

No. 1

PASADENA and auxiliary stations

1934

Date	Station	Phase	G. C. P.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Jan 1	P	iPZ	08	17	13			c		
	MW	iPZ			13			c		
	R	iPZ			10			c		
	T	iPNEZ			25			c		
	H	iPNEZ			20			c		
Jan 3	P	iPNEZ	05	05	39			c	deep	
		iZ		08	55					
		iZ		09	01					
	MW	iPZ		05	39			c		
		iZ		08	55					
	R	iPNEZ		05	39			c		
	T	iPNEZ			46					
H	iPNEZ			43			c			
Jan 3	P	iPNEZ	09	52	17			c	deep	$\Delta = 62^\circ$ $h = 0.06$
		iPcPNEZ		53	20					JSA: $53^\circ 26' N$, $157^\circ 3' E$
		ipPZ			39					$0 = 09:42:42$
		isPZ		54	33					
		iSNEZ	10	00	13					USCGS: $53^\circ N$ $155^\circ E$
		iN		01	40					$0 = 09:42.0$
		eP'P'Z		21	28					
	MW	iPNZ	09	52	17					
		iSNZ	10	00	12					
	R	iPNEZ	09	52	19			c		
		iSNEZ	10	00	17					
	SB	iP'P'Z		21	24					
		iPNEZ	09	52	09					
	LJ	iSNE	10	00	00					
		iPNE	09	52	30					
	T	iSNE	10	00	38					
		iPNEZ	09	52	03			c		
H	iSNE		59	49						
	iP'P'Z	10	21	34						
	iPNEZ	09	52	07			c			
	iSNEZ		59	52						
Jan 3	P	eZ	12	52	32					
	MW	eZ			32					
		iZ			25					
	T	iZ		55	04					
		iNEZ		52	46					
	iZ		55	11						
Jan 5	P	iPZ	17	09	39			c		
	MW	iPZ			41			c		
	R	iPZ			41			c		
	T	ePZ			31					
Jan 6	P	eZ	03	22	46					
	MW	iZ			47			d		
		iNZ			51					
	T	iNEZ			19					
Jan 6	P	eZ	13	54	32					
		iZ		57	59					
	MW	eZ		54	32					
		eZ		56	00					
	R	iZ		57	56					
		iZ		54	33					
	iZ		57	57						

SEISMOLOGICAL LABORATORY

CARNEGIE INSTITUTION OF WASHINGTON
CALIFORNIA INSTITUTE OF TECHNOLOGY

220 NORTH SAN RAFAEL AVENUE

PASADENA, CALIFORNIA

REVISED

OCTOBER 1, 1933

BULLETIN

The SEISMOLOGICAL LABORATORY, Pasadena, California, is maintained and operated by the Carnegie Institution of Washington and the California Institute of Technology as a coöperative undertaking. This laboratory is the **central station** of a coördinated group. Auxiliary stations in southern California are maintained and operated as follows: At the Mount Wilson Observatory on Mount Wilson (a Department of the Carnegie Institution of Washington); at Riverside (in coöperation with the City of Riverside); at Santa Barbara (in coöperation with the Santa Barbara Museum of Natural History); at La Jolla (in coöperation with the Scripps Institution of Oceanography of the University of California); at Tinemaha, and at Haiwee, in the Owens Valley (in coöperation with the Department of Water and Power of the City of Los Angeles).

TIME: At all these stations the minute-marks on the seismograms are coördinated directly by means of auxiliary records written at each station on which the minute-marks are registered closely parallel with recorded dot-and-dash radiotelegraphic signals sent in ordinary course from a powerful transmitting station. This permits direct correlation of the minute-marks at all the stations of the group at practically all times with an accuracy of one second, and usually of one-fifth second.

Standard time is determined at Pasadena by comparing the station clock with automatically recorded radio time signals, sent from Annapolis (NSS), three to five times daily.

The constants of these stations follow.

PASADENA SEISMOLOGICAL LABORATORY Central Station

$\Phi = 34^{\circ} 08.9' N.$, $\lambda = 118^{\circ} 10.3' W.$, $h = 295$ m., Deeply weathered granite rock, with inclusions of gneiss and schist.

Apparatus: horizontal-component torsion seismometers with magnetic damping and optical recording. (Cf. Bull. Seis. Soc. Am., XV, 1, 1925).

Instruments, and Constants (approximate);

	T_0	V	h
N — S	0.8 sec.	2,800	0.8-0.9
E — W	"	"	"
N — S	6 sec.	800	0.8-0.9
E — W	"	"	"

vertical component seismometers with oil damping and galvanometric-optical recording. (Cf. Bull. Seis. Soc. Am., XXII, 156, 1932)

inertia-mass 100 kg. $T_0 = 0.5$ sec. Damping critical or slightly less;

galvanometers: (1) $T_1 = 0.2$ sec. Damping critical.

(2) $T_1 = 10$ to 14 sec. Damping critical.

The constants of the short-period instruments do not undergo any significant changes. The constants of the instruments of longer period will be given from time to time when deviations from the values given are significant.

Experimental seismographs of various kinds are in process of development from time to time, and are used for intervals of variable duration. Information concerning these will be given when necessary.

AUXILIARY STATIONS

Each of the auxiliary stations has equipment as follows:

- Apparatus: two horizontal-component torsion seismometers with magnetic damping and optical recording;
 Instruments and Constants (approximate);

	T ₀	V	h
N — S	0.8 sec.	2,800	0.8-0.9
E — W	“	“	“

one vertical component seismometer with oil damping and galvanometric-optical recording;

inertia-mass 100 kg. T₀ = 0.5 sec. Damping critical or slightly less;

galvanometer: T₁ = 0.2 sec. Damping critical.

The Station Constants follow.

Coördinates are geodetic positions referred to the North American Datum.

Mount Wilson Seismologic Station

Φ = 34° 13.5' N., λ = 118° 03.4' W., h = 1742 m., Weathered granite.

Riverside Seismologic Station

Φ = 33° 59.6' N., λ = 117° 22.5' W., h = 250 m. approx., Weathered granite.

Santa Barbara Seismologic Station

Φ = 34° 26.5' N., λ = 119° 42.9' W., h = 100m. approx., Heavy, boulder-laden alluvium.

La Jolla (Scripps Institution Seismologic Station)

Φ = 32° 51.8' N., λ = 117° 15.2' W., h = 7.7 m. approx., Consolidated detrital material.

Tinemaha Seismologic Station

Φ = 37° 05.7' N., λ = 118° 15.5' W., h = 1180 m. approx., Basalt.

Haiwee Seismologic Station

Φ = 36° 08.2' N., λ = 117° 57.9' W., h = 1100 m. approx., Loosely cemented tuff.

SYMBOLS AND NOTATION: in general the symbols and notation conform with the usual international practice. For the phases of deep-focus earthquakes the notation of F. J. Scrase is adopted. c, d are abbreviations for compression and dilatation.

When measurements referring to local earthquakes are included P and S will be used without index or subscript, as no attempt will be made in these bulletins to distinguish between \bar{P} , P*, and P_n, although such complications are often clearly indicated and are the subject of study.

AMPLITUDES, (half-ranges), are measured in millimeters of the seismographic trace.

SPECIAL SYMBOLS indicating the stations of this coördinated group are as follows:

PASADENA SEISMOLOGICAL LABORATORY

- For routine instruments of period 0.8 second P
- For routine instruments of period 6 seconds P₆
- For instruments of different period analogous notation will be employed.
- For routine vertical component, galvanometer period 0.2 second P
- For routine vertical component, galvanometer period 10 to 14 seconds PX

- Mount Wilson Seismologic Station MW
- Riverside Seismologic Station R
- Santa Barbara Seismologic Station SB
- La Jolla (Scripps Institution Seismologic Station) LJ
- Tinemaha Seismologic Station T
- Haiwee Seismologic Station H

In general detailed measurements will be given only for the records of the Seismological Laboratory: those for records of the other stations will be given only to supplement the information.

No. 2

PASADENA and auxiliary stations

1934

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Jan 6	MW	iZ	18	36	33					
Jan 9	P	iPNEZ	07	43	45				c	
	MW	eZ		45	50					
	R	iPNEZ		43	45					
	R	iPNEZ			42					
	LJ	iZ		45	39					
	T	iPZ		43	38					
	H	eSE		53	19					
	H	eSNE		53	21					
Jan 9	MW	iZ	18	51	29					
	R	iZ			31					
Jan 11	P	ePZ	07	00	41					
	MW	iPZ			43				c	
	R	iPZ			44					
Jan 11	P	iPNEZ	10	30	09				d	normal
	P30	eLN		41	26					
	MW	iPNEZ		30	12				d	
	R	iPNEZ			16				d	
	LJ	iPZ			23					
	T	iPNEZ		29	57				d	
	H	iPNEZ		30	04					
Jan 12	P	iPZ	13	04	19					
	MW	iPNZ			19				d	
	R	iPZ			14					
	T	iPNEZ			29				d	
Jan 12	P	iPZ	20	15	47					
	MW	iPZ			45					
	T	ePZ			58					
Jan 14	P	ePNEZ	12	03	59					normal
		iZ		04	17					
		iN		05	12					
	P30	eLN		07	39					
	MW	ePE		04	01					
		iNEZ			17					
	R	ePZ		03	53					
	T	iPNEZ		04	31					
	H	iPNEZ			20					
Jan 15	P	ePZ	08	58	18					normal
		eZ			32					$\Delta = 12,900$ km (116°)
		iP'Z	09	02	00					Very destructive in North India
		iPPEZ		03	08					USCGS: 25° N 86° E
		iPPZ		05	37					O = 08:43.3
		iPKKPZ		12	47					
		iPSNEZ		12	57					
		iSKSPZ		13	21					
		iPPSNZ		14	21					JSA: 25°6 N, 85°7 E
	P30	eSSN		18	30					O = 08:43:16
		eSSSN		23	30					
		eLN			35.3					
	MW	eZ	08	58	29					
		iP'Z	09	02	00					
		iPPNEZ		03	14					
		iPKKPZ		12	50					
		ePSNEZ			56					

Continued

No. 3

PASADENA and auxiliary stations

1934

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Jan 15	R	eP'Z	09	02	06	Continued				
		iPPNZ		03	15					
	iPKKPZ		12	46						
	LJ	eNE		02	20					
		iPPN		03	25					
		eSKSN		09	07					
	T	eSN		12	54					
		ePSN		13	11					
	H	eE	08	58	42					
		iPTE	09	02	56					
iPSE			12	28						
Jan 15	P	iPZ	17	58	07					
	MW	iPZ			08					
	T	iPZ			15					
Jan 16	P	iPZ	04	52	44					
	MW	ePEZ			41					
	R	eZ			42					
	T	eZ			50					
Jan 16	P	ePZ	09	05	56					
	MW	iPZ			55					
	R	iPZ			47					
	T	iPNEZ		06	19					
	H	iPNEZ			10					
Jan 17	P	iPNEZ	02	20	42		d	deep		
	MW	iPNEZ			43		d			
	R	iPNEZ			44		d			
	SB	iPZ			39		d			
	LJ	iPNEZ			40		d			
	T	iPZ			51					
	H	eNZ		31	13					
Jan 17	P	iPNEZ	03	09	24		c	deep		
	MW	iPNEZ			25		c			
	R	iPNEZ			26					
	T	iPNZ			33		c			
	H	iPNEZ			30					
Jan 18	P	iPZ	01	58	59					
	MW	iPZ			58					
	R	iPZ		59	05					
	T	iPNEZ		53	50					
	H	iPNEZ			53					
Jan 18	P	iPNEZ	03	32	17		d	deep		
		eZ			59					
		eZ		34	19					
		iSN		41	35					
	MW	iPNEZ		32	18		d			
	R	iPNEZ			19		d			
		eZ		34	24					
	SB-	iPNEZ		32	12		d			
	LJ	eZ		34	16					
	iPNEZ		32	18						
Continued										

No. 4

PASADENA and auxiliary stations

1934

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Jan 18	T	ipNEZ	03	32	25	Continued				
		iZ		34	30					
		iSNEZ		41	52					
	H	ipNEZ		32	24					
		eSN		41	49					
Jan 18	P	ePZ	10	53	21					
	MW	ePZ			21					
	R	ipZ			24					
	T	ipZ			29					
Jan 19	P	ipNEZ	01	49	02				deep?	
	MW	ipNEZ			03					
	R	ipNEZ			05					
	SB	ipNEZ		48	56					
	LJ	ipNEZ		49	15					
	T	ipNE		48	40					
	H	ePNEZ			53					
Jan 19	P	ipZ	04	44	50			d	deep?	
		eZ		45	22					
	MW	ipZ		44	51			d		
		ipZ			47					
	R	iZ		45	20					
	T	ipNE			02					
	H	ePZ			02					
Jan 19	P	ipNEZ	09	59	06			d	normal	
	P30	eLN	10	01	45					
	MW	ePNEZ	09	59	06					
	R	ePZ			01					
	SB	ePZ			23					
	LJ	ePNEZ		58	46					
	T	ePNE		59	40					
	H	ipNEZ			30					
Jan 20	P	ipZ	08	34	52					
	MW	ipZ			53					
	R	ipZ			38					
	T	ipZ			59					
	H	ipZ			59					
Jan 20	P	ipZ	18	09	26					
	MW	ipZ			27					
	LJ	ipZ			33					
	T	ipNEZ			16					
Jan 21	P	ipZ	20	16	09					
	MW	ipZ			10					
	R	ePZ			12					
	T	ipZ			11					
Jan 22	T	ipeZ	03	10	32					
Jan 22	P	iZ	10	18	03					
	MW	eZ			01					
		iZ			05					
	T	ineZ		17	50					
	H	ie			59					
Jan 22	T	ePZ	18	10	33					
Jan 25	P	ipNEZ	19	03	08			d	deep	
	MW	ipNEZ			09			d		
	R	ipNEZ			11			d		
	SB	ipNEZ			02			d		
	LJ	ipNEZ			21			d		
	T	ipNEZ		02	47			d		

No. 5

PASADENA and auxiliary stations

1934

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Jan 27	P	iPNEZ	13	08	45				deep	
		iZ		12	55					
	MW	iPNEZ		08	46					
	R	iPNEZ			41					
	SB	eZ			53					
	T	iPNEZ			58					
Jan 28	P	eZ	14	51	45					
	MW	eZ			48					
	R	eZ			48					
Jan 28	P	iPNEZ	19	15	19			c	normal	Damage at Acapulco, Mexico $\Delta = 2730$ km. (24.6) $O = 19:10:03$ USCGS: 17° N, 100° W $O = 19:19.9$ JSA: 16.98 N, 99.96 W $O = 19:19:03$
		iSN		19	39					
	P30	iLN		21	07					
	MW	iPNEZ		15	19					
	R	iPNEZ			13					
	SB	eSN		19	31					
	LJ	ePNEZ		15	31					
	T	iPNEZ		19	19			c		
Jan 29	P	iPNEZ	12	46	22					
	MW	iPNEZ			24					
	R	iPNEZ			26					
	SB	iPNEZ			17					
	LJ	iPNEZ			33					
	T	iPNEZ			14					
Jan 29	P	eZ	12	56	22				Short periods, probably not part of preceding	
	MW	eZ			29					
	R	eZ			13					
	T	eZ			40					
Jan 29	P	iPNEZ	13	08	47					
	MW	iPZ			47					
	R	iPZ			47					
	T	iPZ			47					
Jan 30	P	iPZ	19	24	57				Strong at Mina, Nevada (clocks stopped, etc.)	
	MW	iPZ			57					
	R	iPZ			59					
	SB	iPZ			59					
	LJ	iPZ		25	18					
	T	iPNEZ		24	41					
Jan 30	P	iPNEZ	20	17	30				Damage at Mina, Nevada ($38^{\circ} 23'$ N, $118^{\circ} 07'$ W) Many aftershocks, having S-P 15 seconds at Tinemaha. Very many Aftershocks USCGS: 38.92 N, 118.96 W $O = 20:16:35$ JSA: 38.92 N, 118.98 W $O = 20:16:28$	
	MW	iNEZ			32					
	R	iPNEZ			33					
	SB	eZ			31					
	LJ	ePNEZ			52					
		iPNEZ		16	49					
	T	iPNEZ								

No. 6

PASADENA and auxiliary stations

1934

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Jan 31	P	iPNEZ	10	17	59			d	normal	$\Delta = 8020 \text{ km (72.92)}$ $O = 10:06:36$
		iZ		20	37					
		iSNE		27	21					
		eLNE		39	10					
	MW	iPNEZ		17	59			d	Probably region of Samoa	
	R	iPNEZ		18	01			d		
	SB	iPZ		17	53			d		
	LJ	iPNEZ		18	00			d		
		eSNE		27	24					
	T	iPNEZ		18	08			d		

Harry O. Wood
 Research Associate in Charge

C. F. Richter
 Assistant

The Carnegie Institution of Washington, Seismological Research, Pasadena, California, acknowledges with thanks receipt of the following bulletins during February, 1934:

Bergen	1932 and 1933
Capetown	December, 1933, No. 32-33
Chiufeng	December, 1933, No. 41-43
Firenze	July-September, 1933, No. 24-24
" Telegrammi	" " " No. 10-14
Florissant	September-October, 1933, No. 26-29
Fordham	October-December, 1933
Georgetown	January, 1934, No. 205
" Seismo Dispatch	" " No. 1-2
Hongkong	December, 1933
J. S. A.	January 28 and 30, 1934, No. 2 and No. 4
Karlsruhe	July-December, 1933, No. 28-29
Kew	January 1 - 15, 1934
Koti	October 1933-January, 1934, preliminary report
Koti	November 26 - December 24, 1932 No. 6
Koti	March 8 - July 1, 1933, No. 7-5, 7-7
Manila	November, 1933, No. 39-41
Montecassino	October - November, 1933
Oxford, (I.S.S.)	October - December, 1929
Reykjavik	October - December, 1933
Riverview	December, 1933, No. 12
Stockholm	1926 - 1930
Sydney	December, 1933
Taihoku	October, 1933, No. 19
"	December, 1933, preliminary report
Zi-ka-wei	November 20 - December 2, 1933, No. 14
"	December 4, 1933, No. 15

The Carnegie Institution of Washington, Seismological Research, Pasadena, California, acknowledges with thanks receipt of the following bulletins, in January, 1934:

Adelaide	November and December, 1933
Apia	October-December, 1933, No. 4
Capetown	November, 1933, No. 30-31
Chiufeng	November, 1933, 37-40
Florissant	July and August, 1933, Nos. 17-22, 23-25
Hongkong	November, 1933
Jesuit Seismological Assn.	December, 1933, No. 45-48
" " "	August 25, 1933, No. 29b
" " "	October 28, 1933, No. 30a
" " "	January 3 to January 15, 1934, No. 1-2
Kew	December, 1933, No. 1-2
La Paz	January to July, 1933, No. 1-22
Lwow	No. 5, 1933
Manila	October, 1933, No. 36-38
Melbourne	July to September, 1933, No. 23
Mizusawa	Year 1932
Nagoya	January to June, 1933, Vol. 4, No. 1
Nanking	July to September, 1933, Vol. 2, No. 1
Osaka	October 11 to December 3, 1933, No. 140-142
Perth	September 6 to October 2, 1933, No. 9
"	October 2 to November 18, 1933, No. 10
"	November 18, to December 12, 1933, No. 11
Quito	September - October, 1933
Riverview	November, 1933, No. 11
St. Louis	September, 1933, No. 27-31
Sydney	November, 1933
Taihoku	September, 1933, No. 16-18
"	November, 1933, Preliminary Report
Tokyo, Earthquake Research Institute	April 1 to June 30, 1933, No. 11
Uccle	March to September, 1933, No. 2-4
URSS	January to June, 1933, No. 1-6
Washington, Georgetown University	December, 1933, No. 204
Zi-Ka-Wei	September 25 to November 8, 1933, No. 13

SEISMOLOGICAL LABORATORY

CARNEGIE INSTITUTION OF WASHINGTON
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220 NORTH SAN RAFAEL AVENUE
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REVISED
OCTOBER 1, 1933

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TIME: At all these stations the minute-marks on the seismograms are coordinated directly by means of auxiliary records written at each station on which the minute-marks are registered closely parallel with recorded dot-and-dash radiotelegraphic signals sent in ordinary course from a powerful transmitting station. This permits direct correlation of the minute-marks at all the stations of the group at practically all times with an accuracy of one second, and usually of one-fifth second.

Standard time is determined at Pasadena by comparing the station clock with automatically recorded radio time signals, sent from Annapolis (NSS), three to five times daily.

The constants of these stations follow.

PASADENA SEISMOLOGICAL LABORATORY Central Station

$\Phi = 34^{\circ} 08.9' N.$, $\lambda = 118^{\circ} 10.3' W.$, $h = 295$ m., Deeply weathered granite rock, with inclusions of gneiss and schist.

Apparatus: horizontal-component torsion seismometers with magnetic damping and optical recording. (Cf. Bull. Seis. Soc. Am., XV, 1, 1925).

Instruments, and Constants (approximate);

	T_0	V	h
N — S	0.8 sec.	2,800	0.8-0.9
E — W	"	"	"
N — S	6 sec.	800	0.8-0.9
E — W	"	"	"

vertical component seismometers with oil damping and galvanometric-optical recording. (Cf. Bull. Seis. Soc. Am., XXII, 156, 1932)

inertia-mass 100 kg. $T_0 = 0.5$ sec. Damping critical or slightly less;

galvanometers: (1) $T_1 = 0.2$ sec. Damping critical.

(2) $T_1 = 10$ to 14 sec. Damping critical.

The constants of the short-period instruments do not undergo any significant changes. The constants of the instruments of longer period will be given from time to time when deviations from the values given are significant.

Experimental seismographs of various kinds are in process of development from time to time, and are used for intervals of variable duration. Information concerning these will be given when necessary.

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Apparatus: two horizontal-component torsion seismometers with magnetic damping and optical recording;

Instruments and Constants (approximate);

	T ₀	V	h
N — S	0.8 sec.	2,800	0.8-0.9
E — W	“	“	“

one vertical component seismometer with oil damping and galvanometric-optical recording;

inertia-mass 100 kg. T₀ = 0.5 sec. Damping critical or slightly less;

galvanometer: T₁ = 0.2 sec. Damping critical.

The Station Constants follow.

Coördinates are geodetic positions referred to the North American Datum.

Mount Wilson Seismologic Station

$\Phi = 34^\circ 13.5' \text{ N.}, \lambda = 118^\circ 03.4' \text{ W.}, h = 1742 \text{ m.},$ Weathered granite.

Riverside Seismologic Station

$\Phi = 33^\circ 59.6' \text{ N.}, \lambda = 117^\circ 22.5' \text{ W.}, h = 250 \text{ m. approx.},$ Weathered granite.

Santa Barbara Seismologic Station

$\Phi = 34^\circ 26.5' \text{ N.}, \lambda = 119^\circ 42.9' \text{ W.}, h = 100 \text{ m. approx.},$ Heavy, boulder-laden alluvium.

La Jolla (Scripps Institution Seismologic Station)

$\Phi = 32^\circ 51.8' \text{ N.}, \lambda = 117^\circ 15.2' \text{ W.}, h = 7.7 \text{ m. approx.},$ Consolidated detrital material.

Tinemaha Seismologic Station

$\Phi = 37^\circ 05.7' \text{ N.}, \lambda = 118^\circ 15.5' \text{ W.}, h = 1180 \text{ m. approx.},$ Basalt.

Haiwee Seismologic Station

$\Phi = 36^\circ 08.2' \text{ N.}, \lambda = 117^\circ 57.9' \text{ W.}, h = 1100 \text{ m. approx.},$ Loosely cemented tuff.

SYMBOLS AND NOTATION: in general the symbols and notation conform with the usual international practice. For the phases of deep-focus earthquakes the notation of F. J. Scrase is adopted. c, d are abbreviations for compression and dilatation.

When measurements referring to local earthquakes are included P and S will be used without index or subscript, as no attempt will be made in these bulletins to distinguish between \bar{P} , P*, and P_n, although such complications are often clearly indicated and are the subject of study.

AMPLITUDES, (half-ranges), are measured in millimeters of the seismographic trace.

SPECIAL SYMBOLS indicating the stations of this coördinated group are as follows:

PASADENA SEISMOLOGICAL LABORATORY

- For routine instruments of period 0.8 second P
- For routine instruments of period 6 seconds P₆
- For instruments of different period analogous notation will be employed.
- For routine vertical component, galvanometer period 0.2 second P
- For routine vertical component, galvanometer period 10 to 14 seconds PX

- Mount Wilson Seismologic Station MW
- Riverside Seismologic Station R
- Santa Barbara Seismologic Station SB
- La Jolla (Scripps Institution Seismologic Station) LJ
- Tinemaha Seismologic Station T
- Haiwee Seismologic Station H

In general detailed measurements will be given only for the records of the Seismological Laboratory: those for records of the other stations will be given only to supplement the information.

No. 7

PASADENA and auxiliary stations

1934

Date	Station	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Feb 1	P	iPNEZ	08	18	42					
	MW	ePNEZ			43					
	R	iPZ			38					
	T	ePNEZ		19	12					
Feb 1	P	ePZ	19	31	39					
	MW	ePZ			40					
	R	ePZ			41					
	T	ePZ			49					
Feb 2	P	ePNEZ	15	22	34					
	MW	iPNEZ			34					
	R	iPNEZ			30					
	T	iPNEZ			47					
Feb 3	P	iPNEZ	14	46	26			c	normal	$\Delta = 10440$ km (94°) O = 14:33:06
	P6	eSKSE		57	03					
		eSN			42					
		iSNE		58	00					
		ePSNEZ			43					
		eLE	15	16.2						
	MW	iPNEZ	14	46	26					
	R	iPNEZ			34					
	SB	ePZ			20					
	LJ	ePNZ			29					
		eSN		57	44					
	T	ePNEZ		46	27					
		iN		58	11					
Feb 4	P	iPNEZ	03	22	22			d	deep	
		iZ		24	27					
		iNE		31	49					
		iNE		32	02					
		eE		33	06					
	MW	iPNEZ		22	24					
		iE		32	03					
	R	iPNEZ		22	28					
		iZ		25	57					
		iSNE		31	56					
	SB	iPNEZ		22	18					
		eNE		31	51					
	LJ	iNEZ		22	30					
		iNE		32	00					
	T	iPNEZ		22	19					
	Feb 4	P	eZ	09	48	44				
MW		eZ			48					
R		eZ			55					
T		eZ			45					
Feb 4	P	ePNEZ	12	04	48					
	MW	ePZ			49					
	R	iPZ			44					
	T	eZ		05	15					
Feb 4	P30	eLN	14	37	39			normal	P (?) about 13:46	
Feb 4	P	eZ	22	20	08					
Feb 5	P	iPZ	13	52	27			c	deep	
		iZ		53	02					
	MW	iPZ		52	25					
		iPZ			22			c		
	LJ	iZ			58					
		iPNZ			18					
T	iPNEZ			44			c			

No. 8

PASADENA and auxiliary stations

1934

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Feb 9	P	iPNEZ	09	42	01				normal	
	P6	eLE	10	13.0						
	MW	ePZ	09	42	01					
	R	iPZ			04					
	SB	iPZ		41	56					
	LJ	ePEZ		42	05					
	T	iZ			02					
Feb 9	P	iPZ	11	38	59					
		iZ		39	14					
	MW	ePZ		38	59					
	R	iPZ			57					
	T	iPZ		39	04					
Feb 9	P	iPNEZ	22	43	45			d	deep?	
		iZ		44	00					
		iZ			40					
	MW	iPNEZ		43	47			d		
	R	iPNEZ			49					
	SB	iPNEZ			42					
		iZ		44	36					
	LJ	iZ			41					
	T	iPEZ		43	56			d		
		iZ		44	22					
		iZ			54					
	iZ		45	33						
Feb 11	P	iPNEZ	09	12	35					
		iZ			51					
	MW	iPNEZ			35					
	R	iPEZ			35					
	SB	iZ			30					
	LJ	iPNEZ			38					
	T	ePEZ			36					
Feb 12	P	iPNEZ	00	03	24			c	deep	
		iZ			41					
		iZ		04	06					
	MW	iPNEZ		03	25			c		
		eSE		13	07					
	R	iPNEZ		03	27			c		
		iZ		06	42					
		iSN		12	54					
	LJ	iPNEZ		03	25			c		
	T	iPNE			33					
		iSN		13	06					
Feb 12	P	iPNEZ	03	43	25			c	deep?	
	MW	iPNEZ			24			c		
	R	iPNEZ			22					
	LJ	iPNEZ			19			c		
	T	eNE			30					
Feb 12	P	eZ	06	50	53				normal?	
	R	eZ			56					
	LJ	iPNEZ			52					
	T	eNE		51	08					

No. 9

PASADENA and auxiliary stations

1934

Date	Station	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks	
			h	m	s						
Feb 12	P	iZ	21	56	23				deep?		
	MW	iPZ			24						
	R	iPZ			34						
	T	iPNEZ			16						
	H	iPNEZ			19						
Feb 13	P	ePZ	10	02	12				deep?		
	MW	ePZ			12						
	T	ePZ		01	54						
	H	iPNEZ		02	02						
Feb 14	P	iPZ	01	39	48				deep		
		iZ		40	30						
		iZ		43	01						
	MW	ePZ		39	44						
		eZ		43	03						
	R	iPZ		39	45						
	T	ePZ			42						
	H	iPZ			44						
Feb 14	P	iPZ	01	59	44						
	R	iPZ			52						
	H	iPZ	02	00	02						
Feb 14	P	iPNEZ	04	13	46			c	normal	$\Delta = 11,500$ km. (104°) O = 03:59:41 Damage on Luzon, P.I. USCGS: 18° N 118° E O = 03:59.5	
		iZ		17	07						
		iPPZ		18	04						
		iSKSNE		24	16						
		iSNE		25	38						
		iPSE		27	09						
		iPKKPZ		29	36						
		P30	eSSN		32.5						
			eLN		43.1						
		MW	ePNEZ		13	46					
	R		iPNEZ			44					c
	SB		eZ			48					
	LJ		ePZ			52					
			eSKSNE		24	35					
	T		ePNEZ		13	49					
	H	iSKSNE		24	18						
ePEZ			13	43							
Feb 14	P	ePNEZ	22	22	56				normal		
	P6	iSE		26	49						
	P30	eLN		33	13						
	MW	iPNEZ		22	56						
	R	iPEZ			50						
	SB	ePZ		23	08						
	LJ	iPNEZ		22	40						
	T	iPNEZ		23	16						
	H	iPNEZ			11						
Feb 17	MW	eZ	21	20	58						
	R	eZ		21	04						
	T	iZ		20	56						
Feb 19	P	eZ	10	44	03				deep		
		iZ		47	30						
	MW	eZ		44	00						
		iZ		47	29						
	R	iPZ		44	02						
		iZ		47	27						
	T	ePZ		44	09						
	H	iNZ		47	22						
		ePZ		44	01						
	eZ		47	26							

No. 10

PASADENA and auxiliary stations

1934

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Feb 20	P	ePZZ	03	26	34				normal	
	PX	eSN		32	49					
		eLN		37	56					
	MW	ePZ		26	33					
	R	iPZ			29					
	SB	ePZ			50					
	T	iPNE		27	00					
		eSN		33	05					
	H	ePZ		26	56					
Feb 24	P	iPNEZ	00	57	28				deep??	Peculiar records, very similar to those of 1933, December 19, at 17 ^h
		iZ	01	13	21					
		iSSNZ?		16	59					
	MW	iPZ	00	57	29					
	R	iPNEZ			29					
	T	iPNEZ			07					
		iZ		58	56					
		eNE	01	11	48					
	H	iPZ	00	57	14					
		eZ		59	00					
iE		01	12	41						
Feb 24	P	iPZ	05	40	12			d		
	MW	ePZ			11					
	R	iPZ			05					
	T	iPNEZ			35					
	H	ePZ			18					
Feb 24	P	iPZ	06	36	13				normal	$\Delta = 9220$ km. (83.90) O = 06:23:43 USCGS: 21° N 145° E O = 06:23.7
	PX	ePPN		39	48					
		iSNE		46	32					
		iLE	07	01	44					
	MW	ePNEZ	06	36	14					
		iSNE		46	32					
	R	iPNEZ		36	15					
		iSNE		46	35					
	SB	ePZ		36	07					
		iSNE		46	20					
	LJ	iPNEZ		36	20					
		iSE		46	39					
	T	iPNEZ		36	08					
		iSNE		46	22					
H	iPEZ		36	11						
	eSEZ		46	25						
Feb 26	MW	eZ	09	51	58					
	R	eZ			58					
	LJ	iNZ			35					
Feb 26	P	iPZ	21	23	46				deep	
		iZ		24	14					
	MW	iPZ		23	47					
		eZ		24	14					
	R	iPZ		23	50					
	T	iZ			51					
	H	iPZ			32					
		eZ			59					

No. 11

PASADENA and auxiliary stations

1934

Date	Station	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Feb 26	P	ePZ	22	31	33				normal?	
	MW	ePZ			31					
	R	iPZ			20					
		eNE	39	57						
	LJ	iPNEZ	31	22						
	T	iPNEZ			52					
	H	ePZ			43					
		eE	40	39						
Feb 27	P	iPNEZ	21	42	26			c	deep	
		iZ		43	10					
	MW	iPZ		42	25			c		
		eZ		43	09					
		iZ			14					
	R	iPNEZ		42	26					
		eZ		43	11					
		iZ			15					
		eE		59	15					
	LJ	iPZ		42	31					
	H	eZ		43	14					
Feb 28	P	eZ	14	35	06				normal	
	PX	eN			54					
	P6	iE		46	19					
		eE			48					
		eE		47	18					
	PX	eLN	15	01	51					
	MW	eZ	14	35	13					
		iZ			36					
		eE		46	05					
	R	iZ		35	37					
		iZ			54					
		eE		46	06					
	LJ	iEZ		35	39					
	iE		46	24						
H	eZ		35	33						

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SEISMOLOGICAL LABORATORY

CARNEGIE INSTITUTION OF WASHINGTON
CALIFORNIA INSTITUTE OF TECHNOLOGY

220 NORTH SAN RAFAEL AVENUE

PASADENA, CALIFORNIA

REVISED
 OCTOBER 1, 1933

BULLETIN

The SEISMOLOGICAL LABORATORY, Pasadena, California, is maintained and operated by the Carnegie Institution of Washington and the California Institute of Technology as a cooperative undertaking. This laboratory is the central station of a coordinated group. Auxiliary stations in southern California are maintained and operated as follows: At the Mount Wilson Observatory on Mount Wilson (a Department of the Carnegie Institution of Washington); at Riverside (in cooperation with the City of Riverside); at Santa Barbara (in cooperation with the Santa Barbara Museum of Natural History); at La Jolla (in cooperation with the Scripps Institution of Oceanography of the University of California); at Tinemaha, and at Haiwee, in the Owens Valley (in cooperation with the Department of Water and Power of the City of Los Angeles).

TIME: At all these stations the minute-marks on the seismograms are coordinated directly by means of auxiliary records written at each station on which the minute-marks are registered closely parallel with recorded dot-and-dash radiotelegraphic signals sent in ordinary course from a powerful transmitting station. This permits direct correlation of the minute-marks at all the stations of the group at practically all times with an accuracy of one second, and usually of one-fifth second.

Standard time is determined at Pasadena by comparing the station clock with automatically recorded radio time signals, sent from Annapolis (NSS), three to five times daily.

The constants of these stations follow.

PASADENA SEISMOLOGICAL LABORATORY Central Station

$\Phi = 34^{\circ} 08.9' N.$, $\lambda = 118^{\circ} 10.3' W.$, $h = 295$ m., Deeply weathered granite rock, with inclusions of gneiss and schist.

Apparatus: horizontal-component torsion seismometers with magnetic damping and optical recording. (Cf. Bull. Seis. Soc. Am., XV, 1, 1925).

Instruments, and Constants (approximate);

	T ₀	V	h
N—S	0.8 sec.	2,800	0.8-0.9
E—W	"	"	"
N—S	6 sec.	800	0.8-0.9
E—W	"	"	"

vertical component seismometers with oil damping and galvanometric-optical recording. (Cf. Bull. Seis. Soc. Am., XXII, 156, 1932)

inertia-mass 100 kg. T₀ = 0.5 sec. Damping critical or slightly less;

galvanometers: (1) T₁ = 0.2 sec. Damping critical.

(2) T₁ = 10 to 14 sec. Damping critical.

The constants of the short-period instruments do not undergo any significant changes. The constants of the instruments of longer period will be given from time to time when deviations from the values given are significant.

Experimental seismographs of various kinds are in process of development from time to time, and are used for intervals of variable duration. Information concerning these will be given when necessary.

AUXILIARY STATIONS

Each of the auxiliary stations has equipment as follows:

- Apparatus: two horizontal-component torsion seismometers with magnetic damping and optical recording;
 Instruments and Constants (approximate);

	T ₀	V	h
N — S	0.8 sec.	2,800	0.8-0.9
E — W	“	“	“

one vertical component seismometer with oil damping and galvanometric-optical recording;

inertia-mass 100 kg. T₀=0.5 sec. Damping critical or slightly less;

galvanometer: T₁=0.2 sec. Damping critical.

The Station Constants follow.

Coördinates are geodetic positions referred to the North American Datum.

Mount Wilson Seismologic Station

Φ = 34° 13.5' N., λ = 118° 03.4' W., h = 1742 m., Weathered granite.

Riverside Seismologic Station

Φ = 33° 59.6' N., λ = 117° 22.5' W., h = 250 m. approx., Weathered granite.

Santa Barbara Seismologic Station

Φ = 34° 26.5' N., λ = 119° 42.9' W., h = 100m. approx., Heavy, boulder-laden alluvium.

La Jolla (Scripps Institution Seismologic Station)

Φ = 32° 51.8' N., λ = 117° 15.2' W., h = 7.7 m. approx., Consolidated detrital material.

Tinemaha Seismologic Station

Φ = 37° 05.7' N., λ = 118° 15.5' W., h = 1180 m. approx., Basalt.

Haiwee Seismologic Station

Φ = 36° 08.2' N., λ = 117° 57.9' W., h = 1100 m. approx., Loosely cemented tuff.

SYMBOLS AND NOTATION: in general the symbols and notation conform with the usual international practice. For the phases of deep-focus earthquakes the notation of F. J. Scrase is adopted. c, d are abbreviations for compression and dilatation.

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AMPLITUDES, (half-ranges), are measured in millimeters of the seismographic trace.

SPECIAL SYMBOLS indicating the stations of this coördinated group are as follows:

PASADENA SEISMOLOGICAL LABORATORY

For routine instruments of period 0.8 second P

For routine instruments of period 6 seconds P₆

For instruments of different period analogous notation will be employed.

For routine vertical component, galvanometer period 0.2 second P

For routine vertical component, galvanometer period 10 to 14 seconds PX

Mount Wilson Seismologic Station MW

Riverside Seismologic Station R

Santa Barbara Seismologic Station SB

La Jolla (Scripps Institution Seismologic Station) LJ

Tinemaha Seismologic Station T

Haiwee Seismologic Station H

In general detailed measurements will be given only for the records of the Seismological Laboratory: those for records of the other stations will be given only to supplement the information.

No. 12

PASADENA and auxiliary stations

1934

Date	Station	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Mar 1	P	ePZ	19	54	42				normal	
	P6	eLE	20	26.1						
	MW	ePZ	19	54	44					
	R	ePZ			45					
Mar 1	P	ipNEZ	21	57	54			d	deep	$\Delta = 9800$ km (88°) $O = 21:45:12$
		ipPZ		58	28					
		isPZ			41					
		ippPZ	22	01	14					
	PX	eSKSNE		08	09			Damage at Valdivia and other points in Southern Chile USCGS: 39° S, 73° W $O = 21:45.4$		
		isNE			26					
	P	eP'P'Z		24	52					
		eP'P'P'Z		44	35					
	MW	eZ		45	07					
		ipNEZ	21	57	54					
		isNE	22	08	22					
		eP'P'P'Z	44	35						
	R	ipZ	21	57	52					
		eSKSN	22	08	04					
		ise			21					
		eP'P'P'Z	44	32						
	SB	ipNEZ	21	58	01					
		ise		08	29					
	LJ	ipNEZ	21	57	47					
		eN	22	08	01					
T	ePZ	21	58	06						
	inZ	22	08	47						
H	ipZ	21	58	03						
	ise	22	08	36						
Mar 3	P	ipZ	16	25	50			deep?		
	MW	ePZ			50					
	R	ipZ			50					
	LJ	ipZ			53					
Mar 4	P	ipNEZ	06	07	48			c	normal	
		iz		11	12					
	P6	eLE		34.7						
	MW	ipNEZ		07	50					
	R	ipe			52					
	SB	ipZ			32					
	LJ	ipNEZ			49					
	T	ipNEZ			54					
H	ePZ			54						
Mar 4	P	ePNEZ	11	27	06				Small long waves recorded	
	MW	ipNEZ			09					
	LJ	iz			47					
	T	ipNEZ		26	55					
Mar 5	P	in		31	15					
		ipNEZ	01	25	07					
Mar 5	P	eZ		28	16				Small long waves recorded	
		ipNEZ	11	59	47					
Mar 5	P	ePPZ	12	03	39			normal	$\Delta = 10,600$ km, (96°) $O = 11:46:18$	
		eSKSZ		10	13					
		isNZ		11	10					
		ipSN			41					
		eSSN		17.8						
		eLN		26	40					
		MW	ePNEZ	11	59	47				
	ePPZ	12	03	41						
	R	eSN		11	08					
		eSN		11	13					
		isNE		11	27					
	T	eLN		17.8				Damage on North Island, New Zealand, heaviest reported near $40:5$ S, 176° E		

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Mar 6	P	ePNZ	14	52	39				deep?	
	MW	iPNEZ			41					
	LJ	eZ			56					
	T	iE			26					
	H	ePEZ			31					
Mar 7	P	ePNEZ	22	48	39			c	normal	USCGS: 14° N, 88° W O = 22:41.8
	P6	eLN		58	40					
	MW	iPNEZ		48	40					
	R	eN			34					
	T	iPNEZ			50					
		eZ	23	01	49					
Mar 8	P	iPNZ	14	57	03			c	deep?	
	MW	iZ			05					
	LJ	iZ			16					
	T	iPNEZ		56	49			c		
Mar 9	P	eZ	03	13	51				normal	
		eLN		26.2						
Mar 9	P	ePNEZ	14	11	22					
		iZ			33					
	MW	eZ			23					
	R	iZ			35					
	SB	eZ			23					
	T	iZ			05					
	H	iZ			16					
		eZ			24					
Mar 9	P	eZ	21	37	17					
		iZ			22					
	MW	eZ			24					
	R	iZ			24					
	SB	iZ			17					
	T	iNEZ			29					
	H	iEZ			31					
Mar 10	P	iPZ	05	26	20				deep?	
	MW	iPZ			22					
	T	iPNEZ			05					
Mar 10	P	eZ	15	20	06					
		iZ			17					
	MW	iZ			18					
	R	iZ			17					
	T	iZ			10					
Mar 11	P	iPNEZ	10	52	26			c	deep	
	MW	iPNEZ			27			c		
		iZ			47					
	R	iPNE			29					
	SB	iPEZ			20			c		
	LJ	iPNEZ			31			c		
	T	iPNEZ			22			c		
H	iPEZ			25			c			
Mar 12	P	iPNEZ	15	07	47			d	normal	Damage in Utah. Strong at Salt Lake City USCGS: 41°7 N, 112°6 W O = 15:05.8 Numerous aftershocks recorded, only largest ones being included in this bulletin
		eE		08	24					
		iNZ			27					
	P30	eSN		09	15					
		iSN			42					
	P	iSZ		10	07					
	MW	iPNEZ		07	46					
		iNEZ		10	07					
	R	ePNE		07	45					
		iSNE		10	05					
	SB	iPEZ		07	45					
		iSNEZ		10	25					

Continued

Date	Station	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Mar 12	LJ	iPNEZ	15	07	59	Continued				
		iSEZ		10	37					
	T	iPNEZ		07	13					
		iZ			37					
	H	iSNEZ		08	55					
		iPZ		07	22					
		iEZ			50					
		iSEZ		09	16					
Mar 12	P	iPNEZ	18	22	24			d	normal	Aftershock, Utah
	T	iPZ		21	50					
Mar 13	P	iPNEZ	13	24	35				normal	
		eZ		29	07					
	P6	eE		35	07					
	PX	eZ		36	19					
		eZ		39	30					
		eLN		47	16					
	MW	ePZ		24	34					
		ePNE			37					
	R	eNE		35	12					
	SB	eEZ		24	30					
	LJ	ePNEZ			36					
	T	ePNEZ			38					
		eN		35	20					
	H	ePZ		24	41					
Mar 15	P	eZ	10	59	59				normal	Strong on North Island, New Zealand
		eZ	11	03	20					
	PX	iN		11	18					
		eLZ		33						
	MW	eZ		00	00					
		eE		10	36					
	R	eE		11	21					
	LJ	eZ	10	59	39					
T	iZ	11	00	09						
Mar 15	P	iPNEZ	12	04	00				normal	Aftershock, Utah
	T	ePZ		03	25					
Mar 15	P	iPZ	13	48	59				normal	Aftershock, Utah
	T	ePZ			24					
Mar 15	P	iPNEZ	13	58	10				normal	Aftershock, Utah
	T	ePZ		57	34					
Mar 16	P	iPNEZ	14	27	04				deep	
		iZ			37					
	MW	iPZ			07					
	T	ePZ			05					
Mar 16	P	ePZ	17	07	38				normal	
	PX	eLN		18.1						
	MW	eZ		07	41					
	R	iPZ			44					
	LJ	eNEZ			49					
Mar 18	P	iPNEZ	04	43	31			d	deep	Δ probably about 7000 km (63°) h = 0.02 approx O = 04:33:10 USCGS: 49° N, 156° E approx O = 04:33.0
		iZ			57					
	PX	eZ		45	07					
		iSN		51	53					
		eN		52	35					
	P	iN		53	15					
		eP'P'Z	05	12	34					
	MW	iPZ	04	43	31					
	R	iPEZ			34			d		
	Continued									

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Mar 18	SB	iPNEZ	04	43	24	Continued				
		iNEZ		44	50			d		
	LJ	iPNEZ		43	50			d		
		iPNEZ			18			d		
	H	iSNE		51	29					
		iPZ		43	20			d		
		iZ		44	28					
Mar 19	P	iPZ	04	47	59			c	deep?	
	MW	ePNE			58					
	LJ	iPNEZ		48	09			c		
	T	iPNEZ		47	43					
	H	iZ		50	20					
		iPZ		47	49					
		iZ		48	27					
Mar 20	T	iZ	00	26	00					
Mar 20	P	ePNEZ	02	51	49				normal	
		iZ		52	02					
	P6	eLE	03	22	42					
	MW	eNE	02	52	07					
	T	eZ		51	52					
Mar 20	P	iPZ	03	31	14					
	T	eZ			24					
Mar 21	P	iPZ	20	25	55					
	R	iPZ			58					
	T	iPZ		26	03					
	H	iPZ			04					
Mar 22	P	iPZ	14	14	39					
	R	iPZ			39					
Mar 22	P	ePZ	20	28	17					
		ePZ		27	51					
		eZ		28	59					
Mar 22	P	ePZ	22	53	35				normal	
		eLN	23	03	33					
	R	ePZ	22	53	38					
	T	ePZ		54	00					
Mar 23	P	eZ	08	05	42					
	R	eZ			56					
Mar 24	P	iPNEZ	12	17	20			c	normal	$\Delta = 9830$ km. (88°5) $O = 12:14:23$ USCGS: 10° S, 161° E $O = 12:04:30$
		iKSNEZ		27	51					
	iSNEZ		28	07						
	iPSEZ		29	08						
	eSSN		33	53						
	iLN		40	49						
	MW	iPNEZ		17	22					
	R	iPNEZ			23					
	SB	iPNEZ			14					
	LJ	ePZ			21					
	T	iPNEZ			24					
	H	iPNE			24					
	Mar 24	P	iNEZ	13	13	25				
R		iZ			27					
LJ		eZ			28					
T		iZ			28					

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Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Mar 24	P	iPNEZ	23	04	04			d	deep	
	MW	iPNE			05					
	R	iPZ			01			d		
	SB	iPZ			10			d		
	LJ	ePNEZ	03	56				d		
	T	iPNEZ	04	16				d		
	H	iZ	05	25						
Mar 24	P	eZ	23	41	33					
	R	eZ		40	47					
	T	iZ		39	20					
		iZ		40	47					
Mar 25	P	eZ	00	01	52					
	R	iZ		02	06					
	T	eZ		01	30					
		iZ		02	02					
Mar 27	P	iPZ	03	36	54			d		
	MW	ePZ			55					
	R	iPZ			56			d		
	H	ePZ		37	05					
Mar 30	P	eZ	04	13	08					
		iZ			18					
	MW	eN		12	59					
		eN		13	16					
	LJ	iZ			25					
Mar 31	P	eZ			01					
		iPZ	03	24	44					
		iZ			58					
	MW	ePZ			45					
	H	eZ			53					

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The Carnegie Institution of Washington, Seismological Research, Pasadena, California, acknowledges with thanks receipt of the following bulletins during March, 1934:

Adelaide		January, 1934
Capetown		January, 1934, No. 34-35
Chiufeng		January, 1934, No. 1-4
Georgetown		February, 1934, No. 206
"	Seismo. Despatch	February, 1934
Kew		February, 1934, No. 1-4
Kôti		January and February, 1934, No. 1-4
Manila		December, 1933, No. 42-44
Melbourne		October, November and December, 1933, No. 24
Montecassino		December, 1933, XII
"	Meteorological	Year of 1933
Nagasaki		October-December, 1932, No. 10-12
"		January-September, 1933, No. 1-19
Nanking		October-December, 1933, Vol. 2, No. 2
Quito		November-December, 1933
Strasbourg, Bureau Central		1931-1933
Sydney		January, 1934, No. 1-2
Taihoku		November-December, 1933, No. 20-23
"		January, 1934, Preliminary
"		February, 1934, Preliminary
"		January, 1934, No. 1-3
Tananarive		April, May and June, 1933
Trieste		1931-1932
Uccle		September-December, 1933, No. 5
USCGS		April, May and June, 1933

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks	
			h	m	s						
Apr 2	P	iPNEZ	23	20	39					Aftershock, Utah	
Apr 3	P	ePNEZ	17	42	53				normal		
	R	eL		53.4							
Apr 3	P	eZ		42	48						
	R	iPNEZ	22	44	28				deep?		
	SB	ePZ			30						
Apr 4	P	eZ			42						
Apr 4	P	iPZ	12	47	58					Time uncertain	
Apr 6	P	iPNEZ	19	21	24			d	deep?		
		iZ			46						
	MW	eNE			25						
	R	iPNEZ			28						
		iZ			51						
		eZ		24	59						
	SB	iPNEZ		21	20						
	LJ	iZ			42						
Apr 7	P	iPNEZ	02	16	31						
	H	eL		19	49				normal	Reported felt in Salt Lake City, Utah	
Apr 8	P	iPNEZ	02	25	53						
	MW	iPZ			55			c	deep?		
	H	iPZ			58						
Apr 9	P	iPNEZ	15	40	56				c	normal	Small surface waves recorded
	MW	iPNEZ			53						
	R	iPNEZ			49						
	LJ	ePZ			44						
	H	iPN		41	04						
Apr 10	P	eZ	05	46	03						
	LJ	eZ			04						
	H	eZ			48						
Apr 10	P	iZ	10	41	57						
	MW	iZ			57				normal?		
	H	eEZ			58						
Apr 10	P	eZ	23	13	06						
	MW	iZ			07						
Apr 11	P	iPNEZ	21	24	31				c	deep!	
		epP		25	06						
		isP			33						
		iPP		27	54						
		is?		34	56						
		isS		36	15						
	MW	iPNEZ		24	33				c		
		iZ		27	59						
	R	iPNEZ		24	34				c		
		isZ		28	00						
Apr 12	P	iPNEZ		24	24				c		
	LJ	iPNEZ			33				c		
	H	iPEZ		24	38				c		
	P	eZ	23	29	12						
	MW	eZ			13						
Apr 13	H	eE			20						
	P	iZ	13	59	46						
	R	eZ			48						
	SB	iZ			44						
Apr 13	H	iEZ			53						
	P	iZ	22	16	56				c		

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PASADENA and auxiliary stations

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Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Apr 14	P	iPNEZ	21	28	38				Utah, felt in Salt Lake City	
	H	iPEZ			13					
Apr 15	P	iZ	08	47	50					
	MW	iZ			51					
	R	iZ			53					
	H	iEZ			42					
Apr 15	P	ePNEZ	10	45	21			c		
		iZ			40					
	MW	iPZ			23					
	R	iPZ			25					
	LJ	iPZ			08					
	H	iPEZ			36					
Apr 15	P	ePZ	22	29	35			normal	$\Delta = 10,800$ km (106°) USCGS: 08° N, 127° E O = 22:15.5	
		eP'Z			32 52					
		iPPZ			33 47					
		eSKSE			40 09					
		eS?E			31					
	MW	eLN			58.9					
		ePZ			29 28					
		ePPZ			33 45					
	R	ePZ			29 32					
		iPPZ			33 47					
	H	eE			29 30					
		iPPE			33 48					
	Apr 18	P	iZ	20	39	16				
R		iZ			19					
Apr 19	P	iNEZ	15	45	24					
	R	iZ			17					
	T	iZ			24					
Apr 19	P	iPNEZ	16	25	12			d deep		
		iZ			26 46					
		iSNZ			34 55					
		eZ			54 18					
	MW	iPNEZ			25 12					
		eSNEZ			34 56					
	R	iPZ			25 15			d		
		iPNEZ			07			d		
	LJ	iPNEZ			20			d		
	T	iPNEZ			05			d		
	H	eSZ			34 40					
iPNEZ				25 08			d			
		eSN			34 45					
Apr 21	P	iZ	06	43	29					
	T	eZ			40					
Apr 21	T	iNEZ	08	28	45		c			
Apr 22	P	iPNEZ	10	39	23			c deep		
		iZ			44 33					
	MW	iPNEZ			39 24					
		ePE			27					
	LJ	iPNEZ			35					
		iZ			44 40					
	T	iPNEZ			39 08					
		iZ			44 27					
	H	iPNEZ			39 16					
		iZ			44 31					
Apr 24	P	iPZ	04	13	14			c		
	MW	iPZ			15					
	T	iPZ			12 53			c		
	H	iPNEZ			58					

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks	
			h	m	s						
Apr 24	P	ePNEZ	17	47	43				normal	Small surface waves recorded	
		iZ			47						
	MW	iZ			46						
	R	eEZ			44						
	T	eZ			54						
	H	eNEZ			54						
Apr 25	P	iPNEZ	05	15	00			d	deep?		
		iSNEZ		24	37						
	MW	iPNEZ		15	02						
		eSNE		24	39						
	R	iPNEZ		15	04						
	T	iPNEZ		14	58						
		H	iPEZ		15	01					
		iSN		24	36						
Apr 26	P	iPNEZ	05	44	41						
		iN		50	14						
	MW	iPNEZ		44	40						
	R	iPEZ			42						
	T	iPNEZ			48						
	H	iPNEZ			48						
Apr 26	P	eZ	08	09	37						
		eZ		12	30						
	MW	iZ		09	42						
	R	iZ			41						
	T	eZ			49						
	H	iEZ			50						
Apr 26	P	iPNEZ	21	13	03			c	normal	$\Delta = 10,000 (90^\circ)$	
		iPPZ		16	34						
	P6	iE		23	33						
	MW	iPNEZ		13	06						
		iPPZ		16	36						
	R	iPNEZ		13	04						
		iPPZ		16	40						
	LJ	iPEZ		13	10						
		iPPE		16	32						
	T	iPNEZ		13	09						
	H	iPNEZ		13	09						
Apr 27	P	eNEZ	20	59	55				normal	Possibly two shocks	
		iZ	21	05	41						
		eL			34.7						
	R	eEZ	20	59	50						
		iEZ	21	05	56						
		eE		10	16						
		eE		14	56						
	LJ	eZ	20	59	50						
		eZ	21	05	42						
	T	eZ	20	59	55						
		eEZ	21	05	59						
		H	eEZ	20	59	53					
			iNEZ	21	05	59					
Apr 28	P	ePZ	09	53	13					Utah	
	H	iPNEZ		52	51						
Apr 28	P	iPNEZ	15	21	02			c			
	R	iPEZ			05						
	H	iPNEZ			00						

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PASADENA and auxiliary stations

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Date	Sta- tion	Phase	G. C. T. h m s	T sec	A mm	c d	Focal depth	Remarks
Apr 28	P	iZ	21 23 27					
Apr 30	P	eNEZ	08 32 42				normal	
		eLN	46.3					
	R	ePZ	32 44					
	T	iPZ	33 14					
Apr 30	P	iZ	10 11 07					
	R	iZ						
	LJ	iEZ						
	T	iZ	10 55					

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Pasadena, California

June 14, 1934

Enclosed are sheets Nos. 13 to 19 inclusive, containing readings at Pasadena and auxiliary stations for the earthquakes of April 24 to May 31, 1933, inclusive. The next sending will contain readings for the month of June, 1933, which will complete the Bulletin for 1933.

Readings for May, 1934, will be issued in the near future.

The Carnegie Institution of Washington, Seismological Laboratory, Pasadena, California, acknowledges with thanks receipt of the following bulletins during the month of April, 1934:

Adelaide	February, 1934
Apia	January-March, 1934, No. 1
Capetown	February, 1934, No. 36-37
Chiufeng	February, 1934, No. 5-8
Denver	June-September, 1933, No. 4
Florissant	November-December, 1933, No. 30-33
Florissant	January, 1934, No. 1-3
Georgetown	March, 1934, No. 207
Georgetown, Seismo. Despatch	March, 1934
Hamburg	October-December, 1933, No. 19-22
Hamburg	Jan, 1 - Mar. 13, 1934, No. 105
Hongkong	January, 1934, No. 1-4
J. S. A.	January 30, 1934, No. 4a
Kew	March, 1934, No. 1-3
La Paz	March, 1934
Manila	January, 1934, No. 1-4
Manila	January-June, 1933
Osaka	October-December, 1932, No. 47-63
Osaka	Dec. 4, 1933 - Feb. 28, 1934, No. 142-145
Parc Saint-Maur	January-February, 1934, No. 1-2, 1-3
Perth	December 12-31, 1933, No. 12
Perth	January-February, 1934, No. 1-5
Riverview	January-February, 1934, No. 1-2
Strasbourg, Union Geodesique	January-February, 1934, No. 110-125
Strasbourg, Bureau Central	January-February, 1934, No. 1-8
Strasbourg, Inst. Phys. du Globe	January-February, 1934,
Tananarive	July-September, 1933
Tokyo	1924-1930
Tokyo	July 1-September 30, 1933, No. 3
Toronto	March, 1934
Wellington	January-June, 1932, No. E32-33
Zi-ka-wei	January 3-February 2, 1934, No. 1
Zi-ka-wei	February 2-14, 1934, No. 2

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
May 1	P	eZ	07	25	36				deep	Phases about 07:23:53 are probably P'
		iNEZ			53			d		
		iNEZ		27	00					
	MW	iZ			15					
		iZ		23	41			d		
		iNEZ			55					
		iNEZ		27	01					
	R	eZ		23	39					
		iNEZ			53					
	SB	iNEZ		27	00					
		iZ		23	52					
	LJ	iNEZ			56					
		iNEZ		27	05					
	T	iNEZ		23	50					
iZ			25	22						
H	iNEZ		26	53						
	iEZ		23	52						
	iEZ		26	57						
May 2	P	iPZ	04	09	56					
	R	iPZ			59					
May 2	P	iPZ	09	50	51			d	normal	
	P30	eLN			58.7					
	MW	ePNEZ		50	55					
	R	iPNEZ			44					
	T	ePNEZ		51	12					
	H	iZ			23					
May 3	P	iPNEZ	01	43	32				normal	
	PX	eN		54	11					
		eL	02	10						
	MW	iPNEZ	01	43	34					
	R	iPNEZ			55					
	H	ePNEZ			26					
May 4	P	iPNEZ	00	42	01				normal	
	P30	eLN		44	25					
	MW	ePNEZ		42	02					
	R	iPNEZ		41	57					
	T	iPNEZ		42	34					
	H	iPNEZ			20					
May 4	P	eZ	04	42	43			c	normal	Strong at Anchorage and Seward, Alaska
		iPNEZ			44			d		
		iNEZ		43	00					
	P30	iSNEZ		48	05					
		iLN			50.7					
	MW	iMN			52.5					
		iPNEZ		42	45					
	R	iSNEZ		48	04					
		iPNEZ		42	48			d		
	LJ	iPNEZ		42	55					
		iSNE		48	26					
	T	iPNEZ		42	22			d		
		iSNEZ		47	26					
	H	iPNEZ		42	29			d		
iSNE			47	41						
May 4	P	iPNEZ	11	14	10			d	normal?	No long waves recorded Aftershock, Alaska
		iZ			28					
	MW	iPNEZ			11					
		iPNEZ			13			d		
	LJ	iPNEZ			20					
		iPNEZ		13	47			d		
	T	eSNE		18	50					
		iPNEZ		13	55					

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
May 5	P	ePNEZ	01	24	39				normal	
	PX	eLNEZ		31	18					
	MW	iPNEZ		24	42					
	R	iPNEZ			36					
	T	eZ		25	05					
	H	iPNEZ		24	54					
May 5	P	iPNEZ	04	09	08					
	MW	ePZ			09					
	R	iPNE			12					
	T	iPZ		08	31					
	H	ePZ			45					
May 5	P	iZ	04	42	24					
	MW	eZ			22					
May 5	P	iPNEZ	12	30	02			c	normal?	No surface waves recorded Probably Alaska
		iZ			15					
		iZ			19					
	MW	iPZ			04					
	R	iPNEZ			04					
	LJ	iZ			17					
		iZ			35					
	T	iPNEZ		29	40					
		iZ			58					
	H	iPNEZ			47					
May 5	P	ePNEZ	14	45	06				normal	
		iZ			11					
		eZ			48	36				
	PX	eLN			55.5					
	MW	iPNEZ			45	10				
	R	iPNEZ				09				
		eZ			49	05				
	LJ	iPZ			45	10				
	T	iPNEZ				18				
		H	iPNEZ			15				
	May 6	P	ePNEZ	08	11	59				c
P30		iSN			13	48				
		iLN			15	21				
MW		ePZ			11	58				
R		iPNEZ				56				
T		iPNEZ				25				
		INEZ				45				
		iSNEZ			13	04				
		H	iPNEZ			11	34			
		iSNEZ			13	25				
May 7	P	iPNEZ	22	40	18			d	deep?	
	MW	iPNEZ			19			d		
		iZ			46					
	R	iPZ			19			d		
		iZ			45	57				
	T	iPNEZ			40	28		d		
	H	iPNEZ			26					
May 8	P	eZ?	19	26	26					
		INEZ			32			d		
	MW	INEZ			32					
		iZ			54					
	R	ePZ			30					
	T	iPZ			35					
		iZ			41					

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
May 9	P	iPNZ	16	24	11			d		
		iEZ			22					
	MW	iPNEZ			11					
	R	iPZ			13					
May 10	T	iZ			05					
	P	iZ	20	46	09			c		
	MW	iZ			03					
May 11		iZ			11					
	P	iPNEZ	17	24	24			c	deep	
		eZ			27 02					
	MW	iPNEZ			24 25					
	R	iPZ			21					
	SB	iPZ			32					
	LJ	iPZ			16					
May 11	T	iPNE			38					
	H	iPNEZ			32			c		
May 11	P	eZ	18	34	57					
	MW	iZ			59					
	R	eZ			35 00					
May 13	P	iPNEZ	09	15	09			d	normal	USCGS: 5° S, 154° E approx. O = 09:01.9
	PX	eZ			25 54					
		iZ			27 09					
	P6	eLE			44.1					
	MW	ePNEZ			15 11					
	R	iPZ			12					
	LJ	ePEZ			16					
May 13	T	iZ			10					
	P	ePZ	19	42	07					
	MW	ePZ			07					
	R	eZ			14					
May 13	T	iPNZ			41 33					
	P	iPZ	23	19	39			c		
May 13	R	iPZ			42			c		
	T	iPZ			31					
	H	iPZ			36					
	P	ePNEZ	13	16	04				normal	Surface waves recorded Felt at Yuma, Arizona From these data epicenter about 31° N, 114°5 W O = 13:14.9
	iPZ			27						
	eSNEZ			17 10						
	iSNEZ			17						
MW	iPZ			16 05						
R	iPZ			15 56						
	iSNE			17 06						
SB	iSE			18 06						
LJ	iPNEZ			15 46						
	iEZ			59						
	iSNE			16 42						
T	iPZ			38						
May 14	H	eSN			18 42					
		iPZ			16 28					
		iSNE			18 18					
May 14	P	iPNEZ	15	05	55				deep?	
		iZ			07 41					
	MW	iPNEZ			05 55					
	R	iPNZ			51					
	T	iPNEZ			06 07					
May 14	H	iPNZ			02					
	P	ePZ	20	22	07					
		iZ			21					
	iZ			28						

Continued

Date	Station	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
May 14	MW	iPZ	20	22	07	Continued				
		iNEZ			22					
	R	ePZ			10					
		iZ			25					
		iZ			31					
	SB	eZ			08					
	LJ	iZ			34					
	T	iPZ			01					
		iZ			07					
H	iPZ			08						
		iZ		15						
May 14	P	iPNEZ	22	19	26			d	normal	USCGS: 59° N, 150° W O = 22:13.0
	PX	eSN		24	34					
		iLZ		28	52					
	MW	iPNEZ		19	27			d		
	R	iPNEZ			30					
		iSE		24	52					
	SB	iPZ		19	19			d		
	LJ	iPNEZ			40					
	T	iPNEZ			06			d		
H	iPNEZ			14						
May 15	P	ePNEZ	15	21	08				normal	
	PX	iSN		23	10					
		eLZ			45					
	MW	iPZ		21	08					
		iSNEZ		23	07					
	R	iPZ		21	04					
		iN		23	18					
	LJ	iPEZ		21	02					
		iSEZ		22	25					
	T	ePZ		21	36					
H	iSZ		24	39						
	iPZ		21	31						
		iSNEZ		24	13					
May 15	P	eNEZ	23	36	40				normal	Small surface waves recorded
	MW	iZ			52					
	R	eNEZ			35					
	LJ	eEZ			07					
May 19	P	iPNEZ	10	53	52			c	normal?	Surface waves small. Reflections from the core very sharp Δ = 3360 km. (30°2) O = 10:47:39 USCGS: 16° N, 90° W O = 10:47.8
		iPcPNEZ		56	44					
		iSNE		58	53					
	MW	iPcSNZ	11	00	18					
		iScSNEZ		04	14					
		eZ		25	33					
		iPNEZ	10	53	51			c		
		iPcPNEZ		56	44					
		iPNEZ		53	46					
	R	iPcPNEZ		56	42					
		iSE		58	44					
		iPcSNEZ	11	00	17					
		iScSNE		04	13					
	SB	iPZ	10	54	11					
		iPcPZ		56	57					
	T	iPNEZ		54	07			c		
		iPcPNEZ		56	49					
		iPcSNEZ	11	00	25					
	H	iScSNEZ		04	27					
iPNEZ		10	53	59						
iPcPNEZ			56	48						
ePcSE		11	00	25						
		eScSNE	04	19						

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
May 20	MW	eZ	04	47	52					
	R	eEZ			31					
		eE			47					
	LJ	iZ			05					
May 20	P	iPNEZ	07	13	29			d	deep?	
	MW	iPZ			29			d		
	R	iPZ			31					
	T	iPZ			19					
		iZ			46					
May 20	P	iPNEZ	19	15	34			c	deep?	
	MW	iPZ			34			c		
	R	iPZ			33					
	T	iPNEZ			19					
May 21	P	iPNEZ	10	18	05				normal	
	PX	eLZ			47.1					
	MW	iPZ			18 04					
	R	iPZ			03					
	T	iPNEZ			17 47					
May 22	P	ePNEZ	11	14	34				normal	Surface waves very small USCGS: 0° N, 30° W 0 = 11:01.7
	MW	iZ			41					
	R	eZ			32					
		iZ			38					
	LJ	iZ			39					
	T	eZ			33					
		iZ			42					
May 23	P	iPZ	09	11	48			c		
	MW	iPZ			49					
	R	iPZ			45					
		iZ			12 08					
	T	iPZ			01					
May 23	P	iPZ	13	31	22					
	MW	iPZ			24					
	R	ePZ			24					
	T	iPZ			32					
May 23	P	iPNEZ	23	27	52			c	deep?	
		iNZ			31 15					
	MW	ePZ			27 50					
		iZ			28 05					
		iZ			31 13					
	R	iZ			27 52					
	T	eZ			31 14					
	iZ			31 07						
May 24	P	iPNEZ	11	55	33			d	deep	
	MW	iPNEZ			33			d		
	R	iPNEZ			28					
	SB	iZ			35					
	LJ	iPEZ			23					
	T	iPNEZ			46			d		
May 26	P	eNEZ	21	03	12					
	MW	eNE			10					
	LJ	iEZ			02 33					
May 26	P	eZ	21	42	57					
	MW	eE			38					
	R	eZ			21					
	LJ	iNE			41 58					
May 27	P	iPNEZ	18	53	43			c		Surface waves very small or absent.
		iZ			46					
	MW	iPNEZ			44					
	R	iPNEZ			36					
	LJ	ePZ			32					
	T	iPNEZ			07			c		

No. 26

PASADENA and auxiliary stations

1934

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
May 28	P	eZ	05	43	33					
		iZ		44	08					
	MW	iZ		43	34					
	R	eZ			36					
	T	iPEZ			22					
		eNEZ			56					
May 28	P	iPZ	23	13	29				normal	See remarks on following shock.
	LJ	iPZ			02					
May 28	P	iPNEZ	23	22	30				normal	This and the preceding shock originating in the region of the Gulf of California, recorded with unusually large surface waves. They were accompanied by a number of smaller shocks from the same origin.
	R	iPZ			18					
	LJ	iPNEZ			05					
May 29	P	iPNEZ	18	55	32					
	MW	iPZ			35					
	R	iPZ			36					
	LJ	eZ			33					
	T	ePNE			44					
May 30	P	iPZ	20	20	40					
	MW	iPZ			41					
	R	iPZ			42					
	T	iPZ			35					
May 30	P	iZ	23	15	51			c		
	MW	iZ			52					
	T	iPZ			42					
May 31	P	iZ	01	26	38					
	T	iZ			05					
		iZ			37					

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The Carnegie Institution of Washington, Seismological Research, Pasadena, California, acknowledges with thanks receipt of the following bulletins during May, 1934:

Adelaide	March, 1934
Batavia	October-December, 1933, No. 43-52
Chiufeng	March, 1934, No. 9-12
Copenhagen	October-December, 1931, No. 20
"	January-September, 1932, No. 21-23
Fordham	January, February, March, 1934
Georgetown	April, 1934, No. 208
Hongkong	February, 1934
Kew	April, 1934
La Paz	August-December, 1933, No. 23-42
"	March 24-April 18, 1934, Preliminary
Lund	1929-1930, Nos. 3 and 4
Manila	February, 1934, No. 5-8
"	March, 1934, No. 9-12
Melbourne	January, February, March, 1934, No. 25
Montecassino	January, 1934, XII
Nagoya	July-December, 1933, Vol. 14, No. 2
Numadu	1933, Vol. III
Santiago	1932, XXIV
Strasbourg	
Geodesique Union	March, 1934, No. 126-133
Bureau Centrale	March, 1934, No. 9-11
Inst. de Physique du Globe	March, 1934
Parc. St. Maur	March, 1934
Tananarive	October-November, 1933
Toledo	April-September, 1933
URSS	July-December, No. 7-12
USCGS	July, August, September, 1933
Wellington	October, 1931-March, 1934, No. 38-67
Zi-ka-Wei	February 14-March 5, 1934, No. 3-4
"	March 5-18, 1934, No. 5

Pasadena, California
June 25, 1934

California Earthquake of June 7, P.S.T. (June 8, G.C.T.), 1934

As issues of our Monthly Bulletin and of our Report on local earthquakes for June, 1934, will probably be somewhat delayed, a preliminary notice of this moderately strong shock is given here.

The times of first motion at our stations are as follows:

Pasadena	20:48:28	June 7, P.S.T.
Mt. Wilson	29	
Riverside	36	
Santa Barbara	14	
La Jolla	47	
Tinemaha	24	
Haiwee	22	

The times at Riverside and La Jolla are less reliable than the others. These data indicate an origin time at 20:47:48, June 7, P.S.T. (04:47:48, June 8, G.C.T.), and an epicenter at about $35^{\circ}48'$ N. $120^{\circ}20'$ W., near the southeastern angle of Monterey County.

These results must be considered as merely tentative. It is understood that this earthquake will be investigated in detail at the University of California at Berkeley.

The seismograms indicate a shock of magnitude 6.0 on the scale used for local earthquakes. (The Long Beach earthquake of March 10, 1933, has been assigned magnitude 6.2). This magnitude is confirmed by reports of damage near the epicenter, and by the large radius of perceptibility (over 250 km).

Strong foreshocks (magnitude 5) occurred on June 5 at 13:49 and on June 7 at 20:31, P.S.T. Aftershocks have been numerous, but thus far not exceptionally so.

SEISMOLOGICAL LABORATORY

CARNEGIE INSTITUTION OF WASHINGTON
CALIFORNIA INSTITUTE OF TECHNOLOGY

220 NORTH SAN RAFAEL AVENUE
PASADENA, CALIFORNIA

REVISED
OCTOBER 1, 1933

BULLETIN

The SEISMOLOGICAL LABORATORY, Pasadena, California, is maintained and operated by the Carnegie Institution of Washington and the California Institute of Technology as a coöperative undertaking. This laboratory is the central station of a coördinated group. Auxiliary stations in southern California are maintained and operated as follows: At the Mount Wilson Observatory on Mount Wilson (a Department of the Carnegie Institution of Washington); at Riverside (in coöperation with the City of Riverside); at Santa Barbara (in coöperation with the Santa Barbara Museum of Natural History); at La Jolla (in coöperation with the Scripps Institution of Oceanography of the University of California); at Tinemaha, and at Haiwee, in the Owens Valley (in coöperation with the Department of Water and Power of the City of Los Angeles).

TIME: At all these stations the minute-marks on the seismograms are coördinated directly by means of auxiliary records written at each station on which the minute-marks are registered closely parallel with recorded dot-and-dash radiotelegraphic signals sent in ordinary course from a powerful transmitting station. This permits direct correlation of the minute-marks at all the stations of the group at practically all times with an accuracy of one second, and usually of one-fifth second.

Standard time is determined at Pasadena by comparing the station clock with automatically recorded radio time signals, sent from Annapolis (NSS), three to five times daily.

The constants of these stations follow.

PASADENA SEISMOLOGICAL LABORATORY Central Station

$\Phi = 34^\circ 08.9' N.$, $\lambda = 118^\circ 10.3' W.$, $h = 295$ m., Deeply weathered granite rock, with inclusions of gneiss and schist.

Apparatus: horizontal-component torsion seismometers with magnetic damping and optical recording. (Cf. Bull. Seis. Soc. Am., XV, 1, 1925).

Instruments, and Constants (approximate);

	T_0	V	h
N — S	0.8 sec.	2,800	0.8-0.9
E — W	"	"	"
N — S	6 sec.	800	0.8-0.9
E — W	"	"	"

vertical component seismometers with oil damping and galvanometric-optical recording. (Cf. Bull. Seis. Soc. Am., XXII, 156, 1932)

inertia-mass 100 kg. $T_0 = 0.5$ sec. Damping critical or slightly less;

galvanometers: (1) $T_1 = 0.2$ sec. Damping critical.

(2) $T_1 = 10$ to 14 sec. Damping critical.

The constants of the short-period instruments do not undergo any significant changes. The constants of the instruments of longer period will be given from time to time when deviations from the values given are significant.

Experimental seismographs of various kinds are in process of development from time to time, and are used for intervals of variable duration. Information concerning these will be given when necessary.

AUXILIARY STATIONS

Each of the auxiliary stations has equipment as follows:

Apparatus: two horizontal-component torsion seismometers with magnetic damping and optical recording;

Instruments and Constants (approximate);

	T ₀	V	h
N — S	0.8 sec.	2,800	0.8-0.9
E — W	“	“	“

one vertical component seismometer with oil damping and galvanometric-optical recording;

inertia-mass 100 kg. T₀ = 0.5 sec. Damping critical or slightly less;

galvanometer: T₁ = 0.2 sec. Damping critical.

The Station Constants follow.

Coördinates are geodetic positions referred to the North American Datum.

Mount Wilson Seismologic Station

Φ = 34° 13.5' N., λ = 118° 03.4' W., h = 1742 m., Weathered granite.

Riverside Seismologic Station

Φ = 33° 59.6' N., λ = 117° 22.5' W., h = 250 m. approx., Weathered granite.

Santa Barbara Seismologic Station

Φ = 34° 26.5' N., λ = 119° 42.9' W., h = 100m. approx., Heavy, boulder-laden alluvium.

La Jolla (Scripps Institution Seismologic Station)

Φ = 32° 51.8' N., λ = 117° 15.2' W., h = 7.7 m. approx., Consolidated detrital material.

Tinemaha Seismologic Station

Φ = 37° 05.7' N., λ = 118° 15.5' W., h = 1180 m. approx., Basalt.

Haiwee Seismologic Station

Φ = 36° 08.2' N., λ = 117° 57.9' W., h = 1100 m. approx., Loosely cemented tuff.

SYMBOLS AND NOTATION: in general the symbols and notation conform with the usual international practice. For the phases of deep-focus earthquakes the notation of F. J. Searse is adopted. c, d are abbreviations for compression and dilatation.

When measurements referring to local earthquakes are included P and S will be used without index or subscript, as no attempt will be made in these bulletins to distinguish between \bar{P} , P*, and P_n, although such complications are often clearly indicated and are the subject of study.

AMPLITUDES, (half-ranges), are measured in millimeters of the seismographic trace.

SPECIAL SYMBOLS indicating the stations of this coördinated group are as follows:

PASADENA SEISMOLOGICAL LABORATORY

- For routine instruments of period 0.8 second P
- For routine instruments of period 6 seconds P₆
- For instruments of different period analogous notation will be employed.
- For routine vertical component, galvanometer period 0.2 second P
- For routine vertical component, galvanometer period 10 to 14 seconds PX

Mount Wilson Seismologic Station MW

Riverside Seismologic Station R

Santa Barbara Seismologic Station SB

La Jolla (Scripps Institution Seismologic Station) LJ

Tinemaha Seismologic Station T

Haiwee Seismologic Station H

In general detailed measurements will be given only for the records of the Seismological Laboratory: those for records of the other stations will be given only to supplement the information.

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
June 2	P	ePNEZ	13	53	06				normal JSA: 65° N, 20° W O = 13:42:46 Iceland	
		iZ		55	30					
		eLNEZ	14	14.5						
	MW	eNE	13	53	11					
	R	eZ			10					
	T	eN		52	53					
		iZ		55	07					
June 2	P	iPNEZ	16	52	02			normal		
	PX	eLZ	17	01.8						
	MW	iPNE	16	52	04					
	R	iPNEZ			05					
	SB	eZ		51	57					
	LJ	iZ		52	16					
	T	ePNEZ		51	42					
June 2	P	iPNEZ	21	06	14			c normal		
		eLZ		24.5						
	R	ePZ		06	18					
	T	ePEZ			00					
June 3	P	iPNEZ	16	28	10					
		iZ		31	31					
	R	iPEZ		28	12					
		iEZ		31	36					
	LJ	ePEZ		28	07					
	T	iPN			16					
		eZ		31	40					
June 5	P	iPNEZ	11	31	19					
	MW	iPZ			20					
	R	iPZ			22					
	T	eZ			30					
June 6	PX	eLNZ	05	00.8				normal		
June 6	P	iPZ	08	29	21					
	MW	iPZ			25					
	R	iPZ			23					
	T	ePZ			30					
June 6	P	eZ	10	23	46					
		iZ		24	27					
	MW	eZ			12					
	R	eZ			13					
	T	eZ			05					
June 7	P	iPNEZ	16	18	40					
	MW	iPZ			40					
	T	ePZ			26					
June 8	P	iPNEZ	04	48	28			normal		
	MW	iPNEZ			29					
	R	iPNEZ			36					
	SB	iPNEZ			14					
	LJ	iPNEZ			47					
	T	iPNEZ			24					
	H	iPNEZ			22					
June 8	P	iZ	18	34	32					
	MW	iZ			33					
	R	iPEZ			34					
	LJ	iPEZ			32					
	T	iPNEZ			42					
	H	iZ			41					

This shock caused damage to structures at and near Parkfield, Monterey County (35°54' N, 120°27' W). Epicenter probably close to Parkfield. Origin time about 04:47:48. Barely perceptible at Los Angeles and Pasadena. Many small aftershocks

Date	Station	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
June 9	P	iPNEZ	09	56	25					
	R	iPZ			22					
	LJ	iPZ			17					
	T	ePZ			36					
		iZ			53					
June 9	P	iPNEZ	13	12	07			c	normal	
	PX	eZ			24.8					
		eLZ			42.8					
	MW	ePNE		12	09					
	R	ePNZ			10					
	SB	ePNEZ			02					
	LJ	iPEZ			10					
	T	ePZ			02					
June 10	P	iZ	19	52	16					
	MW	iZ			17					
	R	eZ			18					
	T	eEZ			25					
June 10	P	iZ	03	19	34					
	MW	eZ			32					
	R	eZ			30					
	T	eNEZ			50					
	H	iEZ			42					
June 11	P	iZ	06	12	57					
	MW	iNEZ			57					
	R	eZ			53					
	H	iZ		13	00					
June 12	P	iPNEZ	09	38	14				normal	
		iZ			41 28					
	PX	eLZ			49					
	MW	iPNEZ		38	13					
	R	iPNE			09					
	LJ	iPNEZ			01					
	T	iPNEZ			31					
		iZ		41	34					
	H	iPEZ		38	22					
June 13	P	iPNEZ	02	01	58			d	normal?	JSA: 45° N, 149°5 E
		iSNEZ		11	04					0 = 01:51:09
	PX	eLZ			23					h = 0.015
	MW	iPNEZ		02	00					Kurile Islands
		iSNEZ		11	04					
	R	iPNZ		02	01			d		USCGS: 44° N, 147° E
		iSNZ		11	10					0 = 01:51:22
	SB	iPNEZ		01	52					h = 0.04
		iSNE		10	50					
	LJ	iPZ		02	08					
		eE		11	19					
	T	iPEZ		01	47					
		iSNE		10	43					
	H	iPNEZ		01	52					
		iSNE		10	50					
June 13	P	iP'NEZ	22	29	10				normal	Destructive in Baluchistan
		iPPZ			30 24					Δ = 13,100 km (118°)
		iPKKPZ			39 29					
	PX	iSKSN			36 04					JSA: 29°5 N, 63°5 E
		iPSZ			40 00					0 = 22:10:35
		eLZ		23	07.6					

Continued

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
June 13	MW	iPZ	22	29	10	Continued				
		iPKKPZ		39	28					
	LJ	iP*Z		29	12					
		iP*NEZ			03					
	T	iPPZ		30	01					
		ePSNE		39	36					
		ePKKPZ			38					
June 14	P	iPNEZ	21	33	36			d	normal?	Very small long waves recorded
	MW	iPZ			34					
	R	iPNEZ			28					
	LJ	eZ			18					
		eZ			35					
	T	iPNEZ			59					
	H	iPZ			49					
June 15	P	ePZ	03	05	31					
	MW	iPZ			33					
June 15	P	iPZ	06	42	51					
		eZ		44	38					
	MW	iPZ		42	50					
		iPZ			48					
	T	iPZ			53					
	H	iPNE		44	12					
			42	39						
June 15	P	ePNEZ	19	50	30					
	R	ePNE			22					
	LJ	ePZ			10					
	T	ePE		51	02					
	H	iPN		50	53					
June 15	P	iPZ	23	17	22					
		iPZ			22					
	R	iPZ			18					
	T	ePNEZ			27					
June 16	P	iPZ	03	51	39					
		iZ		52	05					
	MW	iPZ		51	39					
		iPZ			29					
	T	iPNEZ			51					
		eZ		52	34					
June 16	P	iPZ	05	21	37					
		iPZ			38					
	R	iPZ			35					
	T	ePZ			24					
June 16	P	iPNEZ	19	06	17				normal	
		eLZ		12						
	MW	ePNEZ		06	17					
		iPNEZ			11					
	SB	ePZ			29					
	LJ	ePZ		05	58					
	T	ePNZ		06	47					
	H	iPNE			38					
June 17	P	ePNEZ	14	15	34				normal	
	PX	eLZ		37.1						
	MW	iPZ		15	37					
		ePZ			38					
	LJ	iPZ			36					
	T	iPNEZ			46					
	H	iPN			44					

Date	Station	Phase	G. C. T.			T	A	c	Focal depth	Remarks
			h	m	s	sec	mm	d		
June 17	P	iPZ	18	35	49					
	MW	iPZ			50					
	R	iPZ			52					
	SB	ePZ			47					
	T	iPNZ			57					
	H	iPZ			57					
June 18	P	eZ	02	03	38					
	MW	iZ			41					
June 18	P	iPNEZ	09	20	30			d	normal?	$\Delta = 3670$ km (33°3)
		IPPZ		21	32					O = 09:13:44
		iPcPZ		23	07					
		iZ			28					USCGS: 62° N, 150° W
		eSNE		25	55					O = 09:13.8
		iPcSZ		26	44					
	PX	eLZ		27	21					JSA: 59°2N, 149°5W
		iPNEZ		20	30			d		O = 09:13:59
	MW	iPcSZ		26	44					h = 0.011
		iZ		27	20					Strong at Seward, Alaska
	R	iPZ		20	34			d		
		iPcPZ		23	05					
		iPcSZ		26	45					
	SB	iPNEZ		20	26			d		
		iPcPZ		23	06					
		iPcSZ		26	43					
	LJ	iPNEZ		20	44			d		
		IPPZ		22	07					
		iPcPZ		23	34					
		iPcSZ		26	51					
T	iPNEZ		19	59			d			
	IPPZ		21	05						
	iPcPZ		22	50						
	iPcSZ		26	26						
H	iPNZ		20	17			d			
	iPcPZ		23	02						
June 19	P	ePZ	04	02	20					
		iZ		03	09					
	MW	eZ		02	20					
		iZ		03	06					
	SB	eZ		02	23					
		eZ		03	01					
	T	eNZ		02	17					
		eZ		03	00					
	H	iZ		02	18					
		iZ		03	06					
June 19	P	iPEZ	06	03	03					
		iZ		04	10					
	MW	iPZ		03	03					
		iPNZ			06					
	LJ	iZ			24					
		iZ			16					
	T	eNZ		02	42					
	H	iZ			50					
June 19	P	iPZ	15	58	45					
		iPZ			48					
		iPZ			40					
	T	ePNZ			37					
		eZ		16	00	24				
	H	eN			17	58				
		iZ		15	58	41				

Date	Station	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
June 20	P	ePNEZ	09	34	44					
	MW	iPZ			47					
	R	ePZ			46					
	SB	iPZ			47					
	LJ	ePZ			49					
	T	ePNZ			40					
	H	iPZ			43					
June 20	P	iPZ	18	44	25					
	R	iPZ			28					
	T	iPEZ			27					
June 22	P	ePNEZ	18	08	52					
	R	iPZ			50					
	T	ePNE			54					
	H	iPZ			55					
June 22	P	iPNEZ	18	38	15			normal	USCGS: 19° N, 105° W O = 18:33.8	
	PX	eSN		42	16					
	P30	eLN		43.3						
	SB	iPNEZ		38	27				JSA: 18° N, 105° W O = 18:33:48	
	LJ	iPNEZ		37	59					
	T	ePNEZ		38	42					
	H	iPNEZ			32					
June 22	P	iPNEZ	19	14	48					
	T	iPZ			50					
June 23	P	iPNEZ	04	44	09					
	SB	iPZ			05			d	deep?	
	LJ	iPEZ			07			d		
	T	iPNEZ			18			d		
	H	iPNEZ			16			d		
June 24	P	ePZ	01	47	12					
	PX	eLZ		58	23			normal		
	R	iPZ		47	11					
June 24	P	iPNEZ	06	11	00			d	deep	Surface waves very small
		iZ			30					
		iZ		12	40					
		iZ		14	19					USCGS: 23° S, 68° W O = 06:00.0
		eSNZ		20	27					
	P6	iSE			34					
	PX	iNEZ		21	07					JSA: 22° S, 68° W O = 05:59:39 h = 0.03
		iN			18					
		eLZ		31	40					
		iLZ		35	28					
		eZ		37	30					
	P	eP*P*Z		38	30					
	SB	iPNEZ		11	06				d	
		iNE		21	19					
	LJ	iPNEZ		10	51				d	
		iSE		20	12					
		iNEZ		21	01					
	T	iPNEZ		11	11				d	
		eSNE		20	51					
	H	iPNEZ		11	07				d	
		iSNE		20	47					
	eZ		21	28						
June 24	P	iPZ	10	22	13					
		iZ			14					
	T	ePZ			23					
	H	iPZ			19					

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks	
			h	m	s						
June 24	P	iPZ	14	10	37						
		eZ		13	31						
	T	iPZ		10	34						
		eZ		13	17						
June 26	P	iPZ	20	00	40						
		eZ		02	36						
	R	iZ			39						
		ePZ		00	50						
June 28	P	eZ	01	08	45			normal	Small surface waves recorded		
	MW	eZ			43						
	R	iPZ			55						
June 29	P	iZ	04	55	11						
		iZ		54	45						
	T	iZ		55	14						
		eZ		54	47						
		eNEZ		55	16						
	H	iZ		54	46						
June 29	P	eZ	08	39	09						
	MW	eZ			09						
	R	eZ			20						
June 29	P	iPNEZ	08	42	50				normal?	Very small surface waves recorded	
		iPPZ		44	10						
	PX	iSNE		48	44						
		iZ		53	13						
	R	iPEZ		42	49						
	SB	iPNEZ			47			d			
	LJ	iPNEZ			51						
	T	iPNEZ			49						
H	iPNZ			49			d				
June 29	P	iPNEZ	12	52	24				deep		
		eZ		53	50						
	MW	iPNEZ		52	25						
	R	iPZ			25						
	SB	iPZ			22						
	LJ	iPZ			26						
	T	iPNEZ			24						
	H	iPNZ			25						
June 30	P	iPNEZ	13	21	16				c normal	Small surface waves recorded	
		eZ		24	55						
	MW	iPZ		21	19				c		
	R	iPEZ			10				c		
	SB	ePZ			27						
	LJ	iPNEZ			03						
	T	ePNEZ			35						
	H	iPEZ			28						
June 30	P	iPZ	17	59	24						
	T	eZ			33						
June 30	P	eZ	19	53	07						
	T	eEZ			17						

Harry O. Wood
 Research Associate in Charge
 C. F. Richter
 Assistant

We wish to acknowledge with thanks receipt of the following bulletins during June, 1934:

Adelaide	April, 1934
Chiufeng	April, 1934, No. 13-16
Firenze	October-December, 1933, No. 25-33
Fordham	April-May, 1934
Georgetown	May, 1934, No. 209
Hongkong	March-April, 1934, No. 1-4
Hukuoka	January-December, 1933, No. IV
J. S. A.	February 14-March 12, 1934, No. 5-10
Kew	May, 1934, No. 1-3
Konigsberg	1929-1930
Koti	March 3-April 27, 1934, No. 5-6
Manila	April, 1934, No. 13-17
Montecassino	February-March, 1934, No. XII
Nanking	January-March, 1934, Vol. 2, No. 3
Osaka	January-March, 1933, No. 1-27
Osaka	March 2-May 14, 1934, No. 146-152
Palau	1931-1932
Palau	February-April, 1934, No. 4-8
Phu-Lien	January-November, 1933
Quito	January-February, 1934
Riverview	March-April, 1934, No. 3-4
San Fernando	March-April, 1934, No. 2
Stuttgart	1933
Sydney	February, 1934
Taunus	January-December, 1933, No. 1-6
Taunus	January-March, 1934, No. 1
Tokyo	October-December, 1933, No. 4
Toronto	April-May, 1934
Trieste	Year 1933
Venezia	January-June, 1932, No. 1-6
Wellington	1932-1933, No. 91
Wellington	April, 1934
Zagreb	July-September, 1933, No. 13-22
Zi-ka-wei	March 24-April 24, 1934, No. 6-7

Pasadena, California
June 25, 1934

California Earthquake of June 7, P.S.T. (June 8, G.C.T.), 1934

As issues of our Monthly Bulletin and of our Report on local earthquakes for June, 1934, will probably be somewhat delayed, a preliminary notice of this moderately strong shock is given here.

The times of first motion at our stations are as follows:

Pasadena	20:48:28	June 7, P.S.T.
Mt. Wilson	29	
Riverside	36	
Santa Barbara	14	
La Jolla	47	
Tinemaha	24	
Haiwee	22	

The times at Riverside and La Jolla are less reliable than the others. These data indicate an origin time at 20:47:48, June 7, P.S.T. (04:47:48, June 8, G.C.T.), and an epicenter at about $35^{\circ}48'$ N. $120^{\circ}20'$ W., near the southeastern angle of Monterey County.

These results must be considered as merely tentative. It is understood that this earthquake will be investigated in detail at the University of California at Berkeley.

The seismograms indicate a shock of magnitude 6.0 on the scale used for local earthquakes. (The Long Beach earthquake of March 10, 1933, has been assigned magnitude 6.2). This magnitude is confirmed by reports of damage near the epicenter, and by the large radius of perceptibility (over 250 km).

Strong foreshocks (magnitude 5) occurred on June 5 at 13:49 and on June 7 at 20:31, P.S.T. Aftershocks have been numerous, but thus far not exceptionally so.

Pasadena, California

We wish to acknowledge receipt of the following bulletins during the month of July, 1934:

Adelaide		May, 1934
Chiufeng		May, 1934, No. 17-19
Denver		November-December, 1933, No. 5
"		January-March, 1934, No. 1
Georgetown		June, 1934, No. 210
Göttingen		October, November, December, 1933
Helwan		February-March, 1934
Hukuoka		January-May, 1934, Vol. 1 No. 1
J. S. A.		March 12-July 16, 1934, No. 11-27
Kew		June, 1934
Little Rock		November-December, 1933, No. 7-8
Montecassino		April, 1934
Nagasaki		September 21-December 30, 1933
"		January 1-April 30, 1934
Perth		February 28-April 11, 1934, No. 6-8
Quito		March-April, 1934
Riverview		May, 1934
Strasbourg	Bureau Centrale	May, 1934, No. 17-21
"	Parc St. Maur	May, 1934
"	Union Geodesique	May, 1934, No. 140-148
"	Inst. de Phy. du Globe	May, 1934
Sydney		March-April, 1934
Tyosen		Year 1932
Upsala		1932-1933
Wellington		May, 1934, No. 69
Zi-ka-wei		April 26-May 3, 1934, No. 8-9
Zinsen		January-April, 1934, No. 1-6

Date	Station	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
July 3	P	eZ	03	17	56					
	T	eZ		18	00					
July 6	P	iPNEZ	20	46	52					
	R	iPZ			56			c	deep?	
	T	iPEZ			56			c		
July 6	P	iPNEZ	22	51	07				normal	USCGS: 41°3 N, 125°3 W O = 22:48:51 JSA: 41°5 N, 124°9 W O = 22:48:56
	P30	iLNZ		53	06					
	MW	iPZ		51	06					
	R	iPNEZ			14					
	SB	iPZ		50	52					
	LJ	iPZ		51	36					
	T	iPNEZ		50	41					
H	ePNE			52						
July 6	P	iPZ	23	15	00					
July 8	P	ePZ	14	19	05					
	T	ePEZ		18	55					
	H	ePNEZ		19	00					
July 10	P	eZ	01	09	12				normal	
		eLZ		28	00					
	R	eE		09	08					
July 10	T	iPNEZ			22			d		
	P	eZ	03	12	40					
	MW	iPZ			38					
July 10	SB	iPZ			29					
	T	iPZ			30					
July 12	P	iPZ	10	03	22				d	Very small surface waves recorded
	R	eE			27				d	
	LJ	iPZ			30				d	
	T	iPNEZ			13				d	
	H	iPNEZ			16				d	
July 12	P	ePZ	11	11	44				deep?	
		eZ			59					
	T	iPZ			31					
		iZ			44					
	H	iPZ			36					
July 12		iZ			51					
	T	iPZ	11	38	56					
		iZ		39	10					
	H	ePZ			00					
		iZ			15					
July 12	P	iPNEZ	14	43	34				deep	
		iNEZ		46	55					
	LJ	iPZ		43	36					
	T	iPZ			34					
	H	iPZ			34					
July 12	P	iPNEZ	14	58	37					
	LJ	iPZ			36					
	T	iPZ			46					
	H	iPNEZ			44					
July 13	P	iPZ	10	10	28					
	T	iPZ			50					
	H	iPZ			42					
July 13	P	ePZ	10	24	13					
	T	ePZ			32					
	H	ePZ			26					
July 13	T	eZ	11	37	33					Local?
July 16	P	ePNEZ	08	24	27				c	JSA: 16°9 N, 100°1 W O = 08:19:00
	P30	eSNZ		28	57					
		eLN		31	05					
	R	ePN		24	21					
		eSN		28	46					

Continued

Date	Station	Phase	G. C. T. h m s	T sec	A mm	c d	Focal depth	Remarks
July 16	LJ	iPEZ	08 24 12	Continued				
		eSE	28 36					
	T	iPNEZ	24 44					
	H	ePZ	37					
July 17	R	eZ	18 00 55					
	T	eZ	31					
July 18	P	iPNEZ	01 44 16			c	normal	Damage in Panama
		iSNEZ	50 42					$\Delta = 4900$ km (44°)
	P30	eLN	54.2					O = 01:36:07
	MW	iPNEZ	44 16					JSA: $8^\circ 2$ N, $82^\circ 5$ W
	R	iPNEZ	11					O = 01:36:29
	SB	iSNE	50 24					USCGS: $7^\circ 8$ N, $82^\circ 5$ W
		ePZ	44 29					O = 01:36:09
		iSN	50 59					
	LJ	ePEZ	44 06					
		eSE	50 32					
	T	iPZ	44 30					
July 18	H	iSNEZ	51 11					
		ePNEZ	44 24					
		eSN	50 49					
	P	iPNEZ	04 08 28				normal	Aftershock
July 18		eSNE	14 46					
	MW	iPZ	08 28					Surface waves recorded
	R	iPNEZ	23					
	SB	iPEZ	44					
	LJ	ePEZ	17					
	T	iPNEZ	44					
	H	ePZ	35					
July 18	P	iPNEZ	04 15 03				normal?	Aftershock
	MW	iNEZ	14 59					
	R	iPNEZ	58					
	LJ	iPZ	52					
	T	iPZ	15 17					
	H	iPNEZ	11					
July 18	P	iPNEZ	04 21 46				normal	Aftershock
	MW	iPNEZ	45					
	R	iPNEZ	41					Surface waves recorded
	SB	iPZ	58					
	LJ	iPZ	34					
	T	ePZ	59					
	H	iPNEZ	55					
July 18	P	iPNEZ	04 54 50					
	R	iPEZ	53					
	T	ePNEZ	55 00					
	H	iPNEZ	54 58					
July 18	P	ePNEZ	06 43 24					
	MW	iPZ	28					
	R	ePNEZ	21					
	T	ePNEZ	38					
	H	ePNE	34					
July 18	P	ePNEZ	16 17 44					
	MW	iPZ	46					
	R	ePNEZ	41					
	T	ePNEZ	56					
	H	ePNE	54					
July 18	P	iPNEZ	17 07 36			c	normal	Aftershock, Panama
	PX	iSN	13 52					JSA: $8^\circ 2$ N, $82^\circ 2$ W
	P30	iSN	14 21					O = 16:59:49
		iLN	18 45					
	MW	iPNEZ	07 36					
					Continued			

Date	Station	Phase	G. C. T. h m s	T A sec mm	c d	Focal depth	Remarks
July 18	R	iPNEZ	17 07 31	Continued			USCGS: 7°8 N, 82°5 W O = 17:00.1
	SB	iPZ	46				
	LJ	ePEZ	25				
	T	iPNEZ	50				
	H	ePNEZ	43				
July 18	P	ePNEZ	18 03 07				Aftershock, Panama
	MW	ePZ	08				
	R	iPZ	02				
	LJ	eZ	04				
	T	iPZ	22				
	H	ePZ	21				
July 18	PX	iPZ	19 52 54		c d	normal	JSA: 16°8 S, 167° E O = 19:40:05 USCGS: 14° S, 167° E O = 19:40.0
	P	iPZ	57				
	P30	iPSN	20 04 35				
		eLN	15?				
	MW	iPNEZ	19 52 58				
	R	ePEZ	57				
		iPSEZ	20 05 07				
	SB	ePZ	19 52 49				
		ePEZ	59				
	LJ	ePSE	20 03 23				
		iPZ	19 53 02				
	T	ePEZ	01				
ePSN		20 04 05					
July 18	P	ePZ	21 42 13				
	R	ePZ	18				
	T	ePNE	21				
July 19	P	iPNEZ	00 19 24			normal	Surface waves recorded
	MW	iPNEZ	28				
	R	iPEZ	31				
	SB	eZ	22				
	LJ	eZ	30				
	T	ePZ	29				
	H	ePNZ	25				
July 19	P	ePNEZ	01 41 41			normal	Surface waves recorded
	MW	iPZ	42				
	R	iPZ	41				
	T	ePZ	53				
		eZ	59				
July 19	P	iPNEZ	02 28 54			normal	Surface waves recorded
	MW	iPZ	54				
	R	iPZ	50				
	SB	eZ	29 10				
	LJ	eZ	28 44				
	T	iPNEZ	29 07				
	H	ePNEZ	01				
July 19	P	iPNEZ	03 33 27		c		
	MW	iPZ	27				
	R	ePZ	22				
	SB	iPZ	38				
	T	ePZ	40				
July 19	PX	eLZ	05 37				
July 19	P	ePZ	05 57 57			normal	Surface waves recorded
	T	ePZ	58 05				
July 19	P	iPNEZ	07 49 38			normal	Surface waves recorded
	MW	iPZ	39				
	R	iPZ	40				
	T	ePZ	43				
	H	ePZ	43				
July 19	P	iPZ	08 25 09				
	R	iPZ	03				
	T	iPEZ	21				
	H	ePZ	15				

Date	Station	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
July 19	P	iPNEZ	20	02	29					
	MW	iPZ			31					
	T	iPNEZ			42					
	H	ePN			37					
July 20	P	iPNEZ	02	18	45			normal		
		eLZ		34						
	MW	iPZ		18	46					
	R	iPNEZ			50					
	LJ	iPZ			56					
	T	iPNEZ			28					
	H	ePNEZ			37					
July 20	P	iPNEZ	17	01	01					
	MW	iPZ			01					
	R	ePZ			04					
July 20	P	iPZ	18	18	42			normal	Surface waves recorded	
	MW	iPZ			43					
	R	ePZ			46					
	T	ePZ			48					
July 20	P	iPZ	19	01	19			normal	Surface waves recorded	
	MW	iPZ			22					
	R	ePZ			22					
	T	ePZ			24					
	H	eE			31					
July 21	P	iPNEZ	06	30	57			c	normal	JSA: 18°2 S, 164° E O = 06:17:59
		iZ		39	16					
	P30	iN		42	11					
		eLN		54	44					USCGS: 20° S, 167° E O = 06:17.9
	MW	iPNEZ		30	57					
		iZ		39	17					
	R	iPZ		30	59					
		iZ		39	17					
	SB	iPZ		30	50					
	LJ	ePZ			58					
	T	iPZ		31	01					
H	iZ		39	20						
	ePZ		31	02						
July 21	P	iPNEZ	07	35	12					
	MW	iPNEZ			16					
	R	iPEZ			19					
	SB	iPZ			11					
	T	ePZ			15					
	H	ePEZ			19					
July 21	P	ePZ	08	15	23					
	T	ePZ			29					
July 21	P	iPZ	09	15	54					
	MW	iPZ			55					
	R	iPZ			57					
	T	iPZ			59					
	H	ePE		16	01					
July 21	P	iPNEZ	10	46	59			c	normal	Surface waves large
	MW	iPNEZ		47	00					
	R	ePNEZ		46	54					JSA: 8°2 N, 82°5 W O = 10:39:13
	SB	iPZ		47	10					
	LJ	ePZ		46	47					
	T	iPNEZ		47	13					USCGS: 7°8 N, 82°5 W O = 10:38.7
		iSN		53	44					
	H	iPNEZ		47	07					
		iSN		53	34					
July 21	P	iPNEZ	10	56	03					
	MW	iPZ			03					
	R	ePZ		55	58					
	T	iPZ		56	18					

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
July 21	P	iPNEZ	13	27	10					
	MW	iPZ			12					
	R	iPZ			04					
	LJ	ePEZ			04					
	T	ePZ			22					
	H	ePNE			20					
July 21	P	iPNEZ	20	23	59				normal	
	PX	eLZ	21	08.8						
	R	iPZ	20	24	02					
	T	iPZ			03					
July 21	P	iPZ	21	04	42					
	R	iPZ			46					
	T	iPZ			47					
July 22	P	iPNEZ	03	10	30				normal	
		eZ		13	53					
	P6	eE		20	54					
	PX	eLZ		36.8						
	MW	iPNEZ		10	33					
	R	iPEZ			33					
		eE		21	00					
	SB	eZ		10	31					
	LJ	eZ			32					
	T	iPZ			35					
	H	eNE		21	05					
	ePZ		10	37						
July 22	P	ePZ	08	31	58					
	T	ePZ		32	11					
July 22	P	iPNEZ	14	20	42					
		iZ			55					
	MW	iPZ			55					
	T	iPZ			27					
		iZ			40					
	H	eE			34					
July 22	P	eZ	20	14	53				normal	Small surface waves recorded
	PX	eZ		16	27					
	T	eNE		15	17					
July 23	P	iPZ	14	09	31					
	T	iPNEZ			38					
July 23	P	iPZ	18	33	46				normal	Small surface waves recorded
	R	iPZ			39					
July 24	P	ePZ	14	50	34					
July 25	P	iPZ	18	06	59					
	R	ePZ		07	00					
	T	iPZ			04					
July 26	P	iPNEZ	01	37	27			d	deep?	
	MW	iPZ			23					
	R	iPZ			30					
	T	iPNEZ			37					
	H	iPNEZ			37					
July 26	P	ePZ	09	10	33					
		iPZ			35					
July 26	P	iPZ	16	10	57					
	T	ePZ		11	14					
July 27	P	iPNEZ	02	32	03			c	deep	Small surface waves recorded. Depth probably greater than normal. Reflections from core very sharp
		iZ		34	56					
		iZ		35	20					
		iZ		38	32					
		iScSNE		42	29					
	MW	iPNEZ		32	03					

Continued

No. 38

PASADENA and auxiliary stations

1934

Date	Station	Phase	G. C. T. h m s	T sec	A mm	c d	Focal depth	Remarks
July 27	T	iPNEZ	02 32 20	Continued				
		iZ	35 01			c		
		eZ	26					
		iZ	38 38					
		iScSNE	42 40					
	H	iPNEZ	32 15					
		iZ	35 03					
July 27	P	ePZ	12 38 19				normal	
	PX	eLZ	13 16.2					
July 28	P	iPZ	17 37 31			d		
	MW	iPZ	32					
	R	iPZ	28					
	T	iPNEZ	44			d		
	H	iPNEZ	40					
July 28	P	iPNEZ	21 43 45			d	normal	Kodiak Island, Alaska Δ = 3820 km (3494) O = 21:36:56
	P30	iLN	49 13					
	MW	iPNEZ	53 22					
	R	iPNEZ	43 46					
	SB	iPN	50					USCGS: 56° N, 157° W
	T	iPNEZ	49					O = 21:37.0
	H	iPZ	27					JSA: 55°1 N, 154°8 W
			32					O = 21:37:12
July 30	T	iPZ	03 44 09				normal	Surface waves recorded at Pasadena
July 31	P	iPZ	05 46 17					
	T	iPEZ	27					
July 31	P	iPZ	11 17 56					
	MW	iPZ	59					
	R	iPZ	18 01					
	LJ	ePZ	03					
	T	iPZ	17 55					
	H	iPZ	56					
July 31	P	iPNEZ	12 08 30				deep?	
		iZ	47					
		iZ	11 47					
	R	iPZ	08 32					
		iZ	47					
		iZ	11 50					
	LJ	ePZ	08 25					
	T	iPZ	27					
	H	iPZ	29					
July 31	P	iPZ	15 32 12					
	MW	iPZ	12					
	LJ	ePZ	19					
	T	ePNEZ	31 52					
July 31	P	iPZ	20 34 38					
	R	iPZ	40					
	LJ	ePZ	38					
	T	iPZ	47					
	H	iPZ	46					

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Date	Station	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Aug 26	P	iPNEZ	22	04	42					
	MW	iPZ			44					
	R	iPNEZ			45					
	SB	iPZ			38					
	LJ	iPZ			42					
	T	iPNEZ			53					
	H	iPN			52					
Aug 28	P	iPNEZ	11	27	43					
	PX	eSZ		31	36					
		eLZ			32.0					
		iPNEZ		27	42					
	R	ePNEZ			37					
	SB	iPNEZ			54					
	LJ	iPEZ			23					
	T	iPNE		28	09					
H	ePNE		27	59						
Aug 28	P	iPZ	13	42	08					deep?
		iZ			55					
	MW	iPZ			08					
	R	iPZ			10					
		iZ		43	01					
	LJ	iZ		42	59					
	T	ePNE			03					
	eN			51						
Aug 29	P	ePZ	03	58	48					
	MW	iPZ			52					
	T	ePZ			59 01					
Aug 29	P	eZ	06	34	00					
	R	eZ		33	49					
		eZ			58					
	T	eZ		34	25					
Aug 29	P	iPZ	15	48	15					
	R	iPZ			19					
Aug 30	P	iPNEZ	16	38	07					
	MW	iPNEZ			08					
	SB	iPNEZ			02					
	LJ	iPNEZ			16					
	T	iPNEZ			03					
	H	iPNEZ			06					
Aug 30	MW	eZ	22	20	06					
Aug 31	P	iPNEZ	05	11	09					
	PX	iSN		17	51					
		iN			21 20					
		eLN			24.1					
		iPNEZ		11	09					
	R	iPNEZ			09					
	SB	iPNEZ			10					
	LJ	iPNEZ			15					
	T	iPNEZ		10	47					
	H	iPE			45					
Aug 31	P	iPZ	13	19	21					
	MW	iPZ			22					
	T	iPEZ			30					
Aug 31	P	iPZ	14	28	47					
	MW	iPZ			47					
	R	iPZ			48					
Aug 31	P	ePZ	15	16	16					
	T	ePZ			12					

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Pasadena, California

We wish to acknowledge with thanks receipt of the following bulletins during August, 1934:

Adelaide	June, 1934
Batavia	January-March, 1934
Capetown	March-April, 1934, No. 38-40
Cartuja	April-June, 1933, 4-6
Chiufeng	June, 1934, No. 20-23
Colaba	Year of 1933
Firenze	January-March, 1934, No. 1-4
Florissant	February-June, 1934, No. 4-12
Georgetown	July, 1934, No. 211
Hong Kong	May-June, 1934,
J. S. A.	July 18-August 12, 1934, No. 28-33
Kew	July, 1934
La Paz	June 6-July 22, 1934, Provisional
La Plata	November-December, 1933, No. 11-12
"	January-June, 1934, No. 1-6
Little Rock	January-May, 1934, No. 1-5
Manila	May-June, 1934
Montecassino	May, 1934
Osaka	May 17-June 29, 1934, No. 153-155
Perth	April 26-June 15, 1934, No. 10-11
Rabaul	May, 1934
Riverview	June, 1934, No. 6
San Fernando	May-June, 1934
Strasbourg	
Parc St. Maur	June, 1934, No. 22-26
Bureau Centrale	June, 1934
Union Geophysique	June, 1934, No. 149-158
Inst. Physique de Globe	June, 1934, No. 1-4
St. Louis	December, 1933, No. 32-33
"	January-June, 1934, No. 1-13
Taunus	Year 1933
Toronto	June-July, 1934
Tyosi	Year 1933
Uccle	January 1-May 5, 1934, No. 1-2
Vladivostok	January-June, 1934
Wellington	June, 1934, No. 70
Zi-ka-wei	June 6-23, 1934, No. 10

No. 44

PASADENA and auxiliary Stations

1934

Date	Station	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Sept 1	P	iPZ	07	07	03			c	normal	Small surface waves recorded
	MW	iPZ			03					
	R	iPZ			05					
	T	iPNEZ		06	51					
	H	eEZ		09	14					
	H	iPNEZ		06	55					
Sept 1	P	iPNEZ	11	46	13			c		
	MW	iPNEZ			14					
	R	iPZ			16					
	LJ	iPZ			12					
	T	iPZ			22					
	H	iPZ			20					
Sept 1	P	ePZ	13	23	53					
	MW	ePZ			52					
	T	ePZ		24	09					
Sept 2	P	ePNZ	09	05	53				normal	Surface waves recorded
	MW	iPZ			56					
	R	ePNEZ			54					
	LJ	ePZ			43					
	T	ePZ		06	18					
Sept 2	P	iPEZ	09	29	38					
	MW	iPZ			39					
	R	ePNEZ			45					
	LJ	ePZ			54					
	T	iPEZ			10					
	H	iPNEZ			21					
Sept 2	P	iPNEZ	11	31	22			d	deep?	
		iZ			39					
		eLN?		42						
	MW	iPZ		31	22			d		
		iPNEZ			27					
		iPZ			13					
		iPNEZ			33					
		iPNEZ			07					
		iPNEZ			13					
Sept 3	P	iPZ	10	23	27				normal	
		iZ		26	18					
	PX	eLZ		37						
	MW	iPZ		23	28					
		iPZ			23					
	T	iPNEZ			43					
	H	iNEZ		26	22					
		iPEZ		23	37					
Sept 4	P	eZ	16	47	21				normal	
	PX	eLZ	17	16.0						
	MW	ePZ	16	47	16					
		ePZ			19					
	T	iPNEZ			24					
	H	ePNE			27					
Sept 5	P	iPZ	05	08	27					
	MW	iPZ			28					
	R	iPZ			31					
	T	ePZ			15					
	H	iPNEZ			20					
Sept 6	P	iPZ	10	16	16					
	MW	iPZ			17					
	LJ	ePZ			14					
	T	iPZ			23					
	H	eZ			25					

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PASADENA and auxiliary stations

1934

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Sept 8	P	eZ	04	50	46					
	MW	iPZ			47					
	R	iPZ			53					
	T	iPEZ			42					
	H	iPZ			44					
Sept 8	P	eLZ	10	-	-			normal	Surface waves only, recorded at several stations	
Sept 8	MW	iPZ	13	19	23					
	R	iPZ			20					
	T	iPEZ			35					
Sept 9	P	iPZ	04	04	07					
	MW	iPZ			06					
	R	iPZ			02					
	T	iPZ			18					
	H	iPEZ			17					
Sept 11	P	iPZ	08	32	08					
		iZ			34					
	MW	iPZ			09					
	T	ePZ			07					
Sept 12	H	iPZ			09					
	P	iPNEZ	09	40	16					
	MW	iPZ			17					
	R	ePZ			18					
Sept 12	T	ePZ			24					
	P	iPNZ	21	06	36					
	MW	iPZ			36					
	R	iPNZ			32					
Sept 14	T	iPEZ			48					
	H	ePNEZ			43					
	P	iPNEZ	17	15	18			c	deep?	Surface waves very small
	MW	iPNEZ			18			c		
	R	ePNEZ			11					
Sept 15	SB	ePZ			37					
	T	iPNEZ			37					
	H	ePNE			33					
	P	iPNEZ	07	01	06			normal	USCGS: 20° N, 105° W O - 06:56.9	
	PX	iSNZ		04	39					
	P30	iLN		06	08					
	MW	iPNEZ		01	06					
	R	iPNEZ		00	59					
	SB	ePNEZ		01	19					
Sept 18	LJ	ePNEZ		00	54					
		eSE		04	12					
	T	iPEZ		01	31					
	H	ePNEZ			21					
Sept 18	P	eZ	10	12	21					
	MW	eZ			13					
	R	eZ			09					
	T	eE			29					
Sept 18	P	iPZ	17	18	03					
	MW	iPZ			03					
	R	iPZ		17	59					
	T	iPZ		18	18					
Sept 18	P	iPZ	19	21	49					
	MW	iPZ			50					
	T	ePEZ		22	08					
Sept 19	P	iPZ	07	45	29					
		iZ		46	02					
	MW	iPZ		45	29					
	R	iPZ			32					
	LJ	iPZ			37					
	T	iPEZ			16					
	H	ePEZ			21					

Date	Station	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Sept 21	P	iPNEZ	12	57	59				deep?	Possibly very distant, first phase P'?
		iZ		58	22					
		iZ!	13	01	12					
		iNE!		01	15					
	MW	iZ			53					
		ePZ	12	57	58					
	R	iNEZ	13	01	13					
		iPNEZ	12	57	59					
		iZ		58	24					
	LJ	iNEZ!	13	01	14					
		iZ			55					
		eZ	12	58	01					
		iZ			25					
	T	iNEZ	13	01	16					
		iZ			57					
		ePZ	12	57	55					
H	iN	13	01	03						
	iEZ			06						
	ePE	12	57	53						
	iNEZ	13	01	10						
Sept 22	P	iPZ	11	43	47				deep?	
		iZ		44	02					
	MW	iPZ			48					
		eZ			54					
	LJ	iPZ			53					
	T	iPEZ			44					
H	ePNE			46						
Sept 22	P	ePZ	13	08	11					
	MW	ePZ			11					
	T	ePZ		07	51					
Sept 23	P	iPNZ	08	11	33			normal?	Small surface waves recorded	
		iZ			51					
		eZ		14	59					
	MW	iPZ		11	34					
		ePNZ			35					
	R	ePZ			31					
	SB	eNEZ			27					
	LJ	ePEZ			42					
	T	ePNEZ			40					
H										
Sept 24	P	iPEZ	10	41	45			normal	Small surface waves recorded	
		iPZ			46					
		iPZ			49					
		iPEZ			56					
		iPNEZ			56					
Sept 25	P	iPZ	19	27	32			normal?	L very small	
		iZ		31	34					
	PX	eLZ		57						
	MW	iPZ		27	32					
		iPZ			34					
	R	ePZ			30					
	SB	ePZ			37					
	LJ	ePE			35					
	T	iPZ			34					
	H									
Sept 26	P	iPZ	03	26	13					
		eZ			44					
	MW	iPZ			13					
		iPNEZ			33					
		iPNEZ			21					

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PASADENA and auxiliary stations

1934

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Sept 26	P	eZ	07	39	52				normal	
	PX	eLZ	08	11						
	MW	ePZ	07	39	48					
	T	eZ		40	00					
	H	eZ			00					
Sept 26	P	ePZ	11	58	30					
		eZ			56					
	MW	ePZ			30					
	P	ePZ			32					
Sept 28	T	ePZ			33					
	P	ePZ	07	47	46					
	MW	ePZ			46					
	R	ePZ			50					
	T	ePEZ			28					

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Pasadena, California

We wish to acknowledge with thanks receipt of the following bulletins during September, 1934:

Adelaide	July, 1934
Apia	April-June, 1934, No. 2
Capetown	May-June, 1934, No. 41-43
Cartuja	July-September, 1933, No. 7-9
Cheb	Year of 1933
Chiufeng	July, 1934, No. 24-28
Florissant	July, 1934, No. 13-14
Georgetown	August, 1934, No. 212
Göttingen	January-June, 1934
Helwan	April-June, 1934
Hongkong	July, 1934
J. S. A.	August 31, 1934
Kew	August, 1934
Kobe	July-September, 1933, Vol IX No. 3
Melbourne	April-June, 1934, No. 26
Palau	May, 1934, No. 9-13
Perth	June 22-July 19, 1934, No. 12-13
Quito	May-June, 1934
Riverview	July, 1934, No. 7
St. Louis	July-August, 1934, No. 14-18
Strasbourg	
Parc St. Maur	July, 1934
Union Geophysique	July, 1934, No. 159-172
Inst. du Physique de Globe	July, 1934
Bureau Centrale	July, 1934, No. 27-33
Tananarive	December, 1933
Toledo	January-March, 1934
Trieste	January-March, 1934
Wellington	July, 1934, Preliminary
Zi-ka-wei	July 18-21, 1934, No. 12
Zinsen	May-June, 1934, No. 7-8

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PASADENA and auxiliary stations

1934

Date	Station	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Oct 1	P	iPZ	00	47	35					
	MW	iPZ			35					
	R	ePZ			36					
	T	iPNEZ		46	45					
Oct 2	P	iPZ	10	50	42			c		
	MW	iPZ			43			c		
	R	iPZ			44					
	T	iPNEZ			51			c		
Oct 5	P	iPNEZ	05	45	05			d		
		eN			51.5					
	R	eZ		45	02					
	SB	eZ			21					
	LJ	eZ		44	37					
	T	ePNEZ		45	30					
Oct 5	P	eZ	08	09	34					
		eZ		10	28					
	R	eZ		09	36					
	SB	eZ		08	54					
	LJ	eZ		09	31					
	T	eNEZ			36					
Oct 5	P	iPNEZ	09	18	25			c		
	R	iPZ			28					
	T	eNE			35					
Oct 5	P	eZ	20	37	25				normal	Small surface waves recorded
		iNEZ			36					
	MW	eN			25					
	R	iZ			29					
		iNZ			39					
	SB	iZ			30					
	T	iZ			15					
	H	eEZ			21					
Oct 5	P	iZ	21	34	15				normal	Small surface waves recorded
		iNEZ			29					
	R	iZ			29					
	SB	eZ			11					
	T	eZ			24					
	H	eE			31					
Oct 6	P	eZ	03	14	38					
	MW	eZ			30					
		eZ			39					
	R	eZ			41					
	LJ	eZ			50					
	T	eZ			19					
Oct 6	P	eZ	13	01	46				normal	
	PX	eLZ		36						
	MW	eZ			47					
	R	iZ			43					
	T	eZ			45					
Oct 7	P	iPNEZ	02	48	02					
	MW	iPZ			01					
	R	iPZ			03					
	T	iPEZ		47	55					
	H	iPZ			58					
Oct 7	P	iPNEZ	13	27	43			c	deep?	
	MW	iPNEZ			43					
		iZ		28	50					
	R	iPZ		27	38					
		iZ		28	47					
	SB	iPZ		27	52					
	T	iPNEZ			46					
	H	iPNZ			44					

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PASADENA and auxiliary stations

1934

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Oct 8	P	iPZ	06	07	38				deep?	
	MW	iPNEZ			38					
		iZ		09	03					
	R	iPZ		07	39					
	T	iZ		09	07					
		iPNEZ		07	37					
		eZ		09	00					
Oct 8	P	eZ	07	27	27					
	MW	eZ			32					
	R	eZ			30					
	T	iZ			37					
Oct 10	P	iPNEZ	15	53	36			c	deep	South Pacific $\Delta = 9000 \text{ km } (81^\circ)$ $O = 15:41:56$ $h = 0.09$ USCGS: $23^\circ \text{ S}, 176^\circ \text{ W}$ approx $O = 15:42.2$
	PX	ipPZ		55	36					
		iSNEZ	16	03	08					
		iP'P'Z		20	08					
		iSKPP'Z		22	44					
		eP'P'P'Z		40	21					
	MW	iPNZ	15	53	37			c		
		iSNEZ	16	03	13					
	SB	iPNEZ	15	53	32			c		
		epPZ		55	39					
		eSNEZ	16	02	04					
	LJ	iPNE	15	53	35					
		eSNE	16	03	08					
	T	iPNEZ	15	53	45			c		
		epPZ		55	52					
		iSNE	16	03	30					
		iP'P'Z		20	07					
		eSKPP'Z		22	39					
		eP'P'P'Z		40	25					
	H	iPNZ	15	53	43					
	ipPZ		55	54						
	eSN	16	03	17						
	iP'P'Z		20	09						
	eSKPP'Z		22	41						
	eP'P'P'Z		40	20						
Oct 12	P	iPNZ	07	34	25				deep?	
		iZ		36	23					
	MW	iPZ		34	24					
	R	iPZ			28					
		iZ		36	24					
	T	ePEZ		34	33					
		eZ		36	33					
	H	iPZ		34	32					
Oct 14	P	iPZ	03	16	27					
		iZ			48					
	MW	iPZ			28					
	T	eZ			30					
Oct 14	P	iZ	05	51	02					
	MW	iZ			03					
	LJ	iZ			06					
Oct 15	P	eZ	08	30	29					
	MW	eZ			30					
Oct 16	P	eZ	06	35	01					
	MW	eZ		34	58					
	R	eZ			51					
	T	eZ		35	16					
Oct 16	P	iZ	08	29	58					
		iZ		30	09					
	T	eZ		28	25					
		eZ		29	56					

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PASADENA and auxiliary stations

1934

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Oct 16	P	eZ	10	58	36					
	MW	eZ			40					
	R	iZ			43					
	T	eZ		59	04					
Oct 18	P	iPZ	08	01	01			c	normal	
	PX	eZ		12	11					
		eLZ		27	16					
	MW	iPZ		01	01					
	R	iPEZ			04					
	LJ	ePZ		00	52					
	T	ePZ		01	04					
Oct 19	P	iPNEZ	12	56	25			c		
	MW	iPZ			25					
	R	iPZ			30					
	LJ	ePZ			30					
	T	iPEZ			34					
Oct 21	P	iPNEZ	18	05	55			c	deep	No trace of P'P' etc. Possibly but not probably two shocks.
		iNEZ		06	46					
	PX	iSNEZ		15	57					
		eZ		16	53					
	MW	iPNEZ		05	56					
		iSEZ		06	47					
		iSNEZ		15	58					
	R	iPNEZ		05	58					
		iNEZ		06	49					
		iSNE		16	00					
	SB	iPNEZ		05	49					
		iNEZ		06	40					
		iSNE		15	51					
	LJ	iPNEZ		06	02					
		iNEZ			53					
		iSNE		16	04					
		T	iPEZ		05	51				
Oct 23	P	iZ	22	35	32					
	MW	iZ			32					
	T	eZ			02					
iZ				21						
Oct 24	P	iPZ	02	21	42					
	MW	ePZ			41					
	R	iPZ			39					
		iZ		22	17					
	T	iPZ		21	39					
Oct 24	PX	eLZ	06	38				normal	Surface waves only	
Oct 25	P	iZ	08	56	37					
	MW	eZ			34					
		iZ			37					
	R	eZ			39					
		iZ			44					
	T	eZ			02					
Oct 25	P	iZ	11	15	50					
Oct 25	MW	iZ			51					
	R	iZ			55					
	SB	eZ			43					
	T	eZ			18					
		iZ			23					

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PASADENA and auxiliary stations

1934

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks	
			h	m	s						
Oct 26	P	iPNEZ	03	09	26				deep		
		iZ		12	28						
	MW	iPZ		09	27						
		iZ		12	30						
	R	iPZ		09	30						
		iZ		12	32						
	SB	iPZ		09	22						
Oct 26	T	iPEZ			33				d	deep	Distance probably large
		eZ		10	00						
	P	iP'NEZ	15	02	06						
		iZ		03	22						
		iZ		04	43						
		iZ		05	33						
		iZ		12	45						
		eZ		14	59						
	MW	iNEZ		02	08						
	R	eP'Z			05						
		iZ		03	25						
		iZ		04	46						
	SB	iP'Z		02	07						
		iZ		03	16						
	eZ		04	43							
LJ	eP'NEZ		02	08							
	iZ		03	38							
	iZ		04	46							
T	eP'Z		02	03							
	eZ		03	20							
	eZ		12	40							
	eZ		14	46							
Oct 26	P	iPZ	17	24	00			normal?	Surface waves small	May be P'P'	
		iZ			18						
		iZ		27	42						
		iZ		49	49						
	MW	eLEZ		51							
		ePNEZ		24	00						
	R	ePZ			04						
		eZ		27	51						
	SB	ePNZ		23	58						
	LJ	iPZ		24	08						
		iZ		28	00						
	T	ePZ		23	53						
		eZ		27	24						
Oct 27	P	ePNZ	10	07	18			normal			
	PX	eLNZ		34							
	MW	eZ		07	18						
	R	eZ			17						
	SB	eZ			21						
	T	eEZ			34						
Oct 27	P	iZ	11	22	27						
	MW	eZ			20						
	R	eZ			22						
	T	eZ			50						
Oct 27	P	iPZ	15	41	22						
	MW	ePZ			23						
	T	ePZ			20						
Oct 28	P	ePZ	14	57	20						
	MW	eZ			18						
	R	ePZ			13						
	T	ePZ		56	58						
iZ			57	32							

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PASADENA and auxiliary stations

1934

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Oct 28	P	eZ	18	58	20					
	MW	eZ			27					
	T	eZ			45					
Oct 29	P	ePZ	02	37	08				normal	
		iNEZ			21					
	P30	iLN			39.3					
	P	iZ			40 26					
	MW	eZ			37 17					
		iEZ			23					
	R	eNE			10					
		iZ			39 56					
	SB	eNZ			37 45					
	LJ	ePNEZ			36 58					
	iZ			39 32						
	T	iPNEZ			37 46					
Oct 29	P	iPNZ	04	04	15					
	MW	iPNEZ			15					
	R	iPZ			10					
	SB	ePZ			17					
	LJ	ePNZ			03 58					
	T	ePEZ			04 38					
Oct 29	P	eZ	14	22	27					
	MW	eZ			28					
	R	eZ			39					
	LJ	eZ			12					
		eZ			27					
	T	eZ			51					
Oct 29	P	iZ	17	34	30					
	MW	iZ			30					
	R	eZ			33					
	SB	iZ			24					
	T	iEZ			19					
Oct 29	P	iPNEZ	23	34	39				deep	
		iZ			35 04					
		iZ			45					
	MW	iPNEZ			34 40					
	R	iPNEZ			35					
		iZ			59					
	SB	eZ			48					
	LJ	iPNEZ			30					
		iZ			55					
	T	iPNEZ			53					
		iZ			35 17					
	eZ			47						
Oct 30	P	iPEZ	05	13	15			c	deep?	
		iZ			31					
	MW	iPZ			15					
	R	iPZ			11					
		iZ			26					
	LJ	iPZ			17					
	T	iPEZ			28			c		
		iZ			44					

Harry O. Wood
 Research Associate in Charge
 C. F. Richter
 Assistant

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Nov 1	P	iPZ	17	29	57					
	MW	iPZ			57					
	T	iPNEZ		30	06					
Nov 2	P	ePZ	18	50	40					Moderate shock about 32° N, 114° W; several small aftershocks
Nov 3	P	iPZ	15	01	09					
	MW	iPZ			10					
	R	iPZ			13					
	T	iPEZ			06					
	H	ePZ			08					
Nov 4	P	iPEZ	02	06	17				normal	
		iZ			26					
		iPPZ		09	34					
	PX	eLZ		33.1						
	MW	iPZ		06	18					
		ePPZ		09	35					
	R	iPEZ		06	18					
		ePPEZ		09	46					
	SB	eZ		06	13					
	LJ	iPZ			18					
		iPPZ		10	01					
	T	iPNEZ		06	25					
	H	ePN			27					
Nov 4	P	iPNEZ	03	26	53				normal	
		iPPZ		30	14					
	PX	eLNEZ		56						
	MW	ePEZ		26	53					
		ePPZ		30	08					
	R	iPZ		26	58					
		iPPZ		30	16					
	SB	iPZ		26	57					
	LJ	iPNEZ		27	06					
	T	ePEZ			00					
	H	ePE			01					
Nov 4	P	iPZ	04	02	57					
	MW	iPZ			58					
	R	ePZ		03	00					
	T	iPEZ			05					
	H	ePE			04					
Nov 4	P	iPZ	04	19	59					
	R	ePZ		20	02					
	T	ePZ			07					
Nov 4	P	iPZ	06	30	41					
	R	ePZ			42					
	T	iPZ			30					
Nov 4	P	iPZ	13	28	35					
	R	iPZ			38					
	T	iPZ			43					
Nov 4	P	iPZ	15	19	38					
	MW	ePZ			38					
	R	ePZ			41					
Nov 4	P	ePZ	16	40	24					
		iZ			29					
	MW	ePZ			26					
	R	ePZ			30					
	T	ePZ			36					
	H	ePE			36					
Nov 4	P	iPZ	18	33	11					
	MW	ePZ			12					
	R	ePZ			15					
	T	eZ			17					
		ePZ			18					
	H	ePZ			18					

Date	Station	Phase	G. C T. h m s	T sec	A mm	c d	Focal depth	Remarks
Nov 5	P	iPZ	03 32 30					
	MW	iPZ						
	T	iPNEZ						
	H	ePZ						
Nov 5	P	iPEZ	03 41 46			c	deep?	
	MW	ePZ						
	R	iPZ				c		
		eZ	43 35					
	T	iPZ	41 54					
		eZ	43 42					
	H	ePE	41 54					
Nov 5	P	iPNEZ	06 01 13			c	deep	
		iZ						
		iZ	03 23					
		iZ	04 21					
	MW	iPNEZ	01 14					
	R	iPEZ						
		iZ	03 25					
		iZ	04 24					
	SB	iPZ	01 09					
	LJ	iPNEZ						
	T	iPNEZ						
		iZ	03 31					
	H	iPNEZ	01 20					
Nov 5	P	iPEZ	23 10 32				normal	USCGS: 52° N, 176° W O = 23:02.4
		ePPZ	12 28					
		iZ	16 23					
	PX	eLZ	22.8					JSA: 53°2 N, 176°7 W O = 23:02:28
	MW	iPNZ	10 33					
	R	iPNZ						
	SB	iPZ						
	LJ	iPNZ						
	T	iPZ						
		iPPZ	12 12					
		iZ						
		iZ	15 26					
		iZ	15 58					
	H	iPNEZ	10 26					
		iZ	12 15					
	iZ	16 19						
Nov 5	P	iPNZ	23 25 23					
	MW	iPZ						
	R	iPZ						
	T	iPZ						
Nov 6	P	iPZ	13 27 45					
	MW	iPZ						
	R	iPZ						
	T	iPZ						
	H	ePZ						
Nov 6	P	ePZ	14 40 56					
		eZ	43 18					
	MW	ePZ	40 56					
	R	ePZ						
		eZ	43 18					
	T	ePE	41 26					
Nov 7	P	iPNZ	09 38 27			d	deep	
		iZ	39 12					
		iZ	41 47					
	MW	iPZ	38 27					

Continued

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PASADENA and auxiliary stations

1934

Date	Sta- tion	Phase	G. C. T.			T A c			Focal depth	Remarks
			h	m	s	sec	mm	d		
Nov 7	R	iPZ	09	38	21	Continued				
		iZ		39	03					
		iZ		41	45					
		iZ		42	19					
	SB	eZ		38	50					
	LJ	iPNEZ			16					
		eZ		39	13					
	T	iPZ		38	43					
		iZ		41	52					
		iZ		45	22					
H	ePN		38	39						
Nov 7	P	eZ	11	52	44			normal	Not far distant. Probably same source as the next.	
		eZ		54	33					
	R	eZ		52	29					
	LJ	eZ			17					
T	eZ		53	17						
Nov 7	P	ePZ	15	32	27					
		iSZ		34	16					
	MW	ePZ		32	28					
	R	iPZ			21					
	LJ	iSZ		33	57					
		iPZ		32	05					
		iSZ		33	31					
	T	ePZ			07					
H	ePN			04						
Nov 8	P	iPZ	03	37	54				Japan Osaka gives P = 03:26:41 S = 03:27:29 Δ = 359 km	
		iPZ			54					
	T	iPEZ			44					
	H	ePEZ			47					
Nov 9	P	iPZ	03	36	53					
	MW	ePZ			51					
	R	ePZ		37	04					
	T	ePZ			01					
	H	ePE			02					
Nov 9	P	iPNEZ	04	10	21			deep?	Surface waves very small	
		iZ		11	02					
		iZ		13	04					
	MW	iPNEZ		10	22					
		iPEZ			24					
	SB	iPNEZ			15					
	LJ	iZ			43					
		ePNE			18					
		iPZ			30					
	T	iZ		11	27					
		iPEZ		10	30					
Nov 9	P	iPNEZ	11	38	49			deep?		
		iPZ			50					
	R	iPEZ			51					
	SB	iPNZ			46					
	LJ	iPNEZ			51					
	T	iPNEZ			59					
	H	iZ		41	54					
		ePNEZ		38	59					
Nov 9	P	iZ	13	54	50					
		iZ		58	51					
	MW	eZ		54	40					
		iZ		58	54					
	R	iZ		54	38					
		eZ		58	45					
	T	iZ		54	30					
		eZ		59	31					
	H	eZ		54	34					

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PASADENA and auxiliary stations

1934

Date	Station	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Nov 9	P	iPZ	16	19	51				deep?	
		iZ		22	36					
	MW	iPZ		19	51					
	R	iZ			46					
	LJ	iPZ			41					
	T	ePZ			58					
		iZ		20	03					
	H	iPZ		19	59					
Nov 10	P	eZ	12	19	05					
	MW	eZ			06					
	R	eZ			09					
	T	eNE		18	52					
Nov 10	P	iPZ	13	22	24					
	MW	iPZ			25					
	R	ePZ			27					
	T	ePE			34					
Nov 10	P	iPZ	15	49	56					
	MW	ePZ			57					
	R	ePZ			55					
	T	eNE			44					
Nov 10	P	iPZ	16	15	27					
	MW	iPZ			27					
	R	iPZ			29					
	T	ePNE			36					
	H	ePEZ			33					
Nov 11	P	iPZ	07	23	33					
	MW	ePZ			34					
	R	ePZ			29					
	LJ	ePZ			29					
	T	iPNEZ			46					
Nov 11	P	iPZ	11	02	29					
	MW	iPZ			30					
	R	iPZ			32					
	T	iPEZ			36					
Nov 11	P	iPZ	22	46	41					
	MW	ePZ			41					
	R	ePZ			43					
	T	iPZ			48					
Nov 12	P	iPZ	08	44	21			normal	Small surface waves recorded	
		iZ			56					
	MW	ePZ			21					
	T	iPEZ			13					
Nov 12	P	iPNZ	11	20	40			deep		
		iZ		21	23					
		eZ		23	52					
	MW	iPNEZ		20	41					
		iZ		21	23					
	R	iPEZ		20	42					
		eZ		21	25					
	LJ	ePZ		20	40					
		iZ		21	22					
	T	iPNEZ		20	50					
		iZ		21	33					
		eE		30	27					
	H	iPNEZ		20	49					
	iZ		21	32						
Nov 12	P	iPZ	15	14	21			deep?		
		eZ		16	55					
	R	iPZ		14	15					
		eZ		16	42					
	T	iPEZ		14	35					
	eZ		16	44						

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Nov 13	P	eZ	20	55	30					
	R	eZ			33					
	H	eZ			13					
Nov 14	P	iPZ	05	31	14					
	MW	iPZ			15					
	R	iPZ			15					
	T	ePZ			23					
	H	ePZ			21					
Nov 15	P	iPNZ	05	27	05					
	MW	iPZ			06					
	R	iPZ			00					
	T	ePZ			30					
	H	ePZ			21					
Nov 15	P	iPZ	12	56	50					
	MW	ePZ			51					
	R	ePZ			53					
	LJ	iPZ			45					
	T	ePZ			59					
	H	ePZ			57					
Nov 16	R	ePZ	10	16	58					
	T	ePZ		17	05					
		eZ		18	49					
	H	ePZ		17	05					
Nov 18	PX	iZ	03	40	10					Phases obscured by strong microseismic disturbance. 31° N, 66°5 E, Strasbourg, according to Zürich
	T	iZ		39	42					
Nov 18	P	iPZ	09	28	28			normal?	Surface waves small Distance roughly 6500 km (60°)	
	PX	eLZ			48.0					
	P	iP'P'Z			57 55					
	MW	iPNEZ			28 29					
	R	iPZ			31					
		eP'P'Z			58 13					
	SB	iZ			28 34					
	LJ	iPNEZ			39					
	T	iPNEZ			14					
		eP'P'Z			57 43					
Nov 18	P	iPNEZ	15	06	38			normal		
	P6	eLNE		09	06					
	MW	ePNEZ		06	37					
	R	ePNEZ			29					
	LJ	ePZ			13					
	T	ePNZ		07	10					
		eSNE		10	17					
	H	ePNEZ		07	00					
	eSE		10	05						
Nov 18	P	iPNEZ	22	53	17			normal		
	PX	eLZ	23	21.4						
	MW	ePZ	22	53	17					
	R	ePZ			20					
	LJ	ePEZ			19					
	T	ePZ			19					
	H	ePZ			23					
Nov 19	P	iPZ	05	53	51			c	normal	
	PX	eLZ			59.6					
	MW	ePZ			53 50					
	R	ePZ			45					
	SB	eZ			54 01					
	LJ	iPNZ			53 35					
	T	ePZ			54 12					
	H	ePZ			05					
Nov 19	P	iPNZ	07	30	28			c	deep?	
		iZ			34 03					
	MW	iPZ			30 26					
		iZ			34 05					

Continued

Date	Station	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Nov 19	R	iPZ	07	30	25	Continued				
		iZ		34	04					
	LJ	ePZ		30	21					
	T	iPZ			31					
		iZ		34	09					
	H	iPZ		30	29					
		eZ		34	09					
Nov 23	P	iPNEZ	17	49	18			c	deep	
		iZ		50	23					
		iZ		51	55					
		eZ		54	12					
	MW	iPZ		49	19			c		
	R	ePZ			19					
		eZ			51					
	SB	iPZ			13					
		eZ		50	07					
	T	iPEZ		49	28			c		
		iZ			59					
		eZ		52	28					
	H	iPEZ		49	26					
		eEZ			57					
Nov 26	P	iPZ	06	25	58					
	MW	iPZ			59					
	R	iPZ		26	00					
	T	ePZ		25	59					
Nov 26	P	eZ	12	26	35				Philippines (?)	
Nov 26	P	eZ	12	39	09				Probably part of the preceding	
	R	eZ			05					
	T	eZ			18					
Nov 27	P	eZ	06	01	48					
		iZ			58					
	MW	eZ			59					
	R	eZ		02	08					
	T	eZ		01	47					
	H	eZ			52					
Nov 27	P	iPZ	06	28	36			normal	$\Delta = 12,100$ km (109°) USCGS: 1° N, 127° E O = 06:14.0	
		iP'NZ		32	40					
		iPPZ		33	01					
		iPKKPZ		44	00					
	PX	eZ		49	19					
		eLZ	07	05						
	MW	ePZ	06	28	37					
		iP'Z		32	41					
	R	ePZ		28	37					
		iP'Z		32	41					
		iPPZ		33	11					
		ePKKPZ		43	42					
	LJ	eP'Z		32	45					
	T	ePZ		28	31					
		eP'Z		32	26					
		iPPZ		33	02					
		iPKKPZ		44	04					
	H	iP'Z		32	38					
		iPPZ		33	04					
		ePKKPZ		44	02					
Nov 27	P	iPZ	15	44	34					
	MW	iPZ			35					
	R	iPZ			37					
	SB	iPZ			26					
	LJ	iPZ			43					
	T	iPZ			22					
	H	iPZ			28					

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PASADENA and auxiliary stations

1934

Date	Station	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Nov 28	R	eZ	05	50	02					
	T	ePZ		49	44					
	H	eZ		50	02					
Nov 28	P	iPZ	06	00	09					
		iZ			31					
	MW	iPZ			08					
	R	iPZ			04					
		iZ			27					
	LJ	iPZ			00					
		eZ			26					
	T	iPZ			19					
		iNEZ			43					
	H	ePZ			15					
	eZ			38						
Nov 29	P	iZ	05	19	10					
	MW	eZ			06					
		iZ			11					
	LJ	iZ			24					
	T	eZ		18	44					
		iZ		19	41					
	H	eZ		18	52					
Nov 29	P	iPZ	13	07	05					
	MW	iPZ			06					
	R	eZ			09					
	T	ePZ		06	58					
Nov 30	P	iPZ	00	11	34					
	MW	eZ			38					
Nov 30	P	iPNEZ	02	09	39			d	normal	$\Delta = 2200 \text{ km } (20^\circ)$ USCGS: $20^\circ \text{ N}, 104^\circ 5 \text{ W}$ O = 02:05:20
		iSEZ		13	31					
	PX	iLZ		14	42					
	MW	iPNEZ		09	40					
		iSNZ		13	36					
	R	iPNEZ		09	33					
		iSNE		13	22					
	SB	ePNEZ		09	51					
	LJ	iPEZ			21					
	T	iPNEZ		10	05					
		iSNEZ		14	15					
	H	iPNEZ		09	55					
		iSN		14	06					
Nov 30	P	iPZ	13	36	37					
	MW	ePZ			39					
	R	ePZ			32					
	T	ePNEZ		37	04					
	H	ePNEZ		36	58					

Harry O. Wood
 Research Associate in Charge
 C. F. Richter
 Assistant

Pasadena, California

We wish to acknowledge with thanks receipt of the following bulletins during December, 1934:

Adelaide	October and November, 1934
Batavia	July-September, 1934, No. 37-54
Capetown	July-October, 1934, No. 44-55
Chiufeng	October, 1934, No. 37-38
Denver	March 24-July 30, 1934, No. 5
Florissant	September, 1934, No. 17
Georgetown	November, 1934, No. 215
Göttingen	July-September, 1934,
Helwan	October, 1934
J. S. A.	November 5, 1934, No. 36
Kew	November, 1934
Little Rock	October, 1934, No. 6
Manila	October, 1934, No. 38-39
Mizusawa	Year, 1933
Osaka	September 1-November 8, 1934, No. 162-167
Ottawa	November, 1934
Perth	July 25-September 8, 1934, No. 17-19
Riverview	October, 1934, No. 10
St. Louis	October, 1934, No. 20-21
San Fernando	September-October, 1934, No. 5
Strasbourg	
Inst. Phys. du Globe	October, 1934
Bureau Centrale	October, 1934, No. 44
Parc St. Maur	October, 1934
Union Geophysique	October, 1934, No. 189-191
Sydney	August-October, 1934
Taihoku	October-November, 1934, Preliminary
Toledo	2 Trimestre
Wellington	October, 1934, No. 74
Zagreb	January-March, 1934
Zi-ka-wei	August 14-31, 1934, No. 15

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Dec 1	P	iPNZ	00	03	33					
	MW	iPZ			33					
	R	iPZ			28					
	SB	iPZ			46					
	LJ	iPZ			23					
	T	iPNEZ			47					
	H	ePZ			42					
Dec 1	P	eZ	11	08	20				normal	
	PX	eLZ			37					
	MW	eZ		08	22					
	T	eZ			26					
	H	eEZ			30					
Dec 1	P	iPZ	13	17	59					
	MW	ePZ			57					
	R	ePZ			50					
	T	eZ		18	22					
Dec 2	P	iPNZ	00	46	07					
	MW	ePZ			08					
Dec 2	P	iPNZ	15	00	22			d	normal	
	P6	eSNE		04	08					
	PX	eLZ		05.4						
	MW	ePEZ		00	18					
		iNZ			24					
	R	iPNEZ			15					
	LJ	iPZ			05					
	T	iPZ			47					
	H	ePNEZ			38					
Dec 2	P	iPZ	23	27	23					
	R	ePZ			25					
	T	iPEZ			28					
Dec 3	P	iPZ	01	42	11					
		iZ		44	55					
	MW	iPZ		42	11					
	R	ePZ			03					
	T	ePNEZ			23					
		iZ		45	01					
Dec 3	P	iPEZ	02	45	04			c	normal	Damage in Honduras 13°5 N, 88°5 W O = 02:38:20 Δ = 34°, 3750 km USCGS: 15° N, 89° W O = 02:38.6 JSA: 14°3 N, 88°8 W O = 02:38:23
		iPPZ			58					
		iPcPZ		47	50					
	PX	eSZ		50	22					
		iN		53	12					
		eLZ		54.7						
	MW	iScSN		55	18					
		iPZ		45	03					
	R	ePcPZ		47	51					
		ePZ		44	59					
	SB	iPcPZ		47	48					
		ePZ		45	19					
	LJ	iPEZ		44	54					
		iPcPZ		47	48					
	T	iPNEZ		45	16					
		iPcPZ		47	54					
H	ePNEZ		45	11						
	iPcPZ		47	52						
Dec 3	P	eZ	15	27	05					
	MW	eZ			04					
	T	eZ			18					
		eZ		29	55					
Dec 4	P	iPZ	07	21	47					
	MW	iPZ			48					
	R	ePZ			49					
	T	iPZ			56					

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks	
			h	m	s						
Dec 4	P	iPNEZ	17	35	46			d	deep	USCGS: 19° S, 70° W Approx. O = 17:24.8	
		iZ		36	04						
		iZ			35						
	PX	oZ		37	25						
		iSNE		44	57						
		iNE		45	49						
	MW	oLZ		58.7							L very small
		oP'P'Z	18	04	04						
	R	ePZ	17	35	44						
		iSNE		44	56						
	SB	iPNEZ		35	42						
		iSNE		44	51						
	LJ	iPNZ		35	54						
		oSNE		45	09						
	T	iPNEZ		35	38						
iSNEZ			45	19							
H	oPEZ		35	54							
	iSNE		45	11							
Dec 5	P	iPNZ	21	59	36						
	LJ	iPZ			24						
	T	iPZ			49						
		iZ	22	02	27						
Dec 6	P	iPZ	13	58	18						
	MW	iPZ			19						
	T	oPZ			21						
Dec 7	P	iPNEZ	11	21	05						
	MW	oZ			04						
	R	iPZ			07						
	SB	iPNZ			02						
	LJ	oPNEZ			05						
	T	iPEZ			15						
		oNE		31	30						
Dec 8	P	iPNEZ	09	40	02			c	normal	Mexico	
	PX	iSNEZ		43	59						
		iLZ		47.3							
	MW	iPZ		40	03						
		oSZ		44	05						
	R	iPNEZ		39	55						
		oSNE		43	52						
	SB	oPNEZ		40	13						
	LJ	iPNEZ		39	46						
	T	iPNEZ		40	26						
H	oPN			17							
Dec 9	P	iPNZ	11	38	18						
	MW	iNZ		41	38						
		ePZ		38	18						
		iEZ		41	39						
	R	oPZ		38	14						
		eZ		41	35						
	T	oE		38	17						
	iEZ		41	35							
Dec 9	P	iPNEZ	17	02	08			d	deep?		
	MW	iPNEZ			09						
	R	iPZ			04						
	T	iPZ			08						
Dec 10	P	iPNZ	05	57	27			d			
	MW	iPZ			27						
	R	iPZ			21						
	T	iPZ			36						
Dec 10	P	oZ	10	15	30						
	R	oZ			33						

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Dec 10	P	iPNEZ	10	32	15			c		
	MW	iPZ			14					
	R	iPZ			00					
	SB	ePZ			25					
	LJ	iPZ		31	56					
	T	ePZ		32	38					
Dec 11	P	ePZ	03	27	47					
	MW	ePZ			47					
	T	ePZ			18					
Dec 11	P	eZ	04	24	24					
	MW	eZ			26					
	R	eZ			11					
Dec 11	P	iPZ	14	57	33				deep?	
		iZ		58	04					
	MW	iPZ		57	33					
		iZ		58	06					
	R	ePZ		57	22					
		iZ			54					
	T	iPZ			47					
		iZ		58	18					
	eZ			55						
Dec 12	P	eZ	02	42	32					
Dec 12	P	iPNEZ	08	52	24			d	deep?	No surface waves
		iZ		54	29					
	P6	iSE	09	01	54					
	MW	ePNEZ	08	52	24					
	SB	iPNEZ			21					
		eZ		54	23					
	LJ	iPNEZ		52	25					
	T	iPEZ			32					
		eZ		54	39					
		iSE	09	02	03					
	H	iPNE	08	52	32					
		eSN	09	02	03					
Dec 13	P	iPNEZ	02	13	36			d		
	MW	iPNEZ			37					
	SB	iPZ			35					
	LJ	iPZ			40					
	T	iPEZ			45			d		
		eEZ		23	48					
	H	iPNZ		13	41					
Dec 14	P	iPNZ	14	35	32				deep?	
		iNEZ		36	11					
		iZ			33					
	MW	iPZ		35	32					
		iNEZ		36	12					
		iZ			34					
	R	ePZ		35	21					
		iZ			59					
		iZ		36	17					
	LJ	iZ			02					
		iZ			25					
	T	iPNEZ		35	47					
		iZ		36	26					
		iZ			50					
iZ			38	36						
Dec 14	P	eZ?	20	12	19					
		iZ			47					
	MW	eZ			48					
		eZ			49					
	R	eNEZ			59					
	T	eZ		13	35					

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks	
			h	m	s						
Dec 15	P	eZ	02	15	20				normal	Strasbourg: 31°5 N, 89° E Zurich: 32° N, 86° E	
		iZ		16	40						
	PX	eZ		20	48						
		eN		26	13						
	P6	eLE		48.7							
	PX	eLN		50							
	MW	iZ		16	52						
Dec 15	T	eZ		15	01						
		eZ		16	34						
	P	iPNEZ	17	02	02			c	deep?		
	MW	ePNEZ			03						
	R	iPNZ			09						
Dec 15	T	ePN		01	48						
		eNZ		03	24						
		eZ		05	06						
	P	iPZ	18	11	34						
	R	iPZ			36						
Dec 15	T	iPNEZ			39						
	P	iPNEZ	19	25	57			c	deep	h = 0.09 Approx. Δ = 83° 9200 km.	
		iPZ		27	56						
		iSPEZ		29	12						
	PX	iSNE		35	33						
		eP'P'Z		52	28						
		iZ		55	07						
	MW	iPNEZ		25	58						
		eSN		35	28						
	R	ePNEZ		25	59						
	SB	iPNZ			51						
		iZ		28	02						
	LJ	iPNEZ		25	56						
		iZ		26	30						
	T	iPNEZ			05						
		iZ		27	47						
		iZ		28	06						
		iSNEZ		35	38						
	Dec 16	P	ePZ	02	12	52					
MW		ePZ			55						
R		ePZ			49						
T		ePZ		13	16						
Dec 16	P	iPZ	16	42	49			d	deep		
		iZ		43	16						
		iZ			28						
	MW	iPNZ		42	49			d			
		iZ		43	29						
	R	iPNEZ		42	45						
		iZ		43	12						
		iZ			24						
	SB	iZ		42	55						
	LJ	iPZ			41						
		iZ		43	07						
	T	eZ			49						
		iPNEZ			01						
Dec 17		eZ			31						
		iZ			41						
	P	ePZ	16	05	57				normal		
	PX	eZ		09	56						
		eLZ		35.7							
Dec 17	MW	eZ		09	53						
	T	ePZ		05	27						

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Dec 17	P	iPEZ	21	20	07					
	MW	iPZ			08					
	T	iPZ			16					
Dec 19	P	iPZ	04	05	18					
	MW	iPZ			19					
	R	ePZ			23					
	T	iPNEZ			27					
Dec 19	P	iPZ	04	32	57			c		
	MW	iPZ			58					
	R	ePZ			58					
	T	iPZ		33	05					
		eZ			31					
Dec 19	P	iPZ	17	50	31					
	MW	iPZ			29					
	T	iPZ			55					
Dec 20	P	iPZ	22	51	52					
	MW	iPZ			52					
	R	ePZ			54					
	T	ePZ			54					
Dec 21	P	iPNEZ	17	33	41			c	deep	
		iZ		34	50					
	MW	iPNEZ		33	42					
		iZ		34	51					
	R	iPNEZ		33	44			c		
		iZ		34	52					
	SB	ePE		33	45					
		eE		34	54					
	LJ	iPNZ		33	44					
		iNZ		34	52					
	T	iPZ		33	46			c		
		iZ		34	16					
	iZ			55						
Dec 21	P	iPNEZ	18	47	46			c	normal	
		iSN		51	26					
	PX	eLZ		54.0						
	MW	iPNEZ		47	48					
	R	iPNEZ			41					
	SB	ePZ			56					
	LJ	ePNZ			29					
	T	iPEZ		48	12					
Dec 22	P	eNZ	11	12	26					
		eZ		13	14					
	R	eZ		12	26					
		eZ		13	11					
	SB	eZ		12	27					
		eZ		13	20					
	LJ	eZ		12	33					
	T	eNZ		12	19					
		iZ		13	14					
	eZ		16	06						
Dec 22	P	ePNEZ	14	36	39				normal	USCGS: 8° N, 89° W O = 14:29.0
		iZ		39	05					
		iNEZ		43	17					
	PX	eLNZ		47.8						
	MW	ePNZ		36	33					
		iZ			41					
		eZ		43	03					
	R	ePNE		36	32					
		iZ			47					
		eZ		42	59					
	SB	ePNEZ		36	57					
	LJ	ePNEZ		36	29					
	iZ		43	11						

Continued

Date	Station	Phase	G. C. T.			T sec	A mn	c d	Focal depth	Remarks
			h	m	s					
Dec 22	T	ePZ	14	36	49	Continued				
		iNEZ			55					
		iZ		39	11					
		iZ			27					
		eNZ		43	03					
Dec 23	P	iPNEZ	10	03	50			d	deep?	South America
		iZ		04	17					
		iNZ			23					
	PX	iNE			37					
		iSNEZ		13	09					
	MW	iNEZ		14	05					
		iPNEZ		03	49					
	R	iSNE		13	09					
		iPNEZ		03	45					
	SB	eSNE		13	00					
		eE			52					
		iPNEZ		03	57					
	LJ	eSN		13	25					
		eE			59					
T	iPNEZ		03	41						
	eSNE		12	51						
Dec 23	P	iPNEZ		04	01					
		iSNE		13	32					
		ePZ	13	08	26					
Dec 23	MW	ePZ			28					
	T	ePZ		09	12					
Dec 24	P	eZ	04	58	03					
		eZ			12					
	MW	eZ			01					
		R	eZ			03				
		T	eZ			02				
H	eZ			11						
Dec 24	P	eZ	07	09	25					
		MW	eZ			26				
		R	eZ			29				
Dec 24	P	eZ	07	16	23					
		iZ			28					
	MW	iZ			24					
		R	eZ			25				
T	eZ			33						
Dec 24	P	iPNEZ	14	41	59			d	normal	
		iZ		44	02					
	PX	iSNE		47	16					
		iZ		48	28					
	MW	eLZ		55						
		iPNEZ		42	00					
	R	eZ		48	29					
		iPNEZ		41	52					
	LJ	iZ		48	25					
		iPNEZ		41	48					
	T	ePNZ			13					
		iZ		48	36					
H	iPNEZ		42	08						
	eZ		48	31						
Dec 24	P	ePZ	15	50	17				normal	
		PX	16	34						
	MW	eZ		50	22					
		R	eZ			22				
		T	ePZ			12				

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Dec 25	P	iPZ	05	59	04					
	MW	ePZ			05					
	R	ePZ			05					
	T	ePZ			06					
	H	iEZ			10					
	H	ePZ			07					
Dec 25	P	iPZ	06	39	50				normal	
	PX	eLZ	07	09						
	MW	ePZ	06	39	51					
	R	ePZ			53					
	SB	ePZ			50					
	T	ePZ			45					
	H	ePZ			49					
Dec 25	P	ePZ	06	50	46					
	H	ePZ			49					
Dec 25	P	eZ	07	13	21					
		iZ			54					
	MW	eZ			52					
	H	eZ			19					
		iZ			52					
Dec 25	P	eZ	07	39	54					
		iZ			40					
	MW	eZ			39					
	H	eZ			50					
Dec 25	P	eZ	08	01	36					
	MW	eZ			35					
	T	ePZ			39					
	H	eZ			34					
Dec 25	P	iPZ	12	59	06					
		iZ	13	00	03					
	MW	iPZ	12	59	07					
		eZ	13	00	07					
	R	ePZ	12	59	09					
	T	ePZ			00					
		iZ			39					
	H	ePZ			04					
		eZ			56					
Dec 25	P	iPZ	13	22	51					
	MW	iPZ			52					
	R	eZ			42					
		eZ			52					
	T	iPZ			45					
	H	ePZ			49					
Dec 28	P	eZ	11	35	32				normal	
	P6	eE			43					
	PX	eLNZ	12	01						
	R	ePZ	11	35	34					
	T	iPZ			40					
		iZ			57					
	H	ePZ			38					
Dec 29	P	iPZ	04	46	06					
	MW	ePZ			06					
	R	iPZ			00					
	T	ePZ			18					
Dec 30	P	iPNEZ	13	52	57			c	normal	USCGS: 31° N, 116° W O = 13:51.9
		iNEZ			53					
		iSNE			39					
	MW	ePNEZ			52					
	R	iPNZ			48					
	SB	ePN			53					
	LJ	iPNEZ			52					
	T	ePZ			53					
					28					

Continued

Felt in southernmost California and Arizona. Slight damage in the southern Imperial Valley. Slumping and fissuring in

Date	Sta- tion	Phase	G. C. T.			T sec	A mm	c d	Focal depth	Remarks
			h	m	s					
Dec 30	H	ePNZ iNZ iSN	13	53	16 39 54 36	Continued			soft watersoaked alluvium, south of the Mexican boundary. Damage to canals and levees.	
Dec 30	P T	ePZ ePZ	22	02	36 51					
Dec 30	P	eZ	01	21	42					
Dec 31	P P6 MW R SB LJ T H	iPNEZ iSNE iPNEZ iPNEZ ePNE ePNZ iPNEZ iPNEZ	06	46	37 54 58 46 40 35 45 26 45 41			d d d d	deep	
Dec 31	P MW R LJ T H	ePNEZ iNE iSNE iPNE ePZ iPNEZ iPNE ePNE	18	46	35 52 47 26 46 34 25 16 47 07 46 55			c	normal	USCGS: 30° N, 116° W O = 18:45:30 Felt throughout southern California and southern Arizona. Minor damage at scattered points in both states. Further fissuring, damage to canals, etc. Damage to railroads in Mexican territory.
Dec 31	P T	iPZ ePN	21	25	29 22					

Note: Further details regarding the shocks of December 30, 13^h,
and December 31, 18^h, will be issued later.

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We wish to acknowledge with thanks receipt of the following bulletins during January, 1935:

Adelaide	Nov 30-January, 1934-1935
Apia	October-December, 1934, No. 4
Capetown	October 18-November 27, 1934, No. 39-41
Chiufeng	November, 1934, No. 1-3
Georgetown	December, 1934, No. 216
Graz	May 14-August 30, 1934, No. 3-4
Hong Kong	October, 1934
Ithaca	March-September, 1934
J.S.A.	November 27, 30, December 3, 1934, No. 37-39
Kew	December, 1934
Lwow	September 27-December 31, 1933, No. 5
Melbourne	July-September, 1934, No. 27
Montecassino	July-August, 1934
Ottawa	December, 1934, No. 31-32
Perth	September 8-December 15, 1934, No. 20-23
Quito	July-August, 1934
Riverview	November, 1934, No. 11
Strasbourg	
Inst. Phy. du Globe	November, 1934
Parc St. Maur	November, 1934, No. 47-54
Bureau Centrale	November, 1934, No. 192-9
Union Geodesique	November, 1934
Sydney	November, 1934
Taihoku	December, 1934, Preliminary
Tananarive	June-August, 1934
Toronto	October-November, 1934
Victoria	October-November, 1934, No. 75
Wellington	November, 1934
Wien	January 1-June 29, 1934
Zagreb	April-June, 1934
Zi-ka-wei	September 4-November 11, 1934, No. 16-17
Zinsen	July-September, 1934, No. 9-12