Volume 2, No. 1
January 1962

REGISTRATION OF EARTHQUAKES AT WICHITA MOUNTAINS SEISMOLOGICAL OBSERVATORY FORT SILL, OKLAHOMA, U.S.A.

Operated under the Technical Supervision of the
Air Force Technical Applications Center (AFTAC)

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THE REGISTRATION OF EARTHQUAKES

AT THE

WICHITA MOUNTAINS SEISMOLOGICAL OBSERVATORY

STATION

Station Abbreviation: WMSO
Station identification on Film Seismograms: *a*
Geographical Location *: 34° 43' 05.3" N. Lat.
(Vault No. 6) 98° 35' 20.7" W. Long.

GEOCENTRIC LOCATION *: 34° 32' 09.8" N. Lat.
(Vault No. 6) 98° 35' 20.7" W. Long.

ALTITUDE (Meters) *: 505 meters (1658)
(Vault No. 6)

GEOLOGY: The station is located on the Carlton (porphyritic) granophyre of the Wichita Mountains of Oklahoma.

NOISE LEVEL - January 1962: The periods of the predominant microseisms at WMSO are 0.5 second and 6 seconds. An amplitude distribution curve for the 0.5 second microseisms may be found on page 2.

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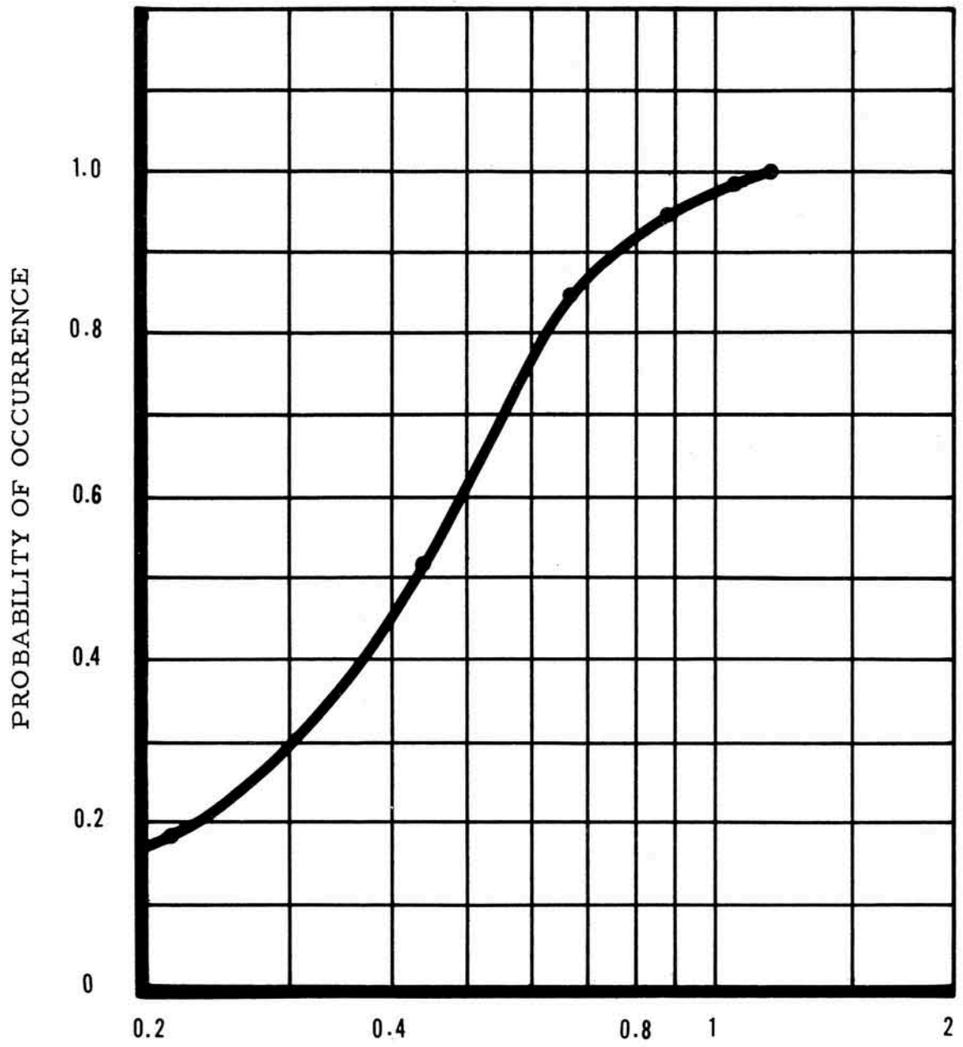
* The coordinates refer to the location of vault no. 6 which houses the 3-component groups of short-period and intermediate band seismometers from which arrival times are determined.



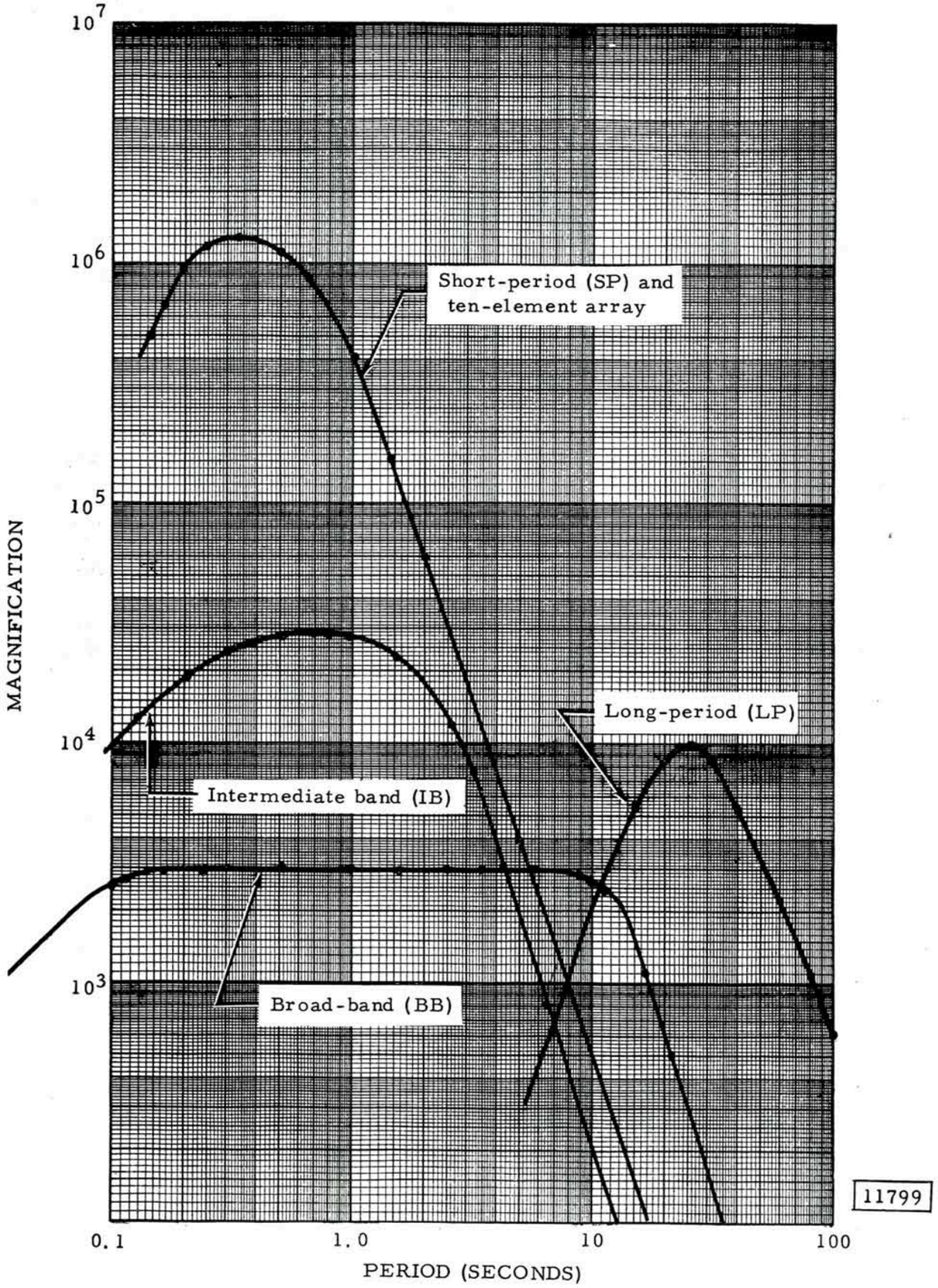
Probability of predominant 0.5-sec microseisms occurring at or less than a given amplitude at Unity magnification

SEISMOGRAPHS

	Ts	λs	Tg	λg	σ^2
SP Vertical Benioff	1.0	1.0	0.2	1.0	0.01
SP Horizontal Benioff	1.0	1.0	0.2	1.0	0.01
IB Vertical Melton	2.5	0.65	0.64	1.5	0.002
IB Horizontal Sprengnether	2.5	0.65	0.64	1.5	0.0005
BB Vertical Press-Ewing	12.5	0.4	0.64	9.0	0.0002
BB Horizontal Sprengnether	12.5	0.4	0.64	9.0	0.0004
LP Vertical Sprengnether	25.0	1.0	30	1.0	0.004
LP Horizontal Sprengnether	25.0	1.0	30	1.0	0.004

SP = Short Period
IB = Intermediate Band
BB = Broad Band
LP = Long Period
Ts = Free Period of seismometer in secs.
λs = Damping constant of seismometer
Tg = Free Period of galvanometer in secs.
λg_2 = Damping constant of galvanometer
σ^2 = Coupling Coefficient

NOTE: Response curves may be found on page 4.



Response characteristics of seismographs

INTERPRETATION OF SYMBOLS

1. Earthquakes Listed

All local (L), near-regional (NR), regional (R), and distant earthquakes (T) are tabulated on the following pages.

2. System

In the column headed "Syst." (system), the seismograph (SP, IB, BB, or LP) and component (Z, N, or E) used to measure arrival time are designated. When no component designation appears, the phase is read from the vertical component. When neither system nor component designation appears, the phase is read from the SP vertical component.

3. Phase

(1) "i" (impetus) preceding a phase designates sudden beginning of the motion. (A designation of "i" in the case of initial P motion indicates a signal-to-noise ratio exceeding about 5/1).
(2) "e" (emersio) designates gradual beginning.
(3) "i" or "e" alone designates an unidentified phase.
(4) ( ) (parenthesis marks) indicate uncertainty.

4. Time

(1) Date and arrival time are given in Greenwich Civil Time (G. C. T.)
(2) The arrival time is reported as the earliest time on Z, N, or E. Single Z rather than the array summation ($\sum$) is used for measuring arrival times on the SP seismographs.

5. Ground Motion

(1) In the columns headed "A" and "T" are tabulated earth displacement in millimicrons and period in seconds, respectively. An amplitude of 999 indicates that a signal cannot be measured reliably. A "c" or "d" in the "A" column indicates compression or dilation, respectively, of the ground as indicated by the vertical component instrument.

The value of "A" for P phases is the maximum amplitude in the first ten seconds. All amplitudes are center-to-peak amplitudes.

(2) Trace amplitudes are measured to the nearest 1/2 millimeter at X10 view.

6. Direction

In the column headed "Dir." (direction), the direction of the epicenter as viewed from WMSO is indicated. For teleseisms, direction is obtained only from P and Rayleigh waves and is listed opposite the phase from which it is obtained. For close events, direction may be obtained from P-wave step-out shown on the individual short-period vertical traces.

7. Type

Earthquakes are identified as either:

L	(local) - - - - - - - - - - -	0°	- 1.4°
NR	(near-regional) - - - - - -	1.4°	- 6°
R	(regional) - - - - - - - -	6°	- 16°
T	(teleseismic) - - - - - - -	16°	- 180°

8. Remarks Column

(1) Epicentral locations, time of origins, depth of foci, and magnitudes are obtained from the U.S. Coast and Geodetic Survey Preliminary Determination of Epicenters cards.

(2) The nature of the surface waves is indicated subjectively.

(3) Epicentral locations and distances reported by the station are accompanied by an indication of the phases used to determine epicentral distance, e.g. △ (S-P) = 6°, Central Colorado.

(4) Operational notes refer to operational difficulties that affect analysis of data.

PHASE CALLED SUR... UNNAMED

A 'c' or 'd' here is A and K.

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
01 Jan		eP	00	42	35.0	1	0.7		T	
01 Jan		eP	02	51	12.4	26	1.3		T	Rat Islands, Aleutian Islands
		e		52	04.3		1.5			52.3 N 177.9 E
	LPN	eS		59	14		25.0			h about 26 km
	LPN	eSS	03	03	39		31.0			0 = 02 41 06.0
	LP	eSur		10	38					Strong surface, Rayleigh type, on LP
01 Jan	E	eSur	03	15	12.5		1.2		R	
01 Jan		eP	03	19	42.5	11	1.5		T	
01 Jan		eP	06	47	30.5	8	1.1		T	
		e			53.3		1.0			
01 Jan		eP	06	57	23.6	3	1.0		T	
01 Jan		eP	07	00	02.3	16	1.6		T	Rat Islands, Aleutian Islands
	LP	eSur		19	54					51.9 N 177.8 E
										h about 59 km
										0 = 06 49 57.9
										Medium surface, Rayleigh on LP
01 Jan		eP	10	27	07.2	5	0.9		T	Rat Islands, Aleutian Islands
		e			15.4		1.0			51.9 N 177.7 E
		e			36.7		1.0			h about 58 km
	LP	eSur		46	12					0 = 10 17 05.6
										Weak surface, Rayleigh, on LP.
01 Jan		eP	12	09	20.6	4	0.9		T	
		e			35.4		1.0			
01 Jan		eP	12	29	11.9	6	1.0		T	Kermadec Islands region
		e			23.1		1.1			27.1 S 175.4 W
	LP	eSur		59	00					h about 48 km
										0 = 12 15 51.2
										Weak surface, Rayleigh, on LP
01 Jan		eP	13	31	30.7	4	0.9		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
01 Jan		eP	17	25	40.6	8	1.0	WNW	T	
01 Jan		eP	20	46	38.5	2	0.8		T	
01 Jan		eP	22	14	21.8	1	0.6		T	
01 Jan		eP	23	50	26.4	169	1.7		T	Rat Islands, Aleutian Island
		e		51	21.2		2.1			52.4 N 177.7 E
		e		53	50.4		1.0			h about 27 km
	LPE	eS		58	30		30.0			0 = 23 40 20.3
02 Jan	LPE	eSS	00	02	54		28.0			Strong surface waves, Love
	LPE	e		05	38		16.0			and Rayleigh type, on LP.
	LPN	eSur		06	48					Weak surface on BB.
	LP	eSur		09	24					
02 Jan		eP	02	02	11.6	1	0.6	SE	T	
		e			14.4		0.6			
02 Jan		eP	03	48	50.8	6	1.4		T	
02 Jan		eP	04	25	38.3	3	1.1		T	
02 Jan		eP	05	11	28.4	3	1.1		T	
02 Jan		eP	05	33	33.3	19	0.9		T	Peru-Bolivia border
		epP			50.8		0.9			17.8 S 69.8 W
		e		34	09.9		0.8			h about 74 km
		ePcP			23.7		0.6			0 = 05 23 38.2
		e(PP)			41.5		0.7			Weak surface waves,
		e		36	19.0		1.2			Rayleigh type, on LP.
		eScP		38	11.6		1.3			
		e		41	41.3		1.0			
	LP	eSur		53	00					
02 Jan		eP	06	21	31.4	4	1.1		T	
02 Jan		eP	11	39	08.3	3	1.0		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962		eP	12	33	13.1	30	1.5		T	Svalbard Region
		epP			23.6		1.6			80.0 N 24.3 E
		e			36.7		1.2			h about 48 km
		e(PcP)		34	48.2		1.0			0 = 12 22 58.7
		e		40	56.8		1.4			Strong surface waves, Love
	LPE	eSur		50	00					and Rayleigh type, on LP.
	LPE	eSur		55	30					
02 Jan	LP	eSur	12	35	30				T	Loyalty Islands region
										21.8 S 169.8 E
										h about 56 km
										0 = 11 47 31.0
										Weak surface waves,
										Rayleigh type, on LP.
02 Jan		eP	12	35	58.0	10	1.0		T	
02 Jan		eP	13	08	27.4	3	1.1		R	
		e			43.4		1.2			
	E	eSur		09	40.0		2.0			
02 Jan		eP	15	51	53.7	3	0.9		T	
02 Jan		eP	16	16	11.5	5	1.2		T	
		e			39.0		1.6			
		e			55.9		1.3			
20 Jan		eP	16	43	57.2	3	1.1		T	
		e		44	17.0		1.6			
02 Jan		eP	17	37	04.0	5	0.2	ESE	L	Local artillery, Ft. Sill, Okla.
	E	eS			05.5		0.3			(e) phase is acoustic signal.
		e			34.9		0.4			
02 Jan		eP	19	19	47.9	6	1.1		T	
		e			57.6		1.1			
02 Jan		eP	21	48	57.1	3	1.0		T	
		e		49	28.2		0.9			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
02 Jan		eP	22	10	15.7	1	0.4	ENE	NR	Quarry blast in Keystone D
		e			17.6		0.4			area, Oklahoma
		e			19.7		0.5			△(S-P) = 2.5°
	E	eS			45.9		0.4			
		eSur			54.1		0.4			
	E	eSur			59.9		0.4			
02 Jan		eP	22	34	36.7	42	1.9		T	
02 Jan		eP	23	18	59.5	2	0.9		T	Weak surface waves,
		e		20	16.0		1.0			Rayleigh type, on LP.
		e		21	20.3		0.9			
	LP	eSur		56	40					
02 Jan		eP	23	26	38.7	2	0.4	ESE	NR	Quarry blast near Chico,
		e			47.9		0.4			Texas.
	E	eS		27	00.5		0.4			△(S-P) = 1.7°
	E	e			02.9		0.4			
02 Jan		eP	23	34	20.1	2	0.3	SE	NR	Quarry blast, 3,093 lbs.
		e			30.1		0.4			by Texas Industries near
	E	eS			41.6	999				Chico, Texas.
	E	e			44.0	999				△(S-P) = 1.7°
02 Jan		eP	23	43	08.3	1	0.4	SE	NR	Quarry blast near Chico,
		e			17.6		0.4			Texas.
	E	eS			29.3		0.4			△(S-P) = 1.7°
	E	eSur			32.4		0.4			
02 Jan		eP	23	52	15.1	1	0.5		NR	
		eSur			58.8		0.5			
	E	eSur		53	01.3		0.6			
02 Jan		eP	23	57	04.7	3	0.4	SSE	NR	Probably Quarry blast
	E	eS			31.9		0.4			west of Weatherford, Texa
	E	e			33.2		0.4			△(S-P) = 2.2°

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
03 Jan	LP	eSur	01	31	30				T	Weak surface waves,
										Rayleigh type, on LP.
03 Jan		eP	07	03	10.3	6	0.9		T	Near coast of Peru
		e			34.8		0.8			18.7 S 71.0 W
		e			48.9		0.8			h about 77 km
		ePcP			59.1		0.6			0 = 06 53 16.2
		e		05	50.9		1.0			
03 Jan		eP	08	57	05.1	4	0.9		T	
		e			51.9		0.7			
03 Jan		eP	09	18	03.4	12	1.0	NW	T	
		e			09.2		1.2			
		e			15.9		1.0			
		e			30.9		1.1			
03 Jan		eP	10	17	06.3	2	0.7		T	
		e			12.7		0.6			
03 Jan		eP	10	26	25.3	3	0.7	NW	T	
		e			30.0		1.1			
		e			39.2		0.9			
03 Jan		eP	11	33	53.6	6	1.1		T	Tonga Islands region
		e		35	00.8		1.1			20.6 S 174.4 W
	LP	eSur	12	03	18					h about 32 km
										0 = 11 20 53.5
										Weak surface waves,
										Rayleigh type, on LP.
03 Jan	LP	eSur	13	41	00				T	Weak surface waves,
										Rayleigh type, on LP.
03 Jan		eP	17	43	55.3	2	0.9		R	Start indefinite
	E	e		45	22.9		0.9			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
03 Jan		eP	18	03	09.3	10	1.0		T	Rat Islands, Aleutian Island
		e			25.3		1.0			52.2 N 177.5 E
		e			32.9		1.3			h about 68 km
										0 = 17 53 05.3
03 Jan		eP	18	06	02.5	5	0.9		T	
03 Jan		eP	19	49	06.4	8	0.5	NE	T	
03 Jan		eP	21	03	00.8	2	0.6		T	
		e			26.9		0.8			
03 Jan		eP	21	44	18.2	1	0.4	N(E)	NR	Blast near Keystone Dam
		e			20.1		0.4			area, Oklahoma
	E	eS			48.8		0.4			$\triangle$(S-P) = 2.5°
	E	eSur			56.8		0.4			
03 Jan		eP	22	05	55.0	2	0.5		NR	$\triangle$(S-P) = 2.7°
	E	eS		06	27.4		0.5			
03 Jan		eP	22	11	03.7	4	1.0		T	
03 Jan		eP	22	42	38.9	3	0.9		T	
03 Jan		eP	23	31	08.4	1	0.5		NR	$\triangle$(S-P) = 4.4°
		e			11.7		0.4	W		Texas - New Mexico border
		e			24.2		0.5			
	E	e			49.0		0.4			
	N	eS			59.9		0.5			
		e(Sur)		32	05.5	999				
03 Jan		eP	23	47	03.8	2	0.4	SE	NR	$\triangle$(S-P) = 2.1°
	E	eS			30.4		0.4			
	E	e			32.2	999				
04 Jan		ePKKP	00	20	22.2		1.1		T	Loyalty Islands region
	LP	eSur		39	39					21.5 S 169.9 E
										h about 75 km
										0 = 23 50 28.8
										Weak surface waves,
										Rayleigh type, on LP.

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
04 Jan		eP'	01	31	53.6	3	0.9		T	Near coast of Sumatra
		e		32	03.2		0.7			0.1 S 100.1 E
										h about 141 km
										0 = 01 12 40.5
04 Jan		eP	01	35	37.2	3	0.8		T	Possible SKP of
		e			56.7		0.8			previous event
04 Jan		eP	04	28	54.5	5	0.8		T	Near coast of Honshu, Japan
		epP		29	34.4		1.0			35.1 N 138.9 E
										h about 178 km
										0 = 04 16 01.7
04 Jan		eP	04	36	37.1	2	0.8		T	
04 Jan		eP	04	49	02.2	28	1.4		T	Near Shikoku, Japan
		e			13.4		2.0			33.9 N 135.2 E
		e			29.9		1.0			h about 56 km
		e			36.5		1.3			0 = 04 35 42.6
		e			58.4		1.0			Mag. = 6 (Berk.)
		e		52	09.5		1.2			Strong surface waves, Love
		e			40.3		1.2			and Rayleigh type, on LP.
		ePP			50.6		1.3			Weak surface on BB.
		e		54	31.3		1.4			PPP at 05 14 38 is 271° path.
	LPE	eSKS		59	38		28.0			
	LPN	eS	05	00	14		32.0			
	LPE	ePS		01	40		28.0			
		ePKKP		05	56.5		1.6			
	LPE	e		08	22		42.0			
	LP	eSSS		10	20		30.0			
	LP	ePPP		14	38		28.0			
	LPN	eSur		17	44					
	LP	eSur		22	08					
04 Jan		eP	05	06	27.5	14	1.3		T	
		e		07	12.4		1.1			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
04 Jan		eP	06	47	08.9	2	1.0		T	
04 Jan		eP'	07	53	24.4	2	0.8		T	Banda Sea
		epP'		54	20.0		1.2			5.0 S 130.4 E
		ePP		55	21.3		1.2			h about 222 km
		eSKP		56	24.7		1.0			0 = 07 34 44.4
04 Jan		eP	13	20	32.2	4	1.0		T	
04 Jan		eP	14	41	29.3	3	0.4	ESE	NR	Quarry blast, 15,554 by
	N	eS			53.9		0.5			by Dolese Bros. Co. at Bromide, Oklahoma
										$\triangle$(S-P) = 2.0°
04 Jan		eP	18	03	03.4	1	0.3	N	NR	[$\triangle$(S-P)] = 1.4°
		e(S)			21.9		0.5			
	E	e			25.5		0.3			
04 Jan		eP'	20	20	21.7	2	0.7		T	Near coast of Sumatra
										1.6 S 99.6 E
										h about 59 km
										0 = 20 00 54.4
04 Jan		eP	20	22	30.1	1	0.4	NE	NR	Probable quarry blast
	E	eS		23	02.6		0.4			near Tulsa, Oklahoma
	E	e			09.5		0.5			$\triangle$(S-P) = 2.7°
04 Jan		eP	21	09	05.0	4	1.2		T	
		e			36.5		1.2			
04 Jan		eP	21	24	44.0	1	0.4		NR	$\triangle$(S-P) = 2.5°
	E	eS		25	14.5		0.4			
	E	eSur			22.5		0.4			
04 Jan		eP	21	33	09.3	2	0.7		T	
		e			34.5		0.5			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
04 Jan		eP	21	34	21.5	3	0.6		T	Possible PcP of previous event
04 Jan		eP	21	34	48.2	6	0.9		T	
		e		35	00.5		0.8			
04 Jan		eP	21	45	05.6	3	1.0		T	
04 Jan	LP	eSur	22	40	46				T	Medium surface waves, Rayleigh type, on LP.
04 Jan		eP	23	45	45.9	1	0.4	(S)E	NR	$\triangle$(S-P) = 1.8°
	E	eS		46	08.0		0.5			
04 Jan		eP	23	46	32.8	4	0.5		NR	
	E	eSur		47	13.8		0.5			
	E	eSur			19.6		1.0			
05 Jan		eP	00	36	33.9	17	1.2		T	Fiji Islands region
		e			44.1		1.2			15.5 S 177.7 W
		e			53.5		1.4			h about 24 km
		e		38	40.3		1.8			0 = 00 23 32.1
	LPN	eSKS		47	05		17.0			Mag. = 6-1/4 (Pas);
	LPE	eS			38		36.0			6-1/4 - 6-1/2 (Berk)
	LPN	ePS		48	34		27.0			Strong surface waves,
	LPN	eSS		53	07		28.0			Love and Rayleigh type,
		ePKKP		54	04.3		0.8			on LP and BB.
	LPN	eSSS		56	43		38.0			
	LPE	eSur	01	00	08					
	LP	eSur		04	17					
05 Jan		eP	08	20	45.8	40	1.2		T	Tonga Islands region
		e		21	08.6		1.6			15.5 S 172.5 W
		e		30	16.5		0.9			h about 60 km
	LPN	eSKS		31	23		23.0			0 = 08 08 07.5
	LPN	ePS		32	26		22.0			Strong surface waves,
	LPN	eSS		36	34		24.0			Rayleigh type, on LP.
	LPN	eSur		48	10					

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
05 Jan		eP	13	42	21.3	134	2.0		T	
	LPE	e		45	45		20.0			
	LPE	e		47	10		34.0			
05 Jan		eP'	14	21	12.8	7	1.0		T	Near south coast of Sumat 1.6 S 100.0 E h about 25 km 0 = 14 01 41.7
05 Jan		eP	18	01	23.4	2	0.3		NR	Quarry blast near Chico,
	E	eS			45.0		0.4			Texas. Δ(S-P) = 1.7°
05 Jan		eP	22	46	11.2	2	0.8		T	
05 Jan		eP	23	18	32.1	3	1.0		T	Rat Islands, Aleutian Islar
		e			52.0		1.0			52.3 N 177.6 E h about 70 km 0 = 23 08 29.9
06 Jan		eP	01	12	50.8	3	1.0		T	
		e		13	54.7		1.0			
06 Jan		eP	03	29	11.7	2	1.0		T	
06 Jan		eP	07	46	26.8	2	0.7		T	Possible new event
		e			46.5		0.7			at 07 46 46.5
06 Jan		eP	10	42	34.6	3	0.9		T	
06 Jan		eP	11	29	07.6	1	0.6		T	
06 Jan		eP	15	04	29.0	39	2.0		T	
06 Jan		eP	16	16	06.3	8	1.2		T	
06 Jan		eP	16	25	28.5	2	0.9		T	
06 Jan		eP	17	56	32.4	7	1.4		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
06 Jan		eP	18	38	26.1	5	1.2		T	
06 Jan		eP	20	07	40.6	5	1.3		T	
06 Jan		eP	20	35	34.0	3	0.8	NW	T	
06 Jan		eP	21	47	08.7	2	0.8		T	
06 Jan		eP	22	38	54.3	4	1.0		T	
07 Jan		eP	01	22	12.1	31	0.8		T	Near Kodiak Island
		ePP		24	00.9		1.1			55.2 N 154.1 W
	LP	e(S)		28	47		26.0			h about 27 km
	E	e(ScS)		32	27.4		2.4			0 = 01 14 12.5
	LP	eSur		36	34					Weak surface waves on LP.
07 Jan		eP	01	40	38.7	13	1.5		T	Rat Islands, Aleutian Islands
		e			59.0		1.6			52.0 N 177.8 E
		e(PP)		42	32.5		1.5			h about 55 km
	N	ePcS		45	20.9		1.8			0 = 01 30 34.5
	LP	eSur	02	00	17					Medium surface waves on LP.
07 Jan		eP	01	50	54.5	11	1.5		T	
07 Jan		eP	02	16	41.4	2	1.0		T	
07 Jan		eP	03	48	02.8	4	0.6		T	
07 Jan		eP	08	39	14.9	2	0.9		T	
		e			21.0		1.0			
07 Jan		eP	08	49	04.8	5	1.4	ENE	T	
		e			12.8		1.0			
		e		50	40.0		1.5			
		e		51	01.1		2.0			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
07 Jan		eP	10	15	36.4	30	2.0		T	Yugoslavia
		ePP		18	43.7		2.0			43.4 N 17.4 E
	LPE	eScS		26	00		16.0			h about 32 km
	LPE	ePPS		27	00		30.0			0 = 10 03 12.8
		ePKKP		33	46.8		0.9			Medium surface waves
	LPE	eSur		43	00					on LP.
07 Jan		eP	13	25	22.0	2	0.9		T	
		e			57.8		0.9			
07 Jan		eP	15	18	57.8	2	0.6		T	
07 Jan		eP	16	46	46.7	3	0.8		T	Phases at 16 46 49.4 and
		e			49.4		0.7			16 46 56.6 are possible
		e			56.6		0.8			new events
		e		50	12.8		0.6			
07 Jan		eP	17	37	56.3	6	1.3		T	
07 Jan		eP	17	49	47.6	5	1.1		T	
07 Jan		eP	18	19	48.5	3	0.8		T	
07 Jan		eP	19	37	03.0	2	0.7		T	
07 Jan		eP	20	17	26.1	2	0.9		T	
07 Jan		eP	21	00	01.3	1	0.3	SE	NR	Quarry blast, 4,186 lbs,
	E	eS			20.7		0.5			by Texas Industries near
	E	e			22.6		0.5			Chico, Texas
										$\triangle$(S-P) = 1.5°
07 Jan		eP	22	04	02.1	2	0.5		T	Phase at 22 04 38.1 is
		e			38.1		0.7			possible new event.

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
07 Jan		eP	22	12	07.2	4	1.2		T	Central Chile - Argentina
		e			23.8		1.3			border
		epP			33.1		1.3			37.7 S 71.7 W
		e			43.7		1.4			h about 90 km
		e		13	01.6		1.5			0 = 22 00 30.9
		e			33.2		1.2			
08 Jan		eP	00	46	32.5	3	1.1		T	
08 Jan		eP	01	06	27.0	999			T	Near south coast of the
	LPN	eS		11	27		24.0			Dominican Republic
	LP	eSur		13	19					18.5 N 70.5 W
	LP	eSur		14	36					h about 63 km
										0 = 01 00 24.2
										Mag. = 6-1/2 (Pas);
										6-1/4 - 6-1/2 (Berk); 6 (Pal).
										Strong surface waves, Love
										and Rayleigh type, on all
										systems. Numerous after-
										shocks following event.
08 Jan		eP	01	38	29.4	5	1.2		T	Aftershock of Dominican
										Republic event
08 Jan		eP	01	40	55.4	5	1.0		T	Dominican Republic
		e		41	06.9		0.8			19.1 N 70.5 W
										h about 53 km
										0 = 01 34 54.2
08 Jan		eP	02	11	28.0	6	1.0		T	Dominican Republic
		e			35.1		1.0			18.5 N 70.6 W
		e		12	10.4		1.1			h about 50 km
		e			37.4		1.0			0 = 02 05 21.1
08 Jan		eP	05	09	23.2	4	1.0		T	
08 Jan		eP	05	56	14.0	12	0.9		T	Tonga Islands region
		epP			56.0		1.0			24.2 S 177.7 W
		e		57	22.7		0.7			h about 133 km
		ePKKP	06	13	05.0		0.9			0 = 05 43 02.2

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
08 Jan		eP	07	12	31.8	1	1.0		T	
08 Jan		eP	09	44	44.9	2	0.7		T	
08 Jan		eP	10	52	18.2	23	0.9		T	Peru-Ecuador border
		e(pP)			42.2		0.9			3.8 S 77.4 W
		e(PcP)		54	03.8		0.9			h about 100 km
										0 = 10 44 12.0
08 Jan		eP	10	52	50.6	5	0.7		T	Probable aftershock of
		e		53	07.2		0.9			previous event.
		e		54	35.0		0.7			
08 Jan		eP	15	16	48.3	1	0.7		T	
08 Jan		ePKKP	17	32	46.9		0.6		T	Near coast of New Guinea
										6.4 S 147.3 E
										h about 104 km
										0 = 17 03 18.1
08 Jan		eP	18	02	11.0	1	0.3	SE	NR	Quarry blast, 6,250 lbs,
		e			21.2		0.3			Gifford Hills Co. near
	E	eS			32.8		0.4			Chico, Texas.
										$\triangle$(S-P) = 1.7°
08 Jan		eP	21	01	58.5	3	0.9		T	
08 Jan		eP	21	31	46.2	1	0.3	(S)E	NR	Quarry blast, 6,000 lbs,
	E	eS		32	07.4		0.3			by Southwest Stone Co.
										near Chico, Texas
										$\triangle$(S-P) = 1.5°
08 Jan		eP	22	09	18.4	1	0.4	NE	NR	Probable quarry blast near
		e			20.5		0.3			Tulsa, Oklahoma
	E	eS			48.7		0.4			$\triangle$(S-P) = 2.5°
		eSur			55.1		0.4			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
08 Jan		eP	22	14	23.6	4	0.8		T	Nicaragua
		i			26.6	999	1.0			12.1 N 85.7 W
		e			35.5		0.8			h about 104 km
		e(PcP)		17	52.5		0.7			0 = 22 09 00.5
		e		18	01.5		0.7			
08 Jan		eP'	22	43	06.5	2	0.8		T	Hindu, Kush
		e			38.0		1.1			36.5 N 70.9 E
		ePP			49.5		0.9			h about 208 km
										0 = 22 25 11.1
08 Jan		eP	22	56	03.6	1	0.5		T	
		e			06.0		0.9			
		e			15.3		1.0			
08 Jan		eP	23	25	58.7	1	0.4		NR	Quarry blast, 4,200 lbs.,
	E	eS		26	20.0		0.4			by Wesco, near Chico, Texas
										$\triangle$(S-P) = 1.7°
08 Jan		eP	23	41	33.4	2	0.4	S	NR	Probable quarry blast near
	E	eS		42	00.3		0.4			Weatherford, Texas
										$\triangle$(S-P) = 2.2°
08 Jan		eP	23	44	41.6	2	0.4	S(E)	NR	$\triangle$(S-P) = 2.1°
	E	eS		45	07.9		0.5			
08 Jan		eP	23	59	31.6	1	0.3		NR	Quarry blast, 2,350 lbs., by
	E	eS			53.1		0.3			Gifford Hills Co. near Chico,
										Texas.
										$\triangle$(S-P) = 1.7°
09 Jan		iP	02	21	46.9	d	999		NNW	L $\triangle$(S-P) = less than 0.1°
	E	eS			49.3		999			
09 Jan		eP	06	02	13.6	2	0.6	SE	T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
09 Jan		eP	06	53	52.1	12	1.1		T	Mid-Atlantic Ocean
		ePcP		55	20.6		1.0			33.1 N 39.7 W
	LPE	eS	07	00	30		38.0			h about 25 km
	LP	eSur		07	42					0 = 06 45 10.2
										Strong surface waves, Rayleigh type, on LP.
09 Jan		eP	07	26	31.9	2	1.0		T	
09 Jan		eP	07	43	25.4	3	1.0		T	
09 Jan		eP	10	17	43.4	3	0.9		T	
09 Jan		eP	10	37	55.9	4	1.0		T	
		e		38	36.8		1.0			
09 Jan		eP	11	31	26.1	2	1.0		T	
09 Jan		eP	12	14	57.6	1	1.0		T	
09 Jan		eP	12	44	39.5	2	0.8		T	
		e			48.8		0.9			
09 Jan		eP	12	53	12.5	43	1.5		T	Near coast of Hokkaido,
		e			25.2		1.0			Japan
		e			51.7		1.8			42.9 N 144.8 E
		e		54	20.0		1.6			h about 78 km
		ePP		56	34.1		1.5			0 = 12 40 49.3
		e		57	07.0		2.4			Strong surface waves,
		e		59	15.9		1.4			Rayleigh type, on LP.
	LPN	eSKS	13	03	32		24.0			
	E	e			54.0		3.0			
	LP	ePS		04	35		28.0			
	LPN	eSS		08	55		35.0			
		ePKKP		11	20.8		1.0			
		e			47.8		1.0			
	LP	e		13	15		30.0			
	LPN	eSKKS		18	47		28.0			
		eP'P'		19	35.3		1.2			
	LP	eSur		20	36					

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
09 Jan		eP	13	49	21.4	5	1.3		T	
09 Jan		eP	14	17	30.0	2	1.0		T	
09 Jan		eP	14	45	51.8	2	1.0		T	
09 Jan		eP	15	45	27.8	4	1.2		T	
09 Jan		eP	16	03	08.4	2	0.9		T	
		e		04	33.0		0.9			
09 Jan		eP	18	57	22.2	30	1.8	S(E)	T	
		e			56.8		1.0			
09 Jan		eP'1	20	09	31.4	31	1.1		T	Mascarene Islands region
		eP'2		10	12.1		0.7			20.2 S 66.2 E
		ePP		14	09.6		1.3			h about 25 km
										0 = 19 49 29.7
09 Jan		eP	20	47	28.5	4	0.9		T	
09 Jan		eP	21	46	25.0	11	0.7	SE	R	
		e			35.0		0.7			
		e		47	00.0		0.6			
		e			10.0		0.8			
		e		49	02.3		1.0			
	E	eSur			55.0		1.0			
09 Jan		eP	22	25	07.0	15	0.8		T	Sea of Okhotsk
		e		26	44.6		0.7			48.3 N 147.5 E
		e		27	07.0		0.9			h about 480 km
										0 = 22 13 51.5

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
09 Jan		eP	23	43	21.8	4	1.0		T	
10 Jan		eP	00	08	14.4	1	0.6		T	Fiji Islands region 22.2 S 179.5 W h about 603 km 0 = 23 55 49.2
10 Jan		eP	01	35	33.0	3	1.0		T	
10 Jan		eP	01	42	41.9	2	0.9		T	
10 Jan		eP	02	08	02.1	5	1.1		T	
10 Jan		eP	02	24	48.0	2	0.7		T	
10 Jan		eP	02	29	05.0	1	0.6		T	Fox Islands, Aleutian Isla
		e			17.9		0.9			52.9 N 169.1 W
		e			52.7		0.8			h about 43 km
		e		31	47.7		0.9			0 = 02 19 57.1
10 Jan		eP	03	04	41.0	2	0.9		T	Peru-Bolivia border
		ePcP		05	30.0		0.8			17.1 S 68.0 W
		e		06	11.4		1.0			h about 208 km
										0 = 02 55 01.2
10 Jan		eP	05	08	27.1	2	1.0		T	
10 Jan		eP	06	00	41.5	2	1.0		T	
10 Jan		eP	06	11	19.2	4	1.0	NW	T	
		e		12	24.2		1.1			
10 Jan		eP	06	33	10.7	13	1.0		T	Off coast of Oregon
		e			18.7		1.0			44.3 N 128.8 W
		e			32.2		1.1			h about 25 km
										0 = 06 27 45.2

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
10 Jan		eP	06	34	03.6	22	1.0		T	Off coast of Oregon
		e			31.3		1.5			44.3 N 128.7 W
		e		35	19.3		1.6			h about 61 km
	LPN	eSur		41	32					0 = 06 28 40.5
										Mag. = 4-3/4 (Pal).
										Strong surface waves on LP.
10 Jan		eP	06	39	21.1	17	1.1		T	Off coast of Oregon
		e			30.6		1.1			44.3 N 128.8 W
										h about 25 km
										0 = 06 33 56.5
10 Jan		eP	06	41	17.0	1	0.9	WNW	T	Probable Oregon aftershock
		e			24.8		1.1			
10 Jan		eP	07	13	27.2	4	1.0		T	
		e			34.2		0.8			
10 Jan		eP	07	30	22.0	5	0.9	NW	T	Probable Oregon aftershock
		e			43.4		1.1			
10 Jan		eP	07	39	24.5	2	1.0		T	
10 Jan		eP	08	01	48.8	1	0.8		T	
10 Jan		eP	08	25	43.5	2	1.1		T	
10 Jan		eP	09	13	18.1	14	1.9		T	
10 Jan		eP	09	20	16.3	6	1.4		T	
10 Jan		eP	12	36	13.1	3	1.1		T	
10 Jan		eP	12	49	29.0	2	0.9		T	
		e			56.9		0.9			
10 Jan		eP	13	23	43.8	3	1.1		T	
10 Jan		eP	14	36	40.2	1	0.7		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
10 Jan		eP	15	15	15.5	2	0.9		T	
		e			23.8		1.0			
10 Jan		eP	17	59	26.8	4	1.0		T	
		e			46.0		1.1			
10 Jan		eP	18	14	34.2	5	1.1		T	
10 Jan		eP	19	41	31.2	3	1.1		T	
11 Jan		eP	03	04	19.5	6	0.9		T	Rat Islands, Aleutian Islan
		e			30.2		0.7			51.6 N 176.9 E
		e(PcP)		05	10.0		0.9			h about 53 km
		e			23.1		0.8			0 = 02 54 10.8
		e			51.1		0.8			
	LPE	e(Sur)		26	00					
		eP'P'		33	41.1		0.9			
11 Jan		eP'	03	20	19.3	1	0.8		T	Nepal
		e			52.2		1.2			28.1 N 84.8 E
		e		21	21.1		1.0			h about 38 km
		ePP			27.5		1.5			0 = 03 01 33.0
	LP	ePKS		23	42		19.0			
		ePKKP		30	40.3		1.0			
11 Jan		eP	03	34	33.7	2	1.0		T	
		e			42.9		1.4			
11 Jan		eP	05	17	26.0	77	1.6		T	Near coast of central
		e			45.7		0.9			Yugoslavia
		e			59.0		1.0			43.5 N 17.7 E
		e		18	28.5		0.8			h about 25 km
		ePP		20	26.1		2.2			0 = 05 05 01.6
		e		22	20.6		1.6			Mag. = 5-3/4 (Pas)
		e		24	20.9		1.2			Strong surface waves,
	LPE	e(S)		27	53		22.0			Love and Rayleigh type,
	LPN	ePS		28	42		22.0			on LP.
	LPE	eSS		33	06		22.0			Medium surface on BB.
	LPN	eSSS		36	55		24.0			
	LPE	ePKKS		39	00		22.0			
	LP	eSur		41	37					
	LP	eSur		45	07					

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
11 Jan		eP	05	54	47.8	4	1.2		T	
		e		55	23.6		1.3			
11 Jan		eP	06	02	28.2	5	1.1		T	
		e			35.4		0.8			
11 Jan		eP	06	58	56.4	2	0.8		T	
11 Jan		eP	06	59	00.7	34	1.0		T	Andreanof Islands, Aleutian
		e			09.7		1.2			Islands
		ePcP			50.5		1.0			51.9 N 179.3 W
		ePP	07	01	23.3		1.5			h about 60 km
		eScP		03	53.5		1.0			0 = 06 49 07.6
	LPE	eS		07	05		20.0			Strong surface waves,
	LPN	eSur		15	55					Rayleigh type, on LP.
	LP	eSur		17	10					
11 Jan		eP	07	22	52.0	1	0.5		T	
		e		23	02.6		0.8			
		e			17.1		0.7			
		e			29.0		1.1			
11 Jan		eP	10	15	03.8	4	0.8	NE	T	
		e			17.0		0.8			
		e			26.7		0.7			
11 Jan		eP	11	11	23.3	3	1.1		T	
11 Jan		eP	11	51	30.5	2	1.0		T	
11 Jan		eP	12	41	23.1	1	0.9		T	Possible new event
		e		43	24.8		1.0			at 12 43 24.8
11 Jan		eP	14	29	17.5	3	0.9		T	
11 Jan		eP	17	06	51.4	2	1.0		T	
11 Jan		eP	17	49	59.5	2	1.0		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
11 Jan		eP	19	56	35.4	1	0.9		T	
11 Jan		eP	20	28	11.5	2	1.0		T	
11 Jan		eP	21	19	41.9	7	0.7	E	NR	Quarry blast, 30,257 lbs.
		e			51.7		0.4			shot in 70 holes by Ideal
		eS		20	03.0		0.4			Cement Co., North of
		e			05.5	999				Fitzhugh, Oklahoma
										$\triangle$(S-P) = 1.7°
11 Jan		eP	21	53	11.7	4	1.1		T	
11 Jan		eP	22	05	38.8	1	0.4		NR	$\triangle$(S-P) = 2.7°
	E	eS		06	11.0		0.5			
11 Jan		eP	23	27	20.8	3	0.9		T	Tonga Islands region
		e(pP)		28	09.1		1.1			18.7 S 174.8 W
										h about 151 km
										0 = 23 14 34.3
12 Jan		eP	00	20	24.5	2	0.7		T	
12 Jan		eP	00	35	05.6	1	0.6		T	
		e		36	10.0		1.4			
12 Jan		eP	01	36	38.1	3	1.0		T	
12 Jan		eP	03	51	53.0	2	0.8		T	
12 Jan		eP	04	29	05.5	2	0.6		T	
		e			16.5		0.9			
		e		32	31.3		1.1			
12 Jan		eP	06	39	24.5	3	1.1		T	
12 Jan		eP	09	04	02.7	2	0.9		T	Mariana Islands
		e			19.2		1.4			20.2 N 145.9 E
		e			35.4		0.8			h about 103 km
	LP	eSur		38	25					0 = 08 50 31.2
										Weak surface waves on LP

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
962										
2 Jan		eP	10	06	05.1	2	0.9		T	Central Chile-Argentina border
		e			31.2		1.2			31.9S 70.2 W
		ePP		09	03.4		1.5			h about 24 km
										0 = 09 43 42.8
2 Jan		eP	11	05	04.6	61	2.2		T	Rat Islands, Aleutian Islands
		e			29.0		2.0			52.4 N 177.7 E
		e		06	08.8		1.4			h about 49 km
	LPE	eSur		22	35					0 = 10 55 00.8
	LP	eSur		24	30					Medium surface waves,
										Love and Rayleigh type, on LP.
2 Jan		eP	11	07	18.0	2	0.7		T	
		e			25.2		0.7			
2 Jan		eP	11	27	23.3	12	1.3		T	South Pacific Ocean
		e			47.5		1.2			34.6 S 110.7 W
	LP	eSur		51	17					h about 52 km
										0 = 11 16 13.5
										Medium surface waves on LP.
2 Jan		eP	12	37	39.8	2	0.5		T	
		e			55.9		0.6			
2 Jan		eP	13	50	40.3	2	0.9		T	Hokkaido, Japan
		e			56.6		1.0			42.5 N 143.0 E
		e(pP)		51	10.4		1.0			h about 100 km
										0 = 13 38 11.6
2 Jan		eP	15	16	06.8	5	1.2		T	
2 Jan		eP	20	47	57.6	3	0.5	SE	T	
2 Jan		eP	21	00	56.9	4	0.7		T	
2 Jan		eP	21	01	18.6	1	0.4		NR	$\triangle$(S-P) = 2.2°
	E	eS			48.7		0.3			
	E	eSur			55.4		0.4			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
12 Jan		eP	21	42	36.1	2	0.4	SE	NR	△(S-P) = 2.0°
	E	eS		43	03.4	999				
12 Jan		eP	22	07	52.7	16	1.3	NW	T	
		e		08	29.1	0.9				
		e(PP)		09	07.1		1.5			
	LPN	e(Sur)		19	00					
	E	e(Sur)		20	05.0					
	LP	e(Sur)		23	07					
12 Jan		eP	23	18	39.7	1	0.6		T	Weak surface waves,
		e		19	05.5		1.1			Rayleigh type, on LP.
	LP	e(Sur)		30	50					
13 Jan		eP	00	05	38.6	1	0.5		NR	△(S-P) = 3.2°
		e			42.6		0.4			
	E	e			46.1		0.6	ESE		
	E	eS		06	16.7		0.4			
	E	e			23.3		0.5			
	E	eSur			30.0		0.4			
13 Jan		eP	00	55	27.7	4	0.8		T	Northern Chile
		epP		56	05.1		0.9			22.7 S 68.6 W
		eP'P'	01	24	37.9		1.4			h about 159 km
										0 = 00 45 12.8
13 Jan		eP	01	07	36.1	1	0.6		T	
		e			42.3		0.7			
13 Jan		eP	02	53	11.5	3	1.0		T	
13 Jan		eP	03	17	07.2	3	0.8		T	Fiji Islands
										19.1 S 177.5 W
										h about 542 km
										0 = 03 04 55.7
13 Jan		eP	04	51	27.8	7	1.0	ESE	T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
3 Jan		eP	04	58	40.9	11	1.1		T	Rat Islands, Aleutian Islands
		e		59	16.6		0.7			52.3 N 177.4 E
		e	05	00	27.4		0.8			h about 49 km
	LP	eSur		20	40					0 = 04 48 37.3
										Weak surface waves on LP.
3 Jan		eP'	08	37	19.5	2	1.0		T	Celebes Sea
										2.9 N 124.8 E
										h about 25 km
										0 = 08 18 18.7
3 Jan		eP	09	46	12.2	1	0.2		NR	△(S-P) = 2.1°
	E	eS			38.4		0.5			
3 Jan		eP	11	34	19.7	4	1.0		T	
		e			48.6		0.9			
		e		35	14.0		1.3			
3 Jan		eP	11	53	56.7	7	1.0		T	Tonga Islands region
		e		54	07.6		1.1			15.1 S 174.0 W
										h about 25 km
										0 = 11 41 10.1
3 Jan		eP	12	41	10.0	6	1.3		T	
3 Jan		eP	13	13	47.6	3	0.9		T	
3 Jan		eP	13	34	45.8	1	0.6		R	Start indefinite
		e		35	13.6		0.8			
	E	e(S)		36	25.4		0.7			
	E	eSur		37	01.8		1.0			
3 Jan		eP	18	24	17.2	5	0.8		T	
3 Jan		eP	19	35	33.0	1	0.8		T	
3 Jan		eP	23	31	30.5	1	0.4	(NE)	NR	△(S-P) = 2.7°
	E	eS		32	02.6		0.4			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
14 Jan		eP	04	00	36.5	8	0.9	SE	T	
14 Jan		eP	06	22	50.0	5	0.9		T	
14 Jan		eP	07	37	14.3	1	0.6		T	Hokkaido, Japan
		e			28.2		0.8			43.1 N 145.1 E
		e		38	12.4		0.8			h about 30 km
										0 = 07 24 47.6
14 Jan	LP	eSur	09	33	00				T	Banda Sea
										5.3 S 129.0 E
										h about 18 km
										0 = 08 17 08.1
										Weak surface waves on L
14 Jan		eP	09	27	03.1	2	1.0		T	
		e			29.5		0.8			
		e			34.0		0.8			
14 Jan	LP	eSur	10	07	52				T	Solomon Islands
										7.5 S 158.6 E
										h about 49 km
										0 = 09 17 21.7
										Weak surface waves on L
14 Jan		eP	10	25	34.7	2	1.0		T	
14 Jan		eP	10	47	17.4	5	1.3		T	
		e		48	43.6		1.3			
14 Jan		eP	12	04	18.3	9	0.8	SE	T	
		e			47.2		1.1			
14 Jan		eP	13	46	15.8	9	0.8		T	Off northwest coast of
		epP		47	15.9		1.5			Hokkaido, Japan
		e		48	19.1		1.3			44.9 N 140.8 E
		e			53.0		1.0			h about 193 km
		e		50	04.9		1.3			0 = 13 34 02.8

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
4 Jan		eP	14	06	18.7	2	1.0		T	
4 Jan		eP	20	34	10.4	2	1.0		T	
4 Jan		eP	20	48	05.1	2	1.0		T	
4 Jan		eP	23	06	21.4	2	0.8		T	
5 Jan		eP	08	11	10.2	2	0.7		T	
		e			38.7		0.6			
		e		12	08.1		0.8			
5 Jan		eP	08	13	05.7	39	0.9	SE	T	Medium surface waves
		e			48.6		1.0			on LP.
		e		16	05.5		1.0			
		e			47.4		0.7			
	LPE	e		17	20		18.0			
	E	e			49.2		1.6			
	LPE	e		18	12		18.0			
		e			50.3		1.3			
	E	e(S)		19	26.8		1.8			
	LP	e(Sur)			42					
5 Jan		eP	08	20	22.5	1	0.7		T	
5 Jan		eP	08	29	49.0	8	0.7		T	Off coast of Venezuela
		e		30	09.2		0.7			13.0 N 60.5 W
		e			27.8		0.8			h about 78 km
		ePP		31	30.5		1.2			0 = 08 22 15.9
		e		32	11.0		1.2			Medium surface waves
	E	eS		35	54.4		1.6			on LP
	LPN	e(ScS)		39	22		20.0			
	LPN	eSur		41	08					
5 Jan		eP	09	13	54.6	3	1.1		T	
5 Jan		eP	11	09	21.2	2	0.6		T	Possible new event
		e			23.8		0.7	SE		at 11 09 23.8
		e			41.7		0.8			
		e			50.6		0.9			
		e		10	26.0		1.9			
		e			37.8		1.0			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
15 Jan		eP	18	35	22.8	1	0.5		R	
		e			32.6		0.6			
		e			51.8		0.7			
		e		36	18.3		0.5			
	E	eSur			48.2		0.8			
15 Jan		eP'	18	39	41.1	1	0.5		T	Near east coast of
		epP'		40	14.0		0.6			New Guinea
		ePKKP		50	30.8		0.9			6.0 S 146.8 E
										h about 140 km
										0 = 18 21 12.8
15 Jan		eP	19	54	14.7	2	0.3		NR	Quarry blast near
		e			24.0		0.4			Chico, Texas
		eS			36.4	999				△(S-P) = 1.7°
15 Jan		eP	23	12	42.2	2	0.8		T	
15 Jan		eP	23	35	32.4	1	0.3	SE	NR	Quarry blast, 3,270 lbs.
		e			41.2		0.7			Texas Industries near
	E	eSur			52.6	999				Chico, Texas
										△(S-P) = 1.6°
15 Jan		eP	23	38	46.2	1	0.3	ENE	NR	△(S-P) = 2.6°
	E	eS		39	18.4		0.4			
15 Jan		eP	23	52	31.4	2	0.4	SSE	NR	△(S-P) = 2.2°
		eS			58.2	999				
16 Jan		eP	10	38	00.8	1	0.7		R	Start of surface indefinit
		e			10.7		0.7			
	E	eSur		41	55.7		0.8			
16 Jan		eP	10	57	39.5	1	0.6		T	

ATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
962										
Jan		eP	11	49	21.0	5	0.9		T	Kermadec Islands
		e			32.6		1.5			30.5 S 177.9 W
		e			52.3		0.8			h about 39 km
		e		50	24.9		0.7			0 = 11 35 41.3
	LP	e		51	00		18.0			Mag. = 6-1/2 (Pas)
	LP	ePP		53	26		22.0			Possible new event
		e		55	00.0		0.7			at 11 55 00.0
	LP	e(PPP)		56	20		26.0			Strong surface waves,
	LPN	eSKS	12	00	00		23.0			Love and Rayleigh type, on LP.
	LPN	eS			58		24.0			Weak surface on BB.
	LP	eSP		02	17		21.0			
	LPN	ePPS		03	26		26.0			
		$ePKKP_1$		05	34.7		0.6			
		$ePKKP_2$			47.5		0.6			
		e		06	16.3		1.2			
	LP	e			56		22.0			
	LPN	eSS		07	45		24.0			
	LPN	e(PKKS)		09	20		23.0			
	LPN	eSSS		11	16		36.0			
	LPE	e		13	24		23.0			
		e		14	11.5		0.9			
	LPN	e		15	08		25.0			
	LPE	eSur		17	05					
	LP	eSur		21	15					
Jan		eP	15	24	58.9	5	1.0		T	South Pacific Ocean
	LPN	eSur		44	26					22.2 S 114.5 W
										h about 25 km
										0 = 15 15 01.9
										Strong surface waves,
										Rayleigh type, on LP.
Jan		eP	15	42	15.6	1	0.5		T	
		e			34.5		0.6			
		e		43	56.1		0.8			
		e		45	31.8		0.6			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
16 Jan		eP	15	51	36.3	1	0.7		T	
		e			45.0		0.9			
		e			55.6		0.9			
16 Jan		eP	18	06	24.0	2	0.3		L	Quarry blast, 24,460 lbs
	N	iS			26.7	999				by Dolese Bros. Co. nea
										Richard's Spur, Oklahor
										△(S-P) = less than 0.1°
16 Jan		eP	18	27	59.3	3	0.8		T	Mid-Atlantic Ocean
		e		28	14.3		1.2			7.8 N 36.0 W
	LPN	eSur		46	25					h about 30 km
	LP	eSur		49	00					0 = 18 17 29.7
										Medium surface waves,
										Love and Rayleigh type,
16 Jan		eP	21	12	33.5	1	0.6		T	
16 Jan		eP	22	13	11.2	1	0.4	SE	NR	△(S-P) = 2.6°
	E	eS			43.5		0.6			
16 Jan		eP	23	08	54.4	999		NNW	L	Quarry blast 28,800 lbs.
		eS			58.9	999				Roosevelt Co. south of
										Carnegie, Oklahoma
										△(S-P) = 0.1°
16 Jan		eP	23	47	05.2	2	0.8		T	
16 Jan		eP	23	48	38.4	2	0.4	S	NR	△(S-P) = 2.2°
		e			52.5		0.4			
	E	eS		49	05.2		0.4			
17 Jan		eP	00	03	30.0	1	0.7		T	
		e			46.4		0.9			
		e		04	11.6		0.8			
		e		07	14.8		0.6			
	E	e(Sur)			50.9		1.0			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
7 Jan		eP	00	08	21.5	2	0.8		T	Phases possibly associated
		e			34.9		0.7			with previous event
		e			53.9		1.0			
		e		12	35.0		0.6			
7 Jan		eP	02	18	56.9	1	0.5		T	
7 Jan		eP	04	17	39.5	1	1.0		T	
7 Jan		eP	09	18	21.8	1	0.6		T	Possible new event at
		e			55.6		0.8			09 18 55.6
		e		19	25.1		0.8			
	E	eSur		21	52.7		0.7			
7 Jan		eP	09	33	19.3	1	0.6		T	
		e			31.3		0.7			
7 Jan		eP	11	42	45.3	1	0.7		T	Fiji Islands region
										20.8 S 178.4 W
										h about 613 km
										0 = 11 30 28.2
7 Jan		eP	13	38	41.2	4	1.7		R	
		e			51.3		1.1			
		e		39	32.2		1.3			
7 Jan		eP	13	42	07.3	2	1.1	WNW	T	
		e			24.8		1.7			
		e			43.8		1.2			
7 Jan		eP'	15	48	10.6	1	0.6		T	Molucca Passage
		e			36.1		1.1			4.3 N 128.3 E
		e		49	56.5		1.1			h about 25 km
		ePKKP		58	03.1		0.8			0 = 15 29 06.6
	LPE	e(PSS)	16	07	13		30.0			Strong surface waves,
	LPE	e(SSS)		11	16		24.0			Rayleigh type, on LP.
	LP	eSur		27	30					

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
17 Jan		eP'	16	02	18.3	3	0.9		T	Molucca Passage
		ePKKP$_1$		12	01.5		0.9			3.9 N 126.6 E
		ePKKP$_2$			17.5		0.9			h about 74 km
	LPE	ePSS		21	04		30.0			0 = 15 43 18.3
	LPE	eSSS		25	10		23.0			Strong surface waves,
	LP	eSur		41	16					Rayleigh type, on LP.
17 Jan		eP	17	49	53.6	4	0.4	SW	NR	Δ(S-P) = 2.2°
	E	eS		50	25.3		0.5			
17 Jan		eP	18	21	52.1	1	0.8		R	
		e		24	46.6		0.8			
17 Jan		eP	19	32	44.2	2	1.0		R	Start indefinite
	E	eSur		33	37.1		0.9			
17 Jan		eP	19	49	00.5	3	0.2	NNE	L	Δ(S-P) = less than 0.1°
		eS			04.2	999				
17 Jan		eP	21	05	05.2	1	0.5	(WNW)	NR	Δ(S-P) = 2.9°
	E	eS			41.4		0.4			
17 Jan		eP	21	22	23.7	2	0.7		T	
17 Jan		eP	21	54	53.0	1	0.3		L	Δ(S-P) = 1.2°
	E	eS		55	09.3		0.4			
	E	eSur			58.0		0.9			
		eSur		56	12.7		0.9			
17 Jan		eP	22	22	17.5	1	0.3		R	
	E	eSur		23	31.4		0.8			
17 Jan		eP	23	39	26.6	999			T	Honduras
	IB	e			55.0		2.5			15.0 N 88.0 W
	N	e(Sur)		43	36.8		1.8			h about 42 km
	E	e(Sur)			45.2		3.0			0 = 23 34 32.0
18 Jan		eP	00	01	26.2	2	0.4		NR	Δ(S-P) = 2.2°
	E	eS			53.6	999				

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
8 Jan		eP	00	17	23.1	1	0.4		NR	Δ(S-P) = 2.5°
	E	eS			54.4		0.5			
8 Jan		eP	00	33	17.6	1	0.7		T	
8 Jan		eP	04	32	48.2	1	0.6		T	
8 Jan		eP	06	10	05.1	5	1.3		T	
8 Jan		eP	06	54	58.1	1	0.9		T	
8 Jan		eP	08	28	52.1	2	1.2		T	Fiji Islands region
										21.1 S 178.7 W
										h about 600 km
										0 = 08 16 38.4
8 Jan		eP	10	24	43.8	1	0.6		T	
8 Jan		eP	10	26	42.6	1	0.4		L	Δ(S-P) = less than 0.1°
		eS			44.4	999				
8 Jan		eP	10	33	48.6	1	0.5		T	
8 Jan		eP	16	12	34.9	1	0.6		T	
		e		15	12.5		1.2			
8 Jan		eP	16	23	38.6	1	1.0		T	
8 Jan		eP	16	26	23.0	8	1.2		T	
		e			51.7		1.0			
8 Jan		eP	16	30	00.0	1	0.5		T	
		e			28.9		0.8			
		e		31	22.4		0.8			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
18 Jan		eP	16	31	56.1	4	0.7		T	Weak surface waves,
	LP	e		38	12		27.0			Rayleigh type, on LP.
	LP	eSur		40	22					
18 Jan		eP	18	15	42.3	2	0.4		NR	Quarry blast, 1,560 lbs.
		e			51.2		0.5			in 93 holes by Gifford Hi
	N	eS		16	04.1	999				Co. near Chico, Texas
										△(S-P) = 1.7°
18 Jan		eP'	22	18	52.7	1	0.8		T	Banda Sea
		e		19	07.0		1.0			4.4 S 129.5 E
		e		20	31.6		1.1			h about 21 km
										0 = 21 59 44.1
18 Jan		eP	23	37	15.0	2	0.3		NR	Quarry blast 7,855 lbs.
		e			25.1		0.4			in 12 holes by Gifford Hi
		eS			36.9	999				Co. near Chico, Texas.
										△(S-P) = 1.7°
19 Jan		eP	04	52	45.7	7	1.2		T	
		e			54.8		1.1			
		e		53	06.8		1.5			
		e		59	18.1		1.0			
19 Jan		eP	05	55	59.5	4	0.9		T	
19 Jan		iP	06	12	16.0 d	16	0.7		T	Off southeast coast of
		e			35.4		0.7			Kamchatka
										51.5 N 161.1 E
										h about 29 km
										0 = 06 01 09.5
19 Jan		eP	08	49	07.9	3	1.1		T	
19 Jan		eP	09	25	20.0	3	1.2		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
Jan		eP	09	39	08.5	2	0.9		T	
Jan		eP	10	34	16.8	2	0.8		T	
		e			24.4		0.9			
Jan		eP	13	35	41.1	3	0.8		T	Tonga Islands
		e			58.1		0.7			21.5 S 174.6 W
										h about 25 km
										0 = 13 22 37.0
Jan		eP	15	44	33.4	1	0.7		T	
Jan		eP	16	49	11.5	3	0.7	(SE)	T	
		e			21.3		1.2			
Jan		eP	18	06	08.3	1	0.5		R	Start indefinite
		eSur		08	10.0		0.7			
Jan		eP	19	27	26.8	2	0.7		T	
Jan		eP	19	37	06.5	2	1.3		T	
		e			16.7		0.9	SW		
		e			29.3		0.8			
		e			51.7		1.4			
		e		38	16.3		1.0			
	LPE	e		40	35		23.0			
		e		42	19.6		2.0			
Jan		eP	19	50	55.7	16	0.9		T	Greece
		e		51	48.6		1.0			38.5 N 22.1 E
		ePP		54	30.5		1.1			h about 38 km
	LPE	eSur	20	19	15					0 = 19 38 04.1
	LP	eSur		21	14					Weak surface waves, Love and Rayleigh type, on LP.
Jan		eP	19	56	27.6	2	0.8		T	
		e			43.8		0.9			
		e			52.6		0.5			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
19 Jan		eP'	21	02	12.4	4	0.9		T	Negros, Philippine Isla
		ePKKP		12	17.0		1.0			10.8 N 122.4 E
	LP	eSur		41	00					h about 99 km
										0 = 20 43 24.4
										Weak surface waves on
19 Jan		eP	21	38	51.6	2	1.0		T	
19 Jan		eP	22	17	17.9	1	0.6		NR	△(S-P) = 3.1°
		e			21.8		0.4			
		e			25.1		0.5	E		
	E	eS			55.7		0.8			
	E	e		18	08.5		0.4			
19 Jan		eP	22	31	17.8	8	0.9		T	Greece
		e		32	33.0		0.6			38.2 N 22.1 E
		ePP		34	52.9		1.0			h about 60 km
	LP	eSur	23	05	10					0 = 22 18 27.3
										Weak surface waves on
19 Jan		eP	22	48	06.2	2	0.4	ESE	NR	△(S-P) = 2.3°
	N	eS			35.2		0.6			
	E	e(Sur)			37.5		0.4			
19 Jan		eP	23	36	41.5	1	0.4		NR	Quarry blast, 2,534 lbs
	E	eS		37	02.1		0.5			by Texas Industries nea
										Chico, Texas
										△(S-P) = 1.6°
19 Jan		eP	23	54	39.5	2	0.4	S	NR	Quarry blast, 5,000 lbs
	E	eS		55	06.0		0.4			by Southwest Stone Co.
										Stringtown, Oklahoma
										△(S-P) = 2.2°
20 Jan		eP	02	41	31.4	4	1.2		T	
20 Jan		eP	03	33	37.4	4	1.2		T	
		e			45.8		0.7			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
62										
Jan		eP	04	32	50.8	6	1.4		T	
		e		33	10.3		1.2			
Jan		eP	05	08	54.2	2	1.0		T	
		e		09	16.0		0.9			
Jan		eP	08	31	30.3	9	1.3		T	
Jan		eP	10	15	44.7	1	0.6		T	
Jan		eP	15	24	06.7	3	1.0		T	
Jan		eP	17	52	48.8	2	0.6		R	
		e			55.0		0.9			
		e			58.0		0.4	SE		
		e		53	16.9		0.5			
	E	eSur		56	09.7		0.5			
	E	e			52.2		0.7			
Jan		eP	18	47	07.9	1	0.5		L	△(S-P) = 1.2°
	E	eS			24.0		0.4			
Jan		eP	20	20	46.8	3	0.5	E	R	
		e(S)		23	06.1		1.1			
	E	e(Sur)			37.4		0.5			
		e(Sur)			55.0		0.7			
	E	eSur		24	28.4		0.6			
Jan		eP	22	32	09.6	3	1.0		T	
		e			15.1		1.2			
Jan		eP	03	03	57.5	4	0.8		T	Near coast of central
		ePP		07	03.5		1.3			Yugoslavia
										43.2 N 16.6 E
										h about 33 km
										0 = 02 51 36.2
Jan		eP	04	19	07.3	1	1.0		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
21 Jan		eP	10	06	37.7	1	0.7		T	
21 Jan		eP	11	41	11.7	1	0.6		T	
21 Jan		eP	13	04	07.5	7	1.0		T	Fiji Islands
		e		05	15.3		0.8			17.7 S 178.8 W
		epP		06	12.6		1.3			h about 558 km
		e		07	11.8		1.4			0 = 12 51 52.1
	E	eSKS		13	50.9		2.0			
	LPN	eS		14	30		18.0			
	LPE	ePS		16	52		18.0			
	LPN	ePPS		17	50		24.0			
	LPN	eSS		20	50		24.0			
		ePKKP		21	20.2		0.6			
21 Jan		eP	13	37	35.2	4	1.2		T	
21 Jan		eP	13	41	45.5	2	0.7		T	
		e			54.4		0.8			
21 Jan		eP	15	42	02.8	1	0.7		T	
21 Jan		eP	18	05	51.6	2	1.1		T	Hokkaido, Japan
										43.0 N 144.5 E
										h about 45 km
										0 = 17 53 28.0
21 Jan		eP	19	55	32.4	1	0.5		T	
21 Jan		eP	22	02	49.3	10	0.9	SE	T	
		e		03	09.0		1.0			
		e			19.3		0.7			
		e		04	22.5		1.0			
	E	eSur		06	50.0		0.9			
22 Jan		eP	00	04	58.1	2	0.7		T	
		e		05	16.2		0.6			
		e			39.1		1.0			

TE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
62										
Jan		eP	04	10	49.9	3	0.4		NR	Δ(S-P) = 2.4°
		eS		11	19.5	999				
Jan		eP	07	39	49.7	13	1.2		T	Lake Baikal region
		e		40	11.4		1.0			52.4 N 100.0 E
										h about 68 km
										0 = 07 26 45.3
Jan		eP	15	19	57.6	1	0.6		T	
Jan		eP	17	34	20.9	1	0.6		T	
		e			33.4		1.0			
Jan		eP	00	17	24.5	3	1.2		T	
Jan		eP	01	58	22.0	7	1.4		T	
Jan		eP	02	07	15.4	1	0.8		T	
Jan		eP	09	03	50.0	4	1.2		T	
Jan		eP	09	30	48.7	2	0.9		T	
Jan		eP	13	45	12.1	3	1.0		T	
Jan		eP	16	08	29.3	9	0.9		T	Fox Islands, Aleutian
		e			41.5		1.3			Islands
		e			52.7		1.7			52.2 N 169.5 W
		e		09	15.3		1.3			h about 25 km
		ePcP			40.4		1.0			0 = 15 59 20.4
		e			55.6		1.0			Strong surface waves,
		ePP		10	23.8		1.4			Rayleigh type, on LP.
	LPE	eS		15	56		15.0			
	LPN	eSS		19	11		19.0			
	LPN	eSur		23	22					
Jan		eP	17	43	43.3	10	0.8		T	Emilia Romagna, Italy
		e		44	07.4		0.8			44.6 N 12.3 E
										h about 61 km
										0 = 17 31 39.7

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
23 Jan		eP	22	00	59.7	4	1.0		T	
23 Jan		eP	22	19	27.2	1	0.3		NR	△(S-P) = 2.6°
	E	eS			59.4		0.5			
23 Jan		eP	23	04	42.4	1	0.6		R	
		e			54.2		0.3			
	E	e(S)		05	38.0		0.7			
		eSur			50.0	999				
23 Jan		eP	23	45	15.0	1	0.6		T	
23 Jan		eP	23	53	11.8	2	0.4	S	NR	△(S-P) = 2.2°
	E	eS			38.2		0.4			
24 Jan		eP	00	17	27.6	1	0.6		T	
24 Jan		eP	03	11	27.1	12	0.9		T	Southern Bolivia
		e			47.5		0.7			21.2 S 65.7 W
		ePcP		12	02.8		0.9			h about 238 km
		epP			25.8		1.1			0 = 03 01 17.3
		ePP		13	45.4		1.2			
		e		14	04.4		0.9			
	E	eS		19	43.5		1.0			
24 Jan		eP	05	00	18.0	1	0.8		T	New Hebrides Islands
		ePKKP		16	14.8		0.8			15.6 S 167.6 E
		e			24.6		0.6			h about 133 km
										0 = 04 46 29.1
24 Jan		eP	05	36	57.9	5	0.7		T	Alaska Peninsula
		e		37	20.1		0.9			59.2 N 154.8 W
		e			25.5		1.0			h about 25 km
										0 = 05 28 54.1
24 Jan		eP	07	35	33.2	10	0.9	SE	R	
		e		36	22.9		1.0			
		e			29.7		1.4			
		e			52.8		1.0			
		e(Sur)		39	17.2		1.0			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
62										
Jan		eP	09	04	37.1	1	0.8		T	
Jan		eP	12	32	38.7	1	0.7		T	
Jan		eP	14	36	55.6	31	1.0	SSE	T	
		e		37	27.0		1.0			
		e		38	28.5		0.9			
	LPE	e(S)		40	20		18.0			
	E	e			41.6		1.0			
	LPE	e(Sur)		42	50					
	E	e		43	17.5		1.0			
	E	e			27.2		1.6			
	E	e			42.7		1.5			
	LP	e(Sur)		44	10					
Jan		eP	16	05	36.0	3	0.9		T	
		e			51.1		0.8			
Jan		ePKKP	16	09	28.4	2	0.8		T	Near east coast of Formosa
	LP	eSur		20	22					24.4 N 122.0 E
										h about 58 km
										0 = 15 39 46.0
										Medium surface waves,
										Rayleigh type, on LP.
Jan		eP	17	15	59.4	3	0.7	SW	R	
		e		16	10.6		0.5			
	E	eSur		18	27.0		0.6			
Jan		eP	17	51	12.2	7	1.4		T	
		e			19.5		1.0			
		e			28.1		0.9			
Jan		eP	18	02	45.4	3	0.2	SE	NR	Quarry blast, 8,100lbs. by
		e			55.6		0.3			Gifford Hills Co. near
		e		03	03.6		0.3			Chico, Texas
	E	eS			06.5	999				△(S-P) = 1.7°

DATE	Syst.	Phase	Arrival Time G.C.T.				Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h.	m.	s.						
24 Jan		eP	18	04	35.5		4	1.0		T	
24 Jan		iP	18	24	55.6	c	999		NE	L	Quarry blast, 138,000 l
		eS			58.5		999				by Dolese Bros. Co. ne
											Richard's Spur, Oklaho
											Δ(S-P) = less than 0.1
24 Jan		eP	21	25	07.4		2	0.3	SE	NR	Quarry blast, 4,600 lbs
	E	eS			29.5		999				by Southwest Stone Co.
											near Chico, Texas.
											Δ(S-P) = 1.7°
24 Jan		eP	23	28	54.5		1	0.3		NR	Quarry blast, 2,800 lbs
	E	eS		29	15.7		999				by Gifford Hills Co. nea
											Chico, Texas
											Δ(S-P) = 1.6°
24 Jan		eP	23	39	22.0		2	0.4		NR	Quarry blast, 3,599 lbs
		e			31.4			0.3			by Gifford Hills Co. nea
	E	eS			42.9		999				Chico, Texas
											Δ(S-P) = 1.7°
25 Jan		eP	00	37	43.1		2	0.7		T	
25 Jan		eP	00	43	36.4		2	0.9		T	
25 Jan		eP	02	04	08.2		4	1.1		T	Solomon Islands
		e			30.2			1.0			10.7 S 161.8 E
		ePP		08	29.2			1.1			h about 80 km
	LPN	eS		15	20			17.0			0 = 01 50 11.4
	LPN	ePS		17	55			22.0			Strong surface waves,
	LPN	ePPS		18	54			21.0			Love and Rayleigh type
		ePKKP		20	21.3			1.0			on LP.
	LPN	ePSS		23	42			28.0			
	LPN	eSSS		27	08			30.0			
	LPE	eSur		33	15						
	LP	eSur		40	11						

DATE	Syst.	Phase	Arrival Time G.C.T.				Ground Motion A	Ground Motion T	Dir.	Type	Remarks
62			h.	m.	s.						
Jan		eP	02	52	29.0		3	1.2		T	
		e		53	53.7			0.7			
Jan		iP	07	35	32.6	c	40	0.7		T	Peru-Bolivia border
		ePcP		36	24.9			0.6			15.8 S 69.5 W
		e		37	20.9			0.7			h about 209 km
		e(PP)			39.0			0.9			0 = 07 26 05.7
		eScP		40	06.5			1.1			
	N	eS		43	13.3			1.5			
	E	eScS		45	01.8			1.2			
Jan		eP	10	13	37.8		25	1.1		T	Line Islands region
		e			59.4			1.3			4.4 S 152.7 W
		ePcP		14	13.6			0.8			h about 50 km
		e			24.1			0.7			0 = 10 03 07.0
		e			33.7			0.7			
		ePP		15	58.6			1.4			
		e		16	17.0			1.0			
		e			32.9			1.0			
		eP'P'		42	34.9			1.3			
Jan		eP	12	13	40.6		6	1.2		R	
	E	eSur		17	25.5			1.4			
Jan		eP	15	09	22.5		1	0.7		T	
Jan		eP	17	30	29.4		4	0.8	WNW	T	
Jan		eP	19	28	52.0		1	0.5		NR	Δ(S-P) = 3.4°
	N	eS		29	33.5			0.5			
Jan		eP	20	22	52.2		2	0.7		R	
		e		23	11.8			0.8			
		e			49.9			0.7			
		e			56.2			0.8			
	E	eSur		26	34.8			1.0			
Jan		eP	20	31	10.9		6	0.3	ESE	NR	Δ(S-P) = 1.6°
		eS			31.9		999				

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h. m. s.					
25 Jan		eP	20 36 12.7	1	0.9		T	
		e	37 00.8		0.9			
25 Jan		eP	20 48 30.8	1	0.8		T	
		e	49 25.6		1.0			
		e	36.2		2.0			
25 Jan		eP	21 53 43.1	4	1.1		T	
25 Jan		eP	22 44 19.5	5	1.0		T	
25 Jan		eP	22 48 20.5	1	0.8		T	Tonga Islands 18.4 S 177.9 W h about 617 km 0 = 22 36 16.3
25 Jan		eP	23 39 14.9	1	0.7		T	
25 Jan		eP	23 44 36.5	1	0.4		NR	△(S-P) = 2.6°
	E	eS	45 08.5		0.4			
26 Jan		eP	02 42 56.4	3	1.1		T	
26 Jan		eP	02 47 11.0	4	0.7	SE	R	
		e	47.5		0.7			
		e	48 15.0		0.7			
	E	eSur	50 53.3		0.7			
26 Jan		eP	05 35 36.3	3	0.8		T	South of Honshu, Japan
		e	44.5		1.0			32.2 N 138.1 E
		epP	36 52.4		1.4			h about 333 km
		e(PP)	39 10.5		1.0			0 = 05 22 51.3
		e	41 51.1		1.7			
26 Jan		eP	05 44 53.0	1	0.7		T	
26 Jan		eP	06 22 25.6	3	0.7		T	Tonga Islands region
		e	51.2		0.7			23.4 S 176.1 W
								h about 214 km
								0 = 06 09 33.0

TE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
62			h. m. s.					
Jan		eP	08 27 51.8	2	0.7		T	
Jan		eP	08 30 44.7	79	1.1		T	Mediterranean Sea, west
		e	31 24.7		1.2			of Crete
		e	36.5		1.1			35.1 N 22.7 E
		e	32 00.0		1.2			h about 32 km
		ePP	34 23.8		1.7			0 = 08 17 37.0
	LPN	eSKS	41 18		12.0			Mag. = 5 - 5-1/4 (Pal)
	LPE	eS	49		14.0			Strong surface waves,
	LPN	ePS	43 00		18.0			Rayleigh type, on LP.
	LPE	e	45 56		17.0			
		ePKKP	47 53.4		1.1			
	LPN	eSS	48 01		30.0			
	LPN	e	50 08		26.0			
	LPN	e	53 52		21.0			
	LPE	e(Sur)	55 05					
	LP	eSur	09 01 10					
Jan		eP	09 43 47.7	4	1.0		T	
		e	57.0		1.0			
Jan		eP	14 16 18.3	3	0.9		T	
Jan		eP	14 46 05.0	18	1.5		T	South Pacific Ocean
		e	14.0		1.0			about 600 miles southwest
		e	40.0		1.2			of Juan Fernandez Islands
		e	48 27.9		1.5			36.9 S 88.9 W
		e(PP)	53.4		1.3			h about 60 km
	LPN	ePS	55 56		22.0			0 = 14 34 45.7
	LPN	e(Sur)	15 04 26		20.0			Weak surface waves on LP.
	LPN	eSur	09 00					
Jan		eP	18 01 53.2	2	0.6		NR	△(S-P) = 3.8°
	E	eS	02 38.9		0.9			
Jan		eP	18 13 38.6	1	0.4	S	NR	△(S-P) = 2.0°
	E	eS	14 03.9		0.6			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
26 Jan		eP	18	45	39.7	14	0.9		T	Off coast of El Salvador
		e(PP)		46	22.9		2.0			10.3 N 90.6 W
		e		47	59.4		2.0			h about 45 km
		e		49	50.8		1.2			0 = 18 40 23.0
	LPN	eS		50	06		18.0			Medium surface waves
	LP	e(Sur)		52	30					on LP. Weak on SP.
	LP	eSur		54	58					
26 Jan		eP	20	44	24.2	16	1.3	SE	T	
		e			30.6		1.6			
26 Jan		eP	21	09	35.1	7	0.7	SE	T	
26 Jan		eP	22	34	19.9	4	0.8		T	
26 Jan		eP	22	41	01.0	2	0.3	NNW	L	Quarry blast south of
		eS			04.9	999				Carnegie, Oklahoma
										△(S-P) = less than 0.1
26 Jan		eP	23	42	27.2	1	0.4		NR	△(S-P) = 2.6°
	E	eS			58.9		0.3			
27 Jan		eP	00	57	26.9	8	0.8	SE	T	
		e			35.3		0.9			
27 Jan		eP	00	58	58.5	15	0.9	SE	T	
		e	01	00	55.4		0.6			
27 Jan		eP	01	04	27.8	1	0.7		T	
27 Jan		eP	03	06	22.2	1	0.7		T	
27 Jan		eP	07	36	08.1	5	1.0		T	
27 Jan		eP	12	14	16.5	2	0.8		T	Surface may be separa
		e			33.7		0.8			
	E	eSur		22	13.6		1.2			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
Jan		eP	12	32	06.7	2	0.9		T	
		e			25.9		0.9			
		e		33	07.6		1.6			
Jan		eP	16	32	36.4	3	1.2		T	
Jan		eP	20	01	02.4	2	0.7		R	
		e			20.5		1.0			
		e			33.4		0.5			
	E	eSur		04	11.5		1.1			
Jan		eP	22	08	09.1	9	0.8		T	Off coast of Oregon
		e			37.7		0.9			44.6 N 130.5 W
	LPN	e(Sur)		15	40					h about 25 km
										0 = 22 02 33.1
Jan	LPE	eSur	23	03	00				T	Weak surface waves on LP.
Jan		eP	23	04	07.1	3	1.1		T	
Jan		eSur	23	06	52.5		2.5		T	Medium surface waves
	LP	eSur		08	15					on SP, BB, and LP.
Jan		eP	23	10	58.5	18	1.4		R	Gulf of California
		e		11	09.0		1.2			31.0 N 114.3 W
		e		12	10.0		1.2			h about 22 km
	LPN	e(S)		13	30		18.0			0 = 23 07 42.1
		eSur		14	57.3	999				Mag. = 5-1/4 (Pas);
										5-1/4 - 5-1/2 (Pal).
										Strong surface waves
										on all systems.
Jan		eP	23	22	21.1	25	1.5		T	
Jan	N	eSur	23	24	15.0		3.8		T	P obscured by surface of
										previous event

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h.	m.	s.					
27 Jan		eP	23	29	29.3	17	1.6		R	Gulf of California
		e		30	43.5		1.1			30.8 N 114.6 W
	E	eSur		33	23.4		1.9			h about 25 km
										0 = 23 26 10.2
27 Jan		eP	23	38	44.7	1	0.7		NR	△(S-P) = 2.3°
	E	eS		39	27.8		0.9			
27 Jan		eP	23	59	03.1	1	0.4		NR	△(S-P) = 2.6°
	E	eS			35.3		0.4			
28 Jan		eP	00	32	05.8	4	1.0		T	
28 Jan		eP	00	48	13.8	3	1.4		R	
	E	eSur		51	20.4		1.9			
28 Jan		eP	00	54	36.8	2	0.8		T	
28 Jan		eP	01	33	06.4	4	1.0		T	Strong surface waves
		e		34	04.8		1.0			on SP, IB and LP.
	N	eSur		36	44.5		3.0			
	LP	eSur		38	16					
28 Jan		eP	02	08	01.0	2	1.1		T	Medium surface waves
	N	eSur		10	50.0		1.0			on SP, IB and LP.
	LP	eSur		12	20					
28 Jan		eP	02	16	01.2	4	1.0		T	Medium surface waves
		e		17	07.5		0.9			on SP, IB and LP.
	N	eSur		19	52.3		2.0			
	LP	eSur		21	20					
28 Jan		eP	02	22	44.0	3	1.1		T	Strong surface waves
		e		23	34.0		1.6			on all systems
		e		25	23.9		1.5			
	N	eSur		26	43.4		2.7			
	LP	eSur		28	10					

TE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Remarks
2			h.	m.	s.					
Jan		eP	02	59	02.2	3	1.0		T	
Jan		eP	05	27	33.2	34	1.4		T	Off coast of Guatemala
		e(pP)			57.3		0.8			14.0 N 92.3 W
		e		29	44.0		1.1			h about 133 km
		e		31	21.5		1.2			0 = 05 22 55.7
	E	eSur			33.1		1.5			Medium surface waves,
	LPN	eSur			36					Love and Rayleigh type,
	LP	eSur		33	25					on SP and LP.
Jan		eP	05	41	06.0	5	1.1		T	
Jan		iP	05	52	50.6 c	230	1.3		T	Tonga Islands
		epP		53	01.8		1.4			17.2 S 172.0 W
		e			27.0		1.8			h about 25 km
	LP	ePP		56	27		20.0			0 = 05 40 08.2
	LPN	eSKS	06	03	07		25.0			Strong surface waves,
	LP	eSSP		04	40		24.0			Love and Rayleigh type, on LP.
	LPN	eSS		09	14		26.0			Mag. = 6-1/4 (Pas)
		ePKKP		10	46.9		0.9			
		e			57.9		0.9			
	LPN	eSSS		12	38		26.0			
	LPN	eSur		16	00					
		eP'P'		18	55.6		1.5			
		e		19	10.5		1.4			
	LP	eSur		20	14					
Jan		eP	07	19	13.2	3	1.0		T	Weak surface waves on LP
	LPN	eSur		55	18					may be separate
Jan		eP	08	12	13.0	1	0.4		T	
		e			29.1		0.6			
		e			32.3		0.6			
Jan		eP	08	12	57.4	2	0.8		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
28 Jan		eP	11	44	31.2	2	0.8		R	Southwestern Montana
		e		45	31.2		0.7			44.7 N 112.5 W
		e		46	16.4		0.8			h about 14 km
	E	eSur		48	34.0		1.2			0 = 11 40 56.6
										Surface is Lg.
28 Jan		eP	11	52	46.8	3	1.1		R	
		e		54	46.2		1.0			
	E	eSur		56	26.1		1.7			
28 Jan		eP	12	47	32.0	3	0.9		T	
		e		48	00.5		0.8			
28 Jan		eP'	17	00	10.0	37	1.4		T	Northern Celebes regi
		e(PP)		02	08.4		1.2			0.0 123.9 E
		eSKP		03	26.0		1.3			h about 101 km
		e		04	08.3		1.0			0 = 16 41 13.8
		e(PcPP')		13	20.5		0.6			
		eSKKP			26.8		1.1			
28 Jan		eP	21	47	26.1	6	1.1		T	
		e			36.0		0.8			
28 Jan		eP	22	53	53.0	1	0.4		NR	△(S-P) = 2.7°
	E	eS		54	26.0		0.4			
28 Jan		eP	23	46	27.5	1	0.4		NR	△(S-P) = 2.6°
		eS			59.5		0.5			
29 Jan		eP	01	31	46.3	3	1.1		T	
29 Jan		eP	05	09	52.4	2	0.9		T	Tonga Islands
		e		10	04.5		0.9			22.6 S 174.5 W
										h about 25 km
										0 = 04 56 41.9

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
62										
Jan		eP	06	15	48.1	5	0.9		T	Near coast of Peru
		epP		16	12.0		0.9			9.3 S 79.1 W
		e			27.3		0.8			h about 100 km
		ePcP		17	17.4		0.7			0 = 06 07 22.0
Jan		eP	13	33	21.1	2	0.9		T	
		e		35	29.8		0.7			
Jan		eP	16	10	38.9	1	0.7		T	
Jan		eP	17	54	10.5	1	0.4		NR	Quarry blast 3,805 lbs. by
		e			19.9		0.4			Texas Industrial Co. near
		eS			31.6	999				Chico, Texas
										△(S-P) = 1.7°
Jan		eP	18	04	26.7	2	0.3	SE	NR	Quarry blast, 6,700 lbs
	E	e			45.1		0.4			by Gifford Hills Co. near
		eS			47.6	999				Chico, Texas
										△(S-P) = 1.6°
Jan		eP	18	12	40.8	2	0.4	S	NR	△(S-P) = 2.0°
	E	eS		13	07.4	999				
Jan		eP	21	20	38.2	4	0.9		T	Samoa Islands region
		e		21	01.0		0.8			15.4 S 172.7 W
										h about 25 km
										0 = 21 07 57.4
Jan		eP	21	36	53.1	1	0.6		NR	△(S-P) = 3.2°
		e			57.2		0.4			
		e		37	00.5		0.4			
	E	eS			31.5		0.4			
		eSur			44.8	999				
Jan		eP	21	54	45.7	2	0.8		T	
Jan		eP	23	30	32.7	3	1.1		T	
		e			44.7		1.0			
	E	eSur		34	21.1		1.5			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
30 Jan		eP	00	08	46.4	1	0.4		NR	△(S-P) = 2.7°
	N	e		09	04.5		0.4			
	E	eS			19.0		0.4			
30 Jan		eP	00	34	55.2	1	0.6		T	
30 Jan		eP	01	24	22.0	3	1.0		T	
30 Jan		eP	01	53	18.8	3	1.1		T	
30 Jan		eP	02	06	50.7	2	1.1		T	
30 Jan		eP	06	28	39.2	2	1.0		T	
30 Jan		eP	07	10	37.1	2	0.7		T	Near coast of Kamchat 54.5 N 158.9 E h about 76 km 0 = 06 59 36.9
30 Jan		eP	08	12	24.3	2	0.8		T	
		e			56.9		1.1			
		e		17	18.3		1.1			
	E	eSur			58.3		1.0			
30 Jan		iP	08	39	36.3 c	55	0.6		T	Near coast of Nicarag 12.7 N 87.7 W h about 101 km 0 = 08 34 26.8 Strong surface waves, Love and Rayleigh typ on all systems.
		e			40.3	999				
		e		42	58.8		1.8			
	E	eSur		44	20.7		3.3			
	LPE	eSur			53					
	LP	eSur		46	40					
		e(ScP)			51.1		0.9			
30 Jan		eP	08	51	35.6	3	1.1		T	
30 Jan		eP	09	13	01.8	4	1.2		T	
30 Jan		eP	09	40	45.9	5	1.3		T	
30 Jan		eP	10	22	48.3	2	1.1		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
62										
Jan		eP	11	21	44.9	2	1.0		T	
Jan		eP	12	22	09.4	3	1.1		T	
Jan		eP	12	58	48.8	2	0.4	SE	NR	Quarry blast, 2,630 lbs., by
		e			58.4		0.3			Wesco near Chico, Texas
	E	eS		59	10.8	999				△(S-P) = 1.7°
Jan		eP	15	13	30.0	6	1.2		T	Samoa Islands region 16.2 S 176.0 W h about 383 km 0 = 15 01 12.4
Jan		eP	15	36	10.6	9	0.9		T	Mariana Islands region
		e			35.5		0.8			20.7 N 144.5 E
		epP			47.4		1.4			h about 187 km
		e		37	14.3		0.8			0 = 15 22 49.4
		e			50.6		1.2			Weak surface waves,
		ePP		40	06.9		1.5			Rayleigh type, on LP.
		e			46.8		1.6			
		eP KKP		51	34.5		1.1			
	LP	eSur	16	12	54					
Jan		eP	17	25	59.3	35	1.4		T	Laptev Sea
		e		26	08.6		1.7			79.4 N 123.5 E
		e(pP)			17.7		1.5			h about 63 km
		e			24.8		1.2			0 = 17 15 33.8
		e(PcP)			35.5		1.2			Strong surface waves,
		e			45.4		1.1			Rayleigh type, on LP.
		ePP		28	27.9		1.8			
	LPE	eSS		38	52		22.0			
	LP	eSur		45	30					
		eP'P'		54	50.5		0.9			
Jan		eP	17	42	25.5	2	0.4	S	NR	△(S-P) = 5°
		e			44.1		0.6			△(Lg-P) = 5.5°
		e		43	06.6		0.6			Surface is Lg.
	E	eS			26.7		0.4			
		e			43.6		0.4			
	E	eSur			58.7		0.4			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
30 Jan		eP	18	03	51.6	1	0.4		NR	Quarry blast, 2,700 lb
	E	eS		04	13.0	999				by Gifford Hills Co. ne
										Chico, Texas
										△(S-P) = 1.7°
30 Jan		eP	18	24	23.0	1	0.9		T	
30 Jan		eP	18	32	51.6	2	1.1		T	
30 Jan		eP	18	44	44.3	1	0.8		T	New Hebrides Islands
	LPE	eSur	19	14	15					18.8 S 168.5 E
	LPN	eSur		19	00					h about 79 km
										0 = 18 30 52.3
										Weak surface waves, l
										and Rayleigh type, on
30 Jan		eP	20	52	30.9	5	1.3		T	
30 Jan		eP	21	10	13.0	2	1.0		T	Surface waves may be
		e			28.1		1.0			separate
		e			40.0		0.9			
	E	eSur		16	20.4		0.5			
30 Jan		eP	21	26	31.5	3	1.2		T	
30 Jan		eP	21	38	26.8	1	0.6		R	
		e			39.2		0.7			
	E	eSur		42	44.6		0.6			
30 Jan		eP	22	21	25.2	3	1.1		T	
31 Jan		eP	00	20	12.5	1	0.8		T	Takzhik, SSR
		eP'		24	22.6		1.0			38.5 N 70.3 E
		ePP			37.0		1.1			h about 60 km
		e			54.7		1.0			0 = 00 05 57.0
	LP	eSur		55	00					Medium surface wave
	LP	eSur	01	03	00					on LP.
31 Jan		eP	03	21	43.6	4	1.1		T	

TE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
2										
Jan		eP	03	54	20.0	2	0.6		T	
		e			45.3		0.8			
		e			56.8		0.7			
Jan		eP	06	03	55.0	3	0.9		T	
Jan		eP	06	20	09.7	1	0.7		T	
Jan		eP	07	21	59.0	3	0.5	SE	T	
		e		22	10.4		0.8			
		e			33.2		0.8			
Jan		eP	18	16	24.1	2	0.4	SE	NR	△(S-P) = 2.2°
		e			27.3		0.5			
	E	eS			50.9		0.4			
Jan		eP	18	30	46.2	1	0.3	N	L	△(S-P) = 1.4°
	E	eS		31	05.4		0.4			
Jan		eP	21	54	04.1	1	0.4		NR	△(S-P) = 2.5°
	E	eS			34.9		0.4			
		e			42.2		0.4			
	E	eSur			48.0		0.5			
Jan		eP	22	59	42.8	999		N	L	Quarry blast, 14,400 lbs.
	E	eS			46.4	999				by Roosevelt Material Co.
										south of Carnegie, Oklahoma.
										△(S-P) = 0.1°
Jan		eP	23	31	02.1	2	0.3	SE	NR	Quarry blast, 6,800 lbs.
	E	eS			23.6	999				by Gifford Hills Co. near
										Chico, Texas
										△(S-P) = 1.7°
Jan		eP	23	39	45.8	1	0.4		NR	Quarry blast, 2,850 lbs. by
	E	eS		40	06.2		0.4			Texas Industries, near
										Chico, Texas
										△(S-P) = 1.6°
Jan		eP	23	55	27.6	1	0.4	NNE	NR	△(S-P) = 2.8°
	E	eS			58.7		0.4			

APPENDIX

ARTILLERY AND QUARRY BLAST SIGNALS

Figure 1 shows the location of WMSO and some rock quarries in the area.

Figure 2 is the recording of an artillery shot from the Ft. Sill range. Energy from the impact area followed a path through the earth while the signal arriving approximately 20 seconds later travels through the air from the point of detonation.

Figures 3 through 11 are recordings from quarry blasts. Information related to the blast is included when available. Figures 3, 4 and 5 are signals from the same quarry. Some slight differences in signals can be observed and it is assumed that the amount of explosives and the shot pattern are the governing factors.

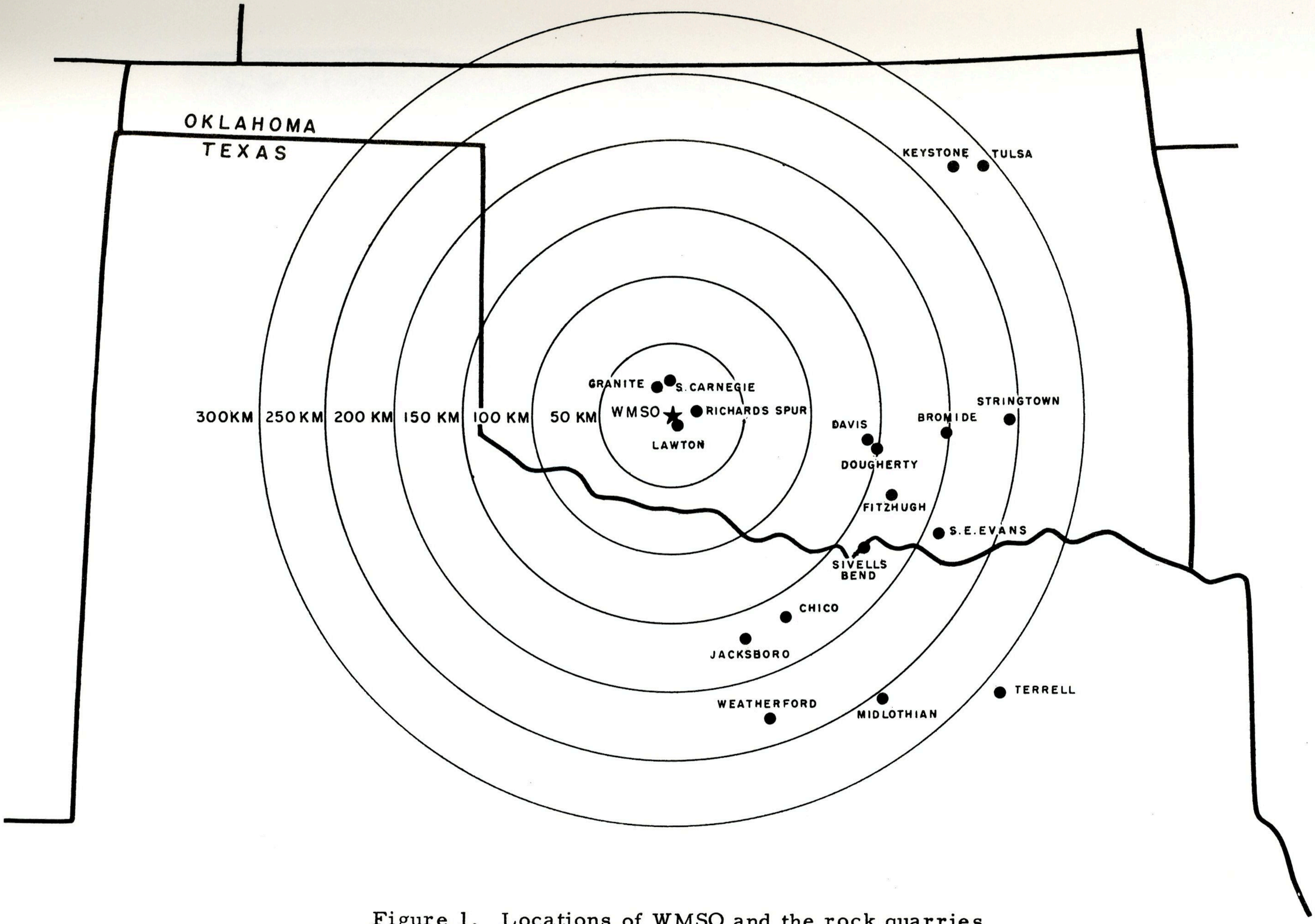


Figure 1. Locations of WMSO and the rock quarries

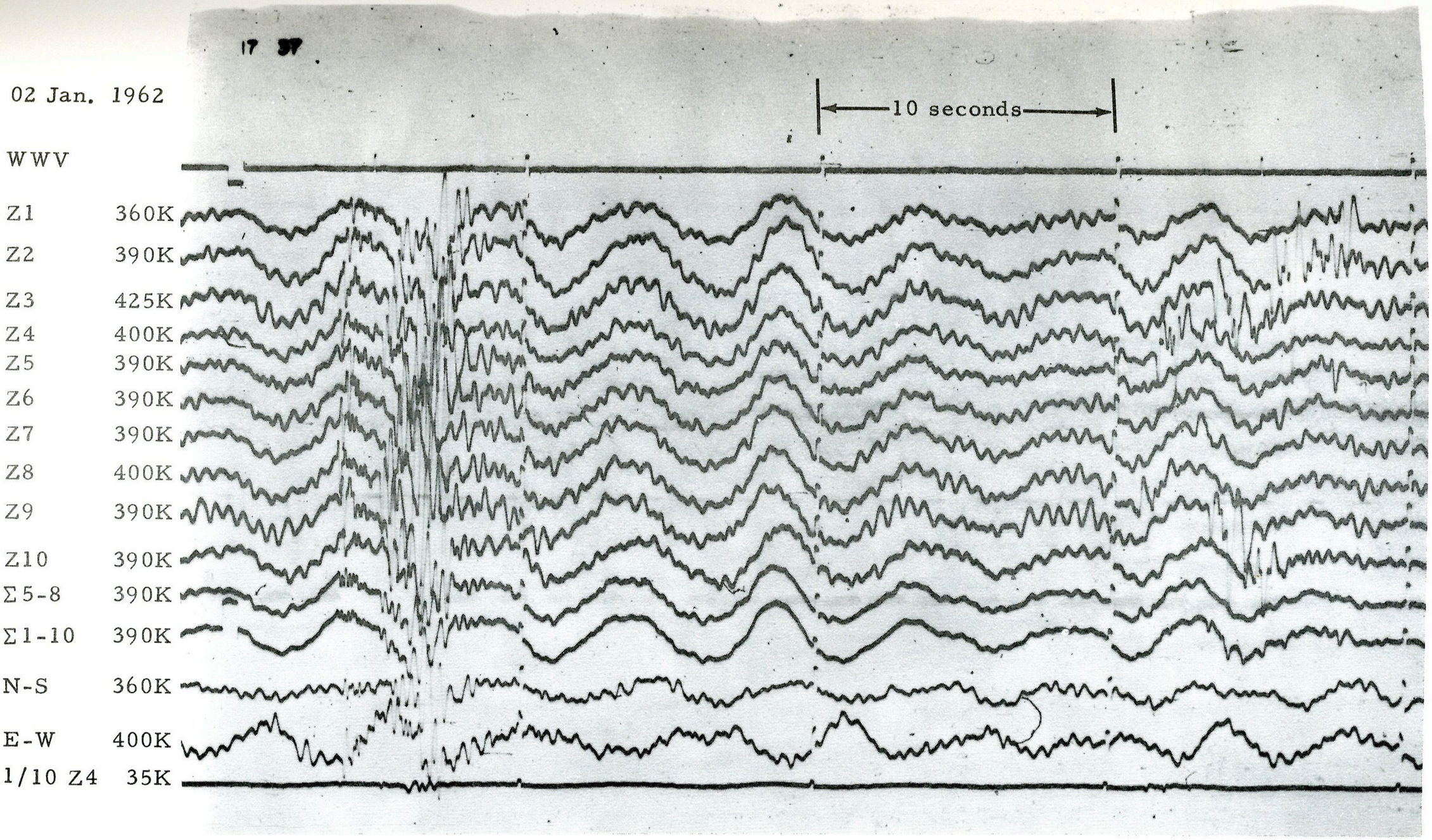


Figure 2. Local artillery - Ft. Sill, Oklahoma

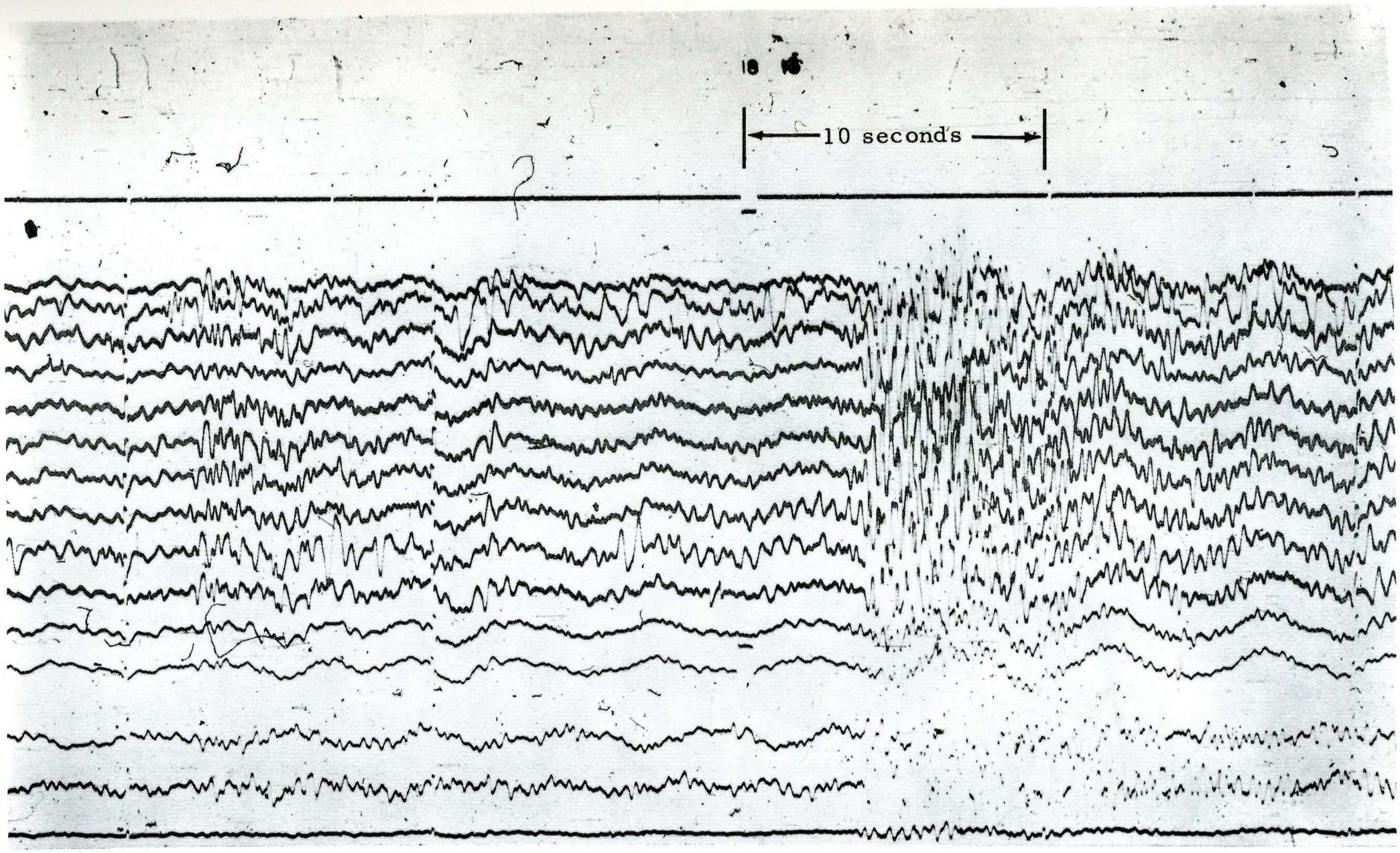


Figure 3. Quarry blast - near Chico, Texas (Gifford Hills Co.)
1,560 lbs. of explosives distributed in 93 drill holes

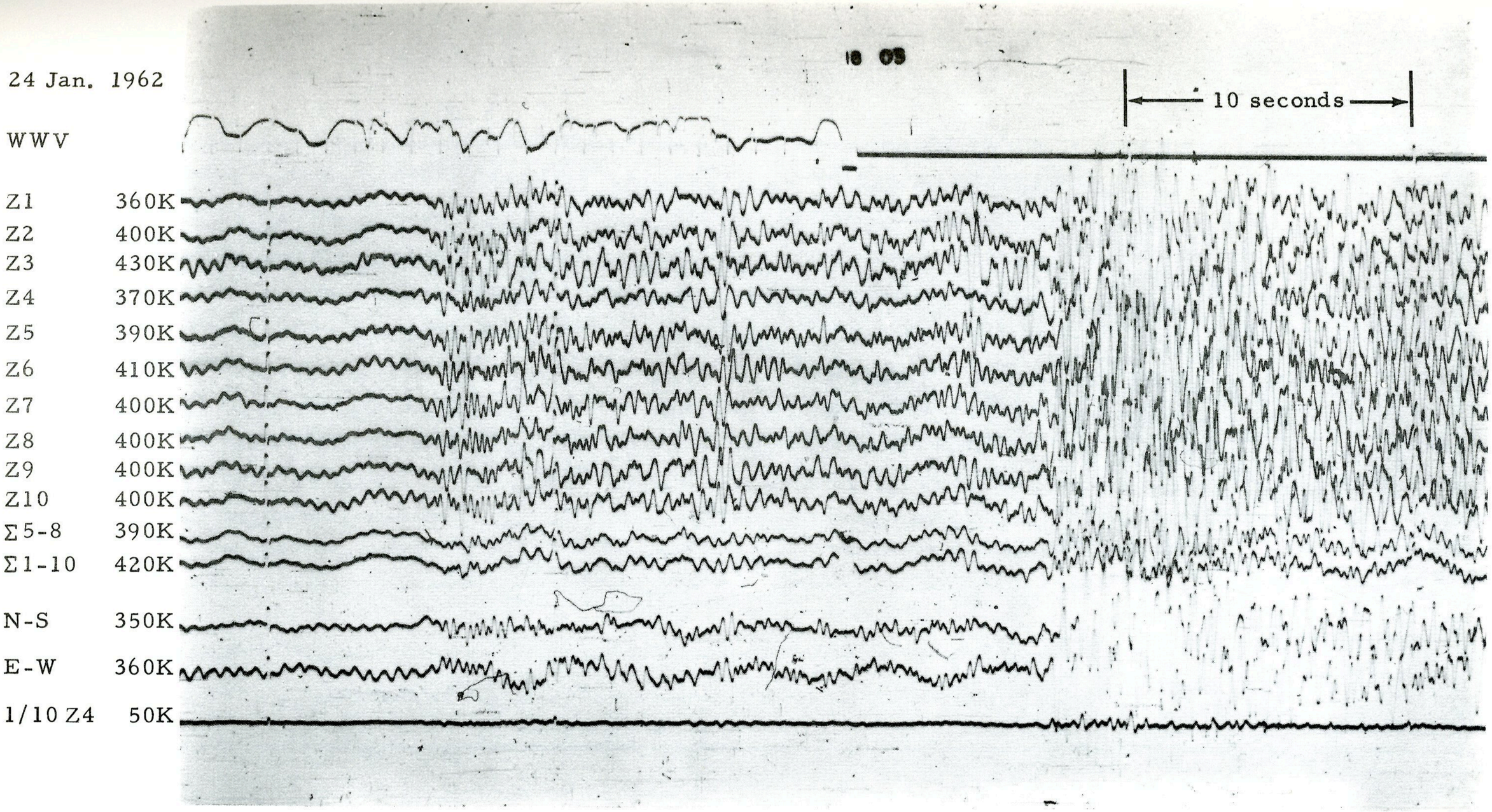


Figure 4. Quarry blast - near Chico, Texas (Gifford Hills Co.)
8,100 lbs. of explosives

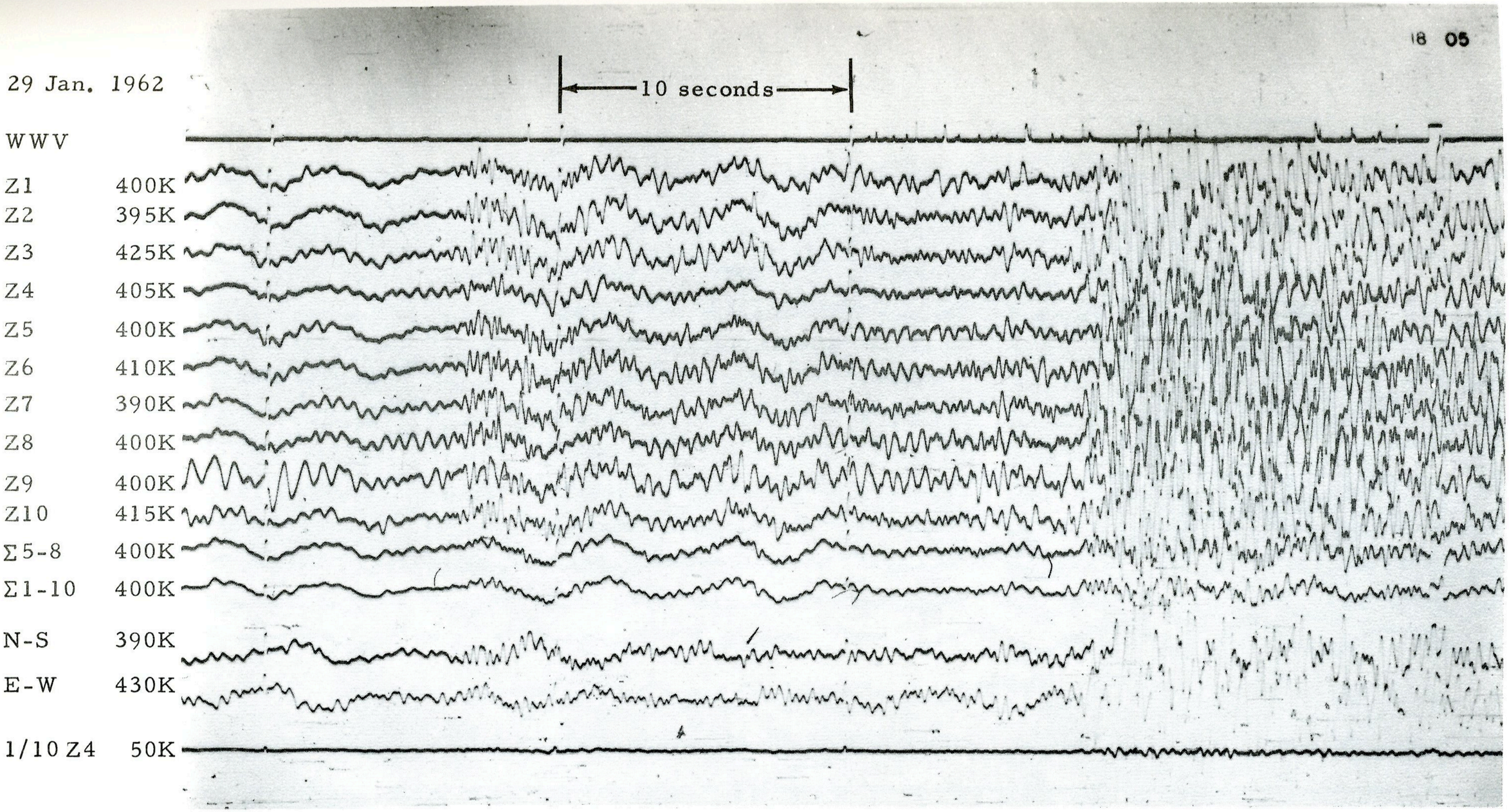


Figure 5. Quarry blast - near Chico, Texas (Gifford Hills Co.)
6,700 lbs. of explosives

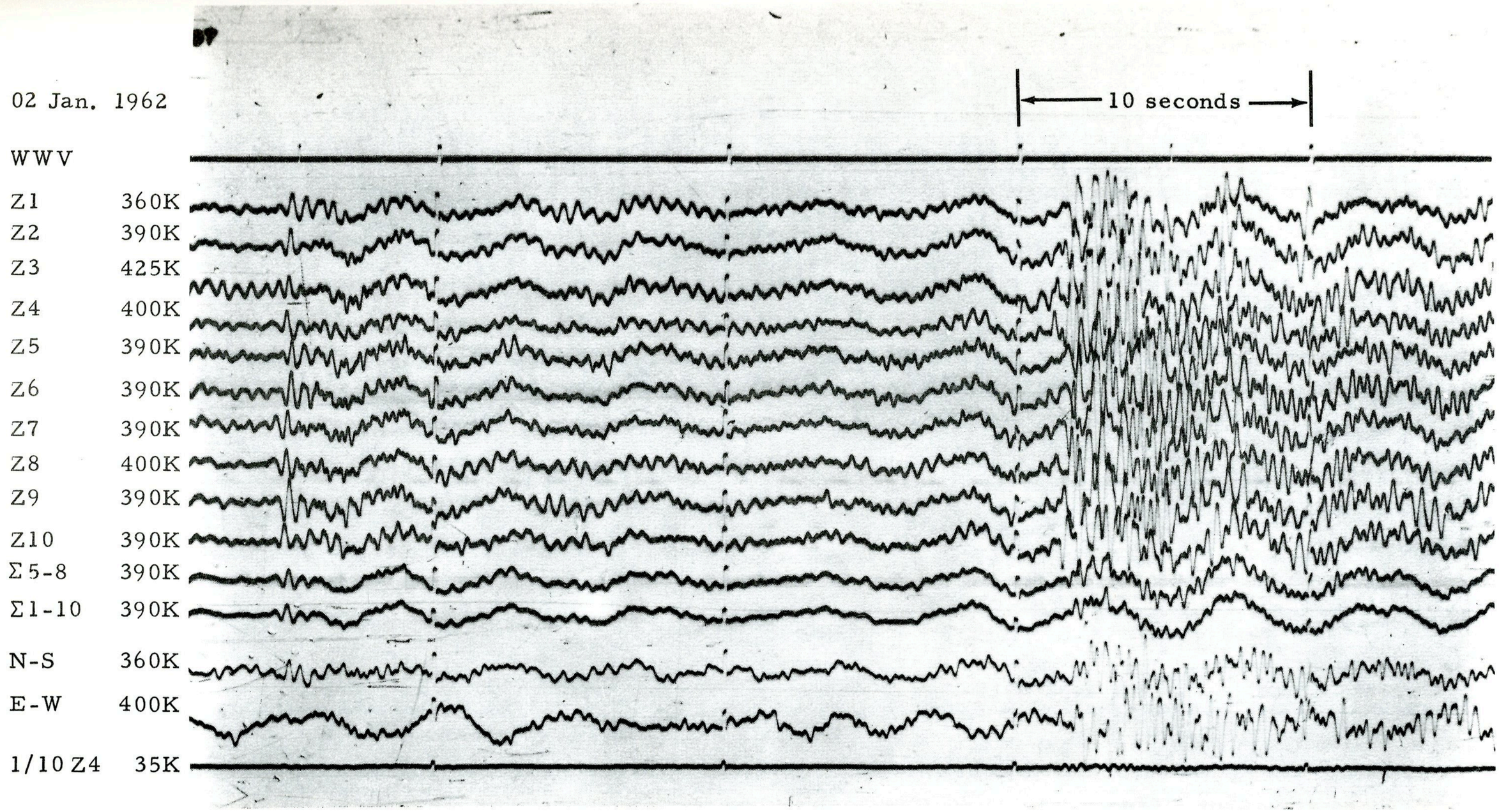


Figure 6. Quarry blast - west of Weatherford, Texas

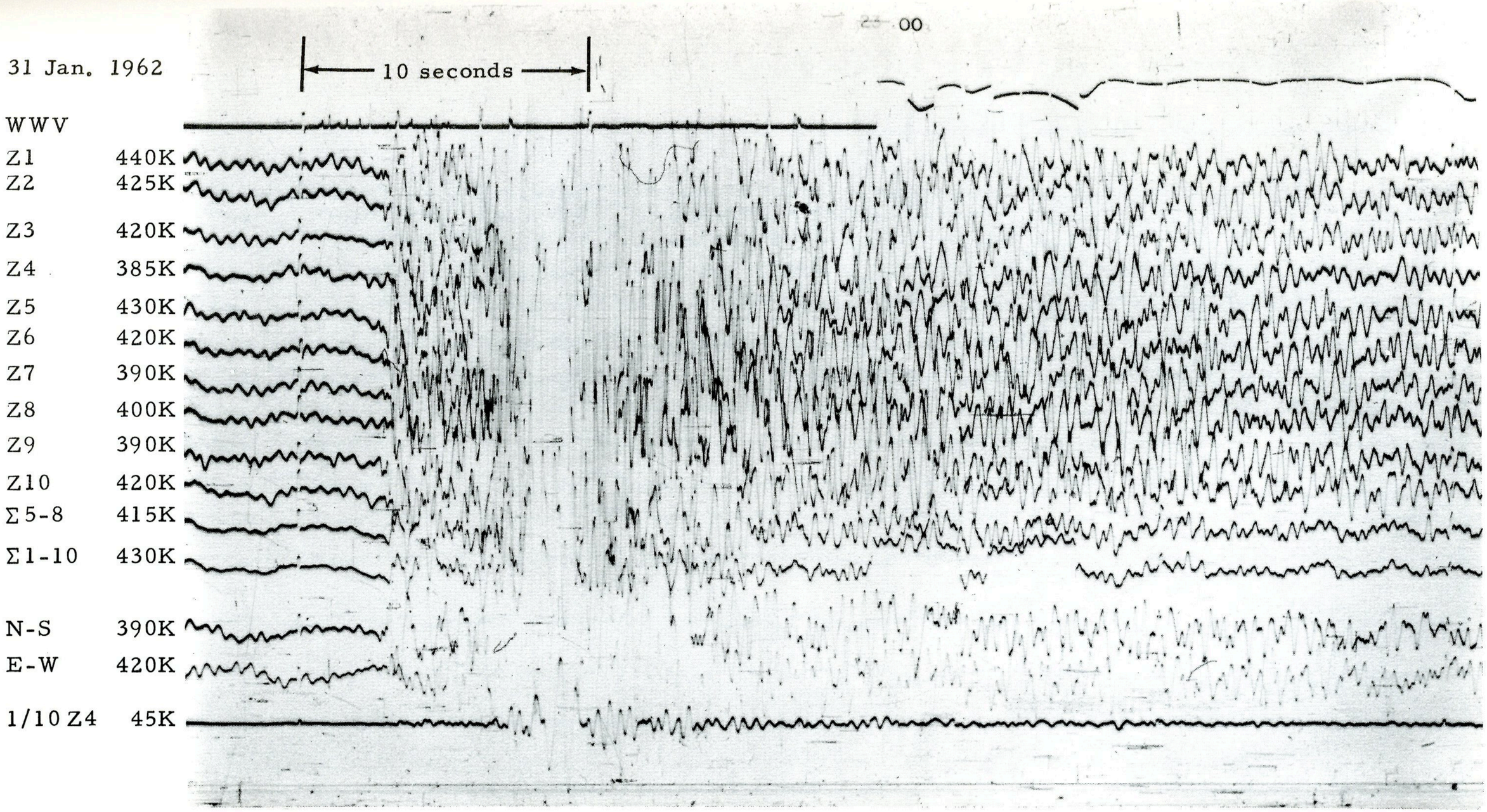


Figure 7. Quarry blast - near Carnegie, Oklahoma (Roosevelt Material Co.)
14,400 lbs. of explosives

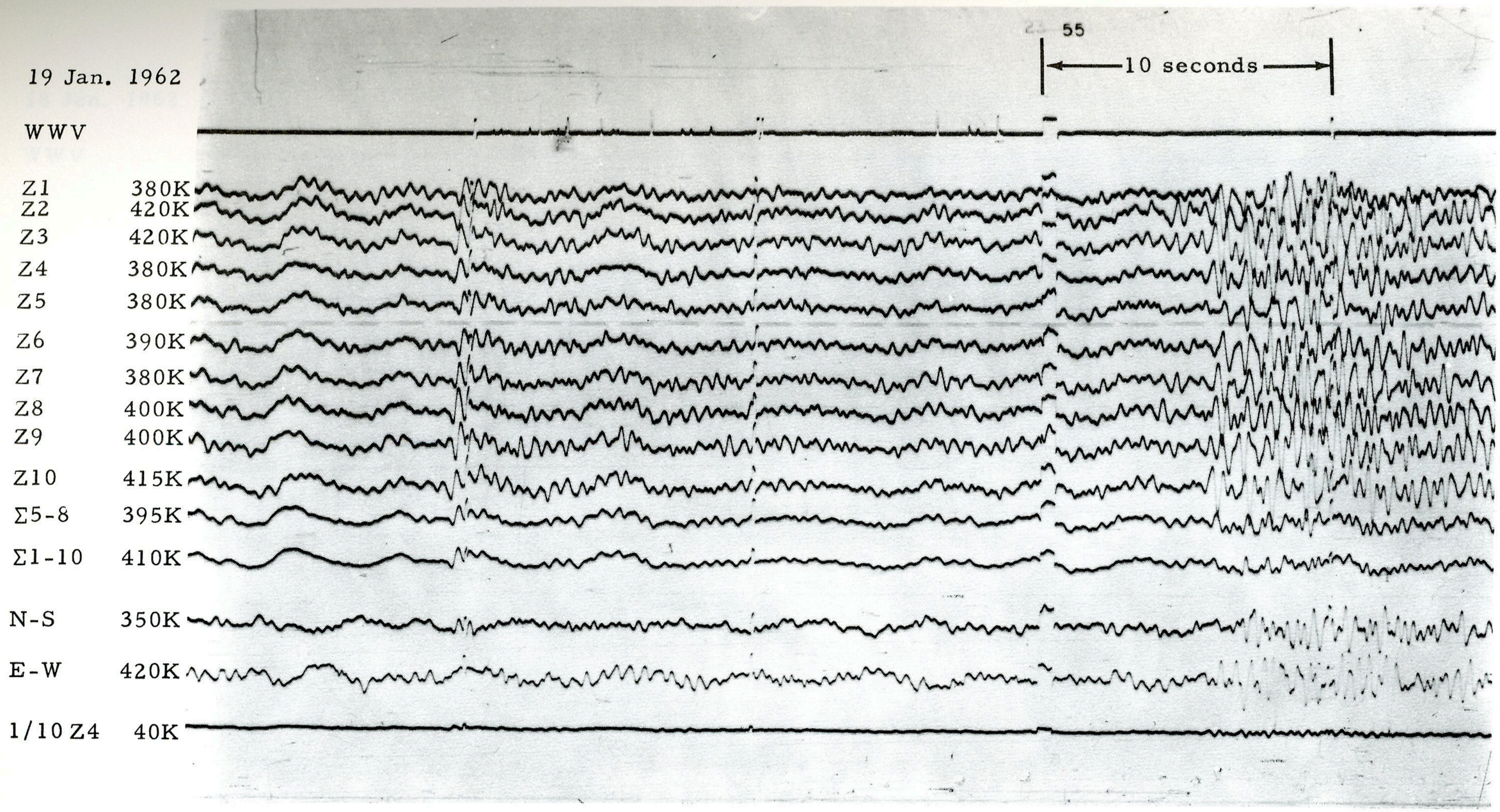


Figure 8. Quarry blast - near Stringtown, Oklahoma
5,000 lbs. of explosives

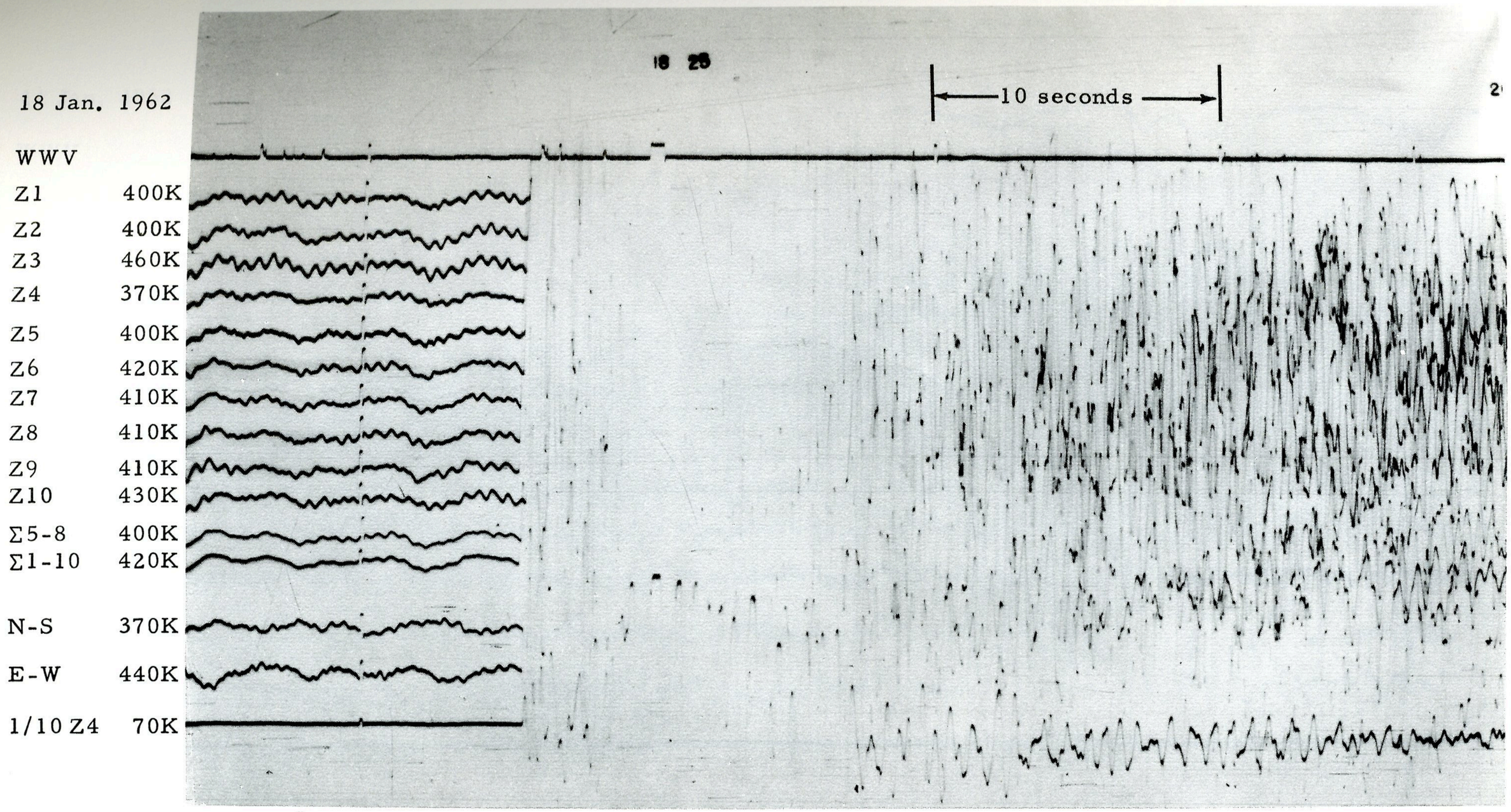


Figure 9. Quarry blast - Richard's Spur, Oklahoma
139,000 lbs. of explosives

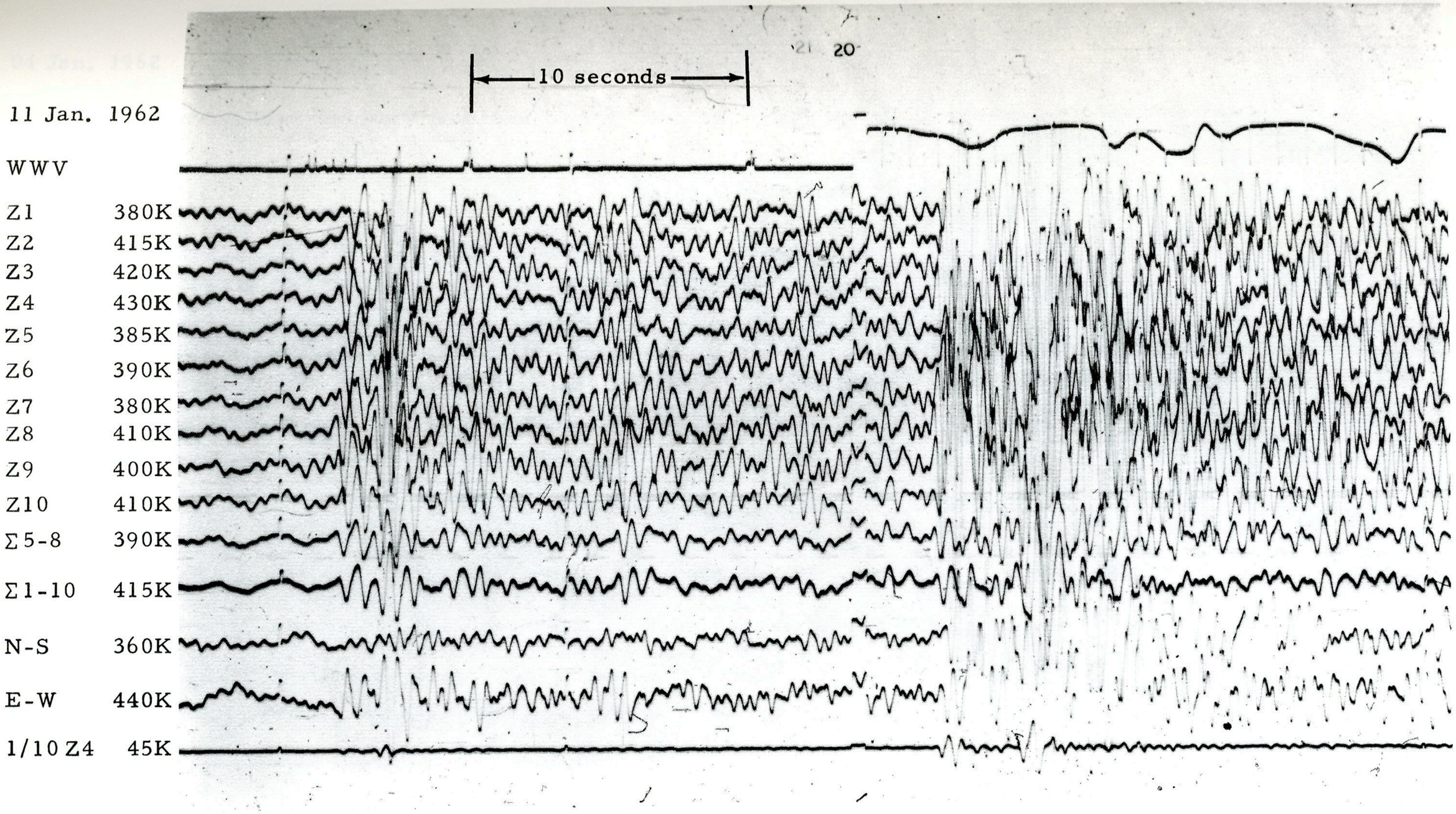


Figure 10. Quarry blast - north of Fitzhugh, Oklahoma (Ideal Cement Co.)
30,257 lbs. of explosives distributed in 70 drill holes

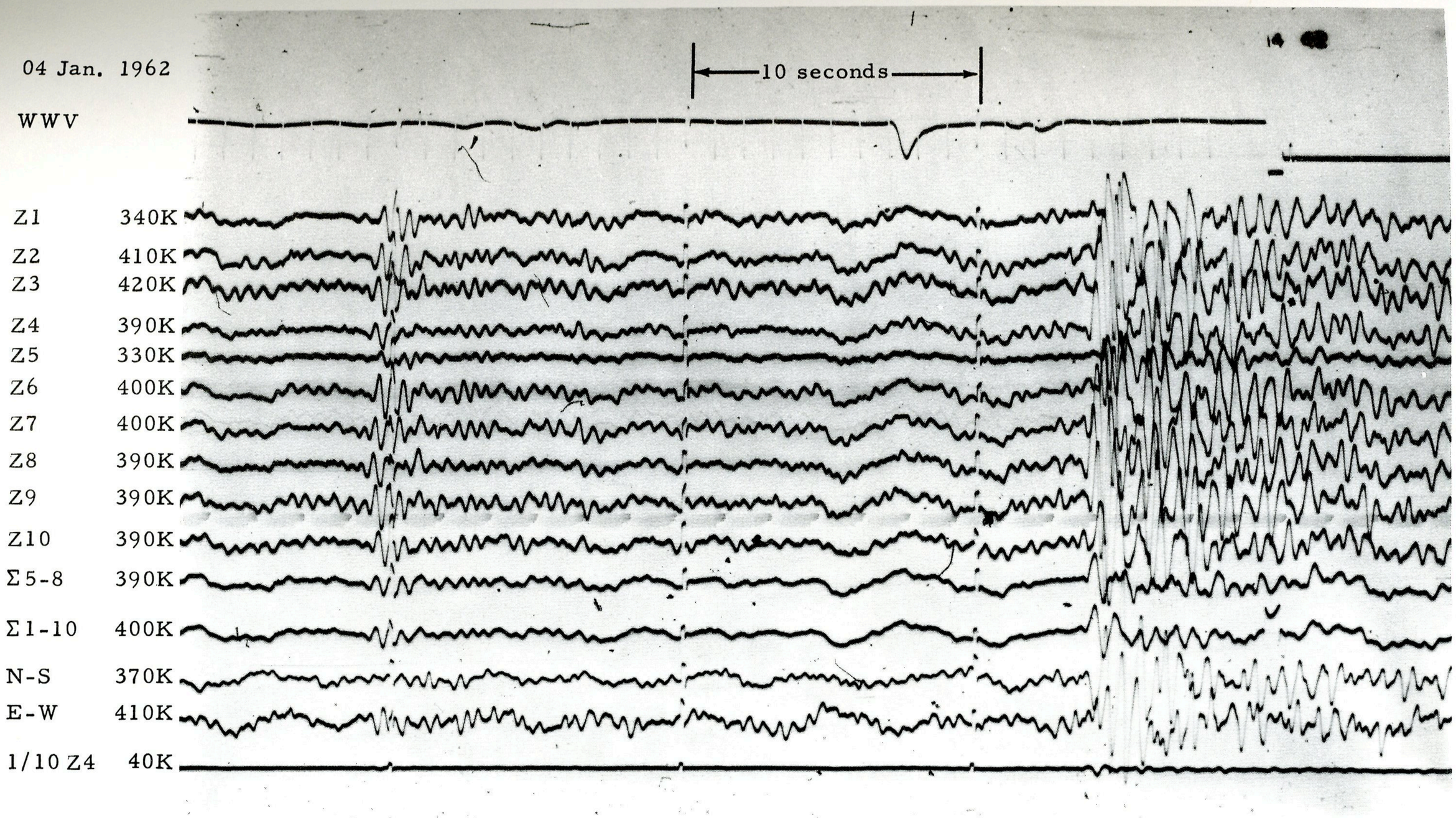


Figure 11. Quarry blast - Bromide, Oklahoma
15,554 lbs. of explosives

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Volume II, No. 2
February 1962

REGISTRATION OF EARTHQUAKES AT WICHITA MOUNTAINS SEISMOLOGICAL OBSERVATORY FORT SILL, OKLAHOMA, U.S.A.

Operated under the Technical Supervision of the
Air Force Technical Applications Center (AFTAC)

by

The Geotechnical Corporation
Garland, Texas

Advanced Research Projects Agency (ARPA)
Department of Defense
United States Government

THE REGISTRATION OF EARTHQUAKES

AT THE

WICHITA MOUNTAINS SEISMOLOGICAL OBSERVATORY

STATION

Station Abbreviation:	WMSO
Station Identification on Film Seismograms:	a
Geographical Location *: (Vault No. 6)	34° 43' 05.3" N. Lat. 98° 35' 20.7" W. Long.
GEOCENTRIC LOCATION *: (Vault No. 6)	34° 32' 09.8" N. Lat. 98° 35' 20.7" W. Long.
ALTITUDE (Meters) *: (Vault No. 6)	505 meters (1658)

GEOLOGY: The station is located on the Carlton (porphyritic) granophyre of the Wichita Mountains of Oklahoma.

NOISE LEVEL - February 1962: The periods of the predominant microseisms at WMSO are 0.5 second and 6 seconds. An amplitude distribution curve for the 0.5 second microseisms may be found on page 2.

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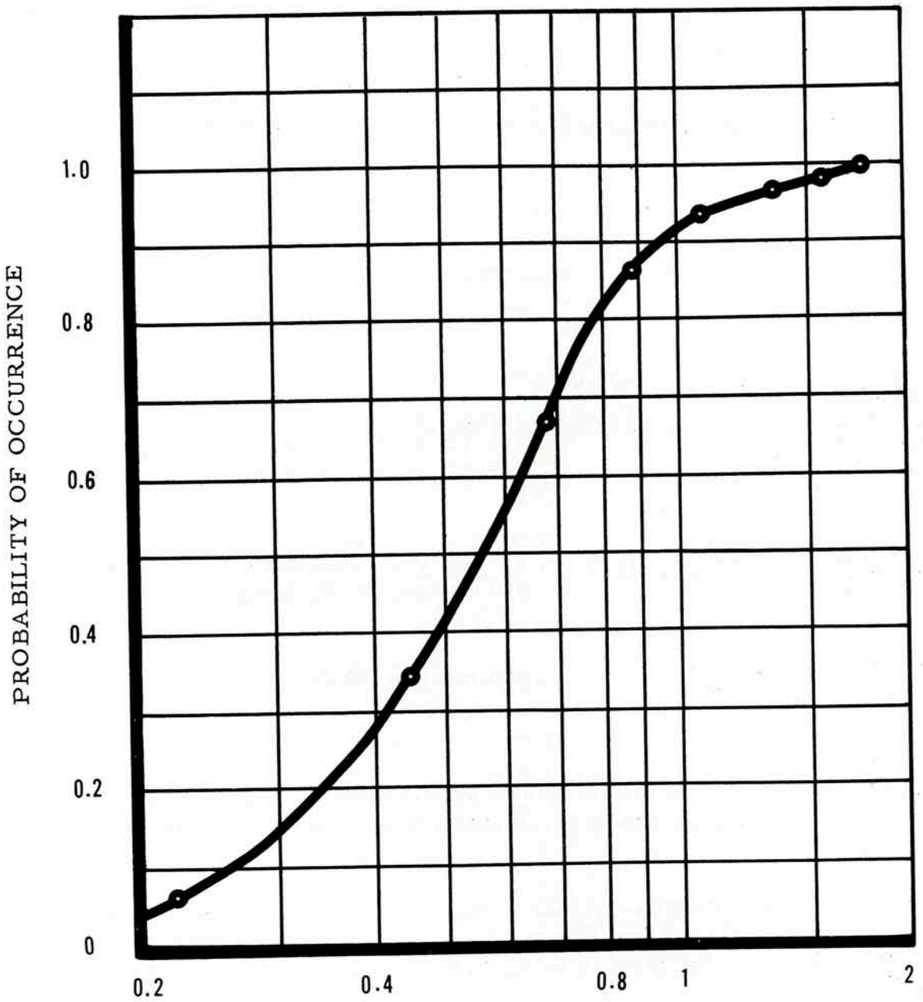
* The coordinates refer to the location of vault no. 6 which houses the 3-component groups of short-period and intermediate band seismometers from which arrival times are determined.



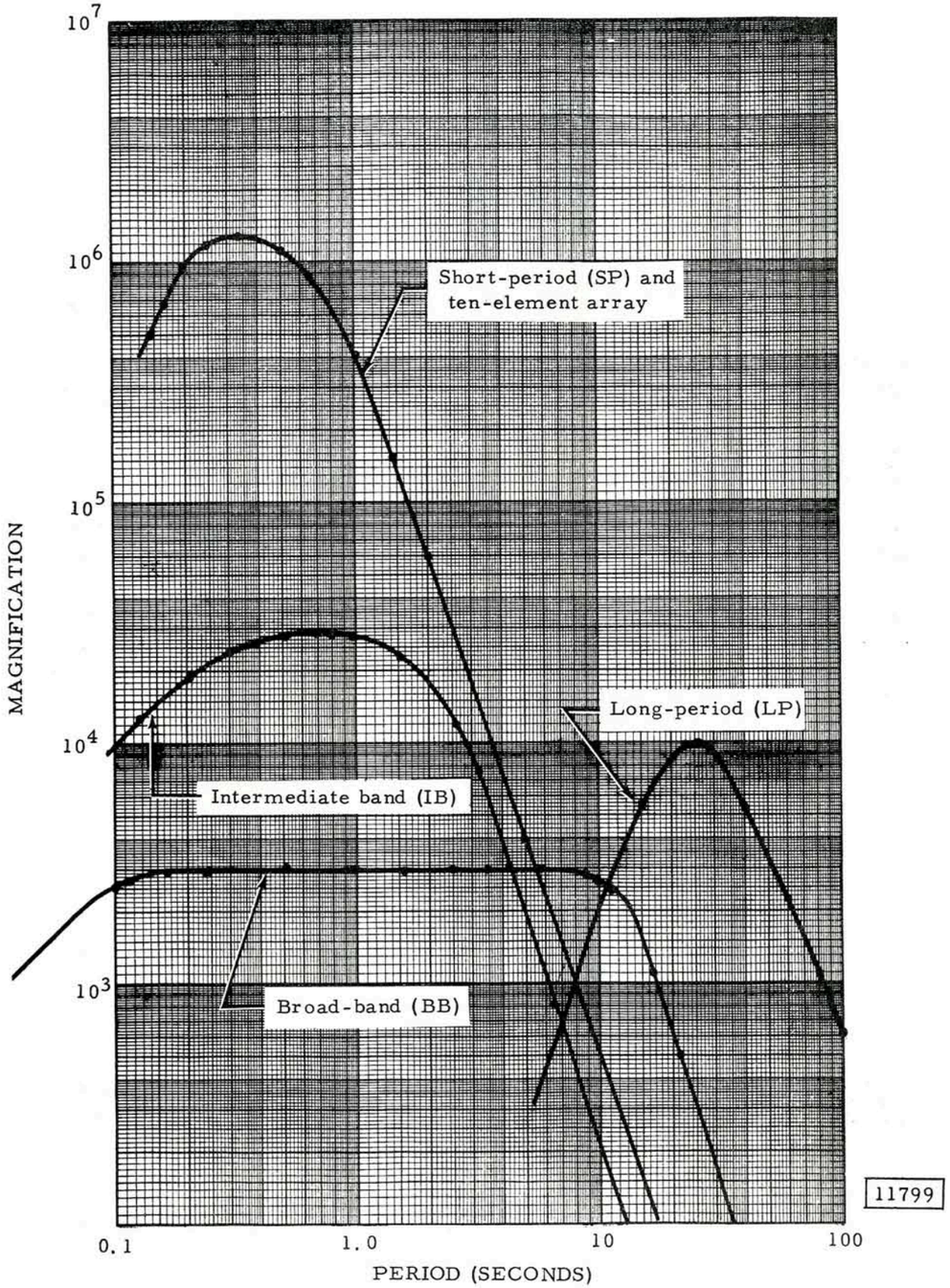
Probability of predominant 0.5-sec microseisms occurring at or less than a given amplitude at Unity magnification

SEISMOGRAPHS

	Ts	λs	Tg	λg	σ^2
SP Vertical Benioff	1.0	1.0	0.2	1.0	0.01
SP Horizontal Benioff	1.0	1.0	0.2	1.0	0.01
IB Vertical Melton	2.5	0.65	0.64	1.5	0.002
IB Horizontal Sprengnether	2.5	0.65	0.64	1.5	0.0005
BB Vertical Press-Ewing	12.5	0.4	0.64	9.0	0.0002
BB Horizontal Sprengnether	12.5	0.4	0.64	9.0	0.0004
LP Vertical Sprengnether	25.0	1.0	30	1.0	0.004
LP Horizontal Sprengnether	25.0	1.0	30	1.0	0.004

SP = Short Period
IB = Intermediate Band
BB = Broad Band
LP = Long Period
Ts = Free Period of seismometer in secs.
λs = Damping constant of seismometer
Tg = Free Period of galvanometer in secs.
λg_2 = Damping constant of galvanometer
σ^2 = Coupling Coefficient

NOTE: Response curves may be found on page 4.



Response characteristics of seismographs

INTERPRETATION OF SYMBOLS

1. Earthquakes Listed

All local (L), near-regional (NR), regional (R), and distant earthquakes (T) are tabulated on the following pages.

2. System

In the column headed "Syst." (system), the seismograph (SP, IB, BB, or LP) and component (Z, N, or E) used to measure arrival time are designated. When no component designation appears, the phase is read from the vertical component. When neither system nor component designation appears, the phase is read from the SP vertical component.

3. Phase

(1) "i" (impetus) preceding a phase designates sudden beginning of the motion. (A designation of "i" in the case of initial P motion indicates a signal-to-noise ratio exceeding about 5/1).
(2) "e" (emersio) designates gradual beginning.
(3) "i" or "e" alone designates an unidentified phase.
(4) ( ) (parenthesis marks) indicate uncertainty.

4. Time

(1) Date and arrival time are given in Greenwich Civil Time (G. C. T.)
(2) The arrival time is reported as the earliest time on Z, N, or E. Single Z rather than the array summation ($\sum$) is used for measuring arrival times on the SP seismographs.

5. Ground Motion

(1) In the columns headed "A" and "T" are tabulated earth displacement in millimicrons and period in seconds, respectively. An amplitude of 999 indicates that a signal cannot be measured reliably. A "c" or "d" in the "A" column indicates compression or dilation, respectively, of the ground as indicated by the vertical component instrument.

The value of "A" for P phases is the maximum amplitude in the first ten seconds. All amplitudes are center-to-peak amplitudes.

(2) Trace amplitudes are measured to the nearest 1/2 millimeter at X10 view.

6. Direction

In the column headed "Dir." (direction), the direction of the epicenter as viewed from WMSO is indicated. For teleseisms, direction is obtained only from P and Rayleigh waves and is listed opposite the phase from which it is obtained. For close events, direction may be obtained from P-wave step-out shown on the individual short-period vertical traces.

7. Type

Earthquakes are identified as either:

L	(local)	0^o	-	1.4^o
NR	(near-regional)	1.4^o	-	6^o
R	(regional)	6^o	-	16^o
T	(teleseismic)	16^o	-	180^o

8. Remarks Column

(1) Epicentral locations, time of origins, depth of foci, and magnitudes are obtained from the U.S. Coast and Geodetic Survey Preliminary Determination of Epicenters cards.

(2) The nature of the surface waves is indicated subjectively.

(3) Epicentral locations and distances reported by the station are accompanied by an indication of the phases used to determine epicentral distance, e.g. $\triangle$ (S-P) = 6^o, Central Colorado.

(4) Operational notes refer to operational difficulties that affect analysis of data.

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
01 Feb		eP	00	53	34.6	5	0.9		T	Kermadec Islands region
		e			45.7		1.7			31.7 S 177.3 W
		e		56	10.9		1.0			h about 30 km
		e			51.2		1.0			0 = 00 39 54.6
		e		57	03.4		1.2			$\Delta = 98.5^o$
		ePP			35.6		2.3			Strong surface waves,
		e		59	26.2		0.8			Love and Rayleigh type, on LP.
	LPN	eSKS	01	04	06		21.0			Weak surface waves on BB.
	LPE	eS		05	18		20.0			Possible new events at
	LPN	ePS		06	38		24.0			00 56 10.9
	LP	eSPP		07	36		18.0			00 56 51.2
	LPN	e		09	46		20.0			00 57 03.4
		e(PKKP)		10	29.7		1.4			00 59 26.2
	LPE	eSS		11	33		20.0			
	LPE	ePSS			56		23.0			
	LPN	eSKKS		17	00		18.0			
	LPE	eSur		21	52					
	LP	eSur		25	46					
01 Feb		eP	04	21	09.4	3	1.0		T	
01 Feb		eP	06	42	09.5	5	1.1		T	Near coast of southern
	LPN	e(S)		45	44.0		12.0			California
	N	eSur		47	23.2					35.0 N 120.6 W
	LPN	eSur			25					h about 25 km
	LP	eSur		48	04					0 = 06 37 57.5
										$\Delta = 18^o$
										Mag. = 4-1/4 - 4-1/2 (Pas.)
										Strong surface waves, Love and Rayleigh type, on LP.
										Weak surface on SP;
										Medium surface on BB.
01 Feb		eP	08	26	40.5	2	0.7		T	
		e			57.5		0.7			
01 Feb		eP	08	36	07.7	1	0.8		T	
		e			37.3		0.9			

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h.	m.	s.					
01 Feb		eP	11	44	10.7	2	0.5		T	
01 Feb		eP	16	32	08.3	2	0.4	S	R	
		e			28.2		0.5			
	E	eSur		35	27.4		0.7			
01 Feb		eP	18	02	06.5	2	0.6		NR	Δ (S-P) = 2.9°
	E	eS			44.0		0.4			
01 Feb		eP	18	09	48.4	7	0.9		R	Gulf of California
		e		10	52.6		0.8			26.1 N 109.2 W
		e		11	25.2		0.8			h about 45 km
		e		12	01.0		0.9			0 = 18 06 49.8
	E	e(Sur)			57.0		1.6			Δ = 12°
		eSur		13	33.8	999				Strong surface waves on all systems
01 Feb		eP	18	11	18.4	1	0.2		NR	Δ (S-P) = 1.7°
	E	eS			39.9		0.3			3607 lbs. quarry blast by Wesco near Chico, Texas
01 Feb		eP	19	01	01.6	1	0.6		R	
	E	eSur		04	44.3		1.1			
01 Feb		eP	20	05	30.7	3	0.9		T	
01 Feb		eP	23	59	51.1	2	0.4	S	NR	Δ (S-P) = 2.2°
02 Feb	E	eS	00	00	18.2		0.3			Probable quarry blast south of Weatherford, Texas
02 Feb		eP	00	17	01.4	1	0.7		R	Δ (S-P) = 6.5°
	N	eS		18	21.4		0.6			
02 Feb		eP	03	42	31.4	1	0.6		T	
02 Feb		eP	04	32	25.5	2	1.0		T	
02 Feb		eP	05	48	02.6	4	1.1		T	

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h.	m.	s.					
02 Feb		eP	05	53	36.2	4	0.8		T	Kurile Islands
										45.7 N 151.6 E
										h about 37 km
										0 = 05 41 38.7
										Δ = 77.5°
02 Feb		eP	06	45	20.8	30	0.6		R	Northwestern Tennessee
		e			32.2		0.7			36.3 N 89.4 W
		e			41.0		0.7			h about 25 km
		e		47	00.8		0.7			0 = 06 43 28.8
		eSur			27.2	999				Δ = 7.5°
	LPE	eSur			36					Strong surface waves on all systems.
	LP	eSur		48	03					Surface at 06 45 27.2 is Lg.
02 Feb		eP	07	20	47.5	5	1.0		T	
		e		21	05.2		1.0			
02 Feb		eP	08	13	27.7	9	0.8		T	Kazakh, S.S.R.
		e		16	46.2		0.8			49.9 N 78.2 E
		e(PP)		17	28.6		1.0			h about 0 km
										0 = 07 59 58.5
										Δ = 95°
02 Feb		eP	17	32	24.4	2	1.0		T	Kurile Islands
		e			35.5		0.8			43.7 N 148.5 E
		e			45.8		1.2			h about 49 km
		e		33	44.0		1.1			0 = 17 20 11.1
		e		34	54.4		1.3			Δ = 80°
	LPN	eS		42	34		21.0			Strong surface waves on LP.
	LPN	eSS		47	03		34.0			
	LPN	eSur		54	16					
	LP	e	18	01	30					
02 Feb		eP	17	44	10.0	5	0.7	W	T	
		e		45	00.0		1.0			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
02 Feb		eP	19	41	50.6	5	1.0		T	
02 Feb		eP	21	29	44.8	1	0.4		NR	Δ (S-P) = 1.7°
	E	eS		30	06.5		0.3			5600 lbs. quarry blast
										by Southwest Stone Company
										near Chico, Texas
02 Feb		eP	22	25	28.1	9	0.7	SE	T	
02 Feb		eP	22	54	05.1	1	0.5		T	
02 Feb		eP	23	08	03.4	81	0.8		T	Near west coast of Mexico
		e		09	04.8		1.4			18.2 N 104.9 W
		e			48.8		1.5			h about 17 km
	LPE	eS		11	24		15.0			0 = 23 03 58.9
	LP	e			53		15.0			Δ = 17°
	LPE	eSur		12	49					Strong surface waves on
	E	eSur		13	10.4		2.2			all systems
	LP	eSur		13	15					
	E	e			34.0		5.5			
02 Feb		eP	23	49	57.3	2	0.4	S	NR	Δ (S-P) = 2.2°
		eS		50	24.3	999				
02 Feb		eP	23	59	44.0	2	0.7		T	
		e			54.9		0.8			
03 Feb		eP	00	10	27.9	1	0.3		NR	Δ (S-P) = 2.7°
	E	eS		11	00.5		0.4			
03 Feb		eP	00	53	11.8	4	1.2		T	North of New Guinea
		eP'		56	42.9	27	1.6			1.2 S 137.8 E
		ePP		57	55.3		1.8			h about 17 km
		eSKP	01	00	06.6		1.4			0 = 00 37 53.6
	LPE	eSKS		03	39		18.0			Δ = 118°
	LPE	eSKKS		04	59		18.0			First arrival is P diffracted
		e		06	20.5		1.6			Phase at 01 09 42.9 is
		ePKKP		07	05.2		1.4			possible new event.
	LPE	ePS			44		23.0			Strong surface waves,
	LPE	ePPS		08	54		28.0			Rayleigh type, on BB & LP.

(continued on next page)

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
		e		09	42.9		1.5			(continued from preceding page)
		e		10	17.0		1.1			
	LP	e(SKKP)		11	00		26.0			
	LPE	eSS		14	28		28.0			
	LPE	eSSS		18	28		22.0			
	LP	eSur		32	04					
03 Feb		eP	01	20	25.5	1	0.7		T	
03 Feb		eP	03	33	41.5	4	1.3		T	
03 Feb		eP	08	24	55.2	6	1.2		T	
		e		25	14.8		1.1			
03 Feb		eP	08	50	05.3	1	0.7		R	
03 Feb	N	e(Sur)	09	10	47.6		1.1		T	
03 Feb		eP	11	25	06.7	6	1.4		T	
03 Feb		eP'_1	11	56	18.0	1	0.8		T	Mascarene Islands region
		eP'_2			54.9	2	0.8			17.4 S 66.9 E
	LPE	eSS^2	12	20	22		24.0			h about 25 km
	LPN	e		27	24		30.0			0 = 11 36 19.1
	LPN	e(Sur)		42	40					Δ = 159°
	LP	eSur		50	22					Weak surface waves on LP.
03 Feb		eP	13	38	20.4	2	0.8		T	Tonga Islands region
	LPN	eS		49	26		23.0			21.2 S 175.5 W
	LP	eSur	14	08	00					h about 25 km
										0 = 13 25 12.2
										Δ = 91.5°
										Medium surface waves,
										Rayleigh type, on LP.
03 Feb		eP	18	03	22.9	2	0.2		NR	Δ (S-P) = 1.6°
		e			32.8		0.3			Quarry blast, 5300 lbs. by
		eS			44.4	999				Gifford Hills Co. near
										Chico, Texas

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h.	m.	s.					
03 Feb		eP	20	11	23.6	6	1.2	S	T	
		e			33.1		1.0			
03 Feb		eP	20	12	39.3	5	0.8		T	
		e			44.9		0.9			
		e			50.7		0.8			
		e			57.5		0.7			
03 Feb		eP	21	45	08.3	6	0.9		T	Colombia
		e			13.9		0.8			6.5 N 73.1 W
		epP			50.8		0.9			h about 190 km
		e		46	05.9		0.8			0 = 21 38 19.9
										Δ = 36.5°
03 Feb		eP	23	38	53.3	1	0.4	WSW	NR	Δ(S-P) = 2.7°
	E	eS		39	26.4		0.4			
04 Feb		eP	00	09	43.7	1	0.7		T	
04 Feb		eP'	03	13	47.8	2	1.0		T	Celebes
		e			57.6		1.2			4.6 S 119.0 E
		ePP		16	29.5		1.2			h about 89 km
	LPE	ePKS		17	33		14.0			0 = 02 54 42.1
		eSKKP		26	43.9		1.2			Δ = 134°
	LPE	e		33	28		18.0			Medium surface waves
	LPE	eSSS		39	26		40.0			on LP.
	LPE	e		42	42		40.0			
	LPE	e		46	33		30.0			
	LPN	eSur		51	52					
	LPN	eSur		58	00					
04 Feb		eP	06	28	50.0	5	0.8	SSE	T	
		e		29	25.0		0.9			
		e		30	13.6		0.7			
04 Feb		eP	08	38	56.9	4	0.5	S	R	
		e		39	29.0		0.8			
	E	eSur		42	21.0		0.7			

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h.	m.	s.					
04 Feb		eP	17	53	56.4	41	1.1		T	South of Panama
		e(PP)		54	47.9		1.1			7.4 N 82.4 W
	LPE	eS		59	13		30.0			h about 38 km
	LPN	e(Sur)	18	01	36					0 = 17 47 39.7
	LPE	eSur		03	14					Δ = 31°
										Strong surface waves on LP.
04 Feb		eP	20	46	53.2	4	1.2		T	Off coast of Ecuador
		ePcP		49	24.8		1.0			2.8 N 83.2 W
										h about 39 km
										0 = 20 40 00.0
										Δ = 34.5°
04 Feb		eP	21	40	54.4	1	1.1		T	
04 Feb		eP	21	41	49.2	9	0.6		T	South Atlantic Ocean
		e			59.8		1.8			0.5 S 20.2 W
		e		42	42.0		1.3			h about 17 km
		e		43	57.3		1.1			0 = 21 29 33.2
	LPN	eSKS		52	00		26.0			Δ = 80.5°
	LPN	ePS			46		24.0			Strong surface waves on LP.
	LPN	eSS		56	58		26.0			Weak surface on BB.
	LPN	eSur	22	03	00					
	LPE	eSur		10	20					
04 Feb		eP	23	14	49.2	1	0.4		NR	Δ (S-P) = 2.7°
	E	eS		15	21.7		0.5			
04 Feb		eP	23	25	02.6	2	1.0		T	
05 Feb		eP	04	17	32.8	4	1.2		T	
05 Feb		eP	04	34	22.7	2	0.8		T	
05 Feb		eP	05	07	24.8	2	0.7		T	
05 Feb		eP	06	16	43.4	3	1.1		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
05 Feb		eP	14	48	18.6	20	1.0		R	Colorado
	N	eSur		50	05.6		1.0			38.2 N 107.6 W
										h about 25 km
										0 = 14 45 51.1
										Δ = 7.5°
05 Feb		eP	15	30	17.2	1	0.5		NR	Δ (S-P) = 1.6°
		e			25.8		0.4			Quarry blast 3854 lbs, by
	E	eS			38.3		0.5			Texas Industries near
										Chico, Texas
05 Feb		eP	18	58	04.6	2	0.6		T	
05 Feb		eP	19	22	53.1	4	0.9		T	
		e		23	25.9		0.7			
05 Feb		eP	23	02	12.8	1	0.4	SE	NR	Δ (S-P) = 1.7°
		e			22.4		0.5			Quarry blast near
		eS			34.7	999				Chico, Texas
05 Feb		eP	23	08	44.8	62	0.9		T	Central Honshu, Japan
		epP		09	20.2		1.0			35.9 N 138.8 E
		ePP		12	34.8		2.2			h about 151 km
		ePKKP		26	04.3		0.8			0 = 22 55 49.6
										Δ = 91.5°
05 Feb		eP	23	27	50.0	1	0.3		NR	Δ (S-P) = 1.6°
	E	eS		28	11.5		0.4			Quarry blast, 6,950 lbs
										by Wesco, near Chico, Texa
05 Feb		eP	23	41	52.5	1	0.4		NR	Δ (S-P) = 2.3°
	E	eS		42	20.0		0.3			
06 Feb		eP	00	12	56.6	58	0.8	SSE	T	
		e		13	07.3		1.0			
06 Feb		eP	00	30	48.9	1	0.8		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
06 Feb		eP	02	44	39.5	4	0.7	NW	R	
	N	eSur		46	24.1		1.0			
06 Feb		eP	03	03	08.8	26	0.8		T	Guatemala
		e		04	00.7		1.2			13.8 N 91.1 W
		e		05	13.6		1.0			h about 134 km
	E	eSur		07	08.7		0.8			0 = 02 58 24.1
										Δ = 22°
06 Feb		eP	04	01	05.8	2	0.8	SE	T	
06 Feb		eP	04	17	03.2	1	0.8		T	
06 Feb		eP	04	49	00.4	3	0.8	N	T	
		e			26.2		0.9			
06 Feb		eP	07	58	52.4	6	1.4		T	
06 Feb		eP	08	21	08.8	3	0.8		T	
06 Feb		eP	14	40	51.0	1	0.8		T	
06 Feb		eP	15	21	12.4	2	0.7	SW	R	
	E	eSur		24	35.6		0.8			
06 Feb		eP	18	33	02.8	1	0.6	NE	NR	
	E	eSur		34	04.8		0.5			
06 Feb		eP	21	21	03.2	1	0.8		T	
06 Feb		eP	22	19	23.0	2	0.8		T	
06 Feb		eP	23	30	55.9	2	0.3	SE	NR	Δ (S-P) = 1.6°
		e		31	03.9		0.5			Quarry blast, 8000 lbs by
		eS			17.3	999				Gifford Hills Co., near
										Chico, Texas

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
06 Feb		eP	23	33	01.8	1	0.4	ENE	NR	Δ (S-P) = 2.4°
	E	eS			32.2		0.4			
06 Feb		eP	23	44	22.6	1	0.4	S	NR	Δ (S-P) = 2.1°
	E	eS			49.0		0.3			
07 Feb		eP	00	44	53.4	4	1.1		T	
07 Feb		eP	04	24	42.3	6	1.2		T	
07 Feb		eP	06	55	52.8	1	0.8		T	
		e		56	27.8		0.6			
07 Feb		eP	07	42	35.5	2	1.0		T	
07 Feb		eP	07	46	03.5	7	1.1		T	Chile-Bolivia border
		e			29.3		0.8			20.4 S 68.4 W
		e(pP)			50.5		0.8			h about 222 km
		e		47	13.5		0.8			0 = 07 36 05.1
										Δ = 61.5°
07 Feb		eP	09	45	27.1	6	1.2		T	
07 Feb		eP	09	56	51.6	8	0.9	SE	T	
07 Feb		eP	11	13	33.1	3	1.0		T	
07 Feb		eP	17	03	29.2	3	0.5	S	NR	Δ (S-P) = 2.6°
	E	eS		04	01.6		0.7			
07 Feb		eP	19	44	50.7	2	0.5		R	
		e		45	36.8		0.5			
	E	eSur		46	07.0		0.4			
07 Feb		eP	22	42	38.0	1	0.4		NR	Δ (S-P) = 3.1°
		e			42.0		0.4			
		e			45.2		0.4			
	E	eS		43	16.3		0.3			
	E	e			22.3		0.5			
	E	e(Sur)			29.1		0.3			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
07 Feb		eP	23	40	11.4	2	0.4		NR	Δ (S-P) = 1.9°
		e			21.4		0.4			
	E	eS			35.8		0.6			
		e			38.0	999				
08 Feb		eP	08	35	40.4	23	1.3	SE	T	
		e			49.2		1.0			
		e		36	06.2		1.0			
		e			49.1		1.2			
		e		37	03.8		0.7			
08 Feb		eP	10	16	38.0	3	1.0		T	
08 Feb		eP	12	04	37.5	2	1.0		T	
08 Feb		eP'	12	07	54.9	4	1.0		T	New Guinea
		ePP		09	02.0		2.1			3.2 S 141.3 E
		e			28.2		1.5			h about 87 km
		e			44.3		1.1			0 = 11 49 13.9
		e		10	09.5		1.6			Δ = 116°
	LPE	eSKS		14	53		11.0			Strong surface waves, Love
	LPE	eSKKS		16	01		13.0			and Rayleigh type, on LP.
		ePKKP		18	23.0		1.1			
	LPN	ePS			47		28.0			
	LPN	ePPS		20	00		24.0			
	LPE	e		23	13		25.0			
	LPN	eSS		25	13		25.0			
	LPN	e		27	55		24.0			
	LP	e		29	25		19.0			
	LPE	e		33	04		15.0			
	LPN	eSur		36	32					
	LP	eSur		42	38					
08 Feb		eP	12	43	56.5	6	0.7	SE	T	
		e		44	04.8		0.8			
08 Feb		eP	16	56	14.2	1	0.5		T	
		e		58	53.3		1.5			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
08 Feb		eP	18	16	15.5	3	0.8	SE	T	
		e		18	30.2		1.4			
08 Feb		eP	19	47	09.5	2	0.6		T	
08 Feb		eP'	19	59	49.8	12	0.8	NW	T	Δ (PP-P') = 142°
		e	20	00	16.0		0.8			
		e			30.0		0.6			
		ePP		02	59.2		2.0			
		e(SKP)		03	27.5		1.1			
	E	ePKS			34.8		1.2			
08 Feb		eP	23	32	48.0	1	0.3	NE	NR	Δ (S-P) = 2.7°
	E	eS		33	21.0		0.4			
08 Feb		eP	23	41	06.5	2	0.4		NR	Δ (S-P) = 2.1°
		eS			33.0	999				
08 Feb		eP	23	42	12.3	1	0.3		NR	Δ (S-P) = 2.6°
	E	eS			44.2		0.4			
09 Feb		eP	00	44	30.9	1	0.8		T	
09 Feb		eP	01	14	47.4	2	1.0		T	Central Honshu, Japan 34.5 N 140.9 E h about 25 km 0 = 01 01 37.0 Δ = 91°
09 Feb		eP	05	56	55.4	3	0.7		T	
		e		57	02.9		0.7			
09 Feb		eP	08	36	16.7	1	0.6		T	
09 Feb		eP	08	40	41.9	4	0.7	SSE	T	
		e			49.0		0.7			
09 Feb		eP	10	51	48.9	3	0.6	SE	T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
09 Feb		eP	12	34	55.5	1	0.4		T	
09 Feb		eP	12	44	55.5	1	0.4		T	
09 Feb		eP	14	02	02.0	2	0.6	E	R	
	N	e(S)		03	13.5		0.6			
		eSur			44.0	999				
09 Feb		eP	15	06	54.8	2	1.1		T	
09 Feb		eP	17	35	16.5	1	0.5		NR	Δ (S-P) = 3.1°
	E	eS			54.5		0.5			
09 Feb		eP	17	49	30.5	3	1.1		T	
09 Feb		eP	18	24	24.1	3	0.6		T	Andreanof Islands, Aleutian Islands 51.2 N 178.4 E h about 25 km 0 = 18 14 32.7 Δ = 57.5°
		e			42.7		0.7			
09 Feb		eP	18	39	41.9	1	0.3	SE	NR	Δ (S-P) = 1.6°
	E	eS		40	02.9		0.5			Quarry blast, 2500 lbs., by Texas Industries near Chico, Texas
09 Feb		eP	19	44	26.6	2	0.6	NE	R	
	E	eSur		46	55.4		0.6			
09 Feb		eP	20	32	42.9	1	0.3		NR	Δ (S-P) = 1.3°
	E	eS		33	01.4		0.4			
09 Feb	LP	eSur	21	29	50				T	Weak surface waves on LP.
09 Feb		eP	22	10	14.7	8	1.0		T	
		e			27.0		1.0			
		e		11	02.1		1.1			
		e		12	12.8		1.1			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
09 Feb		eP	22	42	48.6	2	0.4	E	NR	Δ (S-P) = 1.9°
	N	eS		43	12.2		0.5			Quarry blast near Bromide, Oklahoma
09 Feb		eP	23	30	00.5	1	0.4		NR	Δ (S-P) = 1.7°
	E	eS			22.3		0.3			Quarry blast, 2700 lbs., by Wesco near Chico, Texa
09 Feb		eP	23	39	40.9	1	0.4		NR	Δ (S-P) = 2.6°
	E	eS		40	13.2		0.4			
09 Feb		eP	23	41	53.5	2	0.4		NR	Δ (S-P) = 2.2°
	E	eS		42	20.1		0.4			
10 Feb		eP	02	16	09.2	3	0.7		R	
		e			28.1		0.8			
		e			50.2		0.8			
		eSur		19	52.3		0.8			
		e			59.5		0.6			
10 Feb		eP	03	20	08.2	1	0.6		T	
10 Feb		eP	04	08	41.4	1	1.0		T	
10 Feb		eP	04	29	28.2	2	0.7		T	Chile-Bolivia border
		e(PcP)		30	06.6		0.7			19.2 S 69.5 W
		epP			15.3		1.2			h about 232 km
		e			37.2		0.8			0 = 04 19 41.7
		e			42.2		0.6			Δ = 60°
		e		32	05.9		1.2			
10 Feb		eP	09	41	45.8	1	0.7		T	
10 Feb		eP	10	41	57.4	2	1.0		T	
10 Feb		eP	11	39	19.5	1	0.6		NR	Δ (S-P) = 4.1°
	E	eS		40	08.3		0.5			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
10 Feb		e(P)	13	17	15.3	8	1.0	ESE	T	Weak surface waves on LP.
		e		28	05.8		0.9			
	LP	eSur		53	00					
10 Feb		eP	16	54	15.3	2	1.0		T	
10 Feb		eP	18	53	16.7	2	0.8		T	
10 Feb		eP	19	08	16.6	7	1.3		T	
10 Feb		eP	19	38	55.6	15	0.9		T	Leeward Islands
		epP		39	12.0		1.3			17.9 N 62.2 W
		e		40	03.7		1.2			h about 70 km
		ePP			24.0		2.1			0 = 19 31 56.2
		ePcP		41	24.7		0.8			Δ = 36.5°
	LPN	eS		44	39		26.0			Strong surface waves, Love
		eScP		45	04.1		1.4			and Rayleigh type, on LP.
	LPE	eSS		46	52		22.0			Weak surface on SP.
		e		47	43.0		0.9			
	LPN	eSur			50					
	LP	eSur		49	48					
10 Feb		eP	19	57	22.1	9	0.7		T	Mendoza Province, Argentina
		e		58	10.4		0.9			33.1 S 69.0 W
		e			19.3		1.0			h about 171 km
										0 = 19 46 11.0
										Δ = 73°
10 Feb		eP	20	09	28.8	1	0.8		T	
10 Feb		eP	21	42	29.6	3	0.8	NW	T	
10 Feb		eP	23	50	56.5	1	0.4	N	NR	Δ (S-P) = 2.6°
	E	eS		51	29.1		0.4			
11 Feb		eP	02	42	57.0	3	0.9		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
11 Feb		eP	02	55	20.9	52	1.6		T	South of Honshu, Japan
		e		56	12.9		1.1			29.6 N 139.0 E
		e			40.2		2.0			h about 400 km
		epP			52.6		1.7			0 = 02 42 36.1
		e		57	24.4		1.8			Δ = 95°
		e		58	20.1		1.5			Mag. = 6-1/4 (Pas.)
		e		59	02.3		1.6			Weak surface waves on LP
		ePP			16.3		1.7			
		e	03	01	06.0		1.2			
	LPE	eSKS		05	17		18.0			
	LPE	eS		06	00		22.0			
	LP	eSP		07	29		23.0			
	LPE	ePS		08	20		22.0			
	LPE	ePPS		09	03		20.0			
		ePKKP		12	20.7		0.9			
	LPE	eSS			31		25.0			
	LPE	eSSS		16	40		33.0			
	LPN	eSur		23	00					
11 Feb		eP	05	32	59.1	15	0.7	SE	T	
11 Feb		eP	06	59	39.5	3	0.9	S	T	
		e	07	04	48.5		1.5			
11 Feb		eP	08	04	08.5	2	0.7		T	
11 Feb		eP	08	32	26.7	8	0.6	NW	T	
		e			44.9		0.7			
11 Feb		eP	08	40	42.4	2	1.1		T	Possible phase of preceding event
11 Feb		eP	10	10	24.9	21	1.1		T	Fox Islands, Aleutian Islands
		e			36.8		1.1			52.0 N 168.0 W
		e			57.2		1.0			h about 50 km
		ePcP		11	37.9		0.5			0 = 10 01 24.8
		e		13	32.6		0.7			Δ = 51°
	LPN	eSur		25	45					Weak surface waves, Love and Rayleigh type, on LP.
	LP	eSur		27	08					Possible new event at 10 13 32.6

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
1 Feb		eP	11	04	22.3	1	0.8		T	
		e			30.6		1.1			
		e			58.1		0.9			
	LPE	e		09	32		20.0			
1 Feb		eP'	11	26	16.1	1	0.7		T	Maldive Islands region
		e		28	23.9		1.1			0.9 S 67.2 E
										h about 25 km
										0 = 11 06 44.3
										Δ = 144°
1 Feb		eP	11	52	44.5	2	1.0		T	
1 Feb		eP	16	16	37.1	3	1.1		T	
1 Feb		eP	16	21	01.3	2	1.0		T	
1 Feb		eP	17	05	45.7	3	1.1		T	
1 Feb	LP	eP	19	10	11.	909	20.0		T	New Ireland region
		e		13	27.2		1.8			4.5 S 153.8 E
	LP	e(PP)		14	31		18.0			h about 100 km
		e		15	19.3		0.8			0 = 18 55 32.0
		e			59.5		0.8			Δ = 106.5°
	LP	ePPP		16	30		18.0			Mag. = 6 (Berk.)
	LPE	ePKS		17	19		19.0			Strong surface waves,
	LPE	eSKS		20	16		24.0			Rayleigh type, on LP.
	LPE	eS		21	18		27.0			Weak surface on BB.
	LPN	ePS		23	24		20.0			Surface at 20 55 19 is
	LPE	ePPS		24	21		22.0			travel time for 254°
		e			40.0		0.8			
		e(PKKP)		25	05.2		0.7			
		ePKKP			36.1		1.5			
	LPE	e		30	16		20.0			
	LPE	eSSS		33	16		46.0			
	LP	e		39	59		40.0			
	LP	eSur		44	58					
	LP	eSur	20	55	19					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h. m. s.					
11 Feb		eP	19 26 54.5	4	1.0		T	
		e	27 39.5		1.3			
		e	28 54.1		1.1			
		e	29 29.8		1.3			
11 Feb		eP	23 57 49.5	1	0.3		NR	Δ (S-P) = 2.7°
	E	eS	58 22.5		0.4			
12 Feb	LPE	eSur	10 15 16				T	Weak surface waves on LP
12 Feb		eP	12 10 06.3	3	0.9		T	Near coast of Hokkaido, J 44.0 N 146.5 E h about 113 km 0 = 11 57 53.3 Δ = 81°
12 Feb		eP	13 42 31.9	1	0.9		T	
12 Feb		eP	14 00 56.6	2	0.9		T	
12 Feb		eP	14 35 36.7	1	0.7		T	
		e	36 27.4		1.0			
12 Feb		eP	15 56 10.5	2	0.8		T	
12 Feb		eP	16 05 17.5	2	0.3		L	Δ (S-P) = less than 0.1°
		eS	20.7	999				
12 Feb		eP	17 38 46.8	3	1.0		T	Southern Honshu, Japan 34.4 N 135.6 E h about 317 km 0 = 17 25 56.9 Δ = 94°
12 Feb		eP	18 00 37.2	2	0.3	SE	NR	Δ (S-P) = 1.7°
		e	47.5		0.4			Quarry blast, 6700 lbs. b
		eS	59.2	999				Gifford Hills Co., near Chico, Texas

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h. m. s.					
2 Feb		eP	23 11 02.2	1	0.9		T	
2 Feb		eP	23 45 27.0	1	0.4	SSE	NR	Δ (S-P) = 1.7°
		e	36.7		0.3			Quarry blast, 3448 lbs., by
		eS	48.7	999				Texas industries near Chico, Texas
2 Feb		eP	23 48 12.0	2	0.4	(SE)	NR	Δ (S-P) = 2.2°
		eS	38.5	999				
3 Feb		eP	00 01 23.4	1	0.4		NR	Δ (S-P) = 2.5°
	E	eS	54.4		0.4			
3 Feb		eP	00 54 53.8	52	1.7		T	North Atlantic Ocean
		e	55 08.0		1.2			54.1 N 35.1 W
		e	19.3		1.3			h about 27 km
		ePcP	56 23.9		0.9			0 = 00 46 16.3
		e(PP)	33.2		1.4			Δ = 48°
	LPN	eS	01 01 52		18.0			Strong surface waves,
	LP	eSur	09 43					Rayleigh type, on LP.
3 Feb		eP	02 33 46.8	3	0.8		T	Kurile Islands
		e	59.7		0.6			49.0 N 156.2 E
								h about 45 km
								0 = 02 22 15.2
								Δ = 73°
3 Feb	LPN	eSur	08 35 40				T	Medium surface waves on LP.
3 Feb		eP	20 19 41.3	2	0.4	S	NR	Δ (S-P) = 1.6°
		e	20 02.7		0.3			Quarry blast near
								Chico, Texas
3 Feb		eP	20 45 59.7	2	1.0		T	Near coast of Hokkaido, Japan
								42.7 N 145.3 E
								h about 105 km
								0 = 20 33 42.6
								Δ = 82.5°

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
13 Feb		eP	21	28	23.3	1	0.4		NR	Δ (S-P) = 1.7°
	E	eS			45.1		0.4			Quarry blast near Chico, Texas
13 Feb		eP	23	42	50.0	2	0.4		NR	Δ (S-P) = 2.2°
		eS		43	16.9	999				
14 Feb	LP	eSur	02	43	30				T	New Ireland region 4.3 S 153.5 E h about 119 km 0 = 01 53 33.9 Δ = 121° Medium surface waves on
14 Feb		eP'	03	06	29.6	1	0.5		T	Northern Celebes
		e(pP)		07	04.7		1.1			0.1 N 123.8 E
		ePP		08	29.5		1.3			h about 96 km
		eSKP		09	38.6		1.0			0 = 02 47 30.7
		e		10	36.2		0.9			Δ = 127.5°
14 Feb		eP	06	47	46.0	232	1.5		T	Near coast of Chile
		e(PcP)		48	03.0		1.1			38.1 S 73.1 W
		ePP		50	43.6		2.7			h about 44 km
		e		51	35.3		1.9			0 = 06 36 01.3
		e		52	42.2		2.4			Δ = 76.5°
	N	eS		57	31.2		2.2			Mag. = 7-1/2 (Pas.), 7-1/2 (Berk.)
	N	e			32.0		12.0			Strong surface waves on all systems
	E	eSKS			46.2		3.6			
	N	e(PS)		58	15.5		4.0			
	N	e			55.0		2.7			
		ePKKP	07	06	51.6		1.1			
		e		07	23.4		1.5			
	LP	eSur		11	00					
		eP'P'		15	07.0		1.1			
	LP	eSur		16	00					

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
962										
4 Feb		eP	07	20	04.7	18	1.1		T	Near coast of Chile
		e			14.0		1.1			38.2 S 73.7 W
		e		21	11.4		1.1			h about 40 km
		e			45.8		1.8			0 = 07 08 21.1
										Δ = 76°
4 Feb		eP	07	46	43.2	3	1.0		T	
4 Feb		eP	08	15	50.2	4	1.2		T	
4 Feb		eP	08	23	43.1	19	1.3	SE	T	Near coast of Chile
		e			50.6		1.4			38.1 S 73.7 W
		e		24	02.6		1.1			h about 40 km
										0 = 08 11 59.3
										Δ 76°
4 Feb		eP	08	40	44.8	6	0.8		T	Near coast of Chile
		e			53.9		1.1			38.2 S 73.1 W
		e		41	11.2		1.0			h about 40 km
		e			50.6		1.5			0 = 08 29 00.1
										Δ = 77°
4 Feb		eP	08	58	11.8	2	1.0		T	
4 Feb		eP	11	29	43.7	2	0.7		T	
4 Feb		ePKKP	12	12	15.5	1	0.5		T	Near coast of Mindanao, P.I.
										5.7 N 126.0 E
										h about 147 km
										0 = 11 43 35.1
										Δ = 122°
4 Feb		eP	12	48	03.0	10	1.4		T	
		e			07.9		1.5			
4 Feb		eP	13	11	03.0	1	0.6		T	
4 Feb		eP	15	13	24.9	2	0.9		T	
		e			36.0		1.2			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
14 Feb		eP	19	53	03.6	5	0.4	ENE	L	Δ(S-P) = 0.7°
	E	e			08.2		0.5			
		eS			13.8	999				
14 Feb		eP	20	30	06.9	1	0.3	N	NR	Δ(S-P) = 3.4°
		e			12.8		0.4			
	E	eS			47.7		0.5			
	N	eSur			57.7		0.5			
14 Feb		eP	23	41	13.2	1	0.5		NR	Δ(S-P) = 1.6°
	E	eS			34.2		0.3			Quarry blast, 3030 lbs. by Texas Industries, near Chico, Texas
14 Feb		eP	23	48	45.9	1	0.4		NR	Δ(S-P) = 2.2°
	E	eS		49	12.4		0.3			
15 Feb		eP	00	04	06.2	3	0.4	NE	NR	Δ(S-P) = 2.7°
	E	eS			39.2		0.4			Probable Quarry blast near Tulsa, Oklahoma
15 Feb		eP	04	40	57.7	4	1.2		T	
15 Feb		eP	07	15	31.6	1	0.5		R	Arizona-Utah border
		e		18	07.4		0.8			36.9 N 112.4 W
	N	eSur			39.6		0.9			h about 26 km
										0 = 07 12 42.9
										Δ = 11°
15 Feb	E	eSur	07	16	16.0		1.0		R	
15 Feb		eP	08	54	16.5	4	0.8	SE	T	
		e			42.8		0.7			
15 Feb		eP	09	10	22.2	6	1.3		R	Arizona-Utah border
		e			40.0		1.0			37.0 N 112.9 W
	E	e(Sur)		12	56.6		1.0			h about 21 km
										0 = 09 06 45.1
										Δ = 11°
										Start indefinite

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
5 Feb		eP	09	15	21.4	7	1.2		T	Near coast of Chile
										37.9 S 74.1 W
										h about 40 km
										0 = 09 03 38.6
										Δ = 76°
5 Feb		eP'	10	15	23.8	4	1.1		T	Prince Edwards Islands
		e			31.8		1.2			region
		e		16	13.4		0.8			49.4 S 32.1 E
		e			22.3		0.9			h about 25 km
										0 = 09 56 01.0
										Δ = 142.5°
5 Feb		eP	15	42	28.6	2	0.7		T	South of Fiji Islands
		e(pP)		44	40.0		1.0			23.7 S 179.7 W
										h about 555 km
										0 = 15 29 55.6
										Δ = 96°
5 Feb	LPN	eSKS	15	50	25		25.0		T	New Ireland region
	LP	eSP		53	20		25.0			4.4 S 153.8 E
	LPE	ePSS		54	10		25.0			h about 109 km
	LPE	e(SS)		58	00		36.0			0 = 15 25 29.5
	LPE	eSSS	16	03	15		45.0			Δ = 106°
	LPE	e(PKPPKS)	07	32			26.0			Strong surface waves,
	LPE	e(PKPSKS)	10	14			25.0			Rayleigh type, on LP.
	LP	eSur		14	00					
5 Feb		eP	17	09	41.2	2	1.1		T	
5 Feb		eP	18	05	35.9	1	0.4		NR	Δ (S-P) = 1.6°
		eS			56.9	999				Quarry blast, 2700 lbs., by Gifford Hills Co. near Chico, Texas
5 Feb		eP	18	56	42.3	5	1.2		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
15 Feb.		eP	20	40	31.2	13	1.2		T	Near coast of Chile
		e			41.7		1.3			38.1 S 73.2 W
		e		41	11.0		1.0			h about 40 km
		e		42	15.4		0.8			0 = 20 28 47.2
										Δ = 76.5°
15 Feb		eP	21	01	34.2	2	0.4		NR	Δ (S-P) = 2.6°
	E	eS		02	05.6		0.6			
15 Feb		eP	21	09	20.6	5	0.8		T	South of Tonga Islands region
										23.9 S 176.5 W
										h about 24 km
										0 = 20 55 59.7
										Δ = 93°
15 Feb		eP	21	43	04.0	22	1.7		T	
15 Feb		eP	23	42	42.5	3	0.4	S	NR	Δ (S-P) = 2.1°
		eS		43	09.4	999				
15 Feb		eP	23	44	29.0	2	0.4	NE	NR	Δ (S-P) = 2.5°
	E	eS		45	00.7		0.4			
15 Feb		eP	23	53	33.6	2	0.7		T	South of Honshu, Japan
		e		55	04.2		0.8			31.9 N 137.9 E
										h about 257 km
										0 = 23 40 39.4
										Δ = 95°
16 Feb		eP	01	09	31.4	1	0.7		T	
16 Feb		eP	03	06	51.4	6	1.3		T	Near coast of Chile
		e		07	01.6		1.5			38.1 S 73.1 W
		e		08	01.7		1.6			h about 40 km
		e			23.3		1.5			0 = 02 55 07.0
		eP'P'		33	59.5		1.0			Δ = 76°

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
6 Feb		eP	06	05	53.9	2	0.8		T	
6 Feb		eP	09	00	13.9	2	1.0		T	
6 Feb		eP	13	36	40.7	1	0.8		T	
6 Feb		eP	13	58	27.8	2	0.8		T	
6 Feb		eP	15	33	38.4	1	0.6		T	
6 Feb		eP	16	06	05.1	3	0.7		T	Kurile Islands
		e			10.9		0.8			49.4 N 156.0 E
		e			19.1		1.0			h about 24 km
		e		07	07.3		0.8			0 = 15 54 32.3
	LPN	eS		15	34		21.0			Δ = 73°
	LPE	eSS		20	30		25.0			Strong surface waves,
	LPN	e(SSS)		24	16		20.0			Rayleigh type, on LP.
	LP	e		27	36		24.0			
	LPN	e		28	22		20.0			
	LP	eSur		33	00					
6 Feb		eP	18	04	02.3	1	0.4	SE	NR	Δ (S-P) = 1.7°
		eS			23.9	999				Quarry blast, 4100 lbs, by Gifford Hills Co. near Chico, Texas
6 Feb		eP	21	06	38.6	1	0.5	E	NR	
		e			44.5		0.5			
	E	eSur		07	18.8		0.4			
		eSur			30.0		0.7			
6 Feb		eP	21	34	04.6	3	0.4	E	NR	Δ (S-P) = 1.5°
	E	eS			24.6		0.4			Quarry blast, 7680 lbs, by Ideal Cement Co., Fitzhugh, Oklahoma.
6 Feb		eP	21	57	22.9	1	0.3	SE	NR	Δ (S-P) = 1.7°
	E	eS			44.6		0.3			Quarry blast, 2425 lbs., by Wesco, near Chico, Texas.

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
16 Feb		eP	22	15	10.8	2	0.5	(ESE)	NR	Δ (S-P) = 3.0°
		e			14.7		0.3			
		e			18.2		0.4			
	E	eS			49.0		0.3			
	E	eSur		16	11.4		0.4			
16 Feb		eP	23	48	48.9	1	0.3		NR	Δ (S-P) = 2.6°
	E	eS		49	21.3		0.5			
16 Feb		eP	23	53	46.8	2	0.4	S	NR	Δ (S-P) = 2.2°
		eS		54	13.6	999				Probable quarry blast near Weatherford, Texas
17 Feb		eP'	04	02	55.5	1	0.9		T	South of Macquarie Islands region
		e		03	04.2		1.4			
	LP	eSS		21	42		21.0			61.6 S 162.9 E
	LPE	eSur		36	14					h about 25 km
	LP	eSur		42	55					0 = 03 43 45.1
										Δ = 124.5°
										Strong surface waves, Lov and Rayleigh type, on LP.
17 Feb		eP	08	37	42.2	20	1.6		T	
17 Feb		eP'	11	26	04.9	4	1.0		T	Ceram
		e			20.4		1.1			2.7 S 130.2 E
		e			39.2		1.0			h about 54 km
		e(PP)		28	13.3		1.7			0 = 11 07 01.6
	LP	eSur	12	07	26					Δ = 124.5°
										Medium surface waves on
17 Feb		eP	18	27	49.2	30	1.3		T	Near coast of Chile
		e		29	10.7		1.6			38.0 S 73.5 W
										h about 40 km
										0 = 18 16 06.2
										Δ = 76°

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
17 Feb		eP	22	13	25.1	3	0.7		T	Kurile Islands
		e			31.1		0.9			49.2 N 156.0 E
		e			59.5		1.0			h about 23 km
	LPE	eSur		38	17					0 = 22 01 51.1
										Δ = 73°
										Weak surface waves on LP.
17 Feb		eP	22	37	36.1	11	1.0		T	Fox Islands, Aleutian Islands
		e		38	14.1		0.9			52.7 N 169.7 W
		e			53.2		1.0			h about 29 km
		e		39	36.8		1.1			0 = 22 28 22.8
										Δ = 51.5°
17 Feb		eP	23	49	56.0	1	0.4		NR	Δ (S-P) = 2.6°
	N	eS		50	27.8		0.4			
18 Feb		eP	01	40	04.8	9	1.0		T	Kurile Islands
		e			18.8		0.9			49.2 N 156.6 E
		e			35.0		0.9			h about 46 km
		ePP		42	45.6		1.4			0 = 01 28 34.9
	LPE	eS		49	37		19.0			Δ = 73°
	LPE	eSS		54	40		23.0			Medium surface waves,
	LP	eSur	02	05	30					Rayleigh type, on LP.
18 Feb		eP	03	46	17.1	1	0.6		T	
18 Feb		eP	07	12	35.4	6	0.8		T	Weak surface waves,
		e			54.2		1.1			Rayleigh type, on LP.
	LP	eSur		38	00					
18 Feb		eP	08	27	26.8	16	0.8		T	
18 Feb		eP	10	30	12.5	2	1.0		T	
18 Feb		eP	10	41	32.8	13	1.5		T	
18 Feb		eP	10	55	08.5	3	1.0		T	Near coast of Hokkaido, Japan
		e			26.4		0.9			41.5 N 142.4 E
		e			35.9		0.8			h about 40 km
										0 = 10 42 32.8
										Δ = 85.5°

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
18 Feb		eP	16	53	49.1	2	0.3		NR	Δ (S-P) = 2.2°
	E	eS		54	16.4		0.3			
18 Feb		iP	17	31	58.7	d 334	1.4		T	Northern Colombia
		e(pP)		32	12.8		1.1			8.1 N 74.6 W
	LP	ePP		33	27		14.0			h about 70 km
	LPE	e		35	12		36.0			0 = 17 25 17.3
	LPE	eS		37	24		26.0			Δ = 34.5°
	E	eSur		39	29.0		1.6			Strong surface waves,
	LPN	e(Sur)			54					Rayleigh type, on LP.
	LP	eSur		42	00					Medium surface on BB,
		e	18	04	20.7		1.2			IB and SP.
		e(P'P')			56.1		1.0			
18 Feb		eP	17	38	43.2	15	1.0		T	
18 Feb		eP	21	27	33.6	2	0.8		T	
		e			43.2		0.6			
18 Feb	LP	eSur	23	14	03				T	New Hebrides Islands
										15.5 S 166.8 E
										h about 45 km
										0 = 22 26 06.5
										Δ = 102°
										Weak surface waves on LP
18 Feb		eP	23	19	00.1	2	0.6	SE	T	Possible new event at
		e			11.3		0.7			23 19 26.8
		e			26.8		0.8			
	LP	e		22	00		19.0			
18 Feb		iP	23	32	18.8	c 94	1.2		T	Galapagos Islands
		ePcP		34	45.6		0.8			0.6 S 91.7 W
	LPE	eS		38	05		19.0			h about 43 km
	LPN	eSur		42	29					0 = 23 25 20.1
										Δ = 35.5°
										Medium surface waves on

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
19 Feb		eP	03	09	59.3	3	0.7		T	Near east coast of Kamchatka
		e		10	14.1		0.7			52.3 N 158.4 E
		e(PcP)			20.3		0.6			h about 32 km
										0 = 02 58 46.7
										Δ = 70°
19 Feb		eP	05	40	52.8	7	1.4		T	
19 Feb		iP	11	17	40.6	c 40	0.9		T	Tonga Islands
		e(pP)		18	04.5		1.3			20.2 S 175.4 W
		e			20.8		1.1			h about 95 km
	LPN	eSKS		28	00		19.0			0 = 11 04 46.6
		ePKKP		35	07.4		0.7			Δ = 90.5°
		e			30.8		0.7			Medium surface waves,
	LP	eSur		46	43					Rayleigh type, on LP.
										Phase at 11 35 30.8 possible
										new event.
19 Feb		eP	17	49	54.7	1	0.6		T	
19 Feb		eP	17	57	39.9	5	1.1		T	
		e			54.2		1.3			
19 Feb		eP	18	19	25.8	3	0.4		NR	Δ(S-P) = 2.2°
		eS			52.4	999				Probable quarry blast near
										Weatherford, Texas
19 Feb		eP	20	21	24.5	17	0.7		T	Off coast of Nicaragua
		e		22	51.8		1.9			11.7 N 88.1 W
		e		24	23.1		1.3			h about 39 km
		e			51.1		0.6			0 = 20 16 03.6
		e(PcP)		25	07.8		0.6			Δ=24.5°
		e			21.9		0.7			Possible new event at
	E	e(Sur)			55.2		1.7			20 25 21.9.
	LP	e(Sur)		31	15					Weak surface waves,
										Rayleigh type, on LP.
19 Feb	E	eSur	22	10	52.6		1.0		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
19 Feb		eP	23	28	30.4	2	0.2	SE	NR	Δ (S-P) = 1.6°
	E	eS			51.2		0.4			Quarry blast, 5000 lbs., by Gifford Hills Co. near Chico, Texas
19 Feb		eP	23	35	27.1	2	0.4		NR	Δ (S-P) = 2.5°
	E	eS			58.1		0.5			
20 Feb		eP	02	00	14.0	4	1.4		T	
20 Feb		eP	03	11	48.2	5	0.9		T	
		e		12	13.2		0.7			
		e			29.3		1.0			
		e			54.1		0.9			
20 Feb		eP	06	04	21.1	13	1.5		T	Fiji Islands region
		e			28.1		1.1			16.1 S 178.1 E
										h about 35 km
										0 = 05 51 06.5
										Δ = 93°
20 Feb		eP'	09	35	25.7	7	1.3		T	Nicobar Islands
		e			52.4		1.2			6.8 N 92.5 E
		e(PP)		38	30.0		1.1			h about 29 km
	LPE	ePKS		39	13		21.0			0 = 09 15 58.1
		e			18.3		1.1			Δ = 137.5°
	LPE	eSS		56	08		20.0			Strong surface waves
	LPE	eSSS	10	01	48		28.0			on LP.
	LPE	e		13	55		20.0			
	LPN	eSur		18	04					
20 Feb		epP	10	22	22.4		1.0		T	South of Fiji Islands regio
		e		23	33.7		1.5			25.9 S 179.4 E
		ePKKP		36	23.2		0.5			h about 655 km
		e			52.5		1.1			0 = 10 07 26.6
										Δ = 98.5°
20 Feb		eP	14	22	42.7	17	1.0		T	Larioja Province, Argenti
		ePcP		23	05.5		0.8			29.3 S 68.9 W
		epP			18.1		1.5			h about 140 km
		e			39.6		0.7			0 = 14 11 49.6
		ePP		25	20.0		1.0			Δ = 69°

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
20 Feb		eP	16	09	04.9	9	1.2		T	Colombia
		e			45.2		0.6			6.9 N 73.1 W
										h about 157 km
										0 = 16 02 15.0
										Δ = 36.5°
20 Feb		iP	16	18	07.9	c 152	2.1		T	Near coast of Hokkaido, Japan
		e(pP)			20.7		1.5			43.0 N 144.9 E
		e			29.5		1.0			h about 55 km
		e			45.7		1.2			0 = 16 05 44.6
		e		21	35.8		1.5			Δ = 83°
		e		22	23.9		2.0			Strong surface waves, Love
	LPE	eS		28	26		29.0			and Rayleigh type on LP.
	LPE	ePPS		29	39		25.0			
	LPE	e		30	54		22.0			
	LPE	eSS		33	45		35.0			
		ePKKP		36	41.5		1.0			
	LPN	eSSS		37	38		33.0			
	LPE	e		39	04		22.0			
	LPN	e		40	19		29.0			
	LPN	eSur		42	07					
	LPE	eSur		46	14					
20 Feb		eP'	17	25	05.7	1	0.6		T	Sumatra
										4.0 S 104.2 E
										h about 25 km
										0 = 17 05 38.9
										Δ = 143°
20 Feb		eP	19	14	21.7	8	0.8		T	
		e			31.1		0.8			
		e			41.0		0.8			
		e			47.7		0.7			
20 Feb		eP	19	20	30.0	7	0.8		T	Kurile Islands
		e			44.8		0.7			46.8 N 152.8 E
	LPN	eSur		46	06					h about 22 km
										0 = 19 08 39.8
										Δ = 76°
										Weak surface waves on LP.

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
20 Feb		eP	19	25	58.1	2	0.4		NR	Δ (S-P) = 1.3°
	E	eS		26	16.4		0.4			
20 Feb		e(P'1)	20	31	21.0	19	1.7		T	South of Australia
		eP'2			32.4	14	1.1			50.6 S 110.8 E h about 31 km 0 = 20 11 13.7 Δ = 156.5°
20 Feb		eP'	22	21	23.3	2	0.7		T	Northern Burma
		e		22	12.0		1.2			26.1 N 96.8 E
		e			43.6		2.0			h about 25 km
		ePP			50.7		2.0			0 = 22 02 38.2
		e		26	20.5		1.0			Δ = 118°
	LPE	e(SKKS)		30	15		20.0			Strong surface waves, Lo
		ePKKP		31	47.7		0.6			and Rayleigh type, on LP
	LPE	ePS		32	15		28.0			and BB.
	LPE	ePPS		34	05		25.0			
	LPN	eSS		38	56		25.0			
	LPE	eSSS		43	08		26.0			
	LPE	e		44	59		20.0			
	LPE	e		49	25		28.0			
	LPE	eSur		54	00					
	LP	eSur		58	15					
20 Feb		eP	23	05	56.1	1	0.4		NR	Δ (S-P) = 1.7°
	E	eS		06	18.0		0.4			
20 Feb		eP	23	41	20.2	1	0.4		NR	Δ (S-P) = 1.7°
		e			29.7		0.4			Quarry blast, 3, 460 lbs, b
	E	eS			41.9		0.4			Texas Industries, near Chico, Texas
21 Feb		eP	00	19	21.3	8	0.7		T	Tonga Islands region
		e			37.1		0.8			24.8 S 177.1 W
		e			45.5		1.1			h about 38 km
		e			52.9		0.8			0 = 00 06 02.4
										Δ = 96°

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
21 Feb		eP	04	16	09.4	4	1.0		T	
21 Feb		eP	10	03	13.7	1	0.5		T	Rat Islands, Aleutian Islands
		e			22.9		0.6			51.2 N 179.5 E h about 40 km 0 = 09 53 12.2 Δ = 59°
21 Feb		eP'	10	09	26.3	4	1.1		T	500 miles west of Macquarie
	LP	eSur		51	50					Island 56.8 S 146.7 E h about 25 km 0 = 09 50 05.4 Δ = 133° Medium surface waves on LP.
21 Feb		eP	16	02	55.5	2	0.4	SE	NR	Δ (S-P) = 1.7°
		eS		03	17.0	999				Quarry blast, 6380 lbs., by Wesco, near Chico, Texas.
21 Feb		eP	17	26	14.5	40	0.7		T	Chiapas Mexico
		e		27	00.0		1.3			16.3 N 93.0 W
		eS		29	43.1	999				h about 80 km 0 = 17 21 57.0 Δ = 18.5°
21 Feb		eP	17	33	51.8	10	1.2		T	
21 Feb		eP	19	52	58.0	2	0.6		R	
	E	eSur		55	20.1		0.6			
21 Feb		eP	21	22	39.4	1	0.5		NR	Δ (S-P) = 1.7°
		eS		23	01.3	999				
21 Feb		eP	23	42	52.1	1	0.6		T	
21 Feb		eP	23	45	51.4	2	0.5	S	NR	Δ (S-P) = 2.2°
		eS		46	18.0	999				

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
21 Feb		eP	23	50	49.2	2	0.5	NE	NR	Δ (S-P) = 2.7°
	E	eS		51	21.6		0.4			
21 Feb		eP	23	53	27.9	5	0.9		T	South of Panama
	LPE	eS		59	08		18.0			3.0 N 86.5 W
22 Feb	LPE	eSur	00	06	54					h about 25 km
										0 = 23 46 49.4
										Δ = 34.5°
										Weak surface waves on LP
22 Feb	LPE	e	06	12	54.0		30.0		T	Strong surface waves on L
		e		18	20.0		1.5			
	LPE	e(PPS)		19	00		27.0			
		e		22	41.2		1.7			
	LPE	e(SS)		23	54		24.0			
	LPE	e(SSS)		27	26		25.0			
	LP	eSur		36	15					
22 Feb		eP	09	26	05.5	10	1.6		T	
22 Feb		eP'_1	10	55	05.1	8	1.4		T	Indian Ocean
										25.6 S 69.8 E
										h about 25 km
										0 = 10 35 01.4
										Δ = 167.5°
22 Feb		eP	17	31	38.4	3	0.4		T	
		e		32	01.5		1.1			
22 Feb		eP	18	05	33.6	3	0.2	SE	NR	Δ (S-P) = 1.7°
		e			43.7		0.4			Quarry blast 5500 lbs., by
		eS			55.5	999				Gifford Hills Co., near
										Chico, Texas
22 Feb		eP	20	17	00.5	4	1.1		T	
22 Feb		eP'_2	22	16	38.2	6	1.0		T	Indian Ocean
										27.8 S 73.4 E
										h about 25 km
										0 = 21 55 12.7
										Δ = 169°

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
22 Feb		eP	23	59	19.0	3	0.4	(S)	NR	Δ (S-P) = 2.2°
		eS			45.8	999				
23 Feb		eP	00	13	48.3	1	0.4		NR	Δ (S-P) = 2.2°
	E	eS		14	21.3		0.5			
23 Feb		eP	00	29	12.0	2	0.5		NR	Δ (S-P) = 3.8°
	E	eS			58.4		0.5			
23 Feb		eP	02	51	04.3	5	1.3		T	
23 Feb		eP	03	27	42.3	4	1.0		T	
		e		29	26.4		1.4			
23 Feb		eP	04	41	22.3	6	1.5		T	
23 Feb		eP	04	53	10.0	10	1.6		T	
23 Feb		eP	05	10	25.9	3	1.1		T	
		e			36.4		0.7			
23 Feb		eP	10	38	40.0	14	1.7		T	
		e		39	15.8		1.4			
23 Feb		eP'	11	59	24.7	5	1.0		T	North of New Guinea
		ePP	12	00	26.7		2.2			6.3 S 147.0 E
		e			41.4		1.2			h about 80 km
		e		03	27.3		1.8			0 = 11 40 52.8
	LPE	ePS		09	50		25.0			Δ = 113.5°
		$ePKKP_1$		10	00.8		1.0			Medium surface waves,
		$ePKKP_2$			19.8		1.3			Rayleigh type, on LP.
		$ePKKP_3$			30.0		1.1			
	LP	eSur		33	20					
23 Feb		eP	12	19	52.8	13	1.3		T	
		e		20	31.7		1.2			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
23 Feb		eP	13	00	03.6	20	1.8		T	Surface possibly separate.
		e			21.7		1.9			Weak surface waves on LP.
		e			35.7		1.6			
	LPE	e		04	44		20.0			
	LP	e		06	00		24.0			
	LPE	eSur		46	00					
23 Feb		eP	15	09	10.5	4	1.2		T	
23 Feb		eP	16	49	07.8	10	1.5		T	
23 Feb		eP	17	37	26.0	8	1.3		T	
23 Feb		eP	17	48	32.2	1	1.0		T	
23 Feb		eP	18	03	29.6	1	0.8		R	Tulane County, California
		e		04	21.4		1.3			36.0 N 118.8 W
		e			41.0		1.1			h about 25 km
		e		05	19.3		1.4			0 = 17 59 37.3
	N	eSur		07	32.5		1.5			$\Delta = 16^{o}$
	N	eSur			45.2		1.7			
23 Feb		eP	18	06	26.0	1	0.3		L	Δ (S-P) = 1.3^{o}
	E	eS			43.7		0.6			
23 Feb	LPE	eSS	18	39	40		18.0		T	New Ireland
	LPE	eSSS		43	02		20.0			4.0 S 152.6 E
	LPE	e		49	14		26.0			h about 25 km
	LPE	eSur		50	56					0 = 18 05 27.1
	LP	eSur		56	00					$\Delta = 107^{o}$
										Medium surface waves, Lo
										and Rayleigh type, on LP.
23 Feb	LP	eSur	20	27	00				T	Samar, Phillipine Islands
										11.1 N 125.8 E
										h about 100 km
										0 = 19 29 15.1
										$\Delta = 118^{o}$
										Medium surface waves only

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
23 Feb		ePP	20	40	12.6	18	2.0		T	New Britain
	LPE	eSKS		46	30		22.0			3.8 S 152.0 E
	LPE	ePS		49	31		30.0			h about 25 km
	LPE	ePPS		51	50		32.0			0 = 20 21 28.6
	LPE	eSS		55	29		18.0			$\Delta = 108.5^{o}$
	LPE	eSSS		59	14		24.0			Strong surface waves, Love
	LPE	e(PKPPKS)	21	02	45		20.0			and Rayleigh type, on LP.
	LPE	e		05	00		20.0			
	LPE	eSur		06	54					
	LPE	eSur		11	40					
23 Feb		eP	23	30	54.7	2	0.4		NR	Δ (S-P) = 1.6^{o}
	E	eS		31	15.7		0.4			Quarry blast, 1200 lbs., by Gifford Hills Co., near Chico, Texas
24 Feb		eP	00	11	17.9	15	1.7		T	
24 Feb		eP	00	19	00.3	1	0.4		NR	Δ (S-P) = 2.7^{o}
	E	eS			33.0		0.4			
24 Feb		eP	00	27	43.0	3	0.7		T	
24 Feb		eP	01	08	29.2	101	0.6		T	Off coast of El Salvador
		e(pP)			43.4		0.7			12.2 N 88.8 W
		ePP		09	03.5		1.0			h about 40 km
		e		10	05.1		1.2			0 = 01 03 17.6
		ePcP		12	15.3		0.6			$\Delta = 24.5^{o}$
		e			31.2		0.7			Medium surface on LP.
	N	eS			40.9		2.0			
	LPN	e		13	27		16.0			
	LPE	eSur		14	55					
		eScP		15	52.1		1.1			
	E	ePcS		16	55.5		1.0			
		e			12.7		0.8			
	LPE	eSur		17	28					

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
24 Feb		eP	10	38	33.2	4	1.2		T	
24 Feb		eP	12	34	06.4	4	0.7		T	Kurile Islands
		e			13.5		0.8			49.0 N 156.2 E
		epP			27.0		1.4			h about 62 km
										0 = 12 22 48.1
										Δ = 73°
24 Feb	LPE	ePS	20	04	00		26.0		T	North coast of New Guinea
		ePKKP			01.8		1.0			5.5 S 146.1 E
	LPE	ePPS		05	10		19.0			h about 40 km
	LPE	e			20		18.0			0 = 19 34 33.6
	LP	eSur		27	30					Δ = 114°
										Medium surface waves, Rayleigh type, on LP.
24 Feb		eP	22	51	14.9	5	0.2	NNW	L	Δ (S-P) less than 0.1°
		eS			18.0	999				Quarry blast near Richard's Spur, Oklahoma.
24 Feb		eP	23	14	30.5	2	0.4	SSE	NR	Δ (S-P) = 2.2°
		eS		14	57.3	999				
25 Feb		eP	05	30	23.4	3	1.1		T	
25 Feb		eP	06	11	25.9	2	0.8		T	West of Vancouver Island.
		e			36.7		1.0			49.3 N 129.2 W
	LPN	eSur		19	14					h about 25 km
										0 = 06 05 44.8
										Δ = 26.5°
										Weak surface waves on LP.
25 Feb		eP	06	53	02.2	2	0.8		T	Tonga Islands
										21.9 S 177.6 W
										h about 434 km
										0 = 06 40 35.7
										Δ = 93.5°

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
25 Feb		eP	07	17	44.2	3	0.9		T	
25 Feb		eP	08	45	34.3	2	1.2		T	
25 Feb		eP	12	10	38.7	3	1.2		T	
25 Feb		eP	12	46	10.3	14	1.5		T	
25 Feb		eP	12	53	08.1	4	1.3		T	
25 Feb		eP	16	57	44.7	1	0.8		T	
25 Feb		eP	17	21	02.1	1	0.7		R	Western Montana
	E	eSur		25	01.2		1.0			45.2 N 111.2 W
										h about 25 km
										0 = 17 17 38.9
										Δ = 14.2°
25 Feb		eP	20	23	41.6	13	1.4		T	Tonga Islands
										17.7 S 174.1 W
										h about 60 km
										0 = 20 10 56.3
										Δ = 88.5°
25 Feb		eP	23	03	41.4	2	1.0		T	
25 Feb		eP	23	43	27.7	2	0.8		T	
26 Feb		eP	00	21	15.3	6	1.4		T	
25 Feb		eP	01	25	45.5	2	0.9		T	South of Hokkaido, Japan
		e			59.8		0.7			42.0 N 141.8 E
		epP		26	04.8		2.5			h about 60 km
	LPE	eS		36	16		14.0			0 = 01 13 09.4
	LPE	e		42	36		16.0			Δ = 85.5°
	LP	eSur		55	13					Medium surface waves on LP.

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h. m. s.					
25 Feb	LP	eSur	03 16 42				T	Kermadec Islands 33.0 S 178.4 W h about 25 km 0 = 02 30 37.6 Δ = 100.5° Weak surface waves on LP.
26 Feb		eP	13 25 37.2	6	1.4		R	Baja California
		e	26 35.9		1.2			27.4 N 115.1 W
	LPE	eSur	29 35					h about 25 km
	LPE	eSur	30 30					0 = 13 21 55.0
								Δ = 15.5°
								Strong surface waves on LP
								Weak surface on SP.
26 Feb		eP	16 07 41.1	4	1.3		T	Kurile Islands
		e	08 12.3		1.8			44.7 N 146.6 E
								h about 25 km
								0 = 15 55 33.7
								Δ = 80.5°
26 Feb		eP	17 54 16.1	1	0.4		NR	Δ(S-P) = 1.6°
		eS	37.3		0.3			Quarry blast, 4473 lbs., by
								Texas Industries near
								Chico, Texas
26 Feb		eP	22 35 09.2	3	0.8		T	
27 Feb		eP	00 12 58.6	30	0.8		T	Northern Peru
		e	13 10.2		0.8			6.0 S 76.9 W
		e	33.9		1.3			h about 65 km
		ePcP	14 37.9		0.7			0 = 00 04 43.9
		ePP	42.9		1.2			Δ = 45°
27 Feb		eP	00 22 28.4	6	0.4	NE	NR	Δ(S-P) = 2.7°
	E	eS	23 01.1		0.5			
27 Feb		eP	00 59 40.9	3	0.4		NR	Δ(S-P) = 2.2°
	E	eS	01 00 08.1		0.3			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h. m. s.					
27 Feb		eP	01 59 37.3	8	1.0		T	
27 Feb		eP	04 47 07.3	19	1.5		T	
27 Feb		eP	06 00 13.6	8	1.0		T	Central Alaska
		epP	34.0		1.4			63.0 N 150.0 W
		e	01 09.3		1.4			h about 100 km
	LPN	eSur	13 28					0 = 05 52 28.5
								Δ = 42°
								Weak surface waves on LP.
27 Feb	LPE	eSur	07 32 50				T	Szechwan China
								27.7 N 101.9 E
								h about 40 km
								0 = 06 34 55.4
								Δ = 115°
								Weak surface waves on LP
27 Feb		eP	12 52 28.5	15	1.7		T	Near coast of central Chile
		e	37.9		1.5			37.4 S 73.2 W
		e(PP)	55 19.4		2.2			h about 40 km
		e	43.5		2.0			0 = 12 40 48.9
	E	eS	13 02 10.8		3.5			Δ = 76°
	LPE	ePS	03 02		25.0			Mag. = 6-1/4 - 6-1/2 (Pas.)
	LPE	e(PPS)	40		19.0			6 (Berk.)
	LPE	eSS	07 13		24.0			Strong surface waves,
	LPE	eSSS	10 43		23.0			Rayleigh type, on LP.
	LP	eSur	15 45					Weak surface waves on BB.
27 Feb		eP	14 13 23.5	6	0.9		T	Northern Chile
		e	53.6		1.2			19.2 S 69.4 W
								h about 140 km
								0 = 14 03 27.3
								Δ = 60°
27 Feb		eP'	14 40 23.7	4	0.9		T	Ceram Sea
								2.7 S 130.1 E
								h about 40 km
								0 = 14 21 24.5
								Δ = 124.5°

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h.	m.	s.					
27 Feb		eP	22	46	50.5	9	1.2		T	
28 Feb		eP	10	57	43.2	5	1.0		T	
28 Feb		eP	13	53	23.3	8	0.9		T	Peru
		epP		54	03.9		1.2			9.0 S 75.2 W
		ePcP			49.2		0.6			h about 180 km
										0 = 13 44 55.8
										$\Delta = 48.5^{o}$
28 Feb		eP	18	42	11.8	4	1.0		T	Northern Chile
		e(pP)			39.8		1.1			19.3 S 69.6 W
		e			52.7		1.1			h about 110 km
		e		43	39.8		1.6			0 = 18 32 14.4
		ePP		44	31.5		1.3			$\Delta = 61^{o}$
										Phase at 18 42 39.8
										possible new event.
28 Feb		eP	20	40	29.5	47	1.3		T	Near coast of Dominican
		e			38.7		1.0			Republic
		e(pP)			48.5		1.2			19.4 N 69.3 W
		e		41	14.5		0.7			h about 60 km
		e(PP)			28.0		1.1			0 = 20 34 24.9
		e			58.9		1.3			$\Delta = 30^{o}$
	LPN	eSur		48	08					Medium surface waves on
28 Feb		eP	21	43	37.7	2	0.6	SE	NR	Δ (S-P) = 2.5^{o}
		e			44.8		0.6			
	E	eS		44	15.8		0.4			
	E	eSur			28.6		0.4			
28 Feb		eP	22	22	16.7	2	0.6		T	
		e			38.3		1.3			

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REGISTRATION OF EARTHQUAKES AT WICHITA MOUNTAINS SEISMOLOGICAL OBSERVATORY FORT SILL, OKLAHOMA, U.S.A.

Operated under the Technical Supervision of the
Air Force Technical Applications Center (AFTAC)

by

The Geotechnical Corporation
Garland, Texas

Advanced Research Projects Agency (ARPA)
Department of Defense
United States Government

THE REGISTRATION OF EARTHQUAKES

AT THE

WICHITA MOUNTAINS SEISMOLOGICAL OBSERVATORY

STATION

Station Abbreviation:	WMSO
Station Identification on Film Seismograms:	a
Geographical Location * :	34° 43' 05.3" N. Lat.
(Vault No. 6)	98° 35' 20.7" W. Long.
GEOCENTRIC LOCATION * :	34° 32' 09.8" N. Lat.
(Vault No. 6)	98° 35' 20.7" W. Long.
ALTITUDE (Meters) * :	505 Meters (1658 feet)
(Vault No. 6)	

GEOLOGY: The station is located on the Carlton (porphyritic) granophyre of the Wichita Mountains of Oklahoma.

Noise Level - March 1962: The period of the predominant microseisms at WMSO are 0.5 second and 6 seconds. An amplitude distribution curve for the 0.5 second microseisms may be found on page 2.

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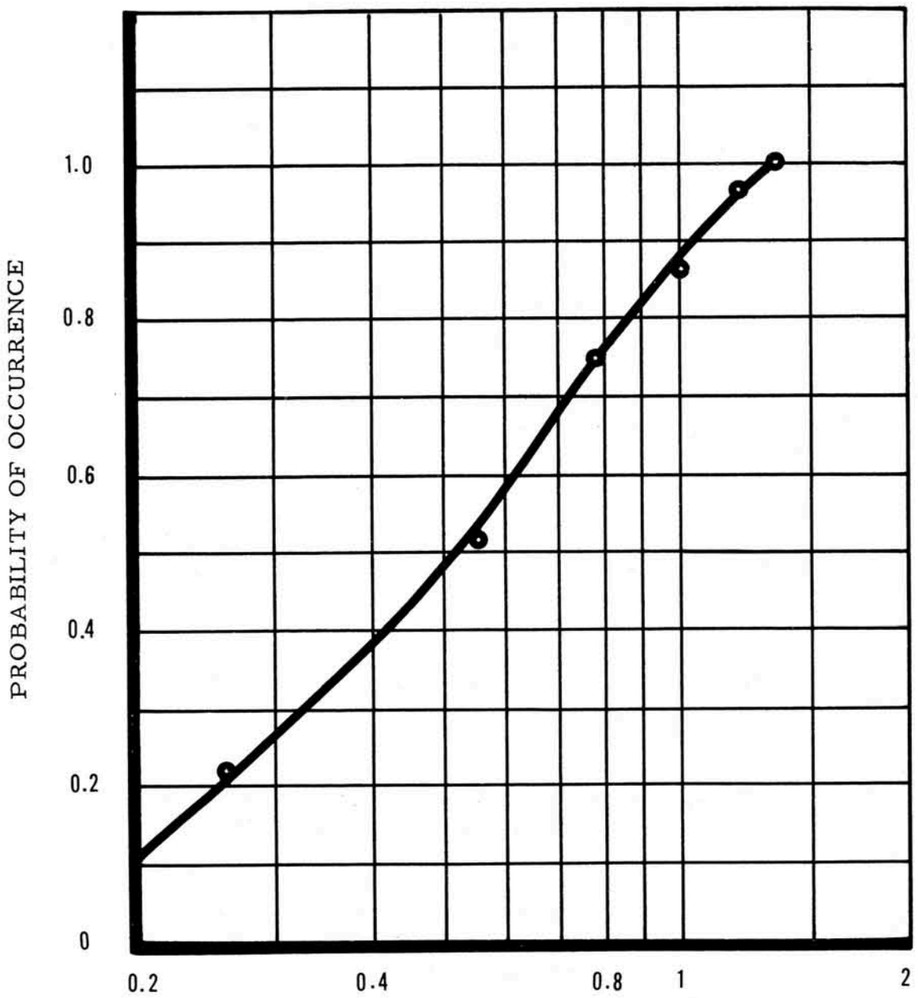
* The coordinates refer to the location of vault no. 6 which houses the 3-component groups of short-period and intermediate-band seismometers from which arrival times are determined.



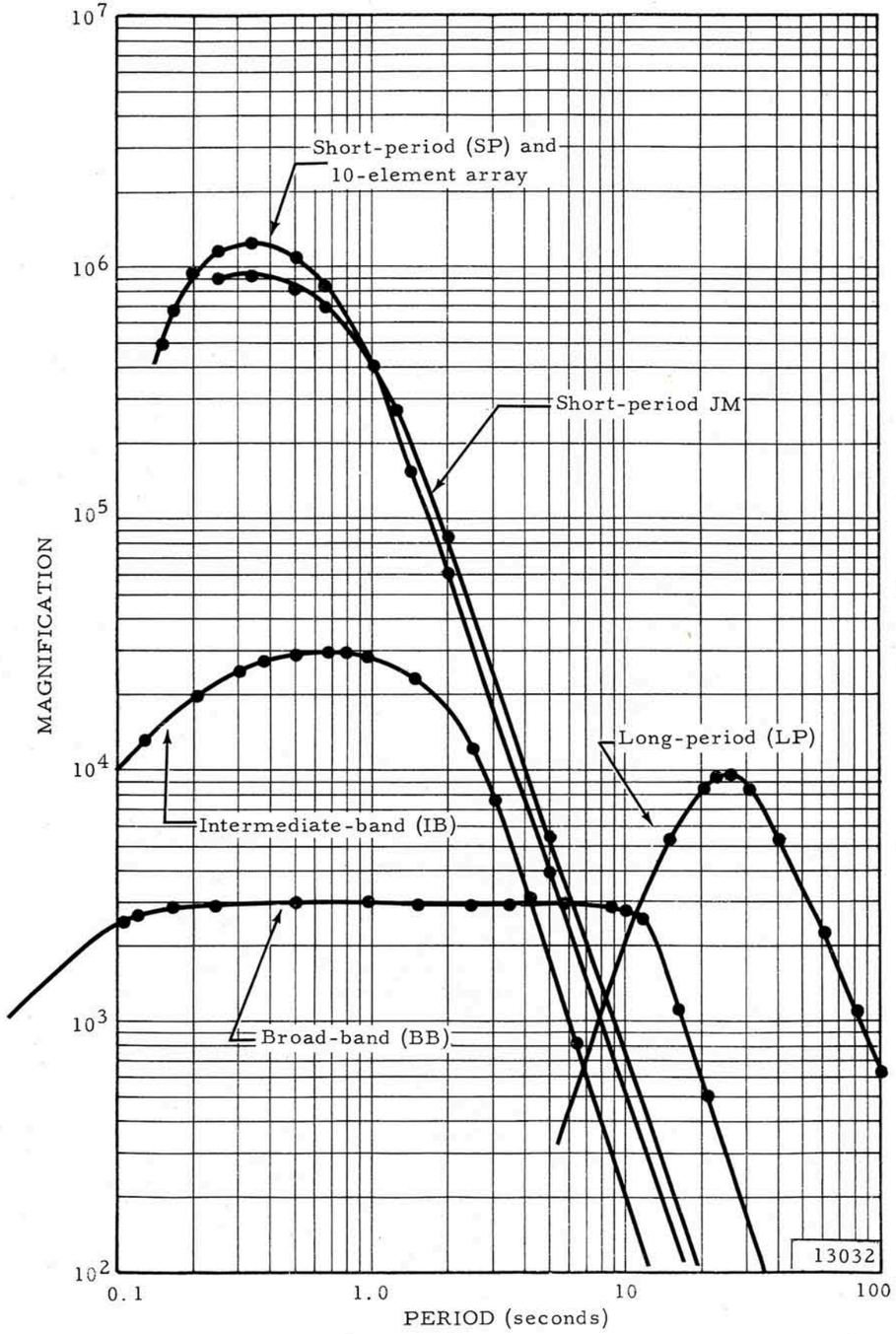
Probability of predominant 0.5-sec microseisms occurring at or less than a given amplitude at Unity magnification

SEISMOGRAPHS

	Ts	λ s	Tg	λ g	σ^{-2}
SP Vertical Benioff	1.0	1.0	0.2	1.0	0.01
SP Horizontal Benioff	1.0	1.0	0.2	1.0	0.01
IB Vertical Melton	2.5	0.65	0.64	1.5	0.002
IB Horizontal Sprengnether	2.5	0.65	0.64	1.5	0.0005
BB Vertical Press-Ewing	12.5	0.4	0.64	9.0	0.0002
BB Horizontal Sprengnether	12.5	0.4	0.64	9.0	0.0004
LP Vertical Sprengnether	25.0	1.0	30	1.0	0.004
LP Horizontal Sprengnether	25.0	1.0	30	1.0	0.004

SP = Short Period
IB = Intermediate Band
BB = Broad Band
LP = Long Period
Ts = Free period of seismometer in secs.
λ s = Damping constant of seismometer
Tg = Free period of galvanometer in secs.
λ g = Damping constant of galvanometer
σ^{-2} = Coupling coefficient

NOTE: Response curves may be found on page 4.



Response characteristics of seismographs

INTERPRETATION OF SYMBOLS

1. Earthquakes Listed

All local (L), near-regional (NR), regional (R), and distant earthquakes (T) are tabulated on the following pages.

2. System

In the column headed "Syst." (system), the seismograph (SP, IB, BB, or LP) and component (Z, N, or E) used to measure arrival time are designated. When no component designation appears, the phase is read from the vertical component. When neither system nor component designation appears, the phase is read from the SP vertical component.

3. Phase

(1) "i" (impetus) preceding a phase designates sudden beginning of the motion. (A designation of "i" in the case of initial P motion indicates a signal-to-noise ratio exceeding about 5/1).

(2) "e" (emersio) designates gradual beginning.

(3) "i" or "e" alone designates an unidentified phase.

(4) ( ) (parenthesis marks) indicate uncertainty.

4. Time

(1) Date and arrival time are given in Greenwich Civil Time (G. C. T.)

(2) The arrival time is reported as the earliest time on Z, N, or E. Single Z rather than the array summation ($\sum$) is used for measuring arrival times on the SP seismographs.

5. Ground Motion

(1) In the columns headed "A" and "T" are tabulated earth displacement in millimicrons and period in seconds, respectively. An amplitude of 999 indicates that a signal cannot be measured reliably. A "c" or "d" in the "A" column indicates compression or dilation, respectively, of the ground as indicated by the vertical component instrument.

The value of "A" for P phases is the maximum amplitude in the first ten seconds. All amplitudes are center-to-peak amplitudes.

(2) Trace amplitudes are measured to the nearest 1/2 millimeter at X10 view.

6. Direction

In the column headed "Dir." (direction), the direction of the epicenter as viewed from WMSO is indicated. For teleseisms, direction is obtained only from P and Rayleigh waves and is listed opposite the phase from which it is obtained. For close events, direction may be obtained from P-wave step-out shown on the individual short-period vertical traces.

7. Type

Earthquakes are identified as either:

L	(local)	0°	-	1.4°
NR	(near-regional)	1.4°	-	6°
R	(regional)	6°	-	16°
T	(teleseismic)	16°	-	180°

8. Remarks Column

(1) Epicentral locations, time of origins, depth of foci, and magnitudes are obtained from the U.S. Coast and Geodetic Survey Preliminary Determination of Epicenters cards.

(2) The nature of the surface waves is indicated subjectively.

(3) Epicentral locations and distances reported by the station are accompanied by an indication of the phases used to determine epicentral distance, e.g. $\triangle$ (S-P) = 6°, Central Colorado.

(4) Operational notes refer to operational difficulties that affect analysis of data.

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
01 Mar		eP	00	26	08.0	3	0.4	S	NR	Δ(S-P) = 2.2°
		eS			34.9	999				Probable quarry blast south of Weatherford, Texas
01 Mar		eP	02	22	04.2	16	1.0		T	Southern Peru
		e			17.6		1.3			15.7 S 74.4 W
		ePcP		23	05.2		0.9			h about 62 km
		ePP		24	04.4		1.1			0 = 02 12 37.2
		e		25	06.5		1.2			Δ = 55°
	LPE	eS		29	41		14.0			Strong surface waves, Love
	LPE	eSur		35	09					and Rayleigh type, on LP.
	LP	e		36	05		22.0			
	LP	eSur		41	16					
		eP'P'		52	07.1		1.2			
01 Mar		eP	05	06	16.2	3	0.9		T	Ryukyu Islands
		e		10	32.1		1.5			25.7 N 124.8 E
		ePP			41.6		2.0			h about 52 km
		e		11	41.5		1.5			0 = 04 51 57.2
		e		12	40.0		1.4			Δ = 107°
		e(SKP)		13	59.1		1.5			Medium surface waves,
	LPE	eSKS		16	44		15.0			Rayleigh type, on LP.
	LPE	e(SKKS)		17	40		16.0			P is diffracted
	LPE	ePS		20	09		22.0			
	LP	e(SPP)			32		18.0			
		ePKKP		21	42.4		1.4			
	LPE	e		23	05		17.0			
	LPE	eSS		25	38		20.0			
	LP	eSur		44	00					
01 Mar		eP	07	30	06.6	3	1.0		T	Andreanoff Islands,
		e			14.5		1.1			Aleutian Islands
										51.1 N 179.1 W
										h about 25 km
										0 = 07 20 11.4
										Δ = 58°

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
01 Mar		eP	12	32	42.6	9	1.0		T	Kurile Islands
		e(pP)		33	16.0		1.4			49.4 N 155.3 E
										h about 86 km
										0 = 12 21 16.6
										Δ = 73°
01 Mar		eP	16	07	42.0	6	1.5		T	
01 Mar		eP	17	55	53.0	1	0.4	SE	NR	Δ (S-P) = 1.7°
		e		56	02.5		0.3			
	E	eS			14.5		0.4			
01 Mar		eP	18	47	36.4	9	1.2		T	Near east coast of
		e			55.0		1.0			Hokkaido, Japan
		e		48	00.4		1.1			43.0 N 146.2 E
		e			30.0		1.3			h about 48 km
		e		49	32.9		1.3			0 = 18 35 12.9
		e		50	33.6		1.5			Δ = 82.5°
		e(PP)			50.8		1.4			
01 Mar		eP	20	50	15.2	9	1.4		T	Off coast of Central Chile
		e		51	36.0		1.2			38.0 S 74.0 W
		e			52.4		1.1			h about 25 km
										0 = 20 38 31.1
										Δ = 76°
01 Mar		eP	21	56	46.5	5	1.1	W	R	
		e		57	05.4		1.5			
		e		58	00.7		1.2			
		e		59	16.9		1.0			
	N	eSur	22	00	26.1		2.7			
01 Mar		eP	22	31	30.3	4	0.8		T	Near south coast of Spain
										37.3 N 4.9 W
										h about 25 km
										0 = 22 20 03.5
										Δ = 73°

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
01 Mar		eP	23	54	41.5	41	1.9		T	Samoa Islands
		e		55	16.3		1.5			14.0 S 172.5 E
		e			46.0		1.3			h about 73 km
		ePP		58	35.7		2.1			0 = 23 41 14.5
02 Mar	BBE	eSKS	00	05	26		11.0			Δ = 97°
	BBN	eSur		25	53					Mag. = 6 (Pas.)
	BB	eSur		40	17					Medium surface waves on BB.
02 Mar		eP	02	24	34.7	1	0.7		T	Andreanof Islands,
										Aleutian Islands
										51.7 N 173.5 W
										h about 25 km
										0 = 02 15 05.9
										Δ = 54°
02 Mar		eP	09	07	10.7	6	1.1		T	Andreanof Islands,
		e			23.9		1.4			Aleutian Islands,
										51.4 N 178.1 W
										h about 34 km
										0 = 08 57 19.3
										Δ = 57°
02 Mar		eP	09	39	42.9	12	1.3		T	
		e			50.6		1.8			
02 Mar		eP	11	19	03.5	5	1.4		T	
		e			58.7		1.5			
02 Mar		eP'	13	21	55.3	7	1.2		T	Off south coast of
		e		22	02.5		1.5			Mindanao, P.I.
		e			16.1		1.7			5.4 N 126.5 E
		e		23	08.1		1.5			h about 30 km
		e(PP)			23.6		1.5			0 = 13 02 59.0
		e			32.7		1.6			Δ = 122°
		e			54.8		1.8			
		e		24	18.1		1.6			
		e		25	14.0		1.6			

(continued on next page)

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
		eSKP			24.9		2.0			(continued from preceding page)
		e		26	34.5		1.4			
		ePKKP$_1$		31	54.5		0.8			
		e		32	07.4		0.9			
		ePKKP$_2$			17.8		0.9			
		e(ScSP)			51.8		2.0			
		ePcPP'		35	47.0		1.6			
		e		38	33.0		1.4			
		e(SKKS)		39	23.2		2.0			
02 Mar		eP	17	04	35.6	3	0.6	SE	T	
02 Mar		eP	18	06	56.0	3	0.2		NR	Δ(S-P) = 1.7°
		eS		07	18.5	999				
02 Mar		eP	18	12	30.6	2	0.4	SW	NR	Δ(S-P) = 1.7°
	E	eS			52.6		0.3			
02 Mar		eP	18	21	07.4	2	1.3		T	
02 Mar		eP	18	28	08.1	1	0.3	(WSW)	L	Δ(S-P) = 1.3°
	E	eS			25.9		0.4			
03 Mar		eP	00	36	56.7	3	0.3	S	NR	Δ(S-P) = 2.2°
		eS		37	24.0	999				Quarry blast south of Weatherford, Texas.
03 Mar		ePP	01	14	04.6	7	1.2		T	Sinkang Province, China
		ePKKP		23	41.0		0.8			28.2 N 100.8 E h about 25 km 0 = 00 54 20.9 Δ = 114.5°
03 Mar		eP	01	41	56.5	3	1.0		T	
03 Mar		eP	05	32	02.5	25	1.9		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
03 Mar		eP	06	28	18.4	11	0.9	SE	T	Δ(S-P) = 52°
		e			25.2		0.7			
		e			52.5		0.8			
	N	eS		35	40.9		3.5			
		e		36	31.2		2.0			
03 Mar		eP	06	43	11.8	6	1.5		T	
03 Mar		eP	09	09	25.8	4	1.2		T	
		e		11	05.2		1.5			
03 Mar		eP'	10	20	17.8	2	1.0		T	Molucca Passage
		e			55.1		1.1			0.1 N 126.5 E h about 25 km 0 = 10 01 17.4 Δ = 126°
03 Mar		eP	10	51	07.5	5	0.9		T	Near east coast of Kamchatka
		e			21.6		0.8			
		e			36.4		1.0			55.2 N 162.5 E h about 28 km 0 = 10 40 14.8 Δ = 66.5°
		e		52	11.8		1.5			
03 Mar		eP'	12	33	38.7	22	1.0		T	Near east coast of Mindanao, P.I.
		e			50.2		1.0			
		epP'		34	07.1		1.2			7.4 N 126.5 E h about 90 km 0 = 12 14 52.1 Δ = 121°
		e			59.9		1.2			
		ePP		35	03.6		1.8			
		e			19.0		2.8			
		e			41.2		1.8			Strong surface waves, Love and Rayleigh type, on LP.
		e(SKP)		36	50.0		2.0			
		e		37	37.5		1.5			
	N	e		39	42.5		5.0			
	E	eSKS		40	33.7		2.2			
	E	eSKKS		41	56.2		2.8			
		ePKKP		43	48.5		0.8			

(continued on next page)

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
		e(ScSP)		44	21.5		1.2			(continued from preceding page)
		eSKKP$_1$		47	23.4		1.5			
		eSKKP$_2$			42.6		1.5			
	LPN	eSur	13	05	35					
	LP	eSur		11	36					
03 Mar		eP	12	39	58.0	3	0.9		T	
03 Mar		eP	15	26	25.4	10	1.5		T	
03 Mar		eP	16	26	34.8	15	1.2		T	Tonga Islands
		e			56.5		1.6			16.1 S 174.2 W
	N	eS		37	19.1		2.8			h about 129 km
										0 = 16 13 56.9
										Δ = 88.5^o
03 Mar		eP	23	46	45.3	1	0.4	NE	NR	Δ(S-P) = 2.2^o
	E	eS		47	12.3		0.5			
04 Mar		eP	00	50	37.1	9	1.1		T	Central Peru
		e		51	20.8		1.3			10.6 S 75.8 W
		ePcP			55.8		1.0			h about 20 km
										0 = 00 41 39.1
										Δ = 50^o
04 Mar		eP	11	46	48.0	5	0.8	WNW	T	
04 Mar		eP	11	49	33.3	20	1.0		T	Near NE coast of
		e		50	09.3		0.8			Chukotsky Pennisula, S.S.R.
		ePcP			45.2		1.0			67.6 N 171.4 W
		ePP		51	39.0		1.6			h about 15 km
										0 = 11 40 24.5
										Δ = 51.5^o
04 Mar		eP	12	13	39.7	2	0.8		T	
04 Mar		eP	12	28	43.9	3	1.2		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
04 Mar		eP	13	01	30.0	5	1.3		T	
04 Mar		eP	14	28	51.0	4	1.1		T	
04 Mar		eP	16	32	17.4	11	1.4		T	
04 Mar		eP	16	32	26.9	26	1.3		T	Off coast of central Chile
										36.3 S 72.9 W
										h about 60 km
										0 = 16 20 53.5
										Δ = 74.5^o
04 Mar		eP	23	22	51.5	1	0.4		NR	Δ(S-P) = 1.7^o
	E	eS		23	23.7		0.4			
05 Mar		eP	00	59	51.5	10	1.3	SW	T	
		e			59.5		1.3			
		e	01	00	09.6		1.3			
05 Mar		eP	01	14	03.8	2	1.0		T	
		e			13.5		1.5			
05 Mar		eP	01	37	38.6	15	1.8		T	
05 Mar		eP	01	41	46.1	7	1.5		T	
05 Mar		eP	01	55	16.7	86	1.2		T	Pacific Ocean, 250 miles
		e			58.6		1.4			south of Jalisco, Mexico
		e		56	45.6		1.7			16.0 N 104.9 W
	E	e		57	20.9		1.1			h about 25 km
	E	e			38.2		1.4			0 = 01 50 50.6
	E	e		58	03.1		1.3			Δ = 19^o
	LPN	eS			58		1.8			Strong surface waves on
	LPE	eSur	02	00	00					LP and BB.
	LP	eSur		01	21					Medium surface on SP.
05 Mar		eP	03	01	01.5	3	0.9		T	
		e			32.5					

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
05 Mar		eP	03	23	53.3	1	0.8		T	
05 Mar		eP	03	46	07.3	3	1.0		T	
05 Mar		eP'	04	02	00.6	51	0.7		T	Near south coast of Sumatra
		e		03	08.2		0.8			4.0 S 103.3 E
		ePP		05	16.5		1.5			h about 78 km
		ePcPP'		10	01.1		1.1			0 = 03 42 33.3
		e(SKKP)		14	20.0		1.1			$\Delta = 144^{o}$
05 Mar		eP	04	25	27.3	5	1.0	NW	R	
		e			31.7		0.5			
		eSur		27	07.2	999				
05 Mar		eP	06	17	36.9	1	0.7		T	
05 Mar		eP	07	48	21.2	36	1.5		T	Off coast of California
		e		49	49.5		1.5			34.6 N 121.6 W
	LPE	eS		52	00		20.0			h about 25 km
	LPN	eSur		53	27					0 = 07 44 00.0
	BB	eSur		55	46					$\Delta = 19.5^{o}$
										Strong surface waves on BB, LP, and SP
										Mag. = 4-1/2 (Pas.), 4-1/2 (Berk.)
05 Mar		eP	10	34	12.6	6	1.1		T	
05 Mar		eP	10	58	16.1	3	0.8		T	
05 Mar		eP	18	03	36.5	2	0.3	SE	NR	Δ(S-P) = 1.6^{o}
	E	eS			57.6		0.4			Quarry blast near Chico, Texas
05 Mar		eP	21	02	43.5	6	0.8		T	Off coast of California
		e		03	09.2		1.2			40.3 N 125.1 W
		e			52.2		1.6			h about 25 km
										0 = 20 57 52.1
										$\Delta = 21^{o}$

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
05 Mar		eP	21	38	06.1	5	1.3		T	
05 Mar		eP	23	38	29.0	3	1.2		T	
05 Mar		eP	23	44	33.8	1	0.4		NR	Δ(S-P) = 2.6^{o}
	E	eS		45	05.5		0.4			
06 Mar		eP	00	05	55.2	2	0.8		T	
06 Mar		eP'	06	14	54.7	16	1.2		T	Adaman Islands
		e		15	10.0		1.4			13.7 N 93.7 E
	LP	ePP		17	19		12.0			h about 18 km
		e			42.2		2.1			0 = 05 55 42.3
		eSKP		18	18.1		1.7			$\Delta = 132^{o}$
		e			41.0		1.1			Strong surface waves,
		e		19	18.2		1.5			Love & Rayleigh type,
		e		20	29.8		2.0			on LP.
		e		25	53.3		1.2			
		e		27	26.0		1.1			
		ePcPP'			45.7		1.2			
	LP	eSur		55	30					
	LP	eSur		59	20					
06 Mar		eP	06	38	46.8	4	1.2		T	
06 Mar		eP	07	20	15.4	15	1.7		T	
06 Mar		eP	08	16	54.4	5	1.3		T	
06 Mar		eP	08	37	27.7	9	1.4	WNW	T	Δ(S-P) = 26^{o}
		e			39.2		1.4			Strong surface waves on LP
	LPE	e(S)		41	58		20.0			
	LP	eSur		44	20					
06 Mar		eP	10	00	44.8	3	0.5	WSW	R	
		e		01	04.5	999				
		eSur		02	23.4	999				

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
06 Mar		eP	12	29	29.2	10	1.3	W	T	Foreshock of following
	LPE	e(S)		33	57		16.0			California event
		e		34	00.2		1.7			Weak surface waves on LP.
		e			19.1		1.3			
	LP	eSur		36	34					
06 Mar		eP	12	35	59.8	19	1.6		T	
06 Mar		eP	12	36	17.1	9	1.2	W	T	Foreshock of following
	LPE	eS		40	43		17.0			California event
	LP	eSur		43	28					Medium surface waves on LP.
06 Mar		eP	12	37	22.3	14	1.5	W	T	Foreshock of following
		e			59.2		1.4			California event
		e		41	44.4		1.4			
	LPE	eS			49		15.0			
06 Mar		eP	13	06	25.8	8	1.7		T	
06 Mar		eP	13	18	08.4	94	1.7		T	Off coast of California
		e			35.8		1.3			41.9 N 127.0 W
	LPE	e(S)		22	35		16.0			h about 25 km
	LP	eSur		25	12					0 = 13 12 58.7
										$\Delta = 23^{o}$
										Strong surface waves on LP and BB.
06 Mar		eP	13	27	14.6	7	1.5		T	
06 Mar		eP	14	25	44.7	27	1.8	NW	T	
		e		26	19.2		1.7			
	LP	eSur		33	50					
06 Mar		eP	15	40	04.3	3	1.3		T	
06 Mar		eP	15	57	05.9	1	0.3		NR	Δ (S-P) = 1.6^{o}
	E	eS			27.0		0.3			
		eSur			29.7	999				

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
06 Mar		eP	17	01	20.8	8	1.6		T	
		e			38.3		1.9			
06 Mar		eP	18	43	30.7	3	1.3		T	
		e		46	35.9		1.8			
06 Mar		eP	20	34	25.4	3	0.8		T	
06 Mar		eP	20	36	25.1	6	1.0		T	
06 Mar		eP	21	21	41.3	4	1.0		T	
06 Mar		eP	21	40	37.4	3	0.2	(NW)NR		Δ(S-P) = 1.5^{o}
		eS			58.1	999				
06 Mar		eP	22	01	41.0	4	1.0		T	
06 Mar		eP	22	02	41.8	5	1.1	NW	T	
06 Mar		eP	22	02	49.4	18	1.5		T	Possible phase of previous event
06 Mar		eP	22	36	41.5	2	0.4		NR	Δ(S-P)= 1.7^{o}
		eS		37	03.1	999				
06 Mar		eP	23	30	17.9	2	0.4	ESE	NR	Δ(S-P) = 1.8^{o}
		eS			40.6		0.4			
06 Mar		eP	23	39	53.0	1	0.5		NR	Δ(S-P) = 1.8^{o}
		eS		40	16.2	999				30,000 lb. quarry blast at Bromide, Oklahoma
06 Mar		eP	23	44	19.0	1	0.5		NR	Δ(S-P) = 2.6^{o}
	E	eS			51.4		0.4			
06 Mar		eP	23	47	48.8	1	0.7		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
07 Mar		eP	01	51	53.6	12	1.2	(N)	T	Medium surface waves on LP
	LPE	eSur	02	09	34					
	LP	eSur		10	57					
07 Mar		eP	02	16	15.8	36	1.4		T	Southwest of Iceland
		e			47.6		2.5			62.2 N 26.6 W
	LPE	eSur		33	33					h about 43 km
	LP	eSur		34	22					0 = 02 07 11.8
										$\Delta = 51^{o}$
										Medium surface waves on LP.
07 Mar		eP	03	47	29.2	2	1.0		T	
07 Mar		eP	04	57	24.7	3	1.3		T	
07 Mar		eP	11	13	36.4	125	0.9		T	Mariana Islands
	LP	epP		16	02		21.0			19.3 N 145.3 E
		e			33.2		1.8			h about 680 km
	LP	esP		17	09		20.0			0 = 11 01 00.4
		ePP			51.4		1.4			$\Delta = 98^{o}$
	LP	e		18	11		15.0			Mag. = 7 (Pas.), 6 (Berk.)
		e		20	10.3		1.7			Strong surface waves,
		e			26.5		1.2			Rayleigh type, on LP.
	LP	e			52		27.0			
	LPE	eSKS		23	04		24.0			
	LPE	eS			57		33.0			
		e		24	39.8		0.9			
	LP	eSP		25	46		30.0			
	LPE	ePS		27	16		30.0			
		e		29	30.4		1.0			
	LPE	e			50		34.0			
		ePKKP			58.0		1.0			
	LPE	eSS		31	33		35.0			
		e		32	01.9		1.0			
	E	e(PKKS)		33	45.0		4.0			
	LPE	eSSS		34	57		35.0			

(continued on next page)

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
		e		35	11.2		1.8			(continued from preceding page)
	E	e		37	20.0		5.5			
		e			26.8		1.0			
	LPE	e			32		27.0			
		e			57.5		1.1			
		eP'P'		38	11.2		1.5			
	E	e(SKKKS)		40	06.6		2.4			
	E	e		41	13.4		2.2			
	LPE	e			23		23.0			
	LP	eSur		52	13					
07 Mar		eP	11	55	30.8	11	1.0		T	
		e			39.7		1.6			
07 Mar		eP	12	12	31.7	4	1.0		T	
07 Mar		eP	14	20	30.8	2	0.9		T	
		e			39.1		1.3			
		e		21	04.8		1.2			
07 Mar		eP	15	27	06.1	5	1.0		T	Off southeast coast of
		e			18.6		1.0			Kamchatka
		e			27.7		1.2			51.5 N 160.6E
										h about 20 km
										0 = 15 15 53.1
										$\Delta = 69^{o}$
07 Mar		eP	19	19	18.5	8	1.1		T	
08 Mar		eP	00	14	14.6	1	0.3		NR	Δ (S-P) = 2.6°
	E	eS			46.7		0.4			
08 Mar		eP'	02	14	05.2	4	0.9		T	Mozambique Channel
										22.3 S 39.1 E
										h about 25 km
										0 = 01 54 40.5
										$\Delta = 141^{o}$

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
08 Mar		eP	07	05	44.7	19	1.3	NW	T	
		e			53.4		0.9			
08 Mar		eP	07	58	22.2	4	1.3		T	
08 Mar		eP	08	24	47.3	7	1.4		T	Mariana Islands
	LP	eSur	09	09	30					17.9 N 146.5 E
										h about 131 km
										0 = 08 11 12.9
										Δ = 98°
										Medium surface waves
										on LP.
08 Mar		eP	10	58	55.9	9	1.3		T	Kurile Islands
		e		59	26.2		1.4			46.0 N 152.7 E
		e			59.2		1.5			h about 48 km
										0 = 10 47 03.9
										Δ = 76°
08 Mar		eP	11	57	19.6	3	1.0		T	
		e			38.9		1.4			
		e		58	00.2		1.3			
08 Mar		eP	18	01	06.0	4	0.2		NR	Δ(S-P) = 1.6°
		e			15.8		0.4			Quarry blast near
		eS			27.7	999				Chico, Texas
08 Mar		eP	19	46	24.1	2	0.3	N	NR	Δ(S-P) = 1.3°
	E	eS			42.5		0.3			
08 Mar		eP	21	00	51.0	11	1.4		T	Off coast of southern Chile
		e			59.0		2.2			44.9 S 79.4 W
		e		01	33.8		1.2			h about 25 km
		e			51.3		1.5			0 = 20 48 38.1
		e		02	02.8		1.6			Δ = 82°
	LPE	eSur		22	10					Strong surface waves,
	LP	eSur		28	00					Love and Rayleigh type,
										on LP.

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
08 Mar		eP'	21	57	29.5	9	1.2		T	Republic of the Congo
		e			42.3		1.2			3.4 S 29.2 E
		e			56.2		1.3			h about 25 km
		e		58	05.8		1.5			0 = 21 38 35.4
		e			40.7		1.3			Δ = 122°
		ePP		59	12.5		3.0			Strong surface waves,
		e			35.7		1.3			Love and Rayleigh type,
		eSKP	22	01	57.9		1.0			on LP.
		ePKKP		08	04.4		1.2			
	LPE	eSur		31	21					
	LP	eSur		37	24					
09 Mar		eP	07	09	31.7	18	1.1		T	Fiji Islands
		e			49.9		0.8			18.4 S 178.7 W
		e		11	05.1		1.2			h about 472 km
		epP			27.2		1.5			0 = 06 57 08.7
		e		12	31.5		1.5			Δ = 92°
		ePP		13	15.9		1.5			
		e		15	12.0		1.6			
	E	eSKS		19	21.0		2.0			
	LPE	eS		20	05		19.0			
	LPE	ePS		21	48		15.0			
	LPE	ePPS		23	06		21.0			
	LPE	eSS		26	28		20.0			
		ePKKP			47.1		0.8			
09 Mar		eP	07	50	44.9	3	1.3		T	
	LPE	e	08	12	00		17.0			
09 Mar		eP	10	21	45.5	4	1.4		T	Possible new event
		e		27	36.8		1.3			at 10 27 36.8
09 Mar		eP	14	15	39.0	4	1.4		T	
09 Mar		eP	14	35	25.6	6	1.0		T	
		e			39.3		1.0			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
09 Mar		eP	15	46	47.1	3	1.0		T	
		e		47	31.3		1.2			
		e		49	39.4		1.2			
09 Mar		eP	17	33	09.4	6	1.4		T	
09 Mar		eP	17	42	30.5	5	0.8		T	Fiji Islands region 24.5 S 179.6 W h about 586 km 0 = 17 30 02.0 $\Delta = 97^{o}$
09 Mar		eP	18	19	41.1	4	0.7		R	
		e		20	02.0		1.0			
	E	eSur		23	23.5		0.9			
09 Mar		eP'	22	26	08.5	11	0.9		T	Near east coast of New Guinea 5.8 S 146.4 E h about 76 km 0 = 22 07 35.6 $\Delta = 114.5^{o}$ Strong surface waves, Rayleigh type, on LP.
		epP'			30.9		1.9			
		e			36.7		1.2			
		ePP		27	01.2		2.0			
		eSKP			21.8		1.8			
		ePKKP		36	54.1		1.4			
	LPE	ePS			55.6		18.0			
		e		39	55.6		1.8			
	LP	eSur	23	01	00					
10 Mar		eP	00	12	41.8	2	0.5	(SE)	NR	Δ(S-P) = 2.3
	E	eS		13	09.6		0.5			
10 Mar		eP	01	05	38.7	2	0.7		T	
10 Mar		eP'	01	16	16.0	2	0.9		T	Banda Sea 6.5 S 129.4 E h about 202 km 0 = 00 57 22.3 $\Delta = 132^{o}$
		eSKP		19	20.0		1.2			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
10 Mar		eP	01	42	01.8	2	0.9		T	
10 Mar		eP'	03	20	52.5	4	1.0		T	Sumatra 3.8 N 97.7 E h about 25 km 0 = 03 01 17.5 $\Delta = 138^{o}$ Weak surface waves on LP
		eSKP		24	24.9		1.2			
	LP	eSur	04	11	00					
10 Mar		eP	04	06	30.0	6	1.4		T	
10 Mar		eP	07	15	08.5	3	0.9		T	
10 Mar		eP	08	11	43.5	15	1.5	W	T	
10 Mar		eP	10	10	21.9	2	1.0		T	
		e			41.8		1.0			
		e			52.2		1.7			
10 Mar	LPE	e(SS)	12	41	04		20.0		T	Santa Cruz Islands 11.0 S 165.6 E h about 25 km 0 = 12 08 07.1 $\Delta = 100.5^{o}$ Strong surface waves, Rayleigh type, on LP.
	LPE	e		43	00		18.0			
	LP	eSur		55	40					
10 Mar		eP	17	38	02.2	10	1.1		T	
10 Mar		eP	23	44	34.9	4	0.8		T	
11 Mar		eP	02	30	34.0	4	0.9		T	Guatemala 14.8 N 91.2 W h about 206 km 0 = 02 26 05.7 $\Delta = 21^{o}$ Strong surface waves on LP and SP.
	E	eSur		34	28.9					
	LP	e(Sur)			35					
	LP	eSur		36	24					

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
11 Mar	LP	eSur	08	03	42				T	New Hebrides Islands 13.9 S 172.1 E h about 133 km 0 = 07 18 56.7 Δ = 97° Weak surface waves on LP.
11 Mar		eP	15	33	34.0	110	1.1		T	Rat Islands, Aleutians 52.3 N 178.0 W h about 135 km 0 = 15 23 40.7 Δ = 58.5° Medium surface waves on L
		epP		34	18.2		1.5			
		ePcP			33.9		1.1			
		ePP		36	03.0		1.3			
		eScP		38	06.6		1.0			
	LPE	e		41	23		29.0			
	LPE	eSS		45	20		36.0			
	LP	e(Sur)		47	56					
	LP	eSur		51	54					
11 Mar		eP'	19	37	36.1	34	1.8		T	Near east coast of Mindanao, P.I. 9.0 N 126.7 E h about 25 km 0 = 19 19 05.6 Δ = 119° Strong surface waves, Love and Rayleigh type, on LP.
		e		38	13.5		1.4			
		e			36.2		1.3			
		e		39	06.6		1.5			
	LP	ePP			16		15.0			
		eSKP		41	26.6		1.3			
		e		42	30.7		1.3			
		ePKKP		48	07.9		1.2			
	LPE	ePS		49	13		27.0			
	LPE	ePPS		50	31		22.0			
		e(SKKP)		52	06.5		1.5			
	LPE	eSS		55	30		35.0			
	LPE	eSSS	20	00	00		29.0			
	LPE	e(P'SKS)		03	38		29.0			
	LPN	eSur		09	25					
	LPN	eSur		15	54					
12 Mar		eP	02	01	55.1	4	1.1		T	
12 Mar		eP	02	02	58.6	7	0.7		T	Possible phase of previous event
		e		03	22.8		1.3			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
12 Mar		eP	09	47	41.3	54	2.2		T	Costa Rica 9.0 N 83.0 W h about 113 km 0 = 09 41 45.7 Δ = 30° Strong surface waves on LP and BB.
		e(PcP)		50	40.0		1.4			
	LPE	eS		52	46		25.0			
	E	ePcS		54	29.1		1.9			
	LPN	eSur			40					
		e		55	39.4		2.1			
	LPN	eSur		56	26					
	E	eScS		58	21.5		3.2			
12 Mar		eP	10	19	40.9	7	1.4		T	
12 Mar		eP	10	50	33.8	12	1.4		T	
12 Mar		eP	11	46	18.9	47	1.2		T	Near south coast of Panama and Costa Rica 8.1 N 83.0 W h about 58 km 0 = 11 40 12.8 Δ = 30° Strong surface waves on all systems.
		e			28.4		2.2			
		ePcP		49	31.6		1.0			
	LPE	e(S)		51	35		30.0			
	E	e		52	09.2		5.0			
	E	ePcS		53	13.3		1.8			
	E	eSur			37.0		6.5			
	E	e	12	00	25.3		1.5			
12 Mar		eP	12	09	04.3	6	1.6		T	
12 Mar		eP	12	18	21.8	9	1.1		T	
12 Mar		eP	12	21	50.1	20	0.7	NW	T	
12 Mar		eP	13	33	58.3	2	0.9		T	Chile-Bolivia border 22.7 S 68.3 W h about 158 km 0 = 13 23 40.8 Δ = 63.5°
		epP		34	36.8		1.2			
		e		35	00.0		0.9			
		e			13.3		0.8			
12 Mar		eP	13	48	42.2	4	1.0		T	Near south coast of Panama 8.3 N 83.1 W h about 24 km 0 = 13 42 33.4 Δ = 30°
		e			46.0		1.9			
		ePP		49	36.8		1.3			
		e		50	03.0		1.3			
		e		52	16.5		1.1			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
12 Mar		eP	15	14	57.8	13	1.0		T	
12 Mar		eP	17	05	32.2	4	0.8		T	Ecuador
		e			41.4		1.7			02.9 S 80.2 W
		e		06	02.2		0.6			h about 25 km
		e			23.6		1.1			0 = 16 57 46.8
										Δ = 41.5°
12 Mar		eP	18	04	54.3	2	0.3		NR	Δ(S-P) = 1.7°
		eS		05	16.0	999				
12 Mar		eP	23	33	24.7	2	0.3		NR	Δ(S-P) = 1.7°
		eS			46.6	999				
12 Mar		eP	23	54	14.6	1	0.4		NR	Δ(S-P) = 2.6°
	E	eS			47.0		0.4			
13 Mar		eP	00	47	24.3	2	0.4	S	NR	Δ(S-P) = 2.1°
	E	eS			50.7		0.3			
13 Mar		eP	02	07	43.7	12	0.8		T	
		e			51.4		1.0			
13 Mar		eP	03	02	46.6	8	0.6	SE	T	Δ(PCP-P) = 41.5°
		e			54.3		0.9			
		ePcP		04	45.4		0.5			
13 Mar		eP	04	20	15.8	3	0.9		T	
13 Mar		eP	07	07	03.6	5	1.0		T	
13 Mar	E	eSur	08	26	38.2		2.1		T	
13 Mar		eP	10	35	30.8	10	1.3		T	
14 Mar		eP	00	01	33.6	1	0.3		NR	Δ(S-P) = 2.3°
	E	eS		02	01.7		0.4			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
14 Mar		eP	03	10	30.0	5	0.9		T	Possible new event
		e		11	23.8		1.1			at 03 13 32.0
		e		13	32.0		0.9			
14 Mar		eP	08	31	29.2	4	1.0		T	
		e		32	10.0		1.0			
14 Mar		ePP	08	47	34.4		1.7		T	Mindanao, P.I.
		ePKKP		56	27.3		0.9			8.8 N 126.8 E
										h about 28 km
										0 = 08 27 22.4
										Δ = 119°
14 Mar		eP	12	32	44.1	7	1.0		T	
		e			55.9		0.9			
		e		33	00.8		1.0			
		e			17.9		1.1			
		e			36.9		0.8			
		e		34	08.2		0.8			
		e			47.7		1.0			
14 Mar		eP	15	26	10.5	4	1.2		T	Start indefinite
	LPE	eSur		30	30					Strong surface waves
										on LP and SP
14 Mar		eP	17	45	12.0	6	0.5		NR	Δ(S-P) = 1.6°
		eS			33.7	999				Quarry blast, 25,000 -
										35,000 lbs., near Fitzhugh,
										Oklahoma by Ideal Cement
										Company.
14 Mar		eP	18	20	48.7	3	0.7	SE	T	
		e			54.4		0.6			
14 Mar		eP	19	56	31.1	3	0.9	N	T	
14 Mar		eP	19	58	51.3	6	0.7		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
14 Mar		eP	20	26	25.3	5	0.8		T	
14 Mar		eP	20	29	24.1	3	0.6		T	
14 Mar		eP	22	12	35.3	3	0.4		NR	Δ (S-P) = 2.6°
	E	eS		13	06.9		0.5			
15 Mar		eP	00	43	47.0	3	0.8		T	
		e			58.9		0.9			
		e		44	05.2		1.0			
15 Mar		eP	02	03	12.9	4	1.1		T	Kurile Islands region 45.7 N 151.3 E h about 43 km 0 = 01 51 19.4 Δ = 77.5°
		e			42.2		1.4			
	E	e		04	29.4		1.5			
15 Mar		eP	04	04	09.6	8	1.0	SE	T	
		e			16.5		1.0			
15 Mar		eP	04	30	09.5	1	0.6		T	
15 Mar		eP	04	45	24.0	6	0.8		T	
		e		46	00.8		1.3			
		e			49.4		0.9			
15 Mar		eP	06	55	37.3	4	0.7		T	
15 Mar		eP	11	53	40.3	15	1.0	SSE	T	
15 Mar		eP	13	19	23.3	4	1.1		T	Fiji Islands region 20.6 S 178.8 W h about 623 km 0 = 13 07 06.9 Δ = 93.5°
15 Mar		eP	14	57	03.4	12	1.4		T	
		e			06.5		1.0			
		e			19.2		0.8			
		e	15	01	40.0		1.3			
		e		09	12.9		1.1			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
15 Mar		eP	15	20	22.6	5	0.8		T	
		e			36.7		0.9			
		e		24	18.0		1.3			
15 Mar		eP	15	57	28.4	6	1.0		T	
15 Mar		eP	17	12	32.6	3	0.4		L	Δ (S-P) = 1.2°
	E	eS			49.5		0.3			
15 Mar		eP	17	48	21.7	8	1.1		T	
15 Mar		eP'	21	32	33.6	21	1.0		T	Near south coast of Java 7.1 S 106.1 E h about 83 km 0 = 21 13 04.1 Δ = 144°
		epP'		33	01.2		1.5			
15 Mar		eP	22	54	44.1	1	0.3		NR	Δ (S-P) = 1.7°
		e			54.1		0.3			
	E	eS		55	06.1		0.3			
15 Mar		eP	22	57	20.9	10	0.9	NW	T	
		e		58	07.3		0.8			
15 Mar		eP	23	35	30.7	2	0.3	SE	NR	Δ (S-P) = 1.6° Quarry blast near Chico, Texas
		e			40.4		0.4			
		eS			52.0	999				
16 Mar		eP	04	59	35.6	6	0.9		T	
16 Mar		eP	05	25	34.6	7	1.0		T	
	LPN	e		40	25		22.0			
16 Mar		eP	12	17	51.8	105	0.8	SE	T	
		e		18	10.8		0.7			
		e			28.6		0.8			
16 Mar		eP	12	23	00.9	4	0.8		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
16 Mar		eP	12	34	41.9	12	0.9	SSE	T	
		e			49.1		0.8			
16 Mar		eP	12	36	37.4	8	0.8	SSE	T	
		e			44.9		0.9			
16 Mar		eP	16	28	23.2	6	1.4		T	
16 Mar	N	eSur	17	23	41.8		1.1		R	
	LPE	eSur		24	05					
16 Mar		eP	19	56	23.2	13	1.4		T	Santa Cruz Islands region
		ePP	20	00	27.4		1.5			10.8 S 165.7 E
	LPE	eSKS		07	09		20.0			h about 25 km
	LPN	ePS		09	40		25.0			0 = 19 42 39.2
	LPN	ePPS		10	30		27.0			Δ = 100°
		ePKKP		12	50.9		1.2			Strong surface waves,
		e		13	05.0		1.0			Rayleigh type, on LP.
		e			15.2		1.3			
	LPN	eSS		15	18		32.0			
		e(PcPP')		17	07.2		1.7			
	LPN	eSSS		19	12		30.0			
		eP'P'		20	54.8		1.1			
	LPN	e		22	26		30.0			
	LP	eSur		28	56					
16 Mar		eP	21	26	22.1	1	0.4		NR	Δ(S-P) = 1.6°
		eS			43.1		0.3			
16 Mar		eP	22	58	08.6	4	0.7		R	
	E	eSur	23	01	28.6		0.7			
16 Mar		eP	23	42	45.2	2	0.4	ENE	NR	Δ(S-P) = 2.4°
	N	eS		43	16.6		0.4			
16 Mar		eP	23	50	22.5	3	0.4	S	NR	Δ(S-P) = 2.2°
		eS			49.3	999				
17 Mar		eP	04	20	41.5	2	0.8		T	
		e			52.0		0.7			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
17 Mar		eP	09	16	30.0	2	0.6	NW	T	
17 Mar		eP	17	02	02.9	3	0.8		T	
17 Mar		eP	18	09	51.7	6	1.3		T	Kurile Islands region
		e		10	25.6		1.6			51.4 N 159.2 E
										h about 25 km
										0 = 17 58 38.6
										Δ = 70°
17 Mar		eP	18	52	07.4	4	1.0		T	
17 Mar		eP'	19	15	30.8	3	1.1		T	Near east coast of
		e			41.2		1.4			Negros Islands, P.I.
		e		19	29.6		1.3			9.8 N 122.5 E
		ePKKP		25	46.1		1.0			h about 25 km
										0 = 18 56 39.3
										Δ = 121°
17 Mar		eP	20	57	02.2	128	1.4		T	North Atlantic Ocean
		e			13.9		2.3			10.6 N 43.7 W
		e			48.9		1.8			h about 25 km
		ePP		59	15.6		1.8			0 = 20 47 31.7
	LP	ePPP	21	00	16		15.0			Δ = 54°
		e		03	49.1		3.2			Strong surface waves on
	LPN	eS		04	50		22.0			all systems, Love and
	LP	eSS		08	23	999				Rayleigh type, on LP.
	LP	eSur		10	30	999				Surface at 23 25 40 is
	LP	eSur		13	26	999				time for 306°
		eP'P'		26	54.6		1.3			
	LP	eSur	23	25	40					
18 Mar		eP	00	33	50.3	2	0.6	SE	T	
		e		34	23.1		0.9			
18 Mar		eP	02	37	04.5	4	1.2		T	
		e		39	01.0		1.1			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
18 Mar	LPE	eSKS	03	30	27		22.0		T	New Hebrides Islands region
	LPE	ePS		33	47		15.0			16.5 S 168.2 E
	LPE	ePPS		34	27		17.0			h about 14 km
	LPE	e		36	00		17.0			0 = 03 06 18.8
	LPN	eSS		39	05		23.0			Δ = 101°
	LPN	eSSS		42	18		28.0			Strong surface waves,
	LPE	e(Sur)		49	02					Rayleigh type, on LP.
	LP	eSur		53	37					
18 Mar		eP	04	49	12.5	2	0.7		T	
18 Mar		eP	05	41	03.1	27	1.3		T	Off coast of northern Honshu, Japan
		e			19.4		1.9			40.6 N 142.4 E
		e			35.5		1.2			h about 33 km
	LP	eSur	06	10	30					0 = 05 28 21.3
										Δ = 85°
										Weak surface waves on LP
18 Mar		eP	10	14	45.0	5	1.1		T	
18 Mar		eP	15	43	12.6	114	1.5		T	Southern Albania
		ePP		46	35.4		2.8			40.6 N 19.6 E
	LPN	eSKS		53	45		20.0			h about 25 km
	LPN	ePS		54	50		21.0			0 = 15 30 31.6
	LPN	ePPS		55	25		20.0			Δ = 85.5°
	LPE	eSS		59	25		24.0			Strong surface waves
		ePKKP	16	01	10.5		1.4			on BB and LP - Love and
	LPN	eSSS		02	53		24.0			Rayleigh type on LP.
	LPN	ePKKS		03	56		21.0			
	LPE	e		06	20		24.0			
	LPE	eSur		08	12					
		eP'P'		09	20.8		1.0			
	LP	eSur		10	42					
10 Mar	LPE	ePS	20	48	10		25.0		T	Kwangtung Province,
	LPE	ePPS		49	09		23.0			23.7 N 114.5 E
	LPN	eSur	21	11	00					h about 43 km
										0 = 20 18 54.3
										Δ = 113.5°
										Medium surface waves on

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
19 Mar		eP	02	46	12.8	5	1.1		T	
		e			29.1		1.0			
		e			45.0		1.1			
19 Mar		eP'	05	08	47.7	8	1.3		T	About 900 miles south of Tasmania
		e		09	00.9		1.1			57.3 S 147.2 E
		e			26.5		1.6			h about 25 km
	E	ePKS		12	26.9		2.0			0 = 04 49 31.7
	LPN	eSur		50	40					Δ = 132.5°
										Weak surface waves on LP.
19 Mar	E	eSur	05	27	15.8		0.7		R	
19 Mar		eP	06	10	24.0	2	0.9		T	Possible diffracted P of following event
		e			46.3		1.0			
		e		11	10.8		0.9			
		e		13	10.0		0.9			
		e			20.3		1.1			
19 Mar		iP'	06	13	26.7	c 239	1.6		T	Near south coast of Minahossa Peninsula,
		e(PP)		15	22.6		1.2			Celebes Islands
		e(SKP)		16	35.5		1.1			0.3 N 123.5 E
		ePPP		18	10.0		2.4			h about 53 km
		e			24.1		1.2			0 = 05 54 24.4
	E	eSKS		20	24.5		1.6			Δ = 127°
		e		22	53.5		0.8			
		eSKSP		25	41.6		1.9			
		e		26	04.1		1.1			
		eSKKP			38.0		2.0			
		ePcPP'			48.9		1.2			
19 Mar		eP	12	49	50.4	5	1.1		T	
		e		50	06.0		1.5			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
19 Mar		eP	14	07	50.7	29	0.9		T	Eastern Ecuador
		e			58.2		1.0			2.3 S 77.1 W
		e		08	07.2		0.9			h about 119 km
		epP			13.0		1.3			0 = 14 00 08.9
		e			27.0		1.0			Δ = 42°
		e			51.7		1.0			Weak surface waves,
		ePP		09	30.4		1.6			Rayleigh type, on LP.
		e			50.1		1.0			
	LPE	e(Sur)		18	35					
	LP	eSur		23	18					
19 Mar		eP	15	35	04.6	4	0.9		T	
19 Mar		eP	21	06	21.9	2	0.3		NR	Δ (S-P) = 1.4°
	E	eS			40.6		0.3			
19 Mar		eP	21	14	53.1	7	1.0		T	
19 Mar		eP'	21	16	46.4	15	0.7		T	Near south coast of
		e		17	03.1		0.9			Sumatra
		e		18	17.0		1.1			4.3 S 103.1 E
										h about 100 km
										0 = 20 57 24.2
										Δ = 143°
19 Mar		eP	23	46	33.7	2	1.0		T	
20 Mar		eP	00	39	58.2	2	0.4		NR	Δ (S-P) = 3.1°
	E	eS		40	36.2		0.5			
20 Mar		eP	01	05	12.3	2	0.8		R	Strong surface waves
		e		06	11.3		1.0			on all systems
		e			42.8		1.1			
	N	eSur		08	58.2		3.0			
	LPE	e		09	22		15.0			
	LP	e		10	22		11.0			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
20 Mar		eP	01	40	53.9	44	0.7		T	Gulf of Tehuantapec
		eSur		44	17.5	999				15.8 N 94.5 W
	LP	eSur		44	44					h about 25 km
										0 = 01 36 30.3
										Δ = 19°
										Strong surface waves
										on SP and LP
20 Mar		eP	04	52	59.3	2	0.9		T	
20 Mar		eP	07	56	50.8	3	0.9		T	
20 Mar		eP	10	06	59.2	6	1.0		R	Gulf of California
		e		08	10.5		1.0			27.9 N 111.2 W
		eSur		10	42.9					h about 25 km
										0 = 10 03 58.3
										Δ = 12.5°
										Surface at 10 10 42.9
										is Lg.
20 Mar		eP	11	11	31.6	93	1.8	SSE	T	
		e		13	09.0		2.0			
		e		14	19.4		1.7			
		e			39.6		1.7			
20 Mar		eP	16	37	36.4	21	1.0		T	Queen Charlotte Sound
		e		38	01.9		1.4			area
		e			19.8		1.1			50.8 N 129.7 W
		e			47.7		1.3			h about 25 km
	LPE	e(S)		42	35		22.0			0 = 16 31 48.3
	LPN	eSur		46	10					Δ = 27°
	LP	e		47	24					Strong surface waves
										on LP.
										Medium surface on BB.
20 Mar		eP	18	43	31.4	999			NR	Δ (S-P) = 1.7°
		eS			53.1	999				

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
20 Mar		eP	19	06	25.6	9	1.4		T	Mariana Islands region
	LP	eSur		41	53					22.8 N 143.2 E
										h about 98 km
										0 = 18 52 55.8
										Δ = 97.5°
										Weak surface waves on LP
20 Mar		eP	21	07	43.9	6	1.1		T	
20 Mar		eP	22	10	28.6	999			L	Δ (S-P) = 0.1°
		eS			37.0	999				8,675 lbs. shot by Longmacher Co. south of Carnegie, Oklahoma
21 Mar		eP	02	01	05.4	5	0.8		T	Southern Alaska
		epP			34.5		1.3			62.1 N 152.7 W
		ePcP		02	51.1		1.0			h about 122 km
		eScP		06	30.0		1.2			0 = 01 53 13.3
										Δ = 43°
21 Mar	LP	eSur	03	19	58				T	Loyalty Islands
										22.2 S 170.4 E
										h about 25 km
										0 = 02 30 18.5
										Δ = 102°
										Weak surface waves on LP
21 Mar		eP	06	01	22.8	20	1.7		T	
21 Mar		eP	06	19	14.9	29	1.3		T	Near coast of northern
		epP			36.5		1.4			Peru
		ePcP		21	06.6		1.1			4.4 S 80.7 W
										h about 78 km
										0 = 06 11 26.2
										Δ = 42°
21 Mar		eP	10	00	03.0	4	1.2		T	
		e			15.2		1.3			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
21 Mar		eP	10	43	52.3	5	1.3		T	
21 Mar		eP	12	34	11.4	1	0.2		NR	Δ (S-P) = 1.6°
		e			20.0		0.4			
		eS			32.6	999				
21 Mar		eP	16	34	36.3	1	0.3		R	
	E	eSur		35	40.9					
21 Mar		eP	17	30	19.8	10	0.6	NE	R	
	E	e(Sur)		32	49.3		0.3			
21 Mar		eP	17	49	53.2	2	0.5		R	
	E	e(Sur)		50	49.3		0.6			
	E	eSur		51	12.8		0.5			
21 Mar		eP	20	57	10.9	4	1.4		T	
		e			36.4		1.5			
21 Mar		eP	21	15	57.0	16	1.6		T	Kurile Islands
		e		16	04.8		0.9			48.6 N 153.4 E
		e			46.4		1.5			h about 25 km
		e			58.6		1.7			0 = 21 04 15.6
		e		26	07.0		1.5			Δ = 74.5°
21 Mar		eP	22	43	43.4	1	0.5		NR	Δ (S-P) = 1.5°
		eS		44	03.7	999				
21 Mar		eP'	23	16	06.4	41	1.3		T	Java Sea
		e			13.2		1.6			5.9 S 113.0 E
		e			40.0		1.2			h about 631 km
		e		18	17.7		1.6			0 = 22 57 51.2
		epP'			30.3		1.6			Δ = 139°
		e			51.9		0.5			Phases at 23 16 13.2 and
	LP	eSKP			54		20.0			23 18 51.9 are possible
		ePP		19	11.7		1.4			new events.
	LP	ePP			16		9.0			

(continued on next page)

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										(continued from preceding page)
		e			43.2		1.5			
	LPE	ePKS			52		14.0			
		e		20	38.0		1.4			
		e			56.6		1.5			
	LPE	eSKS		22	14		23.0			
		e		22	28.6		1.7			
	LP	e		23	00		20.0			
		eSKKP		27	30.0		1.5			
		ePcPP'		28	34.5		1.3			
	LPE	e(PS)		29	18		12.0			
		e		30	25.3		2.0			
	LPE	e		32	27		26.0			
	LPE	e(SKKKS)		34	22		24.0			
	LPE	e		37	23		35.0			
	LPN	e		40	30		19.0			
	LPE	e		46	08		34.0			
	LPE	e		49	34		32.0			
	LP	e(Sur)		53	00					
21 Mar		eP	23	26	53.4	3	0.4	SE	NR	Δ (S-P) = 1.7°
		eS		27	15.2	999				
21 Mar		eP	23	31	21.7	6	0.9		T	
21 Mar		eP	23	39	48.6	8	1.4		T	
22 Mar		eP	00	03	23.6	4	1.0		T	
22 Mar		eP	00	35	26.2	34	1.0	SE	T	
		e			53.4		1.0			
		e		36	21.7		1.2			
		e			43.0		1.5			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
22 Mar		eP'	00	38	00.4	11	1.0		T	Java Sea
		e			08.1		1.8			5.9 S 112.9 E
		epP'		40	24.2		1.4			h about 611 km
		eSKP			41.7		14.0			0 = 00 19 43.1
	LP	ePP			50		23.0			Δ = 138.5°
		e		41	30.0		1.4			Medium surface waves
	LPE	ePKS			46		17.0			on LP. Phase at 00 49 25.6
		e		43	07.9		1.2			possible new event. Some
	LPE	eSKS		44	04		22.0			reported long period phases
	LPE	eSKKS		47	05		18.0			may be associated with
		e			24.7		1.5			preceding event.
	LPE	eSKKKS			38		18.0			
		e		48	16.2		1.4			
		e			53.3		1.7			
		e(SKKP)		49	25.6		1.5			
		e(PcPP')		50	10.8		1.1			
	LP	ePS			17		21.0			
	LPE	e		52	25		20.0			
		e			41.5		1.5			
	LPE	ePPS		53	51		24.0			
	LPE	e		55	00		24.0			
	LPE	e		56	33		25.0			
	LPN	eSS		58	42		23.0			
	LPE	e(PKPPKS)		59	47		22.0			
	LPE	e	01	02	25		23.0			
	LPE	e(SSS)		03	32		27.0			
	LPE	e		06	52		39.0			
	LPE	e(Sur)		16	19					
	LP	eSur		21	08					
22 Mar		eP	00	53	29.2	1	0.4		NR	Δ(S-P) = 2.6°
	N	eS			55.8		0.4			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
22 Mar		eP	00	54	34.2	38	1.0	SE	T	
		e		55	13.7		1.2			
		e			40.9		1.0			
		e		56	00.0		1.1			
		e			45.6		1.3			
		e		58	39.0		1.1			
		e		59	25.0		1.0			
		e			40.4		1.4			
		e	01	01	45.4		1.4			
		e		07	16.7		1.2			
22 Mar		eP	01	22	44.3	5	1.1		T	
22 Mar		eP	01	47	04.2	2	0.8		T	
22 Mar		eP	02	03	40.2	29	1.4		T	Fiji Islands
		e			52.1		1.2			18.9 S 173.1 W
		e		04	02.4		1.1			h about 60 km
										0 = 01 50 52.4
										$\Delta = 88^{o}$
22 Mar		eP	06	44	49.3	6	1.2		T	Svalbard Region
		e		45	02.9		1.3			84.8 N 4.2 E
	N	e		57	35.5		2.2			h about 36 km
										0 = 06 35 03.6
										$\Delta = 55.5^{o}$
22 Mar		eP	12	18	08.7	8	1.0		T	San Luis Province,
		e(PcP)			33.6		0.8			Argentina
		e		19	50.4		1.2			32.2 S 66.9 W
		e		20	22.3		1.0			h about 249 km
		ePP			52.7		2.2			0 = 12 07 05.5
	LPN	eS		27	21		19.0			$\Delta = 73^{o}$
22 Mar		eP	14	02	29.4	3	0.8		T	
		e		03	11.0		0.7			
22 Mar		eP	14	58	49.3	3	0.8		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
2 Mar		eP	15	00	56.5	7	1.1		T	
2 Mar		eP'	15	31	47.5	16	1.5		T	North coast of New Guinea
		e		32	07.6		1.0			3.2 S 142.3 E
		e			32.6		1.5			h about 25 km
		e			47.4		1.5			0 = 15 13 03.9
	LP	ePP			52		22.0			$\Delta = 116^{o}$
	LP	e		34	00		15.0			Mag. = 5-3/4 (Berk.)
	LPE	eSKS		38	38		24.0			Strong surface waves,
	LPE	eSKKS		39	46		16.0			Rayleigh type, on BB & LP.
	LPN	e		40	46		18.0			
		ePKKP		42	26.7		2.0			
	LPE	iPS			33		24.0			
	LPE	ePPS		43	48		25.0			
	LPE	eSS		49	04		31.0			
	LPE	e		52	35		36.0			
	LPE	eSSS		53	15		34.0			
	LPE	e		56	48		23.0			
	LP	eSur	16	06	39					
2 Mar		eP	19	09	43.9	30	0.9		T	Catamarca Province,
		e			52.5		1.0			Argentina
		ePcP		10	09.1		0.8			28.1 S 67.5 W
		epP			40.5		1.2			h about 217 km
		e		11	03.9		1.3			0 = 18 59 00.8
	LPE	eS		18	30		20.0			$\Delta = 69^{o}$
		eP'P'		37	53.8		1.4			
2 Mar		eP	19	33	56.4	1	0.3		L	Δ (S-P) = 0.6^{o}
	N	eS		34	05.4		0.3			
2 Mar		eP	21	00	06.1	26	0.8		T	Bolivia
		e			21.9		0.7			15.7 S 68.7 W
		ePcP		01	00.6		0.8			h about 100 km
		e			47.6		1.3			0 = 20 50 24.9
										$\Delta = 57.5^{o}$

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
22 Mar		eP	23	18	20.7	4	1.0		T	
		e			21.9		1.1			
23 Mar		eP	00	27	48.1	4	1.0		T	
23 Mar		eP	04	20	23.7	6	1.0		T	
		e			40.8		0.7			
		e		21	00.3		0.9			
23 Mar		iP	05	46	21.8	c 62	1.5		T	Near coast of southern Chile
		e			40.0		2.0			38.0 S 72.8 W
		e		49	38.1		1.3			h about 67 km
										0 = 05 34 40.5
										Δ = 76.5°
23 Mar		eP	05	49	58.6	3	0.4	NW	L	Δ (S-P) = 1.2°
		eS		50	14.7	999				
23 Mar		eP	11	29	20.9	8	1.2		T	
23 Mar		eP	15	02	26.9	10	0.8	SSE	T	
		e			34.7		0.8			
23 Mar		eP	17	54	21.8	4	1.1		T	
23 Mar		eP	19	05	23.7	70	1.9	S	T	
		e			55.9		1.2			
23 Mar		eP	19	08	10.2	55	1.9	S	T	
23 Mar		eP	19	52	35.0	3	0.8		T	
23 Mar		eP	20	48	11.4	3	0.8		T	
23 Mar		eP	21	38	59.9	2	0.9		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
23 Mar		eP	23	42	55.3	4	0.8		T	
24 Mar		eP	00	38	40.9	1	0.4		NR	Δ (S-P) = 2.5°
	N	eS		39	13.2		0.4			
24 Mar		eP	01	46	59.0	17	1.3		T	Fiji Islands
		e		47	41.9		1.4			17.8 S 173.0 W
	LPE	eS		57	34		18.0			h about 25 km
	LPE	eSS	02	03	30		21.0			0 = 01 34 07.9
	LPE	eSur		12	20					Δ = 88°
										Weak surface waves on LP.
24 Mar		eP	07	45	46.1	18	1.8		T	
24 Mar	E	eSur	13	00	55.1		2.5		(R)	
24 Mar		eP	13	14	43.8	12	1.4		T	Near north coast of
		eP'		18	03.9	7	0.9			New Guinea
		epP'			29.6		1.4			5.7 S 145.0 E
		e			53.8		1.4			h about 111 km
	LP	ePP		19	04		19.0			0 = 12 59 30.9
		e			23.3		1.2			Δ = 115°
		e			34.7		2.0			Strong surface waves,
		e			49.6		1.9			Love and Rayleigh type,
		eSKP		21	15.6		2.0			on LP.
		e		22	11.9		1.3			Weak surface waves on BB.
		e		24	00.8		1.4			Start of event is P diffracted
	LPE	eSKS			44		25.0			Phase at 13 31 49.2 is
		e		25	01.3		1.5			possible new event
	LPE	eSKKS			56		20.0			
	LPE	ePS		28	37		24.0			
		ePKKP			47.3		0.8			
	LPE	ePPS		29	30		29.0			
	LPE	e		30	42		22.0			
		e		31	09.3		1.3			
		e			49.2		1.3			
		e		33	17.6		1.8			
	LPN	eSS		34	55		23.0			

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DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										(continued from preceding page)
		e(P'P')		37	15.3		1.0			
	LPE	eSSS		39	07		25.0			
	LPE	e(PKPSKS)		45	51		25.0			
	LPE	eSur		48	00					
	LP	eSur		53	16					
24 Mar		eP	14	20	11.6	2	0.7		T	
24 Mar		eP	19	58	30.8	4	1.1		T	
24 Mar		eP	21	07	24.1	1	0.4		NR	Δ (S-P) = 2.3°
	N	eS			55.0		0.4			
24 Mar		eP	23	10	30.8	13	1.5		T	
25 Mar		eP	06	41	34.6	3	0.6		T	
25 Mar		eP	08	21	50.7	44	1.5		T	Fox Islands, Aleutians
		e		23	00.0		1.4			51.2 N 169.8 W
	LPE	eSur		41	25					h about 45 km
										0 = 08 12 38.0
										Δ = 52.5°
										Weak surface waves on L
25 Mar		eP	08	30	43.9	28	1.8		T	
25 Mar		eP	08	39	45.8	6	0.9		T	
		e			50.7		1.2			
25 Mar		eP	09	12	24.0	6	1.1		T	
25 Mar		eP'	12	03	06.9	2	1.0		T	About 600 miles northwe
		e		04	10.0		1.1			of Bouvet Islands
										49.5 S 8.7 W
										h about 25 km
										0 = 11 44 27.7
										Δ = 117°

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
5 Mar		eP	14	36	01.5	6	1.0		T	
5 Mar		eP	15	35	41.1	10	0.9		T	Northern Columbia
										6.8 N 73.1 W
										h about 112 km
										0 = 15 28 45.9
										Δ = 37°
5 Mar		eP	21	32	13.9	2	0.4	S	NR	Δ (S-P) = 1.7°
		e			23.7		0.3			Quarry blast near
		eS			35.8	999				Chico, Texas
5 Mar		eP	21	50	21.4	7	0.8		T	Mediterranean Sea
		ePP		53	42.3		1.4			east of Sicily
										36.5 N 16.7 E
										h about 25 km
										0 = 21 37 36.1
										Δ = 87°
5 Mar		eP'	22	03	40.0	2	0.9		T	Halmahera
		e		04	08.4		1.0			1.6 N 127.2 E
		ePP		05	22.2		1.3			h about 60 km
										0 = 21 44 40.8
										Δ = 123.5°
6 Mar		eP	00	58	56.6	2	0.7		T	
6 Mar		eP	01	04	33.4	4	0.9		T	
6 Mar		eP	09	34	55.9	39	1.9		T	Ionian Islands
	LPE	eSur	10	06	12					38.7 N 20.6 E
										h about 25 km
										0 = 09 22 06.7
										Δ = 87°
										Weak surface waves on LP

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
26 Mar		eP	10	41	57.7	10	1.1		T	
		e		42	08.2		1.5			
		e		43	06.8		1.2			
26 Mar		eP	12	17	12.4	22	1.5		T	Mid-Atlantic Ocean 0.5 S 19.2 W h about 25 km 0 = 12 04 54.6 Δ = 81.5°
		e			27.4		1.6			
		e			47.1		1.7			
		e		18	14.6		1.3			
		e		19	04.5		1.7			
		e			27.1		2.0			
	LPE	eSKS		27	20		24.0			
	LPE	ePS		28	09		19.0			
	LP	eSPP			39		18.0			
	LPE	eSS		32	20		27.0			
	LPE	eSur		38	53					
	LP	eSur		42	58					
26 Mar		eP	12	27	58.4	2	0.5		T	
26 Mar		eP	12	30	41.4	2	1.0		T	
									T	Weak surface waves on L
26 Mar	LP	eSur	15	10	46					
26 Mar		eP	15	39	10.9	2	0.6		T	
26 Mar		eP	15	50	07.8	1	0.6		T	
26 Mar		eP	16	44	40.2	163	1.5		T	Near coast of southern C 40.6 S 73.3 W h about 32 km 0 = 16 32 43.6 Δ = 78° Strong surface waves on
		e			51.4		1.5			
	LP	ePP		47	40		17.0			
	LP	e		53	48		24.0			
	LPE	eS		54	35		23.0			
	LP	eSPP		55	29		21.0			
	LP	e		57	18		24.0			
	LPN	eSS		59	22		25.0			
	LPE	e	17	00	54		23.0			
	LPE	eSSS		03	05		25.0			

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DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										(continued from preceding page)
		ePKKP			38.4		1.3			
	LPN	e		05	36		36.0			
	LPE	eSur		09	04					
	LP	eSur		10	00					
	LP	eSur		13	14					
26 Mar		eP	18	04	20.7	2	0.3		NR	Δ(S-P) = 1.6°
		eS			41.4	999				
26 Mar		eP	18	08	14.2	3	0.4		NR	Δ(S-P) = 1.7°
	E	eS			35.8		0.3			
26 Mar		eP	23	58	54.7	2	0.4		NR	Δ(S-P) = 2.2°
		eS		59	27.0	999				
27 Mar		eP'	05	41	25.9	18	1.5		T	Ceram region 3.9 S 129.1 E h about 96 km 0 = 05 22 32.0 Δ = 126.5° Medium surface waves, Love and Rayleigh type, on LP.
		epP'			55.6		1.7			
		e		42	31.1		1.5			
		e		43	57.5		1.7			
		eSKP		44	38.5		1.6			
	LPN	eSur	06	16	22					
	LPE	eSur		23	55					
27 Mar		eP	10	22	40.1	6	1.5		T	Kurile Islands 44.1 N 147.3 E h about 31 km 0 = 10 10 26.1 Δ = 80.5°
		e			52.3		1.1			
27 Mar		eP	12	03	52.9	2	1.0		T	
27 Mar		eP	15	02	36.4	3	0.8		T	Tonga Islands region 20.3 S 177.6 W h about 510 km 0 = 14 50 15.2 Δ = 92°

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
27 Mar		eP	18	57	38.6	7	0.7	SSE	T	
27 Mar		eP	19	24	32.5	4	0.9		T	Possible new event at 19 25 53.4
		e		25	53.4		0.9			
		e			59.4		0.9			
		e		26	30.8		1.0			
		e		28	44.6		2.0			
	E	e		30	12.1		2.5			
		e			16.4		1.2			
		e		31	30.0		1.7			
27 Mar		eP	20	16	41.1	1	0.4		NR	Δ (S-P) = 3.1°
		e			44.7		0.4			
		e			48.1		0.5			
	E	eS		17	19.3		0.3			
		eSur			25.5	999				
27 Mar		eP	21	23	34.4	19	1.2		T	Guerrero, Mexico 16.9 N 99.9 W h about 25 km 0 = 21 19 29.4 Δ = 18° Strong surface waves on SP and LP.
		eSur		29	06.6					
27 Mar		eP	22	18	35.1	3	1.1		T	
27 Mar		eP	23	07	11.3	44	0.2	NW	L	Δ(S-P) = less than 0.1°
		eS			15.1	999				
28 Mar		eP	00	44	17.2	6	1.0		T	
		e			27.1		1.0			
28 Mar		eP'	04	24	42.2	4	0.9		T	Near south coast of Sumatra 1.4 N 97.5 E h about 74 km 0 = 04 05 24.6 Δ = 142° Weak surface waves on
		e			57.3		1.1			
		e		27	31.8		1.2			
		e			42.8		1.3			
		ePP			49.6		2.0			
	LPN	eSur	05	17	10					

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
28 Mar		eP	07	31	09.0	3	1.0		T	
28 Mar		eP	09	44	41.6	2	1.1		T	
28 Mar		eP	10	57	57.4	4	1.1		T	
		e		58	09.1		0.8	S		
		e			33.1		1.0			
28 Mar		eP	14	18	51.6	26	1.2		T	Off coast of Jalisco, Mexico 19.4 N 108.6 W h about 43 km 0 = 14 14 45.2 Δ = 18° Strong surface waves on LP and BB. Weak surface on SP.
	LPE	eS		22	13		20.0			
		e			28.1		1.5			
	LPE	eSur		23	12					
		e		24	17.2		1.8			
28 Mar		eP	17	25	46.1	3	0.4		L	Δ (S-P) = 1.3°
		eS		26	03.8	999				
28 Mar		eP	18	21	08.8	4	0.8		T	
28 Mar		eP	22	18	18.8	9	1.1		T	
28 Mar		eP	23	32	46.5	3	0.4		NR	Δ (S-P) = 1.7°
		eS		33	08.5	999				
28 Mar		eP	23	56	30.7	10	1.1		T	
29 Mar		eP	00	23	15.2	1	0.8		T	
29 Mar		eP	00	51	18.7	2	0.4		NR	Δ (S-P) = 2.2°
	E	eS			45.4		0.4			
29 Mar		iP	02	03	31.1	c 20	0.6		T	Near south coast of Kamchatka 51.8 N 157.2 E h about 155 km 0 = 01 52 25.4 Δ = 71°
		e		04	01.7		0.8			
		epP			13.6		1.0			
		e		05	40.4		1.2			
		ePP		06	07.0		1.6			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
29 Mar		eP	02	18	07.1	2	0.8	SE	T	
29 Mar		eP	03	13	57.6	12	0.9		T	Lituya Bay, Alaska region 58.6 N 137.4 W h about 25 km 0 = 03 07 02.5 Δ = 35°
	LPN	eSur		25	08					Weak surface waves on L
29 Mar		eP	06	36	28.2	2	0.8		T	
29 Mar		eP	08	54	56.6	2	0.8		T	
29 Mar		eP	13	39	00.3	11	1.1		T	South of Panama 5.4 N 81.9 W h about 69 km 0 = 13 32 30.8 Δ = 33°
29 Mar		eP	17	11	46.4	18	0.4	E	NR	Δ (S-P) = 1.6°
		eS		12	07.4	999				Quarry blast by Ideal Cement Co. near Fitzhu Oklahoma of 42,040 lbs.
29 Mar		eP	18	06	08.1	2	0.4	NE	NR	Δ (S-P) = 2.5°
	E	eS			39.4		0.4			
29 Mar		eP	19	41	04.1	13	1.5		T	Svalbard region 79.2 N 2.7 E h about 25 km 0 = 19 31 08.8 Δ = 58°
		e			25.1		1.1			
29 Mar		eP'	20	28	01.9	11	1.2		T	Halmahera region 0.5 S 127.4 E h about 25 km 0 = 20 09 01.9 Δ = 125° Medium surface waves on LP.
		e			18.8		1.3			
		ePP		29	49.2		1.6			
		ePKKP		37	40.6		1.0			
	LP	eSur	21	14	19					

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
29 Mar		eP	21	15	17.6	6	0.8	S	T	
29 Mar		eP	22	43	51.9	3	0.3	ESE	NR	Δ(S-P) = 1.6°
		eS		44	13.3	999				
29 Mar		eP	23	01	13.6	3	0.3	NNE	L	Δ(S-P) = less than 0.1°
		eS			17.4	999				Quarry blast near Richard's Spur, Okla.
30 Mar		eP	02	18	05.7	2	1.0		T	
30 Mar		eP	05	15	38.1	6	0.7	NW	T	
		e		17	23.4		1.4			
30 Mar		eP	06	58	21.0	2	0.7		T	
30 Mar		eP	08	18	57.1	3	1.1		T	
		e		19	34.2		1.0			
30 Mar		eP	08	39	48.4	2	0.9		T	
30 Mar		eP	15	50	42.8	2	0.4		NR	Δ(S-P) = 2.2°
		eS		51	09.8	999				
30 Mar		eP	22	20	33.5	1	0.4		T	
30 Mar		eP	23	10	12.8	4	1.0		T	
31 Mar		eP	01	29	19.0	4	1.0		T	Tonga Islands region 15.9 S 173.9 W h about 107 km 0 = 01 16 42.9 Δ = 87°
		e(pP)			51.9		1.2			
31 Mar		eP	02	31	51.9	6	1.0		T	
		e		32	05.7		1.0			
		e			20.7		1.0			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h. m. s.					
31 Mar		eP	02 57 15.2	2	0.9		T	
31 Mar		eP	05 30 05.0	1	1.1		T	
31 Mar		eP	07 58 56.6	9	1.6		T	Possible P diffraction of following event
31 Mar	LPE	e	08 17 47		20.0		T	Negros Islands, P.I.
	LPN	eSS	21 14		29.0			9.8 N 121.6 E
	LPE	e(SSS)	26 08		28.0			h about 156 km
	LPN	eSur	34 00					0 = 07 44 36.0
	LPN	eSur	42 51					$\Delta = 121.5^{o}$
								Strong surface waves, Love and Rayleigh type, on LP.
31 Mar		eP	12 46 28.8	4	1.1		T	
31 Mar		eP	16 53 24.6	4	0.9		T	
31 Mar		eP	22 54 10.9	12	1.8		T	

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Volume 2, No. 4
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REGISTRATION OF EARTHQUAKES AT WICHITA MOUNTAINS SEISMOLOGICAL OBSERVATORY FORT SILL, OKLAHOMA, U.S.A.

Operated under the Technical Supervision of the
Air Force Technical Applications Center (AFTAC)

by

The Geotechnical Corporation
Garland, Texas

Advanced Research Projects Agency (ARPA)
Department of Defense
United States Government

Volume 2, No. 4
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THE REGISTRATION OF EARTHQUAKES

AT THE

WICHITA MOUNTAINS SEISMOLOGICAL OBSERVATORY

STATION

Station Abbreviation: WMSO
Station Identification on Film Seismograms: α

Geographical Location*: (Vault No. 6)	34° 43' 05.3" N. Lat. 98° 35' 20.7" W. Long.
GEOCENTRIC LOCATION*: (Vault No. 6)	34° 32' 09.8" N. Lat. 98° 35' 20.7" W. Long.
ALTITUDE (Meters)*: (Vault No. 6)	505 meters (1658 feet)

GEOLOGY: The station is located on the Carlton (porphyritic) granophyre of the Wichita Mountains of Oklahoma.

Noise Level: The periods of the predominant microseisms at WMSO are 0.5 second and 6 seconds. Amplitude distribution curves for the 0.5-second microseisms are shown on page 2 as true ground motion in millimicrons and as trace amplitude in millimeters at the operating gain of 500K. Both curves are center-to-peak.

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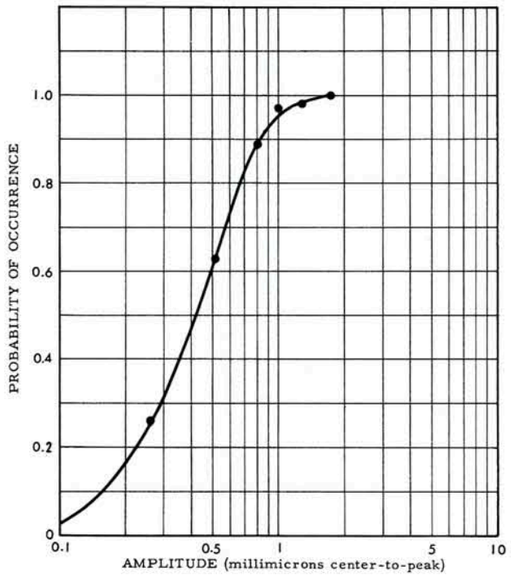
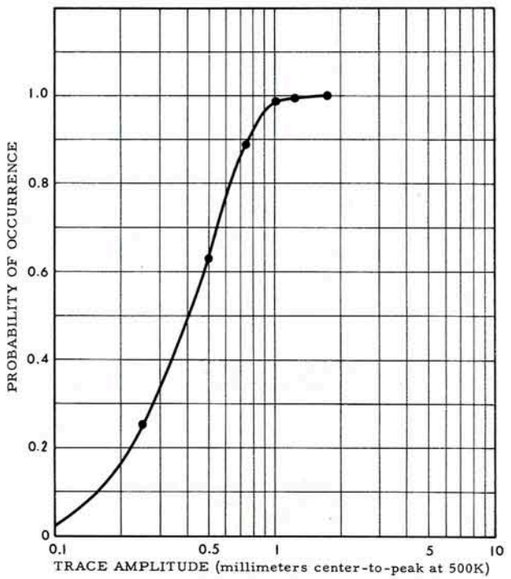
* The coordinates refer to the location of vault no. 6 which houses the 3-component groups of short-period and intermediate-band seismometers from which arrival times are determined.



Probability of predominant 0.5-sec microseisms occurring at or less than a given amplitude at unity magnification



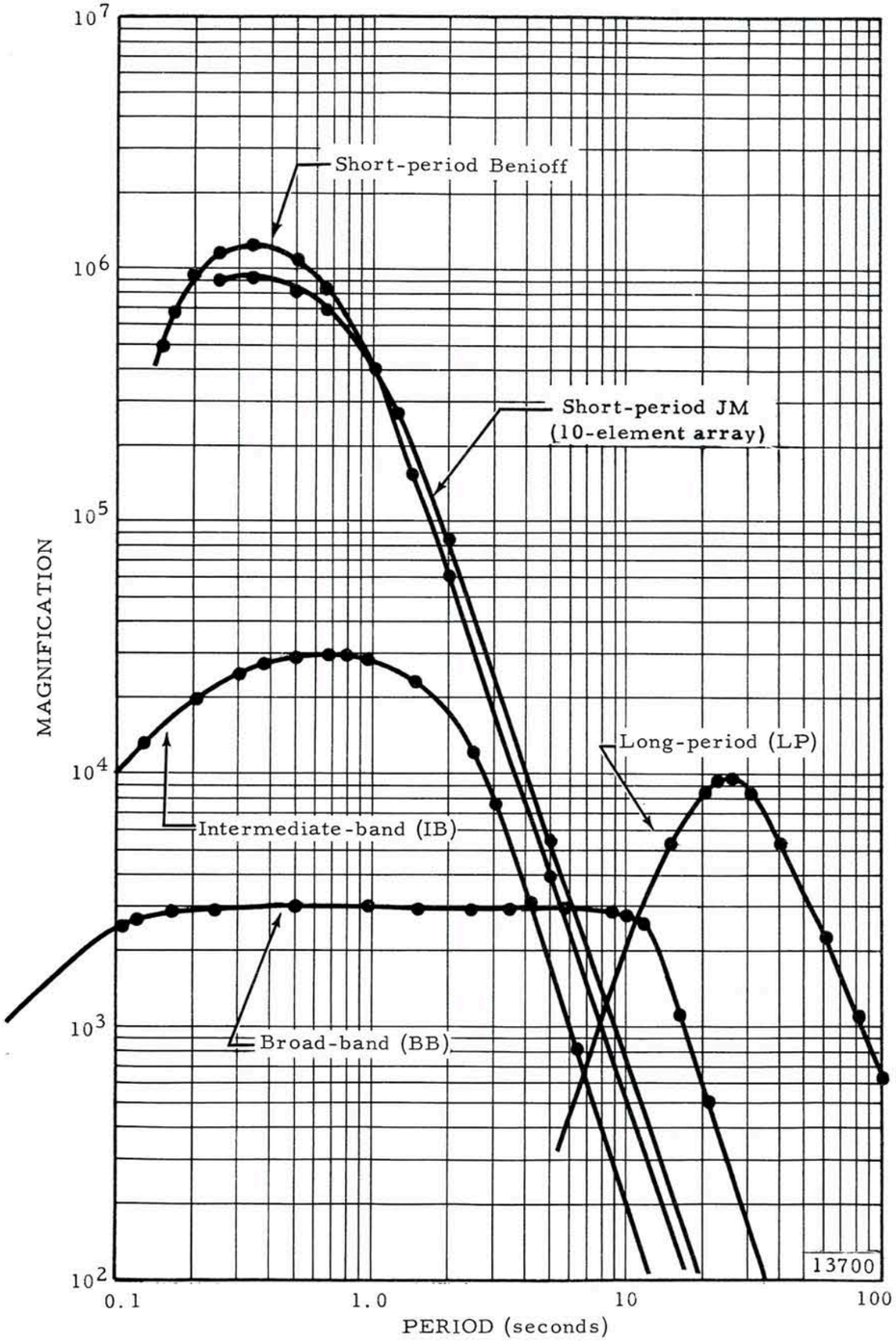
Probability of predominant 0.5-sec microseisms occurring at or less than a given trace amplitude in millimeters at operating gain of 500K

SEISMOGRAPHS

	Ts	λ s	Tg	λ g	σ^2
SP Vertical Johnson-Matheson	1.25	0.50	0.32	0.64	0.014
SP Vertical Benioff	1.0	1.0	0.2	1.0	0.01
SP Horizontal Benioff	1.0	1.0	0.2	1.0	0.01
IB Vertical Melton	2.5	0.65	0.64	1.5	0.002
IB Horizontal Sprengnether	2.5	0.65	0.64	1.5	0.0005
BB Vertical Press-Ewing	12.5	0.4	0.64	9.0	0.0002
BB Horizontal Sprengnether	12.5	0.4	0.64	9.0	0.0004
LP Vertical Sprengnether	25.0	1.0	30	1.0	0.004
LP Horizontal Sprengnether	25.0	1.0	30	1.0	0.004

SP = Short Period
IB = Intermediate Band
BB = Broad Band
LP = Long Period
Ts = Free period of seismometer in secs.
λ s = Damping constant of seismometer
Tg = Free period of galvanometer in secs.
λ g = Damping constant of galvanometer
σ^2 = Coupling coefficient

NOTE: Response curves are on page 4.



Response characteristics of seismographs

INTERPRETATION OF SYMBOLS

1. Earthquakes Listed

All local (L), near-regional (NR), regional (R), and distant earthquakes (T) are tabulated on the following pages.

2. System

In the column headed "Syst." (system), the seismograph (SP, IB, BB, or LP) and component (Z, N, or E) used to measure arrival time are designated. When no component designation appears, the phase is read from the vertical component. When neither system nor component designation appears, the phase is read from the SP vertical component.

3. Phase

(1) "i" (impetus) preceding a phase designates sudden beginning of the motion. (A designation of "i" in the case of initial P motion indicates a signal-to-noise ratio exceeding about 5/1).
(2) "e" (emersio) designates gradual beginning.
(3) "i" or "e" alone designates an unidentified phase.
(4) ( ) (parenthesis marks) indicate uncertainty.

4. Time

(1) Date and arrival time are given in Greenwich Civil Time (G.C.T.)
(2) The arrival time is reported as the earliest time on Z, N, or E. Single Z rather than the array summation (Σ) is used for measuring arrival times on the SP seismographs.

5. Ground Motion

(1) In the columns headed "A" and "T" are tabulated earth displacement in millimicrons and period in seconds, respectively. An amplitude of 999 indicates that a signal cannot be measured reliably. A "c" or "d" in the "A" column indicates compression or dilation, respectively, of the ground as indicated by the vertical component instrument.

The value of "A" for P phases is the maximum amplitude in the first ten seconds. All amplitudes are center-to-peak amplitudes.

(2) Trace amplitudes are measured to the nearest 1/2 millimeter at X10 view.

6. Direction

In the column headed "Dir." (direction), the direction of the epicenter as viewed from WMSO is indicated. For teleseisms, direction is obtained only from P and Rayleigh waves and is listed opposite the phase from which it is obtained. For close events, direction may be obtained from P-wave step-out shown on the individual short-period vertical traces.

7. Type

Earthquakes are identified as either:

L	(local)	0°	-	1.4°
NR	(near-regional)	1.4°	-	6°
R	(regional)	6°	-	16°
T	(teleseismic)	16°	-	180°

8. Remarks Column

(1) Epicentral locations, time of origins, depth of foci, and magnitudes are obtained from the U.S. Coast and Geodetic Survey Preliminary Determination of Epicenters cards.

(2) The nature of the surface waves is indicated subjectively.

(3) Epicentral locations and distances reported by the station are accompanied by an indication of the phases used to determine epicentral distance, e.g. Δ (S-P) = 6°, Central Colorado.

(4) Operational notes refer to operational difficulties that affect analysis of data.

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
01 Apr		eP	00	27	09.5	2	0.7		T	
		e			59.1		0.9			
01 Apr		eP	01	01	08.2	4	1.2		T	East Iran
		e		03	23.3		1.8			33.6 N 59.0 E
		eP'			49.2	3	1.0			h about 33 km
		e		04	44.6		1.6			0 = 00 45 14.6
		e		07	53.4		1.5			$\Delta = 114^\circ$
		e		13	29.5		1.4			Start is P diffracted
	LPE	eSur		32	52					Strong surface waves,
	LP	eSur		37	28					Love and Rayleigh type, on LP
01 Apr		eP	02	02	39.1	7	1.3		T	
		e			43.7		1.3			
01 Apr		eP	04	13	10.5	10	1.6		T	
01 Apr		eP	04	21	30.7	8	1.7		T	
01 Apr		eP	05	14	28.7	22	1.1		T	Near coast of Hokkaido,
		e			37.4		1.0			Japan
		e			51.0		1.3			41.9 N 143.5 E
		e		15	05.9		1.7			h about 55 km
	LPN	eS		24	55		19.0			0 = 05 01 56.0
	LPN	eSS		30	26		24.0			$\Delta = 84^\circ$
	LPN	e(Sur)		39	40					Medium surface waves
	LP	e Sur		44	26					on LP.
01 Apr		eP	05	58	34.3	13	1.6		T	
01 Apr		eP	06	13	13.1	3	1.2		T	
01 Apr		eP	09	36	57.2	16	1.0		T	North Polar region
		e		37	06.8		1.2			81.5 N 119.5 E
		e			40.8		1.2			h about 25 km
		e		39	22.1		1.2			0 = 09 26 35.6
		e		45	55.2		1.3			$\Delta = 62^\circ$
		e		53	30.0		1.6			Weak surface waves on LP
	LP	e(Sur)		56	40					
		eP'P	10	06	08.1		1.0			
		e			51.5		1.2			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
01 Apr		eP	10	17	21.2	3	1.0		T	
01 Apr		eP	11	37	07.1	3	1.1		T	
01 Apr		eP	11	55	33.3	6	0.9	S	T	Possible new event
		e		56	08.2		1.2			at 11 56 08.2
01 Apr		eP	12	08	51.5	16	1.5		T	Fox Islands, Aleutians
		e		09	03.2		1.8			53.4 N 164.5 W
		e(PcP)		10	25.5		0.9			h about 36 km
	LPN	eS		16	10		20.0			0 = 12 00 04.1
	LPN	eSur		24	12					$\Delta = 49^{o}$
										Weak surface waves on LP
01 Apr		eP	12	19	43.9	9	0.8		T	Alaska
		ePcP		21	32.1		0.8			63.1 N 152.3 W
		e		23	56.0		1.2			h about 100 km
										0 = 12 11 51.0
										$\Delta = 42.5^{o}$
01 Apr		eP	12	26	28.8	3	1.3		T	Near north coast of
		eP'		29	43.2	18	1.5			New Guinea
		e		30	02.4		1.2			4.2 S 143.6 E
		ePP			44.9		1.6			h about 80 km
		e		31	18.2		1.7			0 = 12 11 09.2
		eSKP		33	10.4		0.9			$\Delta = 115^{o}$
		e			50.5		1.4			Start of event is P diffracted
		e		35	21.9		1.2			Phase at 12 43 14.8 is
	E	e(SKS)		36	19.8		2.8			possible new event
		e		38	32.7		2.4			Strong surface waves, Love
		$ePKKP_1$		40	17.9		1.5			and Rayleigh type, on LP.
		$ePKKP_2$			23.4		1.5			
	LPE	ePS			26		24.0			
	LPE	e		42	17		23.0			
		e		43	14.8		1.2			
	LPN	eSS		46	31		24.0			
	LP	eSKKS		47	45		19.0			
	LPN	e(SSS)		50	16		24.0			

(continued on next page)

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
	LPE	e		54	30		24.0			(continued from preceding page)
	LPN	e		57	50		30.0			
	LPN	eSur		59	14					
	LP	eSur	13	05	34					
01 Apr		eP	13	22	15.3	6	1.3		T	
01 Apr		eP	14	00	12.8	6	1.0		T	
01 Apr		eP	14	17	09.2	8	1.3		T	
01 Apr		eP	14	43	52.3	7	0.9	SE	T	
		e		44	44.1		1.1			
		e			54.4		1.3			
01 Apr		eP	15	08	32.8	5	1.1		T	
01 Apr		eP	19	04	03.0	9	1.5		T	
01 Apr		eP	22	18	15.4	12	0.9	NW	T	
		e			25.2		0.9			
01 Apr		eP	23	21	55.3	6	1.4		T	
02 Apr		eP	00	11	54.1	4	0.8		T	
02 Apr		eP	00	28	11.4	18	1.5		T	Mariana Islands
		e			54.4		1.4			18.6 N 145.5 E
		epP			58.1		1.5			h about 205 km
		e		29	31.8		1.5			0 = 00 14 50.4
		ePP		32	14.4		1.6			$\Delta = 98^{o}$
		e			50.6		1.2			Medium surface waves,
		e		35	41.4		1.5			Love and Rayleigh type,
	LPE	eSKS		38	26		18.0			on LP.
	LPE	ePS		40	54		21.0			
	LPE	ePPS		41	45		16.0			
	LPE	eSS		45	42		22.0			
	LPE	ePSS		46	25		22.0			
	LPN	eSur		57	16					
	LP	eSur	01	03	13					

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
02 Apr		eP	01	28	20.7	2	0.9		T	
02 Apr		eP	04	10	19.7	11	1.5		T	
02 Apr		eP	08	23	50.2	1	0.3		NR	Δ(S-P) = 2.0°
	E	eS		24	15.3		0.4			
02 Apr		eP	18	09	08.9	1	0.4		NR	Δ(S-P) = 1.6°
		e			18.3		0.4			
		eS			30.1	999				
02 Apr		eP	19	15	46.8	3	0.8		T	
02 Apr		eP	22	51	15.1	1	0.3		L	Δ(S-P) = 0.5°
	N	eS			23.4		0.4			
02 Apr		eP	23	44	30.8	2	0.4		NR	Δ(S-P) = 2.3°
	E	eS		45	01.2		0.4			
03 Apr		eP	00	33	01.2	4	0.4	S	NR	Δ(S-P) = 2.1°
		eS			27.7	999				
03 Apr		eP	01	30	15.0	14	0.9		T	Peru
		e			47.9		0.7			9.6 S 74.7 W
		e		31	14.1		1.0			h about 125 km
		ePcP			34.7		0.6			0 = 01 21 34.8
		e		32	07.4		0.6			Δ = 49.5°
03 Apr		eP	02	55	56.2	2	0.9		T	
		e		56	06.6		1.0			
03 Apr		eP	05	24	38.7	2	0.9		T	
		e			46.9		0.9			
03 Apr		eP	06	12	51.9	5	1.0		T	
03 Apr		eP	16	17	04.5	5	1.0	SE	T	
		e			10.3		1.2			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
03 Apr		eP	16	38	54.5	4	1.0		T	Santa Cruz Islands region
		e		39	09.1		1.2			10.6 S 164.9 E
		e			37.2		1.1			h about 36 km
		ePP		43	08.6		1.5			0 = 16 24 55.6
	LPE	e(SKS)		50	30		21.0			Δ = 100.5°
	LPE	ePS		52	11		21.0			Mag. = 5-1/2 (Pal)
	LPE	ePPS		53	00		20.0			Strong surface waves,
		ePKKP		55	18.8		1.0			Love and Rayleigh type,
	LPE	eSS		57	41		18.0			on LP.
	LPE	eSur	17	07	22					Weak surface on BB.
	LP	eSur		12	17					
03 Apr		eP	18	00	50.2	2	0.2		NR	Δ (S-P) = 1.4°
	E	eS		01	09.0		0.5			
03 Apr		eP	21	44	55.4	2	0.4		NR	Δ (S-P) = 1.4°
		eS		45	14.5	999				
03 Apr		eP	22	45	10.4	1	0.3		NR	Δ (S-P) = 1.7°
		e			20.5		0.3			
		eS			32.5	999				
03 Apr		eP	23	09	26.4	8	1.6		T	
03 Apr		eP	23	31	51.2	4	0.4		NR	Δ (S-P) = 1.6°
		eS		32	12.8	999				
04 Apr		eP	00	38	17.9	2	0.4	N	NR	Δ (S-P) = 1.9°
		eS			44.5	999				
04 Apr		eP	02	39	27.6	2	1.0		T	
04 Apr		eP	03	48	10.9	3	1.2		T	
04 Apr		eP	03	58	10.6	4	1.1		T	
04 Apr		eP	08	35	22.6	5	1.2		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
04 Apr		eP	09	41	18.7	6	1.3		T	Fiji Islands region
		epP		42	16.4		1.4			22.0 S 178.2 W
		ePKKP		57	58.9		1.2			h about 268 km
										0 = 09 28 30.4
										Δ = 94°
04 Apr		eP	10	49	41.0	6	1.2		T	
04 Apr		eP	14	08	42.9	35	1.2		T	Near south coast of Panama
	LP	e		09	54		14.0			and Costa Rica
	LP	ePP		10	33		25.0			8.0 N 83.0 W
		e		11	05.3		1.5			h about 23 km
		ePcP			51.7		1.0			0 = 14 03 32.2
		e		12	20.8		1.9			Δ = 30°
	LP	e			45		22.0			Strong surface waves,
	LPE	e(S)		13	37		28.0			Love and Rayleigh type,
	LPN	e(SS)		16	13		23.0			on LP and BB.
	LP	eSur		17	46					
04 Apr		eP	15	22	23.2	14	1.6		T	Near south coast of Panama
		e			52.7		1.1			and Costa Rica
		ePcP		25	18.6		1.0			7.7 N 82.9 W
										h about 25 km
										0 = 15 16 07.9
										Δ = 30.5°
04 Apr		iP	15	33	49.8	d 6	0.5	SE	T	
		e		34	31.7		1.0			
		e			49.2		1.3			
		e		35	17.4		1.2			
04 Apr		eP	16	50	15.3	4	1.2		T	
04 Apr		eP	18	26	35.4	2	1.1		T	
04 Apr		eP	20	03	00.6	1	0.5		NR	(S-P) = 1.6°
	E	eS			21.2		0.4			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
04 Apr		eP	20	08	07.8	4	1.3		T	Crete
		ePP		11	48.1		1.7			35.0 N 25.6 E
										h about 27 km
										0 = 19 55 12.8
										Δ = 92.5°
04 Apr		eP	20	13	55.3	13	0.7	NNE	T	
04 Apr		eP	20	52	26.0	1	0.8		T	
		e		53	03.5		1.6			
04 Apr		eP	21	04	19.5	2	0.7		T	Crete
		e			41.7		1.6			34.7 N 25.5 E
		ePP		08	07.9		1.4			h about 21 km
		e		09	16.2		1.7			0 = 20 51 05.2
										Δ = 93.5°
04 Apr		eP	21	12	49.6	3	0.8		T	Crete
		e			59.3		0.8			34.6 N 25.5 E
		ePP		16	30.6		1.4			h about 25 km
										0 = 20 59 36.1
										Δ = 93°
04 Apr		eP	22	05	46.4	2	1.0		T	
		e		09	08.1		1.1			
04 Apr		eP	22	20	17.6	2	0.4		NR	Δ (S-P) = 2.2°
	E	eS			44.4	999				
04 Apr		eP	22	25	58.7	2	0.4	NE	NR	Δ (S-P) = 2.6°
	E	eS		26	30.9		0.5			
05 Apr		eP	03	48	49.3	6	1.2		T	Unimak Islands region
		e		49	30.3		1.4			53.7 N 163.6 W
		e			44.2		1.0			h about 65 km
		e(PP)		50	31.3		1.7			0 = 03 40 08.9
		e		51	39.7		1.5			Δ = 47.5°
	LPE	eS		55	54		23.0			Medium surface waves
	LP	e(Sur)	04	00	00					on LP.
	LP	eSur		06	30					

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
05 Apr		eP	04	16	41.3	4	1.2		T	
05 Apr		eP	06	14	24.6	2	0.6	NW	R	
	E	eSur		16	03.8		0.8			
05 Apr		eP	06	42	26.5	9	1.5		T	
		e			34.5		1.2			
		e			57.7		1.1			
		e		43	09.0		1.3			
		e			37.0		1.5			
	LP	e		50	30		18.0			
05 Apr		eP	07	26	43.1	4	1.4		T	
05 Apr		eP	07	30	53.3	3	1.1		T	
05 Apr		eP	09	47	01.6	6	1.5		T	
05 Apr		eP	12	36	50.9	53	1.2		T	Near coast of southern
		e			58.2		1.3	SE		Chile
		e		37	55.8		1.5			44.9 S 75.3 W
		e		38	25.4		2.2			h about 25 km
		e			51.2		2.0			0 = 12 24 34.5
		ePP		39	58.1		1.4			Δ = 82°
	LPN	eS		47	10		15.0			Medium surface waves
	LPE	eSS		52	38		21.0			on LP
		ePKKP		55	07.1		1.2			
	LP	eSur		59	00					
	LP	eSur	13	04	34					
05 Apr		eP	12	57	30.9	18	1.8		T	
05 Apr		eP	13	21	49.8	4	1.4		T	
05 Apr		eP	15	27	02.2	1	1.0		T	
05 Apr		eP	17	41	20.4	7	1.5		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
05 Apr		eP'	18	29	59.3	8	1.2		T	Off coast of Sumatra
		e		30	07.5		1.0			5.2 S 102.1 E
										h about 36 km
										0 = 18 10 23.9
										Δ = 145°
05 Apr		eP	18	57	23.4	6	1.0	SE	T	
05 Apr		eP	19	07	42.6	5	1.3		R	Strong surface waves
		e		08	50.8		1.0			on SP.
	N	eSur		11	37.2		1.5			Weak surface on LP and BB
	LP	eSur		12	56		14.0			
05 Apr		eP	20	36	35.0	8	1.6		T	
05 Apr		eP	22	26	02.8	5	1.2		R	Medium surface waves
	E	eSur		30	02.4		2.0			on LP, BB and SP.
	BB	e		32	09		8.0			
06 Apr		eP	01	38	20.2	2	0.9		T	
06 Apr		eP	03	03	27.0	2	1.1		T	
		e			37.1		0.8			
06 Apr		eP	04	38	20.3	2	0.8		T	Fiji Islands
										17.7 S 178.8 W
										h about 593 km
										0 = 04 26 08.6
										Δ = 92°
06 Apr		eP	04	45	03.8	3	1.1		T	
06 Apr		eP	10	07	40.3	4	1.2		T	
		e			49.1		1.6			
06 Apr		eP	12	52	44.9	2	1.0		T	
06 Apr		eP	13	23	17.3	2	1.0		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
06 Apr		eP	14	41	03.6	6	1.1		T	
06 Apr		eP	14	45	55.5	1	0.8		T	
06 Apr		eP	16	51	18.5	2	0.4	NE	L	Δ (S-P) = 1.2°
	E	eS			35.5		0.4			
06 Apr		eP	17	00	38.8	58	1.1		T	Easter Islands region
		e			52.3		1.7			26.7 S 113.2 W
		e		01	10.0		1.3			h about 33 km
		e		02	16.1		1.8			0 = 16 50 14.2
	LP	ePP			53		10.0			Δ = 62°
		e		04	44.4		1.9			Strong surface waves,
		e		05	37.6		1.5			Love and Rayleigh type,
	LPE	eS		09	16		25.0			on LP.
	LPN	e			45		15.0			
	LPN	eSS		13	25		25.0			
	LPE	e		14	45		22.0			
	LPE	eSur		16	42					
	LPE	eSur		18	24					
	LP	eSur		21	27					
		eP'P'		29	51.6		1.8			
06 Apr		eP	18	53	37.4	5	1.0		T	
		e			45.2		1.1			
06 Apr		eP	19	00	39.9	2	0.8		T	
		e			46.8		1.0			
06 Apr		eP	19	38	56.8	2	0.7		T	
06 Apr		eP	21	30	15.5	2	0.5		NR	Δ (S-P) = 3.1°
		e			19.0		0.5			
		e			22.8		0.4			
		eS			53.7	999				
		eSur			59.8	999				

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
06 Apr		eP	21	50	45.2	7	1.0	NW	T	
		e			53.1		1.2			
		e		51	06.7		1.1			
06 Apr		eP	23	31	18.6	2	0.4	NE	NR	Δ (S-P) = 2.7°
	E	eS			51.3		0.5			
07 Apr		eP	02	18	11.9	5	0.6		T	Near coast of northern
		ePcP		19	52.9		0.6			Peru
										6.3 S 79.9 W
										h about 25 km
										0 = 02 10 02.2
										Δ = 44°
07 Apr		eP	02	20	27.1	3	0.9		T	
07 Apr		eP	06	21	58.7	104	1.9	SE	R	Strong surface waves
		e		23	36.4		1.0			on SP.
		e			59.7		1.1			Medium surface on LP.
		eSur		25	36.7	999				
	LP	eSur		30	00					
07 Apr		eP	06	35	57.5	17	1.5		T	Caroline Islands region
		e		37	30.3		1.4			10.0 N 144.4 E
		e		38	15.3		1.4			h about 50 km
		e			37.3		1.3			0 = 06 21 38.4
		ePP		40	06.5		1.6			Δ = 105°
		e		41	49.0		1.9			Mag. = 6 (Pas)
	LPE	eSKS		46	34		22.0			Strong surface waves,
	LPE	e		47	53		17.0			Love and Rayleigh type,
	LP	eSP		49	20		18.0			on LP.
	LP	eSPP		50	22		18.0			Weak surface on BB.
		ePKKP		51	45.1		1.2			
	LPE	eSS		54	56		26.0			
	LPE	e(SSS)		58	39		23.0			
	LPE	eSKKKS	07	02	08		24.0			
	LPN	eSur		05	14					
	LP	eSur		09	54					

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
07 Apr		eP	08	54	35.4	11	0.7	SSE	R	
		e			38.6		0.8			
		e			44.3	999				
		e			46.3		0.6			
		eSur		57	46.8	999				
07 Apr		eP	10	26	22.7	2	0.8		T	
07 Apr		eP	13	11	52.4	8	0.9		T	Central Chile
		e		12	08.2		0.7			35.1 S 70.8 W
		e			15.3		0.7			h about 108 km
		e			31.8		1.3			0 = 13 00 26.3
										$\Delta = 74^{o}$
07 Apr		eP	17	29	29.8	1	0.4	ENE	L	Δ (S-P) = 0.6^{o}
		eS			39.0	999				
07 Apr		eP	17	39	07.5	21	0.4	E	NR	Δ(S-P) = 1.9^{o}
		eS			31.9	999				Quarry blast near
										Bromide, Oklahoma
07 Apr		eP	18	01	50.3	18	0.4	E	NR	Δ(S-P) = 1.9^{o}
		eS		02	14.3	999				Quarry blast near
										Bromide, Oklahoma
07 Apr		eP	18	47	54.9	4	1.1		T	
		e		48	52.1		1.2			
07 Apr	LP	eSur	19	10	27					Strong surface waves
										on LP and SP.
										Weak surface on BB
07 Apr		eP	21	48	08.2	8	1.4		T	Albania
		e			23.3		1.0			40.9 N 20.3 E
		e			46.3		1.4			h about 25 km
		e		52	30.0		1.4			0 = 21 35 28.1
										$\Delta = 85.6^{o}$

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
07 Apr		eP	23	11	35.8	42	1.3		T	Windward Islands
		e		16	12.7		1.5			15.0 N 60.5 W
	E	e		17	11.4		1.4			h about 77 km
	E	eS			32.7		1.7			0 = 23 04 12.2
	N	e			38.6		2.3			$\Delta = 39.0^{o}$
	N	e			53.9		1.2			Strong surface waves
	N	eScS		21	38.6		1.4			on LP.
	N	e		22	06.8		1.6			
	LP	eSur		23	14					
07 Apr		eP	23	34	23.8	1	0.4		NR	Δ(S-P) = 2.6^{o}
	E	eS			56.2		0.4			
07 Apr		eP	23	53	16.7	6	1.2		T	
08 Apr		eP	00	23	49.6	2	0.4		NR	Δ(S-P) = 3.7^{o}
	E	eS		24	33.8		0.6			
08 Apr		eP	01	55	31.4	10	1.5		T	Near coast of Chile
		e			40.3		1.5			37.6 S 73.9 W
										h about 54 km
										0 = 01 43 49.3
										$\Delta = 75.5^{o}$
08 Apr		eP	02	03	05.2	6	1.3		T	
08 Apr		eP	04	06	01.6	2	1.2		T	Andreanof Islands,
		e			14.7		1.0			Aleutian Islands
										51.4 N 177.8 W
										h about 25 km
										0 = 03 56 14.4
										$\Delta = 57^{o}$
08 Apr		eP	05	28	01.6	10	0.9		T	Tonga Islands
		e			09.8		1.0			20.3 S 175.7 W
		e			43.9		1.0			h about 70 km
										0 = 05 15 03.0
										$\Delta = 91^{o}$

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
08 Apr		eP	21	10	38.0	4	1.2		T	Near coast of Chile 37.9 S 73.2 W h about 43 km 0 = 20 58 51.6 Δ = 76°
08 Apr		eP	21	53	45.9	2	0.3	SE	NR	Δ(S-P) = 1.6°
		e			55.4		0.5			
		eS		54	07.2	999				
08 Apr		eP	21	54	51.8	398	1.3		T	Off coast of Mexico
	LPE	eSur	22	00	18		16.0			15.6 N 99.6 W
	E	eSur			55.6		2.2			h about 48 km 0 = 21 50 28.9 Δ = 18.5° Surface at 22 00 55.6 is Lg Strong surface waves on all systems.
08 Apr		eP	22	18	20.0	11	1.6		T	Unimak Islands region 54.8 N 165.0 W h about 25 km 0 = 22 09 31.4 Δ = 49°
08 Apr		eP	22	53	46.5	1	0.4		NR	Δ(S-P) = 1.7°
	E	eS		54	09.0		0.5			
09 Apr		eP	02	28	40.1	7	1.0		T	
		e			48.2		0.9			
09 Apr		eP	02	51	07.2	14	1.7		T	
09 Apr		eP	04	27	43.4	5	1.0		T	Mariana Islands
		epP		28	35.9		1.6			18.6 N 145.5 E h about 200 km 0 = 04 14 23.0 Δ = 98.5°
09 Apr		eP	04	37	23.6	2	0.8		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
09 Apr		eP	04	38	39.5	2	0.6		R	
		e			48.1		0.9			
		e		39	07.2		0.9			
	E	eSur		42	13.8		0.5			
09 Apr		eP	07	46	25.6	3	1.0		T	
09 Apr		eP	08	21	59.8	2	1.0		T	
09 Apr		eP	08	54	29.4	4	0.8		T	
09 Apr		eP	09	04	03.2	2	1.3		T	
09 Apr		eP'	09	13	30.5	6	1.4		T	Sawoe Sea
		e			40.0		1.2			8.6 S 124.1 E
		e			53.6		1.0			h about 46 km
		e		14	11.7		0.8			0 = 08 54 22.7
		eSKP		16	57.3		1.0			Δ = 133°
		e		17	59.1		1.8			
		e		18	16.5		1.9			
		e			51.5		1.8			
		eSKKP		26	18.9		1.1			
09 Apr		eP	09	58	47.9	6	1.2		T	
09 Apr		eP	11	09	55.3	8	1.4		T	
		e		13	30.5		2.0			
09 Apr		eP	11	53	17.4	3	0.9		T	
		e			30.8		1.0			
09 Apr		eP	16	19	03.2	7	1.0		T	
		e			21.2		1.1			
09 Apr		eP	18	03	48.5	2	0.3		NR	Δ(S-P) = 1.7°
		eS		04	10.5	999				
09 Apr		eP	19	14	20.6	2	0.5		NR	Δ(S-P) = 1.4°
	E	eS			39.9		0.4			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
09 Apr		eP	20	27	57.0	2	0.7		T	Fiji Islands region 21.0 S 177.3 W h about 630 km 0 = 20 15 45.0 $\Delta = 93^{o}$
09 Apr		eP	21	13	19.5	1	0.5	NE	NR	Δ (S-P) = 3.4^{o}
		e			25.7		0.4			
		e			44.1		0.5			
	N	eS		14	00.6		0.4			
09 Apr		eP	22	00	15.6	1	0.4		NR	Δ (S-P) = 1.6^{o}
		eS			36.6	999				
09 Apr		eP	23	39	42.6	1	0.4		NR	Δ (S-P) = 2.6^{o}
		e			48.5		0.4			
	E	eS		40	15.0		0.4			
10 Apr		eP	00	17	34.0	3	0.4	S	NR	Δ (S-P) = 2.1^{o}
		eS			59.9	999				
10 Apr		eP	01	13	41.4	1	0.4		NR	Δ (S-P) = 3.0^{o}
	E	eS		14	18.7		0.5			
10 Apr		eP	04	29	35.6	3	0.9		T	
10 Apr		eP	04	47	18.9	230	1.4		T	Chile-Argentina border
		e			44.1		1.2			28.6 S 68.8 W
	LP	epP			51		14.0			h about 130 km
		e		48	04.3		1.3			0 = 04 36 27.5
		e			30.8		1.2			$\Delta = 69^{o}$
		e(PP)		49	58.7		1.3			Medium surface waves,
		e		50	31.9		1.4			Love and Rayleigh type,
	LPE	eS		56	13		15.0			on LP
	LPE	ePS			46		21.0			
	E	eScS		57	09.0		1.5			
	LPE	ePPS			18		28.0			
	LPE	eSS	05	01	00		27.0			

(continued on next page)

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
	LPN	e(Sur)		05	10					(continued from preceding page)
	LP	eSur		08	31					
		eP'P'		15	30.8		1.3			
		e		16	04.3		1.3			
10 Apr		eP	05	24	06.1	4	1.1		T	
10 Apr		eP	09	33	26.7	3	1.1		T	
10 Apr		iP	10	43	20.6 c	92	0.8		T	Near coast of Kamchatka
		e			42.4		0.8			51.1 N 157.7 E
		e		44	55.0		1.2			h about 33 km
		e		45	40.9		1.2			0 = 10 31 58.5
		e		46	03.5		1.3			$\Delta = 71^{o}$
	LP	e		53	32		30.0			
10 Apr		eP	12	22	32.6	6	1.3		T	
		e			45.7		1.0			
		e		23	07.2		1.0			
10 Apr		eP	12	46	31.8	8	1.3		T	Near coast of southern Chile
		e			39.3		1.7			37.3 S 72.6 W
		e			59.9		1.5			h about 67 km
		e		47	28.0		1.0			0 = 12 34 50.8
										$\Delta = 76^{o}$
10 Apr		eP	12	49	52.0	4	1.1		T	
10 Apr		eP	14	21	01.8	35	1.9		T	Near coast of Chile
		e			22.5		1.3			37.5 S 73.8 W
		e			30.5		1.4			h about 25 km
		e			59.8		1.2			0 = 14 09 18.8
	LPN	eS		30	42		18.0			$\Delta = 75^{o}$
	LPE	ePS		31	10		18.0			Weak surface waves
	LP	eSur		44	04					on LP

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
10 Apr		eP	14	35	38.3	7	1.0		T	Montpelier, Vermont
	E	e(Sur)		39	41.9		1.0			44.1 N 73.1 W
	E	eSur		41	57.7	999				h about 25 km
										0 = 14 30 46.4
										Δ = 21.5°
10 Apr		eP	15	12	06.8	4	1.0		T	
10 Apr		eP	17	19	28.8	6	1.1		T	Fiji Islands region
		e		20	43.8		1.5			16.4 S 175.3 W
										h about 330 km
										0 = 17 07 11.9
										Δ = 89°
10 Apr		eP	20	00	56.7	5	1.2		T	
10 Apr		eP	20	14	28.3	8	1.1		T	Strong surface waves
		e			38.3		0.9			on all systems
		e			54.5		1.0			
		e		15	59.5		1.9			
		e		16	47.9		1.8			
	N	e		18	24.0		4.5			
	LP	e			26		10.0			
	N	e		19	14.6		1.3			
	LPE	e		20	15		26.0			
	E	e			21.4		1.9			
	E	e			41.3		2.1			
	E	e			48.3		1.9			
	E	e			56.3		2.3			
	E	e(Sur)		21	14.8		2.0			
	BB	eSur			55		0.9			
10 Apr		eP	20	37	55.6	6	1.0		T	Off coast of Vancouver Is.
		e(PP)		38	35.3		1.1			49.1 N 128.5 W
		e			59.8		1.2			h about 25 km
	LPE	eS		42	44		19.0			0 = 20 32 19.4
	LPN	eSur		45	10					Δ = 20.5°
	LP	eSur		47	20					Strong surface waves, Love and Rayleigh type, on LP.

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
10 Apr		eP	20	55	48.2	1	0.5		NR	Δ (S-P) = 2.6°
	E	eS		56	20.4		0.6			
10 Apr		eP	21	06	31.1	4	1.0		T	
10 Apr		iP	21	50	02.1	c 275	2.0		T	Ionian Sea
		e			35.5		2.0			37.9 N 20.1 E
	BB	e			54		8.0			h about 35 km
		e		51	12.5		1.9			0 = 21 37 12.6
		e			35.5		2.0			Δ = 88°
		e		53	21.9		1.2			Strong surface waves,
		ePP			31.3		2.1			Love and Rayleigh type,
		e		54	13.5		1.3			on LP and BB.
		e			48.4		1.5			Mag. = 5 - 5-1/4 (Pal.)
		e		55	18.1		1.5			
	BB	ePPP			34		8.0			
		e		59	54.2		1.9			
	N	eSKS	22	00	30.0		2.5			
	LPE	eS			52		17.0			
	LPE	ePS		01	48		20.0			
	LPE	ePPS		02	17		22.0			
	LPE	eSS		06	36		34.0			
		ePKKP		07	46.5		1.5			
	LPE	e(SSS)		08	46		35.0			
	LPE	e		12	00		30.0			
	LPE	e		13	28		26.0			
	LPE	eSur		15	28					
	LP	eSur		21	00					
10 Apr		eP	22	23	40.7	11	1.2		T	Ionian Sea
		e			46.0		1.2			38.1 N 20.4 E
		ePP		27	04.7		1.3			h about 25 km
										0 = 22 10 50.3
										Δ = 88°
10 Apr		eP	23	11	29.3	2	0.8		T	

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h. m. s.					
10 Apr		eP	23 48 51.7	4	1.0		T	Ionian Sea 37.8 N 20.7 E h about 25 km 0 = 23 35 59.9 Δ = 88°
11 Apr		eP	00 41 24.9	4	1.0		T	
11 Apr		eP	01 48 36.8	3	1.0		T	Ionian Sea 37.8 N 20.4 E h about 25 km 0 = 01 35 46.6 Δ = 87°
11 Apr		eP	04 46 39.8	2	1.0		T	
		e	56.0		1.1			
11 Apr		eP	09 10 42.1	3	1.0		T	
11 Apr		eP	11 00 21.9	18	1.0		T	Ionian Sea
		e	29.6		1.2			38.2 N 20.0 E
		e	01 02.9		1.6			h about 43 km
		e	23.7		1.7			0 = 10 47 34.0
		ePP	03 52.2		1.7			Δ = 87.5°
		e	04 37.9		1.5			Weak surface waves
		e	06 10.0		1.6			on LP.
		eP'P'	26 44.7		1.3			
	LPE	eSur	30 30					
11 Apr		eP	12 22 09.4	1	0.5		R	Start is indefinite
	E	eSur	26 17.9		1.3			
11 Apr		eP	14 42 03.8	4	0.9		T	
		e	23.6		0.8			
11 Apr		eP	18 08 26.3	2	0.3	SSE	NR	Δ(S-P) = 1.7°
		e	36.5		0.4			Probable quarry blast
		eS	48.1	999				near Chico, Texas.

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h. m. s.					
11 Apr		iP	23 28 21.3 d	290	1.3		T	Galapagos Islands
		ePP	29 34.3		1.8			0.2 S 91.5 W
		e	30 51.1		1.1			h about 25 km
		ePcP	56.3		0.9			0 = 23 21 26.3
		e	31 28.7		1.4			Δ = 35°
	LPE	eS	33 57		24.0			Strong surface waves,
	LPE	e(Sur)	36 53					Rayleigh type, on LP.
	LP	eSur	38 57					Weak surface on BB.
12 Apr		eP	00 14 36.3	3	1.0		T	Ionian Sea 37.7 N 20.0 E h about 25 km 0 = 00 01 45.4 Δ = 87.5°
12 Apr		eP	00 56 18.5	2	1.0		T	
		e	30.1		1.0			
12 Apr		eP	01 05 30.5	35	1.0		T	Near east coast of
		e	31.0		1.9			Honshu, Japan
		ePP	08 53.0		2.3			38.2 N 142.3 E
		e	10 06.9		1.5			h about 68 km
	LP	e	12 28		16.0			0 = 00 52 47.0
		e	41.1		1.9			Δ = 88°
		e	14 32.3		1.4			Mag. = 6-3/4 - 7 (Pal.)
		e	15 19.9		2.5			7 - 7-1/4 (Pas.)
		e	52.7		1.2			Strong surface waves,
	E	eS	16 13.2		5.0			Love and Rayleigh type,
	E	e(ScS)	25.3		4.6			on all systems.
	N	e	31.2		4.0			
	E	e	45.4		4.4			
		e	17 15.7		1.5			
		e	18 28.2		1.6			
		e	20 26.2		1.5			
	LPE	eSS	21 43		22.0			
		ePKKP	23 15.7		1.1			
		e	30.1		1.0			
		e	48.8		1.4			
	LPE	eSSS	25 46		30.0			
	LPN	eSur	28 44					
		eP'P'	31 17.1		1.0			
	LP	eSur	33 58					

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
12 Apr		eP	01	18	52.7	6	1.1		T	
		e		19	03.7		1.2			
12 Apr		eP	01	45	31.8	7	1.4		T	
12 Apr		eP	02	00	20.9	6	1.6		T	
12 Apr		eP	05	28	53.4	33	1.0		T	Near east coast of
		e		29	21.5		1.2			Honshu Japan
		e		30	41.1		1.1			38.2 N 142.5 E
		ePP		32	20.7		2.1			h about 26 km
										0 = 05 16 05.0
										$\Delta = 87^{o}$
12 Apr		eP'	11	39	41.0	31	1.2		T	South of Java
		epP'		40	00.8		1.2			10.4 S 105.0 E
		ePP		43	18.2		2.2			h about 84 km
		e(SKP)			47.1		1.0			0 = 11 20 02.3
										$\Delta = 147.5^{o}$
										Possible new event
										at 11 43 47.1
12 Apr		eP	13	20	12.9	6	0.9		T	
12 Apr		eP	14	04	50.7	5	1.1		T	
12 Apr		eP	16	47	03.6	50	1.5		T	Near northern coast
		e			14.3		1.0			of Chile
		e			30.6		1.3			28.7 S 71.9 W
		e			44.6		0.8			h about 34 km
		e		48	55.4		1.4			0 = 16 36 08.4
		ePP		49	35.0		1.6			$\Delta = 68.5^{o}$
		eP'P'	17	15	41.3		1.2			
12 Apr		eP	19	51	48.7	2	0.3		NR	Δ(S-P) = 3.3^{o}
	E	eS		52	28.9		0.4			
12 Apr		eP	20	16	08.9	3	1.0		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
12 Apr		eP	20	52	47.5	1	0.5		NR	Δ (S-P) = 2.6^{o}
	E	eS		53	19.6		0.5			
12 Apr		eP	23	40	06.9	1	0.4		NR	Δ (S-P) = 1.7^{o}
	E	eS			28.8		0.5			
13 Apr		eP	00	28	11.2	1	0.4		NR	Δ (S-P) = 2.6^{o}
	E	eS			43.0		0.4			
13 Apr		eP	01	57	36.0	3	0.9		T	
13 Apr		eP	02	38	13.4	7	1.6		T	
		e			30.0		1.5			
13 Apr		eP	03	32	47.0	6	1.5		T	
13 Apr		eP	04	31	47.2	4	0.9		T	
13 Apr		eP	09	51	48.7	10	1.5		T	
13 Apr		eP	10	45	20.6	4	1.4		T	
		e		46	35.1		1.4			
13 Apr		eP	15	42	49.2	42	1.5		T	California-Nevada border
		e			32.4		1.4			38.4 N 119.2 W
		e			44.9		1.4			h about 25 km
		e		44	33.4		1.6			0 = 15 38 47.3
	N	eSur		47	42.2		2.5			$\Delta = 16.5^{o}$
	LP	eSur		49	25					Strong surface waves
										on LP and SP.
										Mag. = 4-3/4 - 5 (Pas.)
13 Apr		eP	18	49	26.6	7	1.0		T	Kazakh, SSR - China border
		e			30.4		0.9			49.1 N 87.2 E
		e			57.0		0.8			h about 28 km
		e		50	18.4		1.0			0 = 18 35 58.3
		ePP		53	17.4		1.3			$\Delta = 95^{o}$
	LPN	eSur	19	29	07					Weak surface waves on LP

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
13 Apr		eP	22	35	23.4	3	0.8		T	
13 Apr		eP	23	29	03.2	1	0.4	E	NR	Δ (S-P) = 1.7°
		eS			25.5	999				
13 Apr		eP	23	34	58.5	1	0.4		NR	Δ (S-P) = 1.7°
		e		35	08.7		0.4			
		eS			20.3	999				
13 Apr		eP	23	36	22.0	2	0.4		NR	Δ (S-P) = 2.5°
		eS			52.6	999				
14 Apr		eP	01	22	02.5	1	0.8		T	Kenai Peninsula
		e			16.1		1.3			59.6 N 152.1 W
										h about 78 km
										0 = 01 14 13.7
										Δ = 41.5°
14 Apr		eP	07	04	11.8	6	1.2		T	
14 Apr		eP	07	58	08.7	14	1.0		T	Off coast of northern
		e			15.7		1.4			California
	LP	eS	08	02	13		21.0			40.3 N 125.1 W
	LPN	eSur		03	46					h about 25 km
	LPN	eSur		05	08					0 = 07 53 17.1
										Δ = 21°
										Strong surface waves,
										Love and Rayleigh type on L
										Weak surface on BB.
14 Apr		eP	15	41	15.7	3	1.0		T	
14 Apr		eP	17	02	51.2	5	1.0		T	Off east coast of Honshu,
										Japan
										38.2 N 142.5 E
										h about 53 km
										0 = 16 50 05.8
										Δ = 87°

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
14 Apr		eP	18	55	50.1	3	1.0		T	Off east coast of Honshu,
										Japan
										37.7 N 142.8 E
										h about 44 km
										0 = 18 42 56.9
										Δ = 88°
14 Apr		eP	20	11	23.2	4	1.1		T	
14 Apr		eP	20	53	51.0	6	1.1		T	
		e		54	10.0		1.3			
14 Apr		eP	23	54	18.1	1	0.3		NR	Δ (S-P) = 2.6°
	E	eS			50.3		0.4			
15 Apr		eP	01	03	55.5	2	0.4		NR	Δ (S-P) = 2.2°
		eS		04	22.4	999				
15 Apr		eP	07	45	16.3	8	1.0		T	Honshu, Japan
										36.2 N 140.6 E
										h about 123 km
										0 = 07 32 14.8
										Δ = 90.5°
15 Apr	LPN	eSur	08	50	24				T	Fresno County, California
										36.5 N 120.7 W
										h about 25 km
										0 = 08 41 01.2
										Δ = 18°
										Mag. 4-1/4 - 4-1/2 (Berk.)
										Medium surface waves on LP
15 Apr		eP	16	48	38.7	3	0.4		NR	Δ (S-P) = 1.6°
		eS			59.6	999				

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
15 Apr		eP	18	21	18.4	192	1.4		T	Ascension Islands region
		e			54.8		1.4			02.7 S 11.6 W
		ePP		24	48.9		1.8			h about 25 km
	LPE	eS		32	12		20.0			0 = 18 08 27.3
	LPN	ePS		33	12		22.0			Δ = 89°
	LPE	eSS		37	53		23.0			Strong surface waves,
	LPN	eSSS		41	34		23.0			Love and Rayleigh type,
	LPN	eSur		45	00					on LP.
	LP	eSur		51	02					Weak surface on BB.
15 Apr		eP	18	58	08.6	224	1.4		T	Ascension Islands region
		e		59	43.8		1.8			02.9 S 11.9 W
		ePP	19	01	42.0		3.2			h about 25 km
	LPE	eS		09	03		22.0			0 = 18 45 17.4
	LPN	e		10	03		23.0			Δ = 89°
	LPE	eSS		14	37		23.0			Strong surface waves,
	LPN	eSSS		18	08		28.0			Love and Rayleigh type,
	LPN	eSur		21	26					on LP.
	LP	eSur		28	32					Medium surface on BB.
15 Apr		eP	21	49	50.4	33	0.8	SE	T	
15 Apr		eP	21	57	24.6	2	0.4	NE	NR	Δ(S-P) = 2.6°
	E	eS			56.8		0.4			
15 Apr		eP'	22	49	45.2	11	1.1		T	Sandwich Islands
										56.6 S 26.2 W
										h about 25 km
										0 = 22 31 06.2
										Δ = 110°
15 Apr		eP	22	56	53.7	5	0.9		T	
16 Apr		eP	00	28	02.5	11	1.4		T	Ionian Sea
		e			13.5		1.7			38.2 N 20.4 E
		e			31.6		0.9			h about 25 km
		e			43.1		1.5			0 = 00 15 15.7
		e			57.7		1.9			Δ = 88°
		e		29	25.2		1.7			
		e		37	32.1		1.5			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
16 Apr		eP	03	15	21.1	3	0.8		T	
16 Apr		eP	05	13	55.3	10	1.5		T	
16 Apr		eP	05	42	31.2	10	1.5		T	
16 Apr		eP	06	02	46.8	4	1.0		T	
16 Apr		eP	07	32	05.5	2	0.9		T	Aegean Sea
										35.6 N 25.8 E
										h about 25 km
										0 = 07 18 50.0
										Δ = 92°
16 Apr		eP	10	54	32.8	3	0.6		R	
		e			50.0		0.8			
	E	eSur		57	09.5		0.9			
16 Apr	LP	eSur	12	25	31				T	Weak surface waves on LP
	N	eSur		28	22.6		2.2			
16 Apr		eP	12	44	21.4	2	0.8		T	Start indefinite
		e		46	12.2		1.5			Strong surface on all systems
		e			41.2		1.6			
		e		47	37.2		1.2			
	LPE	eSur		49	50					
	LP	eSur		51	37					
16 Apr		eP	12	54	51.4	4	0.8		T	Start indefinite
	N	eSur		57	40.2		2.0			
16 Apr		eP	13	28	13.2	2	0.8		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
16 Apr		eP	13	33	19.1	56	0.9		T	South of Honshu, Japan
		e(pP)			55.2		0.9			30.6 N 140.6 E
		e		35	31.1		1.2			h about 176 km
		ePP		37	05.7		2.0			0 = 13 20 15.1
	LPE	eSKS		43	45		15.0			Δ = 94°
	LPN	eS		44	19		23.0			Strong surface waves,
	LP	e		45	48		24.0			Love and Rayleigh type,
	LPE	ePPS		46	26		21.0			on LP.
	LPN	eSSS		50	43		25.0			
	LPN	e		55	00		20.0			
	LPN	eSur	14	00	00					
	LP	eSur		04	40					
16 Apr		eP'	18	14	24.9	229	1.7		T	Prince Edward Islands
										44.8 S 37.2 E
										h about 25 km
										0 = 17 54 49.2
										Δ = 148°
16 Apr		eP	18	20	55.7	96	1.4		T	
16 Apr		eP	18	28	16.5	50	1.5		T	
16 Apr		eP	22	28	47.2	5	0.7		T	
16 Apr		eP	23	24	50.9	6	0.9		T	
		e		25	00.9		1.1			
16 Apr		eP	23	38	58.6	2	0.3		NR	Δ(S-P) = 1.7°
		e		39	08.6		0.3			
		eS			20.4	999				
16 Apr		eP	23	45	17.3	3	0.4	SE	NR	Δ(S-P) = 1.6°
		e			27.0		0.4			
		eS			38.6	999				
17 Apr		eP	04	22	59.1	6	0.9		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
17 Apr		eP	06	04	57.4	1	0.6		T	
17 Apr		eP	07	01	56.1	6	1.0		T	South of Honshu, Japan
		e		02	10.0		0.9			31.3 N 142.6 E
										h about 23 km
										0 = 06 48 44.7
										Δ = 93°
17 Apr		eP	08	02	10.8	9	1.0		T	Near east coast of
		e			26.5		1.4			Kamchatka
		e			52.7		1.3			54.8 N 160.7 E
										h about 25 km
										0 = 07 51 09.4
										Δ = 67.5°
17 Apr		eP	10	16	14.4	18	0.8		T	Adriatic Sea
		e			25.0		1.3			42.3 N 17.3 E
		e			40.6		1.0			h about 25 km
		e		17	30.4		1.0			0 = 10 03 46.9
		e		18	55.3		1.0			Δ = 82°
		e		19	01.6		1.3			Weak surface waves on LP
		e(PP)			33.7		1.1			
	LP	eSur		40	56					
17 Apr		eP	11	28	17.4	4	1.0		T	Ionian Sea
										37.0 N 18.5 E
										h about 25 km
										0 = 11 15 17.1
										Δ = 87.5°
17 Apr		eP	11	46	43.6	9	1.0		T	Ionian Sea
		e			52.1		1.4			37.8 N 19.9 E
		e		47	04.3		1.3			h about 25 km
		e			37.7		1.3			0 = 11 33 51.0
	LPN	eSur	12	13	30					Δ = 87°
										Medium surface waves
										on LP

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h.	m.	s.					
17 Apr		eP	11	48	14.1	14	1.1		T	
17 Apr		eP	11	48	33.1	11	0.8		T	
		e			41.2		1.3			
17 Apr		eP	12	23	02.4	3	1.1		T	
17 Apr		eP	14	52	03.3	9	1.1		T	
		e			36.5		0.9			
17 Apr		eP	15	28	52.1	2	0.5		NR	Δ(S-P) = 3.5°
	E	eSur		29	45.5		0.5			
17 Apr		eP	15	53	34.5	1	0.3		R	
		e			51.5		0.3			
	E	eSur		54	54.6		0.5			
17 Apr		iP	18	18	52.6	c 999			L	Δ(S-P) = less than 0.1°
		eS			55.2	999				Quarry blast near Richard's Spur, Oklahoma
17 Apr	LP	eSur	18	28	30				T	South Island, New Zealand
	LP	eSur		34	05					42.6 S 174.0 E h about 25 km 0 = 17 43 03.4 Δ = 115° Strong surface waves, Love and Rayleigh type, on LP.
17 Apr		eP	21	06	55.2	4	1.0		T	Near east coast of Honshu, Japan
		e		07	07.0		1.2			38.4 N 142.2 E
		epP			26.2		1.2			h about 110 km
		ePP		10	12.7		1.6			0 = 20 54 13.4
	LPN	eS		17	35		22.0			Δ = 87°
	LPN	e(SS)		23	44		32.0			Medium surface waves on LP.
	LPN	e		30	24		20.0			
	LP	eSur		34	30					

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h.	m.	s.					
17 Apr		eP	21	29	26.6	1	0.2		R	
		e			40.9		0.4			
	E	eSur		30	46.3		0.6			
17 Apr		eP	22	47	32.7	288	1.8		T	Mid-Atlantic Ocean
		e		48	07.2		1.4			01.5 S 14.9 W
		e			32.8		1.5			h about 25 km
		e		50	38.4		1.4			0 = 22 34 56.7
		ePP		51	12.4		2.2			Δ = 86°
	LPE	e		58	00		22.0			Strong surface waves,
	LPN	ePS			50		23.0			Love and Rayleigh type,
	LPN	e	23	00	25		36.0			on LP
	LPN	eSS		03	15		22.0			Weak surface on BB.
	LPN	eSSS		07	25		29.0			
	LPN	eSur		10	50					
	LP	eSur		14	40					
17 Apr		eP	23	29	12.6	2	0.5		NR	Δ (S-P) = 2.7°
		e			18.6		0.3			
	E	eS			45.2		0.5			
17 Apr		eP	23	51	17.2	5	0.9		T	
		e			23.3		0.9			
18 Apr		eP	02	03	16.8	5	1.1		T	
18 Apr		eP	04	17	01.1	7	1.4		T	Tonga Islands
										18.8 S 175.4 W
										h about 166 km
										0 = 04 04 18.0
										Δ = 90°
18 Apr		eP	04	41	15.3	3	0.8	SE	T	
		e			28.1		1.1			
		e			32.8		1.1			
		e		43	18.3		1.3			
	LPN	e		46	00		14.0			
	LPN	e(Sur)		47	06					

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
18 Apr	LPE	eSur	06	20	56				T	Weak surface waves on LP
18 Apr		eP	10	57	32.6	4	1.0		T	Ionian Sea 38.1 N 20.5 E h about 25 km 0 = 10 44 41.3 Δ = 87°
18 Apr		eP	11	50	50.5	3	1.0		T	
18 Apr		eP	16	48	39.8	1	0.3		NR	Δ(S-P) = 1.4°
	E	eS			59.1		0.4			
18 Apr		eP	17	09	51.6	10	0.6	E	NR	Δ(S-P) = 1.6°
		e			53.4	999				
		eS		10	12.8	999				
18 Apr		eP	18	02	02.2	1	0.3		NR	Δ(S-P) = 1.7°
		e			12.5		0.5			
		eS			24.3	999				
18 Apr		eP	19	23	14.5	870	1.1		T	Off coast of Peru 10.0 S 79.0 W h about 39 km 0 = 19 14 37.2 Δ = 48° Strong surface waves, Rayleigh type, on LP. Mag. = 6-3/4 (Pas.) Possible new event at 19 53 48.3
	LP	e		24	39		18.0			
		e		25	00.2		0.7			
		ePP			09.1		1.3			
		e			26.4		1.6			
	LPE	eS		28	17		25.0			
	LPE	eScP			41		20.0			
	E	e(ScS)		33	05.6		2.4			
	E	e			31.4		2.4			
	LPE	eSS			45		34.0			
		eP'P'		53	48.3		1.0			
18 Apr		eP	20	00	55.1	5	0.8		T	
		e		01	06.9		1.1			
		e			31.3		1.1			
18 Apr		eP	20	09	23.6	3	1.0		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
18 Apr		eP	20	28	11.5	3	0.9		T	
18 Apr		eP	21	54	22.1	3	0.9		R	
		e		55	17.7		0.9			
	E	eSur		57	49.1		0.7			
18 Apr		eP	22	44	38.6	1	0.3		NR	Δ(S-P) = 1.5°
		e			40.2		0.3			
		eS			59.1	999				
18 Apr		eP	23	06	13.8	2	0.4		NR	Δ(S-P) = 1.6°
		eS			35.4	999				
18 Apr		eP	23	37	01.9	1	0.4	ENE	NR	Δ(S-P) = 2.9°
	E	eS			33.8		0.4			
18 Apr		eP	23	46	40.2	17	0.7	SE	T	Δ(PP-P) = 48°
		epP		47	47.3		0.9			pP about 340 km
		ePP		48	31.4		1.2			0 = 23 38 32
	E	eS		53	12.1		1.2			Δ(S-P) = 48° @ 340 km
19 Apr		eP	01	20	04.5	2	0.4		NR	Δ(S-P) = 3.1°
	E	eS			42.5		0.4			
19 Apr		eP	02	18	44.4	8	1.2		T	Ionian Sea
		e			49.8		1.1			38.5 N 20.5 E
		ePP		22	07.7		1.4			h about 25 km
										0 = 02 05 59.4
										Δ = 87°
19 Apr		iP	02	27	37.3	c 33	1.0		T	Off coast of Peru
		e			49.1		1.2			09.8 S 78.9 W
		e			58.9		1.0			h about 23 km
		e		28	08.4		1.4			0 = 02 18 55.9
		ePcP		29	18.6		0.9			Δ = 48°
		ePP			30.0		1.3			Strong surface waves,
	LPE	eS		34	36		27.0			Love and Rayleigh type,
	LPN	eScS		35	16		25.0			on LP.
	LPN	e		37	06		19.0			
	LPN	eSur		38	07					
	LP	eSur		43	28					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h. m. s.					
19 Apr		eP	02 47 56.0	3	0.9		T	
		e	48 16.5		0.9			
19 Apr		eP	02 53 55.6	3	1.1		T	
19 Apr		eP	03 05 30.7	3	1.0		T	
19 Apr		eP	03 30 12.8	2	0.8		T	
19 Apr		eP	08 22 18.2	2	1.0		T	Off east of Honshu, Japan 38.2 N 142.7 E h about 25 km 0 = 08 09 27.1 Δ = 87°
19 Apr		eP	08 34 51.0	3	0.8		T	
		e	35 22.6		0.9			
19 Apr		eP	09 22 41.6	5	1.0		T	
19 Apr	LP	eSur	12 43 35				T	Eastern Turkey 38.6 N 44.0 E h about 25 km 0 = 11 55 27.3 Δ = 98.5° Weak surface waves on LP
19 Apr		eP	14 57 29.2	10	0.9		T	
		e	37.1		0.7			
		e	58 04.7		1.0			
19 Apr		eP	18 52 56.1	2	0.4		NR	Δ(S-P) = 1.6° Quarry blast - 4,800 lbs. in 12 holes by Wesco, near Chico, Texas
		eS	53 17.6	999				

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h. m. s.					
19 Apr		eP	20 26 58.7	70	1.0		T	Off east coast of Peru
		e	27 12.1		1.2			09.4 S 79.0 W
		ePcP	28 39.8		0.8			h about 25 km
		e	29 11.1		1.2			0 = 20 18 20.5
		e	33.0		0.8			Δ = 47.5°
		e	47.4		1.1			
		ePcS	32 45.4		1.0			
	E	eS	33 57.6		1.5			
19 Apr		eP	22 31 58.1	4	1.3		T	
		e	32 56.4		1.3			
19 Apr		eP	22 45 20.6	5	1.1		T	
19 Apr		iP	23 27 04.2	c 124	1.2		T	Siberia, USSR
		e	10.6		1.4			69.8 N 138.6 E
		e	28 07.4		1.1			h about 0
		e	28.9		1.0			0 = 23 16 04.1
		ePP	29 39.8		1.4			Δ = 67.5°
		e(ScP)	31 37.5		1.5			Strong surface waves
		e	32 04.0		1.3			on LP and BB
	LPN	eS	36 06		22.0			
		eP'P'	55 17.1		2.0			
	LP	eSur	47 30					
19 Apr		eP	23 36 22.4	1	0.3		NR	Δ(S-P) = 2.6°
	E	eS	54.8		0.4			
20 Apr		eP	00 09 33.9	4	0.4	S	NR	Δ(S-P) = 2.2°
	E	eS	10 00.8		0.4			
20 Apr		eP	00 44 48.4	3	0.4	SE	NR	Δ(S-P) = 1.7°
		e	58.1		0.3			Quarry blast near
		eS	45 10.1	999				Chico, Texas
20 Apr	N	eSur	04 17 49.5		0.8		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.		Ground Motion A	T	Dir.	Type	Remarks
1962											
20 Apr		iP	05	53	39.8	c	999	999		T	Near coast of Haiti
		ePcP		56	58.7			1.3			20.6 N 72.2 W
	LP	eS		58	20		999				h about 25 km
		eSur	06	01	00.0						0 = 05 47 55.3
											Δ = 27°
											Mag. = 6-1/2 - 6-3/4 (Pas. 6-3/4 - 7 (Berk.), 6 (Pal.)
											Strong surface waves on all systems.
20 Apr		eP	06	26	15.1		318	1.7	NW	T	
		e			33.8			1.6			
		e		27	00.3			1.4			
		e			15.0			2.0			
		e			30.7			2.1			
		e			52.4			1.8			
		e		28	27.6			1.8			
		e		30	08.4			2.0			
		e		36	31.6			2.0			
		e		39	22.8			1.6			
20 Apr		eP	11	57	27.2		4	0.8		T	
20 Apr		eP	19	55	06.8		3	0.3		NR	Δ(S-P) = 1.7°
		eS			29.0		999				
20 Apr		eP	21	23	15.4		3	0.3		NR	Δ(S-P) = 1.8°
	E	eS			38.1			0.3			
20 Apr		eP	23	41	54.1		1	0.4		NR	Δ(S-P) = 2.7°
	E	eS		42	27.1			0.4			
21 Apr		eP	02	18	53.6		29	0.8	SE	R	
		eS		22	05.4		999				
21 Apr		eP	03	44	54.6		2	1.1		T	
		e		49	10.0			1.4			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
21 Apr		eP	07	23	31.1	2	0.8		T	
21 Apr		eP	07	58	53.8	3	0.8		T	Fiji Islands region
										23.7 S 180.0
										h about 559 km
										0 = 07 46 18.5
										Δ = 96°
21 Apr		eP	20	15	53.4	4	0.8		T	
		e		16	10.6		0.9			
21 Apr		eP	21	33	46.1	2	1.0		T	
21 Apr		eP'	21	36	43.7	3	0.8		T	New Guinea
		e		38	10.6		0.9			6.5 S 144.6 E
										h about 42 km
										0 = 21 18 01.7
										Δ = 115.5°
21 Apr		eP	22	06	13.7	6	1.0		T	
		e		08	54.8		0.8			
		e		09	37.9		0.8			
21 Apr		eP	22	11	09.4	8	0.8		T	Possible phase of
		e			29.4		1.5			preceding event
22 Apr		eP	01	09	27.5	3	1.0		T	
		e		12	08.8		1.0			
22 Apr		eP	02	23	38.5	15	1.3		T	New Hebrides Islands region
		e			49.5		1.3			18.9 S 169.5 E
		e		24	06.5		0.8			h about 288 km
		e(PP)		27	50.6		1.3			0 = 02 10 12.1
										Δ = 101°
										Possible new event at 02 27 50.6

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	T	Dir.	Type	Remarks
1962			h. m. s.					
22 Apr		iP	04 41 46.7 c	51	1.0		T	Near Chile-Argentina border
		epP	42 19.5		1.4			44.2 S 72.6 W
		e	34.2		1.3			h about 120 km
								0 = 04 29 39.0
								Δ = 82°
22 Apr		eP	04 49 48.4	999			T	Near coast of Chipas, Mexico
		eS	53 19.6	999				15.5 N 93.1 W
	LP	e	54 04		20.0			h about 69 km
	LP	eSur	55 04					0 = 04 45 20.3
								Δ = 19.5°
								Mag. = 5-1/4 - 5-1/2 (Pas.
								Strong surface waves on all systems
22 Apr		eP	05 24 06.2	6	1.2		T	
		e	27.1		1.0			
		e	56.7		1.1			
22 Apr		eP	05 27 04.7	3	1.1		T	Possible phase of previous event
22 Apr		eP	08 57 50.0	7	1.4		T	
22 Apr		eP	09 24 19.8	3	1.0		T	
22 Apr		eP	11 44 44.3	1	0.3		R	
		e	53.5		0.5			
	E	e	46 18.0		0.5			
	E	e	38.9		0.5			
	E	eSur	47 30.3		0.8			
22 Apr		eP	16 36 47.3	3	1.3		T	
22 Apr		eP	16 42 07.5	20	0.5	S	R	
		eSur	43 50.6	999				

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	T	Dir.	Type	Remarks
1962			h. m. s.					
22 Apr		eP	16 50 20.5	8	0.6	SSE	R	
		eSur	53 49.8	999				
22 Apr		eP	18 55 01.1	5	0.6		T	
		e	17.1		0.8			
22 Apr		eP	19 03 20.3	4	1.0		T	
22 Apr		eP	19 58 38.1	8	1.4		T	
23 Apr		eP	03 59 24.8	4	1.3		T	
23 Apr		eP	04 07 36.3	5	1.0		T	Honshu, Japan
		e	52.9		0.9			36.0 N 139.2 E
								h about 115 km
								0 = 03 54 38.4
								Δ = 91°
23 Apr	LP	eSur	05 15 17				T	Medium surface waves on LP
23 Apr		eP	05 19 24.9	10	1.2	E	T	Possible new event at 05 23 42.1
		e	35.2		1.5			Strong surface waves on LP.
		e	21 04.0		1.6			
		e	37.3		1.6			
		e	23 42.1		0.9			
	LP	eSur	33 12					
23 Apr		iP	06 10 38.0 c	100	1.1		T	Hokkaido, Japan
		ePP	13 58.0		1.7			42.9 N 143.4 E
	LP	ePPP	15 51		17.0			h about 25 km
	LP	eScS	21 04	999				0 = 05 58 04.9
	LPN	ePS	44	999				Δ = 83.5°
	LPN	eSS	26 43		25.0			Mag. = 7 - 7-1/4 (Pas.), 7 (Pal.).
	LPN	eSur	34 13					
		eP'P'	36 41.0		1.2			Strong surface waves, Love and Rayleigh type, on LP and BB.
	LP	eSur	39 30					

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
23 Apr		eP	16	15	45.0	4	1.3		T	Kamchatka
		e		16	05.8		0.7			51.6 N 159.6E
		e			12.9		0.9			h about 31 km
		e			32.8		0.8			0 = 16 04 31.8
		e			48.9		0.8			Δ = 70°
		e			59.0		1.5			
23 Apr		eP	23	12	08.9	1	0.4		NR	Δ(S-P) = 3.1°
		e			18.1		0.4			
	E	eS			58.9		0.4			
	N	eSur		13	14.6		0.4			
23 Apr		eP	23	40	09.4	1	0.4		NR	Δ(S-P) = 2.6°
	E	eS			41.2		0.4			
24 Apr		eP	01	45	18.3	2	0.8		T	
		e			31.3		0.9			
24 Apr		eP	03	46	50.9	2	0.6		T	
24 Apr		eP	04	24	34.5	3	0.9		T	
24 Apr		eP	04	33	36.6	5	1.4		T	
24 Apr		eP	04	33	43.8	6	0.8		T	Possible new event
		e		34	08.3		0.7			at 04 35 04.1
		e			47.3		1.1			and 04 35 39.3
		e		35	04.1		1.0			
		e			39.3		1.1			
		e		36	02.4		1.0			
24 Apr		eP	06	21	01.9	3	1.3		T	
24 Apr		eP	07	22	25.8	5	1.0		T	
		e			50.5		1.6			
24 Apr		eP	09	19	22.5	3	1.1		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
24 Apr		eP	10	04	10.6	3	0.9		T	
		e			29.5		1.3			
24 Apr		eP	12	37	59.7	3	0.9		T	
24 Apr		eP	14	49	25.3	2	0.4		T	
24 Apr		eP	16	14	01.2	20	1.0		T	Ecuador-Peru border
		epP			34.8		1.6			2.7 S 76.1 W
		e			58.8		0.9			h about 175 km
		ePcP		15	52.5		0.8			0 = 16 06 23.7
		e		16	10.8		1.8			Δ = 42°
		e			31.0		1.0			
		eScP		19	29.0		1.4			
	N	eS		20	12.0		1.4			
24 Apr		eP	17	53	51.9	3	1.0		T	
		e		54	00.4		1.0			
24 Apr		eP	19	51	18.3	12	1.7		T	
25 Apr		eP	03	40	00.0	28	0.7		T	Kamchatka
		e			14.4		0.7			54.0 N 160.3 E
		e			46.6		1.4			h about 29 km
	LPN	eS		49	00		17.0			0 = 03 28 56.1
	LPN	eSur		57	06					Δ = 68°
										Weak surface waves on LP
25 Apr		eP	04	22	46.2	1	0.8		T	Weak surface on LP
	LP	eSur		41	10					
25 Apr		eP	04	56	33.3	5	0.8		T	Southeast France
		e			40.3		1.1			45.3 N 05.2 E
	LP	eSur	05	23	09					h about 30 km
										0 = 04 44 51.3
										Δ = 74°
										Weak surface waves on LP

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962								
25 Apr		eP	05 49 18.7	2	1.0		T	
25 Apr		eP	06 08 34.7	3	1.0		T	Tonga Islands region
		e	10 54.3		1.3			20.9 S 175.1 W
								h about 103 km
								0 = 05 55 20.4
								$\Delta = 91^{o}$
25 Apr		eP	06 26 48.5	3	0.9		T	Medium surface waves,
		e	27 04.7		1.4			Love and Rayleigh type,
		e	17.3		1.2			on LP.
		e	34.2		1.3			
	LP	eSur	38 00					
	LP	eSur	41 32					
25 Apr		eP	06 34 07.8	4	1.0		T	
25 Apr		eP	06 35 18.1	4	1.0		T	Ionian Sea
		e	25.2		1.2			38.1 N 20.6 E
		e	45.3		1.0			h about 25 km
								0 = 06 22 28.0
								$\Delta = 88^{o}$
25 Apr		eP	08 52 48.0	7	1.4		T	Nevada-California border
	LP	eSur	09 13 00					38.5 N 118.1 W
								h about 25 km
								0 = 08 48 58.2
								$\Delta = 16.0^{o}$
								Weak surface waves on
								LP and possibly separate.
25 Apr		eP	09 31 46.7	5	0.9		T	
		e	32 47.6		0.7			
25 Apr		eP	12 43 08.8	2	1.0		T	
25 Apr		eP	13 14 22.0	3	1.2		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962								
25 Apr		eP	14 29 22.8	3	0.9		T	
		e	30 45.1		0.9			
25 Apr		eP	14 48 20.0	6	1.4		T	
25 Apr		eP	15 58 08.9	2	0.9		T	
25 Apr		eP	16 00 13.2	29	1.2		T	Honshu, Japan
		e	02 52.6		1.5			38.4 N 142.5 E
		ePP	03 09.5		1.8			h about 56 km
	LPE	eSKS	10 41		16.0			0 = 15 47 29.4
	LPE	eS	11 00		20.0			$\Delta = 87^{o}$
	LPE	ePS	12 01		22.0			Strong surface waves,
	LPE	e	13 08		17.0			Love and Rayleigh type,
	LPE	eSS	16 14		30.0			on LP.
	LPE	eSSS	19 42		29.0			Weak surface on BB.
	LPE	eSur	24 13					
	LPE	eSur	28 04					
25 Apr		eP	16 26 45.6	2	0.4		NR	Δ (S-P) = 1.7°
		eS	27 07.6	999				
25 Apr		eP	17 13 28.6	2	0.5		R	
	E	eSur	14 44.9		0.5			
25 Apr		eP	18 45 16.3	4	0.9		T	
		e	26.9		1.3			
25 Apr		eP	20 02 39.5	2	0.8		T	Honshu, Japan
		e	49.5		1.4			38.4 N 142.7 E
								h about 120 km
								0 = 19 49 57.3
								$\Delta = 100.5^{o}$
25 Apr		eP	20 16 09.2	1	0.5		NR	Δ (S-P) = 3.1°
		e	13.3		0.4			
		e	16.5		0.4			
		eS	47.4	999				
		eSur	53.6	999				

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
25 Apr		eP	21	59	00.2	2	0.3	SE	NR	Δ(S-P) = 1.7°
		e			09.8		0.4			
		eS			21.8	999				
25 Apr		eP	23	39	36.4	1	0.4		NR	Δ(S-P) = 2.6°
	E	eS		40	08.6		0.4			
26 Apr		eP	00	12	02.7	17	0.2		L	Δ(S-P) = less than 0.1°
		eS			06.6	999				
26 Apr		eP	01	15	51.9	1	0.4		NR	Δ(S-P) = 2.9°
	E	eS		16	28.1		0.4			
26 Apr		eP	03	25	24.2	3	1.0		T	Kazakh SSR 44.4 N 78.4 E h about 25 km 0 = 03 11 33.8 Δ = 100°
26 Apr		eP	07	38	37.1	26	0.8		T	Fiji Islands region 17.8 S 179.1 W h about 689 km 0 = 07 26 31.3 Δ = 92°
		epP		40	45.6		1.4			
		ePP		42	18.1		1.3			
		e(SKKS)		48	21.9		2.0			
	LPN	eS		49	00		23.0			
	LPN	e		50	09		22.0			
	LPN	ePS		51	22		26.0			
	LP	e		52	23		26.0			
	LPN	e		53	28		27.0			
	LPN	eSS		55	20		30.0			
		ePKKP			50.9		0.7			
	LPN	eSSS		58	37		32.0			
	LPN	e	08	05	27		24.0			
	LPN	e		08	50		34.0			
	LP	e(Sur)		10	36					
26 Apr		eP	07	58	39.4	3	0.9		T	
26 Apr		eP	08	38	41.7	4	1.1		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
26 Apr		eP	14	50	14.3	1	0.3		NR	Δ(S-P) = 1.6°
	E	eS			35.8		0.3			
26 Apr		eP	15	22	17.0	6	1.0		T	Kamchatka 51.7 N 159.3 E h about 25 km 0 = 15 10 55.5 Δ = 71°
26 Apr		eP	16	05	16.4	4	0.8		T	
26 Apr		eP	16	07	38.7	3	0.8		T	
26 Apr		eP	18	11	54.9	3	0.3	SE	NR	Δ(S-P) = 1.6°
		e		12	04.6		0.4			
		eS			16.3	999				
26 Apr		eP	18	32	11.3	2	0.7		T	
		e			37.8		0.9			
26 Apr		eP	22	38	57.6	4	1.2		T	
		e		39	07.2		1.3			
26 Apr		eP	23	08	10.5	3	0.7		T	
27 Apr		eP	06	59	43.3	289	1.2		T	Southern Chile 44.4 S 74.8 W h about 31 km 0 = 06 47 27.0 Δ = 82° Strong surface waves on LP.
		e	07	01	31.9		1.4			
		e		02	12.6		1.3			
	BB	ePP			48		8.0			
	BBE	eS		10	00		10.0			
		ePKKP		18	27.8		1.1			
	LP	eSur		27	00					
27 Apr		eP	09	20	28.8	5	1.0		T	
		e			39.3		1.4			
27 Apr		eP	14	49	42.9	3	1.0		R	
		e		50	02.9		1.0			
		e			55.9		1.1			
	E	e		53	26.1		1.0			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
27 Apr		eP	14	56	46.5	2	0.3		L	Δ(S-P) = 0.4°
	N	eS			53.8		0.3			
27 Apr		eP	15	34	55.2	11	1.8		T	
27 Apr		eP	15	38	26.9	3	1.0		T	
27 Apr		eP	16	12	25.9	10	1.5		T	
27 Apr		eP	16	58	54.3	1	0.2		L	Δ(S-P) = 0.4°
	E	eS		59	01.4		0.2			
27 Apr		eP	17	32	03.0	4	1.0		T	Off northwest coast of Honshu, Japan 40.8 N 139.5 E h about 25 km 0 = 17 19 14.0 Δ = 87°
27 Apr		eP	18	27	05.1	4	1.2		T	
		e		28	23.1		1.5			
27 Apr		eP	20	38	23.2	29	0.5	N	R	
	E	eSur		40	52.9		0.8			
27 Apr		eP	21	09	06.9	1	0.3		NR	Δ(S-P) = 1.4°
	E	eS			25.7		0.4			
28 Apr		eP	00	46	29.3	1	0.7		T	
		e			37.8		1.0			
28 Apr		iP	06	09	22.8	c 999		NW	L	Δ(S-P) = 0.5°
		eS			31.2	999				
28 Apr		eP	06	28	52.0	15	1.5		T	Weak surface waves on LP
	LP	eSur		44	05					

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
28 Apr		eP	09	13	17.6	6	1.1		T	Hokkaido, Japan 43.9 N 146.3 E h about 155 km 0 = 09 01 10.5 Δ = 81°
		e			48.7		1.3			
28 Apr		eP	11	32	07.7	5	1.0		T	Dodecanese Islands 36.4 N 26.6 E h about 40 km 0 = 11 18 57.4 Δ = 93° Strong surface waves on LP. Weak surface on BB.
		e			23.3		1.3			
	LP	ePP		35	56		12.0			
	LPN	eSKS		42	43		24.0			
	LPN	ePS		44	33		28.0			
		ePKKP		49	18.7		0.9			
	LPN	eSS			40		28.0			
	LP	eSSS		53	03		22.0			
	LP	e(SKKS)		56	42		23.0			
	LP	eSur	12	04	40					
28 Apr		eP	12	33	19.8	5	0.8		T	
28 Apr		eP	12	56	58.7	11	0.9		T	Dodecanese Islands 36.3 N 26.7 E h about 48 km 0 = 12 43 49.1 Δ = 93° Medium surface waves on LP.
		ePP	13	00	40.0		1.2			
		eSKS		07	33.0		1.6			
	LP	eSur		31	10					
28 Apr		eP	13	18	49.2	3	0.5		T	
28 Apr		eP	16	50	29.6	3	1.3		T	
28 Apr		eP	16	55	05.6	19	1.3	SE	T	
		e		58	13.8		1.0			
	E	eSur		59	00.0		0.6			
28 Apr		eP	17	14	39.6	2	1.0		T	
28 Apr		eP	20	24	51.1	3	1.1		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
28 Apr		eP	20	31	57.1	4	1.4		T	
		e		32	29.8		1.7			
28 Apr		eP	21	40	22.7	3	0.3		NR	Δ(S-P) = 2.9°
	E	eS			58.7		0.4			
28 Apr		eP	21	47	22.0	10	1.6		T	
29 Apr		eP	00	49	21.3	4	1.4		T	
29 Apr		eP	00	54	34.1	5	1.3		T	Strong surface waves on SP.
	N	eSur		58	45.6		2.2			Weak surface on LP and BB.
29 Apr		eP	01	10	02.1	3	1.0		R	Strong surface waves
		e		11	00.1		1.4			on all systems
	N	eSur		13	55.3		2.3			
29 Apr		eP	03	18	37.3	2	1.2		R	
		e		20	51.7		1.2			
	N	eSur		22	59.5		2.2			
29 Apr		eP	03	35	13.8	6	1.5		T	
29 Apr		eP	07	18	26.0	4	0.8		T	Tonga Islands region
	LP	eSur		46	52					18.1 S 173.9 W
										h about 79 km
										0 = 07 05 36.2
										Δ = 88.5°
										Weak surface waves on LP
29 Apr		eP	10	35	21.6	6	1.5		T	
29 Apr		eP	12	05	43.9	4	1.2		T	
		e			51.4		1.3			
29 Apr		eP	13	15	11.4	4	0.9	SE	T	
		e			20.8		1.0			
		e		16	35.1		1.2			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
29 Apr		eP	15	58	00.7	2	1.0		T	
29 Apr		eP	20	49	12.6	7	1.5		T	
30 Apr		eSur	02	34	21.1		1.2		T	
30 Apr		eP	02	39	16.2	216	1.4		T	Honshu, Japan
		ePP		42	30.9		1.7			38.8 N 140.9 E
		e		44	08.7		1.3			h about 104 km
		e		45	17.7		1.4			0 = 02 26 30.0
	LPN	eS		50	02		26.0			Δ = 88°
	LPN	ePS		51	00		22.0			Strong surface waves
	LP	e		52	00		18.0			Love and Rayleigh type,
	LPN	eSS		55	39		26.0			on LP.
		ePKKP		56	58.1		0.9			Weak surface on BB.
		e		57	44.3		1.2			
	LPN	eSSS		59	28		35.0			
	LPN	eSur	03	05	00					
	LP	eSur		09	20					
30 Apr		iP	07	55	39.5	d 25	0.7		T	Near Columbia-Venezuela
		e		56	36.7		1.6			border
		ePP		57	08.2		1.2			06.9 N 73.0 W
		e			53.5		1.2			h about 130 km
		ePcP		58	02.1		0.7			0 = 07 48 46.2
	N	eS	08	01	09.1		1.2			Δ = 36°
		eScP			32.9		0.8			
30 Apr		eP	09	57	51.9	4	1.0		T	Mariana Islands region
		e		58	00.2		1.3			17.0 N 147.3 E
		ePP	10	02	00.0		1.4			h about 109 km
	LP	eSur		35	30					0 = 09 44 17.4
										Δ = 98°
										Medium surface waves on LP
30 Apr		eP	09	59	34.5	3	0.8		T	
30 Apr		eP	10	14	43.2	7	1.3		T	
30 Apr		eP	13	18	25.4	4	0.8		T	

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	T	Dir.	Type	Remarks
1962			h.	m.	s.					
30 Apr		eP	16	12	21.7	4	0.8		T	
30 Apr		eP	16	29	50.5	17	1.0		T	Tonga Islands region
		e		30	16.0		1.7			17.9 S 176.1 W
		e			17.5		2.0			h about 26 km
		e		31	48.0		1.3			0 = 16 16 47.8
	LPN	eS		40	47		24.0			$\Delta = 90^{o}$
	BBE	ePS		41	46		9.0			Strong surface waves,
	LP	eSur		58	20					Rayleigh type, on LP and B
30 Apr		eP	16	31	10.4	2	0.5		R	
	E	eSur		34	48.9		0.6			
30 Apr		eP	18	18	34.5	1	0.3		NR	Δ(S-P) = 1.7°
		eS			56.2	999				
30 Apr		eP	18	43	59.0	11	1.0		T	Fiji Islands region
		e		44	06.4		1.0			18.0 S 176.4 W
		e		45	27.1		1.5			h about 135 km
										0 = 18 31 06.6
										$\Delta = 90^{o}$
30 Apr		eP'	20	58	41.6	21	1.4		T	Banda Sea
		e			48.6		1.1			6.4 N 124.0 E
		ePP	21	00	17.9		1.4			h about 28 km
		ePKKP		08	35.5		1.0			0 = 20 39 45.1
		eSKKP		12	16.5		1.1			$\Delta = 123^{o}$
30 Apr		eP	21	20	13.2	1	0.3		L	Δ(S-P) = 0.4°
	N	eS			20.4		0.4			
30 Apr		eP	22	54	24.9	4	1.1		T	Honshu, Japan
										39.0 N 140.4 E
										h about 124 km
										0 = 22 41 40.7
										$\Delta = 88^{o}$
30 Apr		eP	23	46	57.2	2	0.7		T	

Volume 2, No. 5
May 1962

REGISTRATION OF EARTHQUAKES AT WICHITA MOUNTAINS SEISMOLOGICAL OBSERVATORY FORT SILL, OKLAHOMA, U.S.A.

Operated under the Technical Supervision of the
Air Force Technical Applications Center (AFTAC)

by

The Geotechnical Corporation
Garland, Texas

Advanced Research Projects Agency (ARPA)
Department of Defense
United States Government

Volume 2, No. 5
May 1962

THE REGISTRATION OF EARTHQUAKES

AT THE

WICHITA MOUNTAINS SEISMOLOGICAL OBSERVATORY

STATION

Station Abbreviation: WMSO
Station Identification on Film Seismograms: α

Geographical Location*: (Vault No. 6)	34° 43' 05.3" N. Lat. 98° 35' 20.7" W. Long.
GEOCENTRIC LOCATION*: (Vault No. 6)	34° 32' 09.8" N. Lat. 98° 35' 20.7" W. Long.
ALTITUDE (Meters)*: (Vault No. 6)	505 meters (1658 feet)

GEOLOGY: The station is located on the Carlton (porphyritic) granophyre of the Wichita Mountains of Oklahoma.

Noise Level: The periods of the predominant microseisms at WMSO are 0.5 second and 6 seconds. Amplitude distribution curves for the 0.5-second microseisms are shown on page 2 as true ground motion in millimicrons and as trace amplitude in millimeters at the operating gain of 500K. Both curves are center-to-peak.

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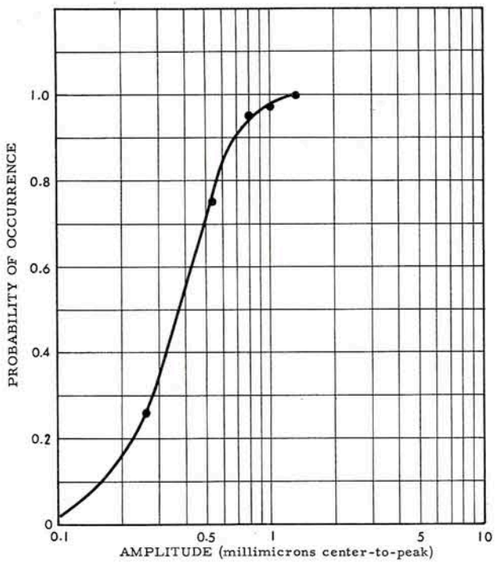
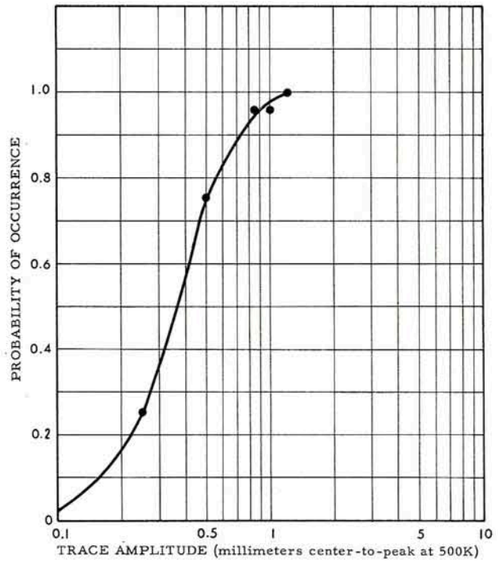
* The coordinates refer to the location of vault no. 6 which houses the 3-component groups of short-period and intermediate-band seismometers from which arrival times are determined.



Probability of predominant 0.5-sec microseisms occurring at or less than a given amplitude at unity magnification



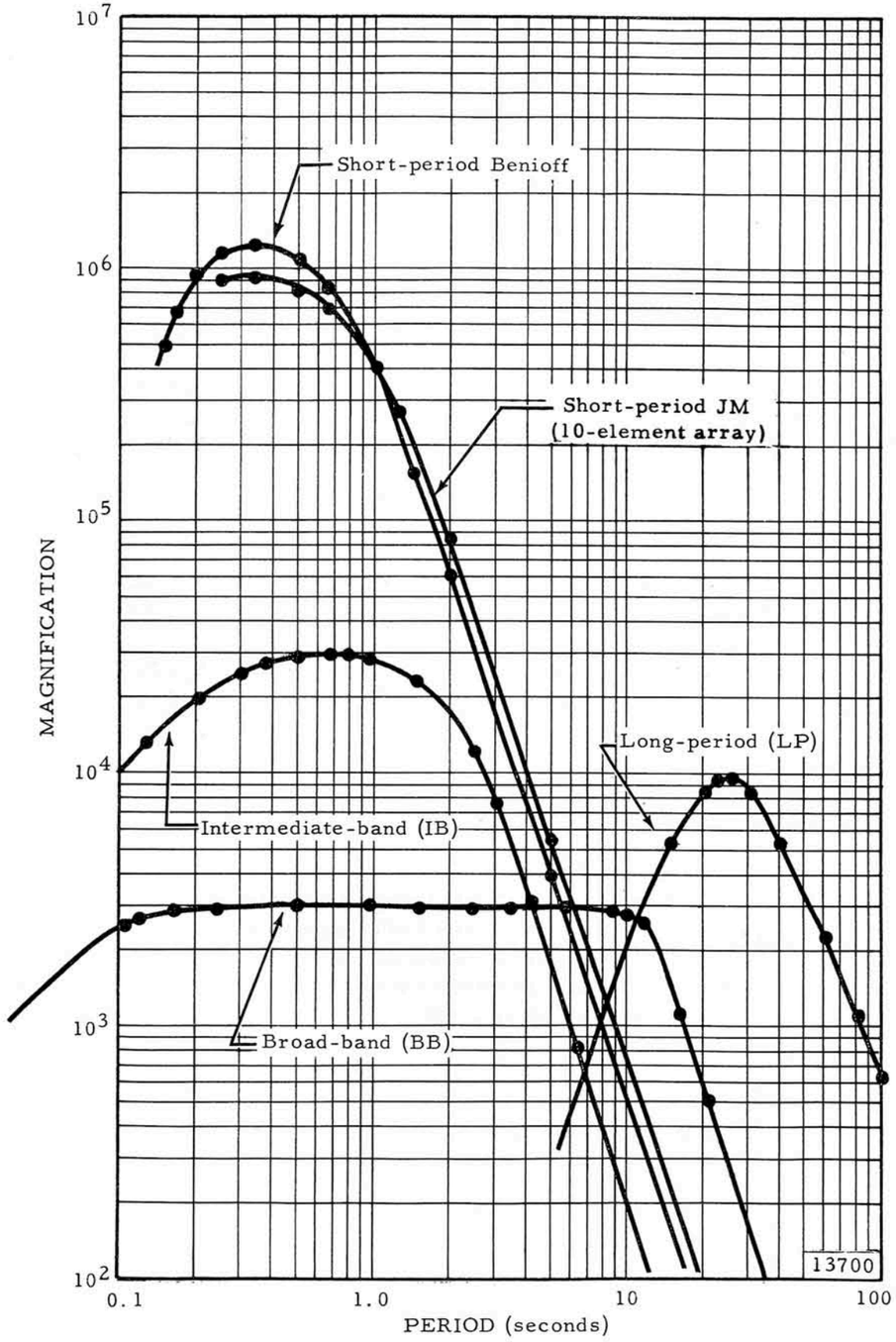
Probability of predominant 0.5-sec microseisms occurring at or less than a given trace amplitude in millimeters at operating gain of 500K

SEISMOGRAPHS

	Ts	λ s	Tg	λ g	σ^2
SP Vertical Johnson-Matheson	1.25	0.50	0.32	0.64	0.014
SP Vertical Benioff	1.0	1.0	0.2	1.0	0.01
SP Horizontal Benioff	1.0	1.0	0.2	1.0	0.01
IB Vertical Melton	2.5	0.65	0.64	1.5	0.002
IB Horizontal Sprengnether	2.5	0.65	0.64	1.5	0.0005
BB Vertical Press-Ewing	12.5	0.4	0.64	9.0	0.0002
BB Horizontal Sprengnether	12.5	0.4	0.64	9.0	0.0004
LP Vertical Sprengnether	25.0	1.0	30	1.0	0.004
LP Horizontal Sprengnether	25.0	1.0	30	1.0	0.004

SP = Short Period
IB = Intermediate Band
BB = Broad Band
LP = Long Period
Ts = Free period of seismometer in secs.
λ s = Damping constant of seismometer
Tg = Free period of galvanometer in secs.
λ g = Damping constant of galvanometer
σ^2 = Coupling coefficient

NOTE: Response curves are on page 4.



Response characteristics of seismographs

INTERPRETATION OF SYMBOLS

1. Earthquakes Listed

All local (L), near-regional (NR), regional (R), and distant earthquakes (T) are tabulated on the following pages.

2. System

In the column headed "Syst." (system), the seismograph (SP, IB, BB, or LP) and component (Z, N, or E) used to measure arrival time are designated. When no component designation appears, the phase is read from the vertical component. When neither system nor component designation appears, the phase is read from the SP vertical component.

3. Phase

(1) "i" (impetus) preceding a phase designates sudden beginning of the motion. (A designation of "i" in the case of initial P motion indicates a signal-to-noise ratio exceeding about 5/1).

(2) "e" (emersio) designates gradual beginning.

(3) "i" or "e" alone designates an unidentified phase.

(4) ( ) (parenthesis marks) indicate uncertainty.

4. Time

(1) Date and arrival time are given in Greenwich Civil Time (G. C. T.)

(2) The arrival time is reported as the earliest time on Z, N, or E. Single Z rather than the array summation (Σ) is used for measuring arrival times on the SP seismographs.

5. Ground Motion

(1) In the columns headed "A" and "T" are tabulated earth displacement in millimicrons and period in seconds, respectively. An amplitude of 999 indicates that a signal cannot be measured reliably. A "c" or "d" in the "A" column indicates compression or dilation, respectively, of the ground as indicated by the vertical component instrument.

The value of "A" for P phases is the maximum amplitude in the first ten seconds. All amplitudes are center-to-peak amplitudes.

(2) Trace amplitudes are measured to the nearest 1/2 millimeter at X10 view.

6. Direction

In the column headed "Dir." (direction), the direction of the epicenter as viewed from WMSO is indicated. For teleseisms, direction is obtained only from P and Rayleigh waves and is listed opposite the phase from which it is obtained. For close events, direction may be obtained from P-wave step-out shown on the individual short-period vertical traces.

7. Type

Earthquakes are identified as either:

L	(local)	0°	-	1.4°
NR	(near-regional)	1.4°	-	6°
R	(regional)	6°	-	16°
T	(teleseismic)	16°	-	180°

8. Remarks Column

(1) Epicentral locations, time of origins, depth of foci, and magnitudes are obtained from the U.S. Coast and Geodetic Survey Preliminary Determination of Epicenters cards.

(2) The nature of the surface waves is indicated subjectively.

(3) Epicentral locations and distances reported by the station are accompanied by an indication of the phases used to determine epicentral distance, e.g. Δ (S-P) = 6°, Central Colorado.

(4) Operational notes refer to operational difficulties that affect analysis of data.

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
01 May		eP	00	00	37.3	83	1.7		T	Svalbard region
		ePcP		01	20.7		1.4			72.0 N 7.2 E
		ePP		02	51.0		1.6			h about 25 km
	LPN	eS		09	05		9.0			0 = 23 50 33.5 (30 Apr.)
	LPN	eSS		12	52		18.0			$\Delta = 61^\circ$
	LP	eSur		19	10					Strong surface waves, Rayleigh type, on LP and BB
01 May		eP	00	10	37.4	10	1.2	N	T	Aftershock of preceding
		e		11	21.4		0.8			event
01 May		eP	00	16	14.1	1	0.3		NR	Δ (S-P) = 2.8°
	E	eS			48.3		0.4			
01 May		eP	01	16	54.2	1	0.4		NR	Δ (S-P) = 2.8°
	N	eS		17	29.0		0.4			
	E	eSur			32.5		0.4			
01 May		eP	10	12	48.0	16	0.8		T	Southern Algeria
		e		13	10.0		0.9			23.8 N 5.4 E
		e			19.9		0.9			h about 0
										0 = 09 59 57.1
										$\Delta = 87^\circ$
01 May		eSKP	10	15	00.9		1.6		T	Banda Sea
		e		16	10.8		1.2			5.8 S 125.5 E
										h about 621 km
										0 = 09 54 20.6
										$\Delta = 130^\circ$
01 May		eP	12	06	39.0	3	0.9		T	
01 May		eP	18	05	02.0	2	0.4		NR	Δ (S-P) = 1.6°
		eS			23.4	999				

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
01 May		eP'	21	28	21.5	4	1.4		T	Mascarene Islands region
		e			56.8		1.1			20.0 S 65.7 E
										h about 39 km
										0 = 21 08 16.1
										Δ = 162°
01 May		eP	23	00	50.0	2	0.4		NR	Δ (S-P) = 1.6°
		e			59.5		0.5			
		eS		01	11.2	999				
01 May		eP	23	22	15.3	5	0.4		NR	Δ (S-P) = 2.2°
		eS			41.9	999				
01 May		eP	23	33	06.8	1	0.8		T	
		e			14.6		0.9			
02 May		eP	00	39	22.4	1	0.4		NR	Δ (S-P) = 1.7°
	E	eS			44.6		0.4			
02 May		eP	02	51	32.6	51	0.7		T	Kodiak Island, Alaska region
		e		53	11.5		1.0			55.9 N 156.1 W
		ePP			24.7		1.1			h about 25 km
		eScP		57	08.3		1.1			0 = 02 43 25.9
	LPN	eS		58	10		24.0			Δ = 44°
	LPN	e		59	54		28.0			Strong surface waves,
	LPN	e(ScS)	03	01	44		24.0			Love and Rayleigh type,
	LPN	eSur		03	24					on LP.
	LP	eSur		06	32					Weak on BB.
02 May		eP	06	27	15.8	16	0.9		T	Near coast of Sakhalin
	LPN	eSur		51	03					52.4 N 141.8 E
										h about 25 km
										0 = 06 15 13.3
										Δ = 78.5°
										Strong surface waves
										on LP.
02 May		eP	08	52	33.6	3	0.6		R	
		e			52.1		0.7			
	E	eSur		56	10.3		0.7			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
02 May		iP	09	06	57.1	d 225	1.1		T	Jujuy province, Argentina
		epP		07	28.3		1.0			23.6 S 65.9 W
	LP	e			42		16.0			h about 163 km
		ePP		09	22.6		1.4			0 = 08 56 29.0
		e			50.6		1.1			Δ = 65.5°
		e(ScP)		11	07.4		1.2			Strong surface waves
		e		14	48.0		1.3			on LP.
	E	eS		15	24.6		2.2			
	E	e			37.4		1.2			
	E	e			52.3		1.7			
	N	eScS		16	35.1		1.6			
	LPN	e		18	17		20.0			
	LPN	eSS		20	04		18.0			
	LPN	e		21	05		25.0			
	LPN	eSur		23	43					
		ePKKP		27	13.7		0.9			
		e		28	06.7		1.0			
		eP'P'		35	24.4		1.4			
02 May		eP	09	42	52.5	1	1.0		T	
02 May		eP	09	43	49.2	12	1.0	ESE	T	
		e		44	10.6		0.6			
02 May		eP	10	21	44.9	4	1.0		T	
02 May		eP	10	33	00.8	6	0.9		T	Sakhalin Island
		e			03.9		0.8			52.5 N 142.0 E
										h about 72 km
										0 = 10 21 05.9
										Δ = 78°
										Phase at 10 33 03.9 is
										possible new event
02 May		eP	12	24	53.8	3	1.0		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
02 May		iP	12	43	34.1 d	87	1.1		T	Salta province, Argentina
		ePcP		44	05.4		0.5			23.8 S 66.4 W
		e		45	01.1		1.4			h about 179 km
		e			48.5		1.3			0 = 12 33 08.1
		ePP			58.7		1.8			Δ = 65.5°
		e		46	45.1		1.2			Phase at 13 07 03.6 is
		eScP		48	00.1		1.4			possible new event.
	LPN	eS		52	00		25.0			Medium surface waves
	LPN	eScS		53	05		21.0			on LP.
	LPN	e			35		26.0			
	LPN	e		54	48		24.0			
	LPN	eSS		56	39		22.0			
	LPN	e		57	42		22.0			
	LPN	eSur	13	00	13					
		e		04	35.4		1.4			
		e(SKKP)		07	03.6		1.2			
02 May		eP	13	20	25.8	1	0.8		T	
02 May		eP	14	35	30.0	2	0.4		NR	Δ (S-P) = 1.7°
		e			49.4		0.4			
		eS			51.8	999				
02 May		eP	18	47	02.9	11	1.2		T	
		e			25.3		0.9			
02 May		eP	19	57	40.3	3	0.6		T	
	E	eSur	20	01	51.1		1.1			
02 May		eP	20	57	02.7	4	0.9		T	South of Fiji Islands
		epP			51.1		0.9			26.3 S 177.7 W
										h about 183 km
										0 = 20 43 53.8
										Δ = 96.5°
02 May		eP	21	24	13.7	2	1.0		T	
02 May		eP	21	37	12.2	2	0.4		NR	Δ (S-P) = 1.7°
		eS			34.0	999				

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
02 May		eP	23	28	44.7	3	1.0		T	Arctic Ocean, West of
		e		29	01.3		1.0			Svalbard
										74.9 N 9.0 E
										h about 23 km
										0 = 23 18 28.1
										Δ = 61°
03 May		eP	02	23	02.0	11	0.9	NW	T	
03 May		eP	02	50	25.2	15	1.2		T	Off southeast coast
		e			45.0		1.0			Hokkaido, Japan
		e		51	12.3		1.3			42.6 N 144.6 E
										h about 49 km
										0 = 02 37 56.6
										Δ = 83°
03 May		eP	03	18	22.4	5	1.1		T	Panama - Costa Rica border
		e			32.5		1.0			8.2 N 82.8 W
		e			48.6		1.1			h about 32 km
		e		19	19.7		0.9			0 = 03 12 14.7
		ePP			26.0		1.8			Δ = 30°
03 May		eP	03	49	15.4	4	1.1		T	Sandwich Islands region
		e			33.9		1.1			60.0 S 32.9 W
		e		52	23.5		1.1			h about 20 km
		ePP		53	36.1		1.6			0 = 03 34 49.0
		e		55	23.7		1.6			Δ = 108°
		$ePKKP_1$	04	04	29.1		1.1			Strong surface waves
		$ePKKP_2$			43.6		1.5			on LP.
		e		07	33.5		1.0			
	LP	eSur		30	00					
03 May		eP	06	50	12.8	2	1.0		T	Phase at 06 55 20.5 is
		e		55	20.5		1.5			possible new event
		e			43.2		1.7			
03 May		eP	07	45	35.8	5	1.0		T	
		e		46	10.2		1.0			
		e			44.0		1.0			
		e		48	53.0		1.1			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
03 May		eP	07	49	33.0	6	1.1		T	Possible phase of previous event.
03 May		eP	08	23	04.5	2	1.1		T	
03 May		eP	11	19	29.8	2	1.0		T	
		e			50.9		1.0			
		e			56.8		1.1			
03 May		eP	13	52	02.4	96	2.0		R	Near West coast of Baja, California 29.1 N 115.5 W h about 25 km 0 = 13 48 23.9 Δ = 15° Mag. = 5 (Pas.) Strong surface waves on all systems
		e		53	52.8		1.3			
		e		54	47.0		1.2			
	N	eSur		56	24.8		2.2			
03 May		eP	16	57	44.6	8	1.2		T	
		e			56.6		1.3			
		e		58	28.3		1.2			
03 May		eP	17	02	36.8	2	1.0		T	
		e		03	06.1		1.0			
		e			25.1		1.2			
		e			28.3		1.3			
03 May		eP	17	07	38.0	4	1.0		T	
		e		10	13.6		1.2			
03 May		eP	18	13	00.1	13	0.5		NR	Δ (S-P) = 1.9°
	E	eS			24.1	999		E		
03 May		eP	20	03	53.4	18	0.4	ESE	NR	Δ (S-P) = 1.6° Quarry blast by Ideal Cement Co. near Fitzhugh, Oklahoma. 72 holes, 76 ft. deep - 30,000 pounds.
		eS		04	14.4	999				

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
03 May		eP	22	01	41.5	14	0.4		NR	Δ (S-P) = 3.1°
		e			45.3		0.4			
		e			48.3		0.4			
	E	eS		02	19.4		0.5			
	E	e(Sur)			32.6	999				
03 May		eP	22	47	51.4	2	0.7		T	
03 May		eP	22	57	10.2	9	1.3		T	Alaska 63.6 N 151.7 W h about 55 km 0 = 22 49 11.9 Δ = 43°
		ePcP		58	59.0		1.0			
03 May		eP	23	38	10.3	11	1.5		T	
		e			21.1		0.9			
		e			37.5		1.1			
04 May		eP	06	01	00.2	11	1.2		T	Hokkaido, Japan 42.8 N 143.7 E h about 37 km 0 = 05 48 29.3 Δ = 83°
04 May		eP	07	13	08.2	5	1.1		T	
04 May		eP	08	59	18.4	9	1.4		T	
		e			24.9		1.4			
04 May		eP	16	33	35.3	999		NNW	L	Δ (S-P) = 0.1° Quarry blast, 21,500 lbs. in 9 holes-175 milliseconds total delay, in Limestone - at Hobart, Oklahoma
		eS			40.4	999				
04 May		eP	17	48	39.0	5	1.5		T	Andreanoff Islands, Aleutian Islands 51.2 N 176.6 W h about 23 km 0 = 17 38 53.9 Δ = 56°
		e		49	06.2		1.6			

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Remarks
04 May		eP	18	01	52.1	1	0.4	S	NR	Δ(S-P) = 1.7°
		e		02	01.4		0.5			
		eS			13.7	999				
04 May		eP	20	36	27.6	1	0.3		NR	Δ(S-P) = 3.1°
		e			34.4		0.3			
	E	eS		37	05.8		0.4			
	N	eSur			09.3		0.4			
04 May		eP	21	25	49.6	2	0.3	SE	NR	Δ(S-P) = 1.4°
	E	eS		26	10.7		0.4			
04 May		eP	23	15	26.1	15	0.8		T	Near coast of Ecuador
		e			40.3		1.1			0.9 S 80.8 W
		e			55.5		1.2			h about 74 km
		e		16	48.6		1.0			0 = 23 08 05.3
		ePP		17	02.0		1.5			Δ = 39°
	LPN	eS		21	27		20.0			Strong surface waves
	LPN	eSS		24	27		23.0			on LP
	LPN	eScS		25	40		22.0			
	LPN	eSur		27	09					
04 May		eP	23	54	06.4	3	1.0		T	Honshu, Japan
										38.9 N 140.7 E
										h about 18 km
										0 = 23 41 14.2
										Δ = 88°
05 May		eP	00	18	45.6	1	0.4		NR	Δ (S-P) = 2.6°
	E	eS		19	17.7		0.4			
05 May		eP	04	52	26.2	2	0.8		T	
05 May		eP	06	10	59.1	2	0.5		R	
	E	eSur		14	32.8		0.6			
05 May		eP	11	24	57.5	9	1.1		T	Near south coast of
		e		25	11.9		1.1			Honshu, Japan
		e		26	46.1		1.2			34.2 N 139.2 E
		ePP		28	36.2		1.4			h about 73 km
	LPN	eSur		53	10					0 = 11 11 51.4
										Δ = 92°
										Medium surface waves
										on LP

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h.	m.	s.					
05 May		eP	16	51	41.7	3	1.0		T	
05 May		eP	17	48	40.1	3	0.9	SE	T	
05 May		eP	19	55	54.9	3	0.9		T	
05 May		eP	20	38	37.9	3	1.0		T	
05 May		eP	22	02	24.2	4	0.4	S	NR	Δ(S-P) = 1.8°
	E	eS			47.4		0.5			
		e(Sur)			50.6	999				
05 May		eP	23	19	35.1	2	0.8		T	Kermadec Islands region
		e		20	44.3		1.2			31.6 S 176.7 W
		$ePKKP_1$		36	11.2		1.0			h about 41 km
		$ePKKP_2$			28.6		1.2			0 = 23 05 56.9
	LPN	eSur		53	55					Δ = 98°
										Medium surface waves
										on LP
05 May		eP	23	45	22.5	1	0.3		NR	Δ (S-P) = 2.0°
	N	eS			56.5		0.4			
	E	eSur		46	00.8		0.5			
06 May		eP	02	49	54.5	2	0.7		T	
06 May		eP	03	14	54.6	3	1.0		T	
06 May		eP	03	18	36.2	5	1.3		T	Possible phase of
										previous event
06 May		eP	03	27	11.2	4	1.1		T	South Pacific Ocean,
		e			30.0		1.5			2300 miles southeast of
	LP	eSur		59	56					New Zealand
										54.3 S 136.6 W
										h about 23 km
										0 = 03 13 49.3
										Δ = 94°
										Medium surface waves
										on LP

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	T	Dir.	Type	Remarks
1962			h.	m.	s.					
06 May		eP	03	47	03.8	2	1.2		T	South Pacific Ocean
		e			14.0		1.5			2300 miles southeast
		e			31.2		1.1			of New Zealand
		e		48	05.1		1.5			54.2 S 136.5 W
		e		50	57.6		1.8			h about 25 km
	LPN	eSur	04	14	19					0 = 03 33 47.0
	LP	eSur		19	34					$\Delta = 94^{o}$
										Strong surface waves, Love and Rayleigh type, on LP.
										Weak surface on BB.
06 May		eP	04	14	41.9	5	1.2		T	
06 May		eP	05	32	43.6	17	1.3		T	Near coast of southern
		e			53.1		1.4			Chile
										37.8 S 73.4 W
										h about 25 km
										0 = 05 20 59.6
										$\Delta = 77^{o}$
06 May		eP	06	54	53.7	6	1.2		T	
06 May		eP	11	28	57.4	6	0.8		T	Weak surface waves
		e		29	40.3		1.0			on LP
	LPN	eSur		59	11					
06 May		eP	12	21	06.5	3	1.0		T	Fiji Islands region
		epP		23	13.5		0.9			20.8 S 178.7 W
										h about 587 km
										0 = 12 08 45.6
										$\Delta = 94^{o}$
06 May		eP	17	20	25.7	3	0.8		T	
		e			39.2		1.1			
		e		21	32.8		1.4			

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	T	Dir.	Type	Remarks
1962			h.	m.	s.					
06 May		eP	19	14	33.6	13	1.3		T	Sandwich Islands region
		e		15	13.8		1.1			60.0 S 32.8 W
	LP	e		16	28		11.0			h about 25 km
	LP	e		17	39		15.0			0 = 19 00 10.2
		e		18	13.4		1.3			$\Delta = 108^{o}$
		e			33.2		1.9			Mag. = 7 (Pas.)
	LP	ePP		19	04		18.0			6-3/4 - 7 (Berk.)
		e		20	02.0		4.9			Strong surface waves
		e		23	34.4		1.5			on LP and BB.
		e		25	14.4		1.4			Medium on SP.
	LPN	eSKS			25		21.0			
	LPN	e(S)		26	40		19.0			
		e			58.1		1.3			
		e		27	54.9		1.6			
	LPN	ePS		28	30		23.0			
	LP	eSPP		29	30		25.0			
		$ePKKP_1$			39.8		1.2			
		$ePKKP_2$		30	03.9		1.2			
		e		32	40.5		1.3			
		eSKKP		33	24.7		2.2			
		e(PcPP')			50.6		1.3			
	LPN	e(SS)		34	22		20.0			
	LPN	eSKKS		37	07		25.0			
		e			48.2		1.8			
	LPN	eSSS		38	22		28.0			
	LP	eSur		55	17					
06 May		eP	19	49	48.3	4	1.1		T	
06 May		eP	21	50	09.2	5	1.0	ESE	T	
		e			46.4		0.8			
		e		53	33.7		1.1			
06 May		e	22	11	19.0		1.4		T	Sandwich Islands region
		e		12	12.6		1.2			60.2 S 33.1 W
		ePP			41.9		1.6			h about 37 km
		e		13	06.0		1.4			0 = 21 53 48.5
		ePKKP		23	26.9		1.0			$\Delta = 108^{o}$
		e		25	08.4		1.3			Start is indefinite, probably P diffracted.

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h.	m.	s.					
06 May		ePP	22	53	41.2		1.7		T	Sandwich Islands region
		ePKKP	23	04	36.9		1.3			60.4 S 33.6 W
										h about 34 km
										0 = 22 34 47.9
										Δ = 108°
06 May		eP	23	28	26.7	3	0.4		NR	Δ (S-P) = 1.6°
		eS			48.2	999				
06 May		eP	23	49	20.6	3	1.0		T	
07 May		eP	00	56	03.2	1	0.9		T	
07 May		eP	03	21	04.4	4	1.0		T	
07 May		eP	05	13	36.6	3	1.0		T	
		e		14	26.0		1.3			
07 May		eP'	05	15	08.5	3	1.2		T	Near north coast of
	LPN	e(PKS)		18	22		23.0			New Guinea
		ePKKP		25	55.1		1.1			4.1 S 143.7 E
										h about 113 km
										0 = 04 56 38.4
										Δ = 115°
07 May		eP	08	21	18.7	3	1.2		T	Mariana Islands
		e		22	01.9		1.3			19.3 N 145.4 E
	LP	eSur		54	38					h about 116 km
										0 = 08 07 55.8
										Δ = 98°
										Weak surface waves,
										Rayleigh type, on LP.
07 May		eP	08	31	15.5	3	1.2		T	
07 May		eP	09	52	31.3	1	0.8		T	
07 May		eP	10	50	46.2	3	1.2		T	
	LP	e(Sur)	11	13	37					

DATA	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h.	m.	s.					
07 May		eP	11	23	26.4	2	1.0		T	
07 May		eP	12	40	16.0	3	0.9		T	
07 May		eP	13	27	02.4	2	0.5	S	R	
		e			21.2		0.9			
07 May		eP	14	57	34.7	1	0.4	SE	NR	Δ (S-P) = 1.6°
		e			44.5		0.4			Quarry blast near
		eS			56.1	999				Chico, Texas
07 May		eP	15	28	04.0	1	0.7		T	
07 May		eP	15	51	13.7	2	0.8		T	
07 May		eP	16	24	52.8	2	0.8		T	
		e		25	16.2		1.0			
		e		26	13.6		1.1			
07 May		iP	17	52	05.0	c 1225	1.9		T	Kurile Islands region
	BB	ePP		54	57		7.0			45.3 N 146.7 E
		e		56	50.1		1.5			h about 25 km
	LP	ePPP		57	02		18.0			0 = 17 39 50.3
	LP	e		58	35		15.0			Δ = 80.5°
	LPN	eS	18	02	17		21.0			Mag. = 6-3/4 (Pas.)
		e		04	16.1		1.4			Strong surface waves,
	LPE	eSS		07	44		25.0			Love and Rayleigh type,
		ePKKP		10	43.7		1.0			on LP and BB.
	LPN	eSur		14	04					Weak surface on SP.
		e		17	03.5		1.3			
		eP'P'		18	20.4		1.3			
	LP	eSur		20	00					
07 May		eP	19	16	51.2	2	0.9		T	
07 May		eP	19	21	24.7	2	1.0		T	
		e		22	44.8		1.0			
	E	e		25	34.5		0.7			

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h.	m.	s.					
07 May		eP	19	27	57.9	1	0.3	SE	NR	Δ (S-P) = 2.5°
	N	eS		28	29.0		0.6			
07 May		eP	19	33	12.0	4	1.1		T	
	E	eSur		37	31.4		1.0			
07 May		eP	19	39	38.1	14	1.7		T	Start is indefinite
		e		40	52.6		1.6			
07 May		eP	20	22	04.8	6	1.3		T	
07 May		eP	20	40	35.5	10	1.5		T	
	E	e(Sur)		44	38.9		0.9			
07 May		eP	23	07	05.8	14	1.5		T	
07 May		eP	23	28	27.2	2	0.4		NR	Δ(S-P) = 1.7°
		eS			49.1	999				
08 May		eP	00	07	57.9	2	0.6		T	
08 May		eP	00	59	51.5	2	0.4		NR	Δ (S-P) = 2.7°
	N	eS	01	00	24.7		0.4			
	N	eSur			33.8		0.7			
08 May		eP	03	33	24.5	4	0.9		T	
08 May		eP	07	40	25.2	1	0.9		T	
		e		41	01.7		1.1			
08 May		eP	07	57	42.9	4	0.6	SE	T	
		e		58	13.8		0.8			
		e		59	41.0		0.6			
08 May		eP	08	09	52.9	4	1.0		T	Fiji Islands region 17.9 S 177.7 W h about 409 km 0 = 07 57 30.3 Δ = 91°

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h.	m.	s.					
08 May		eP	08	19	25.5	3	1.2		T	
08 May		eP	11	25	52.4	1	0.4		NR	Δ(S-P) = 3.4°
	E	eS		26	33.2		0.4			
	E	e(Sur)			58.2		0.5			
08 May		eP	12	07	49.6	4	1.2		T	
08 May		eP	13	47	00.6	5	1.2		T	
		e			17.9		1.3			
08 May		eP	15	50	01.8	2	0.3		L	Δ(S-P) = 0.8°
		eS			09.6	999				
08 May		eP	15	54	44.4	4	1.1		T	
08 May		eP	16	37	27.4	5	0.9		T	Off east coast of Honshu, Japan 43.8 N 144.4 E h about 106 km 0 = 16 25 12.0 Δ = 82°
		epP			57.3		1.1			
08 May		eP	17	10	02.3	2	0.9		T	
08 May		eP	18	22	21.3	3	0.9		T	Fiji Islands region 17.8 S 177.3 W h about 451 km 0 = 18 10 01.2 Δ = 91.5°
08 May		eP	22	13	45.4	1	0.3		NR	Δ (S-P) = 1.8°
		eS		14	08.1	999				
08 May		eP	23	33	57.2	2	0.4		NR	Δ (S-P) = 2.6°
	E	eS		34	29.1		0.5			

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h.	m.	s.					
09 May		eP	00	07	00.6	2	1.0		T	Sea of Crete
		e			14.6		0.9			35.9 N 24.4 E
		e		11	27.6		1.2			h about 93 km
		e		12	33.9		1.2			0 = 23 54 01.7 (08 May)
										Δ = 91.5°
09 May		eP	02	47	57.9	8	0.9	SE	T	
		e		48	07.6		0.9			
09 May		eP	09	05	28.1	2	0.8		T	
		e			39.4		0.6			
		e			44.9		1.1			
09 May		eP	11	23	53.9	12	1.5		T	
		e		24	10.0		1.5			
09 May		eP	11	30	51.8	4	0.8		T	Kurile Islands region
		e			58.6		1.0			46.1 N 152.9 E
		e		31	14.8		0.9			h about 56 km
	LPE	eS		40	42		16.0			0 = 11 19 01.6
	LPN	eSur		51	28					Δ = 76.5°
										Weak surface waves on LP
09 May		eP	11	42	25.5	13	1.0		T	
		e			34.4		0.7			
09 May		eP	12	29	00.2	8	1.4		T	
09 May		ePKKP	12	42	07.1		1.2		T	Hindu Kush
	LPE	eSur		58	00					36.6 N 68.3 E
										h about 96 km
										0 = 12 12 33.5
										Δ = 112°
										Medium surface waves on LP
09 May		eP	20	25	50.8	4	0.9	S	R	
	E	eSur		28	21.3		0.7			

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h.	m.	s.					
09 May		eP	20	46	02.0	1	0.3		NR	Δ (S-P) = 3.4°
		e			05.1		0.3			
		e			08.2		0.3			
	E	eS			43.1		0.4			
	E	eSur			52.6		0.5			
09 May		eP	21	39	10.7	1	0.5		NR	Δ (S-P) = 1.6°
	E	eS			31.8		0.4			
09 May		eP	23	21	14.2	3	0.5		NR	Δ (S-P) = 1.6°
		eS			35.7	999				
09 May		eP	23	33	02.8	1	0.4		NR	Δ (S-P) = 2.6°
	E	eS			35.2		0.4			
09 May		eP	23	44	02.1	2	0.5		NR	Δ (S-P) = 1.6°
		e			11.3		0.4			
		eS			23.2	999				
10 May		iP	00	11	26.9	c 140	1.0		T	Alaska
		epP			42.3		1.1			62.0 N 150.1 W
		e			54.3		1.3			h about 72 km
		e		12	50.2		1.6			0 = 00 03 40.2
		ePcP		13	19.8		0.9			Δ = 42°
	LP	e(PP)			40		21.0			Mag. = 6 (Berk.)
		e		16	05.8		1.2			4-3/4 - 5 (Pal.)
		e			24.0		1.3			Strong surface waves,
		e			50.8		1.3			Love and Rayleigh type,
	LPN	eS		17	44		18.0			on LP and BB.
	LPE	e		18	08		20.0			
	LPN	e			46		32.0			
		e		19	12.6		1.8			
	E	e		20	05.3		1.5			
	LPE	eSS			58		17.0			
		e		21	24.1		1.2			
	LPE	eScS			30		22.0			
	LPE	eSur		22	56					
		e		24	09.6		1.4			
	E	eSur			28.0		5.0			
	LP	eSur		26	07					

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
10 May		eP	00	42	15.0	2	0.8		T	Probably diffracted P
		e		44	28.5		1.6			
10 May		eP'	00	45	48.0	3	1.0		T	South Island, New Zealand
		e		46	26.5		1.0			41.8 S 171.6 E
		e			38.4		2.0			h about 54 km
		e		47	31.5		1.8			0 = 00 27 17.5
	LPE	ePS		56	10		25.0			$\Delta = 112^{o}$
		ePKKP			51.9		1.0			Strong surface waves,
	LP	eSPP		57	09		20.0			Love and Rayleigh type,
		e			14.6		1.3			on LP.
	LPE	e		58	22		24.0			Medium surface on BB.
	LPE	eSS	01	02	00		35.0			
	LPE	e(PSS)			58		30.0			
	LPE	e		10	32		31.0			
	LPE	eSur		15	00					
	LP	eSur		21	15					
10 May		eP	00	58	19.5	3	1.1		T	Possible phases of
		e		59	22.1		1.0			previous event
10 May		eP	02	19	21.6	2	1.1		R	Start is indefinite
	E	eSur		22	53.0		1.8			
		e		23	58.3		1.8			
10 May		eP	05	10	08.3	5	1.5		T	
10 May		eP	05	21	33.2	25	1.2		T	Fox Islands, Aleutians
		epP			50.4		1.5			52.4 N 170.9 W
		e		23	14.1		2.0			h about 43 km
		e		24	58.7		1.4			0 = 05 12 15.9
		eScP		26	30.2		1.6			$\Delta = 53^{o}$
		e		27	32.7		1.1			Strong surface waves,
		e			58.2		1.2			Love and Rayleigh type,
	E	eS		29	01.3		3.5			on LP.
	LPE	eSS		32	48		25.0			Weak surface on BB.
	LPN	eSur		36	40					
	LPE	eSur		39	29					
		eP'P'		52	06.6		1.3			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
10 May		eP	07	54	26.8	4	1.0		T	
10 May		eP	08	21	45.6	16	1.8		T	
10 May		eP	08	55	19.2	11	0.7		T	Near east coast of
		e			40.5		0.7			Kamchatka
		epP			52.7		0.8			53.0 N 159.8 E
		e		56	11.6		0.6			h about 154 km
										0 = 08 44 25.9
										$\Delta = 69^{o}$
10 May		eP	09	29	37.4	2	1.0		T	Medium surface waves
	LP	eSur		45	36					on LP
10 May		eP	09	58	23.6	4	1.0	N	T	
	LP	e(Sur)	10	28	50					
10 May	LP	e(Sur)	10	45	21				T	
10 May		eP	11	00	10.9	5	1.5		T	
10 May	LP	eSur	11	04	51				T	Medium surface waves
										on LP.
10 May		eP	11	23	35.7	12	1.5		T	North Atlantic Ocean,
		e			47.5		1.3			north of Azores
	LP	eSur		39	44					49.2 N 28.5 W
										h about 25 km
										0 = 11 14 25.0
										$\Delta = 52^{o}$
										Medium surface waves
										on LP.
10 May		eP	12	59	36.1	3	1.2		T	
10 May		eP	14	21	33.5	4	1.1		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
10 May		eP	14	26	40.2	15	1.7		T	North Atlantic Ocean north of Azores 49.2 N 28.6 W h about 25 km 0 = 14 17 30.0 Δ = 52°
	LP	eSur		45	28					Weak surface waves on LP
10 May		eP	15	31	31.6	2	0.4		L	Δ = 0.5°
		eS			39.4	999				
10 May		eP	15	38	21.6	4	0.9		T	
10 May		eP	17	52	20.4	6	1.4		T	
		e		53	45.2		2.1			
10 May	LPE	e	17	58	02		22.0		T	Medium surface waves
	LPE	e	18	00	18		40.0			on LP
	LP	eSur		02	00					
10 May		eP	18	01	47.8	5	0.9		T	
10 May		eP	18	43	32.1	2	0.7		T	Yugoslavis-Albania border 42.1 N 19.2 E h about 25 km 0 = 18 30 58.1 Δ = 84°
10 May	LP	eSur	20	43	00				T	Medium surface waves on LP.
10 May		eP	23	14	03.6	999			NR	Δ (S-P) = 1.8°
		eS			27.1	999				
11 May		eP	00	03	30.4	5	1.3		T	
		e		04	11.2		1.4			
11 May		eP	01	14	09.4	1	0.4		NR	Δ (S-P) = 3.0°
	E	eS			47.4		0.2			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
11 May		eP	01	17	32.6	8	1.1		T	Italy 44.4 N 11.1 E h about 25 km 0 = 01 05 31.6 Δ = 78°
11 May		eP	03	58	00.1	11	1.3		T	
11 May	LPE	eSur	05	48	00				T	New Guinea 6.4 S 143.6 E h about 37 km 0 = 04 52 43.4 Δ = 117° Weak surface waves on LP
11 May	LPE	eSur	06	32	41				T	Weak surface waves on LP
11 May		eP'	07	24	27.5	8	1.5		T	Near north coast of New Guinea 6.6 S 147.7 E h about 42 km 0 = 07 06 52.5 Δ = 113° Weak surface waves on LP
	LP	eSur		59	55					
11 May		eP	08	04	08.5	6	1.4		T	
		e		05	37.8		1.5			
11 May		eP	09	26	13.4	17	1.8		T	
11 May		eP	11	16	16.4	6	1.0		T	
11 May		eP	12	19	17.9	3	0.7		T	New Hebrides Islands region
		e			47.9		0.7			14.3 S 170.4 E
		ePP		23	28.3		1.4			h about 623 km 0 = 12 06 42.1 Δ = 99°
11 May		eP	13	49	21.4	3	0.8		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
11 May		eP	14	15	55.5	999			T	Near coast of Mexico
	BB	eS		19	24	999				17.0 N 99.7 W
	BB	eSur		21	00					h about 25 km
										0 = 14 11 51.9
										Δ = 17.5°
										Mag. = 7 (Pas.)
										7 - 7-1/4 (Berk.)
										Strong surface waves
										on all systems
11 May		eP	14	51	00.0	7	1.2		T	
		e			12.0		1.8			
		e		52	26.2		1.8			
11 May		eP	14	56	10.2	10	1.4		T	Possible phase of previous event
11 May		eP	15	03	54.1	11	1.5		T	
11 May		eP	16	15	46.4	13	1.1		T	Near coast of Mexico
	E	eSur		21	17.4		2.8			17.0 N 99.7 W
										h about 25 km
										0 = 16 11 33.2
										Δ = 18°
11 May		eP	16	29	37.1	4	1.0		T	
11 May		eP	19	34	34.5	4	1.1		T	
		e		40	14.0		2.0			
11 May		eP	19	56	45.2	3	0.2		NR	Δ (S-P) = 3.3°
	E	eS		57	25.0		0.4			
11 May		eP	20	07	00.4	40	1.1	W	T	Strong surface waves
		e		11	01.3		1.3			on LP and BB.
	LPE	e			12		12.0			
	LPE	e		14	24		12.0			
	LP	eSur		15	14					

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
11 May		eP	21	12	23.6	3	0.5		NR	Δ (S-P) = 2.5°
	E	eS			54.9		0.6			
11 May		eP	21	48	28.4	3	0.3		NR	Δ (S-P) = 1.6°
	E	eS			49.8		0.4			
12 May		eP	00	26	42.4	2	0.4		NR	Δ (S-P) = 2.2°
	E	eS		27	09.8		0.5			
12 May		eP	05	54	11.8	6	1.4		T	
12 May		eP	06	26	37.2	6	1.1		T	
		e			46.4		1.2			
12 May		eP	07	07	47.9	2	0.9		T	
12 May		eP	07	12	41.7	2	0.7		T	
12 May		eP	10	20	57.4	7	0.9		T	Near coast of Mexico
		e		21	21.7		1.3			17.2 N 99.1 W
	E	eSur		26	28.7		2.8			h about 25 km
										0 = 10 16 53.4
										Δ = 17°
										Strong surface waves
										on SP.
										Weak surface on LP and BB
12 May		eP	13	49	26.7	9	1.0	N	T	
12 May		eP	18	23	37.5	1	0.7		(R)	
		e			50.5		1.0			
12 May		eP	18	38	18.7	1	0.3		NR	Δ (S-P) = 1.8°
	E	eS			42.0		0.5			
12 May		eP	22	15	50.0	3	1.0		T	Fiji Islands
										18.0 S 178.0 W
										h about 603 km
										0 = 22 03 40.7
										Δ = 91.5°

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
12 May		eP	22	40	06.0	10	0.8	S	R	
	E	eSur		44	29.6		0.8			
13 May		eP	00	35	20.9	3	0.8		T	
13 May		eP	01	24	50.0	8	1.1		T	
13 May		eP	02	04	06.6	7	0.3		NR	Δ (S-P) = 1.6°
		e			16.7		0.4			
		eS			28.1	999				
13 May		eP	02	41	38.4	3	0.9		T	
		e		42	00.8		0.7			
13 May		iP	09	19	24.2	c 17	0.8		T	Columbia
		ePcP		21	46.5		0.5			6.9 N 73.0 W
	N	eS		24	53.1		1.2			h about 183 km
		eScP		25	18.4		0.9			0 = 09 12 34.3
	N	eScS		29	24.4		1.0			Δ = 36.5°
13 May		eP	16	22	54.5	4	1.0		T	
13 May		eP	19	01	45.7	4	1.1		T	Near Honshu, Japan
										39.0 N 140.8 E
										h about 31 km
										0 = 18 48 55.3
										Δ = 88°
13 May		eP	20	41	32.1	4	1.1		T	
13 May		eP	22	24	57.1	5	1.1		T	
14 May		eP	03	54	13.7	4	0.9		T	
14 May		eP	04	12	42.1	24	1.5		T	
		e			50.0		0.9			
14 May		eP	10	52	43.2	1	0.7		T	Start indefinite
		e		53	11.6		1.0			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
14 May		eP	10	56	12.6	6	1.0		T	Possible phase of
		e			53.4		1.4			previous event
14 May		eP	11	20	02.7	3	1.1		T	Off coast of Honshu, Japan
										33.8 N 141.1 E
										h about 157 km
										0 = 11 07 11.2
										Δ = 92°
14 May		eP	14	09	38.4	4	0.9		T	Kurile Islands
										46.3 N 149.8 E
										h about 126 km
										0 = 13 57 49.4
										Δ = 78°
14 May		eP	14	44	43.5	3	0.9		T	
14 May		eP	15	15	16.9	3	0.8		T	
		e			33.6		1.0			
14 May		eP	17	02	16.3	11	1.0		T	North Atlantic Ocean
		e			56.3		1.2			49.0 N 28.8 W
		e		03	28.9		1.4			h about 25 km
										0 = 16 53 06.2
										Δ = 51.5°
14 May		eP	17	24	10.6	2	0.4		NR	Δ (S-P) = 1.6°
	N	eS			31.8		0.3			
14 May		eP	21	41	39.6	3	0.5		NR	Δ (S-P) = 1.7°
		eS		42	01.6	999				
14 May		eP	22	03	54.2	1	0.4		NR	Δ (S-P) = 4.9°
		e		04	03.7		0.4			
	E	eS			55.5		0.4			
14 May		eP	22	17	20.6	5	1.3		T	Andreanoff Islands,
										Aleutian Islands.
										51.5 N 176.2 W
										h about 25 km
										0 = 22 07 39.3
										Δ = 56°

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
14 May		eP	23	28	31.8	1	0.4		NR	Δ (S-P) = 1.6°
		eS			53.2	999				
14 May		eP	23	35	58.7	8	1.1		T	Fiji Islands region
15 May	LPN	eSur	00	05	25					14.0 S 178.2 W
										h about 65 km
										0 = 23 23 08.6
										Δ = 89°
										Weak surface waves on LP
15 May		eP	03	05	09.8	5	1.0		T	
15 May		eP	03	47	24.9	3	1.1		T	Coast of Japan
										36.4 N 141.6 E
										h about 77 km
										0 = 03 34 35.3
										Δ = 90°
15 May		eP	05	39	58.0	4	1.2		T	Banda Sea
		eP'		42	52.3	192	1.4			7.3 S 128.3 E
		e			58.7		1.6			h about 34 km
		e		43	20.7		1.8			0 = 05 23 45.9
	BB	e		44	05		8.0			Δ = 129°
		ePP		45	05.7		1.7			Start of event is P
		eSKP		46	17.3		1.0			diffracted.
		e		47	19.0		1.3			Mag. = 7 - 7-1/2 (Pas.),
	LPE	e			58		28.0			7-1/2 (Berk.)
		e		49	58.9		1.6			Strong surface waves,
	LPE	eSKKS		52	14		25.0			Love and Rayleigh type,
		ePcPP'		54	52.3		1.5			on all systems.
	LPE	ePS		55	13		24.0			
		eSKKP			51.2		2.2			
	LPE	e		56	08		23.0			
		e			43.8		2.2			
	LP	eSPP			52	999				
		e		59	24.5		1.9			
	LPE	eSS	06	02	19	999				
	LPE	eSSS		07	08	999				
	LPE	e		10	04	999				

(continued on following page)

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
	LPE	e(Sur)		14	26					(continued from preceding page)
	LPE	eSur		17	05					
	LP	eSur		22	32					
15 May		eP	06	18	37.1	4	1.2		T	
15 May		eP'	07	02	06.1	39	1.6		T	Banda Sea
		e			51.8		1.6			7.2 S 128.3 E
		ePP		04	10.2		1.6			h about 52 km
		eSKP		05	26.5		1.7			0 = 06 42 58.9
		e		07	42.9		1.5			Δ = 129°
15 May		eP	08	32	08.9	7	1.4		T	
15 May		eP	08	44	34.9	4	1.0		T	
15 May		eP	08	51	55.3	3	1.0		T	Near coast of Chile
										35.1 S 73.1 W
										h about 25 km
										0 = 08 40 21.2
										Δ = 73°
15 May		eP	10	13	57.9	12	1.8		T	Probably P diffracted
										from following event.
15 May		eP'	10	14	24.1	11	1.3		T	Banda Sea
		e		15	33.1		1.5			7.2 S 128.2 E
		e(PP)		16	34.3		0.9			h about 30 km
		e		17	43.7		1.4			0 = 09 55 16.5
		eSKP			52.1		1.1			Δ = 129°
		e		18	31.5		1.3			
		e		20	27.0		1.0			
		e		25	31.9		1.5			
		eSKKP		27	32.9		1.4			
15 May		eP	11	22	47.8	7	1.5		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
15 May		eP	13	04	30.0	5	0.9		T	Kurile Islands
		e			45.4		0.8			44.9 N 148.2 E
										h about 36 km
										0 = 12 52 19.1
										Δ = 80°
15 May		eP	16	18	01.1	6	1.2		T	
15 May		eP	16	25	22.1	2	0.7		T	Unimak Island region
										53.2 N 164.7 W
										h about 25 km
										0 = 16 16 19.1
										Δ = 49.5°
15 May		eP'	17	13	08.3	22	1.6		T	Banda Sea
		ePP		15	17.1		1.6			7.4 S 128.0 E
		e			34.0		1.7			h about 34 km
		eSKP		16	31.3		1.5			0 = 16 54 01.9
		e		17	28.1		1.6			Δ = 129°
15 May		iP	19	43	28.6	c 81	0.9		T	Near east coast
		e			43.6		0.8			of Kamchatka
		ePP		46	09.3		1.6			53.4 N 159.6 E
		eP'P'	20	11	28.2		1.0			h about 30 km
		e			39.7		1.1			0 = 19 32 22.5
										Δ = 69°
15 May		eP	20	42	11.3	3	1.1		T	Unimak Island region
		e			26.3		1.0			53.5 N 164.0 W
										h about 25 km
										0 = 20 33 29.3
										Δ = 48.5°
15 May		eP	21	49	07.1	2	0.4		NR	Δ (S-P) = 4.7°
		e			48.2		0.4			
		e		50	05.2	999				

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
15 May		eP'	21	50	05.8	8	1.3		T	Banda Sea
		e		54	10.6		1.5			7.2 S 128.1 E
										h about 38 km
										0 = 21 31 00.4
										Δ = 129°
15 May		eP	22	22	18.8	5	0.5		NR	Δ (S-P) = 2.4°
	E	eS			48.9		0.4			
	E	eSur		23	03.6	999				
15 May		eP	22	30	47.5	2	0.4		L	Δ (S-P) = 0.6°
		eS			56.5	999				
15 May		eP	22	43	25.7	2	0.6		R	
	E	eSur		46	34.1		0.6			
16 May		eP	02	07	41.8	4	1.4		T	Possible new event
		e		08	10.2		1.1			at 02 08 10.2
		e			25.2		0.9			
16 May		eP	04	40	51.5	3	1.2		T	
16 May		ePP	05	34	16.9		1.6		T	New Hebrides Islands
		e			36.4		1.7			13.6 S 167.3 E
	LP	eSur	06	03	29					h about 52 km
										0 = 05 16 46.0
										Δ = 100°
										Medium surface waves
										on LP
16 May		eP	07	33	44.5	3	0.7	S	T	
16 May		eP'	14	54	36.0	24	1.9		T	Banda Sea
		ePP		56	40.4		2.0			7.3 S 128.1 E
		eSKP		57	57.4		1.4			h about 34 km
										0 = 14 35 29.6
										Δ = 129°

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h. m. s.					
16 May		ePP	17 50 59.7	18	1.8		T	New Hebrides Islands 13.4 S 167.3 E h about 35 km 0 = 17 33 05.5 Δ = 100°
	LP	eSur	18 20 23					Medium surface waves on LP
16 May		eP	20 24 42.1	5	0.7		T	
16 May		eP	20 58 37.0	3	0.9		T	
16 May		eP'	22 00 56.5	4	0.9		T	Near coast of south Australia 35.6 S 137.7 E h about 25 km 0 = 21 41 35.8 Δ = 138°
16 May		eP	23 35 48.8	1	0.3		NR	Δ (S-P) = 1.6°
		eS	36 09.7	999				Quarry blast, 5,473 lbs. by Gifford Hills Co. near Chico, Texas
17 May		eP	02 30 46.5	6	1.4		T	
17 May		eP	04 21 32.5	4	1.4		T	South Pacific Ocean 55.1 S 128.8 W h about 25 km 0 = 04 08 18.8 Δ = 94°
17 May		eP	07 18 34.7	5	1.4		T	

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h. m. s.					
17 May		eP	11 59 40.0	2	1.0		R	
		e	12 00 42.8		1.2			
	E	eSur	03 06.1		1.0			
17 May		eP'	12 20 14.7	7	1.1		T	C
		e	19.2		1.5			
		e	23 42.1		1.4			6.2 S 68.3 E h about 25 km 0 = 12 00 29.6 Δ = 150°
17 May		eP	14 52 14.5	1	0.3		L	Δ (S-P) = 1.3°
	E	eS	31.3		0.4			
	E	e	53 18.9		0.9			
		e	36.0		1.1			
17 May		eP	15 16 57.0	2	0.4		NR	Δ (S-P) = 1.6°
		eS	17 18.2	999				
17 May		eP	15 59 10.7	4	1.1		R	
	E	eSur	16 02 36.6		1.1			
17 May		eP	16 30 29.8	6	1.0		T	
17 May		eP	17 01 41.1	5	0.6		NR	Δ (S-P) = 1.6°
		e	42.7	999				
		eS	02 02.4	999				
17 May		eP	18 12 19.3	6	1.4		T	
17 May		eP	20 37 06.6	1	0.3		NR	Δ (S-P) = 3.4°
	N	eS	47.4		0.3			
	E	eSur	56.8		0.4			
17 May		eP	22 05 07.4	13	1.7		T	
		e	43.5		1.7			
17 May		eP	23 38 47.2	1	0.8		NR	Δ (S-P) = 2.6°
	E	eS	39 20.0		0.6			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h. m. s.					
18 May		eP	00 13 27.5	2	0.3		NR	Δ (S-P) = 2.1°
		eS	53.8	999				
18 May		eP	02 41 11.1	1	0.3	S	NR	Δ (S-P) = 2.6°
		eS	43.4	999				
18 May		eP	03 02 10.8	2	1.1		T	Fiji Islands region 21.2 S 178.8 W h about 549 km 0 = 02 49 50.4 Δ = 94°
18 May		eP	07 26 15.3	3	1.0		T	Kermadec Islands 29.3 S 178.4 W h about 192 km 0 = 07 12 55.0 Δ = 98°
		ePKKP	42 44.2		0.8			
18 May		eP	07 43 10.6	2	0.8		T	Possible phase of previous event
18 May		eP	08 01 32.9	11	1.4		T	Near coast of Chile 38.6 S 74.7 W h about 40 km 0 = 07 49 44.0 Δ = 76°
18 May		eP	09 16 38.4	3	0.7	SE	T	
18 May		eP	12 21 11.2	3	1.3		T	North Atlantic Ocean 48.6 N 28.7 W h about 25 km 0 = 12 11 59.8 Δ = 52° Strong surface waves on LP
		e	18.4		1.5			
		e	49.1		1.4			
		e	22 30.7		1.4			
		e	24 18.4		1.1			
		e	50.8		1.2			
	LPN	eS	28 49		16.0			
	LPE	e	33 09		24.0			
	LPE	e	36 09		17.0			
	LP	eSur	38 20					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h. m. s.					
18 May		eP	14 58 23.7	8	1.4		T	Off coast of Chile 38.4 S 74.9 W h about 25 km 0 = 14 46 33.7 Δ = 76.5°
		e	30.4		1.3			
18 May		eP	17 58 25.4	3	1.0		T	
18 May		iP	18 09 15.6	c 999		NE	L	Δ (S-P) = less than 0.1°
		eS	18.8	999				
18 May		eP	18 58 44.5	120	1.4		T	Kurile Islands 46.1 N 148.5 E h about 60 km 0 = 18 46 40.1 Δ = 79°
		e	53.8		1.5			
		ePP	19 01 40.9		1.8			
18 May		eP	20 11 51.1	2	0.9		T	
18 May		eP	20 47 29.2	1	0.3		NR	Δ (S-P) = 2.2°
	N	eS	58.4		0.6			
18 May		eP	21 04 11.1	1	0.3		NR	Δ (S-P) = 1.4°
	E	eS	30.3		0.3			
18 May		eP	21 43 29.7	2	1.0		T	
18 May		eP	23 31 32.1	34	1.3		T	Tonga Islands region 16.0 S 173.0 W h about 25 km 0 = 23 18 46.9 Δ = 86° Medium surface on LP.
		e	32 09.4		1.3			
19 May	LP	eSur	00 00 00					
18 May		eP	23 42 49.0	2	0.4		NR	Δ (S-P) = 1.7° Quarry blast, 5,278 lbs. by Gifford Hills Co., near Chico, Texas
		eS	43 11.2	999				

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
19 May		eP	00	30	52.2	2	0.3		NR	Δ (S-P) = 1.6°
	E	eS		31	15.5		0.4			
19 May		eP	01	15	40.2	5	1.4		T	
19 May		eP	05	06	24.4	4	1.3		T	
19 May		eP	09	01	43.6	1	0.9		T	
19 May		iP	15	02	17.5 c	999			T	Near coast of Mexico
		e(S)		05	41.5	999				17.2 N 99.5W
	LP	eSur		07	41					h about 20 km
										0 = 14 58 13.3
										Δ = 17°
										Strong surface waves on all systems
19 May		eP	15	37	16.1	11	1.4		T	
19 May		eP	16	03	21.7	2	0.8		T	
		e			37.9		0.7			
19 May		eP	20	25	40.7	2	1.0		T	
19 May		eP	20	53	49.6	2	1.0		T	
19 May		eP	21	01	27.6	4	0.9		T	
		e			37.5		0.9			
19 May		eP	21	17	22.8	3	0.8		T	
19 May		eP	22	30	49.4	3	1.5		T	
19 May		eP	23	15	36.2	2	0.6		T	
		e			43.0		0.9			
19 May		eP	23	33	48.7	2	0.4		NR	Δ (S-P) = 2.7°
	E	eS		34	21.4		0.4			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
20 May		iP	00	05	37.1 d	161	1.2		T	Near coast of Peru
		e		06	49.6		1.0			13.4 S 76.7 W
		e		07	06.3		0.8			h about 70 km
		e			53.7		1.1			0 = 23 56 32.4
	LP	e		10	58		26.0			Δ = 52°
	LPE	eS		12	59		19.0			Medium surface waves
		e		13	37.6		1.3			on LP
	LPE	eSur		22	41					
20 May		eP	00	43	03.6	8	1.1		T	
		e			22.8		1.0			
20 May		eP	00	53	44.3	2	0.9		T	Crete
										34.8 N 22.3E
										h about 25 km
										0 = 00 40 38.3
										Δ = 91°
20 May	E	eSur	00	58	25.8		0.9		R	
20 May		eP	01	50	39.0	3	0.8		T	
		e			50.0		1.1	S		
		e		51	11.4		1.1			
20 May		eP	11	41	06.6	1	0.8		T	
		e			13.3		1.3			
20 May		eP	11	42	27.2	4	0.7	S	T	
		e			48.9		0.7			
		e			56.8		0.8			
20 May		eP	12	46	55.4	9	1.2		T	
		e		47	06.3		1.3			
		e			27.3		1.0			
		e		51	43.0		1.5			
		e(Sur)		52	37.3		1.2			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
20 May		eP	15	07	46.8	12	1.5		T	Off coast of Puerto Rico
		ePP		08	46.1		1.5			20.5 N 66.0 W
		e		09	06.1		1.3			h about 38 km
		ePcP		10	35.1		1.1			0 = 15 01 20.7
		e			44.6		0.9			Δ = 32°
		e		13	00.4		1.1			Medium surface waves
	N	eSur		16	20.6		1.2			on SP, BB and LP
	LPE	eSur		17	41					
20 May		eP'	17	08	27.5	2	1.0		T	Near coast of Mindanao, P
		ePP		10	15.9		1.7			6.2 N 125.8 E
		sSKP		11	46.2		1.0			h about 133 km
		e		12	24.3		1.1			0 = 16 49 46.8
		ePKKP		18	23.4		0.6			Δ = 122°
20 May		eP	17	20	38.5	2	0.9		T	
20 May		eP	17	43	17.2	1	0.9		T	
20 May		eP	20	36	46.8	15	1.2	S	T	
		e		37	02.1		1.0			
20 May		eP	21	22	52.4	3	1.3		T	
21 May		eP	04	54	21.7	1	0.9		T	
21 May		eP	05	51	04.0	3	0.9		T	
21 May		eP	05	54	02.9	2	0.7	SE	T	
		e			16.7		0.8			
21 May		eP	06	35	15.1	1	0.7		T	
21 May		eP	07	37	32.2	6	0.9		T	
21 May		eP	08	55	46.5	4	0.9		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
21 May		eP	12	17	10.9	40	1.5		T	Chinghai Province, China
		e			20.0		2.1			37.3 N 96.0 E
		e			37.0		1.6			h about 25 km
		e		18	09.1		0.8			0 = 12 02 50.6
		e			30.5		1.1			Δ = 107°
		e		19	26.9		1.1			Strong surface waves,
		e		20	21.8		1.6			Love and Rayleigh type,
		e			43.0		2.1			on LP, BB and SP.
		e(P')		21	19.4	21	1.2			Mag. = 7 - 7-1/4 (Pas.)
	LP	ePP			36		14.0			6-1/2 - 6-3/4 (Pal.)
	LP	e		22	18		18.0			
		e		23	32.3		1.9			
	LP	ePPP			58		18.0			
	LP	e		24	06		16.0			
		e		25	47.5		2.2			
		e		26	25.0		2.0			
	LPN	eSKS		27	36		20.0			
		e		27	20.5		2.1			
		e			47.3		1.8			
	E	e(SKKS)		28	42.4		1.8			
		e		30	10.6		1.1			
	LPN	ePS		31	00		24.0			
	N	e			04.8		3.0			
	E	e			40.0		3.6			
		$ePKKP_1$		32	35.3		0.9			
		$ePKKP_2$			48.8		0.8			
		e		33	07.8		1.0			
	LPN	eSS		36	46		16.0			
		eP'P'		40	51.6		1.5			
	LPN	eSSS		41	06		28.0			
	LP	ePKSPKP		44	20		34.0			
	LPN	eSur		50	24					
	LP	eSur		53	16					
21 May		eP	12	34	01.0	33	1.1		T	
		e			39.0		1.1			
		e		35	43.5		1.3			
		e		39	53.6		0.8			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
21 May		eP	12	43	54.6	1	0.8		T	
21 May		eP	12	50	40.5	2	0.8		T	Chinghai Province, China
		ePP		55	01.8		1.3			37.0 N 95.9 E
		ePKKP	13	06	14.3		0.9			h about 25 km
		e			19.3		1.0			0 = 12 36 19.7
										Δ = 106°
21 May		eP	13	45	22.1	2	1.0		T	
21 May		eP	13	45	36.9	7	0.8		T	
		e			42.2		1.0			
21 May		eP	13	51	50.0	2	0.9		T	
21 May		eP	14	21	31.1	7	0.7		T	
		e		22	10.0		1.2			
21 May		eP	16	11	39.5	4	0.9		T	
		e			45.1		0.9			
21 May		eP	18	14	37.4	2	0.4		NR	Δ (S-P) = 1.7°
		eS			59.8	999				
21 May		eP	20	55	34.0	3	0.9		T	
21 May		eP	21	09	14.5	2	0.7		R	
	E	eSur		12	20.6		0.6			
21 May		eP	21	28	02.6	239	1.3		T	Fiji Islands region
		epP		29	38.3		2.2			20.0 S 177.5 W
		e		30	26.8		2.0			h about 379 km
	LP	ePP		32	00		26.0			0 = 21 15 31.0
	LP	ePPP		34	05		24.0			Δ = 93°
	LP	e		37	34		24.0			Strong surface waves,
		eSKS		38	00.4	999				Love and Rayleigh type,
		eS			38.9	999				on LP and BB.
	E	ePS		40	56.9		6.6			Medium surface on SP.
	E	ePPS		41	33.9		8.5			Mag. = 6-3/4 - 7 (Pas.)

(continued on next page)

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
		e		42	34.0		2.0			(continued from preceding page)
		e		44	50.6		1.2			
	LPE	e			55	999				
		ePKKP		45	13.8		0.6			
		e		46	02.3		1.5			
		eSKKP		47	51.1		1.6			
	LPE	eSur		51	00					
		e			30.9		2.3			
		eP'P'		53	33.4		1.2			
	LP	eSur		54	00					
		e		55	22.3		1.9			
	N	eSKKKS		56	06.6		1.4			
21 May		eP	22	10	28.4	3	0.8		T	
		e		14	53.5		2.4			
		e		15	42.1		3.6			
		e		16	14.3		3.2			
21 May		eP	22	28	24.9	3	1.0		T	
22 May		eP	00	24	50.6	6	1.4		T	
		e		25	04.8		1.4			
		e			18.0		1.3			
22 May		eP	00	32	48.9	6	1.2		T	Tonga Islands
		e		33	33.4		1.2			16.8 S 174.3 W
		e		36	15.2		1.1			h about 52 km
										0 = 00 20 02.4
										Δ = 88°
22 May		eP	02	32	51.7	8	1.4		T	Samoa Islands region
										14.7 S 173.0 W
										h about 46 km
										0 = 02 20 10.4
										Δ = 86°
22 May		eP	04	54	03.4	5	1.5		T	
22 May		eP	07	37	03.2	5	1.0	NE	T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
22 May		eP	08	20	12.5	27	1.3		T	Santa Cruz Islands
		epP			44.1		1.8			12.3 S 166.6 E
		e		21	21.4		1.0			h about 151 km
		e		22	30.5		1.3			0 = 08 06 38.7
		e		23	26.9		1.4			Δ = 101°
		e			55.1		2.1			Strong surface waves
		ePP		24	21.0		3.0			on all systems
		e(pPP)			50.7		2.4			
		e		26	04.2		2.2			
		e			29.8		2.2			
		e			56.2		1.4			
		e		30	01.1		1.2			
	E	eSKS			45.0		3.0			
	E	eS		31	34.0		3.2			
	LPN	ePS		33	21		21.0			
	LPN	ePPS		34	06		22.0			
	LPN	e		35	04		22.0			
		ePKKP		36	28.3		1.0			
		e(pPKKP)			51.1		1.4			
		e		37	20.4		1.2			
	LPN	eSS		39	02		25.0			
		ePcPP'		40	44.4		1.5			
		e(pPcPP')		41	15.4		1.8			
		ePPP		44	28.8		3.6			
	LP	e(Sur)		46	00					
	LP	eSur		52	58					
22 May		eP	08	34	25.9	7	1.4		T	
		e		35	16.1		1.3			
22 May		eP	10	25	09.4	2	0.8		T	
22 May		eP	18	01	47.2	1	0.4		NR	Δ (S-P) = 1.7°
		eS		02	09.2	999				Quarry blast, 3,838 lbs. by Gifford Hills Co., near Chico, Texas
22 May		eP	18	37	58.6	5	0.5	SE	T	
22 May		eP	21	33	03.5	4	0.8		T	
		e			36.6		0.8			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
22 May		eP	21	58	11.1	3	0.9		T	
22 May		eP	22	18	00.5	2	1.0		T	New Britain
		e			11.9		1.3			5.5 S 152.0 E
		e		19	22.3		1.1			h about 100 km
		ePP		22	27.8		1.8			0 = 22 03 36.0
		e		23	24.7		1.4			Δ = 109°
		e		24	20.6		1.6			Possible new event at
		e		30	08.2		1.0			22 34 39.4
		e			33.4		1.0			Strong surface waves,
		ePKKP		33	17.1		1.5			Love and Rayleigh type,
		e			29.7		1.4			on BB and LP.
		e		34	39.4		1.4			Initial arrival is
		e		35	01.8		1.0			P diffracted.
		e		36	31.5		1.1			
		e		37	44.1		1.4			
	LPN	eSur		49	10					
	LP	eSur		55	40					
22 May		eP	22	49	29.6	2	1.0		T	
22 May		eP	23	34	34.3	1	0.3		NR	Δ (S-P) = 2.7°
	N	eS		35	08.3		0.4			
22 May		eP	23	47	56.4	4	1.4		T	
22 May		eP	23	59	11.1	2	0.8		T	
23 May		eP	02	12	06.3	4	0.9		T	
		e			11.1		1.0			
23 May		eP	02	12	51.8	1	0.9		T	
23 May		eP	06	48	16.9	2	1.2		T	New Britain
		eP'		52	27.6		1.1			5.4 S 152.0 E
		ePP			54.1		1.2			h about 70 km
	LP	eSur	07	27	21					0 = 06 34 00.4
										Δ = 108°
										Start is P diffracted
										Weak surface waves on LP

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h. m. s.					
23 May		eP	07 21 39.1	11	1.7		T	
23 May		eP	08 27 14.7	1	0.6		T	
23 May		eP	08 31 52.4	3	1.1		T	Kermadec Islands region 25.4 S 179.3 W h about 363 km 0 = 08 19 00.7 Δ = 94°
23 May		eP	08 33 25.8	2	1.0		T	Possible phase of previous event
		e	46.9		1.2			
23 May		eP	10 09 50.4	4	1.0		T	
23 May		eP	16 22 16.4	1	0.4		NR	Δ (S-P) = 3.2°
	N	eS	55.4		0.5			
23 May		eP	16 52 25.1	2	0.3		NR	Δ (S-P) = 1.6°
		eS	45.8	999				
23 May		eP	18 26 53.4	19	1.8		T	
23 May		eP	20 43 53.2	4	0.9		T	
23 May		eP	20 47 37.3	2	0.8		T	
		e	48 49.0		0.9			
23 May		eP'2	21 07 53.8	24	1.1		T	About 1,200 miles south of Australia 48.2 S 119.4 E h about 25 km 0 = 20 48 03.3 Δ = 150°
		e	08 00.7		1.0			
23 May		eP	21 12 59.2	3	1.1		T	
		e	13 05.6		0.8			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h. m. s.					
23 May		eP	21 13 15.6	7	1.0		T	Possible phase of previous event
		e	22.2		0.9			
23 May		eP'2	21 23 59.6	42	0.9		T	1,200 miles south of Australia 49.1 S 121.3 E h about 25 km 0 = 21 04 19.1 Δ = 148°
		e	24 20.6		1.2			
		e	35.0		1.3			
23 May		eP	22 16 03.1	3	1.1		T	
23 May		eP	22 50 19.6	4	1.4		T	
23 May		eP	23 41 51.2	3	0.4		NR	Δ (S-P) = 1.7°
		e	42 00.3		0.4			Quarry blast, 5,470 lbs.
		eS	13.0	999				by Gifford Hills Co., near Chico, Texas.
23 May		eP	23 56 25.3	2	0.8		T	
24 May		eP	00 22 27.9	2	0.4		NR	Δ (S-P) = 2.6°
	E	eS	23 00.1		0.6			
24 May		eP	00 25 41.1	3	1.1		T	
24 May		eP	01 28 21.0	2	0.7		T	
		e	44.8		1.3			
24 May		eP	01 56 32.8	2	0.4		NR	Δ (S-P) = 3.1°
		eS	57 11.0	999				
24 May		eP	02 10 13.9	2	0.9		T	
24 May		eP	03 17 27.2	2	0.9		T	
		e	59.7		1.1			
		e	18 15.0		1.0			
		e	19 17.2		1.0			
	E	eSur	21 15.6		0.7			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
24 May		eP	04	14	10.6	5	1.3		T	
24 May		eP	04	30	30.9	30	1.2		T	Vancouver Island region
		e			52.3		1.5			49.1 N 129.4 W
		e		31	32.4		1.8			h about 25 km
	LPN	eS		35	00		22.0			0 = 04 24 49.8
	LPN	eSur		37	51					Δ = 26.5°
	LPE	eSur		39	10					Strong surface waves, Love and Rayleigh type, on LP and BB.
24 May		eP	07	24	52.4	3	1.0		T	Tonga Islands
		e		25	04.4		1.6			18.7 S 173.2 W
										h about 25 km
										0 = 07 11 59.5
										Δ = 88.5°
24 May		eP	08	37	06.1	2	1.0		T	
24 May		eP	08	47	01.6	2	0.9		T	
24 May		eP	14	08	31.3	2	0.4		NR	Δ (S-P) = 1.6°
		eS			52.6	999				
24 May		eP	14	16	05.8	6	1.2		T	
24 May		eP	18	06	16.1	1	0.4		NR	Δ (S-P) = 1.7°
	E	eS			38.1		0.4			Quarry blast, 951 lbs. by Gifford Hills Co., near Chico, Texas
24 May		eP	18	15	18.5	1	0.4		NR	
		e			35.8		0.4			
	E	eSur		16	53.7		0.5			
24 May		eP	21	06	29.2	3	0.5		NR	Δ (S-P) = 2.5°
	E	eS			59.8		0.4			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
26 May		eP	02	53	46.5	25	1.1	NW	T	
		e		54	10.7		1.0			
26 May		eP	07	36	50.4	6	1.0		T	
		e			59.4		1.2			
		e		37	15.3		1.2			
		e			26.3		1.8			
26 May		eP	09	45	05.9	3	0.7		T	
26 May		eP	10	10	26.9	2	0.9		T	
		e			57.6		1.8			
26 May		eP	10	20	38.9	4	1.0		T	Weak surface waves
	LP	eSur		44	48					on LP
26 May		eP	13	03	10.2	36	1.4		T	Off coast of southern Chile
										43.2 S 75.6 W
										h about 38 km
										0 = 12 51 01.4
										Δ = 81°
26 May		eP	15	34	30.6	7	0.7	S	T	
		e			38.7		0.9			
26 May		eP	18	08	33.4	4	1.0		T	
26 May		eP'	20	03	23.9	5	0.8		T	Nicobar Islands
		e			38.2		0.8			6.7 N 94.6 E
		e		06	14.9		1.7			h about 60 km
		e			28.0		1.2			0 = 19 44 17.5
		$eSKP_1$			59.0		1.1			Δ = 137°
		$eSKP_2$		07	05.0		1.1			
		e			39.6		1.1			
		ePKKP		15	48.8		0.9			
26 May		eP	20	27	32.8	3	0.5	N	R	
	E	eSur		30	01.8		0.6			
26 May		eP	23	28	51.3	2	0.5		NR	Δ (S-P) = 2.2°
	E	eS		29	18.5		0.5			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
27 May	N	eSur	01	53	22.2		2.8		R	Baja, California, Norte 31.7 N 115.6 W h about 25 km 0 = 01 45 34.7 Δ = 14° Mag. = 5-1/2 (Pas.)
27 May		eP'	05	49	37.9	2	1.1		T	Ceram 3.2S 129.5 E h about 82 km 0 = 05 30 44.4 Δ = 125.5°
		e		50	41.8		1.0			
27 May		eP	06	52	20.0	4	1.2		T	
27 May		eP	09	51	29.3	20	0.6	SE	T	
27 May		eP'_1	14	53	13.7	2	1.0		T	Kerguelen Islands region 41.4 S 80.6 E h about 25 km 0 = 14 33 03.7 Δ = 174°
		e			22.8		1.2			
		eP'_2		54	40.6		1.0			
27 May		eP	15	33	05.0	3	1.0		T	
27 May		eP	22	02	06.6	3	0.7		T	
28 May		eP	01	32	34.4	2	1.1		T	Hokkaido, Japan 42.7 N 144.5 E h about 18 km 0 = 01 19 52.3 Δ = 87°
28 May	LPN	eSur	03	55	44				T	Bismark Sea 3.3 S 146.0 E h about 25 km 0 = 03 08 07.4 Δ = 113° Medium surface waves on LP
	LP	eSur	04	00	55					

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
28 May		eP	08	03	41.5	8	1.1	SE	T	
28 May		eP	10	23	02.8	3	0.8		T	South of Honshu, Japan 31.1 N 140.9 E h about 158 km 0 = 10 09 57.6 Δ = 93°
28 May		eP	23	32	25.6	2	0.4	NE	NR	Δ (S-P) = 1.7°
	E	eS			57.9		0.4			
28 May		eP	23	37	29.8	2	0.3		NR	Δ (S-P) = 1.7° Quarry blast, 5,500 lbs. by Gifford-Hills Co., near Chico, Texas
		e			39.9		0.3			
		eS			51.6	999				
29 May		eP	00	00	12.1	43	1.1		T	San Juan Province, Argentina 31.3 S 68.3 W h about 94 km 0 = 23 49 01.0 Δ = 71.5°
		ePcP			32.3		0.8			
		epP			40.0		1.2			
		e			55.8		1.3			
		e		01	17.5		1.2			
		e		02	41.4		1.4			
		ePP			57.1		1.8			
	N	eS		09	21.8		2.6			
	N	eScS		10	11.0		3.0			
		eP'P'		27	58.8		1.2			
29 May		eP	00	59	31.3	2	0.4		NR	Δ (S-P) = 1.7°
		e			41.2		0.3			
		eS			53.3	999				
29 May		eP	01	18	15.1	2	0.9	S	T	
		e			24.3		0.8			
29 May		eP	08	48	49.4	2	0.5		T	
		e		49	27.5		0.8			
		e		50	17.9		1.1			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h. m. s.					
29 May		eP	09 57 43.7	2	1.1		T	
29 May		eP	10 28 14.4	4	0.6	S	T	
29 May		eP	15 37 31.6	2	1.0		T	
29 May		eP	18 10 43.4	2	0.4		NR	Δ (S-P) = 1.7°
		eS	11 05.0	999				
29 May		eP	20 24 49.9	1	0.4		NR	Δ (S-P) = 3.9°
	N	eS	26.4		0.4			
29 May		e	20 57 52.7	4	1.5		R	
	N	eSur	58 44.2		0.8			
29 May		eP	21 10 00.2	18	1.1		T	Andreanoff Islands,
		e	17.8		1.4			Aleutian Islands
		e	29.7		1.0			51.8 N 177.1 W
		ePcP	55.2		0.9			h about 25 km
		e	11 20.0		1.0			0 = 21 00 16.4
		e	12 24.6		1.1			Δ = 56°
	LP	eSur	26 44					Weak surface waves on L
29 May		eP	21 29 19.3	1	0.5		NR	Δ (S-P) = 1.9°
	N	eS	43.4		0.4			
29 May		eP	21 34 00.0	2	0.5		NR	Δ (S-P) = 2.6°
	E	eS	31.9		0.6			
29 May		eP	22 03 16.2	10	1.0		T	Easter Islands region
		e	24.0		0.8			26.3 S 113.7 W
		e	06 38.2		1.8			h about 25 km
	LPN	eS	11 57		20.0			0 = 21 52 50.0
	LPN	e	15 36		20.0			Δ = 62°
	LPN	eSur	19 30					Strong surface waves,
	LP	eSur	24 30					Love and Rayleigh type,
								on LP and BB.
29 May		eP	22 58 50.7	2	0.9		T	

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h. m. s.					
29 May		eP	23 39 10.8	2	0.4		NR	Δ (S-P) = 2.6°
	E	eS	43.4		0.4			
29 May		eP	23 57 05.7	3	1.1		T	Ionian Sea
								38.1 N 20.9 E
								h about 25 km
								0 = 23 44 16.1
								Δ = 88°
30 May		eP	00 42 20.6	1	0.5		L	Δ (S-P) = 1.3°
	E	eS	38.9		0.5			
30 May		eP	00 50 24.8	2	0.8		T	
	E	eSur	58 08.4		0.9			
30 May		eP	01 09 19.0	4	1.0		T	
		e	35.4		0.9			
30 May		eP	03 39 36.6	1	0.6		T	
30 May		eP	05 03 28.2	128	1.4		T	Off northern coast
		e	55.0		1.3			of California
	LPE	e(S)	07 47		19.0			44.6 N 129.5 W
	LPN	eSur	10 00					h about 25 km
	LP	eSur	12 04					0 = 04 57 46.2
								Δ = 25.5°
								Medium surface waves
								on LP and BB
30 May		eP	05 43 10.7	4	1.1		T	
30 May		eP	07 33 28.4	5	0.6	SE	T	
		e	57.0		1.0			
30 May		eP	09 24 21.1	28	0.8		T	1,500 miles southwest
		e	36.1		1.0			of Galapagos Islands
		ePcP	26 06.8		0.8			8.9 S 106.1 W
								h about 25 km
								0 = 09 16 14.9
								Δ = 44°

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
30 May		eP	10	11	22.3	13	1.9		T	North Atlantic Ocean
		e		12	53.6		1.5			30.3 N 42.4 W
		e		13	06.2		1.1			h about 25 km
	LPE	eS		18	19		20.0			0 = 10 02 52.2
	LPE	eSS		21	44		23.0			Δ = 47.5
	LPE	eSur		23	00					Strong surface waves on LP
	N	eSur		44	19.3		1.7			Weak surface on BB. Mag. = 5 (Pal.)
30 May		eP	16	49	18.1	2	0.6		T	
30 May		eP	17	10	00.1	4	0.9		T	Fiji Islands 18.9 S 177.9 W h about 480 km 0 = 16 57 36.9 Δ = 92.5°
30 May		eP	21	19	57.0	6	0.9		T	
		e		20	28.6		1.0			
30 May		eP	23	29	45.5	3	0.4		NR	Δ (S-P) = 1.7°
		e			55.8		0.4			Quarry blast, 5,307 lbs. by Gifford-Hills Co., near Chico, Texas
		eS		30	07.1	999				
30 May		eP	23	48	26.1	1	0.4		NR	Δ (S-P) = 2.7°
	E	eS			58.8		0.4			
30 May		eP	23	48	46.8	4	1.1		T	
31 May		eP'	02	15	51.9	4	1.0		T	Off coast of west Pakistan
		ePKKP		26	04.0		0.9			24.5 N 65.8 E h about 25 km 0 = 01 57 02.2 Δ = 119.5°
31 May		eP	03	25	08.0	1	0.7		T	Weak surface on LP,
		e			20.0		0.8	SE		possibly separate.
	LP	eSur	04	10	50					

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
31 May		eP	05	04	06.7	2	0.6		T	
		e			20.4		0.6			
31 May		eP	05	27	24.4	3	0.9		T	
		e			40.4		0.6			
		e			50.4		0.8			
31 May	LP	eSur	06	08	50				T	Mindanao, P.I. 7.7 N 124.0 E h about 40 km 0 = 05 11 17.6 Δ = 122° Weak surface waves on LP
31 May		eP	06	41	37.8	31	1.3		T	Volcano Islands region
		e		42	37.6		0.8			22.1 N 142.6 E
	LP	epP			39		13.0			h about 257 km
		e			53.1		1.5			0 = 06 28 26.2
		e		43	19.0		1.2			Δ = 99°
		e			49.2		1.5			Mag. = 6-1/2 (Pas.)
		e		45	25.3		1.1			Strong surface waves on LP.
		ePP			41.2		1.9			Weak surface on BB.
	LP	ePPP		47	53		15.0			
		e		50	54.1		1.4			
	E	eSKS		51	51.3		2.8			
	E	e		52	20.0		2.0			
	E	eS			44.5		1.6			
		e		53	38.0		1.4			
	LP	eSP		54	19		17.0			
	LP	eSPP		55	04		16.0			
		ePKKP		58	05.4		1.1			
		e($PKKP_2$)			31.4		1.0			
	LPN	eSS		59	38		24.0			
		e			49.4		1.7			
		e	07	01	35.4		1.0			
	LP	eSur		09	27					
31 May		eP	07	24	13.3	2	1.0		T	

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h.	m.	s.					
31 May		eP	07	46	47.0	1	0.6		T	
31 May		eP	08	51	06.0	2	0.9		T	Kermadec Islands 30.8 S 177.3 W h about 42 km 0 = 08 37 25.8 Δ = 98.5°
31 May		eP	13	08	12.8	3	1.0		T	
31 May		eP	15	08	46.8	10	1.1		T	
31 May		eP	18	17	09.4	2	0.4		NR	Δ(S-P) = 2.2°
		eS			36.2	999				
31 May		eP	19	17	18.5	2	0.4		R	
	E	eSur		18	47.2		0.4			
31 May		eP	21	30	51.8	7	1.4		T	Central Chile 38.2 S 72.7 W h about 25 km 0 = 21 19 04.0 Δ = 77°
		e		31	02.7		1.3			
31 May		eP	21	56	37.7	5	1.2		R	
		e		57	40.4		1.0			
		e		58	56.8		1.1			
	N	eSur	22	00	23.5		2.4			
31 May		eP	23	48	35.0	2	0.4		NR	Δ (S-P) = 2.2°
	E	eS		49	07.2		0.4			

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Volume 2, No. 6
June 1962

REGISTRATION OF EARTHQUAKES AT WICHITA MOUNTAINS SEISMOLOGICAL OBSERVATORY FORT SILL, OKLAHOMA, U.S.A.

Operated under the Technical Supervision of the
Air Force Technical Applications Center (AFTAC)

by

The Geotechnical Corporation
Garland, Texas

Advanced Research Projects Agency (ARPA)
Department of Defense
United States Government

THE REGISTRATION OF EARTHQUAKES

AT THE

WICHITA MOUNTAINS SEISMOLOGICAL OBSERVATORY

STATION

STATION ABBREVIATION:	WMSO
STATION IDENTIFICATION ON FILM SEISMOGRAMS:	α
GEOGRAPHICAL LOCATION *: (Vault No. 6)	34° 43' 05.3" N. Latitude 98° 35' 20.7" W. Longitude
GEOCENTRIC LOCATION *: (Vault No. 6)	34° 32' 09.8" N. Latitude 98° 35' 20.7" W. Longitude
ALTITUDE (Meters) *: (Vault No. 6)	505 meters (1658 feet)
GEOLOGY:	The station is located on the Carlton (porphyritic) granophyre of the Wichita Mountains of Oklahoma.

Noise Level: The periods of the predominant microseisms at WMSO are 0.5 second and 6 seconds. Amplitude distribution curves for the 0.5-second microseisms are shown on page 2 as true ground motion in millimicrons and as trace amplitude in millimeters at the operating gain of 500K. Both curves are center-to-peak.

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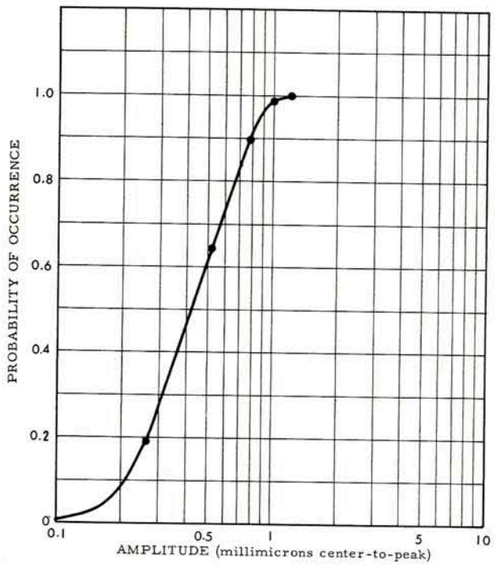
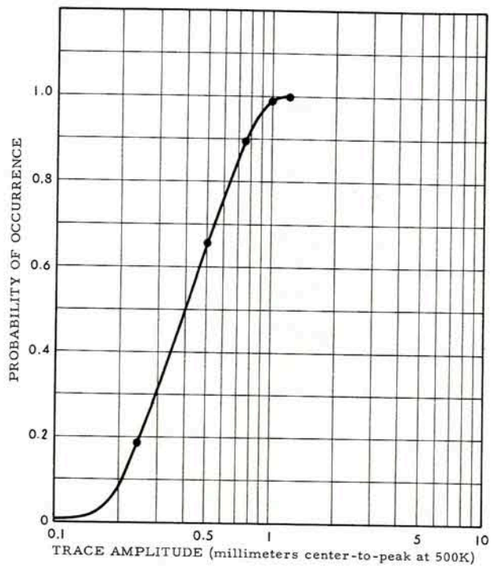
* The coordinates refer to the location of vault No. 6 which houses the 3-component groups of short-period and intermediate-band seismometers from which arrival times are determined.



Probability of predominant 0.5-sec microseisms occurring at or less than a given amplitude at unity magnification



Probability of predominant 0.5-sec microseisms occurring at or less than a given trace amplitude in millimeters at operating gain of 500K

SEISMOGRAPHS

	Ts	λs	Tg	λg	σ^2
SP Vertical Johnson-Matheson	1.25	0.50	0.32	0.64	0.014
SP Vertical Benioff	1.0	1.0	0.2	1.0	0.01
SP Horizontal Benioff	1.0	1.0	0.2	1.0	0.01
IB Vertical Melton	2.5	0.65	0.64	1.5	0.002
IB Horizontal Sprengnether	2.5	0.65	0.64	1.5	0.0005
BB Vertical Press-Ewing	12.5	0.4	0.64	9.0	0.0002
BB Horizontal Sprengnether	12.5	0.4	0.64	9.0	0.0004
LP Vertical Sprengnether	25.0	1.0	30	1.0	0.004
LP Horizontal Sprengnether	25.0	1.0	30	1.0	0.004

SP = Short Period

IB = Intermediate Band

BB = Broad Band

LP = Long Period

Ts = Free period of seismometer in secs.

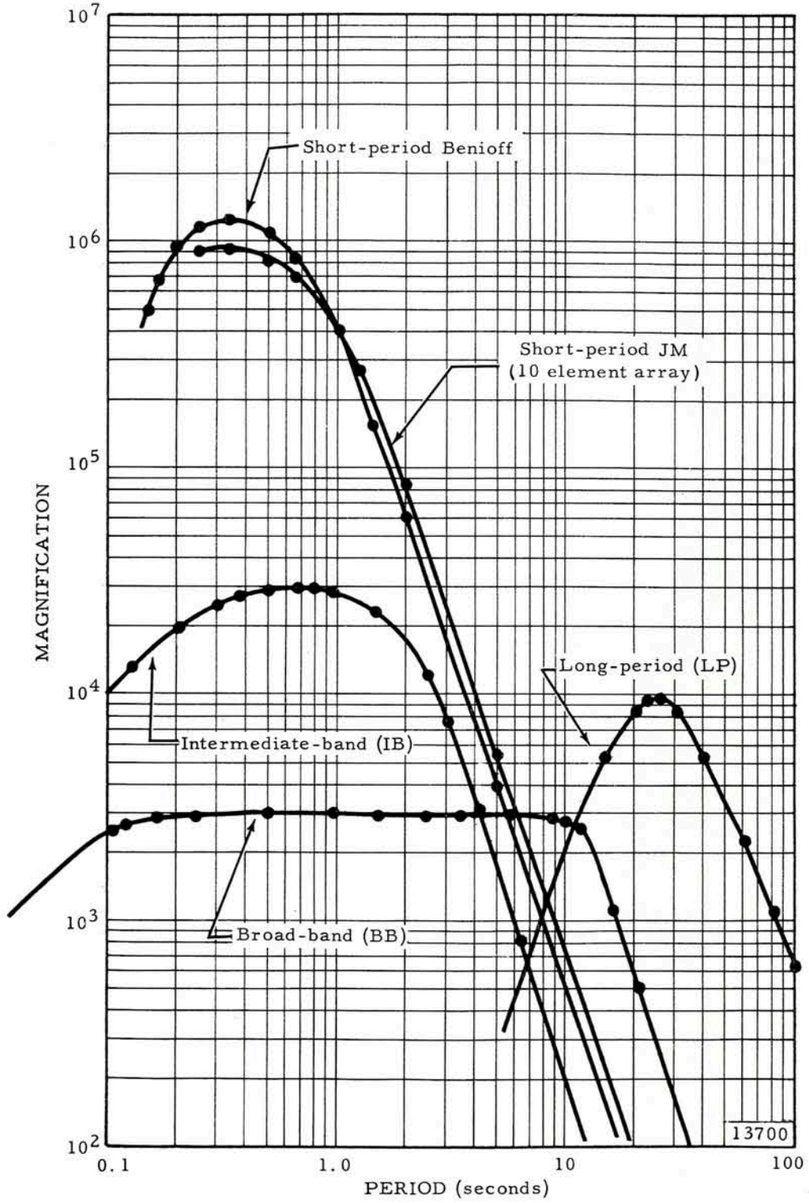
λs = Damping constant of seismometer

Tg = Free period of galvanometer in secs.

λg = Damping constant of galvanometer

σ^2 = Coupling coefficient

NOTE: Response curves are on page 4.



Response characteristics of seismographs

INTERPRETATION OF SYMBOLS

1. Earthquakes Listed

All local (L), near-regional (NR), regional (R), and distant earthquakes (T) are tabulated on the following pages.

2. System

In the column headed "Syst." (system), the seismograph (SP, IB, BB, or LP) and component (Z, N, or E) used to measure arrival time are designated. When no component designation appears, the phase is read from the vertical component. When neither system nor component designation appears, the phase is read from the SP vertical component.

3. Phase

a. An "i" (impetus) preceding a phase designates sudden beginning of the motion. (A designation of "i" in the case of initial P motion indicates a signal-to-noise ratio exceeding about 5/1.)

b. An "e" (emersio) designates gradual beginning.

c. An "i" or "e" alone designates an unidentified phase.

d. The ( ) (parenthesis marks) indicate uncertainty.

4. Time

a. Date and arrival time are given in Greenwich Civil Time (G.C.T.).

b. The arrival time is reported as the earliest time on Z, N, or E. Single Z rather than the array summation (Σ) is used for measuring arrival times on the SP seismographs.

5. Ground Motion

a. In the columns headed "A" and "T" are tabulated earth displacement in millimicrons and period in seconds, respectively. An amplitude of 999 indicates that a signal cannot be measured reliably. A "c" or "d" in the "A" column indicates compression or dilation, respectively, of the ground as indicated by the vertical component instrument.

The value of "A" for P phases is the maximum amplitude in the first ten seconds. All amplitudes are center-to-peak amplitudes.

b. Trace amplitudes are measured to the nearest 1/2 millimeter at X10 view.

6. Direction

In the column headed "Dir." (direction), the direction of the epicenter as viewed from WMSO is indicated. For teleseisms, direction is obtained only from P and Rayleigh waves and is listed opposite the phase from which it is obtained. For close events, direction may be obtained from P-wave step-out shown on the individual short-period vertical traces.

7. Type

Earthquakes are identified as either:

L (local) - - - - - - - - - - 0-1.4°

NR (near-regional) - - - - - 1.4-4.6°

R (regional) - - - - - - - - 6-16°

T (teleseismic) - - - - - - 16-180°

8. Remarks Column

a. Epicentral locations, time of origins, depth of foci, and magnitudes are obtained from the U.S. Coast and Geodetic Survey Preliminary Determination of Epicenters cards.

b. The nature of the surface waves is indicated subjectively.

c. Epicentral locations and distances reported by the station are accompanied by an indication of the phases used to determine epicentral distance, e.g., Δ (S-P) = 6°, Central Colorado.

d. Operational notes refer to operational difficulties that affect analysis of data.

e. Magnitudes calculated at WMSO are reported with the designation "WMO".

Unified magnitude, m, is reported for all events where P was recorded, and for which accurate epicentral data are available. Maximum amplitude and predominant period of the P wave are used in the computation.

Magnitude M, computed from the maximum amplitude of the surface waves at a period of 20 seconds, is reported for those events for which accurate epicentral data are available where P was not recorded or cannot be measured reliably.

No station correction factor has been determined for WMSO to date.

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
01 June		eP	01	36	23.7	4	0.6	SE	T	
		e			37.7		0.8			
		e			51.5		1.1			
01 June		eP'	01	41	01.6	3	1.1		T	New Guinea 3.9 S 137.9 E h about 166 km 0 = 01 22 27.4 Δ = 121°
01 June		eP	02	07	37.5	6	1.0		T	Kodiak Island 57.6 N 150.8 W h about 25 km 0 = 01 59 53.2 Δ = 41.5° m = 4.2 (WMO) Phase at 02 07 46.2 possible new event
		e			46.2		0.9			
		e			56.8		1.2			
		ePKKP		31	11.9		1.1			
01 June		eP	02	17	52.8	3	1.1		T	
01 June		eP	04	10	55.3	5	0.8	SSW	T	
01 June		eP	05	14	10.8	4	0.8		R	
		e		15	56.6		1.3	SW		
	N	eSur		17	55.6		1.6			
01 June		eP	05	39	49.1	5	1.0		R	
		e		40	00.7		1.4			
	N	eSur		43	39.0		1.8			
01 June		eP	05	48	51.2	3	1.0		R	
	N	eSur		52	46.7		1.5			
01 June		eSur	06	30	22.6		1.4		R	
01 June		iP	06	53	34.7 c	39	0.8		T	Honduras
		e			57.0		1.2			13.1 N 88.0 W
		e(PP)		54	02.6		1.1			h about 94 km
		e			41.5		0.8			0 = 06 48 32.1
		e		55	01.8		1.3			Δ = 23.5°
		e		58	02.3		1.4			m = 4.9 (WMO)
01 June		eP	09	23	52.7	3	1.1		T	
01 June		eP	10	37	05.7	3	1.0		T	
		e			25.3		1.2			
01 June		eP	11	04	53.9	2	0.3		NR	Δ (S-P) = 2.1°
	E	eS		05	20.4		0.4			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
01 June		eP	11	25	18.8	2	0.4		R	Δ (S-P) = 6.2°
		e			27.5		0.4			
		e			43.1		0.5			
		eS		26	34.6	999				
		e		27	10.1	999				
01 June		eP	13	17	49.2	4	1.0		T	Southern Bolivia
		ePcP		18	15.6		0.8			21.6 S 63.7 W
		epP			20.6		1.0			h about 128 km
		e			39.7		1.4			0 = 13 07 20.1
		e		19	53.7		1.2			Δ = 64.5°
										m = 4.3 (WMO)
01 June		eP	17	40	56.1	4	1.1		T	
		e		41	06.4		0.8			
01 June		eP	18	10	03.3	3	1.2		T	
01 June		eP	21	01	28.1	6	1.1		T	
01 June		eP	21	45	59.4	21	1.2		T	
02 June		eP	01	48	50.2	4	1.0	SE	T	
02 June		eP	01	50	03.3	3	0.9		T	
02 June		eP	02	08	38.0	2	1.0		T	
02 June		eP	02	09	18.0	9	1.1	S	T	
		e			39.8		1.5			
		e			45.5		1.1			
02 June		eP	02	22	21.5	12	0.6	SSE	T	
		e			51.5		1.1			
		e		26	47.2		1.0			
02 June		eP	06	05	03.6	11	1.5		T	Medium surface waves on LP
	LP	eSur		28	25					
02 June		eP	06	46	15.8	2	0.9		T	
02 June		eP	11	55	31.7	9	1.1		T	Vancouver Island region
	LP	eSur	12	03	57					50.2 N 129.1 W
										h about 25 km
										0 = 11 49 49.0
										Δ = 27°
										m = 4.3 (WMO)
										Strong surface waves on LP, weak on BB.
02 June		eP	12	11	41.5	4	1.0		T	Weak surface waves on LP.
	LP	eSur		21	26					
02 June		eP	12	19	50.5	2	0.9		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
02 June		eP	12	24	15.3	4	1.1		T	
02 June		eP	12	31	54.6	70	1.6		T	Vancouver Island region
		e		32	29.2		1.2			49.9 N 219.8 W
	LP	e		34	09		23.0			h about 25 km
	LPE	eS		36	48		24.0			0 = 12 26 09.6
	LP	eSur		40	03					Δ = 27.5°
										m = 5.0 (WMO)
										Strong surface waves on LP and BB.
02 June		eP	12	41	33.0	38	1.2		T	Vancouver Island region
		e			57.3		1.1			49.8 N 219.8 W
		e		44	58.8		1.3			h about 23 km
	LPN	eSur		49	25					0 = 12 35 48.1
										Δ = 27°
										m = 4.9 (WMO)
02 June		eP	15	19	17.4	4	1.4		T	
		e		20	50.4		1.7			
02 June		eP	17	28	58.3	1	0.7		T	Kyushu, Japan
		e		29	14.9		1.1			29.8 N 130.6 E
		e		33	23.3		1.8			h about 15 km
		e		35	02.9		1.4			0 = 17 15 08.7
		ePKKP		45	25.7		1.0			Δ = 100°
	LP	eSur		59	44					m = 4.6 (WMO)
										Strong surface waves on LP.
02 June		eP	17	49	15.7	3	1.8		T	
02 June		eP	19	03	38.5	11	1.0	SSE	T	
		e			56.5		0.9			
		e		04	07.9		0.7			
02 June		eP	20	34	47.4	1	0.4		NR	Δ (S-P) = 3.1°
	N	eS		35	25.6		0.4			
03 June		eP	01	14	03.6	1	0.8		T	
		e			16.0		1.2			
03 June		eP	01	41	44.9	1	0.7		T	
		e			52.7		0.8			
03 June		eP	03	00	30.4	3	1.0		T	
03 June		eP	10	25	18.0	1	0.6		T	Kamchatka
		e			31.9		0.7			49.5 N 156.3 E
		e(PP)		27	41.9		1.4			h about 87 km
		e		30	50.3		0.7			0 = 10 13 55.2
	LPE	eS		34	27		15.0			Δ = 73°
	LP	eSur		41	46					m = 3.7 (WMO)
										Strong surface waves, Rayleigh type, on LP.

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h.	m.	s.					
03 June		eP	10	55	40.6	1	0.8		T	
03 June		eP	15	09	03.7	3	1.2		T	
03 June		iP	15	11	05.1 d	999	0.9		T	North Atlantic Ocean
		e		12	48.6		1.5			22.4 N 45.2 W
		ePP			56.4		4.2			h about 25 km
	LP	e(PPP)		13	18		12.0			0 = 15 02 25.5
	LPE	eS		17	58		16.0			Δ = 47°
	LPE	eSS		21	18		20.0			M = 5.6 (WMO)
	LP	eSur		24	37					Strong surface waves, Rayleigh type,
	LP	eSur		31	40					on LP and BB.
	LP	eSur		41	45					
03 June		eP	15	25	52.6	13	1.6		T	
		e		27	26.4		1.4			
03 June		eP	16	06	57.6	6	1.4		T	
03 June		eP	16	53	29.5	5	1.0		T	
		e			47.5		1.5			
03 June		eP	17	33	54.7	5	0.3	SE	NR	Δ (S-P) = 1.7°
		eS		34	16.3	999				
03 June	LP	eSur	17	38	35				T	Weak surface waves on LP.
03 June		eP	17	39	02.7	6	1.2		T	Leeward Islands
		e			35.0		1.3			17.7 N 61.5 W
		e		40	40.2		1.6			h about 49 km
		ePcP		41	24.6		1.0			0 = 17 31 56.5
	LP	eSur		49	51					Δ = 36.5°
										m = 4.4 (WMO)
										Weak surface waves on LP.
03 June		eP	23	04	14.6	7	1.3		T	Phase at 23 04 52.0 is possible
		e			52.0		1.1			new event
		e		05	12.9		1.0			
		e			34.0		1.3			
03 June		eP	23	52	54.4	9	1.6		T	
		e		54	49.9		1.3			
04 June		eP	07	21	00.6	2	0.8		T	
		e		24	40.5		1.3			
04 June		eP	08	11	37.4	7	1.4		T	
04 June		eP	11	32	01.6	1	0.5		(R)	
		e			29.8		1.2			
04 June		eP	12	15	31.6	1	0.6		T	
04 June		eP	13	05	09.4	3	0.4	SE	NR	Δ (S-P) = 1.7°
		eS			30.9	999				

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h.	m.	s.					
04 June		eP	15	45	59.3	3	1.0		T	
		e		46	22.2		1.2			
04 June		eP	16	37	10.4	18	1.2	SE	T	
		e			50.1		1.0			
04 June		eP	18	49	14.5	1	0.4	SW	NR	Δ (S-P) = 5.0°
	E	eS		50	16.3		0.4			
	N	e(Sur)			46.3		0.4			
04 June		eP	18	57	00.4	7	1.0		T	South coast of Panama
		e			15.2		1.1			7.5 N 80.9 W
		e			49.6		1.1			h about 56 km
		ePP		58	11.8		1.6			0 = 18 50 40.1
		e			20.2		1.3			Δ = 31.5°
										m = 4.4 (WMO)
04 June		eP	19	01	48.7	2	0.3	SE	NR	Δ (S-P) = 1.6°
		e			58.8		0.4			
		eS		02	09.7	999				
04 June		eP	22	02	50.9	3	1.0		T	
04 June		eP	22	21	12.0	6	0.8		T	
		e		24	45.6		2.0			
04 June		eP	23	34	35.3	1	0.2		NR	Δ (S-P) = 2.7°
	E	eS		35	07.8		0.4			
05 June		eP	01	15	20.6	1	0.3		NR	Δ (S-P) = 1.8°
		eS			43.5	999				
05 June		eP	01	57	29.5	9	1.2		T	
		e			48.1		0.9			
05 June		eP	10	24	34.4	8	1.2		T	
05 June		eP	12	19	12.7	4	0.8		T	
05 June		eP	13	01	53.0	7	1.0		T	
05 June		eP	15	29	42.5	1	0.4		R	
		e		30	07.7		0.4			
	N	eSur		31	38.7		0.5			
05 June		eP	16	14	13.4	2	0.8		R	
		e		15	30.7		1.0			
		e		16	34.7		0.9			
	E	eSur		17	53.9		1.0			
	E	eSur		19	45.9		1.3			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h. m. s.					
05 June		eP'	17 02 38.8	12	1.0		T	Banda Sea
		ePP	04 42.2		1.8			7.1 S 129.2 E
		eSKP	05 41.5		1.1			h about 124 km
								0 = 16 43 44.8
								Δ = 128°
05 June		eP	18 07 37.5	2	0.5		R	
	N	e(S)	08 23.8		0.4			
	E	eSur	54.4		0.5			
05 June		eP	21 32 43.1	1	0.3		NR	Δ (S-P) = 2.1°
	E	eS	33 09.3		0.6			
05 June		eP	21 56 56.2	2	0.3		NR	
	N	e(S)	57 37.1		0.5			
		eSur	58.1	999				
05 June		eP	22 03 40.5	1	0.5		NR	Δ (S-P) = 3.1°
		e	47.6		0.5			
		eS	04 18.5	999				
05 June		eP	22 32 33.8	4	1.1		R	Southern Utah
		e	33 09.6		1.0			38.0 N 112.1 W
		e	16.4		1.2			h about 25 km
		eSur	35 35.5	999				0 = 22 29 45.0
								Δ = 11°
								m = 4.6 (WMO)
05 June		eP	23 28 52.8	1	0.4		NR	Δ (S-P) = 1.6°
	E	eS	29 14.2		0.4			Quarry blast, 1,628 lbs, by Gifford-Hill Co. near Chico, Texas.
05 June		eP	23 55 57.1	1	0.4		NR	Δ (S-P) = 2.7°
	E	eS	56 30.6		0.4			
06 June		eP	00 05 41.4	3	0.4		NR	Δ (S-P) = 2.1°
		eS	06 07.9	999				
06 June		eP	05 30 22.9	2	0.7		T	
06 June		eP	07 30 47.6	2	1.0		T	
06 June		eP	07 37 40.8	2	0.5		T	
06 June		eP	10 44 49.7	15	1.5		T	Central Chile
								38.2 S 73.3 W
								h about 40 km
								0 = 10 33 05.8
								Δ = 76.5°
								m = 4.8 (WMO)
06 June		eP	11 06 09.4	6	0.8		R	
		e	07 29.4		1.0			
		eSur	09 31.3		1.5			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h. m. s.					
06 June		eP	11 22 54.3	1	0.7		T	
		e	23 06.9		0.9			
06 June		eP	13 25 13.6	3	1.2		T	
06 June		eP	17 45 06.0	10	0.4		L	Quarry blast, 9,110 lbs., near Coopertown, Oklahoma
		eS	12.6	999				Δ (-P) = 0.4°
06 June		eP	17 53 57.8	3	1.0		T	
06 June		eP	17 54 44.7	1427	2.1		T	California
	LPN	e(S)	58 42		22.0			39.1 N 123.1 W
		e	59 30.1		1.8			h about 23 km
	N	eSur	18 00 40.5		3.5			0 = 17 50 08.6
	LP	eSur	01 16					Δ = 19.5°
								m = 5.7 (WMO)
								Mag. = 5-1/2 (Pas.)
								Strong surface waves, Love and Rayleigh type, on all systems.
06 June		eP	18 38 15.0	2	0.3	SE	NR	Δ(S-P) = 1.7°
		e	25.0		0.3			Quarry blast, 6,311 bls., by Gifford-Hill Co. near Chico, Texas
		eS	36.5	999				
06 June		eP	19 50 21.7	2	0.9		T	Kurile Islands
								44.7 N 149.0 E
								h about 27 km
								0 = 19 38 13.6
								Δ = 79°
								m = 4.2 (WMO)
06 June		eP	20 34 57.5	2	0.4	ESE	NR	Δ (S-P) = 2.3°
	N	eS	35 26.8		0.4			
06 June		eP	21 06 22.8	3	1.0		T	
06 June		eP	21 10 20.3	4	0.4		NR	Δ (S-P) = 1.6°
		eS	41.7	999				
06 June		eP	21 38 54.5	1	0.4		NR	Δ (S-P) = 1.7°
		eS	39 16.0	999				
06 June		eP	21 50 09.2	3	0.5		NR	Δ (S-P) = 2.6°
	N	eS	41.2		0.6			
06 June	E	eSur	23 33 20.9		3.5		(T)	
07 June		eP	00 25 50.6	69	1.8		R	Gulf of California
		e	26 53.6		1.2			30.0 N 113.4 W
	LP	eSur	29 32					h about 25 km
								0 = 00 22 39.4
								Δ = 13°
								m = 5.4 (WMO)
								Strong surface waves on all systems.

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h. m. s.					
07 June		eP	00 47 32.8	3	1.0		T	
07 June		eP	01 45 14.9	2	0.9		T	
07 June		eP	02 40 05.1	5	1.0	N	T	
07 June		eP	02 55 31.3	2	1.0		T	
		e	57 01.2		1.0			
07 June		eP	05 45 56.6	5	0.7		T	Rat Islands region
		e	46 30.0		0.9			51.9 N 175.9 E
	LP	eSur	06 08 29					h about 50 km
								0 = 05 35 47.3
								$\Delta = 60^{\circ}$
								m = 4.7 (WMO)
								Medium surface waves on LP.
07 June		eP	08 35 03.3	3	0.7	S	T	
	E	eSur	38 48.5		0.7			
07 June		eP	09 12 32.8	4	0.8		T	
		e	44.8		0.7			
07 June		eP	10 12 25.8	2	1.0		T	
07 June		eP	10 30 15.5	4	1.4		T	
07 June		eP	13 42 45.3	1	0.7		T	
07 June		eP	15 07 04.2	7	0.7	N	T	
07 June		e(P)	17 23 35.9	2	1.1		R	
	N	eSur	26 03.8		3.1			
07 June		eP	21 04 35.6	1	0.3		NR	Δ (S-P) = 4.7°
	N	eS	05 31.2		0.4			
		eSur	45.5		1.1			
07 June		eP	21 19 56.5	2	0.9		T	
07 June		eP	22 51 20.0	3	1.2		T	
07 June		eP	23 37 17.4	1	0.4		NR	Δ (S-P) = 2.7°
	N	eS	51.1		0.4			
07 June		eP	23 48 10.6	1	0.4		NR	
	E	eSur	49 09.0		0.4			
08 June		eP	01 44 06.7	19	1.0		T	Fiji Islands
								18.1 S 178.4 W
								h about 603 km
								0 = 01 31 59.9
								$\Delta = 92^{\circ}$
								m = 5.4 (WMO)

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h. m. s.					
08 June		eP	06 32 07.9	6	1.1		T	Western Nevada
		e	33 24.0		1.2			39.3 N 119.7 W
								h about 25 km
								0 = 06 28 03.4
								$\Delta = 17^{\circ}$
								m = 3.7 (WMO)
08 June	LPN	eSur	10 03 13				T	Ryuku Islands
								29.1 N 129.5 E
								h about 42 km
								0 = 09 11 17.6
								$\Delta = 101^{\circ}$
								M = 4.2 (WMO)
08 June		eP	13 21 19.8	12	1.5		R	
	E	e(Sur)	25 18.2		1.6			
08 June		eP	15 27 56.8	7	1.1		T	
08 June		eP	16 17 13.7	2	0.9		T	Honshu, Japan
		e	27.2		1.1			37.9 N 141.2 E
								h about 56 km
								0 = 16 04 24.5
								$\Delta = 88^{\circ}$
								m = 4.4 (WMO)
08 June		eP'	19 36 07.5	3	1.0		T	Timor Sea'
		e	20.2		1.3			11.3 N 126.0 E
		ePP	37 34.9		1.5			h about 60 km
		ePKKP	46 27.7		0.8			0 = 19 17 23.9
								$\Delta = 118^{\circ}$
08 June		eP	19 39 53.0	2	0.7		T	
08 June		eP	20 38 40.5	2	0.9		T	
		e	39 57.2		0.9			
08 June		eP	21 08 22.4	3	0.9		T	
08 June		eP	22 34 43.2	11	1.5		T	
	N	eSur	38 48.9		3.7			
09 June		eP	01 02 31.2	2	0.8		T	
09 June		eP	01 45 34.2	10	1.1		T	Andreanoff Islands, Aleutian Islands
		e	45.6		0.5			51.6 N 177.2 W
		e	46 30.3		1.0			h about 25 km
								0 = 01 35 49.0
								$\Delta = 56.5^{\circ}$
								m = 4.8 (WMO)
09 June		eP	02 17 51.7	10	0.8	SSE	T	
09 June		eP	02 57 04.1	2	0.6		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
09 June		eP	02	57	04.1	2	0.6		T	
09 June		eP	03	51	30.7	3	0.4	SSE	(R)	
09 June		eP	15	28	43.0	4	1.1		T	Weak surface waves on LP
	LPE	eSur		43	24					
	LPN	eSur		47	00					
09 June		eP	16	08	04.4	3	0.6		T	
		e			14.1		0.8			
09 June		eP	20	02	22.0	107	1.0		T	Off coast of Guatemala
		e			41.9		1.0			13.6 N 91.2 W
		e		03	31.3		1.3			h about 104 km
		e		06	10.0		1.3			0 = 19 57 35.5
	N	eS			33.4		1.2			$\Delta = 23^{o}$
	LPN	e(Sur)			40					m = 5.1 (WMO)
	LP	eSur		09	00					Strong surface waves on LP.
	N	e			22.6		1.5			
	E	ePcS			53.6		1.4			
		e		10	07.1		1.2			
09 June		eP	20	35	57.6	2	1.0		T	
10 June		eP	00	02	15.5	9	0.5		T	
	N	e			17.6		0.5			
		e		03	01.8		1.1			
		e		04	33.8		1.1			
10 June		eP	06	20	15.6	2	0.5		NR	Δ (S-P) = 3.3^{o}
		e			21.5		0.3			
	E	eS			55.3		0.5			
10 June		eP	06	31	31.9	1	0.8		T	
10 June		eP	09	52	35.7	2	0.9		T	
10 June		eP	12	41	13.1	2	0.7	NNW	T	Strong surface waves on LP.
		e			32.5		1.3			
	LP	e		45	28		13.0			
	LP	eSur		47	35					
10 June		eP	14	20	33.6	7	0.8	SSE	T	
		e			50.0		0.8			
	N	eSur		24	31.4		0.9			
10 June		eP	16	11	39.5	6	1.3		T	Strong surface waves on LP.
	LP	eSur		31	12					
10 June		eP	19	31	45.7	4	1.2		T	
		e			56.9		1.0	SE		
		e		32	20.8		0.9			
	E	eSur		35	27.3		0.8			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
10 June		eP	22	46	23.8	1	0.9		T	
11 June		eP	00	58	29.1	25	1.0		T	Vancouver Island region
		e		59	18.4		1.3			49.7 N 129.3 W
	LPN	e(Sur)	01	03	22					h about 25 km
	LPE	eSur		06	44					0 = 00 52 47.3
										$\Delta = 27^{o}$
										m = 4.8 (WMO)
										Strong surface waves on LP, weak on BB.
11 June		eP	02	24	25.3	2	1.0		T	
11 June		eP	02	32	48.3	1	0.9		T	
11 June		eP	02	38	26.7	1	1.2		T	
		e			34.5		1.4			
		e		39	17.1		1.0			
		e		43	09.8		1.4			
11 June		eP	02	55	38.6	3	1.1		T	
		e			56.4		1.4			
11 June		eP	04	47	31.0	10	0.9		T	Fiji Islands
		epP		49	04.2		1.2			19.6 S 177.7 W
		ePKKP	05	04	43.7		0.6			h about 370 km
										0 = 04 35 00.6
										$\Delta = 93^{o}$
										m = 4.8 (WMO)
11 June		eP	07	28	06.3	57	1.3		T	Yugoslavia
		e			40.6		1.6			43.5 N 18.3 E
		e		29	03.4		1.2			h about 21 km
		e			30.0		1.5			0 = 07 15 37.6
		ePP		31	26.6		1.7			$\Delta = 83^{o}$
		e		33	01.8		1.6			m = 5.6 (WMO)
		e			17.2		1.3			Mag. = 5-5-1/4 (Pal.)
	LPE	e		38	31		17.0			Strong surface waves, Love and
	LPE	ePS		39	15		20.0			Rayleigh type, on LP, weak on BB.
		e		40	38.1		1.5			
	LPE	eSS		44	03		35.0			
		ePKKP		46	28.0		0.8			
	LPE	eSSS		47	26		20.0			
	LPE	e		52	31		22.0			
		eP'P'		54	31.0		1.3			
	LPN	eSur			32					
	LP	eSur		56	59					
11 June		eP	07	38	17.2	3	0.5		R	
		e			27.9		0.9			
	E	eSur		41	37.4		0.6			
11 June		eP	08	36	43.8	1	0.9		R	
	E	eSur		40	39.6		0.6			

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h.	m.	s.					
11 June		eP	12	57	23.9	4	1.5		T	Medium surface waves on LP and SP.
		e			39.2		1.0			
		e	13	00	21.9		1.0			
	E	eSur		01	24.4		3.5			
	LP	eSur			33					
11 June		eP	15	48	29.9	2	0.9		T	
		e		49	04.3		1.1			
		e			25.1		0.9			
		e		56	23.2		1.5			
11 June		eP	18	00	16.5	2	0.3		L	Δ (S-P) = 1.3°
	E	eS			33.9		0.4			
11 June		eP	19	14	02.8	4	1.3		T	
	LPN	e		18	30		20.0			
11 June		eP	20	42	00.9	2	1.0		T	
11 June		eP	21	29	32.7	2	0.4		NR	Δ (S-P) = 1.6°
		eS			53.7	999				
11 June		eP	21	54	09.6	2	0.5		NR	Δ (S-P) = 2.6°
	N	eS			41.3		0.4			
	N	e(Sur)			46.7		0.4			
12 June		eP	01	36	18.7	5	1.3		T	Weak surface waves on LP.
	LPE	eSur		53	55					
12 June		eP	02	01	49.2	6	0.6	SSE	T	
		e		02	04.5		1.2			
		e			48.1		0.9			
		e			53.3		0.6			
12 June		eP	02	40	09.3	21	1.7		R	Strong surface waves on all systems.
		e			19.4		1.7			
	N	eSur		44	12.6		3.4			
12 June		eP	09	56	05.4	2	0.9		T	Iceland 65.0 N 16.6 W h about 28 km 0 = 09 46 27.0 Δ = 55.5° m = 4.2 (WMO) Weak surface waves on LP.
	LPN	eSur	10	13	20					
12 June	LP	eSur	16	07	37				T	Medium surface waves on LP.
12 June		eP	21	39	33.3	1	0.4		NR	Δ (S-P) = 1.6°
		eS			54.3	999				
13 June		eP	01	50	18.1	3	1.1		T	

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h.	m.	s.					
13 June		eP	05	48	39.6	1	0.8		T	
		e		49	10.8		1.0			
13 June		eP	16	42	32.2	2	0.6		T	
13 June		eP	18	19	17.2	2	0.3		NR	Quarry blast, 4,000 lbs., by Gifford-Hill Co. near Chico, Texas
		e			27.6		0.4			
		eS			39.0	999				
13 June		eP	19	22	05.2	2	0.7		T	Tonga Islands region 24.2 S 176.3 W h about 25 km 0 = 19 08 45.7 Δ = 93.5° m = 4.7 (WMO)
		e			18.3		0.9			
13 June		eP	20	11	56.2	3	0.4		NR	Δ (S-P) = 1.4°
		eS			15.0	999				
14 June		eP	00	45	33.4	6	1.4		T	
14 June		eP	02	47	46.5	2	0.6		T	
14 June		eP	03	52	04.7	3	1.0		T	
14 June		eP	03	57	46.0	3	0.9		T	
14 June		eP	04	29	46.4	2	0.9		T	
	LPN	e		38	43		22.0			
	LPE	e		41	00		20.0			
14 June		eP	05	36	09.5	2	0.9		T	
		e			15.5		0.9			
14 June		eP	07	11	27.3	1	0.6		T	
14 June		eP	07	29	58.0	2	0.9		R	
	N	eSur		31	26.5		0.6			
14 June		iP	08	02	24.7	c 291	1.9		T	Near Islands, Aleutian Islands 54.3 N 169.1 E h about 34 km 0 = 07 51 51.0 Δ = 63.5° m = 6.0 (WMO) Mag. = 6-6-1/4 (Pas.), 5-3/4 (Berk) Strong surface waves on BB and LP.
		e		03	50.2		1.4			
		e		04	21.9		1.8			
		ePP			44.7		1.8			
		e		06	09.7		1.5			
	LPN	eS		11	06		18.0			
	LPE	ePPS			46		42.0			
	LPN	eScS		12	27		16.0			
	LPE	e		13	19		18.0			
	LPE	e(SS)		14	20		35.0			
	LPN	e(SSS)		18	10		24.0			
	LPE	e(Sur)		19	46					
	LP	eSur		24	06					
		eP'P'		31	14.6		1.4			
		e			45.7		1.4			

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h.	m.	s.					
14 June		eP	08	06	19.6	152	1.5		T	Near Islands, Aleutian Islands
		e			30.6		1.6			54.2 N 169.3 E
		e			52.5		1.2			h about 56 km
		e		08	27.2		1.4			0 = 07 55 48.9
		ePP			40.2		1.8			Δ = 63°
		e		09	10.0		2.2			m = 5.8 (WMO)
		e		12	23.9		1.4			Mag. = 6 (Pas.)
	LPN	eS		14	58		18.0			Strong surface waves on BB and LP.
	LPE	ePPS		15	54		21.0			
	E	e		16	12.6		3.2			
	LPN	eScS			19		20.0			
	LP	eSur		29	16					
		eP'P'		35	04.2		1.0			
		e			25.1		1.5			
14 June		eP	08	37	27.1	45	1.1		T	Puerto Rico region
		e		38	55.5		1.1			19.4 N 65.0 W
		e		40	08.5		1.3			h about 64 km
		e		41	12.6		1.2			0 = 08 30 53.2
	E	eS		42	48.2		1.4			Δ = 33°
		eScP		43	53.2		1.2			m = 5.2 (WMO)
		e		44	32.6		1.4			
		e		46	23.1		1.5			
		e(Sur)		47	13.2		1.6			
14 June		eP	11	55	18.1	1	0.6		T	
		e			32.6		1.0			
14 June		eP	13	36	25.5	18	0.5	SSE	T	
		e			49.4		1.1			
		e		37	12.5		1.3			
		e			31.9		1.0			
14 June		eP	14	23	08.4	1	0.3		NR	Δ (S-P) = 5.2°
		e			25.9		0.3			
	E	eS		24	09.9		0.4			
	N	eSur			39.2		0.5			
14 June		eP	14	40	21.8	2	0.8		T	
14 June		eP	17	24	51.3	9	1.2		T	Near Islands, Aleutian Islands
		e		25	01.2		1.2			54.2 N 169.2 E
		e			44.7		1.2			h about 63 km
										0 = 17 14 23.2
										Δ = 64.5°
										m = 4.6 (WMO)
14 June		eP	20	25	40.4	14	1.2		T	Ecuador
		e			53.6		1.1			1.8 S 76.9 W
		epP		26	17.7		1.2			h about 147 km
		ePcP		27	28.8		0.9			0 = 20 18 04.7
		e		28	19.2		1.3			Δ = 41.5°
		eScP		31	09.5		1.3			m = 4.5 (WMO)
	N	eS			51.7		1.8			

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h.	m.	s.					
14 June		eP	21	21	51.7	1	0.5		NR	
	E	e(S)		22	39.8		0.5			
	E	eSur		23	09.3		0.8			
14 June		eP	21	48	13.1	2	1.1		T	
14 June		eP	22	12	18.9	1	0.6		T	
		e			32.6		1.1			
14 June		e(P)	22	28	28.5	3	1.2		T	Ryukyu Islands
		e		32	31.9		1.6			26.4 N 126.5 E
		ePP			57.9		2.0			h about 22 km
		$ePKKP_1$		44	04.3		1.2			0 = 22 14 10.9
		$ePKKP_2$			19.5		1.3			Δ = 105°
	LPN	eSur	23	01	50					M = 5.5 (WMO)
										Strong surface waves on LP, weak on BB.
14 June		eP	23	35	18.9	1	0.4		NR	Δ (S-P) = 2.6°
	E	eS			50.9		0.4			
14 June		eP	23	54	30.5	24	1.9		T	
15 June		eP	00	05	53.7	2	0.4	S	NR	Δ (S-P) = 2.1°
	E	eS		06	20.0		0.4			
15 June		eP	04	32	22.3	17	0.7	SSE	T	
		e			59.2		1.0			
15 June		eP	06	40	46.8	36	1.9		T	Near coast of Northern Chile
		e			58.4		1.9			20.4 S 70.9 W
		ePcP		41	38.5		1.1			h about 60 km
		ePP		43	07.8		2.3			0 = 06 30 37.0
		e			33.9		1.8			Δ = 60.5°
		e		44	04.5		1.3			m = 5.2 (WMO)
		eScP		45	24.8		1.4			Mag. = 5 (Pal.)
		e		46	31.4		1.5			Strong surface waves on LP.
	LPN	eS		49	06		20.0			
	LPE	ePS			38		15.0			
	LPN	eScS		50	35		20.0			
	LPE	e		51	56		22.0			
	LPN	eSS		52	50		25.0			
	LPN	e(Sur)		56	10					
	LP	eSur		58	32					
		ePKKP	07	01	49.7		1.3			
15 June		eP	06	52	48.0	1	1.2		T	
		e		53	29.5		0.9			
15 June		eP	08	17	45.3	2	0.9		T	
15 June		eP	08	48	55.8	4	0.6		T	
		e		49	22.8		1.0			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
15 June		eP	09	08	54.2	2	0.3		NR	Δ (S-P) = 1.8°
	E	eS		09	17.6		0.3			
15 June		eP	12	14	02.0	2	1.1		T	
		e			25.5		1.1			
		e			52.0		1.0			
15 June		eP	12	21	07.0	7	1.0		T	Phase at 12 25 59.9 is possible new event.
		e			44.9		1.0			
		e			51.9		0.7			
		e		22	16.7		0.9			
		e			29.2		1.1			
		e		25	59.9		0.8			
		e		26	24.1		0.8			
15 June		eP	15	06	23.0	4	1.0		T	
15 June	LP	e	16	08	23		28.0		T	Weak surface waves on LP.
	LPN	eSur		32	18					
15 June		eP	16	11	45.3	1	0.4		NR	Δ (S-P) = 5.1°
		e			55.1		0.4			
		e		12	04.1		0.5			
	E	eS			46.6		0.5			
	E	e(Sur)		13	13.5		0.5			
15 June		eP	18	08	16.4	1	0.2		NR	Δ(S-P) = 1.6°
		e			25.9		0.4			Quarry blast, 5,700 lbs., by Gifford-Hill Co. near Chico, Texas.
		eS			37.9	999				
15 June		eP	18	13	20.0	2	0.4		NR	Δ (S-P) = 1.6°
		eS			41.4	999				
15 June		eP	20	32	29.5	1	0.4		NR	Δ (S-P) = 2.4°
		e			35.4		0.4			
	E	eS		33	10.3		0.5			
		eSur			20.3		0.8			
15 June		eP	21	42	05.6	4	1.0		T	
		e			23.2		1.0			
15 June		eP	22	59	48.3	2	0.5		NR	Δ (S-P) = 1.8°
	E	eS	23	00	11.5		0.4			
16 June		e	05	36	09.4		1.1		T	Ryukyu Islands
		ePP		39	56.2		1.4			26.6 N 126.4 E
	LPE	eSur	06	18	02					h about 38 km
										0 = 05 21 12.7
										Δ = 105°
										M = 4.5 (WMO)
										Start is indefinite
										Weak surface waves on LP.
16 June		eP	06	08	18.8	3	1.0		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
16 June		eP'	06	46	21.2	6	1.1		T	Celebes region
		epP'		47	15.9		1.1			0.2 S 122.8 E
		e(PKKP)		55	43.0		1.1			h about 177 km
										0 = 06 27 29.8
										Δ = 128°
										Possible new event at 06 55 43.0.
16 June		eP	08	05	51.0	1	0.9		T	Medium surface on LP.
		e			57.4		1.3			
	LPE	e(Sur)		10	34					
16 June		eP	08	32	01.5	2	0.9		T	
16 June		eP	11	15	55.4	6	0.9	S	T	
		e		16	03.6		1.1			
		e			20.0		1.0			
		e			35.9		1.0			
		e		20	33.0		1.3			
16 June		eP	12	03	27.4	2	0.7		T	
16 June		eP	14	22	12.4	6	0.9		T	Near coast of Peru
		epP			26.7		0.9			10.0 S 79.4 W
		e		23	23.5		1.2			h about 56 km
		ePcP			39.2		0.6			0 = 14 13 36.0
										Δ = 48°
										m = 4.6 (WMO)
16 June		eP	18	18	27.0	1	0.3		NR	Quarry blast, 3,300 lbs., by Gifford-Hill Co. near Chico, Texas
		eS			48.6	999				Δ (S-P) = 1.7°
17 June		eP	00	00	08.8	12	0.8	SSE	R	
		e			40.5		0.7			
		e			51.0		1.0			
		e		01	15.4		0.8			
	E	eSur		04	00.9		0.6			
17 June		eP	02	32	21.9	3	0.8		T	
17 June		eP	04	40	53.5	1	0.7		T	
		e		41	07.1		1.0			
17 June		eP'$_1$	04	47	29.8	4	1.0		T	Indian Ocean, north of Crozet Islands
		e			35.6		0.8			40.1 S 45.7 E
		e(P'$_2$)			43.4		1.0			h about 15 km
		e		48	13.7		1.8			0 = 04 27 38.2
		e			31.1		1.3			Δ = 151°
		e		49	13.3		1.3			M = 5.0 (WMO)
		e			58.1		1.5			Phase at 04 57 32.5 is possible P
		e(PP)		51	03.5					diffracted of following event.
		e			32.6		1.8			Medium surface waves on LP.
		e		57	32.5		0.8			
	LPE	eSur	05	37	40					

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
17 June		eP'	04	58	04.4	2	0.8		T	Kashmik region
		e			16.9		1.0			33.3 N 76.2 E
		e(PP)			43.5		1.3			h about 22 km
		ePKKP$_1$	05	08	38.2		1.1			0 = 04 39 26.6
		ePKKP$_2$		09	07.1		1.0			$\Delta = 113^{o}$
										Phase at 04 58 43.5 is possible PcPP' of previous event.
17 June		eP	07	22	21.4	2	0.8		T	
17 June		eP	11	03	37.7	6	1.3		T	Weak surface waves on LP.
		e			56.0		1.3			
	LPE	eSur		20	40					
17 June		e(P)	13	36	23.7	4	1.2		T	Santa Cruz Islands region
	LP	eSur	14	08	12					10.7 S 165.3 E
										h about 106 km
										0 = 13 22 21.4
										$\Delta = 100^{o}$
										M = 5.4 (WMO)
										Medium surface waves on LP, weak on BB.
17 June		eP	14	44	17.8	7	1.1		T	
		e			47.7		0.8			
		e		45	10.9		1.0			
		e			38.6		0.9			
		e			45.0		1.5			
		e		47	21.7		1.3			
17 June		eP	17	34	40.2	1	0.4		R	
		e		35	10.3		0.6			
		e(Sur)		37	50.3		1.3			
17 June		eP	20	16	24.8	6	1.0	(SW)	T	Strong surface waves, Love and
		e			33.6		1.0			Rayleigh type, on BB and LP.
		e			42.2		1.0			$\boxed{\Delta}$ (S-P) = 18.5^{o}
		e		17	13.6		1.5			
	LPE	e(S)		19	46		20.0			
	LPE	eSur		20	44					
	LP	eSur		21	30					
	BBE	eSur		21	42		8.0			
17 June		eP	21	29	45.2	5	1.4		T	
17 June		eP	21	44	50.6	9	1.3		T	Δ [(S-P)] = 20^{o}
		e		45	08.8		1.0			Medium surface waves on BB and LP.
	LPE	e(S)		48	21		16.0			
	LPE	eSur		49	32					
	BBE	eSur		50	06					

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
17 June		eP	22	38	15.4	3	0.8		T	Andreanoff Islands, Aleutian Islands
		e			37.0		1.1			51.7 N 177.0 E
		e			51.0		0.8			h about 22 km
		eScP		42	51.1		1.1			0 = 22 28 04.1
										$\Delta = 60^{o}$
										m = 4.5 (WMO)
17 June		eP	23	16	40.1	4	0.5		NR	Δ (S-P) = 1.7^{o}
		e			49.8		0.4			
		eS		17	01.9	999				
18 June		eP	00	47	49.2	25	0.6	NW	R	
		e		48	01.0		0.6			
		e			15.4		0.5			
		eSur		49	46.5	999				
18 June		eP	01	14	12.6	3	1.0		T	
		e			21.2		1.0			
18 June		eP	01	37	45.9	1	0.6		R	
		e		38	15.0		1.1			
	E	eSur		39	45.2		0.6			
18 June		eP	01	58	53.0	11	1.5		T	
18 June		eP	02	00	19.9	1	0.6		T	
		e			34.4		0.9			
18 June		eP	03	29	34.6	2	1.0		T	
18 June		eP	03	51	00.4	2	0.7		T	
		e			28.3		0.7			
18 June		eP	06	28	53.2	27	0.8		T	Alaska
		epP		29	31.2		1.3			60.5 N 153.8 W
		e			44.1		0.9			h about 193 km
		e			54.9		1.2			0 = 06 21 04.9
		e		30	12.1		1.1			$\Delta = 42.5^{o}$
		ePP			29.5		1.2			m = 4.8 (WMO)
		e(PCP)			37.4		0.6			Phase at 06 34 11.5 is possible
		e		31	20.0		1.1			new event
		e(ScP)		34	11.5		0.7			
18 June		eP	07	06	52.7	2	0.8		T	
18 June		eP	12	02	52.9	3	1.3		T	
18 June		eP	12	36	31.5	7	1.3		T	Andreanoff Islands, Aleutian Islands
		e			43.7		1.2			52.4 N 174.6 W
		e		37	01.0		1.2			h about 65 km
		e			23.3		1.4			0 = 12 27 02.7
		ePP		38	38.5		1.5			$\Delta = 55^{o}$
	LPE	eS		44	18		20.0			m = 4.4 (WMO)
	LPE	eSur		55	08					Weak surface waves on LP.

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h.	m.	s.					
18 June		eP	13	27	22.6	12	1.4		T	
		e		28	03.2		1.0			
		e			36.2		1.5			
18 June		eP'	17	17	53.6	1	0.9		T	Near north coast of New Guinea
		e		18	02.8		1.1			0.8 S 133.8 E
		ePP		19	24.5		1.4			h about 25 km
										0 = 16 59 11.7
										$\Delta = 120^{o}$
18 June		eP	17	27	05.4	2	0.9		T	
18 June		eP	18	08	46.5	2	0.3		NR	Δ (S-P) = 1.7^{o}
		e			57.0		0.4			
		eS		09	08.4	999				
18 June		eP	18	11	10.3	2	0.4	SE	NR	Δ (S-P) = 1.6^{o}
		e			19.6		0.5			
		eS			31.7	999				
18 June		eP	18	34	16.1	2	0.8		T	
		e			29.0		0.8			
18 June		eP	22	45	41.6	3	0.4		NR	Δ (S-P) = 2.6^{o}
	E	eS		46	13.8		0.6			
18 June		eP	22	59	42.6	3	0.8		T	
		e	23	00	20.6		0.9			
		e		02	37.9		1.1			
		e(Sur)		03	46.2		1.1			
18 June		eP	23	56	53.4	52	2.3		T	New Britain region
		e		57	08.6		1.4			4.8 S 151.8 E
		e			18.7		1.1			h about 47 km
		e		58	38.6		1.7			0 = 23 42 31.3
19 June		e	00	00	08.5		1.6			$\Delta = 110^{o}$
		eP'			57.5	25	1.5			m = 6.4 (WMO)
		e		01	10.3		1.4			Mag. = 6-3/4 (Pas.)
		e			22.1		1.6			Initial arrival is P diffracted. Phase
		e			30.4		1.7			at 00 09 41.4 is possible new event.
		e		02	00.4		1.7			Medium surface waves on LP.
		e			27.7		1.6			
		e		03	30.6		1.2			
		eSKP		04	22.2		1.2			
	LPE	eSKS		07	29		21.0			
	LPE	e		08	25		14.0			
		e		09	41.4		1.4			
		e		10	22.9		1.2			
	BBE	ePS			45		10.0			
		$ePKKP_1$		12	02.5		1.5			
		$ePKKP_2$			16.9		1.5			
	LPE	ePPS			23		25.0			
		e		14	10.5		1.5			

(continued on following page)

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h.	m.	s.					
		e			48.6		1.6			(continued from preceding page)
		e		15	10.5		1.2			
		eSKKP			30.6		20.0			
		eP'P'		20	32.8		1.7			
	LPE	eSSS		21	08		22.0			
	LP	eSur		31	10					
19 June		eP	01	05	38.1	5	0.7		T	South of Panama
										7.1 N 82.7 W
										h about 42 km
										0 = 00 59 21.3
										$\Delta = 31^{o}$
										m = 4.5 (WMO)
19 June		eP	04	50	33.8	2	0.4		R	
		e			37.2		0.3			
		e		51	00.7		0.5			
		e			04.3		0.4			
		eSur		52	28.1	999				
19 June		eP	05	03	12.0	5	1.2		T	
19 June		eP	15	57	48.9	6	1.0		T	Tonga Islands
		e			57.9		1.2			17.0 S 172.5 W
		e		58	06.5		0.9			h about 29 km
										0 = 15 45 03.2
										$\Delta = 87^{o}$
										m = 4.8 (WMO)
19 June		eP	16	51	52.4	6	1.0		T	Fiji Islands region
		epP		53	35.0		1.0			20.9 S 177.8 W
										h about 405 km
										0 = 16 39 21.4
										$\Delta = 93^{o}$
										m = 4.6 (WMO)
19 June		iP	18	07	53.3	c 999		NE	L	Δ (S-P) = less than 0.1^{o}
		eS			56.0	999				
19 June		eP	18	28	26.3	10	1.3		T	
19 June		eP	21	14	26.5	9	1.3		T	
		e			32.9		1.4			
19 June		eP	21	27	55.7	6	1.2		T	
19 June		eP	21	42	44.3	2	0.5		NR	Δ (S-P) = 2.4^{o}
	N	eS		43	13.9		0.4			
		e(Sur)			20.8	999				
19 June		eP	21	46	05.8	1	0.4	S	NR	Δ (S-P) = 4.1^{o}
	E	eS			54.7		0.4			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h. m. s.					
20 June		eP	00 18 25.7	12	1.0		T	Tonga Islands
		epP	19 26.6		1.1			19.4 S 175.4 W
								h about 244 km
								0 = 00 05 46.9
								$\Delta = 91^{o}$
								m = 4.8 (WMO)
20 June		eP	00 39 11.5	4	0.5		NR	Δ (S-P) = 2.2^{o}
		eS	38.2	999				
20 June		eP	04 46 29.8	3	0.7		T	Off north coast of Hokkaido, Japan
								46.4 N 143.3 E
								h about 287 km
								0 = 04 34 41.1
								$\Delta = 81.5^{o}$
								m = 4.3 (WMO)
20 June		eP	05 55 55.8	2	0.7		T	
20 June		eP	06 34 54.6	3	1.1		T	
20 June		eP'	06 34 59.6	19	1.2		T	Banda Sea
		e	35 10.6		1.7			6.9 S 126.6 E
		ePP	37 14.8		1.6			h about 272 km
		e(SKP)	47.8		1.3			0 = 06 16 22.6
		e	55.2		1.1			$\Delta = 129.5^{o}$
								Phase at 06 37 47.8 is possible new event.
20 June		eP	13 24 13.1	3	1.1		T	
		e	47.3		1.1			
		e	25 09.0		1.1			
20 June		eP	13 32 48.4	6	1.1		T	
		e	33 17.4		1.3			
		e	34 54.1		1.2			
20 June		eP	13 43 54.4	4	1.2		T	
20 June		eP	13 50 15.2	17	1.1	NW	T	Foreshock of following California event.
		e	45.1		1.6			
		e	51 12.1		1.2			Weak surface waves on LP.
	LPE	eSur	58 46					
20 June		eP	13 58 40.7	4	1.0		T	
20 June		eP	14 25 31.1	5	1.1		T	
20 June		eP	16 59 35.9	10	1.0	NW	T	Medium surface waves on LP.
		e	17 00 28.9		1.2			Foreshock of following California event.
		e	44.2		1.2			
	LPE	eSur	07 57					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h. m. s.					
20 June		eP	18 06 18.5	2	0.3	SE	NR	Δ(S-P) = 1.7^{o}
		e	28.5		0.3			Quarry blast, 5,500 lbs., by Gifford-Hill Co. Chico, Texas.
		eS	40.5	999				
20 June		eP	19 31 29.7	26	1.2		T	Off coast of Northern California
		e	32 00.3		1.5			45.6 N 128.9 W
		e	15.1		1.1			h about 25 km
	LPE	eS	36 05		19.0			0 = 19 26 01.8
	LPE	eSur	39 19					$\Delta = 26.5^{o}$
	LPE	eSur	40 00					m = 4.8 (WMO)
								Strong surface waves on LP, weak on BB.
20 June		eP	19 37 25.5	15	1.1	NW	T	Aftershock of previous California event.
		e	38 10.2		1.6			
20 June		eP	23 03 36.7	21	0.7	SE	T	
		e	04 05.3		1.1			
		e	15.0		1.0			
		eSur	07 17.9	999				
	LP	e(Sur)	23					
	LPN	eSur	09 09					
21 June		eP	02 11 51.0	2	0.9		T	
	N	eSur	18 22.1		1.1			
21 June		eP	02 38 33.4	3	1.0		T	
		e	39 01.9		1.2			
21 June		eP'	03 41 18.2	3	1.1		T	Celebes Sea
		epP'	43 41.4		1.2			4.9 N 122.7 E
		eP'KKP	51 00.7		1.0			h about 600 km
								0 = 03 23 21.0
								$\Delta = 125^{o}$
21 June		eP	04 50 12.7	65	1.1		T	South of Panama
		e	51 02.2		1.3			5.7 N 82.6 W
	BB	ePP	12		8.0			h about 23 km
		e	52 08.0		1.9			0 = 04 43 43.3
		ePcP	53 02.8		0.8			$\Delta = 33^{o}$
		e	55.6		1.3			Mag. = 6-1/4 (Pas.), 6-1/4 (Berk.)
		e	54 13.7		1.6			m = 5.5 (WMO)
	LPE	eS	55 23		26.0			Strong surface waves, Love and Rayleigh type, on LP.
		e	41.6		1.5			
		eScP	56 45.8		1.9			
		ePcS	52.7		1.9			
	LPN	eSS	57 12		19.0			
	LPE	eSur	58 22					
		e	40.0		1.3			
	LPE	eSur	59 38					
		e	05 00 40.0		1.2			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	T	Dir.	Type	Remarks
1962			h. m. s.					
21 June		eP	05 19 22.5	10	1.4		T	
		e	31.8		1.5			
		e	45.4		1.2			
		e	20 26.7		1.6			
		e	21 42.5		1.0			
21 June		eP	08 03 46.4	2	0.7		T	Alaska
		e	04 10.2		0.9			61.3 N 153.4 W
								h about 32 km
								0 = 07 55 46.0
								Δ = 43°
								m = 4.0 (WMO)
21 June		eP	08 51 29.4	25	0.9		T	Tonga Islands region
		e	52 03.3		0.9			20.8 S 175.6 W
								h about 67 km
								0 = 08 38 28.4
								Δ = 91°
								m = 5.6 (WMO)
21 June		eP	12 21 33.5	3	0.9		T	
		e	48.7		1.0			
21 June		eP	15 47 48.0	45	0.9	SE	T	
		e	48 31.9		0.9			
		e	49 45.1		0.7			
21 June		eP	16 07 30.0	1	0.8		T	Near coast of Kamchatka
		e	43.2		1.0			53.0 N 159.1 E
								h about 42 km
								0 = 15 56 21.1
								Δ = 69°
								m = 4.0 (WMO)
21 June		eP	17 47 49.9	13	0.5		NR	Δ (S-P) = 1.7°
		eS	48 11.6	999				
21 June		eP	19 10 07.3	7	1.4		T	Near coast of Chile
		e	22.4		1.5			38.8 S 72.9 W
		e	37.7		1.0			h about 40 km
								0 = 18 58 18.6
								Δ = 76.5°
								m = 4.5 (WMO)
21 June		eP	20 26 59.3	1	1.0		T	
		e	27 25.1		0.8			
21 June		eP	21 57 38.1	2	0.5		NR	Δ (S-P) = 2.6°
	E	eS	58 10.0		0.7			
21 June		eP	23 03 25.1	1	0.3		NR	Δ (S-P) = 1.9°
	E	e	46.1		0.4			
		eS	48.0	999				

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	T	Dir.	Type	Remarks
1962			h. m. s.					
21 June		eP'	23 11 57.1	8	1.1		T	Tanimbai Islands region
		e	12 31.2		1.3			7.4 S 130.1 E
		ePP	13 57.0		1.3			h about 52 km
								0 = 22 52 52.0
								Δ = 128°
21 June		eP	23 25 09.1	1	0.3		NR	Δ (S-P) = 1.7°
		eS	30.7	999				
22 June		eP	12 02 04.5	60	1.6		T	Off coast of Honshu, Japan
		e	17.5		2.2			32.2 N 142.4 E
		e	58.4		1.7			h about 25 km
		ePP	05 42.1		2.0			0 = 11 48 55.3
		e	06 20.0		1.8			Δ = 92°
	LPE	ePS	14 30		19.0			m = 5.7 (WMO)
	LPE	eSS	19 33		22.0			Medium surface waves on LP.
	LPN	e(Sur)	27 33					
	LPE	eSur	35 00					
22 June		eP'	15 14 13.2	4	1.0		T	Near north coast of New Guinea
								6.9 S 147.0 E
								h about 70 km
								0 = 14 55 39.8
								Δ = 114°
22 June		eP	15 35 07.0	30	1.1		T	
22 June		eP	16 53 09.8	1	0.4		NR	Δ (S-P) = 2.4°
	E	eS	39.6		0.4			
22 June		eP	17 05 34.3	2	1.1		T	
		e	41.3		1.1			
		e	54.4		1.0			
22 June		eP	18 09 28.1	4	1.3		T	Fiji Islands
								17.2 S 178.8 W
								h about 609 km
								0 = 17 57 19.7
								Δ = 92°
								m = 4.1 (WMO)
22 June		eP	19 12 21.4	4	0.6		NR	Δ (S-P) = 3.0°
		e	28.5		0.5			
		eS	58.6	999				
	E	e	13 06.0	999				
22 June		iP	19 49 41.8	c 999	0.4	(SE)	T	
22 June		eP	22 07 05.2	2	0.4		R	
		e	30.5		0.5			
	E	e(Sur)	08 57.6		0.6			
22 June		eP	23 35 02.8	2	0.3		NR	Δ (S-P) = 1.7°
		e	13.1		0.3			Quarry blast, 5,300 lbs., by Gifford-Hill Co. near Chico, Texas
		eS	24.8	999				

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
23 June		eP	09	58	54.5	5	1.0		T	Ruykyu Islands
		e		59	10.0		1.5			25.7 N 128.5 E
		e	10	02	01.8		1.9			h about 36 km
		e			30.0		1.5			0 = 09 44 37.7
		e(P')			54.8		1.3			Δ = 105°
		ePP		03	10.6		1.8			m = 5.4 (WMO)
		e			49.5		1.5			Mag. = 5-3/4 (Berk.)
		e		04	14.0		1.4			Strong surface waves on BB and LP.
		e		05	15.8		1.4			Phase at 10 28 41 is possible phase
		e			59.6		1.5			of following event.
		e		07	26.8		1.4			
		e		08	45.6		1.4			
	LPE	eSKS		09	30		18.0			
	LPN	eS		10	45		19.0			
	LPE	ePS		12	34		24.0			
	LPE	ePPS		13	35		25.0			
		e			35.8		1.1			
		$ePKKP_1$		14	25.5		1.3			
		$ePKKP_2$			41.3		1.0			
	LPN	e		15	24		15.0			
	LPN	eSS		18	04		19.0			
	LPN	e		20	57		25.0			
	LPE	eSSS		22	11		25.0			
	LPN	e		28	41		23.0			
	LPN	eSur		33	09					
	LPN	eSur		35	50					
23 June		eP'	10	17	03.4	5	1.2		T	Near coast of Luzon, P.I.
		e			16.0		1.1			19.1 N 121.4 E
		e			44.5		1.2			h about 40 km
		ePP		18	06.6		1.4			0 = 09 58 26.0
		e			37.5		1.5			Δ = 114.5°
		e		20	03.1		1.3			Phase at 10 30 47.7 is possible
		$ePKKP_1$		27	42.2		1.1			new event.
		$ePKKP_2$			48.5		1.2			
		$ePKKP_3$			58.5		1.3			
		e		30	47.7		1.1			
23 June		eP	13	06	17.0	6	1.2		T	
		e			36.1		1.0			
23 June		eP	14	45	39.9	7	0.9		T	
		e			46.3		1.0			
23 June		eP	15	14	39.0	5	1.2		T	Near coast of Chile
		e			48.2		1.5			33.5 S 71.8 W
		e		15	10.2		1.3			h about 40 km
		e			40.4		1.5			0 = 15 03 15.4
		e		16	05.2		1.4			Δ = 72.5°
	LPN	eS		24	00		17.0			m = 4.4 (WMO)
23 June		eP	15	58	08.5	2	0.8		T	

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
23 June		eP	16	34	14.3	1	0.4		NR	Δ (S-P) = 5.3°
		e			33.1		0.3			
	E	eS		35	14.6		0.4			
	E	e			31.9		0.3			
	E	eSur			38.5		0.6			
23 June		eP	16	55	42.1	6	1.4		T	
		e			54.6		0.7			
		e		56	05.5		1.3			
23 June		eP	23	17	09.9	5	0.8	SE	T	
		e			22.8		0.6			
		e			32.6		1.2			
23 June		eP	23	31	15.2	3	0.4		NR	Δ (S-P) = 1.7°
		e			25.3		0.4			
		eS			36.8	999				
24 June		eP	01	08	45.7	2	0.8		T	
24 June		eP'	01	40	01.2	2	1.0		T	Yunnan Province, China
		e			57.8		1.1			25.6 N 101.1 E
		e		41	11.7		1.3			h about 35 km
		e			24.4		1.5			0 = 01 21 18.2
		e			53.4		1.1			Δ = 118°
	LPN	e		49	12		20.0			M = 5.9 (WMO)
		ePKKP		50	26.4		1.0			Strong surface waves, Love and
	LPE	ePS		51	04		17.0			Rayleigh type, on LP and BB.
		e(SKKP)		54	21.2		1.6			
	LPN	eSS		57	32		25.0			
	LPE	e	02	05	35		23.0			
	LP	e		07	13		18.0			
	LPE	eSur		13	23					
	LPN	eSur		17	43					
24 June		eP	11	52	58.5	3	1.4		T	
24 June		eP	12	09	51.1	2	0.9		T	Kermadec Islands region
										27.7 S 177.1 W
										h about 52 km
										0 = 11 56 24.7
										Δ = 97°
										m = 4.6 (WMO)
24 June		eP	12	14	18.4	2	0.6		T	
24 June		eP	12	51	39.8	3	0.7		T	
24 June		eP	13	07	57.3	2	0.6		T	
		e		08	03.7		0.6			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h. m. s.					
24 June		eP	14 23 54.8	10	1.0		T	Komandorskie Islands region
		e	24 04.0		1.0			55.8 N 162.6 E
	LPN	eSur	50 40					h about 24 km
								0 = 14 13 02.4
								Δ = 66°
								m = 4.9 (WMO)
								Weak surface waves on LP.
24 June		eP'	15 27 13.5	1	0.9		T	Gulf of Aden
								12.5 N 48.6 E
								h about 47 km
								0 = 15 08 15.5
								Δ = 124°
24 June		eP	16 06 29.7	3	1.5		T	
24 June		eP	18 13 26.7	3	1.2		T	
24 June		eP	20 06 44.6	4	1.4		T	
24 June		eP	21 55 50.9	1	0.7		T	
		e	56 18.7		0.9			
		e	22.1		1.0			
24 June		eP	23 47 15.8	2	0.7		R	
	E	eSur	48 42.5		0.7			
25 June		eP	01 43 55.3	1	0.8		T	Fiji Islands region
		epP	46 13.6		1.1			20.8 S 179.2 W
	E	eSKS	53 32.9		1.6			h about 645 km
		ePKKP	02 00 53.4		0.5			0 = 01 31 41.9
								Δ = 94°
								m = 4.1 (WMO)
25 June		eP	02 05 21.4	3	0.7	SE	T	
		e	44.1		0.9			
25 June		eP	02 59 11.9	1	0.8		T	Near coast of Northern Chile
		e	23.7		1.0			20.6 S 71.0 W
		e	34.2		1.1			h about 37 km
		ePcP	56.2		0.8			0 = 02 49 02.1
		e	03 00 06.5		1.0			Δ = 60.5°
		e	16.2		1.0			m = 3.8 (WMO)
		e	55.8		1.1			Weak surface waves on LP.
	LPN	eS	07 33		16.0			
	LP	eScS	09 08		17.0			
	LPN	eSur	14 35					
25 June		eP	03 41 54.5	1	0.8		T	
25 June		eP	06 38 29.8	90	1.6		T	Near coast of Chile
		e	57.4		1.4			37.3 S 73.5 W
		e	39 13.0		1.4			h about 40 km
		e	26.7		1.4			0 = 06 26 49.6
		ePP	40 19.8		1.6			Δ = 75.5°

(continued on following page)

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h. m. s.					
		e	40.5		1.6			(continued from preceding page)
		e	41 48.9		1.4			m = 5.5 (WMO)
		e	43 32.6		1.3			Weak surface waves on LP
	E	eS	48 08.6		2.2			
	LPE	ePPS	49 00		19.0			
	LPN	e	50 55		19.0			
	LPE	eSSS	56 36		25.0			
	LPN	eSur	07 01 30					
25 June		eP	11 24 58.4	3	1.1		T	Off coast of Formosa
		e	28 17.3		1.2			24.3 N 122.6 E
		e(P')	55.9		1.0			h about 33 km
		ePP	29 24.5		1.7			0 = 11 10 23.3
		e	30 02.4		3.8			Δ = 109°
		e	26.0		2.0			m = 5.5 (WMO)
		e	31 00.6		2.0			Mag. = 5-3/4 (Pas.), 5-1/2 (Berk.)
		e	27.7		1.5			Initial arrival is P diffracted.
		e(SKP)	32 25.1		2.0			
	LPE	eSKS	35 34		20.0			
		e	36 51.6		1.0			
	LPN	e(S)	37 06		25.0			
		e	51.0		1.0			
	LPE	ePS	39 00		19.0			
	LPE	ePPS	58		18.0			
		ePKKP$_1$	40 01.3		1.0			
		ePKKP$_2$	24.6		1.6			
		e	41 57.2		1.7			
	LPN	e	42 24		25.0			
		e	43 07.2		1.5			
		eSKKP	42.6		1.5			
		e	44 18.8		1.8			
	LPE	eSS	35		25.0			
25 June		eP'	13 08 41.2	6	1.2		T	Molluca Passage
		ePP	10 15.9		1.2			3.7 N 126.6 E
		ePKKP	18 31.6		0.9			h about 25 km
								0 = 12 49 41.8
								Δ = 123°
25 June		eP	18 15 25.1	1	0.4		NR	Δ (S-P) = 2.2°
	E	eS	51.6		0.3			
25 June		eP	19 03 57.4	17	0.8		T	Off east coast of Nicaragua
		e	04 03.1		1.1			14.5 N 82.4 W
		e	05 24.0		1.5			h about 25 km
		e	40.2		2.1			0 = 18 58 35.6
		e	06 18.6		1.3			Δ = 25°
		e	59.9		1.4			m = 4.7 (WMO)
	E	e(S)	08 19.7		1.8			Mag. = 4-1/2 - 4-3/4 (Pal.)
	E	eSur	47.0		3.0			Strong surface waves on all systems.
25 June		eP	19 42 26.1	7	0.6	SE	T	
		e	39.6		0.4			
		e	48.7		0.8			
		e	43 17.0		0.8			

(continued on following page)

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h. m. s.					
		e	45 33.5		1.3			(continued from preceding page)
		e	55.1		1.4			
		e	46 21.1		1.3			
25 June		eP	23 08 16.5	5	1.3		T	Svalbard region
		e	34.5		1.3			75.0 N 4.2 E
		e	09 06.3		1.3			h about 25 km
	LPE	eSur	29 18					0 = 22 58 10.3
	LPN	eSur	32 57					Δ = 59.5°
								m = 4.5 (WMO)
								Medium surface waves on LP.
25 June		eP	23 34 37.8	2	0.3		NR	Δ (S-P) = 1.8°
		eS	59.3	999				
26 June		eP	05 39 38.9	3	1.2		T	
26 June		eP	06 07 06.4	4	1.4		T	
26 June		eP	13 30 29.2	4	1.1		T	
26 June		eP	15 07 02.1	3	0.7		T	Bulgaria
								42.7 N 23.8 E
								h about 25 km
								0 = 14 54 19.0
								Δ = 86°
								m = 4.3 (WMO)
26 June		eP	16 21 33.8	12	0.5		NR	Δ (S-P) = 1.8°
		e	39.2		0.4			
		eS	57.2	999				
26 June		eP	18 05 44.8	4	0.6		NR	Δ (S-P) = 1.9°
		e	57.4		0.4			Quarry blast, 6,500 lbs., by Gifford-
		eS	06 09.2	999				Hill Co. near Chico, Texas.
26 June		eP	18 45 17.5	4	0.7		T	
		e	32.2		0.8			
26 June		eP	20 23 27.6	3	0.4		NR	Δ (S-P) = 1.4°
		eS	46.1	999				
27 June		eP	01 31 01.3	13	0.7		R	Southern Illinois
		e	32 33.7		0.5			37.7 N 88.5 W
		eSur	33 21.9	999				h about 25 km
	LPE	eSur	32					0 = 01 28 55.7
								Δ = 8°
								m = 5.2 (WMO)
								Mag. = 5-1/4 - 5-1/2 (Pal.)
27 June		eP	03 15 24.4	6	1.1		T	

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h. m. s.					
27 June		eP'	03 48 32.1	3	0.9		T	New Britain region
	LPE	ePS	58 59		30.0			6.1 S 148.8 E
	LPE	ePPS	04 00 04		24.0			h about 55 km
	LPN	eSS	05 09		37.0			0 = 03 30 01.9
	LPN	eSSS	09 09		30.0			Δ = 112°
	LPE	eSur	16 30					M = 4.8 (WMO)
	LP	eSur	23 09					Strong surface waves, Love and Rayleigh type, on LP.
27 June		eP	04 51 24.6	1	0.8		R	
	N	eSur	52 55.5		0.6			
27 June		eP	05 16 52.6	83	1.7	WNW	T	Strong surface on LP.
		e	17 02.3		2.1			
		e	16.0		0.9			
		e	48.0		1.0			
		e	18 00.4		1.7			
	LPN	e(S)	21 13		18.0			
	LPN	e(Sur)	23 24					
27 June		eP	06 53 29.9	3	0.8		T	
27 June		eP	08 42 00.8	2	0.9		T	Off coast of Kamchatka
		ePcP	19.6		0.8			50.2 N 158.7 E
								h about 20 km
								0 = 08 30 39.3
								Δ = 71°
								m = 4.2 (WMO)
27 June		eP	11 14 36.5	2	0.8		T	
27 June		eP	13 45 07.5	92	1.9		T	Off coast of Chile
		e	17.0		1.5			39.1 S 74.9 W
		e	23.1		1.4			h about 40 km
		epP	30.1		1.3			0 = 13 33 21.5
		e	42.4		1.3			Δ = 77°
		e	46 04.5		1.5			m = 5.5 (WMO)
		e	24.2		1.4			
27 June		eP'$_1$	13 58 30.7	4	1.4		T	SW of Indian Ocean
		eP'$_2$	59 13.0	11	1.0			48.0 S 99.6 E
		e	44.2		1.1			h about 25 km
		e	55.4		1.2			0 = 13 38 30.6
	LPN	eSur	14 55 15					Δ = 161.5°
								M = 5.0 (WMO)
								Strong surface waves on LP.
27 June		eP	14 40 32.0	4	0.3	NE	L	Δ (S-P) = 0.6°
	N	eS	41.4		0.4			
27 June		eP	15 03 15.7	7	0.4		R	
		e	50.3		0.6			
	N	eSur	06 35.7		0.5			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h. m. s.					
27 June		eP	15 29 56.2	13	1.3		T	Strong surface waves on LP.
	LPN	e	49 01					
27 June		eP	18 51 07.1	2	0.8	NE	T	
27 June		eP	19 57 47.8	9	1.0	SSE	T	
		e	58 21.8		0.9			
		e	59 02.1		0.8			
		e	10.2		1.1			
		e	20 00 51.1		1.4			
27 June		eP	20 31 04.4	1	0.3	NE	L	Δ (S-P) = 0.6°
	N	eS	13.5		0.4			
27 June		eP	20 56 10.6	1	0.4	S	L	Δ (S-P) = 0.6°
	N	eS	19.9		0.4			
27 June		eP	21 12 41.4	2	0.4		NR	Δ (S-P) = 2.6°
	E	eS	13 13.1		0.6			
27 June		eP	21 32 24.6	5	1.4		T	
27 June		eP	21 50 22.0	2	0.4		NR	Δ (S-P) = 2.1°
	E	eS	48.4		0.3			
28 June		eP	04 36 26.5	112	1.4		T	Hawaii Island, Hawaii
		e	37 08.7		1.7			20.0 N 155.6 W
		e(PcP)	38.7		1.4			h about 25 km
		e	38 08.6		1.4			0 = 04 27 18.4
		ePP	27.9		2.6			Δ = 51.5°
		e	39 08.6		1.3			m = 5.6 (WMO)
		e	23.2		1.3			Mag. = 5-1/4 (Berk.), 5-1/4 - 5-1/2 (Pal.).
		e	43.6		1.4			
		e	40 20.6		2.8			Possible new events at 04 43 24.4 and 05 06 30.8.
		e	39.8		1.7			
		e(ScP)	41 36.3		1.4			
		e	43 24.4		1.5			Strong surface waves, Love and Rayleigh type, on LP and BB.
	LPN	eS	56		17.0			
	LPE	e	45 12		10.0			
		e	33.4		1.3			
		e	46 10.0		1.3			
	LPE	eScS	21		18.0			
	LPE	e(SS)	47 35		25.0			
	LP	eSur	49 06					
	LPE	eSur	51 14					
		e	58 30.4		1.5			
		e(P'P')	05 06 30.8		1.2			
28 June		eP	05 55 12.6	3	1.0		T	
28 June		eP	05 59 51.5	5	0.7	SE	R	
	N	eSur	06 03 29.1		0.7			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Remarks
1962			h. m. s.					
28 June		eP	07 03 46.8	35	1.2		T	Near Greece-Albania border
		e	04 32.4		1.2			40.9 N 20.8 E
		ePP	07 06.3		1.2			h about 25 km
		e	46.7		1.2			0 = 06 51 04.3
	LPE	eSur	33 18					Δ = 85.5°
								m = 5.5 (WMO)
								Weak surface waves on LP.
28 June		eP'	11 37 13.1	18	0.6		T	Near coast of Java
		e	29.2		1.0			7.7 S 107.9 E
		epP'	42.3		1.0			h about 94 km
		e	38 03.5		1.1			0 = 11 17 48.6
		e	39 08.5		1.5			Δ = 144°
		e	40 21.2		1.5			
		ePP	38.1		1.3			
		$e(SKP)_1$	52.1		1.1			
		$e(SKP)_2$	41 20.5		1.0			
28 June		eP	11 48 54.6	4	1.0		T	
28 June		eP	13 47 43.2	8	1.6		T	
28 June		e	15 56 57.8		1.7		(T)	
		eSur	57 30.3		1.3			
28 June		eP	18 03 25.0	3	0.9		T	Off coast of northern Hokkaido, Japan
		e	55.3		0.9			43.8 N 144.5 E
								h about 55 km
								0 = 17 51 01.5
								Δ = 83.5°
								m = 4.4 (WMO)
28 June		eP'	19 09 28.7	37	1.4		T	Northern Celebes
		e	10 08.6		1.2			0.2 S 124.3 E
		e	37.9		1.3			h about 58 km
		ePP	11 26.5		1.4			0 = 18 50 27.5
		e	54.5		1.8			Δ = 127°
		eSKP	12 45.5		1.5			
		e	13 14.1		1.3			
		e	15 23.2		1.5			
		e	29.9		2.0			
		e(PKKP)	19 40.5		1.2			
	LPE	eSS	28 38		20.0			
28 June		eP	19 18 54.3	6	1.2		T	
		e	21 30.5		1.1			
		e	43.4		1.4			
		e	22 15.4		1.0			
		e	41.9		1.1			
	LPN	eSur	20 47 00					

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
28 June		eP	21	00	03.1	10	0.9		T	Tonga Islands region
		epP		01	04.5		1.6			17.6 S 175.2 W
		e			24.7		1.2			h about 244 km
	LPN	eS		10	19		15.0			0 = 20 47 30.6
										Δ = 89°
										m = 4.7 (WMO)
28 June		eP	21	09	32.0	1	0.4		L	Δ (S-P) = 1.3°
		eS			50.4		0.5			
28 June		eP	21	10	10.2	5	1.2		T	
		e			19.3		1.1			
28 June		eP	21	41	18.6	1	0.4		NR	Δ (S-P) = 1.6°
		eS			40.0	999				
28 June		eP	23	27	52.2	1	0.3		NR	Δ (S-P) = 1.8°
	E	eS		28	14.9		0.4			
28 June		eP	23	55	32.4	1	0.4		NR	Δ (S-P) = 2.6°
	E	eS		56	04.7		0.4			
29 June	N	eSur	01	15	33.2		1.2		(R)	
29 June		eP	01	37	56.2	1	1.2		R	
		e		38	20.7		1.0			
	N	e		41	32.7		0.8			
29 June		eP'	03	48	45.0	2	1.1		T	Sandwich Islands
		e		49	07.0		1.2			56.2 S 26.9 W
		ePKKP	04	00	06.2		1.1			h about 25 km
		e			34.9		1.3			0 = 03 30 18.8
										Δ = 110°
29 June		eP	10	39	56.0	7	1.3		T	South of Eastern Islands region
		e		40	03.8		1.4			35.2 S 106.0 W
		e			17.8		1.3			h about 25 km
		e			23.3		1.5			0 = 10 28 46.6
		e		41	43.7		1.3			Δ = 70°
		e		42	13.9		1.7			m = 4.6 (WMO)
		ePP			37.6		1.7			Weak surface waves on LP.
	LPE	eSur		57	25					
	LPE	eSur		59	43					
29 June		eP	11	25	55.4	1	1.0		T	
29 June		eP'	14	08	19.4	21	1.6		T	Banda Sea
		e			45.9		1.3			7.9 S 127.3 E
		e		09	00.5		1.5			h about 80 km
		e		10	28.4		1.0			0 = 13 49 16.9
		eSKP		11	34.0		1.1			Δ = 130°
		e		12	15.6		1.3			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Remarks
1962										
29 June		eP	16	01	17.8	2	0.3	SE	NR	Δ (S-P) = 1.7°
		e			28.3		0.4			Quarry blast, 6,600 lbs., by Gifford-
		eS			38.7	999				Hill Co. near Chico, Texas
29 June		eP	16	36	03.9	176	1.5		T	Alaska
		e			13.5		1.2			62.3 N 152.4 W
		e			50.7		0.7			h about 39 km
		e		37	37.9		1.7			0 = 16 28 04.4
		ePP			53.4		2.3			Δ = 43.5°
		e		38	44.7		1.7			m = 5.7 (WMO)
		e		39	58.8		1.4			Mag. = 4-3/4 - 5 (Pal.)
		e		40	30.0		1.2			Strong surface waves, Love and
		eScP		41	42.0		1.2			Rayleigh type, on all systems.
		e			51.9		1.3			
	LPE	eS		42	31		15.0			
	LPE	e(PPS)		43	12		31.0			
		e		44	22.3		1.1			
	LPE	eScS		45	52		19.0			
	LPN	eSur		49	01					
	LP	eSur		52	20					
29 June		eP	16	54	02.8	2	0.5		NR	Δ (S-P) = 4.1°
	N	eS			51.7		0.6			
	E	eSur		55	18.5		0.6			
29 June		eP	17	35	09.9	17	0.5	E	NR	Δ (S-P) = 1.5°
		e			18.8		0.5			Quarry blast near Fitzhugh, Okla.
		eS			30.6	999				
29 June		eP	18	25	01.4	2	0.9		T	
29 June		eP	19	52	24.4	1	0.4	S	NR	Δ (S-P) = 2.2°
		eS			51.3	999				
29 June		eP	19	58	47.9	2	0.9		T	
29 June		eP'$_1$	21	18	28.8	8	1.4		T	South Indian Ocean
		e			38.0		2.3			41.8 S 79.7 E
		eP'$_2$		20	51.8	7	1.3			h about 33 km
		e			53.9		1.5			0 = 20 58 16.6
		e		21	35.0		1.5			Δ = 175°
		eSKP			48.2		1.7			M= 4.8 (WMO)
		ePcPPKP		27	42.5		1.3			Weak surface waves, Love and
	LPE	eSS		45	05		22.0			Rayleigh type, on LP.
	LPE	e		46	13		21.0			Phase at 21 46 57 is travel time
	LPE	e(SS)			57		20.0			for 185°.
	LPE	e		48	45		20.0			
	LPN	e		49	28		34.0			
	LPE	eSSS		52	15		35.0			
	LPN	eSur	22	22	30					
	LPN	eSur		28	13					
29 June		eP	21	37	43.8	2	0.4		NR	Δ (S-P) = 2.5°
	N	eS		38	14.1		0.4			
	N	eSur			19.7		0.7			

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	T	Dir.	Type	Remarks
1962								
29 June		eP	22 39 54.2	181	2.1		T	Off coast of Mexico
		e	40 05.5		2.0			15.3 N 105.4 W
	BB	e(PP)	13		5.0			h about 25 km
		e	44.5		1.3			0 = 22 35 20.3
		e	41 06.8		1.8			Δ = 20°
		e	42 31.4		3.0			m = 5.1 (WMO)
		e	43 48		19.0			Strong surface waves, Love and
	LPE	eS	44 53					Rayleigh type, on all systems.
	LPE	eSur	45 32					
	LPE	eSur						
29 June		e(P')	22 54 02.1	2	1.2		T	Iran
		e	31.2		1.1			32.1 N 48.4 E
	LPE	eSur	23 24 25					h about 25 km
								0 = 22 35 40.3
								Δ = 106.5°
								Medium surface waves on LP.
29 June		eP	23 41 41.1	1	0.4		NR	Δ (S-P) = 3.2°
	E	eS	42 19.1		0.4			
30 June		eP	01 02 07.9	5	0.9	SSE	T	
		e	20.6		1.0			
		e	30.7		1.0			
30 June		eP	01 22 50.8	4	0.9	NW	T	Off coast of Honshu, Japan
		e	23 58.1		1.6			34.0 N 141.5 E
								h about 52 km
								0 = 01 09 47.7
								Δ = 91°
								m= 4.8 (WMO)
30 June		eP	08 22 26.8	3	1.2		T	
30 June		eP	09 16 24.2	3	1.0	SSE	R	
		e	38.0		0.5			
		e	46.2		0.5			
		e	54.6		0.5			
	E	eSur	20 07.5		0.5			
30 June		eP'	10 04 30.2	1	0.9		T	Iran
	LPE	eSur	47 10					27.6 N 57.7 E
								h about 25 km
								0 = 09 45 50.2
								Δ = 113°
								M = 4.4 (WMO)
								Weak surface waves on LP.
30 June		eP	14 09 45.8	8	1.1		T	
		e	55.0		0.9			
		e	10 00.7		1.7			
		e	08.3		1.1			
		e	16.9		0.8			

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	T	Dir.	Type	Remarks
1962								
30 June		eP	15 31 54.1	8	1.5		T	Medium surface waves on LP.
	LPN	eSur	51 35					
30 June		eP	18 05 50.0	7	0.7	NNW	T	
30 June		eP'	19 48 36.2	2	1.1		T	Near coast of Luzon, Philippine
		e	45.2		1.0			Islands
		e	49 05.9		1.0			16.5 N 122.0 E
		ePP	45.4		2.1			h about 40 km
		e	51 01.2		1.6			0 = 19 29 51.0
		eSKP	58.5		1.7			Δ = 117.5°
	LPN	e(SKKS)	57 34		23.0			M = 5.1 (WMO)
		ePKKP	59 13.2		1.5			Strong surface waves on LP.
	LPE	ePS	35		24.0			
	LPE	ePPS	20 01 48		23.0			
	LPN	eSS	05 48		24.0			
	LPE	ePSS	06 26		29.0			
	LPN	eSSS	09 15		23.0			
	LPE	eSKKKS	36		25.0			
	LPE	e(PKPPKS)	11 25		22.0			
	LPE	e(PKPSKS)	15 04		23.0			
	LPE	e	18 08		22.0			
	LPN	eSur	19 05					
	LPE	eSur	26 46					
30 June		eP	20 03 18.2	1	0.4		NR	Δ (S-P) = 1.8°
	N	eS	41.2		0.6			
30 June		eP	20 18 45.4	2	1.1		T	
		e	56.1		0.9			
		e	55.7		1.3			
30 June		eP	20 36 24.1	6	1.3	S	T	
		e	30.4		1.2			
		e	48.3		1.4			
30 June		eP	23 27 18.7	3	0.8		T	
30 June		eP	23 40 10.9	21	1.6		T	Medium surface waves on LP.
		e	18.0		1.5			
		e	27.2		1.2			
		e	37.0		1.0			
	LPN	eSur	55 25					
30 June		eP	23 49 47.5	1	0.3	E	NR	Δ (S-P) = 2.8°
		e	49.1		0.4			
	N	eS	50 22.2		0.4			
		eSur	33.4	999				

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REGISTRATION OF EARTHQUAKES AT WICHITA MOUNTAINS SEISMOLOGICAL OBSERVATORY FORT SILL, OKLAHOMA, U.S.A.

Operated under the Technical Supervision of the
Air Force Technical Applications Center (AFTAC)

by

The Geotechnical Corporation
Garland, Texas

Advanced Research Projects Agency (ARPA)
Department of Defense
United States Government

THE REGISTRATION OF EARTHQUAKES

AT THE

WICHITA MOUNTAINS SEISMOLOGICAL OBSERVATORY

STATION

STATION ABBREVIATION:	WMSO
STATION IDENTIFICATION ON FILM SEISMOGRAMS:	α
GEOGRAPHICAL LOCATION *: (Vault No. 6)	34° 43' 05.3" N. Latitude 98° 35' 20.7" W. Longitude
GEOCENTRIC LOCATION *: (Vault No. 6)	34° 32' 09.8" N. Latitude 98° 35' 20.7" W. Longitude
ALTITUDE (Meters) *: (Vault No. 6)	505 meters (1658 feet)
GEOLOGY:	The station is located on the Carlton (porphyritic) granophyre of the Wichita Mountains of Oklahoma.

Noise Level: The periods of the predominant microseisms at WMSO are 0.5 second and 6 seconds. Amplitude distribution curves for the 0.5-second microseisms are shown on page 2 as true ground motion in millimicrons and as trace amplitude in millimeters at the operating gain of 500K. Both curves are center-to-peak.

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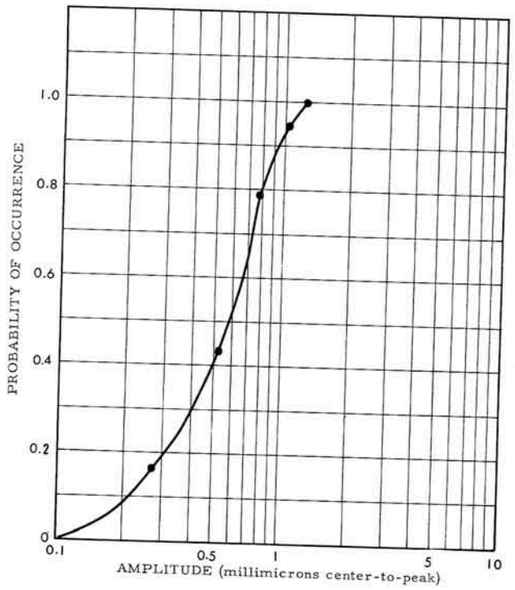
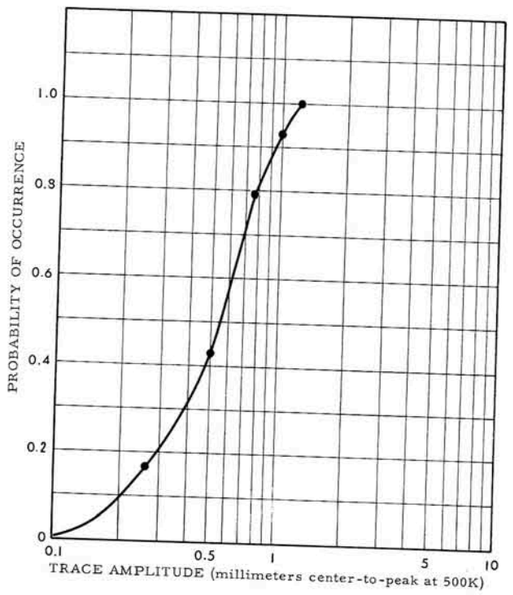
* The coordinates refer to the location of vault No. 6 which houses the 3-component groups of short-period and intermediate-band seismometers from which arrival times are determined.



Probability of predominant 0.5-sec microseisms occurring at or less than a given amplitude at unity magnification



Probability of predominant 0.5-sec microseisms occurring at or less than a given trace amplitude in millimeters at operating gain of 500K

SEISMOGRAPHS

	Ts	λs	Tg	λg	σ^2
SP Vertical Johnson-Matheson	1.25	0.50	0.32	0.64	0.014
SP Vertical Benioff	1.0	1.0	0.2	1.0	0.01
SP Horizontal Benioff	1.0	1.0	0.2	1.0	0.01
IB Vertical Melton	2.5	0.65	0.64	1.5	0.002
IB Horizontal Sprengnether	2.5	0.65	0.64	1.5	0.0005
BB Vertical Press-Ewing	12.5	0.4	0.64	9.0	0.0002
BB Horizontal Sprengnether	12.5	0.4	0.64	9.0	0.0004
LP Vertical Sprengnether	25.0	1.0	30	1.0	0.004
LP Horizontal Sprengnether	25.0	1.0	30	1.0	0.004

SP = Short Period

IB = Intermediate Band

BB = Broad Band

LP = Long Period

Ts = Free period of seismometer in secs.

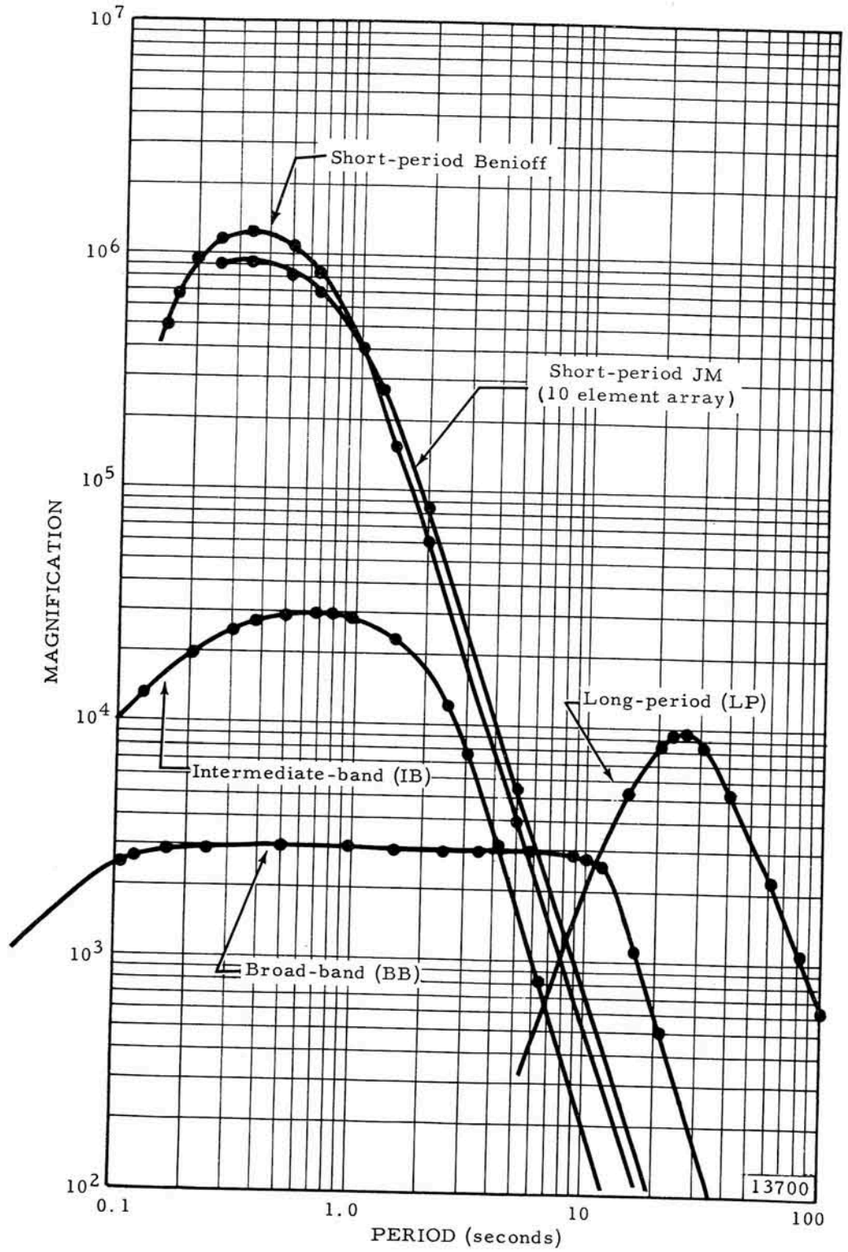
λs = Damping constant of seismometer

Tg = Free period of galvanometer in secs.

λg = Damping constant of galvanometer

σ^2 = Coupling coefficient

NOTE: Response curves are on page 4.



Response characteristics of seismographs

INTERPRETATION OF SYMBOLS

1. Earthquakes Listed

All local (L), near-regional (NR), regional (R), and distant earthquakes (T) are tabulated on the following pages.

2. System

In the column headed "Syst." (system), the seismograph (SP, IB, BB, or LP) and component (Z, N, or E) used to measure arrival time are designated. When no component designation appears, the phase is read from the vertical component. When neither system nor component designation appears, the phase is read from the SP vertical component.

3. Phase

a. An "i" (impetus) preceding a phase designates sudden beginning of the motion. (A designation of "i" in the case of initial P motion indicates a signal-to-noise ratio exceeding about 5/1.)

b. An "e" (emersio) designates gradual beginning.

c. An "i" or "e" alone designates an unidentified phase.

d. The ( ) (parenthesis marks) indicate uncertainty.

4. Time

a. Date and arrival time are given in Greenwich Civil Time (G.C.T.).

b. The arrival time is reported as the earliest time on Z, N, or E. Single Z rather than the array summation (Σ) is used for measuring arrival times on the SP seismographs.

5. Ground Motion

a. In the columns headed "A" and "T" are tabulated earth displacement in millimicrons and period in seconds, respectively. An amplitude of 999 indicates that a signal cannot be measured reliably. A "c" or "d" in the "A" column indicates compression or dilation, respectively, of the ground as indicated by the vertical component instrument.

The value of "A" for P phases is the maximum amplitude in the first ten seconds. All amplitudes are center-to-peak amplitudes.

b. Trace amplitudes are measured to the nearest 1/2 millimeter at X10 view.

6. Direction

In the column headed "Dir." (direction), the direction of the epicenter as viewed from WMSO is indicated. For teleseisms, direction is obtained only from P and Rayleigh waves and is listed opposite the phase from which it is obtained. For close events, direction may be obtained from P-wave step-out shown on the individual short-period vertical traces.

7. Type

Earthquakes are identified as either:

L	(local)	0-1.4°
NR	(near-regional)	1.4-4.6°
R	(regional)	6-16°
T	(teleseismic)	16-180°

8. Magnitude Column

Magnitudes of earthquakes, as calculated from WMSO seismograms, are reported for all events for which sufficient epicentral information is available, and for which adequate data are available from the WMSO records.

m - Unified Magnitude - calculated from maximum amplitude and predominant period of P wave.

M - Surface Wave Magnitude - calculated from maximum amplitudes of surface waves in the period range 17-23 seconds (reported when P was not recorded or cannot be measured reliably).

No station correction factor has been determined for WMSO to date.

9. Remarks Column

a. Magnitudes, as obtained from the U. S. Coast & Geodetic Survey Preliminary Determination of Epicenter cards, are reported for events recorded at WMSO. The designations for the U. S. Coast & Geodetic Survey stations which report magnitudes are:

B	-	Berkley
PL	-	Palomar
PS	-	Pasadena

b. Epicentral locations, time of origins, and depth of foci are obtained from the U. S. Coast & Geodetic Survey Preliminary Determination of Epicenters cards.

c. The nature of the surface waves is indicated subjectively.

d. Epicentral locations and distances reported by the station are accompanied by an indication of the phases used to determine epicentral distance, e.g., Δ (S-P) = 6°, Central Colorado.

e. Operational notes refer to operational difficulties that affect analysis of data.

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
01 Jul		eP	00 26 18.4	1	0.6		R			Strong surface waves, Love and Rayleigh type, on all systems
		e	25.2		0.6					
		e	31.6		1.0					
		e	46.1		1.0					
		e	27 46.6		0.7					
	LPE	eSur	30 13							
	N	eSur	17.6		3.3					
	LPE	eSur	52							
01 Jul		eP	02 02 18.0	4	1.2		T			Weak surface waves on LP
	LPN	eSur	22 14							
01 Jul	LPN	eSur	02 48 50				T		4.2	New Ireland region 3.8 S 150.4 E h about 24 km 0 = 01 56 15.6 Δ = 111° Weak surface waves on LP
01 Jul		eP	03 54 58.7	23	1.4	S	T			Strong surface waves, Love and Rayleigh type, on all systems
		e	55 16.7		1.0					
		e	33.9		1.1					
		e	47.1		1.4					
		e	56 02.7		1.5					
		e	22.7		0.8					
	LPE	e	58 16		17.0					
	LPN	eSur	04 00 14							
	E	eSur	25.7		3.0					
	BB	eSur	02 08		9.0					
01 Jul	LPN	eSur	04 34 55				T		4.2	Sinkiang Province, China 30.1 N 102.8 E h about 25 km 0 = 03 37 36.2 Δ = 110.5° Weak surface waves on LP
01 Jul		eP	05 20 55.9	4	0.7		T	5.2		Tonga Islands region 23.8 S 176.9 W h about 25 km 0 = 05 07 37.0 Δ = 94° Weak surface waves on LP
		e	21 06.5		0.8					
		e	15.9		1.1					
		e	36.1		1.0					
	LPN	eSur	52 49							
01 Jul		eP	05 53 02.9	2	0.9		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
01 Jul		eP	12 00 09.9	1	0.9		T	4.4		Off coast of Azerbaijan, S.S.R. 40.8 N 49.9 E h about 46 km 0 = 11 46 29.8 Δ = 99°
	LPN	eSur	41 17							Medium surface waves on LP
01 Jul		eP	13 47 39.6	8	1.4		T	4.6		Tonga Islands region 15.7 S 172.6 W h about 65 km 0 = 13 35 05.1 Δ = 86°
	LPN	eSur	14 20 21							Weak surface waves on LP
01 Jul		eP	20 46 21.2	3	1.1		T			
01 Jul		eP	21 41 19.9	4	1.5		T			
		e	43 03.9		1.0					
01 Jul	LPE	eSKS	21 48 33		22.0		T			Sinkiang Province, China 40.0 N 75.4 E h about 25 km 0 = 21 23 41.7 Δ = 105°
	LPE	ePS	51 35		22.0					
	LPE	eSSS	22 01 30		28.0				5.1	Strong surface waves on LP, medium on BB
	LPE	e	13 46		24.0					
	LPN	eSur	16 21							
	LPE	eSur	21 50							
02 Jul		eP	02 10 08.1	2	0.2		L			Δ (S-P) = 1.2°
	E	eS	24.2		0.5					
02 Jul		eP	08 46 18.8	15	1.7		T	5.2		Mag. = 6¼ (B) Santa Cruz Islands 10.3 S 165.9 E h about 50 km 0 = 08 32 37.9 Δ = 100.5° Strong surface waves, Love and Rayleigh type, on LP, weak on BB
		e	45.9		1.5					
		e	49 26.3		1.7					
		e	57.4		1.5					
		ePP	50 24.9		3.0					
		e	57.7		1.9					
		e	51 54.5		1.7					
	LPN	ePPP	52 43		15.0					
	LPN	eSKS	56 51		22.0					
	LPN	eS	57 38		22.0					
	LPN	e	58 41		21.0					
	LPN	ePS	59 32		24.0					
	LPN	ePPS	09 00 12		25.0					
	LPN	e	01 01		21.0					
	LPE	e	02 00		17.0					
		ePKKP	32.5		0.8					
	LPN	eSS	04 40		18.0					
	LPN	ePKKS	05 50		31.0					
	LPN	eSKKS	09 24		23.0					
		eP'P'	11 09.1		1.7					
	LPN	e	12 23		23.0					
	LPE	eSur	14 34							
	LPN	eSur	19 18							

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
02 Jul		eP	09 02 59.4	13	1.2		T			Possible phase of preceding event
		e	03 19.4		1.2					
		e	26.0		1.4					
		e	41.1		1.4					
		e	05 05.0		1.3		T			
02 Jul		eP	15 07 16.5	1	0.6		T			
02 Jul		eP'	16 01 15.5	1	0.8		T			Celebes region 0.2 S 123.1 E h about 136 km 0 = 15 42 22.1 Δ = 128°
		e	31.3		1.4					
		ePP	03 16.8		1.5					
		e	04 00.9		1.3					
		eSKP	52.9		1.0					
02 Jul		eP	19 17 30.9	2	0.8	S	T			
		e	35.2		0.4					
		e	47.4		1.2					
		e	18 08.4		1.0					
		e	22.4		1.1					
	N	eSur	21 28.4		1.0					
02 Jul		eP	20 00 45.9	2	0.9		T			
02 Jul		eP	22 24 28.1	2	0.4	S	NR			Δ (S-P) = 2.2°
	E	eS	55.3		0.4					
03 Jul		eP	00 18 02.6	1	0.3	SE	NR			Δ (S-P) = 1.6° Quarry blast, 6,927 lbs., by Gifford Hill Co. near Chico, Texas
		e	12.8		0.3					
		eS	23.3	999						
03 Jul		eP	02 45 48.1	2	0.8		T			
03 Jul		eP	03 58 41.9	3	1.0		T			
03 Jul		eP	06 36 27.5	9	1.0		T		5.0	Tonga Islands region 17.5 S 173.2 W h about 25 km 0 = 06 23 36.0 Δ = 87.5° Weak surface waves on LP
		e	44.6		1.2					
		e	37 06.3		1.3					
	LPN	eSur	07 05 51							
03 Jul		eP	06 50 24.9	4	1.4		T			
		e	39.7		1.4					
03 Jul		eP	07 58 06.6	4	1.4		T			
03 Jul		eP	08 33 58.5	1	0.8		T			
		e	34 15.3		0.7					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
03 Jul		eP	08 47 16.7	4	1.1		T	4.5		Tonga Islands region
		e	28.4		1.1					17.2 S 170.8 W
										h about 25 km
										0 = 08 34 28.5
										Δ = 86.5°
03 Jul		eP	09 08 10.5	3	0.9	S	T			
		e	34.9		1.1					
03 Jul		eP	13 28 54.1	1	0.8		T			
03 Jul		eP	14 07 36.0	7	0.5		L			Δ (S-P) = less than 0.1°
		eS	38.6	999						
03 Jul		eP	18 17 18.5	3	1.1		T			
03 Jul		eP	18 27 10.8	19	2.1		T	5.3		600 miles west of
		e	26.3		2.1					Macquarie Islands
		e	38.6		1.7					56.3 S 142.5 W
		e	46.4		1.2					h about 25 km
	LPE	eS	38 46		25.0					0 = 18 13 35.6
										Δ = 98°
										Epicentral location indicates South Pacific Ocean.
03 Jul		eP	18 35 18.8	24	1.4		T	5.5		South Pacific Ocean
		e	27.1		1.2					54.6 S 132.5 W
		e	30.5		1.2					h about 25 km
		e	42.0		1.3					0 = 18 22 06.3
		e	50.7		1.3					Δ = 94°
		e	36 02.8		1.5					Strong surface waves,
		e	20.0		1.6					Love and Rayleigh type,
		e	38.9		1.8					on LP, weak on BB.
		e	57.2		1.4					
		e	37 39.8		1.7					
		e	53.0		1.8					
		e	38 12.8		1.6					
		ePP	39 14.7		2.2					
	LPE	eSKS	45 34		22.0					
	LPE	eS	46 32		24.0					
	LPE	ePS	48 02		23.0					
	LPE	ePPS	51		23.0					
	LP	e	49 20		29.0					
	LP	e	51 10		16.0					
	LPE	e	53		19.0					
	LPE	eSS	52 47		26.0					
	LPE	eSSS	56 21		42.0					
	LPE	eSKKS	59 03		29.0					
	LPE	eSur	49							
	LP	e(PPP)	19 00 57		25.0					
	LPE	eSur	04 09							
03 Jul		eP	19 52 19.7	3	1.0	ESE	T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
03 Jul		eP	20 08 38.1	2	0.4		NR			Δ (S-P) = 3.1°
	N	eS	09 15.8		0.5					
03 Jul		eP	21 15 24.5	3	0.4	SW	NR			Δ (S-P) = 2.6°
	E	eS	56.0		0.5					
03 Jul		eP	21 28 02.8	36	1.7		T	5.2		Mid-Atlantic Ocean
		e	08.4		1.3					4.3 N 31.6 W
	LPE	ePS	37 39.		22.0					h about 23 km
	LPE	e	43 26		19.0					0 = 21 16 59.3
	LP	eSur	47 37							Δ = 68.5°
		eP'P'	56 13.5		1.6					Medium surface waves on LP
03 Jul		eP	21 50 36.9	1	0.4	S	NR			Δ (S-P) = 2.2°
	E	eS	51 04.6		0.4					
03 Jul		eP	22 38 29.9	2	0.4	NW	NR			Δ (S-P) = 2.4°
	N	eS	59.3		0.6					
04 Jul		eP	01 59 19.4	2	1.0		T			
		e	46.4		1.0					
04 Jul		eP	07 12 36.0	9	1.3		T	4.1		Off coast of Guatemala
		e	40.9		0.6					14.3 N 93.2 W
		e	44.5		1.2					h about 25 km
		e	13 09.3		0.9					0 = 07 07 53.7
		e	22.9		0.9					Δ = 23.5°
		e	34.3		0.9					
		e	56.3		0.9					
	N	eSur	16 19.5		1.0					
04 Jul		eP	08 06 11.8	14	1.2		T	4.7		500 miles south of
		e	16.2		1.6					Greenland
		e	21.4		1.4					54.5 N 36.7 W
		ePP	08 06.4		1.8					h about 25 km
	LPN	eS	13 09		15.0					0 = 07 57 45.3
	LPN	eSur	19 39							Δ = 46.5°
	LPN	eSur	24 41							Strong surface waves, Love and Rayleigh type, on LP. Weak on BB.
04 Jul		eP	08 06 52.9	15	1.3	NE	T			Possible main shock of
		e	58.4		1.3					preceding event
		e	07 20.2		1.2					
		e	32.8		1.3					
		e	42.3		1.7					
		e	08 23.5		1.3					
		e(PP)	42.7		1.3					
	LPN	eS	13 50		16.0					
04 Jul		eP	08 15 39.1	3	1.2		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
04 Jul		eP	08 52 00.6	3	1.1	NE	T			Aftershock of Greenland event
		e	05.3		1.3					
		e	28.6		1.3					
	LPN	eS	59 06		15.0					Medium surface waves on LP
	LPN	eSur	09 07 12							
	LPN	eSur	09 00							
04 Jul		eP	09 00 45.8	5	1.3		T			Medium surface waves on LP
	LPN	eSur	17 10							
04 Jul		eP	09 10 58.9	20	1.1	SSE	T			
	E	eSur	14 41.3		0.9					
04 Jul	LPN	eSur	09 25 49				T			Medium surface waves on LP
	LPN	eSur	28 32							
04 Jul		eP	09 52 50.4	3	1.0		T			Medium surface waves on LP
	LPN	eSur	10 10 12							
	LPN	eSur	13 32							
04 Jul		eP	09 55 04.2	6	1.2	NNW	T			
		e	19.0		1.1					
04 Jul		eP	11 56 57.3	5	1.2		T			
04 Jul		eP	13 08 11.8	14	1.3		T	4.8		Off south coast of Chile
		e	41.8		1.2					44.0 S 79.2 W
										h about 25 km
										0 = 12 55 52.9
										$\Delta = 82^{o}$
04 Jul		eP	14 31 46.7	2	0.9		T			
04 Jul		eP	17 11 10.6	5	1.3		T			
		e	30.1		0.7					
05 Jul		eP	05 46 06.4	5	1.1		T			
		e	16.0		1.5					
	LPN	e	53 09		16.0					Medium surface waves on LP
	LPN	eSur	06 02 43							
05 Jul		eP	06 43 51.5	5	1.2		T			
		e	44 19.8		0.7					
		e	38.9		1.0					
05 Jul		eP	07 10 56.1	9	1.5		T			Weak surface waves on LP
	LPN	eSur	27 22							
05 Jul	LPN	eSur	08 20 10				T			Weak surface waves on LP
05 Jul		eP	09 11 20.9	4	1.4		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
05 Jul		eP	13 45 31.8	8	1.2		T			
		e	55.1		1.0					
05 Jul		eP	14 20 52.7	2	0.8		T			
05 Jul		eP	14 54 32.3	1	0.8		R			
		e	42.5		1.0					
		e	55.6		1.1					
	N	eSur	59 13.8		1.0					
05 Jul		eP	15 05 20.6	5	0.7	E	T			Medium surface waves on LP
		e	27.6		1.2					
		e	37.3		1.3					
	LPN	e	12 25		16.0					
	LPN	e(Sur)	20 05							
	LPN	eSur	21 04							
05 Jul		eP	15 13 11.9	2	1.1		T			
		e	29.4		1.2					
		e	35.2		1.1					
05 Jul		eP	16 26 10.6	4	0.9		T			Weak surface waves on LP
		e	16.2		1.0	E				
		e	59.2		1.0					
	LP	eSur	42 10							
05 Jul		eP	17 54 14.8	6	1.1		T	5.0		South of Honshu, Japan
		e	24.5		1.5					30.9 N 141.4 E
		e	57.4		1.4					h about 23 km
	LPE	eSKS	18 04 46		18.0					0 = 17 40 55.3
	LPN	eS	05 20		20.0					$\Delta = 93.5^{o}$
	LPE	ePS	06 32		20.0					Strong surface waves,
	LPE	ePPS	07 17		19.0					Love and Rayleigh type,
	LPE	eSS	11 46		19.0					on LP, weak on BB.
	LPE	e(SSS)	14 31		30.0					
	LPN	e	19 27		21.0					
	LPN	eSur	21 20							
	LPE	eSur	26 57							
05 Jul		eP	19 34 50.4	2	0.3	SSE	NR			Δ (S-P) = 1.6^{o}
		eS	35 12.0	999						Quarry blast, 6,347 lbs., by Gifford Hill Co. near Chico, Texas
05 Jul		eP	20 18 47.8	4	1.0		T			
		e	21 43.4		1.4					
		e	26 43.5		1.2					
05 Jul		eP	20 27 20.7	2	0.4		L			Δ (S-P) = 0.9^{o}
	E	eS	33.4		0.4					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
05 Jul		eP	20 52 39.8	8	1.2		T	4.4		Off coast of Sinaloa, Mexico
		e	48.2		1.2					23.5 N 107.8 W
		e	53 01.6		1.2					h about 25 km
		e	38.2		1.6					0 = 20 49 23.8
		e	50.0		2.1					Δ = 13.5°
		e	54 37.4		1.5					Strong surface waves,
	LPE	eS	55 58.0		20.0					Love and Rayleigh type,
	LPE	eSur	56 56							on LP, weak on SP.
	LPN	eSur	57 48							
05 Jul		eP	21 41 18.1	2	0.4		NR			Δ (S-P) = 4.1°
		e	26.4		0.3					
	E	eS	42 06.6		0.4					
		eSur	23.6	999						
05 Jul		eP	23 34 41.2	2	0.4		NR			Δ (S-P) = 1.7°
		e	46.9		0.3					Quarry blast, 6,000 lbs.
		eS	35 02.8	999						by Gifford Hill Co. near
										Chico, Texas
06 Jul		eP	00 03 03.4	2	0.4	E	NR			Δ (S-P) = 1.7°
		e	13.1		0.3					
		eS	24.9	999						
06 Jul		eP	01 28 42.7	3	1.0		T	4.6		South of Honshu, Japan
		e	51.2		1.5					32.6 N 139.7 E
										h about 62 km
										0 = 01 15 34.8
										Δ = 93°
06 Jul		eP	02 15 14.2	7	0.8	SSE	T			
		e	28.4		0.9					
		e	49.1		0.8					
		e	16 33.8		0.9					
	LPN	e	32 22		22.0					
06 Jul		eP	02 22 33.3	8	0.9	NNW	T			Phase at 02 32 32 is
		e	50.6		1.1					possible phase of
		e	26 02.6		1.5					following event.
	LPN	e(Sur)	32 32							
06 Jul		eP'	02 31 17.4	14	1.6		T			Arabian Sea, East of
		e	23.0		1.2					Socotra
		e	49.0		0.9					13.3 N 58.0 E
		e	32 16.0		1.0					h about 30 km
		e	36.8		1.8					0 = 02 12 19.9
		e	47.6		1.0					Δ = 127°
		ePP	33 21.4		1.8					Strong surface waves
		e	34.1		1.3					on LP
		e	34 29.4		2.5					
		eSKP	53.4		1.7					
		e	35 56.1		1.8					

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DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
	LPN	e(PPS)	45 20		16.0					
	LPN	e	47 03		21.0					
	LPN	e	49 43		25.0					
	LPE	eSS	50 47		22.0					
	LPN	eSSS	55 26		20.0					
	LPN	e	03 01 42		20.0					
	LPE	eSur	07 55							
	LPE	e	11 52		22.0					
	LPN	e(Sur)	14 32							
	LPE	eSur	19 15							
	LP	eSur	26 22						5.5	
06 Jul		eP	03 56 41.0	3	1.0		T			
06 Jul	LPE	eSur	04 46 00				T			Weak surface waves on LP
06 Jul		eP	09 29 04.7	23	0.8		T	5.5		Mag. = 5.0 (PL)
		e	14.4		1.4					Ionian Sea
		e	28.6		1.6					38.0 N 20.2 E
		e	51.3		1.6					h about 30 km
		e	30 25.0		1.5					0 = 09 16 15.0
		e	31 05.5		2.0					Δ = 87.5°
		e	32.9		2.3					Strong surface waves,
		e	32 01.4		1.8					Love and Rayleigh type,
		e	27.4		1.6					on LP, Weak surface
		e(PP)	45.4		1.8					waves on BB.
		e	33 02.8		1.6					
		e	57.0		1.5					
		e	34 56.3		2.0					
	LPN	eScS	39 39		14.0					
	LPE	eS	53		19.0					
	LPN	ePS	40 52		21.0					
	LPN	e	41 47		25.0					
	LPE	eSS	45 01		25.0					
	LPE	e	46 44		16.0					
		ePKKP	48.3		0.9					
	LPN	e	47 12		20.0					
	LPN	eSSS	49 16		29.0					
	LPE	e	51 35		20.0					
	LPE	e	52 32		25.0					
	LPE	eSur	55 05							
	LPE	eSur	59 12							
06 Jul		eP	09 41 51.1	3	1.0		T			
06 Jul		eP	09 49 32.8	4	1.1		T			
06 Jul		eP	12 16 26.7	5	1.3		T			
06 Jul		eP	12 24 48.7	5	0.9		T	4.6		Tonga Islands region
		e	25 09.6		1.2					16.5 S 174.1 W
		e	21.7		1.1					h about 27 km
		e	41.2		1.3					0 = 12 12 01.1
										Δ = 87.5°

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
06 Jul		eP	13 38 31.1	5	1.3		T			
06 Jul		eP	13 41 13.0	2	0.8		T	4.7		Kermadec Islands region
		e	26.8		0.7					25.0 S 176.7 W
										h about 25 km
										0 = 13 27 52.1
										Δ = 94°
06 Jul		eP	14 32 24.2	5	1.0	N	T			
		e	32.3		0.7					
06 Jul		eP	16 01 20.8	3	1.2		T			
06 Jul		eP	16 07 17.1	14	1.4		T	5.1		Ionian Sea
		e	30.2		1.3					37.2 N 19.4 E
		e	08 04.9		1.1					h about 25 km
										0 = 15 54 20.5
										Δ = 88.5°
06 Jul		eP	17 26 40.0	2	0.4		NR			Δ (S-P) = 1.8°
		eS	27 02.6	999						
06 Jul		eP	18 05 50.4	5	0.4	S	NR			Δ (S-P) = 2.2°
		eS	06 17.2	999						
06 Jul		eP	18 14 21.6	4	1.0	S	T			
06 Jul		eP	18 48 47.8	6	0.8		T	4.5		Kenai Peninsula, Alaska
		e	49 18.0		0.8					60.3 N 152.1 W
										h about 67 km
										0 = 18 40 59.4
										Δ = 42.5°
06 Jul		eP	21 31 56.4	2	0.3		NR			Δ (S-P) = 1.7°
		eS	32 18.0	999						
06 Jul	N	eP	21 58 36.2	2	0.5		NR			Δ (S-P) = 1.8°
	N	eS	59 00.2		0.6					
06 Jul		eP	23 19 33.3	41	1.5		T	6.3		Hindu Kush
		e	20 25.1		0.9					36.6 N 70.4 E
		e(pP)	28.3		1.3					h about 203 km
		e	42.1		1.3					0 = 23 05 32.2
	LP	e	55		17.0					Δ = 107.5°
		e	21 29.0		1.0					Strong surface waves
		e	22 11.9		1.1					on LP and BB
	BB	e	34		2.0					
		e	45.1		1.0					
		e	23 10.2		1.3					
		e	33.0		1.3					
		ePP	58.3		1.8					
		e	24 31.1		2.3					
	LP	e	56		12.0					
		e	25 01.3		1.6					

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DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
		e	26 13.2		1.4					(continued from preceding page)
		e	27.4		1.1					
	LP	e	30		12.0					
		eSKP	27 06.4		1.6					
		e	28.8		3.0					
		e	28 07.3		1.7					
		e	43.8		1.9					
	N	eSKS	29 48.5		2.2					
	E	eSKKS	30 38.7		2.0					
	E	e(S)	31 02.4		1.9					
	LPE	eS	27		20.0					
	E	e	32 11.5		1.6					
	LPE	e	25		20.0					
		e	32.8		1.8					
		eSP	33 06.9		2.8					
		ePS	34.4		7.2					
	N	ePPS	34 14.1		6.2					
		$ePKKP_1$	41.7		0.8					
		$ePKKP_2$	35 03.1		1.4					
	LPE	e	43		27.0					
		e	44.4		1.1					
		e	56.1		1.3					
		e	36 36.7		1.4					
		e	37 04.2		1.0					
		eSKKP	38 09.2		1.7					
	E	ePKKS	38.2		2.2					
	LPE	eSS	39 11		26.0					
		e	47.2		3.9					
		e	40 01.2		1.7					
	N	e	45 18.1		1.5					
	LPE	eSKKKS	52		20.0					
	LPE	e	47 14		20.0					
	LPE	eSur	55 03							
07 Jul	BB	eSur	00 00 38							
07 Jul		eP	00 50 09.1	2	0.4		NR			Δ (S-P) = 1.9°
	N	eS	33.1		0.4					
07 Jul		eP	01 16 47.7	2	0.3		NR			Δ (S-P) = 3.1°
	E	eS	17 25.6		0.9					
07 Jul		eP	02 05 08.8	9	1.5		T			
07 Jul		eP	06 22 47.8	1296	1.7		T	6.7		Rat Islands, Aleutian Is.
		e	23 02.3		1.3					51.3 N 178.6 E
		ePcP	36.2		1.2					h about 60 km
		e	24 11.6		1.7					0 = 06 12 48.9
		ePP	52.9		2.0					Δ = 49.5°
		e	26 21.3		1.7					Strong surface waves,
		e	48.7		2.0					Love and Rayleigh type,
		e	27 11.5		2.0					on LP and BB
		e	42.5		1.9					

(continued on following page)

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										(continued from preceding page)
		e	28 10.5		1.9					
		e	29 16.1		1.5					
		e	51.3		1.1					
	LPN	eS	30 51		18.0					
	N	e	31 07.9		2.5					
	N	e(PS)	13.1		3.0					
	LPE	e	52		12.0					
		e	58.2		1.9					
	LPN	e	32 10		19.0					
		e	28.3		1.8					
	LP	eScS	40		22.0					
	N	e	54.3		2.6					
		e	34 38.3		1.3					
		e	52.7		1.3					
	LPE	eSS	35 05		27.0					
		e	42.4		1.3					
		e	36 27.7		1.3					
		e	37 16.1		1.4					
	LPN	e	18		27.0					
	LPN	eSur	40 26							
	LPE	eSur	43 54							
		eP'P'	52 12.6		2.3					
		e	21.9		1.7					
		e	34.8		1.7					
		e	57.3		1.6					
07 Jul		eP	06 45 26.6	3	0.8	SE	T			
		e	41.5		1.0					
07 Jul		eP	06 51 48.4	13	1.7		T			
		e	52 06.2		1.7					
07 Jul		eP	07 00 36.2	3	0.7	SE	T			
		e	50.8		0.8					
07 Jul		eP	07 09 11.7	2	1.3		T			
		e	26.0		0.7					
		e	10 09.3		0.9					
		e	19.7		0.6					
07 Jul		eP	07 18 10.7	2	1.1		T			
07 Jul		eP	07 24 34.1	9	1.2		T	4.8		Rat Islands, Aleutian Is. 51.3 N 178.8 E h about 60 km 0 = 07 14 34.6 Δ = 59.5°
		e	45.8		1.0					
		e	25 14.7		1.5					
07 Jul		eP	10 07 02.1	1	0.6		T			
07 Jul		eP	10 29 38.8	7	1.0		T			
		e	49.8		1.0					

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
07 Jul		eP'	12 06 25.6	25	1.8		T			Banda Sea 7.3 S 128.3 E h about 30 km 0 = 11 47 19.4 Δ = 128.5°
		e	43.2		1.4					
		e	07 34.1		1.4					
		e(PP)	08 41.1		1.4					
		eSKP	09 42.2		1.2					
	LPE	eSur	52 37						4.4	Weak surface waves, on LP and possibly separate.
07 Jul		eP	12 33 58.1	5	1.2		T			
07 Jul		eP	13 00 01.2	2	0.9		T	4.3		Ionian Sea 36.8 N 18.5 E h about 25 km 0 = 12 46 58.7 Δ = 88°
07 Jul		eP	21 32 12.8	8	0.8		T	4.8		Near south coast of Kamchatka 51.9 N 158.6 E h about 33 km 0 = 21 20 57.7 Δ = 71°
		e	24.2		0.8					
		e	28.2		0.6					
		e	30.7		1.3					
08 Jul		eP	01 11 51.4	6	1.3		T			
08 Jul		eP	02 35 09.9	13	1.7		T	4.7		Near coast of southern Peru 14.4 S 75.5 W h about 88 km 0 = 02 25 55.8 Δ = 53.5°
		e	20.9		1.1					
		ePcP	36 15.9		0.9					
		e	29.1		0.8					
08 Jul		eP	03 32 02.8	86	1.2		T	5.7		Rat Islands, Aleutian Is. 51.5 N 178.5 E h about 60 km 0 = 03 22 03.8 Δ = 59.5° Strong surface waves, Rayleigh type, on LP.
		e	31.4		1.0					
		e	33 32.5		1.4					
		e(PP)	34 02.2		1.4					
		e	37 30.3		1.5					
	LPE	eS	40 15		19.0					
	LPN	ePS	34		21.0					
	LPE	eScS	41 34		19.0					
	LPE	eSS	44 31		25.0					
	LPE	eSSS	46 37		33.0					
	LPN	eSur	49 47							
	LPE	eSur	52 11							
		eP'P'	04 01 34.6		1.3					
08 Jul		eP	04 18 20.6	1	1.0		T	5.1		Sandwich Islands 55.5 S 30.1 W h about 25 km 0 = 04 03 56.8 Δ = 107.5°
		e	38.6		0.9					
		ePP	22 38.4		1.7					
		e	23 19.1		1.2					
		ePKKP	33 50.0		1.2					

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Magnitude m	M	Remarks
1962												
08 Jul		eP	05	37	06.1	3	0.9		T	4.0		Ecuador
		e			28.5		0.5					2.6 S 78.0 W
		e			40.0		0.8					h about 21 km
		ePcP		38	59.1		0.8					0 = 05 29 12.0
		eP'P'	06	09	23.6		1.2					Δ = 41.5°
08 Jul		eP	07	41	03.5	13	1.3		T	4.9		Mid-Atlantic Ocean
		e			25.6		1.9					8.1 N 38.0 W
		e			53.5		1.6					h about 25 km
		ePP		43	14.5		1.6					0 = 07 30 49.7
	LPE	eS		49	28		13.0					Δ = 60.5°
	LPE	ePS			52		20.0					Strong surface waves,
	LPE	eSS		53	41		20.0					Love and Rayleigh type,
	LPE	eSSS		56	24		22.0					on LP, weak on BB.
	LPN	eSur		57	16							
	LPE	eSur	08	00	58							
		eP'P'		10	24.7		1.8					
08 Jul		eP	12	14	55.2	1	0.7		T	4.3		Fiji Islands
		epP		17	03.1		1.5					22.0 S 179.8 W
												h about 600 km
												0 = 12 02 33.2
												Δ = 95°
08 Jul		eP	13	04	03.4	10	1.1	S	T			[Δ (S-P) = 18.5°]
		e			12.8		0.9					Strong surface waves,
		e			40.1		1.2					Love and Rayleigh type,
		e			50.9		0.9					on all systems
		e		05	48.9		1.2					
		e		06	20.6		1.3					
	LPE	e(S)		07	25		18.0					
		e		08	20.8		1.8					
	E	eSur		09	38.7		4.8					
	BB	eSur		11	00							
08 Jul		eP	14	06	38.8	4	1.3		T			
		e		07	15.3		0.8					
08 Jul		eP	14	07	37.8	10	1.5		T			
08 Jul		eP	16	00	55.3	4	1.3		T			
08 Jul		eP	23	06	06.5	2	1.0		T			
		e			37.2		1.0					
08 Jul		eP	23	08	16.3	1	1.0		T	4.5		Kermadec Islands region
												28.1 S 176.5 W
												h about 25 km
												0 = 22 54 44.7
												Δ = 97°

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Magnitude m	M	Remarks
1962												
08 Jul		eP	23	32	56.2	2	0.6		T	4.4		Near east coast of
	LPN	eSur		55	16							Kamchatka
												54.0 N 160.5 E
												h about 22 km
												0 = 23 21 51.5
												Δ = 68.5°
												Weak surface on LP
09 Jul		eP	01	43	00.6	3	0.9		T			
09 Jul		eP	01	43	05.7	3	0.6	SE	R			
	N	eSur		46	06.7		0.7					
09 Jul		eP	02	48	40.9	4	0.7	N	T			
09 Jul		eP	07	05	23.8	2	1.1		R			
		e		06	29.1		1.5					
	E	eSur		09	26.8		1.3					
09 Jul		eP	09	59	06.4	3	0.7	NW	T			
09 Jul		eP'	10	18	05.4	1	0.6		T			Macquarie Islands region
		e			20.6		0.7					56.0 S 158.1 E
												h about 25 km
												0 = 09 59 07.8
												Δ = 129.5°
09 Jul		eP	14	05	26.7	3	1.1		T			
09 Jul		eP	14	41	29.1	1	1.0		T			
		e			53.2		1.7					
09 Jul	LPN	eSur	15	24	35				T			Weak surface waves
												on LP
09 Jul		eP	16	58	02.1	2	0.8		T			
09 Jul		eP	18	02	54.4	1	0.3		NR			Δ (S-P) = 1.7°
		eS		03	16.4	999						
09 Jul		eP	18	07	31.8	2	0.3		NR			Δ (S-P) = 1.6°
		e			41.2		0.4					Quarry blast, 2,495 lbs.,
		eS			52.9	999						by Gifford Hill Co. near
												Chico, Texas
09 Jul		eP	21	43	08.7	2	0.4		NR			Δ (S-P) = 2.9°
	E	eS			44.9		0.4					
09 Jul		eP	23	23	05.1	1	0.4		NR			Δ (S-P) = 1.6°
	E	eS			25.8		0.4					
09 Jul		eP	23	39	18.8	999	0.4		NR			Δ (S-P) = 1.6°
		e			28.4	999						Phase at 23 40 39.9 is
		eS		40	39.9	999						possible new event.
												Quarry blast, 5,642 lbs.,
												by Gifford Hill Co. near
												Chico, Texas

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
10 Jul		eP	00 56 20.5	2	0.9		T			
		e	34.9		0.7					
		e	52.9		1.0					
10 Jul		eP	04 33 00.6	24	1.5		T		5.1	Off coast of central Chile 39.1 S 75.4 W h about 25 km 0 = 04 21 12.0 Δ = 77°
		e	08.6		1.2					
10 Jul		eP	05 24 22.9	5	1.2		T		4.5	Fiji Islands 20.8 S 178.7 W h about 584 km 0 = 05 12 06.4 Δ = 93.5°
		epP	26 34.8		1.5					
10 Jul		eP	10 18 47.7	2	1.0		T		4.3	Aegean Sea 38.4 N 25.9 E h about 25 km 0 = 10 06 02.9 Δ = 90°
		e	19 02.2		1.8					
10 Jul		eP	13 08 44.1	3	0.7		T		4.4	Tonga Islands 22.3 S 177.2 W h about 333 km 0 = 12 56 03.8 Δ = 93°
		e	09 36.3		0.8					
10 Jul		eP	16 43 36.7	7	1.5		T			
10 Jul		eP	17 52 55.4	2	0.3		L			Δ (S-P) = less than 0.1°
		eS	58.2	999						
10 Jul		eP	18 12 30.9	2	0.3		NR			Δ (S-P) = 1.7° Quarry blast, 3,007 lbs. by Gifford Hill Co. near Chico, Texas.
		eS	52.8	999						
10 Jul		eP	19 30 01.8	20	1.0		T		4.9	Central Peru 6.5 S 72.2 W h about 46 km 0 = 19 21 36.9 Δ = 45.5°
		e	10.0		1.4					
		e	31 21.5		1.2					
		e(PcP)	32.1		1.1					
		ePP	45.2		1.3					
		e	32 31.9		1.1					
10 Jul	E	eP	21 48 23.8	2	0.5	SW	NR			Δ (S-P) = 1.6°
		eS	54.9		0.7					
10 Jul	N	eP	23 27 29.7	2	0.4		NR			Δ (S-P) = 2.9°
		eS	28 06.1		0.4					
10 Jul		eP	23 38 43.1	2	0.9		T			
		e	39 00.1		1.1					
		e	12.9		1.3					
		e	20.6		1.3					
		e(Sur)	42 45.8		1.0					
		e	43 36.4		1.3					

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
11 Jul		eP'	01 22 36.6	3	1.1		T			Afghanistan 31.8 N 66.9 E h about 25 km 0 = 01 03 59.3 Δ = 113°
		ePP	23 22.4		1.9					
		e	24 11.1		1.1					
	LP	e	47 26		22.0					
	LPN	e	55 37		23.0					
	LPE	eSur	02 03 54						5.0	Strong surface waves on LP
11 Jul		eP	06 16 09.8	7	1.5		T			
11 Jul		eP	07 28 29.7	15	0.8		T	4.9		Kamchatka 53.2 N 159.6 E h about 69 km 0 = 07 17 27.4 Δ = 69°
		e	41.8		0.8					
		e	29 20.4		0.9					
		eP'P'	07 56 28.7		1.4					
		eP'P'	40.0		1.3					
11 Jul		eP	08 41 26.6	7	1.5		T			
11 Jul		eP	09 06 53.1	13	1.5		T			
		e	58.1		0.9					
		e	07 03.9		1.2					
		e	20.0		1.0					
11 Jul		eP	10 52 51.7	3	1.1		T			
11 Jul		eP	11 43 42.1	1	1.0		T			
		e	48.3		0.8	S				
		e	56.1		0.9					
11 Jul		eP	12 10 10.0	2	1.0		T			
		e	18.1		0.9					
		e	17 11.8		1.0					
11 Jul		eP	12 38 22.0	2	1.0		T			
		e	31.3		0.8					
11 Jul		eP'	12 59 21.0	9	1.4		T			Panay, Philippine Islands 11.9 N 122.1 E h about 25 km 0 = 12 40 30.7 Δ = 120° Strong surface waves, Love and Rayleigh type, on LP.
		e	42.4		1.4					
		e	13 00 08.9		1.6					
		ePP	41.2		2.5					
		e	01 30.0		1.7					
		e	52.2		1.8					
		e	02 07.5		1.1					
		e	34.8		1.5					
		e(SKP)	52.4		1.3					
		e	04 43.8		1.2					
		e	05 44.0		1.5					
		ePKKP	09 36.0		1.0					
		e	49.1		1.7					
	LPE	ePS	10 38		19.0					
		e	12 12.6		1.4					
		e	33.4		1.3					
	LPE	e	37		19.0					
	LPE	ePKKS	13 07		19.0					

(continued on following page)

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
		eScSP	21.9		1.7					(continued from preceding page)
	LPE	ePKKS	36		15.0					
	LPE	e	16 18		20.0					
	LPN	eSS	17 00		24.0					
	LPN	e	18 33		20.0					
	LPE	e	20 27		18.0					
	LPN	eSSS	21 47		31.0					
	LPN	e	24 54		25.0					
	LP	eSur	30 45							
	LP	eSur	37 46						5.0	
11 Jul		eP	14 05 20.1	8	0.9		T	4.6		Colombia
		e	25.9		0.8					6.5 N 73.2 W
		e	56.0		0.9					h about 115 km
		e	06 03.3		0.8					0 = 13 58 24.5
		e	16.2		0.8					Δ = 37°
		ePP	37.5		1.1					
		e	08 31.7		1.2					
11 Jul		eP	14 13 46.9	2	1.0		T			
11 Jul		eP	15 47 51.5	3	1.1		T			
11 Jul		eP	16 11 40.0	2	0.4		NR			Δ (S-P) = 1.9°
	N	eS	12 04.5		0.4					
11 Jul		eP	17 12 23.0	3	0.5	ESE	NR			Δ (S-P) = 1.5°
	E	eS	42.7		0.4					
11 Jul		eP	18 03 30.4	3	0.3	SE	NR			Δ (S-P) = 1.7°
		e	40.1		0.4					Quarry blast, 6,427 lbs.
		eS	52.0	999						by Gifford Hill Co. near
										Chico, Texas
11 Jul		eP	19 30 37.2	2	0.4		NR			Δ (S-P) = 1.7°
	E	eS	59.6		0.4					
11 Jul		eP	20 34 46.6	2	0.8		T			-
12 Jul		eP	00 04 04.2	1	0.4		NR			Δ (S-P) = 2.3°
	E	eS	33.2		0.4					
12 Jul		eP	01 53 13.9	2	1.0		T	4.1		Tonga Islands region
										19.9 S 177.5 W
										h about 321 km
										0 = 01 40 37.9
										Δ = 92°
12 Jul		eP	07 03 07.8	2	0.8		T			
12 Jul		eP	09 45 34.3	6	0.9		T	4.7		Fiji Islands region
		e(PP)	49 21.4		1.2					17.9 S 178.7 W
		ePKKP	10 02 48.0		0.6					h about 545 km
										0 = 09 33 21.8
										Δ = 92°

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
12 Jul	LPE	eSur	12 39 00				T			Weak surface waves on LP
12 Jul		eP	13 05 13.3	2	1.0		T			
12 Jul		eP	13 59 40.8	8	1.5		T			
12 Jul		eP	16 58 10.0	13	0.6	E	NR			Δ (S-P) = 1.6°
		e	18.9		0.4					
		eS	30.9	999						
12 Jul		eP	18 03 58.3	6	1.4		T			
12 Jul		eP	18 11 44.2	2	0.6	SE	NR			Δ (S-P) = 1.6°
		eS	12 05.6	999						Quarry blast, 4,677 lbs., by Gifford Hill Co. near Chico, Texas
12 Jul		eP	18 13 39.2	1	0.3		NR			Δ (S-P) = 1.6°
		eS	14 00.1	999						
12 Jul		eP	20 31 03.3	1	0.9		T			
12 Jul		eP	20 36 29.5	1	1.0		R			
	N	eSur	40 11.2		1.1					
12 Jul		eP	22 58 23.5	15	1.0		T	4.7		South Pacific Ocean
		e	59 00.8		1.0					3.9 S 104.1 W
		e	42.6		1.3					h about 25 km
		ePP	23 00 00.2		1.5					0 = 22 50 58.8
		ePcP	35.8		1.0					Δ = 39°
		e	42.1		1.9					Strong surface waves
	LPE	eS	04 26		21.0					on LP and BB
	LPE	e	05 31		19.0					
	LPN	e	06 23		20.0					
	LPE	eSS	07 14		20.0					
	LPE	e(Sur)	08 22							
	LPE	eSur	09 28							
13 Jul		eP	00 15 34.3	3	0.4	S	NR			
	E	e	45.0		0.4					
	E	e	55.9		0.5					
	N	eSur	16 01.1		0.4					
13 Jul		eP	01 06 31.9	19	0.9		T			
13 Jul		eP	01 39 28.0	2	0.9		T			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Magnitude m	M	Remarks
1962												
13 Jul		eP'	03	50	44.9	7	1.0		T			Panay, Philippine Islan
		e			57.0		1.3					10.2 N 121.7 E
		e		51	10.8		1.5					h about 157 km
		e(pP')			19.4		1.4					0 = 03 32 12.6
		e		52	13.9		1.4					Δ = 121°
	LP	ePP			16		21.0					Strong surface waves
		e			51.6		1.8					on LP, weak on BB.
		eSKP		53	57.6		1.3					
		e		54	17.5		1.9					
	LP	ePPP			45		22.0					
		e			50.6		1.5					
	LPE	eSKS		57	48		17.0					
		ePKKP	04	00	47.3		1.4					
	LPE	ePS		02	06		21.0					
	LPE	ePPS		03	50		20.0					
	LPE	ePKKS		04	28		20.0					
		ePcPP'			42.9		1.2					
	LPE	eSS		08	20		17.0					
	LPE	ePSS		09	10		23.0					
	LPN	e			51		21.0					
	LPN	e		11	47		22.0					
	LPE	eSSS		13	13		25.0					
	LPN	e(Sur)		23	29							
	LPN	e		25	23		28.0					
	LP	eSur		29	13							5.5
13 Jul		eP	05	20	36.2	7	1.3		T			
13 Jul		eP	13	44	19.0	31	1.4		T			Weak surface waves
		e			46.7		1.3					on LP
		e			59.1		1.4					
		e		45	29.6		1.9					
		e(Sur)		48	32.1		1.4					
	LPE	eSur		52	06							
13 Jul		eP	18	02	25.4	3	0.3		NR			Δ (S-P) = 1.7°
		eS			46.9	999						Quarry blast, 5,549 lbs.
												by Gifford Hill Co., nea
												Chico, Texas
13 Jul		eP	20	15	37.4	4	1.2		T			
13 Jul		eP	21	42	33.0	2	0.4		NR			Δ (S-P) = 1.7°
		eS			54.6	999						
13 Jul		eP	22	27	37.4	5	0.7		L			Δ (S-P) = less than 0.1°
		eS			39.9	999						

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Magnitude m	M	Remarks
1962												
13 Jul		eP	22	30	04.1	8	0.8		T	4.7		Komandorskie Islands
		e			10.3		1.1					region
		e			28.4		1.3					56.2 N 164.0 E
		e			42.6		1.3					h about 59 km
		e			48.6		0.8					0 = 22 19 23.3
		e		31	35.6		1.5					Δ = 66°
		e		32	11.1		1.6					Strong surface waves,
		ePP			20.0		1.6					Love and Rayleigh type,
	LPE	eS		38	54		13.0					on LP
	LPE	eScS		40	05		13.0					
	LPE	e		41	47		16.0					
	LPN	eSur		50	38							
	LP	eSur		53	31							
		eP'P'		58	33.6		1.0					
13 Jul		eP	23	04	45.2	13	1.1		T	4.9		Peru
		epP		05	13.6		1.2					11.9 S 75.1 W
		e			46.6		1.4					h about 91 km
		ePcP			59.2		0.8					0 = 22 55 48.4
		e		06	28.3		1.1					Δ = 52°
		e(ScP)		07	39.5		1.4					
		e		09	46.6		1.4					
14 Jul		eP	00	18	34.0	2	0.7		T			
14 Jul		eP	00	30	32.8	1	0.4		NR			Δ (S-P) = 1.9°
	E	eS			57.2		0.3					
14 Jul		eP	01	12	52.3	7	1.0		T	4.7		Rat Islands, Aleutian Is.
		e		13	09.5		0.8					51.5 N 179.0 E
		ePcP			37.3		0.9					h about 25 km
		e		15	17.1		1.0					0 = 01 02 51.5
	LPN	eSur		30	42							Δ = 59.0°
												Weak surface waves
												on LP
14 Jul		eP	02	25	30.9	4	0.6	(E)	R			
		e			39.9		0.5					
		e			48.6		0.6					
		e(Sur)		26	54.5	999						
		eSur		27	36.8	999						
14 Jul		eP'	07	03	03.1	1	1.0		T			Iran
												27.3 N 56.7 E
												h about 30 km
												0 = 06 44 26.5
												Δ = 114°
14 Jul		eP	07	30	24.5	10	1.2		T			
		e			33.9		1.2					
14 Jul		eP	14	03	36.1	5	0.8		T			
		e			47.3		1.0					
		e		04	02.1		1.2					

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
14 Jul		eP	15 05 57.1	5	1.1		T			
		e	06 20.2		1.0					
		e	41.4		1.6					
14 Jul		eP'	16 17 40.9	2	1.0		T			Tibet-India border
		e	18 24.5		1.3					30.4 N 79.5 E
		ePKKP	28 15.7		1.4					h about 40 km
	LPN	eSur	17 02 50						4.6	0 = 15 58 53.7
										Δ = 115°
										Weak surface waves on LP
14 Jul		eP	19 48 38.3	9	1.1		T	4.1		Northern California
		e	59.2		1.5					40.3 N 124.4 W
		e	49 17.8		2.0					h about 25 km
		e	28.8		1.9					0 = 19 43 52.6
	LPE	e	43		15.0					Δ = 21°
	LPN	eS	52 36		20.0					Strong surface waves
	LPN	eSur	54 30							on all systems
14 Jul		eP	20 27 21.0	14	1.4		T	4.1		Southern Mexico
		e	29 17.8		1.2					16.9 N 99.1 W
	E	eSur	32 51.0		2.7					h about 25 km
	BBN	eSur	34 11		9.0					0 = 20 23 14.6
										Δ = 19°
										Strong surface waves on SP and BB, weak on LP
14 Jul		eP	20 40 23.3	1	0.3	NE	NR			Δ(S-P) = 1.4°
	E	eS	42.5		0.4					
14 Jul		iP	20 49 26.5	c 138	0.8		T	5.9		Kurile Islands
		epP	39.9		1.0					50.2 N 155.8 E
		e	50 28.7		0.8					h about 60 km
		e	45.1		1.3					0 = 20 38 01.3
		e	51 14.5		1.6					Δ = 73°
		e	24.3		1.3					Medium surface waves on LP
		e	53.4		1.0					
		ePP	52 22.7		1.5					
		e	44.2		1.0					
		e	57.9		1.8					
	E	eS	58 53.5		1.9					
	LPE	eSur	21 14 53							
14 Jul		eP	23 47 54.9	1	0.9		T	4.3		Mariana Islands
										18.7 N 145.5 E
										h about 198 km
										0 = 23 34 33.7
										Δ = 99°

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
15 Jul		eP	07 00 02.2	78	2.0		T	5.4		Honshu, Japan
		e(pP)	27.2		1.4					39.8 N 140.9 E
		e	48.7		1.5					h about 103 km
		e	58.7		1.2					0 = 06 47 22.5
		ePP	03 21.5		2.0					Δ = 87.5°
	LPN	eS	10 37		19.0					Weak surface waves
	LPN	esS	11 21		20.0					on LP
	LPN	eSS	16 33		30.0					
	LPN	e(SSS)	19 47		19.0					
	LPN	eSur	31 00							
15 Jul		eP	12 02 37.2	3	0.9		R	4.0		Wyoming-Montana border
		eSur	06 37.0		1.8					45.0 N 110.2 W
	LPN	eSur	07 07							h about 25 km
										0 = 11 59 21.9
										Δ = 14°
										Weak surface waves on LP
15 Jul		eP	14 52 19.1	7	0.6		T	4.8		Near coast of Peru
		epP	40.3		1.0					9.3 S 78.9 W
		ePcP	53 47.8		0.5					h about 80 km
		ePP	54 09.5		1.1					0 = 14 43 50.1
										Δ = 48°
15 Jul		eP	15 25 22.9	5	1.0		T	4.5		Honshu, Japan
										40.2 N 142.4 E
										h about 55 km
										0 = 15 12 44.1
										Δ = 86.5°
15 Jul		eP	17 13 04.7	4	1.1		T	4.4		Andreanoff Islands,
		e	14.2		1.4					Aleutian Islands
		e	34.3		0.7					51.3 N 178.4 W
	LPN	eSur	30 40							h about 25 km
										0 = 17 03 13.9
										Δ = 57°
										Weak surface waves on LP
15 Jul		eP	19 48 26.4	4	1.2		T			
		e	33.7		1.0					
15 Jul		eP	20 25 51.9	3	1.2		T			
		e	26 05.2		0.9					
15 Jul		eP	20 34 25.1	3	1.3		T			
15 Jul		eP'	22 11 22.7	2	1.0		T			Gulf of Aden
		e	29.5		1.1					13.4 N 53.1 E
		e	38.1		1.0					h about 25 km
	LP	eSur	55 05						4.9	0 = 21 52 16.7
										Δ = 125.5°
										Weak surface waves on LP

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
15 Jul		eP	22 26 02.4	2	1.0		T			
16 Jul		eP	00 19 01.3	2	0.5	NW	R			
		e	26.6		0.5					
		eSur	20 57.7		0.8					
16 Jul		eP'	02 24 14.8	7	1.4		T			South of Tasmania 52.1 S 138.9 E h about 14 km 0 = 02 04 52.6 Δ = 138°
		e	31.2		1.6					
		e	41.8		0.8					
		e	48.1		2.2					
		e	27 45.4		1.2					
		eSKP	51.0		1.7					
	LPE	eSS	45 00		22.0					
	LPE	eSSS	49 52		30.0					
	LPE	eSur	03 00 18							Strong surface waves, Love and Rayleigh type, on LP.
	LP	eSur	07 37						5.2	
16 Jul		iP	04 58 01.8	d 41	1.0		T	5.3		Peru 11.2 S 79.8 W h about 75 km 0 = 04 49 21.5 Δ = 48.5°
		e	32.5		1.4					
		e	59 11.2		1.4					
		ePcP	26.4		0.6					
		ePP	56.2		1.4					
		e	05 00 15.8		1.6					
		e	01 18.6		1.6					
		e(ScP)	03 23.7		1.5					
	LPN	eS	05 08		20.0					
	LPE	eSur	08 58							Medium surface waves, Love and Rayleigh type, on LP.
	LP	eSur	13 41							
16 Jul		eP	06 30 24.4	2	1.1		T	4.6		Bonin Islands region 28.2 N 142.5 E h about 38 km 0 = 06 17 04.0 Δ = 95°
		e	32.2		1.0					
16 Jul		eP	07 16 38.5	12	0.9	NNW	T			Phase at 07 20 06.1 is possible new event.
		e	46.3		0.8					
		e	17 46.1		0.8					
		e	20 06.1		1.2					
16 Jul		eP	07 44 28.7	2	0.5		T			
16 Jul		eP	08 02 22.6	3	0.9		T	4.4		Fiji Islands region 17.8 S 178.4 W h about 519 km 0 = 07 50 09.8 Δ = 91.5°
16 Jul		ePKKP	08 58 06.6		1.1		T			Santa Cruz Islands 11.8 S 166.4 E h about 57 km 0 = 08 28 10.8 Δ = 100.5° Possible new event at 08 58 31.5. Medium surface waves on LP.
		e	31.5		1.1					
	LPN	eSur	09 16 06						4.4	

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
16 Jul		eP	09 40 12.2	5	1.1		T			Possible pP of following Santa Cruz event.
		e	44 13.7		1.5					
16 Jul		eP	09 55 37.8	3	1.0		T			Possible new event at 09 56 02.3
		e	56 02.3		1.1					
16 Jul		eP	09 59 56.5	10	1.4		T			
16 Jul	LPN	eSur	10 17 55				T		4.3	Santa Cruz Islands region 13.0 S 167.2 E h about 180 km 0 = 09 25 55.4 Δ = 101° Medium surface waves on LP
16 Jul		eP	12 45 16.8	4	1.4		T			
		e	46 03.2		1.3					
		e	33.4		1.2					
16 Jul		iP	13 02 41.0	c 109	1.0		T	5.6		Alaska 62.3 N 153.1 W h about 39 km 0 = 12 54 40.6 Δ = 43.5° Strong surface waves on all systems
	LP	ePP	04 36		22.0					
		e	05 01.8		1.1					
		e	22.4		1.7					
		eScP	08 19.9		1.1					
	LPE	eS	09 10		16.0					
	LPE	e(sS)	36		30.0					
	LPE	eScS	12 30		19.0					
	LPN	e	13 59		19.0					
	LPN	e	14 39		21.0					
	LPN	eSur	16 39							
16 Jul		eP	15 04 45.8	1	1.0		T			
16 Jul		eP	16 27 49.7	24	1.4		T	5.0		550 Miles south of Easter Islands 34.8 S 108.6 W h about 25 km 0 = 16 16 40.9 Δ = 69° Weak surface waves on LP
		e	28 13.1		1.0					
		e	21.4		1.1					
		e	29.0		0.9					
	LPN	eSur	48 20							
		eP'P'	56 09.3		1.6					
16 Jul		eP	20 20 07.0	3	0.9		T	5.0		Tonga Islands region 19.9 S 175.7 W h about 114 km 0 = 20 07 13.4 Δ = 91°
16 Jul		eP	21 28 59.2	4	1.2		T			
		e	29 16.1		0.8					
		e	30 40.0		0.9					

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
16 Jul		eP	22 12 23.8	3	0.4		NR			Δ (S-P) = 1.6°
		e	33.8		0.4					Quarry blast, 9,369 lb
	E	eS	45.2	999						by Gifford Hill Co. ne
										Chico, Texas
16 Jul		eP	22 45 04.0	1	1.0		T			
17 Jul		eP	00 04 24.2	3	1.0		R			
	N	e	05 01.2		0.6					
	N	eSur	07 50.4		0.6					
17 Jul		eP	00 13 06.0	3	0.4		NR			Δ (S-P) = 1.7°
		eS	27.8	999						
17 Jul		eP	03 36 00.1	24	0.8	SSE	T			
		e	08.0		0.9					
17 Jul		eP	04 18 11.8	150	1.0		T	5.6		Nicaragua
		e	20.0		1.0					11.6 N 87.1 W
		e	23.8		1.0					h about 25 km
		e	32.0		0.9					0 = 04 12 45.4
		e	19 24.1		1.2					Δ = 26°
		e	47.1		1.8					Weak surface waves
		e	20 02.1		1.4					on LP
		e	21 43.2		1.8					
	LPE	e(S)	22 45		18.0					
	LPE	eSur	23 28							
	LPN	eSur	27 52							
17 Jul		eP	05 04 16.3	4	0.8		T			
17 Jul		iP	05 44 17.6	d 168	1.4		T	5.9		Near coast of Chile
		e	34.6		1.8					43.0 S 74.9 W
		e	45 16.5		1.5					h about 26 km
		e	50.1		1.8					0 = 05 32 08.8
		ePP	47 21.3		1.6					Δ = 79.5°
	LPE	eS	54 24		12.0					Strong surface waves
	LPN	eSKS	31		20.0					on LP, weak on BB
	LPE	ePS	55 11		19.0					and SP.
	LPE	ePPS	42		20.0					
	LPE	e	56 33		24.0					
	LPE	eSS	59 12		26.0					
	LPE	e(SSS)	06 03 04		19.0					
	LPN	eSur	06 03							
	LPE	eSur	09 00							
		eP'P'	10 57.2		1.4					
		e	11 25.4		1.4					
17 Jul		eP	06 02 18.6	3	1.5		T			
17 Jul		eP	06 31 11.5	4	1.3		T			
17 Jul		eP	07 17 32.6	4	1.3		T			
		e	18 02.6		1.5					

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
17 Jul		eP	07 55 32.6	40	1.6	SSE	T			Δ (S-P) = 35°
		e	43.1		1.1					Strong surface waves,
		e	51.7		1.7					Love and Rayleigh type,
		e	56 23.8		1.1					on LP
		e	40.8		1.8					
	LPN	eS	08 00 52		17.0					
	LPE	e	02 45		17.0					
	LPE	e	03 32		23.0					
	LPE	eSur	56							
	LPN	eSur	05 07							
17 Jul		eP	08 04 14.9	5	1.4		T			
		e	44.1		1.3					
17 Jul		eP	08 12 46.8	2	0.7	S	T			
17 Jul		eP	09 00 34.5	3	1.1		T			
		e	52.5		1.1					
17 Jul		eP	09 08 47.1	2	1.0		T			
17 Jul		eP	09 45 30.0	57	0.8		T	5.0		Near south coast of
		e	46 13.6		1.3					Mexico-Guatemala border
	E	eSur	49 14.7	999						14.8 N 92.9 W
	LPN	e(S)	28		18.0					h about 120 km
	LPN	eSur	52 46							0 = 09 41 01.4
	BB	eSur	55 22		9.0					Δ = 20°
										Strong surface waves
										on LP, weak on BB
										and SP
17 Jul		eP	10 57 45.0	2	0.9		T			
17 Jul		eP	11 11 47.5	3	1.0		T			
		e	12 35.9		1.4					
17 Jul		eP	12 22 28.9	6	1.4		T			
17 Jul		eP	13 17 35.1	1	0.8		T			
17 Jul		eP	13 52 44.6	2	0.9		T			
		e	53 08.6		0.8					
		e	22.7		1.4					
17 Jul		eP	17 32 48.6	19	0.8		T	5.4		Hokkaido, Japan
		e	33 02.1		1.4					43.1 N 144.5 E
		e	36.4		1.5					h about 30 km
		e	34 50.0		1.6					0 = 17 20 22.9
		e	35 44.6		1.8					Δ = 84.5°
		ePP	59.7		1.7					Strong surface waves
		e	36 24.8		2.3					on LP
		e	51.9		1.2					
	BBE	eSKS	43 05		8.0					
	BBN	eS	30		8.0					

(continued on following page)

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
	BBE	ePS	44 05		9.0					(continued from preceding page)
	BBN	e	26		10.0					
	LPE	eSS	48 54		25.0					
	LPE	eSur	56 08							
	LPE	eSur	18 00 55							
17 Jul		eP	17 51 22.3	2	1.1		T			
17 Jul		eP	17 57 30.0	2	0.6		T			
17 Jul		eP	18 01 36.7	1	0.3		NR			
	E	e	02 25.4		0.4					
	E	e	42.3		0.5					
	E	eSur	51.7		0.4					
17 Jul		iP	18 09 37.6	c 33	0.3	NE	L			Δ (S-P) = less than 0.1°
		eS	40.5	999						
17 Jul		eP	18 14 40.9	2	0.2		NR			Δ (S-P) = 1.7°
		eS	15 02.8	999						Quarry blast, 5,999 lbs. by Gifford Hill Co. near Chico, Texas.
17 Jul		eP	20 02 59.8	3	0.2	ENE	L			Δ (S-P) = 0.4°
	E	eS	03 06.6		0.2					
17 Jul		eP	20 42 45.8	2	0.9		T			
		e	43 15.8		1.1					
17 Jul		eP	20 52 06.4	2	0.4		NR			Δ (S-P) = 1.9°
	N	eS	29.9		0.6					
17 Jul		eP	21 03 59.4	3	0.5	SW	NR			Δ (S-P) = 2.6°
	E	eS	04 31.8		0.6					
17 Jul		eP	23 49 21.0	4	0.4	SE	NR			Δ (S-P) = 1.6°
		eS	42.4	999						
		e(Sur)	50 27.8		1.4					
17 Jul		eP	23 57 25.6	9	0.7	N	L			Δ (S-P) = less than 0.1°
		eS	27.9	999						
18 Jul		eP	00 01 07.3	2	1.0		T			
18 Jul		eP	00 07 20.9	1	0.4		NR			Δ (S-P) = 2.5°
	E	eS	51.6		0.4					
18 Jul		eP	00 24 41.4	1	0.5		T			
18 Jul		eP	00 47 38.5	3	0.5		NR			Δ (S-P) = 2.4°
	E	eS	48 08.0		0.4					
18 Jul		eP	01 53 30.5	1	1.1		T			

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
18 Jul		eP	03 00 24.1	1	0.5		T			
18 Jul		eP'	06 12 57.6	2	1.0		T			Sumba Islands
		e	13 26.8		1.6					9.6 S 119.8 E
		e	42.2		1.4					h about 68 km
		eSKP	16 30.7		1.3					0 = 05 53 48.1
		e	17 06.0		1.4					Δ = 136.5°
18 Jul		eP	09 38 50.9	6	0.9	SSE	T			
		e	39 21.0		1.2					
18 Jul		eP'	09 41 55.4	6	1.5		T			Flores Sea
		e	44 26.2		1.2					7.2 S 119.9 E
		eSKP	36.1		1.0					h about 588 km
										0 = 09 23 37.5
										Δ = 135.5°
18 Jul		eP	10 22 39.0	17	0.7	ESE	T			Strong surface waves
		e	44.6		0.9					on all systems, Love
		e	23 13.3		1.1					and Rayleigh type, on LP
		e	19.1		1.3					
		e	24 44.5		1.3					
		e	26 04.4		1.1					
	LPE	e(S)	27 00		17.0					
		e	28 21.6		1.7					
	LPE	eSur	29 28							
	LP	eSur	30 00							
		e	31 07.8		1.4					
18 Jul		eP	10 40 55.1	3	1.1		T			
18 Jul	LP	eSur	10 57 00				T		4.4	Mariana Islands region
										15.3 N 148.1 E
										h about 16 km
										0 = 10 10 12.7
										Δ = 99°
										Weak surface waves
										on LP
18 Jul		eP	12 47 57.0	1	0.9		T			
		e	48 23.9		1.0					
18 Jul		eP	14 54 29.7	3	0.9		T	4.4		Tonga Islands region
		e	36.9		0.7					21.5 S 175.8 W
		e	51.8		0.8					h about 218 km
		e	55.9		1.1					0 = 14 41 45.0
		e	55 00.8		0.9					Δ = 94°
18 Jul		eP	16 05 20.9	1	0.6		T			
18 Jul		eP	16 25 50.6	2	0.5		NR			Δ (S-P) = 1.7°
		e	26 00.3		0.4					
		eS	12.2	999						

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
18 Jul		eP	16 43 58.7	2	0.7		T			
18 Jul		eP	17 04 12.7	1	0.8		T			
		e	22.3		0.7					
		e	32.6		1.0					
18 Jul		eP	18 02 43.3	1	0.3		NR			Δ (S-P) = 1.6°
	N	eS	03 04.2		0.4					Quarry blast, 3,090 lbs by Gifford Hill Co. nea Chico, Texas
18 Jul		eP	19 22 03.3	1	0.8		T			
18 Jul		eP	19 29 49.5	4	0.8		T			Surface is possibly
	E	eSur	33 28.2		0.6					separate
18 Jul		eP	20 44 07.2	8	1.0	S	T			
		e	40.3		1.1					
		e	51.6		1.4					
		e	45 16.4		1.2					
		e	40.8		1.4					
	E	eSur	48 03.1		1.0					
18 Jul		eP	21 55 03.6	1	0.8		T			
19 Jul	LPE	eSur	01 43 40				T	4.3		New Britain region
										5.1 S 153.6 E
										h about 49 km
										0 = 00 52 13.9
										Δ = 107°
										Medium surface waves on LP
19 Jul		eP	03 52 38.1	3	0.9		T	4.5		Tonga Islands region
		e	49.2		0.7					17.3 S 173.3 W
										h about 15 km
										0 = 03 39 45.3
										Δ = 88°
19 Jul		eP	08 13 37.4	4	1.4		T			
19 Jul		eP	12 12 35.0	13	1.2		T	4.8		Near Bolivia-Chile bor
		e(PcP)	13 00.6		0.9					20.6 S 68.7 W
		epP	11.6		1.1					h about 160 km
		e	27.1		0.9					0 = 12 02 31.3
		e	39.8		1.2					Δ = 62°
		e(PP)	14 40.7		1.5					
19 Jul		eP	21 41 15.6	1	0.3		NR			Δ (S-P) = 2.7°
	N	eS	48.1		0.5					
19 Jul		eP	22 18 51.2	3	1.0		T	4.3		Honshu, Japan
										39.8 N 140.7 E
										h about 93 km
										0 = 22 05 45.0
										Δ = 87°

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
19 Jul		eP	23 31 39.0	3	0.4		NR			Δ (S-P) = 1.7°
		e	48.6		0.3					Quarry blast, 6,755 lbs.,
		e	58.6		0.4					by Gifford Hill Co. near
		eS	32 10.7	999						Chico, Texas
19 Jul		eP	23 36 18.2	5	0.7	N	L			Δ (S-P) = less than 0.1°
		eS	21.1	999						
19 Jul		eP	23 55 14.1	8	1.5		T			
20 Jul		eP	01 59 09.2	2	1.0		T			
20 Jul		eP	02 49 51.9	2	1.1		T			
		e	57 12.6		1.3					
	LP	e	59 06		24.0					
20 Jul		eP	04 46 18.5	3	1.0		T	4.3		Fox Islands, Aleutian Is.
		e	50.5		1.5					51.5 N 173.6 W
		e	47 29.9		1.3					h about 25 km
	LPN	eS	53 58		24.0					0 = 04 36 47.0
	LPN	eSur	05 01 50							Δ = 54°
										Medium surface waves on LP
20 Jul		eP	07 32 00.6	1	0.8		R			
	N	eSur	34 17.8		1.1					
20 Jul		eP	09 05 57.2	29	1.3		T	4.3		Mag. = 5¼ (PS)
		e	06 24.8		1.6					Nevada
		e	36.4		1.5					39.5 N 118.3 W
		e	48.3		1.4					h about 25 km
		e	07 22.7		1.3					0 = 09 02 08.3
		e	08 08.8		1.4					Δ = 16.5°
	N	eSur	10 40.0		3.5					
20 Jul		eP	11 43 36.3	1	0.8		T			
20 Jul		eP	14 28 09.1	2	0.9		T			
		e	16.5		0.8					
20 Jul		eP	16 40 24.8	15	1.6		T	5.1		Tonga Islands region
	LPN	eS	51 26		18.0					21.0 S 174.8 W
	LPN	eSur	17 11 01							h about 28 km
										0 = 16 27 20.9
										Δ = 91°
										Medium surface waves on LP
20 Jul		e(P)	17 20 09.2	1	0.4		T			Strong surface waves
		e	18.1		0.8					on LP
		e	47.9		1.5					
	LPN	eSur	26 00							
	LPN	eSur	42							

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
20 Jul		eP	17 57 05.4	1	0.4		NR			Δ (S-P) = 1.7°
	E	eS	27.0		0.4					
20 Jul		eP	18 10 54.6	1	0.6		T			
20 Jul		eP	19 52 36.2	2	0.8		T			Start is indefinite
20 Jul		eP	20 24 52.0	1	0.8		T			
20 Jul		eP	20 54 25.3	1	0.8		T			
20 Jul		eP	21 17 57.6	2	0.6		NR			Δ (S-P) = 4.5°
		e	18 06.4		0.5					
	N	eS	53.1		0.5					
	E	eSur	19 25.4		0.8					
20 Jul		eP	21 21 28.1	2	0.3		NR			Δ (S-P) = 2.6°
	E	eS	22 00.3		0.4					
	N	eSur	06.1		0.4					
20 Jul		eP	23 52 59.5	4	1.3		T			
21 Jul		eP	00 14 51.4	4	0.4	S	NR			Δ (S-P) = 2.2°
		eS	15 18.1	999						
21 Jul		eP	07 01 35.2	2	0.6		R			Phase at 07 02 46.2 is possible new event.
		e	52.7		0.7					
		e	02 04.8		0.7					
		e	46.2		0.9					
	E	eSur	05 02.9		0.8					
21 Jul		eP	07 42 12.8	2	0.8		T			
		e	34.6		0.7					
		e	43 30.8		0.6					
21 Jul		eP	10 38 53.8	3	1.2		T			Weak surface waves on LP
		e	39 15.2		1.0					
	LPE	eSur	11 07 30							
21 Jul		eP	13 25 28.1	2	0.9		T			
21 Jul		eP	14 25 02.7	1	0.9		T			
		e	12.5		0.9					
		e	34.2		1.0					
21 Jul		eP	16 00 50.0	1	0.9		T			
21 Jul		eP	18 08 34.3	1	0.5		NR			Δ (S-P) = 2.7°
	E	eS	09 07.5		0.4					
21 Jul		eP	21 07 47.1	6	1.2		T			Medium surface waves on LP
		e	57.9		1.2					
		e	08 58.1		1.3					
	LPE	eSur	19 12							

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
21 Jul		eP	22 39 25.2	2	0.4		NR			Δ (S-P) = 3.8°
		e	34.3		0.3					
	E	eS	40 11.2		0.5					
	E	eSur	28.5		0.5					
21 Jul		eP	22 50 50.3	168	2.0	SE	T			Phase at 22 54 19.4 is possible new event.
		e	51 07.3		1.4					
		e	18.1		1.2					
		e	25.1		1.0					
		e	45.0		1.6					
		e	53 03.9		1.7					
		e	54 19.4		0.7					
21 Jul		eP	23 28 38.8	2	0.3	SE	NR			Δ (S-P) = 1.7°
		e	48.5		0.3					Quarry blast, 7,806 lbs., by Gifford Hill Co. near Chico, Texas.
		eS	29 00.8	999						
22 Jul		eP	00 15 53.2	2	0.8		T			
22 Jul		eP	00 30 54.0	5	1.1		T	4.7		North of Franz Josef Land 86.9 N 50.8 E h about 33 km 0 = 00 21 00.8 Δ = 58°
		e	31 56.8		1.0					
		e	35 25.9		1.2					
22 Jul	LPE	ePKS	00 38 48		18.0		T			Western New Guinea 3.2 S 137.5 E h about 104 km 0 = 00 16 07.2 Δ = 120°
	LPN	eSKKS	42 55		18.0					
	LPN	ePKKS	48 44		18.0					
22 Jul		ePP	00 40 26.3		1.2		T			New Britain region 5.4 S 151.7 E h about 81 km 0 = 00 21 30.9 Δ = 110° Strong surface waves, Love and Rayleigh type, on LP, weak on BB.
		e	52.3		1.2					
	LPE	eSKS	46 40		15.0					
	LPE	ePS	50 00		18.0					
		$ePKKP_1$	51 14.1		1.0					
	LPE	ePPS	31		18.0					
		$e(PKKP_2)$	32.7		1.3					
	LPN	e(SS)	55 22		24.0					
	LPN	e	01 00 30		22.0					
	LPN	eSur	06 32							
	LPN	e	14 18		18.0					
	LP	eSur	18 26					5.0		
22 Jul		eP	01 52 27.2	55	1.3		T			
22 Jul		eP	07 53 22.1	4	1.4		T			
22 Jul		eP	08 03 20.3	3	0.9		T			
		e	04 06.2		1.0					
		e	16.5		1.1					
		e	07 29.3		1.0					
		e	57.6		1.1					
		e	08 09.0		1.0					

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
22 Jul		eP	10 12 58.8	2	1.0		T			
22 Jul		eP	13 50 27.7	13	1.7		T	5.5		Solomon Islands 8.4 S 158.8 E h about 107 km 0 = 13 36 49.7 Δ = 104.5°
	LPE	e	58 52		19.0					
	LPN	e	14 00 14		16.0					
	LPE	ePS	02 40		19.0					
	LPE	ePPS	03 45		18.0					
		ePKKP	07 18.5		1.2					
	LPN	e(SS)	09 11		20.0					
	LPN	e	14 52		26.0					
	LPN	eSur	26 28							
22 Jul		eP	13 53 14.7	2	0.6		T			
	E	eSur	58 33.1		3.0					
22 Jul		eP	16 55 46.9	3	0.8	SE	T			
		e	53.4		0.8					
22 Jul		eP	16 56 11.8	2	0.7		T			
22 Jul		eP	16 56 14.0	15	0.7	SSE	T			Weak surface waves on LP
		e	20.0		0.8					
		e	30.2		1.3					
	LPE	e	17 01 00		19.0					
	LPN	eSur	09 24							
22 Jul		eP	18 07 07.4	3	0.9	SSE	T			
		e	12.9		0.7					
22 Jul		eP	18 07 55.7	12	0.9	SSE	T			
		e	08 02.1		1.1					
22 Jul		eP	18 11 28.2	1	0.9		T			
23 Jul	LP	eSur	00 42 23				T	4.1		Bismarck Sea 3.5 S 145.6 E h about 28 km 0 = 23 49 27.0 Δ = 112° Weak surface waves on LP
23 Jul		eP	01 18 26.8	308	0.9		T	5.8		Off coast of Costa Rica 10.7 N 86.5 W h about 44 km 0 = 01 12 52.6 Δ = 26° Strong surface waves on LP, weak on BB.
		epP	37.3		0.9					
		e	47.9		1.0					
		ePcP	21 54.8		0.6					
		e	22 02.8		1.2					
	LPE	e(Sur)	02							
		eScP	25 37.6		1.0					
	LPE	eSur	27 48							
23 Jul		eP	01 52 49.1	4	1.1		T			Possible P'P' of previous event.

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
23 Jul		eP	02 10 01.5	3	0.8		T			
		e	08.2		0.9					
		e	21.6		1.2					
23 Jul		eP	02 36 29.7	9	0.8	SSE	T			
		e	37.9		0.8					
		e	46.4		0.8					
		e	53.0		0.9					
23 Jul		eP	02 41 54.8	4	0.8	SSE	T			
		e	42 03.2		1.0					
23 Jul		eP	03 21 37.4	1	0.8		T			
		e	47.3		1.1					
23 Jul		eP	06 07 07.2	2	0.7	SW	R			Δ (S-P) = 6.5°
		eS	08 27.3	999						
		eSur	09 14.4	999						
23 Jul		eP	06 20 04.5	5	0.7	SSE	T			
		e	18.9		0.7					
		e	31.0		0.7					
		e	24 32.9		0.9					
	LP	e(Sur)	25 18							
		e	26 10.6		1.4					
23 Jul		eP	07 29 53.4	2	0.9		T	3.9		Northern Chile 22.9 S 67.8 W h about 193 km 0 = 07 19 35.0 Δ = 64°
		e	30 26.8		0.9					
23 Jul		eP	09 32 03.7	4	0.9	SE	T			
		e	10.5		0.7					
23 Jul		eP	11 13 09.7	8	1.2		T			
		e	16.5		1.5					
		e	14 28.8		1.0					
23 Jul		eP	12 01 37.4	1	0.5		T			
23 Jul		eP	12 18 49.4	10	0.7	SSE	T			
23 Jul		eP	13 20 32.0	5	1.3		T			
23 Jul		eP	14 30 14.3	6	1.4		T			
23 Jul		eP	14 40 25.1	2	0.5		T			
23 Jul		eP	15 10 43.6	8	0.9	SW	T			
		e	11 13.4		0.7					
23 Jul		eP	18 29 57.1	2	0.3		NR			Δ (S-P) = 1.7° Quarry blast, 6,396 lbs., by Gifford Hill Co. near Chico, Texas
		e	30 07.4		0.4					
		eS	19.2	999						

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
23 Jul		eP	20 14 32.0	10	1.2	SSE	T			
		e	49.0		1.2					
		e	15 08.1		1.0					
23 Jul		eP	22 18 32.0	7	1.2		T	4.2		Virgin Islands region 19.0 N 65.1 W h about 25 km 0 = 22 11 54.6 Δ = 33.5°
		e	33.0		0.7					
		e(PP)	19 33.9		0.9					
	LPE	eSur	29 00							Medium surface waves on LP
23 Jul	LPN	eSur	23 57 27				T		4.3	New Hebrides 14.1 S 166.8 E h about 99 km 0 = 23 09 12.4 Δ = 101° Medium surface waves on LP
24 Jul		eP	01 04 37.1	2	0.9		R			
	E	eSur	06 46.8		0.6					
24 Jul		eP	04 04 53.6	45	0.7		T	5.2		Costa Rica 10.4 N 85.8 W h about 25 km 0 = 03 59 14.4 Δ = 27°
		e(PP)	05 30.4		1.1					
		e	56.9		0.9					
		e	07 51.0		1.2					
	LPE	e(Sur)	10 30							
		e(ScP)	11 43.0		0.9					
24 Jul		eP	04 36 39.9	1	0.9		T			
24 Jul		eP	09 13 45.6	2	0.6		T			
24 Jul		eP	10 21 50.1	1	0.6		T			
		e	22 11.7		0.7					
		e	23 27.0		0.6					
24 Jul		eP	10 49 41.9	12	0.9	SSE	T			
24 Jul		eP	15 33 04.8	6	1.3		T			
24 Jul		eP'	16 42 07.2	9	1.5		T			Sulu Sea 10.3 N 121.5 E h about 21 km 0 = 16 23 10.8 Δ = 121°
		e(PP)	43 34.6		1.3					
		ePKKP	52 10.2		1.1					
24 Jul		eP	18 02 42.0	2	0.2		NR			Δ (S-P) = 1.7°
		eS	03 04.2	999						

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
24 Jul		iP	21 12 44.9 c	400	1.0		T	5.0		Mag. = 5.6 (B), 5.5 (PL) Mexico-Guatemala border 15.5 N 92.5 W h about 129 km 0 = 21 08 22.6 Δ = 19.0° Strong surface waves on all systems.
		e	13 05.8	999						
	LP	e	14 16		15.0					
		e	16 22.4		1.2					
	LPN	e(S)	25		20.0					
	LP	eSur	18 42							
24 Jul		eP	21 56 22.3	3	1.0		T			
25 Jul		eP	00 21 08.6	28	1.7		T	5.0		Near coast of southern Peru 14.4 S 76.1 W h about 46 km 0 = 00 11 52.2 Δ = 53° Weak surface waves, Rayleigh type, on LP
		epP	24.2		1.7					
		ePcP	22 16.0		1.1					
		e	33.7		1.0					
		e	23 01.4		1.1					
		e	44.8		1.2					
	LPN	eS	28 36		16.0					
	LPN	eScS	30 56		20.0					
	LPN	eSS	32 17		15.0					
	LPE	e	33 26		19.0					
	LPN	eSur	38 08							
25 Jul		eP	00 58 31.7	3	1.0		T			
25 Jul		eP	01 35 48.6	2	0.9		T			
25 Jul		eP	03 57 30.6	3	1.1		T			
		e	43.1		1.2					
25 Jul		eP	04 28 31.1	2	0.9		T			
25 Jul		eP	04 42 35.8	529	1.7		T	5.7		Mag. = 5½ (B), 6 (PS) and 6 (PL). West of Jamaica 18.9 N 81.1 W h about 64 km 0 = 04 37 50.7 Δ = 22° Strong surface waves, Rayleigh type, on all systems.
		e	43 04.4		1.4					
		e	12.0		1.5					
		e	44 48.6		2.2					
		e	45 33.4		1.5					
	LPN	e(S)	46 44		16.0					
	LP	eSur	48 37							
25 Jul		eP	05 14 49.5	6	1.1		T			
25 Jul		eP	05 51 44.9	6	1.5		T			
25 Jul		eP	06 14 24.3	42	2.0		T	5.1		Near coast of southern Peru 14.3 S 75.5 W h about 100 km 0 = 06 05 15.9 Δ = 53°
		e	43.4		1.1					
		e	15 06.8		1.0					
		ePcP	34.2		1.0					
		e	16 02.6		1.1					
		e(PP)	23.8		1.3					
		e	58.0		1.0					

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
25 Jul		eP	07 05 44.7	4	1.1		T	4.0		Near coast of Peru 15.5 S 75.0 W h about 33 km 0 = 06 55 56.7 Δ = 56°
25 Jul		eP	07 27 39.2	2	0.8		T			
25 Jul		eP	07 37 46.8	2	0.9		T			
		e	58.0		1.3					
	E	eSur	41 50.3		0.7					
25 Jul		eP	08 07 20.9	2	0.8		R			
		e	57.3		0.9					
	N	eSur	10 28.8		0.8					
25 Jul		eP	11 16 52.8	10	1.0	SSE	T			
		e	17 10.0		1.0					
		e	36.6		1.1					
	N	eSur	21 02.9		1.0					
25 Jul		eP	14 12 29.9	2	0.8		T			
		e	36.1		0.9					
25 Jul		eP	14 47 16.9	2	1.0		R			Strong surface waves
		e	48 00.7		1.0					on SP, weak on LP and
		e	21.4		1.0					BB.
		e	49 36.8		1.1					
	LPE	e(Sur)	51 08							
	E	eSur	11.8		3.4					
	BB	eSur	52 07		8.0					
25 Jul		eP	15 13 12.7	3	1.0		R			
		e	22.9		1.2					
	E	eSur	17 01.8		0.9					
25 Jul		eP	15 36 54.9	13	0.5	E	NR			Δ (S-P) = 1.9°
		eS	37 19.0	999						Probably quarry blast
										near Bromide, Okla.
25 Jul		eP	18 11 38.6	3	0.4	SE	NR			Δ (S-P) = 1.6°
		e	48.1		0.5					
	E	eS	12 00.0	999						
25 Jul		eP	20 09 54.4	2	0.6		T			
25 Jul		eP	20 47 40.5	1	0.3		NR			Δ (S-P) = 2.4°
	N	eS	48 21.4		0.5					
25 Jul		eP	21 30 05.3	3	1.4		T			Start is indefinite
		e	31.8		1.5					

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
25 Jul		eP	23 35 30.1	2	0.3	SE	NR			Δ (S-P) = 1.7°
		e	40.3		0.4					Quarry blast, 6,484 lbs.,
	E	eS	51.8	999						by Gifford Hill Co. near
										Chico, Texas
26 Jul		eP	02 41 13.0	7	1.2		T	4.3		Off coast of northern
		e	21.0		1.2					Peru
		e	43.2		1.2					4.9 S 81.3 W
		e	42 17.7		1.0					h about 25 km
		e(PP)	46.7		1.3					0 = 02 33 15.3
		ePcP	43 04.5		1.0					Δ = 43°
		eScP	46 52.3		1.0					
26 Jul		eP	04 34 58.6	9	1.2		T	4.6		Kurile Islands
		e	35 23.1		1.5					47.1 N 153.9 E
		e	34.7		1.4					h about 35 km
		e	36 28.0		1.0					0 = 04 23 11.9
		e	37 45.0		1.5					Δ = 76°
		e	38 24.3		1.2					Weak surface waves
	LPN	eS	44 45		16.0					on LP
	LPE	eSS	49 40		24.0					
	LPN	eSur	05 00 28							
26 Jul		ePKKP	05 31 59.4		0.9		T			New Britain
		e	32 05.9		1.3					5.5 S 151.1 E
										h about 93 km
										0 = 05 02 14.0
										Δ = 112°
26 Jul		ePKKP	07 30 44.8		1.1		T			New Britain
										5.3 S 150.8 E
										h about 71 km
										0 = 07 01 01.8
										Δ = 113°
26 Jul		eP	07 45 23.1	2	1.3		T			
26 Jul		eP	08 20 56.1	266	0.9		T	6.1		Mag. = 6 3/4 (PS), 7 (B)
		e	21 48.6		1.2					South of Panama
		ePP	59.4		3.3					7.5 N 82.7 W
		ePcP	23 55.8		0.9					h about 21 km
	LP	eSur	26 05							0 = 08 14 41.8
	LP	eSur	10 58 59							Δ = 31°
										Strong surface waves
										on all systems. Surface
										at 10 58 59 is for 329°.
26 Jul		eP	08 52 47.5	18	1.1		T			
		e	54 12.4		1.1					
		e	24.6		1.7					
26 Jul		eP	09 03 41.3	42	1.8		T			
26 Jul		eP	09 28 39.1	1	0.9		T			

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
26 Jul		eP	13 22 02.8	1	0.8		T			
26 Jul		eP	14 06 05.8	5	0.9		T			
26 Jul		eP	15 07 47.5	3	0.7	NW	T			
		e	08 01.8		0.9					
26 Jul		eP	18 06 27.4	3	1.0		T			
26 Jul		eP	19 05 08.4	27	2.2		T			
		e	30.4		1.2					
26 Jul		eP	21 50 16.7	6	1.4		T	5.6		Sandwich Islands regi
		eP'	51 16.2	5	1.2					56.4 S 25.7 W
		ePP	30.8		1.5					h about 25 km
		e	52 04.6		1.4					0 = 21 32 17.9
										Δ = 110°
										Phase at 21 50 16.7 is P diffracted.
26 Jul		eP	23 26 44.3	7	1.5		T			
27 Jul		eP	00 31 52.2	8	0.7		L			Δ (S-P) = less than 0.
		eS	54.6	999						
27 Jul		eP	00 47 03.5	6	1.0		T			
		e	29.4		1.0					
		e	46.5		0.8					
27 Jul		eP	00 48 46.3	4	0.8	S	T			
		e	49 03.4		0.9					
		e	44.9		1.6					
		e	50 17.4		1.5					
		e	51 40.6		1.9					
		e	52 36.6		1.8					
		e	53 27.4		1.5					
27 Jul		eP	01 30 19.1	1	0.9		T	5.2		North of Mariana Isla
										21.7 N 144.4 E
										h about 100 km
										0 = 01 16 50.8
										Δ = 98°
27 Jul	N	eSur	03 29 46.1		1.0		R			
27 Jul		eP	04 23 48.7	5	0.8	SSE	R			Strong surface waves on SP, medium on LP.
		e	24 22.0		1.2					
		e	25 25.6		1.2					
		e	26 30.8		1.0					
		e	48.1		1.3					
	E	eSur	27 21.0		1.0					
		e	22.0		1.5					
	LPN	eSur	30 28							

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
27 Jul		eP	08 06 40.0	2	1.0		R			
		e	09 09.1		1.0					
	E	eSur	10 07.4		1.1					
27 Jul		eP	08 18 51.9	2	0.7		T			
27 Jul		eP	08 41 59.1	3	1.2		T			
27 Jul		eP	08 47 15.8	5	1.4		T			Medium surface waves on LP
	LPE	e	54 04		17.0					
	LPE	e	57 38		16.0					
	LPE	e(Sur)	59 14							
	LPN	eSur	09 02 52							
27 Jul		eP	11 15 23.4	4	1.5		T			
		e	43.8		0.9					
27 Jul		eP	12 44 45.1	6	0.8	SE	T			
		e	55.7		0.9					
		e	45 04.5		1.0					
		e	44.1		1.3					
		e	57.1		1.1					
27 Jul		eP	12 48 05.5	5	1.0		T	4.5		Andreanoff Islands, Aleutian Islands.
		e	14.0		1.6					51.6 N 174.1 W
		e	19.5		1.5					h about 60 km
		e	36.8		1.2					0 = 12 38 35.1
		e	50.6		1.5					Δ = 55°
		ePcP	49 07.7		1.1					Phase at 12 57 11 is
		ePP	50 12.7		1.9					possible phase of
		e	31.0		1.5					preceding event.
	LPN	eS	55 54		20.0					Strong surface waves
	LPE	e	56 21		17.0					on LP.
	LPE	e(Sur)	57 11							
	LPN	eSur	13 03 25							
	LP	eSur	11 24							
27 Jul		eP	17 31 36.2	4	1.2		T			
		e	48.5		1.1					
27 Jul		e(P)	18 06 04.2	3	1.3		R			Start is indefinite
		e	54.6		1.5					
		e	08 16.7		1.5					
	E	eSur	09 36.2		1.6					
27 Jul		eP	19 16 58.6	3	1.0		T			
27 Jul		eP	19 56 08.0	3	1.2		T			
		e	33.2		1.1					
27 Jul		eP	20 14 15.7	2	1.1		T			
		e	26.9		1.1					

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
27 Jul		eP	22 06 05.1	10	1.3	SE	T			
		e	09.9		1.3					
		e	15.0		0.8					
		e	26.4		1.0					
27 Jul		eP	23 10 59.0	1	0.4		NR			Δ (S-P) = 2.6°
	N	eS	11 31.0		0.5					
27 Jul		eP	23 25 03.0	2	0.7	SE	T			
27 Jul		eP	23 45 09.3	9	0.8	SSE	T			
		e	16.5		0.8					
28 Jul		eP	00 17 55.2	90	1.2		T	6.0		Samoa Islands region 16.2 S 173.2 W h about 40 km 0 = 00 05 10.8 Δ = 87° Phase at 00 36 05.8 is possible new event. Strong surface waves, Rayleigh type, on LP and BB.
		e	18 27.2		1.5					
		e	50.8		1.2					
		e	19 04.9		1.2					
		e	49.9		1.4					
		ePP	21 16.1		1.7					
	LPE	eS	28 37		20.0					
	LP	eSP	29 38		21.0					
	LPN	ePPS	57		19.0					
	LPN	e	30 49		16.0					
	LPN	eSS	34 00		28.0					
		ePKKP	35 49.5		1.1					
		e	36 05.8		1.4					
		e	37 54.6		1.4					
	LPN	eSSS	56		30.0					
	LPN	e(Sur)	40 34							
	LPE	e	43 29		25.0					
		eP'P'	58.1		1.7					
		e	44 10.0		2.0					
	LP	eSur	45 08							
28 Jul		iP	02 40 12.9	d 99	0.8		T	4.9		Ecuador 4.1 S 79.7 W h about 217 km 0 = 02 32 26.0 Δ = 43° Phase at 02 42 36.4 is possible new event.
		e	46.8		0.9					
		e	53.7		1.0					
		e	59.8		1.1					
		ePcP	41 59.8		0.8					
		e	42 36.4		0.8					
		eScP	45 37.5		0.8					
	E	eS	46 28.7		1.5					
28 Jul		eP	05 41 28.5	1	0.9		R			Start is indefinite.
		e	42 20.2		1.0					
	E	eSur	45 09.7		0.6					
28 Jul		eP	06 13 23.3	5	1.0		T	4.2		San Juan Province, Argentina 31.0 S 67.8 W h about 217 km 0 = 06 02 24.1 Δ = 72°
		e	34.0		1.2					
		e	44.7		0.8					
		e	56.0		0.9					
		eP'P'	41 02.4		1.1					

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
28 Jul		eP	06 55 41.7	3	0.9		T			
28 Jul		eP	08 24 39.3	2	1.0		T			
28 Jul		eP	10 16 24.1	3	0.6	NNW	T			
28 Jul		eP	12 30 18.2	4	1.3		T			
		e	28.3		1.2					
		e	40.7		1.2					
28 Jul		eP	13 18 41.1	2	0.5	SE	T			
28 Jul		eP	14 03 17.5	80	1.1		T	5.0		Mag. = $4\frac{1}{2}$ (PL) North coast of Chipas, Mexico 14.8 N 93.0 W h about 71 km 0 = 13 58 41.2 Δ = 21° Strong surface waves on LP
		e	41.8		1.7					
	LPN	eS	07 14		20.0					
		e(Sur)	15.4	999						
	LP	e	37		17.0					
	LPN	e	08 02		21.0					
	LPN	eSur	10 35							
	LP	e(Sur)	13 14							
28 Jul		eP	15 03 07.0	16	1.5	WNW	T			
		e	33.3		1.2					
28 Jul		eP	19 55 53.0	35	1.6		T	5.5		Off east coast of Honshu, Japan 36.9 N 141.9 E h about 39 km 0 = 19 43 00.3 Δ = 89° Weak surface waves on LP
		e	56 11.4		1.5					
		e	37.9		1.1					
		e	59 15.6		1.2					
	LPN	e	20 06 48		23.0					
	LP	eSur	21 40							
28 Jul		eP	20 58 39.1	4	1.1		T	4.3		Kurile Islands 44.6 N 148.6 E h about 32 km 0 = 20 46 26.0 Δ = 80.5°
		e	50.1		1.4					
		e	21 00 45.3		1.3					
		ePP	01 39.3		1.5					
28 Jul		eP	22 07 15.8	4	0.9		T	4.6		Hokkaido, Japan 42.5 N 142.8 E h about 48 km 0 = 21 54 42.4 Δ = 85°
28 Jul		eP	22 58 39.6	3	1.1		T			
		e	51.3		1.0					
28 Jul		eP	23 31 41.0	1	0.4		NR			Δ (S-P) = 2.5°
	E	eS	32 12.2		0.4					
29 Jul	LPE	e	00 29 52		27.0		T			Medium surface waves on LP
	LP	eSur	33 50							

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
29 Jul		eP	03 15 50.5	3	1.5		T			
		e	16 04.5		0.8					
29 Jul		eP	04 11 09.2	2	0.6	S	T			
29 Jul	LPE	eSur	07 00 53				T			Medium surface waves on LP, weak on BB.
29 Jul		eP	07 45 56.5	4	1.5		T			
		e	46 14.5		1.0					
29 Jul		eP	09 21 18.0	2	1.1		T			
		e	46.7		0.9					
		e	22 15.7		1.1					
		e	28.7		1.1					
29 Jul	LPN	eSur	57 24				T		4.3	Kwangtung Province, China 23.6 N 114.3 E h about 65 km 0 = 08 57 46.1 $\Delta = 114.5^{o}$ Weak surface waves on LP
29 Jul		eP	11 56 55.1	4	1.5		T			
29 Jul		eP	12 14 31.3	1	0.8		T			
29 Jul		eP	13 10 56.1	9	1.2		T			
		e	11 00.8		0.5					
		e	05.7		0.9					
		e	14.2		0.8					
		e	40.2		0.9					
		e	43.7		1.0					
		e	12 39.4		1.6					
29 Jul		eP	13 14 42.5	5	1.3	SE	T			
		e	50.2		0.4					
		e	15 01.9		1.4					
		e	16.2		1.5					
		e	33.1		1.2					
		e	16 32.8		1.5					
29 Jul		eP	20 35 46.8	3	0.5	SSE	NR			Δ (S-P) = 1.7°
		e	56.2		0.4					
		eS	36 08.4	999						
30 Jul		eP	00 58 12.9	3	1.2		T		4.2	Near coast of southern Chile 37.1 S 72.4 W h about 30 km 0 = 00 46 31.7 $\Delta = 76^{o}$
		e	24.5		1.3					
		e	38.9		1.2					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
30 Jul		eP	02 00 44.7	1	1.0	(S)	T			
30 Jul		eP	02 16 43.1	2	0.9		T			
		e	47.8		1.3					
		e	17 25.8		1.2					
30 Jul		eP	02 51 55.8	7	0.9	SSE	T			
		e	52 08.7		1.2					
		e	24.9		1.2					
		e	53 36.1		1.5					
30 Jul		eP	07 06 15.6	13	0.9		T	4.6		Ecuador-Peru border 2.5 S 77.0 W h about 146 km 0 = 06 58 35.6 $\Delta = 42.5^{o}$ Phase at 07 08 42.8 is possible new event.
		epP	46.6		1.0					
		e	07 20.6		1.3					
		ePcP	08 07.5		0.9					
		e	42.8		1.0					
		ePKKP	29 46.3		0.9					
30 Jul		eP	07 48 43.2	1	0.9		T			
		e	49 00.9		0.9					
		e	53 49.6		1.3					
	LPE	e	54 02		15.0					
	LP	e(Sur)	55 22							
30 Jul		eP	10 23 48.4	2	1.0		T			
30 Jul		eP	10 24 14.6	19	0.9	SSE	R			Strong surface waves on LP and SP, weak on BB, Love and Rayleigh type, on LP.
		e	58.1		1.2					
		e	25 06.9		0.9					
		e	57.0		1.2					
		e	26 30.2		1.6					
	E	e	28 01.4		1.0					
	LPN	eSur	11							
	LP	eSur	32							
	LPN	eSur	31 27							
30 Jul		eP	10 37 56.1	1	0.5		T			
		e	38 05.8		1.1					
		e	27.3		0.8					
30 Jul		eP	10 52 17.0	1	0.7		T			
		e	23.5		0.8					
		e	33.3		0.9					
30 Jul		eP	11 03 47.0	2	0.9		T	4.4		Honshu, Japan 39.7 N 141.8 E h about 37 km 0 = 10 51 03.2 $\Delta = 87^{o}$
		e	53.3		1.0					
		e	04 00.7		1.0					

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
30 Jul		eP	11 13 26.7	3	0.9	(SW)	R			
		e	46.7		1.0					
		e	14 06.8		1.3					
	N	eSur	17 09.4		0.7					
		e	36.1		0.9					
30 Jul		eP	11 20 41.6	2	1.0		T			
		e	54.7		1.4					
		e	21 28.6		1.4					
30 Jul		eP	14 17 45.5	3	0.9		T	4.6		Tonga Islands 19.9 S 176.9 W h about 33 km 0 = 14 04 38.2 $\Delta = 92^{o}$
30 Jul	LP	eSur	16 45 44				T			Weak surface waves on LP
30 Jul		eP	16 55 04.0	5	1.4		T			
		e	56.1		1.0					
30 Jul		eP	17 31 37.1	19	1.7		T			Mag. = 6 3/4-7 (PS), 7 Near north coast of New Guinea 3.3 S 143.9 E h about 25 km 0 = 17 16 44.4 $\Delta = 115^{o}$ Initial arrival is P di fracted. Surface waves clipped no WMSO magnitude calculated. Strong surface waves on all systems.
		e	48.8		1.4					
		e	32 22.7		1.5					
	LP	e	34 32		16.0					
		e	35 04.2		1.6					
		eP'	26.0	47	1.5					
		e	50.7		1.4					
		ePP	36 28.5		1.7					
		e	37 30.2		2.8					
	LP	e	39		17.0					
	LP	e	38 22		17.0					
		eSKP	39 04.8		2.5					
	E	e	18.3		2.0					
		e	26.2		1.7					
	LPE	e	40 08		21.0					
	LPE	eSKS	42 16		22.0					
		e	28.4		1.4					
	LPE	eSKKS	43 24		18.0					
	LPE	ePS	46 08		24.0					
		ePKKP	15.5		0.9					
	LPE	ePPS	47 52		22.0					
		e	48 04.7		1.8					
		e	49 04.6		1.8					
		e(PcPP')	50 11.2		2.1					
	LPE	eSS	52 40		28.0					
		e	53 41.2		2.0					
	LPE	eSSS	56 19		42.0					
	LP	eSur	10 04	999						

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
30 Jul		eP	19 04 40.5	9	0.8		T	5.2		Central Colombia 6.6 N 73.0 W h about 204 km 0 = 18 57 50.7 $\Delta = 37^{o}$
		e	06 40.3		1.2					
		ePcP	07 03.5		0.7					
	N	eS	10 10.0		1.1					
		eScP	34.1		0.8					
	N	eScS	14 43.8		1.2					
30 Jul		eP	19 05 12.6	12	0.4	NNW	L			Δ (S-P) = 0.2^{o}
		eS	17.5	999						
30 Jul		eP	19 15 51.6	1	0.7		T			
30 Jul		eP	19 46 03.2	3	1.0		T			
		e	23.0		1.1					
		e	30.4		0.9					
		e	47 31.7		1.1					
		e	49 17.7		1.4					
30 Jul		eP	20 16 59.6	3	0.2		NR			Δ (S-P) = 1.7^{o}
		eS	17 21.5	999						
30 Jul		eP	20 25 45.6	600	1.0		T	6.3		Mag. = 6 3/4 (PS) 6 3/4 (B), 6 (PL) Western Colombia 5.0 N 76.3 W h about 45 km 0 = 20 18 49.3 $\Delta = 36^{o}$ Strong surface waves, Rayleigh type, on all systems.
	LPE	eS	31 22	999						
		eScP	53.3	999						
		e	32 46.8		2.0					
	LP	eSur	34 18	999						
		eScS	36 09.5	999						
30 Jul		eP	20 58 07.3	8	1.3		T			
		e	19.2		0.7					
		e	29.3		1.7					
		e	40.0		1.5					
		e	52.0		1.5					
		e	59 23.4		1.5					
		e	21 00 25.3		1.8					
		e	04 15.8		1.8					
		e	33.3		1.6					
30 Jul		eP	21 05 51.7	2	0.5	NE	NR			Δ (S-P) = 3.1^{o}
		e	55.3		0.5					
		e	59.1		0.3					
		eS	06 29.5	999						
31 Jul		eP	01 31 17.8	5	0.9		T			
		e	41.7		0.7					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
31 Jul		eP	01 38 22.6	4	1.0		T	4.5		Near south coast of Greece 36.5 N 22.7 E h about 109 km 0 = 01 25 32.7 Δ = 90°
		e	35.3		0.9					
31 Jul		eP'	02 37 48.5	2	1.1		T			Near north coast of New Guinea 3.2 S 144.1 E h about 20 km 0 = 02 19 05.2 Δ = 114.5°
		ePP	38 41.8		2.2					
	LPE	ePS	48 23		20.0					
		ePKKP	36.7		1.0					
	LPN	eSS	54 43		25.0					
	LPN	eSur	03 07 21							
	LP	eSur	12 21						4.6	Medium surface wave Love and Rayleigh typ on LP.
31 Jul		eSur	04 19 10				T			Weak surface waves
31 Jul		eP	05 22 52.1	2	1.1		T	4.5		Near coast of Shikoku Japan 32.5 N 132.1 E h about 33 km 0 = 05 09 17.5 Δ = 98°
		e	23 02.7		1.0					
31 Jul		eP'	05 31 44.9	5	0.7		T			Near north coast of Luzon, P. I. 18.8 N 120.8 E h about 39 km 0 = 05 13 04.1 Δ = 115° Strong surface waves on LP
		e	32 04.7		0.7					
		e	08.6		0.8					
		e	34.7		1.3					
		ePP	41.4		1.5					
		e	33 17.2		1.0					
	LP	ePPP	35 02		19.0					
		ePKKP	42 21.7		1.3					
	LPE	ePS	27		23.0					
	LPE	ePPS	43 46		20.0					
		e	44 57.3		1.5					
		$eSKKP_1$	45 58.5		1.5					
		$eSKKP_2$	46 16.2		1.6					
	LPN	eSS	48 37		22.0					
	LPE	ePSS	48		23.0					
	LPE	eSSS	53 26		27.0					
	LPN	e(PKPPKS)	55 19		23.0					
	LPN	eSur	58 54							
	LP	eSur	06 08 21						5.4	
31 Jul		eP	07 35 22.8	1	0.9		T	4.1		Off east coast of Honshu, Japan 40.1 N 143.0 E h about 66 km 0 = 07 22 46.1 Δ = 86°
31 Jul		eP	08 58 17.4	3	1.0		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
31 Jul		eP	11 34 56.3	7	1.0		T	4.6		Southern Bolivia 19.7 S 67.7 W h about 270 km 0 = 11 25 05.5 Δ = 61°
		e(pP)	35 35.1		1.3					
		ePP	37 08.3		1.1					
31 Jul		eP	11 46 19.8	7	1.2		T			
		e	28.7		1.0					
31 Jul		eP	13 05 22.7	1	0.5		T			
31 Jul		eP	15 54 22.5	4	1.0		T			
31 Jul		eP	20 06 19.2	2	0.7		T			
31 Jul		eP	20 23 42.9	3	0.7	(N)	T			
		e	56.0		1.1					
		e	24 10.3							
31 Jul		eP	22 06 16.3	5	1.0		T			
31 Jul		eP	22 24 47.1	2	0.8		T			
		e	25 16.3		0.6					
31 Jul		eP	23 04 03.4	1	0.7		T			

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REGISTRATION OF EARTHQUAKES AT WICHITA MOUNTAINS SEISMOLOGICAL OBSERVATORY FORT SILL, OKLAHOMA, U.S.A.

Operated under the Technical Supervision of the
Air Force Technical Applications Center (AFTAC)

by

The Geotechnical Corporation
Garland, Texas

Advanced Research Projects Agency (ARPA)
Department of Defense
United States Government

THE REGISTRATION OF EARTHQUAKES

AT THE

WICHITA MOUNTAINS SEISMOLOGICAL OBSERVATORY

STATION

STATION ABBREVIATION:	WMSO
STATION IDENTIFICATION ON FILM SEISMOGRAMS:	α
GEOGRAPHICAL LOCATION *: (Vault No. 6)	34° 43' 05.3" N. Latitude 98° 35' 20.7" W. Longitude
GEOCENTRIC LOCATION *: (Vault No. 6)	34° 32' 09.8" N. Latitude 98° 35' 20.7" W. Longitude
ALTITUDE (Meters) *: (Vault No. 6)	505 meters (1658 feet)
GEOLOGY:	The station is located on the Carlton (porphyritic) granophyre of the Wichita Mountains of Oklahoma.

Noise Level: The periods of the predominant microseisms at WMSO are 0.5 second and 6 seconds. Amplitude distribution curves for the 0.5-second microseisms are shown on page 2 as true ground motion in millimicrons and as trace amplitude in millimeters at the operating gain of 500K. Both curves are center-to-peak.

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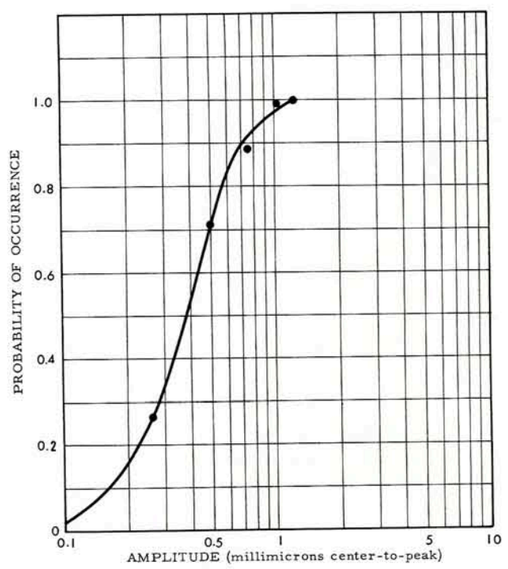
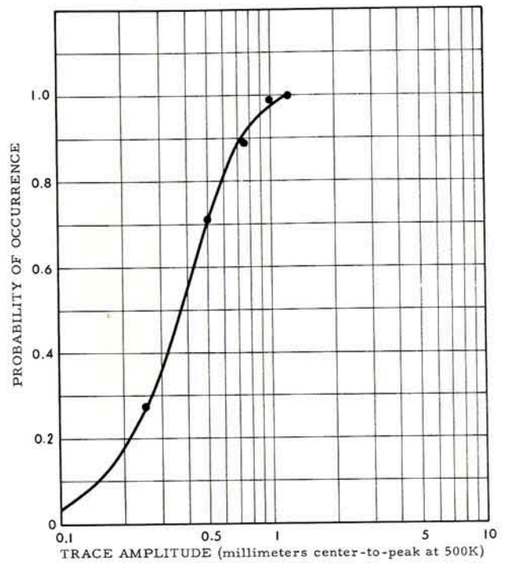
* The coordinates refer to the location of vault No. 6 which houses the 3-component groups of short-period and intermediate-band seismometers from which arrival times are determined.



Probability of predominant 0.5-sec microseisms occurring at or less than a given amplitude at unity magnification



Probability of predominant 0.5-sec microseisms occurring at or less than a given trace amplitude in millimeters at operating gain of 500K

SEISMOGRAPHS

	T_s	λ_s	T_g	λ_g	σ^2
SP Vertical Johnson-Matheson	1.25	0.50	0.32	0.64	0.014
SP Vertical Benioff	1.0	1.0	0.2	1.0	0.01
SP Horizontal Benioff	1.0	1.0	0.2	1.0	0.01
IB Vertical Melton	2.5	0.65	0.64	1.5	0.002
IB Horizontal Sprengnether	2.5	0.65	0.64	1.5	0.0005
BB Vertical Press-Ewing	12.5	0.4	0.64	9.0	0.0002
BB Horizontal Sprengnether	12.5	0.4	0.64	9.0	0.0004
LP Vertical Sprengnether	25.0	1.0	30	1.0	0.004
LP Horizontal Sprengnether	25.0	1.0	30	1.0	0.004

SP = Short Period

IB = Intermediate Band

BB = Broad Band

LP = Long Period

T_s = Free period of seismometer in secs.

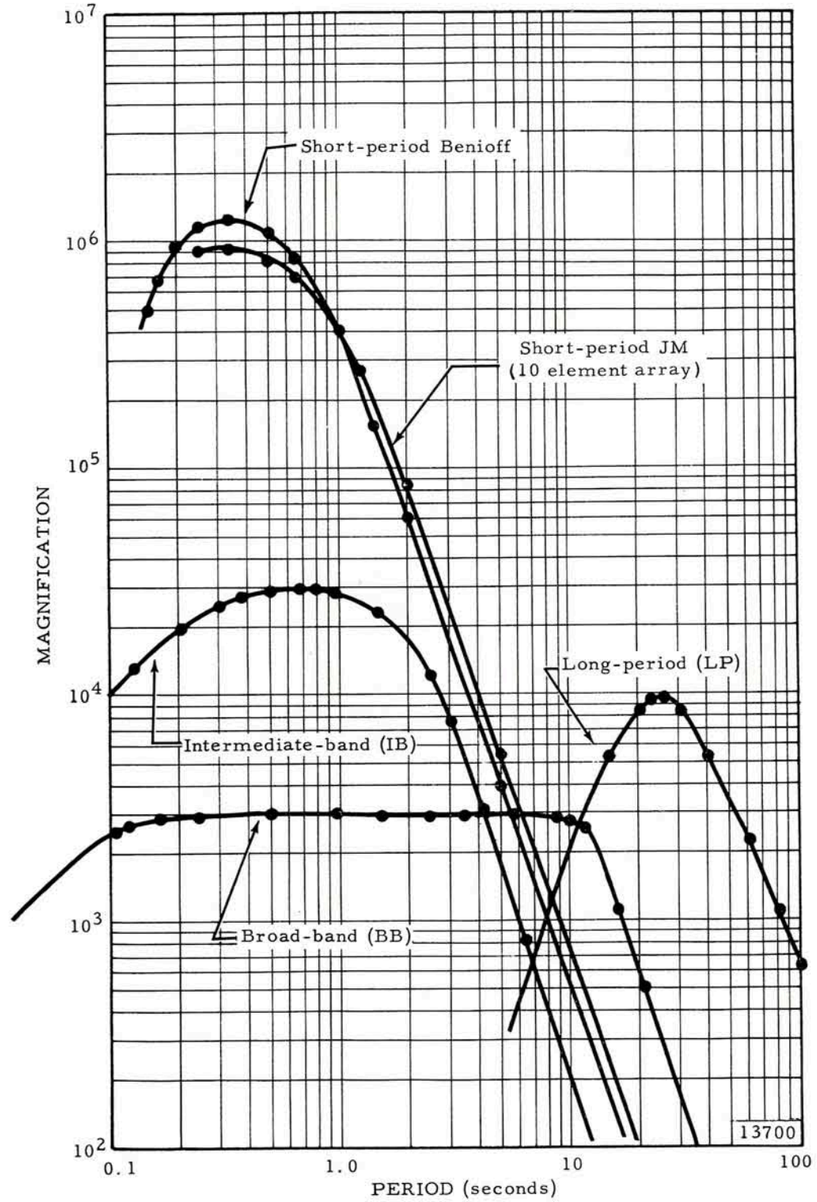
λ_s = Damping constant of seismometer

T_g = Free period of galvanometer in secs.

λ_g = Damping constant of galvanometer

σ^2 = Coupling coefficient

NOTE: Response curves are on page 4.



Response characteristics of seismographs

INTERPRETATION OF SYMBOLS

1. Earthquakes Listed

All local (L), near-regional (NR), regional (R), and distant earthquakes (T) are tabulated on the following pages.

2. System

In the column headed "Syst." (system), the seismograph (SP, IB, BB, or LP) and component (Z, N, or E) used to measure arrival time are designated. When no component designation appears, the phase is read from the vertical component. When neither system nor component designation appears, the phase is read from the SP vertical component.

3. Phase

a. An "i" (impetus) preceding a phase designates sudden beginning of the motion. (A designation of "i" in the case of initial P motion indicates a signal-to-noise ratio exceeding about 5/1.)

b. An "e" (emersio) designates gradual beginning.

c. An "i" or "e" alone designates an unidentified phase.

d. The ( ) (parenthesis marks) indicate uncertainty.

4. Time

a. Date and arrival time are given in Greenwich Civil Time (G.C.T.).

b. The arrival time is reported as the earliest time on Z, N, or E. Single Z rather than the array summation (Σ) is used for measuring arrival times on the SP seismographs.

5. Ground Motion

a. In the columns headed "A" and "T" are tabulated earth displacement in millimicrons and period in seconds, respectively. An amplitude of 999 indicates that a signal cannot be measured reliably. A "c" or "d" in the "A" column indicates compression or dilation, respectively, of the ground as indicated by the vertical component instrument.

The value of "A" for P phases is the maximum amplitude in the first ten seconds. All amplitudes are center-to-peak amplitudes.

b. Trace amplitudes are measured to the nearest 1/2 millimeter at X10 view.

6. Direction

In the column headed "Dir." (direction), the direction of the epicenter as viewed from WMSO is indicated. For teleseisms, direction is obtained only from P and Rayleigh waves and is listed opposite the phase from which it is obtained. For close events, direction may be obtained from P-wave step-out shown on the individual short-period vertical traces.

7. Type

Earthquakes are identified as either:

L	(local)	0-1.4°
NR	(near-regional)	1.4-4.6°
R	(regional)	6-16°
T	(teleseismic)	16-180°

8. Magnitude Column

Magnitudes of earthquakes, as calculated from WMSO seismograms, are reported for all events for which sufficient epicentral information is available, and for which adequate data are available from the WMSO records.

m - Unified Magnitude - calculated from maximum amplitude and predominant period of P wave.

M - Surface Wave Magnitude - calculated from maximum amplitudes of surface waves in the period range 17-23 seconds (reported when P was not recorded or cannot be measured reliably).

No station correction factor has been determined for WMSO to date.

9. Remarks Column

a. Magnitudes, as obtained from the U. S. Coast & Geodetic Survey Preliminary Determination of Epicenter cards, are reported for events recorded at WMSO. The designations for the U. S. Coast & Geodetic Survey stations which report magnitudes are:

B - Berkley
PL - Palisades
PS - Pasadena

b. Epicentral locations, time of origins, and depth of foci are obtained from the U. S. Coast & Geodetic Survey Preliminary Determination of Epicenters cards.

c. The nature of the surface waves is indicated subjectively.

d. Epicentral locations and distances reported by the station are accompanied by an indication of the phases used to determine epicentral distance, e.g., Δ (S-P) = 6°, Central Colorado.

e. Operational notes refer to operational difficulties that affect analysis of data.

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
01 Aug		eP	00 28 46.7	8	1.5		T			
		e	56.2		1.4					
01 Aug		eP	00 34 27.7	2	0.8	ESE	T			
		e	36.7		0.9					
01 Aug		eP	01 18 39.4	2	0.5		NR			Δ(S-P) = 2.4°
	E	eS	19 09.4		0.4					
	N	eSur	16.8		0.5					
01 Aug		eP	01 20 03.1	1	0.7		R			
	N	eSur	21 16.7		0.5					
01 Aug		eP	03 22 06.2	8	1.2		T			
01 Aug		eP	04 02 36.8	5	1.0		T	5.0		Kermadec Islands region
		e	47.4		1.4					27.0 S 176.4 W
		e	56.2		1.2					h about 33 km
		e	03 03.8		1.2					O = 03 49 11.9
		e	19.6		1.3					Δ = 95°
	LPN	eSKS	13 20		16.0					Weak surface waves on LP
	LPE	eS	14 09		19.0					
	LPE	e(Sur)	31 00							
	LPN	eSur	34 47							
01 Aug		eP'	04 47 19.8	7	1.5		T			Near coast of Mindanao, P.I.
		e	55.0		1.2					5.5 S 125.3 E
										h about 33 km
										O = 04 28 26.7
										Δ = 122°
01 Aug		eP	04 51 48.5	6	1.4		T			Near north coast of New Guinea
		e	52 19.3		1.6					3.2 S 143.7 E
		e	53 02.5		1.2					h about 33 km
		e	13.9		1.0					O = 04 36 57.6
		e	54 11.1		1.2					Δ = 115°
		e	55 11.7		1.9					Initial arrival is Pdiffracted.
		e	29.4		1.7					Strong surface waves on LP
		e	37.5		0.9					and BB.
		eP'	39.5	96	1.8					
		e	56 06.0		1.5					
		ePP	38.1		2.0					
		e	53.8		1.5					
		e	57 06.0		1.9					
		e	42.3		1.8					
	LP	e	50		15.0					
		e	58 26.1		2.1					
	LP	eSKP	59 09		12.0					
		e	05 00 16.7		1.5					
		e	36.2		1.8					
		e	01 24.5		1.6					
		e	36.0		1.2					
		e	02 26.9		1.6					
	LPE	eSKS	27		23.0					

(continued on next page)

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
		e	55.1		1.8					(continued from preceding page)
	LPE	eSKKS	03 42		20.0					
	LPE	e	04 32		22.0					
		e	42.2		0.9					
	LP	e	05 14		14.0					
		e	53.6		1.2					
	LPE	ePS	06 20		24.0					
		$ePKKP_1$	21.0		1.0					
		$ePKKP_2$	25.6		1.8					
		e	07 29.9		1.5					
	LPE	ePPS	40		32.0					
		e	08 03.8		1.7					
		e	09 05.9		2.1					
		ePcPP'	10 25.1		2.0					
	LPE	eSS	12 33		27.0					
		e	13 53.8		2.0					
	LPE	e(SSS)	16 10		41.0					
	LP	eSur	29 22					6.5		Mag. = $6\frac{1}{2}$-6 3/4 (PS), $6\frac{1}{2}$ (PL), 7 (B).
01 Aug		eP	05 34 49.5	2	1.1		T	4.6		Kermadec Islands region
		e	35 01.6		1.0					27.1 S 176.3 E
										h about 34 km
										O = 05 21 25.5
										$\Delta = 95^o$
01 Aug		eP	08 54 29.1	4	1.1	S	T			
01 Aug		eP	09 38 31.3	1	0.6		T			
01 Aug		eP	10 36 42.9	2	1.0		T			
01 Aug		eP	12 31 10.3	4	1.1		T			
01 Aug		eP	12 52 20.3	2	0.8		T			
		e	31.0		1.1					
		e	53 13.4		1.3					
01 Aug		eP	13 01 11.8	6	1.2		T	5.0		Kermadec Islands region
		e	21.9		1.5					27.1 S 176.3 W
		e	41.0		1.1					h about 33 km
		e	02 01.9		0.9					O = 12 47 46.6
	LPE	eS	12 36		19.0					$\Delta = 95^o$
	LPE	eSS	19 09		20.0					Weak surface waves on LP
	LPN	e(Sur)	28 12							
	LPN	eSur	33 19							
01 Aug		e(P')	16 05 16.5	3	1.2		T			Kanso Province, China
		ePP	06 21.9		1.4					39.1 N 98.6 E
	LPN	e(Sur)	44 10							h about 25 km
										O = 15 47 45.5
										$\Delta = 104^o$
										Weak surface waves on LP. First arrival may be P diffracted.

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
01 Aug		eP	16 45 40.6	2	0.9		T			
01 Aug		eP	17 11 28.4	1	0.4		NR			Δ(S-P) = 2.3°
	N	eS	56.7		0.6					
01 Aug		eP	18 17 21.4	2	1.0		(R)			Start is indefinite
		e(Sur)	20 03.6		1.2					
01 Aug		eP	18 23 40.5	1	0.8		T			
01 Aug		eP	18 24 06.3	5	0.7		T			Possible phases of previous
		e	15.4		0.5					event
		e	44.7		1.0					
01 Aug		eP	21 15 10.8	2	0.5	S	NR			Δ(S-P) = 2.6°
	E	eS	42.7		0.6					
01 Aug		eP	21 37 35.3	6	1.3		T			
		e	45.2		0.8					
01 Aug		eP	22 11 36.7	2	0.5		NR			Δ(S-P) = 3.0°
		e	42.7		0.5					
	N	eS	12 13.4		0.4					
	N	eSur	20.1	999						
01 Aug		eP	22 41 13.4	7	1.4		T			
01 Aug		eP	23 28 30.9	2	0.2		NR			Δ(S-P) = 1.7°
		eS	52.6	999						
01 Aug		eP	23 38 20.5	2	0.4		NR			Δ(S-P) = 1.7°
		eS	42.0	999						
02 Aug		eP	00 09 26.5	2	0.4	S	NR			Δ(S-P) = 2.2°
	E	eS	53.0	999						
02 Aug		eP	01 18 38.5	1	0.4		T			
02 Aug		eP	02 02 21.5	6	1.5		T			
02 Aug		eP	04 46 39.0	9	1.8		T	3.8		South of Cuba
		e	52.6		1.3					19.3 N 81.0 W
		e	48 04.9		1.5					h about 47 km
		e	36.3		1.3					O = 04 41 46.7
		e	58.2		1.3					$\Delta = 21^o$
		e	50 08.4		1.4					Medium surface waves
		e	16.1		1.5					on LP
	LPN	e(S)	46		20.0					
		e	51 14.8		1.5					
	LPN	eSur	52 02							
	LPE	eSur	53 20							
02 Aug		eP	05 06 02.4	9	1.7		T			
		e	22.6		1.2					
		e	36.2		1.1					

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Magnitude m	M	Remarks
1962												
02 Aug		eP	06	12	03.4	4	1.1		T			
		e			09.9		1.1					
		e			16.3		1.1					
		e			30.2		1.3					
02 Aug		eP	07	37	12.3	1	0.8		T			
02 Aug		eP	12	38	14.9	2	0.9		T			
02 Aug		eP	13	45	04.6	1	0.7		T			
		e		46	21.5		1.2					
02 Aug		eP'	15	51	21.2	3	1.1		T			West Pakistan
		e			34.2		0.9					33.4 N 23.5 E
												h about 33 km
												O = 15 32 20.9
												Δ = 112°
02 Aug		eP	16	33	13.3	3	1.3		T			
02 Aug		eP	19	57	08.6	2	1.0		T			
02 Aug		eP	21	41	59.2	2	0.6	NE	NR			Δ(S-P) = 2.6°
	N	eS		42	31.1		0.4					
	N	eSur			36.6		0.5					
02 Aug		eP	22	04	16.7	2	0.4		NR			Δ(S-P) = 2.0°
	N	eS			48.5		0.4					
02 Aug		eP	23	08	59.7	3	0.9		T			
		e		09	12.7		1.1					
		e			25.8		0.9					
		e			44.5		0.7					
		e		10	15.8		0.7					
02 Aug		eP	23	19	30.6	1	0.3		NR			Δ(S-P) = 2.7°
	E	eS		20	03.1		0.4					
03 Aug		eP	00	00	12.8	1	0.3		NR			
		e			14.7		0.4	E				
	N	eSur			55.5		0.7					
03 Aug		eP	04	13	01.8	3	1.0		T	4.0		West Colombia
		e			20.2		0.9					5.2 N 76.4 W
		e			24.3		0.9					h about 79 km
		e			30.6		1.2					O = 04 06 08.4
		e			43.2		0.9					Δ = 36°
		e			48.5		0.9					
		e		14	47.2		1.0					
		e		16	07.7		1.0					
		eScP		19	05.2		1.3					
03 Aug		eP	05	07	20.8	3	1.3		T			
		e		10	33.4		1.5					

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Magnitude m	M	Remarks
1962												
03 Aug		eP	05	45	51.9	1	0.7		T			
03 Aug		eP	05	51	32.5	2	1.0		T			
03 Aug		eP'	07	57	30.5	2	1.1		T			Prince Edward Islands region
		e			42.8		1.8					45.1 S 38.3 E
												h about 33 km
												O = 07 37 55.2
												Δ = 145°
03 Aug		eP	08	10	21.1	2	0.7		T	4.2		Rat Islands, Aleutian Is.
												51.2 N 176.4 E
												h about 40 km
												O = 08 00 09.8
												Δ = 60°
03 Aug		eP	09	06	42.2	865	1.0		T	6.6		Mag. = 7-7¼ (PS), 6-8 (B)
		epP		07	16.4	999						Northern Chile-Argentina
		ePP		09	01.0		1.7					border
	LPE	ePcS		11	00		24.0					23.2 S 67.5 W
		eS		15	11.8	999						h about 71 km
	LPE	e			14		18.0					O = 08 56 12.1
		e(PS)			51.7	999						Δ = 65°
	LPN	e(ScS)		16	08		19.0					Strong surface waves
	LPN	e		17	28		20.0					on LP and BB
	LPE	eSS		19	40		24.0					
		e		20	39.2		2.5					
	LPE	eSSS		22	35		27.0					
	LP	eSur		25	23							
		ePKKP		27	09.8		1.5					
		e			38.8		1.5					
		e		28	04.6		1.3					
		e		31	04.2		1.3					
		e		33	34.5		1.1					
		e		34	53.1		1.0					
		eP'P'		35	25.0		1.5					
		e		36	10.3		1.4					
		e		37	06.2		1.8					
		e		39	03.9		1.5					
03 Aug		eP	09	43	31.3	5	1.3		T			
03 Aug		eP	09	43	37.9	99	1.8		T			
		e			56.1		1.2					
		e		44	12.9		1.3					
		e			30.4		1.1					
		e			55.8		1.5					
		e		47	32.0		2.2					
		e		54	34.5		2.9					
		e		57	37.6		1.8					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
03 Aug		eP	10 18 44.6	3	1.2		T	4.8		Solomon Islands
		e	23 31.5		1.4					10.1 S 161.2 E
		e	29 36.4		1.1					h about 40 km
		ePKKP	34 52.7		1.2					O = 10 04 44.6
										Δ = 103°
										Possible new events at 10 23 31.5 and 10 29 36.4.
03 Aug		eP	10 30 23.4	1	1.0		T	4.4		Loyalty Islands region
		e	54.5		1.6					23.3 S 171.2 E
		ePKKP	46 20.8		0.8					h about 39 km
										O = 10 16 26.7
										Δ = 103°
03 Aug		eP	11 18 08.6	4	1.2		T	5.1		Kirghiz, SSR
		e	21 32.2		1.4					40.9 N 73.3 E
		e	49.2		1.3					h about 25 km
		e	22 07.3		1.0					O = 11 04 03.6
		e(P')	21.8		1.0					Δ = 104°
		ePP	28.6		1.6					
		e	23 10.6		1.4					
03 Aug		eP	15 20 11.9	2	1.1		T			
03 Aug		eP	15 28 16.9	2	1.0		T			
		e	32.5		0.8					
03 Aug		eP	15 32 22.7	2	1.1		T			
03 Aug		eP	16 58 27.4	1	0.2		NR			Δ(S-P) = 1.8°
	N	eS	51.5		0.4					
03 Aug		eP	18 02 33.1	1	0.7		T			
03 Aug		eP	18 28 27.3	1	0.3		NR			Δ(S-P) = 2.0°
	N	eS	52.4		0.3					
03 Aug		eP	19 59 08.7	1	0.7		T			
03 Aug		eP	22 05 19.7	130	1.1		R			
		e	34.1		0.7					
		eSur	08 18.5		1.1					
03 Aug		eP	23 08 03.1	1	1.0		T			
		e	52.9		0.9					
		e	09 14.3		1.0					
		e	37.3		1.2					
03 Aug		eP	23 36 31.2	5	0.2	NW	L			Δ(S-P) = less than 0.1°
		eS	34.9	999						

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
03 Aug		eP	23 39 28.2	2	0.3		NR			Δ(S-P) = 1.7°
	E	eS	39.3		0.3					Quarry blast, 3,800 lbs., by Gifford-Hill Co. near Chico, Texas
04 Aug		eP	00 09 32.9	2	0.8	E	(R)			
04 Aug		eP	00 35 25.6	9	0.8	N	L			Δ(S-P) = less than 0.1°
		eS	27.9	999						
04 Aug		eP	00 37 57.2	1	1.0		T			
04 Aug		eP	01 00 36.7	2	0.8		T			
04 Aug		eP	01 19 02.8	1	0.3		NR			Δ(S-P) = 2.5°
	E	eS	33.6		0.3					
	E	eSur	45.6		0.4					
04 Aug		eP	02 54 28.8	88	1.0		T	5.1		Mag. = 4½ (B)
		e	55 23.3		1.2					Near coast of Guatemala
		e	52.2		1.0					14.1 N 93.0 W
		e	57 47.3		1.5					h about 30 km
	E	eSur	58 16.6		2.3					O = 02 49 44.7
										Δ = 21°
04 Aug		eP	03 03 17.8	5	1.1		T			
04 Aug		eP	05 10 25.2	5	0.7	SE	T			
		e	43.8		1.2					
04 Aug		eP	06 34 46.0	5	0.8		T			
		e	35 03.4		1.3					
		e	38 44.3		1.2					
04 Aug		eP	10 51 15.9	3	1.0	SE	T			
04 Aug		eP	10 51 49.7	8	0.8		T			
		e	52 03.0		0.9					
		e	08.0		1.1					
		e	31.8		0.8					
04 Aug		eP	15 17 00.6	3	1.2		T			
		e	09.0		1.3					
		e	18.0		1.2					
		e	35.7		1.2					
		e	51.8		1.4					
05 Aug		eP	00 05 21.3	3	1.2		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
05 Aug		ePKKP	15 38 42.1		1.4		T			New Hebrides Islands
		e	55.5		1.0					13.7 S 166.6 E
		e	39 10.4		0.9					h about 60 km
	LPN	eSur	56 15						5.9	O = 15 08 34.1
										Δ = 102°
										Medium surface waves on LP.
05 Aug		eP	18 11 15.2	1	0.4		NR			Δ (S-P) = 1.6°
		e	24.5		0.3					
		eS	36.5	999						
05 Aug		eP	18 27 40.0	4	1.1		T			
05 Aug		eP	19 35 42.3	2	1.0		T			
05 Aug		eP	23 10 01.0	2	0.9		T			
		e	11 00.4		0.9					
06 Aug		eP	01 44 06.0	125	1.1		T	5.9		Mag. = 6½ (PS), 5½ (PL)
		e	42.8		1.0					North Atlantic Ocean
		ePcP	45 36.4		0.9					30.0 N 40.8 W
		e	49.7		2.0					h about 48 km
		ePP	58.6		2.2					O = 01 35 30.5
		e	46 44.9		1.1					Δ = 48°
		e	47 36.0		2.5					Strong surface waves
		e	48 56.6		1.7					on LP and BB.
	LPN	ePcS	49 32		15.0					
	LPE	e	50 02		10.0					
	LPE	e	52		18.0					
		e	56.4		1.8					
	LPN	eS	51 10		20.0					
	LPE	eScS	54 00		22.0					
	LPE	eSur	56 16							
	LP	eSur	58 26							
06 Aug		eP	08 27 38.7	1	0.9		T			
		e	28 10.9		1.3					
06 Aug		eP	08 55 46.1	1	0.8		T			Sandwich Islands
		e	56 35.3		1.0					58.4 S 25.5 W
		e	57 02.3		0.8					h about 54 km
		e	59 22.2		1.1					O = 08 41 17.8
		e(P')	45.2	2	0.6					Δ = 112°
		e	09 00 12.9		0.9					Initial arrival is P
		e(PP)	19.3		1.2					diffracted.
		e	57.3		1.0					Weak surface waves
		e	01 36.9		1.0					on LP
	LPE	eSKS	06 19		16.0					
	LPE	eSKKS	07 08		20.0					
	LPE	ePS	09 52		16.0					
	LPE	e	10 26		16.0					
		$ePKKP_1$	53.9		1.1					
		$ePKKP_2$	11 08.7		1.2					
	LPE	eSur	36 00							
	LPN	eSur	38 25						4.6	

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
06 Aug		eP	09 16 50.0	1	0.8		T			
		e	57.1		0.8					
06 Aug		eP	09 36 17.0	3	1.0		T	4.4		Northern Honshu, Japan
		e	35.9		1.0					39.7 N 140.6 E
										h about 60 km
										O = 09 23 30.9
										Δ = 88°
06 Aug		eP	10 54 31.8	4	1.0	(SE)	T			
06 Aug		eP	11 24 53.3	5	1.2		T			
		e	25 01.6		1.3					
06 Aug		eP	15 58 18.2	1	0.7	(SE)	T			
06 Aug		eP	17 13 06.0	1	0.3		NR			Δ (S-P) = 1.9°
	E	eS	29.9		0.3					
06 Aug		eP	19 09 29.2	3	0.8		R			
	N	eSur	13 49.8		0.6					
06 Aug	N	eSur	19 18 30.8		1.1		(R)			
06 Aug		eP	20 09 54.9	3	1.1		R			
	N	eSur	12 59.6		1.0					
06 Aug		eP	21 05 20.6	34	0.9		T	5.9		Mag. = 6 (B), 5½ (PL)
		e	37.7		0.9					Kermadec Islands region
		e	55.0		1.1					26.9 S 177.1 W
		e	06 53.5		1.1					h about 50 km
		e	07 10.4		1.0					O = 20 51 56.8
		e	27.4		1.1					Δ = 96°
		ePP	09 09.1		1.8					Medium surface waves
		e	36.3		1.2					on BB.
		e	10 35.7		1.2					Phase at 21 22 41.7 is
		e	11 50.8		1.3					possible new event.
	N	eSKS	15 56.2		4.0					
	N	eS	16 26.2		2.4					
	BB	eSP	18 00		9.0					
		ePKKP	22 08.3		1.2					
		e	41.7		1.5					
		e	23 07.1		1.4					
		e	21.8		1.0					
		e	56.7		1.2					
		e	24 15.4		1.2					
		e	30.8		1.0					
		eP'P'	30 18.4		1.2					
	BB	eSur	37 25							
07 Aug		eP	00 13 38.1	2	0.4		NR			Δ (S-P) = 3.6°
	N	eS	14 21.6		0.8					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
07 Aug		eP	00 52 38.4	3	0.6	NW	R			
		e	49.5		0.6					
		e	58.6		0.8					
		e	53 07.2		1.0					
		e	15.5		0.5					
	N	eSur	54 42.5		0.6					
07 Aug		eP	01 42 09.3	2	0.5	NW	R			
		e	36.8		0.7					
	N	eSur	44 04.6	999						
07 Aug		eSKP	03 24 32.4		1.0		T			Andaman Islands
		e	51.7		0.8					12.2 N 92.5 E
										h about 33 km
										O = 03 01 52.4
										Δ = 132°
07 Aug		eP'	09 03 35.7	1	0.8		T			Molucca Passage
		e	04 35.8		0.8					4.9 N 127.8 E
		e	39.2		0.7					h about 33 km
		ePP	05 06.0		1.3					O = 08 44 43.7
		e	14.6		1.0					Δ = 122°
		ePKKP	13 38.5		0.9					Weak surface waves on LP.
	LP	eSur	44 23						4.4	Possible new events at
										09 04 35.8 and 09 04 39.2.
07 Aug		eP	18 01 37.3	2	0.3	SE	NR			Δ (S-P) = 1.7°
		eS	59.4	999						
07 Aug		eP	19 28 44.8	4	1.0		T	4.1		Near north coast of
		e	52.5		1.3					Panama
		e	29 16.2		0.9					9.6 N 82.5 W
										h about 33 km
										O = 19 22 46.2
										Δ = 29°
07 Aug		eP	19 52 06.0	5	0.8	SSE	T			
		e	13.3		0.7					
07 Aug		eP	21 05 45.3	1	0.9		T			
		e	06 02.6		1.1					
07 Aug		eP	22 36 11.4	2	1.0		T	3.9		Baja California
		e	37 14.4		1.2					31.5 N 116.1 W
	N	eSur	40 30.0		1.7					h about 33 km
	BB	eSur	42 00							O = 22 32 35.1
										Δ = 14°
										Strong surface waves on SP,
										medium on BB.
08 Aug		eP	09 31 38.8	2	0.9		T	4.2		Fiji Islands
										16.4 S 179.5 W
										h about 493 km
										O = 09 19 22.4
										Δ = 91.5°

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
08 Aug		eP	10 30 18.8	2	0.9		T			Weak surface waves
		e	37.4		1.2					on LP.
		e	31 03.4		1.3					
	LPN	e	38 05		24.0					
	LP	eSur	39 56							
08 Aug		eP	11 04 08.5	4	1.0		T	4.4		Fox Islands, Aleutian Is.
		e	16.8		1.3					52.1 N 170.5 W
		e	31.9		1.3					h about 40 km
		e	41.4		0.9					O = 10 54 56.3
		e	06 24.9		1.2					Δ = 53°
	LPN	eS	11 45		24.0					Medium surface waves
	LPN	eScS	13 47		20.0					on LP
	LPN	eSS	15 30		21.0					
	LPN	eSur	19 16							
	LP	eSur	23 17							
08 Aug		eP	12 34 20.1	5	1.2		T			
08 Aug	LP	eSur	12 53 39				T		4.0	New Hebrides Islands
										17.8 S 168.0 E
										h about 30 km
										O = 12 00 15.1
										Δ = 102°
										Weak surface waves on LP
08 Aug		eP	13 04 08.2	6	1.4		T			
08 Aug	LP	eSur	14 29 06				T		4.1	New Hebrides Islands
										18.0 S 168.1 E
										h about 33 km
										O = 13 35 11.7
										Δ = 102°
										Weak surface waves on LP
08 Aug		eP	18 08 31.0	1	0.8		T	4.3		Near east coast of
										Honshu, Japan
										37.0 N 141.5 E
										h about 53 km
										O = 17 55 37.9
										Δ = 89°
08 Aug		eP	18 32 29.7	2	0.4		NR			Δ (S-P) = 1.6°
		e	39.0		0.4					
		eS	51.4	999						
08 Aug		eP	20 18 09.8	1	0.4		NR			Δ (S-P) = 1.9°
	E	eS	33.7		0.5					
08 Aug		eP	21 19 07.8	1	0.3		R			
		e	25.3		0.7					
	E	eSur	20 26.2		0.4					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
09 Aug		eP	00 31 21.2	6	0.9		T	4.6		Northern Chile
		e	48.7		1.1					22.4 S 70.0 W
		e(pP)	58.9		1.0					h about 160 km
		e	32 24.7		1.0					O = 00 21 10.7
										Δ = 62°
09 Aug		eP	02 08 45.1	2	0.9		T			
09 Aug		iP	04 28 43.6	c 46	0.7		T	5.3		Colombia
		epP	29 20.7		1.3					6.7 N 73.1 W
		e	31.8		1.2					h about 180 km
		ePcP	31 06.0		0.5					O = 04 21 55.4
		e	36.4		1.4					Δ = 37°
		e	33 04.0		1.0					Weak surface waves
		e	57.9		1.2					on LP
	E	eS	34 11.1		1.4					
	N	e	13.4		1.2					
		eScP	37.5		0.7					
		e	56.5		1.1					
	LPE	e	35 30		18.0					
	LPE	eSS	36 52		20.0					
		e	54.1		1.2					
		e	37 01.7		1.4					
	LP	e	09		20.0					
		e	36.4		0.9					
	E	eScS	38 43.4		1.3					
	LPN	e(Sur)	46							
09 Aug		eP	06 30 24.6	46	1.5		T	5.2		Salta Province, Argentina
		epP	55.6		1.5					24.1 S 66.5 W
		e	31 20.1		1.5					h about 128 km
		e	45.0		1.3					O = 06 19 51.4
		e	32 22.5		1.3					Δ = 66°
		e	44.1		1.0					Medium surface waves
		e	33 31.6		1.3					on LP
		e	46.8		0.9					
		eScP	34 36.5		2.1					
	E	eS	39 02.5		1.9					
	LPN	eScS	40 07		20.0					
	LPN	e	41 30		18.0					
	LPN	eSS	43 34		24.0					
	LPN	e	46 54		22.0					
	LPN	e(Sur)	49 08							
		eP'P'	58 54.6		1.5					
09 Aug		eP	08 05 48.4	2	0.9		T			
		e	56.3		0.9					
		e	06 35.3		0.9					
09 Aug		eP	08 14 21.1	3	1.2		R			
		e	15 33.5		1.6					
	E	eSur	18 41.6		1.7					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
09 Aug		eP	08 34 45.6	4	1.5		R			
	E	eSur	37 13.1		0.8					
09 Aug		eP	12 59 11.3	2	0.8		T			Δ (S-P) = 39°
		e	32.9		1.0					
		e	37.8		0.9					
		e	13 01 00.9		0.9					
		e	30.4		0.9					
	E	e(S)	05 10.6		2.0					
09 Aug		eP	14 36 28.5	5	0.4	S	NR			Δ (S-P) = 2.2°
		eS	55.4	999						
09 Aug	LP	e	17 15 55		18.0		T			
09 Aug		eP	17 37 06.5	44	1.4		T	5.4		Near coast of southern
		e	12.1		1.5					Chile
		e	17.6		1.3					44.5 S 73.4 W
		e	50.0		1.4					h about 33 km
		e	38 59.7		1.4					O = 17 24 48.5
	LPE	eS	47 27		14.0					Δ = 82°
09 Aug		eP	17 46 42.9	2	0.4		NR			Δ (S-P) = 2.6°
	E	eS	47 14.9		0.4					
09 Aug		eP	18 10 49.2	4	0.3	SE	NR			Δ (S-P) = 1.7°
		eS	11 10.8	999						
09 Aug		iP	18 13 54.8	c 999		NE	L			Δ (S-P) = less than 0.1°
		eS	57.0	999						
09 Aug		eP	21 27 18.0	1	0.3		L			Δ (S-P) = 0.8°
		eS	26.3	999						
09 Aug		eP	21 28 51.7	1	0.4		NR			Δ (S-P) = 1.7°
	N	eS	29 14.1		0.4					
09 Aug		eP	22 42 58.2	2	0.9		T	4.2		Near east coast of
		e	43 15.8		0.7					Kamchatka
										52.1 N 158.9 E
										h about 33 km
										O = 22 31 45.5
										Δ = 70.5°
09 Aug		eP	23 45 59.1	2	0.4		NR			Δ (S-P) = 3.7°
		eS	46 42.7	999						
10 Aug		eP	00 22 46.8	4	1.4		T			
10 Aug		eP	02 19 49.5	13	0.8	SE	T			
10 Aug		eP	09 41 26.0	3	1.0		T			Possible new event at
		e	49 52.7		1.4					09 49 52.7

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
10 Aug		eP	14 34 09.1	6	0.9		T			
		e	35 04.0		1.1					
10 Aug		eP	16 41 37.0	3	0.9		T			
10 Aug		eP	18 05 07.5	2	0.3	SE	NR			Δ(S-P) = 1.7°
		eS	29.3	999						
10 Aug		eP	18 40 36.2	8	1.6		T			
10 Aug		eP	20 47 35.2	14	0.5	NE	L			Δ(S-P) = 1.0°
		eS	49.3	999						
10 Aug		eP	21 13 10.8	38	1.0		T	5.2		Mag. = 4½ (PS)
		ePcP	14 22.6		1.3					North Atlantic Ocean
		e	45.8		3.2					49.4 N 27.9 W
		e	59.3		1.2					h about 33 km
		e(PP)	15 17.3		1.6					O = 21 03 59.2
		e	44.4		1.9					Δ = 52°
		e	16 03.1		2.4					Strong surface waves
	LPN	eS	20 40		18.0					on LP and BB.
	LPN	eScS	23 00		22.0					Phase at 21 43 20.9 is
	LPN	eSS	24 22		20.0					possible new event.
	LP	eSur	28 33							
	LPE	eSur	33 42							
		e(P'P')	43 20.9		1.1					
10 Aug		eP	21 28 35.0	2	0.3	SE	NR			Δ(S-P) = 1.7°
		eS	56.6	999						
10 Aug		eP	22 13 45.5	3	0.4		NR			Δ(S-P) = 2.7°
	E	eS	14 18.1		0.5					
11 Aug		eP	00 18 24.3	4	1.4		T			Start is indefinite
		e	22 52.4		1.6					
11 Aug		eP	01 59 49.7	6	0.9		T	4.8		Fiji Islands
		e	02 00 03.3		0.8					20.0 S 178.8 W
		epP	02 03.8		1.1					h about 638 km
		e	15.8		1.3					O = 01 47 39.6
		e	37.3		1.4					Δ = 93°
		ePP	03 44.1		1.6					
		e	05 45.9		1.2					
		e	06 07.2		1.5					
	E	eSKS	09 27.6		2.5					
	LPE	eS	10 14		16.0					
	LPE	e(PPS)	14 11		20.0					
		e	16 20.3		1.1					
	LPE	e	22		20.0					
		ePKKP	54.0		0.6					
		e	17 33.8		1.4					
		e	18 00.4		1.2					
		e	19 07.6		1.2					
	LPE	eSSS	20 20		23.0					
		eP'P'	25 02.8		1.2					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
11 Aug		eP	03 18 26.2	2	1.1		T			
11 Aug		eP	05 16 43.2	2	0.9	SW	T			
		e	17 02.7		0.9					
		e	25.5		1.0					
11 Aug		eP	07 00 07.6	20	1.4		T	4.8		Tonga Islands region
		e	29.6		1.3					15.7 S 172.9 W
		e	39.6		1.2					h about 157 km
		epP	50.8		1.6					O = 06 47 41.7
		e	02 08.4		1.3					Δ = 86°
		ePP	03 28.5		1.5					Phase at 07 03 45.5 is
		e	45.9		1.1					possible new event.
	LPN	eS	10 40		19.0					Strong surface waves
	LPN	ePS	11 50		24.0					on LP, weak on BB.
	LPN	eSSS	16 06		26.0					
	LP	e	23 13		35.0					
	LPN	eSur	27 24							
11 Aug		eP	07 13 07.6	6	0.8	SSE	T			
		e	15.9		0.9					
11 Aug		eP	08 29 54.9	5	1.3		T	5.4		Mag. = 6 (PS), 5-5½ (PL)
		e	30 52.8		1.4					Off northeast coast of
		e	31 28.6		1.5					Formosa
		e	32 19.4		1.4					25.2 N 123.3 E
		e	56.9		2.0					h about 140 km
		e	33 30.1		1.5					O = 08 15 43.7
		eP'	57.2		0.9					Δ = 105°
		e	58.7		1.9					Strong surface waves
		e	34 14.6		1.5					on LP, weak on BB.
		e(PP)	23.0		1.9					
		e	55.7		1.0					
		e(pP')	35 00.4		2.5					
		e	20.1		1.9					
		e	36 14.7		2.2					
		e	39 52.5		2.0					
	LPE	eSKS	40 21		16.0					
	LPE	eSKS	41 16		12.0					
	E	e(S)	48.0		2.4					
		e	42 11.0		1.8					
	LPN	e	54		22.0					
	LP	eSP	43 24		22.0					
	LP	eSPP	44 40		30.0					
		$ePKKP_1$	45 06.7		1.4					
		e(SKKP)	08.4		2.1					
		$ePKKP_2$	17.8		0.6					
	LPE	eSS	49 16		19.0					
		e(PcPP')	33.2		1.6					
		e	48.2		1.8					
		e(P'P')	53 01.9		2.2					
	LP	eSur	09 03 28							

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
11 Aug		eP'	18 31 39.0	4	1.0		T			Banda Sea
		ePP	33 35.4		1.6					6.6 S 130.3 E
		ePKKP	41 43.5		0.9					h about 173 km
										O = 18 12 53.7
										Δ = 127°
11 Aug		eP	20 06 38.2	1	0.4		NR			Δ(S-P) = 3.4°
		e	44.2		0.3					
	N	eS	07 19.0		0.4					
11 Aug		eP	20 08 07.8	3	0.7		T			
		e	47.1		0.8					
12 Aug		eP	04 42 58.1	2	0.9		T			
		e	43 14.0		0.5					
12 Aug		eP	05 02 41.8	2	0.8		T	4.7		Turkey
										37.5 N 30.7 E
										h about 33 km
										O = 04 49 28.4
										Δ = 93°
12 Aug		eP	05 18 50.1	14	0.7		T	4.6		Off west coast of
		e	19 11.8		1.2					Nicaragua
		e(PP)	17.4		1.1					12.2 N 87.8 W
		e	33.0		1.2					h about 33 km
		e	20 05.4		1.3					O = 05 13 33.1
		e	40.4		1.1					Δ = 24.5°
		ePcP	22 31.9		0.8					
		eScP	26 06.0		0.8					
12 Aug		eP	11 34 39.6	3	1.1		T			
		e	47.6		1.3					
12 Aug		eP	15 51 41.1	2	1.0		T			
		e	52 01.4		0.9					
12 Aug		eP	20 46 51.5	10	1.2		T	4.6		Central Chile
		e	47 17.3		1.2					36.0 S 72.4 W
		e	31.1		0.9					h about 43 km
										O = 20 35 17.0
										Δ = 75°
12 Aug		eP	22 19 58.0	1	0.4		NR			Δ(S-P) = 2.2°
	N	eS	20 25.6		0.4					
13 Aug		eP	01 15 08.2	8	1.6		T			
		e	23.2		1.7					
		e	17 07.7		1.3					

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
13 Aug		eP	01 39 05.6	4	0.9	N	L			Δ(S-P) = less than 0.1°
		eS	09.0	999						
13 Aug		eP	02 13 36.7	5	1.1	S	T			
		e	45.3		0.9					
13 Aug		eP	03 04 26.2	8	1.4		T			
13 Aug		eP	06 42 48.7	710	2.2		T	6.0		Mag. = 6½-6 3/4 (PS),
		e	43 09.0		2.0					5.4 (B), 5½-5 3/4 (PL).
		e	26.6		1.5					About 300 miles northwest
		e	31.7		1.1					of Ecuador
	LP	ePP	44 08		13.0					2.1 N 83.5 W
		e	29.6		2.0					h about 33 km
		e	53.6		2.4					O = 06 35 56.0
		e(PcP)	45 16.4		2.0					Δ = 36°
		e	29.8		1.4					Strong surface waves,
	LP	e	46		16.0					Love and Rayleigh type,
		e	46 21.2		1.1					on LP and BB.
	LP	e	57		13.0					
	LPE	eS	48 33		16.0					
		eScP	49 09.1		1.6					
	LPN	eSur	50 54							
	LP	eSur	53 29							
13 Aug		eP	10 13 55.8	16	1.2		T	4.3		Off coast of Chiapas, Mexico
		e	14 57.3		1.2					14.6 N 93.0 W
		e	15 34.9		0.9					h about 118 km
	E	eSur	17 47.2		0.9					O = 10 09 24.9
		e	57.3		1.1					Δ = 24°
										Strong surface waves on
										SP and LP, weak on BB.
13 Aug		eP	10 27 30.2	3	0.7		T			Possible aftershock off
		e	54.3		0.8					coast of Chiapas, Mexico
		e	28 18.3		1.0					Δ = 24°
		e	40.0		0.9					
	E	eSur	31 22.6		0.7					
13 Aug		eP	12 04 08.0	2	0.7		T			
13 Aug		eP	12 35 31.9	24	1.9		T			
13 Aug		eP	13 51 43.6	2	1.0		T			
		e	52 45.3		0.6					
		e	56.8		1.0					
		e	53 57.2		1.3					
		e	54 50.1		1.6					
	N	eSur	56 59.6		0.7					
13 Aug		eP	17 11 56.3	2	0.8		R			
		e	12 03.3		0.7					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
13 Aug		eP	18 09 31.9	1	0.4		NR			Δ(S-P) = 1.7°
		eS	54.0	999						
13 Aug		eP	20 24 34.2	26	1.4		T	5.4		Buryatshaya, S.S.R.
		e	40.4		1.3					51.8 N 110.2 E
		e	45.2		1.1					h about 33 km
		e	26 35.2		1.2					O = 20 11 36.1
		e	27 27.4		1.0					Δ = 90°
		ePP	28 13.6		1.3					Medium surface waves
	LP	eSur	54 00							on LP.
13 Aug		eP	21 36 32.4	1	0.3		NR			Δ(S-P) = 1.5°
		eS	52.0	999						
13 Aug		eP	22 19 35.4	2	1.0		T			
		e	49.7		0.6					
		e	52.8		1.0					
13 Aug		eP	23 32 50.9	2	0.3		NR			Δ(S-P) = 1.6°
		e	33 00.9		0.4					Quarry blast, 6,200 lbs.,
		eS	12.3	999						by Gifford-Hill Co. near
										Chico, Texas
14 Aug		eP'	01 29 38.0	8	1.4		T			300 miles north of
		e	30 11.5		1.3					Macquarie Islands
	LP	ePP	31 12		19.0					49.9 S 163.0 E
		e	46.2		1.4					h about 43 km
		e	47.3		1.4					O = 01 10 50.5
		e	36 18.7		1.6					Δ = 121°
	LPN	eSKS	41		27.0					Strong surface waves,
	LPE	e	39 17		16.0					Love and Rayleigh type,
		ePKKP	52.2		1.3					on LP and BB.
	LPN	ePS	41 18		20.0					
	LPN	ePPS	42 37		22.0					
	LPN	ePKKS	43 41		24.0					
	LPE	eSS	47 45		20.0					
	LPE	e	51 03		20.0					
	LP	e	52 51		23.0					
	LPN	e	54 34		33.0					
	LPE	eSur	02 01 00							
	LP	eSur	07 12							6.1
14 Aug		eP	03 32 45.5	3	0.5	SE	T			
		e	57.5		1.1					
14 Aug		eP	04 21 58.7	2	0.5	E	NR			Δ(S-P) = 3.5°
	N	eS	22 40.3		0.7					
14 Aug		eP	05 26 53.7	5	0.8		T			
		e	27 10.9		0.8					
		e	30.4		1.2					
		e	28 08.9		0.7					
		e	24.4		1.5					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
14 Aug		eP	06 39 22.4	2	0.7		T			
14 Aug		eP'	07 46 49.8	1	0.6		T			Iran
	LP	eSur	08 25 58						4.2	28.0 N 55.6 E
										h about 43 km
										O = 07 27 44.8
										Δ = 112°
										Weak surface waves on LP
14 Aug		eP	11 51 50.4	14	1.0	SSE	T			Possible aftershock of off
		e	52 04.6		1.0					coast of Chiapas, Mexico
		e	35.8		0.9					event.
		e	41.2		1.3					Δ = 24°
		e	53 03.5		1.2					Medium surface waves
		e	18.9		1.4					on LP.
	E	eSur	55 39.3		0.8					
	LPN	e	56 00		14.0					
	LPN	eSur	12 01 00							
14 Aug		eP	12 50 16.7	3	1.2		T			
14 Aug		eP	18 15 21.5	1	0.8		T			
14 Aug		eP	18 57 52.0	1	0.5		NR			Δ(S-P) = 4.2°
	E	eS	58 44.9		0.5					
14 Aug		eP'	20 14 13.4	3	1.2		T			Off south coast of Java
		e	20.8		1.2					9.3 S 110.3 E
		e	56.5		1.2					h about 182 km
										O = 19 54 56.6
										Δ = 139°
14 Aug		eP	22 48 23.8	3	0.9		T			
15 Aug		eP	00 06 05.1	1	0.4		T			
		e	32.4		0.8					
15 Aug		eP	00 19 29.4	1	0.4		NR			Δ(S-P) = 3.8°
	N	eS	20 15.4		0.4					
15 Aug		eP	01 34 17.5	2	0.8		T			
15 Aug		eP	02 38 25.0	2	1.0		T			
15 Aug		eP	02 58 38.7	1	0.6		T	4.4		South of Honshu, Japan
		e(pP)	59 21.7		1.0					31.4 N 139.2 E
										h about 155 km
										O = 02 45 33.9
										Δ = 94°

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
15 Aug		eP	03 21 51.6	13	1.2		T	4.9		Komandorskie Islands
		e	22 01.0		1.0					55.3 N 167.0 E
		e	15.4		1.5					h about 33 km
	LPN	e(Sur)	38 30							O = 03 11 15.7
	LPN	eSur	41 40							Δ = 64°
										Weak surface waves on LP
15 Aug		eP	06 19 23.0	3	1.1		T			
		e	33.4		0.8					
15 Aug		eP	08 30 30.9	23	1.0		T	5.1		Near east coast of
		e	40.6		1.1					Kamchatka
		e	45.0		0.9					54.6 N 161.5 E
		e	55.6		1.3					h about 52 km
		e	32 25.0		1.4					O = 08 19 37.8
		ePP	33 08.5		2.0					Δ = 68°
	LPN	eS	39 30		16.0					Medium surface waves,
	LPN	e(SSS)	47 28		24.0					Love and Rayleigh type,
	LPN	eSur	52 00							on LP.
	LPN	eSur	54 28							
	LP	eSur	56 30							
		eP'P'	58 48.5		1.0					
15 Aug		eP'	08 47 39.3	4	1.2		T			Celebes Sea
		ePP	49 35.9		1.8					4.7 N 122.6 E
		epP	55.7		1.8					h about 620 km
		ePKKP	57 21.2		0.6					O = 08 29 46.7
										Δ = 122°
15 Aug		eP	10 19 41.9	14	0.9		T	5.3		Manchuria, China
		e	20 07.4		1.2					45.2 N 132.6 E
	LPN	eSur	54 00							h about 37 km
										O = 10 06 53.6
										Δ = 89°
										Weak surface waves on LP
15 Aug		eP	11 30 24.7	19	1.0		T	5.1		Andreanof Islands,
		e	36.5		1.8					Aleutian Islands
		ePcP	31 20.0		1.0					51.8 N 177.0 W
		e	24.5		1.3					h about 53 km
		ePP	32 26.9		1.1					O = 11 20 44.5
	LPN	eS	38 20		18.0					Δ = 57°
	LPN	eSur	46 54							Medium surface waves
	LP	eSur	50 10							on LP
15 Aug		eP'	13 27 41.1	4	0.8		T	4.6		Socotra Islands region
		e	50.0		1.1					14.5 N 55.3 E
		e	52.6		1.0					h about 33 km
										O = 13 08 42.0
										Δ = 123°
15 Aug	LP	eSur	14 21 03				T			Medium surface waves
										on LP

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
15 Aug		eP	15 38 52.0	7	1.4		T			
		e	39 10.8		1.1					
15 Aug		eP	16 33 54.0	8	1.6		T	4.5		Near coast of Central Chile
		e	34 29.5		1.4					37.5 S 73.6 W
										h about 33 km
										O = 16 22 17.3
										Δ = 75°
15 Aug		eP	17 27 43.1	5	1.0		T			
15 Aug		eP	17 51 07.4	1	0.4		NR			Δ(S-P) = 2.6°
	N	eS	39.7		0.4					
	N	eSur	46.6		0.4					
15 Aug		eP	18 13 23.8	4	0.4	SE	NR			Δ(S-P) = 1.7°
		eS	45.4	999						
15 Aug		eP	18 21 53.7	5	1.4		T			
15 Aug		eP	22 13 28.9	4	0.5		NR			Δ(S-P) = 2.5°
	N	eS	14 00.2		0.5					
15 Aug		eP	22 37 45.3	1	0.4	SE	NR			Δ(S-P) = 1.9°
		eS	38 09.2	999						
16 Aug		eP	00 39 31.6	3	1.0		T			
		e	40.7		1.0					
	LPN	e	49 27		24.0					
	LPN	e	51 00		13.0					
	LP	e(Sur)	54 03							
16 Aug		eP	00 40 40.4	1	0.3		L			Δ(S-P) = less than 0.1°
		eS	42.0	999						
16 Aug		eP	01 20 46.7	2	0.6		T			
16 Aug		eP	01 25 34.8	3	1.0		T			
	LPN	e	35 30		30.0					
	LPN	e	37 28		25.0					
	LP	e(Sur)	39 10							
16 Aug		eP	02 03 31.6	4	0.4	S	NR			Δ(S-P) = 1.7°
		e	41.0		0.4					
		eS	53.2	999						
16 Aug		eP	02 05 23.6	4	0.5		R			
	N	eSur	06 51.6		0.6					
16 Aug		eP	05 41 54.2	2	0.9		T			
16 Aug		eP	08 58 38.6	1	0.7		T			
16 Aug		eP	14 56 34.0	5	1.0		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
16 Aug		eP	16 52 19.8	5	0.8		T			
		e	28.4		0.9					
		e	37.1		0.9					
16 Aug		eP	18 05 15.0	2	0.3		NR			Δ(S-P) = 1.7°
		eS	36.6	999						
16 Aug		eP	18 43 14.7	1	0.6		R			
		e	23.8		0.8					
	N	e	44 10.0		0.6					
	E	eS	41.1		0.9					
16 Aug		eP	21 00 54.8	3	0.4		L			Δ(S-P) = 1.3°
		eS	01 12.3	999						
16 Aug		eP	21 26 37.7	4	1.1		T			
		e	29 07.8		1.4					
16 Aug		eP	21 55 26.2	1	0.4		NR			Δ(S-P) = 2.4°
	E	eS	56.4		0.3					
	E	eSur	56 04.4		0.6					
17 Aug		eP	00 28 59.9	12	1.2	S	T			
		e	29 54.6		0.8					
17 Aug		eP	00 45 07.9	13	1.1		T	5.1		Samoa Islands region
		e	18.7		1.1					15.8 S 172.9 W
		e	29.6		1.4					h about 33 km
		e	48.2		1.3					O = 00 32 26.9
		e	54.5		1.3					Δ = 86.5°
	LPN	eS	55 45		21.0					Medium surface waves
	LPN	ePS	56 49		23.0					on LP
	LPN	eSS	01 01 23		23.0					
	LPN	eSur	08 30							
	LP	eSur	12 40							
17 Aug		eP	01 20 22.9	4	1.1		T			
17 Aug		eP	01 22 42.6	2	0.9		T			
17 Aug		eP	02 37 39.8	1	1.0		T			
17 Aug		eP	03 14 51.3	12	1.2		T	4.5		Venezuela
		e	15 07.0		1.2					7.9 N 71.4 W
		e	34.0		1.2					h about 17 km
		e	44.7		1.2					O = 03 07 46.7
		e	16 28.4		1.2					Δ = 35°
		e	17 19.7		0.5					
		e	18 23.5		1.3					
		eScP	21 02.2		1.0					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
17 Aug		iP	03 34 54.4 c	63	1.0		T	5.6		San Juan Province,
		e	40 25.1		1.2					Argentina
		eP'P'	04 02 23.1		1.4					31.6 S 67.7 W
										h about 33 km
										O = 03 23 31.5
										Δ = 72°
17 Aug		eP	04 55 50.8	1	0.6		T			
		e	57 28.8		1.5					
17 Aug		eP	05 20 25.2	4	1.2		T			Panay region, Philippine
		eP'	23 23.0	16	1.3					Islands
		e	42.9		1.3					10.6 N 121.6 E
		ePP	24 51.2		2.9					h about 33 km
		e	25 41.4		1.5					O = 05 04 31.5
		e	26 07.2		2.2					Δ = 121°
		e	27 21.1		1.4					Initial arrival is
		e	28 50.9		1.2					P diffracted.
	LP	eS	29 10		20.0					Strong surface waves,
	LPN	eSKS	30 19		16.0					Love and Rayleigh type,
	LPN	eSKKS	31 36		15.0					on LP, weak on BB.
		$ePKKP_1$	33 25.3		1.4					
		$ePKKP_2$	46.6		1.0					
	LP	eSP	34 47		20.0					
	LP	eSPP	36 07		22.0					
		eSKKP	37 28.2		1.3					
	LPE	e	57		17.0					
	LPN	eSS	41 32		25.0					
	LPN	e	43 09		23.0					
	LPN	e	44 33		27.0					
	LPN	eSSS	45 48		27.0					
	LPN	e	47 08		25.0					
	LPN	eSur	55 35							
	LP	eSur	58 21							
17 Aug		iP	07 34 26.4 d	36	1.1		T	5.1		Peru-Ecuador border
		epP	47.2		1.4					4.7 S 79.4 W
		e	53.6		0.9					h about 96 km
		e	35 04.2		1.0					O = 07 26 33.4
		ePP	36 01.1		1.2					Δ = 43°
		ePcP	14.2		0.8					Phase at 07 36 42.4 is
		e	42.4		1.2					possible new event.
		e	56.5		0.9					
17 Aug		eP	08 46 27.2	2	1.0		T			
17 Aug		eP	12 01 06.6	1	0.6		T	3.9		Fiji Islands
										15.2 S 178.6 W
										h about 391 km
										O = 11 48 47.3
										Δ = 90°
17 Aug		eP	12 08 33.7	2	1.1		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
17 Aug		eP	13 23 44.2	5	1.4		T			
17 Aug		eP	16 32 00.2	10	0.8		T	4.9		Fiji Islands
		ePKKP	48 14.6		0.9					19.3 S 177.5 W
										h about 528 km
										O = 16 19 47.3
										Δ = 92°
17 Aug		eP	18 09 07.1	2	0.3		R			
	N	eSur	10 11.6		0.4					
17 Aug		eP	18 13 37.4	1	0.4		NR			Δ(S-P) = 1.7°
		eS	59.2	999						Quarry blast, 4,700 lbs., by Gifford-Hill Co., near Chico, Texas
17 Aug		eP	19 24 22.6	3	1.0		T			
17 Aug		eP	21 43 10.7	2	0.3		NR			Δ(S-P) = 2.0°
	N	eS	35.4		0.4					
17 Aug		eP	23 08 36.0	26	1.5		T	5.3		Samoa Islands region
		e	09 05.3		1.0					15.4 S 172.7 W
	LPN	eS	19 14		15.0					h about 33 km
	LP	eSur	34 15							O = 22 55 55.4
										Δ = 86°
										Medium surface waves on LP
17 Aug		eP	23 56 08.5	1	0.4		NR			Δ(S-P) = 2.1°
	E	eS	34.4		0.4					
18 Aug		eP	04 14 01.4	4	1.1		T	4.5		Fiji Islands region
	N	eSKS	23 42.2		1.9					21.9 S 179.3 W
										h about 516 km
										O = 04 01 33.5
										Δ = 94°
18 Aug		eP	04 42 15.6	1	0.9		T	4.4		Turkey
										37.0 N 32.5 E
										h about 33 km
										O = 04 28 56.1
										Δ = 95°
18 Aug		ePP	06 01 05.0		1.5		T		4.3	New Ireland
	LPN	eSur	34 31							3.5 S 150.5 E
										h about 19 km
										O = 05 42 02.8
										Δ = 110°
										Weak surface waves on LP

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
18 Aug		eP	07 06 41.2	12	1.9		T	4.6		Off coast of Ecuador
		e	07 54.5		1.5					0.8 N 82.3 W
		ePP	08 03.4		2.0					h about 33 km
		e	09 17.9		0.9					O = 06 59 33.2
										Δ = 37°
18 Aug		eP	09 26 31.8	9	1.5		T			
18 Aug		eP	10 22 35.0	5	1.4		T			
		e	27 13.5		1.3					
18 Aug		eP	11 05 32.0	5	1.2		T			
		e	39.9		1.2					
18 Aug		eP	11 27 13.0	2	1.1		T			
18 Aug		eP	15 17 24.8	2	1.0		T			
18 Aug		eP	16 51 54.0	63	1.2		T	5.2		Mag. 6-6¼ (PS), 5¼-5½ (PL)
		e	57.9		1.2					Central Alaska
		ePP	53 36.9		1.3					62.3 N 152.5 W
		e	54 03.6		1.3					h about 32 km
		e	48.8		1.4					O = 16 43 54.3
		e	55 08.0		1.1					Δ = 43°
		e	23.3		1.3					Strong surface waves
		e	56 02.4		1.1					on all systems; Love and
		e	17.6		1.8					Rayleigh on LP, Rayleigh
		eScP	57 34.7		1.3					on BB and SP.
		e	58 47.7		1.4					
	LPE	eS	24		17.0					
	LPE	e	59 08		32.0					
	LPE	eScS	17 01 58		21.0					
	LPE	e	03 04		24.0					
	LPN	eSur	04 54							
	BB	eSur	06 44							
18 Aug		eP	17 35 33.4	1	0.7		T			
18 Aug		eP	17 54 14.7	298	1.7		T	5.7		Mag. = 6-6¼ (PS), 5¼-5½ (PL)
		e	21.2		1.7					Central Alaska
		e	55 07.3		1.2					62.3 N 152.5 W
		ePP	56 00.0		1.6					h about 32 km
		e	39.0		1.9					O = 17 46 14.9
	LP	e	57 29		19.0					Δ = 43°
		e	58 27.6		1.3					Strong surface waves
		eScP	18 00 03.1		1.3					on all systems, Love and
	LPE	eS	44		15.0					Rayleigh on LP, Rayleigh
	LPE	e	01 27		34.0					on BB and SP.
		e	27.5		1.9					
		e	02 01.0		2.2					
	LPE	eScS	04 09		17.0					
	LPN	eSur	06 56							
	BB	eSur	09 06	999						
18 Aug		eP	19 33 20.6	3	1.3		T			

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h.	m.	s.							
18 Aug		eP	21	30	42.5	5	1.3		T			
18 Aug		eP	21	33	23.8	3	1.0		T			Possible phase of previous event
18 Aug		ePKKP	23	19	41.6		1.3		T			Solomon Islands
	LP	eSur		41	16						4.7	7.3 S 156.1 E h about 60 km O = 22 49 47.5 Δ = 105° Weak surface on LP.
18 Aug		eP	23	29	37.4	2	0.9		T	4.2		Andreanof Islands, Aleutian Islands. 52.5 N 172.3 W h about 33 km O = 23 20 17.6 Δ = 54°
18 Aug		eP	23	44	41.4	2	0.3		NR			Δ = 1.7°
	E	eS		45	03.4	999						
19 Aug		eP	00	33	00.1	9	1.0		T	4.4		Bolivia
		e			08.6		1.0					19.9 S 66.9 W
		ePcP			40.8		0.7					h about 240 km
		epP			57.2		1.8					O = 00 23 03.9
		e		34	41.7		1.5					Δ = 62°
		eScP		37	19.9		1.0					
	N	eS		41	05.1		1.4					
	LPN	e(ScS)		42	50		21.0					
		eP'P'	01	02	32.9		1.3					
19 Aug		eP	01	59	35.4	5	1.4		T			
19 Aug		eP	03	07	54.9	9	1.5		T			
19 Aug		eP	03	36	05.4	1	0.5		T			
19 Aug		eP	04	26	54.5	7	1.3		T	4.8		Tonga Islands region
		e		27	08.0		1.2					16.1 S 173.4 W h about 33 km O = 04 14 10.9 Δ = 86°
19 Aug		eP	06	34	23.2	6	0.9		T	4.3		Vancouver Island region
	LPN	eSur		43	52							50.6 N 129.5 W h about 33 km O = 06 28 39.1 Δ = 28° Weak surface waves on LP
19 Aug	LPN	eSur	12	15	53				T			Weak surface waves on LP

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h.	m.	s.							
19 Aug		eP	18	40	26.9	20	1.2		T	5.5		Mag. = 5 3/4-6 (PL)
		e			37.3		1.7					Northwest Sinkiang
		e			51.1		0.8					Province, China
		e			57.2		1.0					44.6 N 81.7 E
		e		41	17.8		1.1					h about 33 km
		e			40.7		0.8					O = 18 26 38.6
		e		42	27.1		1.0					Δ = 100°
		e		43	34.1		1.0					Strong surface waves
		e		44	07.9		1.8					on LP and BB.
		e(PP)			42.9		1.6					Phase at 18 55 42.2 is
		e		45	19.0		1.5					possible new event.
		e		46	20.0		1.2					
	LPN	eSKS		51	03		21.0					
	LPN	ePS		53	28		24.0					
		e		55	42.2		1.4					
		ePKKP		56	35.5		1.0					
		e		57	00.5		1.1					
		e			15.5		1.0					
	LPE	eSS		59	16		30.0					
		eP'P'	19	04	57.2		1.3					
	LP	eSur		13	15							
19 Aug		iP	23	23	37.4	d 65	1.1		T	5.6		Near coast of northern
		e			56.3		1.0					Chile
		e		24	05.0		0.9					26.6 S 69.8 W
		e			22.8		1.1					h about 51 km
		e			59.3		1.1					O = 23 12 50.4
		e		25	45.9		1.2					Δ = 66°
		ePP		26	06.4		1.4					Medium surface waves
		e			28.5		1.4					on LP.
	LPE	eS		32	24		16.0					
		e		33	27.6		2.4					
	LPN	ePS			38		23.0					
	LPE	eSS		36	50		17.0					
	LP	eSur		45	24							
		eP'P'		52	05.9		1.4					
20 Aug		eP	00	00	28.5	4	1.0		T			
20 Aug		eP	00	32	55.5	2	1.0		T			
20 Aug		eP	00	48	34.6	1	0.3		NR			Δ(S-P) = 1.9°
		eS			59.3	999						
20 Aug		eP	02	52	08.1	4	1.2		T			Weak surface waves
		e			18.3		1.3					on LP
		e		53	30.7		0.8					
		e			45.8		1.5					
	LPN	e	03	03	34		26.0					
	LP	eSur		07	35							

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
20 Aug		eP	10 46 37.4	22	1.2		R	4.9		Mag. = 5-5½ (PS) Gulf of California 31.1 N 114.1 W h about 14 km O = 10 43 23.2 Δ = 13° Strong surface waves on all systems.
		e	50.5		1.3					
		e	47 47.7		1.5					
		e	48 37.2		1.7					
		e	49 02.8		1.8					
	LPE	eSur	20							
	LP	eSur	50 31							
20 Aug		eP	10 59 44.4	14	1.6		T			
20 Aug		eP	11 34 54.6	2	1.0		T	4.2		Tonga Islands region 20.9 S 178.8 W h about 605 km O = 11 22 39.5 Δ = 94°
20 Aug		eP	12 29 05.4	4	1.4		T			
		e	30.0		1.7					
20 Aug		eP	13 06 55.4	3	1.2		R			Strong surface waves on SP, weak on LP.
		e	08 01.5		1.0					
		e	10 06.6		1.2					
	N	eSur	11 00.2		3.6					
20 Aug		eP'	13 17 51.8	33	0.8		T			340 miles south of Java 12.4 S 112.1 E h about 87 km O = 12 58 24.1 Δ = 144°
		e	18 01.1		0.8					
		e	27.8		1.0					
	LPN	e	27 19		29.0					
20 Aug		eP	13 19 44.3	12	1.2		T	4.1		Off coast of Chiapas, Mexico 1.7 S 133.8 E h about 33 km O = 13 14 59.2 Δ = 20.5° Strong surface waves on SP, medium on LP and BB.
		eSur	23 30.0	999						
20 Aug		eP	14 08 55.8	2	1.1		R			Start is indefinite. Strong surface waves on all systems.
	LPE	eSur	12 55							
	LP	eSur	14 12							
20 Aug		eP	21 44 28.0	1	0.3		NR			Δ(S-P) = 2.5°
	N	eS	59.3		0.6					
	N	eSur	45 05.0	999						
20 Aug		eP	23 52 15.1	3	1.0		T			
20 Aug		eP	23 57 58.4	7	1.4		T			

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
21 Aug	LPN	eSur	00 02 05				T		4.4	New Hebrides Islands 14.7 S 166.6 E h about 52 km O = 23 18 39.8 Δ = 102° Weak surface waves on LP
21 Aug		eP	01 10 04.0	3	0.6		L			Δ(S-P) = less than 0.1°
		eS	07.1	999						
21 Aug		eP	01 24 16.2	5	1.3		T			
		e	24.8		1.5					
21 Aug		eP	01 46 51.6	3	1.3		T			
		e	58.6		1.5					
21 Aug		eP	02 17 48.7	31	1.5		T	4.6		Off coast of northern California 41.3 N 127.1 W h about 33 km O = 02 12 42.0 Δ = 23° Strong surface waves on LP and BB
		e	18 02.6		1.4					
		e(PP)	21.4		1.8					
		e	39.9		1.4					
		e	48.2		1.9					
		e	19 13.3		1.5					
		e	20 43.2		1.2					
	LPN	eS	22 13		23.0					
		e	24 28.9		1.3					
	LP	eSur	52							
21 Aug		eP	02 40 07.1	1	0.6		R			
	N	eSur	42 32.2		1.1					
21 Aug		eP	03 02 41.4	7	1.2		T	4.0		Off coast of northern California 42.3 N 126.6 W h about 40 km O = 02 57 38.6 Δ = 23°
		e	45.8		1.6					
		e(PP)	03 12.9		1.5					
	LP	eSur	09 54							
21 Aug		eP	16 07 04.2	2	0.8		T			
21 Aug		eP	16 23 33.9	3	1.0		T	4.8		Kermadec Islands region 28.2 S 176.7 W h about 57 km O = 16 10 08.7 Δ = 98° Medium surface waves on LP
	LP	eSur	17 04 25							
21 Aug		eP	16 40 49.1	2	0.8		T			
21 Aug		eP	17 17 15.6	6	0.9		T	4.8		Samoa Islands region 15.5 S 172.6 W h about 33 km O = 17 04 35.2 Δ = 86°
		e	47.0		1.3					

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
21 Aug		eP	17 38 12.4	26	1.3		T	4.8		Central Alaska
		e	26.2		1.6					62.4 N 152.6 W
		e	36.9		1.2					h about 42 km
		e	39 09.6		1.3					O = 17 30 14.0
		e	39.9		1.0					$\Delta = 43^{o}$
		ePP	40 04.0		1.5					Strong surface waves
		eScP	43 57.0		1.0					on LP
		e	44 37.8		1.2					
	LPN	eSur	52 26							
	LP	eSur	56 19							
21 Aug		eP	18 21 29.8	21	1.0		T	5.2		Italy
		e	22 23.8		1.5					41.5 N 15.4 E
		e	23 27.3		2.0					h about 36 km
		e	24 14.8		2.0					O = 18 09 06.8
		e	36.8		1.1					$\Delta = 82^{o}$
		ePP	40.8		1.4					Strong surface waves
	LP	eSur	50 40							on LP
21 Aug		eP	18 31 55.0	30	1.1		T	5.3		Italy
		e	32 02.2		1.3					41.4 N 15.5 E
		e	29.3		1.0					h about 34 km
		e	33 13.4		1.8					O = 18 19 33.3
		e	42.0		1.4					$\Delta = 82^{o}$
		e	34 10.9		2.0					Strong surface waves
		e	46.8		2.3					on LP and BB
		ePP	35 12.4		2.3					
		e	54.4		1.4					
		e	36 44.4		2.3					
	N	eS	42 17.7		3.0					
	LPE	eSKS	22		15.0					
	LPN	eSS	48 00		38.0					
		ePKKP	50 16.5		1.2					
	LP	eSur	57 55							
21 Aug		eP	18 57 19.1	11	1.1		T	4.9		Italy
		e	58 35.7		2.0					41.2 N 15.2 E
		ePP	19 00 40.4		1.8					h about 31 km
		ePKKP	15 34.5		1.1					O = 18 44 56.4
										$\Delta = 82^{o}$
21 Aug		eP	19 08 18.2	30	1.1	N	T			
		e	26.4		1.0					
		e	36.3		1.0					
		e	12 42.1		1.5					
21 Aug	N	eSur	20 06 54.9		1.1		R			
21 Aug		eP	21 19 26.4	11	1.5		T	5.2		Kermadec Islands region
		e	50.8		1.4					28.7 S 176.8 W
		e	20 05.4		1.3					h about 55 km
		ePKKP	36 20.9		1.1					O = 21 06 00.1
		e	37.6		1.4					$\Delta = 97^{o}$
										Phase at 21 36 37.6 is possible new event.

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
21 Aug		eP	21 20 28.2	50	1.3		T	5.5		Mag. = $6\frac{1}{4}$-$6\frac{1}{2}$ (PS)
		e	42.2		1.7					Easter Islands region
		e	21 03.2		1.7					29.6 S 111.9 W
		e	08.9		1.2					h about 33 km
		e	22 13.4		2.2					O = 21 09 50.3
		e	28.7		1.7					$\Delta = 66^{o}$
		ePP	56.3		2.1					Strong surface waves
		e	23 12.8		2.0					on all systems
	LPE	eS	29 10		20.0					
	LPE	eSS	33 36	999						
	LP	eSur	37 02							
		eP'P'	49 03.9		1.5					
		e	15.9		1.5					
21 Aug		eP	21 26 29.0	2	0.4		NR			Δ (S-P) = 2.4^{o}
	N	eS	59.3		0.4					
21 Aug		eP	21 44 33.8	2	0.5		NR			Δ (S-P) = 2.6^{o}
	E	eS	45 06.2		0.5					
21 Aug		eP	22 14 26.0	1	0.4		NR			Δ (S-P) = 1.7^{o}
	N	eS	48.3		0.6					
21 Aug		eP	22 22 51.5	2	1.3		T			
21 Aug		eP	22 34 03.3	3	1.1		T			
		e	31.2		1.2					
21 Aug		eP	22 44 46.8	1	0.4		NR			Δ (S-P) = 2.4^{o}
	N	eS	45 16.5		0.4					
21 Aug		eP	22 55 17.8	2	0.8		T			
21 Aug		eP	23 12 34.8	2	0.4		NR			Δ (S-P) = 1.7^{o}
		eS	56.8	999						
22 Aug		eP	00 01 02.4	4	0.4	SE	NR			Δ (S-P) = 1.7^{o}
		eS	24.8	999						
22 Aug		eP	00 55 32.3	1	0.3		L			Δ (S-P) = 1.0^{o}
	N	eS	46.5		0.3					
22 Aug		eP	01 26 06.8	5	1.0	S	T			
		e	30.9		1.0					
		e	38.0		1.1					
		e	47.6		0.8					
		e	27 08.1		0.7					
		e	37.1		1.3					
22 Aug		eP	02 27 51.8	2	0.7		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
22 Aug		eP	04 45 57.2	27	1.8		T	5.5		Volcano Islands region
		e	46 14.7		2.0					26.1 N 142.5 E
		e	47 49.3		1.8					h about 29 km
		ePP	49 56.5		2.0					O = 04 32 29.4
	LPE	eSKS	56 41		16.0					Δ = 96°
	LPE	ePS	58 40		17.0					Medium surface waves,
	LPE	eSS	05 04 04		19.0					Love and Rayleigh type,
	LPN	eSur	14 41							on LP.
	LPE	eSur	19 50							
22 Aug	LPN	eSur	06 16 10				T		4.5	Kermadec Islands region
										28.6 S 176.7 W
										h about 55 km
										O = 05 29 26.6
										Δ = 97°
										Weak surface waves on LP
22 Aug		eP	09 25 09.1	4	0.9		T	4.5		Fiji Islands
										20.3 S 177.8 W
										h about 503 km
										O = 09 12 49.7
										Δ = 93°
22 Aug		eP	11 21 48.2	2	0.8		T			
22 Aug		eP'1	11 31 38.4	122	1.7		T			1200 miles west of
		eP'2	43.9	84	1.4					Australia
		e	57.8		1.8					49.7 S 117.5 E
		e	32 43.5		1.5					h about 33 km
										O = 11 11 56.3
										Δ = 150°
22 Aug		eP	14 42 23.4	16	1.5		T	4.8		Easter Islands region
		e	57.3		1.7					29.5 S 112.3 W
		e	43 32.6		1.7					h about 33 km
		e	44 36.3		1.8					O = 14 31 44.2
	LPE	eS	51 12		17.0					Δ = 66°
	LPE	eSS	55 20		25.0					Medium surface waves
	LPE	eSur	59 54							on LP
22 Aug		eP	17 08 21.9	20	0.5	E	NR			Δ(S-P) = 1.7°
		eS	43.4	999						
22 Aug		eP	20 17 23.7	2	0.4		NR			Δ(S-P) = 2.5°
	N	eS	54.6		0.4					
	N	eSur	59.8		0.6					
22 Aug		eP	20 27 04.8	1	0.4		NR			Δ(S-P) = 3.3°
		e	08.2		0.4					
	E	eS	44.5		0.4					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
22 Aug		eP'	21 26 56.4	3	1.1		T			Mindanao, Philippine Is.
		ePP	28 31.5		1.5					8.3 N 123.8 E
										h about 125 km
										O = 21 08 22.9
										Δ = 121.5°
22 Aug		eP	21 32 16.4	1	0.6		T			
22 Aug		eP	22 10 38.1	1	0.4		NR			Δ(S-P) = 2.2°
	E	eS	11 05.8		0.4					
22 Aug		eP	23 35 10.9	2	0.3		NR			Δ(S-P) = 1.6°
		eS	32.2	999						Quarry blast, 4,500 lbs.,
										by Gifford-Hill Co. near
										Chico, Texas
23 Aug		eP	00 21 04.5	1	0.3		L			Δ(S-P) = 0.9°
	E	eS	17.8		0.3					
23 Aug		eP	04 07 52.0	4	0.8		T	4.5		Komandorskie Islands
		e	08 09.1		1.4					55.3 N 167.3 E
										h about 33 km
										O = 03 57 18.0
										Δ = 64°
23 Aug		eP	04 09 10.6	3	0.7	S	T			
23 Aug		eP	06 24 55.2	3	1.1		T			
		e	25 22.4		1.4					
23 Aug		eP	07 40 01.5	3	1.0		T			
23 Aug		eP	08 05 28.5	8	1.7		T			
23 Aug		eP	12 45 55.9	3	0.9		T	4.5		Near Islands, Aleutian Is.
										51.7 N 173.8 E
										h about 33 km
										O = 12 35 34.7
										Δ = 61.5°
23 Aug		eP	12 54 23.6	8	1.0		T	4.4		Central Alaska
		e	46.7		1.3					62.2 N 152.8 W
		ePcP	56 10.7		0.8					h about 25 km
		e	50.4		1.3					O = 12 46 22.7
	LPN	eSur	13 09 21							Δ = 43°
										Weak surface waves on LP
23 Aug		eP'	15 48 24.9	2	1.0		T			Near south coast of
		e	51.0		1.0					Formosa
		e(PP)	49 06.1		1.5					22.9 N 120.8 E
		ePKKP	59 14.7		1.0					h about 17 km
										O = 15 29 46.6
										Δ = 112°

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
23 Aug	E	eSur	17 00 18.2		1.0		R			
23 Aug		eP	18 59 51.8	2	0.6	N	T			
23 Aug		eP	19 30 05.4	3	1.0		T	4.5		Samoa Islands region 15.6 S 172.2 W h about 33 km O = 19 17 26.6 Δ = 86°
23 Aug		iP	19 33 57.7	c 520	1.0		T	5.9		Mag. = 5-5¼ (PS), 5½ (B), and 5¼-5½ (PL) Del Norte California 41.8 N 124.1 W h about 33 km O = 19 29 16.0 Δ = 21° Strong surface waves on all systems
		e	37 54.5		2.0					
	LPN	eS	55		21.0					
	LP	eSur	39 00							
23 Aug		eP	19 45 41.9	1	0.5		NR			Δ(S-P) = 3.0°
		eS	46 18.6	999						
23 Aug		eP	20 07 11.0	2	1.0		T			
		e	51.0		1.0					
		e	08 10.6		1.2					
23 Aug		eP	20 55 02.9	2	0.5		R			
		e	20.3		0.7					
	N	eSur	56 12.1		0.5					
23 Aug		eP	21 07 15.4	12	1.5		T	5.8		Sandwich Islands 56.1 S 26.6 W h about 33 km O = 20 52 51.8 Δ = 107°
		e	36.2		0.9					
		e	59.1		0.8					
		e	10 07.1		1.0					
		e	25.6		1.4					
		e	11 38.5		1.0					
		e(PP)	44.5		1.2					
		ePKKP	22 39.0		1.3					
23 Aug		eP	23 27 30.2	3	0.3	SE	NR			Δ(S-P) = 1.7°
		e	39.9		0.3					
		eS	52.1	999						
23 Aug		eP	23 40 09.0	3	0.5		L			Δ(S-P) = 0.7°
		eS	19.1	999						
24 Aug		eP	00 23 51.8	3	0.6	NE	L			Δ(S-P) = less than 0.1°
		eS	55.0	999						
24 Aug		eP	01 28 37.5	43	0.7	SW	R			
		e	29 18.8		0.8					
		eSur	31 58.2	999						

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
24 Aug		eP	01 56 42.2	2	0.8		T	4.2		Off east coast of Kamchatka 52.3 N 160.6 E h about 33 km O = 01 45 35.9 Δ = 69°
		e	58.7		0.9					
24 Aug		eP	02 32 37.0	2	1.0		T			
24 Aug		eP	02 56 28.0	11	1.3	(E)	T			Weak surface waves, Rayleigh type, on LP.
		e	32.3		1.4					
		e	57 06.2		1.0					
		e	50.0		1.7					
	LPN	e	03 12 18		21.0					
	LP	eSur	14 44							
24 Aug		eP	06 18 26.6	13	0.5	S	T			Phase at 06 25 41.8 is possible new event.
		e	48.9		0.8					
		e	19 03.0		0.8					
		e	20 30.2		1.2					
		e	22 36.4		0.8					
	LPE	e(S)	40		15.0					
		e	24 10.5		1.0					
		e	25 41.8		0.8					
24 Aug		eP	06 51 10.2	6	0.8	SE	T			
		e	24.4		0.8					
		e	36.9		1.0					
		e	52 46.8		1.2					
		e	53 35.6		1.0					
24 Aug		eP	06 58 00.5	4	1.4		T			
24 Aug		eP	06 59 47.2	4	1.0		T	4.7		Fiji Islands region 24.5 S 178.8 E h about 526 km O = 06 47 08.1 Δ = 98°
		e	07 01 36.3		1.1					
		epP	54.1		1.4					
		e	02 51.2		1.4					
		ePP	03 53.0		1.5					
		e	05 36.6		1.0					
	LPE	eS	10 32		15.0					
	LPE	e(PPS)	14 20		16 0					
		ePKKP	16 21.1		1.0					
24 Aug		eP	09 17 02.8	291	1.8		T	6.2		Mag. = 5¼-5½ (PL) Samoa Islands region 15.0 S 173.3 W h about 33 km O = 09 04 22.9 Δ = 86° Strong surface waves, Rayleigh type, on LP.
		e	48.7		1.3					
		e	18 09.1		1.4					
		e	59.1		1.9					
		e	19 21.5		1.8					
		ePP	20 10.6		1.9					
	LPN	eSKS	27 34		19.0					
	LPN	ePS	28 42		24.0					
	LPN	eSS	32 46		22.0					
	LPN	eSSS	37 10		24.0					

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DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							(continued from preceding page)
	LPN	e	40 30		22.0					
	LPE	e	42 08		22.0					
	LP	eSur	44 30							
24 Aug		eP	09 37 15.3	2	0.5	(SE)	R			
		e	38 45.8		0.6					
24 Aug		eP	21 32 30.0	8	1.2		T			
24 Aug		eP	13 25 25.1	6	1.0		T	4.6		Peru-Bolivia border 17.5 S 70.4 W h about 92 km O = 13 15 37.0 Δ = 58°
		e(pP)	41.4		0.9					
		ePcP	26 16.2		0.7					
24 Aug		eP	16 11 52.8	2	1.0		T			
		e	12 03.2		1.0					
24 Aug		eP	18 38 52.3	2	0.9		T			
24 Aug		eP	19 15 57.0	4	1.5		T			Surface waves possibly separate.
		e	17 30.9		1.0					
	E	eSur	21 48.7		1.5					
25 Aug		eP	00 41 10.2	1	0.5		T	4.1		Kurile Islands 44.4 N 148.7 E h about 80 km O = 00 29 04.9 Δ = 80°
		e	22.0		1.4					
25 Aug		eP	00 50 58.9	1	0.3		NR			Δ(S-P) = 3.0°
		e	51 05.3		0.5					
	E	eS	36.2		0.4					
	N	eSur	45.6		0.5					
25 Aug		eP	02 07 31.3	3	1.1		T			
25 Aug		eP	02 19 17.2	13	1.6		T	4.4		Off coast of Alaska Peninsula 55.5 N 155.9 W h about 33 km O = 02 11 11.5 Δ = 43° Weak surface waves on LP
	LPN	eSur	32 23							
25 Aug		eP	07 31 39.6	4	1.2		T			
25 Aug		eP	08 44 05.5	40	1.0		T	5.4		Fiji Islands 20.5 S 178.5 W h about 561 km O = 08 31 48.7 Δ = 93°
		e	58.6		1.3					
		e	45 18.6		1.1					
		e	48.6		1.4					
		epP	46 11.4		1.4					
		e	47 03.6		1.5					

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DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							(continued from preceding page)
		ePP	45.8		2.2					
		e	58.6		1.2					
		e	48 19.4		1.5					
		e	49 18.0		1.2					
		e	51 05.8		2.6					
		e	53 17.9		1.3					
	E	eSKS	48.5		2.3					
	E	eSKKS	54 07.9		1.2					
	N	eS	32.5		2.0					
	LP	eSP	55 44		25.0					
	LPE	ePPS	58 10		20.0					
		e	09 00 43.1		1.0					
	LPN	eSS	59		29.0					
		ePKKP	01 09.6		0.9					
		e	49.0		1.6					
	LP	e	02 28		24.0					
		e	03 09.2		1.0					
		e	24.7		0.9					
	LPN	eSSS	04 20		29.0					
		e	48.4		1.3					
	LP	e	06 06		17.0					
	LPN	e	07 55		33.0					
		eP'P'	09 19.8		1.5					
		e	10 37.1		1.5					
		e	41.4		1.7					
	LP	e	52		35.0					
		e	11 42.9		1.7					
	LP	e	32 36		23.0					
	LPN	e	39 47		23.0					
25 Aug		eP	09 13 00.5	5	1.2		T			
25 Aug		eP	09 26 15.3	4	1.2		R			
		eSur	28 32.0		0.8					
25 Aug		eP	09 43 55.3	2	1.0		T			
25 Aug		eP	15 21 02.4	3	1.0		T	4.6		Near south coast of Honshu, Japan 34.1 N 139.0 E h about 14 km O = 15 07 48.4 Δ = 92°
25 Aug		eP	15 43 12.0	8	1.3		T			
25 Aug		eP	15 59 30.0	5	1.2		T	4.6		Honshu, Japan 35.1 N 138.7 E h about 113 km O = 15 46 31.5 Δ = 92°
25 Aug		eP	17 25 35.3	3	0.9		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
25 Aug		eP	18 36 17.2	2	0.8		T			
		e	40.6		1.4					
25 Aug		eP	20 10 40.0	10	1.4		T	4.6		Near coast of Algeria 36.7 N 1.6 E h about 33 km O = 19 58 47.6 Δ = 77°
26 Aug		eP	04 03 10.8	4	0.9	SSE	T			
		e	23.5		1.0					
26 Aug		eP	07 02 06.5	57	1.6		T	5.8		Near east coast of Honshu, Japan 34.0 N 139.2 E h about 38 km O = 06 48 57.1 Δ = 92° Strong surface waves, Love and Rayleigh type, on LP, weak on BB.
		e	21.3		1.9					
		e	37.6		1.2					
		e	03 11.9		1.6					
		e	30.6		2.0					
		e	05 21.9		1.5					
		ePP	54.1		2.0					
	LPE	eSKS	12 40		15.0					
	LPN	eS	13 16		20.0					
	LPE	ePS	14 30		15.0					
	LPE	e	18 19		16.0					
	LPN	eSS	19 17		22.0					
	LPN	eSSS	22 44		22.0					
	LPN	e	26 22		24.0					
	LPN	eSur	28 41							
	LP	eSur	31 00							
26 Aug		eP	08 39 44.3	1	0.5		T			
26 Aug		eP	09 09 33.0	3	0.9	S	T			
26 Aug		eP	11 13 06.0	3	1.1		T	4.3		Near Islands, Aleutian Is. 52.2 N 172.3 E h about 33 km O = 11 02 40.5 Δ = 62°
26 Aug		eP	14 24 07.1	6	1.0		T			
26 Aug		eP	16 42 42 2	8	1.2		T	4.7		Near coast of Algeria 36.5 N 1.6 E h about 15 km O = 16 30 47.0 Δ = 77°
26 Aug		eP	18 01 22.8	2	0.9		T			
		e	38.1		0.7					
26 Aug		eP	19 51 52.8	2	0.9		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
26 Aug		eP	22 48 20.7	10	1.4		T	5.1		Near east coast of Honshu, Japan 34.3 N 139.3 E h about 54 km O = 22 35 13.9 Δ = 92°
		e	35.6		1.0					
26 Aug		eP'	23 49 21.4	2	0.7		T			New Guinea 3.7 S 140.1 E h about 50 km O = 23 30 38.0 Δ = 117° Strong surface waves on LP
		e	43.5		1.3					
		e	50 04.3		0.9					
		e	31.5		0.8					
		e	39.1		0.9					
		ePP	43.1		1.5					
		e	51 00.7		1.4					
		e	46.6		2.0					
	LPE	eSKKS	57 36		16.0					
		ePKKP	59 44.9		0.9					
27 Aug	LP	eSP	00 00 21		22.0					
		eSKKP	03 35.2		1.4					
	LPN	eSS	07 00		27.0					
	LPN	eSSS	11 02		34.0					
	LPN	e	14 35		25.0					
	LP	eSur	19 29							
	LP	eSur	26 07						4.5	
27 Aug		eP	01 08 24.7	3	0.7		T			
27 Aug		eP	02 31 24.4	19	0.9		T	5.0		Sea of Japan 40.2 N 137.8 E h about 274 km O = 02 18 58.8 Δ = 88.5°
		e	32 26.1		1.2					
		epP	30.7		1.3					
		ePP	34 50.4		1.8					
		e	35 52.4		1.3					
		e	36 00.2		1.0					
		ePKKP	49 00.4		1.0					
27 Aug		eP	03 06 56.7	3	1.2		T			
27 Aug		eP	10 01 56.5	3	0.8		T	4.2		Kurile Islands 44.3 N 150.8 E h about 60 km O = 09 49 56.5 Δ = 78°
		e	02 13.1		1.0					
27 Aug		eP	12 19 15.3	4	0.2		L			Δ(S-P) = less than 0.1°
		eS	18.1	999						
27 Aug		eP	16 32 51.2	10	1.1		T	5.0		Off east coast of Honshu, Japan 38.3 N 142.4 E h about 40 km O = 16 20 04.7 Δ = 88°
		e	33 02.0		1.0					
		e	22.6		1.4					
		e	54.5		1.4					
		e	34 13.3		1.3					
		e	35 36.5		1.4					
		e	36 00.0		1.3					

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DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							(continued from preceding page)
		ePP	23.7		1.9					
		e	38 37.9		1.4					
	LPN	eS	43 34		22.0					
		ePKKP	50 36.7		1.1					
27 Aug		eP'	19 30 53.6	3	1.2		T			Hindu Kush 36.6 N 70.2 E h about 210 km O = 19 12 48.9 Δ = 109°
		e	31 15.1		0.9					
27 Aug		eP	20 25 38.6	2	0.5		NR			Δ(S-P) = 1.7°
		eS	26 00.4	999						
27 Aug		eP	21 39 46.1	2	0.4		NR			Δ(S-P) = 2.4°
	N	eS	40 16.5		0.8					
	N	eSur	22.1		0.6					
27 Aug		eP	22 26 52.4	5	1.3		T	4.9		Santa Cruz Islands 12.3 S 167.1 E h about 220 km O = 22 13 29.6 Δ = 100°
27 Aug		eP	23 26 38.9	3	0.3	NW	NR			Δ(S-P) = 1.7°
	N	e	57.9		0.3					
		eS	27 00.9	999						
27 Aug		eP'	23 47 16.3	1	0.7		T			New Britain region 6.0 S 149.5 E h about 48 km O = 23 28 45.2 Δ = 111° Weak surface waves on LP
		e	49 37.1		1.8					
		e	51 12.7		1.4					
		e	55 15.0		0.9					
		$ePKKP_1$	58 12.1		1.1					
		$ePKKP_2$	19.3		0.9					
28 Aug	LPN	eSur	00 16 40						4.8	
	LPN	eSur	22 46							
28 Aug		ePKKP	00 00 00.1		0.8		T			Loyalty Islands region 21.6 S 171.5 E h about 69 km on 27 Aug at 23 30 10.4 Δ = 101°
28 Aug		eP	00 26 28.1	4	1.3		T	4.6		Near east coast of Honshu, Japan 35.0 N 140.2 E h about 33 km O = 00 13 25.6 Δ = 91°
28 Aug		eP	00 30 08.4	1	0.4		NR			Δ(S-P) = 2.0°
	E	eS	33.2		0.5					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
28 Aug		eP	00 31 30.8	2	1.1		T	4.5		Near east coast of Honshu, Japan 34.2 N 139.7 E h about 39 km O = 00 18 22.8 Δ = 92°
28 Aug		eP	00 42 34.9	13	1.4		T	5.2		Near east coast of Honshu, Japan 34.2 N 139.7 E h about 33 km O = 00 29 26.4 Δ = 92°
28 Aug		eP	00 45 43.8	1	0.4		NR			Δ(S-P) = 2.8°
	E	eS	46 19.3		0.4					
28 Aug		eP	00 46 17.9	7	1.1		T			
		e	26.7		0.7					
28 Aug		eP	00 48 08.0	9	1.2		T			
		e	17.5		0.9					
		e	35.1		1.3					
28 Aug		eP	00 52 46.7	5	1.0		T	4.8		Samoa Islands region 15.7 S 173.1 W h about 33 km O = 00 40 04.9 Δ = 87° Weak surface waves on LP
		e	53 04.4		1.0					
		e	52.9		1.4					
	LPN	eS	01 03 24		18.0					
	LPN	e(PPS)	05 40		18.0					
	LPN	e	11 00		24.0					
	LPN	e(SSS)	13 19		19.0					
	LPN	e	16 10		25.0					
	LPN	eSur	20 04							
	LP	eSur	22 35							
28 Aug		eP	01 39 28.5	2	1.0		T			
28 Aug		eP	01 41 14.9	5	1.2		T			
		e	27.6		1.2					
		e	43.8		1.4					
28 Aug		eP	03 02 47.9	4	1.0		T	4.7		Near east coast of Honshu, Japan 34.3 N 139.6 E h about 33 km O = 02 49 39.9 Δ = 92°
		e	03 24.0		1.1					
28 Aug		eP	08 14 25.1	4	1.2		T			
	LPN	e(Sur)	19 57							
28 Aug		eP	08 18 57.2	5	1.3		T			

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h.	m.	s.							
28 Aug		iP	08	24	31.9	c 715	2.1		T	5.4		Off coast of Mexico
		e			49.6		1.6					18.6 N 105.8 W
	LPN	eS		27	50		21.0					h about 33 km
	LPN	eSur		28	36							O = 08 20 31.5
	E	eSur		29	36.2		2.9					Δ = 17°
	E	eSur		30	04.4		7.0					Strong surface waves on all systems
28 Aug		eP	10	06	04.1	3	1.0		T			
		e			42.8		1.4					
28 Aug		iP	11	12	45.2	c 950	1.0		T	6.8		Mag. = 6 3/4 (PS) Greece
		epP		13	12.6	999						38.0 N 23.1 E
	LP	ePP		16	25		10.0					h about 120 km
	LP	e(PPP)		18	44		11.0					O = 10 59 58.5
	LPN	e		19	47		27.0					Δ = 89°
	LPN	e		21	25		22.0					Strong surface waves on LP and BB.
		e		22	09.5		1.4					
	BB	e			20		11.0					
		e			40.6		2.6					
	N	eSKS		23	03.5	999						
	N	e			13.6		1.2					
	BBN	e(ScS)			28	999						
	E	e		24	05.2		2.3					
		eSP			28.0		3.2					
	LP	e			38		20.0					
	BB	e		25	46	999						
	BB	e		27	00		8.0					
	BB	e			36		10.0					
	LPN	e(SS)		29	00	999						
		e			58.6		1.5					
		ePKKP		30	16.9		1.1					
		e			45.9		1.3					
	BB	e		32	30		11.0					
		e			50.8		1.4					
		eSKKP		33	45.4		1.3					
	BB	ePcPP'		35	03		7.0					
	LP	e		36	28		35.0					
		e		38	03.4		1.3					
		eP'P'			22.1		1.5					
		e			56.9		1.4					
	LP	eSur		42	30							
28 Aug		eP	14	28	41.7	6	1.3		T			
		e		29	42.1		1.4					
		e		30	06.4		1.5					
28 Aug		eP	14	31	21.8	9	1.2		T			
		e			27.6		1.1					
		e			37.5		0.8					
28 Aug		eP	14	33	53.7	10	1.4		T			

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h.	m.	s.							
28 Aug		eP	15	14	19.5	23	1.7		T			
28 Aug		eP	15	19	53.1	11	1.3		T			
		e			58.2		1.1					
28 Aug		eP	15	42	06.3	5	1.2		T			
28 Aug		eP	15	46	40.5	19	1.3		T			
		e			47.2		1.0					
		e			56.9		1.0					
28 Aug		eP	15	52	13.9	3	1.1		T			
28 Aug		eP	16	05	21.6	5	1.2		T			
28 Aug		eP	16	08	17.6	4	1.1		T			
28 Aug		eP	16	23	09.6	5	1.2		T			
		e			14.8		1.3					
28 Aug		eP	16	51	05.5	8	1.2		T			
28 Aug		eP	17	00	43.2	38	1.6	S	T			Probable aftershock of event off coast of Mexico with O at 08 20 31.5 Δ = 17° Strong surface waves on LP, medium surface waves on BB.
		e		01	00.5		1.6					
	LPN	eS		04	08		20.0					
	LPN	eSur		05	25							
	BBE	eSur		06	13							
28 Aug		eP	17	28	08.2	3	1.1		T			
28 Aug		eP	17	37	42.7	10	1.4		T			
28 Aug		eP	17	52	14.2	9	1.2		T			
28 Aug		iP	18	07	51.8	c 999			L			Δ (S-P) = less than 0.1°
		eS			55.0	999						
28 Aug		eP	18	44	32.2	2	0.4		NR			Δ (S-P) = 1.7°
	E	eS			54.2	999	0.3					Quarry blast, 8,900 lbs., by Gifford-Hill Co. near Chico, Texas
28 Aug		eP	19	22	13.7	6	1.1		T			
28 Aug		eP	19	25	15.7	27	0.7		T			
		e			33.0		0.8					
	E	eSur		32	31.7		1.7					
28 Aug		eP	20	33	53.5	3	0.8		T			
28 Aug		eP	20	51	17.7	4	1.0		T			
		e			38.2		1.3					

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
28 Aug		eP	21 31 45.0	6	0.7		T			
		e	32 04.7		0.6					
28 Aug		eP	22 31 40.4	2	0.4	SW	NR			Δ (S-P) = 2.6°
	E	eS	32 12.4		0.5					
28 Aug		eP'	23 05 37.5	86	1.6		T			Northwest of Chagos Islands region
		e	45.3		1.2					2.2 S 67.8 E
	BB	e	50		5.0					h about 33 km
		ePP	08 43.2		1.8					O = 22 46 00.8
	BB	e	09 49		6.0					Δ = 143°
	BB	e	10 17		7.0					Weak surface waves on LP
	LPN	eSS	27 45		25.0					
	LPN	eSur	47 55							
	LPN	eSur	59 00						4.9	
28 Aug		eP	23 26 51.9	2	0.3		NR			Δ (S-P) = 1.6°
	E	eS	27 12.7	999						
29 Aug		eP	02 26 13.7	2	1.0		T	4.5		Near east coast of Honshu, Japan
										34.9 N 140.0 E
										h about 33 km
										O = 02 13 08.6
										Δ = 91°
29 Aug		eP	04 47 23.6	3	0.9		T			
29 Aug		eP	04 54 35.8	6	1.3		T			
29 Aug		eP	05 51 04.4	1	0.5		T			
29 Aug		eP	05 51 06.6	27	1.4		T			Phase at 05 51 45.7 is possible new event.
		e	11.9		1.3					
		e	45.7		1.1					
29 Aug		eP	07 02 55.5	19	1.0	SSE	T			
		e	03 34.9		0.8					
29 Aug		eP	07 27 55.3	1	0.8		T			Probable aftershock of event off coast of Mexico
		e	28 10.6		1.1					with O on 28 Aug at 08 20
	LPE	eSur	33 20							Weak surface waves on LP
29 Aug		eP	07 44 20.7	9	1.0		T			
		e	26.8		1.1					
		e	33.9		1.1					
29 Aug		eP	07 48 44.2	7	1.0		T	4.4		Salta Province, Argentina
		e	49 07.5		0.9					24.2 S 67.1 W
		ePcP	14.7		0.9					h about 187 km
										O = 07 38 18.8
										Δ = 66°

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
29 Aug		eP	08 03 31.7	1	0.3		NR			Δ (S-P) = 1.4°
	E	eS	50.9		0.3					
29 Aug		eP	08 42 29.5	29	0.8		T			Probable aftershock of event off coast of Mexico
		e	43 04.8		1.0					with O on 28 Aug at 08 20 31.5
	LPN	eSur	47 22							Weak surface waves on LP.
29 Aug		eP	08 54 31.6	44	0.9		T	4.6		Near coast of Mexico
		e	55 42.7		1.5					18.0 N 103.3 W
	LPE	eS	57 55		13.0					h about 33 km
	LPE	eSur	59 08							O = 08 50 32.0
	E	eSur	57.6		3.0					Δ = 17°
										Strong surface waves on LP, medium surface waves on BB and SP.
29 Aug		eP'	09 31 36.3	100	1.3		T			Northwest of Chagos Islands region
		e	42.6		1.3					1.9 S 67.9 E
		e	32 05.8		1.4					h about 33 km
		e	57.8		1.6					O = 09 12 00.4
		ePP	34 51.5		2.2					Δ = 144°
	LPN	eSur	10 26 00							Weak surface waves on LP
29 Aug		eP	10 20 36.5	9	1.2		T	4.4		Near coast of Panama
										7.3 N 80.5 W
										h about 33 km
										O = 10 14 12.5
										Δ = 32°
29 Aug		eP	11 11 45.8	2	1.2		T			
29 Aug		eP	12 06 47.8	4	0.9		T			
29 Aug		eP	12 31 50.5	13	1.1	SSE	T			Phase at 12 33 13.6 is possible new event
		e	32 26.2		0.9					
		e	43.7		0.8					
		e	33 13.6		0.6					
29 Aug		eP	12 49 05.3	2	0.8		T			
29 Aug		eP	13 06 12.2	2	1.0		T			
29 Aug		eP	13 22 49.8	9	0.9		T			
		e	56.1		1.3					
29 Aug		eP	14 03 16.6	2	0.9		T			
29 Aug		eP	15 27 33.8	5	1.1		T	4.8		Near east coast of Honshu, Japan
										34.5 N 139.8 E
										h about 33 km
										O = 15 14 27.5
										Δ = 91°

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
29 Aug		eP	15 39 16.3	3	1.0		T			
29 Aug		eP	16 15 51.8	4	0.9	NNE	T			
29 Aug		eP	16 17 08.6	11	1.0		T			
		e	22.6		1.0					
29 Aug		eP	17 52 13.5	2	1.1		T	4.5		Near east coast of Honshu, Japan 34.3 N 139.5 E h about 33 km O = 17 39 06.0 Δ = 92°
29 Aug		eP	18 45 57.4	4	1.2		T	4.7		Near east coast of Honshu, Japan 34.2 N 139.5 E h about 38 km O = 18 32 49.3 Δ = 92°
29 Aug		eP	20 33 32.7	9	1.0		T	5.1		Near east coast of Honshu, Japan 34.0 N 139.3 E h about 33 km O = 20 20 20.5 Δ = 92°
		e	57.1		1.2					
29 Aug		eP	22 09 10.1	71	0.8		L			Δ(S-P) = less than 0.1°
		eS	12.9	999						
29 Aug		eP	22 14 26.6	4	1.1		T	4.5		Off coast of northern Chile 22.5 S 71.6 W h about 33 km O = 22 04 07.4 Δ = 62°
		e	15 08.2		1.3					
29 Aug		eP	22 50 04.5	16	1.2		T	5.3		Near east coast of Honshu, Japan 34.1 N 139.1 E h about 33 km O = 22 36 53.9 Δ = 92° Strong surface waves on LP, weak surface waves on BB.
		e	28.6		1.4					
	LPE	eSKS	23 00 45		19.0					
	LPE	eS	01 18		18.0					
	LPE	ePS	02 30		16.0					
	LPE	ePPS	03 17		20.0					
	LPE	e	04 27		14.0					
	LPE	e	06 15		15.0					
	LPE	eSS	07 15		20.0					
	LPE	e	08 03		25.0					
	LPE	eSSS	11 13		20.0					
	LPN	e	14 55		25.0					
	LPN	eSur	17 52							
30 Aug		eP	00 30 33.5	1	0.4		NR			Δ(S-P) = 1.7°
	N	eS	55.6		0.6					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
30 Aug		eP	00 38 34.3	2	0.4	SSE	NR			Δ(S-P) = 1.7°
		e	44.1		0.4					
	E	eS	56.1	999						
30 Aug		eP	00 56 18.5	2	1.0		T			
		e	36.8		0.8					
30 Aug		eP	05 30 38.5	3	1.3		T			
30 Aug		eP	06 32 11.2	4	1.0		T			Phase at 06 32 11.2 is possible new event.
		e	51.2		1.0					
30 Aug		eP	06 39 12.0	6	1.5		T	4.4		Italy 44.1 N 12.5 E h about 33 km O = 06 27 07.4 Δ = 79°
30 Aug		eP	06 40 35.3	8	0.9	S	T			
30 Aug		eP	06 52 39.9	50	1.8	NE	T			
		e	46.7		0.7					
		e	53.5		1.4					
		e	53 17.7		1.3					
30 Aug		eP	07 29 31.9	4	1.4		T			
30 Aug		eP	07 58 54.8	2	0.5		T	4.2		Romania 45.5 N 26.7 E h about 100 km O = 07 46 25.2 Δ = 85°
30 Aug		eP	08 40 44.8	3	1.2		T			
30 Aug		eP	11 34 55.1	3	1.3		T	4.6		Near east coast of Honshu, Japan 35.1 N 140.4 E h about 33 km O = 11 21 55.1 Δ = 92°
30 Aug		eP	11 48 07.0	22	1.6		T	4.9		Southern Chile 40.2 S 22.6 W h about 37 km O = 11 36 11.3 Δ = 79° Weak surface waves on LP
		e	19.2		1.8					
		e	58.7		1.5					
		e	50 27.0		1.3					
		e	51 43.7		1.1					
	LPE	eS	58 00		11.0					
	LPE	ePS	45		14.0					
	LPN	eSur	12 17 28							
30 Aug		eP	12 57 01.1	5	1.2		T			
		e	14.7		1.5					
		e	30.2		0.8					
		e	58 00.7		0.8					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
30 Aug		eP	13 38 25.6	566	1.7		R	6.1		Mag. = 5 3/4-6 (PS), 5.8 (PL).
	LP	e	32		18.0					Utah-Idaho border
		e	39 19.4	999						41.8 N 111.8 W
	LPE	e	34		20.0					h about 37 km
	LPE	e(Sur)	40 27							O = 13 35 28.7
		eSur	42 04.4							Δ = 12.5°
										Strong surface waves on all systems
30 Aug		eP	13 59 20.9	4	1.0		T			
30 Aug		eP	14 38 52.6	8	1.5		T			
30 Aug		eP	17 30 54.0	17	1.3		T	5.3		Mag. = 5½ (B)
		e(pP)	31 04.3		1.6					Tonga Islands
	BB	e	22		5.0					21.2 S 174.4 W
		e	25.5		1.5					h about 33 km
		e	51.3		1.6					O = 17 17 51.9
		e	32 15.8		1.0					Δ = 91°
	BB	e	35 02		9.0					Medium surface waves on LP.
		e	07.9		1.6					
	BBE	e	39 40		9.0					
	BBE	eSKS	41 25		5.0					
	BBN	eS	54		12.0					
		ePKKP	48 19.6		1.2					
	BB	e	53 09		9.0					
	LPN	eSur	18 00 15							
30 Aug		eP	17 59 38.2	3	0.3				NR	Δ(S-P) = 1.7°
		e	48.3		0.4					Quarry blast, 6,700 lbs., by Gifford-Hill Co., near Chico, Texas
		eS	59.8	999						
30 Aug		eP'	19 28 43.4	2	1.2				T	Prince Edward Islands region
		e	29 35.4		0.8					47.7 S 32.6 E
										h about 33 km
										O = 19 09 15.9
										Δ = 143.5°
30 Aug		eP	19 54 21.4	18	0.4	E			NR	Δ(S-P) = 1.6°
		e	30.0		0.4					
		eS	42.5	999						
30 Aug		eP	20 11 13.9	2	1.1				T	
30 Aug		eP	20 26 36.1	6	1.3				T	
30 Aug		eP	20 40 47.3	2	0.5	NW			R	
		e	42 02.2		1.0					
	E	eSur	43 22.0		0.6					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
30 Aug		eP	21 11 52.4	1	0.5		NR			Δ(S-P) = 1.4°
	E	eS	12 11.2		0.4					
30 Aug		eP	21 53 57.5	4	0.4	E	NR			Δ(S-P) = 1.6°
		eS	54 18.0	999						
30 Aug		eP	23 04 39.8	3	0.4	SE	NR			Δ(S-P) = 1.6°
	N	eS	05 01.1	999						
30 Aug		eP	23 06 08.7	7	1.0		T			
		e	22.3		1.3					
31 Aug		eP	00 35 18.6	4	1.1		T			
31 Aug		eP	04 40 27.1	2	0.9		T			
31 Aug		eP	07 04 34.5	2	0.9		T			
31 Aug		eP	07 39 21.6	2	0.8		T			
		e	29.8		1.0					
31 Aug		eP	09 12 56.6	3	1.0		T	4.4		Fiji Islands region
		e	13 24.9		1.2					15.3 S 177.2 W
	LP	eSur	41 40							h about 59 km
										O = 09 00 04.8
										Δ = 89°
										Medium surface waves on LP.
31 Aug		eP	10 37 23.4	3	1.0		T			
31 Aug		eP	10 46 23.2	15	1.2	W	T			Strong surface waves on LP
		e	32.8		1.2					Medium surface waves on BB.
		e	44.3		1.4					
		e	47 37.4		1.2					
	LP	e(SP)	58 00		18.0					
	LP	e	11 10 23		27.0					
	LP	eSur	13 53							
31 Aug		eP	16 37 08.2	5	0.8		T	4.6		Near east coast of Kamchatka
		e	18.7		1.3					52.5 N 160.6 E
		e	33.4		0.7					h about 63 km
										O = 16 26 05.9
										Δ = 69°
31 Aug		eP	17 05 19.4	4	1.2		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
31 Aug		eP	17 12 39.7	442	1.6		T	6.3		Mag. = 6 3/4 (PS), 6-6¼ (PL).
		e	52.6		1.6					
		e	14 29.9		1.9					Rat Islands, Aleutian Is.
		ePP	55.1		2.1					51.3 N 179.7 W
		e	17 24.9		2.3					h about 26 km
		e	19 10.8		1.5					O = 17 02 43.4
	E	eS	20 45.1		3.0					Δ = 58°
		e	22 26.6		1.5					Strong surface waves
	BBN	eSur	30 47							on LP and BB.
		eP'P'	42 17.2		1.7					
		e	37.8		1.7					
31 Aug		eP	18 06 03.7	182	2.0		T	5.8		Rat Islands, Aleutian Is.
		e	40.4		1.6					51.2 N 179.9 W
		e	07 18.5		1.2					h about 43 km
		e	44.4		1.7					O = 17 56 08.9
		ePP	08 09.8		2.1					Δ = 58°
	E	eS	14 04.1		3.4					
	BBN	e	15 05	999						
31 Aug		eP	18 08 36.2	1	0.3		L			Δ (S-P) = 1.3°
	E	eS	53.5		0.4					
31 Aug		eP	18 28 37.2	1	0.6		T			
31 Aug		eP	18 53 50.8	4	0.6		L			Δ (S-P) = less than 0.1°
		eS	53.0	999						
31 Aug		eP	20 16 48.7	1	0.3		NR			Δ (S-P) = 4.7°
		e	57.4		0.4					
		e	17 06.8		0.4					
	N	eS	47.0		0.3					
	N	eSur	18 00.7		0.5					
31 Aug		eP	21 33 09.4	7	1.3		T	4.6		Rat Islands, Aleutian Is.
		e	34 21.1		1.7					51.4 N 179.8 W
										h about 33 km
										O = 21 23 14.4
										Δ = 58°
31 Aug		eP	23 19 26.8	5	1.3		T			
31 Aug		eP	23 35 49.9	2	0.6		NR			Δ (S-P) = 2.3°
	N	eS	36 18.9		0.4					
31 Aug		eP	23 43 03.0	1	0.4		NR			Δ (S-P) = 3.1°
		e	10.2		0.4					
	E	eS	40.5		0.4					
	E	eSur	53.1		0.5					

Volume 2, No. 9
September 1962

REGISTRATION OF EARTHQUAKES AT WICHITA MOUNTAINS SEISMOLOGICAL OBSERVATORY FORT SILL, OKLAHOMA, U.S.A.

Operated under the Technical Supervision of the
Air Force Technical Applications Center (AFTAC)

by

The Geotechnical Corporation
Garland, Texas

Advanced Research Projects Agency (ARPA)
Department of Defense
United States Government

THE REGISTRATION OF EARTHQUAKES

AT THE

WICHITA MOUNTAINS SEISMOLOGICAL OBSERVATORY

STATION

STATION ABBREVIATION:	WMSO
STATION IDENTIFICATION ON FILM SEISMOGRAMS:	α
GEOGRAPHICAL LOCATION *: (Vault No. 6)	34° 43' 05.3" N. Latitude 98° 35' 20.7" W. Longitude
GEOCENTRIC LOCATION *: (Vault No. 6)	34° 32' 09.8" N. Latitude 98° 35' 20.7" W. Longitude
ALTITUDE (Meters) *: (Vault No. 6)	505 meters (1658 feet)
GEOLOGY:	The station is located on the Carlton (porphyritic) granophyre of the Wichita Mountains of Oklahoma.

Noise Level: The periods of the predominant microseisms at WMSO are 0.5 second and 6 seconds. Amplitude distribution curves for the 0.5-second microseisms are shown on page 2 as true ground motion in millimicrons and as trace amplitude in millimeters at the operating gain of 500K. Both curves are center-to-peak.

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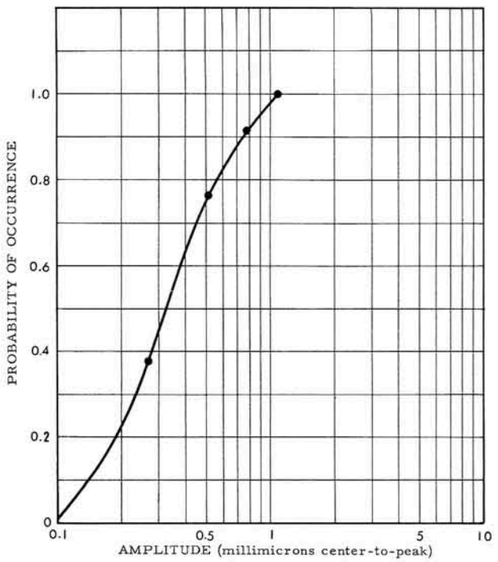
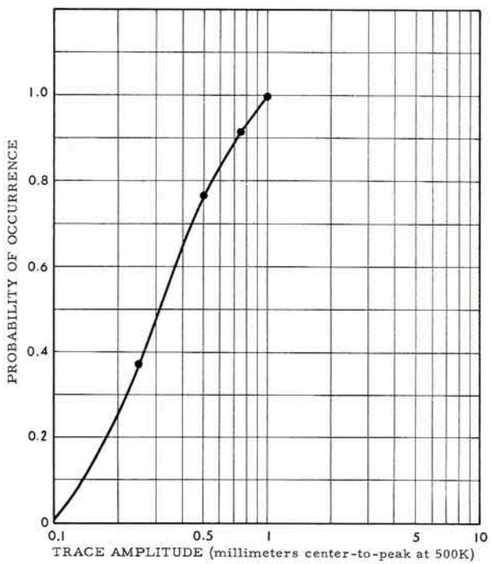
* The coordinates refer to the location of vault No. 6 which houses the 3-component groups of short-period and intermediate-band seismometers from which arrival times are determined.



Probability of predominant 0.5-sec microseisms occurring at or less than a given amplitude at unity magnification



Probability of predominant 0.5-sec microseisms occurring at or less than a given trace amplitude in millimeters at operating gain of 500K

SEISMOGRAPHS

	T_s	λ_s	T_g	λ_g	σ^2
SP Vertical Johnson-Matheson	1.25	0.50	0.32	0.64	0.014
SP Vertical Benioff	1.0	1.0	0.2	1.0	0.01
SP Horizontal Benioff	1.0	1.0	0.2	1.0	0.01
IB Vertical Melton	2.5	0.65	0.64	1.5	0.002
IB Horizontal Sprengnether	2.5	0.65	0.64	1.5	0.0005
BB Vertical Press-Ewing	12.5	0.4	0.64	9.0	0.0002
BB Horizontal Sprengnether	12.5	0.4	0.64	9.0	0.0004
LP Vertical Sprengnether	25.0	1.0	30	1.0	0.004
LP Horizontal Sprengnether	25.0	1.0	30	1.0	0.004

SP = Short Period

IB = Intermediate Band

BB = Broad Band

LP = Long Period

T_s = Free period of seismometer in secs.

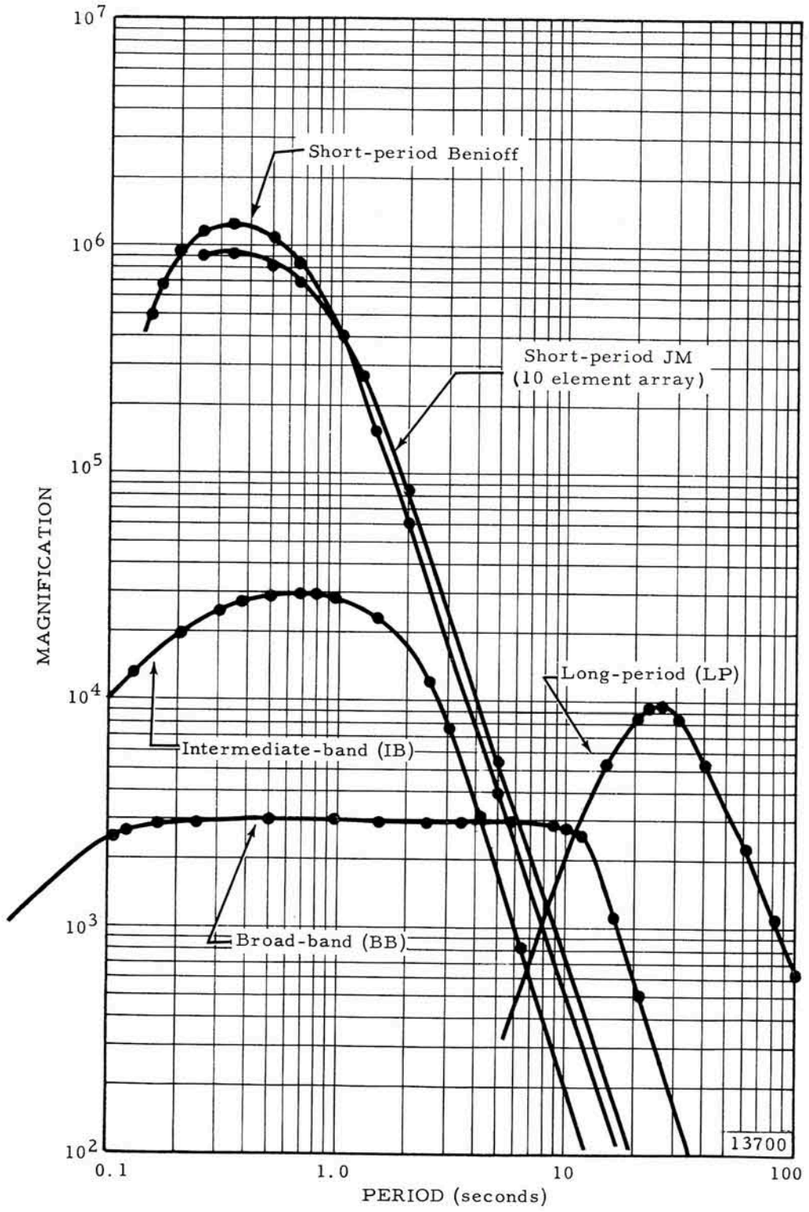
λ_s = Damping constant of seismometer

T_g = Free period of galvanometer in secs.

λ_g = Damping constant of galvanometer

σ^2 = Coupling coefficient

NOTE: Response curves are on page 4.



Response characteristics of seismographs

INTERPRETATION OF SYMBOLS

1. Earthquakes Listed

All local (L), near-regional (NR), regional (R), and distant earthquakes (T) are tabulated on the following pages.

2. System

In the column headed "Syst." (system), the seismograph (SP, IB, BB, or LP) and component (Z, N, or E) used to measure arrival time are designated. When no component designation appears, the phase is read from the vertical component. When neither system nor component designation appears, the phase is read from the SP vertical component.

3. Phase

a. An "i" (impetus) preceding a phase designates sudden beginning of the motion. (A designation of "i" in the case of initial P motion indicates a signal-to-noise ratio exceeding about 5/1.)

b. An "e" (emersio) designates gradual beginning.

c. An "i" or "e" alone designates an unidentified phase.

d. The ( ) (parenthesis marks) indicate uncertainty.

4. Time

a. Date and arrival time are given in Greenwich Civil Time (G.C.T.).

b. The arrival time is reported as the earliest time on Z, N, or E. Single Z rather than the array summation (Σ) is used for measuring arrival times on the SP seismographs.

5. Ground Motion

a. In the columns headed "A" and "T" are tabulated earth displacement in milli-microns and period in seconds, respectively. An amplitude of 999 indicates that a signal cannot be measured reliably. A "c" or "d" in the "A" column indicates compression or dilation, respectively, of the ground as indicated by the vertical component instrument.

The value of "A" for P phases is the maximum amplitude in the first ten seconds. All amplitudes are center-to-peak amplitudes.

b. Trace amplitudes are measured to the nearest 1/2 millimeter at X10 view.

6. Direction

In the column headed "Dir." (direction), the direction of the epicenter as viewed from WMSO is indicated. For teleseisms, direction is obtained only from P and Rayleigh waves and is listed opposite the phase from which it is obtained. For close events, direction may be obtained from P-wave step-out shown on the individual short-period vertical traces.

7. Type

Earthquakes are identified as either:

L	(local)	0-1.4°
NR	(near-regional)	1.4-4.6°
R	(regional)	6-16°
T	(teleseismic)	16-180°

8. Magnitude Column

Magnitudes of earthquakes, as calculated from WMSO seismograms, are reported for all events for which sufficient epicentral information is available, and for which adequate data are available from the WMSO records.

m - Unified Magnitude - calculated from maximum amplitude and predominant period of P wave.

M - Surface Wave Magnitude - calculated from maximum amplitudes of surface waves in the period range 17-23 seconds (reported when P was not recorded or cannot be measured reliably).

No station correction factor has been determined for WMSO to date.

9. Remarks Column

a. Magnitudes, as obtained from the U. S. Coast & Geodetic Survey Preliminary Determination of Epicenter cards, are reported for events recorded at WMSO. The designations for the U. S. Coast & Geodetic Survey stations which report magnitudes are:

B	-	Berkley
PL	-	Palisades
PS	-	Pasadena

b. Epicentral locations, time of origins, and depth of foci are obtained from the U. S. Coast & Geodetic Survey Preliminary Determination of Epicenters cards.

c. The nature of the surface waves is indicated subjectively.

d. Epicentral locations and distances reported by the station are accompanied by an indication of the phases used to determine epicentral distance, e.g., Δ (S-P) = 6°, Central Colorado.

e. Operational notes refer to operational difficulties that affect analysis of data.

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
01 Sept		eP	00 57 14.4	2	0.7		T			
01 Sept		eP	02 10 31.7	2	0.3	(NE)	NR			Δ (S-P) = 2.2°
		e	35.2	999						
	E	eS	58.3	999						
01 Sept		eP	03 29 09.3	2	0.9		T			
		e	31 51.8		1.5					
01 Sept		iP	03 56 02.0	c 238	1.7		T	6.0		Mag. = 6½ (PS), 6 (PL)
	E	eS	04 04 05.2		3.2					Rat Islands, Aleutian Islands
	LPE	eScS	05 45		25.0					51.3 N 179.7 W
	LPE	eSS	07 58		29.0					h about 25 km
	LPE	eSur	10 50							0 = 03 46 05.0
	LP	eSur	12 00							Δ = 58°
		eP'P'	25 38.4		1.6					Strong surface waves, Love and Rayleigh type, on LP and BB.
01 Sept		eP	04 08 18.1	46	1.6		T	5.3		Rat Islands, Aleutian Islands
		e	46.2		1.8					51.1 N 180.0
										h about 33 km
										0 = 03 58 21.5
										Δ = 58°
										Surface waves from previous event obscure later LP phases.
01 Sept		eP	04 51 37.2	47	1.2		T	5.4		Rat Islands, Aleutian Islands
		epP	50.5		1.5					51.3 N 179.9 W
	E	eS	59 41.3		3.0					h about 37 km
	LP	e(Sur)	05 09 05							0 = 04 41 41.5
										Δ = 58°
										Surface groups from previous events intermingled.
01 Sept		eP	05 05 39.0	57	2.2		T	5.7		New Hebrides Islands
		epP	06 39.3		2.2					15.9 S 168.2 E
		e	08 40.2		1.6					h about 244 km
		e	09 17.2		1.5					0 = 04 52 14.5
		eP'	30.8	49	1.5					Δ = 101°
		ePP	48.7		2.2					Surface groups from
	E	eSKS	15 55.8		2.5					previous events intermingled.
	LP	e(SKS)	17 10		18.0					
	LPE	ePS	19 27		28.0					
		ePKKP	21 45.7		1.1					
	LPE	eSur	35 00							
01 Sept		eP	05 22 10.8	60	1.5	(ESE)	T			
	E	e(SKS)	32 28.6		2.2					
01 Sept		eP	05 25 51.9	16	1.3		T			Possible phase of preceding event
01 Sept		eP	05 29 47.9	16	1.6		T			Possible phase of event at 05 22 10.8

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
01 Sept		eP	05 37 23.1	3	1.0		T			
01 Sept		eP	06 04 46.6	1	0.8		T			
01 Sept		eP	06 52 21.8	2	1.0		T			
01 Sept		eP	07 52 03.8	3	1.0		T	4.3		Rat Islands, Aleutian Islands
		epP	18.2		1.7					51.2 N 180.0
										h about 33 km
										0 = 07 42 07.4
										Δ = 58°
01 Sept		eP	08 01 02.9	357	2.2		T	6.1		Mag. = 6½(PS), 6(PL)
	BB	epP	14		8.0					Rat Islands, Aleutian Islands
	E	eS	09 05.4		4.0					51.3 N 179.9 W
	LPE	eScS	10 55		26.0					h about 42 km
	LPE	eSS	13 05		24.0					0 = 07 51 08.2
	LPE	eSSS	15 25		24.0					Δ = 58°
	LP	eSur	18 00							Medium surface on BB.
		eP'P'	30 46.2		1.7					Strong surface on LP.
01 Sept		eP	08 57 02.9	4	1.0		T	4.4		Rat Islands, Aleutian Islands
		epP	11.7		1.6					51.4 N 179.8 W
		e	09 01 21.2		2.5					h about 29 km
										0 = 08 47 06.9
										Δ = 58°
										Phase at 09 01 21.2
										possible new event.
01 Sept		eP	13 56 18.3	1	0.7		T			
01 Sept		eP	14 13 46.0	2	0.8		T			
01 Sept		eP'	15 19 47.6	3	0.8		T			Near coast of west
		epP'	54.6		1.0					Pakistan
		ePP	20 59.3		1.3					25.8 N 65.3 E
		ePKKP	30 05.1		1.4					h about 46 km
	LPE	ePS	50		25.0					0 = 15 01 04.6
	LPE	ePPS	32 10		24.0					Δ = 118°
		ePcPP'	34 02.2		1.4					Medium surface waves
	LPN	eSS	37 32		32.0					on LP.
	LP	e	41 50		23.0					BB also responds to phase
	LP	eSur	55 40						4.9	at 16 14 24
	LP	e	16 14 24		19.0					Resembles a new event,
										but no other later phases
										or SP response.
01 Sept	N	eP	16 17 08.4	999	1.0	W	R			Possible earlier start
		eSur	18 38.9	999						
01 Sept		eP	18 25 41.8	2	0.8		T			
		e	26 12.6		1.4					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
01 Sept		eP	19 34 42.2	147	2.7		T	6.3		Mag. = 7½(PS), 7 (PL),
	LP	e	35 37		18.0					7 3/4 (B).
	LP	e	37 19		26.0					Northwest Iran
		eP'	38 06.8		1.7					35.6 N 50.0 E
	BB	ePP	55	999						h about 21 km
	E	eSKS	45 24.8		2.0					0 = 19 20 38.5
	E	eSKS	34.4	20	3.5					Δ = 104°
	LP	e	46 55	999						Very strong surface waves
	N	ePS	48 11.2		6.0					on all systems.
	N	ePPS	57.9		7.0					
		ePKKP	50 29.6		1.4					
		ePKKP	37.4		1.4					
		ePKKP	49.6		1.3					
		ePKKP	56.4		1.5					
	LP	e	54 00		50.0					
	LP	e(SKKS)	58 30		35.0					
		eP'P'	56.6		1.6					
	LP	e	20 02 10		30.0					
	LP	e	05 30		35.0					
	LP	e	07 30		35.0					
	LP	eSur	09 20							
01 Sept		eP	20 41 44.0	1	0.9		T	4.8		Northwest Iran
		e	44 05.0		1.2					35.3 N 49.6 E
		e	56.5		0.8					h about 33 km
		ePP	46 07.1		1.0					0 = 20 27 37.2
										Δ = 104°
01 Sept		eP	22 16 43.4	1	0.8		T			
		e	55.8		0.9					
01 Sept		eP	22 24 40.0	2	1.0		T			
		e	25 03.4		1.2					
01 Sept		eP	23 53 21.5	4	1.0		T	4.5		Svalbard region
		e(pP)	27.6		1.1					79.0 N 02.7 E
		e(sP)	30.6		1.5					h about 19 km
		e	54 48.5		1.3					0 = 23 43 24.9
										Δ = 58.5°
02 Sept		eP	01 33 03.0	4	1.1		T			
		e	10.6		1.2					
	LPE	e	52 08		25.0					
02 Sept		eP	01 55 38.0	4	1.4		T			
02 Sept		eP	03 12 25.5	29	1.2		T	5.2		Rat Islands, Aleutian Islands
		ePP	14 36.9		1.4					51.3 N 179.8 W
	LPN	eS	20 30		21.0					h about 26 km
	LPE	eSS	24 40		32.0					0 = 03 02 29.3
	LPN	eSur	29 45							Δ = 58°
	LP	eSur	32 50							Medium surface waves,
										Love and Rayleigh type,
										on LP.

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
02 Sept		eP	03 57 00.4	4	0.8	SSE	T			
		e	05.2		1.0					
		e	08.3		0.9					
02 Sept	LPN	e	04 51 48		20.0		T			Weak surface waves on LP
	LPN	e	53 00		25.0					
	LPN	e	55 34		20.0					
	LP	e	59 00		18.0					
	LP	e	05 00 15		25.0					
	LP	e	14 20		18.0					
	LP	eSur	30 45							
02 Sept		eP	05 08 06.4	46	2.2	S	T			
		e	20.3		1.1					
		e	11 30.9		1.0					
02 Sept		eP	05 18 18.4	4	1.2		T			Possible PKKP of previous event
02 Sept	LP	eSur	06 30 00				T		4.2	Ryukuy Islands 27.5 N 127.0 E h about 58 km 0 = 05 33 05.4 Δ = 104° Weak surface waves on LP
02 Sept		eP	06 32 26.0	2	0.9		T			
02 Sept		eP	07 08 26.8	1	1.1		T			
02 Sept	LPE	eSur	08 00 47				T			Northwest Iran
	LPE	eSur	06 52						4.1	35.6 N 19.2 E h about 33 km 0 = 07 12 02.4 Δ = 104° Medium surface waves on LP
02 Sept		eP	08 13 52.4	5	1.6		T			
02 Sept		eP	08 34 20.4	3	1.0		T			
02 Sept		eP	08 36 39.1	3	1.0		T	4.6		Near east coast of Honshu, Japan 34.2 N 139.5 E h about 33 km 0 = 08 23 28.5 Δ = 92° Weak surface waves on LP
	LP	eSur	09 22 27							
02 Sept		eP	11 52 38.5	2	1.0		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
02 Sept		eP	11 57 10.6	1	0.8		T			
02 Sept		eP	12 03 19.9	3	1.1		T			
02 Sept		eP	14 55 00.8	1	0.9		T			
		e	06.6		0.8					
02 Sept		eP	15 00 09.2	71	1.1	NW	T			
		e	17.0		1.1					
		e	52.4		1.0					
	LP	e	09 58		17.0					
02 Sept		eP	15 02 40.6	8	1.1	NW	T			
		e	46.6		1.0					
02 Sept		eP'	15 41 11.0	2	1.0		T			Soemba Island region
		e	35.5		1.2					10.2 S 120.3 E
		e	42 03.0		1.0					h about 33 km
		ePP	44 05.9		1.4					0 = 15 21 55.0
	LPE	e	50		23.0					Δ = 137°
		eSKP	58.1		1.4					Medium surface waves,
		e	45 06.0		1.4					Rayleigh type, on LP.
		e	15.3		1.7					
		e	31.5		1.8					
	LPE	e	48 50		23.0					
	LP	e	58 12		21.0					
	LPE	e	16 10 38		33.0					
	LP	eSur	29 22						4.8	
02 Sept		eP	16 23 33.1	2	0.8		T	4.0		Chile-Bolivia
		e	56.7		1.1					22.4 S 68.1 W
										h about 170 km
										0 = 16 13 18.1
										Δ = 63.5°
02 Sept		eP	19 11 51.6	2	0.8		T			
02 Sept		eP	20 01 46.3	11	1.4		T	4.7		Jan Mayen Island region
		e	58.3		1.1					71.2 N 12.7 W
										h about 33 km
										0 = 19 52 06.7
										Δ = 56°
02 Sept		eP	21 10 48.3	2	0.9		T	4.4		Near east coast of Honshu, Japan
										33.9 N 138.7 E
										h about 33 km
										0 = 20 57 33.4
										Δ = 91°
02 Sept		eP	23 55 30.8	2	0.5		R			
		eSur	56 59.0		0.7					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
03 Sept		eP	00 10 16.4	1	0.5		T			
03 Sept		eP	00 15 12.3	19	1.6		T			
		e(PP)	17 37.2		2.0					
03 Sept		eP	00 17 48.9	39	1.5		T			
03 Sept		eP	01 10 29.5	3	1.0		T			
03 Sept		eP	02 17 03.3	8	1.1		T			
		e	32.1		1.5					
03 Sept		eP	02 56 20.9	22	1.5		T			
		e	42.9		1.2					
03 Sept		eP	04 32 22.9	4	1.2		T			
		e	47.0		1.1					
03 Sept		eP	04 50 43.0	1	0.6		T			
03 Sept		eP	04 51 40.6	7	1.1		T			
		e	44.4		1.2					
	LPE	e(Sur)	05 07 00							
03 Sept		eP	07 39 38.7	5	1.0		T			
		e	42.5		1.1					
03 Sept		eP	08 08 24.2	3	1.1		T			
		e	36.5		0.9					
03 Sept		eP	09 30 31.0	2	1.0		T			
		e	42.3		0.7					
03 Sept		eP	11 05 36.9	11	1.0	NW	T			
		e	43.5		0.9					
03 Sept		eP	17 03 49.7	3	1.0		T	4.6		Near east coast of Honshu, Japan 34.5 N 139.4 E h about 33 km 0 = 16 50 38.2 Δ = 92°
03 Sept		eP	20 03 18.0	5	1.0		T			
03 Sept		eP	20 49 52.3	1	0.9		T	4.2		Near east coast of Honshu, Japan 34.0 N 139.0 E h about 49 km 0 = 20 36 37.6 Δ = 92°
		e	54 56.7		1.4					
03 Sept		eP	21 21 21.4	7	1.5		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
03 Sept		eP	22 18 01.9	29	1.0	NW	T			
		e	09.6		0.9					
03 Sept		eP'	22 24 48.8	2	1.1					Sandwich Islands 56.6 S 27.2 W h about 33 km 0 = 22 06 08.9 Δ = 110.5°
04 Sept		eP	03 53 34.7	8	1.0		T			
		e	42.8		0.8					
		e	48.9		1.0					
		e	54 09.3		1.0					
04 Sept		eP	08 38 46.5	8	1.3		T	4.6		South of Easter Island region 32.5 S 112.3 W h about 33 km 0 = 08 27 48.8 Δ = 68°
		e	54.4		1.3					
		ePcP	39 12.6		1.2					
04 Sept		eP	13 44 14.3	3	0.9		T	5.1		Northwest Iran 35.6 N 49.7 E h about 24 km 0 = 13 30 10.9 Δ = 104°
		ePP	48 22.7		1.1					
04 Sept		eP	15 20 21.6	3	1.0		T			
04 Sept		iP	15 22 03.7 d 166		0.7		T	5.4		Mexico-Guatemala border 15.0 N 91.7 W h about 217 km 0 = 15 17 42.4 Δ = 21°
		e	20.2		0.9					
		e	33.2		0.9					
		e	36.6		0.9					
		e	25 41.1		1.4					
		eScP	29 32.6		1.2					
04 Sept		eP	16 05 26.9	5	1.1		T			
04 Sept		eP	17 22 07.8	70	1.0		T	5.0		Mag. = 4 3/4-5 (PS), 4 3/4 (B) Near coast of northern California 41.0 N 124.0 W h about 48 km 0 = 17 17 27.6 Δ = 21°
		e	36.6		1.4					
		e	24 08.8		1.3					
	N	eSur	28 46.0		3.5					
04 Sept		eP	17 37 26.5	8	1.5		T			
04 Sept		eP	17 40 27.1	3	0.6	E	L			Δ(S-P) = 1.4°
	E	e	38.0		0.5					
	E	eS	45.1		0.6					
	N	eSur	50.7	999	0.6					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
04 Sept		eP	18 47 37.4	2	0.5		NR			Δ (S-P) = 3.9°
	N	eS	48 23.8		0.5					
	E	eSur	53.5		0.8					
04 Sept		eP	21 23 28.9	2	0.5		NR			Δ (S-P) = 2.3°
	E	eS	57.9		0.5					
	E	eSur	24 01.3		0.5					
04 Sept		eP	21 54 24.8	8	1.1		T	4.6		North Atlantic Ocean
		e	33.0		1.1					24.0 N 46.4 W
		e	54.0		1.1					h about 39 km
		e	56 08.7		1.2					0 = 21 46 00.7
										Δ = 47.5°
04 Sept		eP	22 36 05.7	2	1.1		T			
		e	37 25.9		1.2					
04 Sept		eP	23 12 54.5	3	0.8		T	4.9		Turkey-Armenia, S.S.R. border
		e	16 05.6		1.0					39.9 N 44.2 E
		e	16.2		1.6					h about 33 km
		e	30.8		1.3					0 = 22 59 19.4
	LPN	eSur	43 30							Δ = 98°
	LP	eSur	44 50							Phase at 23 16 05.6 and following SP phases are possible new event. Strong surface waves on LP.
04 Sept		eP	23 24 13.0	2	0.4		NR			Δ (S-P) = 1.7°
	E	eS	34.7	999						Quarry blast, 3,900 lbs., by Gifford-Hill Co. Chico, Texas
05 Sept		eP	05 53 39.9	3	1.0		T			
		e	49.4		0.9					
		e	54 22.0		1.0					
	E	eSur	58 42.8		1.8					
05 Sept		eP	06 46 01.7	4	1.1		T	3.9		Colombia
										6.6 N 73.4 W
										h about 200 km
										0 = 06 39 16.9
										Δ = 36°
05 Sept		eP	08 46 58.5	30	0.6		T	5.3		Near east coast of Kamchatka
		e	47 23.2		0.6					52.7 N 159.1 E
		e	34.9		0.7					h about 101 km
										0 = 08 35 56.3
										Δ = 70°
05 Sept		eP	10 59 49.2	5	1.1		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
05 Sept		eP'	11 35 41.0	2	1.0		T			New Guinea
		ePP	36 51.0		1.9					3.3 S 139.9 E
		e	59.6		1.5					h about 110 km
		e	37 34.7		1.3					0 = 11 17 06.7
										Δ = 118°
05 Sept		eP	11 44 18.2	2	0.8		T			
		e	42.5		1.5					
		e	45 00.6		1.1					
05 Sept		eP	12 33 54.2	2	0.2		NR			Δ (S-P) = 1.7°
		e	34 03.8		0.4					
	E	eS	15.8	999						
05 Sept		eP	14 25 41.5	2	0.6		T			
		e	57.4		0.9					
05 Sept		eP	14 40 23.0	2	1.0		T			
		e	30.5		1.2					
05 Sept		eP	16 07 24.6	5	1.0		R	4.7		Mag. = 5 (PS)
		e	37.5		1.0					Utah
		e	08 12.0		1.1					40.7 N 112.0 W
		eSur	10 51.4	999						h about 14 km
										0 = 16 04 29.0
										Δ = 12°
05 Sept		eP	16 23 01.1	3	0.8		T			
05 Sept		eP	19 46 46.5	1	0.4	S	R			
	E	eSur	48 02.2		0.7					
05 Sept		eP	23 35 18.2	1	0.2		NR			Δ (S-P) = 2.0°
	N	eS	43.1		0.2					
		eSur	53.2		0.6					
06 Sept		eP	05 47 50.9	3	1.1		T			
06 Sept		eP	06 58 35.4	4	0.5		T	4.7		Near coast of central Chile
		e	54.6		0.8					31.1 S 72.0 W
										h about 33 km
										0 = 06 47 25.3
										Δ = 70°
06 Sept		eP	07 28 18.7	1	0.6		T			
06 Sept		eP	10 59 50.4	2	0.7		T			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Magnitude m	M	Remarks
1962												
06 Sept		eP	11	01	53.4	3	1.0		T	4.4		Tonga Islands region
		e		02	04.7		1.1					21.2 S 174.5 W
		e			09.9		0.8					h about 110 km
		e			16.9		1.0					0 = 10 49 00.7
		e			27.2		0.8					Δ = 91°
		ePP		05	24.3		1.6					Weak surface waves,
		e		07	12.7		1.6					Rayleigh type, on LP.
		e		09	23.1		1.3					
	LPE	eSur		31	10							
06 Sept		eP'	11	29	48.0	1	1.0		T			Ceram Sea
		e		30	02.4		1.1					4.0 S 126.4 E
		e			22.0		1.5					h about 33 km
		e			35.3		1.4					0 = 11 10 50.3
		e		32	00.7		1.2					Δ = 128°
	LPE	eSur	12	06	54							Medium surface waves,
	LP	eSur		14	30						4.5	Love and Rayleigh type,
												on LP.
06 Sept		eP	13	43	48.5	4	0.8		T	3.9		Near coast of Guatemala
		e			57.5		1.1					14.3 N 90.7 W
		e		44	30.0		1.4					h about 160 km
		e			39.6		1.3					0 = 13 39 11.2
		e		48	01.9		1.4					Δ = 21.5°
	LPE	eSur			15							Weak surface waves
												on LP.
06 Sept		eP	17	51	52.2	3	1.0		T	4.6		Near east coast of
		e		52	01.8		0.8					Honshu, Japan
												34.5 N 139.7 E
												h about 33 km
												0 = 17 38 41.4
												Δ = 91.5°
06 Sept		eP	18	00	57.6	1	0.3		NR			Δ(S-P) = 2.7°
		e			59.9		0.3					
	N	eS		01	31.1		0.4					
	E	eSur			44.6		0.4					
06 Sept		eP	18	20	00.4	2	1.0		T	4.8		Kermadec Islands region
		ePKKP		36	39.7		1.0					31.8 S 178.8 W
												h about 81 km
												0 = 18 06 22.9
												Δ = 100°
06 Sept		eP	19	10	03.9	2	1.0		T			
06 Sept		eP	20	21	37.2	1	0.6		T			
07 Sept		eP	00	16	19.9	2	0.4	N	L			Δ(S-P) = less than 0.1°
	N	eS			22.8	999						
07 Sept		eP	01	30	08.1	4	1.3		T			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Magnitude m	M	Remarks
1962												
07 Sept		eP	01	32	04.4	1	0.5		T			
07 Sept		eP	07	26	52.2	1	1.5		T			
07 Sept		eP'	08	00	36.6	15	1.1		T			Banda Sea region
		e		02	33.7		1.7					6.3 S 130.0 E
		e			43.1		1.3					h about 180 km
		ePP		03	05.0		1.5					0 = 07 41 51.0
		e			33.2		1.5					Δ = 127.5°
												Phases at 08 02 33.7 and
												08 02 43.1 are possible
												new event.
07 Sept		eP	12	16	44.4	1	0.7		T	4.3		Near east coast of
												Honshu, Japan.
												34.0 N 139.3 E
												h about 33 km
												0 = 12 03 31.1
												Δ = 92°
07 Sept		eP	12	24	35.3	4	1.1		T	4.8		Near northeast coast of
		e		25	06.9		1.6					Shikoku, Japan.
												34.5 N 134.8 E
												h about 33 km
												0 = 12 11 08.4
												Δ = 94°
												Phase at 12 25 06.9 is
												possible new event.
07 Sept		eP	14	09	33.5	4	1.4		T			
07 Sept		eP	15	02	48.1	1	0.9		R			
	E	eSur		06	27.4		1.4					
07 Sept		eP	18	39	03.7	2	0.7	S	T			
		e			33.1		1.1					
		e			54.6		1.2					
07 Sept		eP	19	08	12.9	3	1.0		T			
07 Sept		eP	21	14	51.0	2	0.4		NR			Δ(S-P) = 3.2°
	E	eS		15	29.6		0.5					
07 Sept		eP	21	38	52.3	1	0.2		NR			Δ(S-P) = 3.1°
		e			55.8		0.3					
		e			58.0		0.4					
	E	eS		39	30.4		0.4					
		eSur			43.9		0.8					
07 Sept		iP	22	53	47.9	c 999			L			Δ(S-P) = less than 0.1°
		eS			49.5	999						
07 Sept		eP	23	42	55.7	8	1.1		T			
		e		43	01.6		1.0					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
07 Sept		eP	23 50 46.9	1	0.8		T	4.4		Kermadec Island region 26.3 S 178.0 W h about 50 km 0 = 23 37 27.5 Δ = 96.5°
07 Sept		eP	23 52 35.4	1	0.5		NR			Δ (S-P) = 3.0°
		e	38.6		0.5					
		e	42.0		1.2					
	E	eS	53 12.5		0.3					
	N	e	18.6		0.5					
	E	eSur	24.7		0.5					
08 Sept		eP	00 06 54.0	1	1.0		T			
		e	07 17.8		0.9					
08 Sept		eP	00 15 18.2	1	1.2		T			
		e	31.0		1.2					
08 Sept		eP	01 08 10.9	2	0.8		T			
		e	19.3		0.8					
		e	42.2		1.0					
08 Sept		eP	02 47 08.2	3	0.2	NW	NR			Δ (S-P) = 2.7°
	E	eS	41.2	999						
08 Sept		eP	03 37 11.7	2	1.1		T			
08 Sept		eP	04 24 39.6	7	1.4		T			
		e	48.0		1.4					
08 Sept		eP	05 32 24.6	2	1.0		T			
08 Sept		eP	05 33 24.5	1	0.4		NR			Δ (S-P) = 3.9°
	E	eS	34 12.4		0.4					
08 Sept		eP	05 59 05.2	2	1.1		T			
		e	37.0		1.4					
08 Sept	LP	eSur	08 15 55				T	4.3		Loyalty Island region 22.4 S 171.5 E h about 76 km 0 = 07 27 06.7 Δ = 102° Medium surface waves on LP
08 Sept		eP	10 01 03.8	3	1.2		T			
08 Sept		eP	10 12 27.4	2	1.3		T			
08 Sept	LP	eSur	10 15 30				T			Medium surface waves on LP

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
08 Sept		eP	10 26 21.2	4	1.5		T			
08 Sept		eP	11 48 22.4	1	1.0		T			
08 Sept		eP	12 53 22.4	2	0.9		T			
08 Sept		eP	13 10 51.6	6	0.8		T	4.5		Leeward Islands region
		e	11 14.2		1.5					16.9 N 60.9 W
		e	13 03.6		1.0					h about 33 km
		e(PcP)	13.1		1.3					0 = 13 03 34.7
	N	eS	16 48.0		1.8					Δ = 38°
	N	e(ScS)	21 01.2		1.5					Medium surface waves
	LP	eSur	25 20							on LP
08 Sept		eP	15 18 21.6	2	0.9		T			
08 Sept		eP	16 05 53.2	3	1.2		T			
08 Sept		eP	16 22 37.6	5	1.6		T			
08 Sept		eP	17 52 47.3	11	1.7		T			
		e	53 01.7		1.4					
08 Sept		eP	19 19 36.5	4	1.5		T			
08 Sept		eP	22 05 37.6	2	1.0		T			
08 Sept		eP	22 17 44.3	1	0.3		NR			Δ (S-P) = 2.3°
	N	eS	18 12.6		0.7					
	N	eSur	14.5		0.4					
08 Sept		eP	23 49 40.5	1	0.8		T			
09 Sept		eP	00 11 11.0	1	0.8		T			
09 Sept		eP'	01 53 26.6	7	1.3		T			Near coast of Panay, P.I.
		epP'	38.4		1.3					10.3 N 121.4 E
		ePP	55 00.0		1.5					h about 58 km
		ePKKP	02 03 28.8		1.4					0 = 01 34 38.5
	LP	eSur	34 05					4.2		Δ = 121° Weak surface waves on LP
09 Sept		eP	03 08 10.2	5	0.9		T	4.5		Fiji Islands region 17.9 S 178.6 W h about 625 km 0 = 02 56 04.9 Δ = 92°

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
09 Sept		eP	03 31 21.3	18	1.1		T	5.0		Peru
		e	51.7		1.1					15.6 S 73.4 W
		e	57.5		0.9					h about 98 km
		ePcP	32 20.5		0.9					0 = 03 21 55.5
		e	47.9		1.3					Δ = 55°
	LP	eSur	48 27							Weak surface waves
		eP'P'	04 01 41.0		1.0					on LP
09 Sept		eP	05 22 42.5	3	1.3		T			
09 Sept		eP	05 53 25.2	4	1.3		T			Phase at 05 55 21.4
		e	55 21.4		1.3					possible new event
09 Sept		eP	12 02 02.5	1	0.7		T			
09 Sept		eP	12 06 53.9	2	1.3		T			
09 Sept		eP	12 10 14.9	2	1.2		T			
09 Sept		eP	14 42 03.3	6	1.0		R	4.7		Utah-Idaho border
		eSur	44 47.4		1.2					41.6 N 111.8 W
										h about 37 km
										0 = 14 38 13.0
										Δ = 12°
										Start is probably P_g.
										Arrival is 1 minute late
										for P_n.
09 Sept		eP	14 50 34.0	50	0.7		T	5.0		El Salvador
		epP	47.2		1.3					14.0 N 89.5 W
		e	51 19.3		1.1					h about 89 km
		e	29.3		1.1					0 = 14 45 44.5
										Δ = 22°
09 Sept		eP	14 59 30.7	2	0.5		NR			Δ (S-P) = 5.0°
	E	eS	15 00 30.0		0.4					
	E	eSur	51.9		1.5					
09 Sept		eP	19 20 33.8	22	1.5		T	4.7		Alaska
										62.4 N 152.4 W
										h about 57 km
										0 = 19 12 37.1
										Δ = 43°
09 Sept		eP	20 48 40.8	1	0.3		NR			Δ (S-P) = 1.6°
	E	eS	49 02.2		0.3					
10 Sept		eP	00 07 57.6	5	0.8	SSE	T			
		e	08 33.0		1.2					
		e	50.5		1.2					
10 Sept		eP	01 16 57.3	4	0.4		NR			Δ (S-P) = 1.8°
	N	eS	17 20.1	999						

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
10 Sept		eP	02 05 51.1	2	0.9		T			
10 Sept		eP	03 24 23.2	2	1.0		T			
10 Sept		eP	07 06 11.2	2	1.0		T			Phases at 07 07 33.5 and
		e	07 33.7		0.8					07 08 05.7 possible
		e	08 05.7		1.0					separate event.
10 Sept		eP	08 13 47.4	5	0.6	SSE	T			
		e	14 02.4		1.1					
		e	13.5		0.7					
		e	21.0		1.2					
10 Sept		eP	08 21 09.1	2	0.9		T			
10 Sept		eP	08 53 01.1	1	0.8		T			
10 Sept		eP	09 04 15.7	1	0.9		T			
10 Sept		eP	09 49 41.0	12	1.1		T	5.3		Dodecanese Islands
		e	50 01.8		1.0					35.0 N 27.1 E
		e	21.6		1.1					h about 33 km
		ePP	53 19.6		1.5					0 = 09 36 24.3
		e	31.0		1.6					Δ = 93.5°
		e	38.5		2.1					Medium surface waves
		e	54 25.1		1.4					on LP
	LPE	eSur	10 15 55							
	LP	eSur	23 25							
10 Sept		eP	14 00 43.8	4	1.0		T	4.5		Rat Islands, Aleutian Islands
		e	01 13.6		1.4					51.2 N 179.7 E
		e	09 00.8		1.4					h about 62 km
										0 = 13 50 48.7
										Δ = 58.5°
10 Sept		eP	15 56 13.3	29	0.8		T	5.5		Fiji Islands
		e	49.1		0.7					21.1 S 179.2 W
		e	57 06.2		0.8					h about 640 km
		epP	58 30.6		1.2					0 = 15 43 59.4
		e	59 00.0		0.8					Δ = 94°
		e	07.5		1.2					Phase at 16 12 44.0
	BB	e	34		10.0					possible new event.
		ePP	16 00 18.2		1.2					Phases at 16 13 49.2,
	BB	e	03 08		11.0					16 14 04.1, 16 15 45.5
	E	eSKS	05 51.8		1.4					and 16 15 52.5 possible
	E	eS	06 14.6		1.1					separate event.
	N	eSKS	38.3		3.5					
	BB	e	08 00		10.0					
	BBN	ePS	09 13		6.0					
	BBN	e	50		10.0					
		ePKKP	13 10.0		0.7					
		e	49.2		1.4					
		e	14 04.1		1.0					

(continued on next page)

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
		e	15 45.5		1.1					(continued from preceding page)
		e	52.5		1.0					
		e	16 09		1.5					
		eP'P'	21 17.4		1.4					
	E	e(SKKKS)	23 30.3		1.4					
10 Sept		eP	16 00 54.8	5	0.7		T			
		e	01 20.1		1.0					
10 Sept		eP	16 22 44.2	3	1.3		T			Possible phase of previous Fiji Islands event.
10 Sept		eP	16 22 59.9	1	0.4		NR			Δ (S-P) = 1.7°
	E	eS	23 21.6	999						
10 Sept		eP	16 23 51.4	3	1.3		T			
10 Sept		eP	16 55 49.3	6	1.3		T			
10 Sept		eP	17 20 10.0	1	0.7		T	4.1		Rat Islands, Aleutian Islands
		epP	29.2		0.9					51.3 N 179.1 E
		e	40.9		0.6					h about 60 km
		e	21 08.8		0.9					0 = 17 10 12.2
										Δ = 59°
10 Sept		eP	17 47 13.3	1	0.5		R			
		e	22.8		0.4					
	E	eSur	48 26.8		0.5					
10 Sept		eP	18 02 03.7	15	1.3		T	5.1		Tonga Island region
		e	23.3		1.9					17.5 S 173.6 W
		e	03 20.2		1.4					h about 33 km
	LPN	eS	12 42		26.0					0 = 17 49 16.1
	LPN	ePPS	14 15		23.0					Δ = 88°
	LPN	eSur	31 33							Medium surface waves, Rayleigh type, on LP.
10 Sept		eP	20 06 32.5	3	0.2		L			Δ (S-P) = 0.4°
	E	eS	39.3		0.4					
10 Sept		eP	20 16 44.5	5	0.7		T	4.4		Pacific Ocean, 1,250 miles southwest of Galapagos Island
		epP	51.7		1.2					13.6 S 111.6 W
		e	56.8		0.8					h about 33 km
		e	17 54.6		1.8					0 = 20 07 56.5
		e	19 32.3		1.4					Δ = 49.5°
	LPN	eSur	32 52							Medium surface waves on LP
10 Sept		eP	21 55 34.7	1	0.4		NR			Δ (S-P) = 2.4°
		e	36.4		0.4					
	E	eS	56 05.5		0.4					
	E	e	09.4		0.4					
	E	eSur	12.4		0.5					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
10 Sept		eP	21 57 32.3	39	0.9		T	5.0		Nicaragua
		e	35.2		0.9					12.3 N 86.7 W
		e(pP)	58 09.6		0.9					h about 178 km
	BB	e	30		3.5					0 = 21 52 26.6
	BB	e	55		5.5					Δ = 25°
	E	eS	22 01 38.8		1.0					Weak surface waves
	E	e	52.3		1.7					on LP
		e	02 16.1		1.5					
		e	47.9		1.4					
	LPN	eSS	54		23.0					
		e	04 27.8		1.2					
	LP	eSur	05 25							
10 Sept		eP	22 27 27.2	1	0.9		T			
10 Sept		eP	23 55 39.6	2	0.3		NR			Δ (S-P) = 4.0°
		e	48.3		0.3					
		e	52.4		0.6					
	E	eS	56 28.1		0.5					
	E	eSur	44.2		0.5					
11 Sept		eP	02 37 04.2	9	1.1		T	4.9		Samoa Island region
		epP	15.0		1.3					15.2 S 173.4 W
		e	38 05.8		1.5					h about 33 km
	LP	eSur	03 06 08							0 = 02 24 22.9
										Δ = 86.5°
										Weak surface waves, Rayleigh type, on LP.
11 Sept		eP	04 16 13.4	4	1.1		T			Phase at 04 34 55.9
		e	25.9		1.0					Possible new event.
	LPE	e	28 52		28.0					
		e	34 55.9		1.3					
11 Sept		eP	05 03 52.7	1	0.6		T	4.0		Andreanoff Islands, Aleutian Islands.
										51.5 N 178.0 W
										h about 33 km
										0 = 04 54 05.8
										Δ = 57°
11 Sept		eP	07 56 20.4	2	1.2		T			
11 Sept		eP	08 48 04.7	4	0.9		T	4.3		Colombia
										7.3 N 73.8 W
										h about 102 km
										0 = 08 41 16.1
										Δ = 36°
11 Sept		eP	10 28 26.7	2	1.0		T			
11 Sept	LPE	eSur	12 04 33				T			Weak surface waves on LP

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Magnitude m	M	Remarks
1962												
11 Sept		eP	13	01	12.2	2	0.4		NR			Δ (S-P) = 1.7°
		e			21.9		0.4					
		eS			34.1	999						
11 Sept		eP	15	45	08.9	4	0.3		L			Δ (S-P) = 0.7°
	E	eS			18.4	999	0.4					
11 Sept		eP	17	30	13.3	4	0.8		R			
		e			18.0		0.9					
		e			22.8		0.6					
	E	eSur		33	28.8		0.7					
11 Sept		eP	18	00	49.0	1	0.3		NR			Δ (S-P) = 1.6°
	E	eS		01	10.4	999	0.4					
11 Sept		eP	18	04	34.8	9	1.4	(NW)	T			
		e			48.3		1.5					
		e		05	09.2		1.2					
11 Sept		eP	20	20	19.6	4	0.9	(SSE)	T			
		e			23.9		0.9					
		e			27.8		1.0					
		e			31.6		1.0					
		e		21	34.8		0.9					
11 Sept		eP	21	30	50.9	1	0.4		NR			Δ (S-P) = 2.8°
	E	e		31	18.0		0.5					
	E	eS			26.0		0.4					
		eSur			43.1		0.8					
11 Sept		eP	21	34	34.0	1	0.5		NR			Δ (S-P) = 2.5°
	E	e(S)		35	05.0		0.4					
	E	eSur			12.6		0.5					
11 Sept		eP	22	33	27.0	2	0.5		NR			Δ (S-P) = 2.5°
	E	eS			58.8		0.6					
11 Sept		eP	23	45	56.5	2	0.3		NR			Δ (S-P) = 1.6°
	E	eS		46	18.0	999	0.3					
12 Sept		eP	00	00	30.4	4	1.3		T			
		e			43.1		1.4					
12 Sept		eP	01	30	21.9	3	0.9		T			
		e			36.8		0.9					
12 Sept		eP	03	11	25.4	4	1.4		T			
12 Sept		eP	03	38	27.9	2	0.9		T			
12 Sept		eP	05	03	12.1	7	1.3		T	4.9		Ascension Island
		e			20.1		0.8					7.0 S 12.4 W
		e			38.6		1.2					h about 33 km
		e		04	32.4		1.3					0 = 04 50 14.3
	LPE	eSur		34	17							Δ = 90.5°
												Weak surface waves on LP

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Magnitude m	M	Remarks
1962												
12 Sept		eP	12	38	33.5	15	1.2		T	4.8		Northern Chile
		e		39	09.8		1.4					23.1 S 68.8 W
		e			24.4		1.1					h about 150 km
		e		40	54.3		1.0					0 = 12 28 16.3
		e		41	30.2		1.4					Δ = 62.5°
12 Sept		eP	13	47	54.7	2	1.0		T			
12 Sept		eP	14	30	34.9	8	1.0		T			Weak surface waves
		e			45.0		1.9					on LP
		e			50.1		1.1					
		e			55.6		1.3					
		e		31	01.0		1.4					
		e			52.1		1.5					
	LPN	eSur		58	50							
12 Sept		eP	15	19	30.3	14	0.8		T			
		e			41.0		1.2					
		e		20	01.3		1.1					
		e			16.4		1.0					
12 Sept		eP	15	50	10.9	7	0.9		T			
12 Sept		eP	15	52	52.5	3	0.8		T			Possible phase
12 Sept	LP	eSur	19	14	23				T			Weak surface waves on LP
12 Sept		eP	19	58	26.7	1	0.2		NR			Δ (S-P) = 2.1°
	N	eS			52.7		0.3					
		eSur		59	01.9		0.7					
12 Sept		eP	21	11	19.0	3	0.8		T	5.3		Mag. = 6½ - 6 3/4 (PS),
		e		14	21.7		1.2					6 (PL)
		e			33.1		1.0					Hindu Kush
		e		15	03.9		1.5					36.5 N 69.2 E
		e			11.3		1.2					h about 50 km
		e(P')			21.5	14	1.2					0 = 20 57 00.4
		ePP			43.3		1.4					Δ = 106°
	BB	e		19	40		7.5					Strong surface waves,
	E	e		21	09.9		1.5					Rayleigh type, on LP
	BB	e			21		8.0					and BB.
		e			31.6		2.7					Start is probably
		eSKS		22	27.8		2.2					P diffracted.
	E	e			47.4		1.4					
	BB	e		23	50		6.0					
	BB	eSP		25	02		6.0					
	BB	eSPP		26	08		9.0					
		ePKKP			33.6		0.9					
		ePKKP			46.2		1.1					
		ePKKP			58.9		1.3					
		e		27	40.1		1.3					
		e(SKKP)		30	38.2		2.3					
	LP	eSur			57.9							

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Magnitude m	M	Remarks
1962												
12 Sept		eP	22	26	06.7	1	0.2		NR			Δ (S-P) = 3.0°
		e			12.8		0.3					
	E	eS			43.5		0.3					
	E	eSur			57.9		0.4					
12 Sept		eP	23	29	16.1	4	0.3		NR			Δ (S-P) = 1.7°
		e			26.5		0.4					Quarry blast, 9,600 lbs.,
		eS			37.8	999						by Gifford-Hill Co.,
												Chico, Texas
12 Sept		eP	23	51	47.2	1	0.3	SE	NR			Δ (S-P) = 1.6°
		eS		52	08.4	999						
13 Sept		eP	00	11	42.2	19	1.7		T	5.2		Ascension Island
		e			54.4		1.3					7.3 S 13.3 W
		e		12	08.3		1.3					h about 33 km
	LP	eSur		41	44							0 = 12/23 58 46.8
												Δ = 90°
												Weak surface waves
												on LP
13 Sept		eP	03	09	29.3	2	0.8		T			
13 Sept		eP	05	15	26.6	5	1.0		T	4.8		Tonga Islands
	LP	eSur		49	12							21.3 S 174.7 W
												h about 33 km
												0 = 05 02 22.8
												Δ = 91°
												Weak surface waves,
												Rayleigh type, on LP
13 Sept		eP	06	04	54.3	2	0.8		T			
		e			59.2		0.8	SE				
		e		05	04.2		0.7					
		e			06.8		0.8					
		e		08	18.4		1.1					
13 Sept		eP	06	50	54.1	1	0.4	SE	T			Phase at 06 51 01.8
		e		51	01.8		1.0					possible new event
13 Sept		eP	08	19	22.2	4	0.9		T	4.5		Kurile Islands
		e(PcP)			33.1		0.8					47.7 N 157.0 E
		ePP		22	04.5		1.4					h about 31 km
												0 = 08 07 49.2
												Δ = 73.5°

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Magnitude m	M	Remarks
1962												
13 Sept		eP	09	49	28.3	4	0.9	SE	T			
		e			39.2		1.0					
13 Sept		eP	14	02	15.8	2	0.7		R	4.0		Gulf of California
		e		03	14.0		1.2					25.6 N 109.6 W
		e			50.2		0.9					h about 33 km
		eSur		06	00.8		1.5					0 = 13 59 06.2
	BB	eSur			28		7.0					Δ = 14°
												Strong surface waves
												on LP and BB.
13 Sept		eP	14	42	38.1	3	0.7		T	4.2		North of Trinidad
		epP			59.4		0.7					11.6 N 61.3 W
		ePcP		44	38.0		1.2					h about 73 km
		e(PPP)			52.5		1.9					0 = 14 35 02.0
		eScP		48	25.6		1.0					Δ = 41°
	E	e(Sur)		52	13.1		3.0					Medium surface waves
	N	eScS			39.4		1.7					on SP, weak surface
	LP	eSur		54	51							waves on LP.
13 Sept		eP	17	42	46.0	3	0.5	E	NR			Δ (S-P) = 1.8°
		eS		43	09.1		0.5					
		eSur			14.4		0.6					
13 Sept		eP	18	06	35.8	2	0.4	SE	NR			Δ (S-P) = 1.6°
	E	eS			56.3	999	0.4					
13 Sept		eP	19	17	02.9	3	1.3		T			
13 Sept		eP	20	01	28.3	999			L			Δ (S-P) = 0.1°
	N	eS			31.5	999						Quarry blast, 12,230 lbs.,
												by Roosevelt Materials Co.
												south of Carnegie, Okla.
13 Sept		eP	21	44	48.7	2	0.5		NR			Δ (S-P) = 2.5°
	E	eS		45	19.6		0.6					
	E	eSur			26.9		0.5					
13 Sept		eP	23	50	26.4	1	0.4		NR			Δ (S-P) = 2.1°
	E	eS			52.6		0.3					
14 Sept		eP	00	46	23.8	2	1.0		T	4.5		Western Turkey
		e			54.3		0.7					39.6 N 28.6 E
												h about 69 km
												0 = 00 33 25.8
												Δ = 91°

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
14 Sept		eP	03 56 01.1	2	0.8		T			
14 Sept		eP	04 19 29.0	2	0.8		T			
14 Sept		eP	13 20 12.1	3	1.0		R	4.5		Utah-Idaho border
		e	51.9		1.1					41.8 N 111.5 W
	E	eSur	23 18.9		1.0					h about 10 km
										0 = 13 17 02.9
										Δ = 12°
14 Sept		eP	14 01 29.3	3	0.8	SE	T			
		e	33.5		0.7					
		e	43.1		0.8					
		e	47.1		1.0					
14 Sept		eP	14 08 31.5	3	1.2		T			
		e	51.1		0.9					
14 Sept		eP	16 06 06.9	5	1.2		T	4.9		Fiji Islands
		e	24.3		1.4					17.9 S 176.5 E
	LP	eSur	39 36							h about 33 km
										0 = 15 52 41.2
										Δ = 96°
										Weak surface waves on LP
14 Sept		eP	17 35 57.2	3	0.9		T	4.4		South of Fiji Islands
										26.6 S 178.5 W
										h about 449 km
										0 = 17 23 13.4
										Δ = 96°
14 Sept		eP	18 17 29.4	2	0.5		L			Δ (S-P) = 1.3°
		eS	47.1		0.5					
14 Sept		eP	18 18 57.8	2	0.5		L			Δ (S-P) = less than 0.1°
	E	eS	19 00.5	999						
14 Sept		eP	18 30 25.0	5	1.0		T	4.5		Fiji Islands
		epP	31 51.8		1.6					19.9 S 177.6 W
		ePP	34 06.5		1.8					h about 350 km
	E	eSKS	40 24.0		2.1					0 = 18 17 52.1
	E	eS	41 04.2		1.6					Δ = 92°
	LPE	e(PS)	43 30		21.0					
		ePKKP	47 37.6		1.1					
		eP'P'	55 46.8		1.4					
	LPE	e	58 13		24.0					
	LP	e	19 05 10		20.0					
14 Sept		eP	19 56 25.6	2	0.9		T			
14 Sept		eP	22 21 18.7	2	0.4		NR			Δ (S-P) = 2.6°
	N	eS	50.9		0.5					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
14 Sept		eP	23 50 49.8	2	0.4	SW	NR			Δ (S-P) = 1.6°
		e	58.6		0.4					
	E	eS	51 10.9	999						
15 Sept		eP	00 15 49.3	1	0.4	NE	NR			Δ (S-P) = 2.6°
		e	54.6		0.4					
	N	eS	16 26.4		0.5					
	N	eSur	32.5	999	0.5					
15 Sept		eP	02 15 48.5	2	0.5		R			
		eSur	18 17.3		0.9					
15 Sept		eP	06 38 02.2	5	0.7	NW	T			
		e	14.7		0.6					
		e	28.7		0.8					
		e	39 04.3		1.1					
15 Sept		eP	11 28 41.3	3	1.0		T	4.5		Southern Bolivia
		e	29 22.5		1.3					20.4 S 68.1 W
										h about 33 km
										0 = 11 18 23.0
										Δ = 62°
15 Sept		eP	11 53 27.3	2	0.5		R			
		e	54 01.4		0.9					
	E	eSur	57 00.1		0.6					
15 Sept		eP	18 06 22.5	1	0.2		NR			Δ (S-P) = 1.7°
	E	eS	44.4	999	0.3					Quarry blast, 7,600 lbs., by Gifford-Hill Co. near Chico, Texas
15 Sept		eP	20 47 17.0	2	1.0		T			
15 Sept		eP	21 48 11.9	1	0.4		NR			Δ (S-P) = 3.7°
	E	eS	56.4		0.5					
15 Sept		eP	23 02 16.2	105	1.1		T	5.8		Mag. = $6\frac{1}{2}$ (PS), 6 (PL)
		e	23.1		0.8					Kurile Islands
		ePcP	34.5		0.9					48.5 N 156.8 E
	BB	e	03 00		9.0					h about 33 km
		ePP	05 00.0		2.2					0 = 22 50 46.3
		e	06 26.2		1.5					Δ = 72.5°
		e	55.2		2.5					Strong surface waves,
	BB	e	07 33		10.0					Love and Rayleigh type,
	E	eS	11 44.4		4.5					on LP and BB
	LPE	eSS	16 37		26.0					
	LPE	eSSS	19 18		26.0					
	LP	e	20 46		26.0					
	BB	ePKKP	21 30		10.0					
	LPN	eSur	23 57							
	LP	eSur	28 20							
		eP'P'	29 48.0		2.0					
		eP'P'	57.5		1.5					

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h.	m.	s.							
15 Sept		eP	23	40	56.3	2	0.9		T			
		e		41	16.4		1.3					
16 Sept		iP	03	09	12.9 c	240	1.0		T	5.4		Mag. = 4 3/4-5 (PL) Jalisco, Mexico 19.3 N 103.1 W h about 100 km 0 = 03 05 33.0 Δ = 16°
	LPE	eS		12	16		17.0					
	LP	eSur		13	28							
		eSur		14	01.5	999						
												Strong surface waves on all systems
16 Sept		eP	03	44	31.9	6	1.0		T			
16 Sept		eP	05	40	03.7	81	1.2		T	4.8		Mag. = 4 3/4-5 (PS) 5½-5 3/4 (B) Kern County, California 35.8 N 118.1 W h about 10 km 0 = 05 36 15.7 Δ = 16°
	BB	e			37		5.0					
		e		41	14.8		1.2					
	LPN	eS		43	10		18.0					
	BB	e		44	13		9.0					
	LP	eSur			36							
	LP	e		46	07	999						
												Strong surface waves on all systems
16 Sept		eP	08	01	11.8	6	1.0	(SE)	T			
		e			51.9		0.8					
16 Sept		eP	09	26	33.1	5	1.1	SE	T			
		e			42.2		1.1					
		e			55.4		1.1					
16 Sept		eP	13	09	26.9	5	1.0		T	4.6		Rat Islands, Aleutian Is. 51.2 N 177.0 E h about 33 km 0 = 12 59 17.7 Δ = 60°
		ePcP		10	15.0		0.9					
16 Sept		eP	13	17	11.1	2	1.3		T			
16 Sept		eP	14	02	27.3	2	1.0		T			Δ(S-P) = 95°
		e			38.7		1.3					Medium surface waves on LP
	LPE	eS		13	40		23.0					
	LPE	eSS		19	45		21.0					
	LP	ePPP		27	30		28.0					
	LPE	eSKKKS		30	48		28.0					
	LP	eSur		34	08							
16 Sept		eP	14	40	01.2	1	0.5		R			
	E	eSur		41	33.4		0.6					

DATE	Syst.	Phase	Arrival Time G.C.T.			Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h.	m.	s.							
16 Sept		eP	15	01	51.9	3	1.0		T			
16 Sept		eP'	19	25	33.4	4	1.2		T			Near east coast of Burma 16.7 N 94.2 E h about 33 km 0 = 19 06 29.2 Δ = 128°
		e			39.9		1.3					
		e		27	23.5		1.3					
		e			51.0		1.3					
	E	e			30 09.4		3.5					
	BB	e(SKSSKS)			58 05		13.0					Medium surface waves on LP
	BB	e			59 02		10.0					
	BB	e			58		13.0					
	BB	e(SS)	20	01	12		8.0					
	BB	e			38		11.0					
	LPN	eSur		09	00						4.8	
16 Sept		eP	21	28	01.3	2	0.8		T			
16 Sept		eP	22	12	22.6	5	1.1		T			
16 Sept		eP'	23	03	40.9	2	1.0		T			Near east coast of Formosa 22.8 N 123.5 E h about 33 km 0 = 22 45 10.8 Δ = 110°
		ePP		04	19.9		1.5					
		ePKKP		14	51.2		1.0					
	LPN	eSur		38	08							Weak surface waves on LP
17 Sept		eP	01	18	10.4	11	1.5		T		4.5	
		e(PcP)		20	02.5		1.1					Alaska 64.3 N 149.3 W h about 63 km 0 = 01 10 18.7 Δ = 42°
	LP	eSur		34	14							Weak surface waves on LP
17 Sept		eP	06	54	03.5	4	1.2		T			
17 Sept		eP	15	56	06.8	3	1.1		T			
17 Sept		eP	16	31	25.1	5	0.7	SE	T			
		e			42.4		1.0					
17 Sept		eP	18	08	01.4	36	1.3		T		5.4	Fiji Islands 21.0 S 179.1 W h about 601 km 0 = 17 55 45.4 Δ = 94°
		epP		10	18.8		1.3					
		ePP		11	56.8		1.3					
	E	eSKS		17	39.7		1.6					
	LPE	eS		18	30		20.0					
	LPN	ePS		19	50		26.0					
	LPN	e		22	00		17.0					
	LPE	e		24	54		25.0					
		ePKKP			58.6		1.0					
		e		25	31.8		1.4					
		e		27	25.8		0.9					
		e			56.5		1.3					
	LPN	e		32	18		22.0					
		eP'P'		33	08.2		1.5					
	LPE	e		35	20		27.0					
		eP'P'P'		54	16.7		0.9					

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Magnitude m	M	Remarks
1962												
17 Sept		eP	19	57	27.6	15	1.6		T		5.0	South Yugoslavia 41.3 N 20.8 E h about 33 km 0 = 19 44 47.8 Δ = 86°
17 Sept		eP	20	12	38.0	1	0.3		NR			Δ (S-P) = 2.0°
	E	eS		13	02.7		0.5					
17 Sept		eP	21	29	34.3	2	0.6		NR			Δ (S-P) = 2.6°
	E	eS		30	05.9		0.5					
17 Sept		eP	23	26	42.2	1	0.4		NR			Δ (S-P) = 2.1°
	E	eS		27	08.4		0.4					
17 Sept		eP	23	53	53.7	1	0.4		NR			Δ (S-P) = 2.1°
	E	eS		54	19.5		0.4					
		eSur			21.8		0.5					
18 Sept		eP	00	35	18.8	1370	2.0		T		6.5	Mag. = 7 (PS), 7 (B) 6½-6 3/4 (PL) South of Panama 7.5 N 82.3 W h about 33 km 0 = 00 29 05.2 Δ = 31° Strong surface on all systems.
		ePP		36	19.7	999						
		e			31.2	999						
	E	eSur		42	05.9	999						
18 Sept		eP	01	07	00.8	1	0.6		T			
		e			25.5		1.4					
		e			49.3		1.3					
		e		08	07.7		1.5					
		e			57.7		1.0					
		e		09	15.1		1.4					
18 Sept		eP	02	37	00.0	5	1.2		T			
18 Sept		eP	02	45	54.6	6	1.1		T			
18 Sept		eP	03	23	10.3	7	1.3		T			
		e			19.7		1.5					
		e			37.2		1.2					
18 Sept		eP	03	28	40.9	5	1.0		T			
		e			51.1		1.2					
		e			59.6		1.4					
18 Sept		eP	04	50	11.5	2	1.0		T			
18 Sept		eP	05	01	32.2	9	1.2		T			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Magnitude m	M	Remarks
1962												
18 Sept		eP	05	19	51.5	89	1.7		T		5.3	South of Panama 7.3 N 82.4 W h about 41 km 0 = 05 13 37.5 Δ = 31° Strong surface waves on LP
		e(pP)		20	02.8		1.3					
		e		21	26.7		2.0					
		e		22	50.0		1.2					
	LP	eSur		27	20							
	LP	eSur		29	02							
18 Sept		eP	05	59	14.4	1	1.0		T			
18 Sept		eP	06	15	36.4	9	1.5		T			
18 Sept		eP	06	19	17.0	1	0.8		T			
		e			33.0		0.8					
18 Sept		eP'	06	29	24.6	11	1.4		T			Molucca Passage 2.3 N 126.9 E h about 33 km 0 = 06 10 26.3 Δ = 124° Weak surface waves on LP
		e			44.5		1.2					
		e(PP)		31	03.6		1.2					
		ePKKP		39	11.9		1.3					
		e(PKKP)			43.9		2.0					
	LPN	eSur	07	04	03							
18 Sept		eP	06	40	37.0	6	1.4		T			
		e		43	03.8		1.2					
18 Sept		eP	07	00	06.1	3	1.0		T			
18 Sept		eP	08	56	22.0	2	1.0		T			Weak surface waves on LP
	LPN	eSur	09	07	18							
18 Sept		eP	09	28	27.5	4	1.2		T			
		e			41.5		1.0					
18 Sept		eP	10	39	31.8	15	1.3	N	T			
18 Sept		eP	10	50	59.9	2	1.0		T			Weak surface waves on LP
	LPN	eSur		58	05							
18 Sept		eP	13	46	18.2	3	0.5		R			
		e			38.8		1.1					
		e			51.5		0.7					
	E	eSur		49	51.4		0.5					
18 Sept		eP	15	35	25.4	2	0.4	SE	NR			Δ (S-P) = 2.6°
		e			35.0		0.4					
		eS			57.0	999						
18 Sept		iP	18	09	33.4	c 999			L			Δ (S-P) = less than 0.1°
		eS			35.6	999						
18 Sept		eP	20	31	23.9	7	0.6	S	R			
	E	eSur		33	02.6		0.6					
18 Sept		eP	20	41	36.3	2	0.8		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
18 Sept		eP	21 31 58.0	1	0.4		NR			Δ (S-P) = 2.5°
	E	eS	32 29.6		0.5					
18 Sept		eP	21 59 35.1	20	1.6		T	4.8		Fiji Islands
		e	47.5		1.4					14.8 S 178.1 W
		e	58.2		1.3					h about 526.km
		e	22 00 31.3		2.0					0 = 21 47 30.9
		e	02 00.2		2.0					Δ = 90°
		e	13 24.9		2.0					
18 Sept		eP	22 08 42.5	3	0.2		NR			Δ (S-P) = 1.7°
	E	eS	09 04.4	999						Quarry blast, 9,300 lbs., by Gifford-Hill Co. near Chico, Texas
18 Sept		eP	22 16 00.4	2	0.8		T			
		e	26.7		1.0					
		e	37.4		1.2					
19 Sept		eP	00 19 12.7	18	1.0		T	4.9		Sea of Japan
										42.0 N 132.9 E
										h about 436 km
										0 = 00 06 58.7
										Δ = 90°
19 Sept		eP	01 32 01.8	44	1.0		T	5.4		Andreanof Islands, Aleuti
		epP	15.8		1.5					Aleutian Islands
		ePcP	33 04.8		1.0					52.3 N 173.4 W
		e	20.1		1.2					h about 33 km
		ePP	59.7		1.4					0 = 01 22 35.5
		e	34 21.8		1.2					Δ = 53°
		e	35 03.8		1.2					Medium surface waves
	E	eS	39 36.7		2.6					on LP
	LP	eSur	50 32							
		eP'P'	02 02 24.5		1.1					
		eP'P'	42.3		1.3					
19 Sept		eP	01 48 30.5	21	1.2		T	3.9		South of Panama
		epP	37.9		1.1					7.6 N 81.8 W
		ePP	49 29.8		1.3					h about 33 km
		e	45.8		1.7					0 = 01 42 15.1
		e	55.8		1.4					Δ = 31°
		ePcP	51 27.0		1.3					Medium surface waves
	LP	eSur	58 00							on LP
19 Sept		eP	05 18 59.4	17	1.1		T	4.5		Near east coast of
		epP	20 47.9		1.1					Sakhalin Islands
										48.1 N 145.1 E
										h about 466 km
										0 = 05 07 39.1
										Δ = 79°

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
19 Sept		eP'	07 47 06.3	5	1.2		T			Western Iran
		ePP	40.1		1.4					29.9 N 50.4 E
		e	49 57.3		1.2					h about 66 km
										0 = 07 18 43.2
										Δ = 109°
19 Sept		ePP	08 07 13.6		1.5		T			Mariana Islands region
		e	31.5		1.5					11.5 N 141.0 E
		ePKKP	18 27.7		1.2					h about 61 km
	LP	eSur	41 10							0 = 07 48 35.2
										Δ = 106°
										Medium surface waves on LP.
19 Sept		eP	11 11 12.3	3	0.9		T			
		e	51.2		0.8					
19 Sept		eP	11 22 44.1	3	0.8		T			
		e	56.7		1.0					
19 Sept		eP	12 15 46.3	13	1.6		T			
19 Sept		eP	15 14 19.8	19	1.1	NE	T			
		e	24.6		1.1					
		e	53.9		1.3					
	E	e(SKS)	24 51.9		1.1					
		e(SKKP)	34 39.0		2.1					
19 Sept		eP	15 40 02.6	2	1.0		T			Weak surface waves
	LP	eSur	45 32							on LP and BB
19 Sept		eP	16 32 49.1	4	1.2		T			
		e	33 33.0		1.6					
19 Sept		eP	17 12 34.7	6	0.6	N	R			Δ (S-P) = 13°
		e	45.1		0.5					
	E	eS	15 02.1		0.6					
		eSur	19.6		1.1					
	E	eSur	16 36.1		1.0					
19 Sept		eP	22 11 59.5	1	0.4		NR			Δ (S-P) = 2.0°
	E	eS	12 24.6		0.4					
19 Sept		eP	23 07 02.8	1	0.4		NR			Δ (S-P) = 2.8°
		e	10.2		0.3					
	N	eS	37.8		0.5					
	N	eSur	46.3	999						
20 Sept		eP	00 11 21.5	4	0.2		L			Δ (S-P) = less than 0.1°
		eS	25.2	999						
20 Sept		eP	00 52 21.7	4	1.4		T			

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Magnitude m	M	Remarks
1962												
20 Sept		eP	06	11	20.9	5	0.6		T	4.4		Near coast of northern Pe
		e			36.1		0.6					4.5 S 80.5 W
		e		12	06.1		1.3					h about 17 km
		e		13	11.5		0.6					0 = 06 03 27.7
												Δ = 42°
20 Sept		eP	08	02	43.4	2	1.1		T			
20 Sept		eP	09	34	51.9	15	1.8		T	4.7		Near coast of southern Pe
												15.5 S 76.1 W
												h about 33 km
												0 = 09 25 26.7
												Δ = 54°
20 Sept		eP	10	15	08.5	12	1.7		T			
20 Sept		eP	11	07	12.6	2	0.8		T			Weak surface waves on L
		e			42.7		1.2					
		e		10	07.2		1.1					
	LPN	e		15	00		22.0					
	LP	eSur		17	42							
20 Sept		eP	16	28	05.2	2	0.3		NR			Δ(S-P) = 1.6°
		eS			26.4	999						
20 Sept		eP	16	41	45.8	4	0.5		NR			Δ(S-P) = 1.9°
		e			47.9	999						
		eS		42	07.6	999						
		eSur			09.5	999						
20 Sept		eP	16	57	40.5	5	1.3		T			
		e		58	36.2		1.4					
20 Sept		eP	17	27	11.9	999	0.1		L			Δ(S-P) = 0.3°
		e			12.3		0.2					Quarry blast, 3,000 lbs.,
		e			15.2		0.3					by Dallas Gypsum Co.
		eS			17.0		0.3					0 = 17 27 05.06
		eSur			20.0		1.0					
20 Sept		eP	21	12	47.0	1	0.3	N	R			
		e		13	05.6		0.6					
		e			42.2		0.4					
	E	eSur		14	12.8		0.5					
20 Sept		eP	21	48	26.9	2	0.5		R			
	E	eSur		50	37.2		0.5					
20 Sept		eP	23	56	28.6	1	0.5		NR			Δ(S-P) = 1.8°
	N	eS			51.2		0.6					

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Magnitude m	M	Remarks
1962												
21 Sept		eP	02	37	08.7	5	0.6		T	4.5		Near east coast of Kamchatka
		e			30.6		1.0					53.7 N 160.3 E
												h about 147 km
												0 = 02 26 18.5
												Δ = 69°
21 Sept		eP	05	14	17.0	5	1.2		T	4.0		Andreanoff Islands,
												Aleutian Islands
												51.4 N 178.0 W
												h about 33 km
												0 = 05 04 28.6
												Δ = 57°
21 Sept		eP	05	47	50.2	8	1.5		T			Δ(S-P) = 32.5°
		e			55.7		1.0					Weak surface waves on LP
		e		49	06.3		1.2					
	LPE	eS		53	05		25.0					
	LPN	eSur		56	20							
21 Sept		eP	06	13	13.7	4	1.0		T			
21 Sept		eP	06	13	47.6	2	0.9		T	4.2		Fiji Islands
												17.6 S 178.9 W
												h about 600 km
												0 = 06 01 40.4
												Δ = 92°
21 Sept		eP	06	19	11.3	2	0.9		T			
21 Sept		eP	06	33	36.9	2	0.9		T			
21 Sept		eP	08	56	27.8	1	0.7		T	4.0		Tonga Islands region
												21.2 S 179.0 W
												h about 624 km
												0 = 08 44 11.0
												Δ = 94°
21 Sept		eP	09	18	34.3	5	0.9		T	4.6		Andreanof Islands,
												Aleutian Islands
												51.4 N 178.3 W
												h about 33 km
												0 = 09 08 45.7
												Δ = 57°
21 Sept		eP	10	18	25.7	1	1.0		T			
21 Sept		eP	15	07	03.9	6	0.9		T	4.6		Fiji Islands
												17.7 S 178.7 W
												h about 536 km
												0 = 14 54 51.0
												Δ = 92°
21 Sept		eP	15	48	23.6	2	0.4		NR			Δ(S-P) = 1.7°
		e			33.2		0.4					
	E	eS			45.2	999						

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
21 Sept		eP	18 12 57.2	6	1.4		T			
21 Sept		eP	19 01 02.4	2	0.8		T			
21 Sept		eP	21 12 58.3	2	0.2	ESE	L			Δ(S-P) = less than 0.1°
		eS	12 59.8		0.3					
	N	eSur	13 00.9		0.3					
21 Sept		eP	22 11 28.7	5	1.2		T			
21 Sept		eP	22 52 15.0	9	1.1		T	5.2		Drake Passage
		ePP	56 10.4		1.5					57.7 S 64.1 W
	LPE	eSS	23 10 30		23.0					h about 51 km
	LPE	eSSS	14 05		30.0					0 = 22 38 51.7
	LP	eSur	26 00							Δ = 97°
										Weak surface waves on LP
21 Sept		eP	23 30 17.9	3	0.3	SE	NR			Δ(S-P) = 1.7°
		e	27.9		0.3					
		eS	39.7	999						
22 Sept		eP	05 26 23.9	2	1.2		T			
22 Sept		eP	06 02 58.0	2	1.1		T			
22 Sept		eP	06 40 21.7	1	1.1		T			
22 Sept		eP	06 54 32.5	4	0.9		T	4.2		Salta Province, Argentina
		ePcP	55 02.9		0.9					24.3 S 67.1 W
		e(PP)	56 56.0		1.1					h about 168 km
										0 = 06 44 04.9
										Δ = 66°
22 Sept		eP'	07 10 16.5	6	1.1		T			Northern Burma
		e	11 01.7		1.2					26.5 N 97.0 E
		ePP	20.9		1.4					h about 33 km
		e	48.8		1.6					0 = 06 51 32.3
		e	12 08.1		1.4					Δ = 117°
	E	e	13 33.4		1.8					Strong surface waves
	E	eSKKS	18 22.3		2.5					on LP and BB.
	E	e	19 02.9		2.0					
		ePKKP	20 38.5		1.5					
		ePKKP	48.6		1.0					
	LP	eSP	21 12		20.0					
		e	22 00.8		1.2					
	E	eSKKS	27 51.0		3.3					
	LPE	e	32 36		23.0					
	LPE	e	38 29		27.0					
	LP	e	49 02	999						
	LPE	e	57 30	999						
	LP	eSur	59 00							

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
22 Sept		eP'	08 25 12.4	2	0.9		T			Hindu Kush
		e	22.2		1.0					36.4 N 69.0 E
										h about 33 km
										0 = 08 06 28.2
										Δ = 109°
22 Sept		eP	12 18 09.1	5	1.4		T			
22 Sept		eP	13 10 34.9	3	1.2		T			
22 Sept		eP	14 35 27.6	6	1.1	SSE	T			
		e	42.0		1.0					
22 Sept		eP	16 54 53.3	4	1.1		T	4.3		Southern Peru
		e(PcP)	55 52.9		0.8					15.5 S 73.1 W
										h about 137 km
										0 = 16 45 31.0
										Δ = 55°
22 Sept		eP	17 15 03.5	4	1.2		T			
22 Sept		eP	18 13 32.4	2	0.8		T	4.2		Off south coast of
		e	42.0		0.9					Hokkaido, Japan
										41.1 N 142.8 E
										h about 59 km
										0 = 18 00 57.7
										Δ = 85.5°
22 Sept		eP	18 43 29.9	999			L			Δ(S-P) = less than 0.1°
		eS	31.7	999						
22 Sept		eP	19 48 21.3	2	0.9		T			
22 Sept		eP	21 40 06.6	2	0.4		NR			Δ(S-P) = 2.3°
	E	eS	35.0		0.4					
23 Sept		eP	02 43 19.8	1	0.3		NR			Δ(S-P) = 5.3°
		e	40.8		0.6	SSE				
	E	eS	44 22.8		0.4					
	E	e	40.4		0.5					
		eSur	53.4	999	0.8					
23 Sept		eP	03 34 19.6	6	1.4		T			
		e	31.7		1.8					
23 Sept		eP	07 12 12.3	8	1.5		T	4.7		Fiji Islands region
		e	13 31.6		1.7					23.7 S 179.9 E
		ePP	16 19.6		1.8					h about 549 km
										0 = 06 59 49.9
										Δ = 96°
23 Sept		eP	07 23 17.9	2	0.7		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
23 Sept		eP	11 59 00.5	5	1.1		T	4.4		North Atlantic Ocean
		e	17.4		1.2					14.7 N 45.1 W
	LPE	eSur	12 15 35							h about 33 km
										0 = 11 49 53.5
										Δ = 52°
										Weak surface waves on LP
23 Sept		eP	12 11 41.1	15	1.3		T	4.8		North Atlantic Ocean
		e	48.2		1.3					14.7 N 45.1 W
	LPE	eS	19 12		24.0					h about 32 km
	LPE	eSS	22 50		20.0					0 = 12 02 34.7
	LPE	eSur	26 08							Δ = 52°
	LPE	eSur	27 35							Strong surface waves, Love and Rayleigh type, on LP.
23 Sept		eP	12 37 00.0	14	1.7		T			
23 Sept		eP	12 46 05.2	7	1.4		T			Weak surface waves on LP
	LPE	eSur	13 01 10							
23 Sept		eP	15 58 31.9	50	1.0		T	5.3		Kenai Peninsula, Alaska
		epP	56.2		1.0					60.1 N 151.2 W
		e	59 47.8		1.3					h about 86 km
		ePP	16 00 17.3		1.2					0 = 15 50 46.4
	LPE	eSur	11 50							Δ = 42°
23 Sept		eP	20 20 42.4	1	0.3		L			Δ (S-P) = 1.5°
	E	eS	21 02.1	999						
23 Sept		eP	23 46 43.9	5	1.3		T			
24 Sept		eP	04 51 33.8	2	1.0		T			
24 Sept		eP	04 54 03.3	3	0.7		T			
24 Sept		ePKKP	05 57 27.8		1.0		T		4.8	Off east coast of Mindanao, P. I.
		eSur	06 26 52							9.2 N 126.6 E
										h about 33 km
										0 = 05 28 26.5
										Δ = 120°
										Medium surface waves, Rayleigh type, on LP.
24 Sept		eP	09 36 14.1	2	0.9		T	4.3		Central Honshu, Japan
		e	31.7		1.0					35.9 N 139.6 E
										h about 83 km
										0 = 09 23 16.5
										Δ = 91°
24 Sept		eP	10 12 01.8	7	1.3		T			
24 Sept		eP	10 16 34.2	11	1.1	SW	T			
		e	41.2		1.0					
		e	21 55.6		0.9					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
24 Sept		eP	12 18 19.4	6	1.4		T			
24 Sept		eP	13 01 36.9	1	0.6		R			
		e	53.3		0.8					
	E	eSur	05 13.1		0.5					
24 Sept		eP	14 07 09.8	7	1.0	SSE	T			
		e	43.3		1.0					
		e	08 02.0		0.9					
		e	09 31.9		1.2					
24 Sept		eP	14 28 53.5	4	1.0		T	4.1		South of Panama
		e	29 15.8		1.4					7.7 N 83.3 W
		ePcP	31 53.7		0.9					h about 79 km
	LPN	eSur	39 22							0 = 14 22 47.0
										Δ = 30°
										Weak surface waves on LP
24 Sept		eP	14 39 17.8	8	1.2		T			
		e	24.7		1.0					
24 Sept		eP	14 50 46.7	81	1.7		T	5.5		Near east coast of
		e	55.9		1.3					Hokkaido, Japan
		e	51 00.4		1.3					42.8 N 145.3 E
		e(PP)	53 42.7		2.3					h about 33 km
	LPN	eS	15 01 00		22.0					0 = 14 38 21.7
	LPE	eSur	18 55							Δ = 83°
										Strong surface waves, Rayleigh type, on LP.
24 Sept		eP	14 58 01.6	5	1.0		T	4.5		Near east coast of
		e	16.3		0.8					Hokkaido, Japan
		e	23.4		0.8					42.9 N 145.3 E
	LPN	e	15 06 40		30.0					h about 33 km
										0 = 14 45 37.3
										Δ = 83°
										Surface waves from previous event obscure surface start of this event.
24 Sept		eP	18 42 15.1	22	1.6		T			
24 Sept		eP	19 40 40.9	2	0.2		L			Δ (S-P) = 0.4°
	N	eS	48.3		0.3					
24 Sept		eP	22 08 28.3	4	0.5		NR			Δ (S-P) = 2.7°
	E	eS	09 01.6		0.5					
24 Sept		eP	23 34 14.9	2	0.3		NR			Δ (S-P) = 1.8°
	E	eS	36.8	999						
24 Sept		eP	23 43 01.1	2	0.6		R			
	N	eSur	45 35.7		0.5					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
24 Sept		eP	23 50 36.0	3	0.5		NR			Δ (S-P) = 1.7°
		e	45.6		0.3					
	E	eS	57.5	999						
25 Sept		eP	00 28 16.2	1	0.3		NR			Δ (S-P) = 2.2°
	E	eS	42.7		0.3					
25 Sept		eP	00 34 19.5	12	1.2		T	5.2		South Pacific Ocean
	LPE	eS	45 32		21.0					55.6 S 124.3 W
	LPN	ePS	46 48		21.0					h about 67 km
	LPN	eSS	51 45		26.0					0 = 00 21 14.6
	LPE	eSur	01 01 58							Δ = 93°
	LPN	eSur	06 35							Medium surface waves, Love and Rayleigh type, on LP.
25 Sept		eP	05 02 52.5	6	1.4		T			
25 Sept		eP'	05 07 50.0	4	1.0		T			Central Tanganyika
										7.4 S 34.9 E
										h about 33 km
										0 = 04 48 40.9
										Δ = 130°
25 Sept		eP	05 56 27.3	1	0.7		T			
25 Sept	LPE	eSur	06 03 12				T			Weak surface waves on LP
25 Sept		eP	06 07 09.5	1	0.7		T			
25 Sept		eP	07 43 25.2	8	0.7		T	5.3		Tonga Islands region
		epP	36.9		0.8					24.0 S 176.6 W
										h about 33 km
										0 = 07 30 09.3
										Δ = 94°
25 Sept		eP	10 35 29.6	2	1.0		T	4.0		South of Honshu, Japan
										32.9 N 137.8 E
										h about 325 km
										0 = 10 22 45.1
										Δ = 94°
25 Sept		eP	12 12 51.4	4	1.2		T			
25 Sept		ePP	15 08 40.6		1.4		T			Marianas Islands
	LPE	eSur	41 45						4.6	11.7 N 138.6 E
										h about 33 km
										0 = 14 49 46.9
										Δ = 109°
										Weak surface waves on LP
25 Sept		eP	20 05 47.2	4	1.3		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
25 Sept		eP	20 41 19.0	1	0.4		NR			Δ (S-P) = 2.4°
	N	eS	48.6		0.5					
	N	eSur	56.7		0.6					
25 Sept		eP	21 13 13.5	1	0.5	N	NR			Δ (S-P) = 3.0°
		e	19.5		0.5					
	E	eS	51.0		0.4					
	E	eSur	58.1		0.5					
26 Sept		eP	00 19 14.0	1	0.5		T			
	E	eSur	26 35.5		0.4					
26 Sept		eP	01 38 13.2	3	0.9		T	4.3		Mid-Atlantic Ocean
		e	18.7		1.1					0.9 N 27.6 W
	LPN	eSur	02 03 05							h about 33 km
										0 = 01 26 41.2
										Δ = 74°
										Medium surface waves on LP
26 Sept		eP	02 29 44.3	1	0.8		T	3.9		Central Alaska
										61.8 N 151.6 W
										h about 61 km
										0 = 02 21 52.1
										Δ = 42°
26 Sept		eP	03 05 17.3	4	1.1		T	4.3		Kurile Islands
		epP	29.6		1.6					46.5 N 153.0 E
										h about 51 km
										0 = 02 53 29.9
										Δ = 76°
26 Sept		eP	06 38 14.3	2	0.6		T			
26 Sept		eP	08 31 14.8	6	1.1		T			Medium surface waves
	LPE	eSur	44 54							on LP
26 Sept		eP	10 27 43.0	3	0.9	SSE	T			
26 Sept		eP	11 51 50.2	1	0.9		T			
26 Sept		eP	11 56 21.9	3	1.0		T			
26 Sept		eP	12 54 59.9	5	1.0		T			
		e	55 16.5		0.9					
		e	57 04.9		0.9					
26 Sept		eP	12 58 14.2	6	1.0		T	5.1		Kermadec Islands
		epP	26.2		1.0					27.5 S 176.4 W
		e	13 00 24.8		1.3					h about 33 km
		ePP	02 02.1		1.0					0 = 12 44 48.9
	LPE	eS	09 42		18.0					Δ = 96°
	LPE	e	13 36		25.0					Medium surface waves, Rayleigh type, on LP.

(continued on next page)

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Magnitude m	M	Remarks
1962												
		ePKKP		15	01.3		0.8					(continued from preceding page)
		e			33.6		1.2					
	LPE	eSS			51		28.0					
	LPE	e		26	30		28.0					
	LP	eSur		42	13.4		1.3					
26 Sept		epP	13	38	39.0		1.4		T			Mariana Islands
		e(PP)		41	54.4		1.1					18.7 N 145.4 E
		e		42	13.4		1.3					h about 201 km
												0 = 13 24 30.1
												Δ = 99°
26 Sept		eP	15	51	58.3	4	0.9		T	3.9		Southern Peru
		ePcP		52	49.1		0.6					15.2 S 72.4 W
		e		57	25.4		1.2					h about 276 km
	LP	eSur	16	07	52							0 = 15 42 49.6
		e(P'P')		22	36.0		1.0					Δ = 55°
												Weak surface waves, Rayleigh type, on LP.
26 Sept		eP	16	03	23.4	1	0.6	NNW	T			
26 Sept		eP	16	23	24.2	4	0.2	SSE	NR			Δ(S-P) = 1.7°
		e			32.1		0.4					
		e			33.7		0.4					
		eS			46.0	999						
26 Sept		eP	19	37	47.5	4	1.3		T			
26 Sept		eP	19	52	05.2	5	1.3		T			
		e			22.2		0.8					
26 Sept		eP	20	22	34.2	2	0.4	ENE	NR			Δ(S-P) = 2.5°
	N	eS		23	05.4		0.4					
	N	eSur			11.1		0.5					
26 Sept		eP	20	55	56.0	2	0.9		T			
26 Sept		eP	21	36	13.0	4	1.0		T			
27 Sept		eP	05	30	45.9	9	1.6		T			
		e		32	17.6		1.3					
27 Sept		eP	07	00	00.4	6	0.9		T	4.5		San Juan Province, Argentina
	N	e			07.0		0.8					31.2 S 67.9 W
		ePcP			20.3		0.8					h about 71 km
												0 = 06 48 45.8
												Δ = 72°

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Magnitude m	M	Remarks
1962												
27 Sept		eP'	07	12	59.0	2	1.0		T			Prince Edward Islands region
		e		13	26.8		0.7					47.4 S 34.3 E
	LPE	eSSS		40	14		23.0					h about 33 km
	LPE	e(Sur)	08	02	10							0 = 06 53 30.0
	LP	eSur		04	57							Δ = 144°
												Weak surface waves, Rayleigh type, on LP
27 Sept		eP	08	00	32.3	13	1.0		T	4.9		Central Bolivia
		epP		01	03.1		0.9					17.9 S 64.9 W
		ePcP			16.2		0.9					h about 120 km
		e			26.9		1.0					0 = 07 50 28.3
		ePP			50.4		1.1					Δ = 61°
		e		02	01.4		0.7					
		e			06.3		0.7					
	E	eS		08	36.7		1.2					
27 Sept		eP	09	30	58.4	6	0.9		T	4.7		Hokkaido, Japan
		epP		31	14.0		1.1					42.3 N 142.3 E
												h about 47 km
												0 = 09 18 24.9
												Δ = 85°
27 Sept		eP	11	35	01.1	11	1.2	SE	T			
		e			05.3		1.3					
		e			17.2		1.0					
27 Sept		eP	12	40	54.8	3	1.0		T	4.3		Peru-Bolivia border
		e		41	22.3		1.0					18.4 S 68.7 W
		e		42	23.5		1.1					h about 59 km
												0 = 12 30 53.0
												Δ = 60°
27 Sept		eP'	13	15	34.8	4	0.9		T			Southern Sumatra
		e			52.5		0.8					4.6 S 104.4 E
		e		16	05.4		0.9					h about 144 km
		e			13.3		1.0					0 = 12 56 18.6
		e			24.5		0.9					Δ = 143°
		e		17	13.5		1.1					
		e		18	01.5		1.1					
27 Sept		eP	13	19	02.1	15	1.1		T			
		e		20	08.2		1.2					
27 Sept		eP'	13	26	50.6	6	1.2		T			Near north coast of Luzon, P. I.
		ePP		27	44.2		1.3					18.6 N 121.8 E
	LPE	e(Sur)	14	03	25							h about 30 km
												0 = 13 07 57.8
												Δ = 114°
27 Sept		eP	13	27	12.6	7	0.9		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
27 Sept		eP	13 37 21.2	12	0.8		T	5.0		Fiji Islands
		ePKKP	54 34.6		0.8					17.6 S 178.9 W
										h about 507 km
										0 = 13 25 05.6
										Δ = 92°
27 Sept		eP	15 04 05.4	4	0.8	SSE	T			
27 Sept		eP	18 39 34.0	5	0.8	NW	T			
27 Sept	LPE	eSur	19 13 05				T			New Ireland region
	LPE	eSur	17 55						4.7	4.0 S 151.2 E
										h about 51 km
										0 = 18 26 52.5
										Δ = 107°
										Medium surface waves, Love and Rayleigh, on LP
27 Sept		eP	20 40 04.3	2	0.4	ESE	NR			Δ(S-P) = 1.6°
		e	13.8		0.4					
	E	eS	25.7	999						
27 Sept		eP	21 26 51.6	1	1.0		T			
27 Sept		eP	21 31 54.0	1	0.4		NR			Δ(S-P) = 2.5°
	E	eS	32 24.8		0.4					
	N	eSur	30.5		0.5					
28 Sept		iP	00 10 04.1 c	37	0.6		L			Δ(S-P) = less than 0.1°
		eS	05.9	999						
28 Sept		eP	00 53 23.3	12	1.2	SE	T			
		e	55.9		1.0					
		e	54 12.2		0.9					
		e	36.1		1.1					
28 Sept		eP	01 21 24.2	4	0.9		T			
		e	37.0		0.7					
28 Sept		eP	03 47 28.1	2	1.0		T	4.1		Fiji Islands region
										17.5 S 178.8 W
										h about 584 km
										0 = 03 35 20.3
										Δ = 92°
28 Sept		eP	05 28 28.2	1	0.6		T	4.0		Kurile Islands region
		e	45.0		1.0					44.0 N 149.6 E
	LPN	eSur	56 19							h about 33 km
										0 = 05 16 20.7
										Δ = 80°
										Weak surface waves on LP

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
28 Sept		eP	05 42 43.7	1	0.6		T	3.7		Alaska Peninsula
		e(PcP)	44 13.9		0.6					35.0 N 160.7 W
										h about 89 km
										0 = 05 34 21.1
										Δ = 46°
28 Sept		eP	06 32 36.8	7	0.9	NW	T			
		e	56.2		0.9					
		e	34 41.3		1.3					
		e	35 57.1		1.0					
28 Sept		eP	12 22 26.8	2	0.6	SE	T			
		e	41.3		1.0					
28 Sept		eP	18 58 07.7	3	0.3		NR			Δ(S-P) = 1.7°
		eS	29.7	999						
28 Sept		eP	19 02 57.0	78	0.9		T	5.5		Western Colombia
		epP	03 26.5		1.0					5.2 N 76.2 W
		e	35.2		1.4					h about 127 km
	BB	ePPP	04 45		5.5					0 = 18 56 08.7
		eScP	09 00.9		1.2					Δ = 36°
	LPN	ePcS	02		22.0					Strong surface waves,
	LPN	eSS	10 57		18.0					Love and Rayleigh type,
	LPN	eSur	12 22							on LP
	BBE	eScS	13 08		7.0					
	LPN	eSur	14 09							
28 Sept		eP	20 36 11.3	1	0.4		NR			Δ(S-P) = 2.6°
	E	eS	42.9		0.4					
	E	eSur	49.5	999						
28 Sept		eP	22 24 01.5	2	0.7		T	4.3		Near coast of Central Peru
		e(pP)	13.4		1.0					13.8 S, 76.7 W
		e	25 21.9		0.9					h about 61 km
										0 = 22 14 52.7
										Δ = 52°
28 Sept		eP	22 32 47.3	5	0.9		T			Weak surface waves
		e	33 10.8		1.1					on LP
		e	59.1		0.9					
	LPN	eSur	44 25							
28 Sept		eP	23 00 13.3	2	0.4		NR			Δ(S-P) = 2.3°
	E	eS	42.3		0.4					
28 Sept		eP	23 55 01.1	3	0.3	ESE	NR			Δ(S-P) = 2.3°
	N	eS	29.9	999						
28 Sept		eP	01 36 26.3	3	0.9	NW	T			
		e	40.6		0.8					
28 Sept		eP	03 14 20.2	4	0.8	NW	T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
29 Sept		eP	03 58 20.9	2	1.3		T			
		e	59 37.3		1.1					
29 Sept		eP	05 32 06.8	9	1.1		T	4.8		Southern Bolivia 20.0 S 68.0 W h about 26 km 0 = 05 21 49.6 Δ = 61°
		e	46.2		1.4					
		ePcP	49.1		0.8					
		e	33 20.4		1.0					
29 Sept		eP	06 34 03.3	1	0.9		T	4.2		Greece-Albania border region 40.1 N 21.0 E h about 33 km 0 = 06 21 20.5 Δ = 86°
29 Sept		eP'	07 12 30.9	2	0.9		T			Southern Iran 28.2 N 57.4 E h about 50 km 0 = 06 53 56.0 Δ = 114°
29 Sept		eP	08 08 08.5	6	1.0		T	4.6		Near coast of southern Pe 17.1 S 70.5 W h about 33 km 0 = 07.58 20.7 Δ = 58°
		e	09 23.5		1.1					
29 Sept		eP	08 36 10.8	3	1.0		T			
29 Sept		eP	12 19 41.7	3	1.0		T			
29 Sept		eP	12 24 15.8	2	1.0		T			
		e	25 01.4		1.0					
29 Sept		iP	15 28 01.7	d 845,000	0.7		T	6.4		Mag. = 6½ (PS), 6¼ (PL) Santiago Del Estero Province, Argentina 27.0 S 63.6 W h about 575 km 0 = 15 17 47.7 Δ = 70° Strong surface waves, Rayleigh type, on LP
	LP	epP	30 00		17.0					
	LP	ePP	55		13.0					
	N	eS	36 26.6	999						
	LP(E)	eScS	37 14	999						
	LP (N)	e	40 01		29.0					
	LP(E)	eSS	41 00		27.0					
	LP(E)	eSSS	44 19		25.0					
	LP	eSur	50 09							
		e	55 06.3		0.9					
		eP'P'	46.6		1.3					
		e	58 06.2		1.8					
29 Sept		eP	16 04 43.3	5	0.9		T			
29 Sept		eP	16 06 50.6	5	1.3		T			
29 Sept		eP	17 04 41.4	4	1.2		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
29 Sept		eP	17 14 06.8	4	1.2		T			
		e	16.7		1.0					
29 Sept		eP	18 19 21.2	1	0.3	SE	NR			Δ(S-P) = 1.7°
		e	24.4		0.3					
	E	eS	43.0	999						
29 Sept		eP	21 55 22.4	2	0.8		T			
		e	41.4		0.8					
30 Sept		eP	03 16 31.7	2	1.0		T			
30 Sept		eP'	11 06 49.3	2	1.0		T			New Britain region 5.2 S 152.7 E h about 33 km 0 = 10 48 10.3 Δ = 108° Medium surface waves, Rayleigh type, on LP
		e	07 12.3		1.1					
		e	21 42.1		1.1					
	LP	eSur	39 49						5.1	
30 Sept		eP	11 17 16.4	1	0.8		T			
30 Sept		eP	11 28 17.6	6	1.4		T			
		e	54.6		1.2					
30 Sept		eP'	22 16 02.5	5	0.8		T			Near northern coast of Luzon, P. I. 18.6 N 120.9 E h about 51 km 0 = 21 57 24.8 Δ = 114°
		ePKKP	26 43.8		0.8					
30 Sept		eP	23 11 42.5	4	0.4	SE	NR			Δ(S-P) = 1.6°
	E	eS	12 03.4	999						
30 Sept		eP	23 48 20.1	2	0.3	SE	NR			Δ(S-P) = 1.6°
	E	eS	41.6	999						

Volume 2, No. 10
October 1962

REGISTRATION OF EARTHQUAKES AT WICHITA MOUNTAINS SEISMOLOGICAL OBSERVATORY FORT SILL, OKLAHOMA, U.S.A.

Operated under the Technical Supervision of the
Air Force Technical Applications Center (AFTAC)

by

The Geotechnical Corporation
Garland, Texas

Advanced Research Projects Agency (ARPA)
Department of Defense
United States Government

THE REGISTRATION OF EARTHQUAKES

AT THE

WICHITA MOUNTAINS SEISMOLOGICAL OBSERVATORY

STATION

STATION ABBREVIATION:	WMSO
STATION IDENTIFICATION ON FILM SEISMOGRAMS:	α
GEOGRAPHICAL LOCATION *: (Vault No. 6)	34° 43' 05.3" N. Latitude 98° 35' 20.7" W. Longitude
GEOCENTRIC LOCATION *: (Vault No. 6)	34° 32' 09.8" N. Latitude 98° 35' 20.7" W. Longitude
ALTITUDE (Meters) *: (Vault No. 6)	505 meters (1658 feet)
GEOLOGY:	The station is located on the Carlton (porphyritic) granophyre of the Wichita Mountains of Oklahoma.

Noise Level: The periods of the predominant microseisms at WMSO are 0.5 second and 6 seconds. Amplitude distribution curves for the 0.5-second microseisms are shown on page 2 as true ground motion in millimicrons and as trace amplitude in millimeters at the operating gain of 500K. Both curves are 1/2 peak-to-peak.

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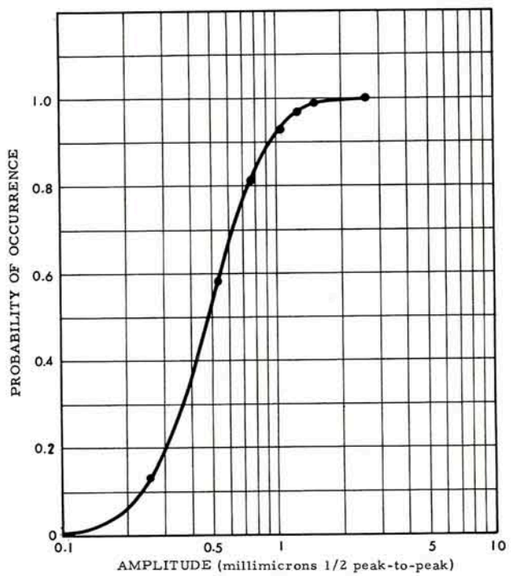
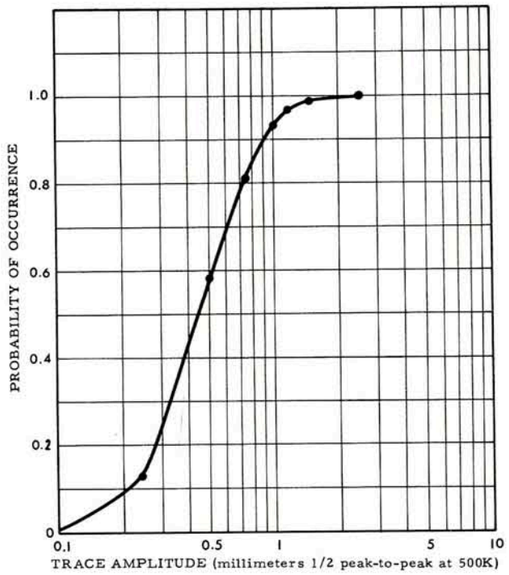
* The coordinates refer to the location of vault No. 6 which houses the 3-component groups of short-period and intermediate-band seismometers from which arrival times are determined.



Probability of predominant 0.5-sec microseisms occurring at or less than a given amplitude at unity magnification



Probability of predominant 0.5-sec microseisms occurring at or less than a given trace amplitude in millimeters at operating gain of 500K

SEISMOGRAPHS

	T_s	λ_s	T_g	λ_g	σ^2
SP Vertical Johnson-Matheson	1.25	0.50	0.32	0.64	0.014
SP Vertical Benioff	1.0	1.0	0.2	1.0	0.01
SP Horizontal Benioff	1.0	1.0	0.2	1.0	0.01
UA SP Vertical Benioff, earth-powered	1.0	0.5	0.0625		0.2
IB Vertical Melton	2.5	0.65	0.64	1.5	0.002
IB Horizontal Sprengnether	2.5	0.65	0.64	1.5	0.0005
BB Vertical Press-Ewing	12.5	0.4	0.64	9.0	0.0002
BB Horizontal Sprengnether	12.5	0.4	0.64	9.0	0.0004
LP Vertical Sprengnether	20.0	0.7	30	1.0	0.004
LP Horizontal Sprengnether	20.0	0.7	30	1.0	0.004

SP = Short Period

UA = Un-amplified (SP Vertical Benioff, earth-powered)

IB = Intermediate Band

BB = Broad Band

LP = Long Period

T_s = Free period of seismometer in secs.

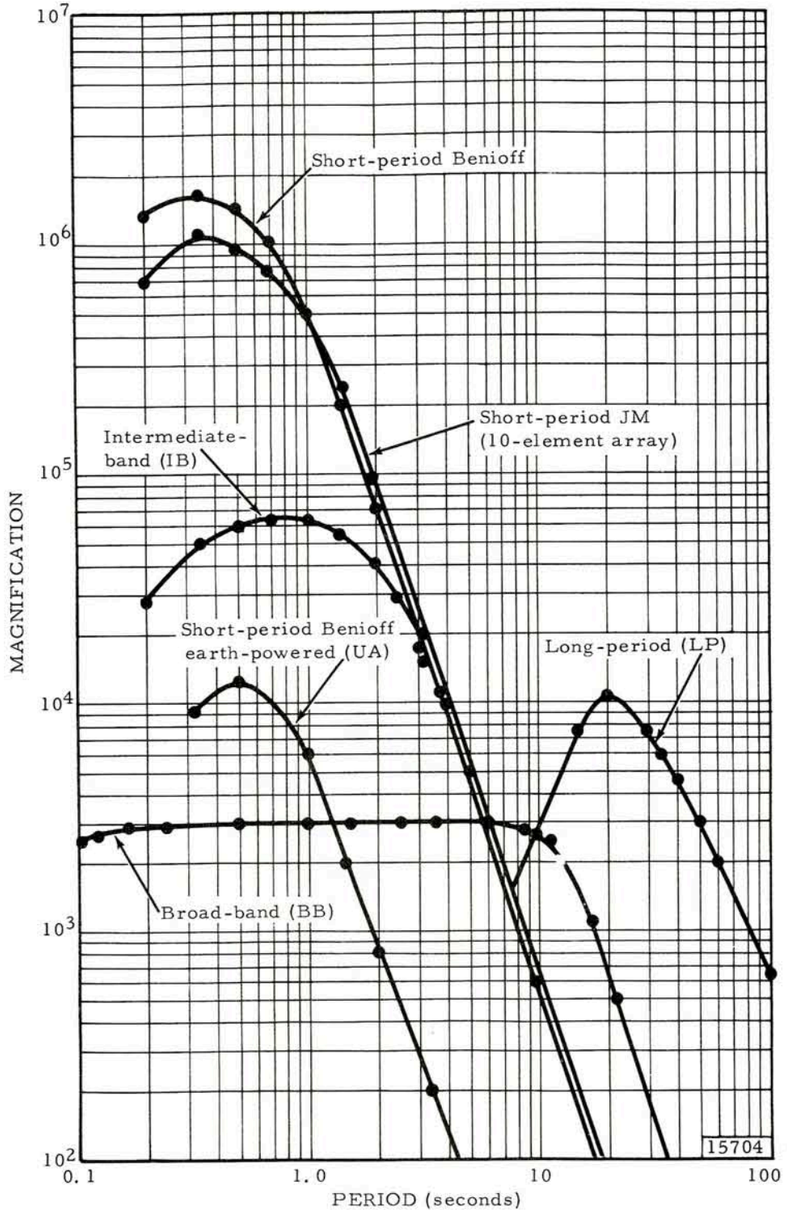
λ_s = Damping constant of seismometer

T_g = Free period of galvanometer in secs.

λ_g = Damping constant of galvanometer

σ^2 = Coupling coefficient

NOTE: Response curves are on page 4.



Response characteristics of seismographs

INTERPRETATION OF SYMBOLS

1. Earthquakes Listed

All local (L), near-regional (NR), regional (R), and distant earthquakes (T) are tabulated on the following pages.

2. System

In the column headed "Syst." (system), the seismograph (SP, UA, IB, BB, or LP) and component (Z, N, or E) used to measure arrival time are designated. When no component designation appears, the phase is read from the vertical component. When neither system nor component designation appears, the phase is read from the SP vertical component.

3. Phase

a. An "i" (impetus) preceding a phase designates sudden beginning of the motion. (A designation of "i" in the case of initial P motion indicates a signal-to-noise ratio exceeding about 5/1.)

b. An "e" (emersio) designates gradual beginning.

c. An "i" or "e" alone designates an unidentified phase.

d. The ( ) (parenthesis marks) indicate uncertainty.

4. Time

a. Date and arrival time are given in Greenwich Civil Time (G.C.T.).

b. The arrival time is reported as the earliest time on Z, N, or E. Single Z rather than the array summation (Σ) is used for measuring arrival times on the SP seismographs.

5. Ground Motion

a. In the columns headed "A" and "T" are tabulated earth displacement in millimicrons and period in seconds, respectively. An amplitude of 999 indicates that a signal cannot be measured reliably. A "c" or "d" in the "A" column indicates compression or dilation, respectively, of the ground as indicated by the vertical component instrument.

The value of "A" for P phases is the maximum amplitude in the first ten seconds. All amplitudes are 1/2 peak to peak amplitudes.

b. Trace amplitudes are measured to the nearest 1/2 millimeter at X10 view.

6. Direction

In the column headed "Dir." (direction), the direction of the epicenter as viewed from WMSO is indicated. For teleseisms, direction is obtained only from P and Rayleigh waves and is listed opposite the phase from which it is obtained. For close events, direction may be obtained from P-wave step-out shown on the individual short-period vertical traces.

7. Type

Earthquakes are identified as either:

L	(local)	0-1.4°
NR	(near-regional)	1.4-4.6°
R	(regional)	6-16°
T	(teleseismic)	16-180°

8. Magnitude Column

Magnitudes of earthquakes, as calculated from WMSO seismograms, are reported for all events for which sufficient epicentral information is available, and for which adequate data are available from the WMSO records.

m - Unified Magnitude - calculated from maximum amplitude and predominant period of P wave.

M - Surface Wave Magnitude - calculated from maximum amplitudes of surface waves in the period range 17-23 seconds (reported when P was not recorded or cannot be measured reliably).

No station correction factor has been determined for WMSO to date.

9. Remarks Column

a. Magnitudes, as obtained from the U. S. Coast & Geodetic Survey Preliminary Determination of Epicenter cards, are reported for events recorded at WMSO. The designations for the U. S. Coast & Geodetic Survey stations which report magnitudes are:

B	-	Berkley
PL	-	Palisades
PS	-	Pasadena

b. Epicentral locations, time of origins, and depth of foci are obtained from the U. S. Coast & Geodetic Survey Preliminary Determination of Epicenters cards.

c. The nature of the surface waves is indicated subjectively.

d. Epicentral locations and distances reported by the station are accompanied by an indication of the phases used to determine epicentral distance, e.g., Δ (S-P) = 6°, Central Colorado.

e. Operational notes refer to operational difficulties that affect analysis of data.

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
01 Oct		eP	01 07 02.8	3	1.0		T			
		e	21.9		0.9					
01 Oct		eP	04 09 04.6	11	0.8		T	5.0		Fiji Islands
		e	11 06.4		1.4					17.5 S 178.9 W
		e	25.1		1.0					h about 550 km
	E	eSKS	18 49.4		2.0					O = 03 56 52.0
		ePKKP	26 18.3		0.8					Δ = 92°
01 Oct		eP'	08 10 13.8	4	1.2		T			Nicobar Islands region
										6.5 N 95.1 E
										h about 33 km
										O = 07 50 52.8
										Δ = 137°
01 Oct		eP	09 21 39.6	2	0.7		T			
01 Oct		eP	10 05 12.8	17	0.8		T	4.9		Kurile Islands
		e	46.9		1.4					47.3 N 151.5 E
		e	06 54.8		1.4					h about 127 km
										O = 09 53 32.9
										Δ = 77°
01 Oct		eP	10 40 59.1	2	1.0		T			
01 Oct	LPN	eSur	10 47 43				T	4.5		New Hebrides Islands
										17.5 S 167.1 E
										h about 33 km
										O = 09 57 02.2
										Δ = 103°
										Medium surface waves
										on LP
01 Oct		eP	12 24 29.3	8	1.3	SE	T			
		e	38.0		1.2					
	LPN	e	28 27		20.0					
01 Oct		eP	12 28 45.5	3	1.0		T			Southern Iran
		e	29 57.8		0.8					27.9 N 54.9 E
		e	31 51.2		1.2					h about 16 km
	LPN	e	32 07		27.0					O = 12 13 57.4
		e	13.5		1.0					Δ = 112°
		e	26.9		1.0					Strong surface waves
		eP'	33.8	9	0.9					on LP.
		e(PP)	54.7		1.4					Start is probably
		e	33 11.5		1.0					P diffracted.
		e	31.9		0.9					
		e	34 10.9		1.2					
		eSKP	36 13.0		1.4					
		e	37 31.2		1.3					
	LPN	ePS	42 38		20.0					
		$ePKKP_1$	43 22.1		1.4					
		$ePKKP_2$	33.4		1.3					

(continued on next page)

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
	LPN	eSS	49 15			23.0				(continued from preceding page)
	LPN	eSSS	53 09			31.0				
	LP(N)	eSur	13 08 11							
01 Oct		eP	13 01 16.4	4	0.9		T	4.3		Off southern coast of Kamchatka 49.0 N 157.5 E h about 80 km O = 12 49 55.1 Δ = 72° Surface waves intermingled with previous event
01 Oct		eP	20 55 20.6	87	1.3		T	5.7		Fiji Islands region 19.6 S 174.5 W h about 143 km O = 20 42 36.5 Δ = 90° Medium surface waves on LP
		epP	53.2		1.1					
	LPN	eSur	21 24 04							
01 Oct		eP	21 22 54.4	2	0.4		NR			Δ (S-P) = 3.0°
	E	eS	23 31.3		0.4					
01 Oct		eP	23 36 04.7	3	0.3		NR			Δ (S-P) = 1.7° Quarry blast by Gifford-Hill Co., 13,000 lbs., O = 23 35 35.81
		e	14.7		0.3					
		eS	26.4	999						
02 Oct		eP	03 55 09.7	4	1.0		T	3.5		Western Nevada 39.2 N 119.6 W h about 33 km O = 03 51 09.6 Δ = 17° Medium surface waves on LP
		e	35.6		1.3					
	LPN	eSur	04 00 23							
02 Oct		eP	04 08 49.6	2	1.0		T			
02 Oct		eP	08 47 55.0	3	0.8		T	4.4		Fiji Islands region 17.6 S 178.7 W h about 616 km O = 08 35 49.1 Δ = 92°
		e	48 11.6		1.2					
		ePP	51 40.2		1.4					
02 Oct		eP	09 01 44.2	2	0.7		T			
02 Oct		eP	11 45 24.3	14	1.1	SE	T			
		e	31.8		1.1					
		e	46 23.6		1.2					
02 Oct		eP	18 06 30.6	7	1.4		T			
		e	52.8		1.0					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
02 Oct		iP	19 46 39.8 c	44	0.6	NNE	L			Δ (S-P) = less than 0.1°
		eS	41.8	999						
02 Oct		eP	21 07 51.9	3	0.9		T			
02 Oct		eP	23 18 12.9	1	0.8		T			
02 Oct		eP	23 26 57.2	2	0.9		T			
02 Oct		eP	23 28 54.8	5	0.3		NR			Δ (S-P) = 1.6°
		eS	29 16.3	999						
02 Oct		eP	23 34 56.6	5	1.1		T			Medium surface waves on LP
	LP	eSur	50 30							
02 Oct		eP	23 43 50.8	4	1.3		T			
03 Oct		eP	00 09 10.9	6	1.0		T			
		e	41.2		1.0					
		e	10 20.6		1.0					
03 Oct		eP	00 30 41.4	2	1.1		T			
03 Oct		eP	00 38 13.7	2	0.8		T			
03 Oct		eP	01 26 05.4	3	0.9		T	4.3		Azores region 40.6 N 29.7 W h about 33 km O = 01 16 46.7 Δ = 53° Medium surface waves, Rayleigh type, on LP.
		e	09.5		1.3					
	LPN	eS	33 34		25.0					
	LP	eSur	42 47							
03 Oct		eP	01 28 40.1	27	1.7		T	4.9		Azores region 40.7 N 29.7 W h about 33 km O = 01 19 22.5 Δ = 53° Strong surface waves, Rayleigh type, on LP.
		e	44.5		1.6					
		e	30 48.9		1.5					
	LPN	eS	36 19		20.0					
	LP	eSur	45 22							
03 Oct		eP	02 47 10.9	4	1.0		T			
03 Oct		eP	05 41 20.7	3	1.1		T			
	LPN	e	06 05 30		18.0					
03 Oct		eP	09 01 42.5	3	1.2		T			
03 Oct		eP	13 18 52.5	2	0.8		T			
		e	19 12.1		0.7					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
03 Oct		eP	14 14 39.4	2	1.0		T			Δ(S-P) = 55°
	LPN	eS	22 20		20.0					Possible aftershock of
	LP	eSur	31 10							Azores region event
										of O = 01 19 22.5
										Medium surface waves
										on LP
03 Oct		eP	16 16 00.9	1	0.6		T			
03 Oct		eP	17 25 15.9	3	1.1		T			
		e	27.5		1.0					
03 Oct		$ePKKP_1$	19 18 35.1	5	1.3		T			Sandwich Islands
		$ePKKP_2$	52.2		1.1					57.5 S 26.7 W
										h about 33 km
										O = 18 48 52.4
										Δ = 111°
03 Oct		eP	19 43 48.1	1	0.8		T			
03 Oct		eP	20 55 31.2	5	0.3	NE	L			Δ(S-P) = 0.7°
		eS	40.7	999						
		eSur	49.0		0.7					
03 Oct		eP	21 15 51.5	1	0.2		NR			Δ(S-P) = 4.1°
		e	59.9		0.2					
	E	e	16 02.1		0.3					
	N	eS	40.8		0.3					
	N	eSur	57.1		0.5					
03 Oct		eP	21 39 53.5	1	0.4		NR			Δ(S-P) = 2.6°
	E	eS	40 25.2		0.5					
	E	eSur	32.0		0.3					
03 Oct		eP	21 52 53.2	2	0.2		NR			Δ(S-P) = 1.6°
		e	54.2		0.3					
	N	eS	53 14.1		0.3					
	N	eSur	17.0	999						
03 Oct		eP	23 05 16.4	2	0.3	SSE	NR			Δ(S-P) = 1.6°
	N	e	26.3		0.3					
	E	e	33.8		0.4					
	E	eS	37.6	999						
04 Oct		eP	00 06 25.3	6	1.5	ENE	T			Δ(S-P) = 58°
		e	37.1		1.0					Possible aftershock of
		e	07 45.1		1.1					Azores region event of
	LPN	eS	14 24		20.0					03/01 19 22.5.
	LP	eSur	22 59							Medium surface waves
										on LP

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
04 Oct		eP	00 16 41.1	1	0.7		T			
		e	48.1		1.1					
		e	17 17.3		1.2					
		e	18 05.7		0.9					
04 Oct		eP	04 01 26.2	2	0.8		T			Weak surface waves
	LP	eSur	19 42							on LP
04 Oct		eP	04 51 25.7	6	0.9		T	4.6		Azores region
		e	32.0		1.0					40.4 N 29.5 W
		e	53 33.8		1.0					h about 33 km
	LPN	eS	59 05		19.0					O = 04 42 05.8
	LP	eSur	05 07 48							Δ = 54°
										Medium surface waves,
										Rayleigh type, on LP.
04 Oct		eP	06 03 44.9	5	1.0	SE	T			Medium surface waves
		e	04 16.3		1.5					on LP
		e	06 53.8		1.0					
		e	10 38.4		1.1					
	LPN	e	14 37		17.0					
	LPN	e	18 16		18.0					
	LP	eSur	24 14							
	LP	eSur	30 10							
04 Oct		eP	07 15 50.5	2	0.8		T			
		e	57.4		1.1					
		e	16 15.7		1.0					
		e	46.6		1.2					
		e	19 01.8		0.9					
	LP	e	05		19.0					
04 Oct		eP	07 37 55.3	3	0.9		T	4.7		Black Sea
										42.2 N 36.1 E
										h about 33 km
										O = 07 24 44.3
										Δ = 93°
04 Oct		eP	08 57 49.9	4	1.3		T			
		e	56.6		1.1					
04 Oct		eP	12 34 35.0	3	0.9		T			
	LP	eSur	52 07							Medium surface waves
										on LP
04 Oct		eP	13 32 52.9	29	1.5		T	5.1		
		e	58.0		0.9					Azores region
	LPN	eS	40 30		19.0					40.9 N 29.7 W
	LP	eSur	49 14							h about 33 km
										O = 13 23 34.4
										Δ = 53°
										Medium surface waves,
										Rayleigh type, on LP.

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
04 Oct		eP	15 22 53.6	2	0.7		R			
		e	23 04.1		0.9					
		e	12.3		0.8					
		eSur	26 39.1		0.7					
04 Oct		eP	17 36 12.8	5	1.0		T			
04 Oct		eP	17 50 12.3	23	0.4		NR			Δ (S-P) = 1.6°
	E	eS	33.6	999						
04 Oct		eP	19 00 24.3	7	0.9	ENE	T			
		e	29.4		1.5					
		e	49.6		1.3					
		e	01 31.5		1.3					
04 Oct		eP	19 09 35.6	3	1.0		T			
04 Oct		eP	19 23 38.8	5	0.9		T			
04 Oct		eP	19 59 03.4	12	0.9		T	5.2		Greece 38.3 N 22.7 E h about 38 km O = 19 46 10.1 Δ = 89° Weak surface waves on LP
		e	32.0		0.8					
		e(PP)	20 02 35.6		1.1					
	LP	eSur	29 55							
04 Oct		eP	20 18 26.6	5	1.0		T			
04 Oct		eP	20 54 59.7	18	1.7		T			
04 Oct		eP	21 24 19.1	2	0.3		NR			Δ (S-P) = 2.5°
	E	eS	49.9		0.3					
	E	eSur	55.6		0.5					
04 Oct	LPN	eSur	21 27 49				T	4.3		Bismarck Sea 5.1 S 151.9 E h about 33 km O = 20 34 38.7 Δ = 108° Weak surface waves on LP
04 Oct		eP	22 54 38.6	7	0.7		T	4.7		Central Colombia 4.1 N 76.2 W h about 67 km O = 22 47 35.5 Δ = 37°
		ePcP	56 57.5		0.7					
		e(ScP)	23 00 29.5		1.1					
04 Oct		eP	23 11 55.5	1	0.2		L			Δ (S-P) = less than 0.1°
	N	eS	57.7		0.4					
	N	eSur	12 00.6		0.5					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
04 Oct		eP	23 19 29.5	5	0.9	NE	T			Δ (S-P) = 56° Possible aftershock of Azores region event at 13 23 34.4 Medium surface waves on LP.
		e	33.8		1.0					
		e	40.6		1.5					
	LPN	eS	27 15		18.0					
	LPN	eSur	36 25							
05 Oct		eP	00 03 43.3	1	0.3		NR			Δ (S-P) = 1.6°
	N	eS	04 04.1		0.5					
05 Oct		eP	04 24 00.8	34	1.7		T	5.1		Azores region 40.2 N 29.5 W h about 33 km O = 04 14 39.1 Δ = 53.5° Strong surface waves, Rayleigh type, on LP
	LPN	eS	31 51		19.0					
	LP	eSur	41 12							
05 Oct		eP	07 57 42.1	3	0.6	NW	T			
		e	52.4		0.7					
05 Oct		eP	08 48 50.3	10	1.1		T	4.7		Azores region 40.7 N 29.8 W h about 33 km O = 08 39 32.2 Δ = 53° Medium surface waves, Rayleigh type, on LP.
		e	58.8		1.0					
	LPN	eS	56 41		18.0					
	LP	eSur	09 05 56							
05 Oct		eP	09 14 29.8	2	0.8	NW	T			
		e	39.0		1.0					
05 Oct		eP	09 59 18.5	3	1.0		R			Medium surface waves on all systems
		e	31.7		1.0					
		e	43.7		1.0					
		e	53.6		1.1					
		e	10 00 44.0		1.1					
		e	01 50.8		1.0					
		e	02 43.0		1.2					
		eSur	03 00.3		1.0					
	LPE	eSur	10							
05 Oct		eP	10 25 14.0	2	1.0		R			Weak surface waves on all systems
	E	eSur	28 52.9		1.2					
	LPE	eSur	29 00							
05 Oct		eP	10 37 04.0	2	1.1		T	3.8		Near east coast of Honshu, Japan 39.0 N 140.2 E h about 200 km O = 10 24 30.3 Δ = 88°

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
05 Oct		eP	15 57 18.7	1	0.5		NR			Δ (S-P) = 2.1°
	N	eS	45.1		0.4					
05 Oct		eP	17 20 20.8	2	0.4		NR			Δ (S-P) = 1.1°
	N	eS	36.3		0.6					
05 Oct		eP	17 28 12.6	3	0.9		T			
05 Oct		eP	17 57 42.6	2	1.0		T	4.4		Near east coast of Honshu, Japan 37.9 N 143.2 E h about 44 km O = 17 44 57.0 Δ = 87°
05 Oct		eP	20 03 36.5	1	0.9		T			
05 Oct		eP	21 18 23.5	2	0.8		T			
05 Oct		eP	21 24 26.9	2	0.5		NR			Δ (S-P) = 2.3°
	E	eS	24 55.8		0.5					
05 Oct		eP	21 32 58.4	3	0.3		NR			Δ (S-P) = 1.6°
		eS	19.6	999						
05 Oct		eP'	22 18 54.6	2	1.0		T			Banda Sea 6.1 S 130.8 E h about 31 km O = 21 59 40.2 Δ =126°
		e	19 06.2		1.2					
05 Oct		eP	23 05 32.0	2	0.3		NR			Δ (S-P) = 1.7°
		e	42.1		0.4					
		eS	53.8	999						
06 Oct		e(P')	02 54 17.7	1	0.6		T			
06 Oct	LP	eSur	03 37 28				T			Weak surface waves on LP. Possibly associat with previous event.
06 Oct		eP	03 26 26.5	74	1.8		T	5.4		Azores region 40.8 N 29.5 W h about 33 km O = 03 17 07.2 Δ = 53.5° Strong surface waves, Rayleigh type, on LP.
		e(PP)	28 25.1		1.8					
	LPN	eS	34 10		19.0					
	LP	eSur	42 40							
06 Oct		eP	03 45 56.7	3	1.1		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
06 Oct		eP	04 04 19.2	58	1.9		T	5.2		Azores region 40.5 N 29.5 W h about 33 km O = 03 54 58.3 Δ = 53.5° Strong surface waves, Rayleigh type, on LP.
		e	05 25.2		2.0					
	LPN	eS	11 52		20.0					
	LP	eSur	20 47							
06 Oct		eP	04 37 26.5	4	1.4		T	4.9		New Hebrides Islands 17.4 S 167.7 E h about 33 km O = 04 23 24.1 Δ = 102° Strong surface waves on all systems. Start is possibly P diffracted.
		e	58.9		1.1					
		e	40 33.8		1.0					
		e	43.3		1.4					
		e	56.7		2.0					
	LP	ePP	41 29		17.0					
	LP	e	46 57		16.0					
	LPN	eSKS	48 01		24.0					
	LP	e	49 29		20.0					
		e(SP)	50 33.2		1.9					
	BBE	ePS	39		13.0					
		e(SPP)	51 23.9		1.8					
	BBE	ePPS	45.		12.0					
		ePKKP	53 20.5		1.0					
		$ePKKP_1$	28.8		1.0					
		$ePKKP_2$	47.8		1.4					
		$ePKKP_3$								
	LPE	eSS	56 26		22.0					
	LP	e	59 28		19.0					
	LPE	eSKKS	05 00 35		26.0					
		eP'P'	01 36.8		1.3					
	LPE	eSur	06 23							
	LP	eSur	11 10							
06 Oct	LP	ePP	04 52 57		23.0		T			New Hebrides Islands 17.4 S 167.8 E h about 33 km O = 04 35 02.5 Δ = 102° Strong surface waves present but intermingled with surface of previous event.
	LPN	e(PPS)	05 03 49		27.0					
06 Oct		eP	05 52 53.7	2	1.0		T			Ryukyu Islands 26.2 N 126.9 E h about 122 km O = 05 38 40.3 Δ = 105° Strong surface waves, Rayleigh type, on LP. Start is possibly P diffracted.
		eP'	56 49.8		1.2					
		ePP	59.4		2.2					
		e	58 11.0		2.0					
	LP	e	06 01 42		16.0					
	LP	e(SPP)	06 43		17.0					
	LPE	e	07 31		18.0					
		ePKKP	08 37.7		1.2					
	LP	e	15 08		17.0					
	LP	e	19 18		18.0					
	LP	eSur	29 45							
	LP	eSur	50 02							

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
06 Oct		eP	06 15 21.2	4	1.3		T			
06 Oct		eP	07 15 02.6	8	1.1		T			
06 Oct		eP	07 25 05.7	1	0.8		T			
06 Oct	LP	eSur	08 05 15				T		4.6	New Hebrides 17.4 S 167.8 E h about 33 km O = 07 17 03.3 Δ = 102°
06 Oct	LPN	eSKS	08 20 56		18.0		T			New Hebrides 17.4 S 167.9 E h about 33 km O = 07 56 20.4 Δ = 102° Strong surface waves, Love and Rayleigh type on LP.
	LPN	eS	21 42		20.0					
	LPE	ePS	23 46		22.0					
	LP	eSPP	24 06		17.0					
	LPE	e	50		20.0					
	LPE	e	25 10		18.0					
	LPE	eSKKS	33 27		24.0					
	LPE	eSur	40 46							
	LP	eSur	43 57						4.9	
06 Oct		ePP	08 21 58.7		1.4		T			New Hebrides Islands 17.2 S 168.0 E h about 33 km O = 08 03 31.7 Δ = 102° Strong surface waves, Rayleigh type, on LP.
	LP	e	27 56		21.0					
	LPN	e(SKS)	28 17		25.0					
		e	40.6		1.0					
	LPN	eS	29 19		24.0					
	LPE	ePS	30 48		20.0					
		e	31 35.5		1.1					
	LP	eSPP	39		19.0					
		e	33 31.2		0.9					
	LPN	ePKKS	36 55		23.0					
	LP	e	38 24		18.0					
	LPE	eSKKS	40 46		18.0					
	LP	eSur	43 25							
	LP	eSur	51 08						5.5	
06 Oct		eP	08 45 32.2	7	1.0		T	5.3		New Hebrides Islands 17.3 S 167.8 E h about 33 km O = 08 31 50.1 Δ = 102°
		e	38.7		1.2					
	LP	eSP	58 40		16.0					
		eSKKP	09 04 56.7		2.0					
06 Oct		eP	09 15 30.1	3	1.1		T			
06 Oct		eP	09 31 38.6	1	0.8		T	4.1		Teton County, Wyoming 43.6 N 110.8 W h about 33 km O = 09 28 17.4 Δ = 13°
		e	32 14.0		0.9					
	E	e	34 57.0		0.6					
	E	eSur	35 02.5		0.9					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
06 Oct		ePP	11 18 10.4		0.9		T			New Hebrides Islands 13.3 S 167.3 E h about 209 km O = 11 00 52.8 Δ = 100° Weak surface waves on LP
		e	36.2		1.3					
		e	19 13.5		1.8					
		e	24 37.6		1.4					
		ePKKP	30 32.3		0.9					
		e	56.7		1.1					
		e	31 45.6		1.2					
		e	34 51.5		1.4					
		eP'P'	38 48.5		1.2					
	LP	eSur	48 55							
06 Oct	LPE	ePKKS	12 33 08		23.0		T		4.6	New Hebrides Islands 17.4 S 167.8 E h about 33 km O = 11 59 42.3 Δ = 102° Weak surface waves on LP
	LP	eSur	48 03							
06 Oct		eP	13 40 46.3	8	1.0		T			
06 Oct		eP	14 12 55.2	18	0.9		T	4.8		Ecuador 1.5 S 77.4 W h about 17 km O = 14 05 24.0 Δ = 41°
		e	13 11.4		0.9					
		e	35.2		0.8					
		ePcP	14 51.7		0.8					
		e(ScP)	18 24.2		0.8					
06 Oct		eP	17 39 15.8	1	0.3	W	R			Δ (S-P) = 6.6°
		eS	40 34.0		0.5					
06 Oct	LPN	ePS	18 28 28		22.0		T			New Hebrides Islands 17.6 S 168.0 E h about 33 km O = 18 01 05.4 Δ = 102° Weak surface waves on LP
		ePKKP	31 49.1		1.0					
	LPN	ePKKS	34 31		23.0					
	LPN	eSur	50 50						4.8	
06 Oct		eP	21 17 18.1	999			L			Δ (S-P) = 1.6°
		eS	19.9	999						
06 Oct		eP	21 39 52.8	1	0.4		NR			Δ (S-P) = 1.6°
	E	eS	40 21.8		0.4					
06 Oct	LPN	*ePP	23 49 37		23.0		T			New Hebrides Islands 17.5 S 167.6 E h about 42 km O = 23 31 27.7 Δ = 102° Strong surface waves on LP. * LPZ inoperative.
		e	55.0		1.5					
		e	50 05.8		1.4					
	LPN	eSKS	56 05		24.0					
	LPN	ePS	58 31		22.0					
	LPN	ePPS	59 33		21.0					
07 Oct		ePKKP	00 01 21.8		1.6					
		$ePKKP_2^1$	42.0		1.4					
		$ePKKP_3$	53.2		1.6					
	LPN	ePKKS	04 40		23.0					

(continued on following page)

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										(continued from preceding page)
		e	05 37.8		1.4					
	LPN	eSKKS	08 16		24.0					
		eP'P'	09 40.3		1.3					
	LPN	eSKKKS	11 47		28.0					
	LPN	eSur	19 03						4.5	
07 Oct		eP	00 14 33.7	2	1.1		T			
07 Oct		eP	00 26 51.6	2	0.9		T			
07 Oct		eP	01 12 44.2	7	1.3		T			
07 Oct	LPE	ePS	01 13 43		18.0		T			New Hebrides Islands
	LPN	ePPS	14 25		17.0					17.7 S 167.8 E
	LPN	e	15 40		18.0					h about 33 km
	LPN	e	22 17		22.0					O = 00 46 55.4
	LPN	eSur	36 50						5.0	Δ = 102°
										Medium surface waves on LP
07 Oct		eP	06 54 35.6	5	1.0		T	4.4		Azores region
		e	40.7		0.9					40.5 N 29.2 W
	LPN	eS	07 02 20		19.0					h about 33 km
	LPN	eSur	11 05							O = 06 45 13.8
		e	17 01.3		1.5					Δ = 53.5°
07 Oct		eP	08 58 24.0	7	1.3		T			
07 Oct		eP	09 43 03.7	3	0.8		T			
		e	14.8		1.0					
07 Oct		eP	09 58 48.7	43	1.8		T	5.1		Azores region
	LPN	eS	10 06 33		19.0					40.2 N 29.2 W
	LPN	eSur	15 43							h about 33 km
										O = 09 49 25.9
										Δ = 53.5°
										Medium surface waves on LP.
07 Oct		eP	11 20 28.2	4	0.9	SE	T			
07 Oct		eP	11 25 44.7	3	0.9		T			
07 Oct	LPE	eSKS	14 16 58		18.0		T			New Hebrides
	LPE	eSur	40 26						4.6	17.3 S 167.8 E
										h about 17 km
										O = 13 51 54.4
										Δ = 102°
										Weak surface waves on LP
07 Oct		eP'	16 18 49.7	2	0.7		T			Sandwich Islands
										57.8 S 25.5 W
										h about 33 km
										O = 16 00 20.2
										Δ = 110.5°

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
07 Oct		eP	16 44 39.3	2	0.5	SE	T			
07 Oct		eP	18 48 04.9	2	0.8		T			
07 Oct		eP	19 50 19.1	3	0.8		T			
07 Oct		eP	20 40 57.2	3	0.4		NR			Δ (S-P) = 1.6°
	E	eS	41 18.6	999						
08 Oct		eP	05 23 40.7	19	1.1		T	5.0		Azores region
		e	24 03.5		1.8					40.5 N 29.5 W
	LPN	eS	31 25		20.0					h about 33 km
	LP	eSur	39 45							O = 05 14 20.4
										Δ = 53.5°
										Strong surface waves on LP
08 Oct		eP	08 55 57.5	2	0.3	SE	L			Δ (S-P) = 0.1°
	E	eS	56 00.8		0.5					
08 Oct		eP	08 58 51.5	2	1.0		T			
		e	59 11.7		1.2					
08 Oct		eP	10 41 47.4	2	1.0		T			
08 Oct		eP	13 10 42.4	37	0.9	SE	T			
		e	51.3		1.0					
		e	11 07.7		1.0					
		e	16.3		1.1					
08 Oct		eP	16 15 02.3	2	0.5		R			
		e	23.6		0.5					
	N	eSur	16 28.2		0.6					
08 Oct		eP	16 25 36.8	1	0.3		L			Δ (S-P) = 0.7°
	E	eS	47.2		0.4					
08 Oct		eP	16 28 10.5	2	0.9		T			
08 Oct		eP	16 42 47.5	1	0.4		R			Δ (S-P) = 6.6°
	E	e	43 16.8		0.5					
	E	eS	44 07.1		0.5					
	E	eSur	45.2	999						
08 Oct		eP	18 42 06.6	1	0.4		R			[Δ (S-P) = 7.5°]
		e	24.0		0.4					
	E	e(S)	43 33.0		0.5					
	E	eSur	47.4		0.8					
09 Oct		eP	20 46 51.2	1	0.4	NW	R			Δ (S-P) = 6.2°
		e	47 19.0		0.4					
	E	eS	48 06.5		0.5					
	E	eSur	45.8		0.5					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
08 Oct		eP	21 41 06.9	3	0.7	SE	T			
		e	20.5		0.8					
08 Oct		eP	22 05 43.0	1	0.3	ESE	NR			Δ (S-P) = 2.0°
	E	eS	06 08.2		0.4					
08 Oct		eP	22 10 59.8	4	1.2		T	5.5		Mag. 6 (PS), 6 1/4 (PL) Near east coast of Formos
		ePP	15 14.4		1.7					24.3 N 121.7 E
	LP	ePP	26		19.0					h about 29 km
	LPE	eSKS	21 38		17.0					O = 21 56 22.2
	LPE	ePS	24 53		17.0					Δ = 109°
		$ePKKP_1$	25 57.1		1.6					Very strong surface waves
		$ePKKP_2$	26 05.0		1.4					on LP and BB.
	LPE	eSPP	08		23.0					Start is possibly P
	LP	e	31 19		33.0					diffracted.
	LP	eSur	47 09							
08 Oct		ePP	22 43 24.9		1.2		T			Near east coast of Formo 24.1 N 121.8 E h about 39 km O = 22 24 06.5 Δ = 109° Surface intermingled with preceding Formosa event.
08 Oct		eP	23 38 02.6	1	0.4		NR			Δ (S-P) = 2.5°
	E	eS	33.6		0.5					
09 Oct		eP	00 23 53.8	2	0.4	SW	NR			Δ (S-P) = 2.6°
	E	eS	24 25.8		0.5					
09 Oct	LPN	eSur	04 07 28				T		4.8	New Hebrides Islands 17.4 S 167.6 E h about 33 km O = 03 13 44.8 Δ = 102° Weak surface waves on L
09 Oct		eP	04 40 26.4	7	0.9		T	4.5		Near north coast of Hokkaido, Japan 46.2 N 143.1 E h about 284 km O = 04 28 36.1 Δ = 82°
09 Oct		eP	07 19 59.5	2	1.1		T			
09 Oct		eP	09 18 18.8	3	1.1		T			
		e	25.0		1.2					
09 Oct		eP	09 30 46.1	2	0.8		T			Possible PKKP phases of previous event.
		e	31 04.1		0.9					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
09 Oct		eP	16 09 33.1	1	0.3		R			
	E	eSur	10 58.4		0.5					
09 Oct		eP'	16 17 37.0	3	0.9		T			Hindu Kush
		ePP	44.0		1.0					36.4 N 71.3 E h about 241 km O = 15 59 17.5 Δ = 107.5°
09 Oct		eP	16 51 35.4	2	0.4	E	NR			Δ (S-P) = 2.6°
	E	eS	52 07.0		0.4					
		eSur	17.4		0.5					
09 Oct		iP	18 09 28.0	c 36	0.3	NE	L			Δ (S-P) = less than 0.1°
		eS	30.4	999						
09 Oct		eP	19 57 40.6	3	1.0		T			
09 Oct		eP'	20 33 12.2	4	1.1		T			Mag. 6 1/4 (PS)
		ePP	42.0		2.0					Bismarck Sea
		e	35 03.4		1.6					3.2 S 148.2 E
		ePKKP	44 18.5		1.2					h about 33 km
	LPN	eSS	49 22		34.0					O = 20 14 38.3
	LPE	e	53 21		32.0					Δ = 111°
	LPN	e	21 00 14		27.0					Strong surface waves,
	LPE	eSur	01 39							Love and Rayleigh type,
	LP	eSur	06 14							on LP. Medium surface waves on BB.
9 Oct		eP	21 30 11.3	1	0.3		NR			Δ (S-P) = 3.1°
	E	eS	49.5		0.5					
9 Oct		eP	23 08 12.0	4	0.4	SE	NR			Δ (S-P) = 1.7°
		e	22.1		0.3					
	E	eS	33.7	999						
9 Oct		eP	23 54 19.7	3	0.5	SSE	NR			Δ (S-P) = 3.5°
	E	eS	55 02.3		0.3					
0 Oct		eP'	05 01 20.4	31	1.1		T			Indian Ocean
		e	27.8		1.1					1.6 S 66.8 E
		e	41.6		1.2					h about 33 km
		ePP	04 38.7		1.4					O = 04 41 46.9
										Δ = 144.5°
0 Oct		eP	06 31 15.8	2	0.6		T			
0 Oct		eP	08 08 02.4	8	0.8	SE	T			
		e	32.7		1.2					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
10 Oct		eP	08 37 09.7	3	0.7	E	T			
		e	22.5		0.6					
		e	38.2		0.6					
		e	39 10.6		0.6					
10 Oct		eP	09 33 05.6	1	0.7		T	4.2		Fiji Islands 22.2 S 179.6 W h about 558 km O = 09 20 40.8 Δ = 95°
10 Oct		eP	11 50 25.3	13	0.8		T	4.7		Peru-Ecuador border 3.2 S 77.7 W h about 115 km O = 11 42 39.8 Δ = 42°
		e	31.6		0.9					
		e	36.8		1.0					
		ePcP	52 19.7		0.8					
10 Oct		eP'	13 52 38.8	18	1.2		T			Off south coast of Java 8.9 S 110.3 E h about 33 km O = 13 33 10.3 Δ = 143°
		e	47.0		1.0					
		e	53 03.3		1.0					
		e	41.1		0.9					
		e	56 12.2		1.4					
		e	20.2		1.9					
		eSKKP	14 05 26.4		1.0					
10 Oct		eP	17 48 58.2	1	0.6		T			Δ (S-P) = 1.6°
10 Oct		eP	18 14 21.6	4	0.3	SE	NR			
	E	eS	42.8	999						
10 Oct		eP	19 26 31.1	5	1.4		T			Δ (S-P) = less than 0.1°
		e	27 57.7		1.5					
10 Oct		iP	19 36 27.8	c 999		NNE	L			
		eS	29.6	999						
10 Oct		eP	21 04 56.3	96	1.4		T	5.4		Mendoza Province, Argentina 34.9 S 70.1 W h about 137 km O = 20 53 34.5 Δ = 74°
		ePcP	05 12.3		0.9					
10 Oct		eP	21 22 43.0	2	0.5	ENE	NR			Δ (S-P) = 2.5°
	E	eS	23 13.7		0.4					
	N	eSur	21.0		0.5					
10 Oct		eP	22 05 17.4	137	1.1		T	6.1		Samoa Islands region 15.1 S 173.3 W h about 33 km O = 21 52 36.8 Δ = 86° Strong surface waves on LP
		e	58.6		1.1					
		e	07 23.0		1.3					
		e	41.0		1.3					
	LPN	eS	15 52		21.0					
	LP	eSur	33 00							

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
0 Oct		eP	23 47 15.8	1	0.5		NR			
		eSur	48 24.8		0.5					
1 Oct		eP	03 49 24.7	2	1.0		T	4.1		Fox Islands, Aleutian Is. 52.0 N 171.3 W h about 33 km O = 03 40 05.5 Δ = 53°
		epP	37.2		1.3					
1 Oct		eP	04 43 21.7	9	1.4		T			
1 Oct		eP	05 31 07.8	5	0.8	NW	T			
1 Oct		eP	05 49 17.4	3	0.8		T	4.2		Near coast of northern Peru 8.5 S 83.7 W h about 33 km O = 05 40 59.9 Δ = 45°
		epP	28.7		0.7					
		e	46.1		1.8					
		e	58.7		1.4					
1 Oct		eP	06 30 17.3	10	1.0		T	4.6		Near coast of central Ecuador 1.4 S 80.6 W h about 33 km O = 06 22 45.9 Δ = 39°
		epP	28.8		0.8					
		ePcP	32 22.6		0.7					
1 Oct		eP	10 45 33.1	1	0.8		T			
1 Oct		eP	14 11 37.5	10	1.5		T			
1 Oct		eP	23 32 15.0	6	0.2	SSE	NR			Δ (S-P) = 1.7°
		e	25.0		0.4					
	E	eS	36.6	999						
2 Oct		eP	00 17 39.7	4	0.9		T	3.9		Near coast of Ecuador 4.1 S 80.3 W h about 195 km O = 00 10 04.8 Δ = 42°
		e	49.7		1.0					
		e	18 35.6		1.2					
		e	19 34.0		0.8					
		e	44.8		1.4					
2 Oct		eP	00 31 19.0	1	0.5	SW	NR			Δ (S-P) = 2.6°
	N	eS	50.7		0.4					
Oct		eP	00 44 17.0	3	0.4	SE	NR			Δ (S-P) = 1.0°
	E	eS	38.4	999						
		eSur	45 19.7		1.3					
Oct	LP	eSur	02 39 43				T			Medium surface waves on LP

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
12 Oct		eP	08 06 11.4	17	1.4		T	4.9		Northern Chile
		ePcP	53.9		0.8					20.4 S 68.9 W
		e	07 24.7		1.0					h about 139 km
	E	eS	14 31.4		2.3					O = 07 56 08.4
										Δ = 61°
12 Oct		eP	11 56 14.2	3	0.8		T	4.3		Fiji Islands region
										18.8 S 177.1 W
										h about 223 km
										O = 11 43 32.3
										Δ = 91°
12 Oct		eP	16 24 01.0	1	0.4	N	NR			Δ (S-P) = 5.6°
		e	05.2		0.5					
		e	08.8		0.5					
		e	23.3		0.5					
	E	eS	25 07.0	999						
	E	eSur	37.6	999						
12 Oct		eP	17 04 30.2	4	1.0		T	4.5		Near coast of northern Chile
		ePcP	05 06.3		0.8					28.0 S 70.6 W
		e	25.4		0.9					h about 25 km
										O = 16 53 33.6
										Δ = 68°
12 Oct		eP	21 57 29.6	1	0.3	NNE	L			Δ (S-P) = 1.3°
	E	eS	48.0		0.4					
13 Oct		eP	02 04 51.6	6	0.9	SE	T			
		e	55.9		0.6					
		ePcP	05 12.0		1.0					
		e	13 10.8		1.1					
13 Oct		eP	03 49 14.0	2	0.9		T			
13 Oct		eP	08 10 51.7	3	0.9	SE	T			
13 Oct		eP	09 14 22.0	1	0.8	SE	T			
13 Oct		eP	09 17 16.5	5	0.6	SE	T			
		e	18.8		0.6					
		e	36.0		0.9					
13 Oct		eP	10 37 43.2	2	1.0		T			Northwestern Iran
		e	40 51.5		1.5					35.5 N 49.8 E
		e	41 26.7		1.4					h about 33 km
		ePP	51.1		1.4					O = 10 23 38.2
		$ePKKP_1$	53 30.5		1.3					Δ = 103°
		$ePKKP_2$	48.9		1.1					Strong surface waves on LP
	LPE	e(Sur)	11 06 13							5.3
	LP	eSur	15 04							

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
13 Oct		eP	13 45 45.5	14	1.1		T	4.3		Chiapas, Mexico
		e	46 08.9		1.0					15.0 N 92.7 W
		e	16.3		1.0					h about 170 km
		e	20.9		1.1					O = 13 41 21.7
		e	47 31.2		3.0					Δ = 20°
		eS	48 59.4		3.0					
		eSur	49 32.9		1.0					
		eSur	50 20.8		1.2					
13 Oct		eP	18 12 09.9	21	0.5		L			Δ(S-P) = less than 0.1°
	E	eS	11.7	999						
13 Oct	LPN	eSKS	19 12 11		23.0		T			Santa Cruz Islands
	LP	eSP	14 33		23.0					12.6 S 166.6 E
	LPN	ePS	53		18.0					h about 33 km
		eSPP	15 56		20.0					O = 18 47 44.5
		ePKKP	18 08.6		1.0					Δ = 100.5°
	LPN	eSS	20 40		27.0					Strong surface waves,
	LP	eSKKS	24 32		35.0					Rayleigh type, on LP.
	LPN	e	27 31		26.0					
	LPN	eP'PKS	29 06		29.0					
	LP	eSur	34 18						5.4	
13 Oct		eP	20 21 47.9	4	0.8	N	T			
13 Oct		eP	22 01 48.4	2	1.0		T	3.9		Near northern coast of
		e	02 11.3		1.4					Hokkaido, Japan
										44.0 N 146.4 E
										h about 103 km
										O = 21 49 38.6
										Δ = 82°
14 Oct		eP	00 43 44.5	3	1.3		T	4.7		Kermadec Islands region
	LP	eSur	01 17 27							33.4 S 179.3 W
										h about 33 km
										O = 00 29 56.0
										Δ = 101°
										Weak surface waves on LP
14 Oct		eP	01 57 4.9	1	0.7		T			
14 Oct		eP	02 01 15.1	8	1.0		T			
		e	28.0		1.5					
14 Oct		eP	02 11 49.5	4	0.7		T	4.4		Central Kamchatka
		e	54.7		0.8					54.4 N 159.8 E
										h about 120 km
										O = 02 00 57.6
										Δ = 68.5°
14 Oct		eP	02 42 04.4	2	0.9		T			
		e	43 03.1		1.0					
14 Oct		eP	02 51 05.0	8	1.5		T			
14 Oct		eP	04 45 34.3	2	1.0		T			

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
14 Oct		eP	05 26 40.4	5	1.5		T			
14 Oct		eP	06 57 40.7	2	0.9		T			
14 Oct		eP	07 02 52.1	2	0.7	SW	T			
14 Oct		eP e	07 37 29.1 37.6	6	1.2 1.3	WSW	T			
14 Oct		eP	08 14 15.9	5	1.3		T			
14 Oct		eP	09 45 48.4	2	0.9		T	3.4		Off coast of northern California 38.8 N 123.5 W h about 33 km O = 09 41 09.6 Δ = 20.5°
14 Oct		eP e e	10 19 14.0 22.0 28.6	21	1.5 2.0 1.5		T	4.3		Off northern coast of California 38.7 N 124.0 W h about 33 km O = 10 14 32.4 Δ = 20.5 Medium surface waves on LP
	LPN	eS	23 23		20.0					
	LPN	eSur	25 02							
	LP	eScP	27 26		16.0					
14 Oct		eP e	15 22 35.5 53.3	2	1.0 1.2		T	4.7		Near south coast of Kyushu, Japan 31.8 N 131.5 E h about 33 km O = 15 08 59.5 Δ = 98°
14 Oct		eP	15 39 32.3	9	1.6		T			
14 Oct		eP	18 02 51.4	2	0.8		T			
14 Oct		eP e	19 42 23.9 29.9	5	1.1 1.3		T			Weak surface waves on LP.
	LPN	eSur	20 06 47							
14 Oct		eP	20 07 22.3	2	0.9		T			
14 Oct		eP	20 48 57.4	2	0.9		T			
14 Oct		eP	21 26 27.1	6	1.1		T			
15 Oct		eP	00 58 49.7	2	1.0		T			
15 Oct		eP	01 27 48.3	4	1.1		T			

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
962										
5 Oct		eP e	03 06 18.8 24.9	11	1.5 1.4		T	4.7		Arctic Ocean 74.7 N 2.6 E h about 26 km O = 02 56 11.5 Δ = 59°
5 Oct		eP e e	03 21 13.3 22 07.1 24 45.0	91	0.8 1.6 1.0	SE	T			
5 Oct		eP	03 38 49.4	3	0.9		T			Possible PKKP of previous event.
5 Oct		eP	05 30 04.6	2	1.1		T			
5 Oct		eP e	05 31 48.0 35 40.8	4	1.2 1.5		T			
5 Oct		eP e e	08 21 19.9 28.1 52.0	2	0.9 1.8 1.4		T	4.2		Samoa Islands region 16.3 S 173.5 W h about 50 km O = 08 08 38.0 Δ = 87°
5 Oct		eP	08 39 53.3	2	1.2		T			
5 Oct		eP	11 00 24.6	2	0.9		T			
5 Oct		eP	11 54 22.3	1	0.6		T			
5 Oct		eP	12 49 13.1	1	1.0		T			
5 Oct	LP	eSur	14 46 08				T			Kermadec Islands 33.1 S 178.5 W h about 89 km O = 13 59 54.9 Δ = 100° Strong surface waves on LP
Oct		eP e	15 32 40.6 33 40.6	3	0.8 0.8		T			
Oct		eP	17 16 50.0	17	1.9		T			
Oct	E	eP eS	18 09 12.6 33.8	2 999	0.4	SE	NR			Δ (S-P) = 1.6°
Oct		eP eS	21 03 42.0 04 19.8	2	0.4 0.6		NR			Δ (S-P) = 3.1°
Oct		eP	21 10 56.8	3	1.1		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
15 Oct		eP	22 15 22.9	4	1.2		T			
15 Oct		eP	22 54 38.9	4	1.2		T			
15 Oct		eP'	23 55 09.9	10	1.4		T			Near coast of South Island, New Zealand
		ePP	59.4		1.4					43.5 S 169.8 E
16 Oct		ePKKP$_1$	00 05 52.9		1.5					h about 33 km
		ePKKP$_2$	06 00.2		1.0					O = 23 36 35.0
		e	08 40.7		1.2					Δ = 114°
		eSKKP	09 54.8		1.2					Medium surface waves
	LPE	eSur	25 39					4.9		on LP.
	LPN	eSur	30 25							
16 Oct		eP	00 06 43.9	1	0.5	SE	NR			Δ (S-P) = 2.2°
	E	eS	07 11.8		0.5					
16 Oct		eP	00 28 46.1	6	1.3		T			
16 Oct		eP	03 10 58.9	6	1.5		T			
16 Oct		eP	04 06 05.5	2	1.2		T			
		e	23.6		1.4					
16 Oct		eP	05 24 24.6	3	1.3		T			
16 Oct		eP'$_1$	07 35 32.6	10	1.2		T			South of Mascarene Island
		eP'$_2$	36 22.0		1.0					28.3 S 62.5 E
		e	30.1		1.0					h about 33 km
		ePP	40 03.3		1.2					O = 07 15 32.7
		e	15.9		1.4					Δ = 163.5°
16 Oct		eP	09 36 19.0	8	1.2	NW	T			
16 Oct		eP	18 12 11.5	31	1.4		T	5.2		Mag. 5 1/4 (PL)
		e	23.3		1.8					Near Islands, Aleutian I
		ePcP	13 14.1		1.3					51.6 N 175.8 W
		e(PP)	54.5		2.3					h about 27 km
	E	eS	19 57.8		3.2					O = 18 02 32.9
	LP	eSur	28 30							Δ = 56°
										Strong surface waves on LP
16 Oct		eP	20 15 03.8	1	0.4		NR			Δ (S-P) = 3.3°
	E	eS	44.0		0.4					
16 Oct		eP	21 26 55.2	2	0.8		T			
16 Oct		eP	23 05 47.3	4	0.4		NR			Δ (S-P) = 1.7°
		eS	06 09.3	999						
16 Oct		eP	23 49 25.4	2	0.3		NR			Δ (S-P) = 1.7°
		e	34.4		0.4					
		eS	46.8	999						

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
17 Oct		eP	00 58 37.5	5	1.3		T			
17 Oct		eP	12 51 54.8	1	0.9		T	4.0		South of Honshu, Japan
										33.3 N 137.7 E
										h about 335 km
										O = 12 39 12.0
										Δ = 94°
17 Oct		eP	18 08 52.8	3	0.6	NNE	R			
	E	eSur	11 20.4		0.8					
17 Oct		eP	23 28 04.2	1	0.8		T			
17 Oct		eP	23 52 01.0	3	0.5		NR			Δ (S-P) = 2.1°
	E	eS	27.5	999						
18 Oct		eP	04 19 50.7	3	0.9	SE	T			
18 Oct		eP'	04 25 17.3	4	0.6		T			Sumbawa
		epP'	26.2		1.3					8.9 S 117.0 E
		eSKP	28 56.4		2.3					h about 33 km
		e	30 05.5		4.1					O = 04 06 00.4
		e	36 11.7		2.2					Δ = 139°
		ePcSP'	37 07.7		2.0					
		e	39 42.1		3.4					
		e	43 03.1		3.9					
		e	45 55.2		3.5					
18 Oct		eP	06 30 07.4	2	0.9		T			
18 Oct		eP	08 52 42.6	43	0.8		T	5.2		Kurile Islands
		e	53 20.1		0.9					46.5 N 149.6 E
										h about 140 km
										O = 08 40 55.5
										Δ = 79°
18 Oct		eP	11 29 26.0	19	0.8	SE	T			
		e	34.1		0.8					
18 Oct		eP	11 34 29.2	61	1.4		T	5.2		Kurile Islands
		e	35 07.2		1.8					46.5 N 149.5 E
										h about 128 km
										O = 11 22 40.2
										Δ = 79°
19 Oct		eP	18 01 40.0	1	0.3		NR			Δ (S-P) = 1.6°
		eS	02 01.0	999						
19 Oct		eP	19 54 08.1	8	0.5		T	4.4		Chiapas, Mexico
		e	15.0		0.6					16.2 N 93.5 W
		e	17.9		0.4					h about 179 km
		eSur	57 17.9		0.9					O = 19 49 59.2
		eSur	29.0		0.8					Δ = 18.5°

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
18 Oct		eP	20 36 31.2	999			L			Δ (S-P) = 0.1°
		eS	34.9	999						
18 Oct		eP	21 04 35.8	1	0.4		L			Δ (S-P) = 1.3°
		eS	54.3		0.4					
18 Oct		eP	22 26 27.9	2	0.4		NR			Δ (S-P) = 2.6°
	E	eS	59.5		0.5					
18 Oct		eP	23 27 42.7	3	0.3		NR			Δ (S-P) = 1.6°
		eS	28 04.1	999						
18 Oct		eP	23 45 06.2	2	0.4		NR			Δ (S-P) = 1.7°
		eS	28.2	999						
19 Oct		eP	04 24 08.5	26	1.1		T	5.0		San Juan Province, Argentina
		ePcP	28.0		1.0					31.0 S 69.4 W
		epP	39.9		1.2					h about 120 km
		e	55.8		1.1					O = 04 13 03.6
		e(PP)	26 34.9		1.5					Δ = 71°
		eP'P'	52 02.2		1.1					
19 Oct		eP	08 03 22.6	4	1.3		T			
19 Oct		eP	08 15 33.7	4	1.0		T			
19 Oct		eP'	09 58 23.9	4	1.0		T			Sandwich Islands
										56.3 S 26.2 W
										h about 86 km
										O = 09 39 41.9
										Δ = 110°
19 Oct		eP	10 26 33.5	4	0.9		T			
19 Oct		eP'	11 03 37.7	20	1.7		T			Leyte, P.I.
		e(PKKP)	13 21.1		1.6					10.6 N 125.2 E
		ePKKP	52.9		1.5					h about 50 km
	LPE	eSur	42 59							O = 10 44 51.9
										Δ = 119°
										Weak surface waves on LP
19 Oct		eP	12 14 15.8	3	0.8		T			
		e	24.9		0.9					
19 Oct		eP	14 54 53.2	1	0.7		T	3.8		Bolivia
		ePcP	55 36.2		0.8					18.9 S 66.0 W
		e	56 19.3		0.8					h about 211 km
										O = 14 44 56.2
										Δ = 61°
19 Oct		eP	18 03 20.6	3	1.0		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
19 Oct		eP	21 02 29.0	2	0.3		R			Δ (S-P) = 6.7°
	N	eS	04 00.1		0.4					
19 Oct		eP	21 25 46.2	28	1.1		T	4.3		Off west coast of
		e	56.4		1.1					Jalisco, Mexico
	E	eSur	30 49.3		2.3					19.8 N 108.3 W
	LP	eSur	31 08							h about 53 km
										O = 21 21 48.8
										Δ = 17°
										Strong surface waves on all systems
19 Oct		eP	21 38 02.6	999		NE	L			Δ (S-P) = less than 0.1°
		eS	04.4	999						
19 Oct		eP	22 45 05.3	2	0.3	NE	L			Δ (S-P) = 0.3°
	E	eS	10.8		0.5					
		eSur	14.5		1.0					
19 Oct		eP	23 48 25.8	2	0.3		L			Δ (S-P)= 1.6°
		eS	47.1	999						
20 Oct		eP'	00 01 18.4	14	1.0		T			Banda Sea
		ePP	03 13.5		1.1					5.7 S 130.3 E
		eSKKP	14 43.7		1.1					h about 177 km
										O = 19/23 42 34.9
										Δ = 126°
20 Oct		eP	03 50 21.7	4	1.3		T			
		e	53 43.2		1.5					
20 Oct		eP'	05 49 29.1	16	1.1		T			Banda Sea
		ePP	51 30.0		1.4					6.7 S 130.1 E
		e	35.4		1.2					h about 167 km
		e	52 27.8		1.7					O = 05 30 42.2
										Δ = 127°
20 Oct		eP	06 43 10.4	4	0.9		T	4.4		Peru-Bolivia border
		ePcP	59.6		0.8					17.2 S 69.7 W
		e	44 42.2		0.9					h about 153 km
										O = 06 33 29.2
										Δ = 58°
20 Oct		eP	16 30 07.8	2	0.9		T			
20 Oct		eP	00 37 46.5	3	1.0		T			
20 Oct		eP	02 09 12.2	4	1.4		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
21 Oct		eP	02 13 04.1	15	1.1		T	4.7		Vicinity of Anchorage, Alaska
		e	17.6		1.2					61.1 N 149.7 W
		epP	28.7		1.2					h about 80 km
		e	39.8		1.6					O = 02 05 22.7
		e	14 12.4		1.1					Δ = 42°
	LP	ePP	55		18.0					Strong surface waves
		e	59.8		1.7					on LP
	LP	eScP	19 15		17.0					
	LPE	eS	20 09		28.0					
	LPN	eSS	22 37		15.0					
	LP	e	44		24.0					
	LPN	eSur	25 51							
	LP	eSur	26 45							
21 Oct		eP	03 48 10.4	1	0.9		T			
21 Oct		eP	13 20 06.3	2	0.7		T	4.5		Samoa Islands region
		epP	16.5		0.7					15.5 S 172.3 W
	E	eS	30 52.7		2.5					h about 33 km
										O = 13 07 27.9
										Δ = 86°
21 Oct		eP	13 45 25.5	2	1.0		T			
21 Oct		eP	15 33 47.8	4	0.6	SSW	T			
		e	34 17.9		1.0					
21 Oct		eP	23 40 40.7	12	1.6		T			
22 Oct		eP	00 53 50.4	1	0.4	SE	NR			Δ (S-P) = 3.9°
	E	eS	54 36.8		0.5					
22 Oct		eP	02 46 28.1	2	0.8		T			
		e	33.2		1.0					
		e	38.5		1.1					
		e	47.3		1.1					
		e	47 03.4		1.2					
22 Oct		ePP	04 54 03.6		1.7		T			Bismarck Sea
		e	22.2		1.6					3.4 S 145.3 E
	LP	eSur	05 27 15						5.1	h about 36 km
										O = 04 34 38.9
										Δ = 113°
										Medium surface waves
										on LP
22 Oct		eP	13 24 45.4	2	0.6	NW	T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
22 Oct		iP	15 35 03.9	c 31	1.0		T	5.3		Northern Kurile Islands
		ePcP	17.4		0.9					49.8 N 155.8 E
		e	25.7		0.9					h about 19 km
		e	51.1		0.8					O = 15 23 32.9
		e	36 00.1		1.1					Δ = 73°
		ePP	37 31.5		1.2					Strong surface waves
	LPE	eS	44 32		21.0					on LP
	LPN	e	46 16		21.0					
	LPE	eSS	49 13		26.0					
	LP	e	53 29		27.0					
	LP	e	56 12		24.0					
	LPN	eSur	59 40							
	LPN	eSur	16 02 06							
22 Oct		eP	18 09 04.0	2	0.6		NR			Δ (S-P) = 1.7°
	E	eS	25.8		0.4					
22 Oct		eP	20 16 00.0	2	0.6	NE	NR			Δ (S-P) = 5.3°
	N	eS	17 03.2		0.6					
	N	eSur	13.6		0.5					
22 Oct		eP	20 51 30.8	2	0.3		NR			Δ (S-P) = 1.7°
		e	41.3		0.4					
		eS	52.6	999						
22 Oct		eP	21 19 19.2	2	0.4		NR			Δ (S-P) = 3.5°
	E	eS	20 00.9	999						
	N	eSur	06.3		0.5					
22 Oct		eP	21 38 40.4	2	0.3		NR			Δ (S-P) = 1.6°
		eS	39 01.2	999						
22 Oct		eP	22 31 40.5	3	1.0		T	4.5		Honshu, Japan
		epP	52.2		0.8					37.9 N 141.7 E
										h about 38 km
										O = 22 18 50.3
										Δ = 88°
22 Oct		eP	23 42 41.8	3	0.5		NR			Δ (S-P) = 1.6°
		e	51.4		0.4					
		eS	43 03.2	999						
23 Oct		eP	00 38 39.4	21	1.1		T	5.3		Samoa Islands region
		epP	53.0		1.2					15.2 S 173.0 W
		e	39 01.7		0.9					h about 33 km
		e	28.2		0.9					O = 00 26 00.3
	LPN	eS	49 07		20.0					Δ = 86°
	LP	eSur	01 06 35							Weak surface waves
										on LP
23 Oct		eP	00 59 17.4	2	1.1		T	4.1		Kurile Islands
										46.2 N 153.2 E
										h about 33 km
										O = 00 47 27.2
										Δ = 76°

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
23 Oct		eP	02 45 38.9	8	1.1	S	T			
		e	56.8		1.2					
		e	46 12.4		1.0					
23 Oct		eP	04 31 17.2	2	0.8		T			
23 Oct		eP	09 09 03.1	24	1.0		T	5.1		North-central Venezuela 9.5 N 70.0 W h about 33 km O = 09 02 02.2 Δ = 36°
		e	10 10.3		1.5					
		ePP	29.5		1.4					
	LP	eSur	20 09							Weak surface waves on LP
23 Oct		eP	12 32 51.8	8	1.1	SSE	T			
		e	33 03.7		1.1					
		e	23.3		0.9					
		e	37.8		1.1					
23 Oct		iP	16 05 07.1	c 25	0.7		L			Δ (S-P) = less than 0.1°
		eS	10.8	999						
23 Oct		eP	16 23 08.1	3	0.4	SE	L			Δ (S-P) = less than 0.1°
	N	eS	12.3		0.5					
23 Oct		eP	17 56 04.2	46	0.4	NW	L			Δ (S-P) = 0.3°
		eS	09.3	999						
23 Oct		eP	18 12 37.1	2	0.5		NR			Δ (S-P) = 1.6°
		eS	58.3	999						
23 Oct		eP	18 20 46.8	1	0.4		NR			Δ (S-P) = 1.6°
	E	eS	21 08.5	999						
23 Oct		eP	21 28 14.8	4	0.4		NR			Δ (S-P) = 1.7°
		e	25.2		0.4					
		eS	36.8	999						
23 Oct		eP	23 01 47.9	3	0.3		NR			Δ (S-P) = 1.6°
		e	57.5		0.4					
		eS	02 09.2	999						
24 Oct		eP	01 56 30.0	7	1.2		T	4.4		Mona Passage 19.4 N 67.0 W h about 33 km O = 01 50 06.2 Δ = 31.5°
		e	34.9		0.8					
		ePP	57 32.8		1.3					
24 Oct		eP	02 36 56.9	1	0.4		NR			Δ (S-P) = 4.5°
	N	eS	37 51.2		0.5					

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
24 Oct		eP	06 28 18.8	30	1.0		T	4.4		Off coast of Jalisco, Mexico 19.4 N 108.2 W h about 33 km O = 06 24 16.3 Δ = 17° Strong surface waves on all systems
		ePP	31.6		1.2					
		e	59.4							
		e	29 56.9		1.5					
	LPE	eS	31 55		18.0					
	LP	eSur	33 00							
	E	eSur	47		1.9					
	LP	eSur	36 03							
4 Oct		eP	08 20 55.8	5	1.0		T			
		e	21 07.1		0.9					
4 Oct		eP	11 50 38.4	2	0.8		T			
4 Oct		eP	12 39 27.7	7	1.0	SE	T			
		e	48.4		0.8					
4 Oct		eP	15 51 00.1	2	0.9		T			
4 Oct		eP	17 56 51.9	4	0.9	SW	T			Δ (S-P) = 18°
		e	58.5		1.0					Strong surface waves on LP and BB.
		e	57 06.1		1.4					
		e	17.0		1.4					
		e	44.9		1.2					
	LPE	eS	18 00 12		20.0					
	LPE	eSur	01 30							
	E	e	02 26.9		5.5					
4 Oct		eP	20 04 00.4	1	0.5		NR			Δ (S-P) = 2.4°
	N	eS	30.2		0.6					
4 Oct		eP	20 15 59.3	10	0.5		NR			Δ (S-P) = 1.6°
		e	16 09.2		0.5					
		eS	20.4	999						
4 Oct		eP	20 23 45.2	999		SE	NR			Δ (S-P) = 1.9°
		eS	24 08.6	999						
4 Oct		eP	22 01 00.4	2	0.8		T			
4 Oct		eP	23 07 02.4	5	1.4		T	5.0		New Hebrides Islands 17.9 S 168.4 E h about 41 km O = 22 53 09.9 Δ = 102°
		e	15.6		1.5					
Oct		eP	07 46 34.7	6	1.1		T			
Oct		eP	07 47 01.3	5	1.0		T			Possible phase of preceding event
Oct		eP	09 18 15.7	4	0.9		T			
		e	24.0		1.4					

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
25 Oct		eP'	09 53 07.6	57	1.6		T			Molucca Passage
		e	28.7		1.3					3.0 N 126.7 E
		e	56.0		1.2					h about 33 km
		e	54 09.2		1.4					O = 09 34 14.6
		e	48.0		2.2					Δ = 123°
		e	56 27.1		1.4					Strong surface waves,
		e	57 16.8		1.7					Love and Rayleigh type,
		e	42.8		1.2					on LP.
		e	57.1		1.6					
		e	58 17.3		2.0					
	LPE	eSKS	10 00 13		17.0					
	LPE	eSKKS	01 56		19.0					
		$ePKKP_1$	02 56.4		1.3					
		$ePKKP_2$	03 04.1		1.3					
		$ePKKP_3$	21.6		1.0					
	LPE	ePS	04 48		18.0					
	LP	eSPP	06 00		19.0					
		eSKKP	48.4		1.6					
		ePcPP'	07 00.1		1.5					
	LPN	e	12 47		23.0					
	LPE	e	16 06		22.0					
	LPN	eSur	26 07						5.4	
	LP	eSur	31 08							
25 Oct		eP	10 13 27.6	5	1.2		T			
25 Oct		eP	12 14 59.5	11	1.5		T			
25 Oct		eP	12 49 16.3	8	0.8		T	4.7		Fiji Islands region
										15.4 S 179.0 W
										h about 392 km
										O = 12 36 54.4
										Δ = 90.5°
25 Oct		eP	15 58 31.6	44	1.1		T	5.1		Panama-Costa Rica
	LP	e	59 24		10.0					border
		e	39.9		0.8					8.4 N 82.6 W
	LP	e(PP)	47		15.0					h about 51 km
		ePcP	16 01 36.5		0.9					O = 15 52 29.2
	LP	e	02 12		16.0					Δ = 30°
	LP	eSur	03 20							Strong surface waves
	E	e(PcS)	05 48.1		2.5					on LP, weak on BB.
	E	e(ScS)	08 35.0		1.5					
25 Oct		eP	16 03 11.8	42	1.1	SE	T			Probable aftershock of
										Panama-Costa Rica.
										Surface waves interm
25 Oct		eP	16 24 06.9	6	1.4		T			
25 Oct		eP	19 34 14.3	4	1.2		T			

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
25 Oct		eP'	20 25 12.4	6	1.1		T			Southwest of Macquarie
		e	19.2		1.3					Islands
		e	58.1		1.6					61.4 S 154.9 E
		e	26 34.3		1.2					h about 33 km
		e	27 27.6		1.4					O = 20 06 10.0
		e	29 41.1		1.6					Δ = 127°
		e	32 08.0		1.6					
		e(PKKP)	34 27.1		1.5					
25 Oct		eP	20 38 36.6	10	1.4		T			Possible phase of previous event
25 Oct		eP	20 43 34.5	3	0.3		L			Δ (S-P) = 0.5°
	E	eS	42.0		0.4					
	E	eSur	43.6		0.9					
25 Oct		eP	23 02 34.4	4	0.2		NR			Δ (S-P) = 1.7°
		e	44.9		0.4					
		eS	56.5	999						
25 Oct		eP	23 42 47.0	1	0.5		NR			Δ (S-P) = 2.1°
	E	eS	43 14.2		0.4					
26 Oct		eP	04 07 29.0	1	0.9		T			
26 Oct		eP	06 28 15.5	4	1.3		T			
26 Oct		eP	06 41 44.6	5	1.2		T			
26 Oct		eP	07 23 52.3	2	0.8		T			
26 Oct	LPN	eSKS	07 45 08		14.0		T			New Hebrides
	LPN	eS	46 21		20.0					17.7 S 167.5 E
	LPN	ePS	47 50		24.0					h about 33 km
	LPN	ePPS	48 41		22.0					O = 07 20 25.8
		ePKKP	50 33.2		1.3					Δ = 102°
	LP	eSKKP	53 50		23.0					Strong surface waves,
	LP	e	55 30		15.0					Love and Rayleigh , on LP.
	LPE	e	08 04 38							
	LPN	eSur	08 20						5.2	
26 Oct		eP	08 33 50.5	2	0.9		T			
		e	58.8		0.9					
26 Oct		eP	10 25 53.5	3	1.3		T			Δ (S-P) = 68°
		eS	34 53.8		1.7					Weak surface waves
	LPE	eSur	47 57							on LP
26 Oct		eP	10 36 28.8	5	1.2		T			
		e	38 00.3		1.0					

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Magnitude m	M	Remarks
1962												
26 Oct		eP	11	39	35.3	7	1.1		T		5.0	Eastern Mediterranean Sea
		epP			48.8		1.3					33.7 N 27.9 E
		e		43	08.5		1.1					h about 33 km
		ePP			28.2		1.3					O = 11 26 12.4
	LP	eSP		52	12		19.0					Δ = 95°
	LPN	eSS		57	36		22.0					Weak surface waves
	LPN	eSSS	12	01	09		18.0					on LP
	LPN	e		04	42		17.0					
	LPE	eSur		11	38							
	LPE	eSur		24	58							
26 Oct		eP	14	57	39.8	7	0.9	NE	T			
		e		58	02.5		1.3					
26 Oct		e(P')	16	17	26.8	8	1.2		T			Sandwich Islands
	LP	ePP			36		25.0					55.5 S 26.5 W
	LPE	eSKS		23	44		18.0					h about 33 km
	LPE	eSKKS		24	35		17.0					O = 15 58 34.8
	LPN	e		25	10		20.0					Δ = 109°
	LPE	ePS		26	53		23.0					Medium surface waves
		ePKKP		28	24.2		1.2					on LP.
	LPN	eSS		32	42		18.0					
	LPN	eSSS		36	48		24.0					
	LPN	e		39	54		19.0					
	LPN	e		43	52		26.0					
	LPN	eSur		46	05							
	LP	eSur		51	40							
26 Oct		eP'	20	41	53.3	3	0.8		T		4.6	Northern Celebes
												0.1 N 124.1 E
												h about 112 km
												O = 20 22 58.6
												Δ = 127°
26 Oct		eP	21	25	45.0	1	0.3		NR			Δ (S-P) = 2.5°
		e			51.1		0.5					
	N	eS		26	15.8		0.5					
	N	eSur			22.2	999	0.6					
26 Oct		eP	22	26	44.4	4	1.2	NE	T			
		e		28	21.4		1.1					
26 Oct		eP	22	30	24.4	1	0.3		NR			Δ (S-P) = 1.6°
	E	eS			45.0		0.5					
	E	eSur			56.4		0.5					
26 Oct		ePKKP	22	38	54.5		0.6		T			Sandwich Islands
												55.7 S 26.5 W
												h about 33 km
												O = 22 09 05.0
												Δ = 109°

DATE	Syst.	Phase	Arrival Time G.C.T. h.	m.	s.	Ground Motion A	T	Dir.	Type	Magnitude m	M	Remarks
1962												
26 Oct		eP	23	22	08.0	2	0.2		L			Δ (S-P) = 0.4°
	E	eS			15.0		0.3					
		e			18.8		0.5					
		eSur			22.0		0.5					
27 Oct		eP	00	10	11.8	1	0.3	NE	L			Δ (S-P) = 0.6°
	E	eS			21.2		0.4					
		eSur			25.4		0.6					
		eSur			40.9		1.1					
27 Oct		eP	01	24	22.2	2	0.6		T			
27 Oct		eP	02	10	31.5	1	0.6		T			
		e		11	09.5		0.9					
27 Oct		eP	03	53	24.2	3	1.2		T			
27 Oct		eP	06	14	17.1	5	1.2		T			
		e			33.1		1.0					
		e		17	31.0		1.5					
27 Oct		eP	08	15	08.8	11	0.6		T	4.4		Guatemala-El Salvador
		e(pP)			22.6		0.9					border
		ePP			32.2		1.3					14.0 N 90.4 W
		e			49.2		0.9					h about 107 km
		e		18	55.7		2.0					O = 08 10 24.5
		e(S)		19	07.4		0.8					Δ = 21°
	LPE	eS			09		14.0					Strong surface waves
		e		21	06.3		1.3					on LP
	LP	eSur			20							
27 Oct		eP	09	00	46.6	3	1.1		T			
27 Oct		eP	09	32	49.0	2	1.2		T			
27 Oct		eP	10	06	01.5	2	0.6	NW	T			
27 Oct	LP	e	10	45	30		14.0		T			
27 Oct		eP	13	40	00.2	999		NNE	L			Δ (S-P) = less than 0.1°
		eS			02.1	999						
27 Oct		iP	13	58	13.7	c 69	1.0		T	5.1		Near west coast of
		e			24.9		0.8					Nicaragua
		e		59	07.9		1.4					11.5 N 86.4 W
		e	14	00	06.7		1.4					h about 80 km
		ePcP		01	44.7		0.9					O = 13 52 51.2
	LP	e		02	04		17.0					Δ = 25°
	LPE	eS		02	48		21.0					Strong surface waves
	E	e		03	11.2		2.1					on LP
	LPE	e		04	41		19.0					
		e		05	24.2		1.0					
	E	ePcS			25.3		1.0					
	LP	eSur			50							
	N	eScS		09	12.9		0.9					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
27 Oct		eP	14 01 36.1	1	0.3	NE	L			Δ (S-P) = less than 0.1°
	E	eS	39.0		0.3					
27 Oct		eP	16 28 44.2	5	1.0		T	4.5		Rat Islands, Aleutian Is.
		e	55.7		0.8					52.1 N 171.1 W
		e	29 28.5		1.0					h about 60 km
										O = 16 19 30.7
										Δ = 53.0
27 Oct		eP	22 18 52.1	1	0.3	NNW	NR			Δ (S-P) = 2.6°
	E	eS	19 23.9		0.5					
27 Oct		eP	22 23 46.4	1	0.9		T			
28 Oct		eP	01 06 37.8	4	1.0	N	T			
28 Oct		eP	01 16 30.9	1	0.9		T			
		e	46.8		1.0					
28 Oct		eP	12 21 04.7	4	1.3		T			
28 Oct		eP	12 23 25.7	4	1.3		T			
28 Oct		eP	13 07 21.2	15	1.2		T			
28 Oct		eP	13 12 32.9	6	1.1		T			Weak surface waves
		e	15 13.3		1.8					on LP
	LPE	eSur	36 20							
28 Oct		eP	13 46 59.9	8	1.4		T			
28 Oct		eP'	15 19 17.0	14	1.1		T			Northern Celebes
		e	46.2		1.4					0.1 N 123.6 E
		e	50.9		1.2					h about 61 km
		e	20 12.4		1.4					O = 15 00 17.0
		e	22 01.8		1.4					Δ = 127.5°
		e	32 05.2		1.1					
		eSKKP	31.5		1.1					
28 Oct		eP	17 40 42.1	10	1.5		T			
28 Oct		eP	18 02 23.9	5	1.1		T	4.7		Near east coast of
		epP	35.6		1.6					Honshu, Japan
		e(PP)	05 37.3		1.3					37.2 N 141.8 E
										h about 48 km
										O = 17 49 32.0
										Δ = 89°
28 Oct		eP	19 01 02.8	4	0.6	SE	T			
		e	17.9		1.3					
		e	02 23.8		1.0					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
28 Oct		iP	22 57 17.8 c	159	0.6		T	5.5		Chiapas, Mexico
		e	45.3		1.1					16.0 N 93.6 W
		e	58 14.9		1.2					h about 110 km
	LPN	e	36		14.0					O = 22 53 01.3
		eSur	23 00 43.3		1.0					Δ = 19°
		e	01 11.6		1.3					Strong surface waves
		e	25.4		1.1					on all systems
		ePcP	40.6		0.9					
	LPN	eSur	02 14							
29 Oct		eP	00 25 57.9	44	0.9		T	5.4		Off south coast of Panama
		ePP	26 57.2		1.3					7.1 N 82.6 W
		e	27 46.2		1.2					h about 21 km
		e	28 18.3		1.3					O = 00 10 39.7
		ePcP	53.5		0.8					Δ = 31°
	LPE	e	32 02		11.0					Medium surface waves
	E	ePcS	37.2		1.1					on LP
	LPN	e	34 25							
29 Oct		eP	02 46 28.2	28	1.7		R	5.1		Mag. 4 3/4-5 (PS)
		e	35.0		1.5					San Bernadino County,
		e	44.3		1.6					California
		e	47 24.0		1.7					34.3 N 117.0 W
		e	35.4		1.3					h about 33 km
	E	e	48 37.0		1.7					O = 02 42 56.1
		e	45.4		1.4					Δ = 15°
	E	e	53.5		1.7					Strong surface waves on
		e(S)	49 13.5		1.7					all systems
		eSur	50 38.8	999						
29 Oct		eP	07 36 27.6	2	1.0		T			
29 Oct		eP	07 37 01.8	10	0.9	NNW	T			Medium surface waves
	LPE	eSur	08 17 51							on LP
	LPN	eSur	24 06							
29 Oct		eP	09 42 15.6	29	1.4		T	5.1		Central Chile
		e	26.1		1.3					33.9 S 70.7 W
		e	33.6		1.0					h about 33 km
										O = 09 30 48.2
										Δ = 73°
29 Oct		eP	09 57 58.2	11	1.8		T			
29 Oct		eP	10 29 48.4	3	1.4		T			
29 Oct		eP	10 33 56.0	4	1.3		T			
29 Oct		eP	10 58 37.6	78	0.7		T	5.3		Near coast of El Salvador
		epP	50.1		0.8					13.0 N 88.4 W
		ePP	59 07.7		0.9					h about 43 km
		ePcP	11 02 24.2		0.7					O = 10 53 29.9
		e	38.0		0.8					Δ = 23°
										Medium surface waves
										on LP

(continued on following page)

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										(continued from preceding page)
	N	eS	50.3		1.9					
		e	03 01.2		1.6					
		e	39.2		0.9					
		e	04 15.5		1.1					
		eScP	05 59.1		1.0					
	LPE	eSur	07 50							
29 Oct		eP	15 42 02.3	5	1.1		T			
29 Oct		eP	16 16 49.0	21	1.4	(S)	T			Δ (S-P) = 60°
		e(pP)	17 01.0		1.2					Strong surface waves,
		e	38.4		1.4					Love and Rayleigh, on LP
	LPE	eS	25 05		16.0					
	LPN	eSS	29 08		17.0					
	LPE	eSur	32 20							
	LP	eSur	36 48							
29 Oct		eP	21 11 26.3	29	1.4		T	4.8		Easter Island region
		e	33.3		1.4					23.3 S 111.5 W
		e	12 15.7		1.4					h about 33 km
	LPN	eS	19 42		26.0					O = 21 01 28.5
	LP	e	23 22		16.0					Δ = 59°
	LPN	eSS	53		19.0					Strong surface waves,
	LPE	e	26 36		24.0					Love and Rayleigh type,
	LPE	eSur	28 14							on LP.
	LP	eSur	31 25							
29 Oct		eP	21 23 37.4	1	0.3	N	L			Δ (S-P) = 1.3°
	E	eS	55.6		0.4					
	E	eSur	24 13.0		0.5					
29 Oct		eP	21 44 20.6	1	0.3		L			Δ (S-P) = 1.3°
	E	eS	38.5		0.4					
29 Oct		eP	21 58 16.0	2	0.2	NE	L			Δ (S-P) = less than 0.1°
	E	eS	17.9		0.4					
29 Oct		eP	22 02 03.6	1	0.2		L			Δ (S-P) = less than 0.1°
	N	eS	06.9		0.4					
29 Oct		eP	22 02 18.5	1	0.2		NR			Δ (S-P) = 4.2°
		e	27.1		0.3					
	N	eS	03 08.0		0.4					
	N	eSur	24.6		0.5					
29 Oct		eP	22 45 23.0	2	0.4	SE	NR			Δ (S-P) = 1.6°
	N	eS	44.3	999						
29 Oct		eP	22 56 35.3	2	0.3	SE	NR			Δ (S-P) = 1.7°
		e	45.4		0.4					
		eS	56.9	999						

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
9 Oct		eP	23 14 25.5	3	0.4	SE	NR			Δ (S-P) = 1.7°
		e	34.9		0.5					
		eS	47.0	999						
0 Oct		eP'	02 05 34.8	6	1.0		T			Bouvet Islands region
		epP'	44.1		1.1					54.2 S 9.1 E
		ePP	07 18.5		2.2					h about 33 km
		e	08 23.6		1.5					O = 01 46 32.7
	LPE	eSKKKS	14 37		21.0					Δ = 126°
	LP	eScSP	17 41		24.0					Medium surface waves,
	LPE	e(SS)	24 57		32.0					Love and Rayleigh type,
	LP	eSKKKS	25 31		24.0					on LP
	LPE	e	29 22		24.0					
	LPE	e	31 00		34.0					
	LPN	eSur	39 30							
	LP	eSur	45 03						5.0	
0 Oct		eP	04 11 52.8	1	0.7		T			
0 Oct		eP	05 19 20.0	2	0.8	NW	T			
		e	30.5		0.8					
		e	20 07.5		1.4					
0 Oct		eP	08 37 00.8	205	0.8		T	5.6		Off west coast of Nicaragua
		e	15.5		0.8					12.5 N 88.0 W
	LP	e	46		19.0					h about 80 km
	LPN	eSur	41 20							O = 08 31 51.8
	E	eSur	31.0		1.5					Δ = 24°
	LP	eSur	43 38							Strong surface waves
										on all systems.
0 Oct		eP	09 54 10.5	3	1.2		T			
0 Oct	LP	eSur	11 24 00				T			Very weak surface waves
										on LP
0 Oct	LP	eSur	13 23 37				T			Weak surface waves on LP
0 Oct	LP	eSur	13 42 17				T			Weak surface waves on LP
0 Oct		iP	15 24 08.6	c 154	0.7	SE	T			[Δ (S-P) = 24°]
		e	23.6		1.5					Possible aftershock of
		e	32.7		1.1					Nicaraguan event
		e	25 35.0		1.6					with O = 08 31 51.8.
		e	27 03.3		1.3					Weak surface waves
		e	59.4		1.5					on LP.
	N	e(S)	28 16.8		1.4					
	LPN	e	44		16.0					
	LP	e	29 19		19.0					
	LPE	eSur	31 05							
0 Oct		eP	15 33 29.3	6	1.1		T			
0 Oct		eP	15 37 18.7	1	0.2	NE	L			Δ (S-P) = less than 0.1°
		eS	20.7	999						

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
30 Oct	LP	eSur	16 03 55				T			Weak surface waves on LP. Possibly associated with event at 15 33 29.3
30 Oct		eP	17 50 22.7	1	0.2	NE	L			Δ (S-P) = less than 0.1°
		eS	24.6	999						
30 Oct		eP	19 38 24.6	3	0.6	SE	T			
		e	31.5		0.7					
30 Oct		eP	21 08 09.0	9	0.9	(SW)	T			
30 Oct		eP	21 51 17.8	1	0.2		L			Δ (S-P) = 0.4°
	E	eS	24.3		0.3					
	N	eSur	34.2		0.5					
30 Oct		eP	23 01 40.5	2	0.3		NR			Δ (S-P) = 1.7°
		eS	02 02.0	999						
31 Oct		eP	01 13 29.7	4	1.0		T			
31 Oct		iP	11 38 57.6	c 94	1.0		T	5.6		South of Panama
		e	39 14.2		1.1					5.6 N 82.6 W
		ePP	57.4		1.5					h about 33 km
		e	41 20.5		1.3					O = 11 32 29.0
		ePcP	47.4		0.8					Δ = 32°
	LPE	eS	44 17		27.0					Strong surface waves,
		e	45 33.5		1.7					Rayleigh type, on LP.
	LPN	eSS	58		18.0					
	LP	eSur	47 16							
31 Oct		eP	13 37 27.1	5	1.0		T	4.6		Rat Islands, Aleutian Is.
										51.6 N 177.3 E
										h about 83 km
										O = 13 27 25.0
										Δ = 59.5°
31 Oct		eP	17 53 01.4	8	0.7	NE	T			
		e	13.0		0.8					
31 Oct		eP	19 34 36.6	4	0.9	S	T			
		e	46.5		1.0					
	LP	e	42 04		17.0					
31 Oct		eP	21 25 46.5	2	0.3		L			Δ (S-P) = 0.4°
	E	eS	53.6	999						
31 Oct		eP	21 30 32.4	2	0.4	ESE	NR			Δ (S-P) = 2.5°
	E	eS	31 02.9		0.4					
		eSur	10.3		0.4					
31 Oct		eP	21 57 04.0	2	0.5		NR			Δ (S-P) = 1.5°
	E	eS	23.9		0.5					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
31 Oct		eP	22 06 18.1	2	0.3		L			Δ (S-P) = 0.2°
		eS	23.2	999						
		eSur	33.0		0.5					
31 Oct		eP	22 19 02.7	1	0.3		L			Δ (S-P) = 0.3°
	E	eS	09.0		0.3					
		eSur	17.1		0.5					
31 Oct		eP	23 18 52.6	7	1.0		T			
		e	58.6		0.8					

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REGISTRATION OF EARTHQUAKES AT WICHITA MOUNTAINS SEISMOLOGICAL OBSERVATORY FORT SILL, OKLAHOMA, U.S.A.

Operated under the Technical Supervision of the
Air Force Technical Applications Center (AFTAC)

by

The Geotechnical Corporation
Garland, Texas

Advanced Research Projects Agency (ARPA)
Department of Defense
United States Government

THE REGISTRATION OF EARTHQUAKES

AT THE

WICHITA MOUNTAINS SEISMOLOGICAL OBSERVATORY

STATION

STATION ABBREVIATION:	WMSO
STATION IDENTIFICATION ON FILM SEISMOGRAMS:	α **
GEOGRAPHICAL LOCATION *: (Vault No. 6)	34° 43' 05.3" N. Latitude 98° 35' 20.7" W. Longitude
GEOCENTRIC LOCATION *: (Vault No. 6)	34° 32' 09.8" N. Latitude 98° 35' 20.7" W. Longitude
ALTITUDE (Meters) *: (Vault No. 6)	505 meters (1658 feet)
GEOLOGY:	The station is located on the Carlton (porphyritic) granophyre of the Wichita Mountains of Oklahoma.

Noise Level: The periods of the predominant microseisms at WMSO are 0.5 second and 6 seconds. Amplitude distribution curves for the 0.5-second microseisms are shown on page 2 as true ground motion in millimicrons and as trace amplitude in millimeters at the operating gain of 500K. Both curves are 1/2 peak-to-peak.

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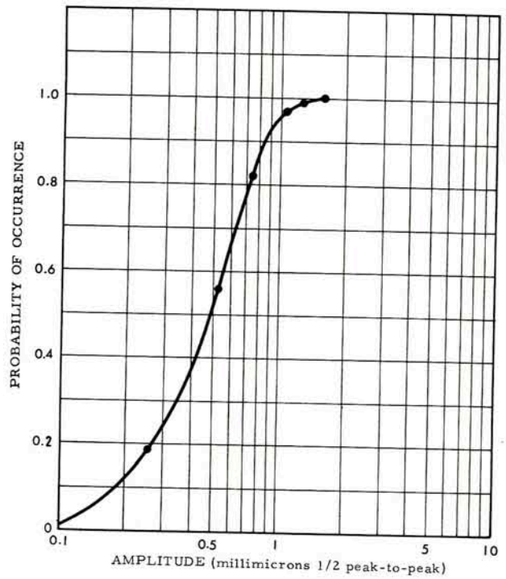
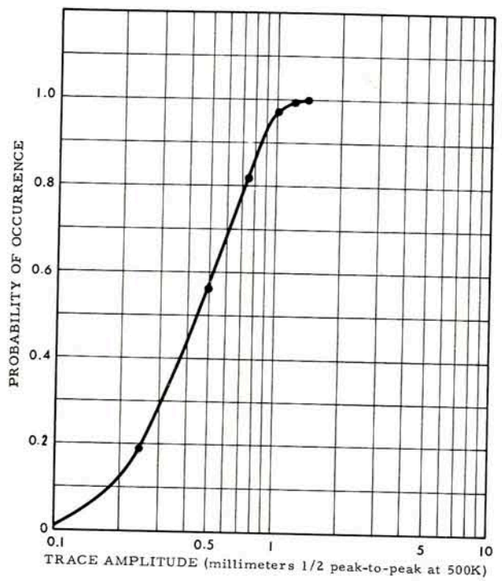
* The coordinates refer to the location of vault No. 6 which houses the 3-component groups of short-period and intermediate-band seismometers from which arrival times are determined.

** WMO after 27 November 1962.



Probability of predominant 0.5-sec microseisms occurring at or less than a given amplitude at unity magnification *



Probability of predominant 0.5-sec microseisms occurring at or less than a given trace amplitude in millimeters at operating gain of 500K *

* Microseismic amplitude measurements are made from individual SP vertical seismogram, JM Z6.

SEISMOGRAPHS

	T_s	λ_s	T_g	λ_g	σ^2
SP Vertical Johnson-Matheson	1.25	0.50	0.32	0.64	0.014
SP Vertical Benioff	1.0	1.0	0.2	1.0	0.01
SP Horizontal Benioff	1.0	1.0	0.2	1.0	0.01
UA SP Vertical Benioff, earth-powered	1.0	0.5	0.0625		0.2
IB Vertical Melton	2.5	0.65	0.64	1.5	0.002
IB Horizontal Sprengnether	2.5	0.65	0.64	1.5	0.0005
BB Vertical Press-Ewing	12.5	0.4	0.64	9.0	0.0002
BB Horizontal Sprengnether	12.5	0.4	0.64	9.0	0.0004
LP Vertical Sprengnether	20.0	0.7	30	1.0	0.004
LP Horizontal Sprengnether	20.0	0.7	30	1.0	0.004

SP = Short Period

UA = Un-amplified (SP Vertical Benioff, earth-powered)

IB = Intermediate Band

BB = Broad Band

LP = Long Period

T_s = Free period of seismometer in secs.

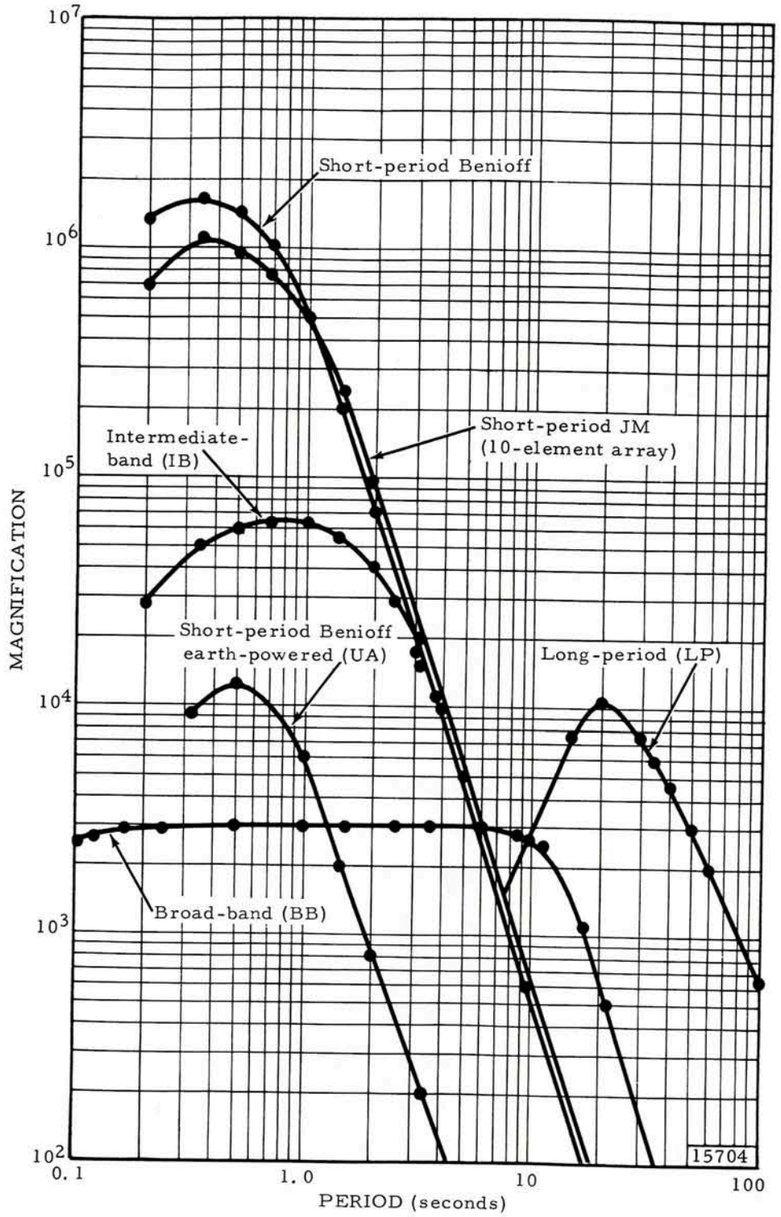
λ_s = Damping constant of seismometer

T_g = Free period of galvanometer in secs.

λ_g = Damping constant of galvanometer

σ^2 = Coupling coefficient

NOTE: Response curves are on page 4.



Response characteristics of seismographs

INTERPRETATION OF SYMBOLS

1. Earthquakes Listed

All local (L), near-regional (NR), regional (R), and distant earthquakes (T) are tabulated on the following pages.

2. System

In the column headed "Syst." (system), the seismograph (SP, UA, IB, BB, or LP) and component (Z, N, or E) used to measure arrival time are designated. When no component designation appears, the phase is read from the vertical component. When neither system nor component designation appears, the phase is read from the SP vertical component.

3. Phase

a. An "i" (impetus) preceding a phase designates sudden beginning of the motion. (A designation of "i" in the case of initial P motion indicates a signal-to-noise ratio exceeding about 5/1.)

b. An "e" (emersio) designates gradual beginning.

c. An "i" or "e" alone designates an unidentified phase.

d. The ( ) (parenthesis marks) indicate uncertainty.

4. Time

a. Date and arrival time are given in Greenwich Civil Time (G.C.T.).

b. The arrival time is reported as the earliest time on Z, N, or E. Single Z rather than the array summation (Σ) is used for measuring arrival times on the SP seismographs.

5. Ground Motion

a. In the columns headed "A" and "T" are tabulated earth displacement in millimicrons and period in seconds, respectively. An amplitude of 999 indicates that a signal cannot be measured reliably. A "c" or "d" in the "A" column indicates compression or dilation, respectively, of the ground as indicated by the vertical component instrument.

The value of "A" for P phases is the maximum amplitude in the first ten seconds. All amplitudes are 1/2 peak to peak amplitudes.

b. Trace amplitudes are measured to the nearest 1/2 millimeter at X10 view.

6. Direction

In the column headed "Dir." (direction), the direction of the epicenter as viewed from WMSO is indicated. For teleseisms, direction is obtained only from P and Rayleigh waves and is listed opposite the phase from which it is obtained. For close events, direction may be obtained from P-wave step-out shown on the individual short-period vertical traces.

7. Type

Earthquakes are identified as either:

L	(local) - - - - - - - - - - - - - -	0-1.4°
NR	(near-regional) - - - - - - - - - -	1.4-6.0°
R	(regional) - - - - - - - - - - - -	6-16°
T	(teleseismic) - - - - - - - - - - -	16-180°

8. Magnitude Column

Magnitudes of earthquakes, as calculated from WMSO seismograms, are reported for all events for which sufficient epicentral information is available, and for which adequate data are available from the WMSO records.

m - - - - - - - - - - - - - - - - - -	Unified Magnitude - calculated from maximum amplitude and predominant period of P wave.
M - - - - - - - - - - - - - - - - - -	Surface Wave Magnitude - calculated from maximum amplitudes of surface waves in the period range 17-23 seconds (reported when P was not recorded or cannot be measured reliably).

No station correction factor has been determined for WMSO to date.

9. Remarks Column

a. Magnitudes, as obtained from the U. S. Coast & Geodetic Survey Preliminary Determination of Epicenter cards, are reported for events recorded at WMSO. The designations for the U. S. Coast & Geodetic Survey stations which report magnitudes are:

B	-	Berkley
PL	-	Palisades
PS	-	Pasadena

b. Epicentral locations, time of origins, and depth of foci are obtained from the U. S. Coast & Geodetic Survey Preliminary Determination of Epicenters cards.

c. The nature of the surface waves is indicated subjectively.

d. Epicentral locations and distances reported by the station are accompanied by an indication of the phases used to determine epicentral distance, e.g., Δ (S-P) = 6°, Central Colorado.

e. Operational notes refer to operational difficulties that affect analysis of data.

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
01 Nov		eP	00 29 02.9	5	1.0		T			
		e	23.3		0.8					
01 Nov		eP	04 12 12.6	6	1.0		T	4.8		South of Hokkaido, Japan 41.8 N 144.8 E h about 91 km O = 03 59 49.9 Δ = 84°
01 Nov		eP	09 12 33.9	26	0.7	SE	T			
		e	17 11.2		0.9					
01 Nov		eP	11 39 15.1	14	1.2		T	4.4		Ecuador 1.5 S 77.8 W h about 181 km O = 11 31 48.7 Δ = 40°
		e	26.8		1.0					
		e(pP)	55.1		1.0					
		e	40 16.1		0.6					
		e	24.8		1.0					
		ePcP	41 11.9		0.7					
		eScP	44 44.8		0.9					
01 Nov	LPE	eSur	14 46 10				T		4.8	New Hebrides Islands
	LP	eSur	51 37							14.5 S 167.6 E h about 204 km O = 14 06 40.5 Δ = 101° Weak surface waves on LP
01 Nov		eP'	15 52 09.6	14	1.5		T			Off coast of western
		e	53 13.8		1.6					New Guinea
		ePP	32.0		1.6					1.9 N 133.0 E
		e	55 11.6		1.4					h about 56 km
		eSKP	39.4		1.8					O = 15 33 22.6
		e	56 32.2		1.5					Δ = 120°
		e	16 01 53.0		1.4					Strong surface waves,
		ePKKP	02 18.7		1.1					Love and Rayleigh type,
	LPE	ePScS	03 27		23.0					on LP.
	LPE	e	04 33		15.0					
	LPE	ePPS	05 31		22.0					
	LPE	e	06 32		21.0					
	LPE	eSS	09 42		26.0					
	LPE	eSSS	14 24		28.0					
	LPE	e	16 10		23.0					
	LPN	eSur	23 28							
	LP	eSur	28 51						5.3	
01 Nov		eP'	18 11 08.3	10	1.3		T			North of western
		e	12 27.4		1.5					New Guinea
		ePP	36.0		1.5					1.9 N 132.8 E
		e	56.9		1.5					h about 36 km
	LPE	eSKKS	19 40		18.0					O = 17 52 20.2
		ePKKP	21 20.7		1.3					Δ = 120°
	LPE	ePS	22 24		24.0					Strong surface waves,
	LPE	ePPS	24 06		20.0					Love and Rayleigh type,

(continued on next page)

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
	LPE	eSS	29 04		26.0					(continued from preceding page)
	LPE	eSSS	33 30		28.0					
	LPN	eSur	43 00							
	LP	eSur	47 52						5.4	
01 Nov		eP	18 13 16.9	3	0.5		NR			Δ (S-P) = 1.6°
		e	26.4		0.4					
		eS	38.2	999						
01 Nov		eP	19 10 01.6	3	0.3		L			Δ (S-P) = 0.2°
		eS	06.4	999						
		eSur	10.1	999						
01 Nov		eP	20 19 14.9	7	1.0	E	T			
01 Nov		eP	20 21 03.1	2	0.3	SE	NR			Δ (S-P) = 1.7°
		eS	24.8	999						
01 Nov		eP	21 58 48.7	4	0.5	SE	NR			Δ (S-P) = 1.6°
		eS	59 10.0	999						
01 Nov		iP	22 39 34.0	c 26	0.5		L			Δ (S-P) = less than 0.1°
		eS	35.6	999						
01 Nov		eP	23 33 09.5	12	0.9		T	4.7		Kurile Islands
		ePP	36 14.4		1.3					43.9 N 145.2 E
										h about 131 km
										O = 23 20 59.6
										Δ = 82°
02 Nov		eP	06 46 45.8	2	0.8		T			
02 Nov		eP	07 20 37.3	8	1.2		T			
	LP	eSur	52 50							
02 Nov		eP'	15 05 58.0	6	0.9		T			South of Sumbawa
		e	06 11.4		0.9					10.0 S 117.8 E
		e	53.1		1.1					h about 33 km
		ePP	09 02.0		1.2					O = 14 46 39.2
		$eSKP_1$	34.0		1.5					Δ = 139°
		$eSKP_2$	57.8		1.2					Medium surface waves
		e	10 13.0		1.1					on LP.
	LPE	eSKKS	15 52		22.0					
	LP	eSPP	21 10		17.0					
	LPE	eSKKS	22 31		22.0					
	LPE	eSS	27 35		22.0					
	LPN	eSur	49 52						5.0	
02 Nov		eP	15 13 14.6	8	0.9		T	5.0		Near east coast of
		e	29.5		1.2					Honshu, Japan
										36.7 N 141.1 E
										h about 75 km
										O = 15 00 25.4
										Δ = 89°

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
02 Nov		eP'	15 32 15.2	15	1.7		T			South of Sumbawa
		e	33.4		0.7					10.2 S 117.6 E
										h about 33 km
										O = 15 12 37.2
										Δ = 139.5°
02 Nov		eP	16 52 54.7	5	1.1		T			
02 Nov		eP	19 16 02.7	17	1.5		T	4.9		Fox Islands, Aleutian Is.
		e	54.9		1.1					52.5 N 170.7 W
										h about 84 km
										O = 19 06 54.3
										Δ = 52.5°
02 Nov		eP	20 05 14.3	4	0.3		NR			Δ (S-P) = 3.1°
		e	18.5		0.5					
	E	eS	52.1		0.6					
	E	eSur	58.6		0.6					
02 Nov		eP	20 16 48.4	4	0.7		NR			Δ (S-P) = 2.5°
	N	eS	17 19.2		0.4					
		eSur	24.3	999						
02 Nov		eP	22 56 57.3	3	0.3	SE	NR			Δ (S-P) = 1.7°
		e	57 07.5		0.4					
		eS	19.2	999						
02 Nov		eP	23 43 07.1	2	0.5		NR			Δ (S-P) = 2.2°
		eS	33.9	999						
03 Nov		eP	00 27 09.1	4	1.3		T			
03 Nov		eP	01 42 57.5	16	1.0		T	4.7		1500 miles southwest
		ePcP	44 53.4		0.9					of Galapagos Islands
		e	45 17.3		1.5					6.7 S 104.7 W
										h about 33 km
										O = 01 35 10.6
										Δ = 42°
03 Nov	LP	eSur	01 49 51				T		5.1	Solomon Islands
										7.9 S 158.3 E
										h about 86 km
										O = 01 00 24.9
										Δ = 104°
										Strong surface waves,
										Rayleigh type, on LP.
03 Nov		eP'	05 19 48.1	3	1.0		T			South of Sumbawa
		e	20 19.5		1.0					10.3 S 117.8 E
										h about 33 km
										O = 05 00 29.7
										Δ = 139.5°

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
03 Nov		eP	06 51 30.4	4	1.0		R			
	E	eSur	55 29.3		1.1					
03 Nov		eP	07 02 50.4	4	1.1		T			
03 Nov		eP	07 10 50.4	3	0.7		T			
		e	11 03.1		1.0					
03 Nov		eP	13 14 13.0	11	1.2	(SE)	T			
		e	24.1		1.0					
		e	37.4		1.0					
		e	15 20.4		1.2					
03 Nov		eP	14 32 21.1	20	1.6		T	5.0		Arctic Ocean 72.1 N 2.5 E h about 45 km O = 14 22 14.7 Δ = 60° Weak surface waves on LP
	LP	ePcP	33 08.7		1.0					
		eSur	55 50							
03 Nov		eP	14 45 47.3	6	0.4	S	NR			Δ (S-P) = 1.4°
		eS	46 06.0	999						
03 Nov		eP	15 48 06.9	2	0.7		T			
03 Nov	N	eSur	16 02 10.0		1.5		(R)			
03 Nov		eP'	19 23 51.8	8	0.7		T			Southern Sumatra 4.5 S 103.4 E h about 33 km O = 19 04 20.8 Δ = 144°
04 Nov		eP	04 57 48.7	9	0.7	E	T			
		e	59 32.5		0.8					
04 Nov		eP	06 21 50.5	2	0.8		R	3.8		Yellowstone National Park, Wyoming 44.2 N 110.2 W h about 33 km O = 06 18 31.3 Δ = 13° Start is indefinite
		e	22 36.0		1.0					
	E	eSur	25 15.6		1.5					
04 Nov		eP	08 10 10.3	2	0.9		T			
04 Nov		eP	15 47 59.9	3	0.9		T			
		e	48 21.9		0.8					
04 Nov		eP	16 28 19.7	4	1.0		T			
		e	32.0		0.9	S(E)				
04 Nov		eP	18 12 50.4	8	0.7	SE	T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
04 Nov		eP	21 20 52.4	2	0.7		T	4.7		Tonga Islands region 23.1 S 176.5 W h about 33 km O = 21 07 37.4 Δ = 93°
		e	21 13.1		0.7					
04 Nov		eP	23 05 42.4	144	1.4		T	5.8		Mag. 5 3/4-6 (PS) 5 1/2 (PL). Off coast of southern Chile 43.2 S 75.6 W h about 33 km O = 22 53 34.2 Δ = 80.5° Strong surface waves, Love and Rayleigh type, on LP.
		e	58.7		1.7					
		e	06 20.6		1.5					
		e	34.8		1.8					
		e	07 07.7		1.5					
		e	08 08.8		1.6					
		ePP	38.2		1.5					
	LP	ePP	54		14.0					
		e	13 45.5		1.2					
	LP	eS	15 45	999						
	LP	ePS	16 33	999						
	LPE	eSS	20 49		24.0					
		ePKKP	24 23.1		1.0					
	LPE	eSSS	34		25.0					
	LPN	e	27 14		27.0					
	LPN	eSur	28 04							
	LP	eSur	32 32							
		eP'P'	37.1		1.3					
05 Nov		eP	00 49 59.8	6	1.1		T			
		e	50 24.8		0.7					
05 Nov		eP	10 43 07.3	4	0.9		T			
		e	12.8		0.7					
05 Nov		eP	11 25 45.7	2	0.7		T			
05 Nov		eP	11 56 46.4	3	0.9		T	4.4		Off coast of Norway 66.4 N 6.8 E h about 33 km O = 11 46 12.1 Δ = 63°
		e	56.8		1.3					
		e	57 20.3		1.0					
05 Nov		eP	14 27 18.4	3	1.0		T			
05 Nov		eP	18 07 05.5	11	0.6	NE	L			Δ (S-P) = less than 0.1°
		eS	08.0	999						
05 Nov		eP	18 18 28.6	15	0.6		L			Δ (S-P) = less than 0.1°
		eS	31.7	999						
05 Nov		eP	21 07 15.2	9	1.3		T	4.8		South Pacific Ocean 49.8 S 114.9 W h about 33 km O = 20 54 41.1 Δ = 86° Medium surface on LP.
		e	36.0		1.3					
	LPN	eSur	38 03							
05 Nov		eP	21 28 35.1	2	0.3	SE	NR			Δ (S-P) = 1.7°
		eS	56.9	999						

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
05 Nov		eP	23 02 00.4	2	0.3	SE	NR			Δ (S-P) = 1.7°
		eS	22.0	999						
05 Nov		eP	23 19 39.7	6	0.6	S	R			
		e	48.6		0.5					
		e	20 12.7		0.8					
		eSur	22 55.7	999						
05 Nov		eP	23 27 44.4	4	1.1		T			
06 Nov		eP'	00 28 23.1	8	0.6		T			Southern Iran
		e	30.3		0.6					28.0 N 55.6 E
		e	51.7		0.7					h about 33 km
		e	29 12.2		0.9					O = 00 09 47.2
		ePP	16.8		2.2					Δ = 112°
		e	30 44.1		1.8					Strong surface waves
		e	31 28.6		1.5					on LP.
	LPN	e(PS)	38 56		24.0					
		ePKKP	39 10.7		1.4					
	LP	eSPP	40 05		18.0					
	LPN	e	41 49		16.0					
	LPN	eSSS	48 52		34.0					
	LPN	e	53 32		26.0					
	LPN	eSur	01 00 03						5.4	
06 Nov		eP	03 41 29.3	100	1.0		T	5.1		Mag. = 4 3/4 (BRK),
		e	42 00.6		1.0					5 1/4-5 1/2 (PL)
		e	52.5		1.4					Oregon-Washington border
		e	43 06.6		1.4					45.8 N 122.5 W
	LPN	e	45 34		18.0					h about 44 km
	LPN	e	46 13		14.0					O = 03 36 46.9
	LPN	e	47 15		35.0					Δ = 20°
	E	eSur	56.0		2.5					Strong surface waves
	LPN	e	48 05	999						on all systems.
	LP	eSur	49 44	999						
06 Nov		eP	12 01 13.9	5	1.3		T	3.6		Nevada-California border
										37.5 N 119.0 W
										h about 33 km
										O = 11 57 17.0
										Δ = 16°
06 Nov		eP	12 31 10.3	9	0.9		T	4.5		Near coast of Ecuador
		e(pP)	28.1		1.0					4.0 S 79.8 W
		e	41.6		1.4					h about 101 km
		e	54.9		1.2					O = 12 23 24.6
		e	32 11.9		0.9					Δ = 43°
		e	26.3		1.1					Phase at 12 33 26.6 is
		ePcP	33 01.6		0.8					possible new event.
		e	26.6		1.0					
06 Nov		eP	15 14 30.5	3	0.7		T	4.1		Mona Passage
		e	41.3		0.7					17.3 N 68.3 W
										h about 33 km
										O = 15 08 05.1
										Δ = 32°

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
06 Nov		eP	17 38 55.3	4	0.3	ENE	L			Δ (S-P) = 0.3°
		eS	39 01.3	999						
	E	eSur	08.2		0.6					
06 Nov		eP	19 52 05.3	1	0.4		NR			Δ (S-P) = 2.5°
	E	eS	36.8		0.3					
	E	eSur	42.9		0.4					
06 Nov		eP'	21 07 34.1	6	1.4		T			Near west coast of Panay,
		ePP	09 19.2		1.3					Philippine Islands
	LPE	e	20 56		16.0					10.5 N 121.9 E
	LPN	e	43 09		23.0					h about 33 km
	LP	eSur	48 20						4.7	O = 20 48 42.4
										Δ = 121°
										Weak surface waves on LP
06 Nov		iP	23 16 31.7	c 23	0.5		NE L			Δ (S-P) = less than 0.1°
		eS	33.4	999						
07 Nov		eP	05 24 29.3	2	0.7		T	4.3		Fiji Islands region
										19.9 S 178.5 W
										h about 600 km
										O = 05 12 17.3
										Δ = 93°
07 Nov		eP	10 08 08.5	2	1.1		T			
07 Nov		eP	10 31 58.4	4	1.3		T			
07 Nov		eP	13 07 07.4	34	1.2		T	5.2		Azores
		e	16.7		2.0					40.5 N 29.4 W
		e	39.2		1.3					h about 33 km
		e	47.2		1.8					O = 12 57 45.7
		e	08 06.6		1.8					Δ = 53°
		e(PcP)	12.9		1.3					Medium surface waves
		e	32.3		1.4					on LP
		e	09 38.0		2.2					
	LPN	e(S)	14 58		16.0					
	LP	eSur	24 12							
07 Nov		eP'	16 21 56.3	4	0.8		T			Flores Sea
		e	22 18.8		0.9					7.8 S 119.8 E
		e	37.9		0.8					h about 156 km
		eSKP	25 20.9		1.4					O = 16 03 04.1
		e	26 51.8		1.5					Δ = 135.5°
		e	34 08.5		1.0					
	LP	e(SP)	35		16.0					
	LP	eSPP	37 05		17.0					
07 Nov		eP	17 28 03.9	4	1.1		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
07 Nov		eP'	20 21 38.3	32	2.0		T			Batan Islands, Philippine Islands region 20.4 N 122.1 E h about 57 km O = 20 02 12.8 Δ = 113°
07 Nov		eP	21 30 52.5	3	0.4	SE	NR			Δ (S-P) = 1.7°
		e	31 02.8		0.4					
		eS	14.4	999						
07 Nov		eP	21 51 31.4	2	0.5		NR			Δ (S-P) = 2.3°
	E	eS	52 00.6		0.5					
		eSur	06.8	999						
07 Nov		eP	22 36 43.8	3	1.0		T	4.2		Rat Islands, Aleutian Islands 51.5 N 176.1 E h about 43 km O = 22 26 33.8 Δ = 60°
		e	59.2		0.9					
		e	37 16.8		1.2					
		e(PcP)	30.4		1.1					
		ePP	38 55.9		1.6					
	LP	eSur	23 02 00							Weak surface waves on LP
07 Nov		eP	22 53 44.0	2	0.3		NR			Δ (S-P) = 1.6°
		eS	54 05.2	999						
08 Nov		eP	00 11 32.0	7	0.9		T	4.7		Near coast of southern Peru 15.1 S 75.6 W h about 33 km O = 00 02 08.6 Δ = 54° Medium surface waves on LP.
		e	40.5		1.7					
		e	12 10.7		2.1					
		ePcP	36.8		0.9					
		ePP	13 29.4		1.1					
		e	52.3		1.0					
		e	14 09.5		1.2					
		e	45.6		1.3					
	LPN	eS	19 12		22.0					
	LPN	e(ScS)	21 28		22.0					
	LPN	e(Sur)	27 29							
	LP	eSur	29 32							
08 Nov		eP	00 40 41.9	19	1.4		T	4.7		1700 km southwest of Galapagos Islands 4.4 S 105.5 W h about 33 km O = 00 33 13.4 Δ = 40° Strong surface waves, Love and Rayleigh type, on LP. Strong Rayleigh type waves on BB.
		e	41 18.6		2.0					
		e	31.0		1.8					
		e	42.7		2.2					
		ePP	42 06.4		2.3					
		e	49.1		1.9					
		ePcP	55.9		1.3					
		e	43 12.9		2.1					
	LPE	eS	46 51		20.0					
	LPE	eSS	49 53		21.0					
	LPN	eScS	50 04		18.0					
	LPN	eSur	51 33							
	LP	eSur	52 15							
08 Nov		eP	01 52 11.2	9	1.6		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
08 Nov		eP	02 36 11.6	5	1.6		T			
08 Nov		eP	02 38 20.5	10	1.3		T			Δ (PcP-P) = 38° Probably associated with Galapagos Islands event. Weak surface waves on LP Δ = 40°
		e	29.7		1.0					
		e	39 21.7		1.4					
		ePcP	40 37.4		1.0					
		e	52.0		1.3					
		e	42 10.8		1.5					
		e	44 38.8		1.1					
	LPE	e(SS)	47 40		20.0					
	LPN	eSur	49 36							
08 Nov		eP	03 38 21.0	2	0.8		T			
08 Nov		eP	03 46 02.3	5	1.4		T			
08 Nov		eP	04 43 11.3	3	1.3		T			
08 Nov	LP	eSur	08 40 54				T		4.3	Loyalty Islands region 20.1 S 168.8 E h about 33 km O = 07 48 44.7 Δ = 103° Medium surface waves on LP.
08 Nov		eP	10 05 52.2	3	1.1		T			
		e	06 07.6		0.7					
08 Nov		eP	11 29 16.0	4	1.4		T			
08 Nov	E	eSur	16 31 58.2		1.1		(R)			
08 Nov		eP	16 59 07.3	2	0.5	SE	NR			Δ (S-P) = 1.7°
		eS	28.8	999						
08 Nov		eP	17 54 19.4	3	0.4	E	NR			Δ (S-P) = 1.9°
		eS	42.4	999						
08 Nov		iP	18 03 21.3	c 14	0.3	NE	L			Δ (S-P) = less than 0.1°
		eS	22.4	999						
08 Nov		iP	18 17 59.7	c 11	0.3	NE	L			Δ (S-P) = less than 0.1°
		eS	18 03.1	999						
08 Nov		eP	19 00 04.8	3	0.9		T		4.0	Kurile Islands 45.2 N 147.2 E h about 148 km O = 18 48 06.3 Δ = 80°
		e	01 03.4		1.5					
08 Nov		eP	19 05 16.6	20	1.7		T			
		e	06 55.2		1.5					

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
08 Nov		eP	19 11 22.0	8	0.3	NE	L			Δ(S-P) = less than 0.1°
		eS	25.5	999						
08 Nov		eP	20 40 35.8	15	1.4		T			
		e	41 11.6		1.2					
		e	42 08.0		1.3					
08 Nov		eP	21 22 12.4	2	0.5		NR			[Δ(S-P) = 3.0°]
		e	18.5		0.5					
		e	36.1		0.7					
	E	e(S)	49.7		0.7					
	E	eSur	56.6		0.6					
08 Nov		eP	21 26 11.1	22	1.5		T	5.1		Near Islands, Aleutian Is.
		e	22.5		1.6					52.0 N 174.9 E
		e	30.0		1.7					h about 33 km
		ePcP	53.5		1.2					O = 21 15 56.0
		e	27 16.2		1.5					Δ = 61°
		e	24.9		1.4					Medium surface waves,
		e	49.1		1.5					Love and Rayleigh type,
		e	56.9		1.2					on LP.
		ePP	28 18.7		1.7					
		e	32 52.9		1.3					
	LPN	eSur	44 40							
	LP	eSur	48 04							
08 Nov		eP	22 56 34.1	2	1.1		T			
08 Nov	N	eSur	22 58 06.4		1.1		(R)			
08 Nov		eP	23 11 07.4	3	0.3		NR			Δ(S-P) = 1.7°
		e	17.5		0.3					
		eS	29.1	999						
09 Nov		eP	00 06 00.5	3	1.0		T			
		e	09.6		1.2					
09 Nov		eP	00 07 57.1	21	1.0	S	T			
		e	08 06.0		0.7					
		e	42.9		1.3					
09 Nov		eP	00 42 39.9	2	0.5		L			Δ(S-P) = 1.3°
	E	eS	56.7		0.4					
09 Nov		eP	01 25 02.0	1	1.0		T	4.8		Iraq-Iran border region
		e	28 33.8		1.0					33.4 N 47.2 E
		ePP	29 29.3		2.2					h about 33 km
		e	39 02.5		1.2					O = 01 11 02.1
		ePKKP	41 08.0		0.8					Δ = 105°
	LPE	eSur	59 56							Weak surface waves,
	LP	eSur	02 08 00							Love and Rayleigh type,
										on LP.
09 Nov		eP	03 15 46.4	2	1.0		T			

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
09 Nov		eP	05 11 07.6	2	0.6		T			
	LP	eSur	06 01 09			(N)				Medium surface waves on LP. Surface possibly assoc. with separate event.
09 Nov		eP	09 34 32.4	13	1.0		T	5.2		Near east coast of
		e	39.1		1.0					Honshu, Japan
		e	49.5		1.1					35.8 N 140.3 E
		e	35 04.3		1.1					h about 33 km
										O = 09 21 30.8
										Δ = 89°
09 Nov	LP	eSur	17 06 04				T			Weak surface waves on LP.
09 Nov		eP	17 29 05.4	8	1.4		T			
09 Nov		eP	18 14 12.4	2	0.3	SE	NR			Δ (S-P) = 1.6°
		e	21.8		0.3					
		eS	33.8	999						
09 Nov		eP	18 18 09.8	15	1.1		T	5.0		Azores
		e	14.4		1.5					40.3 N 29.3 W
		e(PcP)	19 16.6		1.2					h about 33 km
		e	49.6		1.2					O = 18 08 47.9
		e	20 31.3		1.1					Δ = 54°
	LPN	eSur	34 31							Medium surface waves,
	LP	eSur	35 52							Love and Rayleigh type,
										on LP.
09 Nov		iP	19 19 03.6	c 7	0.2	NNE	L			Δ (S-P) = less than 0.1°
		eS	06.0	999						
09 Nov		eP	20 50 21.6	6	1.1		T			
09 Nov		eP	21 18 30.5	2	1.0		R	3.8		Gulf of California
		e	47.9		0.9					24.8 N 109.2 W
		e	56.4		1.0					h about 33 km
		e	19 26.7		1.0					O = 21 15 21.7
		e	50.2		1.1					Δ = 13°
		e	20 08.1		1.2					Medium surface waves,
		e	41.9		1.2					Love and Rayleigh type on
		e	21 24.9		1.9					LP, weak Rayleigh type
	E	eSur	22 30.0		1.1					on BB.
	LPE	eSur	35							
	BB	eSur	23 06							
	LP	eSur	54							
09 Nov		eP	21 42 48.9	2	0.3	E	NR			Δ (S-P) = 2.3°
	E	eS	43 17.8		0.5					
09 Nov		eP	22 47 56.0	13	0.2	N	L			Δ (S-P) = less than 0.1°
		eS	59.8	999						

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
09 Nov		eP	22 54 48.5	2	0.5		NR			Δ (S-P) = 2.2°
	E	eS	55 15.1		0.5					
09 Nov		eP	22 57 15.4	1	0.4		NR			Δ (S-P) = 3.8°
	E	eS	58 01.6		0.4					
09 Nov		eP	23 37 11.6	2	0.4		NR			Δ (S-P) = 4.6°
	E	eS	38 07.2		0.4					
10 Nov		eP	00 18 00.6	6	1.3		T			
10 Nov		eP	00 51 16.0	9	1.4		T			
10 Nov		iP	01 45 31.5	c 308	1.6		T	6.0		Mag. = 5 1/2 (PL) Kurile Islands region 43.8 N 147.2 E h about 60 km O = 01 33 19.0 Δ = 80.5° Strong surface waves, Love and Rayleigh type, on LP.
		e	46 24.8		1.0					
		e	47 00.9		1.4					
		e	48 11.8		1.4					
		ePP	28.8		2.2					
		e	49 03.0		2.2					
		e	45.7		1.7					
	LP	ePPP	50 37		16.0					
		e	59.8		1.7					
		e	51 24.0		1.5					
		e	52 34.9		2.2					
		e	53 26.3		2.2					
		e	54 53.6		1.6					
		e	55 15.8		1.9					
	N	eS	38.1		2.5					
	LPN	eS	41		20.0					
	E	eSKS	47.3		2.8					
	E	eScS	56 05.7		2.9					
		e	13.6		1.4					
	LPE	ePPS	50		20.0					
	LP	e	57 03		15.0					
		e	09.5		1.6					
	E	e	58 02.8		1.5					
		e	59.5		1.3					
	LP	e	59 07		17.0					
	LPN	eSS	02 00 36		28.0					
	LPE	e	01 46		27.0					
		e	02 42.8		1.4					
	LPE	e	03 32		20.0					
		ePKKP	04 03.0		1.7					
	LPN	eSSS	07		33.0					
	LPN	e(Sur)	07 16							
	LPN	eSur	08 45							
		eP'P'	12 06.1		1.7					
	LP	eSur	59							
10 Nov		eP	05 57 37.1	3	0.8		T			
		e	45.5		0.8					
10 Nov		eP	06 00 22.6	2	1.0		T			
		e	35.6		1.0					

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
10 Nov		eP	09 33 31.3	8	1.5		T			Strong surface waves, Love and Rayleigh type, on LP. Surface possibly assoc. with separate event.
		e	42.5		1.1					
	LPN	e	40 25		17.0					
	LPN	eSur	52 04							
	LP	eSur	55 16							
10 Nov		eP	09 47 18.1	3	1.2		T			
10 Nov		eP	10 08 53.3	2	0.7		T			
		e	09 04.8		1.0					
10 Nov		eP	10 16 21.6	19	0.8	SE	T			
		e	31.7		0.9					
		e	45.2		0.8					
		e	51.6		0.9					
10 Nov		eP	10 22 35.8	6	1.2		T			Possible phase of preceding event.
10 Nov		eP	10 46 42.3	27	0.9	SE	T			
		e	50.6		0.8					
		e	47 01.9		1.2					
		e	28.9		1.0					
		e	47.8		1.7					
10 Nov		eP	10 54 48.6	20	0.8	SE	T			
		e	56.8		1.0					
		e	59.0		1.0					
		e	55 09.3		1.2					
		e	20.0		1.2					
		e	29.4		1.1					
		e	54.5		1.1					
10 Nov		eP	12 14 49.7	4	0.9		T			
10 Nov		eP	16 26 22.3	3	0.2		L			Δ (S-P) = less than 0.1°
		eS	24.5	999						
10 Nov		eP	20 42 01.3	27	2.0		T			
		e	11.5		1.3					
		e	29.7		1.7					
		e	43 03.8		1.5					
		e	26.8		1.5					
10 Nov		eP	20 57 15.4	4	1.0		T			
		e	59 15.1		1.1					
10 Nov		eP	21 36 23.4	4	1.1		T			
		e	30.7		1.2					
		e	39.1		1.1					
10 Nov		eP	22 35 54.9	2	1.1		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
11 Nov		eP	00 57 00.3	6	1.0	S	T			
11 Nov		eP	03 59 51.8	7	1.5		T	4.3		Ecuador
		ePcP	04 02 01.3		0.9					1.2 S 78.8 W
										h about 59 km
										O = 03 52 19.4
										$\Delta = 40^{o}$
11 Nov		eP	04 41 45.0	4	1.4		T			
11 Nov		eP	06 15 30.9	2	0.5		T			
11 Nov		eP	06 58 24.2	5	1.4		T			
11 Nov		eP	07 23 55.6	2	1.1		T			
11 Nov		eP'_1	07 59 18.6	48	1.8		T			Mascarene Islands group
		e	25.0		1.6					28.9 S 69.5 E
		e	28.8		1.7					h about 33 km
		e	41.0		2.1					O = 07 39 15.4
		e	08 00 13.4		1.3					$\Delta = 167^{o}$
		eP'_2	15.5	60	1.6					Strong surface waves,
		e	21.8		1.2					Rayleigh type, on LP.
		e	26.4		1.5					
		e	38.8		1.3					
		e	01 13.2		1.6					
		e	42.8		2.8					
		ePP	04 02.1		1.9					
		e	48.4		1.8					
		e	59.6		2.0					
		ePcPP'	07 25.4		1.0					
	LP	eSur	09 01 25					5.5		
11 Nov		eP	10 13 27.7	21	1.5	S	T			
		e	34.1		1.3					
		e	44.2		1.1					
11 Nov		eP'_1	10 51 51.7	39	2.0		T			Mascarene Islands group
		eP'_2	52 48.6	8	1.1					23.8 S 69.4 E
		e	58.9		1.4					h about 33 km
		e	54 32.5		1.2					O = 10 31 48.3
		e	56 15.1		1.2					$\Delta = 164.5^{o}$
		ePP	39.4		1.9					
		e	57 59.5		1.1					
11 Nov		eP	11 44 22.4	37	1.4		T	5.4		Mag. = 6 1/4-6 3/4 (PS)
		e	26.8		1.2					Lake Baikal region, USSR
		e	30.5		2.4					55.8 N 113.1 E
		e	43.0		0.8					h about 33 km
		e	53.3		1.4					O = 11 31 44.5
		e	45 30.2		1.2					$\Delta = 85^{o}$
		e	55.2		1.9					Strong surface waves, Love
										and Rayleigh type, on LP,
										Weak on BB.

(continued on next page)

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
		e	46 07.9		1.2					(continued from preceding page)
		e	22.1		0.9					
		e	41.5		1.8					
		e(PP)	47 39.7		1.2					
		e	48 16.6		1.0					
		e	49 07.7		1.0					
		e	58.3		1.1					
	LPN	e	54 12		18.0					
	LPN	e(ScS)	55 00		21.0					
	LPN	e	12 09 00		19.0					
	LPN	eSur	12 29							
	LP	eSur	15 44							
	LP	eSur	19 16							
11 Nov		eP	12 09 59.7	10	0.8		T	4.9		Fiji Islands
										19.3 S 177.6 W
										h about 547 km
										O = 11 57 47.9
										$\Delta = 92^{o}$
11 Nov		e	15 35 18.6		1.2		T			Red Sea
		ePP	27.3		2.0					17.2 N 40.7 E
		ePKKP	44 54.9		1.4					h about 34 km
	LP	eSur	16 09 00					5.4		O = 15 15 33.6
										$\Delta = 115^{o}$
										Medium surface waves
										on LP
11 Nov		e(P)	16 24 05.5	6	1.0		T	(5.2)		Mag. = 6-6 1/4 (PS)
		e	13.3		0.9					Santa Cruz Islands
		e	33.2		1.1					12.9 S 166.5 E
		e	26 45.4		1.6					h about 77 km
		e(PP)	28 13.8		1.9					O = 16 09 57.6
	LPN	e(PS)	37 17		26.0					$\Delta = 101^{o}$
	LP	e(SPP)	38 10		20.0					Strong surface waves, Love
	LPN	e(SS)	43 02		24.0					and Rayleigh type, on LP
	LPN	e	46 07		35.0					and BB.
	LPE	eSur	52 34							
	LP	eSur	56 48							
11 Nov		eP	16 39 52.8	8	0.8		T			Phase at 16 40 16.0 is
		e	40 02.2		1.1					possible new event.
		e	16.0		1.1					Phase at 16 44 06.1 is
		e	44 06.1		1.5					possible new event.
		e	47 58.1		1.5					
		e	48 10.3		1.7					
11 Nov		eP	21 02 04.2	3	0.4		R			Δ (S-P) = 5.3°
		e	25.7		0.6					
	E	eS	03 08.9		0.4					
		eSur	38.8	999						

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
11 Nov		eP	21 50 56.9	13	1.1		T	4.4		Vancouver Island region
		e	51 07.0		0.9					48.9 N 128.8 W
		e	23.6		1.2					h about 33 km
		e	50.4		1.2					O = 21 45 20.5
	LPE	e	56 06		20.0					Δ = 26°
	LPN	eSur	58 05							Strong surface waves
	LPN	eSur	52							on LP
11 Nov		eP	22 26 26.0	228	1.5		T	6.0		Mag. = 6 1/2-6 3/4 (PS)
		e	54.5		2.0					Off coast of southern Chile
		e	27 18.3		1.2					43.2 S 76.0 W
		e	46.7		1.7					h about 33 km
		e	28 20.8		1.4					O = 22 14 18.7
		e	29 02.7		1.2					Δ = 81°
		e	19.5		1.4					Strong surface waves
		ePP	31.9		1.8					on LP, weak on BB.
		e	57.1		1.6					
		e	30 18.6		1.7					
	LP	ePPP	31 43		20.0					
	LPN	eS	36 38		18.0					
	LPE	ePS	37 26		27.0					
	LPE	ePPS	53		18.0					
	LPE	e	38 42		19.0					
	LPE	eSS	41 54		27.0					
		ePKKP	44 55.7		1.0					
	LPN	eSSS	45 07		30.0					
		e	09.8		1.3					
	LPN	eSur	48 06							
		eP'P'	53 22.7		1.5					
11 Nov		eP	22 47 17.8	12	0.4		L			Δ (S-P) = less than 0.1°
		eS	19.6	999						
12 Nov		eP	00 39 54.0	4	1.2		T			
12 Nov		eP	11 21 49.8	1	0.9		R			Medium surface waves
		e	22 00.7		1.0					on LP, weak on BB.
		e	23 13.6		1.0					
	E	eSur	25 39.8		1.7					
	LPE	eSur	52							
	LP	eSur	27 02							
12 Nov		ePP	13 07 29.9		1.7		T			Ryukyu Islands
		e	47.0		1.3					26.0 N 128.4 E
		e	08 42.1		1.5					h about 40 km
		e	16 01.2		1.1					O = 12 49 10.8
	LPN	eSS	22 42		22.0					Δ = 105°
	LPN	e(SSS)	27 13		18.0					Weak surface waves on LP
	LPN	e	35 50		27.0					
	LPN	e	41 46		35.0					
	LP	eSur	48 56						4.4	
12 Nov		eP	16 26 38.1	2	0.3	SE	NR			Δ (S-P) = 1.5°
		eS	58.2	999						

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
12 Nov		eP	16 30 11.1	1	1.0		T	4.0		Southern Honshu, Japan
										35.5 N 135.8 E
										h about 33 km
										O = 16 16 56.1
										Δ = 93°
12 Nov		eP	17 26 05.1	1	0.5		R			
	E	eSur	30 08.1		0.9					
12 Nov		eP	19 42 24.7	16	1.1		T	5.0		Andreanof Islands,
		e	36.1		1.6					Aleutian Islands
		e(pP)	49.6		1.5					51.5 N 178.4 W
		e	43 25.9		1.1					h about 57 km
		e	44.9		1.4					O = 19 32 38.0
		ePP	44 38.5		2.0					Δ = 57°
	LPN	eS	50 26		21.0					Strong surface waves,
	LPN	eSur	59 25							Love and Rayleigh type,
	LP	eSur	20 01 19							on LP.
12 Nov		eP	19 59 43.7	2	0.9		T			
12 Nov		eP	20 29 13.0	1	0.3		NR			Δ (S-P) = 3.1°
	E	eS	50.9		0.6					
12 Nov		eP	21 11 03.3	4	0.7	SSE	T			
12 Nov		eP	21 26 01.1	2	0.6	SW	NR			Δ (S-P) = 4.2°
		e	06.6		0.5					
	E	eS	41.6		0.5					
	N	eSur	50.8		0.5					
12 Nov		eP	21 36 24.0	2	0.3		L			Δ (S-P) = 0.3
		eS	29.7	999						
		eSur	32.1	999						
12 Nov	LP	eSur	21 43 00				T	4.6		South Atlantic Ocean
										17.8 S 13.6 W
										h about 33 km
										O = 20 55 39.0
										Δ = 96°
										Weak surface waves on LP
12 Nov		eP	21 51 59.3	1	0.3		NR			Δ (S-P) = 2.6°
		e	52 01.9		0.4					
	E	eS	31.5		0.5					
		eSur	37.4	999						
12 Nov		eP	22 55 55.2	2	0.3	SE	NR			Δ (S-P) = 1.7°
		e	56 05.3		0.4					
		eS	16.9	999						
13 Nov		eP	01 06 06.0	1	0.5		NR			
		e	17.8		0.4					
	N	eSur	31.3		1.1					
		eSur	07 05.0		1.2					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
13 Nov		eP	03 36 13.2	2	1.0		T			Weak surface waves on LP
		e	22.2		1.5					
		e	29.4		0.8					
	LP	eSur	56 18							
13 Nov		eP	07 56 32.2	6	0.6		T			
		e	57 00.6		0.7					
		e	14.4		0.7					
		e	58 14.3		0.7					
13 Nov		eP	08 32 53.4	1	0.6		T			
13 Nov		eP	09 07 12.2	5	0.8		T	4.8		Off coast of Hokkaido, Japan 42.0 N 141.9 E h about 61 km O = 08 54 39.1 Δ = 85° Weak surface waves on LP
		e	24.4		0.7					
		epP	32.2		1.0					
		e	08 16.3		0.9					
13 Nov		eP	10 07 05.4	1	0.6		T	4.3		Fox Islands, Aleutian Islands 52.9 N 166.7 W h about 69 km O = 09 58 13.4 Δ = 50° Medium surface waves, Love and Rayleigh types, on LP.
		ePcP	08 23.7		0.5					
	LPN	eSur	22 18							
	LP	eSur	25 23							
13 Nov		eP	15 00 32.4	1	0.5		R			Start indefinite
	N	eSur	04 43.2		0.5					
13 Nov		eP	20 20 57.4	1	0.4		L			Δ (S-P) = 1.3°
	E	eS	21 15.2		0.4					
13 Nov		eP	20 28 04.3	1	0.4	(NE)	NR			Δ (S-P) = 3.0°
	E	eS	41.5		0.5					
13 Nov		eP	20 52 24.0	2	0.7	(S)E	NR			Δ (S-P) = 2.6°
	E	eS	55.2		0.4					
		eSur	53 02.1	999						
13 Nov		eP	21 05 42.4	5	0.3	ENE	L			Δ (S-P) = 0.2°
		eS	48.6	999						
		eSur	52.8	999						
13 Nov		eP	21 34 38.3	2	0.3	SE	NR			Δ (S-P) = 1.6°
	E	eS	59.6		0.4					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
13 Nov		e(P')	22 06 30.7	3	1.1		T			Sandwich Islands 56.9 S 29.0 W h about 33 km O = 21 47 50.3 Δ = 109°
		ePKKP	17 33.4		1.0					
13 Nov		eP	23 11 27.3	1	0.2	(S)	L			Δ (S-P) = less than 0.1°
		eS	29.4	999						
13 Nov		eP	23 16 41.3	2	0.3	SE	NR			Δ (S-P) = 1.6°
		eS	17 02.6	999						
13 Nov		eP	23 42 10.0	2	0.6		NR			Δ (S-P) = 1.6°
		e	18.6		0.4					
		eS	30.8	999						
13 Nov	N	eSur	23 53 02.5		0.8		(R)			
14 Nov		eP	01 43 05.2	39	1.8	SE	T			Medium surface waves on LP
		e	29.0		1.1					
		e	46.4		1.1					
		e	44 05.5		1.4					
		e	15.6		0.8					
		e	29.3		1.0					
		e	54.1		1.2					
		e	46 28.8		1.8					
	E	e	47 01.9		2.5					
	LP	e	07		20.0					
	LPE	eSur	48 49							
14 Nov		eP	07 37 26.4	2	1.0		T			
14 Nov		eP	08 01 02.8	97	1.8		T	5.8		Central Honshu, Japan 35.7 N 140.8 E h about 61 km O = 07 48 05.5 Δ = 90° Medium surface waves, Love and Rayleigh type, on LP.
		e	15.4		1.7					
		e	25.0		1.1					
		e	35.2		0.9					
		e	45.3		1.2					
		e	02 10.2		1.2					
		e	03 12.5		1.1					
		e	46.1		1.3					
		e	04 00.1		1.4					
		ePP	31.8		1.4					
	LP	e	11 30		11.0					
		ePKKP	18 30.0		1.1					
	LPN	eSur	29 11							
	LP	eSur	31 42							
14 Nov		eP	08 09 27.8	12	1.5		T	5.0		Central Honshu, Japan 35.6 N 140.8 E h about 60 km O = 07 56 29.2 Δ = 90°

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
14 Nov		eP	13 06 14.4	7	1.0	ESE	T			
		e	33.1		1.0					
14 Nov		eP	13 23 40.4	3	0.9		T			
14 Nov		eP	14 28 49.9	9	1.2		T			
14 Nov		eP	14 37 29.0	4	1.0		T			Medium surface waves on LP
		e	34.3		1.8					
	LP	eSur	52 22							
14 Nov		eP	15 59 31.9	6	1.2		T			
14 Nov		eP	16 19 48.7	14	1.4		T	4.8		North Atlantic Ocean 20.3 N 45.9 W h about 33 km O = 16 11 08.4 Δ = 48°
		e	20 10.7		1.2					
	LPE	eS	27 03		17.0					
	LPN	eSur	33 28							
	LP	eSur	34 35							
		ePKKP	42 32.7		0.9					Strong surface waves, Love and Rayleigh type, on LP.
14 Nov		eP	18 13 54.7	2	0.2		NR			Δ (S-P) = 1.7°
		eS	14 16.5	999						
14 Nov		eP	20 21 54.8	3	0.5	(NW)	R			
	E	eSur	24 24.7		1.0					
14 Nov		iP	21 43 41.5	c 26	0.5	NE	L			Δ (S-P) = less than 0.1°
		eS	43.1	999						
14 Nov		eP	21 47 21.2	2	0.5	E	NR			Δ (S-P) = 2.6°
	E	eS	53.0		0.3					
		eSur	59.2	999						
14 Nov		eP'	22 18 13.4	5	0.9		T			Northern Celebes 0.3 S 123.0 E h about 92 km O = 21 59 16.1 Δ = 128°
		e	30.4		1.2					
		e	41.6		1.5					
		e	19 02.9		1.5					
		e	26.8		1.9					
		e	20 01.5		1.7					
		e(PP)	38.0		2.0					
		e	21 11.0		1.5					
		eSKP	32.2		1.1					
		e	50.5		1.6					
		e	22 06.5		1.2					
		e	23 07.5		1.6					
	LP	eSur	23 00 29						5.0	Medium surface waves on LP
14 Nov		eP	23 02 37.8	2	0.4	SSE	NR			Δ (S-P) = 1.7°
		eS	59.8	999						

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
15 Nov		eP	04 14 15.4	4	0.7		T			
		e	20.7		0.7					
15 Nov		eP	12 16 22.4	8	1.5		T			
15 Nov		eP	14 01 34.4	3	1.0		T	4.5		Central Honshu, Japan 36.0 N 140.3 E h about 90 km O = 13 48 40.1 Δ = 90°
15 Nov		eP	16 03 43.1	18	1.2		T	5.0		Central Chile 38.3 S 73.2 W h about 33 km O = 15 51 57.6 Δ = 76°
		e	49.8		1.3					
		e	04 42.8		1.3					
	LPN	eS	13 30		13.0					
	LPE	ePS	14 07		20.0					
	LPN	eSS	17 50		21.0					
	LPN	eSSS	21 07		23.0					Strong surface waves Love and Rayleigh type, on LP
	LPN	eSur	24 05							
	LP	eSur	27 55							
15 Nov		eP	16 21 12.8	29	1.3		T	5.2		Central Chile 38.4 S 73.6 W h about 33 km O = 16 09 26.9 Δ = 76°
		e	19.5		1.4					
		e	52.2		2.0					
		e	22 25.1		1.4					
15 Nov		eP	21 43 27.1	2	0.5		NR			Δ (S-P) = 3.0°
		e	33.6		0.4					
	E	eS	44 03.9		0.7					
		eSur	10.0	999						
15 Nov		eP	22 59 44.7	4	0.2	(NW)	NR			Δ (S-P) = 1.7°
		eS	23 00 06.7	999						
15 Nov		eP	23 11 58.2	1	0.2	NE	L			Δ (S-P) = less than 0.1°
		eS	12 00.8	999						
15 Nov		iP	23 33 41.4	c 72	0.9		T	5.6		Mag. = 6 (PS) Near coast of northern Peru 8.7 S 79.8 W h about 45 km O = 23 25 15.7 Δ = 47°
		e	51.3		0.9					
		ePcP	35 14.3		1.1					
		e	23.4		1.5					
	LP	ePP	30		25.0					
		e	32.8		1.0					
	LP	e(PPP)	36 36		20.0					
		e	38 06.5		1.6					
		eScP	39 05.6		2.0					
	LPE	ePcS	24		20.0					
	LPE	eS	40 36		20.0					
	LPE	e(sS)	41 00		22.0					
	N	e	27.3		1.9					
	LPE	e(SS)	43 32		20.0					
	N	eScS	32.5		1.5					
	LP	e	44 07		27.0					
	LP	eSur	46 14							

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
16 Nov		eP	00 11 24.5	8	0.9	SE	T			
16 Nov		eP	01 00 31.7	5	0.8	SSE	T			
		e	44.1		0.8					
16 Nov		eP	01 16 52.2	2	1.1		T			
		e	17 10.6		1.3					
16 Nov		eP	02 31 54.6	4	0.9		T	4.4		Fiji Islands region 18.0 S 178.4 W h about 612 km O = 02 19 48.7 Δ = 92°
16 Nov		eP	05 05 37.7	4	1.0	SE	T			
16 Nov		eP	06 46 43.2	13	1.2		T	4.7		Ecuador
		e	47.2		1.3					1.0 S 78.6 W
		e	48 15.1		1.3					h about 33 km
	N	e	52 53.2		3.5					O = 06 39 08.2
	LPE	eS	53 04		16.0					Δ = 40°
	LPN	e	56 00		22.0					Medium surface waves on LP
	LP	eSur	07 00 00							
16 Nov		eP	07 29 30.4	637	3.0		T	6.1		Mag. = 6 1/2-6 3/4 (PS), 6 (PL)
		e	59.2		1.7					Easter Island region
		ePP	32 05.2		3.0					32.3 S 111.1 W
	LPN	eS	38 38		19.0					h about 43 km
	LPN	eSS	43 02		21.0					O = 07 18 37.3
	LPN	e	46 24		20.0					Δ = 68.5°
	LPE	eSur	48 05							Strong surface waves, Love and Rayleigh type, on LP, Rayleigh type on BB.
	LP	eSur	52 11							
		eP'P'	57 51.8		2.3					
16 Nov		eP	19 55 45.2	11	1.3	SSE	T			
		e	53.0		1.1					
16 Nov		eP'	21 29 06.0	11	1.4		T			Mag. = 6-6 1/4 (PL)
		e	12.0		1.2					Andaman Islands
		e	20.2		1.2					13.5 N 93.2 E
		e	31.0		1.1					h about 33 km
		e	55.2		1.0					O = 21 10 01.8
		e	30 53.3		1.2					Δ = 130.5°
		ePP	31 19.2		1.2					Strong surface waves on LP; medium on BB.
		eSKP	32 36.5		1.2					
		e	33 09.7		1.1					
		e	16.8		1.3					
		e	32.3		1.6					
		e	34 16.0		1.8					
		e	47.0		1.7					
		e	41 51.4		1.2					
		eSKKP	42 08.3		1.2					
	LPN	e	49 06		20.0					
	LPE	eSur	22 12 12						6.4	

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
16 Nov		eSKP	23 08 14.2		1.2		T			Andaman Islands
		e	24.4		1.1					14.0 N 92.8 E
										h about 33 km
										O = 22 45 43.5
										Δ = 130°
16 Nov		eP	23 34 16.0	11	1.6		T			
16 Nov		eP	23 59 21.2	3	0.4		NR			Δ (S-P) = 1.6°
		eS	42.4	999						
17 Nov		eP	00 10 14.7	4	1.1		T	4.1		Bolivia
		e	51.0		1.4					19.6 S 68.8 W
		e	11 00.1		0.9					h about 209 km
		e	33.7		1.2					O = 00 00 21.5
										Δ = 61°
17 Nov		eP	00 17 35.3	2	0.9		T			
17 Nov		eP	05 04 37.8	5	1.1		T			
17 Nov		iP	11 11 30.5	c 21	0.7		T	4.4		Oaxaca, Mexico
		e	34.6		1.4					16.3 N 98.2 W
		e	52.3		1.0					h about 12 km
	LP	eS	15 03		15.0					O = 11 07 15.4
	E	e	27.2		1.5					Δ = 18°
		e	16 05.0		1.2					Strong surface waves on all systems.
	LP	eSur	37							
		eSur	17 13.8		1.3					
	LP	eSur	29							
17 Nov		eP'	14 39 28.0	23	1.6		T			Celebes Sea
		e	41 16.9		1.0					2.8 N 121.7 E
		ePP	23.9		1.8					h about 609 km
		epP'	50.0		1.0					O = 14 21 30.6
		e	42 07.2		1.6					Δ = 127°
		e	49 00.9		2.0					
		e	52 04.9		1.4					
17 Nov		eP	15 23 33.6	2	0.7		T			
17 Nov		eP	19 54 56.8	2	0.7		T			
		e	55 19.2		1.1					
17 Nov		eP	20 06 26.8	1	0.5		R			
		eSur	08 27.0		0.6					
17 Nov		eP	21 08 50.8	2	0.2		NR			Δ (S-P) = 4.1°
	N	eS	09 40.1		0.3					
	N	eSur	56.4		0.5					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
17 Nov		eP	22 36 12.3	8	1.0		T	4.4		Central Alaska 63.3 N 150.0 W h about 125 km O = 22 28 29.3 Δ = 42.5°
18 Nov		eP'	07 02 07.9	26	1.5		T			Molucca Sea 0.2 S 125.1 E h about 56 km O = 06 43 08.3 Δ 124° Strong surface waves, Rayleigh type, on LP.
		e	22.4		1.2					
		e	47.1		1.3					
	LP	eSur	43 34							
18 Nov		eP	07 47 19.8	14	1.3	SE	T			Weak surface waves on LP.
		e	31.1		1.8					
		e	48 40.2		1.2					
	LP	eSur	08 01 00							
18 Nov		eP	12 13 02.3	5	0.9		T	4.5		Tonga Islands region 16.4 S 174.1 W h about 129 km O = 12 00 26.7 Δ = 87.5°
		e	42.2		1.0					
		e	50.9		1.0					
18 Nov		eP	20 27 03.2	4	0.7		T			
19 Nov		eP	10 27 04.6	47	1.8		T	5.2		South Pacific Ocean 50.0 S 114.3 W h about 33 km O = 10 14 29.4 Δ = 84.5° Strong surface waves, Love and Rayleigh type, on LP.
		e	37.7		1.6					
		e	31 57.5		1.6					
	LPN	e	37 52		16.0					
	LPN	eSS	43 24		21.0					
	LPN	eSur	50 35							
	LP	eSur	56 34							
19 Nov		eP	10 37 39.7	13	1.6		T			
19 Nov		eP	10 41 40.8	29	1.5	SSW	T			
	LP	e	11 06 21		15.0					
	LP	e	12 40		24.0					
19 Nov		eP	10 43 09.5	1	0.5		L			Δ (S-P) = 1.3°
	E	eS	26.3		0.4					
19 Nov		eP	14 37 21.9	21	1.0		T	4.9		Colombia 6.7 N 73.0 W h about 135 km O = 14 30 29.1 Δ = 36°
		epP	57.3		1.3					
		e	38 17.3		1.1					
		e	39 22.1		1.1					
		e(PcP)	45.4		0.8					
	N	eS	42 51.8		1.3					
		eScP	43 15.9		0.8					
	LPN	eSS	45 40		22.0					
	N	eScS	47 25.3		1.0					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
19 Nov	LP	eSur	15 00 00				T			Weak surface waves on LP
19 Nov		eP	21 27 09.9	4	0.3	SSE	NR			Δ (S-P) = 1.6°
		e	19.4		0.4					
	E	eS	30.7	999						
19 Nov		eP	21 32 01.0	3	0.4	SSE	NR			Δ (S-P) = 1.7°
		e	10.8		0.4					
	E	eS	22.7	999						
19 Nov		eP	21 53 30.5	3	0.9		T	4.3		Unimak Island region 53.8 N 163.6 W h about 33 km O = 21 44 50.2 Δ = 48°
		e	52.2		0.9					
		ePcP	54 54.0		0.8					
19 Nov		eP	23 00 32.4	4	0.3	SE	NR			Δ (S-P) = 1.7°
	E	eS	54.2	999						
20 Nov		eP	02 54 33.8	13	1.5		T			
20 Nov		eP	07 05 05.2	32	1.2		T	5.1		Kamchatka 55.6 N 158.8 E h about 33 km O = 06 54 04.1 Δ = 68.5° Weak surface waves on LP
		e(PcP)	33.9		1.0					
		e	06 13.7		1.2					
	LPN	eSur	32 25							
	LP	eSur	34 44							
20 Nov		eP	07 43 40.6	67	1.5		T	5.4		Kamchatka 56.2 N 159.3 E h about 33 km O = 07 32 42.9 Δ = 68° Medium surface waves on LP
		ePcP	44 08.9		1.5					
		e	37.0		1.4					
		ePP	46 06.7		1.8					
	LPN	e	08 04 22							
	LP	eSur	06 51							
	LP	eSur	16 28							
20 Nov		eP	09 14 54.2	3	0.6	SE	R			
	N	eSur	18 29.1		0.8					
20 Nov		eP	10 45 05.1	2	0.5		L			Δ (S-P) = 1.0°
	E	eS	18.9		0.4					
20 Nov	LP	eSur	11 02 08				T		4.5	Solomon Islands 6.1 S 154.5 E h about 69 km O = 10 11 11.2 Δ = 107° Weak surface waves, Rayleigh type, on LP.
20 Nov		eP	13 39 28.6	6	1.4		T			
20 Nov		eP	14 48 47.3	6	1.3		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
20 Nov		eP	16 14 43.8	10	1.2		T	4.7		Hokkaido, Japan
		e	58.7		1.1					42.6 N 143.4 E
		e	15 20.3		1.2					h about 40 km
										O = 16 02 14.5
										Δ = 84°
20 Nov		eP	16 45 42.7	2	0.7		T			
20 Nov	LP	eSur	18 52 54				T			Weak surface waves on LP
21 Nov		eP	02 14 21.3	3	0.8	SSE	R			
		eSur	18 16.0		0.7					
21 Nov		eP	05 56 44.9	8	1.7		T			
21 Nov		eP	07 20 15.9	9	1.5		T	4.7		South Pacific Ocean
	LP	eSur	50 38							49.8 S 114.8 W
										h about 33 km
										O = 07 07 42.3
										Δ = 86°
										Weak surface waves on LP
21 Nov		eP	09 02 01.0	2	0.6		T			
		e	24.4		1.2					
21 Nov		eP	17 56 52.0	2	0.5		NR			Δ (S-P) = 1.6°
		eS	57 13.4	999						
21 Nov		eP	18 42 44.4	2	0.8		T			
21 Nov		eP	19 14 50.0	7	0.8	NNE	T			
21 Nov		eP	19 34 09.5	5	0.7	SE	T			
		e	11.9		0.9					
		e	19.1		1.0					
		e	35.8		1.0					
		e	55.1		1.1					
21 Nov		eP	19 52 42.2	1	0.6		T	4.3		Fiji Islands region
		e	54 30.6		1.3					21.1 S 179.2 W
										h about 626 km
										O = 19 40 15.7
										Δ = 94°
21 Nov		iP	20 07 14.6	c 12	0.6	NNE	L			Δ (S-P) = less than 0.1°
		eS	16.2	999						
21 Nov		eP	21 59 20.5	1	0.3		NR			Δ (S-P) = 2.4°
	E	eS	50.0		0.5					
21 Nov		eP	23 03 48.3	1	0.4		NR			Δ (S-P) = 3.7°
	E	eS	04 32.5		0.4					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
21 Nov		eP	23 51 14.4	7	0.3	ENE	L			Δ (S-P) = 0.8°
	E	eS	24.9	999						
22 Nov		eP	01 28 30.7	4	1.2		T			
22 Nov		eP	01 34 44.9	7	0.8		T	4.0		Near coast of southern
		e	49.0		0.6					Chiapas, Mexico
		e	35 23.5		1.2					14.3 N 92.7 W
		e	36.8		0.8					h about 33 km
		eSur	38 17.2		1.0					O = 01 30 02.5
	LP	eSur	41							Δ = 20.5°
	LPN	eSur	41 51							Weak surface waves on LP, SP, and IB.
22 Nov		eP	03 22 17.1	1	0.8		T	4.1		Near east coast of
		e	34.7		1.2					Hokkaido, Japan
										42.8 N 143.0 E
										h about 33 km
										O = 03 09 46.6
										Δ = 84°
22 Nov		eP	06 38 00.2	3	0.6		T			
22 Nov		eP	06 51 55.7	3	1.0		T			
		e	52 00.4		1.0					
22 Nov		eP	07 01 08.3	23	1.0		T	4.8		Peru-Ecuador border
		ePcP	03 03.0		0.9					01.6 S 77.1 W
										h about 147 km
										O = 06 53 34.5
										Δ = 41°
22 Nov		eP	07 47 17.8	4	1.0		T			
		e	28.7		1.5					
22 Nov		eP	10 19 21.2	2	1.1		T			
22 Nov		eP	10 45 36.0	11	1.5		T			Medium surface waves
	LPE	eSur	11 11 12							on LP
	LP	eSur	16 09							
22 Nov		eP	13 58 52.1	4	1.1		T	4.0		Vancouver Island,
										British Columbia
										50.7 N 129.1 W
										h about 33 km
										O = 13 53 08.5
										Δ = 27.5°
22 Nov		eP	14 32 16.4	2	0.9		T	4.1		Kurile Islands
										44.8 N 149.9 E
										h about 33 km
										O = 14 20 10.0
										Δ = 79.5°

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
22 Nov	LP	eSur	21 04 38				T			Weak surface waves on LP
22 Nov	LPN	eSur	21 18 32				T			Kermadec Islands region
	LP	eSur	19 49						4.8	30.2 S 178.6 W h about 298 km O = 20 33 25.6 Δ = 99° Medium surface waves on LP
22 Nov		eP	22 26 34.5	3	1.2		T			
22 Nov		eP	22 28 45.7	3	1.0		T			
23 Nov		eP	00 08 04.8	4	0.8		T	4.6		Tonga Islands region
		e	15.2		0.8					24.1 S 176.8 W h about 391 km O = 22/23 55 28.3 Δ = 94°
23 Nov		eP	00 14 47.8	1	0.7		T			
23 Nov		eP	00 39 27.6	29	1.4		T	5.1		Near coast of southern Peru
		e	35.9		1.5					15.1 S 75.3 W h about 33 km O = 00 30 04.5 Δ = 54° Strong surface waves on LP, weak on BB.
		e	40 17.9		1.7					
		ePcP	34.7		1.0					
		e	41 16.9		1.2					
		e	39.0		1.2					
		e	42 38.2		1.5					
	N	eS	47 06.0		3.2					
	LPN	eS	08		20.0					
	LPN	eScS	49 20		26.0					
	LPN	eSur	52 51							
	LPN	eSur	55 30							
	LPE	eSur	57 20							
	LP	eSur	01 01 44							
23 Nov		eP	00 54 12.7	22	1.3		T	5.0		Near south coast of Peru
		e	57.2		1.3					15.0 S 75.7 W h about 40 km O = 00 44 51.2 Δ = 53.5° LP phase possibly not associated with this event.
		e	55 58.5		1.2					
	LPE	e	01 16 44		19.0					
23 Nov		eP	01 16 49.3	3	1.0		T			
23 Nov		eP	05 55 37.8	21	1.1	SSE	T			
		e	56 03.3		1.0					
		e	47.1		1.2					
23 Nov		eP	06 38 06.2	4	1.3		T			
23 Nov		eP	12 00 26.4	19	1.4	SE	T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
23 Nov		eP	12 35 40.3	3	0.6		NR			Δ (S-P) = 1.7°
	E	eS	36 02.1		0.5					
23 Nov		eP	18 09 42.6	2	0.3		L			Δ (S-P) = less than 0.1°
		eS	44.9	999						
23 Nov		eP	21 11 46.2	1	0.4		NR			Δ (S-P) = 2.8°
	E	eS	12 20.7		0.4					
23 Nov		eP	23 18 05.4	2	0.8		T	4.4		Fiji Islands
		e	21 13.0		1.1					21.5 S 179.3 W h about 609 km O = 23 05 47.4 Δ = 94°
		e	22 11.2		1.1					
23 Nov		eP	23 32 39.9	2	0.4		NR			Δ (S-P) = 1.7°
	E	eS	33 01.9	999						
24 Nov		eP	06 50 27.7	13	0.9	SSE	R			
		e	47.2		1.0					
	E	eSur	54 21.6		0.5					
24 Nov		eP	07 30 32.6	4	1.1		T			
24 Nov		eP	07 39 24.2	6	1.1		T	4.2		Near north coast of Venezuela
		e	40 11.5		1.1					11.0 N 62.6 W h about 19 km O = 07 31 46.5 Δ = 40°
		e(PP)	41 09.9		1.5					
	LP	e(Sur)	51 34							
24 Nov		eP	08 23 14.0	3	1.0		T	4.4		Tonga Islands
										18.5 S 175.4 W h about 33 km O = 08 10 10.3 Δ = 90°
24 Nov		eP	10 48 40.3	7	1.4		T			
24 Nov		eP	14 32 34.0	8	0.8		T	4.7		Near east coast of Kamchatka
		e(PcP)	48.6		0.7					54.8 N 161.6 E h about 33 km O = 14 21 39.7 Δ = 67°
24 Nov		eP	15 51 01.5	4	1.1		T			
24 Nov		eP	16 03 44.9	17	0.7		T	5.0		Kurile Islands region
		ePcP	59.0		0.9					49.5 N 155.8 E h about 85 km O = 15 52 20.1 Δ = 73° Medium surface waves on LP
		e	04 22.6		1.0					
		e	05 43.1		1.4					
	LP	eSur	29 09							

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
24 Nov		eP	16 29 35.2	53	1.7		T	4.8		Mid-Atlantic Ocean
		e	43.0		1.5					9.8 N 40.7 W
		e	54.2		1.4					h about 33 km
		e	30 16.9		1.6					O = 16 19 44.9
		e	36.6		1.3					Δ = 58°
		e	58.5		1.7					Strong surface waves
		e	31 28.8		1.6					on LP
	LPE	eS	37 47		25.0					
	LP	e(ScS)	39 04		18.0					
	LPE	eSS	41 23		27.0					
	LPN	eSur	43 13							
	LP	eSur	47 00							
		eP'P'	59 23.5		1.3					
24 Nov	LP	eSur	18 15 24				T		4.8	Bismarck Sea
										2.5 S 148.9 E
										h about 32 km
										O = 17 22 59.5
										Δ = 109.5°
										Medium surface waves
										on LP
24 Nov		eP	21 01 10.9	6	0.2		L			Δ (S-P) = less than 0.1°
		eS	13.5	999						
24 Nov		eP	21 03 34.3	2	0.3		NR			Δ (S-P) = 1.9°
	E	eS	58.2	999						
25 Nov		eP	06 31 55.5	6	1.4		T			
25 Nov		eP	09 19 03.8	5	1.1		R			
		e	17.6		0.7					
	E	eSur	22 31.9		1.5					
25 Nov		eP'	10 10 13.2	3	1.3		T			Near north coast of
		e	39.8		1.8					Leyte, P. I.
		ePP	11 26.1		2.2					10.6 N 125.2 E
	LP	eSur	47 49						5.0	h about 47 km
										O = 09 51 22.8
										Δ = 119°
										Medium surface waves,
										Rayleigh type, on LP.
25 Nov		eP	12 04 08.8	9	0.8	SSE	T			
		e	24.3		0.9					
		e	42.5		1.1					
25 Nov		eP	12 57 42.4	4	1.1		T	4.4		Near coast of central Peru
		e(PcP)	58 46.7		0.8					11.9 S 77.3 W
										h about 33 km
										O = 12 48 44.3
										Δ = 50°
25 Nov		eP	13 05 25.9	4	1.2		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
25 Nov		eP	17 38 54.9	999			T			Near coast of Chiapas,
		eSur	42 14.5	999						Mexico
										16.3 N 94.2 W
										h about 100 km
										O = 17 34 43.4
										Δ = 18°
25 Nov		eP	18 46 31.6	5	1.3		T			
		e	47 38.1		1.5					
25 Nov		eP	19 03 09.3	999			L			Δ (S-P) = less than 0.1°
		eS	11.2	999						
25 Nov		eP	20 55 07.6	4	1.1		T			
		e	17.8		0.8					
25 Nov		eP	23 08 31.0	6	0.9		T	4.7		Svalbard
		ePcP	09 11.2		0.6					74.8 N 14.6 E
										h about 33 km
										O = 22 58 10.3
										Δ = 62°
25 Nov		eP	23 17 27.6	1	0.3		L			Δ (S-P) = less than 0.1°
		eS	29.6	999						
26 Nov		eP	04 25 59.0	1	0.8		T			
		e	26 06.1		0.9					
26 Nov		eP	04 40 19.6	4	1.2		T			
26 Nov		eP	05 43 52.8	2	1.1		T	5.0		Sinkiang Province, China
		e	47 00.0		1.2					39.8 N 77.2 E
		ePP	46.6		1.5					h about 14 km
	LPN	ePPS	58 20		18.0					O = 05 29 30.2
	LPE	eSur	06 18 55							Δ = 105°
	LPN	eSur	34 14							Start is possibly
										P diffracted
										Strong surface waves
										on LP
26 Nov		eP	06 42 05.6	1	0.3		NR			Δ (S-P) = 5.3°
		e	07.2		0.3					
		e	15.3		0.3					
		e	25.8		0.6					
	E	eS	43 08.8		0.4					
	E	e	25.4		0.5					
	E	eSur	38.6	999						
26 Nov		eP	09 01 22.7	4	1.1		R			
	E	eSur	05 05.5		1.0					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
26 Nov		eP	10 54 55.3	2	0.4		R			Δ (S-P) = 10.4°
		e	55 28.0		0.6					
		e	40.0	999						
	E	e(S)	56 52.9		0.6					
		eSur	57 58.8		1.1					
26 Nov		eP	11 49 25.4	3	1.3		T			
26 Nov		eP	13 41 03.4	5	1.3		T	4.3		Off coast of Hokkaido, Japan
		e	42 08.7		1.0					42.2 N 144.4 E
		e(PP)	44 35.5		1.8					h about 33 km
	LPN	eSS	56 53		26.0					O = 13 28 33.7
		eP'P'	14 07 32.5		1.0					Δ = 84°
26 Nov		iP	16 12 02.0	d 88	1.0		T	6.1		Tonga Islands
		e	09.8		1.2					23.8 S 175.8 W
		e	15.6		0.9					h about 19 km
		e	25.7		1.2					O = 15 58 46.2
		e	14 21.6		0.9					Δ = 93°
	LP	eSur	41 57							Medium surface waves on LP
26 Nov		eP	20 28 58.7	2	0.9		T			Weak surface waves on LP
	LPN	e	41 50		25.0					
	LP	eSur	44 55							
26 Nov		eP	22 13 23.7	2	0.3		L			Δ (S-P) = less than 0.1°
		eS	26.4	999						
27 Nov		eP	04 17 02.9	8	1.2		T	4.6		Andreanof Islands, Aleutian Islands
		e	14.5		1.2					51.6 N 177.6 W
										h about 33 km
										O = 04 07 17.5
										Δ = 57°
27 Nov		eP	07 07 06.2	5	1.3		T	5.4		Ryukyu Islands
		eP'	11 09.6		0.8					25.1 N 122.9 E
		e	23.9		1.5					h about 148 km
		ePP	36.1		1.4					O = 06 52 57.8
		e	12 19.6		1.5					Δ = 108°
	LPE	eSKS	17 21		17.0					
		$ePKKP_1$	22 19.1		1.0					
		$ePKKP_2$	32.2		1.2					
		e	23 02.6		1.3					
27 Nov		eP'	12 25 59.6	4	1.0		T			Near west coast of Luzon, P. I.
		e	26 25.8		1.0					14.9 N 119.9 E
		ePKKP	36 28.8		0.9					h about 35 km
										O = 12 07 12.7
										Δ = 118.5°

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
27 Nov	LP	eSur	13 14 46				T			Weak surface waves on LP. Possibly associated with preceding event.
27 Nov		eP	14 19 07.1	1	0.3		L			Δ (S-P) = less than 0.1°
	E	eS	09.4		0.8					
27 Nov		ePP	17 08 49.8		1.7		T			Mariana Islands
		e	09 02.3		1.4					12.2 N 143.8 E
	LPE	ePKKS	23 56		25.0					h about 33 km
	LPE	eSKKKS	31 13		24.0					O = 16 50 27.7
	LPN	eSur	35 20							Δ = 104°
	LP	eSur	39 34						5.1	Strong surface waves, Love and Rayleigh type, on LP.
27 Nov		eP	21 36 52.1	2	0.5		NR			Δ (S-P) = 2.4°
	N	eS	37 22.1		0.8					
	E	eSur	29.8		0.7					
27 Nov		eP	22 14 24.3	3	1.2		T			
27 Nov		eP	23 11 39.5	2	0.3		NR			Δ (S-P) = 1.7°
		e	49.4		0.5					
	E	eS	12 01.5	999						
27 Nov		eP	23 18 11.0	1	0.2		L			Δ (S-P) = less than 0.1°
		eS	12.9	999						
28 Nov		eP	02 49 55.6	8	1.4		T	5.4		Mariana Islands
		ePP	54 03.6		1.8					12.1 N 143.7 E
		eSKP	57 26.7		2.0					h about 33 km
	LPE	ePS	03 03 31		26.0					O = 02 35 48.8
	LPE	ePPS	04 32		26.0					Δ = 104°
		ePKKP	05 50.6		1.3					Strong surface waves,
	LPN	ePKKS	09 10		32.0					Love and Rayleigh type,
		eP'P'	13 41.7		1.6					on LP.
	LPE	eSur	20 33							
	LPE	eSur	24 50							
	LP	eSur	29 16							
	LP	eSur	35 02							
28 Nov	LPE	eSur	05 50 58				T			South Atlantic Ocean
										22.4 S 10.5 W
										h about 33 km
										O = 05 02 36.1
										Δ = 101°
										Weak surface waves on LP
28 Nov	LPE	eSur	05 57 11				T			South Atlantic Ocean
										22.5 S 10.7 W
										h about 33 km
										O = 05 09 15.0
										Δ = 101°
										Weak surface waves on LP

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
28 Nov		eP	06 06 42.1	3	1.0		T	4.8		Volcano Islands 24.3 N 141.3 E h about 82 km O = 05 53 13.0 Δ = 97.5°
		e(PP)	10 47.0		1.5					
28 Nov	LP	eSur	10 00 46				T			Weak surface waves on LP
28 Nov		eP	12 50 55.5	2	0.3		L			Δ (S-P) = less than 0.1°
		eS	57.7	999						
28 Nov		eP'	15 45 08.7	3	0.9		T			Andaman Islands 9.9 N 93.4 E h about 53 km O = 15 25 58.7 Δ = 134°
		e	54.8		0.8					
		ePP	47 32.1		1.1					
		eSKP	48 31.8		1.0					
		e	49 57.0		2.2					
		eSKKP	57 43.5		1.0					
28 Nov		eP	17 32 34.7	1	0.3		L			Δ (S-P) = less than 0.1°
		eS	36.6	999						
28 Nov		eP	18 25 58.4	4	1.3		T			
28 Nov	LP	eSur	19 33 33				T			Weak surface waves on LP
28 Nov		eP	20 08 07.8	3	0.9		T			
		e	12.4		0.7					
		e	19.6		0.7					
		e	26.2		0.9					
28 Nov		eP	21 19 17.8	5	1.3		T			
		e	42.1		1.2					
		e	21 32.6		1.0					
28 Nov	N	eP	22 20 48.4	2	0.4		NR			Δ (S-P) = 2.4°
		eS	21 18.8		0.5					
		eSur	26.8	999						
28 Nov		eP	22 43 18.1	2	0.2		L			Δ (S-P) = less than 0.1°
		eS	19.9	999						
28 Nov	E	eP	23 41 19.1	1	0.3		L			Δ (S-P) = less than 0.1°
		eS	21.6		0.7					
29 Nov		eP	01 48 50.9	4	0.9		T			
29 Nov		eP'	02 39 32.9	5	1.2		T			Arabian Sea 14.0 N 55.1 E h about 33 km O = 02 20 27.8 Δ = 126°
29 Nov		eP	07 44 04.4	3	0.9		T			
		e	22.0		1.1					

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
29 Nov		eP	09 17 00.2	23	0.9		T	5.5		Tonga Islands 22.3 S 175.9 W h about 33 km O = 09 03 51.1 Δ = 92° Medium surface waves, Love and Rayleigh type, on LP.
		e	40.2		1.2					
	LPE	eS	28 09		13.0					
	LP	eSP	29 20		22.0					
	LPE	eSur	42 42							
	LP	eSur	47 00							
29 Nov		eP	11 31 08.4	2	0.7		T			
29 Nov		eP	13 31 37.8	4	1.0		T			
		e	47.5		0.9					
29 Nov		eP	14 56 04.8	4	1.2		T			
29 Nov		eP	15 24 09.6	2	0.5		NR			Δ (S-P) = 1.6°
		e	19.0		0.5					
		eS	30.8	999						
29 Nov		eP	15 59 29.8	999		SSE	R			[Δ (S-P) = 8.3°] Strong surface waves on SP and IB, weak on LP.
		e(S)	16 01 33.6	999						
		eSur	02 49.0	999						
	LPE	eSur	03 05							
29 Nov		ePP	19 24 37.5		1.9		T			New Hebrides Islands 17.3 S 168.5 E h about 33 km O = 19 06 37.6 Δ = 101.5° Strong surface waves, Love and Rayleigh type, on LP.
	LPE	eSKS	31 15		18.0					
	LPE	eS	32 22		21.0					
	LP	eSP	33 47		19.0					
	LP	eSPP	34 45		19.0					
	LPN	e	36 07		22.0					
	LPN	eSS	39 18		20.0					
	LPE	eSKKS	43 27		20.0					
	LP	ePPP	44 48		20.0					
	LPN	e	46 26		18.0					
	LPN	eSur	49 03							
	LPN	e(Sur)	50 58							
	LP	eSur	53 45						5.8	
29 Nov		eP	20 54 46.8	2	0.4		NR			Δ (S-P) = 5.5°
		e	55 10.0		0.4					
	E	eS	51.6		0.4					
	E	e	56 05.8	999						
		eSur	30.6		1.0					
29 Nov		eP	21 27 58.6	1	0.5		NR			Δ (S-P) = 2.4° Horizontals inoperative for calibration.
		eS	28 28.6		0.4					
		e(Sur)	34.3		0.6					
29 Nov		eP	22 59 53.2	1	0.5	SSE	R			
	E	eSur	23 02 42.6		0.4					
29 Nov		eP	23 07 03.8	1	0.4		NR			
		e(Sur)	41.4		0.5					

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.		Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962											
29 Nov		eP	23	34 08.9	1	0.4		R			
		eSur		36 01.5		0.5					
30 Nov		eP	15	37 01.2	1	0.7		T			
30 Nov		eP'	17	12 18.6	6	1.3		T			Molucca Passage
		ePKKP		22 09.5		0.9					3.2 N 127.1 E
	LP	eSur		53 13						4.6	h about 58 km
											O = 16 53 24.6
											Δ = 123°
											Weak surface waves on LP
30 Nov		iP	17	15 25.8	c 39	0.7	NNE	L			Δ (S-P) = less than 0.1°
		eS		27.2	999						
30 Nov		eP	18	01 10.8	999		ESE	L			Δ (S-P) = 0.3°
		eS		17.0	999						
		eSur		21.0	999						
30 Nov		eP	21	55 19.9	96	0.9		T	4.9		Mag. = 5 1/4-5 1/2 (PL)
		e		25.4		0.8					Guerrero, Mexico
		e		35.1		1.1					17.4 N 99.6 W
	E	eS		58 43.4		4.8					h about 51 km
		eSur	22	00 57.2	999						O = 21 51 22.9
		eSur		02 05.4	999						Δ = 17°
											Strong surface waves on all systems.
30 Nov		eP	23	37 25.6	1	0.5		NR			
	E	eSur		38 18.0		0.5					
30 Nov		eP	23	54 33.4	4	1.1		R	3.6		Mag. = 4 (PS)
		e		55 46.8		1.1					San Bernadino County,
	E	eS		57 25.0		1.7					California
	N	eSur		58 55.4		1.6					34.4 N 116.8 W
	LPN	eSur		59 24							h about 33 km
01 Dec	LP	eSur	00	00 26							O = 23 51 05.7
											Δ = 15°
											Strong surface waves on SP, medium on LP.
1 Dec	LP	eSur	00	02 24				T			Near north coast of New Guinea
											5.5 S 145.9 E
											h about 79 km
											O = 30/23 07 51.6
											Δ = 114°
											Weak surface waves on LP.

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Copies

REGISTRATION OF EARTHQUAKES AT WICHITA MOUNTAINS SEISMOLOGICAL OBSERVATORY FORT SILL, OKLAHOMA, U.S.A.

Operated under the Technical Supervision of the
Air Force Technical Applications Center (AFTAC)

by

The Geotechnical Corporation
Garland, Texas

Advanced Research Projects Agency (ARPA)
Department of Defense
United States Government

THE REGISTRATION OF EARTHQUAKES

AT THE

WICHITA MOUNTAINS SEISMOLOGICAL OBSERVATORY

STATION

STATION ABBREVIATION:	WMSO
STATION IDENTIFICATION ON FILM SEISMOGRAMS:	α **
GEOGRAPHICAL LOCATION *: (Vault No. 6)	34° 43' 05.3" N. Latitude 98° 35' 20.7" W. Longitude
GEOCENTRIC LOCATION *: (Vault No. 6)	34° 32' 09.8" N. Latitude 98° 35' 20.7" W. Longitude
ALTITUDE (Meters) *: (Vault No. 6)	505 meters (1658 feet)
GEOLOGY:	The station is located on the Carlton (porphyritic) granophyre of the Wichita Mountains of Oklahoma.

Noise Level: The periods of the predominant microseisms at WMSO are 0.5 second and 6 seconds. Amplitude distribution curves for the 0.5-second microseisms are shown on page 2 as true ground motion in millimicrons and as trace amplitude in millimeters at the operating gain of 500K. Both curves are 1/2 peak-to-peak.

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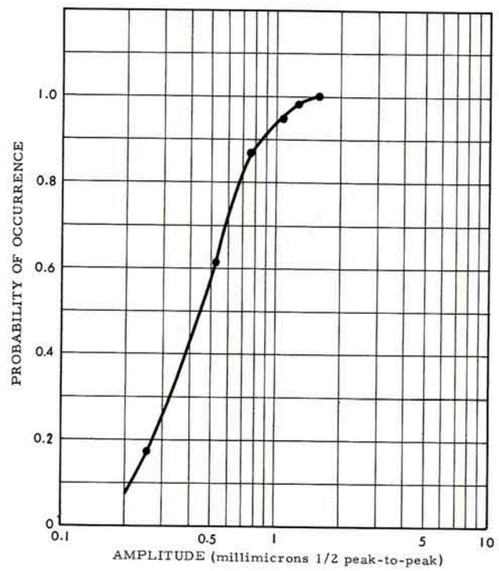
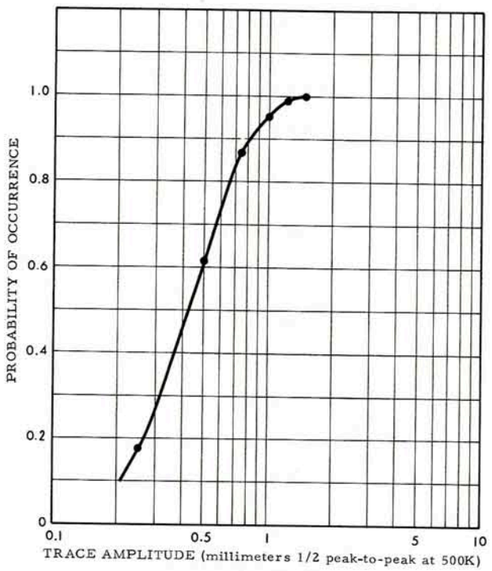
* The coordinates refer to the location of vault No. 6 which houses the 3-component groups of short-period and intermediate-band seismometers from which arrival times are determined.

** WMO after 27 November 1962.



Probability of predominant 0.5-sec microseisms occurring at or less than a given amplitude at unity magnification *



Probability of predominant 0.5-sec microseisms occurring at or less than a given trace amplitude in millimeters at operating gain of 500K *

* Microseismic amplitude measurements are made from individual SP vertical seismogram, JM Z6.

SEISMOGRAPHS

	T_s	λ_s	T_g	λ_g	σ^2
SP Vertical Johnson-Matheson	1.25	0.50	0.32	0.64	0.014
SP Vertical Benioff	1.0	1.0	0.2	1.0	0.01
SP Horizontal Benioff	1.0	1.0	0.2	1.0	0.01
UA SP Vertical Benioff, earth-powered	1.0	0.5	0.0625		0.2
IB Vertical Melton	2.5	0.65	0.64	1.5	0.002
IB Horizontal Sprengnether	2.5	0.65	0.64	1.5	0.0005
BB Vertical Press-Ewing	12.5	0.4	0.64	9.0	0.0002
BB Horizontal Sprengnether	12.5	0.4	0.64	9.0	0.0004
LP Vertical Sprengnether	20.0	0.7	30	1.0	0.004
LP Horizontal Sprengnether	20.0	0.7	30	1.0	0.004

SP = Short Period

UA = Un-amplified (SP Vertical Benioff, earth-powered)

IB = Intermediate Band

BB = Broad Band

LP = Long Period

T_s = Free period of seismometer in secs.

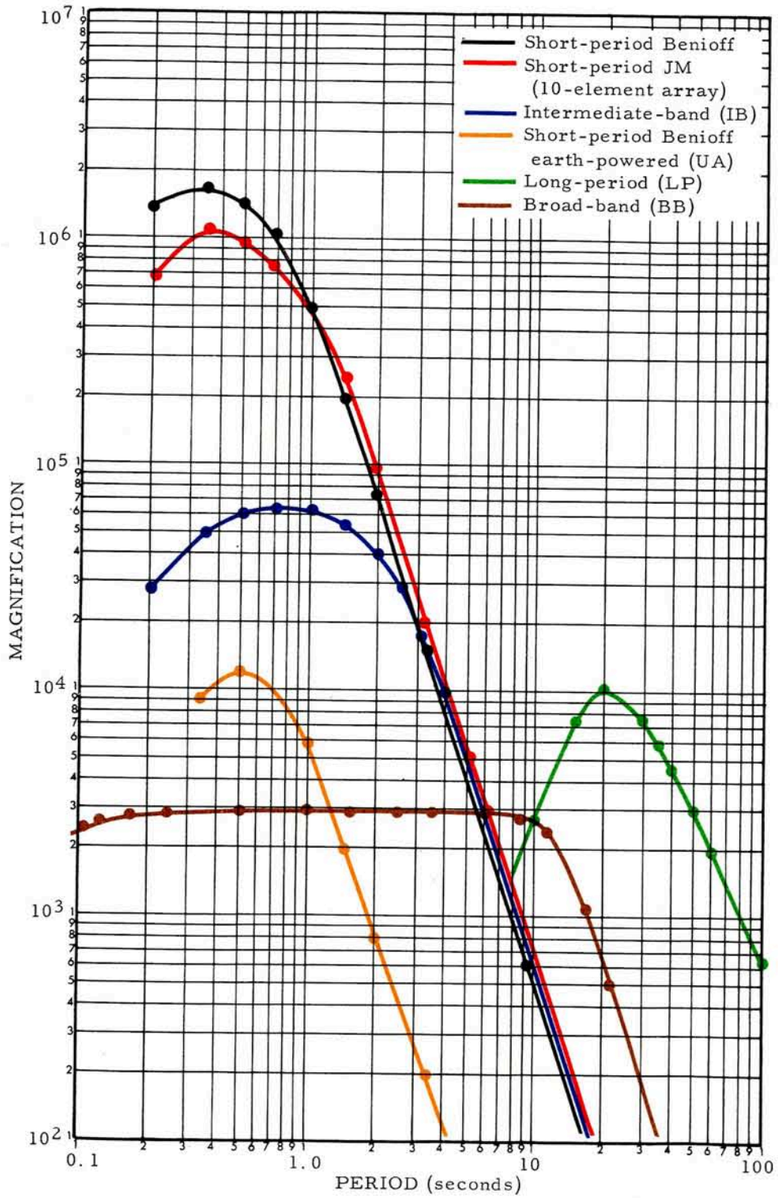
λ_s = Damping constant of seismometer

T_g = Free period of galvanometer in secs.

λ_g = Damping constant of galvanometer

σ^2 = Coupling coefficient

NOTE: Response curves are on page 4.



Response characteristics of seismographs

INTERPRETATION OF SYMBOLS

1. Earthquakes Listed

All local (L), near-regional (NR), regional (R), and distant earthquakes (T) are tabulated on the following pages.

2. System

In the column headed "Syst." (system), the seismograph (SP, UA, IB, BB, or LP) and component (Z, N, or E) used to measure arrival time are designated. When no component designation appears, the phase is read from the vertical component. When neither system nor component designation appears, the phase is read from the SP vertical component.

3. Phase

a. An "i" (impetus) preceding a phase designates sudden beginning of the motion. (A designation of "i" in the case of initial P motion indicates a signal-to-noise ratio exceeding about 5/1.)

b. An "e" (emersio) designates gradual beginning.

c. An "i" or "e" alone designates an unidentified phase.

d. The ( ) (parenthesis marks) indicate uncertainty.

4. Time

a. Date and arrival time are given in Greenwich Civil Time (G.C.T.).

b. The arrival time is reported as the earliest time on Z, N, or E. Single Z rather than the array summation (Σ) is used for measuring arrival times on the SP seismographs.

5. Ground Motion

a. In the columns headed "A" and "T" are tabulated earth displacement in millimicrons and period in seconds, respectively. An amplitude of 999 indicates that a signal cannot be measured reliably. A "c" or "d" in the "A" column indicates compression or dilation, respectively, of the ground as indicated by the vertical component instrument.

The value of "A" for P phases is the maximum amplitude in the first ten seconds. All amplitudes are 1/2 peak to peak amplitudes.

b. Trace amplitudes are measured to the nearest 1/2 millimeter at X10 view.

6. Direction

In the column headed "Dir." (direction), the direction of the epicenter as viewed from WMSO is indicated. For teleseisms, direction is obtained only from P and Rayleigh waves and is listed opposite the phase from which it is obtained. For close events, direction may be obtained from P-wave step-out shown on the individual short-period vertical traces.

7. Type

Earthquakes are identified as either:

L	(local) - - - - - - - - - - - - - -	0-1.4°
NR	(near-regional) - - - - - - - - - -	1.4-6.0°
R	(regional) - - - - - - - - - - - -	6-16°
T	(teleseismic) - - - - - - - - - -	16-180°

8. Magnitude Column

Magnitudes of earthquakes, as calculated from WMSO seismograms, are reported for all events for which sufficient epicentral information is available, and for which adequate data are available from the WMSO records.

m - - - - - - - - - - - - - - - - - -	Unified Magnitude - calculated from maximum amplitude and predominant period of P wave.
M - - - - - - - - - - - - - - - - - -	Surface Wave Magnitude - calculated from maximum amplitudes of surface waves in the period range 17-23 seconds (reported when P was not recorded or cannot be measured reliably).

No station correction factor has been determined for WMSO to date.

9. Remarks Column

a. Magnitudes, as obtained from the U. S. Coast & Geodetic Survey Preliminary Determination of Epicenter cards, are reported for events recorded at WMSO. The designations for the U. S. Coast & Geodetic Survey stations which report magnitudes are:

B	-	Berkley
PL	-	Palisades
PS	-	Pasadena
CGS	-	U. S. Coast and Geodetic Survey

b. Epicentral locations, time of origins, and depth of foci are obtained from the U. S. Coast & Geodetic Survey Preliminary Determination of Epicenters cards.

c. The nature of the surface waves is indicated subjectively.

d. Epicentral locations and distances reported by the station are accompanied by an indication of the phases used to determine epicentral distance, e.g., Δ(S-P) = 6°, Central Colorado.

e. Operational notes refer to operational difficulties that affect analysis of data.

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
01 Dec		eP	00 39 29.0	14	1.5		R	4.3		Mag = 4 1/4 (PS)
		e	37.0		1.1					San Bernardino County,
		e	40 28.5		1.1					California
		eSur	43 37.0	999						34.3 N 116.9 W
										h about 33 km
										O = 00 35 50.1
										Δ = 15°
										Strong surface waves on all systems.
01 Dec		eP	00 50 14.3	2	0.8		T			
01 Dec	LPN	eSur	00 56 33				R			Mag = 2 3/4-3 (PS)
										San Bernardino County,
										California
										34.3 N 116.9 W
										h about 33 km
										O = 00 44 48.0
										Δ = 15°
										Weak surface waves on LP.
01 Dec		eP	01 12 34.0	7	1.4		T			
01 Dec		eP	01 59 30.8	46	0.9		T	4.5		Fox Islands,
		ePcP	02 00 41.5		1.1					Aleutian Islands
	LP	eSP	07 07		17.0					52.4 N 170.1 W
	LPN	ePS	10		23.0					h about 38 km
	LPN	eScS	09 23		22.0					O = 01 50 20.4
	LPN	e	11 02		21.0					Δ = 52°
	LPN	e	12 52		18.0					Strong surface waves,
	LPN	e	14 00		25.0					Love and Rayleigh type,
	LPN	eSur	15 12							on LP
	LP	eSur	17 00							
01 Dec		eP	04 30 32.1	6	0.9		T	5.1		Kermadec Islands
		e	48.4		1.6					29.7 S 177.7 W
	LPN	eS	42 12		28.0					h about 52 km
	LP	eSP	43 30		19.0					O = 04 16 59.6
		ePKKP	47 05		0.8					Δ = 98°
	LP	eSur	05 02 37							Weak surface waves,
	LP	eSur	16 23							Rayleigh type, on LP.
01 Dec		eP	05 38 55.6	4	0.5	SSE	R			
	E	eSur	42 09.0		0.5					
01 Dec		eP	10 04 55.1	6	1.2		T			Weak surface waves,
		e	05 16.2		1.4					Rayleigh type, on LP
	LP	eSur	19 39							
01 Dec		eP	13 43 30.2	11	0.9		T	5.8		Central Chile
		epP	43.4		1.0					30.8 S 71.3 W
		ePcP	53.0		0.7					h about 68 km
		e	44 05.2		1.1					O = 13 32 24.8
										Δ = 70°

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
01 Dec		eP	16 54 18.0	25	0.4	E	NR			Δ (S-P) = 1.6°
		e	26.8		0.4					
		eS	39.1	999	0.4					
01 Dec	LP	eSur	18 02 03				T			Weak surface waves on LP.
01 Dec		eP	21 14 57.0	17	0.8		T	5.1		Fiji Islands Region
	LPN	e(PKKS)	34 50		30.0					17.7 S 178.7 W h about 620 km O = 21 02 51.8 Δ = 92°
01 Dec		eP	21 55 25.7	2	0.3	E	NR			Δ (S-P) = 1.8°
	N	eS	49.1		0.5					
01 Dec		eP	23 11 40.2	5	0.8	SE	T			
02 Dec		eP	00 45 24.2	3	0.7		R	3.9		Mag = 4 1/4-4 1/2 (PS) San Bernardino County, California 34.3 N 117.0 W h about 33 km O = 00 41 39.7 Δ = 15° Strong surface waves on SP and IB. Weak surface waves on LP.
		e	46 20.7		1.0					
	N	eSur	49 35.0		1.5					
	LP	eSur	50 58							
02 Dec		eP	03 21 43.9	2	0.9		T			
02 Dec	LPN	eSKS	05 57 00		17.0		T			Solomon Islands 9.9 S 159.9 E h about 34 km O = 05 30 53.8 Δ = 104.5° Strong surface waves, Love and Rayleigh type, on LP.
	LPN	eSur	06 15 28							
	LPN	eP'SKS	16 52		22.0					
	LP	eSur	20 58							
02 Dec		eP	11 46 37.1	7	0.9	SE	T			
02 Dec		eP	12 25 55.5	7	1.1		T			
02 Dec	LP	eSur	12 54 40				T			Weak surface waves on LP.
02 Dec		eP	14 48 20.7	9	1.3	S	T			
02 Dec		eP	20 50 26.9	1	0.4		NR			Δ (S-P) = 1.7°
	N	eS	48.8	999						
02 Dec		eP	22 56 32.6	1	0.5		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
02 Dec		eP	23 00 03.5	5	1.0		T			
02 Dec	LP	eSur	23 28 44				T			Weak surface waves on LP.
03 Dec	LPN	eSur	00 18 38				T			Weak surface waves on LP.
03 Dec		eP	04 52 48.9	2	0.9		T			
03 Dec		eP	05 08 22.8	1	0.7		T			
03 Dec		eP	06 55 09.5	3	0.8	NNW	T			
03 Dec		eP	10 50 09.2	9	1.2		T			
		e	51 08.2		0.8					
03 Dec		eP	11 42 03.6	4	1.0		T			
03 Dec		eP	15 43 13.9	2	0.2		NR			Δ (S-P) = 1.6°
		eS	35.4	999						
		iP	16 12 56.1	c 999		WNW	L			Δ (S-P) = less than 0.1°
		eS	59.1	999						
03 Dec		eP	17 48 37.2	2	0.6		T			
		e	49 02.8		1.1					
		e	50 17.2		0.7					
03 Dec		eP	19 00 43.7	4	1.0		T			
03 Dec		eP	21 09 46.0	1	0.4		NR			Δ (S-P) = 2.4°
	E	eS	10 15.9		0.4					
	E	eSur	21.5		0.6					
03 Dec		eP	22 05 34.0	1	0.7		T			
		e	41.0		0.7					
03 Dec		eP	23 07 18.5	3	0.3		NR			Δ (S-P) = 1.6°
	E	eS	40.0	999						
03 Dec		eP	23 33 50.4	4	0.3	SE	NR			Δ (S-P) = 1.7°
	E	eS	34 12.3	999						
04 Dec		eP	02 13 31.9	12	0.9	SE	R			
		e	39.1		0.9					
		e	48.6		0.6					
		e	56.0		1.1					
	E	eSur	17 24.7		1.0					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
04 Dec		eP	03 35 01.5	11	1.2		T	4.3		Off coast of Guerrero, Mexico 10.1 N 103.6 W h about 33 km O = 03 29 40.8 Δ = 25°
		e	07.2		0.8					
		ePP	39.1		1.7					
	LP	e	37 12		15.0					
		e	56.2		3.0					
		ePcP	38 37.2		1.0					
	LPE	eS	39 32		25.0					
	LPE	eSur	41 12							Strong surface waves on all systems
	LP	eSur	42 45							
04 Dec		eP	06 28 26.6	4	1.0		T	4.6		Off east coast of Honshu, Japan 36.9 N 141.0 E h about 77 km O = 06 15 35.6 Δ = 89°
		e	40.0		0.8					
04 Dec		eP	07 33 08.6	70	1.0		T	5.3		Southern Bolivia 21.8 S 65.6 W h about 300 km O = 07 23 04.2 Δ = 64°
		ePcP	41.7		0.7					
		epP	34 18.5		1.5					
		ePP	35 33.6		1.3					
	LPE	eS	41 21		22.0					
	E	e	46.7		1.3					
	E	e	42 33.6		2.0					
	LPE	e	37		20.0					
	LPE	e	43 30		20.0					
	LPE	e	44 57		22.0					
	LPE	e	47 28		25.0					
04 Dec		eP	08 03 28.2	7	0.9		T			
04 Dec		eP	08 08 58.0	4	1.0		T			
		e	10 02.4		0.7					
04 Dec		eP	08 42 55.1	8	1.0	SSE	T			
04 Dec		eP	10 45 02.2	1	0.3		NR			Δ (S-P) = 1.3°
	E	eS	20.7		0.4					
04 Dec		eP	10 47 23.6	2	0.8		T			
		e	47.0		1.1					
04 Dec		eP	11 03 59.8	3	0.9		T			
04 Dec	LP	eSur	11 26 50				T			New Britain Island 6.1 S 149.9 E h about 83 km O = 10 34 27.8 Δ = 111° Strong surface waves on LP

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
04 Dec		eP	16 52 47.2	6	0.8		T	4.9		Mag = 5-5 1/4 (PL) Samoa Islands Region 16.5 S 172.8 W h about 33 km O = 16 40 06.0 Δ = 87°
	LP	e	55		12.0					
		e	53 07.0		1.4					
	LPN	eS	17 03 28		10.0					
	LPN	eSur	16 26							
	LP	eSur	24 55							Strong surface waves, Love and Rayleigh type, on LP
04 Dec		eP	17 51 43.6	22	0.5		R	5.3		Colorado 39.8 N 104.7 W h about 33 km O = 17 49 59.4 Δ = 6.5°
		e	52 12.0		0.6					
		eSur	53 41.0		0.6					
04 Dec		eP	23 46 57.4	2	0.3		L			Δ (S-P) = 0.5°
	N	eS	47 05.5		0.3					
		eSur	16.5		1.0					
05 Dec	LP	eSur	02 04 40				T			Solomon Islands 10.9 S 161.6 E h about 33 km O = 01 16 06.3 Δ = 103.5° Weak surface waves on LP.
05 Dec		eP	02 22 25.8	1	0.8		T			
05 Dec		eP	05 21 36.7	5	1.1		T			
05 Dec		eP	05 23 20.8	5	1.0		T	4.2		Fiji Islands Region 17.7 S 178.6 W h about 565 km O = 05 11 11.2 Δ = 92°
05 Dec		eP	06 38 35.5	2	0.8		T			
		e	39 03.5		1.1					
05 Dec		eP	11 46 53.3	5	0.8		T	4.6		Peru 10.3 S 77.9 W h about 50 km O = 11 38 10.6 Δ = 48.5° Medium surface waves, Rayleigh type, on LP.
		e	47 03.1		0.9					
		e	51.1		1.0					
	LP	eSur	12 02 45							

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
05 Dec		eP	13 49 43.9	999			R			Colorado 39.9 N 104.6 W h about 33 km O = 13 48 00.4 Δ = 6.5°
		e	50 09.6	999						Strong surface waves on SP and IB. Medium surface waves on LP and BB.
		eSur	51 40.0	999						
	LPE	eSur	52 00							
05 Dec		eP	15 44 54.9	2	0.8		T			
05 Dec		eP	17 37 20.0	8	1.0	SE	T			
		e	31.8		0.8					
05 Dec		eP	17 59 09.2	4	0.8	N	T			
05 Dec		eP	18 14 31.6	2	0.4		NR			Δ (S-P) = 1.7°
		eS	53.9	999						
05 Dec		eP	21 57 06.8	23	0.2		NR			Δ (S-P) = 0.2°
		eS	12.0	999						
		eSur	17.0	999						
05 Dec		eP	23 13 43.1	2	0.3		NR			Δ (S-P) = 1.6°
		e	52.6		0.3					
		eS	14 04.0	999						
06 Dec		eP	02 26 39.0	7	1.1		T	5.0		South of Honshu, Japan 30.7 N 142.0 E h about 33 km O = 02 13 25.1 Δ = 93° Weak surface waves on LP.
		e	27 14.4		1.2					
	LP	eSur	03 00 17							
06 Dec		eP	02 40 18.9	4	1.0		T			
		e	25.5		1.0					
06 Dec		eP	03 55 44.5	16	0.9		T	5.1		Near coast of Northern Chile 20.7 S 71.9 W h about 60 km O = 03 45 37.4 Δ = 60°
		e(PcP)	56 19.4		0.9					
		e	29.6		0.8					
		ePP	58 02.6		1.5					
06 Dec		eP	04 15 40.0	15	1.1		T	4.7		Kurile Islands 49.0 N 154.3 E h about 85 km O = 04 04 09.8 Δ = 74° Weak surface waves on LP.
		epP	59.8		0.9					
	LPE	eSur	42 26							

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
06 Dec		eP	06 34 50.4	7	1.3		T			
06 Dec		eP	06 56 39.6	81	1.2		T	5.7		Near coast of Southern Chile 45.6 S 73.4 W h about 33 km O = 06 44 17.0 Δ = 84° Weak surface waves on LP.
	LPN	eSur	07 24 18							
06 Dec	LP	e	07 47 58		16.0		T			
06 Dec		eP	09 03 23.7	7	0.7		T	4.1		Sea of Okhotsk 53.5 N 153.5 E h about 480 km O = 08 52 46.8 Δ = 72°
		e	06 22.5		0.8					
06 Dec		eP	10 17 15.2	5	1.0	T				
		e	33.4		0.8					
		ePcP	18 33.6		0.7					
06 Dec		eP	11 38 05.3	8	1.2		T	4.7		Easter Island Region 22.0 S 113.7 W h about 33 km O = 11 28 11.9 Δ = 58° Weak surface waves, Rayleigh type, on LP.
	LP	eSur	58 00							
	LP	e	12 02 21		14.0					
06 Dec		eP	17 27 02.7	3	0.8		T	4.4		Near east coast of Kamchatka 55.0 N 161.7 E h about 33 km O = 17 16 08.5 Δ = 67°
		e	13.6		0.9					
06 Dec		iP	18 07 01.5	c 16	0.3		L			Δ (S-P) = less than 0.1°
		eS	04.2		0.8					
06 Dec		eP	19 52 56.1	2	0.3		NR			Δ (S-P) = 2.3°
	E	eS	53 25.2		0.3					
06 Dec		eP	20 45 57.7	12	0.4		NR			Δ (S-P) = 1.6°
		eS	46 18.9	999						
06 Dec		eP	22 07 29.9	2	0.4		NR			Δ (S-P) = 0.5°
	N	eS	37.6		0.3					
	E	eSur	48.7		1.0					

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
06 Dec		eP	22 28 54.5	2	0.5		NR			Δ(S-P) = 0.5°
	N	eS	29 02.2		0.3					
	E	eSur	13.6		1.0					
06 Dec		eP	22 48 11.0	2	0.7		T	4.0		Near coast of Central Chile 34.0 S 71.1 W h about 88 km O = 22 36 45.8 Δ = 73°
06 Dec		eP	23 36 50.4	1	0.4		NR			Δ(S-P) = 1.6°
	E	eS	37 11.2	999						
07 Dec		eP	03 03 46.1	3	0.7	NW	T			
07 Dec		eP	07 34 55.3	2	0.9		T	3.8		Leeward Islands 15.3 N 61.2 W h about 149 km O = 07 27 45.4 Δ = 38.5°
		e	35 02.0		0.8					
07 Dec		eP	10 06 09.5	8	1.2		T			Very weak surface waves on LP
	LPN	eSur	32 18							
07 Dec		eP	14 16 22.2	171	2.0		T	5.8		Mag = 6 3/4-7 (BRK) Bonin Islands Region 29.2 N 139.2 E h about 411 km O = 14 03 37.0 Δ = 95.5° Strong surface waves on LP.
		epP	17 55.1		2.0					
	LP	e	18 49		18.0					
		e	20 10.2		1.6					
		ePP	16.9		1.9					
		e(PPP)	22 25.6		2.0					
	LPN	eSKS	26 15		18.0					
	LPE	eS	27 05		24.0					
	LP	eSP	28 35		21.0					
	LPE	ePS	29 14		22.0					
	LPN	ePPS	30 13		17.0					
		ePKKP	33 05.1		1.6					
		e	39.1		0.8					
	LPE	eSS	45		18.0					
	LPN	ePKKS	36 32		24.0					
		ePcPP'	37 33.2		1.8					
	LPN	eSSS	40							
		eP'P'	41 13.4		1.5					
	LP	eSur	43 10		25.0					
		e	59.7		1.5					
07 Dec		eP	14 58 30.3	6	1.4		T			
		e	42.6		1.4					
07 Dec		eP	15 15 55.5	5	1.0		T			
07 Dec		eP	18 08 47.7	5	0.9	SE	T			Medium surface waves on LP.
	LPE	eSur	46 56							

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
07 Dec		iP	21 36 41.4	c 33	0.6		L			Δ (S-P) = less than 0.1°
		eS	43.0	999						
07 Dec		eP	22 32 20.9	6	1.4		T			
07 Dec		eP	23 33 18.7	2	0.6		NR			Δ (S-P) = 4.7°
	E	eS	34 15.2		0.5					
08 Dec		eP'	00 13 32.5	2	0.7		T			Near west coast of Central Luzon, P.I. 13.9 N 120.6 E h about 178 km O = 23 55 03.0 Δ = 119°
08 Dec		eP	01 51 40.4	5	1.0		T	4.2		Central Alaska 62.6 N 151.6 W h about 33 km O = 01 43 43.8 Δ = 43°
		e	52 00.3		0.8					
08 Dec		eP	09 21 26.1	1	0.9		T			Very weak surface waves on LP.
	LP	eSur	10 06 12							
08 Dec		eP	11 16 46.5	2	0.8		T			
08 Dec		eP	11 46 48.6	2	0.8		T			
		e	47 16.4		0.8					
08 Dec		eP	11 51 21.9	2	1.0		T			
08 Dec		eP	13 12 19.4	1	0.6		T			
08 Dec		iP	18 11 06.9	c 13	0.9		T	4.9		Near coast of Northern Chile 23.6 S 69.4 W h about 100 km O = 18 00 41.1 Δ = 64°
		e	17.0		0.8					
		epP	28.6		1.2					
		e	39.3		0.9					
		e	12 05.6		1.0					
		ePP	13 35.2		1.2					
		eP'P'	40 25.4		1.5					
08 Dec		eP	18 31 10.0	378	1.7		T	6.3		Tonga Islands Region 15.2 S 173.7 W h about 33 km O = 18 18 29.1 Δ = 87° Very strong surface waves on LP and BB.
		e	23.9		1.3					
		e	59.7		1.9					
		ePP	34 34.8		3.0					
		e	36 20.5		3.3					
		e	37 20.5		1.5					
		e	55.6		1.8					
	LPE	eS	41 40		17.0					
	LPE	ePS	42 50		25.0					
	LPE	eSS	47 31		27.0					

(continued on next page)

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
		e	48 17.3		1.5					(continued from preceding page)
		ePKKP$_1$	49 08.6		1.6					
		ePKKP$_2$	24.1		1.8					
		ePKKP$_3$	34.8		1.8					
	LPE	eSur	54 28							
		eP'P'	57 34.1		1.7					
	LP	eSur	58 22							
08 Dec		eP	19 29 42.5	3	0.9		T			
		e	48.6		0.8					
08 Dec		iP	21 37 26.9	c 154	0.8		T	5.6		Salta-Santiago Del Estero Province Border, Argentina
		e	31.0	999						25.8 S 63.4 W
		ePcP	46.3		1.0					h about 620 km
		epP	39 36.3		1.4					O = 21 27 22.2
		ePP	40 11.0		1.2					Δ = 69°
	LPE	eS	45 46		25.0					Possible new event at
		e	55 30.5		0.8					22 04 43.3
		e	56 55.4		1.0					
		e	58 43.1		1.3					
		e	22 04 43.3		1.4					
		e	05 03.2		1.4					
		eP'P'	29.6		1.4					
08 Dec		eP	22 03 25.9	16	0.2	E	L			Δ (S-P) = less than 0.1°
		eS	31.5	999						
		eSur	35.7		1.0					
08 Dec		eP	22 07 39.0	20	1.4		T			
08 Dec		eP	22 14 10.0	11	1.2		T			
08 Dec		eP	22 16 19.5	7	1.1		T			
08 Dec		eP	22 41 29.6	3	0.9		T			
08 Dec		eP	22 56 09.2	2	0.8		T			
		e	17.1		1.2					
08 Dec		eP	23 04 45.1	348	1.5		T	6.2		Andreanof Islands, Aleutian Islands
		e	58.6		1.7					50.5 N 176.8 W
		ePcP	05 32.8		1.3					h about 33 km
		ePP	06 56.0		1.9					O = 22 55 01.2
	LPN	eS	12 42		18.0					Δ = 56°
		e	15 58.9		1.7					Strong surface waves on
	LPE	eSur	20 35							LP and BB.
	LP	eSur	24 27							
		eP'P'	34 26.7		1.5					
08 Dec		eP	23 28 06.2	2	0.8		T			
08 Dec		eP	23 31 38.5	2	0.7		T			

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
09 Dec		eP	02 23 26.9	3	1.1		T			
09 Dec		eP	03 30 36.2	4	1.0	S	T			
		e	38.3		1.0					
		e	51.6		0.8					
		e	31 05.4		0.8					
		e	13.5		1.2					
		e	51.8		0.6					
		e	36 17.4		1.0					
	E	e	24.1		1.4					
09 Dec		eP	05 18 02.8	3	1.0		T			
09 Dec		eP	05 41 30.8	9	1.0	S	T			Phase at 05 45 30.0 possible new event.
		e	42.0		1.1					
		e	42 06.5		1.0					
		e	45 30.0		0.8					
09 Dec		eP	10 29 56.6	5	1.3		T	4.4		Kurile Islands Region
		e	30 10.2		1.2					43.5 N 147.3 E
										h about 34 km
										O = 10 17 39.5
										Δ = 81°
09 Dec		eP	14 28 59.0	6	0.8		T	4.8		Tonga Islands Region
		e	29 04.8		0.9					22.4 S 177.0 W
		epP	45.6		1.0					h about 204 km
										O = 14 16 05.2
										Δ = 93°
09 Dec		eP	14 42 27.5	2	1.0		T			
09 Dec		eP'	17 56 33.0	7	1.5		T			Banda Sea
										7.1 S 129.1 E
										h about 194 km
										O = 17 37 46.9
										Δ = 128°
09 Dec		eP	17 59 36.8	1	0.6		T			
09 Dec		eP	21 06 59.5	5	0.7		T	4.9		Mag = 5.2 (CGS)
		epP	07 12.8		1.0					Tonga Islands Region
		e	59.0		0.9					17.7 S 173.6 W
	LPN	eS	17 50		24.0					h about 60 km
	LP	eSur	35 50							O = 20 54 13.7
										Δ = 88°
										Strong surface waves on LP.
09 Dec		eP	21 24 44.3	1	0.7		T			
		e	58.5		1.0					

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
09 Dec		eP	21 29 50.0	5	1.3		T	4.6		Northern Honshu, Japan 39.9 N 140.5 E h about 33 km O = 21 17 02.0 Δ = 87°
	E	e	42 02.0		2.3					
09 Dec		eP	21 41 58.0	3	1.2		T			
09 Dec		eP	23 27 51.8	24	1.3	SE	T			
		e	28 12.1		1.2					
		e	30.4		1.0					
		e	29 18.0		1.1					
		e	32 40.8		1.6					
09 Dec		eP	23 28 03.6	2	0.4		R			
		eSur	31 40.4		0.8					
10 Dec		eP	00 25 58.0	4	0.8		T			
		e	26 37.4		0.7					
		e	52.5		0.8					
		e	27 17.5		1.0					
10 Dec		eP	04 50 05.4	5	1.2		T			
10 Dec		eP'_1	05 16 19.1	60	1.2		T			Indian Ocean 28.3 S 62.7 E h about 33 km O = 04 56 19.4 Δ = 165° Strong surface waves on LP.
		eP'_2	17 09.1		1.5					
		e	19 29.1		1.7					
		ePP	20 53.0		1.7					
	LP	eSur	06 13 40							
10 Dec	LP	eSur	07 02 06				T			Solomon Islands 8.4 S 157.4 E h about 39 km O = 06 11 56.2 Δ = 105.5° Weak surface waves on LP.
10 Dec		eP	10 40 40.8	2	0.8		T			
10 Dec		eP	16 21 26.5	7	0.7		T	4.7		Kurile Islands Region 49.7 N 155.8 E h about 45 km O = 16 09 58.3 Δ = 73°
		e	38.6		1.0					
10 Dec		eP	16 57 44.7	3	0.7		T			

DATE	Syst.	Phase	Arrival Time G.C.T. h. m. s.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962										
10 Dec		eP	17 09 22.9	9	1.2		T	5.2		Kermadec Islands Region 27.2 S 176.8 W h about 88 km O = 16 56 04.5 Δ = 96° Strong surface waves, Love and Rayleigh type, on LP.
		e	28.9		1.0					
		e	36.0		0.8					
		e	46.5		1.0					
	LPN	eSKS	20 03		20.0					
	LPE	eS	48		21.0					
		ePKKP	26 12.6		0.8					
	LPN	eSS	27 16		24.0					
	LPE	eSur	36 30							
	LP	eSur	41 08							
10 Dec		eP	17 40 28.4	4	0.7		T			
10 Dec		eP	17 42 14.7	9	0.8		T			
10 Dec		eP	18 07 59.3	3	1.0		T			
10 Dec		eP	18 15 58.4	2	0.4		NR			Δ (S-P) = 1.6°
	E	eS	16 19.8	999						
10 Dec		eP	21 06 41.8	10	1.0		T			
10 Dec		eP	22 58 39.6	3	0.3	SE	NR			Δ (S-P) = 1.6°
		e	49.6		0.3					
	E	eS	59 01.3	999						
10 Dec		eP'	23 23 55.8	23	1.0		T			Near south coast of East Java 8.0 S 108.6 E h about 193 km O = 23 04 42.0 Δ = 144°
	LPE	ePKS	27 02		23.0					
11 Dec		eP	00 41 30.7	1	0.7		T			
		e	38.2		0.8					
11 Dec		eP'	02 53 43.3	14	1.2		T			South of Australia 48.9 S 124.6 E h about 33 km O = 02 34 09.6 Δ = 145.5°
		e	51.0		0.9					
		e	57.0		1.3					
		e	54 07.0		1.4					
11 Dec		eSur	10 33 42.0	999			R			Central Utah 39.4 N 110.3 W h about 33 km O = 10 28 17.5 Δ = 10° Amplitude unreadable due to high wind noise.
11 Dec		eP	14 30 03.9	5	1.1		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
11 Dec		eP	16 27 25.8	3	0.9		T	4.6		Off east coast of Honshu, Japan 39.1 N 144.3 E h about 44 km O = 16 14 47.1 Δ = 86°
11 Dec		eP	18 03 12.8	5	1.0		T			
11 Dec		eP	18 05 11.9	4	1.0		T	4.8		Tonga Islands 24.8 S 177.6 W h about 98 km O = 17 51 58.9 Δ = 95°
11 Dec		eP	21 28 35.7	1	0.3		NR			Δ (S-P) = 1.7°
	E	eS	57.3	999						
12 Dec		eP	00 15 38.5	3	1.0		T	4.4		Southern Honshu, Japan 33.0 N 136.0 E h about 407 km O = 00 02 58.4 Δ = 95°
12 Dec		eP	01 05 34.0	3	1.0		T			
12 Dec		eP	04 23 07.3	2	1.0		T			
12 Dec		eP	05 59 15.1	3	1.2		T			
12 Dec		eP	10 22 12.2	1	1.0		T			
12 Dec		epP	10 23 23.7		1.1		T			New Britain 4.8 S 153.8 E h about 94 km O = 10 08 48.5 Δ = 106° Strong surface waves on LP. Medium surface waves on BB.
		e	35.3		1.5					
		e	40.9		1.3					
		e	26 52.8		1.8					
		e	27 08.6		1.6					
		ePP	21.2		1.3					
		e	32.1		1.6					
	LP	e	28 00		19.0					
	LPE	eSKS	33 37		22.0					
	LPE	eSKS	34 37		26.0					
	LP	eSP	36 38		19.0					
		e	37 04.7		1.3					
		e	19.2		1.2					
		e	38 40.6		1.4					
		ePKKP	52.7		1.4					
		e	42 11.0		1.2					
	LPE	eSSS	46 30		47.0					
		e	47 26.7		2.2					
	LP	e	53 18		40.0					
	LP	eSur	58 44							

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
12 Dec		eP	11 42 21.9	2	1.1		T	4.3		Northern Honshu, Japan 39.6 N 149.5 E h about 66 km O = 11 29 39.5 Δ = 88° Strong surface waves on LP.
	LPE	eSKKS	12 07 22		36.0					
	LP	e	09 12		31.0					
	LP	eSur	11 06							
12 Dec	LP	eSur	14 54 00				T			Sandwich Islands 60.3 S 25.9 W h about 33 km O = 13 56 32.4 Δ = 111.5° Very weak surface waves on LP.
12 Dec		eP	18 24 47.7	4	1.1		T			
12 Dec		eP	21 37 52.7	2	0.3	SE	NR			Δ (S-P) = 1.6°
		e	38 03.0		0.3					
		eS	14.4	999						
12 Dec		eP'	23 15 44.9	4	0.6		T			Sumatra 4.6 N 96.5 E h about 138 km O = 22 56 45.8 Δ = 138° Medium surface waves on LP
		e	16 14.0		1.2					
		e	46.8		0.8					
		ePP	18 43.8		1.2					
		eSKP	19 24.3		0.9					
		e	27 28.4		1.0					
		e	45.6		1.1					
13 Dec	LP	eSur	00 09 00							
13 Dec		eP	00 00 28.7	2	0.8		T			
13 Dec		eP'	00 44 26.4	1	0.7		T			Nicobar Islands 7.2 N 93.1 E h about 33 km O = 00 25 02.5 Δ = 137°
		e	47 38.0		0.7					
13 Dec		eP	04 29 11.9	11	1.2		T	4.5		South Central Alaska 63.3 N 149.7 W h about 47 km O = 04 21 21.2 Δ = 42° Strong surface waves, Love and Rayleigh type, on LP. Medium surface waves, Rayleigh type, on BB.
		e	16.8		1.0					
		ePcP	31 04.3		0.8					
	LPN	eSur	43 35							
	E	eSur	49.2		2.6					
	LP	eSur	47 44							
13 Dec		eP	07 06 23.5	3	1.0	SW	T			
		e	30.4		0.9					
		e	38.3		0.9					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
13 Dec		eP	08 02 57.5	2	0.9		T			
13 Dec		eP	08 15 33.8	3	1.0		T			
		e	16 14.8		1.4					
13 Dec		eP	08 31 08.0	2	0.5		R			Δ (Lg-P) = 13.5°
		e	27.3		0.7					
		e	43.3		0.7					
	E	eSur	34 33.5		0.9					
	E	eSur	35 01.3		1.1					
13 Dec		eP	08 47 30.3	4	1.4		T			
13 Dec		eP	11 24 03.5	3	0.9	SE	T			
		e	34.9		1.0					
13 Dec		eP	15 05 01.7	9	1.0		T	4.5		Kenai Peninsula, Alaska 61.4 N 147.2 W h about 69 km O = 14 57 27.9 Δ = 41° Strong surface waves, Love and Rayleigh type, on LP. Weak surface waves, Rayleigh type, on BB.
		e	12.0		0.9					
		e	06 05.2		1.5					
		e	15.4		1.3					
		e	33.4		1.1					
		ePcP	07 02.5		1.0					
	LPE	e	14 36		28.0					
	LPN	eSur	18 18							
	LP	eSur	20 56							
13 Dec		eP	16 45 08.3	13	0.9	SSE	T			
		e	20.7		0.8					
13 Dec		eP	17 16 25.3	4	0.2	NNE	L			Δ (S-P) = less than 0.1°
	E	eS	27.2	999						
13 Dec		eP	17 17 22.5	1	0.3		L			Δ (S-P) = 1.2°
	E	eS	39.2		0.4					
		eSur	18 27.6		0.9					
		eSur	42.8		1.0					
13 Dec		eP	18 49 47.7	2	0.2	NE	L			Δ (S-P) = less than 0.1°
		eS	49.5		0.2					
13 Dec		eP	19 01 02.1	1	0.7		T			
13 Dec		eP	19 05 23.9	2	0.8		T			
13 Dec		eP	22 52 05.2	3	0.4	ENE	L			Δ (S-P) = 0.4°
	N	eS	12.3		0.3					
	E	eSur	23.0		0.8					
13 Dec		eP	23 00 51.4	3	0.3	SE	NR			Δ (S-P) = 1.7°
		e	01 01.3		0.4					
	E	eS	13.3	999						

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
13 Dec		eP	23 04 58.0	3	0.9		T			
13 Dec	LP	eSur	23 34 20				T			Dodecanese Islands 35.2 N 28.3 E h about 39 km O = 22 45 28.4 Δ = 94° Very weak surface waves on LP.
14 Dec		eP	00 06 17.6	3	0.3	NE	L			Δ (S-P) = 0.2°
	E	eS	23.0		0.4					
	E	eSur	27.8		1.0					
14 Dec		eP	03 05 12.5	5	1.3		T			
14 Dec		eP	11 09 44.2	4	0.8		T			
		e	56.6		0.8					
14 Dec		eP	12 11 58.4	2	0.3		NR			Δ (S-P) = 5.3°
		e	12 18.9		0.6					
	E	eS	13 01.2		0.5					
		eSur	31.7	999						
14 Dec		eP	13 09 10.3	9	1.2	SE	T			Δ (Sur-P) = 59°
		e	17.2		1.0					Medium surface waves on LP.
	LP	eSur	26 38							
14 Dec		eP	13 19 23.5	2	1.0		T	4.1		Northern Honshu, Japan 41.8 N 141.1 E h about 97 km O = 13 06 52.3 Δ = 86°
		e	44.4		1.1					
14 Dec		eP	14 37 28.0	5	1.2		T			
14 Dec		eP	16 53 47.4	2	0.8	SSE	T			
14 Dec		eP	17 06 09.7	3	1.0		T	4.6		Outer Mongolia - USSR Border 50.3 N 90.6 E h about 33 km O = 16 52 49.8 Δ = 94.5° Weak surface waves on LP.
		e	21.1		0.8					
	LP	eSur	43 40							
14 Dec		eP	18 02 59.0	6	0.9	SE	T			
14 Dec		eP	18 13 33.2	2	0.9		T	3.9		Kurile Islands 43.8 N 148.3 E h about 125 km O = 18 01 30.8 Δ = 80°

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
14 Dec		eP	19 50 08.1	17	1.1	SE	T			Δ (S-P) = 34°
		e	10.6		1.1					Phase at 19 59 06.3 probable new event.
		e	16.5		1.0					
		e	20.9		1.0					
		e	51 23.8		0.8					
	LPN	eS	55 31		20.0					
	LPN	e	57 51		26.0					
		e	59 06.3		1.2					
14 Dec		eP	20 39 20.0	7	1.4		T			
		e	30.4		1.0					
14 Dec		iP	22 26 56.0	c 20	0.6	NE	L			Δ (S-P) = less than 0.1°
		eS	58.0	999						
14 Dec		eP	23 30 12.8	2	0.4		NR			Δ (S-P) = 4.3°
	E	eS	31 04.6		0.5					
15 Dec		eP	02 53 33.2	5	1.3		T			
		e	44.2		1.4					
15 Dec		eP	03 59 25.8	4	0.8		T	4.6		Near coast of Central Norway 67.2 N 13.7 E h about 33 km O = 03 48 38.0 Δ = 66°
		e	36.2		0.8					
15 Dec		eP	06 38 45.6	14	1.4		T	3.9		Mag = 4 1/2-4 3/4 (PS) Nevada 40.7 N 117.5 W h about 33 km O = 06 34 58.6 Δ = 16° Strong surface waves on LP. Medium surface waves on SP. Weak surface waves on BB.
		e	48.7		1.0					
		e	39 39.0		1.4					
	LPN	eSur	43 21							
	E	eSur	21.2		2.2					
	LP	eSur	44 35							
15 Dec		eP	12 20 15.0	2	0.7		T			
15 Dec		eP	19 21 44.6	2	0.4		L			Δ (S-P) = 0.5°
		eS	52.7	999						
		eSur	22 04.0		1.1					
15 Dec		eP	20 41 08.0	5	0.7	NE	T			
16 Dec		eP	03 51 04.1	10	1.1		T			
		e	52 04.3		1.1					
16 Dec		eP	04 09 22.4	1	0.4		NR			Δ (S-P) = 5.1°
		e	41.5		0.6					
	E	eS	10 22.6		0.5					
	E	eSur	55.5		0.6					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
16 Dec		eP	09 38 11.7	5	0.8	SSE	T			
16 Dec		eP	10 06 12.6	1	0.7		T			
		e	07 35.2		0.7					
16 Dec		eP	10 11 37.1	3	0.9		T			
		e	56.5		0.9					
16 Dec		eP	11 36 08.7	1	0.7		T			
16 Dec		eP	12 36 08.4	10	0.8	SSE	T			
		e	32.0		1.1					
16 Dec		eP	13 38 36.4	9	1.2		T			
		e	44.5		1.0					
		e	59.6		1.3					
16 Dec		eP	14 22 23.1	7	1.2		T			Weak surface waves on LP.
		e	32.8		1.5					
	LP	eSur	40 17							
16 Dec		eP	16 04 22.5	8	1.3		T			
16 Dec		eP	17 13 29.5	2	0.8		T			
16 Dec		eP	17 50 54.4	2	0.9		T			
16 Dec		eP	18 39 41.7	4	1.0		T			
16 Dec		eP	21 24 16.1	2	0.5		NR			Δ (S-P) = 1.6°
		e	25.5		0.4					
		eS	37.4	999						
16 Dec		eP	21 31 04.0	2	0.4		NR			Δ (S-P) = 1.8°
	E	eS	27.3		0.4					
16 Dec		eP	22 25 44.6	7	0.8	SE	R			Δ (Lg-P) = 12.5°
		e	47.6		0.5					
		e	26 06.6		0.7					
		e	18.5		0.8					
	E	eSur	29 19.3	999						
17 Dec	LP	eSur	03 20 42				T			Ceram 4.2 S 127.6 E h about 33 km O = 02 15 49.7 Δ = 127° Weak surface waves on LP.

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
17 Dec		eP	06 46 01.8	37	1.2	WNW	T			
		e	07.7		1.1					
		e	28.9		1.3					
		e	50.8		1.4					
		e	47 02.5		1.4					
17 Dec		eP	08 40 13.1	2	0.9		T			
17 Dec		eP'	11 18 34.0	96	1.4		T			Celebes Sea 2.1 N 122.9 E h about 393 km O = 11 00 16.0 Δ = 126° Medium surface waves, Rayleigh type, on LP.
		e	19 52.9		1.6					
		epP'	20 18.8		1.4					
		ePP	31.5		2.0					
		e	41.3		1.4					
		e	51.0		1.6					
		e	21 11.5		1.6					
		e	28.5		1.5					
		e	48.0		1.9					
		e	22 00.1		1.9					
	LP	e	40		24.0					
	E	e	48.2		1.8					
		e	23 40.9		1.9					
		e	24 27.4		1.1					
		e	25 02.3		1.1					
		e	14.0		1.7					
	N	e	26 38.0		1.5					
		ePKKP	28 43.4		1.1					
		eSPP	31 29.5		1.8					
	LP	e	38		25.0					
	LP	e	34 17		23.0					
	LP	e	53 58		25.0					
	LP	eSur	58 20							
17 Dec		eP	11 49 27.1	1	0.7		T			
17 Dec		eP'	12 48 46.1	5	1.2		T			Halmahera Region 0.2 N 124.3 E h about 126 km O = 12 29 52.2 Δ = 127°
17 Dec		eP	16 22 01.0	3	0.3		NR			Δ (S-P) = 1.7°
		eS	22.8	999						
17 Dec		ePP	17 44 06.1		1.2		T			Ningsia Province, China 38.0 N 106.1 E h about 33 km O = 17 25 40.8 Δ = 103° Medium surface waves on LP.
	LP	eSur	18 20 00							

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
17 Dec		eP	18 12 19.3	28	0.3		L			Δ (S-P) = less than 0.1°
		eS	22.1	999						
17 Dec		eP	23 30 44.7	1	0.4	SE	NR			Δ (S-P) = 2.2°
	N	eS	31 13.3		0.4					
18 Dec		eP	03 07 54.1	5	1.2		T	4.8		Mag = 5.0 (CGS) Mariana Island Region 21.6 N 143.1 E h about 306 km O = 02 54 47.1 Δ = 98°
		e	08 01.0		1.2					
		ePP	11 51.0		1.2					
		e	12 13.6		1.1					
18 Dec		eP	06 46 08.8	2	0.9		T			Weak surface waves on LP.
	LP	eSur	59 20							
18 Dec		eP	07 59 44.2	3	1.3		T	4.2		Easter Island Region 35.2 S 104.8 W h about 33 km O = 07 48 36.6 Δ = 69.5° Medium surface waves on LP.
		e	08 00 05.7		1.0					
		e	44.7		1.5					
	LP	eSur	20 30							
18 Dec		eP	08 52 04.6	3	1.1		T			
18 Dec		eP	10 24 55.8	4	1.3		T			Weak surface waves on LP.
	LP	eSur	44 50							
18 Dec		eP	10 47 09.5	6	0.9		T	5.0		Kermadec Islands 28.3 S 178.2 W h about 214 km O = 10 33 58.4 Δ = 97.5°
		epP	48 05.4		1.1					
		e	49 03.1		1.1					
	N	eSKS	57 29.7		4.0					
18 Dec		eP	11 03 45.6	3	0.7		T			Very weak surface waves on LP.
	LP	eSur	21 35							
18 Dec		eP	11 04 12.7	15	1.7		T			
18 Dec		eP'	12 56 01.0	3	1.0		T			Halmahera Region 2.7 N 129.1 E h about 96 km O = 12 37 16.1 Δ = 121°
18 Dec		eP	17 35 58.6	3	0.4		NR			Δ (S-P) = 1.7°
		eS	36 20.3	999						
18 Dec		eP	18 07 11.9	15	0.3	ENE	L			Δ (S-P) = 0.2°
	E	eS	16.1	999						

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
18 Dec		eP	20 59 52.5	4	1.2		T	4.2		East of Hokkaido, Japan 43.7 N 147.0 E h about 80 km O = 20 47 41.5 Δ = 81.5°
18 Dec		eP	21 09 03.8	3	0.9		T	4.2		Fiji Islands Region 18.4 S 176.9 W h about 308 km O = 20 56 32.3 Δ = 91°
18 Dec		eP	22 57 43.0	7	1.1	N	T			
		e	50.5		0.8					
		e	53.0		1.0					
		e	58 00.5		0.8					
18 Dec		eP	23 22 03.2	1	0.4		NR			Δ (S-P) = 2.3°
	E	eS	32.0		0.4					
18 Dec		eP	23 54 17.7	5	1.2		T			
19 Dec		eP	01 20 44.1	5	1.5		T			
19 Dec		eP	03 12 04.8	8	1.7		T			
19 Dec		eP	05 26 33.5	3	1.0		T	4.1		Fox Islands, Aleutian Islands 51.6 N 170.3 W h about 33 km O = 05 17 19.7 Δ = 52.5°
		e	45.5		1.0					
		e	27 21.5		1.2					
19 Dec		eP	08 10 53.2	4	1.0	SE	T			
		e	11 26.3		1.1					
19 Dec		eP	10 06 21.5	2	0.9	WNW	T			
19 Dec		eP	11 53 53.2	4	1.0	E	T			
		e	58.5		0.9					
19 Dec		ePP	13 14 56.3		1.6		T			Solomon Islands 4.7 S 154.0 E h about 98 km O = 12 56 19.7 Δ = 106° Medium surface waves on LP.
		e	15 26.1		1.5					
		e	43.5		1.5					
		e	57.0		1.2					
		e	16 05.6		1.1					
		e	15.4		1.3					
	LPE	eSKS	21 10		22.0					
	LP	eSP	24 17		21.0					
	LPE	ePPS	25 02		21.0					
		ePKKP	25 55.0		1.2					
	LPE	e	30 10		19.0					

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DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
	LPE	eSKKS	33 10		20.0					
	LPE	eSSS	34 04		18.0					
	LPN	eSur	42 03							
	LP	eSur	46 19						5.0	
19 Dec		eP	16 44 48.1	17	0.5	NE	L			Δ (S-P) = less than 0.1°
	E	eS	50.8	999						
19 Dec		eP	17 32 16.8	1	0.5		NR			[Δ (S-P) = 1.9°]
	N	e(S)	40.7		0.5					
19 Dec		eP	17 45 41.1	1	0.8		T			
19 Dec		eP	18 12 55.6	2	0.4	SE	NR			Δ (S-P) = 1.6°
		e	13 04.8		0.5					
	E	eS	16.9	999						
19 Dec		eP	21 05 09.8	2	0.7		T			
19 Dec		eP	21 07 18.5	2	0.5		NR			Δ (S-P) = 1.4°
	E	eS	37.3		0.5					
19 Dec		eP	21 31 09.1	3	0.7	E	NR			Δ (S-P) = 1.6°
		e	10.5		0.4					
	N	eS	30.1	999						
19 Dec		eP	21 47 33.3	2	0.4	ENE	NR			Δ (S-P) = 2.4°
	N	eS	48 03.2		0.6					
	N	eSur	11.2		0.6					
19 Dec		eP	22 01 47.2	1	0.4		NR			Δ (S-P) = 4.9°
	E	eS	02 28.4		0.4					
	N	eSur	44.9		0.5					
20 Dec		eP	00 11 19.9	49	0.4	NE	L			Δ (S-P) = 0.2°
	E	eS	25.1	999						
20 Dec		eP	02 19 37.1	6	1.1		T			
		e	22 38.5		1.0					
20 Dec		eP	08 45 34.5	10	1.4		T		5.0	Tonga Islands Region 20.0 S 174.1 W h about 33 km O = 08 32 37.3 Δ = 90°
		e	46 13.6		1.4					
20 Dec		ePP	09 04 03.1		1.7		T			Fiji Islands Region 23.4 S 179.3 E h about 512 km O = 08 47 23.3 Δ = 96°

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
20 Dec		eP	10 29 04.8	13	1.7		T			
		e	51.3		1.6					
20 Dec		eP'	18 39 55.8	5	1.3		T			Balleny Islands Region 61.8 S 161.2 E h about 29 km O = 18 20 55.8 Δ = 125°
		e	40 08.0		1.3					
20 Dec		eP	18 53 03.6	5	0.9		R			Δ (Lg-P) = 11°
		e	26.6		0.8					
	E	eSur	56 19.4		0.7					
20 Dec		eP	20 10 14.5	3	0.9		T			
20 Dec		eP	21 14 37.3	4	0.3	SSE	NR			Δ (S-P) = 1.7°
	E	eS	59.1	999						
20 Dec		eP	21 52 50.7	2	0.5	SE	NR			Δ (S-P) = 1.6°
	E	eS	53 11.9	999						
20 Dec		eP	22 11 16.0	3	1.0		L			Δ (S-P) = 0.1°
	E	eS	19.4	999						
21 Dec		eP	00 07 05.2	3	0.3	NE	L			Δ (S-P) = 0.1°
		eS	07.9	999						
21 Dec		eP'1	01 03 42.4	20	1.1		T			Near south coast of Java 9.0 S 112.4 E h about 64 km O = 00 44 19.7 Δ = 142° Weak surface waves, Love type, on LP. Strong surface waves, Rayleigh type, on LP. Weak surface waves, Rayleigh type, on BB.
		eP'2	48.0		1.0					
		e	05 43.2		1.3					
		ePP	06 49.5		1.3					
		eSKP	07 19.0		2.1					
	LPE	ePKS	30		20.0					
		eSKP	39.0		2.2					
	LPE	e	13 47		18.0					
		eSKKP	15 38.5		1.7					
	LPE	ePKKS	46		20.0					
		e	16 00.1		2.0					
	LPE	ePKKS	40		20.0					
	LPE	ePS	17 15		20.0					
	LP	eSPP	18 54		25.0					
	LPE	ePSS	25 48		20.0					
	LPE	e	30 09		22.0					
	LPE	e	34 55		38.0					
	LPE	e	38 05		23.0					
	LPE	eSur	44 48							
	LP	eSur	51 51							
21 Dec		eP	01 15 14.8	4	1.1		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
21 Dec		eSur	02 16 18				T			New Britain Region 4.2 S 152.9 E h about 150 km O = 01 26 31.5 Δ = 107° Strong surface waves, Rayleigh type, on LP. Weak surface waves, Rayleigh type, on BB.
21 Dec		eP	02 21 16.1	2	1.0		T	4.2		Andreanof Islands, Aleutian Islands 51.2 N 179.8 E h about 60 km O = 02 11 20.7 Δ = 58° Strong surface waves, Rayleigh type, on LP. Weak surface waves, Rayleigh type, on BB.
		epP	28.9		1.0					
	LP	eSur	38 27							
21 Dec		eP	03 09 54.1	11	1.6		T			
21 Dec		eP	06 00 48.0	7	1.5		T			
		e	01 10.0		1.3					
21 Dec		eP	06 36 52.3	79	1.6		T	4.5		Fox Islands, Aleutian Islands 52.5 N 168.7 W h about 33 km O = 06 27 49.1 Δ = 51° Medium surface waves, Love type, on LP. Strong surface waves, Rayleigh type, on LP. Medium surface waves, Rayleigh type, on BB.
		e	37 04.0		2.0					
	E	eS	44 12.7		3.6					
	LPE	eScS	46 47		22.0					
	LPE	eSS	47 53		21.0					
	LPE	eSur	50 10							
	LP	eSur	55 06							
		e	58 36.7		1.4					
21 Dec		eP	06 40 44.8	13	1.4		T	4.8		Fox Islands, Aleutian Islands 52.6 N 168.6 W h about 39 km O = 06 31 42.4 Δ = 51°
21 Dec		eP	07 04 17.6	4	0.9		T			
		e	34.0		0.8					
21 Dec		eP	07 16 07.3	7	1.1		T	4.6		Fox Islands, Aleutian Islands 52.8 N 168.8 W h about 33 km O = 07 07 05.9 Δ = 51°
		e	23.1		1.0					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
21 Dec		eP	08 45 51.0	3	1.1		T	4.2		Fox Islands, Aleutian Islands 52.8 N 168.6 W h about 33 km O = 08 36 53.9 Δ = 51°
		e	46 01.2		1.3					
21 Dec		eP	08 51 51.6	67	1.0		T	5.6		Mag = 6 1/4 (BRK), 6 1/2 (PS), 6 3/4 (PL) Fox Islands, Aleutian Islands 52.4 N 168.5 W h about 33 km O = 08 42 48.3 Δ = 51° Very strong surface waves, Rayleigh type, on all systems.
		e	58.0		1.7					
		e	52 06.8		2.4					
		e	20.5		1.6					
	LP	e	53 10		16.0					
	LP	ePPP	54 45		16.0					
	LP	eScP	56 40		14.0					
	E	eS	59 11.5		5.5					
	LPE	eSS	09 03 02		21.0					
	LP	eSur	05 05							
		eSur	12 53.9							
21 Dec		eP	09 09 44.9	433	2.0		T	6.1		Fox Islands, Aleutian Islands 52.4 N 168.1 W h about 33 km O = 09 00 41.4 Δ = 51° Strong surface waves, Rayleigh type, on the SP. Surface waves from previous event intermingled on LP record.
		e	50.2		2.5					
	E	eS	17 05.6		2.8					
		eSur	24 07.5		6.0					
21 Dec		eP	09 19 03.0	160	1.4		T	5.9		Fox Islands, Aleutian Islands 52.5 N 168.5 W h about 33 km O = 09 10 01.6 Δ = 50.5° Strong surface waves, Rayleigh type, on SP. Surface waves from previous events intermingled on LP record.
		e	11.3		2.0					
	E	eS	26 27.0		3.4					
		eSur	32 09.1							
21 Dec		iP	09 45 50.5	d 424	1.1		T	6.6		Near south coast of Hokkaido, Japan 42.4 N 142.3 E h about 27 km O = 09 33 15.5 Δ = 85° Surface waves from previous events obscure possible LP phases for this event.
		e	46 02.3		1.3					
		e	19.3		1.2					
		e	51.0		1.3					
		ePKKP	10 03 54.7		1.2					
		eP'P'	11 58.1		1.2					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
21 Dec		eP	09 53 03.8	108	1.0		T	5.5		Bolivia - Argentina Border Region 22.8 S 66.5 W h about 200 km O = 09 42 46.0 Δ = 64.5° Surface waves from previous events obscure possible LP phases for this event.
		e	12.4		1.4					
		ePcP	36.2		1.0					
		epP	54.0		1.2					
		ePP	55 28.4		1.2					
	N	e	10 01 29.1		1.8					
	E	e	40.8		1.1					
		e	02 01.7		2.0					
	E	e	39.8		2.4					
		eP'P'	21 40.2		1.2					
21 Dec		eP	10 04 47.2	2	1.0		T			
21 Dec		eP	10 29 57.0	16	1.2	SSE	T			
21 Dec		eP	12 45 31.4	2	0.6	NW	T			
21 Dec		eP	13 00 52.7	5	1.1		T			
21 Dec		eP	14 49 45.6	1	0.6		T	4.0		Fox Islands, Aleutian Islands 52.6 N 168.3 W h about 16 km O = 14 40 40.3 Δ = 51°
	E	e	15 00 34.5		1.4					
21 Dec		eP	15 37 18.4	2	0.6		T	4.3		Fox Islands, Aleutian Islands 52.7 N 168.8 W h about 49 km O = 15 28 17.6 Δ = 51.5°
21 Dec		eP	16 01 59.9	1	0.6		T			
21 Dec		eP	17 38 56.3	2	0.6		T			
21 Dec		eP'	18 06 25.8	3	1.1		T			Gulf of Aden 14.2 N 51.7 E h about 27 km O = 17 47 30.8 Δ = 124°
		e	38.4		1.0					
21 Dec		eP	18 11 38.3	19	0.5	NE	L			Δ (S-P) = less than 0.1°
		eS	40.4	999						
		eSur	44.3		0.6					
21 Dec		eP'	18 39 26.5	7	1.4		T			Near west coast of Central Luzon, P. I. 15.3 N 121.7 E h about 55 km O = 18 20 44.7 Δ = 117.5°
		ePKKP	49 54.8		1.5					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
21 Dec		eP	20 36 16.8	4	0.9		T	4.4		Fox Islands, Aleutian Islands 52.4 N 168.5 W h about 40 km O = 20 27 13.3 Δ = 51°
21 Dec		eP	21 35 17.8	33	0.8		T	5.1		Near coast of Central Ecuador 0.9 S 89.9 W h about 33 km O = 21 27 51.6 Δ = 39° Medium surface waves, Love and Rayleigh type, on LP.
		e	26.2		1.1					
		ePP	36 41.9		1.2					
		eScP	21 15.1		2.0					
	E	ePcS	22.5		2.0					
	LPE	eSur	44 20							
	LP	eSur	46 45							
21 Dec		eP	22 27 55.3	4	1.2	SSE	T			
		e	28 03.7		1.0					
22 Dec		eP	00 04 30.2	37	0.4	NE	L			Δ (S-P) = 0.1°
	E	eS	33.4	999						
22 Dec	LP	eP	01 06 25	540	18.0		T	6.7		Mag = 6 1/2-6 3/4 (PS) Loyalty Islands Region 22.0 S 170.1 E h about 33 km O = 00 52 23.4 Δ = 102.5° Strong surface waves, Love and Rayleigh type, on LP. Strong surface waves, Rayleigh type, on BB. Weak surface waves on SP.
		e	07 03.6		1.1					
		e	25.8		1.4					
	LP	ePP	10 35		22.0					
	LPE	eSKS	17 00		22.0					
	LPE	ePS	19 57		22.0					
		e	20 21.2		0.8					
	LPE	ePPS	48		24.0					
		$ePKKP_1$	22 19.0		0.9					
		$ePKKP_2$	31.4		1.2					
		$ePKKP_3$	48.5		1.2					
	LPE	eSS	25 25		29.0					
	LP	eSKKP	30		25.0					
	LPE	eSKKS	29 13		35.0					
	LP	e	35 49		14.0					
	LPN	eSur	36 05							
	LP	eSur	41 00							
22 Dec		ePKKP	01 58 48.4		1.0		T			Loyalty Islands Region 21.9 S 170.1 E h about 33 km O = 01 28 48.9 Δ = 102.5°
22 Dec		eP'_1	02 19 13.3	19	1.3		T			Near south coast of Java 9.2 S 112.4 E h about 69 km O = 01 59 50.3 Δ = 142° Strong surface waves, Rayleigh type, on LP. Medium surface waves on BB.
		$e(P'_2)$	19.0		0.8					
		epP'	38.2		1.2					
		e	50.0		1.2					
		ePP	22 17.0		1.8					
	E	ePKS	59.7		1.2					
		eSKKP	31 11.0		2.0					
		e	30.0		1.5					
	LP	eSur	03 04 46							

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
22 Dec		eP	06 43 25.4	8	1.1		T	4.3		Near coast of Ecuador 1.1 S 81.0 W h about 33 km O = 06 35 57.1 Δ = 39°
		e	37.1		0.9					
		e(PcP)	45 33.2		1.0					
22 Dec		eP	06 53 53.7	3	1.0		T			
22 Dec		eP	07 24 41.5	2	0.8	SW	T			
		e	54.2		0.8					
22 Dec		eP'	09 43 46.3	4	1.2		T			Molucca Sea 0.9 N 125.8 E h about 33 km O = 09 24 41.5 Δ = 125.5°
22 Dec		eP	10 05 06.3	3	0.5	SE	T			
22 Dec		eP	11 01 56.3	2	0.9	S	T			
22 Dec		eP	11 40 40.3	4	0.8		T	4.6		Samoa Islands Region 15.1 S 173.0 W h about 55 km O = 11 28 03.4 Δ = 86° Weak surface waves, Rayleigh type, on LP.
		epP	56.6		1.5					
		e	41 12.5		1.1					
	LP	eSur	12 09 05							
22 Dec	LPN	e	14 56 19		20.0		T			Near south coast of Mindano, P. I. 4.7 N 125.7 E h about 18 km O = 14 09 29.7 Δ = 123° Weak surface waves, Rayleigh type, on LP.
	LP	eSur	15 07 09							
22 Dec		eP	15 29 34.7	32	1.2		T	5.2		Mag = 6 1/4 (PS) Fox Islands, Aleutian Islands 52.5 N 168.8 W h about 47 km O = 15 20 31.0 Δ = 52° Strong surface waves, Love and Rayleigh type, on LP. Strong surface waves, Rayleigh type, on BB. Medium surface waves on SP.
	LP	ePP	31 17		17.0					
		e	40.0		1.2					
	LP	ePPP	33 04		15.0					
	E	eS	36 56.3		3.5					
	LPN	eScS	39 18		23.0					
	LPN	eSS	41 17		19.0					
	LP	e	42 46		20.0					
	LPN	eSur	44 04							
	LP	eSur	48 04							
		eSur	49 04.4							
22 Dec		eP	15 59 44.1	5	1.4		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
22 Dec		eP	22 43 15.6	2	0.8		T			
23 Dec		eP	00 56 35.5	4	0.9		T	4.6		Albania-Yugoslavia Border Region 41.3 N 20.4 E h about 33 km O = 00 43 56.3 Δ = 85°
		ePcP	39.0		0.9					
	LPE	ePS	01 07 35		36.0					
23 Dec		eP	02 04 00.6	2	0.8	SW	T			
23 Dec		eP	06 24 22.5	1	0.8	NNW	T			
23 Dec		eP'	10 40 37.7	1	0.6		T			Near east coast of Luzon, P. I. 15.3 N 121.7 E h about 52 km O = 10 21 55.3 Δ = 118°
		ePP	41 53.9		1.8					
23 Dec		eP	10 57 17.3	4	1.0		T	4.3		Fox Islands, Aleutian Islands 52.5 N 168.9 W h about 33 km O = 10 48 14.1 Δ = 52°
		e	35.4		1.1					
		e	58 47.8		1.0					
23 Dec		eP	15 13 41.0	2	0.7		T	4.1		Fox Islands, Aleutian Islands 52.5 N 168.3 W h about 33 km O = 15 04 37.6 Δ = 52°
23 Dec		eP	20 28 13.7	6	1.3		T			
24 Dec		ePKKP	00 53 30.3		1.2		T			Sandwich Islands Region 59.1 S 26.0 W h about 33 km O = 00 23 53.1 Δ = 112°
24 Dec		eP	03 55 35.8	10	1.5		T	4.9		Near west coast of Northern Honshu, Japan 39.1 N 139.0 E h about 33 km O = 03 42 42.1 Δ = 89°
24 Dec		eP	07 10 33.7	4	0.9	SE	T			
		e	45.3		1.0					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
24 Dec	LP	eSur	12 32 35				T			Loyalty Islands Region 22.0 S 170.1 E h about 33 km O = 11 40 46.7 Δ = 103° Medium surface waves on LP.
24 Dec		eP	12 31 59.5	3	1.2		T			
24 Dec		eP	13 23 12.5	12	1.7		T			
24 Dec		eP	14 02 35.6	7	0.9	N	T			
24 Dec		eP	16 46 55.6	2	1.1		T			
24 Dec		eP	17 33 00.9	3	1.1		T			
24 Dec		eP	17 51 28.3	15	0.6		T	5.1		Near coast of Central Peru 8.4 S 78.7 W h about 80 km O = 17 43 05.3 Δ = 47°
		e	43.7		0.7					
		epP	49.2		0.6					
		e	59.6		0.9					
		ePcP	52 59.7		0.6					
		ePP	53 13.3		1.3					
24 Dec		eP	19 11 26.3	1	0.4		NR			Δ (S-P) = 2.8°
	E	eS	12 01.5		0.4					
		eSur	13.0		0.6					
24 Dec	LPE	e	22 54 00		18.0		T			Medium surface waves, Love and Rayleigh type, on LP.
	LPE	e	59 41		20.0					
	LPE	e	23 06 39		30.0					
	LPE	eSur	07 55							
	LP	eSur	13 30							
25 Dec		eP	04 15 11.0	4	1.2		T			
25 Dec		eP	06 20 37.8	2	0.8		T			
25 Dec		eP	08 35 53.8	4	0.9	SE	T			
		e	36 29.9		0.9					
25 Dec		eP	11 40 31.1	3	1.0		T			
25 Dec		eP	12 20 57.4	14	1.2	1	T	4.9		South Pacific Ocean 36.2 S 100.2 W h about 33 km O = 12 09 45.6 Δ = 71°
		e	21 05.7		1.0					
		e	13.6		1.0					
		e	20.0		0.9					
		e	22 34.0		1.2					
	LPE	eS	30 13		20.0					Weak surface waves, Love and Rayleigh type, on LP.
	LPE	eScS	31 10		18.0					
	LPE	eSS	34 25		23.0					
	LPE	eSur	39 45							
	LP	eSur	43 11							

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
25 Dec		eP	12 54 18.8	3	0.6	SE	T	4.0		Santiago Del Estero Province, Argentina 28.2 S 63.2 W h about 589 km O = 12 43 58.9 Δ = 71°
26 Dec		eP	01 23 19.7	10	1.0		T	3.9		Guerrero, Mexico 16.6 N 99.2 W h about 33 km O = 01 19 10.2 Δ = 17.5°
		e	27.7		1.0					
		e	34.7		1.1					
		e	47.7		1.1					
	E	eSur	29 06.1		1.9					Weak surface waves on SP.
26 Dec		eP	05 37 40.4	1	0.6		T	4.2		Fox Islands, Aleutian Islands 52.5 N 168.4 W h about 33 km O = 05 28 36.7 Δ = 51.5°
		e	56.9		1.2					
26 Dec		eP	06 20 04.9	4	0.8		T	4.2		Windward Islands 12.8 N 60.9 W h about 32 km O = 06 12 26.5 Δ = 40°
		e	07.1		0.7					
		e	13.0		0.7					
		e	36.1		1.1					
		e	22 11.1		1.2					
	E	ePcS	25 49.9		0.8					
26 Dec		eP	09 09 08.1	31	1.4		T	5.4		Off coast of Portugal 39.3 N 10.6 W h about 19 km O = 08 58 11.1 Δ = 68° Strong surface waves, Love type, on LP and BB. Medium surface waves, Rayleigh type, on LP.
		e	18.0		0.8					
		e	24.9		1.2					
		e	40.8		0.8					
		e	10 03.7		1.3					
		e	15.2		1.3					
		e	12 01.3		1.3					
	LPN	eSur	27 46							
	LP	eSur	31 42							
		e(P'P')	37 50.3		1.4					
26 Dec		eP	12 18 23.9	8	1.0	SE	T			
		e	38.7		0.9					
		e	58.2		1.0					
26 Dec		eP	17 16 19.3	2	0.4	SE	NR			Δ (S-P) = 1.6°
		e	28.9		0.3					
	E	eS	40.6	999						
26 Dec		eP	21 30 12.5	3	0.4	SE	NR			Δ (S-P) = 1.8°
		e	22.7		0.4					
	E	eS	35.5	999						

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
26 Dec		eP	21 38 47.2	1	0.4		NR			Δ (S-P) = 2.5°
	N	eS	39 18.2		0.8					
	E	eSur	23.5		0.5					
26 Dec		eP	21 47 15.0	2	0.6		NR			Δ (S-P) = 2.2°
	N	eS	42.6		0.5					
26 Dec		eP	22 32 39.1	1	0.3		L			Δ (S-P) = 0.5°
	N	eS	47.2		0.4					
	E	eSur	58.5		1.0					
26 Dec		eP	22 34 08.9	1	0.6		NR			Δ (S-P) = 2.8°
	E	eS	43.8		0.5					
	N	eSur	54.5		0.6					
26 Dec		iP	22 35 49.0	d 100	1.0		T	5.9		Mag = 6 1/2 (PS)(PL) Komandorskie Islands 53.9 N 168.7 E h about 33 km O = 22 25 15.5 Δ = 65° Strong surface waves, Rayleigh type, on LP and BB.
		e	54.5		2.2					
		e	37 25.2		1.9					
	E	eS	44 26.6		2.9					
	E	e	38.0		3.0					
	N	ePS	45.5		2.4					
	N	ePPS	45 00.2		3.0					
	E	eScS	39.6		2.2					
	E	eSKS	44.8		2.0					
	LPN	e	46 44		17.0					
	LPN	e	48 17		17.0					
	LP	e	49 26		27.0					
	LPN	eSSS	51 49		22.0					
	LP	eSur	57 09							
		eP'P'	23 04 35.2		2.0					
26 Dec		eP	22 54 43.5	1	0.3	S	NR			Δ (S-P) = 1.6°
		e	52.8		0.4					
	E	eS	55 04.6	999						
26 Dec		eP'	23 44 04.6	8	0.8		T			Arabian Sea 23.9 N 65.4 E h about 34 km O = 23 25 16.7 Δ = 120° Surface waves of previous event obscure any LP phases of this event.
		e	12.2		0.9					
		ePP	45 16.6		1.3					
		$ePKKP_1$	54 13.5		1.1					
		$ePKKP_2$	21.3		1.3					
		$ePKKP_3$	32.4		1.3					
26 Dec		iP	23 56 47.5	c 155	1.2		T	6.0		Komandorskie Islands 54.0 N 168.8 E h about 33 km O = 23 46 14.7 Δ = 64° Surface waves from previous Komandorskie Islands event obscure any LP phases of this event.
		e	56.0		0.9					
		e	57 05.1		1.4					
		e	11.1		1.2					
		e	58 16.5		1.7					
27 Dec		e(P'P')	00 25 34.6		0.9					
		$eP'P'_1$	42.4		1.8					
		$eP'P'_2$	54.2		1.7					
27 Dec		eP	00 48 26.5	1	0.8		T			
		e	35.4		0.9					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
27 Dec		eP	01 39 21.1	17	1.3		T	5.0		Komandorskie Islands
		e	29.2		1.5					53.9 N 168.7 E
										h about 33 km
										O = 01 28 47.6
										Δ = 64°
27 Dec		eP	01 48 20.8	4	0.7		T	4.2		Jujuy Province,
		ePcP	51.6		1.0					Argentina
										23.7 S 65.4 W
										h about 227 km
										O = 01 37 57.1
										Δ = 66°
27 Dec		eP	04 26 29.7	6	0.8		T	4.7		Samoa Islands
		e	38.7		1.0					14.8 S 173.2 W
		e	50.9		1.2					h about 54 km
		e	54.9		1.2					O = 04 13 54.7
		eSur	54 35							Δ = 86°
										Weak surface waves,
										Rayleigh type, on LP.
27 Dec		eP	05 14 32.3	6	1.3		T			
		e	45.5		1.3					
27 Dec		eP	05 30 40.1	2	0.7		T			
27 Dec		eP	09 40 30.4	3	1.0		T			
27 Dec		eP	11 24 44.5	24	1.4		T	5.0		Near coast of Central
		ePcP	25 08.4		0.9					Chile
		e	11.7		1.4					28.6 S 67.4 W
		e	27 37.5		1.5					h about 33 km
										O = 11 13 38.2
										Δ = 69.5°
27 Dec		eP	14 07 48.2	3	1.0		T			
		e	56.9		1.0					
27 Dec		eP'	14 20 39.3	2	0.9		T			Near north coast of
		ePP	21 32.4		1.2					New Guinea
	LP	eSur	55 28							4.9 S 145.1 E
										h about 35 km
										O = 14 02 02.1
										Δ = 114.5°
										Weak surface waves,
										Rayleigh type, on LP.
27 Dec		eP	14 31 26.3	12	1.0	SE	T			
		e	44.8		1.2					
		e	34 25.5		1.3					
27 Dec		eP	14 58 13.5	7	1.3		T			
		e	32.1		1.5					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
27 Dec		eP	18 31 24.9	47	1.5		T	5.5		Near west coast of
		epP	38.3		2.0					Honshu, Japan
		e	35 32.4		1.3					39.9 N 142.0 E
	LPE	eSKS	42 00		20.0					h about 36 km
		ePKKP	49 14.9		1.2					O = 18 18 42.0
	LP	eSur	59 45							Δ = 87°
										Weak surface waves,
										Rayleigh type, on LP.
27 Dec		eP	19 38 53.5	10	0.4		L			Δ (S-P) = less than 0.1°
		eS	55.1		0.5					
27 Dec		eP	22 06 44.3	3	0.4		L			Δ (S-P) = 0.5°
	N	eS	52.0		0.4					
		eSur	07 02.0		0.8					
27 Dec		eP	22 58 02.3	3	0.3	SE	NR			Δ (S-P) = 1.7°
	E	eS	24.6	999						
28 Dec		eP	05 39 30.6	2	0.9		T			
		e	35.7		0.9					
28 Dec		eP	08 14 39.2	1	0.6		T			
28 Dec		eP	08 57 38.5	9	1.4		T			
28 Dec		eP	09 02 45.1	4	1.2		T			
28 Dec		eP	10 05 39.0	2	1.0		T	3.1		Montana
	E	eSur	10 44.0		1.2					48.4 N 113.9 W
										h about 33 km
										O = 10 01 23.6
										Δ = 18.5°
28 Dec		eP	14 42 04.3	7	1.2		T			
28 Dec		eP	14 55 48.8	5	1.1		T	4.5		Fox Islands,
		e	56 03.1		1.0					Aleutian Islands
	LP	eSur	15 11 18							53.7 N 163.7 W
										h about 33 km
										O = 14 47 08.1
										Δ = 48°
										Weak surface waves,
										Rayleigh type, on LP.
28 Dec		eP	15 18 43.2	2	0.7		T			
28 Dec		eP	15 24 35.7	7	0.7	SSE	T			
		e	42.7		1.0					
		e	52.9		1.0					
28 Dec		eP	18 22 56.7	2	0.6		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
28 Dec		eP	20 02 34.0	7	1.0		T	4.8		Off east coast of Hokkaido, Japan
		e	50.4		1.0					42.9 N 145.4 E
										h about 41 km
										O = 19 50 10.7
										Δ = 84.5°
28 Dec		eP	21 52 29.0	13	1.4		T	5.2		South Atlantic Ocean
		e	56.4		2.0					17.1 S 14.1 W
	LP	eSur	22 25 18							h about 33 km
										O = 21 39 07.9
										Δ = 95°
										Weak surface waves, Rayleigh type, on LP.
29 Dec		eP'	04 31 05.1	11	1.1		T			Halmahera Region
		e	22.4		1.1					2.4 N 127.1 E
		e	32 04.0		1.1					h about 33 km
		e	44.1		1.2					O = 04 12 09.0
		ePKKP	40 55.4		1.0					Δ = 123°
	LPN	eSS	49 32		18.0					Weak surface waves, Love and Rayleigh type, on LP.
	LPN	eSur	05 05 25							
	LP	eSur	13 22							
29 Dec		eP'	08 23 14.5	3	0.9		T			Afghanistan
		e	23.0		0.8					23.9 N 65.2 E
	LP	eSur	09 02 22							h about 33 km
										O = 08 04 25.7
										Δ = 154°
										Medium surface waves, Rayleigh type, on LP.
29 Dec		eP	10 51 12.3	182	1.9		T	5.9		Mag = 6 3/4 (PS) 6 1/2 (BRK) 6 (PL)
		ePcP	58.0		1.1					Northern Chile
		ePP	53 26.4		1.9					20.0 S 69.9 W
	LP	ePPP	54 40		18.0					h about 46 km
		e	55 16.9		1.9					O = 10 41 04.1
	N	eS	59 26.9		3.2					Δ = 60.5°
	E	e	57.8		1.3					Strong surface waves on LP. Medium surface waves on BB.
	N	eScS	11 00 59.8		3.6					
	E	e	01 19.9		2.8					
	LPN	eSS	03 38		30.0					
		e	04 58.5		1.3					
	LPN	eSur	06 30							
		e	07 01.4		1.5					
	LP	eSur	09 00							
		eP'P'	20 18.5		1.5					

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
29 Dec		eP	11 28 18.5	2	1.1		T			
		e	30.7		1.6					
		e	29 42.9		1.1					
29 Dec		eP	15 01 21.0	4	1.1		T	4.9		Mag = 6-6 1/4 (PS)
	LP	e	30		13.0					Kermadec Islands
	LP	ePP	05 25		17.0					31.2 S 177.9 W
	LPE	eSKS	12 02		21.0					h about 43 km
	LP	eSP	14 20		18.0					O = 14 47 41.4
		ePKKP	17 49.0		1.1					Δ = 99°
	LP	eSur	34 32							Strong surface waves, Rayleigh type, on LP. Medium surface waves on BB.
29 Dec		eP	16 33 29.0	3	0.3		NR			Δ (S-P) = 1.6°
		eS	50.0	999						
29 Dec		eP	18 05 17.5	5	0.2	E	L			Δ (S-P) = less than 0.1°
	E	eS	20.2		0.4					
29 Dec	LP	eSur	19 01 51				T			Kermadec Islands Regio
										31.6 S 177.8 W
										h about 33 km
										O = 18 13 59.3
										Δ = 99°
										Medium surface waves, Rayleigh type, on LP.
29 Dec		eP	22 01 27.4	2	0.4		NR			Δ (S-P) = 0.4°
	N	eS	34.7		0.4					
		eSur	41.6	999						
30 Dec		eP	02 29 26.1	9	1.1		T			
		e	36.7		0.8					
		e	45.4		1.5					
30 Dec	LPE	eSSS	02 34 12		18.0		T			New Hebrides Islands
	LP	ePPP	35 44		15.0					14.9 S 166.6 E
	LP	eSur	45 41							h about 49 km
										O = 01 57 43.7
										Δ = 102°
										Weak surface waves, Rayleigh type, on LP.
30 Dec	LP	eSur	04 22 06				T			Weak surface waves on LP.
30 Dec		eP	07 15 21.6	7	1.0		T			
30 Dec		eP	12 50 08.2	7	1.2		T			

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
30 Dec		eP	13 36 32.5	2	0.7		T	4.8		Kermadec Islands 28.2 S 175.8 W h about 47 km O = 13 23 09.8 Δ = 95.5°
30 Dec		eP	14 07 07.1	3	0.7		T			Weak surface waves on LP.
	LP	e	15 30		17.0					
	LP	eSur	22 55							
30 Dec		eP	16 30 49.5	5	0.8		T			
30 Dec		eP	18 09 32.7	2	0.8		T			
30 Dec	LP	epP	18 30 50		20.0		T			New Britain 4.7 S 153.7 E h about 116 km O = 18 16 21.4 Δ = 105.5°
	LP	ePP	35 31		18.0					
	LP	e	43 27		16.0					
	LP	eSP	44 17		20.0					
	LPE	ePPS	58		22.0					
	LP	eSur	19 00 37							Strong surface waves, Rayleigh type, on LP and BB.
	LP	eSur	05 53						5.3	
30 Dec	LP	eSur	20 15 23				T			Medium surface waves on LP.
30 Dec		eP	21 04 02.8	6	0.8		T			
30 Dec		eP	21 04 15.4	1	0.3		L			Δ (S-P) = 0.6°
		eS	24.0	999						
30 Dec		eP	21 14 53.5	7	1.2		T			
30 Dec		eP	23 03 47.8	3	0.9		T	4.8		Kermadec Islands 27.1 S 176.5 W h about 49 km O = 22 50 25.9 Δ = 95°
		e	04 00.4		0.9					
31 Dec		eP	04 41 26.8	7	1.2		T			
31 Dec		eP	08 11 25.4	8	1.0		T	4.6		Near east coast of Kamchatka 52.5 N 160.8 E h about 51 km O = 08 00 23.8 Δ = 69° Weak surface waves, Rayleigh type, on LP.
		e	32.1		1.3					
		ePP	14 04.3		1.8					
	LP	eSur	36 47							

DATE	Syst.	Phase	Arrival Time G.C.T.	Ground Motion A	Ground Motion T	Dir.	Type	Magnitude m	Magnitude M	Remarks
1962			h. m. s.							
31 Dec		eP'	11 20 23.5	4	0.9		T			Near coast of Sumatra 0.1 S 99.3 E h about 33 km O = 11 00 59.5 Δ = 141.5°
		e	24 02.6		1.3					
		e	25 47.1		1.9					
		ePcSP'	36 28.3		1.0					
	LP	eSur	12 08 42							Medium surface waves, Rayleigh type, on LP.
31 Dec		eP	15 50 03.7	6	0.9		T	4.4		Central Alaska 62.5 N 149.5 W h about 113 km O = 15 42 23.0 Δ = 42°
		epP	29.1		1.2					
31 Dec	LP	eSur	16 25 50				T			Weak surface waves, Rayleigh type, on LP.
31 Dec		eP	20 10 05.3	4	0.9		T			
31 Dec	LP	eSur	20 28 27				T			Loyalty Islands Region 22.7 S 171.4 E h about 39 km O = 19 40 10.5 Δ = 102° Strong surface waves on LP.
31 Dec		eP	20 54 22.9	57	1.2		T	4.8		Pierce County, Washington 47.1 N 122.0 W h about 33 km O = 20 49 35.3 Δ = 21.5° Strong surface waves, Love and Rayleigh type, on LP. Strong surface waves, Rayleigh type, on BB. Medium surface waves on SP.
		e	55 08.7		1.3					
		e	30.4		1.4					
	LPE	eSur	21 00 54							
	LPE	eSur	01 07							
	E	eSur	10.9		2.0					
	LP	eSur	02 54							
31 Dec		eP	21 22 30.0	2	0.4		NR			Δ (S-P) = 1.6°
		e	39.0		0.4					
	E	eS	51.0		0.4					
		e	23 36.0		1.4					
31 Dec		eP	23 50 29.3	8	0.9		T	5.2		Tonga Islands 21.6 S 176.8 W h about 33 km O = 23 37 18.9 Δ = 94°
		e	42.8		1.0					