN, CHINA

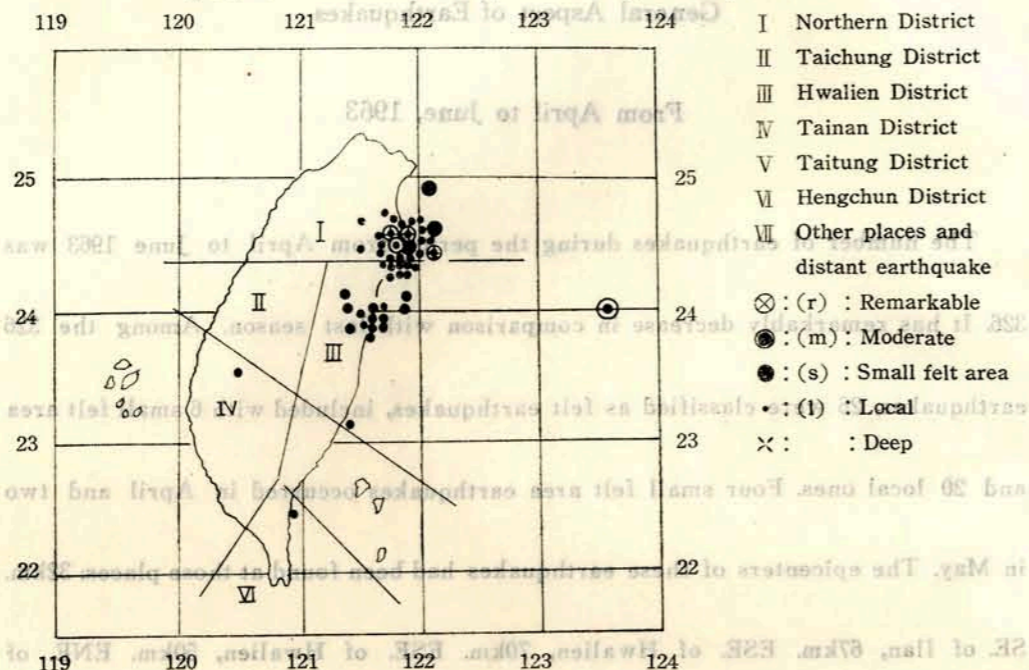
General Aspect of Earthquakes

From April to June, 1963

The number of earthquakes during the period from April to June 1963 was 326. It has remarkably decrease in comparison with last season. Among the 326 earthquakes, 26 were classified as felt earthquakes, included with 6 small felt area and 20 local ones. Four small felt area earthquakes occurred in April and two in May. The epicenters of these earthquakes had been found at those places: 32km. SE. of Ilan, 67km. ESE. of Hwalien, 70km. ESE. of Hwalien, 50km. ENE. of Hwalien, and 41km. ESE of Hwalien. The number of distant earthquakes recorded by our seismographs during last three months was 19. Their initial motions, maximum amplitudes and the periods of These seismic waves can be easily traced out in the later part of the bulletin.

Epicenters of Felt Earthquakes in April-June 1963	
No.	Location
1	Tainan District
2	Tainan District
3	Hwalien District
4	Tainan District
5	Tainan District
6	Hwalien District
7	Hwalien District
8	Tainan District
9	Tainan District
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95	Tainan District
96	Tainan District
97	Tainan District
98	Tainan District
99	Tainan District
100	Tainan District

Epicenters of Felt Earthquakes in April to June 1963



Number of earthquakes classified according to its magnitude and districts April to June 1963

Classification	Number of felt earthquakes					Number of unfelt earthquakes	Total	
	Magnitudes	Remarkable	Moderate	Small felt area	Local			Total
Districts								
Northern District				1	11	12	62	74
Taichung District							7	7
Hwalien District				5	7	12	169	181
Tainan District					1	1	0	1
Taitung District					1	1	38	39
Hengchun District							24	24
Total		0	0	6	20	26	300	326
Other Places							19	19

The Felt Earthquakes From April to June, 1963.

No.	Month	P. (G. M. T.)			Mag-nitude	Epicenter	Latitude	Longitude	Depth
		d.	h.	m.			N.	E.	kms.
55	Apr.	1	03	50	1	Near 32km.SSE. of Ilan.			20
56	"	1	03	56	1	Near 30km. SSE. of Ilan.			20
57	"	1	21	50	1	Near Ilan			
58	"	2	05	36	1	Near 31km. E. of Ilan.			20
59	"	5	05	27	1	Near 50km. SE. of Ilan.			20
60	"	5	17	58	1	Near 41km. SSE. of Hwalien			10
61	"	6	12	35	1	Near 15km. E. of Ilan			5
62	"	7	07	02	1	Near 60km. ESE. of Hengchun			0
63	"	9	15	05	1	Near Hwalien			
64	"	18	18	19	s	Near 32km. SE. of Ilan	24.5	122.0	10
65	"	18	18	29	1	Near 33km. SSE. of Ilan			10
66	"	20	04	52	1	Near 22km. SE. of Ilan			20
67	"	20	09	33	1	Near 14km. ENE. of Ilan			10
68	"	20	21	08	1	"			
69	"	21	04	38	s	Near 67km. ESE. of Hwalien	23.9	122.2	20
70	"	24	09	16	1	Near 58km. ESE. of Ilan			20
71	"	26	23	45	s	Near 70km. ESE. of Hwalien	23.9	122.2	5
72	"	28	21	01	1	Near 26km. SSE. of Ilan			10
73	"	29	05	03	s	Near 50km. ENE. of Hwalien	24.1	122.1	10
74	"	29	21	58	1	Near 33km. S. of Ilan			20
75	May	3	21	31	1	Near Hwalien			
76	"	11	17	49	s	Near 41km. ESE. of Hwalien	23.9	122.0	10
77	"	11	17	50	s	"			
78	"	16	07	49	1	Near Hwalien			
79	"	20	03	29	1	Near 43km. NNE. of Tainan			
80	"	26	08	37	1	Near 30km. S. of Hwalien			

The unfelt Earthquakes From April to June, 1963.

No.	Month	P. (G. M. T.)			Epicenter	No.	Month	P. (G. M. T.)			Epicenter
		d.	h.	m.				d.	h.	m.	
501	Apr.	1	01	31	Near Alishan	504	Apr.	1	06	02	Near Hwalien
502	"	1	03	51	Near 32km. SSE. of Ilan	505	"	1	13	07	Near 73km. ENE. of Hwalien
503	"	1	03	38	Taitung district	506	"	1	21	53	Near Hwalien

No.	Month	P.			Epicenter	No.	Month	P.			Epicenter
		(F.	M.	T.)				(G.	M.	T.)	
		d.	h.	m.			d.	h.	m.		
507	Apr.	1	23	56	Northern district	546	Apr.	13	08	43	Hwalien district
508	"	2	01	29	"	547	"	13	14	31	Hwalien district
509	"	2	04	35	"	548	"	15	06	15	"
510	"	2	10	43	Near 95km. ESE. of Hwalien	549	"	15	12	56	"
511	"	2	13	04	Northern district	550	"	16	01	30	d.
512	"	3	06	54	Near 72km.E. of Hwalien	551	"	16	02	00	d.
513	"	3	11	58	Hengchun district	552	"	16	12	09	Hengchun district
514	"	4	13	43	Near 124km.SE. of Hengchun	553	"	16	18	24	"
515	"	5	17	18	Northern district	554	"	17	01	15	d.
516	"	5	17	28	Hwalien district	555	"	17	02	22	d.
517	"	5	17	30	"	556	"	17	06	59	Hwalien district
518	"	6	12	40	Near 15km. E. of Ilan	557	"	18	01	16	"
519	"	7	13	06	Near 60km. ESE. of Hengchun	558	"	18	06	37	Near 35km. SSE. of Hwalien
520	"	7	15	06	"	559	"	18	14	52	Northern district
521	"	7	17	57	Hwalien district	560	"	18	19	19	Taitung district
522	"	7	19	11	Near Hwalien	561	"	19	07	40	d.
523	"	7	22	42	d.	562	"	19	17	34	Taitung district
524	"	8	01	29	Hengchun district	563	"	20	01	06	"
525	"	8	10	09	"	564	"	20	03	16	Northern district
526	"	8	14	04	Taitung district	565	"	20	04	13	Tainan district
527	"	8	17	25	Hwalien district	566	"	20	07	43	Near 22km. SE. of Ilan
528	"	8	19	25	Northern district	567	"	21	01	01	Near 14km. ENE. of Ilan
529	"	8	20	59	"	568	"	21	04	48	Near 67km. ESE. of Hwalien
530	"	8	23	03	Hwalien district	569	"	21	04	50	"
531	"	8	23	47	Northern district	570	"	21	04	55	"
532	"	9	06	32	"	571	"	21	05	26	"
533	"	10	13	06	Hwalien district	572	"	21	05	32	Northern district
534	"	10	14	29	?	573	"	21	12	04	Near Hwalien
535	"	10	17	10	Near 44km.ESE. of Hsinkong	574	"	21	19	16	Near 80km. ENE. of Hsinkong
536	"	10	18	00	Near 40km. S. of Hwalien	575	"	22	19	16	Northern district
537	"	10	21	31	Hwalien district	576	"	22	19	40	"
538	"	11	01	37	"	577	"	22	20	26	Hengchun district
539	"	11	06	28	Near 25km. SSE. of Ilan	578	"	23	02	01	Taitung district
540	"	11	19	09	Near Hwalien	579	"	23	09	59	d.
541	"	11	23	47	Taitung district	580	"	23	11	39	Near 78km. E. of Hwalien
542	"	12	00	05	Hwalien district	581	"	23	11	59	Hwalien district
543	"	13	02	41	"	582	"	23	15	16	Northern district
544	"	13	07	45	"	583	"	23	22	47	Hwalien district
545	"	13	08	10	Taitung district	584	"	23	23	19	"

No.	Month	P.			Epicenter	No.	Month	P.			Epicenter
		(G.	M.	T.)				(G.	M.	T.)	
		d.	h.	m.			d.	h.	m.		
585	Apr.	24	02	08	Near Yushan	624	May	3	04	11	Near Hsinkong
586	"	24	16	28	Hwalien district	625	"	4	02	00	Near Hwalien
587	"	25	08	16	Taitung district	626	"	5	20	49	Hwalien district
588	"	25	08	24	Hengchun district	627	"	5	21	35	"
589	"	25	16	41	Near Taitung	628	"	5	21	37	Near 41km. ESE. of Ilan
590	"	26	15	55	"	629	"	5	22	00	Near 65km. ESE. of Ilan
591	"	26	23	43	Taitung district	630	"	5	23	21	Near Hsinkong
592	"	27	08	48	d.	631	"	6	02	04	Taichung district
593	"	27	20	45	Northern district	632	"	6	02	38	Hwalien district
594	"	28	03	28	Near Hwalien	633	"	6	06	12	Taitung district
595	"	28	04	11	Hwalien district	634	"	6	15	56	Hwalien district
596	"	28	04	57	Taitung district	635	"	7	06	18	Near 43km. ENE. of Hwalien
597	"	28	06	54	Hwalien district	636	"	7	18	16	Hengchun district
598	"	28	21	23	Near 80km. ESE. of Taitung	637	"	8	02	24	Near 25km. SSE. of Ilan
599	"	29	16	28	Near 35km. SSE. of Ilan	638	"	8	04	12	Hwalien district
600	"	29	13	47	Near Hwalien	639	"	8	10	26	(d)
601	"	29	17	29	Hwalien district	640	"	8	13	54	Near 66km. ESE. of Hengchun
602	"	29	21	45	"	641	"	8	14	50	Hengchun district
603	"	29	21	53	Taichung district	642	"	8	15	28	"
604	"	29	22	00	Near Hwalien	643	"	8	17	00	"
605	"	29	22	02	Hwalien district	644	"	8	20	18	Hwalien district
606	"	29	22	14	"	645	"	9	08	04	Near Hsinkong
607	"	29	22	16	"	646	"	9	16	49	Hwalien district
608	"	29	22	19	Near 20km. S. of Ilan	647	"	9	18	54	"
609	"	29	22	37	Hwalien district	648	"	10	11	09	Near 116km. E. of Hengchun
610	"	29	23	00	Northern district	649	"	10	17	04	Hwalien district
611	"	29	23	10	Near Hwalien	650	"	12	06	14	"
612	"	30	00	12	"	651	"	12	08	09	Near Hwalien
613	"	30	00	19	Hwalien district	652	"	12	17	58	Northern district
614	"	30	01	03	d.	653	"	12	18	19	Near Hwalien
615	"	30	01	18	Near 76km. S. of Ilan	654	"	12	20	19	Hwalien district
616	"	30	03	58	"	655	"	12	21	34	"
617	"	30	21	57	Near 29km. ENE. of Ilan	656	"	12	23	02	Northern district
618	May	1	05	07	Hwalien district	657	"	13	02	26	"
619	"	1	10	13	(d)	658	"	13	16	28	Hwalien district
620	"	1	20	34	Near Hwalien	659	"	13	16	55	"
621	"	1	21	58	Hwalien district	660	"	14	04	55	Near 70km. ESE. of Hwalien
622	"	2	10	35	"	661	"	14	09	51	Hwalien district
623	"	3	00	57	Near 96km. ESE. of Hwalien	662	"	15	01	48	Near 100km. ENE. of Hsinkong
						663	"	15	09	15	Hwalien district

No.	Month	P.			Epicenter	No.	Month	P.			Epicenter
		(G.	M.	T.)				(G.	M.	T.)	
		d.	h.	m.			d.	h.	m.		
664	May	15	15	32	704	May	23	16	56	"	
665	"	16	12	20	705	"	23	18	29	Near Taitung	
666	"	12	13	18	706	"	24	01	55	Northern district	
667	"	16	22	11	707	"	24	23	48	Near 70km. E. of Hwalien	
668	"	16	22	11	708	"	25	01	36	Near 85km. ENE. of Hwalien	
669	"	16	22	17	709	"	25	02	52	Hwalien district	
670	"	16	22	32	710	"	25	05	07	Hengchun district	
671	"	17	01	59	711	"	25	08	37	Northern district	
672	"	17	06	10	712	"	25	09	04	Hwalien district	
673	"	18	00	36	713	"	25	09	14	Taitung district	
674	"	18	06	55	714	"	25	10	36	Northern district	
675	"	18	16	45	715	"	25	16	46	Near 215km. E. of Hengchun	
676	"	18	18	09	716	"	25	22	11	Taitung district	
677	"	19	01	22	717	"	26	12	06	Northern district	
678	"	19	03	36	718	"	26	17	06	"	
679	"	19	12	55	719	"	26	17	25	Near 82km ENE of Hwalien	
680	"	19	12	56	720	"	26	18	00	Near Hwalien	
681	"	19	15	21	721	"	26	21	37	Near Tawu	
682	"	19	21	58	722	"	27	05	50	Near 104km ENE. of Hwalien	
683	"	19	22	06	723	"	27	16	10	Hwalien district	
684	"	20	01	48	724	"	27	16	12	Near Hwalien	
685	"	20	09	08	725	"	27	16	40	Hwalien district	
686	"	20	09	28	726	"	27	18	09	"	
687	"	20	11	10	727	"	28	01	12	"	
688	"	20	11	50	728	"	28	01	16	Ilan district	
689	"	20	18	34	729	"	28	01	25	Hwalien district	
690	"	22	00	33	730	"	28	04	20	"	
691	"	22	11	40	731	"	28	05	37	"	
692	"	22	14	08	732	"	28	10	59	"	
693	"	22	14	22	733	"	28	15	59	Northern district	
694	"	22	14	26	734	"	28	20	01	Near Ilan	
695	"	22	15	46	735	"	29	06	12	Northern district	
696	"	22	18	34	736	"	30	22	33	Near 70km. E. of Ilan	
697	"	22	21	50	737	"	31	10	47	Near 116km. ENE. of Hwalien	
698	"	22	21	56	738	June	1	16	28	Hwalien district	
699	"	22	21	58	739	"	1	19	14	Near 53km. SSE. of Hwalien	
700	"	22	22	54	740	"	1	23	08	Hwalien district	
701	"	23	03	44	741	"	1	23	56	"	
702	"	23	06	05	742	"	2	20	05	Taichung district	
703	"	23	10	29	743	"	3	03	14	Near 46km. NNW. of Hwalien	

No.	Month	P.			Epicenter	No.	Month	P.			Epicenter
		(G.	M.	T.)				(G.	M.	T.)	
		d.	h.	m.			d.	h.	m.		
744	June	3	07	40	783	June	17	10	31	Northern district	
745	"	3	07	46	784	"	17	12	28	Near Hwalien	
746	"	3	13	19	785	"	17	12	55	"	
747	"	4	04	05	786	"	17	16	41	Near 43km. SSE. of Hwalien	
748	"	4	07	51	787	"	18	06	35	Hwalien district	
749	"	4	21	09	788	"	18	11	22	Near 25km. N. of Hsinkong	
750	"	5	08	58	789	"	18	12	37	Near Alishan	
751	"	5	16	49	790	"	19	02	07	Near Tawu	
752	"	6	05	20	791	"	19	08	42	Near Hwalien	
753	"	6	06	08	792	"	19	09	13	Taitung district	
754	"	6	05	46	793	"	19	09	17	Northern district	
755	"	6	17	37	794	"	19	10	38	Taitung district	
756	"	7	15	50	795	"	19	23	06	Hengchun district	
757	"	8	00	04	796	"	20	05	46	Hwalien district	
758	"	8	00	06	797	"	21	07	12	Near Hwalien	
759	"	8	00	59	798	"	21	08	19	Northern district	
760	"	10	08	25	799	"	21	11	25	Hwalien district	
761	"	10	13	14	800	"	23	03	39	Near Hsinkong	
762	"	10	19	23	801	"	23	17	28	Near 70km. ESE. of Hwalien	
763	"	10	20	07	802	"	24	04	37	Hwalien district	
764	"	11	02	12	803	"	24	13	27	Northern district	
765	"	11	03	23	804	"	24	18	08	Hengchun district	
766	"	11	03	53	805	"	24	21	57	Near 35km. NW. of Hwalien	
767	"	11	05	10	806	"	24	22	23	Near Hwalien	
768	"	11	11	38	807	"	25	13	07	Hwalien district	
769	"	11	14	34	808	"	25	13	10	Near 80km. E. of Hwalien	
770	"	11	19	59	809	"	26	19	26	Near Hsinkong	
771	"	11	20	06	810	"	26	22	48	Hwalien district	
772	"	12	07	31	811	"	27	19	33	Near Hsinkong	
773	"	13	11	57	812	"	28	12	59	Hwalien district	
774	"	13	19	26	813	"	28	14	04	"	
775	"	13	20	38	814	"	28	16	14	"	
776	"	14	02	24	815	"	28	20	51	Near Hwalien	
777	"	14	22	01	816	"	28	22	01	(d)	
778	"	15	03	26	817	"	29	04	06	Hwalien district	
779	"	15	04	55	818	"	29	04	22	"	
780	"	15	10	45	819	"	29	17	43	Near Hwalien	
781	"	15	11	11	820	"	30	20	20	Taitung district	
782	"	16	16	54						Near 35km. SE. of Hwalien	

No.	Station	Date	Phase	P. (G. M. T.)	Initial Motion			Maximum Amplitude			Period			P~S	Intensity	Epicenter & Remarks	
					N	E	Z	N	E	Z	N	E	Z				
1	Tawu	1	ep	h m s 13 32.3	μ	μ	μ	μ	μ	μ	s	s	s	m	s	0	
	Hengchun		ep	13 37.6												0	
	Hwalien		ep	13 43.1												0	
	Taipei		p	14 13.2												0	
	Anpu		ip	14 8.0												0	
2	Hwalien	8	ep	10 26 57.1												0	(d)
	Taipei		ep	27 00.3												3	8.00
	Tawu		ep	27 07.4												0	
	Hengchun		ep	27 12.6												0	
	Anpu		ip	26 40.0												0	
3	Hwalien	11	p	17 49 56.7				900	1000	400	3.0	5.0	2.8			7.8 I	Near 41km.
	Hsinkong		ep	50 05.7												14.1 O	ESE. of
	Taipei		p	50 06.2 +	11 +	4		1600	1000	400	1.0	0.8	1.9			17.2 II	Hwalien
	Yushan		p	50 07.3												13.8 O	23.9 N
	Taichung		p	50 08.7												18.6 O	122.0 E
	Taitung		ep	50 11.4												18.2 O	(H=10)
	Tawu		ep	50 20.8												24.9 O	
	Tainan		p	50 22.4												37.9 O	
	Hengchun		ep	50 25.1												50.4 O	
	Penghu		ip	50 26.1												25.8 O	
	Kaohsiung		ep	50 35.0												30.2 O	
Hsinchu		ep	50 38.0												33.3 I		
	Alishan		p	50 54.4											15.8 I		
4	Taitung	17	ep	06 10 05.3												0	(d)
	Hengchun		ep	10 54.6												0	
	Tawu		ep	10 54.7												0	
	Hsinkong		p	11 11.2												0	
	Yushan		ep	11 15.1												0	
	Alishan		ep	11 16.5												0	
	Taichung		ep	11 20.8												0	
	Hwalien		ep	11 22.2												0	
Taipei		p	11 33.2												0		

No.	Station	Date	Phase	P. (G. M. T.)	Initial Motion			Maximum Amplitude			Period			P~S	Intensity	Epicenter & Remarks	
					N	E	Z	N	E	Z	N	E	Z				
4	Anpu	17	ip	h m s 11 35.2	μ	μ	μ	μ	μ	μ	s	s	s	m	s	0	
5	Tawu	20	ep	11 50 01.9												0	(d)
	Anpu		ip	50 08.5												0	
6	Taitung	22	ep	14 03 40.3												0	(d)
	Hwalien		ep	03 45.1												0	
	Hsinkong		p	03 54.2												0	
	Tawu		ep	04 05.6												0	
	Hengchun		ep	04 10.9												0	
Anpu		ip	03 37.0												0		
7	Taitung	22	ep	15 46 13.8												0	(d)
	Taipei		ep	47 08.3												0	
	Hengchun		ep	47 11.1												0	
	Tawu		ep	47 16.2												0	
	Hwalien		ep	47 33.8												0	
Alishan		ep	50 35.3												0		
8	Hwalien	22	ep	21 58 38.8												0	(d)
	Hengchun		ep	59 25.0												0	

Major Earthquakes Occurred in June, 1963

No.	Station	Date	Phase	P. (G. M. T.)	Initial Motion			Maximum Amplitude			Period			P~S	Intensity	Epicenter & Remarks	
					N	E	Z	N	E	Z	N	E	Z				
1	Taichung	6	ep	h m s 05 20 08.4	μ	μ	μ	μ	μ	μ	s	s	s	m	s	0	(d)
	Hsinchu		ep	20 15.5												53.1 O	
	Hengchun		ep	19 27.8												24.3 O	
	Tawu		p	19 32.8				85	76		4.0	1.6				29.0 O	
	Hsinkong		p	19 42.4												36.9 O	
	Taitung		ep	19 44.0												33.7 O	
	Alishan		ep	19 54.4												37.6 O	
	Hwalien		ep	20 00.6				115	93	72	2.4	2.1	2.5			52.3 O	
	Tainan		ep	20 02.8												32.7 O	
	Taipei		p	20 23.7												3	7.8 O

地 震 季 報

第 十 卷 第 三 號

中 華 民 國 五 十 二 年 七、八、九 月

SEISMOLOGICAL BULLETIN

July to September 1963

VOL. X No. 3

臺 灣 省 氣 象 所

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TAIWAN WEATHER BUREAU

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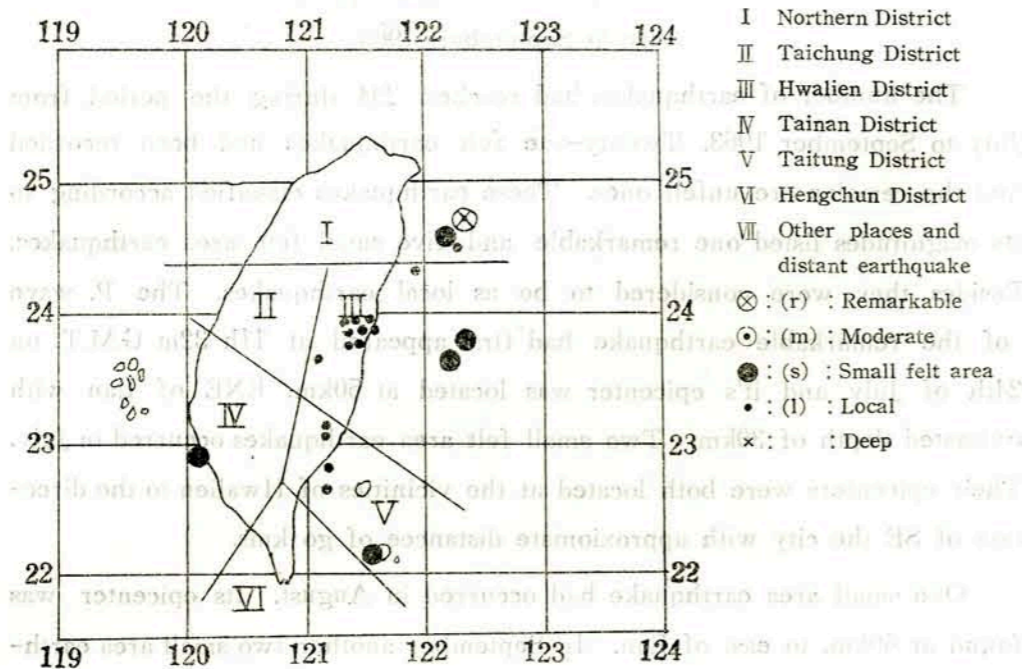
General Aspect of the Earthquakes

July to September, 1963.

The number of earthquakes had reached 294 during the period from July to September 1963. Twenty-one felt earthquakes had been recorded and the remains are unfelt ones. These earthquakes classified according to its magnitudes listed one remarkable and five small felt area earthquakes. Besides they were considered to be as local earthquakes. The P. wave of the remarkable earthquake had first appeared at 11h 32m G.M.T. on 24th of July and its epicenter was located at 50km. ENE of Ilan with estimated depth of 30km. Two small felt area earthquakes occurred in July. Their epicenters were both located at the vicinities of Hwalien to the direction of SE the city with approxiimate distancee of go kms.

One small area earthquake had occurred in August. Its epicenter was found at 50km. to east of Ilan. In September another two small area earthquakes had been recorded. The location of the eqicenters had also been remaked. One was spotted at 66km. east of Hengchun and the another at 34km. south of Tainan. The total number of distant earthquakes during the period was eighteen. The initial motion, the maximun amplitude and the period of these seismic waves can be found from the later part of this bulletin.

Epicenters of Felt Earthquakes in July to September 1963.



Number of earthquakes classified according to its magnitude and districts July to September 1963

Classification	Number of felt earthquakes					Number of unfelt earthquakes	Total
	Magnitudes	Remarkable	Moderate	Small felt area	Local		
Districts							
Northern District		1	—	1	1	3	44
Taichung "		—	—	—	—	—	17
Hwalien "		—	—	2	10	12	127
Tainan "		—	—	1	—	1	2
Taitung "		—	—	1	4	5	50
Hengchun "		—	—	—	0	0	15
Other places "		—	—	—	—	—	18
Total		1	—	5	15	21	273

Felt earthquakes in the month of July to September 1963

No.	Month	P. (G. M. T.)			Mag-nitude	Epicenter	Latitude		Longitude	Depth
		d.	h.	m.			N.	E.		
81	June	09	17	34	s	Near 77km SE of Hwalien.	23.6	122.2	10	
82	July	13	14	07	s	Near 85km ESE of Hwalien.	23.8	122.4	40	
83	"	13	22	33	1	Near Hwalien.	—	—	—	
84	"	19	10	31	1	Near 10km W. of Hsinkong	—	—	15	
85	"	24	11	32	m	50km ENE of Ilan	24.9	122.2	30	
86	"	21	13	10	1	Near 48km SE of Ilan	—	—	40	
87	"	26	04	27	1	Near Hwalien.	—	—	—	
88	"	25	04	37	1	Near Hwalien.	—	—	—	
89	"	27	17	54	1	Near Hwalien.	—	—	—	
90	Aug.	3	12	39	s	Near 50km E. of Ilan.	24.7	122.2	5	
91	"	3	17	06	1	Near 14km ENE of Taitung.	—	—	15	
92	"	4	11	03	1	Near 45km SW of Hwalien.	—	—	0	
93	"	23	21	50	1	Near 20km SE of Taitung.	—	—	0	
94	"	25	05	29	1	Near Hwalien.	—	—	—	
95	"	25	05	32	1	Near Hwalien.	—	—	—	
96	"	25	06	47	1	Near Hwalien.	—	—	—	
97	Sept	6	01	19	1	Near 21km WNW of Hsinkong	—	—	15	
98	"	10	08	59	1	Near Hwalien.	—	—	—	
99	"	14	02	14	s	Near 66km E. of Hengceun.	22.1	121.4	25	
100	"	16	00	07	s	Near 34km S. of Tainan.	22.6	120.2	10	
101	"	30	10	37	1	Near 45km SSE of Ilan.	—	—	20	

Unfelt Earthquakes from July to September, 1963

No.	Month	P. (G. M. T.)			Epicenter	No.	Month	P. (G. M. T.)			Epicenter
		d.	h.	m.				d.	h.	m.	
821	June	30	20	20	Taitung district.	831	"	4	20	25	Near 40km SE of Ilan.
822	July	11	13	15	Ditto.	832	"	5	12	35	Near Hsinkong.
823	"	1	17	30	Near Hwalien.	833	"	7	11	44	Hwalien district.
824	"	2	21	51	Near Hsinkong.	834	"	7	16	40	145km E. of Hwalien.
825	"	2	23	13	Near 59km ENE of Hengchun.	835	"	7	19	59	Hengchun district.
826	"	2	23	52	Near 55km NE of Hsinkong.	836	"	8	05	05	Near Hsinkong.
827	"	3	04	24	Hwalien district.	837	"	8	05	56	Hwalien district.
828	"	3	10	17	Near Tawu.	838	"	8	07	44	Near 82km E. of Hwalien.
829	"	4	06	55	75km E. of Hwalien.	839	"	9	00	40	Near 80km E. of Hwalien.
830	"	4	08	16	Hwalien district	840	"	9	04	43	Taitung district.

No.	Month	P.			Epicenter	No.	Month	P.			Epicenter
		(G.	M.	T.)				(G.	M.	T.)	
		d.	h.	m.			d.	h.	m.		
831	"	9	15	23	Hwalien district.	864	"	24	02	52	Hengchun district.
832	"	9	17	03	Near 65km NE of Ilan.	865	"	24	05	27	Near Hsinkong.
833	"	10	05	30	(distant).	866	"	24	07	24	Near Hwalien.
834	"	10	09	41	Northern district.	867	"	24	11	49	Near Ilan. (after shock)
835	"	10	11	33	Hwalien district.	868	"	24	12	11	ditto.
836	"	10	19	57	Hengchun district.	869	"	24	12	13	ditto.
837	"	11	07	25	Near Hwalien.	870	"	24	13	17	near 31km ESE of Ilan.
838	"	11	15	44	Near 32km NW of Hsinkong.	871	"	24	14	33	Near Tawu.
839	"	12	00	11	Hwalien district.	872	"	24	18	41	Hwalien district.
840	"	12	15	44	Taitung district.	873	"	24	18	42	near Tawu.
841	"	12	17	03	Northern district.	874	"	24	20	45	Northern district.
842	"	12	17	55	Hwalien district.	875	"	24	20	55	Hwalien district.
843	"	13	14	17	Near 53km ESE of Ilan.	876	"	25	00	28	Near Alishan.
844	"	13	18	31	Hwalien district.	877	"	25	00	55	Hwalien district.
845	"	14	00	39	Taitung district.	878	"	25	04	39	Near 20km ESE of Hsinkong.
846	"	14	01	59	Hwalien district.	879	"	25	09	27	Hengchun district.
847	"	14	02	03	(distant).	880	"	25	12	09	Near Hwalien.
848	"	14	17	59	Hwalien district.	881	"	25	20	20	72km ENE of Hwalien.
849	"	14	22	34	Northern district.	882	"	26	02	45	Near Hwalien.
450	"	15	22	04	ditto.	883	"	26	03	08	Northern district.
851	"	16	07	18	ditto.	884	"	26	04	37	Near Hwalien.
852	"	16	16	09	Taitung district.	885	"	26	06	27	Northern district.
853	"	18	08	54	Hwalien district.	886	"	26	07	24	ditto.
854	"	18	10	03	ditto.	887	"	26	09	52	Near Hwalien.
855	"	18	18	11	ditto.	888	"	26	09	57	Hwalien district.
856	"	19	11	44	Near Hsinkong.	889	"	26	13	04	Near Hwalien.
857	"	20	00	50	Hwalien district.	890	"	27	03	21	ditto.
858	"	20	02	40	ditto.	891	"	27	16	59	Near Hsinkong.
859	"	22	09	21	Near Tawu.	892	"	28	08	36	ditto.
860	"	22	17	06	55km SSE of Hwalien.	893	"	28	21	28	ditto.
861	"	23	04	51	Near Hsinkong.	894	"	29	17	58	Near Alishan.
862	"	23	16	21	Hwalien district.	895	"	30	05	39	ditto.
863	"	23	19	53	ditto.	896	"	30	18	42	Near Taipei.

No.	Month	P.			Epicenter	No.	Month	P.			Epicenter
		(G.	M.	T.)				(G.	M.	T.)	
		d.	h.	m.			d.	h.	m.		
897	July	31	20	31	Taitung district.	935	Aug	16	14	19	ditto.
898	Aug	3	02	02	Northern district.	936	"	16	18	19	Taitung district.
899	"	3	10	41	(distant).	937	"	16	20	17	ditto.
900	"	3	11	30	(distant).	938	"	16	23	47	ditto.
901	"	3	13	31	Taitung district.	939	"	17	00	13	Near Hwalien.
902	"	3	14	45	Hwalien district.	940	"	17	00	14	ditto.
903	"	3	17	39	Taitung district.	941	"	17	00	14	Near Tawu.
904	"	5	00	05	ditto.	942	"	17	03	55	Taichung district.
905	"	5	04	44	Near Hwalien.	943	"	17	07	59	Hwalien district.
906	"	6	01	56	Hwalien district.	944	"	17	09	56	36km SW of Hwalien.
907	"	7	11	47	77km ESE of Ilan.	945	"	17	10	51	Taitung district.
908	"	8	05	56	15km SE of Ilan.	946	"	17	11	15	(distant).
909	"	8	16	37	Near Hwalien.	947	"	17	11	51	Near Hsinkong.
910	"	10	01	14	Taitung district.	948	"	17	18	34	ditto.
911	"	10	22	46	61km ENE of Hsinkong.	949	"	17	21	31	Northern district.
912	"	11	07	58	Hwalien district.	950	"	17	23	47	Taitung district.
913	"	11	10	07	ditto.	951	"	18	00	16	ditto.
914	"	11	20	59	Near Hwalien.	952	"	19	13	10	Hwalien district.
915	"	12	13	11	Near Alishan.	953	"	19	14	08	Near Hwalien.
916	"	13	14	10	Northern district.	954	"	19	14	30	Hwalien district.
917	"	14	05	43	Near Hwalien.	955	"	20	00	41	ditto.
918	"	14	16	19	113km ESE of Hwalien.	956	"	20	11	01	Taitung district.
919	"	14	17	01	Hwalien district.	957	"	20	13	05	Hwalien district.
920	"	15	01	29	Northern district.	958	"	21	07		Northern district.
921	"	15	02	01	ditto.	959	"	21	07	26	ditto.
922	"	15	02	21	Hwalien district.	960	"	21	13	21	Taitung district.
923	"	15	02	23	ditto.	961	"	21	18	02	ditto.
924	"	15	06	13	(distant).	962	"	22	01	56	42km ENE of Hwalien.
925	"	15	06	16	(distant)	963	"	22	04	34	45km ENE of Hwalien.
926	"	15	09	46	Near Hwalien.	964	"	22	20	01	(distant)
927	"	15	10	12	Hwalien district.	965	"	23	13	58	Hwalien district.
928	"	15	16	15	ditto.	966	"	23	14	58	Northern district.
929	"	15	17	44	(distant).	967	"	24	07	36	Near Hwalien.
930	"	15	23	43	Hengchun district.	968	"	24	08	07	Hwalien district.
931	"	16	05	39	Near Hwalien.	969	"	24	10	12	Northern district.
932	"	16	14	28	ditto.	970	"	24	20	27	Hwalien district.
933	"	16	14	28	ditto.	971	"	24	20	58	Hwalien district.
934	"	16	14	29	ditto.	972	"	24	22	01	100km ENE of Hwalien.

No.	Month	P.			Epicenter	No.	Month	P.			Epicenter
		(G.	M.	T.)				(G.	M.	T.)	
973	Aug	d.	h.	m.	ditto.	1006	Sep	d.	h.	m.	Hwalien district.
		24	22	02				1	19	35	
974	"	25	01	45	Taitung district.	1007	"	1	20	02	Hwalien district.
975	"	25	02	21	Hwalien district.	1008	"	1	21	35	Northern district.
976	"	25	07	59	Near Hwalien.	1009	"	1	22	02	ditto.
977	"	25	12	29	(distant)	1010	"	2	13	11	Hwalien district.
978	"	25	13	29	Taitung district.	1011	"	2	15	36	Near Hsinkong.
979	"	25	19	05	Near Tawu.	1012	"	2	15	40	Near 40km ENE of Tainan.
980	"	26	15	48	Hwalien district.	1013	"	2	20	55	Taitung district.
981	"	26	18	10	ditto.	1014	"	3	15	52	Ditto.
982	"	26	18	49	Near Alishan.	1015	"	3	17	12	Hwalien district.
983	"	27	01	56	Northern district.	1016	"	4	07	59	ditto.
984	"	27	15	15	Hwalien district.	1017	"	5	01	09	ditto.
985	"	28	00	12	Near Hwalien.	1018	"	6	05	41	Northern district.
986	"	29	01	16	176km ENE of Hwalien.	1019	"	6	06	07	(distant).
987	"	29	03	44	52km SE of Hwalien.	1020	"	6	23	23	Hengchun district.
988	"	29	06	46	33km S. of Ilan.	1021	"	7	01	20	South Korea.
989	"	29	09	02	(distant)	1022	"	7	06	17	Hwalien district.
990	"	29	09	49	Hwalien district.	1023	"	7	15	52	&&km ENE of Taitung.
991	"	29	13	17	ditto.	1024	"	7	17	44	Hwalien district.
992	"	29	14	47	ditto.	1025	"	8	03	46	ditto.
993	"	29	15	50	(distant).	1026	"	8	16	47	Taitung district.
994	"	30	01	53	Northern district.	1027	"	9	18	10	Hwalien district.
995	"	30	02	00	21km SSE of Ilan.	1028	"	10	05	19	Near. Hwalien.
996	"	30	11	48	Near Alishan.	1029	"	10	20	02	Taichung district.
997	"	30	20	38	ditto.	1030	"	11	06	17	15km ESE of Ilan.
998	"	30	21	40	Hwalien district.	1031	"	11	07	28	Taichung district.
999	"	31	07	05	ditto.	1032	"	11	08	26	Near Alishan.
1000	"	31	07	39	ditto.	1033	"	12	03	33	Taitung district.
1001	"	31	13	59	Near 30km SW of Ilan.	1034	"	12	07	36	Hwalien district.
1002	"	31	14	20	Near Hsinkong.	1035	"	12	11	03	40km E. of Ilan.
1003	"	31	16	08	Near Alishan.	1036	"	13	00	24	Taitung district.
1004	"	31	16	36	Near 50km N. of Hsinkong.	1037	"	13	04	57	Taichung district.
1005	Sep	1	02	18	Hwalien district.	1038	"	13	15	34	Hwalien district.

No.	Month	P.			Epicenter	No.	Month	P.			Epicenter
		(G.	M.	T.)				(G.	M.	T.)	
1039	Sep	d.	h.	m.	Taichung district.	1062	Sep	d.	h.	m.	Northern district.
		13	18	38				22	21	18	
1040	"	14	05	08	Hwalien district.	1063	"	22	23	32	Ditto.
1041	"	14	06	29	Ditto.	1064	"	23	11	35	Near Hwalien.
1042	"	15	00	56	Santa Cruz Islands.	1065	"	23	20	05	Northern district.
1043	"	15	11	01	Hwalien district.	1066	"	24	13	24	Near 135km ESE of Hwalien.
1044	"	15	16	18	ditto.	1067	"	24	16	50	Taitung district.
1045	"	16	07	16	Near Hwalien.	1068	"	24	17	33	Hwalien district.
1046	"	16	16	12	15km NNW of Kaohsiung.	1069	"	24	12	30	ditto.
1047	"	16	17	24	Hengchun district.	1070	"	25	09	23	Near Alishan.
1048	"	17	19	29	Santa Cruz Islands.	1071	"	25	17	52	Taitung district.
1049	"	18	00	47	Hwalien district.	1072	"	25	19	17	near 25km ESE of Ilan.
1050	"	19	13	16	Northern district.	1073	"	27	02	01	Taitung district.
1051	"	19	14	13	78km ENE of Taipei.	1074	"	27	09	53	ditto.
1052	"	19	17	13	63km ENE of Hsinkong.	1075	"	27	11	07	(distant)
1053	"	19	19	02	Near 70km ENE of Hwalien.	1076	"	28	23	15	Taitung district.
1054	"	19	19	05	Ditto.	1077	"	29	10	03	near 36km SW of Hwalien.
1055	"	20	19	00	Near Tawu.	1078	"	29	19	00	Hengchun district.
1056	"	20	23	21	Near 65km ESE of Hwalien.	1079	"	29	19	39	(distant)
1057	"	20	23	35	Hwalien district.	1080	"	29	22	32	Near Alishan.
1058	"	21	18	24	near 28km ESE of Hsinkong.	1081	"	30	15	59	Near 38km S. of Ilan.
1059	"	21	18	28	Hwalien district.	1082	"	30	16	00	Hengchun district.
1060	"	22	01	55	Northern district.	1083	"	30	16	13	Northern district.
1061	"	23	02	33	Near Alishan.	1084	"	30	18	11	Taitung district.

Major Earthquakes which occurred in July, 1963.

No.	Strtion	Date	Phase	P. (G. M. T.)	Initial Motion			Maximun Amplitude			Period			P~S	Intensity	Epicenter & Remarks
					N	E	S	N	E	Z	N	E	Z			
1	Hwalien	4	p	h. m. s. 06 55 17.7	-	-	-	218	220	-	3.1	3.1	-	11.2	O	Near 75km
	Hsinkong		p	36.9	-	-	-	-	-	-	-	-	-	14.5	O	E. of Hwalien
	Taipei		ip	39.6 +	4 -	2 +	3	200	200	80	1.5	1.5	2.0	17.4	O	h-30
	Alishan		ep	40.8	-	-	-	-	-	-	-	-	-	16.8	O	
	Taichung		p	44.4	-	-	-	-	-	-	-	-	-	20.9	O	
	Hsinchu		ep	45.0	-	-	-	-	-	-	-	-	-	18.5	O	
	Yushan		p	46.2	-	-	-	-	-	-	-	-	-	16.2	O	
	Tawu		ep	57.1	-	-	-	-	-	-	-	-	-	25.6	O	
	Hengchun		ep	59.5	-	-	-	-	-	-	-	-	-	28.0	O	
2	Yushan	9	p	00 40 16.6	-	-	-	-	-	-	-	-	-	15.3	O	Near 80km E.
	Alishan		ep	41 01.4	-	-	-	-	-	-	-	-	-	19.0	O	of Hwalien.
	Hwalien		p	01.4	-	-	-	118	109	-	2.6	2.5	-	11.4	O	h-20
	Hsinkong		p	05.2	-	-	-	-	-	-	-	-	-	15.2	O	
	Taipei		ip	10.6	-	-	-	86	70	-	1.5	1.2	-	17.1	O	
	Taichung		p	14.6	-	-	-	-	-	-	-	-	-	21.1	O	
	Taitung		ep	14.7	-	-	-	-	-	-	-	-	-	24.0	O	
	Tawu		ep	23.5	-	-	-	-	-	-	-	-	-	28.8	O	
	Hengchun		ep	28.1	-	-	-	-	-	-	-	-	-	-	O	
	Tainan		ep	44.7	-	-	-	-	-	-	-	-	-	-	O	
3	Taichung	9	p	17 34 03.4	-	-	-	-	-	-	-	-	-	21.1	O	near 77km SE
	Yushan		p	05.7	-	-	-	-	-	-	-	-	-	13.3	O	Hwalien.
	Hwalien		ep	50.1	-	-	-	397	520	300	2.7	2.5	2.3	9.6	O	23.6 N
	Alishan		ep	55.8	-	-	-	-	-	-	-	-	-	18.2	O	122.2 E
	Taipei		ip	58.0 +	9 -	4 +	7	550	575	210	1.9	1.2	1.8	19.0	I	h-10
	Tawu		ep	35 13.6	-	-	-	-	-	-	-	-	-	27.5	O	(s)
	Tainan		ep	15.7	-	-	-	-	-	-	-	-	-	26.9	O	
	Hengchun		ep	17.8	-	-	-	-	-	-	-	-	-	21.2	O	
	Taitung		ep	04.7	-	-	-	-	-	-	-	-	-	18.6	O	
	Hsinkong		p	05.0	-	-	-	-	-	-	-	-	-	14.6	O	
4	Tawu	10	ep	05 29 54.0	-	-	-	-	-	-	-	-	-	-	O	(d)

No.	Station	Date	Phase	P. (G. M. T.)	Initial Motion			Maximun Amplitude			Period			P~S	Intensity	Epicenter & Remarks
					N	E	Z	N	E	Z	N	E	Z			
	Taipei		ep	h. m. s. 30 02.8	-	-	-	-	-	-	-	-	-	-	-	-
5	Hwalien	13	ep	14 06 40.6 +	-	-	+	660	695	345	2.4	2.3	1.5	9.7	I	near 85km.
	Hsinkong		ip	46.5 +	5.9 +	7.8 +	10.8	124	171	91	2.7	2.0	2.4	15.5	I	ESE of
	Taipei		ip	49.3 +	31 -	11 +	33	550	845	330	1.8	1.7	2.1	18.2	I	Hwalien.
	Alishan		ep	51.4	-	-	-	-	-	-	-	-	-	18.2	O	23.8 N
	Taitung		ep	52.0	-	-	-	-	-	-	-	-	-	13.7	O	122.4 E
	Taichung		ip	52.9	2	11	25	267	312	170	2.7	2.7	2.8	21.2	I	h-40 (s)
	Yushan		p	54.9	-	-	-	-	-	-	-	-	-	3.0	I	
	Hsinchu		ep	57.0	-	-	-	-	-	-	-	-	-	20.0	I	
	Penhu		p	58.5	-	-	-	-	-	-	-	-	-	27.1	O	
	Tawu		ep	07 03.4	-	-	-	-	-	-	-	-	-	27.9	O	
6	Hengchun	14	ep	02 02 35.2	-	-	-	-	-	-	-	-	-	-	O	(distant)
	Taitung		ep	36.0	-	-	-	-	-	-	-	-	-	-	O	
	Tawu		ep	38.8	-	-	-	-	-	-	-	-	-	-	O	
	Hsinkong		p	46.4	-	-	-	-	-	-	-	-	-	-	O	
	Alishan		ep	52.8	-	-	-	-	-	-	-	-	-	-	O	
	Tainan		ep	59.1	-	-	-	-	-	-	-	-	-	-	O	
	Hwalien		ep	03 04.8	-	-	-	-	-	-	-	-	-	-	O	
	Kaohsiung		ep	24.0	-	-	-	-	-	-	-	-	-	-	O	
	Taipei		ep	30.0	-	-	-	-	-	-	-	-	-	-	O	
	7	Penhu	24	p	11 32 26.7	-	-	-	-	-	-	-	-	-	53.8	O
Taipei			ip	29.9 +	180 -	92 +	320	5000	4000	4000	2.9	2.5	2.7	8.9	4	ENE of Ilan
Hwalien			ip	31.4 +	102 -	18.8 +	48.8	4400	6300	3400	2.9	2.3	2.7	12.8	2	224.9 N
Hsinchu			ep	37.3	-	-	-	1750	1750	-	0.9	0.9	-	13.8	3	122.2 E
Hsinkong			ep	43.0	-	-	-	588	518	723	-	-	-	19.0	I	h-30 (m)
Yushan			ip	42.0 +	10 +	13	-	1080	1470	-	2.0	1.3	-	19.1	2	
Taichung			ip	42.2 +	5 +	20	-26	-	-	-	-	-	-	14.3	2	
Alishan			ip	43.3 +	13.5 +	8.4	-	473	542	-	2.6	2.8	-	23.1	2	
Taitung			ip	50.7 +	35	-	-	621	-	-	2.4	-	-	38.3	2	
Tawu			ip	58.5 -	3 -	1 +	2	207	268	124	3.4	2.9	4.4	33.9	O	

No.	Station	Date	Phase	P. (G. M. T.)	Initial Motion			Maximum Amplitude			Period			P~S	Intensity	Epicenter & Remarks
					N	E	Z	N	E	Z	N	E	Z			
				h. m. s.	μ	μ	μ	μ	μ	μ	s	s	s	m	s	
	Anpu		p	28.4										07 51.0	O	
6	Tainan	16	ip	00 06 52.0	- 52	+ 20	- 145							05.9	I	near 34km
	Tawu		ip	07 04.2	- 27	+ 36	+ 71	222	222		1.9	1.9		09.8	O	S. of
	Hengchu		ip	06.8	+ 8.8	+ 1.0	- 12.8	259	196	135				11.4	O	Tainan.
	Hsinkong		ep	11.7										21.3	O	22.6 N.
	Taichung		p	17.6										20.5	O	120.2 E.
	Hwalien		ep	24.8				129	71	40	3.0	2.2	3.0	14.0	O	h-10
	Anpu		ep	34.8										11.9	O	
	Taipei		p	47.3	- 6	± 0								34.5	O	(s)
	Penhu		p	08 21.8										17.9	O	
	Alishan		ip	29.4										14.0	I	
7	Hengchun	17	ep	19 29 18.7												O Santa cruz
	Tawu		ep	32.8												O Islands.
	Hsinkong		ep	37.3												O
	Taitung		ip	39.5										03 53.0	O	
	Hwalien		p	42.1												O
	Taipei		p	50.0										07 46.7	O	
	Taichung		ep	50.5												O
	Alishan		e	30 29.9												O
8	Hwalien	30	p	10 37 03.3				77	66	50	3.0	3.0	2.7	6.8	I	near 45km
	Taichung		p	04.7										10.2	O	SSE of Ilan
	Taipei		ep	07.4										10.1	O	h-20
	Alishan		ep	11.7										17.2	O	(1)
	Hsinkong		ep	15.7										18.0	O	
	Taitung		ep	23.1												O
	Tawu		ep	29.0										28.2	O	
	Hengchun		ep	38.1												O
	Yushan		ep	31.9										16.6	O	

地 震 季 報

第 十 卷 第 四 號

中華民國五十二年十、十一、十二月

SEISMOLOGICAL BULLETIN

October to December 1963

VOL. 10 No. 4

臺 灣 省 氣 象 所

PUBLISHED QUARTERLY BY

TAIWAN WEATHER BUREAU

64 KUNG YUAN ROAD, TAIPEI, TAIWAN, CHINA

General Aspect of Earthquakes from October

to December 1963.

The number of earthquakes during the period from October to December, 1963 was 246. In addition, 19 distant earthquakes had been recorded by our seismographs.

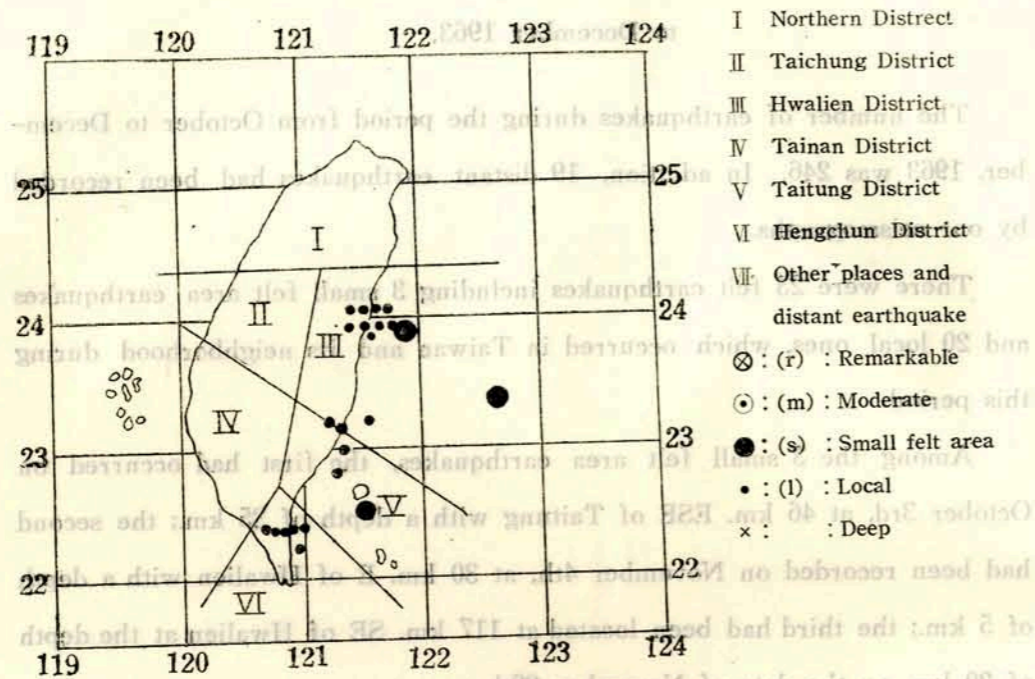
There were 23 felt earthquakes including 3 small felt area earthquakes and 20 local ones, which occurred in Taiwan and its neighborhood during this period.

Among the 3 small felt area earthquakes, the first had occurred on October 3rd, at 46 km. ESE of Taitung with a depth of 35 km.; the second had been recorded on November 4th, at 30 km. E of Hualien with a depth of 5 km.; the third had been located at 117 km. SE of Hualien at the depth of 20 km. on the date of November 29th.

The initial motion, maximum amplitude and period of the major earthquakes including distant earthquakes are listed on the later part of this bulletin.

Districts	Small felt areas	Moderate	Total	Other places
Northern District	—	—	0	—
Taipei	—	—	0	—
Tainan	—	—	0	—
Taitung	1	—	1	—
Hualien	2	—	2	—
Total	3	0	3	—
Other places	—	—	0	19

Epicenters of Felt Earthquakes in October to December, 1963



Number of earthquakes classified according to its magnitude and districts October to December 1963

Districts	Classification Magnitudes	Number of felt earthquakes				Total	Number of unfelt earthquakes	Total
		Remark-able	Moderate	Small felt area	Local			
Northern District		—	—	—	—	0	29	29
Taichung "		—	—	—	—	0	14	14
Hwalien "		—	—	2	10	12	87	99
Tainan "		—	—	—	—	0	1	1
Taitung "		—	—	1	4	5	69	74
Hengchun "		—	—	—	6	6	23	29
Total		0	0	3	20	23	223	246
Other places		—	—	—	—	0	19	19

Felt earthquakes in the month of October to December, 1963.

No.	Month	P. (G. M. T.)			Mag-nitude	Epicenter	Latitude N.	Longitude E.	Depth Kms.
		d.	h.	m.					
102	Oct.	3	05	32	s	Near 46km. ESE. of Taitung	22.5	121.5	35
103	"	4	03	12	1	Near Tawu	—	—	—
104	"	4	12	49	1	"	—	—	—
105	"	4	12	54	1	"	—	—	—
106	"	4	12	55	1	"	—	—	—
107	"	4	13	17	1	"	—	—	—
108	"	24	07	43	1	Near 13km. SSE. of Tawu	—	—	5
109	"	24	08	08	1	Near 22km ENE. of Hsinkong	—	—	10
110	"	26	17	57	1	Near Hsinkong	—	—	—
111	"	28	00	07	1	Near Hwalien	—	—	—
112	"	30	04	57	1	Near Hsinkong	—	—	—
113	Nov.	4	09	49	s	Near 30km. E of Hwalien	23.9	121.9	5
114	"	19	04	36	1	Near Hwalien	—	—	—
115	"	25	16	45	1	Near 25km. E. of Taitung	—	—	5
116	"	29	16	22	s	Near 117km SE. of Hwalien	23.4	122.5	20
117	"	30	11	53	1	Near Hwalien	—	—	—
118	"	30	12	30	1	"	—	—	—
119	"	30	12	31	1	"	—	—	—
120	Dec.	19	04	43	1	"	—	—	—
121	"	19	04	43	1	"	—	—	—
122	"	23	20	02	1	Near 15km SSE. of Hsinkong	—	—	30
123	"	30	08	28	1	Near Hwalien	—	—	—
124	"	30	08	55	1	"	—	—	—

Unfelt Earthquakes in the month of October to December, 1963

No.	Month	P. (G. M. T.)	Epicenter	No.	Month	P. (G. M. T.)	Epicenter
		d. h. m.				d. h. m.	
1082	Oct.	3 02 45	Norther district	1114	Oct.	13 11 33	Kurile Islands
1083	"	3 03 46	Hwalien district	1115	"	13 13 04	Taitung district
1084	"	3 05 17	"	1116	"	13 16 06	Near Hsinkong
1085	"	3 17 31	Taitung district	1117	"	14 00 07	Kurile Islands
1086	"	3 21 38	"	1118	"	14 10 24	Near Hsinkong
1087	"	3 23 27	Kynshu Japan	1119	"	14 13 28	Kurile Islands
1088	"	4 06 40	Near Hwalien	1120	"	15 00 33	Northern district
1089	"	4 12 03	Near Tawu	1121	"	15 05 08	Hwalien district
1090	"	4 12 03	"	1122	"	16 16 03	(d)
1091	"	4 12 33	"	1123	"	17 08 25	Northern district
1092	"	4 13 03	Near Tawu	1124	"	17 23 44	Near Hsinkong
1093	"	4 13 05	"	1125	"	18 02 10	"
1094	"	4 13 36	"	1126	"	19 19 05	Hwalien district
1095	"	4 19 11	Hwalien district	1127	"	20 00 56	Kurile Islands
1096	"	5 03 33	Near Hsinkong	1128	"	20 12 09	Northern district
1097	"	5 07 07	Near Tawu	1129	"	20 08 24	Hengchun district
1098	"	5 18 18	Near Alishan	1130	"	20 09 35	"
1099	"	5 22 47	Near Tawu	1131	"	20 15 31	Near Hsinkong
1100	"	6 00 23	Taitung district	1132	"	20 21 57	"
1101	"	6 00 26	Near Hwalien	1133	"	20 22 42	Hwalien district
1102	"	6 01 32	Taichung district	1134	"	20 23 00	Taichung district
1103	"	6 01 34	Hwalien district	1135	"	21 05 46	Hwalien district
1104	"	6 10 01	Near Tawu	1136	"	21 18 27	Near 84km. ENE of Taitung
1105	"	7 05 29	Hwalien district	1137	"	23 02 02	Near Hsinkong
1106	"	7 07 13	"	1138	"	23 17 15	Near Alishan
1107	"	8 18 27	Near Hsinkong	1139	"	24 06 58	Hengchun district
1108	"	10 17 08	"	1140	"	24 07 33	"
1109	"	11 14 53	Near Tawu	1141	"	24 09 55	Near 34km. SE. of Ilan
1110	"	12 11 33	Kurile Islands	1142	"	24 19 21	d
1111	"	12 18 20	Near Hsinkong	1143	"	25 10 03	Hengchun district
1112	"	13 05 24	Kurile Islands	1144	"	25 15 48	"
1113	"	13 10 40	Northern district	1145	"	25 20 04	Mariana Islands.

No.	Month	P. (G. M. T.)	Epicenter	No.	Month	P. (G. M. T.)	Epicenter
		d. h. m.				d. h. m.	
1146	Oct.	26 05 28	Near Alishan	1179	Nov.	4 15 14	Near Alishan
1147	"	26 18 00	Near Hsinkong	1180	"	4 19 34	Halien district
1148	"	27 21 47	Hwalien district	1181	"	5 01 01	Hwengchun district
1149	"	28 12 11	Taitung district	1182	"	5 21 00	Near Hwalien
1150	"	28 14 53	Near Hwalien	1183	"	5 21 09	Taitung district
1151	"	28 14 56	Hwalien district	1184	"	5 21 22	"
1152	"	29 14 23	Taitung district	1185	"	6 02 19	d
1153	"	30 02 55	Near Alishan	1186	"	6 03 06	Hwalien district
1154	"	30 06 32	Hwalien district	1187	"	6 04 40	Near 45km. SSW. of Ilan
1155	"	30 07 56	Near Tawu	1188	"	6 17 51	Hwalien district
1156	"	30 09 41	Northern district	1189	"	6 18 22	"
1157	"	31 04 47	Near Hwalien	1190	"	6 20 49	Hengchun district
1158	"	31 13 19	Hwalien district	1191	"	7 02 42	Near Hwalien
1159	Nov.	1 14 13	"	1192	"	7 13 00	Taitung district
1160	"	2 01 45	"	1193	"	8 10 39	Near Hsinkong
1161	"	2 12 01	"	1194	"	8 16 21	Hengchun district
1162	"	2 16 10	Northern district	1195	"	8 23 35	Hwalien district
1163	"	2 18 11	Taitung district	1196	"	9 21 34	d
1164	"	2 22 05	Taichung district	1197	"	10 17 21	"
1165	"	3 02 14	Near 120km ESE. of Hwalien.	1198	"	10 18 20	Hwalien district
1166	"	3 03 29	Hwalien district	1199	"	10 19 18	Near 130km. ENE. of Hsinkong
1167	"	3 20 25	Hwalien district	1200	"	11 04 57	Near Hsinkong
1168	"	3 22 04	Near Hsinkong	1201	"	11 10 50	Taitung district
1169	"	4 00 25	Hwalien district	1202	"	11 20 03	Near 18km. E. of Tawu
1170	"	4 00 29	"	1203	"	12 06 19	Hengchun district
1171	"	4 00 34	"	1204	"	12 08 50	Hwalien district
1172	"	4 00 50	"	1205	"	12 11 16	Taitung district
1173	"	4 01 22	Bands Sea	1206	"	12 11 50	Near 55km. E. of Ilan
1174	"	4 09 42	Hwalien district	1207	"	12 12 40	Near Hwalien
1175	"	4 09 55	"	1208	"	12 18 17	Taitung district
1176	"	4 10 11	Near Hwalien	1209	"	13 00 28	"
1177	"	4 11 05	Hwalien district	1210	"	13 02 25	Taitung district
1178	"	4 15 02	Near Hwalien	1211	"	13 18 45	"

No.	Month	P. (G. M. T.)			Epicenter	No.	Month	P. (G. M. T.)			Epicenter
		d.	h.	m.				d.	h.	m.	
1212	Nov.	14	04	45	Near 78km. ESE. of Hengchun	1245	Nov.	26	22	51	Near Hwalien
1213	"	14	11	07	Near 50km. ENE. of Ilan	1246	"	27	00	37	Taitung district
1214	"	14	11	13	Northern district	1247	"	27	01	51	Hwalien district
1215	"	14	11	47	Hwalien district	1248	"	27	03	06	"
1216	"	15	20	37	Near 36km. ENE. of Ilan	1249	"	27	08	31	Taitung district
1217	"	15	21	12	Northern district	1250	"	29	16	25	Near Hwalien
1218	"	15	21	17	"	1251	"	29	16	27	"
1219	"	16	03	19	Taitung district	1252	"	29	16	34	"
1220	"	16	16	38	Near Hwalien	1253	Dec.	1	10	18	Near Hsinkong
1221	"	18	18	13	Near Hwalien	1254	"	1	23	38	Near 100km. E. of Taitung
1222	"	18	21	09	Taichung district	1255	"	2	21	26	Hwalien district
1223	"	18	21	18	Near 48km. NNE. of Tainan	1256	"	3	07	41	Near Hwalien
1224	"	19	01	30	Near 54km. NE of Hwalien.	1257	"	3	14	28	Near 39km. NNE. of Hsinkong
1225	"	19	10	30	Taitung district	1258	"	5	03	07	Taitung district
1226	"	19	22	11	Hwalien district	1259	"	5	14	38	Near Hwalien
1227	"	20	02	19	"	1260	"	5	18	32	Northern district
1228	"	20	11	52	"	1261	"	7	21	55	Taitung district
1229	"	22	02	42	"	1262	"	7	23	11	"
1230	"	22	02	44	Northern district	1263	"	8	11	43	"
1231	"	22	10	01	Taitung district	1264	"	9	00	15	Hwalien district
1232	"	22	14	56	d	1265	"	10	13	07	"
1233	"	22	20	55	Taichung district	1266	"	10	21	22	Taitung district
1234	"	23	19	55	Taitung district	1267	"	11	03	19	Northern district
1235	"	24	02	10	Near Hsinkong	1268	"	11	03	49	Near 31km. ENE. of Ilan
1236	"	24	11	09	Hwalien district	1269	"	12	00	59	Northern district
1237	"	24	11	12	"	1270	"	12	01	04	Taitung district
1238	"	24	11	18	"	1271	"	12	07	39	Near Hwalien
1239	"	26	01	08	Near Taipei	1272	"	12	14	53	Near Alishan
1240	"	26	08	34	Near 160km. ENE. of Taitung.	1273	"	12	16	50	"
1241	"	26	12	12	Near Hwalien	1274	"	12	21	27	Near Ilan
1242	"	26	12	31	Taitung district	1275	"	13	02	49	Taitung district
1243	"	26	18	56	Near 20km. E. of Hwalien	1276	"	13	03	51	Hengchun district
1244	"	26	19	31	Taitung district	1277	"	13	17	37	Near 40km. E. of Tawu

No.	Month	P. (C. M. T.)			Epicenter	No.	Month	P. (G. M. T.)			Epicenter
		d.	h.	m.				d.	h.	m.	
1278	Dec.	13	18	49	Near Hsinkong	1301	Dec.	23	16	23	Near 41km. ENE. of Ilan
1279	"	14	13	06	Taitung district	1302	"	24	08	13	Near Hsinkong
1280	"	14	13	44	Hengchun district	1303	"	25	00	49	Near 19km. NNE. of Tawu
1281	"	15	19	39	Java Sea	1304	"	26	12	28	Taitung district
1282	"	15	23	40	Near 32km. NE. of Hsinkong	1305	"	26	13	56	"
1283	"	16	01	57	d	1306	"	26	13	58	Northern district.
1284	"	16	16	12	Near Hwalien	1307	"	27	04	27	Near Hwalien
1285	"	17	17	40	Northern district	1308	"	27	13	17	Northern district
1286	"	18	00	41	d	1309	"	28	00	10	Near Hsinkong
1287	"	18	23	04	Hwalien district	1310	"	28	05	53	Hwalien district
1288	"	19	21	06	Taitung district	1311	"	28	17	28	Taitung district
1289	"	20	18	39	Northern district	1312	"	28	18	26	Near Hsinkong
1290	"	20	20	02	Taitung district	1313	"	28	19	06	Northern district
1291	"	21	01	20	Taiuchng district	1314	"	28	23	56	Near 25km. NNE. of Hwalien
1292	"	21	01	49	Near Alishan	1315	"	29	10	39	Hwalien district
1293	"	21	11	58	Hwalien district	1316	"	29	18	09	Taitung district
1294	"	21	13	10	d	1317	"	30	08	15	"
1295	"	22	03	16	Near Hwalien	1318	"	30	13	36	"
1296	"	22	12	21	Northern district	1319	"	30	15	10	"
1297	"	22	13	51	Near Hsinkang	1320	"	31	10	42	Hwalien district
1298	"	22	14	10	Hwalien district	1321	"	31	17	56	d
1299	"	23	06	26	Near Hwalien	1322	"	31	22	57	Northern distait.
1300	"	d.	h.	m.	Near 138km' ENE. of Hsinkong		"				

Mojor Earthquakes Occurred in October, 1963

No.	Station	Date	Phase	P. (G. M. T.)	Initial Motion			Maximun Amplitude			Period			P~S	Intensity	Epicenter & Remarks
					N	E	Z	N	E	Z	N	E	Z			
1	Tawu	3	ip	05 32 17.8	μ	μ	+	3750	4900	2900	1.5	3.2	1.5	1.4	III	Near 46km.
	Taitung		ip	32 24.2	+ 32.6	+ 42.9	—	731	—	—	2.2	—	—	—	6.5	III ESE of
	Hengchun		ep	32 24.7	- 24.4	- 22.1	—	—	—	652	—	—	—	—	11.1	II Taitung
	Hsinkong		ip	32 29.8	+ 21.2	- 13.3	+ 27.0	188	200	115	5.9	5.6	9.5	14.6	I	121.5 E
	Tainan		p	32 34.5	- 7	+ 13	- 14	253	724	152	0.6	0.6	0.8	16.1	I	22.5 N.
	Hwalien		ep	32 41.5	—	—	—	178	108	76	2.2	2.8	2.3	17.4	O	(H=35)
	Alishan		e	32 45.3	—	—	—	—	—	—	—	—	—	—	19.6	I
	Taichung		p	32 48.2	—	—	—	—	—	—	—	—	—	—	23.7	O
	Yushan		ep	32 51.1	—	—	—	—	—	—	—	—	—	—	8.9	O
	Hsinchu		ep	33 04.0	—	—	—	—	—	—	—	—	—	—	35.0	O
	Taipei		p	33 05.0	—	—	—	—	—	—	—	—	—	—	31.0	O
Anpu		p	33 01.2	—	—	—	—	—	—	—	—	—	—	37.8	O	
2	Taipei	3	p	23 27 33.0	—	—	—	—	—	—	—	—	—	—	2	40.0 O
	Hwalien		p	27 44.7	—	—	—	—	—	—	—	—	—	—	2	33.8 O 32.2 N
	Alishan		p	27 45.5	—	—	—	—	—	—	—	—	—	—	—	O 131.6 E
	Taitung		ep	27 46.1	—	—	—	—	—	—	—	—	—	—	3	28.4 O Kyushu
	Taichung		ep	27 46.3	—	—	—	—	—	—	—	—	—	—	—	O Japan
	Hsinkong		p	27 52.3	—	—	—	—	—	—	—	—	—	—	—	35.8 O
	Tawu		ep	28 06.8	—	—	—	—	—	—	—	—	—	—	—	O
	Tainan		ep	28 11.6	—	—	—	—	—	—	—	—	—	—	—	O
	Hengchun		ep	28 13.8	—	—	—	—	—	—	—	—	—	—	—	O
Anpu		p	27 18.0	—	—	—	—	—	—	—	—	—	—	2	21.0 O	
3	Hwalien	12	ep	11 33 15.6	—	—	—	—	—	—	—	—	—	—	—	O 44.8N 149.0E
	Taichung		ep	33 19.7	—	—	—	—	—	—	—	—	—	—	—	O Kurile
	Hsinkong		p	33 21.0	—	—	—	—	—	—	—	—	—	5	5.3 O Islands	
	Taitung		ep	33 21.5	—	—	—	—	—	—	—	—	—	—	—	O
	Alishan		ep	33 22.2	—	—	—	—	—	—	—	—	—	5	5.0 O	
	Tawu		ep	33 27.4	—	—	—	—	—	—	—	—	—	5	23.5 O	
	Hengchun		ep	33 28.5	—	—	—	—	—	—	—	—	—	—	—	O
	Taipei		p	33 30.0	—	—	—	—	—	—	—	—	—	5	4.0 O	
	Anpu		p	33 01.3	—	—	—	—	—	—	—	—	—	—	—	O

No.	Station	Date	Phase	P. (G. M. T.)	Initial Motion			Maximun Amplitude			Period			P~S	Intensity	Epicenter & Remarks	
					N	E	Z	N	E	Z	N	E	Z				
4	Taichung	13	ep	05 24 07.0	μ	μ	μ	μ	μ	μ	μ	μ	μ	μ	μ	μ	O U.S.C.G.S.
	Taipei		p	24 09.5	—	—	—	410	1300	275	20.7	16.1	20.5	50.0	—	—	O 44.8N
	Yushan		ep	24 16.6	—	—	—	—	—	—	—	—	—	—	—	—	O 149.5E
	Hwalien		ep	24 17.2	—	—	—	3750	4750	5000	25.0	25.0	22.0	—	—	—	O Kurile
	Hsinkong		ep	24 20.2	—	—	—	—	—	—	—	—	—	—	—	—	O Islands
	Taitung		ep	24 23.2	—	—	—	409	505	—	—	—	—	5	10.3	O	
	Alishan		ep	24 25.6	—	—	—	—	—	—	—	—	—	—	6	18.5	O
	Tawu		ip	24 28.0	-3	-4	+10	—	—	—	—	—	—	—	6	15.6	O
	Tainan		ep	24 28.8	—	—	—	—	—	—	—	—	—	—	5	7.4	O
	Hengchun		ep	24 30.7	—	—	—	—	—	—	—	—	—	—	—	—	O
	Hsinchu		ep	25 22.5	—	—	—	—	—	—	—	—	—	—	6	25.4	O
Anpu		p	24 05.0	—	—	—	—	—	—	—	—	—	—	—	—	O	
5	Tawu	14	ep	00 07 01.2	—	—	—	—	—	—	—	—	—	—	—	—	O U.S.C.G.S.
	Taipei		ep	09 03.0	—	—	—	—	—	—	—	—	—	—	—	—	O 45.0N O 150.9E Kurile Islands
6	Hsinkong	14	p	13 28 13.6	—	—	—	—	—	—	—	—	—	—	—	—	O U.S.C.G.S.
	Alishan		p	28 21.6	—	—	—	—	—	—	—	—	—	—	—	—	O 44.8N 151.0E
	Taitung		ep	28 23.2	—	—	—	—	—	—	—	—	—	—	—	—	O Kurile
	Taipei		ep	38 15.0	—	—	—	—	—	—	—	—	—	—	—	—	O Islands
	Tawu		ep	28 40.2	—	—	—	—	—	—	—	—	—	—	—	—	O
7	Hsinchu	20	ep	00 56 27.5	—	—	—	—	—	—	—	—	—	—	—	—	O U.S.C.G.S.
	Taichung		ep	57 44.0	—	—	—	—	—	—	—	—	—	—	—	—	O 44.7N 15.0E
	Taipei		ep	59 26.5	—	—	—	900	1000	—	20.2	20.5	—	6	32.5	O Kurile	
	Kaohsiung		ep	59 31.5	—	—	—	—	—	—	—	—	—	—	—	—	O Islands
	Taitung		ep	59 46.0	—	—	—	—	—	—	—	—	—	5	17.8	O	
	Hsinkong		p	59 48.0	—	—	—	—	—	—	—	—	—	—	—	—	O
	Alishan		ep	59 54.2	—	—	—	—	—	—	—	—	—	—	—	—	O
	Tawu		ep	59 59.0	—	—	—	—	—	—	—	—	—	5	41.0	O	
	Hwalien		ep	01 00 01.9	—	—	—	820	770	450	24.0	23.0	20.0	—	—	—	O
	Hengchun		ep	01 00 14.6	—	—	—	—	—	—	—	—	—	7	8.1	O	
Tainan		ep	00 25.4	—	—	—	—	—	—	—	—	—	4	42.3	O		
Yushan		p	00 30.0	—	—	—	—	—	—	—	—	—	5	17.5	O		

No.	Station	Date	Phase	P. (G. M. T.)	Initial Motion			Maximun Amplitude			Period			P~S	Intensity	Epicenter & Remarks
					N	E	Z	N	E	Z	N	E	Z			
8	Tawu	25	ep	h m s 20 04 15.4	μ	μ	μ	μ	μ	μ	s	s	s	m	s	0 12.3N 144.5E
	Taitung		ep	04 23.2												0 Mariana
	Hwalien		ep	04 25.5												0 Islands

Earthquakes Occurred in November

No.	Station	Date	Phase	P. (G. M. T.)	Initial Motion			Maximun Amplitude			Period			P~S	Intensity	Epicenter & Remarks
					N	E	Z	N	E	Z	N	E	Z			
1	Hsinchu	4	ep	h m s 01 22 51.0	μ	μ	μ	μ	μ	μ	s	s	s	m	s	0 6.8S 129.6E
	Hengchn		ep	23 14.6				160	410	140	2.8	1.9		4	4.91	0 Bando Sea
	Tawu		ep	23 15.2										4	31.2	0
	Taitung		ep	23 19.2												0
	Hsinkong		p	23 22.2												0
	Kaohsiung		ep	23 23.9												0
	Hwalien		p	23 28.0				1350	1220	1200	25.0	20.0	25.0	3	02.0	0
	Tainan		p	23 29.5										4	02.0	0
	Yushan		p	23 30.1										4	54.0	0
	Alishan		ep	23 32.0										4	56.0	0
	Taichung		ep	23 32.6												0
	Taipei		p	23 34.8	+	7	+	0	+	9				5	20.0	0
	Anpu		p	23 35.0												0

2	Hwalien	4	ip	09 49 43.0	+	2.5	+	30.0	-	31.6	705	1200		1.5	2.4		04.0	II Near 30km
	Hsinkong		p	49 56.4													14.2	0 E. of
	Yushan		p	49 57.2													9.5	I Hwalien
	Taichung		p	49 57.0													16.9	0 121. E
	Taipei		p	49 58.0													16.2	0 23.9 N
	Hsinchu		ep	50 03.0													16.9	0 (H=5)
	Taitung		ep	50 03.5														0
	Tainan		ep	50 13.2													28.5	0
	Tawu		ep	50 15.7													19.6	0
	Hengchun		ep	50 27.6														0
	Kaohsiung		ep	50 27.0														0
	Anpu		p	49 59.7														0

No.	Station	Date	Phase	P. (G. M. T.)	Initial Motion			Maximun Amplitude			Period			P~S	Intensity	Epicenter & Remarks						
					N	E	Z	N	E	Z	N	E	Z									
3	Taitung	6	ep	h m s 02 19 34.7	μ	μ	μ	μ	μ	μ	s	s	s	m	s	0 (d)						
	Taipei		ep	19 35.1												5 16.4	0					
	Hwalien		ep	19 39.3													0					
	Tawu		ep	19 56.8													0					
	Anpu		p	19 44.5													0					
4	Taitung	09	ep	21 34 25.5													0	(d)				
	Tawu		p	34 30.6														0				
	Hwalien		ep	34 31.0														0				
	Alishan		ep	34 33.0														0				
	Taipei		ep	34 42.1														0				
	Hengchun		ep	35 27.6														0				
	Anpu		p	34 23.8														0				
5	Taitung	10	ep	17 21 56.0														0	(d)			
	Tawu		p	29 16.3															0			
	Taipei		ep	29 21.6															0			
6	Hwalien	29	p	16 22 00.5	+												1500	2.5	13.6	II Near 117km.		
	Taitung		ep	22 24.9																0 SE. of		
	Hsinkong		ep	22 31.0																15.0	0 Hwalien	
	Taipei		ep	22 37.2																	0 122.5E	
	Alishan		ep	23 42.2																	3.9	0 23.4N
	Anpu		p	22 36.0																		0 (h=20)

Major Earthquakes Occurred in Nonember

No.	Station	Date	Phase	P. (G. M. T.)	Initial Motion			Maximun Amplitude			Period			P~S	Intensity	Epicenter & Remarks					
					N	E	Z	N	E	Z	N	E	Z								
1	Yushan	15	p	h m s 19 39 17.0	μ	μ	μ	μ	μ	μ	s	s	s	m	s	0 40.0	U.S.C.G.S.				
	Hengchun		ip	40 06.7	+	14	+	22.5	+	40	145	44	40	5.6	4.5	4.5		0 4.8S 108.0E			
	Tainan		ep	40 09.6														-2	13.2	0 Java Sea	
	Hsinkong		ep	40 15.6															-1	42.8	0
	Taitung		ep	40 16.0															-1	39.8	0
	Alishan		p	40 19.1															-4	16.3	0

