



H A R V A R D U N I V E R S I T Y
S E I S M O G R A P H S T A T I O N

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STATION CONSTANTS

Latitude: 42° 30' 26" North
 Longitude: 71° 33' 45" West
 Altitude: 180 meters

INSTRUMENTS

Vertical, North-South, and East-West Benioff long- and short-period variable reluctance seismographs with mass of 112.7 kg., galvanometric registration, and magnetic damping.

Three-component L-B Seismograph with displacement type transducer and ink registration.

Normal Operating Constants

Instrument	T _o sec.	T _g sec.	% Critical Damping	Drum Speed	V _s	Displacement for accelera- tion of 10 ⁻⁶ gravity
ZSP	1.0	0.2	.6	60 mm/min.		15 mm
NSP	1.0	0.2	.6	60 mm/min.		15 mm
ESP	1.0	0.2	.6	60 mm/min.		15 mm
ZLP	1.0	14.0	.6	30 mm/min.		12 mm
NLP	1.0	14.0	.6	30 mm/min.		12 mm
ELP	1.0	14.0	.6	30 mm/min.		12 mm
L-B (Z N E)	1.0	0.1	.5	60 mm/min.	100,000	
	1.0	0.1	.5	60 mm/min.	100,000	
	1.0	0.1	.5	60 mm/min.	100,000	

NOTE

This station has been listed by the International Seismological Summary as Oak Ridge, because it is located at the Oak Ridge Observatory of Harvard College. Since the world-wide advertisement of the place name Oak Ridge, Tennessee, in connection with manufacture of the Atomic Bomb, this nomenclature has led to confusion. The correct designation of this station is the Harvard Station, because it is operated by Harvard University as the direct successor to the original Harvard Station in Cambridge, Mass., and it is the Town of Harvard, Mass.

MAIL ADDRESS

Harvard Seismograph Station
 c/o Prof. L. Don Lect
 Harvard, Massachusetts, U.S.A.

Date	Phase	Time (GCT)	Remarks
1950 Jan. 2	iP i(pP) iS eL eT	00-47-38.5 56.5 51-46.5 55-27 01-07-48	CGS: H = 00-42-26 19° N, 67-1/2° W (Near West Coast of Puerto Rico) 2650 km.
Jan. 2	iP	01-24-10	CGS: H = 01-15-29 7° N, 34° W (Atlantic Ocean, 800 mi. off NE coast of of Brazil.)
Jan. 2	iP' eL	15-33-33 16-16-20	CGS: H = 15-14-54 11-1/2° S, 165° E (Queen Charlotte Islands Region) M = 7 (Pasadena) 13,700 km.
Jan. 2	i i i i	21-56-03.3 03.2 13.5 22.6	Four groups of sinusoidal waves. Period much greater than that associated with artificial or nearby seismic disturbances.
Jan. 3	iP' iPP ePKS eSKKS eS ePKKP ePA e(PPS) eSS eR	03-10-39 12-03 13-44 18-40 19-32 20-46 21-20 23-21 28-31 56-50	CGS: H = 02-51-50 18° N, 121° E (Northern tip of Luzon, P.I.) M = 6-1/2 (Pasadena) 13,200 km.
Jan. 3	e	06-05-10	See note for Jan. 2, at 21-56.
Jan. 3	eP eR	11-19-22 43-32	BCIS: H = 11-06.4 47° S, 74° W
Jan. 5	eL	04-56.6 ca.	
Jan. 6	iP	18-50-03	
Jan. 10	eL	03-30-28	CGS: H = 03-05-42 11° N 103° W (Pacific Ocean off South coast of Mexico) M = 6-1/4 (Pasadena) 4700 km.

Date	Phase	Time (GCT)	Remarks
1950			
Jan. 10	eL	17-27-30	
Jan. 12	iP' iPP	12-23-51 24-51	CGS: H = 12-06-06 17° S 178-1/2° W (Fiji Islands Region) h = 500 km. M = 7 ca. (Pasadena) 12,300 km.
Jan. 12	iP	17-22-48.5	CGS: H = 17-09-49 42° N 142° E (Off South coast of Hokkaido, Japan) h = 100 km.
Jan. 13	iP'	00-30-05	CGS: H = 00-10-57 5° S 151° E (New Britain Region)
Jan. 13	iP i(pP) i(sP)	10-20-49 21-17 29.5	CGS: H = 10-10-21 Northern Chile Deeper than normal?
Jan. 14	iP'	00-11-35	CGS: H = Jan.13,23-52-29 4-1/2° S, 152-1/2° E (New Britain Region)
Jan. 20	eP eQ eR	18-46-14 19-03-40 06-28	CGS: H = 18-36-56 Southwest Alaska
Jan. 21	iP iP'	14-21-42.5 22-01	CGS: H = 14-09-54 36° S, 73° W (Near West coast of Chile. Felt in Central Chile.) h = 100 km. 8850 km.
Jan. 22	eL	04-59-25	CGS: H = 04-07-15 23° N 53° E (Near So. coast of Iran)
Jan. 23	iP' eL	10-18-54 11-20-50	CGS: H = 09-59-50 10° N 125° E (Philippines)
Jan. 24	eP eS eT	05-58-01 06-02-05 21-07	CGS: H = 05-52-05 18° N 63° W Leeward Islands

Date	Phase	Time (GCT)	Remarks
1950			
Jan. 24	iP'	17-05-56	CGS: H = 16-47-08
	ePP	03-02	14-1/2° S 167° E
	iPS	17-05	(New Hebrides)
	ePPS	13-38	h = 150 km. ca.
	e	19-34	M = 6-1/4 (Pasadena)
	eSS	23-34	13,800 km.
	e	24-22	
	e	34-00	
	eQ	42-58	
	eR	44-30	
Power off Jan. 26, 03-47 to 06-04			
Jan. 26	L	06-04	
Jan. 27	eL	20-12-40	CGS: H = 19-18-09
			17° S 173° W
			(Samoa Islands Region)
			12,300 km.
Jan. 30	iP	01-09-57	CGS: H = 00-56-32
	iPP	13-30	54° S 71° W
	iPPP	15-20	(Southern Magallanes
	e	19-08	Province, 50 mi. south
	eSKS	20-22	of Punta Arenas)
	ePS	22-40	M = 6-3/4 ca. (Pasadena)
	e	24-00	10,700 km.
	eQ	43-15	
	eR	46-55	
Jan. 30	iP	02-53-35	CGS: H = 02-49-49
			51-1/2° N 150° W
			(Southern Alaska)
Jan. 31	iP	22-55-16.5	CGS: H = 22-43-24
			51° N 156° E
			(Kamchatka)
			h = 100 km.
Feb. 1	iP	11-51-58.5	CGS: H = 11-41-32
	iPP	52-23	Northern Chile
	iSP	38	h = 100 km.
Feb. 3	eQ	00-22-05	CGS: H = Feb. 2, 23-33-38
	eR	33-50	22° N 100-1/2° E
			(Southwest Yunnan
			Province, China. Felt.)
			M = 6-3/4 (Pasadena)
			12,700 km.
Feb. 3	eL	03-45-50	CGS: H = 02-51-46
			Aftershock of above
			M = 6-1/2 (Pasadena)

Date	Phase	Time (GCT)	Remarks
1950			
Feb. 3	eL	17-23 ca.	CGS: H = 16-45-29 Foreshock of Feb. 4 02-07-53
Feb. 4	eL	02-43-50	CGS: H = 02-07-53 54° N 162° W (Aleutian Islands) 6,200 km.
Feb. 5	iPP iPKS eSS eL	01-46-11 47-10 02-05-26 30-46	CGS: H = 01-26-30 50° S 164° E (Off Southern coast of New Zealand) M = 6.8 (Pasadena) 15,900 km.
Feb. 6	eL	12-27-16	CGS: H = 12-17-53 16° N 94° W
Feb. 7	ePS eL	00-55-50 01-23-34	CGS: H = 00-25-57 14-1/2° S 166-1/2° E (New Hebrides)
Feb. 7	iP	10-45-20	CGS: H = 10-34-45 Near Peru - Chile Border
Feb. 7	iP eL	10-49-57.5 11-23-34	CGS: H = 10-37-22 46° N 152° E (Kurile Islands) 9200 km.
Feb. 7	iP	21-25-30.5	CGS: H = 21-15-50 East-central Peru
Feb. 8	iP eL	18-26-11 34-46	CGS: H = 18-19-51 48° N 27-1/2° W (North Atlantic) 3400 km.
Feb. 10	eL	18-50-30	
Feb. 11	eL	02-23-42	BCIS: H = 01-22-09 43° S 42-1/2° E
Feb. 12	iP	19-09-14.5	CGS: H = 19-00-42 76° N 6° E
Feb. 12	ePS eR	22-45-00 23-06-36	CGS: H = 22-14-55 19° S 173° E (Fiji Islands) M = 6.5 (Pasadena) 13,200 km.
Feb. 13	iP e	06-05-28 59	CGS: H = 05-55-00 Near coast of Northern Chile
Feb. 17	iP iPP eL	03-53-55.5 54-09 04-05.4 ca.	CGS: H = 03-47-21 13-1/2° N 91° W (near coast of Guatemala) h = 100 km. M = 6-1/4-6-1/2 (Pasadena) 2800 km.

Date	Phase	Time (GCT)	Remarks
1950			
Feb. 18	iP eL	05-16-57 46.1 ca.	CGS: H = 05-04-25 33° S 112° W (Pacific Ocean, Easter Island Region)
Feb. 18	iP eL	06-23-23 31-10	CGS: H = 06-17-50 31-1/2° N 42-1/2° W (North Atlantic Ocean, west of the Azores)
Feb. 18	iP	07-37-56	CGS: H = 07-32-23 Same location as above.
Feb. 19	eL	08-32.9 ca.	
Feb. 21	iP	20-43-14	CGS: H = 20-37-30 Aleutian Islands Region
Feb. 21	iP	22-47-57.5	CGS: H = 22-36-31 55° N 160-1/2° E (Near east coast of Kamchatka)
Feb. 27	eL	04-22-38	
Feb. 28	iP iPcP i iPp isP i iPP i i iPPP iPPP iPPPP e iS iSP ePS isS epPS isPS e eSS i esSS e i eG eR	10-33-06 26 42 34-29 54 35-54 36-30 46 37-04 45 38-24 39-39 42-01 43-02 44-11 54 45-35 46-02 37 47-24 49-00 50-15 51-12 54-12 57-20 58.5 11-02.0 ca.	CGS: H = 10-20-58 46° N 143-1/2° E (Off north coast of Hokkaido, Japan. Felt.) h = 350 km. ca. M = 7-3/4 (Pasadena) 9550 km.
Mar. 1	eL	09-42-57	

Date	Phase	Time (GCT)	Remarks
1950			
Mar. 2	iP ¹ e eSS eSSS eR	18-53-26 19-12-58 13-50 17-20 30-10	CGS: H = 18-29-47 59-1/2° S 34° W (Sandwich Is. Region) M = 6-3/4-7 (Pasadena) 12,100 km.
Mar. 3	eL	11-45-32	CGS: H = 10-43-52 23° S 175-1/2° W (Tonga Islands Region)
Mar. 3	eL	16-36-20	CGS: H = 15-41-09 (Sandwich Is. Region)
Mar. 4	eL	16-44-50	CGS: H = 15-48-40 Aftershock of Mar. 2, 18-29-47.
Mar. 5	iP isP	18-11-41 12-13.5	CGS: H = 13-01-10 Northern Chile h = 100 km.
Mar. 7	iPP ePPP e(PS) e(PPS) e eSS eR	02-28-41 31-17 39-58 41-04 43-45 45-52 03-10-54	CGS: H = 02-07-46 10° N 124° E (Philippine Islands) M = 6-3/4 ca. (Pasadena) 14,000 km.
Mar. 9	iP eS eT	10-09-44 15-00 36-29	CGS: H = 10-03-39 16° N 60° W (Leeward Islands) 3100 km.
Mar. 12	eL	07-04-48	
Mar. 14	iP ipP isP i iPcP iScS iSS eL	03-13-50 19-12 35 41 20-03 28-22 29-25 36-30	CGS: H = 03-10-02 8° S 74° W (Eastern Peru) h = 150 km. ca. M = 6-3/4 ca. (Pasadena) 5550 km.
Mar. 18	eL	05-39-18	BCIS: H = 04-39.6 57° S 24° W
Mar. 18	iP	18-23-00	CGS: H = 18-18-04 18-1/2° S 67-1/2° W (Southwestern Bolivia) h = 200 km.
Mar. 20	i(P)	16-46-27	Teleseism?
Mar. 27	iP e i	06-27-29.5 39 28-04	CGS: H = 06-16-05 Western Argentina

Date	Phase	Time (GCT)	Remarks
1950			
Mar. 27	iP	13-15-16	CGS: H = 13-04-04
	iPP	17-37	53-1/2° N 173° E
	ePPP	19-44	(Aleutian Islands)
	eS	24-21	M = 6.7 (Pasadena)
	eSS	29-25	7700 km.
	eSSS	32-32	
	eR	39-37	
Mar. 27	iP'	21-33-03	CGS: H = 21-13-32
	iPP	41-13	5-1/2° S 103° E
	eSkSP	51-56	(Off southern coast of
	eScSP'	53-13	Sumatra)
	ePPS	55-14	Slightly deeper than
	eSS	22-02-00	normal.
	e	03-50	M = 7 ca. (Pasadena)
	e	16-22	16,800 km.
	eR	39-40	
Mar. 29	eL	13-53-50	CGS: H = 12-52-53
			26-1/2° S 176-1/2° W
			M = 6-1/4 (Wellington)
Mar. 29	iPP'	13-00-27.5	CGS: H = 17-41-07
	ePP	03-42	3° S 137-1/2° E
	eSkSP	12-00	(Northern New Guinea)
	ePPPS	15-56	14,900 km.
	e	27-38	
	eR	43-20	
Apr. 3	eP	10-20-19	CGS: H = 10-10-15
			Aleutian Islands Region
Apr. 4	iP	02-31-43	CGS: H = 02-21-11
			Foreshock of 02-24-47
Apr. 4	iP	02-35-25	CGS: H = 02-24-47
	i	37.5	51-1/2° N 173° W
	eL	59-43	7150 km. (Aleutian Is. Region)
Apr. 4	eL	04-47-42	
Apr. 4	iP	13-57-00.5	CGS: H = 13-44-10
	i	17.5	52° N 101° E
	e	19-07-00	(Near border of U.S.S.R.
	eS	07-27	and outer Mongolia,
	eSS	12-35	about 100 mi. west
	eR	19-25	of Lake Baikal)
			M = 6-1/2 (Pasadena)
			9550 km.
Apr. 5	eL	01-46-23	CGS: H = 01-17-15
			52° N 177° W
			(Aleutian Islands Region)
			7440 km.

Date	Phase	Time (GCT)	Remarks
1950 Apr. 5	eL	18-27-49	CGS: H = 18-13-53 54° N 36° W 600 mi. So. of Greenland
Apr. 6	eL	03-34-51	CGS: H = 03-01-55 Alaska Peninsula
Apr. 10	iP i	16-55-56 56-25	CGS: H = 16-48-38 5° N 76-1/2° W (Western Colombia) 4200 km.
Apr. 12	eL	05-12-20	
Apr. 13	eP eS eT	06-28-21 32-31 48-58	CGS: H 06-23-17 West Indies
Apr. 14	eL	20-41-10	CGS: H = 19-59-58 36° S 103° W (Pacific Ocean, 600 mi. south of Easter Island) 9100 km.
Apr. 15	iP eS e e eR	14-57-58 15-03-47 07-34 08-23 11-14	CGS: H = 14-51-25 14° N 91° W (Near coast of Guatemala) h = 100 km. 3650 km.
Apr. 16	eP	16-32-36	CGS: H = 16-19-00 36-1/2° N 140-1/2° E (Near east coast of Honshu, Japan) 10,550 km.
Apr. 16	eP eL	21-55-35 22-10-35	CGS: H = 21-48-02 49° N 129° W (Off coast of British Columbia) 4450 km.
Apr. 18	eL	14-58-34	CGS: H = 14-31-46 4-1/2° S 106° W M = 6.5 (Pasadena) 6250 km.
Apr. 20	iP e e eL	10-03-25.5 49 10-42 35.0 ca.	CGS: H = 09-50-44 45° N 150° E M = 6-1/2 (Pasadena) 9500 km.
Apr. 20	eL	17-05-18	

Date	Phase	Time (GCT)	Remarks
1950			
Apr. 20	iP	17-29-00.5	CGS: H = 17-19-14 3° N 34° E (Northern Algeria)
Apr. 20	eL	13-39-56	
Apr. 22	eL	22-43-23	
Apr. 23	eP iS eI	03-06-07 10-04.5 27-27	Caribbean Area?
Apr. 26	iP e e(PP) e iSKS ePS ePPS eSS eG eR	07-18-46 21-23 22-50 28-37 29-13 31-33 32-30 37-03 53-55 58-17	CGS: H = 07-04-48 24° N 135° E (Near south coast of Hokkaido, Japan) Slightly deeper than normal M = 6-3/4 ca. (Pasadena) 11,350 km.
Apr. 26	iP	12-28-47	CGS: H = 12-13-29 53° N 170° W (Aleutian Islands Region) h = 60 km.
Apr. 26	eL	19-49.2 ca.	
Apr. 27	iP	14-31-03	CGS: H = 14-13-30 Kurile Islands Region
Apr. 30	eP e eL	10-40-57 50-47 11-03-49	CGS: H = 10-29-03 24-1/2° S 112-1/2° W (South Pacific, 250 mi. NW of Easter Island) 3500 km.
Apr. 30	iP	17-52-59	Teleseism?
Apr. 30	iP e eL	13-30-55.5 33-05 46.4 ca.	CGS: H = 13-21-36 10-1/2° S 75-1/2° W (Central Peru) 5900 km.
Apr. 30	eP e(PP) e(S) eQ eR	23-56-39 53-01 00-02-32 04-45 06-55	CGS: H = 23-49-22 4-1/2° N 82-1/2° W (Pacific Ocean, off southern coast of Panama) 4300 km.
May 1	iP' i	13-40-27 45-02	CGS: H = 13-20-41 Near SE coast of Sumatra
May 2	iP	14-47-47	CGS: H = 14-35-08 Kurile Islands Region

Date	Phase	Time (GCT)	Remarks
1950			
May 5	eL	01-35-22	CGS: H = 01-05-00 1500 mi. N of Easter Island
May 5	iP	01-51-36.5	Teleseism?
May 6	eL	20-51-05	
May 7	(eP' eL	04-46-25) 05-30-26	
May 7	eP' eL	06-56-00 07-49-58	CGS: H = 06-36-05 Macquarie Islands Region
May 8	iP i(pP)	19-50-55 51-23	Teleseism
May 9	eL	07-10-40	CGS: H = 06-10-30 Gulf of Aden
May 9	iP eL	11-30-17 12-02-15	CGS: H = 11-17-10 41° N 53° E Turkmen
May 10	eP' ePS e eL	23-59-22 00-10-25 24-12 33-41	CGS: H = 23-39-25 15° S 43° E (Near northern coast of Madagascar) M = 6-1/2 (Pasadena)
May 11	eL	14-04.3 ca.	CGS: H = 13-25-17 Aleutian Islands Region
May 12	iP	04-31-28	Teleseism?
May 12	iP	23-38-20	Teleseism
May 13	iP	10-45-15	Teleseism
May 13	eL	18-59.7 ca.	
May 15	eL	18-13-19	
May 16	eP	04-54-50	Teleseism?
May 16	(eP eL	13-09-32) 34-45	
May 17	iP	12-01-27	Teleseism?
May 17	iP' ePP e(SKSP) ePPS e eSS ePPPS eSSS e eR	18-32-11 34-07 43-29 45-24 49-13 51-15 34 55-27 59-42 19-12-53	CGS: H = 18-13-13 20° S 169° E (New Hebrides Islands Region) M = 7 (Pasadena) 14,050 km.

Date	Phase	Time (GMT)	Remarks
1950			
May 19	eP ¹	02-57-13	CGS: H = 02-33-10
	iPP	59-05	20-1/2° S 169° E
	i	03-05-23	(New Hebrides Islands
	e	07-42	Region)
	iPS	09-43	M = 6.3 (Pasadena)
	iPPB	10-37	14,050 km.
	i	11-28	
	i	12-32	
	e	14-53	
	eSS	16-16	
	ePSPS	53	
	eS _c SS _c S	18-46	
	eSSS	20-21	
May 19	ePP	07-26-24	CGS: H = 07-05-31
	e(SKSP)	36-13	20-1/2° S 169° E
	ePPS	38-01	(New Hebrides Islands)
	e	41-31	Region)
	eSS	43-59	M = 6-1/2 (Pasadena)
	e	45-22	14,100 km.
	eSSS	47-54	
	e	51-43	
	eR	03-05.8 ca.	
May 20	iP	03-03-24	
	eL	31-12	
May 20	iP	09-43-10.5	CGS: H = 09-37-27
	e	49-46	29° N 43-1/2° W
			(North Atlantic Ocean)
May 21	eP	13-47-20	CGS: H = 13-37-41
	eL	19-07.3 ca.	14° S 72° W
			(Cuzco, Peru. Several
			hundred reported killed
			and injured. Heavy damages)
			M = 6 (Pasadena)
May 21	eL	22-45.2 ca.	CGS: H = 21-42-46
			20° S 169° E
			(New Hebrides Region)
May 22	eL	00-19.0 ca.	CGS: H = May 21,23-14-39
			19-1/2° S 163° E
			(New Hebrides Region)
May 23	iP	03-25-20	
	i	23-41	
	eL	09-11.7	
May 23	iP	22-39-59	Teleseism

Date	Phase	Time (GMT)	Remarks
1950			
May 24	ip' eL	04-14-55 57.1 ca.	CGS: H = 03-55-55 20° S 169° E (New Hebrides Region)
May 24	ip eS eL	13-00-39 05-50 12-43	CGS: H = 12-54-40 16-1/2° N 53-1/2° W (Off SE coast of Dominican Republic.)
May 25	ip eL	08-43-25 53-03	CGS: H = 08-34-32 65-1/2° N 151-1/2° W (About 100 mi. NW of Fairbanks, Alaska Feit at College) M = 6 (Pasadena) 5300 km.
May 25	ip' ePP epPP iPPP e(pPPP) e eSKS e esS e(PKKP) ePS esPS ePPS e e iSS esSS eP'P' eR	13-53-41 54-44 55-03 57-17 58-07 59-49 19-01-33 02-49 04-12 52 05-31 06-03 08-43 08-43 10-55 11-41 12-15 14-03 28.9 ca.	CGS: H 18-35-60 13° N 142-1/2° E (about 150 mi. west of Guam) h = 100 km. ca. M = 7-1/4 (Pasadena) 12,900 km.
May 26	eP ip' ipP' ePP ipPP e(PKS) epPP ipPPP e eSKKS e e(SKSP) e ePPS eSKKP e e iSSS eP'P' iSSS eR	01-32-55 36-07.5 21 37-52 38-12 39-37 40-29 41-13 42-38 44-23 47-05 56 48-50 49-25 47 50-39 51-01 56-05 57-26 02-00-20 16.0 ca	CGS: H = 01-17-14 20° S 169° E (New Hebrides Islands Region) h = 100 km. ca. M = 7-1/2 (Pasadena) 13,900 km.

Date	Phase	Time (GCT)	Remarks
1950 May 26	eL	13-41.0 ca.	CGS: H = 17-39-14 20° S 169° E (New Hebrides Islands Region)
May 27	eL	12-00.6 ca.	CGS: H = 10-46-29 20° S 169° E
May 27	eL	12-51.4 ca.	CGS: H = 11-44-52 19° S 168° E
May 27	iP'	12-58-25	CGS: H = 12-39-43 20° S 168° E (New Hebrides Islands Region) h = 200 km. ca. M = 6-1/2 (Pasadena)
May 27	iP e eL	13-31-44 33-44 39.2 ca.	
May 27	e(pP) iPP ipPP eSKS eSP e(PS)	14-42-50 45-51 47-28 50-42 54-43 55-10	CGS: H = 14-27-10 17° S 179° W (Fiji Islands Region) h = 600 km. ca. M = 6-3/4 (Pasadena) 12,700 km.
May 28	iP' ePP ePS iPPS e e eSS e e e	01-55-46 57-35 02-08-24 09-25 10-33 13-19 15-03 15-33 16-52 20-22 22-23	CGS: H = 01-36-44 20° S 169° E (New Hebrides Islands Region) M = 6-1/2 (Pasadena) 13,900 km.
May 28	iP i(pP)	22-40-00 19	
May 30	iP eL	01-27-47 55.4 ca.	CGS: H = 01-16-16 19-1/2° N 156° W (Island of Hawaii) M = 6-1/4 (Pasadena)
May 30	iP' iPP ipPP isPP eSP eSPP PS esSP	15-21-43 23-01 24-51 25-32 31-36 33-00 35-54	CGS: H = 15-04-03 20° S 173-1/2° W (Tonga Islands Region) h = 600 km. ca. M = 6-1/4 (Pasadena) 12,900 km.

Date	Phase	Time (GCT)	Remarks
1950			
May 30	iP i(pP)	15-51-41 59	
May 31	iP epP	09-30-32.5 31-05	CGS: H = 09-21-45 8° S 74° W (east-central Peru) h = 150 km. ca. 5650 km.
May 31	eL	14-08.9 ca.	
June 2	iP eS	09-52-26 57-33	
June 4	eP eS	04-40-33 44-24	CGS: H = 04-35-00 Off south coast of Puerto Rico
June 4	e e eL	03-17-07 21-24 44.1 ca.	CGS: H _I = 07-29-44 H _{II} = 07-58-02 7° N 126° E (Near east coast of Mindanao, P.I.)
June 4	eL	16-19-38	CGS: H = 15-13-20 21° S 170-1/2° E (Loyalty Islands Region) h = 100 km. 13,900 km.
June 5	L being recorded at	11-50	CGS: H = 11-16-12 37° N, approx. 45° E (North Polar Region) 5500 km.
June 7	i	14-13-12	Teleseismic?

Date	Phase	Time (GCT)	Remarks
1950 June 7	iP	17-00-57.5	CGS: H = 16-52-34 4° S 76-1/2° W (Northern Peru) h = 100 km. 5100 km?
	ipP	01-21	
	i	23	
	isP	35	
	i	43	
	iP _c P	02-27.5	
	iPP	49	
	isPP	03-22	
	iPPP	36	
	iS _c P	06-02	
	iP _c S	16.5	
	i	29	
	e	07-16	
	i	29.5	
	iS	39	
	e	53	
	isS	08-23	
	iS _c S	10-27	
	iSS	11-13	
	i(pSS)	32	
	isSS	43	
	eR	16-19	
June 3	eP	16-21-24	CGS: H = 16-07-33 45-1/2° S 15° W h = possibly greater than normal M = 7-7-1/4 (Pasadena) 11,250 km.
	iPP	25-38	
	ePPP	27-51	
	e	31-25	
	eSKS	32-00	
	eSKKS	32-38	
	eS	33-14	
	ePS	34-35	
	e(PPS)	35-28	
	i	36-47	
	eSS	40-26	
	eR	55-32	
June 9	i	18-23-40.3	
June 11	iP	13-45-10.5	CGS: H = 13-34-25 22° S 69-1/2° W (Northern Chile) h = 100 km. 7150 km.
	ipP	40.5	
June 11	iP	20-27-12	CGS: H = 20-15-55 28-1/2° S 73° W (Off coast of northern Chile)

Date	Phase	Time (GCT)	Remarks
1950			
June 11	eP ¹ ePP ePPP eSS eR	22-31-00 34-21 37-10 54-15 23-13.6 ca.	CGS: H = 22-11-12 South Pacific Ocean, approx. 1200 mi. SW of New Zealand. 17,000 km. ca.
June 13	iP	07-19-36	CGS: H = 07-08-40 Northern Argentina
June 14	eL	04-37-36	CGS: H = 03-44-10 13-1/2° S 174-1/2° W (Tonga Islands Region)
June 14	eP eS eT	04-54-43.5 53-39.5 05-16-22	Caribbean Region?
June 15	eL	07-37-00	CGS: H = 07-21-13 12-1/2° N 44-1/2° W (Mid-Atlantic Ocean)
June 15	eP eS eL eT	13-02-47 06-56 13-28 23-53	Caribbean Region?
June 16	iP	05-43-19.5	CGS: H = 05-33-00 Off coast of northern Chile
June 16	iP	03-36-32.5	
June 17	iP	22-26-43	CGS: H = 22-16-06 25° S 67° W (Northern Argentina) h = 200 km.
June 17	eL	23-38-01	CGS: H 22-37-24 36° N 140-1/2° E (Near east coast of Honsu, Japan.)
June 19	iP ¹ i ePP iPKS iPPP i e eSKKKS e e(PS) e(SS)	12-56-31 57-44 59-36 13-00-04 01-34 03-59 04-45 00-28 03-37 10-04 13-46	CGS: H = 12-36-58 8° S 112° E (Eastern Java. Several killed.) M = 6-1/2 (Pasadena) 16,200 km.
June 19	iP	13-06-40	

DATE	Phase	Time (GCT)	Remarks
1950 June 20	eP eL	14-20-17 37.9 ca.	CGS: H = 14-11-45 74-1/2° N, 8° E (About 400 mi. NE of Jan Mayen Island)
June 21	iP! iPP ePKS e ePPP e eSKS e i iSKKKS e e e e ePPS e e e eSS ePSPS eS _c SS _c S eSSS e e eR	07-14-40.5 17-31 13-04 33 19-00 20-50 21-57 22-34 50 23-40 24-46 25-35 26-05 27-26 28-10 30-30 32-16 33-33 33-47 34-03 36-35 38-11 33-59 39-20 57-20	CGS: H = 06-55-39 21° S 169° E (New Hebrides Islands Region) M = 6-3/4 (Pasadena) 13,950
June 21	ePP ePPP eSKS e eSKKKS e e(PPS) eSS eR	10-17-41 19-40 22-24 23-12 24-40 25-36 30-10 35-05 56.5 ca.	CGS: H = 09-56-00 3-1/2° S 147° E (Off NE coast of New Guinea) 14,400 km.
June 22	eL	08-51-26	CGS: H = 08-27-30 Off coast of Colima Mexico.
June 22	iP	23-03-30	CGS: H = 22-53-37 Southeastern Peru.
June 23	iP eL	03-55-04.5 04-05.4 ca.	CGS: H = 03-48-12 13° N 93° W (Off coast of Guatemala) h = possibly greater than normal. 3850 km.

1950	<u>Phase</u>	<u>Time (GCT)</u>	
June 24	iP	15-55-44.5	Caribbean Area?
	eS	59-38	
	eT	16-15-29	
June 24	iP'	22-44-31.5	CGS: H = 22-25-31
	iPP	46-17	19-1/2° S 163-1/2° E
	ePKS	48-18	(New Hebrides Islands
	ePS	55-53	Region)
	ePPS	53-00	M = 7 (Pasadena)
	eSS	23-03-40	13,800 km.
	eSSS	03-01	
	eR	24.4 ca.	
June 25	iP'	11-25-02	CGS: H = 11-05-51
	ePP	27-24	5° N 127° E
	iPKS	28-19	(Off southeast coast
	e	38-45	of Mindanao, P.I.)
	ePPS	39-36	M = 6-1/2 ca. (Pasadena)
	eSS	46-26	14,350 km.
	eS _c SS _c S	47-24	
	eR	12-09-40	
June 26	iP	02-32-27	Teleseism
	i	36-03	
June 26	iP	03-16-39	CGS: H = 03-04-02
			Kurile Islands Region
June 27	iP	01-58-57.5	Teleseism
June 27	iP	15-54-46.5	CGS: H = 15-41-54
	e	55-14	45-1/2° N 140° E
	eS	16-05-40	(Off northeast coast
	ePPS	06-46	of Hokkaido, Japan)
	eR	20.4 ca.	M = 6-1/2-6-3/4 (Pasadena)
			9850 km.
June 28	i	16-43-00	Teleseismic?
June 29	iP	00-26-21.5	CGS: H = 00-15-24
	ipp	37.5	Northern Chile
	isp	44.5	h = 100 km. ca.
June 30	iP'	00-57-12	CGS: H = 00-13-04
	eL	01-21.0 ca.	Solomon Islands
			Region

Date	Phase	Time (GCT)	Remarks
1950			
June 30	iP ipP	11-02-46.5 03-19.5	CGS: H = 10-54-20 6.5° S 75° W (Northern Peru) h = 200 km.
June 30	iP	21-23-42	Teleseism

Philip R. Berger
Observer

Harvard, Massachusetts

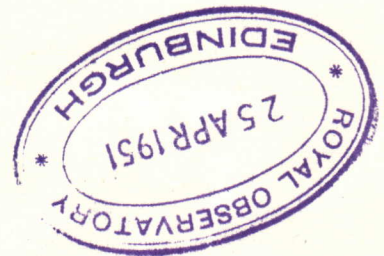
L. Don Leet
Seismologist in Charge

Part B of Paper Number 118, published under the auspices of
the Committee on Experimental Geology and Geophysics and of
the Division of Geological Sciences at Harvard University

July 1, 1950, through December 31, 1950

Bulletin Number 35

HARVARD UNIVERSITY
SEISMOGRAPH STATION



STATION CONSTANTS

Latitude: 42° 30' 26" North
 Longitude: 71° 33' 45" West
 Altitude: 180 meters

INSTRUMENTS

Vertical, North-South, and East-West Benoist Long- and short-period variable reluctance seismographs with mass of 112.7 Kg., galvanometric registration, and magnetic damping. Three-component L-B Seismograph with displacement type transducer and ink registration.

Normal Operating Constants

Instru-	T ₀	T _g	% Critical	Damping	Speed	V _s	Displacement	For accelera-	tion of	10 ⁻⁶	gravity
ZSP	1.0	0.2	.6	60	mm/min.	15	mm				
NSP	1.0	0.2	.6	60	mm/min.	15	mm				
ESP	1.0	0.2	.6	60	mm/min.	15	mm				
ZIP	1.0	14.0	.6	30	mm/min.	15	mm				
NIP	1.0	14.0	.6	30	mm/min.	12	mm				
EIP	1.0	14.0	.6	30	mm/min.	12	mm				
(Z)	1.0	0.1	.5	60	mm/min.	100,000					
L-B(N)	1.0	0.1	.5	60	mm/min.	100,000					
(E)	1.0	0.1	.5	60	mm/min.	100,000					

NOTE

This station has been listed by the International Seismological Observatory as Oak Ridge, because it is located at the Oak Ridge Observatory of Harvard College. Since the world-wide advertisement of the place name Oak Ridge, Tennessee, in connection with manufacture of the Atomic Bomb, this nomenclature has led to confusion. The correct designation of this station is the Harvard Station, because it is operated by Harvard University as the direct successor to the original Harvard Station in Cambridge, Mass., and it is the Town of Harvard, Mass.

MAIL ADDRESS

Harvard Seismograph Station
 c/o Prof. L. Don Loet
 Harvard, Massachusetts, U.S.A.

Remarks Time (GCT) Phase Date

1950 July 1

March 1951

The following publications, issued under the auspices of the Committee on Experimental Geology and Geophysics at Harvard University, are available for free distribution. If you wish any of these, please check the appropriate items and return the list to: Professor L. Don Lee, Geological Museum, Cambridge 38, Massachusetts.

- 112a. Lee, L. D. and Berger, Phillip: Bulletins 32 and 33 of the Harvard University Seismograph Station—Jan. 1, 1949 through June 30, 1949 and July 1, 1949 through December 31, 1949.
- 113. Kennedy, George C.: Pressure-Temperature Relations in Water at Elevated Temperatures and Pressures, Am. Jour. Sci., Vol. 248, pp. 540-564, 1950.
- 114. Kennedy, George C.: A Portion of the System Silica Water, Econ. Geol., Vol. 45, pp. 629-653, 1950.
- 115. Heald, Milton T.: Thermal Study of the Potash-soda Feldspars, Am. Mineral., Vol. 35, pp. 77-89, 1950.
- 116. Kennedy, George C.: "Pneumatolysis" and the Liquid Inclusion Method of Geologic Thermometry, Econ. Geol., Vol. 45, pp. 533-547, 1950.
- 117. Birch, Francis: A Simple Technique for the Study of the Elasticity of Crystals, Amer. Mineral., Vol. 35, pp. 644-650, 1950.
- 118a. Lee, L. D., and Berger, Phillip: Bulletins 34 and 35 of the Harvard University Seismograph Station, January 1, 1950 through June 30, 1950.
- 118b. Lee, L. D., and Berger, Phillip: Investigation of the T-Phase, Bull. Seis. Soc. Am., 1951.
- 120. Lee, Linhan and Berger: "Investigation of the T-Phase, Bull. Seis. Soc. Am., 1951.
- 121. Lee, L. Don: Comments on Proposed Tsunami Warning, Bull. Seis. Soc. Am., 1951.
- 123. Lee, L. Don: Further Review of the Microseismic Storm of September 30-October 1, 1947, Bull. Seis. Soc. Am., Vol. 40, pp. 299-303, 1950.

Copies of two additional papers, which are not included in the numbered Geophysical Series, are also available:

- Birch, Francis: The Electrical Resistance and the Critical Point of Mercury, Physical Review, pp. 641-648, 1932.
- Birch, Francis: The Problem of Identifying the Crustal Layers, Trans. American Geophysical Union, pp. 552-556, 1941.

SS: H = 22-49-24

N, 73°10' W

ent in Bogota

entral Colombia,

elt in Bogota

: H=10-03-36

, 141°10' E

Region)

oline Islands /

00 km.

H = 12-29-33

a Islands

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H = 03-34-59

1680 E

tebrides)

km.

H = 18-50-08

550 W

rn Alaska)

16-46-55

16-54-10

Islands Region)

10 E

16-03-02

Islands Region)

W

16-39-29

Islands

16-35-31

felt in Cucuta

Province. Several hun-

dred killed. Heavy

damage).

3800 km.

Date
1950

Phase

Time (GCT)

Remarks

Date	Phase	Time (GCT)	Remarks
July 9	IP	04-48-08	CGS: H = 04-39-57 8 $\frac{1}{2}$ ° S, 71° W (Western Brazil) h = 600 km. ca. M = 7 (Pasadena) 5600 km.
July 9	IP	04-58-06	CGS: Aftershock of 04-39-57
July 9	IS	04-32	M = 6 $\frac{1}{2}$ -7 (Pasadena)
July 9	IP	05-17-03	Aftershock?
July 9	IP	05-28-16	Aftershock?
July 9	IP	09-53-05	CGS: Aftershock of 04-39-57
July 9	IP	10-01-49	M = 6 $\frac{1}{2}$ -6 $\frac{3}{4}$ (Pasadena) 240 mm/min record after P.
July 9	IP	12-41-06	CGS: H = 12-34-15 Aftershock of 02-35-31
July 9	IP	16-23-16	CGS: H = 16-09-53 36° N, 72° E (Northern NW Pakistan Frontier Province, Felt.) Dist. (P-H) = 10,600 km.
July 9	EP	19-29-37	CGS: H = 19-17-12 36 $\frac{1}{2}$ ° S, 103° W (About 600 mi. south of Easter Island) 9300 km.
July 10	ER	06-38 ca.	
July 12	IP	01-45-25	CGS: H = 01-36-42 2° N, 101° W (700 miles northwest of the Galapagos Is.) 5400 km.
July 12	IP	11-19-25	CGS: H = 11-09-15 53° N, 166° W (Aleutians) 6600 km.
July 12	IP	15-58-05.5	CGS: H = 15-46-51 Off east coast of Kamchatka. h = 100 km. ca.

Date	Phase	Time (GCT)	Remarks
July 12	1P 1PP 1SP	21-38-16 40-50 41-51	CGS: H = 21-26-25 Near southern coast of Karafuto h = 500 km.
July 13	EP EPP ESKS	04-17-04 21-29 26-52	CGS: H = 04-03-50 27 $\frac{1}{2}$ $^{\circ}$ N, 139 $\frac{1}{2}$ $^{\circ}$ E (Bonin Islands) h = 500 km M = 6 $\frac{3}{4}$ -7 (Pasadena) 11,650 km.
July 14	ER	12-42 ca.	CGS: H = 12-06-45 52 $^{\circ}$ N, 171 $^{\circ}$ W (Aleutians) 7000 km.
July 17	e (PS) e e	20-49-38 50-34 51-24	CGS: H = 20-17-50 20 $\frac{1}{4}$ $^{\circ}$ S, 171 $^{\circ}$ E (New Hebrides Islands Region.) 13,800 km.
July 17	EP?	21-32-30	Telesismic ?
July 18	EP ES ER ET	06-58-06 07-01-57 09 ca. 18-53	West Indies Dist. (S-P) = 2390 km.
July 19	EP	11-02-58	CGS: H = 10-51-54 Aleutian Islands Region
July 20	EP EPP EPS ER	09-49-27 51-03 10-00-57 26 ca.	CGS: H = 09-30-48 17 $^{\circ}$ S, 174 $^{\circ}$ E (Fiji Islands Region) 13,300 km.
July 21	ER	08-08.5 ca.	CGS: H = 07-18-55 Kermadec Islands Region
July 21	1P 1(SP)	08-24-22 27-34	CGS: H = 08-16-21 Western Brazil after shock. h = 600 km. ca.
July 21	EP EPP ER	20-52-33 21-30 ca.	CGS: H = 20-32-01 15 $\frac{1}{2}$ $^{\circ}$ S, 168 $\frac{1}{2}$ $^{\circ}$ E (New Hebrides Islands Region) 13700 km.

Date	Phase	Time (GCT)	Remarks
Aug. 7	1P	03-02-57	CGS: H = 02-44-44 6° N, 126° E (off southeastern coast of Mindanao, Philippine Islands) M = 6 2/3 (Pasadena) 14,500 km. Note: Sharpness of body phases and their large amplitudes compared with those of surface waves indicates greater than normal focal depth. Phase identifications based on an assumed depth of slightly more than 100 km.
	OR	39.0 ca.	
Aug. 7	1P	16-06-44.5	CGS: H = 15-47-23 1 N, 126 E (Molucca Passage) 14,950 km.
	OR	17-01.0 ca.	
Aug. 10	OL	20-19.8 ca.	CGS: H = 19-19-30 Solomon Is. Region
Aug. 11	OP	12-24-40	
	OS	28-53	
Aug. 11	OL	21-21.5 ca.	CGS: H = 20-20-52 Tonga Is. Region
Aug. 13	1P	16-48-24	CGS: H = 16-43-20 19 1/2° N, 70 1/2° W (near coast of Santo Domingo) 2550 km.
	OR	54-46	
	IS	52-24	
	OP	18-50-03	CGS: H = 18-39-16 51 1/2° N, 177° W (Aleutian Islands region) Felt at Adak)
	OP	06-42-05	CGS: H = 06-31-35 h = 100 km. ca. (off coast of southern Peru)
Aug. 14	OS	08-14-59	Caribbean aftershock. Beginning of P lost in artificial disturbance.
	OT	31-37	

Date 1950

Phase

Time (GCT)

Remarks

Date	Phase	Time (GCT)	Remarks
Aug. 14	IP	23-01-39.1	CGS: H = 22-51-28 27° S, 62½° W (northern Argentina) M = 7½-7½ (Pasadena) h = 700 km. ca. 7700 km. Recorded completely on L-B seismograph at 240 mm/min.
Aug. 15	IP	14-23-57	CGS: H = 14-09-30 23½° N, 97° E BCIS: H = 14-09-30 28.6° N, 96.5° E Bombay: H = 14-09-23 29° 00' N, 97° 00' E (region of China-Burma India border) M = 8.6 (Pasadena and Strasbourg) 12,045 km.
Aug. 15	IPP	18-57-35	CGS: H = 18-38-45 Aftershock of above
Aug. 15	CPP	22-01-35	CGS: H = 21-42-23 27° N 92° E Northern Assam, India
Aug. 16	EPS	06-01-23	CGS: H = 05-33-06 Aftershock of Aug. 15,
Aug. 16	EL	31.0 ca.	14-09-30 Aftershock of Aug. 15,
Aug. 16	CPP	07-00-45	CGS: H = 06-42-02 Aftershock of Aug. 15
Aug. 16	CR	38.9 ca.	14-09-30
Aug. 16	ER	16-29.9 ca.	CGS: H = 15-29-25 China-Burma-India border region after- shock.
Aug. 16	CR	18-49.0 ca.	CGS: H = 17-51-35 C - B - I border after- shock.
Aug. 16	CR	20-30.6 ca.	CGS: H = 19-25-35 C-B-I border aftershock
Aug. 17	EPS	02-22-34	CGS: H = 01-54-17 Aftershock of Aug. 15
	CR	51.5 ca.	14-09-30

Date	Phase	Time (GCT)	Remarks
Aug. 17	IP	16-53-03	CGS: H = 16-15-22 21° S, 180° (Tonga Islands Region) h = 600 Km. Ca. M = 6 $\frac{1}{2}$ -7 (Pasadena) 13,100 km.
	IP	34-25	
	IPP	34-25	
	CPP	35-22	
	ePP	36-26	
	ePP or PPP	37-22	
	c	43-03	
	ESP	43-18	
	1PKKP	28	
	CPS	44-24	
	e	46-35	
	eSSP or SPS	47-03	
	c	47-23	
	SS	49-57	
	e	51-17	
	oSSS	54-43	
Aug. 18	EP	01-26-18	CGS: H = 01-07-49 Aftershock of Aug. 15, 14-09-30 M = 7 $\frac{1}{2}$ (Pasadena)
	c	36	
	!	28-59	
	ePS	35-58	
	ePPS	36-58	
	e	50.8	
	eR	02-06.1	
Aug. 18	EP	17-17-34	CGS: H = 16-58-49 Aftershock of Aug. 15, 14-09-30
	ePPP	19-46	
	c	21-56	
	eS	25-24	
	eR	57.9 ca.	
Aug. 20	EL	01-12-30	
Aug. 20	e	01-58-42	CGS: H = 01-44-55 47 $\frac{1}{2}$ ° N, 113 $\frac{1}{2}$ ° W (Western Montana) 3350 km.
	eL	02-00-16	
	EL	02-40	
Aug. 20	EP	08-42-36	West Indies Region
	eS	46-26	
	eT	09-03-07	
Aug. 20	eL	10-06.0 ca.	CGS: H = 09-03-37 Southeastern Tibet
Aug. 20	EP	23-53-17	CGS: H = 23-34-19 15° S, 167° E New Hebrides Is. Region
	eR	00-42.0 ca.	
Aug. 21	EP	15-46-09	CGS: H = 15-40-59 20° N, 70° W off northern coast of Dominican Republic
	oS	50-12	
	eT	16-05-18	

Date	Phase	Time (GMT)	Remarks
Aug. 22	IP	02-31-01.5	
Aug. 22	eL	07-46-50	CGS: H = 06-43-18 31° N, 94° E (Southeastern Tibet)
Aug. 22	IP	07-51-53	CGS: H = 07-40-09 53° N, 160° E (off east coast of Kamchatka) h possibly greater than normal. 8400 km.
Aug. 22	OR	14-22.5 ca.	CGS: H = 13-22-29 C-B-I border aftershock
Aug. 23	IP, ePP	03-28-05 30-03	
Aug. 23	CL	04-08.2 ca.	
Aug. 23	ePP, ePP, ePS	19-05-50 08-21 15-25	CGS: H = 18-46-57 C-B-I border after-shock
Aug. 24	eP, eS	11-18-03 22-00	West Indies Region
Aug. 24	eL	18-07-58	CGS: H = 17-45-34 42½° N, 126° W (off coast of southern Oregon) 4450 km.
Aug. 25	CL	02-38.5 ca.	CGS: H = 02-15-10 49° N, 129° W (off Vancouver Is.)
Aug. 26	eP, eS	02-51-45 55-45	West Indies Region
Aug. 26	IP, e(SS)	04-48-46 50-47	CGS: H = 04-39-27 65° N, 162° W (About 150 miles south-west of Nome, Alaska. Felt in Nome) M = 6½ ca. (Pasadena) 5900 km.

Date	Phase	Time (GCT)	Remarks
Aug. 26	c	06-58-28	
	c	07-00-55	
	c	30-40	
Aug. 27	c	00-46-47	
	c	01-02-57	
	c	05-24	
Aug. 27	1P	08-57-04.5	
	e (p)	38	
Aug. 29	c	19-06.1 ca.	
Aug. 29	c	23-49.6 ca.	
Aug. 30	c	05-23.7 ca.	
Aug. 30	1P	07-10-30.5	
	ePP	13-29	
	ePKS	56	
	eSKS	17-42	
	eR	56.0 ca.	
Aug. 30	c	10-18.4 ca.	
	c	CGS: H = 09-13-49	
	c	19° S, 168° E	
	c	(New Hebrides Islands Region)	
	c	CGS: H = Aug. 30,	
	c	23-13-53	
	c	(New Hebrides Is. Region)	
Aug. 31	c	00-16.6	
	c	CGS: H = 07-24-33	
	c	45	
	1P	26-44	
	cPP	27-01	
	1	28-45	
	cPKS	29-01	
	1PPP	29-01	
	c	30-04	
	c	36-10	
	1SKSP	43	
	ePPS	38-22	
	c (PPPS)	39-22	
	c	41-15	
	1SS	44-18	
	c	46-40	
	c	08-09.9 ca.	

CGS: H = 07-05-35
 6° N, 126° E
 (off southern coast of
 Mindanao, P.I.)
 M = 7 (Pasadena)
 14,450 km.

CGS: H = 06-51-03
 31° S, 130° E
 (off west coast of
 New Guinea)
 M = 6 1/2 (Pasadena)
 15,250 km.

Date	Phase	Time (GCT)	Remarks
Sept. 1	EP	03-06-23	CGS: H = 02-46-55 Indian Ocean, about 700 miles west of Sumatra
Sept. 2	IP	02-57-36	CGS: H = 02-47-23 52° N, 169° W (Aleutian Islands) M = 6 1/2 (Pasadena) h = 100 km. ca. 6925 km.
Sept. 2	ER	14-26.8 ca.	
Sept. 2	CR	17-11.6 ca.	
Sept. 3	IP	00-08-19	CGS: H = Sept. 2, 23-59-39 Mid Atlantic Ocean, about 1000 mi. SW of Cape Verde Islands
Sept. 3	IP	19-33-30	41.1 ca.
Sept. 4	IP	07-47-36.5	50
Sept. 4	IP	12-28-42	CGS: H = 12-17-13 Near coast of northern Turkey
Sept. 9	IP	05-48-48	CGS: H = 05-37-43 Northern Chile
Sept. 9	OP, CSKS CPS CSS CR	10-40-47 47-26 53-08 59-56 11-20.6	CGS: H = 10-21-40 4° S, 153° E New Britain Region M = 6 1/2 (Pasadena) 13,950 km.
Sept. 9	1(P)	14-07-58	Telesism ?
Sept. 10	IP C CR	03-34-57.5 47-33 04-10.6	CGS: H = 03-21-20 35° N, 140° E (near coast of Honshu, Japan) M = 6 1/2 (Pasadena) 10,900 km.

Date	Phase	Time (GCT)	Remarks
Sept. 10	1P	15-34-56	CGS: H = 15-15-57 14° S, 167° E (New Hebrides Islands Region) M = 7 (Pasadena) 13,700 km.
	1PP	36-35	
	c	37-10	
	cSKKS	43-23	
	c	44-47	
	cPS	47-03	
	1PPS	48-41	
	c	49-12	
	c	52-14	
	c	53-22	
	ess	54-05	
	c	57-18	
	e(SSSS)	57-18	
	cSSS	58-09	
	OR	16-10-40	
Sept. 14	1P	08-01-54	CGS: H = 07-52-20 20° S, 63° W (southeastern Bolivia) h = 600 km. ca.
Sept. 16	CP	01-05-13	CGS: H = 00-55-36 4° S, 104° W (about 1000 miles west of Galapagos Islands) M = 6½ (Pasadena) 6100 km.
	c(PP)	06-53	
	e	17-42	
	ER	23-16	
Sept. 16	1P	12-51-29	CGS: H = 12-39-13 48° N, 156° E (Kurile Islands Region)
Sept. 16	1P	22-09-10.5	CGS: H = 21-58-15 52½° N, 178° E (Aloutian Islands Region) h = 100 km. M = 6.6 (Pasadena) 7600 km.
Sept. 18	1P	19-44-48.5	CGS: H = 19-36-44 9° S, 71½° W (Western Brazil) h = 750 km. ca. M = 6 (Pasadena)

Date 1950	Phase	-Time (GCT)	Remarks
Sept. 23	1P	06-35-08	CGS: H = 06-23-44 35° N, 26° E (Eastern Crctc. Several injured, light damage)
Sept. 24	0L	22-40-45	CGS: H = 22-13-28 64° N, 156° W (west-central Alaska)
Sept. 25	1P, 0PF	23-35-01 36-52	CGS: H = 23-15-58 91° N, 126° E (Off northern coast of Mindanao, P.I.)
Sept. 27	0P, 0L	03-44-33 57-25	CGS: H = 03-36-55 20° N, 107° W (off west coast of Mexico) M = 5 1/4 (Pasadena) 4350 km.
Sept. 27	0L	09-23.7	CGS: H = 08-23-58 18 1/2° S, 175° E (about 300 miles west of Fiji Islands Region) 12,500 km.
Sept. 28	0, 0, 0	22-06-52 08-33 10-16	CGS: H = 21-47-01 54 1/2° N, 134 1/2° W (Queen Charlotte Islands Region. Felt off Annette Is.)
Sept. 29	1P, 1PP, 1S, 1L	06-39-35 41-04 45-36 51-29	CGS: H = 06-32-14 19° N, 107° W (off coast of Colima, Mexico) M = 7 (Pasadena) 4250 km.
Sept. 29	0P	08-01-50	CGS: H = 07-54-22 Aftershock of above.
Sept. 30	0, 1PP, 0PKS, 0PS, 1PPS, 0R	07-46-39 47-50 48-38 49-45 57-01 58-11 08-25-40	CGS: H = 07-28-54 28° N, 94° E (Northern Assam, India)

Date	Phase	Time (GCT)	Remarks
Sept. 30 1950	IP	08-59-39	
Oct. 1	EL	02-30-44	CGS: H = 01-55-30 Samoa Islands Region
Oct. 1	o(L)	14-36-00	
Oct. 1	IP	18-59-48	
Oct. 2	EP	11-50-52	CGS: H = 11-43-30 21° N, 109° W (Off west coast of Mexico)
Oct. 3	EP	02-49-12	
Oct. 3	ES	53-10	
Oct. 3	CT	03-08-20	West Indies Region?
Oct. 3	EL	09-33.0 ca.	CGS: H - 09-04-03 Western Alaska, 150 miles Northeast of Nome.
Oct. 3	IP	12-47-36	CGS: H = 12-40-08 65½° N, 128° W Western Yukon, Canada) 4200 km.
Oct. 3	EL	23-59.9 ca.	CGS: H = 23-02-00 China-Burma-India border region aftershock.
Oct. 4	EL	19-04-10	CGS: H = 18-03-23 19° S, 169° E (New Hebrides Islands Region)
Oct. 5	OR	01-28-10	CGS: H = 00-41-07 18½° S, 170° E (New Hebrides Is. Region) 13,800 km.
Oct. 5	IP	16-16-16	CGS: H = 16-09-34 10½° N, 85° W (near Costa Rica, damage reported in Puntarenas). h = 100 km. M = 7½ (Pasadena) 3800 km.
Oct. 5	EP	20-16-02	CGS: H = 20-09-22 Aftershock of above
Oct. 5	OR	28-20	

Date	Phase	Time (GCT)	Remarks
1950			
Oct. 5	1(P)	22-25-32	Toloseism?
Oct. 5	1P	23-16-19.5	CGS: H = 23-07-49 31° S, 80 1/2° W (Near southwest coast of Ecuador)
Oct. 6	1P	08-21-07	CGS: H = 08-16-02 20° N, 66° W (off coast of northern Puerto Rico)
Oct. 6	1P	11-25-35	CGS: H = 11-20-05 17° N, 68° W (off southwest coast of Puerto Rico.)
Oct. 6	CP	12-48-34	CGS: H = 12-43-03 After shock of above
Oct. 7	OL	07-59.4 ca.	
Oct. 8	1P	03-42-26	CGS: H = 03-23-09 4° S, 128° E (Molucca Islands. Tsunami reported.) M = 7.6 (Pasadena) 15,400 km.
Oct. 8	1PKS	46-15	
Oct. 8	OPPP	47-55	
Oct. 8	e	48-29	
Oct. 8	e	49-04	
Oct. 8	oSKS	49-46	
Oct. 8	e	50-45	
Oct. 8	eSKKS	51-47	
Oct. 8	eSKKS	52-22	
Oct. 8	ePcSP	56	
Oct. 8	e	54-29	
Oct. 8	ePPS	57-39	
Oct. 8	ePPPS	58-54	
Oct. 8	CP.P	59-49	
Oct. 8	ess	04-04-10	
Oct. 8	esgSSgS	05-20	
Oct. 8	esss	08-40	
Oct. 8	CP	07-29-12	CGS: H = 07-23-59 Mid-Atlantic Foreshoek
Oct. 8	CP	11-15-16	CGS: H = 11-09-38 Mid-Atlantic Foreshoek
Oct. 8	CP	15-08-43	CGS: H = 15-08-43 Mid-Atlantic Foreshoek
Oct. 8	e(PF)	09-56	
Oct. 8	CP	54.8 ca.	

CGS: H = 22-07-22
9 1/2° N, 85° W
(Off west coast of Costa Rica). Slightly deeper than normal.

CGS: H = 15-06-46
11° N, 88° W
(off west coast of Costa Rica)
h = 150 km. ca.

CGS: H = 14-56-16
Costa Rica after shock
h = 100 km. ca.

CGS: H = 07-57-10
North Atlantic Ocean,
200 miles southwest of
the Azores.

CGS: H = 13-27-07
Aftershock, region of
9° N, 85° W

CGS: H = 16-40-36
32° N, 41° W
(Mid-Atlantic Ocean)
West Indies Region?

Date 1950	Phase	Time (GCT)	Remarks
Oct. 8	IP	16-46-22	CGS: H = 16-40-36 32° N, 41° W (Mid-Atlantic Ocean) West Indies Region?
Oct. 10	EP	00-18-53	CGS: H = 16-38.5 ca.
	ES	22-47	
	ET	39-34	
Oct. 11	EL	16-38.5 ca.	
Oct. 14	EL	13-47.0 ca.	CGS: H = 13-27-07 Aftershock, region of 9° N, 85° W
Oct. 14	EL	18-03.6 ca.	
Oct. 15	CP	16-19-09	
	EL	59.8 ca.	
Oct. 16	IP	08-02-21.5	CGS: H = 07-57-10 North Atlantic Ocean, 200 miles southwest of the Azores.
Oct. 16	IP	21-53-35	
	EL	22-08-29	
Oct. 17	EL	14-13.1 ca.	
Oct. 17	e	14-47-50	
Oct. 17	EL	15-10-58	
Oct. 17	IP	15-13-33	CGS: H = 15-06-46 11° N, 88° W (off west coast of Costa Rica) h = 150 km. ca.
	1(PF)	48	
Oct. 17	EL	22-24-10	CGS: H = 22-07-22 9 1/2° N, 85° W (Off west coast of Costa Rica). Slightly deeper than normal.

Date	Phase	Time (GCT)	Remarks
Oct. 19	IP	03-53-42	CGS: H = 03-48-25 19° N, 64° W (Off northeast coast of Puerto Rico) 2650 km.
Oct. 19	IP	03-53-42	CGS: H = 03-48-25 19° N, 64° W (Off northeast coast of Puerto Rico) 2650 km.
Oct. 19	ES	57-54	
Oct. 19	ER	04-02-28	
Oct. 19	ET	17-25	
Oct. 19	EP	09-47-56	
Oct. 19	ES	51-56	
Oct. 19	EL	57.8	
Oct. 19	EL	10-51.8	CGS: H = 09-51-20 32° S, 178° W (Kermadec Islands Region) M = 6 $\frac{1}{2}$ ca. (Pasadena.)
Oct. 20	IP	07-49-52	CGS: H = 07-44-30
Oct. 20	IP	50-08	
Oct. 20	ES	53-58	
Oct. 20	e	54-14	
Oct. 20	IR	58-37	
Oct. 21	I (PS)	04-40-41	CGS: H = 04-12-59 18 $\frac{1}{2}$ ° S, 174° W (Tonga Islands Region) h = 100 km. M = 6 $\frac{1}{2}$ (Pasadena) 12,600 km.
Oct. 21	IP	06-22-21	
Oct. 22	IP	15-22-58	CGS: H = 15-10-47 48 $\frac{1}{2}$ ° N, 153° E (Kurile Islands Region) h = 100 km. ca.
Oct. 23	IP	16-19-56.5	CGS: H = 16-13-24 14 $\frac{1}{2}$ ° N, 92° W (Near coast of Guatemala) h = 100 km. M = 7.2 (Pasadena) 3700 km.
Oct. 23	ES	25-03	
Oct. 23	IP	17-12-01.5	CGS: H = 17-05-31
Oct. 23	IP	17-54-29.5	CGS: H = 17-47-57
Oct. 23	ES	59-46	Guatemala aftershock
Oct. 23	IP	19-57-26	CGS: H = 19-50-56
Oct. 23	OR	20-10.0 ca.	Guatemala aftershock. h = 100 km.

Date 1950

Phase

Time (GCT)

Remarks

Oct. 23	IF	23-45-23	CGS: H = 23-38-50 Guatemala aftershock M = 6.1 (Pasadena)
Oct. 24	EP	00-58-21	CGS: H = 00-52-07 Guatemala aftershock M = 6.2 (Pasadena)
Oct. 24	CP	05-57-06	CGS: H = 05-50-24 Guatemala aftershock M = 6.0 (Berkeley)
Oct. 24	CP	16-01-42	CGS: H = 15-55-12 Guatemala aftershock h = 100 km.
Oct. 24	IP	09-02-11	CGS: H = 08-44-07 6 $\frac{1}{2}$ ° S, 155° E (Solomon Islands Region)
Oct. 26	ER	01-21-10	
Oct. 26	IF	02-51-27	CGS: H = 02-44-56 Guatemala aftershock h = 100 km.
Oct. 26	ER	04-52.1 ca.	
Oct. 26	CL	16-38.7 ca.	CGS: H = 15-38-43 32° S, 178° W (Kermadec Islands Region) M = 6 $\frac{1}{2}$ -6 $\frac{3}{4}$ (Pasadena) 13,650 km.
Oct. 27	CP	21-47-49	CGS: H = 21-28-41 15° S, 167° E (New Hebrides Islands Region)
Oct. 28	CL	10-08.8 ca.	CGS: H = 09-05-38 32° S, 177 $\frac{1}{2}$ ° W (Kermadec Islands Region)
Oct. 28	IF	22-22-29	CGS: H = 22-15-48 15° N, 91 $\frac{1}{2}$ ° W (Western Guatemala) M = 6 $\frac{1}{2}$ (Tucson) h = 100 km. 3625 km.

Date	Phase	Time (GMT)	Remarks
Oct. 30	1P	01-06-21	
Oct. 30	e	03-12-43	
Oct. 30	EL	20-3 ca.	
Oct. 30	1P	10-32-27.5	CGS: H = 10-23-02 14° S, 70° W (Southeastern Peru) h = 100 km. ca.
Oct. 31	GL	05-25.2 ca.	CGS: H = 04-49-15 52° N, 174° W (Aleutian Islands Region)
Oct. 31	1P	19-25-13	CGS: H = 19-15-22 10° N, 26° W (Mid-Atlantic Ocean)
Oct. 31	OR	19-56.9	CGS: H = 19-35-14 Gulf of California fore-shock
Oct. 31	EP	20-29-29	CGS: H = 20-22-30 23½° N, 108° W (Gulf of California) 4,050 km.
Nov. 1	GL	01-45-06	CGS: H = 01-22-57 Guatemala Fore-shock
Nov. 1	EP	12-52-13	CGS: H = 12-45-32 10° N, 85° W (near west coast of Costa Rica) h = 100 km. ca.
Nov. 2	1P	15-47-11	CGS: H = 15-27-49 6° S, 129½° E (Banda Sea Region. Felt in Darwin, Australia M = 7½ (Pasadena) 15500 km.
Nov. 2	EP	50-37	
Nov. 2	eSKKKS	57-33	
Nov. 2	e (SKSP)	59-48	
Nov. 2	ePFS	16-02-42	
Nov. 2	ESS	09-10	
Nov. 2	1P	18-33-25.5	CGS: H = 18-14-03 Aftershock of above
Nov. 3	1P	06-35-22.5	CGS: H = 06-29-40 16° N, 67° W (About 150 miles south of Puerto Rico)

Date	Phase	Time (GCT)	Remarks
1950 Nov. 3	IP	20-29-22	
Nov. 5	eL	16-49-50	CGS: H = 16-35-20 14 1/2° N, 92° W M = 6 1/2 (Pasadena) 3700 km.
Nov. 5	eL	18-29-40	CGS: H = 17-37-25 33° N, 124 1/2° E (off coast of Shikoku, Japan) M = 6 1/2 (Pasadena) 10,300 km.
Nov. 6	IP:	22-41-10	CGS: H = 22-22-05 7 1/2° S, 155 1/2° E (Solomon Islands Region) M = 7 (Pasadena) 14,050 km.
Nov. 7	oP	01-33-15	CGS: H = 01-27-25 About 150 miles south- west of Puerto Rico.
Nov. 8	(o	02-08-18)	Telescopic
Nov. 8	IP:	02-37-13	CGS: H = 02-18-09 9 1/2° S, 159 1/2° E (Solomon Islands Region) M = 7 1/2 - 7 3/4 (Pasadena) 13,950 km.
Nov. 8	IP:	02-37-13	
Nov. 8	IP:	39-07	
Nov. 8	IPKS	40-25	
Nov. 8	IPPF	41-45	
Nov. 8	e	43-32	
Nov. 8	TSKKS	46-13	
Nov. 8	o	48-10	
Nov. 8	oPS	49-03	
Nov. 8	oPPS	50-28	
Nov. 8	e	54-54	
Nov. 8	oSS	55-45	
Nov. 8	e	56-20	
Nov. 8	oPSPS	56-45	
Nov. 8	e	57-08	
Nov. 8	e	03-02-57	
Nov. 8	oR	16.0 ca.	
Nov. 9	oL	04-41.0 ca.	
Nov. 9	IP	11-10-48.5	CGS: H = 11-00-22 53° N, 171° W (Aleutian Islands Region)

Date	Phase	Time (GCT)	Remarks
Nov. 9	1P	12-07-07	CGS: H = 11-54-53 46 $\frac{1}{2}$ ° N, 150° E (Kurile Islands Region) h = 200 km. ca.
Nov. 9	1P	12-39-04	CGS: H = 12-27-00 48° N, 152° E (Kurile Islands Region) h = 200 km. ca.
Nov. 10	CP	02-21-35	CGS: H = 02-14-12 19 $\frac{1}{2}$ ° N, 110° W (Pacific Ocean, off west coast of Mexico)
Nov. 10	1P (GS)	11-29-19.5 33-20) 51-17	
Nov. 11	EL	04-39.0	CGS: H = 03-38-07 6° S, 148° E (Off east coast of New Guinea)
Nov. 11	CP	09-35-54	CGS: H = 09-28-23 19 $\frac{1}{2}$ ° N, 110° W (Pacific Ocean, off west coast of Mexico)
Nov. 11	1P	13-34-34	
Nov. 11	CP	13-58-06	CGS: H = 13-51-04 10° N, 85° W (near west coast of Costa Rica)
Nov. 13	1(P)	00-09-41	
Nov. 14	EL	05-28.0 ca.	CGS: H = 04-23-46 11° S, 161° E (Solomon Islands) M = 6 $\frac{1}{4}$ (Berkeley)
Nov. 14	EL	08-07.7 ca.	
Nov. 14	EL	22-02.9 ca.	
Nov. 14	EL	23-04.4 ca.	
Nov. 15	1P	09-49-25	

Date 1950

Phase

Time (GMT)

Remarks

Nov. 15

EP

12-44-49

ES

46-55

ET

13-02-52

Nov. 16

EP

05-39-48

CGS: H = 05-26-46
42° N, 145½° E
(off coast of Hokkaido,
Japan.
10,000 km.

Nov. 16

EP

13-31-04

CGS: H = 13-12-11
32° S, 180°
(Korradec Islands Region)

Nov. 17

EP

19-35-15

CGS: H = 19-28-18
17° N, 100½° W
(near west coast of
Mexico)
M = 6¾-7 (Pasadena)
4000 km.

ESS

43-52

ISS

45-08

EP

46-44

Nov. 22

EP

10-27-14

48.2 ca.

CGS: H = 10-16-26
51° N, 176° W
(Aleutian Islands Region,
felt at Adak)
h - possibly greater
than normal.
M = 6¾ (Pasadena)
7400 km.

EP

13-57.5 ca.

CGS: H = 13-03-43
15° S, 173° W
(Samoa Is.)
M = 6¾-6½ (Pasadena)
12,100 km.

Nov. 24

EP

21-12.4 ca.

CGS: H = 20-18-48
Same location as above.
M = 6¾-6½ (Pasadena)

Nov. 25

EP

06-19.0 ca.

CGS: H = 14-51-00
14° N, 47° W
(Mid Atlantic Ocean,
about 800 miles off
northeast coast of
Brazil)
h = 100 km. ca.
M = 7½ (Pasadena)
3900 km.

Dec. 1

EP

14-57-50

59-00

15-03-24

05-29

30-51

Date	Phase	Time (GCT)	Remarks
Dec. 11 1950	IP	03-43-24	CGS: H = 03-32-56 24° S, 60° W (northern Argentina - Chile border region) h = 200 km. ca. 7500 km.
Dec. 11	IP	14-54-44	CGS: H = 14-46-41 8° S, 71° W (Western Brazil) h = 650 km. ca. M = 7 (Pasadena) 5700 km.
Dec. 14	IP IPF IPF 1SKS 1(SKKS) IS ISF ISS ISSS	02-07-13 03-06 11-58 17-32 18-37 19-29 21-10 27-35 31-30 13-43-08	CGS: H = 01-52-47 19½° S, 176° W (Tonga Islands Region) h = 200 km. ca. 12,650 km. M = 7½-7¾ (Pasadena)
Dec. 14	IP	14-22-36	CGS: H = 14-15-50 17° N, 98° W (Southern Mexico, Felt.) M = 7½ (Pasadena) 3800 km.
Dec. 15	OT CS OT	15-16-08 20-01 37-11	CGS: H = 08-04-46 15° N, 90° W (Guatemala) h = 200 km. 3500 km.
Dec. 18	IT OT	08-11-01 22.5 ca.	CGS: H = 11-36.50 30° S, 71° W (Central Chile) h = 150 km. ca.
Dec. 21	IP	11-48-06	
Dec. 22	IP	00-46-28.5	

Date 1950	Phase	Time (GMT)	Remarks
Dec. 22	ep	09-30-04	CGS: H = 09-10-36 Nicobar Islands Region
Dec. 26	ep	13-58-28	CGS: H = 13-51-43 17° N, 98° W (Southern Mexico After-shock, Felt.) M = 6 $\frac{1}{2}$ (Pasadena) 3800 km.
Dec. 27	ep el el	23-15-47 22.9 ca. 39-38	CGS: H = 23-10-02 Leeward Islands, Foro-shock. h = 100 km. ca.
Dec. 28	ep	14-25-28	CGS: H = 14-17-29 9° S, 72° W (Western Brazil) h = 750 km. ca.
Dec. 28	ep	21-15-58	CGS: H = 21-06-29 11 $\frac{1}{2}$ ° S, 73° W (Central Peru) h = 100 km.
Dec. 29	ep es es er et	20-22-04 26-43 28-42 46-04	CGS: H = 20-16-29 17° N, 63° W (Leeward Islands) h = 100 km. ca.
Dec. 30	el	07-44.0 ca.	CGS: H = 06-42-56 Kermadec Islands Region h = 100 km. ca.
Dec. 30	ip	13-10-11.5	CGS: H = 13-02-20 1° S, 77° W (Central Ecuador) h = 200 km. ca.
Dec. 31	ep	09-52-40	CGS: H = 09-46-28 Leeward Islands Aftershock. h = 100 km. ca.

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