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符號凡例

1. 地震之性質

I. 可辨別 II. 稍強 III. 強

- d. 局部地震 (震源在一百呎以內)
- v. 近地地震 (震源在一千呎以內)
- r. 遠地地震 (震源在五千呎以內)
- u. 極遠地震 (震源在五千呎之外)

2. 震波圖之相位

- P 縱波 (或初期微動之第一前走波)
- PR₁, PP 縱波對於地球表面經一次反射之波
- PR₂, PPP 縱波對於地球表面經二次反射之波
- S 橫波 (或初期微動之第二前走波)
- SR₁, SS 橫波對於地球表面經一次反射之波
- SR₂, SSS 橫波對於地球表面經二次反射之波
- PS, SP 變轉波即縱波(橫波)對於地球表面反射時所變轉之橫波
(縱波)
- L 主要動之地面波
- M₁, M₂, ... 地面波之極大動
- C 終期尾動
- F 能認別之最終動

3. 運動之種類等

- i 相位之明顯者
- e 相位之不明顯者
- ? 相位之可疑者
- T 週期(以秒為單位)
- A 實際上地面震動之半震幅(以 μ , 千分之一呎, 為單位)
- Δ 震央距離(以呎為單位)

Symbols and Notations

1. Character of the Earthquake—

- I. Perceptible. II. Moderately strong. III. Strong.
- | | |
|-----------------------------|-----------------------------------------------------------------------|
| d (terrae motus domesticus) | Local shock (origin less than 100 km. distant). |
| v (terrae motus vicinus) | Near shock (origin from 100 to 1,000 km. distant). |
| r (terrae motus remotus) | Distant shock (origin from 1,000 to 5,000 km. distant). |
| u (terrae motus ultimus) | Very distant shock or teleseism (origin more than 5,000 km. distant). |

2. Phases of the Seismogram—

- | | |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------|
| P (undae primae) | Normal first phase, or first preliminary tremors (longitudinal). |
| P' | First preliminary tremors which have penetrated the core of the earth. |
| PR _n | Waves n times reflected at the earth's surface. |
| S (undae secundae) | Second phase, or second preliminary tremors (transverse). |
| SR _n | Waves n times reflected at the earth's surface. |
| PS, SP | Waves changed from longitudinal to transverse oscillation or vice versa through reflection at the earth's surface. |
| PPS | Waves twice reflected at the earth's surface, having been longitudinal on two branches of the path and transverse on one branch. |

In general, a bar over two letters denoting types of waves indicates refraction. The subscript c denotes the boundary at about 2900 km. depth between the metallic core and the middle shell which surrounds it. Thus;

ScPcS Waves which have penetrated the core, having been transverse before entering and after leaving the core, and longitudinal within the core.

PcPcPcP Waves refracted at the core boundary into the core, reflected once at this boundary while within the core and again refracted out of the core, having remained longitudinal on all branches of the path.

- L (undae longae) Long waves of surface phase preceding M.
 - M (undae maximae) Shorter and more regular waves of large amplitude in the surface phase.
 - M₂, W₃, W₄... The maximum waves coming again to the station after circumscribing the earth once, twice, etc.
 - C (coda) Tail or end portion.
 - F (finis) End of discernible movement.
- g. Nature of the motion
- i (impetus) Sudden beginning of the motion.
 - e (emersio) Gradual beginning of the motion.
 - ?
 - ?
 - m Maximum wave in any phase.

4. Time—

All determinations are reduced to Greenwich mean time. The contact clock which gives the time mark is daily corrected by radio with the time signal from Zi-ka-wei Observatory.

Constants of the Seismographs

1. Mechanical Registration.

Apparatus	Component	V	T ₀	€	r
Wiechert 17,000 kg.	N	1530	1.60	2.9	0.22
	E	1500	1.50	2.0	0.10
Wiechert 1,300 kg.	Z	165	4.26	3.4	0.50

2. Galvanometric Photographic Registration.

Preliminary Constants of Galitzin-Wilip.

Component	Galvanometer Free Period T ₁	Pendulum Free Period T	Damping Constant $\frac{z}{u}$	Transmission Factor k	Synchronous Magnification $\frac{kAT}{4\pi l}$
N-S	11.04	11.80	+0.08	110	1210
E-W	10.88	11.02	+0.02	105	1092

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$\varphi = 32^{\circ}03'11''N$ $\lambda = 118^{\circ}46'55''E$ $h = 60m$. Underground: Conglomerate.

No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark	
				h.	m.	s.	A_N	A_E	A_Z	T_N	T_E	T_Z			
525	1934 Jul. 1	I	e_E	2	44	20								Very small.	
			e_E	2	45	08									
			F	2	51										
526	Jul. 3	Ir	eP	3	49	10							1210		
			eS	3	51	23									
			eL	3	52	51									
			iL	3	53	03									
			M	3	54	20				11	11				
			F	4	19										
527	Jul. 6		e	11	21	-							Inevident.		
			m	11	23	05					8				
			F	11	33										
528	Jul. 6	Ir	eP	18	44	01							3110		
			e	18	48	11									
			eL	18	51	55									
			F	19	10										
529	Jul. 6	IIu	iP	23	01	40							8155	Condensation. USCGS: $43^{\circ}N, 126^{\circ}W$. JSA: $41.5^{\circ}N, 124.9^{\circ}W$.	
			iS	23	11	14									
			$e(L)_N$	23	25	45									
			L	23	29	36									
			i	23	34	12									
			M_E	23	35	48					20				
			F	1	32										
530	Jul. 7		e	10	16	-							Very small.		
			e	10	17	48									

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A_N	A_E	A_Z	T_N	T_E	T_Z		
531	1934 Jul. 8	Ir	P	14	12	18							2255	
			eS	14	16	04								
			L	14	19	08								
			F	14	40									
532	Jul. 11		e	4	05	08							Very small.	
			M_E	4	05	53				6				
			F	4	14									
533	Jul. 12	Ir	P	9	56	35							2510	
			S	10	00	42								
			L	10	05	05								
			M	10	05	48				16	16			
			F	11	03									
534	Jul. 12		iP	14	32	54								
			e	14	34	47								
			e	14	39	33								
			e	14	49	05								
			F	15	21									
535	Jul. 18	IIu	P'	1	55	51							130°	Destructive in Chiriqui Province, Panama. JSA: $8.2^{\circ}N, 82.5^{\circ}W$ UGEGI: $8.2^{\circ}N, 84.4^{\circ}W$
			iPP _Z	1	58	22								
			S _C P _C P	1	59	18								
			S _C P _C S	2	03	22								
			s _C P _C ? _C S	2	05	48								
			eS	2	08	28								
			PS _E	2	10	13								
			PPS	2	11	42								
			SR ₁	2	16	30				19				

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A _N	A _E	A _Z	T _N	T _E	T _Z		
535	1934 Jul. 18 (cont'd.)	IIu	i	2	18	13								na Pama Quake.
			SR _{2z}	2	21	24						12		
			SR _{2N}	2	21	58				18				
			m _z	2	27	04						30		
			m _z	2	30	58						25		
			eL ₁	2	37	25								
			L ₂	2	43	21								
			M _{1z}	2	49	06							24	
			M _{2N}	2	53	46				30				
			M _{3z}	3	02	58							20	
		F	5	00										
536	Jul. 18	Iu	eP'	17	22	33								Panama Quake. JSA: 8.2°N, 82.2°W. All the phases much masked by strong micro.
			e	17	29	13								
			e	17	33	33								
			eL	18	12	09								
			M	18	25	57							18	
			F	19	-									
537	Jul. 18	IIIu	P	19	50	46								6845 Epc. in the islands of New Hebrides J.S.A: 16.8°S, 167°E.
			iP	19	50	53								
			iS	19	59	15								
			iSS	20	03	19								
			eL _N	20	06	37								
			eL _E	20	07	45								
			M ₁	20	09	12				20	18			
			M ₂	20	11	29						20	24	
			M ₃	20	13	01						23		
			M ₄	20	15	58							19	
		F	22	10										

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A _N	A _E	A _Z	T _N	T _E	T _Z		
538	1934 Jul. 19	Iu	eP	0	17	15							7090	
			iS	0	25	57								
			L	0	30	00								
			F	1	-									
Continued by next.														
539	Jul. 19	IIr	iP	1	34	24							3880	
			i(PP) _z	1	35	47								
			iS	1	40	04								
			iL	1	43	06								
			M ₁	1	45	00				16	13			
			M ₂	1	47	31						20		
			F	3	-									
Disturbed by micro.														
540	Jul. 19		e	5	56	05								The rest being confused by strong micro.
541	Jul. 19	Iu	P	7	47	35							6890	Dilatation.
			eS	7	56	06								
			SS _z	7	59	39								
			eL	8	03	20								
			M ₁	8	14	54						17		
			M ₂	8	16	25						18		
			M ₃	8	26	20				16	16			
542	Jul. 20	Ir	eP	18	59	25								
			L _z	19	15	-								
			M ₁	19	19	54						20		
			M ₂	19	23	46						18		
			F	19	50									

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A _N	A _E	A _Z	T _N	T _E	T _Z		
543	1934 Jul. 21	Ir	eP	4	42	16							2345	Disturbed by strong wind.
			e	4	44	23								
			e(S)	4	46	09								
			L	4	47	30								
			F	5	-									
544	Jul. 21	IIIu	iP	6	28	39							7350	Dilatation. New Hebrid ^{es} Quake. J.S.A: 18.2°s, 164°E.
			i	6	29	36								
			iS	6	37	34								
			i	6	42	55								
			L	6	47	06								
			M ₁	6	49	20					16			
			M ₂	6	53	00					16			
			M ₃	6	57	24					15			
545	Jul. 21	Iu	e	10	85	-							Panam ^a quake. J.S.A: 8.2°N, 82.5°W.	
			e	11	02	01								
			e(S)	11	15	48								
			L	11	51	05								
			M	11	54	23								
			F	13	00									
546	Jul. 22	Ir	e	18	44	(56)							1110	
			e _E	18	45	23								
			eS	18	47	00								
			i _N	18	47	19								
			L	18	48	24								
			F	19	10									

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A _N	A _E	A _Z	T _N	T _E	T _Z		
547	1934 Jul. 22	Ir	P	20	04	06							3890	
			iPP	20	05	22								
			S	20	09	46								
			M	20	18	08				6	6			
			F	20	33									
548	Jul. 23		(e) _E	10	49	17							Very small.	
			e	10	52	07								
			F	10	59									
549	Jul. 25	lv	iP	14	07	07							200	
			iS	14	07	34								
			F	14	10									
550	Jul. 27	Iu	eP	12	36	08							6835	Small.
			eS	12	44	36								
			L	12	52									
			F	13	43									
551	Jul. 28	Ir	e	2	18	32							4845	
			eS	2	25	08								
			eL	2	28	08								
			M	2	30	36								
			F	3	15									
552	Jul. 28	IIu	iP	21	47	09				6			6745	Alaska. USCGS gives 56°N. 157°W, JSA : 55.1°N. 154.8W.
			iS	21	55	32								
			i	21	07	19								
			L	21	10	44								
			M	21	19	30?								

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A_N	A_E	A_Z	T_N	T_E	T_Z		
	1934		F	23	38									
553	Jul. 29		eP	3	50	50							171	Small but sharp.
			iS	3	51	13								
			F	3	52									
554	Jul. 30	I	e _E ?	3	31	64								May be other disturbances.
			e _N	3	35	10								
			e _N	3	36	10								
			iL	3	37	30								
			C	3	39	44								
			F	4	18									
555	Jul. 31	IIr	P	6	02	37							1910	Dilatation.
			S	6	05	55								
			eL	6	07	28								
			M	6	09	55						18		
			F	7	00									
556	Jul. 31	Iv	eP	10	11	08							319	
			iS	10	11	51								
			F	10	—									Continued by next.
557	Jul. 31		P?	10	15	13							303	Super posed on the former.
			iS	10	15	54								
			F	10	20									
558	Jul. 31		e	11	11	11								Very small.
			e	11	15	59								
			F	11	35									

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No.	Date	Character	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A _N	A _E	A _Z	T _N	T _E	T _Z		
559	1934 Jul. 31	Ir	P	11	56	07							3810	
			eS _N	12	01	43								
			eL	12	06	26								
			M	12	12	56					17			
			F	20	30									
560	Jul. 31	Iv	eP	19	26	14							200	
			iS	19	26	41								
			F	19	32									
561	Aug. 2		e	7	02	32							Very small.	
562	Aug. 2		P	7	23	43							6910	The rest faintly recorded.
			eS	7	32	16								
			F	8	00									
563	Aug. 7	Ilu	iP	3	50	30?							6860	Condensation. N. of New Zealand. Clock work of hori. comp stopped. J S.A: 31.1° S, 178.0° E.
			eS	3	59	00								
			M ₁	4	14	00					21			
			M ₂	4	19	30					16			
			F	5	05									
564	Aug. 9		P	20	33	37?							215	
			S	20	34	06								
			F	20	40									
565	Aug. 10	Iv	eP	22	43	?								Epc. Taiwan.
			e	22	44	24								
			S	22	45	12								
			F	-	-									

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A_N	A_E	A_Z	T_N	T_E	T_Z		
566	1934 Aug. 10	Iv	e(P)? S F	22	48	39?							408?	
567	Aug. 11	IIIv	iP iS iL M L _E F	8	20	03?							800	Slightly damaged in Taihoku Prefect. 121°8E 24°N (Taihoku). H comp. out of Scale.
568	Aug. 11	Iv	e S F	9	13	30								After shock of No. 567
569	Aug. 11	Iu	e eS L M ₁ M ₂ F	12	06	14							5200	
570	Aug. 11		e	16	26	?								Very small, Taiwan.
571	Aug. 12	Iv	eP e(S) e(L)? F	13	54	42							(1355)	Taiwan.
572	Aug. 12	II	P	23	54	25							2635	Condausation, Philippine.

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No.	Date	Character	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A_N	A_E	A_Z	T_N	T_E	T_Z		
572	1984 Aug. 12 (cont'd.)		i_z	23	54	41								Large amplitude.
			iS	23	58	52								
			L	00	02	10								
	Aug. 13		M_z	00	05	00					19			
573	Aug. 4(1)	Iu	P	9	00	40							7050	Surface waves faintly recorded.
			S	9	10	20								
			F	9	-									
574	Aug. 18	Ir	P_E	2	42	25							2590	Felt at several districts of Honshu, Japan. Changing records.
			eS_E	2	46	38								
			$eS_{N.Z}$	2	46	53								
			L	2	49	04								
			F	3	30									
575	Aug. 21	Iu	P_E	19	33	27							6	
			$i(S)$	19	43	38								
			eSS	19	45	36								
			eL	19	48	24								
			M_1	19	51	14				11	15			
			M_2	19	52	37				10	13			
576	Aug. 22	Ir	P	6	49	30							2200	
			eS	6	53	12								
			eL	6	55	10								
			M	6	56	06								
			F	7	08									
577	Aug. 22		P	10	35	18						3		

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No.	Date	Character	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A_N	A_E	A_Z	T_N	T_E	T_Z		
577	1984 Aug. 22 (cont'd)		e_E	10	39	38								
			e_L	10	42	00								
			F	11	00									
578	Aug. 23		e_P	22	38	37								
579	Aug. 23 24	Iu	e_P	23	59	21							7085	Very small.
			e_S	00	08	03								
			e	00	12	24								
			F	00	30									
580	Aug. 28	Ir	e_P	18	28	14?								
			e	18	31	17								
			e	18	32	15								
			e_L	18	34	13								
581	Aug. 31	Iu	P	5	14	30?							8295	Dilatation. Baffin Bay. JSA: $71.7^{\circ}N$, $70^{\circ}W$. (Note: This epicenter is almost identical with that of the earthquake of Nov. 20, 1933.)
			e_N	5	14	55								
			e_N	5	17	20								
			S_{EN}	5	24	10								
			L_Z	5	46	50								
			M_1	5	49	15						18		
			M_9	5	52	20						17		
	6	26												
582	Aug. 31	IIu	P	15	05	14								
			e_N	15	11	18								
			e_N	15	14	20								
			i_Z	15	19	40								
			L_Z	15	22	00								
			M_Z	15	24	00							12	

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A _N	A _E	A _Z	T _N	T _E	T _Z		
	1934		F	16	10									
583	Sept. 1		e _E	6	59	17								Small.
			eS	7	02	25								
			e	7	17	07								
			F	7	-	-								
584	Sept. 1		e _Z	7	45	00								Very small.
585	Sept. 3	Id	P	6	19	45							89	Small local shock.
			iS	6	19	57								
			F	6	22									
586	Sept. 6		e	2	21	13								
			e	2	21	47								
			e	2	26	21								
			F	2	-									Disturbed by strong micro.
587	Sept. 12	Ir	e	14	27	-								Very weak beginning.
			e	14	30	39								
			iL	14	32	21								
			M ₁	14	35	22					13			
			M ₂	14	36	36					11			
			F	15	-									Overlapped by next.
588	Sept. 12	Ir	e	15	39	50								
			e(S)	15	43	06								
			eL	15	44	24								
			M	15	47	05					8			
			F	16	00									

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$\varnothing = 32^{\circ}03'11''N$ $\lambda = 118^{\circ}46'55''E$ $h = 60m$. Underground: Conglomerate.

No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A_N	A_E	A_Z	T_N	T_E	T_Z		
589	1934 Sept. 12	Ir	e iL	17 17	47 49	41 26								e: 17 44 44?
590	Sept. 13	Ir	eP e(S)	3 3	08 12	50 36						(2255)		Changing records.
591	Sept. 13	I Δ	eP e iL	14 14 14	22 24 26	13 57 28								
592	Sept. 15		eL	13	15	-								
593	Sept. 16	Iv	e eL	13 13	17 21	34 55								
594	Sept. 16	Iv	i e eL	13 13 13	² 33 27 27	44 00 35								May be the S phase.
595	Sept. 21	Ir	eP iS L	12 12 12	51 55 59	29 57 59						2790		
596	Sept. 21		e m	18 18	06 10	58 00								Very small.
597	Sept. 25	Iu	P i i iS	19 19 19 19	23 24 27 31	51 21 08 36						6080		Deep focus type.

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The National Research Institute of Meteorology acknowledges with thanks the receipt of the following seismological publications and bulletins from August 1st to December 31st, 1934.

Stations	Bulletins
Adelaide-----	April-December 1930.
Apia-----	April-September 1934.
Azores-----	Note on the Quake of 15 August 1933.
Chiufeng-----	July-November 1934.
Christchurch---	(Provisional) July-October 1934.
Copenhagen-----	January-August 1932.
	"Transmission times for seismic waves for Epicentral distances around 20° by I. Lehmann.
Eger-----	January-December 1933.
Florissant-----	March-August 1934.
Georgetown-----	Instrumental- August-September 1934.
	Seis.Desp.--- " " 1934.
Goettingen-----	January-June 1934.
Granada-----	October 1932-September 1933, January-March, 1934.
Grar-----	May 14-August 30 1934.
Hamburg-----	March 13-August 6 1934.
Harvard-----	March-December 1933, January-June 1934.
	"Analysis of New England Microseisms"
	"Some phases on explosion records in a 3-layered region"
Helwan-----	April-September 1934.
Iviglut-----	January-December 1931.
Jesuit Seis.Assoc.-----	July-September 1934.
Kobe-----	July-December 1934.
Kew-----	July-October 1934.
La Plata-----	January-August 1934.
Lemberg-----	September 27-December 31st 1933.
Little Rock-----	April-June 1934.
Lund-----	January-December 1931.
Manila-----	July-December 1933.
Melbourne-----	March-June 1934.
Ootomari-----	January-December 1933.
Osaka-----	July-October 1934.
Ottawa-----	July-October 1933.
	Bibliography of Seismology, Vol.12, No.2
Parc St.Maur-----	June-October 1934.
Pasadena-----	June-September 1933.
Perth-----	July 16-September 8 1934.
Praque-----	June-September 1934.
Riverview-----	July-October 1934.
St. Louis-----	March-September 1934.
Strassbourg-----	June-October 1934.
Tananarive-----	December 1933, January-May 1934.
Tokyo-----	January-June 1934, & Report part 1,2.
Tsingtao-----	February-December 1932.
Uccle-----	May 6-August 6 1934.
Wellington-----	July-December 1932, & Prel.July-Oct.1934.
	"Earthquakes.the Utility of Predicting them".
Wien-----	January-June 1934.
Zi-ka-wei-----	June 24-August 31st 1934,
	2 sheets of principal seismograms, 1932.



國立中央研究院氣象研究所

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第三卷

第二期

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ACADEMIA SINICA

PEICHIKO, NANKING, CHINA.

符號凡例

1. 地震之性質

	I. 可辨別	II. 稍強	III. 強
d.	局部地震	(震源在一百呎以內)	
v.	近地地震	(震源在一千呎以內)	
r.	遠地地震	(震源在五千呎以內)	
u.	極遠地震	(震源在五千呎之外)	

2. 震波圖之相位

P	縱波 (或初期微動之第一前走波)
PR ₁ , PP	縱波對於地球表面經一次反射之波
PR ₂ , PPP	縱波對於地球表面經二次反射之波
S	橫波 (或初期微動之第二前走波)
SR ₁ , SS	橫波對於地球表面經一次反射之波
SR ₂ , SSS	橫波對於地球表面經二次反射之波
PS, SP	變轉波即縱波(橫波)對於地球表面反射時所變轉之橫波 (縱波)
L	主要動之地面波
M ₁ , M ₂ , ...	地面波之極大動
C	終期尾動
F	能認別之最終動

3. 運動之種類等

i	相位之明顯者
e	相位之不明顯者
?	相位之可疑者
T	週期(以秒為單位)
A	實際上地面震動之半震幅(以 μ , 千分之一呎, 為單位)
Δ	震央距離(以呎為單位)

Symbols and Notations

1. Character of the Earthquake—

I. Perceptible. II. Moderately strong. III. Strong.

- | | |
|-----------------------------|-----------------------------------------------------------------------|
| d (terrae motus domesticus) | Local shock (origin less than 100 km. distant). |
| v (terrae motus vicinus) | Near shock (origin from 100 to 1,000 km. distant). |
| r (terrae motus remotus) | Distant shock (origin from 1,000 to 5,000 km. distant). |
| u (terrae motus ultimus) | Very distant shock or teleseism (origin more than 5,000 km. distant). |

2. Phases of the Seismogram—

- | | |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------|
| P (undae primae) | Normal first phase, or first preliminary tremors (longitudinal). |
| P' | First preliminary tremors which have penetrated the core of the earth. |
| PR _n | Waves n times reflected at the earth's surface. |
| S (undae secundae) | Second phase, or second preliminary tremors (transverse). |
| SR _n | Waves n times reflected at the earth's surface. |
| PS, SP | Waves changed from longitudinal to transverse oscillation or vice versa through reflection at the earth's surface. |
| PPS | Waves twice reflected at the earth's surface, having been longitudinal on two branches of the path and transverse on one branch. |

In general, a bar over two letters denoting types of waves indicates refraction. The subscript c denotes the boundary at about 2900 km. depth between the metallic core and the middle shell which surrounds it. Thus;

- | | |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $\overline{\text{ScPcS}}$ | Waves which have penetrated the core, having been transverse before entering and after leaving the core, and longitudinal within the core. |
| $\overline{\text{PcPcPcP}}$ | Waves refracted at the core boundary into the core, reflected once at this boundary while within the core and again refracted out of the core, having remained longitudinal on all branches of the path. |

- L (undae longae) Long waves of surface phase preceding M.
 - M (undae maximae) Shorter and more regular waves of large amplitude in the surface phase.
 - W₁, W₂, W₃, W₄, ... The maximum waves coming again to the station after circumscribing the earth once, twice, etc.
 - C (coda) Tail or end portion.
 - F (finis) End of discernible movement.
3. Nature of the motion
- i (impetus) Sudden beginning of the motion.
 - e (emersio) Gradual beginning of the motion.
 - ? Questionable or uncertain.
 - m Maximum wave in any phase.

4. Time—

All determinations are reduced to Greenwich mean time. The contact clock which gives the time mark is daily corrected by radio with the time signal from Zi-ka-wei Observatory.

Constants of the Seismographs

1. Mechanical Registration.

Apparatus	Component	V	T ₀	ε	r
Wiechert 17,000 kg.	N	1517	1.60	2.8	0.19
	E	1470	1.50	2.0	0.15
Wiechert 1,300 kg.	Z	156	4.45	3.3	0.51

2. Galvanometric Photographic Registration.

Constants of Galitzin-Wilip.

Component	Galvanometer Free Period T ₁	Pendulum Free Period T	Damping Constant $\frac{2}{u}$	Transmission Factor k	Synchronous Magnification $\frac{kAT}{4\pi I}$
N-S	11.02	9.12	+0.73	152	1217
E-W	10.84	9.20	+1.02	107	900

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A_N	A_E	A_Z	T_N	T_E	T_Z		
598	1934 Oct. 5	Ir	P eL M	20 20 20	30 38 39	55 20 28				15	16		S phase masked by strong micro.	
599	Oct. 6		e	14	14	12								
600	Oct. 9	IIId	iP S F	20 20 20	54 54 58	46 54 58	Azi. NE by N Hori. Wiechert out of Limit. Max. < 1mm.					60	Felt slightly (2), Yangchow (4) Chinking (4) Wusih (2) R. F. 揚鎮京錫, 均感微震.	
601	Oct. 9	Od	e S F	21 21 21	04 05 06	56 04 56						60	1st after shock of No. 600	
602	Oct. 9	Id	eP i S F	21 21 21 21	15 15 15 16	04 08 12 16						60	2nd after shock of No. 600. Felt slightly at Yanchow. 揚州感微震.	
603	Oct. 10	IIu	iP iz PP iS SSS eL M F	15 15 15 16 16 16 16 17	53 55 53 02 07 11 15 14	20 34 30 45 58 14 10 14				8	6	6	7990 Deep focus. Manila: $23^{\circ}S, 179^{\circ}W$. Depth 600 km.	
604	Oct. 15	Ir	eP eS	8 8	22 28	22 20							4165	

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A _N	A _E	A _Z	T _N	T _E	T _Z		
604	1934 Oct. 15 (Cont'd.)	Ir	eL	8	34	32								
			F	8	50									
605	Oct. 15	Ov	eP	9	55	13							490	Small Local shock.
			e(S	9	56	03								
			F	9	58									
606	Oct. 18	Ilu	iP	7	58	43							6755	Condensation. Manila: 11°S, 167°E.
			iS	8	07	07								
			e	8	10	16								
			L	8	15	49								
			M ₁	8	20	54								
			M ₂	8	23	24				20				
			M ₃	8	26	47				17	—	17		
			F	9	20									
607	Oct. 19		M	12	04	14					10			
			F	12	15									
608	Oct. 19	Iu	e	21	04	31							5190	Clockwork of E-Wcomp. stopped.
			iS	21	11	26								
			iL	21	15	53								
			M ₁	21	17	22				9				
			M ₂	21	19	06				10				
			F	21	40									
609	Oct. 21	IIr	P	17	58	31?							2320	Time correction uncertain. Manila: 16°N, 153°E. A sharp impulse.
			eS	18	02	23								
			iL	18	04	14								
			M	18	05	49								

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark	
				h.	m.	s.	A_N	A_E	A_Z	T_N	T_E	T_Z			
610	1934 Oct. 26	Ir	P	14	51	04							3455		
			iS	14	56	17									
			i	14	59	50									
			F	15	38										
611	Oct. 26	IIIr	iP	17	13	48							1155	Dilatation. Chiufeng : $30.5^{\circ}N, 132^{\circ}E$.	
			i _Z	17	14	22									
			i _N	17	15	05									
			iS _N	17	15	56									
			i _N	17	16	12									
			i(S)	17	16	20									
			L _E	17	16	44									
			i	17	17	12									
			i _N	17	17	44				12					
			M ₁	17	18	58									
			M ₂	17	22	02				9	9				
			M	17	19	30					14	12			
F	18	36													
612	Oct. 28	IIr	iP	23	38	26							1090	Felt at Taihoku. Taihoku: $24^{\circ}N, 126^{\circ}E$.	
			i	23	40	08									
			iS	23	40	28									
			L	23	41	02									
			iL	23	41	08									
			M _E	23	42	41				5					
			M _{N,E}	23	42	14				5	5-				
			M _N	23	42	54				6					
			C	23	50	34									
			F	0	20										
	Oct. 29														

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A_N	A_E	A_Z	T_N	T_E	T_Z		
613	1934 Oct. 29	Iu	eP	16	25	24							6100	
			eS	16	33	10								
			e _N	16	46	20								
			e _N	16	48	56								
			M	16	52	44				15				
			F	18	00									
614	Oct. 30	Or	P	19	58	58							2660	Small.
			S	20	03	17								
			F	21	00									
615	Oct. 31		e	19	40	10								Very small.
			e	19	50	16								
			M	19	51	36								
616	Nov. 2	Ir	iP	15	25	52							2330	
			S	15	29	44								
			L	15	31	14								
			M	15	31	52				8				
			F	15	45									
617	Nov. 2		e	17	37	30								Very small, Taiwan.
618	Nov. 4	Iu	eP	3	26	08							8270	Manila 23.5°S, 178°E.
			e	3	29	00								
			iS	3	35	47								
			e(SS)	3	40	00								
			F	3	55									
619	Nov. 5		i(S)	6	10	07								Small.

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A_N	A_E	A_Z	T_N	T_E	T_Z		
620	1934 Nov. 5	IIu	iP	23	11	19							5735	USCGS: 52°N, 176°W. JSA: 53.2°N, 176.7°W. Aleutian Islands.
			i	23	16	22								
			iS	23	18	45								
			eSS	23	21	39								
			L	23	28	31								
			M ₁	23	33	52				20				
			M ₂	23	35	57				17				
			M ₃	23	38	16				16				
	Nov. 6		F	1	14									
621	Nov. 8	Ir	eP	3	29	35							2355	
			S	3	33	29								
			L	3	36	08								
			M ₁	3	37	35				12				
			M ₂	3	39	07				11				
			F	4	02									
622	Nov. 9	Ou	e	4	11	00							8890	Small.
			eS	4	21	06								
			F	4	47									
623	Nov. 11	Iv	P	21	19	11							870	Taihoku: 121.6°E, 24.3°N.
			S	21	20	40								
			L	21	21	26								
			M	21	22	27				8				
			F	21	50									
624	Nov. 12	Ou	e	7	59	40							(6800)	Very weak beginning. UGEGI: Asia Minor, near 37°N, 40°E.
			e(S)	7	38	07								
			M	8	00	00								

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A_N	A_E	A_Z	T_N	T_E	T_Z		
625	1934 Nov. 12		e	17	35	40								Very small.
626	Nov. 12	Or	e	23	38	40								Small. Mongolia?
			e	23	39	34								
			i	23	40	41								
			F	23	58									
627	Nov. 16	Ou	e	12	14	24							5000	
			eS	12	21	08								
			M	12	30	—								
			F	12	45									
628	Nov. 16	Ir	eP	13	51	30							4900	
			iS	13	58	09								
			iSS	14	01	25								
			L	14	06	29								
			M_1	14	08	13			12					
			M_2	14	10	05					15			
			F	14	55									
629	Nov. 18	Ir	P	3	27	26							4100	Dilatation. UGEGI: $37^{\circ}N, 66.5^{\circ}E$. Turkestan.
			iPP	3	30	14								
			iS	3	33	14								
			e	3	34	06								
			iSS	3	34	33								
			M	3	40	30			10		12			
			F	4	25									
630	Nov. 18	Or	e?	9	24	22							Disturbed by strong micro.	
			eL	9	33	34								

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No	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A_N	A_E	A_Z	T_N	T_E	T_Z		
631	1934 Nov. 18	Iu	iP _Z	22	49	08							5470	Time correction uncertain. Condensation. Felt in Sydney, Australia. Strong micro.
			S	22	56	19								
			eL	23	04	—						26		
			F	23	15									
632	Nov. 22	Or	eP	22	30	47								Manila: 11°35'N, 129°40'E.
			i	22	31	37								
			e	22	34	14								
			m	22	36	15								
			F	22	52									
633	Nov. 23	O	e	17	22	21							Very Small.	
			F	17	36									
634	Nov. 24	Iu	eP	12	51	00							5270	
			S	12	58	00								
			M	13	30	00				18				
			F	13	58									
635	Nov. 26	Iir	iP	12	13	20							2080	Condensation. Felt at Manila (VI) Manila 14°10'N, 120°10'E.
			PP	12	14	14								
			iS	12	16	52								
			SS _E	12	17	52								
			L	12	18	44								
			M	12	20	06				20	16	24		
			F	13	25									
636	Nov. 27	Iir	iP	6	20	20							3310	Dilatation. JSA: 2.7°N, 128°E. USCGS: 1°N, 127°E.
			iS _E	6	25	24								
			i _E	6	26	36								

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark	
				h.	m.	s.	A_N	A_E	A_Z	T_N	T_E	T_Z			
636	1934 Nov. 27 (Cont'd.)	Iir	i_z	6	27	34									
			$e(L)$	6	28	30									
			M	6	35	40					15	17			
			F	7	27										
637	Nov. 30	Ou	$e_z?$	2	25	\pm									Masked by heavy micro.
			i_N	2	34	10									JSA: 18.5°N, 105°W. Mexico.
			$eL?$	2	41	—									
638	Nov. 30	Ou	M_1	3	21	44									Epc. Italy.
			M_2	3	23	00					18	17			Superposed on heavy micro.
			F	4	—										
639	Nov. 30	O	e	9	27	37									Small.
			Dec. 1-5.			Very strong micro. pervading throughout.									
640	Dec. 5		P	19	54	27									
			$e?$	19	56.7										
			F	20	05										
641	Dec. 7		e_N	3	41	08								Very small.	
642	Dec. 7		e	8	19	11									Small.
			M	8	21	36					11				
			F	8	30										
643	Dec. 7	Iv	eP_E	10	46	40									880 Weak beginning.
			S	10	48	10									
			L	10	48	30									

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$\Phi = 32^{\circ}03'11''N$ $\Lambda = 118^{\circ}46'55''E$ $h = 60m.$ Underground: Conglomerate.

No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark	
				h.	m.	s.	A _N	A _E	A _Z	T _N	T _E	T _Z			
643	1934 Dec. 7 (Cont'd.)	Iv	M	10	48	53					5	4			
			F	11	11										
644	Dec. 7		e	11	32	\pm								Trace.	
645	Dec. 9	O	e?	11	33	40									
			eL	11	42										
			M	11	47	48				16					
			F	20	05										
646	Dec. 9		eL	22	24	0 \pm								Small.	
647	Dec. 10	Ir	P _N	10	02	50								3310	
			iS	10	07	54									
			eL	10	10	14									
			F	10	30										
648	Dec. 11		e	15	54	37								Small,	
649	Dec. 11	Ov	e?	16	00	25								880?	Epc. Taiwan,
			e(S)	16	01	55									
			L	16	02	51									
			F	16	20										
650	Dec. 12		P	8	52	01								No other phases distinguishable.	
651	Dec. 12		e	10	14	02								Trace.	
652	Dec. 13		eL	1	17	35									Small.
			F	1	41										

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A _N	A _E	A _Z	T _N	T _E	T _Z		
653	1934 Dec. 14		eL F	11 11	27 38	—								
654	Dec. 14	Ir	P S eL M ₁ M ₂ F	20 20 20 20 20 21	47 52 56 57 59 30	58 32 12 52 12				9 8			2865	Asia Minor.
655	Dec. 15	IIIr	P iP _{E,Z} PP S iS _{E,Z} L M ₁ M _Z M ₂ F	2 2 2 2 2 2 2 2 2 4	03 03 03 07 07 11 12 13 14 30	08 14 40 32 41 34 53 55 55	440	302	169	11 11	12 11	9 9	2770	Condensation. UGEGI: Tibet, 31.5°N, 89°E. G-W. out of scale and faint.
656	Dec. 15		eL	18	06	24								
657	Dec. 15	Ilu	iP iPP iS F	19 19 19 20	25 29 35 12	47 01 13							8000	Condensation. Deep focus.
658	Dec. 15		e	20	36	43								Very small.

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A_N	A_E	A_Z	T_N	T_E	T_Z		
659	1934 Dec. 16		eL	0	41	$\frac{+}{-}$								Small.
660	Dec. 16		e _E	16	20	42								Trace.
			eL	16	25									
661	Dec. 16	O	e	19	20	34								
			eL	19	23	56								
			F	19	33									
662	Dec. 17	Hv	P	3	38	04							900	Taihoku: $24^{\circ}.2N$, $121.^{\circ}4E$.
			S	3	39	36								
			L	3	40	11								
			M ₁	3	40	54					6			
			M ₂	3	41	21					5			
			F	4	10									
663	Dec. 17		eL	14	54	40							Trace.	
664	Dec. 17	Hr	iP	16	00	52							4970	Condensation. Eastern New Guinea.
			i	16	01	34								
			PP	16	02	22								
			iS	16	07	35								
			PS	16	08	24								
			SS	16	09	48								
			SSS	16	11	08								
			L ₁	16	13	34								
			L ₂	16	14	35								
			M ₁	16	16	33				20		22		
			M ₂	16	17	50				14	15	18		
F	17	35												

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A_N	A_E	A_Z	T_N	T_E	T_Z		
665	1934 Dec. 18	Ir	iP	11	27	44							2900	
			iS	11	32	20								
			L	11	36	25								
			M_1	11	37	37				12	9	8		
			M_{2E}	11	39	20					7			
			F	12	15									
666	Dec. 18		e	22	26	10							Small, Taiwan?	
667	Dec. 19	O	e	3	14	01								
			eL	3	18	01								
			F	3	27									
668	Dec. 21	Ir	P_E	12	44	23?							2920	Time Correction uncertain.
			i_E	12	48	52								
			iS_E	12	49	01								
			eL	12	53	00								
			M_1	12	54	20				12	10			
			M_2	12	56	04				7	7			
669	Dec. 22	Ou	eP	11	03	20							(5890)	
			e(S)	11	10	54								
			L	11	24	17								
			F	11	50									
670	Dec. 22	Iu	e	14	48	38							90°	USCGS: 8°N, 89°W. Central America.
			iPP	14	52	08								
			e	15	14	08								
			eL	15	37	32								

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$\phi = 32^{\circ}03'11''N$ $\lambda = 118^{\circ}46'55''E$ $h = 60m$. Underground: Conglomerate.

No	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A _N	A _E	A _Z	T _N	T _E	T _Z		
670	1934 Dec. 22 (Cont'd.)		M?	15	45	40					28		A teleseism.	
			F	16	50									
671	Dec. 24		M	15	54.5								Small.	
672	Dec. 25	Ir	P _E	6	33	20							3740	
			PP _E	6	34	12								
			iS	6	38	51								
			L	6	41	06								
			M	6	43	54				19	17			
673	Dec. 25	O	eL	8	02	52								
			M	8	05	46				13				
			F	9	06									
674	Dec. 25	Or	e	12	51	14							4500	Masked by micro.
			e	12	53	54								
			eS	12	57	31								
			L	13	01	05								
			M	13	04	04				14				
			F	13	40									
675	Dec. 27	Ir	e?	12	40	04							(1200)	Beginning uncertain.
			S	12	42	16								
			i _E	12	43	12								
			M	12	42	32				8	8			
			F	12	55									
676	Dec. 27	Ir	iP	17	47	12						2480	Manila: 14°35'N. 122°05'E.	
			eS	17	51	16								

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$\phi = 32^{\circ}03'11''$ N $\lambda = 118^{\circ}46'55''$ E h = 60m. Underground: Conglomerate.

No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A _N	A _E	A _Z	T _N	T _E	T _Z		
676	1934 Dec. 27 (Cont'd.)	Ir	e _N	17	54	36								
			F	18	25									
677	Dec. 30	Iu	S	14	16	48							9200	Initials disturbed by micro. Felt in Southern California and Arizona. JSA: 32°N, 115.5°W
			e?	14	21	43								
			eL	14	35	5								
			M ₁	14	53	36				16				
			M ₂	14	59	02				20				
			F	15	55									
678	Dec. 31	IIu	eP?	18	59	58							9320	Disturbed by micro. Felt in Lower California and Arizona. JSA: 31.8°N, 115°W. Time correction uncertain.
			e?	19	03	14								
			ePR ₂	19	06	20								
			iS	19	10	23								
			SR ₂	19	18	58								
			eL ₁	19	23	14								
			L ₂	19	26	23								
			M _{1N}	19	37	30				15				
			M _{2N}	19	42	38				16				
			M _{3N}	19	47	36				14				
			M _{4N}	19	53	46				13				
F	21	40												

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國立中央研究院氣象研究所

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符號凡例

1. 地震之性質

- | | | | |
|----|--------|------------|--------|
| | I. 可辨別 | II. 稍強 | III. 強 |
| d. | 局部地震 | (震源在一百浬以內) | |
| v. | 近地地震 | (震源在一千浬以內) | |
| r. | 遠地地震 | (震源在五千浬以內) | |
| u. | 極遠地震 | (震源在五千浬之外) | |

2. 震波圖之相位

- | | |
|---------------------------------------|-----------------------------------|
| P | 縱波 (或初期微動之第一前走波) |
| PR ₁ , PP | 縱波對於地球表面經一次反射之波 |
| PR ₂ , PPP | 縱波對於地球表面經二次反射之波 |
| S | 橫波 (或初期微動之第二前走波) |
| SR ₁ , SS | 橫波對於地球表面經一次反射之波 |
| SR ₂ , SSS | 橫波對於地球表面經二次反射之波 |
| PS, SP | 變轉波即縱波(橫波)對於地球表面反射時所變轉之橫波
(縱波) |
| L | 主要動之地面波 |
| M ₁ , M ₂ , ... | 地面波之極大動 |
| C | 終期尾動 |
| F | 能認別之最終動 |

3. 運動之種類等

- | | |
|----------|-----------------------------------|
| i | 相位之明顯者 |
| e | 相位之不明顯者 |
| ? | 相位之可疑者 |
| T | 週期(以秒為單位) |
| A | 實際上地面震動之半震幅(以 μ , 千分之一耗, 為單位) |
| Δ | 震央距離(以浬為單位) |

Symbols and Notations

1. Character of the Earthquake—

I. Perceptible. II. Moderately strong. III. Strong.

d (terrae motus domesticus)	Local shock (origin less than 100 km. distant).
v (terrae motus vicinus)	Near shock (origin from 100 to 1,000 km. distant).
r (terrae motus remotus)	Distant shock (origin from 1,000 to 5,000 km. distant).
u (terrae motus ultimus)	Very distant shock or teleseism (origin more than 5,000 km. distant).

2. Phases of the Seismogram—

P (undae primae)	Normal first phase, or first preliminary tremors (longitudinal).
P'	First preliminary tremors which have penetrated the core of the earth.
PR _n	Waves n times reflected at the earth's surface.
S (undae secundae)	Second phase, or second preliminary tremors (transverse).
SR _n	Waves n times reflected at the earth's surface.
PS, SP	Waves changed from longitudinal to transverse oscillation or vice versa through reflection at the earth's surface.
PPS	Waves twice reflected at the earth's surface, having been longitudinal on two branches of the path and transverse on one branch.

In general, a bar over two letters denoting types of waves indicates refraction. The subscript c denotes the boundary at about 2900 km. depth between the metallic core and the middle shell which surrounds it. Thus;

$\overline{\text{ScPcS}}$ Waves which have penetrated the core, having been transverse before entering and after leaving the core, and longitudinal within the core.

$\overline{\text{PcPcPcP}}$ Waves refracted at the core boundary into the core, reflected once at this boundary while within the core and again refracted out of the core, having remained longitudinal on all branches of the path.

- L (undae longae) Long waves of surface phase preceding M.
- M (undae maximae) Shorter and more regular waves of large amplitude in the surface phase.
- Mn Maximum waves in the surface phase.
- W₂, W₃, W₄... The maximum waves coming again to the station after circumscribing the earth once, twice, etc.
- C (coda) Tail or end portion.
- F (finis) End of discernible movement.

For local earthquakes a special notation is used:

- \bar{P} The longitudinal wave which has traveled its whole path in the surface layer or crust of the earth.
- \bar{S} The transverse wave which has traveled its whole path in the surface layer of the earth.
- P* The longitudinal wave which has traveled the horizontal portion of its path in the intermediate layer.
- S* The corresponding transverse wave.

3. Nature of the motion—

- i (impetus) Sudden beginning of the motion.
- e (emersio) Gradual beginning of the motion.
- ? Questionable or uncertain.
- m Maximum wave in any phase.

4. Time—

All determinations are reduced to Greenwich mean time. The contact clock which gives the time mark is daily corrected by radio with the time signal from Zi-ka-wei Observatory

Constants of the Seismographs

Apparatus	Component	V	T ₀	€	r
Wiechert 17,000 kg.	N	1510	1.60	3.0	0.20
	E	1480	1.50	2.2	0.15
Wiechert 1,300 kg.	Z	158	4.35	3.0	0.50

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A_N	A_E	A_Z	T_N	T_E	T_Z		
378	1934 Jan. 1	Ir	eP _N	6	24	12							4245	Surface waves not developed.
			eS	6	30	15								
			F	6	45									
379	Jan. 2		eP _E	21	04	49								
			M _N	21	25	31			22					
			M _{E,Z}	21	29	11								
			F	21	50									
380	Jan. 3	Iu	iP _Z	9	48	51							6380	Dilatation. Hori. comp. missed. J.S.A. Epc. 53.6°N, 157.3°E. Sea of Okhotsk.
			i _Z	9	50	22								
			m _Z	9	54	39								
			i _{Z(S)}	9	56	53								
			e _Z	9	59	56								
			F	10	46									
381	Jan. 6		e	13	55	36							No other phases distinguishable.	
382	Jan. 8		i _Z	23	10	16								Very small.
			e _Z	23	13	26								
383	Jan. 11		eP _E	10	30	41							Other phases masked by micro.	
384	Jan. 11	IIr	eP _E	13	35	40							1845	Chiufeng Epc. 23°N, 103°E. Taihoku 24.5°N, 103°E
			iP _{N,E}	13	35	44								
			S _E	13	38	56								
			i _E	13	39	37								
			L	13	40	36								
			M _Z ?	13	42	52								
			E	14	16									

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No.	Date	Character	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A _N	A _E	A _Z	T _N	T _E	T _Z		
385	1934 Jan. 12		e	16	28	24								Small.
			F	16	42									
386	Jan. 14		e _N	3	51	34								Small.
			e _N	3	55	21								
387	Jan. 15	IIIr	P _{E,Z}	8	49	15								3035 Very destructive in North Eastern India and Nepal. J.S.A.Epc. 25.6°N,85.7°E.
			iP _Z	8	49	22								
			eS	8	54	01								
			iS _E	8	54	21								
			SS _N	8	55	10								
			eL _N	8	57	30								
			iL _E	8	58	40								
			M _{1N}	8	59	37	4170			11				
			M _{1E}	8	59	51		830			7			
			M _{2N}	9	01	07	1710			10				
			M _{2E}	9	02	01		3000			12			
			F	12	24									
388	Jan. 16	Ir	e _Z	18	45	24								3210 Dilatation.
			S _Z	18	50	22								
			L _Z	18	55	—					19			
			F	19	06									
389	Jan. 19	IIr	iP _Z	12	37	34								2180 Condensation. Taihoku Epc. 95.5°E, 26°N North Burma.
			S _Z	12	41	14								
			i _Z (L)	12	43	34								
			M _Z	12	44	49								
			F	13	00									

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A _N	A _E	A _Z	T _N	T _E	T _Z		
390	1934 Jan. 20		e	17	26	09								Trace only.
			e(L)	17	29	24								Fore shock of No. 391 according to Chiufeng.
			F	17	40									
391	Jan. 20	IIr	iP	17	59	08								1440 Felt at Tai-yuan, Swei-yuan and slightey destructive in Woo yuan 太原 綏遠微震。五原劇烈且有傷亡。震源約在河套。
			i _{N,E}	17	59	16								
			i _N	18	01	04								
			L _N	18	02	30								
			L _E	18	02	35								
			M _Z	18	02	53								
			C	18	08	46								
F	18	31												
392	Jan. 20	Ir	e	22	03	15								Far off to the north of Keelung, Taiwan. (Taihoku)
			i	22	03	30								
			eL _E	22	05	13								
			eL _{N,Z}	22	05	21								
			C	22	08	03								
			F	22	18									
393	Jan. 20	IIr	eP _N	22	30	07								Ditto. Regular waves about 7secs. period. Overlapped by next.
			e _{N,E}	22	30	21								
			e _E	22	31	39								
			eL _Z	22	31	59								
			iL _{N,E}	22	32	20								
			C	22	39	52								
			F	22	—									
394	Jan. 20		e _N	22	43	05							Ditto.	
			e _N	22	44	42								

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark	
				h.	m.	s.	A _N	A _E	A _Z	T _N	T _E	T _Z			
394	1934 Jan. 20 (cont'd.)		L	22	45	15									
			F	22	—									Continued by next.	
395	Jan. 20	IIlr	e	22	54	12								North of Keelung.	
			iP	22	54	21									
			i _E	22	55	00									
			eL _N	22	56	06									
			i	22	56	33									
			M _Z	22	56	50			-30				3		
			C	23	07	13									Average period about 7 sec.
396	Jan. 21		e _{N.E}	2	37	—								Trace	
			e _{N.E}	2	38	20									
			e _{N.E}	2	42	04									Probably another quake.
			F	2	50										
397	Jan. 21	IIr	e	6	52	—								Beginning uncertain.	
			e _N	6	53	32									121°E, 26.5 N (Taihoku.)
			i _N	6	54	10									
			e(S)	6	57	45									
			i _E	6	58	35									
			eL	6	59	28									
			iL	6	59	42									
			M _Z	7	01	09							5		
e	7	06	30										A superposition of short period waves.		
398	Jan. 22	IIr	eP	7	51	48							1245	Ditto.	
			iPP	7	52	22									

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark	
				h.	m.	s.	A_N	A_E	A_Z	T_N	T_E	T_Z			
398	1934 Jan. 22 (Cont'd.)	IIr	iS _E	7	53	43									
			iS	7	54	04									
			i _{E-Z}	7	56	45									
			M _Z	7	58	14							6		
			F	8	18										
399	Jan. 23	Ir	e	18	56	47							1060	Beginning uncertain.	
			eS _N	18	58	33									
			iS	18	58	41									
			F	19	15										
400	Jan. 28		M _{1z}	20	21	02							19	Trace of surface waves.	
			M _{2z}	30	27	29							18	Destructive in Southern and	
			M _{3z}	20	29	50							18	Central Mexico	
			F	21	20										
401	Jan. 29	IV	iP _E	1	41	18									
			m _{E N}	1	42	08									
			e _N	1	44	13									
			m _{E N}	1	44	44				1.0	1.0				
			F	1	55										
402	Feb. 2	Iu	15-16 about.											Contact c'lock stopped.	
403	Feb. 3	Ir	iP	14	42	48?								4500	Condensation.
			iS	14	49	05									
			e _E	14	53	42									
			L _Z	14	54	26									
			M	14	59	18				21	21	21			
F	15	56													

Quarterly Seismological Bulletin of the Institute of Meteorology

$\varnothing = 32^{\circ}03'11''N$ $\lambda = 118^{\circ}46'55''E$ $h = 60m$. Underground: Conglomerate.

No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A_N	A_E	A_Z	T_N	T_E	T_Z		
404	1934 Feb. 3		e_E	20	21	20?								Very small.
			i_E	20	22	48								
405	Feb. 4	I	P	13	36	43								16
			iS	13	45	00								
			M_Z	14	03	48								
			F	14	25									
406	Feb. 4	Ir	P	22	08	43							4100	Condensation. Surface waves poorly developed.
			S	22	14	37								
			F	23	—									
407	Feb. 7		iP_E	22	31	22								Very small.
			e	22	33	06								
			e	22	33	57								
			F	22	41									
408	Feb. 7		e	23	34	21								Very small.
			i_E	23	35	28								
			F	23	44									
409	Feb. 9	Ir	P	9	37	50?							4455	Condensation.
			eS_E	9	45	05								
			L_E	9	51	—								
			M_Z	9	54	25				26	27			
			F	10	30									
410	Feb. 9		e	11	40	03							Very small.	
411	Feb. 9		i	22	42	53							Very small.	

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A _N	A _E	A _Z	T _N	T _E	T _Z		
412	1934 Feb. 12	IIr		11-12								2480	Contact clock stopped. S-P=4 ^M 4 ^S , L-S=2 ^M 19 ^S . Azi, wsw down.	
413	Feb. 14	IIr	iP iS M ₁ M _{2N} F	4	03	ca.				4		1690	Azi. SSE by S. S-P=2 ^M 58 ^S , L-S _N =1 ^M 52 ^S . Chiufeng Epc. 22°N, 120.5°E. Manila: South China Sea. Time marks lost.	
					6	—		1855	1650		16	16	15	
								1020			14			
414	Feb. 14	I r	e eS? M _Z F	7	54	06							3180	Beginning uncertain.
					7	59	02							
					8	03	28							
					8	20								
415	Feb. 14		iP e(S) i L _E L _N M _Z F	17	18	09							1710	
					17	21	09							
					17	21	37							
					17	24	27							
					17	25	03							
					17	28	07					11		
					17	40								
416	Feb. 14		iP	22	22	51								No other phases distinguishable.
417	Feb. 15		e F	3	21	—								Trace of distant earthquake.
					3	39								
418	Feb. 16		e _Z M _{1Z} M ₂	6	28	—								A distant quake.
					6	49	51						12	
					6	51	35						11	

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A _N	A _E	A _Z	T _N	T _E	T _Z		
418	1934 Feb. 16 (Cont'd.)		M ₃	6	53	01						11		
			M ₄	6	55	18								
			F	7	25									
419	Feb. 19	Ir		11-12								4400	Time marks lost. S-P = 6 ^M 12 ^S .	
420	Feb. 24	IIIr	iP	6	28	58	1.9	7.5	6.5	3	3		2610	Trace amplitude in mm.
			iS	6	33	13								
			iSS _Z	6	34	00								
			iL _{N,Z}	6	36	09					22			
			L _E	6	36	41						24		
			M ₁	6	38	10				5			18	
			M ₂	6	40	25							17	
			M ₃	6	42	06							15	
			M ₄	6	48	23							18	
			M ₅	6	57	06				2			13	
421	Feb. 25	I	e _N	16	26	03?								
			L _N	16	32	24								
			M _N	16	36	17					12			
			F	16	52									
422	Feb. 27		e _E	11	16	55							Verg small.	
423	Feb. 28	IIu	iP _{E,Z}	14	30	27							5555	Condensaton, Time marks failed on N-S.
			iS _E	14	37	43								Long period waves with a super position, of much shorter ones.
			iL	14	41	35								
			i _{N,Z}	14	45	36					30		30	
			M ₁	14	48	00				2.5			21	

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No.	Date	Character	Phase	G. M. T.			Amplitude			Period			Δ	Remark	
				h.	m.	s.	A_N	A_E	A_Z	T_N	T_E	T_Z			
243	1934 Feb. 28 (Cont'd.)	IIu	M_2	14	51	23				16		18			
			M_3	14	54	09						18			
			M_4	14	57	06							18		
			F	15	48										
424	Mar. 1	Iu	P_E	19	50	03							5255		
			eS	19	57	02									
			M_z	20	07	03						20			
			F	20	22										
425	Mar. 1	Iu	P	22	06	24							$\sqrt{100}$	Beginning uncertain. Epc. $39^{\circ}S, 74^{\circ}W$ (Chili).	
			$i(pp)_z$	22	10	16									
			$e(S)_z$	22	21	21									
			eL_z	22	30	—									
			F	23	40										
426	Mar. 3	Iv	e	0	41	13							960	Weak beginning.	
			iS	0	42	48									
			iL	0	43	06									
			F	0	57										
427	Mar. 4		e	6	06	03								Very small.	
			F	6	17										
428	Mar. 4	I	e_E	11	25	10								Initials very weak.	
			$e_L(L)?$	11	38	—									
			$e_z(L)$	11	34	—									
			M_z	11	41	56						16			
			M_E	11	44	50						14			
		F	12	25											

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark		
				h.	m.	s.	A _N	A _E	A _Z	T _N	T _E	T _Z				
429	1934 Mar. 5	IIv	P	5	54	38							750			
			iS _E	5	56	02										
			e _{N,E}	5	56	50										
			M _{1N}	5	57	10				1.1						
			M _{2N}	5	57	22				1.1						
			F	6	09											
430	Mar. 5	IIu	iP	11	59	18							>100°	Condensation.		
			P _P	12	02	51										
			s _{CPC} s	12	09	55										
			iS _{Z,N}	12	11	08										
			iSS	12	20	07										
			iSSSz	12	23	17										
			i _Z	12	25	32										
			L	12	29	14						36				
			M ₁	12	35	44				2.2	23	21			22	Trace amplitude in mm.
			M ₂	12	38	37									18	
			M ₃	12	42	29					18				18	
F	14	50														
431	Mar. 9	Iv	e	11	52	42							900°			
			iS?	11	54	10										
			i _N	11	55	02										
			M ₂	11	55	24				1.0	1.1					
			M ₂	11	55	36				1.3						
			F	12	01											
432	Mar. 9		e	14	28	-							Probably trace of distant quake.			
433	Mar.12		e	15	50	40							Trace of surface waves. Strong micro.			

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A_N	A_E	A_Z	T_N	T_E	T_Z		
434	1934 Mar.13	Id	e	7	07	24							97	Small local shock.
			iS	7	07	37								
			F	7	11									
435	Mar.13	Iu	eP	13	22	12							6865	
			eS?	13	30	42								
			L_z	13	41	—								
			M_1	13	44	48						21		
			M_2	13	46	34								
			F	14	35									
436	Mar.14	Iv	iP	5	23	39							290	Small but sharp.
			iS	5	24	12				0.2	0.2			
			M	5	24	18								
			F	5	27									
437	Mar.16		iP	14	21	57								Dilatation Other phases not developed.
438	Mar.17		e	20	54	31							240	Small.
			S	20	54	58								
			F	20	—									followed by next.
439	Mar.17	Iv	iP	20	55	31							250	Reported slighty felt at Hankow. 漢口感極微震
			iS	20	55	59								
			F	21	03									
440	Mar.18	IIIv	P	0	18	12							270	Azi. WSW by W approx. Max. trace amplitude amounts to $A_N \approx 51.8$ mm. $A_Z \approx 6.2$ mm. Felt at Hankow, Ankiang and Wuhu. Quick vibrations. E-W comp. disjointed. 漢蕪安慶一帶均感微震。 震源約在安徽霍山潛山間之折斷層。
			iP	0	18	16								
			S	0	18	47								
			F	0	50									

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A_N	A_E	A_Z	T_N	T_E	T_Z		
441	1934 Mar.18	Ir	iP _{E,N}	4	40	46							(3435	Condensation.
			i _N	4	41	16								
			e(S)	4	45	58								
			eL _E	4	49	—								
			F	5	08									
442	Mar.18		e	7	19	12						2500	Surface waves not developed.	
			e(S)	7	23	18								
443	Mar.19		e _E	6	22	47							Small.	
			e _E	6	23	40								
			F	6	28									
444	Mar. '9		e	6	44	55							Trace only. Beginning uncertain	
			m	6	45	53								
			F	6	49									
445	Mar.20	Iu	eP	2	46	56?						5255	Time signal missed. Records being changed.	
			eS?	2	53	55								
			M _z	3	03	22					23			
			F	3	02									
446	Mar.24	IIu	P	12	15	24						6380	Very flat.	
			iP	12	15	31								
			i _z	12	15	51								
			iS	12	23	26			5					
			i _N	12	23	56								
			SS	12	27	39								
			L	12	34	—								
			M _{1z}	12	42	29					19			

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A_N	A_E	A_Z	T_N	T_E	T_Z		
446	¹⁹³⁴ Mar.24 (Cont'd)	IIu	M _z F	47 13	47 53	07					15	21		
447	Mar.25	IIIId	iP iS F	3 3 3	41 41 44	02 07	-32	-42	4.6	0.1			37	Not reported felt. Trace amplitude in mm. In S phase, E-W component dislo- cated.
448	Mar.28		e _E eL _E F	19 19 19	25 25 30	00 57							438	Small.

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The National Research Institute of Meteorology acknowledges with thanks the receipt of the following seismological publications and bulletins from February 1st to May 1st 1934.

Stations	Bulletins
Apia-----	October-December 1933.
Bergen-----	January 1932-December 1933.
Chiufeng-----	January-March 1934.
Christchurch-----	(Provisional) December 1933-February 1934.
Florissant-----	August-October 1933
Georgetown	
Instrumental-----	December 1933-January 1934.
Seis. Despatches-----	" "
Helwan-----	December 1933.
Jesuit Seis. Assoc.-----	December 1933-January 1934.
Karlsruhe-----	July-December 1933.
Kew-----	December 1933-February 1934.
La Paz-----	January-July 1933.
Leningrad-----	January-June 1933.
Manila-----	January-June 1933.
Melbourne-----	October-December 1933.
Osaka-----	October-December 1933.
Parc St. Maur-----	December 1933-February 1934.
Ottawa-----	December 1933-February 1934.
Correlation Table-----	" "
Correlation of Earthquakes--	" "
Pasadena-----	December 1933-February 1934.
Reykjavik-----	October-December 1933.
Riverview-----	(Provisional) December 1933-February 1934.
Strasbourg	
L'Institut-----	November 1933-February 1934
Bureau Central-----	" "
Union International-----	" "
Taihoku-----	November 1933-January 1934.
(Preliminary)	January-February 1934.
Tananarive-----	April-September 1933.
Tokyo-----	1924-1930, April-September 1933.
Bulletin of the Earthquake Research Institute, Vol.12, part 4.	
Uccle-----	1932, March 17-September 11, 1933.
Venice-----	January 1929-December 1932.
Wellington-----	(Preliminary) December 1933-February 1934.
Zi-ka-wei-----	July 21, 1933-February 28, 1934.



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ACADEMIA SINICA

PEICHICO, NANKING, CHINA.

符號凡例

1. 地震之性質

- | | I. 可辨別 | II. 稍強 | III. 強 |
|----|--------|------------|--------|
| d. | 局部地震 | (震源在一百呎以內) | |
| v. | 近地地震 | (震源在一千呎以內) | |
| r. | 遠地地震 | (震源在五千呎以內) | |
| u. | 極遠地震 | (震源在五千呎之外) | |

2. 震波圖之相位

- P 縱波 (或初期微動之第一前走波)
- PR₁, PP 縱波對於地球表面經一次反射之波
- PR₂, PPP 縱波對於地球表面經二次反射之波
- S 橫波 (或初期微動之第二前走波)
- SR₁, SS 橫波對於地球表面經一次反射之波
- SR₂, SSS 橫波對於地球表面經二次反射之波
- PS, SP 變轉波即縱波(橫波)對於地球表面反射時所變轉之橫波
(縱波)
- L 主要動之地面波
- M₁, M₂, ... 地面波之極大動
- C 終期尾動
- F 能認別之最終動

3. 運動之種類等

- i 相位之明顯者
- e 相位之不明顯者
- ? 相位之可疑者
- T 週期(以秒為單位)
- A 實際上地面震動之半震幅(以 μ , 千分之一呎, 為單位)
- Δ 震央距離(以呎為單位)

Symbols and Notations

1. Character of the Earthquake—

I. Perceptible. II. Moderately strong. III. Strong.

- d (terrae motus domesticus) Local shock (origin less than 100 km. distant).
- v (terrae motus vicinus) Near shock (origin from 100 to 1,000 km. distant).
- r (terrae motus remotus) Distant shock (origin from 1,000 to 5,000 km. distant).
- u (terrae motus ultimus) Very distant shock or teleseism (origin more than 5,000 km. distant).

2. Phases of the Seismogram—

- P (undae primae) Normal first phase, or first preliminary tremors (longitudinal).
- P' First preliminary tremors which have penetrated the core of the earth.
- PR_n Waves n times reflected at the earth's surface.
- S (undae secundae) Second phase, or second preliminary tremors (transverse).
- SR_n Waves n times reflected at the earth's surface.
- PS, SP Waves changed from longitudinal to transverse oscillation or vice versa through reflection at the earth's surface.
- PPS Waves twice reflected at the earth's surface, having been longitudinal on two branches of the path and transverse on one branch.

In general, a bar over two letters denoting types of waves indicates refraction. The subscript c denotes the boundary at about 2900 km. depth between the metallic core and the middle shell which surrounds it. Thus;

\overline{ScPcS} Waves which have penetrated the core, having been transverse before entering and after leaving the core, and longitudinal within the core.

$\overline{PcPcPcP}$ Waves refracted at the core boundary into the core, reflected once at this boundary while within the core and again refracted out of the core, having remained longitudinal on all branches of the path.

- L (undae longae) Long waves of surface phase preceding M.
 - M (undae maximae) Shorter and more regular waves of large amplitude in the surface phase.
 - W₁, W₂, W₃, ... The maximum waves coming again to the station after circumscribing the earth once, twice, etc.
 - C (coda) Tail or end portion.
 - F (finis) End of discernible movement.
3. Nature of the motion
- i (impetus) Sudden beginning of the motion.
 - e (emersio) Gradual beginning of the motion.
 - ? Questionable or uncertain.
 - m Maximum wave in any phase.
4. Time—

All determinations are reduced to Greenwich mean time. The contact clock which gives the time mark is daily corrected by radio with the time signal from Zi-ka-wei Observatory.

Constants of the Seismographs

1. Mechanical Registration

Apparatus	Component	V	T ₀	€	r
Wiechert 17,000 kg.	N	1530	1.60	2.9	0.22
	E	1500	1.50	2.0	0.10
Wiechert 1,300 kg.	Z	165	4.26	3.4	0.50

2. Galvanometric Photographic Registration

Preliminary Constants of Galitzin-Wilip

Component	Galvanometer Free Period T ₁	Pendulum Free Period T	Damping Constant u ²	Transmission Factor k	Synchronous Magnification $\frac{kAT}{4\pi l}$
N-S	11.04	11.80	+ 0.08	110	1210
E-W	10.88	11.02	+ 0.02	105	1092

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A _N	A _E	A _Z	T _N	T _E	T _Z		
449	1934 Apr. 2		e F	10 10	51 57	05								Very small.
450	Apr. 3	Ir	iP iS _{E,Z} M _E F	22 22 22 23	36 40 45 00	28 12 56					10		2235	
451	Apr. 6	Id	P _{N,E} iS F	9 9 9	30 30 33	13 30							126	Analogous to Yiencheng swarm quake.
452	Apr. 6	Ir	P _E iS eL F	19 19 19 19	13 17 20 38	54 44 20			4	5			2300	
453	Apr. 7		e	6	27	-								Possibly not seismic.
454	Apr. 10	Ir	iP e _N iPP iS _N e _N eL _N M _Z F	10 10 10 10 10 10 10 11	30 30 32 36 39 41 46 25	22 51 06 24 39 44 34			4		15	4	4235	Dilatation. Chiufeng 16°S, 95°E
455	Apr. 11	Iu	e m	21 21	23 23	03 42							8500	

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No.	Date	Character	Phase	G. M. T.			Amplitude			Period			Δ	Remark	
				h.	m.	s.	A_N	A_E	A_Z	T_N	T_E	T_Z			
455	1934 Apr. 11 (cont'd.)		i_E	21	23	50									
			i_S	21	32	52									
			F	21	—									Masked by strong micro.	
456	Apr. 12	Ir	eP_E	3	23	40							1765		
			$eS?$	3	26	45									
			L_E	3	28	49									
			iL_N	3	28	57									
			M	3	29	57				11	11	12			
			F	3	—										„
457	Apr. 12	Ir	iP_E	9	15	05									Much alike as No. 456.
			iL_N	9	21	05									
			M	9	22	20				7	8	7			
			F	9	—										Strong micro.
458	Apr. 13		e	11	38	25								Very small.	
			F	11	42										
459	Apr. 13		i_S	19	53	17									P phase quite faint.
			i_N	19	53	29									
			i'_N	19	53	47									
			F	20	00										
460	Apr. 13	I	iP	22	05	45							668		
			eS	22	07	15									
			F	22	22										
461	Apr. 15	Ir	P_E	10	37	27							2010		
			eS_N	10	40	53									

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A_N	A_E	A_Z	T_N	T_E	T_Z		
461	1934 Apr. 15 (cont'd.)		e_N	10	41	26								
			F	10	52									
462	Apr. 15		e	15	37	36								Very weak beginning.
			iS	15	38	28								
			F	15	40									
463	Apr. 15	IIIr	iP	22	20	42				4			2855	Condensation. Azi. NNW up. Large amplitude. J.S.A. $115^{\circ}N$, $1218^{\circ}E$. Strasbourg $8^{\circ}N$, $127^{\circ}E$.
			iS _{N,Z}	22	25	15				7	6			
			iL _Z	22	28	34								
			L _N	22	29	02								
	Apr. 16		F	00	20									
464	Apr. 16	Ir	eP	4	04	52							2700	Beginning uncertain.
			iS	4	09	14								
			eL	4	14	—								
			F	4	49									
465	Apr. 16	Ir	P _N	13	42	53							1355	
			eS _N	13	45	19								
			F	14	01									
466	Apr. 19	Ir	P	16	17	09							1710	An impulse.
			iS _E	16	20	09								
			e _E	16	22	23								
			i _E	16	27	59								
			F	16	32									
467	Apr. 24		P _E	2	06	44							4135	F lost owing to changing records.
			iS _E ?	2	12	40								

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A _N	A _E	A _Z	T _N	T _E	T _Z		
468	1934 Apr. 24		eL	18	15	-								Trace of surface waves.
469	Apr. 25		e _E	5	08	23								Very small.
470	Apr. 26	Ir	e _N	13	45	58							3290	Chiufeng 18°N, 141°E.
			eS _N	13	51	01								
			eL _Z	13	56	-					20			
			M _Z	13	59	55								
			F	14	09									
471	Apr. 26	Iu	P	21	11	02							7110	Faintly registered.
			eS _{N,E}	21	19	45								
			M _Z	21	40	19								
			F	22	05									
472	Apr. 28		iP	15	16	43							No other phases distinguishable	
473	Apr. 30	Ir	iP	15	24	35							2380	
			iPP	15	25	03								
			iS	15	28	31								
			iSS	15	28	43								
			F	15	50									
474	May 1		eP	3	49	05								Small.
			e _E	3	55	51								
			M _E	4	09	47					16			
			F	4	20									
475	May 1	IIu	iP	7	11	32						6490	Condensation. Strassbourg 8°N, 94 5°E.	
			iPP	7	12	55								

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark	
				h.	m.	s.	A _N	A _E	A _Z	T _N	T _E	T _Z			
475	1934 May 1 (cont'd.)	IIu	i _z	7	14	05									
			i _{z,E}	7	17	37									
			iS _E	7	19	35									
			eL	7	23	—									
			M _z	7	29	05						12			
			F	7	58										
476	May 3	Ir	iP _E	1	35	55				2			2365	Condensation.	
			iS _E	1	39	50								Time marks failed on N-S.	
			iL _{E,Z}	1	43	44									
			M _{E,Z}	1	47	47					15	13			
			F	2	40										
477	May 4	IIu	iP	4	46	39							6935	Dilatation. Strong at Anchorage	
			i _{z,N}	4	46	51								and Seward, Alaska.	
			iS	4	55	13				10	7			U.S.C.G.S. 61°N,148°W.	
			L	5	08	13									
			M ₁	5	11	19				30		30			
			M ₂	5	15	26							22		
			M ₃	5	17	31							18		
478	May 9	I	iP	3	24	12?							126	A local shock.	
			iS	3	24	29									
			F	3	27										
479	May 13	Iu	P	9	10	01?							5380	Condensation. Time marks poor.	
			iPP	9	10	25								USCGS. 5°S, 154°E. Salomon	
			iS	9	17	07								Islands.	
			L	9	22										

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A _N	A _E	A _Z	T _N	T _E	T _Z		
479	1934 May 13 (cont'd.)	Iu	M _Z	9	27	55						19		
			F	10	12									
480	May 13	Ir	P	17	05	08							1790	
			eS _N	17	08	15								
			i _E	17	08	28								
			eL	17	11	-								
			F	17	33									
481	May 14		e _N	15	30	40								Very small.
			F	15	35									
482	May 14	Iu	iP	22	23	09							6790	USCGS. 59°N, 150°W
			iS	22	31	35								Strassbourg 61°N, 165°W Alaska.
			i _E	22	32	59								
			eL	22	42									
			M	22	46	51				20				
			F	23	19									
483	May 17	Ir	e	10	32	30							1655	
			eS	10	35	24								
			M _E	10	38	55				10				
			F	10	58									
484	May 18		P	1	21	about								P-S $\pm 12s$. Time marks failed.
			F	1	23									
485	May 19		iP	10	49	03							2255	Small.
			eS	10	52	49								
			F	11	40									

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark	
				h.	m.	s.	A _N	A _E	A _Z	T _N	T _E	T _Z			
486	1934 May 21	Iv	e	4	39	00							809	Weak beginning.	
			eS	4	40	49									
			iL	4	42	27									
			F	5	05										
487	May 22		eP	1	29	53									
			eL	1	40	15									
			M	1	14	33									
			F	2	56										
488	May 23		e	2	20	17							Very small; possibly not seismic.		
489	May 28		eP	5	38	22									
			(eS)	5	43	08									
			F	5	55										
490	May 29		e _E	1	23	10								Beginning uncertain.	
			e _E	1	23	54									
			M	1	26	42				6	6				
			F	1	31										
491	May 30		e	23	08	06								Very small	
			F	23	22										
492	Jun. 2	Ir	iP	5	59	17							2365		
			iS	6	03	12									
			eL _N	6	06	17									
			e _E	6	07	57						7			
			M	6	08	39				6	9				
			F	6	17										

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'Ø = 32°03'11''N λ = 118°46'55''E h = 60m. Underground: Conglomerate.

No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			△	Remark
				h.	m.	s.	A _N	A _E	A _Z	T _N	T _E	T _Z		
493	Jun. 2		eP	13	54	35								Trace. Epc. Iceland.
			eL?	14	31									
494	Jun. 3		e	8	25	12								
			F	8	34									
495	Jun. 5		e	13	12	45								Very small.
			L	13	16	13								
			M _N	13	16	31				9				
			M _E	13	17	17					10			
			F	13	32									
496	Jun. 6	Ir	iP	6	29	14							2735	
			eS	6	33	38								
			iL	6	36	53								
			M _N	6	40	17								
			F	7	20									
497	Jun. 6	Ir	e _E	16	40	40							3135	
			eS	16	45	33								
			iL	16	49									
			M	16	50	52				18	16			
			F	17	02									
498	Jun. 8		eP	21	06	44								
			e	21	07	49								
			M _E	21	09	26					7			
			F	21	19									

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark	
				h.	m.	s.	A _N	A _E	A _Z	T _N	T _E	T _Z			
499	1934 Jun. 9		(e)	2	33	55								Initials uncertain.	
			iL	2	35	14									
			M _E	2	36	30					12				
			F	3	00										
500	Jun. 9	IIr	iP	13	07	03								4155 New Guinea.	
			iPP _{E,Z}	13	07	31									
			eS _Z	13	13	00									
			iS _{Z,E}	23	13	44									Large amplitude.
			eL _Z	13	19	-									
			F	14	07										
501	Jun. 13	IIr	iP _Z	1	56	21								2810 JSA 45°N, 149 5°E Kurile Islands. Interrupted by hour mark; may be earlier.	
			S _Z	2	00	51									
			L _Z	2	04	35									
			M _Z	2	06	59					17				
			F	2	-										
502	Jun. 13	IIu	iP	22	19	06								5345 JSA 29 5°N, 63 5°E Afghanistan.	
			i _{E,Z}	22	19	25									
			i _Z	22	24	22									
			iS	22	26	10									
			M ₁	22	41	10					12	14			
			M ₂	22	42	08					13				
			F	23	55										
503	Jun, 15		eP	21	37	10								A near shock.	
			F	22	05										

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A _N	A _E	A _Z	T _N	T _E	T _Z		
504	1934 Jun. 15		e(L?)	23	40	28								Very small.
			M	23	42	26				6				
			F	23	50									
505	Jun, 16		e	3	00	02							Very small; possibly not seismic.	
			F	3	16									
506	Jun. 16		i(S)	5	23	16							P phase ineident.	
			e(L)	5	31	16								
			F	5	45									
507	Jun. 16	Ir	iP	16	07	28							1300	
			iS	16	09	49								
			F	16	30									
508	Jun. 18	Iu	eP	9	23	19							7720 USCGS. 62°N, 150°W Alaska.	
			iS	9	32	31								
			eL	9	43	08								
			i _e	9	46	11								
			M	9	50	35					18			
			F	10	25									
509	Jun. 18		e	13	08	51							Very small.	
			F	13	22									
510	Jun. 19	Iv	e	2	50	30							787	
			iS	2	52	16								
			F	3	-									Disturbed by micro.

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark	
				h.	m.	s.	A_N	A_E	A_Z	T_N	T_E	T_Z			
511	1934 Jun. 19		e?	3	56	22							3445	Disturbed by strong micro.	
			iS	4	01	34									
			F	4	-										
512	Jun. 19		e	15	53	34								Heavy micro.	
513	Jun. 21		eP	18	45	48									Small.
			e	18	47	56									Increase of period.
			F	19	15										
514	Jun. 22	Iu	iP	18	04	03							5110		
			iS	18	10	54									
			eL	18	16	-									
			F	18	54										
515	Jun. 23	IIIr	P_E	5	24	49							2500	Dilatation.	
			iP_N	5	24	54									
			iS	5	28	55									
			iL	5	31	43									
			M_1	5	33	39				9	8				
			M_2	5	34	11				7	7				
			$M_3?$	5	34	37				8					
			M_4	5	35	14				8	6				
516	Jun. 23		iP	8	50	27								Very small.	
			e_e	8	52	11									
			$i_N(S)$	8	51	43									
			F	9	1-										

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No.	Date	Char-acter	Phase	G. M. T.			Amplitude			Period			Δ	Remark
				h.	m.	s.	A _N	A _E	A _Z	T _N	T _E	T _Z		
522	1934 Jun. 29	Ir	P _E	12	41	10							3310	Probably after shock of No.521.
			iS	12	46	14								
			F	13	21									
523	Jun. 30	Ir	eP	17	11	40							2400	Small
			iS	17	15	38								
			F	17	59									
522	Jun. 30		e _E	22	42	15								
			e _E	22	43	03								
			F	22	47									

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The National Research Institute of Meteorology acknowledges with thanks the receipt of the following seismological publications and bulletins from May 1st to August 1st 1934.

Stations	Publications
Apia-----	Bulletin Jan.-Mar., 1934.
Athens-----	Reprint, Critikos: Sur la Seismicite de Macedone
Chiufeng-----	Bulletin April, May, June, 1934.
Christchurch-----	Provisional Bulletin Mar., Apr., 1934.
Denver-----	Bulletin June-Sept., 1933.
Forissant-----	Bulletin Nov., Dec., 1933, and Jan., 1934.
Georgetown-----	Instrumental Bulletin Feb., Mar., Apr., 1934. Seismological Despatches Feb., Mar., Apr., 1934.
Helwan-----	Bulletin Jan., Feb., 1934.
Hukuoka, Japan-----	Bulletin Vol. 1, No. 1 Jan.-May, 1934.
J. S. A. -----	Preliminary Bulletin No. 4a, 5, 6. " " For the month of March.
Kew-----	Bulletin March, April, May, 1934.
Kobe-----	Bulletin April-June, 1933.
La Paz-----	Bulletin Aug.-Dec., 1933.
Leningrad-----	Bulletin July-December, 1933.
Jund-----	Bulletin For the years of 1929 & 1930.
Melbourne-----	Bulletin Jan.-Mar., 1934.
Nagasaki-----	Bulletin Sept. 21-Dec. 12, 1933.
Osaka-----	Quarterly Bulletin Jan.-Mar., 1933. Bulletin Mar. 2-May 14, 1934.
Ottawa-----	Bibliography of Seismology Vol. X, No. 20. Reprint, Hodgson: Surface Reflected Waves of Shallow Focus Earthquakes.
	Bulletin March, April, May, 1934.
Parc Saint-Maur-----	Bulletin Mars, Avril, Mai, 1934.
Pasadena-----	Bulletin March No. 6-12, April 24-May 31, June 1933, March and April, 1934.
Perth-----	Bulletin March, April, 1934.
Riverview-----	Bulletin March, April, May, 1934.
San Fernando-----	Bulletin March, April, 1934.
Strasbourg	
L'Institut-----	Bulletin Mars, Avril, Mai, 1934.
Bureau Central-----	Bulletin Mars, Avril, Mai, 1934.
Union International-----	Bulletin Mars, Avril, Mai, 1934.
Stuttgart-----	Bulletin Seismische Berichte Jahrgang 1933.
Tanannarive-----	Bulletin Oct., Nov., 1934.
Tokyo	
Earthquake Research Institute	Seismometrical Report Part 4, 1933.
Wellington-----	Bulletin March, April, 1934.
Zinsen, Korea-----	Bulletin Jan.,-Apr., 1934.
Zagreb-----	Bulletin July-Dec., 1933.