ROYAL OBSERVATORY
26 NOV 1951
EDINBURGH

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

Bulletin Number 36

January 1, 1951, through June 30, 1951

Part A of Paper Number 128, published under the auspices of the Committee on Experimental Geology and Geophysics and of the Division of Geological Sciences at Harvard University

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 acceleration 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.		13 mm
L-B (Z	1.0	0.1	.5	60 mm/min.	100,000	
L-B (N	1.0	0.1	.5	60 mm/min.	100,000	
L-B (E	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 Leet
Harvard, Massachusetts, U.S.A.

Date 1951	Phase	Time(GCT)	Remarks
Jan. 1	eL	21-20.7	CGS: H = 20-16-20 13° S, 169° E (New Hebrides Islands Region) Dist.(meas) = 13,900 km.
Jan. 2	eP	23-20-59	CGS: H = 23-11-56 11° S, 79° W (Off coast of Peru) Dist(P-H) = 5940 km. h = 200 km.ca.
Jan. 3	eL	03-20.0	
Jan. 3	eP	10-07-04	
Jan. 3	iP	12-28-48	CGS: H = 12-21-31 18° N, 106° W (Off coast of Colima, Mex.) Dist.(meas) = 4300 km. M = 6¼-6½ (Pasadena)
Jan. 3	iP eS eQ eR	13-11-42 17-43 25-27 27-16	CGS: H = 13-04-24 Aftershock of above M = 6¼ (Pasadena
Jan. 3	iP	17-39-29	
Jan. 5	eP ePP eR	00-59-42 01-01-01 10.5	CGS: H = 00-52-40 7° N, 81° W (near southern coast of Panama) h = 100 km.ca. M = 6.7 (Pasadena) Dist.(meas) = 4100 km.
Jan. 6	iP epP esP i iPP isPP i(sPS) eL	05-30-10.5 31-11 31 50 34-02 35-16 43-58 56-16	CGS: H = 05-17-19 36½° N, 70½° E (Hindu Kush region, north-eastern Afghanistan) h = 250 km.ca. M = 6.8 (Pasadena) Dist.(meas) = 10,600 km.
Jan. 6	iP epP ePP i eS isS	07-58-29 52 59-29 42 04-07 38	CGS: H = 07-51-31 7½° N, 81° W (southern Panama. Felt in Panama and Canal Zone.) h = 100 km.ca. M = 7 (Pasadena) Dist.(meas) = 4050 km.

Date 1951	Phase	Time (GCT)	Remarks
Jan. 10	eL	09-27-50	CGS. H = 08-26-56 23° S, 176° W (Tonga Islands Region) h = 100 km.ca.
Jan. 10	eP eL	19-14-34 46.2	CGS: H = 19-05-35 Aleutian Islands Region h = 100 km.ca. dist.(P-H) = 7600 km.
Jan. 10	eL	20-26.5	
Jan. 14	eL	11-18.6	CGS: H = 10-19-24 23° S, 176° W (Tonga Islands Region) h = 100 km.ca.
Jan. 15	eP' ipP' isP' esPP eSKSP eSPP e esSS eR	04-30-57 31-29.5 42 33-23 42-38 43-49 45-12 49-55 05-19.9	CGS: H = 04-12-14 15° S, 167° E (New Hebrides Islands) h = 150 km.ca. M = 6¼-6¾ (Pasadena) dist.(meas.) = 13,800 km.
Jan. 18	eP eL	21-26-36 50-12	CGS: H = 21-15-50 52° N, 177° W (Aleutian Islands. Felt at Finger Bay, Adak.) h = 60 km.ca. M = 6¼-6½ (Pasadena) dist.(meas.) = 7400 km.
Jan. 18	e(P)	22-55-10	
Jan. 19	iP eL	01-47-19.5 57-50	CGS: H = 01-40-48 13° N, 88° W (Off coast of El Salvador) h = 100 km.ca. dist. (P-H.) = 3680 km.
Jan. 20	iP eL	13-18-40 29.5 ca.	CGS: H = 13-12-20 New Mexico-Guatemala border dist. (P-H) = 3420 km.
Jan. 21	L being recorded at 13-02		
Jan. 22	eL	11-38 ca.	CGS: H = 10-30-45 33° S, 178° W (Kermadec Islands Region)

Date 1951	Phase	Time (GCT)	Remarks
Jan. 22	eL	13-20.8	CGS: H = 12-16-02 17½° S, 41° E (Mozambique Channel) dist.(meas.) = 13,100 km.
Jan. 23	iP	07-09-06	CGS: H = 07-00-10 Southwestern Alaska dist.(P-H) = 5530 km.
Jan. 23	i ePS eL	07-10-34 21-36 45.6 ca.	CGS: H = 06-52-42 55° S, 136° W (South Pacific Ocean) dist.(meas) = 12,350 km.
Jan. 24	ePP eL	05-08-23 42.0	CGS: H = 04-49-28 South Sandwich Islands
Jan. 24	eL	07-35-48	CGS: H = 07-17-01 33° N, 115¾° W (Imperial Valley, Calif.) M = 5¾ (Pasadena) dist.(meas) = 3950 km.
Jan. 25	eL	17-52.6	
Jan. 26	iP_1 i iS_1 iS_1S_1	03-28-10.0 11.5 23.6 24.8	Local Quake - Connecticut dist.(S_1-P_1) = 108 km.
Jan. 27	iP	00-46-52.5	CGS: H = 00-36-12 Southeastern Santiago del Estero, Argentina h = 500 km.ca. dist.(P-H) = 8080 km.
Jan. 29	eL	06-07-19	CGS: H = 05-43-47 43° N, 128° W (Off Cape Mendocino, Cal. dist.(meas.) = 4550 km.
Jan. 29	eP	10-34-22	CGS: H = 10-27-59 15½° N, 92° W (Near southern coast of Chiapas, Mexico h = 100 km.ca. dist.(P-H) = 3580 km.

Date 1951	Phase	Time (GCT)	Remarks
Jan. 30	eL	19-23.4	CGS: H = 19-00-30 15½° N, 99° W (Off southern coast of Mexico) M = 6¼-6½ (Pasadena) dist.(meas) = 4000 km.
Jan. 30	iP eL	23-19-30.5 53 ca.	CGS: H = 23-07-40 34° N, 33° E (Eastern Mediterrancan Sea) h = 100 km.ca. dist.(P-H) = 8600 km.
Feb. 6	eP	06-14-30	CGS: H = 06-06-04 Off east coast of Alaska Peninsula dist.(P-H) = 5100 km.
Feb. 7	eP eR	03-52-27 04-34.2	CGS: H = 03-38-37 Bonin Islands Region h = 100 km.ca. dist.(P-H) = 11,400 km.
Feb. 10	iP	08-50-54	CGS: H = 08-38-09 43½° N, 146° E. (off east coast of Hokkaida, Japan) h = 100 km.ca. dist.(P-H) = 9840 km.
Feb. 10	i(P)	15-14-58	
Feb. 10	iP eS eT	15-17-27.5 21-26 37-28	CGS: H = 15-12-14 Off south coast of Dominican Republic dist.(P-H) = 2660 km.
Feb. 10	iP	15-35-28	
Feb. 12	iP eL	03-42-34 04-10.8 ca.	CGS: H = 03-31-50 52° N, 179° E (Near Rat Islands, Aleutian Islands) h = 200 km.ca. dist.(P-H) = 7600 km.
Feb. 12	iP eS eL	17-33-16 42-22 56.5 ca.	CGS: H = 17-22-02 66° N, 136° E (Near Verkhoyanski Mts., Siberia) M = 6½ (Pasadena) dist.(P-H) = 7800 km. dist.(meas) = 7700 km.

Date 1950	Phase	Time (GCT)	Remarks
Feb.13	eP	06-23-39	CGS: H = 06-16-30 Near southern coast of Lower California dist.(P-H) = 4050 km.
Feb. 13	iP	08-56-50	CGS: H = 08-50-10 13° N, 91° W (Off coast of Guatemala) h = 100 km.ca. dist.(P-H) = 3780 km.
Feb. 13	ePP	12-14-31	CGS: H = 11-55-50
	eSKS	20-18	15° S, 175° W
	eSP	23-32	(Samoa Islands Region)
	eSPP	24-46	h = 350 km.ca.
	eSS	29-45	M = 7 (Pasadena)
	eL	38-44	dist.(Meas.) = 12,300 km.
Feb. 13	iP	16-34-34.5	CGS: H = 16-28-00 14° N, 91° W Off coast of Guatemala dist.(P-H) = 3600 km.
Feb. 13	iP	22-22-18	CGS: H = 22-12-58
	iS	29-53	56° N, 155-1/2° W
	iScS	32-07	(About 150 miles east of
	iSS	33-40	Alaska Peninsula.)
	eL	35-00	M = 7 (Pasadena)
			dist.(meas.) = 5800 km.
			dist.(P-H) = 5900 km.
Feb. 16	eP_n	00-14-56.6	Local Quake?
	iP_3	59.8	dist (S_n-P_n) = 362 km.
	iP_1	15-04.9	
	eS_n	34.8	
	eS_2	44.0	
	iS_1	50.5	
Feb. 16	eP_1	17-16-30.2	Local Quake?
	e	51.3	dist. - 342 km?
	eS_n	57.6	
	eS_2	17-04.4	
	i	09.0	
	iS_1	13.7	

Date 1951	Phase	Time (GCT)	Remarks
Feb. 17	i	21-25-44.5	CGS: H = 21-06-58
	iP'	26-02	7° S, 146° E
	esP'	45	(Southeastern New Guinea)
	e	28-11	h = 100 km.ca.
	iPP	20	M = 7¼-7½ (Pasadena)
	isPP	29-10	dist.(meas) = 14,700 km.
	iPKS	29	
	ipPKS	30-00	
	isPKS	30-20	
	e	33	
	ePPP	31-20	
	ipPPP	47	
	eSKS	32-55	
	eSKKS	34-51	
	e	35-53	
	eSKSP	38-09	
	ePSKSorSP	22	
	ePS	35	
	i	38-40	
	esPS	39-05	
	eSSP	48	
	iPSPorPPS	40-18	
	i	42-16	
	e	45-18	
	eSS	40	
	esSS	46-10	
	eP'P'	47-19	
Feb. 19	eP	22-24-06	CGS: H = 22-11-54
	eL	52.5 ca.	25° S, 117° W
			(About 500 miles west of Easter Island.)
			M = 6½ (Pasadena)
			dist.(meas) = 8950 km.
Feb. 20	eL	01-28.7 ca.	
Feb. 20	eL	16-06.8 ca.	CGS: H = 15-24-18
			22° S, 114° W
			(Pacific Ocean, about 450 miles northwest of Easter Island)
			M = 6 (Pasadena)
Feb. 21	eL	08-22.3 ca.	CGS: H = 07-19-23
			Kermadec Islands Region
Feb. 21	i	17-24-34	CGS: H = 17-09-56
			43° N, 110° W
			(Southwestern Wyoming)

Date 1951	Phase	Time (GCT)	Remarks
Feb. 21	eP	17-58-18	CGS: H=17-52-49 Dominican Republic Foreshock h = 100 km.ca.
Feb. 21	iP	20-45-50	CGS: H = 20-40-39 18½° N, 69° W (Off north coast of Dominican Republic) h = 100 km.ca dist.(P-H) = 2630 km.
	eS	50-10	
	eT	21-08-03	
Feb. 22	iP	18-07-27	CGS: H = 17-56-42 Near northern Argentina - Chile border. h = 100 km.ca. dist.(P-H) = 7400 km.
Mar. 2	iP	01-38-16	CGS: H = 01-32-39 53° N, 35° W (North Atlantic Ocean) dist.(meas) = 2900 km.
	eL	47-41	
Mar. 4	iP	11-27-13	CGS: H = 11-17-33 16° S, 74° W (Near coast of Southern Peru) h = 150 km.ca. M = 6¾-7 (Pasadena) dist.(meas) = 6500 km.
	i	31.5	
	ipP	39	
	ePcP	45	
	e	28-09	
	e	49	
	i	29-09	
	iPP	47	
	eScP	31-45	
	eL	44.9 ca.	
Mar. 5	iP	11-24-35	CGS: H = 11-14-39 Mid-Atlantic Ocean dist.(P-H) = 6430 km.
Mar. 5	iP	14-55-57	CGS: H = 14-46-00 53° N, 163° W (South of Alaska Peninsula) dist.(P-H) = 6450 km.
Mar. 5	iP	20-25-48	
	iPP	30-16	CGS: H = 20-11-45 (Ryukyu Islands) 29° N, 128° E h = 150 km.ca. M = 7 (Pasadena) dist.(meas) = 11,900 km.
	isPP	31-04	
	ePPP	32-42	
	eS	37-21	
	ePS	39-36	
	esPS	40-29	
	i	41-17	
	esSS	46-15	
	eL	59.5	

Date 1951	Phase	Time (GCT)	Remarks
Mar. 6	iP	08-56-45	
	i	57-16	
	e	32	
Mar. 8	iP'	15-31-10	CGS: H = 15-12-11
	eL	16-15.1 ca.	6° S, 154° E
			(Solomon Islands Region)
			h = 60 km.ca.
Mar. 9	iP'	20-03-51	CGS: H = 19-44-16
	eL	51.2 ca.	8° S, 124½° E
			(Flores Sea Region)
			M = 6¾ (Pasadena)
			dist.(meas) = 16,000 km.
Mar. 10	eP	10-47-28	CGS: H = 10-38-33
			38° N, 5° W
			(South-central Spain.Felt.)
			dist.(P-H) = 5400 km.
Mar. 10	iP'	22-16-14	CGS: H = 21-57-37
	iPP	17-53	15½° S, 167½° E
	isPP	18-59	(New Hebrides Islands)
	ePP	20-36	h = 200 km.ca.
	e(S)	25-31	M = 7¼-7½ (Pasadena)
	e(sS)	26-44	dist.(meas) = 13,750 km.
	iSS	34-38	
	isSS	35-28	
	eSSS	38-32	
	eQ	46.0 ca.	
Mar. 16	i(P)	17-45-17.5	
Mar. 16	eP	17-48-12	Caribbean Area
	eS	52-11	dist.(S-P) = 2600 km.
Mar. 16	iP	19-45-47	CGS: H = 19-35-31
			52½° N, 167½° W
			(Aleutian Islands Region)
			dist.(P-H) = 6770 km.
Mar. 17	eL	05-29.5 ca.	CGS: H = 04-27-35
			32° N, 97° E
			(Eastern Tibet)
Mar. 17	eP'	16-10-28	
	eL	17-02.0 ca.	
Mar. 19	eP	03-13-32	CGS: H = 03-07-31
	e	20-58	35½° N, 35° W
	eL	23.0	(North Atlantic Ocean)
			dist.(P-H) = 3200 km.

Date 1951	Phase	Time (GCT)	Remarks
Mar. 19	iP	20-40-22.5	CGS: H = 20-28-55
	eL	21-07-16	57° N, 160° E
			(Northern Kamchatka)
			dist.(meas) = 7940 km.
			dist.(P-H) = 7880 km.
Mar. 23	iP'	21-57-18	CGS: H = 21-38-54
	iPP	58-03	31° S, 180°
	esPP	22-00-40	(Kermadec Islands)
	iSPP	10-13	h = 300 km.ca.
	iSS	15-41	M = 7.1 (Pasadena)
	e	18-34	dist.(meas) = 13,700 km.
	eG	32.5	
	eR	39.6	
Mar. 24	eP'	00-36-15.5	CGS: H - 00-17-38
			11° S, 166° E
			(Santa Cruz Islands)
			h = 150 km.ca.
			dist.(meas) = 13,420 km.
Mar. 24	eP	20-59-09	CGS: H = 20-52-36
	eL	21-09.0 ca.	13° N, 88° W
			(Off southern coast of El Salvador)
			h = 100 km.ca.
			dist.(meas) = 3700 km.
Mar. 25	eP	11-13-22	Caribbean Area
	eS	17-(29)	
	eT	33-50	
Mar. 27	eL	12-21-06	
Mar. 28	i(P')	02-13-39	CGS: H = 01-54-44
	ePP	16-26	35° S, 178° E
			(Off northern coast of North Island, New Zealand)
Mar. 28	eL	10-48.5 ca.	CGS: H - 10-03-11
			17½° S, 167° E
			(New Hebrides Islands)
Mar. 29	iP	06-07-29	CGS: H = 05-55-10
	ipP'	53	41° S, 73° W
			(Southern Chile)
			h = 100 km.ca.
			dist.(P-H) = 9260 km.
Mar. 29	eP	06-23-41	CGS: H = 06-12-27
			Near Verkhoyanski Mountains, Siberia

Date 1951	Phase	Time (GCT)	Remarks
Mar. 30	iP_1	03-50-44.9	Local Quake - Central Massachusetts
	i	47.7	
	iS_1	51.7	dist.(S-P) = 54 km.
Mar. 30	iP	07-44-30	Caribbean Area
	eS	48-29	dist.(S-P) = 2600 km.
	eT	08-07.2 ca.	
Mar. 31	iP	09-29-73	CGS: H = 09-20-34
	i	30-26	$60\frac{1}{2}^\circ$ N, 154° W (Southern Alaska) h = 350 km.ca.
Apr. 1	eL	19-44-50	CGS: H = 19-21-10 $40\frac{1}{2}^\circ$ N, 125° W (off Cape Mendocino, Cal.) dist.(meas) = 4400 km.
Apr. 1	iP	20-57-59	CGS: H = 20-45-28 42° S, $76\frac{1}{2}^\circ$ W (Off coast of Southern Chile) dist.(P-H) = 9360 km.
Apr. 2	iP	00-20-14	CGS: H = 00-13-34
	iPP	21-18	13° N, 90° W
	iPPP	42	(Off coast of El Salvador)
	eS	25-48	M = $6\frac{1}{4}$-$6\frac{1}{2}$ (Pasadena)
	eR	30-26	dist.(meas) = 3800 km. dist.(P-H) = 3680 km.
Apr. 2	e(P)	14-48-10	
	eL	55-44	
Apr. 2	eL	18-23.2 ca.	CGS: H = 18-00-34 12° N, 87° W (Near west coast of Nicaragua.) Possibly deeper than normal.
Apr. 2	eL	23-23.2 ca.	CGS: H = 22-09-29 6° S, 149° E (Near coast of New Britain) dist.(meas) = 14,400 km.
Apr. 3	iP	04-49-45.5	
	i(pP)	59.5	
Apr. 3	eP	05-08-12	CGS: H = 04-59-37
	ipP	45.5	8° S, 74° W (Near Peru-Brazil border) h = 250 km.ca. dist.(meas) = 5600 km.

Date 1951	Phase	Time (GCT)	Remarks
Apr. 5	eP	03-26-21	CGS: H = 03-15-30 38° N, 19° E (Off Southwest coast of Greece) dist.(P-H) = 7400 km.
Apr. 6	iP	23-06-17	CGS: H = 22-53-30 46° N, 142° E (North of Hokkaido, Japan) dist.(P-H) = 9700 km.
Apr. 8	eP	07-00-50	
Apr. 8	eP eL	21-50-03 21-24-12	CGS: H = 21-38-20 37° N, 35° E (Near South-central coast of Turkey) h = 100 km.ca. dist.(meas) = 8300 km.
Apr. 10	eL	11-47.0 ca.	CGS: H = 10-55-41 15° S, 173½° W (Samoa Islands Region) M = 6¾ (Pasadena) dist.(meas) = 12,350 km.
Apr. 11	iP	07-57-03	CGS: H = 07-45-03 West-central Argentina dist.(P-H) = 8730 km.
Apr. 13	iP' e iPP eL	10-34-22 35-54 37-42 11-35.9 ca.	CGS: H = 10-14-38 10° S, 119° E (About 300 miles east of Java) dist.(meas) 16,200 km.
Apr. 14	iP ipP iS eS_cS isPS eR	00-55-51.5 56-36 04-26 05-25 07-02 13.0 ca.	CGS: H = 00-45-28 24° S, 66½° W (Northern Argentina) h = 250 km.ca. M = 7 (Pasadena) dist.(meas) = 7430 km.
Apr. 14	eP eL	04-23-17 05-03.1 ca.	CGS: H = 04-10-05 Southeastern Turkistan
Apr. 14	iP eS eSS ePKKP	13-44-39 54-10 58-46 14-02-44	CGS: H = 13-32-59 61° N, 136° E (Eastern Siberia) M = 6¾ (Pasadena) dist.(meas) = 8250 km.

Date 1951	Phase	Time (GCT)	Remarks
Apr. 15	ePS	00-09-08	CGS: H = 23-40-51
	ePPS	10-17	$28\frac{1}{2}^{\circ}$ N, 94° E
	eSS	15-10	(Assam)
	eR	40.5 ca.	Dist.(meas) = 12,100 km.
Apr. 16	eL	18-01.5 ca.	
Apr. 16	eP'	20-10-08	CGS: H = 19-52-56
			31° N, 137° E
			(South of Honshu, Japan)
			h = 500 km.ca.
			M = 7 (Pasadena)
Apr. 16	iP	20-44-43	CGS: H = 20-32-40
	e	45-08	Off southern coast of Kamchatka
Apr. 20	iP	23-02-21	CGS: H = 22-(54)-30
			10° N, 62° W
			(Near northeast coast of Venezuela)
Apr. 21	iP'	17-19-47	CGS: H = 17-00-43
			7° S, 155° E
			(Solomon Islands)
			Dist.(P'-H) = 13,700 km.
Apr. 22	eP	06-19-58	
Apr. 22	iP	12-42-58	CGS: H = 12-36-16
	eL	52-44	76° N, 73° W
			(Baffin Bay)
			Dist.(meas) = 3660 km.
Apr. 23	eP	01-03-52	CGS: H = 00-52-21
	eL	31-22	19° N, $155\frac{1}{2}^{\circ}$ W
			(Near southern coast of Island of Hawaii. Felt.)
			M = $6\frac{1}{2}$ (Pasadena)
			Dist.(meas) = 8100 km.
Apr. 23	iP'	07-09-19	CGS: H = 06-50-15
	e	12-30	Off northeastern coast of
	ePPS	22-32	North Island, New Zealand
	eS_cSS_cS	31-01	M = $6\frac{1}{2}$ (Pasadena)
	eSSS	32-41	Dist.(P'-H) = 13,800 km.
	eR	50-55	

Date 1951	Phase	Time (GCT)	Remarks
Apr. 23	eP	13-27-00	CGS: H = 13-17-00
	epP	28-10	20½° S, 67° W
			(Southern Bolivia)
			h = 250 km.ca.
			M = 6¼-6½ (Pasadena)
			Dist.(meas) = 7060 km.
	iP'	21-38-45	CGS: H = 21-19-38
Apr. 28	eL	22-28.9	5½° S, 154° E
			(New Britain)
			Dist.(P'-H) = 14,000 km.
Apr. 29	eL	08-05-17	CGS: H = 07-35-46
			80½° N, 121° E
			(Arctic Ocean)
			Dist.(meas) = 6250 km.
Apr. 29	iPP	19-57-27	CGS: H = 19-35-00
			Celebes Region
Apr. 30	eP'	15-47-14	CGS: H = 15-28-00
	ePP	49-06	8° S, 152° E
	ePKS	50-36	(Solomon Islands region)
	eSS	06-18	M = 6¼-6½ (Pasadena)
	eG	20.6 ca.	Dist.(meas) = 14,250 km.
	eR	28.7 ca.	
May 1	iP'	05-22-28	CGS: H = 05-02-41
	e	24-25	50½° S, 149° E
	i	25-12	(About 400 miles south
	iPP	26-13	of Tasmania)
	ePP	29-17	M = 7 (Pasadena)
	eSKKS	33-06	Dist.(meas) = 16,900 km.
	e	35-28	
	eSSS	51-06	
	eR	06-14.0 ca.	
May 2	eL	17-31.5 ca.	
May 3	iP	04-14-33	CGS: H = 04-08-49
	eS	20-01	15½° N, 61° W
	eL	25-26	(Leeward Islands)
	eT	38-29	h = 150 km.
			Dist.(meas) = 3100 km.
May 4	iP	12-05-39	CGS: H = 11-53-05
	epP	06-36	44° N, 142° E
	eS	15-42	(Hokkaido, Japan)
	eL	44.3 ca.	h = 300 km.ca.
			Dist.(meas) = 9850 km.

Date 1951	Phase	Time (GCT)	Remarks
May 4	iP	19-35-59	CGS: H = 19-27-15
	eL	49-39	7° N, 34° W
			(Mid-Atlantic Ocean)
			Dist.(P-H) = 5360 km.
May 6	eP	21-49-08	CGS: H = 21-42-20
	eL	59-42	11° N, 85½° W
			(Near northwest coast of Costa Rica)
			Dist.(meas) = 3750 km.
May 6	iP_I	23-09-55	CGS: H_I = 23-03-35
	iP_{II}	14-24	H_{II} = 23-08-04
	eQ_I	17-47	13½° N, 88° W
	eR_I	19-43	(Eastern El Salvador. Many killed and extensive property damage.)
			h = 150 km. ca.
			Dist.(meas) = 3650 km.
May 7	iP	20-28-57.5	CGS: H = 20-22-37
	eR	39.0 ca.	Aftershock of above
May 8	iP	20-09-48.5	CGS: H = 20-01-08
	eL	26.5 ca.	7½° S, 80° W
			(Near coast of northern Peru)
			h = 200 km. ca.
			D(P-H) = 5600 km.
May 10	ePP	09-38-08	CGS: H = 09-18-25
	ePS	47-45	21° S, 33° E
	eR	10-13-20	(Southern Mozambique)
			Dist.(PP-H) = 12,620 km.
May 10	eR	20-20.1 ca.	CGS: H = 19-44-52
			51° N, 180°
			(Aleutian Islands)
			h = 60 km.
			Dist.(meas) = 7500 km.
May 10	iP	21-44-43.5	CGS: H = 21-33-02
	iPcP	54	34° S, 72° W
	esS	54-28	(Near coast of central Chile)
	eR	22-15-08	h = 100 km. ca.
			Dist.(P-H) = 8400 km.

Date 1951	Phase	Time (GCT)	Remarks
May 11	iP	02-22-20.5	CGS: H = 02-15-51
	epP	36	13° N, 87½° W
	isP	48	(Near coast of Nicaragua)
	ePP	23-55	h = 100 km.ca.
	iS	27-33	Dist.(P-H) = 3650 km.
	e	29-34	
	eR	31-43	
May 11	iP	03-22-30	CGS: H = 03-15-25
	eL	35.0 ca.	7° N, 83° W
			(Off coast of Panama.)
			h = 100 km.ca.
			Dist.(meas) = 4100 km.
May 12	eL	23-07.1 ca.	
May 13	iP	10-05-16	CGS: H = 10-00-10
	eS	09-06	20° N, 75° W
			(Near South coast of Cuba)
			h = 100 km.ca.
			Dist.(P-H) = 2640 km.
May 13	eP	11-43-34	West Indies Region
	eS	47-43	Dist.(S-P) = 2700 km.
	eT	12-06-44	
May 13	eL	18-05.2 ca.	CGS: H = 17-02-03
			New Hebrides region
May 14	eP	02-52-27	CGS: H = 02-43-45
	i	55	South-central Alaska
			h = 100 km.ca.
May 14	eL	04-57.7 ca.	CGS: H = 04-07-34
			30° N, 70° E
			(Northeastern Baluchistan)
May 14	eP	13-09-22	CGS: H = 13-02-40
	eR	19.5 ca.	9° N, 86° W
			(Off coast of Costa Rica)
			h = 100 km.ca.
May 15	iP	05-29-05.5	CGS: H = 05-18-46
	ipP	20	21° S, 69½° W
	isP	26	(Northern Chile)
	i(P_cP)	59	h = 100 km.
	i	30-11	M = 6½-6¾ (Pasadena)
	iS	37-32	Dist.(meas) = 7050 km.
	e(S_cS)	38-56	Dist.(P-H) = 6980 km.
	eR	52-15	
May 15	eL	12-29.5	

Date 1951	Phase	Time (GCT)	Remarks
May 15	eP eR	23-04-02 24-36	CGS: H = 22-54-23 45° N, 9° E (Northern Italy. Felt.) Dist.(meas) = 6160 km.
May 16	eR	00-56.5 ca.	CGS: H = 00-03-30 15° S, 172½° W (Samoa Islands Region.) h = 100 km.ca.
May 16	eL	02-57.8 ca.	CGS: H = 02-26-55 45° N, 9° E (Northern Italy Aftershock)
May 16	eL	03-18.4	CGS: H = 02-18-45 24° S, 177° W (Tonga Islands region)
May 16	iP epP	13-32-41 33-32	CGS: H = 13-23-10 15° S, 69½° W (Near Peru-Bolivia border) h = 200 km.ca. Dist.(P-H) = 6370 km.
May 16	e e eR	14-25-29 27-53 15-12-45	
May 17	eR	02-43-31	CGS: H = 01-41-38 19° S, 170° E (New Hebrides region)
May 17	eL	12-47.9 ca.	
May 17	eR	13-21.0 ca.	
May 18	i(P)	22-16-49	
May 19	eP eR	16-03-22 21.0 ca.	CGS: H = 15-54-25 38° N, 4° W (South-central Spain.Felt) Dist.(meas) = 5450 km.
May 20	eR	04-20.3	CGS: H = 04-02-55 Near coast of Costa Rica
May 20	iP i	07-27-34 30-55	
May 20	eL	14-59-46	
May 20	iP	15-46-20	

Date 1951	Phase	Time (GCT)	Remarks
May 20	eL	16-48-08	
May 20	e	19-21-11	Teleseismic ?
May 21	iP'	08-46-08.5	CGS: H = 08-27-21
	ePP	47-53	6° S, 154½° E
	i	48-01	(Solomon Islands)
	ipPP	39	h = 150 km.ca.
	isPP	49-13	M = 7 (Pasadena)
	iPPP	50-56	Dist.(meas) = 13,960 km.
	eSKSPorPS	57-38	
	epPS	58-46	
	isPS	59-41	
	iSS	09-04-59	
	esSS	06-09	
	eR	27.5 ca.	
May 26	eL	21-54.3	
May 27	iP	04-36-55.5	CGS: H = 04-30-55
	eL	44.6	23½° N, 45° W
			(North Atlantic Ocean)
			Dist.(meas.) = 3150 km.
May 27	iP	11-33-58.5	
May 27	eP	12-32-26	Caribbean region
	eS	36-26	Dist.(S-P) = 2600 km.
	eT	52-53	
May 28	ePP	16-18-02	CGS: H = 15-59-20
	eL	57.5 ca.	29° N, 86½° E
			(Southern Tibet)
			Dist.(meas) = 11,700 km.
May 28	iP	17-34-02.5	CGS: H = 17-23-00
			Northern Argentina
			Dist.(P-H) = 7600 km.
May 29	eP'	06-22-15	CGS: H = 06-03-06
	iPP	24-52	3° S, 138½° E
	iPKS	25-47	(Northern New Guinea)
	e(PPP)	27-50	M = 6½-3¾ (Pasadena)
	eSKSP	35-04	Dist.(Meas) = 14,750 km.
	eSPS	43-20	
	eSSS	47-28	
	eR	07-07.4 ca.	
May 30	iP	01-05-22.5	CGS: H = 00-54-46
	epP	48	52° N, 178½° W
			(Near Adak, Aleutian Islands)
			h = 150 km.ca.
			Dist.(meas.) = 7350 km.

Date 1951	Phase	Time (GCT)	Remarks
May 30	eP	13-54-51	CGS: H = 13-43-53 Near west coast of Turkey Dist.(P-H) = 7500 km.
May 30	iP'	19-27-14	CGS: H = 19-08-12 Solomon Islands
May 30	eP'	20-16-29	CGS: H = 19-57-01 3° S, 126½° E (Moluccs Islands M = 6¼-6½ (Pasadena) Dist.(meas) = 15,200 km.
	ePP	19-14	
	iPKS	20-13	
	ePPP	21-26	
	iSKSP	29-16	
	ePPS	31-14	
	eSS	37-14	
	eR	21-04.2 ca.	
May 31	eP'	21-14-38	CGS: H = 20-56-00 19° N, 121° E (Off north coast of Luzon, P.I. Felt.Slight property damage.) h = 100 km.ca. Dist.(meas) = 13,050 km.
	ePP	15-51	
	ipPP	16-10	
	eSKS	21-15	
	e	22-44	
	iPSorSP	25-33	
	esSS	32-37	
	eR	57-23	
June 1	eR	17-23-54	CGS: H = 16-23-35 14½° N, 145° E (Mariana Islands) Dist.(meas) = 12,700 km.
June 1	iP	20-12-34	CGS: H = 20-02-14 52½° N, 172° W (Aleutian Islands.Felt.) h = 100 km.ca. Dist.(meas) = 7000 km.
	ipP	13-01	
	eL	29.5 ca.	
June 1	eP	20-15-11	CGS: H = 20-04-53 Aftershock of above
	epP	38	
June 2	eP'	07-07-07	CGS: H = 06-47-52 7° N, 117° E (Near north coast of Borneo) Dist.(meas) = 14,500 km.
	iPP	09-29	
	iPKS	10-27	
	ePPS	20-58	
	eSS	26-30	
	eR	54.6 ca.	
June 3	eL	19-34.6 ca.	CGS: H = 18-30-23 24½° N, 122° E (Off northeast coast of Formosa)
June 4	iP	12-28-40.5	

Date 1951	Phase	Time (GCT)	Remarks
June 4	eL	18-08.0 ca.	
June 5	iP	01-41-10	CGS: H = 01-34-20
	eR	51-33	9½° N, 86° W
			(Near coast of Costa Rica)
			h = 60 km.ca.
			Dist.(meas) = 3850 km.
June 5	iP	03-47-26	CGS: H = 03-34-55
			Northwestern Iran
June 5	e(P')	17-15-57	CGS: H = 16-57-47
	iPP	16-12	30° N, 132° E
	esPP	17-01	(South of Kyushu, Japan.
	ePiP	18-41	Felt.)
	epPP	19-00	h = 100 km.ca.
	e	20-27	M = 6¾-7 (Pasadena)
	eSKKS	22-44	Dist.(meas) = 11,650 km.
	eS	23-28	
	ePS	25-32	
	isPS	54	
	iPiS	26-42	
	eSS	31-10	
	eR	51.2	
June e	eP	16-18-37	CGS: H = 16-10-52
	epP	50	71½° N, 8° W
	e	19-49	(Jan Mayen Island)
	ePP	20-16	h = 60 km. ca.
	epPP	34	M = 7 (Pasadena)
	esPP	48	Dist.(meas) = 4650 km.
	eS	24-59	
	isS	25-16	
	iSS	28-00	
	eR	30-24	
June 7	eL	12-35-50	
June 7	eR	23-03-17	
June 7	ePP	23-19-10	CGS: H = 22-59-00
	ePP	.32	27½° S, 176° W
	ePS	29-04	(Kermadec Islands region)
	ePPS	30-34	M = 6¾ (Berkeley)
	eSS	35-40	Dist.(meas) = 13,250 km.
	e	36-46	
	eR	59.1	
June 8	eR	23-23.7 ca.	CGS: H = 22-21-19
			26° S, 176° W
			(Tonga Islands region)
			h = 100 km.ca.

Date 1951	Phase	Time (GCT)	Remarks
June 9	iP	11-34-55	CGS: H = 11-22-05
	eL	12-13.1 ca.	Western Iran
June 9	(eP	16-23-21)	
June 13	iP	01-11-52	CGS: H = 01-06-40
	eS	16-20	19½° N, 63° W
	eL	18.3 ca.	(North of Leeward Islands)
	eT	35-52	h = 60 km.ca.
June 15	e	21-42-40	
June 17	e	00-07-56	CGS: H = June 16, 23-46-58
	eR	10-20	Foreshock of following.
			M = 5½ (Pasadena)
June 17	eP	09-48-12	CGS: H = 09-40-15
	ePP	49-50	44½° N, 130° W
	i(S)	54-48	(About 300 miles off
	eR	10-02-26	coast of Oregon.)
			M = 6 (Pasadena)
			Dist.(meas) = 4600 km.
June 17	iP	18-09-45	CGS: H = 17-59-30
			Southern Bolivia
			Dist.(P-H) = 6750 km.
June 18	eP	09-37-14	
	eL	43-54	
June 18	iP	13-47-36	CGS: H = 13-36-00
			32° S, 70½° W
			(Central Chile)
			h = 100 km.ca.
			Dist.(P-H) = 9330 km.
June 18	iP	17-51-05	CGS: H = 17-44-27
	epP	24	11° N, 85° W
	ePP	52-22	(Costa Rica - Nicaragua
	esPP	44	border)
	eS	56-17	h = 100 km.ca.
	eQ	58-24	Dist.(meas) = 3800 km.
	eR	59.9 ca.	
June 18	eR	21-50.3 ca.	
June 20	iP	18-42-44	CGS: H = 18-37-10
	eL	48-01	35½° N, 103° W
			(Northern New Mexico -
			Texas border)

Date 1951	Phase	Time(GCT)	Remarks
June 20	eL	22-49-40	CGS: H = 21-50-20 25° N, 121° E (Northern Formosa.Felt)
June 20	eP eL	23-03-10 40.9 ca.	
June 21	e	01-37-56	
June 21	eL	08-31-19	
June 23	eL	03-51-50	CGS: H = 03-32-40 31½° N, 113½° W (Gulf of California)
June 23	iP eL	07-54-55 08-17.1 ca.	
June 24	iP eL	01-53-45 02-14.8 ca.	CGS: H=01-44-25 8½° S, 80° W (Off coast of Central Peru) h slightly greater than normal Dist.(P-H) = 5900 km.
June 24	eP' e e eR	05-00-54 03-32 15-14 43-30	
June 24	eL	11-56.0 ca.	CGS: H = 10-55-40 19° N, 146½° E (Mariana Islands Region) Dist.(meas) = 12,150 km.
June 24	eP' ePP ePS ePPS eR	17-08-17 10-28 19-52 21-30 48.0 ca.	CGS: H = 16-49-13 5° S, 154° E (Solomon Islands)
June 25	eP eL	03-27-37 48.4 ca.	CGS: H = 03-18-23 56° N, 154° W (South of Alaska)
June 25	eL	06-28.9 ca.	
June 25	eL	07-48.8 ca.	

Date 1951	Phase	Time (GCT)	Remarks
June 25	iP	16-21-09.5	CGS: H = 16 12-32
	eS	28-07	61° N, 150° W
	eL	34-20	(Southern Alaska. Felt at Anchorage.)
			h = 100 km.ca.
			M = 6¼ (Pasadena)
			Dist.(meas) = 5350 km.
June 25	eR	16-55.0 ca.	CGS: H = 15-43-30
			3½° S, 149° E
			(New Britain Region)
June 25	iP	20-21-22	CGS: H = 20-16-26
	eR	36.6 ca.	1° N, 85° W
			(Off coast of Ecuador)
			Dist.(meas) = 4850 km.
June 26	eL	04-52.4 ca.	
June 27	iP_n	13-20-26.1	CGS: H = 13-17-50
	i	36.2	45° N, 57° W
	i	44.6	(About 200 miles South
	iS_n	22-22.4	of Newfoundland)
	i	47.3	Dist.(P-H) = 1160 km.
	eL	25-16	
June 27	eP_n	20-11-42.8	Aftershock of above?
	eS_n	13-41.7	
June 28	eP_n	01-05-52.8	
	iS_n	07-11.3	
June 28	iP	03-18-10	CGS: H = 03-07-55
	eL	44-20	19° S, 64½° W
			(Southern Bolivia)
			h = 60 km.ca.
			Dist.(P-H) = 6800 km.ca.
June 28	iP	03-46-56.5	CGS: H = 03-37-00
	i(pP)	47-22.5	16° S, 72° W
			(Southern Peru)
June 29	eP	03-55-02	CGS: H = 03-49-35
	eS	59-03	19½° N, 66° W
	eT	04-17-24	(North of Puerto Rico)

Date 1951	Phase	Time (GCT)	Remarks
June 29	e eR	18-50-30 53.0 ca.	CGS: H - 18-34-00 4½° N, 82° W (About 300 miles South of Panama.) h = 100 km. ca.
June 30	eR	18-13.5 ca.	CGS: H - 17-11-13 6° S, 154½° E (Solomon Islands)

Philip R. Berger
Observer

L. Don Leet
Seismologist in Charge

ROYAL OBSERVATORY
4 APR 1952
EDINBURGH

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

Bulletin Number 37

July 1, 1951, through December 31, 1951

Part B of Paper Number 128, published under the auspices of the Committee on Experimental Geology and Geophysics and of the Division of Geological Sciences at Harvard University

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 acceleration 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	1.0	0.1	.5	60 mm/min.	100,000	
L-B (N	1.0	0.1	.5	60 mm/min.	100,000	
L-B (E	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 Leet
Harvard, Massachusetts, U.S.A.

Date 1951	Phase	Time (GCT)	Remarks
July 8	iP	23-40-56.5	CGS: H = 23-30-40
	i	41-07.5	53° N, 167° W
			(Fox Island, Aleutian Islands)
			Dist.(meas) = 6,660 km
			Dist.(P-H) = 6,750 km
July 9	iP	00-10-33	CGS: H = 00-03-54
	eS	15-58	16° N, 96° W
	eR	20.7	(Near coast of Oaxaca, Mexico)
			h = 60 km.ca.
			M = 6¼ (Pasadena)
			Dist.(meas.) = 3800 km.
July 9	iP	01-44-26	CGS: H = 01-30-38
			32½° N, 139° E
			(Off southeast coast of Honshu, Japan)
			Dist.(meas.) = 11,100 km.
July 9	eP	11-43-09	CGS: H = 11-37-26
			17° N, 85° W
			(Caribbean Sea)
			Dist.(P-H) = 3000 km.
July 9	iP	21-23-47	CGS: H = 21-17-00
	eL	29.5	11° N, 85° W
			(Near coast of Costa Rica)
			Dist.(P-H) = 3,780 km.
July 10	eL	06-40.0	CGS: H = 05-34-00
			5° S, 138½° E
			(Near west coast of New Guinea)
July 11	eL	07-20.8	
July 11	iP	13-07-11	CGS: H = 12-56-19
	ipP	40	52° N, 178° E
			(Andreanof Island, Aleutian Islands)
			h = 150 km.ca.
			Dist.(meas.) = 7,400 km.

Date 1951	Phase	Time (GCT)	Remarks
July 11	eP	18-35-11	CGS: H = 18-22-00
	epP	36-52	28½° N, 139½° E
	isP	37-43	(Bonin Island Region. Felt)
	iPP	39-30.5	h = 550 km. ca.
	epPP	40-53	M = 7 (Pasadena)
	isPP	41-56	Dist. (meas.) = 11,500 km.
	ipPPP	43-24	
	iSKS	44-58	
	eS	46-17	
	iSP	47-51	
	iPS	48-25	
	iSS	53-44	
	ipSS	55-28	
	esSS	56-24	
	eSSS	57-22	
July 11	iP	18-54-54.5	CGS: H = 18-44-30
			Northern Chile
			Dist. (P-H) = 6960 km
July 11	iP	23-49-20	CGS: H = 23-44-10
	isP	52	18° N, 69½° W
	eS	54-00	(Eastern Dominican
	eT	00-10-00	Republic)
			h = 100 km. ca.
			Dist. (meas.) = 2,700 km.
July 12	iP'	00-44-57	CGS: H = 00-25-59
			Pacific Ocean, about
			300 miles north of
			Western New Guinea)
July 13	eP	02-17-33	
	e	23-22	
	eR	26-30	
July 13	eP'	20-12-58	CGS: H = 19-54-00
	ePP	14-59	7° S, 156° E
	isPP	15-24	(Solomon Islands)
	i	16-35	h = 100 km. ca.
	i	27-50	
	eR	54.4	
July 14	eL	07-10.7	
July 14	iP	07-30-31	CGS: H = 07-18-12
	eR	08-07.5	47° N, 154½° E
			(Kurile Islands)
			Dist. (meas.) = 9,100 km.

Date 1951	Phase	Time (GCT)	Remarks
July 14	iP	22-22-23.5	CGS: H = 22-11-08
	i	43.5	28° S, 70° W
			(Central Chile)
			Dist.(meas.) = 7,770 km.
			Dist.(P-H) = 7,840 km.
July 15	(eP	09-04-13)	
July 16	eP	09-22-10	West Indies Region
	eS	26-15	Dist.(S-P) = 2,650 km.
	eT	43.1 ca.	
July 16	iP'	10-59-21	CGS: H = 10-40-23
	iPP	11-01-35	6° S, 146° E
	iSKP	02-18	(eastern New Guinea)
	ipPP	33.5	h = 200 km.
	ipSKP	03-25	M = 6½ (Pasadena)
	ePPP	04-44	Dist.(meas.) = 14,600 km.
	eR	42.7	
July 16	i	16-11-05.5	
July 17	eR	08-15.0	CGS: H = 07-23-23
			14° S, 173° W
			(Samoa Islands)
			Dist.(meas.) = 12,050 km.
July 18	iP	09-16-07	CGS: H = 09-06-16
	iS	24-08	1° N, 27° W
	eQ	30.0	(Mid-Atlantic Ocean)
	iP'P'	46-12	M = 6½ (Pasadena)
			Dist.(meas.) - 6300 km.
July 19	iP	17-32-08	
July 19	iP	20-52-12	CGS: H = 20-(21)-25
	eS	21-01-05	51½° N, 177½° W
	eR	16.2	(Near Adak, Aleutian Islands)
			h = 60 km.ca.
			M = 5¾-6 (Pasadena)
			Dist.(meas.) = 7,350 km.
July 19	eL	23-57.3	
July 19	eP	23-58-36	CGS: H = 23-47-50
	eR	00-22.9	Aftershock of 20-(21)-25
July 21	eL	02-31.1	CGS: H = 01-32-21
			Northern Assam.

Date 1951	Phase	Time (GCT)	Remarks
July 22	iP	01-30-49	
July 22	iP e eL	09-11-38 27.9 41.6	CGS: H = 09-01-02 51° N, 178½° W (Near Adak, Aleutian Islands) h = 60 km.ca. Dist.(meas) = 7,450 km.
July 23	eP i	20-16-46 56	CGS: H = 20-04-40 Southern Kamchatka
July 24	iP	17-52-51	CGS: H = 17-45-40 18½° N, 101½° W (southern Mexico) h = 100 km.ca. Dist.(meas.) = 3,900 km.
July 25	iPn eSn	00-22-10.5 24-08.5	Dist (S-P) = 1,300 km.
July 25	iP	17-26-07	CGS: H = 17-13-30 43½° N, 144° E (Hokkaido, Japan) h = 200 km.ca. Dist.(P-H) = 9,850 km.
July 25	iP eL	18-48-46 19-02.0	CGS: H = 18-42-14 14° N, 90½° W (off coast of Guatemala) h = 100 km.ca. M = 6¼ (Pasadena) Dist.(meas.) = 3,600 km.
July 26	iP e eR	10-13-02 25-20 45.9	CGS: H = 10-00-00 41° N, 143° E (south of Hokkaido Japan. Felt) h = 100 km.ca. M = 6¼ (Pasadena) Dist.(meas.) = 10,150 km.
July 27	iP	00-22-21.5	
July 28	iP	00-47-56	
July 29	iP	23-52-02.5	
July 30	eP e	04-35-30 37-56	
July 30	iP	04-38-38	

Date 1951	Phase	Time (GCT)	Remarks
July 30	iP	19-36-49	CGS: H = 19-25-50 Western Salta Province, Argentina Dist.(P-H) = 7,540 km.
July 31	iP	15-48-05.5	
	e	51-22	
Aug. 1	iP	03-30-19	CGS: H = 03-22-46
	eS	36-22	3° N, 84° W
	eR	42-48	(off coast of Columbia) h = 100 km.ca. M = 6¼ (Pasadena) Dist.(meas.) = 4700 km.
Aug. 2	eP'	03-58-33	CGS: H = 03-40-27 4° S, 154½° E (New Britain Island Region) h = 500 km.ca. M = 6-6½ (Pasadena) Dist.(meas) = 13,800 km.
Aug. 2	e(SS)	10-48-00	CGS: H = 10-16-03 1700 mi. south of Easter Island M = 6½ (Pasadena)
Aug. 2	iP	20-36-49	CGS: H = (20-(30)-17
	eS	41-59	Foreshock of following
	eL	43.4	M = 5¾ (Pasadena)
Aug. 3	iP	00-30-26	CGS: H = 00-23-58
	iS	35-43	13° N, 87½° W
	eL	38.1	(Near south coast of Nicaragua.) h = 100 km. M = 6 (Pasadena) Dist.(meas) = 3,500 km.
Aug. 3	eP	00-41-41	CGS: H = 00-35-10 Aftershock of above
Aug. 3	eP	05-32-19	CGS: H = 05-25-45
	eS	37-29	Aftershock of above
	eL	40.0	M = 5½ (Pasadena)
Aug. 3	eL	16-58-42	
Aug. 3	iP	19-32-22.5	CGS: H = 19-20-15 28° S, 121° W (700 miles west of Easter Island) Dist.(P-H) = 8,870 km.

Date 1951	Phase	Time(GCT)	Remarks
Aug. 6	eP	07-41-09	CGS: H = 07-27-53 Sea of Japan
Aug. 6	eP	08-15-26	CGS: H = 08-08-56 13° N, 87-1/2° W (near south coast of Nicaragua) h = 100 km.ca. Dist.(meas.) = 3,650 km.
Aug. 6	iP' eL	15-29-48 16-16.9	CGS: H = 15-10-42 6° S, 152° E (New Britain Island) Dist.(meas.) = 14,150 km.
Aug. 6	iP	17-02-41.5	CGS: H = 16-55-44 Near coast of Colima, Mexico. h = 100 km. Dist.(P-H) = 4000 km.
Aug. 7	iP	04-17-51.5	CGS: H = 04-08-54 6½° S, 85° W (Off coast of Peru) Dist.(meas) = 5,620 km. Dist.(P-H) = 5,560 km.
Aug. 10	iP	00-15-08	CGS: H = 00-05-24 14° S, 77½° W (off coast of Peru) Dist.(meas) = 6,530 km. Dist.(P-H) = 6,250 km.
Aug. 10	iP iS eL	05-40-40.5 47-10 51.0	CGS: H = 05-32-33 8½° N, 40° W (Atlantic Ocean, 700 miles off north coast of Brazil) M = 6 (Pasadena) Dist.(meas) = 4,800 km.
Aug. 10	eP eS eT	13-42-09 46-02 14-02-29	West Indies Region Dist.(S-P) = 2,600 km.
Aug. 10	iP ipP iScS iS	23-12-33 13-49 22-28 40	CGS: H = 23-00-21 46° N, 143½° E (Off north coast of Hokkaido, Japan) h = 300 km. Dist.(meas) = 9,600 km.

Date 1951	Phase	Time (GCT)	Remarks
Aug. 11	iP	10-05-48	CGS: H = 09-54-20 55° N, 163° E (Off east coast of Kamchatka) Dist.(P-H) = 8080 km.
Aug. 13	iP	18-45-04	CGS: H = 18-33-40 43° N, 32½° E (Black Sea, off north coast of Turkey. Several casualties and heavy property damage.) M = 6¾ (Pasadena) Dist.(meas.) = 7850 km.
	i	47-10	
	iPP	44	
	i	48-48	
	iS	54-39	
	eR	19-06-40	
Aug. 14	eP	09-01-02	
Aug. 14	iP	13-10-59	
Aug. 14	eP	18-19-43	
Aug. 14	eP	20-08-28	
Aug. 16	eL	02-51-05	
Aug. 16	iP	19-54-28.5	CGS: H = 19-43-10 Central Argentina-Chile border. Dist.(P-H) = 7,910 km.
	eL	20-21.6	
Aug. 16	eL	23-08.3	
Aug. 18	iP'	03-57-28.5	CGS: H = 03-38-19 Gilolo Island Region
	e(PKS)	04-01-13	
	e(PPS)	12-23	
	e(SS)	18-32	
	eL	48.7	
Aug. 19	iP	04-46-31	
Aug. 20	iP	05-57-03	CGS: H = 05-49-58 23½° N, 108° W (Gulf of California) M = 5½ (Pasadena) Dist.(P-H) = 4,020 km.
	eS	06-02-37	
	eScS	07-08	
Aug. 20	e	06-08-39	CGS: H = 05-59-14 23½° N, 108° W Gulf of California)
Aug. 20	eP	09-00-52	West Indies Region
	eS	04-58	
	eT	21-28	

Date 1951	Phase	Time (GCT)	Remarks
Aug. 21	iP	11-08-29	CGS: H = 10-56-57.5
	e	10-39	19¾° N, 156° W
	iPP	11-19	(Near west coast of Hawaii.
	ePPP	12-58	Slight property damage
	e	14-32	on Kauai Coast)
	e	17-37	M = 6¾ (Pasadena)
	iS	54	Dist.(meas) = 8,100 km.
	i	19-34	
	eSS	23-13	
	eSSS	26-24	
	eR	12-03.8	
Aug. 21	eP	19-08-31	
Aug. 22	eL	05-53.7	CGS: H = 05-41-31
			10° N, 83° W
			(Costa Rica)
			Dist.(meas.) = 3,850 km.
Aug. 23	iP	01-13-18	CGS: H = 01-03-02
			53° N, 169° W
			(Aleutian Islands)
			Dist.(P-H) = 6,760 km.
Aug. 24	eP	10-38-29	CGS: H = 10-27-34
	epP	47	37° N, (32°) E
			(Off east coast of Greece)
			h = 100 km.ca.
			Dist.(P-H) = 7,580 km.
Aug. 24	iP	14-33-45	CGS: H = 14-21-15
	iS	43-50	47° N, 151° E
			(Kurile Islands)
			M = 6½ (Pasadena)
			Dist.(meas.) = 9,250 km.
Aug. 25	eL	11-00.1 ca.	CGS: H = 10-41-55
			29½° N, 112° W
			(Northwestern Mexico)
Aug. 26	e	13-34-44	
	eL	42.4	
Aug. 26	eP	18-45-20	CGS: H = 18-38-23
	i	27.5	24° N, 109° W
	eL	54.6	(Gulf of California)
Aug. 27	iP	01-38-15	CGS: H = 01-32-56
	eS	42-10	Dominican Republic
	eT	58-28	Dist.(P-H) = 2730 km.

Date 1951	Phase	Time (GCT)	Remarks
Aug. 27	eP	21-26-43	West Indies Region
	eS	30-48	
	eT	47-08	
Aug. 28	iP'	16-49-03	CGS: H = 16-31-11 27° S, 178° E (Kermadec Islands Region) h = 600 km.ca. Dist.(meas.) = 13,700 km.
Aug. 30	eP	01-09-58	
	eS	13-49	
Aug. 31	eP	12-40-50	CGS: H = 12-29-42 36-1/2° N, 23° E (Near south coast of Greece) Dist.(P-H) = 7,700 km.
Aug. 31	eP	20-29-49	CGS: H = 20-18-40 Near south coast of Greece Dist.(P-H) = 7,700 km.
Sept. 1	iP	09-01-51	CGS: H = 08-49-18
	eS	12-22	33° S, 110° W
	eR	31.0	(Easter Island region) M = 6½ (Pasadena) Dist. (meas.) = 9300 km.
Sept. 8	eL	07-03.1	CGS: H = 06-40-23 28½° N, 43° W. (North Atlantic Ocean)
Sept. 9	eL	05-30.0	CGS: H = 04-43-00 16° S, 173° W (Samoa Is. region Felt in Apia.) M = 6½-6¾ (Pasadena) Dist.(meas.) = 12,150 km.
Sept. 11	eP	22-16-53	
Sept. 12	iP	05-39-42	
Sept. 12	iP	15-18-56	
Sept. 12	iP	15-22-53.5	CGS: H = 15-10-18 45½° N, 151° E (Kurile Is. region) Dist.(meas.) = 9300 km. Dist.(P-H) = 9470 km.

Date 1951	Phase	Time (GCT)	Remarks
Sept. 15	iP	08-16-36	CGS: H = 08-11-14
	ipP	58	Near San Juan, Puerto Rico. Felt.
	eS	20-59	h = 100 km.ca.
	eT	38-28	Dist.(P-H) = 2780 km.
Sept. 16	iP	15-08-07	CGS: H = 14-57-50
			Fox Island, Aleutian Islands.
			Dist.(P-H) = 6780 km.
Sept. 17	iP'	12-16-49	CGS: H = 11-57-39
	eL	46.3	18° S, 173° W
			(Tonga Islands)
			M = 6-1/2 (Pasadena)
Sept. 17	eP	21-07-20	
	e	10-19	
Sept. 18	iP_n	07-09-36.1	CGS: H = 07-07-00
	eS_n	11-29	North Atlantic, about 50 miles northwest of Bermuda.
	eT	18-07	Dist.(P-H) = 1160 km.
Sept. 19	iP	04-24-05	CGS: H = 04-14-09
			17° S, 71° W.
			(near coast of northern Chile)
			h = 100 km.ca.
			Dist.(meas) = 6500 km.
Sept. 20	iP	05-56-47	CGS: H = 05-48-03
			$5\frac{1}{2}$° S, 81° W
			(near coast of Peru.)
			Dist.(meas.) = 5,400 km.
Sept. 20	iP	12-47-37	CGS: H = 12-38-40
	eL	13-03-24	65° N, 154° W
			(Central Alaska)
			Dist.(P-H) = 5550 km.
Sept. 20	eP	17-10-59	CGS: H = 17-00-35
			52° N, 168° W
			Aleutian Islands foreshock
			h = 100 km.ca.
			Dist.(P-H) = 6900 km.
Sept. 20	eP	17-58-10	CGS: H = 17-48-05
			$52\frac{1}{2}$° N, 168° W
			(Aleutian Islands)
			h = 100 km.ca.
			Dist. (P-H) = 6580 km.

Date 1951	Phase	Time(GCT)	Remarks
Sept. 21	iP	04-27-14.5	CGS: H = 04-22-11
	eS	31-18	19° N, 70° W
	eL	33.7	(Dominican Republic)
	eT	46-51	h = 100 km.ca.
			Dist.(P-H) = 2610 km.
			Dist.(meas.) = 2550 km.
Sept. 21	eP'	09-29-40	CGS: H = 09-10-16
	e	53-07	Molucca Passage
Sept. 21	iP	10-17-36	
Sept. 21	eP	16-26-20	
Sept. 21	eP	18-45-35	
Sept. 21	eL	19-52.7	
Sept. 22	eP	23-47-09	CGS: H = 23-40-37
			16½° N, 47° W
			(North Atlantic Ocean)
			Dist.(P-H) = 3580 km.
Sept. 24	csS	13-33-07	CGS: H = 13-10-41
	eSS	37-13	49½° N, 156° E
	eR	57.8 ca.	(Kurile Islands)
			h = 100 km.ca.
Sept. 27	iP	07-38-21	CGS: H = 07-26-00
			Sea of Japan
			h = 500 km.ca.
			Dist.(P-H) = 10,240 km.
Sept. 27	iP	09-18-32.5	CGS: H = 09-08-32
			17° S, 72° W
			(Near coast of Peru)
			Dist.(P-H) = 6500 km.
Sept. 27	iP	13-57-43.5	CGS: H = 13-51-46
	e	58-16	16° N, 62° W
	eS	14-02-35	(Windward Islands)
			Dist. (P-H) = 3160 km.
Sept. 27	eP	19-31-45.5	CGS: H = 19-24-12
	eS	38-05	49° N, 129° W
	eL	42.7	(off coast of Vancouver, British Columbia)
			M = 5¾ (Berkeley)
			Dist.(meas.) = 4400 km.
Sept. 28	iP	03-51-26.5	

Date 1951	Phase	Time (GCT)	Remarks
Sept. 28	iP	12-13-52	CGS: H = 12-07-24
	e	19-47	11½° N, 86° W
	eR	23-37	(Near south coast of Nicaragua.)
			h = 200 km.ca.
			M = 6 (Pasadena)
			Dist.(meas.) = 3750 km.
			Dist.(P-H) = 3720 km.
Sept. 28	e	15-03.6	CGS: H = 14-51-17
	eR	07.6	Aftershock of above.
Sept. 28	eL	24-20.6	CGS: H = 23-28-37
			30° S, 178° W
			(Kermadec Islands)
Sept. 30	iP	19-03-06.5	CGS: H = 18-56-00
			Off south coast of Mexico
			Dist.(P-H) = 4010 km.
Oct. 1	iP	01-38-05.5	CGS: H = 01-26-36
			Near Crete, Mediterranean Sea
			Dist. (P-H) = 8120 km.
Oct. 1	iP	10-21-43.5	CGS: H = 10-11-40
	eL	41-30	55° N, 166° W
			(Fox Island, Aleutian Islands.)
			Dist.(meas.) = 6550 km.
			Dist.(P-H) = 6550 km.
Oct. 3	eP	02-06-20	CGS: H = 02-00-06
	eS	11-08	16½° N, 61° W
	eT	30-19	(Leeward Islands)
			Dist.(meas.) = 3000 km.
Oct. 3	iP	11-17-14.5	CGS: H = 11-07-21
			17° S, 71° W
			(Southern Peru. Felt at Arica, Chile)
			h = 100 km.ca.
			Dist. (P-H) = 6540 km.
Oct. 5	eL	12-39.4	CGS: H = 11-37-30
			28½° S, 177° W
			(Kermadec Islands region)
Oct. 6	eP	18-48-52	West Indies region
	eS	52-50	
	eT	11-11-30	

Date 1951	Phase	Time (GCT)	Remarks
Oct. 7	iP	12-12-40	CGS: H = 12-01-21
	i	55	Northwestern Argentina
			Deeper than normal?
			Dist.(P-H for h = 100 km.) = 8020 km.
Oct. 8	iP	04-18-07.5	CGS: H = 04-10-35
	iS	24-11	40° N, 125° W
	i	27-26	(off Cape Mendocino, Cal.)
	eL	29-30	M = $5\frac{3}{4}$ (Pasadena)
			Dist.(meas.) = 4500 km.
			Dist.(P-H) = 4390 km.
Oct. 8	eP	05-44-54	
Oct. 9	iP	05-08-34.5	
Oct. 11	iP'	01-56-39	CGS: H = 01-37-31
	e(SKKKS)	02-05-31	5° S, 152° E
	eSS	15-38	(New Britain Island)
	eS_cSS_cS	18-18	M = $6\frac{3}{4}$ (Pasadena)
	e(SSS)	21-12	Dist.(meas) = 14,050 km.
	eG	31-48	
Oct. 13	eL	20-06.0 ca.	CGS: H = 19-45-06
			$43\frac{1}{2}$° N, 127° W
			(off coast of Oregon)
			Dist.(meas.) = 4450 km.
Oct. 13	ePP	22-47-23	CGS: H = 22-28-06
	ePS	56-48	60° S, 19° W
	eSS	23-02.9	(Sandwich Islands region)
	eL	21.5	
Oct. 14	iP'	09-49-16	CGS: H = 09-29-39
			Java Sea
Oct. 15	e	08-31-21	
Oct. 15	eL	21-52.4	CGS: H = 21-07-57
			33° N, 134° E
			(off south coast of Shikoku, Japan)
			Dist.(meas) = 11,300 km.
Oct. 16	eS	07-09-57	CGS: H = 06-54-33
	eL	17.3	76° N, 5° E
			(Arctic Ocean)
Oct. 16	(iP	13-19-23.5)	

Date 1951	Phase	Time (GCT)	Remarks
Oct. 18	iP	08-39-23.5	CGS: H = 08-26-25
	iSP	50-55	42° N, 142° E
	eL	09-09.4	(near south coast of Hokkaido, Japan)
			h = 100 km.ca.
			M = 6¼ (Pasadena)
			Dist.(meas.) = 10,100 km.
			Dist.(P-H) = 10,150 km.
Oct. 18	iP	20-57-37.5	
Oct. 19	iP	15-04-30	CGS: H = 14-51-14
	ipP	48	41° N, 142° E
			(off south coast of Hokkaido, Japan.)
			h = 100 km.ca.
			Dist.(meas.) = 10,100 km.
			Dist.(P-H) = 10,580 km.
Oct. 21	e	21-49-15	CGS: H = 21-34-13
	eP'	52-54	Foreshock of following
	ePP	53-59	M = 6¾ (Pasadena)
	i(S)	22-01-35	
	e	02-13	
	e(PS)	03-26	
	i	04-50	
	e	05-07	
	e	07-45	
	e	10-46	
	eG	22.7	
	eR	30.4	
Oct. 22	e(P)	03-44-27	CGS: H = 03-29-26
	eP'	47-58	24° N, 122° E
	e	54-08	(off the east coast of Formosa, heavy casualties and extensive property damage)
	iSKKS	55-46	
	e	56-11	
	i	51	
	ePS	57-58	M = 7 (Pasadena)
	e	58-40	Dist.(meas) = 12,400 km.
	e	59-07	
	e(SS)	04-04-58	
	eG	15.8	
Oct. 22	e(PS)	06-12-17	CGS: H = 05-43-01
	e(SS)	19-29	Aftershock of above.
	eR	51-10	M = 6¼-6½ (Pasadena)
Oct. 22	iP	10-10-51	CGS: H = 10-02-47
			2½° S, 76° W
			(Peru-Ecuador border)
			h = 150 km.ca.
			Dist.(meas.) = 5050 km.

Date 1951	Phase	Time (GCT)	Remarks
Oct. 22	eL	12-06.7	CGS: H = 11-11-02 24° N, 122° E (Formosa aftershock)
Oct. 22	eL	13-49.0	CGS: H = 12-48-38 Formosa aftershock
Oct. 22	eL	15-47.3	
Oct. 22	eL	16-23.4	CGS: H = 15-29-47 Formosa aftershock
Oct. 22	eL	19-43.7	
Oct. 23	eL	02-13.8	CGS: H = 01-19-35 Formosa aftershock
Oct. 23	eL	09-49.7	CGS: H = 08-55-13 Formosa aftershock
Oct. 23	eL	19-30.7	
Oct. 24	eP	02-01-18	CGS: H = 01-48-04 Near coast of Hokkaido, Japan
Oct. 24	eL	04-34.7	
Oct. 24	iP	19-36-19	
Oct. 25	eP eL	04-12-38 24.6	CGS: H=04-06-00 15° N, 93° W (near coast of Guatemala) M = $5\frac{3}{4}$ (Pasadena)
Oct. 25	eL	13-20.0	CGS: H = 12-19-38 Formosa aftershock
Oct. 28	eL	03-01.6	
Oct. 28	iP' i(PP) e(SS) eL	07-07-22.5 10-53 29-55 08-05.0	Dist. = 15,800 km?
Oct. 31	eP' eL	07-15-40 08-13.4	CGS: H = 06-56-21 3° N, 101° E (Malacca Straits) M - $6\frac{1}{2}$-$6\frac{3}{4}$ (Pasadena) Dist.(meas) = 14,900 km.

Date 1951	Phase	Time (GCT)	Remarks
Nov. 4	iP'	09-13-23	CGS: H = 08-54-30
	iPP	16-22	5½° S, 146° E (Near northeast coast of New Guinea) h = 200 km.ca Dist.(meas) = 14,700 km.
Nov. 4	iP'	11-28-43.5	CGS: H = 11-09-41 11½° N, 125° E (Samar Island, Philippines. Felt.) Dist.(meas.) = 13,800 km.
Nov. 5	eL	19-56.2	
Nov. 6	eP	15-09-35	CGS: H = 14-57-15
	eL	39-26	Foreshock of following Dist.(P-H) = 9140 km.
Nov. 6	eP	16-52-27	CGS: H = 16-40-06
	ePP	55-28	47° N, 154° E
	iPPP	57-06	(Kurile Islands)
	iS	17-02-40	M = 7-7¼ (Pasadena)
	iScS	03-12	Dist.(meas) = 9100 km.
	i	05-49	Dist.(P-H) = 9160 km.
	eSS	08-00	
	iPKKP	10-41	
Nov. 6	iPn	17-55-28.7	CGS: H = 17-54-41.5
	iP_3	32.2	45.0° N, 73.6° W
	i	35.0	(Clinton County, New York)
	iS_3	56-08.2	Dist.(meas.) = 329 km.
	iS_2	12.4	NESA: H = 17-54-46
	i	16.4	44.9° N, 73.3° W
Nov. 6	iP	19-02-48	CGS: H = 18-50-27 Kurile Islands aftershock Dist.(P-H) = 9160 km.
Nov. 6	iP	22-31-51	CGS: H = 22-20-34 North-central Chile Dist.(P-H) = 7880 km.
Nov. 7	iP	05-12-39	CGS: H = 05-05-07 Southeast Yukon, Canada Dist.(P-H) = 4360 km.
Nov. 8	eS	14-02-48	CGS: H = 13-45-09
	eL	10.8	54½° N, 160° W (Off south coast of Alaska Peninsula.) M = 6¼ (Pasadena) Dist.(Meas) = 6800 km.

Date	Phase	Time (GCT)	Remarks
1951			
Nov. 9	iP	22-18-20	CGS: H = 22-07-53
	esS	27-43	22° S, 68° W
	eL	33.0	(Chile-Bolivia border)
			h = 100 km.ca.
			M = 6¼ (Berkeley)
			Dist.(meas.) = 7200 km.
Nov. 10	iP	01-59-05.5	
Nov. 10	eL	06-24.5	CGS: H = 05-31-54
			Fiji Islands Region
Nov. 11	iP	23-04-13.5	CGS: H = 22-54-45
			Chile-Bolivia border region.
			Dist.(T-H) = 6000 km.
Nov. 12	iP	08-21-51	CGS: H = 08-09-26
	eS	32-03	47° N, 154° E
	ePPS	33-16	(Kurile Islands)
	eSS	37-05	M = 6½-6¾ (Berkeley)
	e	38-03	Dist.(meas) = 9050 km.
	eR	57.4	Dist.(T-H) = 9240 km.
Nov. 12	iP	09-42-12	CGS: H = 09-36-36
	ipP	30	17° N, 61° W
	eS	47-17	(Leeward Islands. Felt in Antigua.)
	eT	10-07-28	h = 100 km. ca.
			M = 5¾ (Pasadena)
			Dist.(meas.) = 3000 km.
Nov. 12	iP	22-40-25	
	i	47	
Nov. 13	eP	02-17-40	CGS: H = 02-09-12
			Near north coast of Venezuela.
			Dist.(T-H) = 5200 km.ca.
Nov. 13	eL	09-00.0	CGS: H = 07-57-40
Nov. 13	eL	11-45.5	CGS: H = 11-24-46
			40½° N, 125° W
			(Off Cape Mendocino, Cal.)
			M = 4½ (Berkeley)
Nov. 15	iP	08-37-31	CGS: H = 08-25-53
	eL	09-01.4	52½° N, 160½° E
			(Kamchatka Foreshock)
			h = 60 km.ca.
Nov. 15	eP	10-14-21	CGS: H = 10-02-42
	eL	44.5	52½° N, 160½° E
			(Kamchatka Foreshock)

Date 1951	Phase	Time(GCT)	Remarks
Nov. 15	eP	10-43-13	CGS: H = 10-31-33 Kamchatka Foreshock
	eL	11-09.5	
Nov. 15	iP	15-14-37.5	
Nov. 15	iP	17-57-03.5	CGS: H = 17-45-23 53° N, 161° E (Kamchatka Foreshock) h = 60 km.ca.
Nov. 15	eP	19-53-51	CGS: H = 19-42-12 52½° N, 160½° E (Near east coast of Kamchatka) h = 60 km.ca. M = 6½ - 6½ (Pasadena) Dist.(meas.) = 8350 km.
	eS	20-03-42	
	eL	19.7	
Nov. 15	iP	22-10-58	CGS: H = 21-59-18 Kamchatka aftershock h = 60 km.
	eL	39.3	
Nov. 16	iP	01-51-30	CGS: H = 01-39-07 46½° N, 154° E (Kurile Islands aftershock)
Nov. 16	iP	15-15-05.5	CGS: H = 15-03-26 Kamchatka aftershock
	eL	53.9)	
Nov. 16	eP	15-32-22	CGS: H = 15-20-44 Kamchatka aftershock.
Nov. 16	iP	15-40-44	CGS: H = 15-29-05 52½° N, 160° E (Kamchatka aftershock) h = 60 km.ca.
Nov. 16	eP'	17-52-07	CGS: H = 17-33-22 29½° S, 178° W (Kermadec Islands) h = 60 km.
	eL	18-35.8	
Nov. 18	eP	09-49-59	CGS: H = 09-35-43 31° N, 90½° E (Eastern Tibet. Felt north of Lhasa. M = 7½ ca. (Pasadena) Dist.(meas.) = 11,600 km.
	ePP	54-25	
	iPS	10-03-34	
	iPPS	04-17	
	e	08-40	
	iSS	09-17	

Date 1951	Phase	Time (GCT)	Remarks
Nov. 22	iP'	02-23-56	CGS: H = 02-04-49
	eL	03-05.0	5° S, 151½° E (New Britain) M = 6-6¼ (Pasadena) Dist.(meas) = 14,100 km.
Nov. 22	iP	04-41-34	
Nov. 26	eP	07-15-02	
Nov. 24	iP	04-41-08	CGS: H = 04-30-24 51½° N, 176° W (Andreanoff Island, Aleutian Islands.) h = 60 km.ca.
Nov. 24	eL	07-53.4	
Nov. 24	iPP	19-06-52	CGS: H = 18-47-13 Foreshock of following M = 6¼ (Pasadena)
Nov. 24	ePP	19-09-52	CGS: H = 18-50-19
	ePKS	11-44	23° N, 121½° E
	iSKS	15-36	(Near east coast of
	eSKKS	16-43	Formosa. Heavy casualties
	iS	17-39	and extensive property
	ePS	19-18	damage.)
	iPS	31	M = 7¼ (Pasadena)
	iPPS	20-32	Dist.(meas.) = 12,650 km.
	eSS	25-22	
	ePSPS	26-11	
	eR	44.3	
Nov. 26	ePS	07-07-43	CGS: H = 06-38-29
	eL	37.7	23° N, 121½° E (Formosa aftershock)
Nov. 29	eP'	05-04-55	CGS: H = 04-45-44 1° N, 121° E (Northern Celebes Island)
Nov. 29	eP	23-38-38	CGS: H = 23-28-02 Argentina-Chile-Bolivia border region.
Nov. 30	iP	07-56-58	
	eL	08-03.9	

Date 1951	Phase	Time (GCT)	Remarks
Dec. 4	iP	08-56-34.5	CGS: H = 08-50-50 About 600 miles southeast of Greenland
Dec. 5	eR	07-58.5	CGS: H = 06-58-35 23° N, 122½° E (Formosa)
Dec. 5	eL	16-11.8	CGS: H = 15-53-16 32½° N, 115° W (Lower California) M = 4¾ (Pasadena)
Dec. 6	iP eS eR	14-36-31.5 42-32 48.0 ca.	CGS: H = 14-29-18 5½° N, 77½° W (Near west coast of Colombia.) Dist.(meas.) = 4150 km.
Dec. 8	iP' iPP iPPP ipPPP i iSKKP iSS esSS eG	04-33-36 36-41 39-43 55 46-14 49-01 54-32 55-13 05-19.2	CGS: H = 04-14-20 34° S, 56½° W (Indian Ocean, about 900 miles southwest of Madagascar.) h = 100 km.ca. M = 7¾ (Pasadena) Dist.(meas.) = 15,400 km.
Dec. 8	iP'	14-17-05	CGS: H = 13-58-10 6° S, 154½° E Solomon Islands h = 100 km.ca.
Dec. 12	iP iPP iS isS iPcS	01-44-02 45-14 49-07 42 50-22	CGS: H = 01-37-34 17° N, 94½° W (Oaxaca, Mexico. Slight property damage.) h = 100 km.ca. M = 7 (Pasadena) Dist.(meas.) = 3500 km.
Dec. 17	iP	17-58-06	CGS: H = 17-51-34 11° N, 86½° W (Off southwest coast of Nicaragua) h = 100 km.ca.
Dec. 17	iP e	18-30-49 31-20	

Date 1951	Phase	Time (GCT)	Remarks
Dec. 23	eP	07-03-47	CGS: H = 06-57-20
	eS	08-34	15° N, 61° W
			(Windward Islands)
			h = 100 km. ca.
			Dist. (meas.) = 3150 km.
Dec. 24	eL	06-11.5	CGS: H = 05-50-41
			About 200 miles off
			coast of Colima, Mexico
Dec. 25	eP	16-10-35	CGS: H = 15-58-28
	eR	47.6	49° N, 155½° E
			(Kurile Islands)
			h = 60 km.
			Dist. (meas.) = 8850 km.
Dec. 26	iP	00-54-13	CGS: H = 00-46-49
	iQ	01-06-48	32.6° N, 118.7° W
			(Pacific Ocean, off coast
			of Southern California.
			Felt.)
			M = 5½-5¾
			Dist. (meas.) = 4250 km.
Dec. 26	iP	03-19-18	CGS: H = 03-08-48
			Fox Island, Aleutian
			Islands.
Dec. 26	eR	11-03.8	CGS: H = 10-06-57
			32° N, 91° E
			(Eastern Tibet)
Dec. 26	eR	17-25.0	CGS: H = 16-30-51
			Northern Kansu Province,
			China.
Dec. 26	eP	17-05-32	CGS: H = 16-53-23
			49½° N, 156° E
			(Nothern Kurile Islands)
Dec. 26	iP	17-34-35	CGS: H = 17-22-20
			50½° N, 156° E
Dec. 27	iP	02-34-06	CGS: H = 02-21-46
			49° N, 156° E
			(Northern Kurile Islands)

Date 1951	Phase	Time (GCT)	Remarks
Dec. 28	iP	09-27-12.5	CGS: H = 09-20-25
	iPP	28-37	17° N, 98½° W
	iS	32-47	(Guerro, Mexico. Felt.)
	eR	37.0	M = 7¼-7½ (Pasadena)
			Dist.(meas.) = 3850 km.
Dec. 28	iP	16-07-22.5	CGS: H = 15-59-06
			10° S, 71½° W
			(Peru-Brazil border)
			h = 650 km.ca.
Dec. 29	eP	13-00-41	CGS: H = 12-53-55
			18° N, 101° W
			(Southwestern Mexico)
Dec. 30	eP	17-50-55	CGS: H = 17-42-28
	ipP	51-06	62½° N, 146° W
	iPP	52-22.5	(southern Alaska)
	e	18-06-30	h = 100 km.ca.
	eR	18.0	Dist.(meas.) = 5150 km.
Dec. 30	eP	22-30-02	CGS: H = 22-17-51
	eR	55.0 ca.	28° S, 114½° W
			Pacific Ocean Foreshock
			M = 6½ (Pasadena)
Dec. 30	iP	22-35-16	CGS: H = 22-23-05
	eR	23-02.5	28° S, 114½° W
			Pacific Ocean, west of Easter Island.)
			M = 6½ (Pasadena)
			Dist.(meas.) = 8960 km.

Philip R. Berger
Observer

L. Don Leet
Seismologist in Charge