

repid 498

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Jan Mar 1960

UNIVERSITY OF ARKANSAS SEISMOLOGICAL BULLETIN

Volume IX

Number 1



The University Of Arkansas Seismograph Station

Operated by the University's Department of Geology
in conjunction with the
United States Coast and Geodetic Survey

FAYETTEVILLE SEISMOGRAPH STATION

Volume 9, Number 1, March 1960

Data for Jan., Feb., Mar., 1960

Instruments

Vertical component - Benioff moving coil type, short period
electromagnetic-galvanometric, Mass
100 lbs.

Seismometer-Benioff moving coil period = 1.1 second
Galvanometer-Geotechnical Corp. period = 0.20 second
Damping ratio - about 15:1 (near critical)
Recording drum speed = 60 mm. per minute

Horizontal components - Wilson-Lamison hinges types: E-W,
N-S. electromagnetic - galvanometric

Seismometer period - 6.0 seconds (N-S)
6.0 seconds (E-W)
Galvanometer-General Electric period - 4.1 seconds (N-S)
3.80 seconds (E-W)
Recording drum speed - 30 mm. per minute

Clock - IBM, electrically wound, Invar pendulum type.
Accuracy limits generally within one tenth second.

Radio - WWV Time Signal impressed manually by telegraph key
on 5th, 10th, and 15th second. Time signals received
by a Hallicrafter receiver.

Vertical-Ground motion trace up (compression)
reading from left to right
N-S - Ground motion trace up - North
E-W - Ground motion trace up - East

(Additional information regarding the station is given on
the back cover.)

Information in "Remarks" column is usually from U. S. Coast and
Geodetic Survey epicenter cards. "C" following the trace amplitude
indicates a compressional motion of the wave; "D" indicates dilation.

Bulletin compiled by T. D. Mooney, Observer

Date	Phase	GCT			Period (Sec)			Trace (Amplitude) mms		
		h	m	s	Z	E	N	Z	E	N
Jan. 1	iP	02	39	28.3		.75		2.0D		
	C & GS 04-11-40; 49N., 153½ E - Kurile Islands (P-H) = 8300 Km.ca.									
	iP	04	23	24.8		1.0		5.0D		
	C & GS 23-12-31; 56 N., 162½ E - Near East Coast of Kamchatka (P-H) = 7900 Km. ca.									
	iP	23	23	23.8		1.0		5.5C		
	C & GS 01-52-18; 54N., 157½ E - Kamchatka (P-H) = 7890 Km.ca.									
2	iP	02	03	37.8		1.5		1.0d		
	C & GS 03-21-52; 15½S., 68 W., Bolivia, h about 150 Km., Mag. 6¼ (Pas.).(P-H) = 6100 Km. ca.									
	iP	03	31	18.3		1.0		5.0d		
	ipP		32	21.3		2.0		4.0		
	C & GS 05-06-54; 2½N., 96 E, off coast of Sumatra (P-H) = 15,780 Km. ca.									
	eP'	05	26	19.1		-		-		
	C & GS 06-59-36; 56½ N., 163½ E. Near the east coast of Kamchatka (P-H) = 7200 Km. ca.									
	eP	07	10	32		1.0		1.0		
	e(PP)		14	02		1.0		1.0		
3	i(P)	07	00	9.5		1.5		4.0		
	e(P)	07	41	16.2		1.5		1.0		
	i(P)	10	57	17.0		1.2		2.0		
	i			29.2		1.0		2.0		
	C & GS 11-24-00; 44 N., 84½ E., Sinkiang Province, China (P-H) = 15,899 Km. ca.									
	e(P)	11	41	16.1		-		-		
	eP	11	41	23.6		.7		.5		
	C & GS 11-38-30; 61 N., 152 W. South Central Alaska									
	iP	11	46	34.1		1.2		1.2C		
	i			40.9		1.8		2.0		
	ipP		48	22.6		1.5		1.0		
	C & GS 20-19-30; 39½ N., 15½ E Tyrrhenian Sea h about 250 Km. (P-H) = 8780 Km. ca.									
	iP	20	31	17.6		1.5		5.0d		
	i			47.1		1.2		1.0		

Date	Phase	Time GCT			Period (Sec)			Trace (Amp) mms		
		h	m	s	Z	E	N	Z	E	N
Jan. 3	C & GS 21-20-13; 45 N., 148 E. Kurile Islands, h about 150 Km. (P-H) = 9150 Km. ca.									
	iP	21	32	19.1	1.0			7.0		
	i(pP)			-46.1	1.0			2.0		
4	C & GS 12-51-52; 45 N., 27 E. Romania (P-H) = 9160 Km. ca.									
	eP	13	04	21.5	1.6			1.0		
	C & GS 15-05-39; 5½ S., 77½ W. Northern Peru (P-H) = 5000 Km. ca.									
	iP	15	13	52.2	1.0			2.0		
	i			14-02.3	2.0			2.5		
5	e	02	38	59.1	.5			.5		
	C & GS 05-13-48; 19 S., 69½ W., Northern Chile (P-H) = 6665 Km. ca.									
	iP	05	23	53.8	2.5			1.5C		
	i			14-39-20.1	.75			1.0		
6	e	22	20	40.3	1.5			1.0		
7	e	13	47	00.7	1.5			1.0		
8	e	14	49	22.8	-			-		
9	C & GS 07-23-50; 36 N., 69 E. Hindu Kush, h about 150 Km (P-H) = 11,555 Km. ca.									
	iP	07	37	51.6	.5			2.0C		
	iPP			41-28.4	1.5			2.0		
	ipPP			42-12.01	1.2			3.0		
	i	08	03	26.8	2.0			1.0		
	i(P'P')			04-41.3	1.5			5.0		
	i	10	04	33.1	1.0			1.0		
11	iP	12	08	38.8	-			-		
13	C & GS 15-40-34; 16 S., 72 W., Southern Peru, h about 200 Km. Mag. 7½ (Pas.), 7½-7¾ (Berk.) - Many casualties & extensive property damage at Arequipa. (P-H) = 6250 Km. ca.									
	iPZEN	15	49	53.0	-	3.0	3.0	d 6.0 9.0		
	iSZEN			1-57-36.4	5.0	8.0	7.0	7.0 56.0 50.0		
	i(pP')ZEN	16	00	29.3	2.0	10.0	8.0	3.0 30.0 50.0		
	iP'P'	16	18	18.8	1.5			2.0		
	C & GS 15-29-41; 51½ N., 180, Andreanof Islands, Aleutian Islands (P-H) = 6780 Km. ca.									
	iP	16	39	53.7	.5			1.5		

Date	Phase	Time GCT			Period (Sec)			Trace (Amp) mms		
		h	m	s	Z	E	N	Z	E	N
Jan. 13	X i(P)	18	31	10.1	2.0			1.0d		
14	X iP	09	37	29.2	.6			1.7C		
		C & GS 10-25-52; 37 N., 140 E. Honshu Japan (P-H) = 10,220 Km. ca.								
	X iP	10	38	59.7	1.2			2.5C		
	X ipP		39	17.2	1.0			2.0		
		C & GS 12-49-07; 57 N., 162½ E. Near east coast of Kamchatka (P-H) = 7555 Km ca.								
	X iP	13	00	5.0	.75			3.0d		
	X iP	14	46	1.3	1.2			1.0C		
	X i(P)	15	59	58.6	1.0			1.0		
	X i	16	02	29.6	1.0			1.8		
	X iP	18	49	35.0	1.2			2.5		
15		C & GS 09-30-24; 15 S., 75 W., near coast of Southern Peru, 4 injured and minor damage in Ica Province. Felt in Lima area. h about 150 Km. Mag. 7 (Pas.), 6½ Berk. (P-H) = 6220 Km. ca.								
	X iPZN	09	39	36.3	1.5		5.0	17.0C		17.0
	X i(pP)ZN		40	18.0	1.0		2.5	15.0		6.5
	X iSZN	09	47	10.9	4.5		6.0	4.0		25.0
	X elZN	10	00	00	-	-	-	-	-	-
	X iP	16	41	18.6	1.0			1.5		
16		C & GS 20-49-31; 63 N., 151 W., Alaska. Felt: College, h about 150 Km. (P-H) = 4810 Km. ca.								
	X ePZEN	20	57	20.7	1.0	-	-	7.0C		
	X i		59	03.7	.5			4.0		
	X iScP	21	02	48.6	.5			1.5		
17	X iP	00	10	42.4	.5			1.5C		
	X iP	01	09	12.5	1.5			1.2C		
		C & GS 02-57-58; 14½ S., 74½ W., Near coast of Southern Peru h about 150 Km. - Mag. 6¼ (Pas.) (P-H) = 3850 Km. ca.								
	X iP	03	07	8.7	1.2			5.5C		
	X i(pP)		16	0	1.5			6.0		
		C & GS 04-19-07; 40½ N., 142 E., Off the coast of northern Honshu, Japan. (P-H) = 9780 Km. ca.								
	X e(P)	04	31	57.4	.75			.5		

Date	Phase	Time GCT			Period (Sec)			Trace (Amp) mms		
		h	m	s	Z	E	N	Z	E	N
Jan 18	C & GS 19-30-18; 9 N., 77 W., off the coast of Panama. Felt: Balboa Heights - h about 100 Km. (P-H) = 3500 Km. ca.									
	iP	19	36	33.2	1.5			2.0C		
	i(pP)			45.0	1.3			3.5		
20	C & GS 01-14-22.6; 3½ N., 31 W., Mid-Atlantic Ocean									
	i	01	14	12.5	1.0			1.0		
	C & GS 03-25-50; 36½ N., 122 W., near coast of Central California. Minor damage near Hollister. Mag 5 (Pas), (Berk) (P-H) = 2480 Km. ca.									
	iP	03	30	47.5	1.5			1.5		
	iSN			37-27.0		4.0				3.0
21	C & GS 11-42-37.4; 11-42-37.4; 1.0; 4.5d									
	iP	11	42	37.4	1.0			4.5d		
	iP	16	07	20.4	1.0			3.0d		
	iP	21	29	46.0	.75			1.0d		
22	C & GS 02-14-11; 42 N., 142½ E., Fiji Islands, h about 600 Km. (P-H) = 11,080 Km. ca.									
	iP	02	26	58.9	1.0			1.5D		
	i	07	36	5.2	.75			.5d		
	C & GS 13-35-54; 0, 125 E., Molucca Passage (P-H) = 13,665 Km. ca.									
	e	13	58	23.0	1.75			1.0		
23	C & GS 03-00-10.0; 03-00-10.0; 1.0; 1.0D									
	i(P)	03	00	10.0	1.0			1.0D		
	C & GS 04-40-56; 4 S., 127½ E. Ceram Island region. Mag. 6¼ (Pas) (P-H) = 14,200 Km. ca.									
	e(P')	05	00	7.3	-			1.0D		
	iZEN			03-35.4	2.0	7.4	5.6	1.5	8.0	4.0
	C & GS 07-31-14; 4 S., 127½ E. Ceram Island region. Mag. 6 3/4 (Pas.) (P-H) = 14,200 Km. ca.									
	i(P')	07	50	28.5	1.8			1.5D		
	i			52-41.3	2.0			1.5		
	i(PKS)ZEN	07	53	52.5	1.0	4.0	4.0	2.0	7.0	3.0
	C & GS 17-56-30; 4S., 127½ E., Ceram Island region. Mag. 6½-6 3/4 (Pas.). (P-H) = 14,200 Km. ca.									
	i(P')	18	15	47.3	1.0			1.5		
	i(PKS)			18-13.8	2.0			2.0		

Date	Phase	Time GCT			Period (Sec)			Trace (Amp) mms		
		h	m	s	Z	E	N	Z	E	N
Jan. 24	C & GS 00-39-33; 43½ N., 127½ W. Off the coast of Oregon. Mag. 4½ (Berk.) (P-H) = 2890 Km. ca.									
	iP	00	45	12.2	1.2			1.5D		
	iEN		50	09.0	5.0 7.0			3.0 4.0		
	i(L)EN		53	36.0	10.0 8.0			5.0 3.0		
	C & GS 04-21-42; 15½ S., 179 W. Fiji Islands. Mag. 6¼-6½ (Pas.) 6-6¼ (Berk.). (P-H) = 10,780 Km. ca.									
	iP	04	35	11.9	2.0			1.0D		
	e(S)EN		45	57.1						
	iP	06	33	29.4	1.0			.5		
26	i	03	30	12.4	2.5			1.0		
	e	03	50	24.9						
	C & GS 09-37-00; 44½ N., 149½ E. Kurile Islands (P-H) = 9150 Km. ca.									
	eP	09	49	20.4						
	C & GS 13-05-40; 38 N., 29 E., Turkey (P-H) = 9,900 Km. ca.									
	e(P)	13	18	34.3						
	C & GS 18-19-55; 13 N., 87½ W. Near coast of Nicaragua. Felt: San Salvador. h about 60 Km. (P-H) = 2700 Km. ca.									
	iP	18	25	8.4	.5			2.0D		
	i(pP)		33	8	1.2			4.0		
27	iP	00	16	3.9	1.0			1.5D		
28	iP	02	37	50.5	1.0			1.0D		
	i		50	17.6	.5			.2		
29	e	15	38	9.8	1.0			.5		
31	i(P)	14	59	52.6				2.0		
Feb. 1	C & GS 11-59-34; 35 N., 23½ E. Near west coast of Crete. (P-H) = 9800 Km. ca.									
	e(P)	12	12	32.5	1.5			1.0		
	C & GS 13-56-08; 50½ N., 160 E. Off coast of Kamchatka (P-H) = 8050 Km. ca.									
	iP	14	07	34.0	1.0			5.5D		

Date	Phase	Time GCT			Period (Sec)			Trace (Amp) mms		
		h	m	s	Z	E	N	Z	E	N
Feb. 2	C & GS 08-10-15; 39 N., 140 E. Near west coast of Honshu, Japan. (P-H) = 10,500 Km. ca.									
X	i(P)	08-23-33.8			1.0			.8		
X	C & GS 09-12-52; 28½ S., 69 W., San Juan Province, Argentina. (P-H) = 7665 Km. ca.									
X	iP	09-23-57.0			.5			3.0C		
3	C & GS 11-29-55; 24 N., 108½ W. Gulf of California. (P-H) = Km. ca.									
X	iP	11-33-57.2			1.5			1.0		
X	eZN	39-12.7			2.5		8.0	1.0		8.0
X	C & GS 14-28-39; 19 S., 173½ W. Tonga Islands (P-H) = 10,445 Km. ca.									
X	iP	14-41-54.6			1.0			1.0		
4	C & GS 03-46-30; 4½ S., 153½ E. New Ireland region (P-H) = 12,000 Km. ca.									
✓	eP' or PP	04-05-34.0			2.5			1.0		
✓	iPKKP	16-16.5			2.0			1.0		
✓	i	44.5			1.0			2.5		
✓	C & GS 16-50-30; 39 N., 143 E. Off the coast of Honshu, Japan. (P-H) = 9890 Km. ca.									
✓	e(P)	17-03-22.5			2.0			.8		
✓	e	36.0			1.75			4.5		
5	e	01-23-42.0			1.5			1.2		
✓	C & GS 02-02-14; 37 S., 95½ W. South Pacific Ocean. (P-H) = 8190 Km. ca.									
✓	iP	02-13-45.3			2.2			3.0		
✓	i(pP)	50.8			1.8			4.0		
6	C & GS 17-10-45; 6 S., 104 E. Near the coast of Sumatra. (P-H) = 16,445 Km. ca.									
✓	iP'	17-30-26.0			.5			6.0C		
7	C & GS 04-24-50; 7½ N., 71½ W. Venezuela. (P-H) = 4000 Km. ca.									
✓	iP	04-31-48.6			1.0			2.0C		
✓	i(pP)	59.0			1.0			2.0		
✓	C & GS 10-07-50; 5 N., 123 E. Celebes Sea. h about 600 Km. (P-H) = 11,800 Km. ca.									
✓	i(P')	10-25-51.5			2.0			2.0		
✓	i	28-14.0			2.0			3.0		



Date	Phase	GCT			Period (Sec)			Trace (Amp) mms		
		h	m	s	Z	E	N	Z	E	N
Feb. 7	e(P)	13	13	11.0	1.5			1.0		
8	C & GS 03-37-20; 58½ N., 152 W. Kodiak Islands, Alaska. (P-H) = 4780 Km. ca.									
	eP	03	45	22.8	1.0			.5D		
	e	09	53	52.9	-			-		
	C & GS 12-45-34; 58 S., 67 W. Drake Passage; (P-H) = 10,850 Km. ca.									
	iP	12	59	06.2	1.5			1.0d		
	i(PP)	13	03	01.7	1.5			4.0		
	e	18	02	10.0	1.2			.8		
	C & GS 19-06-16; 8½ S., 74½ W. Peru. h about 200 Km. (P-H) = 5300 Km. ca.									
	iP	19	14	37.0	1.0			5.0D		
	ipP	19	15	11.0	1.5			3.0		
	i(sP)			46.4	1.2			1.5		
	iP	22	06	59.9	.9			2.0		
	i(pP)			07-38.3	1.0			1.0		
9	iP	22	22	21.0	1.0			1.5D		
10	iP	00	15	01.9	1.6			4.0D		
	i			17-20.8	2.7			3.5		
11	C & GS 12-53-59; 34 S., 70½ W. Chile. h about 100 Km. (P-H) = 7800 Km. ca.									
	iP	13	05	12.4	1.2			6.0D		
	ipP			51.3	1.5			7.0		
13	iP	00	32	30.7	1.5			2.5C		
	ipP	00	32	47.7	1.2			3.0		
	C & GS 15-41-04; 1½ N., 127½ E. Halmahera. (P-H) = 13,890 Km. ca.									
	e	16	00	11.1	-			-		
	iP	17	18	10.4	1.5			7.5C		
	i	19	14	31.2	-			-		
	C & GS 20-40-06; 17½ S., 70 W. Peru. h about 150 Km. (P-H) = 6450 Km. ca.									
	iP	20	49	46.3	1.0			2.0D		



Date	Phase	GCT h m s	Period (Sec)			Trace (Amp) mms		
			Z	E	N	Z	E	N
Feb. 14	C & GS 01-30-27; 36½ N., 94½ W. Missouri-Oklahoma border. (P-H) = 244 Km. ca.							
	iPZEN	01-30-38.0	-	-	-	4.0D	-	-
	iSZEN	31-04.6	-	-	-	10.0	-	-
	e(L)ZEN	32-00	-	-	-	-	-	-
	iP	05-32-35.8	1.0	-	-	2.0C	-	-
	e(P)	09-47-14.8	1.5	-	-	1.2D	-	-
	C & GS 18-20-46; 6 S., 75½ W. Northern Peru. h about 150 Km.							
	i(P)	18-29-53.7	1.5	-	-	2.0C	-	-
	C & GS 22-17-54; 52 N., 171½ W. Fox Islands, Aleutian Islands, (P-H) = 5890 Km.ca.							
	i(P)	22.27-26.7	1.5	-	-	2.0D	-	-
15	e(P)	02-46-20.1	1.5	-	-	.8	-	-
	C & GS 07-36-08; 12 N., 87 W., near the coast of Nicaragua. (P-H) = 2930 Km. ca.							
	iP	07-41-40.8	1.9	-	-	3.0C	-	-
	e	16-44.27.8	1.0	-	-	.5	-	-
16	iP	03-16-03.7	.8	-	-	1.5D	-	-
	C & GS 13-14-31; 22 N., 45½ W. Atlantic Ocean. (P-H) = 5130 Km. ca.							
	eP	13-22-45.9	1.5	-	-	1.0	-	-
17	C & GS 12-32-10; 30 S., 112½ W. Easter Islands region. Mag. 6½ (Pas.). (P-H) = 7680 Km. ca.							
	iPZEN	12-43-12.0	2.0	3.0	-	2.0D	1.0	-
	C & GS 16-27-40; 43½ N., 145½ E. Near the east coast of Hokkaido, Japan. (P-H) = 9310 Km. ca.							
	iP	16-40-10.3	1.0	-	-	2.0C	-	-
	e(SS)	56-15.0	-	-	-	.5	-	-
	e(SSS)ZN	17-01-00	1.0	-	-	1.0	-	-
	iP	18-39-15.5	1.0	-	-	2.2C	-	-
18	C & GS 19-21-49; 52½ N., 159 E. Near east coast of Kamchatka (P-H) = 7900 Km. ca.							
	iP	19-33-08.7	2.0	-	-	1.0	-	-

Date	Phase	Time GCT			Period (Sec)			Trace (Amp) mms		
		h	m	s	Z	E	N	Z	E	N
Feb.										
18	C & GS	21-35-11; 52½ N., 160 E. Near the east coast of Kamchatka (P-H) = 7900 Km. ca.								
	iP	21-46-26.8			1.0			.8C		
19	C & GS	05-09-23; 60½ N., 151W. Kenai Peninsula. Felt: Anchorage. (P-H) = 4810 Km. ca.								
	iP	05-17-22.0			1.5			2.0d		
	C & GS	10-36-46; 36 N., 70½E. Hindu Kush. h about 200 Km. (P-H) = 11,555 Km. ca.								
	iPZEN	10-50-42.5			1.5			1.0c		
	iPPZN	55-06.0			1.5		3.0	5.0		2.0
	ipPPZEN	55-53.0			1.0	5.0	4.0	3.0	1.5	2.0
	isPPZE	55-58.1			1.5	5.5	3.0	5.0	2.0	5.0
	iPPPZEN	57-03			.9	4.0	4.0	1.2	3.0	1.0
	ipPPPZE	57-45			1.5	4.4		2.0	2.0	
	iSKSEN	11-00-58.0				5.0	10.0		2.5	1.5
	iSKKSE	11-01-16				6.0			3.0	
	ipSEN	11-02-58				4.0	4.0		2.0	5.0
	iSPN	03-16					4.0			2.0
	i(pPS)EN	04-00				6.0	9.0		3.0	4.0
	i(sSP)N	04-41					5.0			4.0
22	iP	03-32-39.8			2.0			1.5D		
	e(P)	10-01-35.3			1.0			.5		
23	C & GS	07-34-30; 39 N., 20 E. Greece. (P-H) = 9455 Km. ca.								
	eP	07-47-4.1			1.5			1.0		
	eN	10-17-02.1					5.0			2.0
	e	19-22.5			-			.5		
24	C & GS	21-37-04; 7½ S., 156 E. Solomon Islands. Felt: Rabaul, Buin, Kieta, Numa. Mag. 6½-6 3/4 (Pas.) (P-H) = 12,000 Km. ca.								
	i(PP)	21-56-13.0			2.2			1.0		
	i(S)ZE	22-06-49.0			1.2	8.0		2.2	6.0	
	iLE	22-36-59.0				22.0			5.0	
	eL _M E	22-42-37.0				17.0			4.0	
	e	23-43-45.1			.4			.6		
25	iP	12-57-06.5			.8			2.0C		
	i(pP)?	0 09.3			.8			2.3		
	i(pP)?	29.7			.9			2.2		
	iP	15-21-52.3			1.0			2.1D		



Date	Phase	CT			Period (Sec)			Trace (Amp) mms		
		n	m	s	Z	E	N	Z	E	N
26	C & GS 06-32-36; 20 S., 174 W. Tonga Islands (P-H) = 10,445 Km.ca.									
	iP	06-45-53.6			1.2			2.0C		
	C & GS 21-29-05; Chiapas, Mexico. (P-H) = 2220 Km. ca.									
	iP	21-33-35.0			1.0			4.0D		
	i(pP)	48.8			1.0			9.0		
	C & GS 23-29-25; 51½ N., 178 W. Aleutian Islands. Mag. 6-6¼ (Pas.) (P-H) = 6600 Km. ca.									
	iPZEN	23-39-27.1			1.5	4.0	-	3.0C	3.0	-
	iSZEN	47-31.6				6.4	4.0		10.0	8.0
	iLEN	00-03-				16.0	18.0		5.0	6.0
27	C & GS 00-07-10; 51½ N., 178 W. Aleutian Islands. (P-H) = 6600 Km. ca.									
	iP	00-17-12.6			.5			2.0C		
	C & GS 08-10-03; 51½ N., 178 W. Aleutian Islands. (P-H) = 6600 Km. ca.									
	iP	08-20-07.1			.5			4.0C		
	C & GS 09-05-25; 6½ S., 102½ E. Off the south coast of Sumatra. (P-H) = 16,500 Km. ca.									
	iP'	09-25-10.5			1.0			2.0D		
28	C & GS 23-05-39; 3 S., 142 E. New Guinea. (P-H) = 12,780 Km. ca.									
	e(P)'	23-24-38.3			1.5			1.0		
29	e	02-18-29.1								
	3	06-01-23.0			1.0			.5		
	C & GS 08-34-30; 23½ N., 94½ E. Western Burma.									
	e	08-46-30.9			1.0			1.0		
Mar. 1	i(P')	00-06-21.3			1.5			3.0D		
	e(L)EN	15-04				18.0	20.0		4.0	4.0
	i(P)	07-24-28.2			1.0			2.0D		
2	C & GS 00-10-26; 19 N., 101½ W. Michoacan, Mexico. Felt: Mexico City. (P-H) = 2100 Km. ca.									
	iPZEN	00-14-44.5			.75		3.0	6.5D		3.0
	i(PP)	53.2			1.1			8.0		
	iSEN	18-41.5				7.0	7.0		4.0	5.0
	iZEN	21-16.3			1.7	4.0	3.0	1.5	7.0	5.0
	i(L)ZFN	23-11.1			3.0	8.3	8.0	1.5	9.2	9.0

Date	Phase	Time GCT			Period (Sec)			Trace (Amp) mms		
		h	m	s	Z	E	N	Z	E	N
Mar. 2	C & GS	04-34-46; 17 N., 93 W.			Chiagas, Mexico. (P-H) = 2200 Km.ca.					
	iP	04-39-11.4			1.0			3.0D		
	i(PP)	25.5			1.0			4.0		
	iS	42-20.6			.8			1.0		
4	C & GS	02-15-56; 50½ N., 177 W.			Andreanof Islands, Aleutian Islands. (P-H) = 6600 Km. ca.					
	iP	02-25-57.7			1.8			3.0D		
	i(PcP)	26-14.1			1.1			3.2		
	C & GS	03-53-00; 31 N., 129 E.			Near the south coast of Kyushu, Japan. h about 100 Km. Mag. 6½ (Pas.). (P-H) = 11,110 Km. ca.					
	iP	04-06-45.8			1.8			1.8C		
	i	06-51-35.7			1.0			1.1		
6	C & GS	04-11-54; 24 N., 108 W.			Gulf of California. Mag. 5-5¼ (Berk.) (P-H) = 2000 Km. ca.					
	iPZEN	04-15-56.2			1.8	3.0	5.0	5.0D	4.0	3.0
	iPPZEN	17-00.7			2.0	6.0	4.0	2.0	4.0	3.5
	iZEN	21-04.2			3.5	2.8	3.0	8.0	45.0	42.0
	e(L)ZEN	22			6.8	12.0	9.0	12.0	61.0	61.0
	iP	22-33-26.5			.8			3.2C		
7	C & GS	02-08-04; 5½ S., 101 E.			Off coast of Sumatra. (P-H) = 16,000 Km. ca.					
	i(P')	02-27-49.0			1.0			5.0D		
	C & GS	04-13-10; 1½ N., 125½ E.			Celebes. (P-H) = 14,445					
	iP'	04-32-16.7			1.1			4.1C		
	C & GS	06-11-38; 52 N., 153 E.			Off the southwest coast of Kamchatka. h about 100 Km. (P-H) = 8,190 Km. ca.					
	iP	06-23-08.5			.8			2.5D		
	iP	13-41-40.0			1.0			2.0C		
8	C & GS	16-33-38; 16½ S., 168½ E.			New Helrides Islands. Mag. 7-7¼ (Pas.); 7 (Berk.) h about 250 Km. (P-H) = 11,850 Km. ca.					
	iP	16-47-23.3			1.8			5.0D		
	ipP	58.5			.8			6.0		
	iPPZEN	51-46.8			2.8	4.0		7.0	4.0	
	iSEN	59-02.5			10.0			7.0		
	iPSEN	17-00-55.5			13.0			12.0		
	i	03-01.5			1.0			5.0		
	i(PKKP)	19.3								

Date	Phase	Time GCT			Period (Sec)			Trace (Amp) mms		
		h	m	s	Z	E	N	Z	E	N
Mar. 9/10	C & GS. 23-54-20; 16 S., 72 W., Southern Peru. 1 killed, several injured @ Arequipa. h about 150 Km. (P-H) = 6,000 Km. ca.									
	iPZEN	00-02-53.2			.5	4.0	4.0	20.0D	3.0	5.0
	i(PcP)	04-02.0			1.0			5.0		
	i(PP)	00-52.0			1.5			2.0		
	iSZEN	00-10-13.2				5.5	7.0		9.0	10.0
	e(P'P')	13-20.0								
10	C & GS. 13-44-25; 15 S., 174 W. Samoa Islands region. (P-H) = 8800 Km. ca.									
	iP	13-56-28.0			2.0			2.0C		
	C & GS. 14-32-39; 47 N., 152 E. Kurile Islands. h about 150 Km. (P-H) = 8290 Km. ca.									
	iP	14-43-32.1			1.0			3.2C		
	ipP	56.0			1.5			3.0		
	C & GS. 13-55-55; 14½ N., 91½ W. Guatemala. h about 100 Km. (P-H) = 2450 Km. ca.									
	iP	18-59-44.0			2.0			3.0		
12	C & GS. 12-47-40; South Carolina, Felt: Charleston, South Carolina, Augusta, Georgia. (P-H) = 700 Km. ca.									
	eP	12-49-13.0			.1			.2		
	iS	52-28.0			.5			3.0		
	C & GS. 13-47-52; 36½ S., 71 W., Chile-Argentina border. h about 150 Km. (P-H) = 7000 Km. ca.									
	iP	13-58-30.2			1.2			1.8D		
13	C & GS. 23-53-32; 7½ N., 77 W. Panama-Columbia border. Felt: Balboa Heights. h about 60 Km. Mag. 6-6¼ (Pas.) (P-H) = 2890 Km. ca.									
	iP	23-59-00.0			.9			3.0C		
	i(pP)	04.5			1.0			5.0		
14	C & GS. 00-40-43; 7½ N., 77 W. Panama-Columbia Aftershock. h about 60 Km. (P-H) = 2890 Km. ca.									
	iP	00-46-11.3			.8d			1.0		
	C & GS. 00-52-57; 42½ N., 143 E., Hakkaido, Japan. (P-H) = 8450 Km. ca.									
	i(P)	01-04-41.6			1.0			1.2d		
	C & GS. 20-57-03; 44½ N., 129½ W., off the coast of Oregon. (P-H) = 2335 Km. ca.									

Date	Phase	GCT Time			Period (Sec)			Trace (Amp) mms		
		h	m	s	Z	E	N	Z	E	N
Mar. 14	e	21	01	54.5	1.0			.2		
15	C & GS. 09-20-56; 51 N., 174½ W. Andreanof Islands, Aleutian Islands. (P-H) = 5400 Km. ca.									
	iP	09	29	45.2	.9			8.0D		
	i(P)	30	41	0.0	.9			5.0		
16	C & GS. 17-39.16; 15½ S., 173½ W. Samoa Islands region. (P-H) = 7000 Km. ca.									
	eP	17	49	41.7	1.0			.5D		
18	C & GS. 01-14-53; 15 N., 90 W. Guatemala. h about 150 Km. (P-H) = 1800 Km. ca.									
	iP	01	18	35.1	.8			3.0C		
	e(L)	23	01	01.1	1.2			2.0		
	e(P)	19	06	00.8	1.0			.5D		
	i(P)	22	05	32.0	2.0			3.0D		
20	C & GS. 13-36-54; 40 N., 143½ E. Off the coast of Honshu, Japan. h about 60 Km. (P-H) = 8000 Km. ca.									
	iP	13	48	17.0	1.0			2.0D		
	C & GS. 17-07-30; 40 N., 143½ E. Off the northeast coast of Honshu, Japan. Felt: Northern Honshu and southern Hokkaido. 5 foot seismic sea wave at Myako. h about 60 Km. Mag. 7 (Pas.), 7-7½ (Berk.). (P-H) = 8000 Km. ca.									
	iP	17	19	5.8	1.5			18.0D		
21	C & GS. 00-34-50; 39½ N., 143 E. Near the east coast of Honshu, Japan. Mag. 6½ (Pas.). (P-H) = 8000 Km. ca.									
	iP	00	45	17.7	3.0			1.5D		
	iP	07	11	23.9	.5			1.0D		
	i(P')	08	30	13.3	1.3			2.0D		
	iP	19	58	09.0	1.0			2.0D		
	ipP	19	58	19.1	1.5			5.0		
22	C & GS. 01-48-24; 16 N., 97½ W. Near coast of Oaxaco, Mexico. (P-H) = 1,780 Km. ca.									
	iPZEN	01	52	03.0	1.5	4.0		7.0C		8.0
	i(S)ZEN	56	31	31.4	1.0	7.0	5.0	1.0	4.0	5.0

Date	Phase	Time			Period (Sec)			Trace (Amp) mms		
		h	m	s	Z	E	N	Z	E	N
Mar.										
22	X e	04	49	33.2						
	X e	10	34	52.6						
	C & GS. 13-19-52; Jalisco, Mexico. Mag. $5\frac{1}{2}$ - $5\frac{3}{4}$ (Berk.) (P-H) = 1,600 Km. ca.									
	X iPZEN	13	23	07.7	1.5	3.6	2.4	15.0C	4.0	4.0
	X i(S)ZEN	29	33	33.4	3.0	8.0	6.4	1.5	25.0	20.0
	X e(L)ZEN	30	15	15.0	5.0	9.0	7.0	3.0	15.0	18.0
	X C & GS. 21-12-42; Near coast of western Java. h about 150 Km. (P-H) = 12,500 Km. ca.									
	X i(P')	21	31	07.9	.9			3.0D		
23	X eP	00	35	12.9						
	C & GS. 22-22-36; $39\frac{1}{2}$ N., 143 E. Near east coast of Honshu, Japan Mag. 6 (Pas.). (P-H) = 8700 Km. ca.									
	X e	22	34	31.5	3.0			1.0		
	X C & GS. 02-57-01; 50 N., $175\frac{1}{2}$ W. Andreanof Islands, Aleutian Islands. (P-H) = 5,600 Km. ca.									
	X eP	03	05	57.5	2.0			1.0		
24	C & GS. 05-54-28; 47 N., $152\frac{1}{2}$ E. Kurile Islands. (P-H) = 7580 Km. ca.									
	X iP	06	05	28.2	1.0			4.5C		
	X iP	14	09	09.5	.5			5.0D		
	X ipP			19.0	.8			2.5		
	X e	17	57	53.0				1.0		
27	C & GS. 20-15-46; 20 N., $104\frac{1}{2}$ W. Jalisco, Mexico. Mag. $5\frac{3}{4}$ -6 (Berk.), Mag. $6-6\frac{1}{4}$ (Pas.). (P-H) = 1,600 Km. ca.									
	X iPZEN	20	19	09.2	2.2	3.0	3.4	33.0C	8.0	14.0
	X i(S)ZEN	21	49		2.0	5.0	6.0	2.0	4.0	5.0
	X i(L)ZEN	25	31	31.6	2.5	6.0	6.0	4.5	54.0	60.0
	X iP	21	22	01.2	1.5			6.0C		
	X C & GS. 23-28-04; $37\frac{1}{2}$ S., 177 E. Off coast of North Island, N. Z. (P-H) = 12,400 Km. ca.									
	X e(P')	23	46	23.6	1.5			2.0		

Date	Phase	Time GCT			Period (Sec)			Trace (Amp) mms		
		h	m	s	Z	E	N	Z	E	N
Mar.										
28	C & GS.	00-13-38; 7½ N., 82 W. Off coast of Panama. Felt: Balboa Heights and Coiba Island. (P-H) = 2,740 Km. ca.			Mag. 6¼-6½ (Berk.), Mag. 6½-6¾ (Pas.)					
	iPZEN	00-18-55.9	1.0	3.0	4.0	4.0C	1.0	1.0		
29	e(L)ZE	06-47-41.5								
30	C & GS.	06-58-36; 51 N., 178½ W. Andreanof Islands, Aleutian Islands. (P-H) = 5760 Km. ca.								
	iP	07-07-41.1	.2				.5C			
	C & GS.	14-11-40; 3½ S., 102 E. Near the coast of Sumatra. (P-H) = 16,500 Km. ca.								
	i	14-30-16.8	.5				7.0C			
31	iP	01-51-51.6	1.2				2.3C			
	C & GS.	19-56-14; 26 N., 110 W. Gulf of California. (P-H) = 1380 Km. ca.			Mag. 5¼-5¾					
	iPZN	19-59-13.1	1.3	4.0		4.0C				
	i(S)EN	20-04-07.1	3.0	3.8		11.0	70.0			
	i(L)ZN	20-24-42.1	3.5	10.0		22.0	20.0			

The University of Arkansas Seismograph Station is located on the University Farm, 2.5 miles northwest of the main campus at Fayetteville. Coordinates of the station are $36^{\circ} 05.46'$ north latitude and $94^{\circ} 11.47'$ west longitude. Altitude above mean sea level is 1,325 feet. The seismometer pier rests on the Boone limestone of lower Mississippian age. Approximately 2,500 feet of limestone, shale and sandstone overlie the pre-Cambrian crystalline rocks in the vicinity of the station.



University of Arkansas
Seismograph Station
Department of Geology
Fayetteville, Arkansas

FAYETTEVILLE

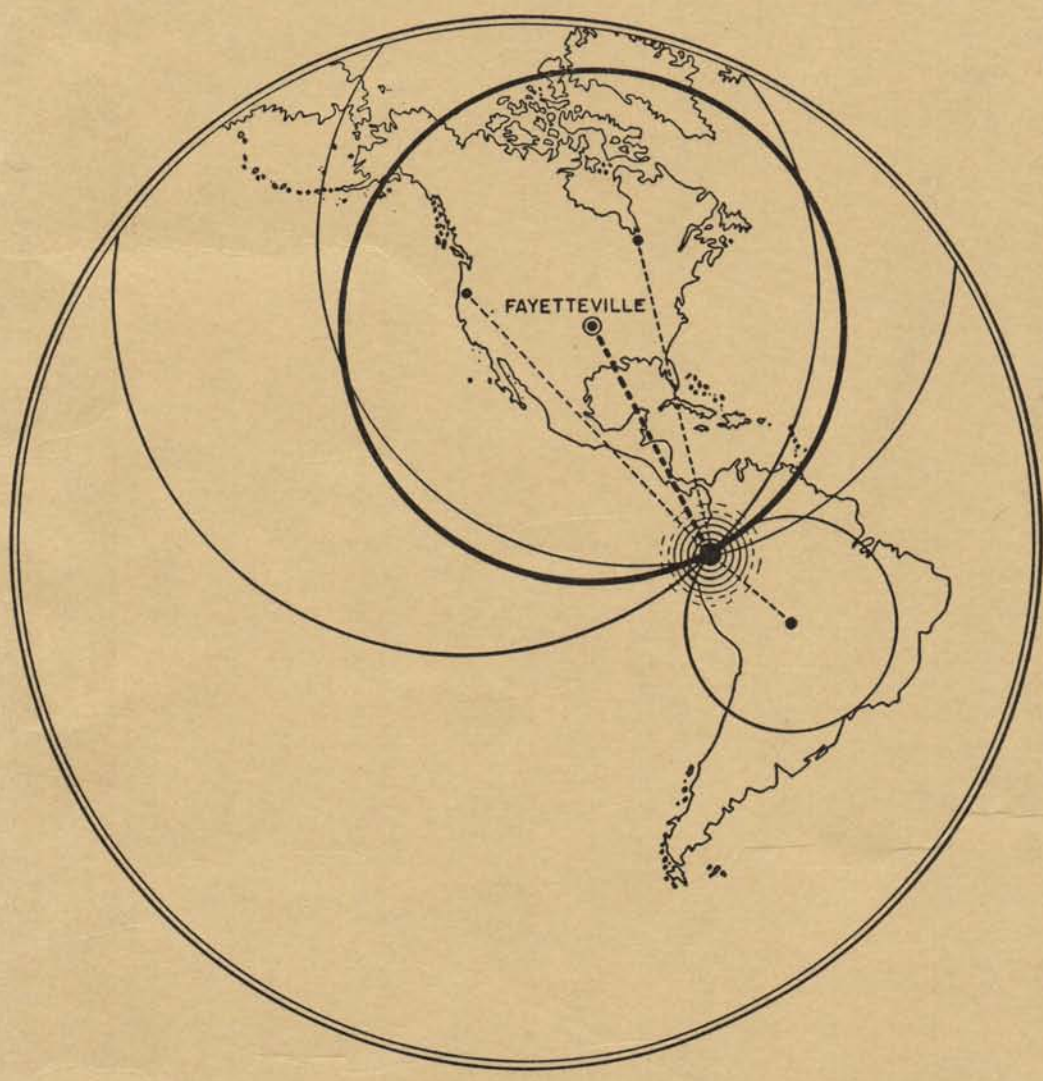
APRIL - JUNE 1960

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UNIVERSITY OF ARKANSAS
SEISMOLOGICAL BULLETIN

Volume IX

Number 2



The University Of Arkansas Seismograph Station

Operated by the University's Department of Geology

in conjunction with the

United States Coast and Geodetic Survey

FAYETTEVILLE SEISMOGRAPH STATION

Volume 9, Number 2, June 1960

Data for Apr., May, June, 1960

Instruments

Vertical component - Benioff moving coil type, short period
electromagnetic-galvanometric, Mass =
100 lbs.

Seismometer-Benioff moving coil period = 1.1 second
Galvanometer-Geotechnical Corp. period = 0.20 second
Damping ratio - about 15:1 (near critical)
Recording drum speed = 60 mm. per minute

Horizontal components - Wilson-Lamison hinges types: E-W,
N-S. electromagnetic - galvanometric

Seismometer period - 6.0 seconds (N-S)
6.0 seconds (E-W)
Galvanometer-General Electric period - 4.1 seconds (N-S)
3.80 seconds (E-W)
Recording drum speed - 30 mm. per minute

Clock - IBM, electrically wound, Invar pendulum type.
Accuracy limits generally within one tenth second.

Radio - WMV Time Signal impressed manually by telegraph key
on 5th, 10th, and 15th second. Time signals received
by a Hallicrafter receiver.

Vertical-Ground motion trace up (compression)
reading from left to right
N-S - Ground motion trace up - North
E-W - Ground motion trace up - East

(Additional information regarding the station is given on
the back cover.)

Information in "Remarks" column is usually from U. S. Coast and
Geodetic Survey epicenter cards. "C" following the trace amplitude
indicates a compressional motion of the wave; "D" indicates dilation.

Bulletin compiled by T. D. Mooney, Observer

Date	Phase	GCT			Period (Sec)			Trace (Amp)mms		
		h	m	s	Z	E	N	Z	E	N
Apr. 1	C & GS 13-18-23; 4½ S., 73½ W - Southern Peru - h about 100 Km. (P-H) = 5100 Km. Ca.									
	iP	13-26-39.6			.8			4.0C		
	i(pP)	-27-02.6			1.1			2.0		
	C & GS 14-12-05; 49 N., 129½ W - off coast of Vancouver Island (P-H) = 2555 Km. Ca. or 23°.									
	i(P)	14-17-05.7			1.0			2.0C		
	e(L)N	29-00				10.0			8.0	
6	C & GS 02-05-06; 20 S., 68½ W - Chile-Bolivia Border (P-H) = 6000 Km. Ca. or 54°.									
	iP	02-04-25.8			.8			11 OD		
10	C & GS 08-52-10; San Luis Province, Argentina. (P-H) = 7110 Km. Ca. or 64¼°.									
	iP	09-02-44.1			1.5			1.5C		
	C & GS 20-26-12; 53 N., 167½ W - Fox Islands, Aleutian Islands. (P-H) = 5000/cm. Ca. or 45°.									
	iP	20-34-24.1			1.0			1.0D		
13	C & GS 04-50-28; 52 N., 175 W - Andreanof Islands, Aleutian Islands (P-H) = 5555 Km. Ca. or 50°.									
	eP	04-59-19.3			1.0			1.0		
	C & GS 12-37-38; 15½ N., 92½ W - Guatemala-Mexico border. Mag. 5 3/4 (Berk.), 6 (Pas.). (P-H) = 1800 Km. Ca. or 16½°.									
	iPZEN	12-41-21.7			1.2		3.0	7.5C		4.0
	i(PPP)ZEN	42.7			1.0	3.0	3.0	15.0	3.0	9.0
	iSZEN	12-45-3.0			2.0	4.0	6.0	7.0	13.0	11.0
15	C & GS 03-25-38; 27 S., 113 W. - Easter Island region. Mag. 6½ (Pas.) (P-H) = 7500 Km. Ca. or 63°.									
	e(P)ZN	03-35-22.5			1.5		4.0	1.0		1.0
	e	11-15-25.9			1.5			.5		
	C & GS 11-39-01; 40½ N., 142 E. - Near north coast of Honshu, Japan. h about 150 Km. (P-H) = 8200 Km. Ca. or 63°.									
	iP	11-50-39.8			1.0			3.5C		
21	C & GS 02-16-29; 2½ S., 110 W. - Pacific Ocean, about 1200 mi. west of Galapagos Islands. Mag. 5 3/4 (Berk.). (P-H) = 7400 Km. Ca. or 66½°.									
	iPZN	02-23-17.8			2.0		5.0	2.0C		2.0
	i(S)N	38-38					16.0			4.0



Date	Phase	Time GCT m s	Period (Sec)			Trace (Amp)mms		
			Z	E	N	Z	E	N
Apr. 21	e	09-47-15.6	1.0			.5		
	e(P)	11-42-19.4	.8			.5		
	e	17-56-22.6	.5			.5		
22	C & GS 20-26-28; 17½ S., 174½ W. - Tonga Islands - h about 200 Km. (P-H) = 8380 Km. Ca. or 75½°.							
	iP	20-38-21.8	1.8			3.0C		
25	C & GS 14-53-53; 56 N., 155 W. - Kodiak Island region. (P-H) = 4280 Km. Ca. or 38¼°.							
	iP	15-01-09.9	.5			1.0d		
	C & GS 18-53-17; 13½ N., 88½ W. - Near coast of El Salvador - Felt. h about 100 Km. (P-H) = 2050 Km. Ca. or 18¼°.							
	iP	18-57-21.4	1.0			5.0C		
26	C & GS 16-23-01; 44½ N., 111 W. - Hebgen Lake, Montana. (P-H) = 1180 Km. Ca. or 10¼°.							
	eP	16-25-24	.5			1.0		
27	C & GS 04-32-30; 44½ N., 111 W. - Hebgen Lake, Montana. Felt: West Yellowstone. (P-H) = 1180 Km. or 10¼°.							
	e	04-35-18.0	1.0			.4		
29	C & GS 19-32-12; 0., 122 E. - Celebes. (P-H) = 12,110 Km. Ca. or 109°.							
	iP	19-50-27.0	1.2			2.0C		
	i	52-40.5	2.0			2.2		
	iZN	53-47.8	1.8	2.0		3.5	3.0	
30	C & GS 04-01-32; 0., 122 E. - Celebes. (P-H) = 12,110 Km. Ca. or 109°.							
	iP	04-19-47.6	2.0			1.5d		
	iZN	23-09.3	1.0	2.4		1.8	1.5	
	e(P)	22-27-05.5	1.0			.5		
	i(S)	29-50-5	.9			10.0		
May 1	e	05-00-23.6	.5			.8		
2	i(P)	02-24-31.0	1.0			.5		
	i(P)	08-54-13.2	1.5			2.0		
	iP	12-28-25.7	1.2			2.0d		
	i	30-44.0	2.0			2.2		
	i	31-48.0	1.1			3.0		

Date	Phase	GCT			Period (Sec)			Trace (Amp)mms			
		h	m	s	Z	E	N	Z	E	N	
May		C & GS 13-22-07; 0., 121½ E. - Celebes. (P-H) = 12,110 Km. Ca. or 109°.									
3	✓ e(P')	13	40	21.5	1.0			1.5			
	✗ i(P)	14	05	24.2	.5			2.0C			
5	✗ eZE	05	48	32.8							
	✗ eZE	08	53	02.7							
		C & GS 11-26-00; 52½ N., 158½ E. - near east coast of Kamchatka. (P-H) = 6780 Km. or 61°.									
	✓ iP	11	36	23.1	1.0			6.0C			
		C & GS 17-13-30; 42 N., 144 E. - Near east coast of Hakkaido, Japan. (P-H) = 75° or 8400 Km. Ca.									
	✓ eP	17	25	11.0	2.0			1.0			
6	✗ i(P)	12	16	47.7	.3			.5			
		C & GS 18-47-26; 54 N., 161 E. - Near east coast of Kamchatka. (P-H) = 6790 Km. Ca. or 61¼°.									
	✓ iP	18	57	33.5	1.0			2.5C			
8		C & GS 03-22-41; Pacific Ocean, about 900 miles southwest of Galafagos Islands. (P-H) = 4200 Km. Ca. or 37¼°.									
	✗ eP	03	29	49.8	1.5			1.0			
	✗ e	12	12	32.4	1.5			.8			
		C & GS 14-29-14; 45½ N., 151 E. - Kurile Islands. (P-H) = 7740 Km. Ca. or 69 3/4°.									
	✓ iP	14	40	23.1	.9			4.0C			
9		C & GS 06-46-00; 11 N., 63½ W. - Near coast of Venezuela. (P-H) = 3445 Km. Ca. or 31°.									
	✗ eP	06	52	14.0	1.0			.5			
		C & GS 16-27-26; 6½ N., 33½ W. - Atlantic Ocean. (P-H) = 6110 Km. Ca. or 55°.									
	✓ i(P)	16	36	54.0	1.0			1.8C			
10		C & GS 23-16-17; 15½ N., 92½ W. - Near coast of Chiapas, Mexico. (P-H) = 1860 Km. Ca. or 16 7/8°.									
	✓ iPZN	23	20	08.6	1.0	4.0		2.2e	1.5		
	✗ i(pP)			18.4	1.5			3.0			

Date	Phase	Time CGT			Period (Sec)			Trace (Amp)mms		
		h	m	s	Z	E	N	Z	E	N
May 12	C & GS 22-32-32; 7½ N., 81 W. - Panama. Felt. (P-H) = 2780 Km. Ca. or 25°.									
	iPZEN	22-37-52.0	1.5	9.0	8.0	1.8	3.0	4.0		
	i(PP)N	38-51.0			6.0			4.0		
	e(PcP)ZEN	43-01.0	1.5	15.0	16.0	.5	6.0	5.0		
13	C & GS 10-00-40; 20 N., 109 W. - Revilla Gigedo Islands region. (P-H) = 1800 Km. Ca. or 16½°.									
	iPZEN	10-04-24.4	1.1	1.0	2.0	1.0d	.3	.5		
	iLEN	08-24.9		10.0	10.0		5.0	4.0		
	i(L)EN	11-01.9		10.0	8.0		5.0	4.0		
	C & GS 16-07-12; 55 N., 161½ W. Alaska Peninsula. (P-H) = 4620 Km. Ca. or 41½°.									
	iPZEN	16-14-57.1	.8	1.0	1.0	6.0C	2.0	1.5		
	i	15-07.3	1.0			11.0				
	i(S)EN	22-19.8		5.0	6.0		9.0	5.0		
	iLEN	24-43.8		6.0	5.0		3.0	7.0		
	iLEN	25-03.8		3.0	4.5		2.0	5.5		
15	C & GS 21-37-08; 54½ N., 164½ W. - Alaska Peninsula. (P-H) = 4700 Km. Ca. or 42½°.									
	iP	21-45-06.0	.5			1.0				
17	C & GS 09-19-32; 78 N., 8 E. - Sualhard region. (P-H) = 5500 Km. Ca. or 49½°.									
	iP	09-28-18.8	1.5			2.0D				
18	C & GS 06-35-09; 29 N., 130 E. - Ryukyu Islands. h about 100 Km. (P-H) = 11,110 Km. Ca. or 100°.									
	iPZEN	06-48-03.5	2.0			1.0				
20	C & GS 04-14-18; Persian Gulf. (P-H) = 12,000 Km. Ca.									
	iZEN	04-27-09.9								
	C & GS 11-12-31; 28 S., 167½ E. - Norfolk Island. Mag. 6½-3.4 (Pas.)									
	eZEN	11-30-21.4								
21?	C & GS 12-59-58; 37½ S., 72½ W. - Chile. (P-H) = 7335 Km. Ca. or 66°.									
	iP	13-10-46.4	2.5			5.0C				
	C & GS 13-59-17; 37½ S., 72½ W. - Chile. (P-H) = 7335 Km. Ca. or 66°.									
	iP	14-10-11.8	1.2			2.0C				
	C & GS 15-08-45; 37½ S., 72½ W. - Chile. (P-H) = 7335 Km. Ca. or 66°.									
	iP	15-19-31.0	1.1			2.0D				

Date	Phase	GCT			Period (Sec)			Trace (Amp) mms		
		h	m	s	Z	E	N	Z	E	N
May 20	C & GS 17-54-02; 45 N., 111 W. - Hebgen Lake (P-H) = 1190 Km. Ca. or 10½°.									
21	eP	17-56-34.1			1.0			.5		
	i(L)ZEN	18-00-57.6			1.1	4.0		2.0		3.0
21	C & GS 10-02-50; 37½ S., 73½ W. Near coast of Chile. Many casualties and extensive property damage @ Concepcion and surrounding area. Mag. 7¼-7½ (Berk.) (P-H) = 7400 Km. Ca. or 66½°.									
	iPZEN	10-13-39.8			1.2	4.0		4.0C		6.0
	iPP	16-31.4			1.0			10.0		
	iPPP	19-33.7			2.0			5.0		
	i	22-14-36.1			1.5			1.0		
22	C & GS 03-46-22; 37½ S., 73 W. - Chile (P-H) = 7400 Km. Ca. or 66½°.									
	i(P)	03-57-07.2			2.0			1.0		
	C & GS 06-01-36; 38 S., 73½ W. Chile. (P-H) = 7400 Km. Ca. or 66½°.									
	iP	06-12-25.2			1.0			1.0		
	i	07-36-27.0			1.0			1.0		
	C & GS 08-10-53; 37½ S., 73 W. Chile (P-H) = 7335 Km. Ca.									
	iP	08-21-41.1			2.0			4.0D		
	iP	48.2			1.5			4.0		
	C & GS 10-30-39; 38 S., 73½ W. Near coast of Chile, Mag. 6½ (Pas.) 6¼ Berk. (P-H) = 7335 Km. Ca. or 66°.									
	iPZEN	10-41-27.3			1.1	3.0	5.0	3.0C	1.0	7.0
	iPPZEN	43-32.3			2.5	7.0	4.0	6.0	3.0	5.0
	iSSEN	53-22.0				10.0	7.0		35.0	42.0
	C & GS 12-16-43; 38 S., 73 W. Chile (P-H) = 7400 Km. Ca. or 66½°.									
	iP	12-27-33.8			1.0			2.0		
	C & GS 18-55-57; 38 S., 73½ W. Near coast of Chile. Mag. 7 3/4 Berk. (P-H) = 7400 Km. Ca. or 66½°.									
	iPZEN	19-06-47.5			2.0	4.0	5.5	12.0C	8.0	15.0
	(Station was operating at too great a sensitivity to distinguish phases or quakes recorded on record from 19-00 to 23-45 hrs. on 22 May 60.)									
23	C & GS 00-51-12; 37½ S., 72 W. Chile. (P-H) = 7400 Km. Ca. or 66½°.									
	iP	01-02-02.1			1.5			1.0		
	iPP	04-51.5			1.5			5.0		
	i(ScS)	12-33.1			1.0			1.0		
	e(Lq)	36-31.0			4.0			1.0		

Date	Phase	Time GCT			Period (Sec)			Trace (Amp)mms		
		h	m	s	Z	E	N	Z	E	N
May 23	C & GS 01-34-53; 39½ S., 74 W. Near coast of Chile. (P-H) = 7400 or 66½°.									
	iP	01	45	49.2	1.5			3.0	0D	
	iP			56.8	1.5			3.0		
	iP'		53	51.8	1.0			2.0		
	iS		54	45.9	1.1			2.0		
	i	02	06	39.7	2.0			3.0		
	C & GS 02-46-30; 41½ S., 73½ W. Southern Chile. (P-H) = 7600 Km. Ca. or 68½°.									
	iPZN	02	57	38.8	2.0	4.0		4.0	0C	3.0
	C & GS 02-56-17; 43 S., 75½ W. Near coast of Chile. (P-H) = 7560 Km. Ca. or 68°.									
	iPZN	03	07	28.4	2.0	5.0		3.0	0D	3.0
	iP		04	51-14.7	.8			2.0	0C	
	i		59	20.8	2.0			3.0		
	C & GS 05-13-35; 38 S., 73½ W. Chile. (P-H) = 7400 Km. Ca. or 66½°.									
	iPZEN	05	24	26.8	1.0	1.0	2.0	8.0	.5	5.0
	i(s)EN		34	05.0		8.0	8.0		5.0	5.0
	C & GS 07-09-17; 48 S., 77 W. Off coast of Chile. (P-H) = 8500 or 76½°.									
	iP	07	20	56.9	1.8			2.0	0C	
	iPPSEN		31	18.9		8.0	6.0		6.0	10.0
	iPS		36	29.4	1.0			1.5		
	C & GS 08-13-15; 40½ S., 75½ W. Near coast of Chile. (P-H) = 7400 Km. Ca. or 66½°.									
	iP	08	24	10.9	1.1			2.0	0D	
	C & GS 09-52-20; 37½ S., 73 W. Chile. (P-H) = 7400 Km. Ca. or 66½°.									
	iPZEN	10	03	07.8	1.5	3.0		4.0	0D	1.0
	C & GS 10-37-59; 43½ S., 75½ W. Chile. (P-H) = 7800 Km. Ca. or 66 3/4°.									
	iP	10	49	16.9	1.1			6.0		
	iP			22.0	1.1			4.0		
	C & GS 14-01-50; Near coast of Chile. (P-H) = 6445 Km. Ca. or 58°.									
	iP	14	11	47.7	1.5			2.0	0D	
	i(PP)		12	49.1	1.0			3.0		
	e(P)ZEN	16	10	08.5	4.0	6.0	7.0	1.5	5.0	10.0

May
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Near Pine Bluff, Arkansas. (P-H) = 190 miles.

X	iP	01-11-18.6	.1			4.0C		
	IS	39.5	.2			3.0		
	iL	57.6	.1			10.0		
X	i	02-58-11.0	1.0			.8D		
X	i(P)	03-34-46.2	1.1			1.0C		
X	e(P)	05-08-39.1	1.0			.8		
X	iP	08-03-20.3	1.8			3.0D		
X	eLmzn	15-45-30.0	25.0	26.0		1.5	10.0	

C & GS 20-32-43; 50½ S., 74 W. Southern Chile. (P-H) = 7335 Km. Ca or 66°.

	iP	20-42-44.5	1.0			1.0		
	iPP	44-38.5	1.5			2.0		

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X	i(P)	00-30-41.1	1.0			.8		
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C & GS 04-44-06; Southern Chile. (P-H) = 8220 Km. Ca. or 74°.

X	iP	04-55-41.8	1.3			2.0D		
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C & GS 08-34-33; 45 S., 76 W. Off coast of Chile. Mag. 6 3/4 (Pas.), 6¼-6½ (Berk.) (P-H) = 8010 Km. Ca. or 72°.

	iPZEN	08-45-57.0	1.2	4.0	6.0	10.3D	2.0	8.0
	iScSEN	56-16		11.0	12.0		5.0	8.0
	eLZEN	09-00-00						

X	i	10-10-22.8	1.0			1.0		
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X	iP	19-47-45.8	1.0			3.0D		
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	iPZEN	05-21-39.1	1.5	2.0	4.0	2.5	.5	2.0
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X	e	10-33-35.4	.8			.5		
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X	iP	19-28-16.6	1.0			1.0C		
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C & GS 00-25-03; 22 S., 172 E. Loyalty Islands region (P-H) = 11,890 Km. Ca. or 107°.

	e	00-47-39.8	1.5			1.0		
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C & GS 03-17-21; 41 S., 76 W. Off coast of Chile. (P-H) = 7640 Km. Ca. or 68 3/4°.

	iPZN	03-28-24.9	1.5	6.0		2.0D	2.5	
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	iP	06-09-47.4	1.0			1.5D		
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Date	Phase	Time GCT			Period (Sec)			Trace (Amp)mms		
		h	m	s	Z	E	N	Z	E	N
May 27	C & GS 20-49-12; Northern Chile-Bolivia border. (P-H) = 5880 Km. Ca. or 52 3/4°.									
	X iP	20	58	30.5	1.5			3.0D		
	C & GS 23-06-55; 45 S., 77 W. Chile. (P-H) = 7400 Km. Ca. or 66 1/2°.									
	✓ iP	23	18	17.2	2.1			5.0D		
	✓ i(P')ZEN	25	29	1	1.0	6.0		1.0	4.0	
	✓ i	31	51	7	1.0			5.0		
28	X iP	01	11	21.5	.1			.8		
	C & GS 03-05-53; 39 1/2 S., 74 1/2 W. Chile. (P-H) = 7400 Km. Ca. or 66 1/2°.									
	✓ iP	03	16	50.4	1.0			2.0C		
	X iP	10	55	11.9	1.0			6.0D		
	C & GS 11-15-40; 38 S., 73 W. Chile. (P-H) = 7400 Km. Ca. or 66 1/2°.									
	X iP	11	16	28.7	1.5			1.0C		
29	X iP	02	02	05.0	1.0			1.0		
	C & GS 07-39-29; 38 S., 72 1/2 W. Chile. Mag. 6 1/2 (Pas.), 6 1/4 (Berk.) (P-H) = 7400 Km. Ca. or 66 1/2°.									
	✓ iPZEN	07	50	12.6	1.2	4.0	4.2	5.0C	2.0	4.0
	✓ i(pP)ZN			22.8	1.8		4.0	7.0		3.0
	✓ i(S)EN	59	51	2		8.0	7.0		4.0	6.0
	✓ iScSEN	08	00	23.0		9.0	6.0		4.0	10.0
	C & GS 08-34-20; 37 1/2 S., 73 W. Southern Chile. (P-H) = 7400 Km. Ca. or 66 1/2°.									
	✓ iP	08	45	09.5	1.5			2.0D		
	X e	10	28	51.8	1.5			.5		
	C & GS 14-05-25; 37 1/2 S., 73 W. Near coast of Chile. (P-H) = 7400 Km. Ca. or 66 1/2°.									
	X iP	14	16	11.3	1.2			2.0C		
	X e	20	15	46.5	.5			.5		
	C & GS 21-23-54; Near coast of Southern Chile. (P-H) = 7400 Km. Ca. or 66 1/2°.									
	✓ iPZN	21	35	09.5	1.1	5.0		4.0C		3.0
	✓ i(SKKS)	50	42	5	1.5			3.0		

Date	Phase	Time GCT			Period (Sec)			Trace (Amp)mms		
		h	m	s	Z	E	N	Z	E	N
May 30	C & GS 17-01-15; 53½ N., 164 W. Unimak Island region. (P-H) = 4740 Km. Ca. or 42 3/4°.									
	iP	07	09	10.1	1.5			1.0		
	iPP		11	30.8	2.0			2.0		
	i(P)	17	57	32.1	1.1			2.0D		
31	C & GS 02-40-00; 39½ S., 75 W. Chile. Mag. 6 (Berk.) (P-H) = 7560 Km. Ca. or 68°.									
	iPZN	02	50	56.6	1.1		5.0	4.5D		3.0
	i(pP)		51	09.6	1.3			4.0		
	iSEN	03	00	56.0		6.0	8.0		2.0	4.0
	C & GS 11-02-20; 18 N., 62 W. Leeward Islands. Mag. 5 3.4 (Berk.) 6½-6 3/4 (Pas.) (P-H) = 3020 K. Ca. or 28°.									
	iPZEN	11	18	03.7	1.5	4.0	5.0	16.0C	6.0	3.0
	iPP			23.5	1.5			14.0		
	iPPP	09	07	0.0	1.0			7.0		
	i(PcP)ZEN			26.0	2.2	3.0	2.2	17.0	8.0	4.3
	iSEN		12	43.0		4.0	10.0		2.0	6.0
	iZEN		18	09.0	1.5	6.0	5.0	1.0	4.0	7.0
	i(Lm)EN		25	31.0		15.0	15.0		5.0	5.2
	iP	16	30	55.8	1.1			2.0C		
	i(P)	19	12	17.4	1.0			1.5C		
	C & GS 21-00-40; 5½ S., 109 ½ E. Java Sga. h = Km. (P-H) = 11,500 Km. Ca.									
	i(P')	21	18	08.4	.8			6.0C		
June 1	C & GS 05-02-56; 38 S., 73 W. Chile (P-H) = 7400 Km. Ca. or 66½°.									
	iP	05	13	45.6	1.5			1.0C		
	i	13	09	36.6	1.5			1.0		
	i(P)	14	18	02.6	1.0			2.0D		
	i	15	08	02.6	1.5			1.0		
	C & GS 21-12-50; 42 S., 74 W. Near coast of Chile. (P-H) = 7460 Km. Ca. or 66 3/4°.									
	iP	21	24	00.0	1.5			2.0D		
	iP	23	35	34.5	1.1			1.5D		
	i	23	45	03.1	1.0			2.0		

Date	Phase	GCT			Period (Sec)			Trace (Amp)mms		
		h	m	s	Z	E	N	Z	E	N
June 2	C & GS 05-58-03; 46½ S., 74 W. Southern Chile. Mag 6 3/4 (Pas.) (P-H) = 8450 Km. Ca. or 76°.									
	iPZEN	06-09-35.0			2.0	3.0	3.0	8.0D	2.0	4.0
	iP	40			1.9			9.0		
	i(ScS)EN	20-00.5				5.0	5.0		6.5	7.0
	i	07-31-17.6			1.0			.8		
	C & GS 08-36-10; 40 S., 74 W. Near the coast of Chile. (P-H) = 8700 Km. Ca. or 78 3/4°.									
	iPZEN	08-48-10.3			2.0	18.0	20.0	5.0	6.0	5.0
	i	13-41-56.7			1.0			1.2		
3	iP	10.36-27.3			.5			2.0D		
	C & GS 16-18-04; 41½ N., 141½ E. Near south coast of Hokkaido, Japan. h about 100 Km. (P-H) = 8500 Km. Ca. or 75¼°.									
	iP	16-29-45.6			1.0			2.0C		
	C & GS. 18-17-36; 42½ S., 75 W. Off coast of southern Chile. (P-H) = 7450 Km. Ca. or 67°.									
	iP	18-28-47.1			1.0			1.0D		
	C & GS 21-38-02; 31½ N. 114 W. Gulf of California. (P-H) = 1450 Km. Ca. or 13°.									
	iPZEN	21-41-07.8			1.8	2.0	2.0	3.0D	2.0	1.0
	i(L)ZEN	46-20.3			2.8	3.0	2.0	4.0	4.0	15.0
4	C & GS 02-27-06; 20 N., 95½ W. Near coast of Jalisco, Mexico. Mag. 6-6¼ (Pas.) (P-H) = 1600 Km. Ca. or 15°.									
	iPZEN	02-30-27.3			1.0	1.8	1.5	15.0C	3.0C	4.0
	iSZEN	33-53.8			2.0	8.0	3.0	7.0	6.0	10.0
	iLZEN	36-28.3			2.5	5.0	6.0	6.0	9.0	10.0
	C & GS 03-02-49; 39 S., 73½ W. Near coast of Chile. (P-H) = 8500 Km. Ca. or 76½°.									
	iP	03-13-43.8			1.1			2.5D		
	i	03-37-42.8			.5			.5		
	i(P)	08-17-48.3			1.5			.5		
	iP	09-46-38.4			1.0			.8		
	C & GS 10-14-11; 24 N., 143 E. Volcano Islands region (P-H) = 11,100 Km. Ca. or 100°.									
	i	10-34-33.8			1.0			2.0		

Date	Phase	e GCT			Period (Sec)			Trace (Amp)mms		
		h	m	s	Z	E	N	Z	E	N
June 4	C & GS 11-05-10; 39½ N., 30½ W. Azores Islands region. (P-H) = 4780 Km. Ca. or 43°.									
	eP	11-13-08.3			1.1			2.0		
5	iP	03-39-10.1			1.2			2.0D		
	eP	09-38-36.9			.2			.1		
	i(P)	20-38-53.2			1.0			1.2		
6	C & GS 01-17-48; 41 N., 125 W. Off coast of northern California Felt: Humboldt and Del Norte Counties, California. Mag. 5½-5 3/4 (Berk.) (P-H) = 2120 Km. Ca. or 19°.									
	iPZE	01-22-07.4			1.0	3.0		17.0D	11.0	
	i(pP)	26.0			1.0			6.0		
	iSZE	26-32.0			2.0	4.0		2.0	15.0	
	eLZE	30-07.0			4.2	7.0		3.0	7.0	
	C & GS 05-55-47; 45½ S., 73½ W. Near coast of Chile. Mag 6 3/4 (Pas.), 6 3/4-7 (Berk.). (P-H) = 8100 Km. Ca. or 73°.									
	iPZE	06-07-14.0			2.5	2.5		18.0D	10.0	
	iP	44.0			1.5			13.0		
	iPP	09-52.1			1.1			7.0		
	iPP	10-31.0			1.1			9.0		
	iPPP	11-44.1			2.0			4.0		
	iS	16-31.2			3.0			1.5		
	e(Lm)E	17-35.0				14.0	1		12.0	
	C & GS 17-15-33; 46 S., 73½ W. Near coast of Southern Chile. (P-H) = 8180 Km. Ca. or 73½°.									
	iP	17-27-05.0			1.0			.8		
7	iP	03-46-27.8			1.1			1.2D		
	C & GS 05-22-34; 40½ S., 72 W. Southern Chile. (P-H) = 8000 Km. Ca or 72°.									
	iP	05-33-41.5			1.1			2.0D		
	i	44-43.8			.9			1.0		
	C & GS 12-55-51; off coast of southern Chile. (P-H) = 7600 Km. Ca. or 69°.									
	iP	13-06-52.5			1.0			2.5C		
	i	07-30.0			1.0			5.0		
	i	14-13-31.5			1.0			1.0		
8	e(P)	02-58-30.6			.6			.6		
	iP	04-10-38.7			.5			.8D		

Date	Phase	Time GCT			Period (Sec)			Trace (Amp)mms		
		h	m	s	Z	E	N	Z	E	N
June 8	X iP	09	42	12.9	1.0			2.0D		
		C & GS 16-19-48; 35 N., 35 W. North Atlantic Ocean. (P-H) = 4500 Km. Ca. or 40 $\frac{1}{2}$ $^{\circ}$.								
	✓ iPZN	16	27	23.9	1.1	1.0		2.0C		.5
	X i	22	53	13.7	1.0			1.0		
		C & GS 05-05-01; 9S., 112 $\frac{1}{2}$ E. Near south coast of Java. h about 350 Km.								
	X i(P')	05	23	02.0	.5			2.0C		
9	X e	11	21	56.2	1.0			.3		
		C & GS 17-47-41; 38 N., 26 W. Azores Islands. (P-H) = 5110 Km. Ca. or 46 $^{\circ}$.								
	✓ iP	17	56	00.2	1.0			1.1		
10	X C & GS 14-29-47; 37 S., 75 W. Near coast of Chile. (P-H) = 7400 Km. Ca. or 66 $\frac{1}{2}$ $^{\circ}$.									
	X eP	14	40	30.0	1.5			.5		
11	C & GS 00-34-48; 21 S., 64 $\frac{1}{2}$ W. Southern Bolivia. h about 300 Km. (P-H) = 5900 Km. Ca. or 54 $^{\circ}$.									
	✓ iPZEN	00	43	48.8	.5	3.0	3.0	6.0D	3.0	3.0
	✓ ipP		44	25.5	1.0			5.0		
	✓ iSZEN		51	53.3	2.0	5.0	5.0	1.5	6.0	5.0
	✓ i(P)	12	00	22.5	1.0			1.0C		
		C & GS 15-14-07; 9 S., 152 $\frac{1}{2}$ E. D'Entrecasteaux Islands. Mag. 6 (Berk.) (P-H) = 12,800 Km. Ca. or 115 $^{\circ}$.								
	✓ e	15	31	51.5	.3			.5		
12	C & GS 07-19-43; 36 S., 98 W. South Pacific Ocean. Mag. 6 $\frac{1}{2}$ (Berk.) (P-H) = 7000 Km. Ca. or 63 $^{\circ}$.									
	✓ iPZN	07	30	09.3	1.0	2.0		4.0D		1.0
	✓ i(L)		49	22.8	1.0			2.0		
		C & GS 15-04-57. Southern Chile. (P-H) = 8000 Km. Ca.								
	X iP	15	16	31.7	1.8			3.0C		

Date	Phase	Time GCT			Period (Sec)			Trace (Amp) ^{mms}		
		h	m	s	Z	E	N	Z	E	N
June 12	X e	21	15	43.3	1.0			5		
	X iP	23	01	13.6	.8			1.0D		
13	C & GS	05-47-05;	44½ S.,	75½ W.	Off coast of southern Chile.					
		(P-H) = 8010 Km. Ca. or 72°.								
	X iPZEN	05-58-27.9			1.2	5.0	3.6	4.0D	1.0	1.5
	X e	14-43-30.1			.3			.2		
	X eZEN	48-39.1			2.5	2.8	3.0	2.0	3.0	2.5
	X e	23-43-03.8			1.2			2.0		
14	C & GS	02-54-13;	43 S.,	73 W.	Near coast of southern Chile.					
		(P-H) = 8000 Km. Ca. or 72°.								
	X iP	03-05-27.8			1.2			4.0D		
	X iP	11-55-48.0			.5			4.0C		
15	X iP	08-22-22.4			.5			1.0		
	X e(P)	09-51-57.5			1.0			1.0		
	X i(P)	11-29-24.8			1.8			1.0		
	X iP	12-26-29.5			1.5			3.0D		
	X iEN	32-31.0				6.0	7.0		5.0	3.0
	C & GS	15-36-51;	41 N.,	142½ E.	Near south coast of Honshu, Japan.					
		(P-H) = 8560 Km. Ca. or 77°.								
	X iP	15-48-41.5			1.5			2.0C		
	X i(PS)EN	59-22.0				6.0	6.0		10.0	3.0
16	C & GS	10-20-04;	2 S.,	69 E.	Indian Ocean					
	X e	10-41-43.6			2.0			.8		
17	X e	14-04-50.8			1.0			.5		
	C & GS	16-35-32;	52½ N.,	183½ W.	Andreanof Islands, Aleutian Islands. Mag. 6-6¼ (Pas.) (P-H) = 5450 Km. Ca. or 49°.					
	X iPZEN	16-44-17.4			.5	1.0	2.0	6.0C	2.0	3.0
	X iP	23-32-39.9			.5			5.0D		
18	X e	00-57-46.9			1.0			.5		
	X iEN	01-04-02.4				3.0	2.0		4.0	2.0
	X i	19-14-54.4			1.0			1.0		
	X C & GS	23-32-39;	Near South coast of Sumatra. (P-H) = 16,500 Km. Ca. or 148°.							



Date	Phase	iCT			Period (SEC)			Trace (Amp) mms			
		h	m	s	Z	E	N	Z	E	N	
June 18	X i	23	51	09.4	.5			3.0C			
	i			23.6	1.0			3.0			
19	X C & GS	02-21-18 Andaman Islands. (P-H) = 14,445 Km. Ca. or 130°.									
	X i(PP)	02	42	47.8	1.5			3.0C			
	e		50	59.0	1.0			.6			
	X e(P)	05	36	11.2	2.0			1.0			
	X iP	08	55	07.0	1.0			4.0D			
	Solomon Islands										
X	i	10	28	32.2	1.1			2.5			
X	iP	12	33	26.6	.5			4.0D			
✓	iP	12	45	54.9	1.0			3.0C			
X	i	13	12	12.8	2.0			2.0			
X	e	21	53	25.9	1.5			.5			
20	C & GS 02-01-08; 38 S., 73½ W. Near Coast of Chile. Mag. 7 (Pas.) 7½ (Berk.) (P-H) = 7400 Km. Ca. or 66½°.										
	✓ iPZEN	02	11	59.2	1.3	6.0	5.0	9.0C	5.0	10.0	
	✓ iPcP		12	31.2	1.5			3.0			
	✓ iSEN		21	44.7		11.0	12.0		35.0	30.0	
	✓ eLEN		30	00.0		20.0	15.0		8.0	10.0	
	C & GS 12-59-40; 39½ S., 73 W. Chile. Mag 6 3/4 (Pas.), 7 (Berk.) (P-H) = 7500 Km. Ca. or 67°.										
	✓ iPZEN	13	10	38.2	1.0	5.0	4.6	6.0C	5.0	8.0	
	✓ iPcP		12	31.2	1.5			3.0			
	✓ iSEN		20	25.4		9.0	10.0		21.0	19.0	
	C & GS 16-59-35; 38½ S., 74 W. Off coast of Chile. (P-H) = 7500 Km. Ca. or 67°.										
X	iP	17	10	25.8	1.5			4.0D			
21	X e	06	43	47.3	1.5			.5			
	C & GS 08-34-29; 4½ S., 105 W. Pacific Ocean, southwest of Galapagos Islands. (P-H) = 3900 Km. Ca. or 35°.										
	✓ eP	08	41	30.2	1.1			.4			
	X	C & GS 14-05-57; 2 S., 80½ W. Near coast of Ecuador. (P-H) = 3800 Km. Ca. or 34°.									
X	i(P)	14	12	34.6	1.0			2.0D			



Date	Time	Locality	Period (Sec)			Trace (Amp) mms		
			Z	E	N	Z	E	N
June 22	X	i(P) 04-31-34.3	2.0			1.5		
	X	C & GS 06-40-10; Near coast of Chile. (P-H) = 7500 Km. Ca. or 67°.						
	X	iP 06-51-08.3	1.5			3.0D		
	X	C & GS 08-11-50; Near coast of southern Chile. (P-H) = 8010 Km. Ca. or 72°.						
	X	iP 08-23-15.4	2.0			4.0C		
		C & GS 23-28-50; 52 N., 173 W. Andreanof Islands, Aleutian Islands (P-H) = 5350 Km. Ca. or 48°.						
	✓	iP 23-37-31.6	1.0			5.0C		
25	X	iPZEN 01-31-05.8	1.5	2.0	3.0	3.0C	1.5	.5
	X	iSZEN 36-25.0	4.0	3.6	3.0	4.0	5.0	11.0
		C & GS 13-53-37. 6½ N., 72½ W. Columbia. (P-H) = 3220 Km. Ca. or 29°.						
	✓	iPZEN 13-59-34.7	.8	1.0	1.0	12.0C	.5	.4
	✓	i 14-00-08.6	.8			9.0		
		iPP 00-23.0	1.5			5.0		
		iPcP 02-03.8	1.5			3.0		
		iSEN 03-53.0		3.0	4.2		2.2	3.0
	✓	iSSEN 08-37.2		4.0	5.0		5.0	2.5
	X	C & GS 14-58-59; 30 S., 177 W. Kermadec Islands.						
	X	eLZEN 15-39-39.5	2.0	16.0	8.0	3.0	4.0	3.0
		C & GS 19-35-27; 28 S., 68 W. h about 100 Km. Catamarca Province, Argentina. (P-H) = 6640 Km. Ca. or 59½°.						
	✓	iPZEN 19-45-18.4	1.0	2.0	2.5	16.0C	2.0	3.0
	✓	iP 43	1.1			12.0		
		iSP 54.0	1.5			9.0		
	✓	iPcP 46-06.0	1.5			3.5		
26	X	iP 06-28-13.1	1.4			3.0D		
27	X	iP 00-27-08.8	2.0			2.0D		
29		C & GS 01-57-14; Southern Chile. (P-H) = 7850 Km. Ca. or 70½°.						
	✓	iP 02-08-29.0	1.0			1.0		
	✓	iP 41.5	1.0			2.0		
	X	e 05-25-00.0		18.0	18.0		3.0	3.0
	X	iP 09-55-18.0	1.0			1.0		
	✓	C & GS 10-23-02; 47½ N., 27 W. Atlantic Ocean. (P-H) = 4720 Km. Ca. or 42½°.						
	✓	iPZE 10-30-54.5	1.5	2.0		1.3	.8	



Date	Phase	h	m	s	iCr	Period (Sec)			Trace (Amp) mms		
						Z	E	N	Z	E	N
June 29	C & GS 17-07-00; 53 N., 168p W. Fox Islands, Aleutian Islands. (P-H) = 5025 Km. Ca. or 45°.										
	iP		17	15	14.5		1.0				.5
June 30	C & GS 19-58-33; 60 N., 151 W. Kenai Peninsula, Alaska (P-H) = 4030 Km. Ca. or 40°.										
	iP		20	05	32.5		1.0				3.0
	iP				46.5		1.2				1.8
	iPPP				07-23.0		1.0				1.8
	iPcP				07-40.5		1.5				5.0

The University of Arkansas Seismograph Station is located on the University Farm, 2.5 miles northwest of the main campus at Fayetteville. Coordinates of the station are $36^{\circ}05.46'$ north latitude and $92^{\circ}05.46'$ west longitude. Altitude above mean sea level is 1,225 feet. The seismometer pier rests on the Boone limestone of lower Mississippian age. Approximately 2,500 feet of limestone, shale and sandstone overlie the pre-Cambrian crystalline rocks in the vicinity of the station.



University of Arkansas
Seismograph Station
Department of Geology
Fayetteville, Arkansas

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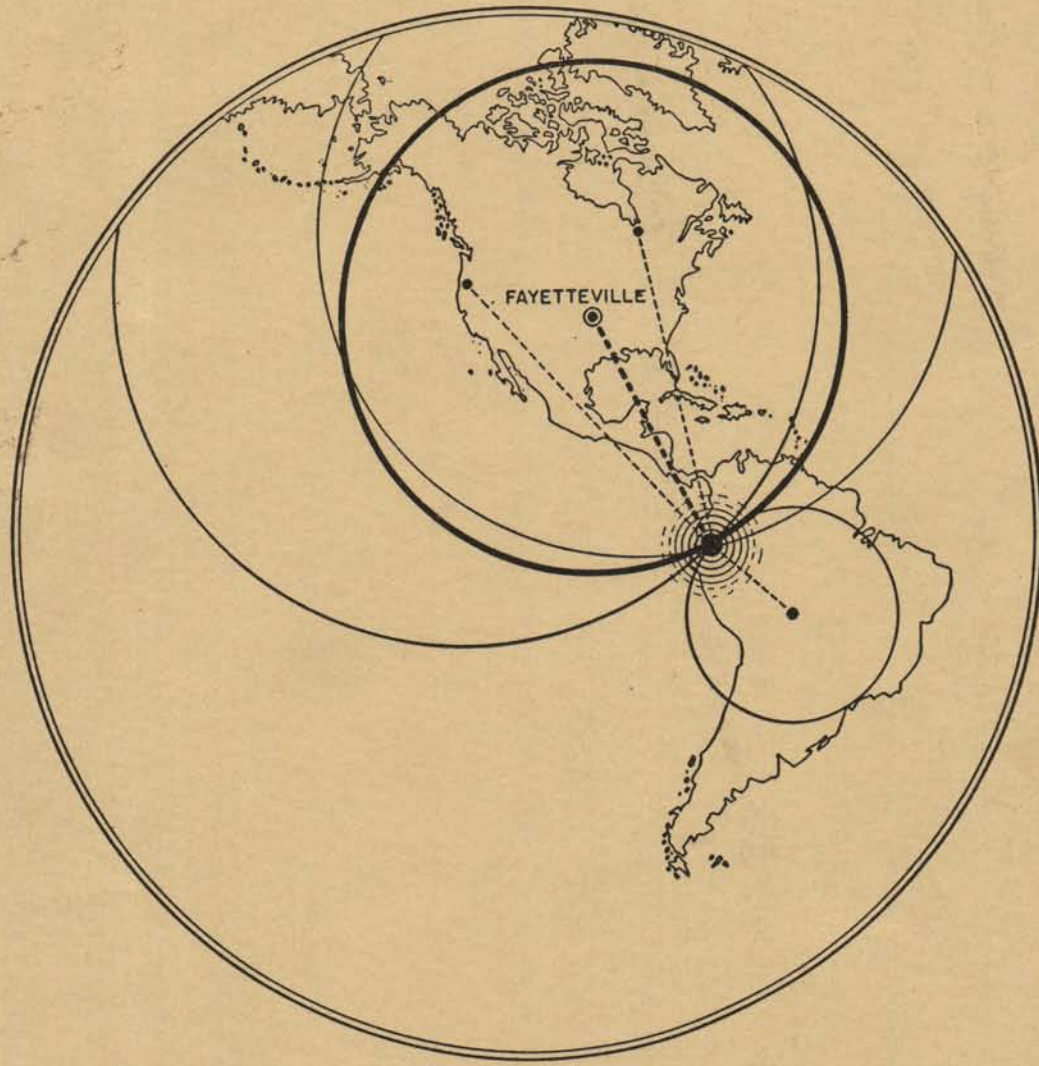
July-Sep 1960

UNIVERSITY OF ARKANSAS SEISMOLOGICAL BULLETIN

0390

Volume IX

Number 3



The University Of Arkansas Seismograph Station

Operated by the University's Department of Geology
in conjunction with the
United States Coast and Geodetic Survey

FAYETTEVILLE SEISMOGRAPH STATION

Volume 9, Number 3, September 1960

Data for July, Aug., Sept., 1960

Instruments

Vertical component - Benioff moving coil type, short period
electromagnetic-galvanometric, Mass =
100 lbs.

Seismometer-Benioff moving coil period = 1.1 second
Galvanometer-Geotechnical Corp. period = 0.2 second
Damping ratio - about 15:1 (near critical)
Recording drum speed = 60 mm. per minute

Horizontal components - Wilson-Lamison hinges types: E-W,
N-S. electromagnetic - galvanometric

Seismometer period - 6.0 seconds (N-S)
6.0 seconds (E-W)
Galvanometer-General Electric period - 4.1 seconds (N-S)
3.8 seconds (E-W)

Recording drum speed - 30 mm. per minute

Clock - IBM, electrically wound, invar pendulum type.
Accuracy limits generally within one tenth second.

Radio - WWV Time Signal impressed manually by telegraph key
on 5th, 10th, and 15th second. Time signals received
by a Hallicrafter receiver, S-40B.

Vertical-Ground motion trace up (compression)
reading from left to right
N-S - Ground motion trace up - North
E-W - Ground motion trace up - East

(Additional information regarding the station is given on
the back cover.)

Information in "Remarks" column is usually from U. S. Coast and
Geodetic Survey epicenter cards. "C" following the trace amplitude
indicates a compressional motion of the wave; "D" indicates dilation.

Bulletin compiled by P. D. Cate, Observer

Date	Phase	Time GCT			Period (Sec)			Trace (Amp) mms(1)		
		h	m	s	Z	E	N	Z	E	N
July										
1	C & GS	07-58-58;	56N,	16SE.,	Komandorskie Islands. (P-H) = 6460 Km.ca.					
	iP	08-09-48.5			.8			.9C		
	iP	09-56.0			1.5			2.0		
1 X	i(P)	20-33-55.0			1.4			.5C		
2	C & GS	04-29-30;	51½N.,	173½W.,	Andreanof Islands, Aleutian Islands. (P-H) = 5445 Km. ca. or 49°.					
	iP	04-39-14.0			1.0			1.0C		
	C & GS	08-58-05;	45½ S.,	73½ W.,	Southern Chile. (P-H) = 8165 Km. ca. or 73½°.					
	iP	09-10-36.5			1.5			.8C		
	iP	10-42.5			1.7			1.3		
3	C & GS	20-20-46;	50½ N.,	177W.	Andreanof Islands, Aleutian Islands. Mag. 6½ (Berk.) (P-H) = 6610 Km. ca. or 5°½°.					
	iPZEN	20-30-47.1								
	i(pP)	31-35.9								
	iEN	39-00.0								
	iEN	40-36.7								
	e(L)EN	59-00.0								
X	e(P)	23-02-26.5								
4	C & GS	04-28-33;	52 N.,	131½W.	Queen Charlotte Islands, Mag. 6½-6¾ (Pas.), 6½ (Berk.). (P-H) = 3500 Km. ca. or 31½°.					
	iPZEN	04-34-51.5								
	i(S)EN	39-55.5								
	i(L)ZEN									
4	C & GS	13-10-05;	52 N.,	131W.	Queen Charlotte Islands, Mag. 6 (Pas.) (P-H) = 3465 Km. ca. or 31¼°.					
	iP	13-16-21.1								
	iZEN	26-05.7								
2 X?	e	12-14-15.0			.8			.4		
	iEN					4.0	4.0		.8	1.7
	C & GS	21-53-22;	51½ N.,	175½ W.,	Andreanof Islands, Aleutian Islands. (P-H) = 5585 Km. ca. or 50°.					
X?	iP	22-02-15.0			1.0			.5		
	iP	45.5			.7			.8		
	iPcP	03-29.5			1.0			.9		
3 X?	iP	03-14-01.4			1.5			1.0		
4	i(P)	21-41-37.2			1.0			3.0D		

Date	Phase	Time GCT			Period (Sec)			Trace (Amp) mms (2)		
		h	m	s	Z	E	N	Z	E	N
5	C & GS 05-07-59; 51½ N., 178½ W. Andreanof Islands, Aleutian Islands. (P-H) = 6620 Km. ca. or 59½°.									
	iP	05	18	01	1.0			2.0C		
7	i	15	59	20.8	1.5			2.0D		
	e	16	56	53.3	1.5			1.0		
	i	17	49	38.5	2.0			1.3		
	i(P)	21	52	51.5	1.0			.3		
8	e	10	18	57.0	.5			.5		
	i	15	07	9.1	1.5			3.0C		
9	iP	02	14	56.0	.5			4.0		
10	iP	00	24	50.0	1.0			1.5		
11	C & GS 06-58-28; 38 S., 75 W., off Coast of Chile. (P-H) = 8555 Km. ca. or 77°.									
	iP	07	10	19.5	2.0			1.5		
	iP			24.0	1.5			.8		
	C & GS 11-54-16; 51½ N., 173 W., Andreanof Islands, Aleutian Islands. (P-H) = 6390 Km. ca., or 57½°.									
	iP	12	04	01.0	1.0			1.0D		
	C & GS 11-55-10; 16 S., 172 W. Tonga Islands region. Mag. 6 (Pas.) 6¼-6½ (Berk.). (P-H) = 10,060 Km. ca. or 90½°.									
	iPZEN	12	08	10.4	2.0	4.0	4.0	1.5D	1.7	1.0
	iPP			25.9	1.0			.8		
	iSEN			19-06.2		4.8	6.0		2.0	3.2
	eIEN			38-14.3		4.0	8.0		1.0	1.0
13	C & GS 07-24-55; 30½ N., 114 W., Gulf of California. (P-H) = 1990 Km. ca. or 18°.									
	iPZE	07	29	00.1	1.0	1.0		.5	.5	
	iZEN			34-11.6	2.5	3.0	2.0	2.0	2.0	6.0
	e	12	59	10.4	1.0			.5		
	C & GS 13-01-00; 41 N., 23½ E., Greece, minor damage on Chalcidice Peninsula. (P-H) = 9535 Km. ca. or 86°.									
	iP	13	13	36.9	1.0			3.0D		

Date	Phase	Time GCT			Period (Sec)			Trace(Amp) mms (3)		
		h	m	s	Z	E	N	Z	E	N
July										
13	C & GS 16-23-56; 17 N., 94½ W., Oaxada, Mexico, h about 150 km. (P-H) = 2140 Km. ca. or 19°.									
✓	iPZEN	16-28-09.2			1.0	.8	.8	9.0C	.2	2.2
	ipPZN	28-35.8			.8		3.0	11.0		6.0
	iSZEN	31-32.3			.6	4.0	2.8	3.0	3.0	4.0
14	C & GS 10-26-58; 5 N., 127½ E., Molucca Passage. (P-H) = 14,165 Km. ca. or 127½°.									
✓	iP'	10-46-00.4			.6			1.5D		
16	C & GS 21-19-37; 65½ N., 167½ W., Seward Peninsula, Alaska. (P-H) = 5725 Km. ca. or 51½°.									
✓	iP	21-28-38.7			1.1			1.0D		
	iP	-41.7			1.2			1.2		
	eLEN	46-56.5				5.0	4.0		1.0	3.0
	C & GS 22-02-53; 65½ N., 167½ W., Seward Peninsula, Alaska. (P-H) = 5725 Km. ca. or 51½°.									
✓	iP	22-11-55.0			1.0			2.0D		
	eLEN	30-49.4				4.0	4.0		2.0	2.0
18	X e	23-20-47.3								
19	C & GS 02-42-30; 1 N., 87½ W., Galapagos Islands region. (P-H) = 4120 Km. ca. or 37°.									
X	iP	02-49-36.5			.8			.4		
X	iP	41.5			.9			1.0		
	C & GS 04-19-14; 7 S., 80 W., near coast of Peru. (P-H) = 5,055 Km. ca. or 45½°.									
✓	iPZEN	04-27-30.6			1.3	3.0	1.2	3.5C	.7	1.2
	iPZN	27-42.6			1.0		3.0	6.7		1.7
	iPcP	-56.6			.9			2.0		
	iSZEN	34-07.6			2.5	3.0	4.6	.7	1.2	2.5
X	e	13-43-49.2			1.0			.2		
	C & GS 16-03-18; 16½ N., 92½ W., Chiapas, Mexico, h about 20 km. (P-H) = 2220 Km. ca. or 20°.									
✓	iPZEN	16-07-39.3			1.5	1.0	4.0	1.8D	.5	2.3
	ipP	-08-17.0			1.0			2.7		
	isPZEN	-52.3			.6	3.4	4.0	3.5	2.4	5.0
	iSEN	11-21.5				2.4	5.0		1.0	1.3
	iPcP	-54.0			1.2			1.7		
	iScSEN	18-49.0				4.0	3.0		1.3	1.0

Date	Phase	Time GCT			Period (Sec)			Trace(Amp)mms (4)		
		h	m	s	Z	E	N	Z	E	N
July										
20	C & GS 09-30-38; 49 N., 157½ W., Kurile Islands region. (P-H) = 8310 Km. ca., or 75°.									
	iPZEN	09	42	16.5	1.5	3.0	3.0	5.0 ^{OD}	2.0	1.0
	iP		43	03.5	1.0			2.0		
	iSEN		51	44.6		4.0	5.0		3.0	2.0
	C & GS 21-38-20; Southern Chile. (P-H) = 8555 Km. ca. or 77°.									
	iP	21	50	11.5	1.0			.5 ^C		
	iP		20	5	1.0			1.2		
	eSEN		59	39.0		5.0	7.0		.6	.8
22	i(P)	15	52	03.6	.5			.3 ^C		
	i		35	0	.7			1.0		
	iZE		44	5	1.0	.6		1.3	.7	
	i		54	51.5	.6			1.4		
	i(S)EN		56	09.5		4.0	3.0		1.0	1.0
23	i(P)ZE	14	18	03.4	.5	1.0		.5 ^C	.4	
	i		35	4	.6			1.3		
	iZEN		20	52.0	1.0	2.0	1.2	2.0	1.5	2.0
24	i(P)	01	22	30.0	.5			.5		
	C & GS 09-48-56; 56 N., 163 E., near coast of Kamchatka. (P-H) = 7445 Km. ca. or 67°.									
	iP	09	59	48.5	1.0			3.1 ^C		
	iP	10	00	15.5	1.0			1.5		
	iPP		02	18.5	2.0			.6		
25	C & GS 03-41-05; 55 N., 163 E., near coast of Kamchatka. Mag. 6½ (Pas.) 5 3/4-6 (Berk.) (P-H) = 7555 Km. ca. or 63°.									
	iP	03	52	03.3	1.3			1.0 ^{OD}		
	iP		16	5	2.0			2.5		
	iPPP		56	22.5	2.0			.7		
	iS	04	01	07.5	2.4			.5		
	C & GS 11-12-00; 54 N., 159 E. Kamchatka. h about 100 km. Mag. 6 3/4 (Berk.), 7 (Pas.). (P-H) = 7820 Km. ca. or 70½°.									
	iP	11	23	08.5	.5			27.0 ^C		
	ipP		32	5	1.0			12.0		
	ipP	25	55	5	1.4			4.0		
	iS	32	12	5	1.4			1.1		
	isS		46	5	2.0			2.0		
	iss	36	41	5	2.0			1.2		
	i(sSS)	37	41	5	2.8			1.0		
	iP'P'	50	57	5	2.8			1.0		

Henceforth, all preliminary epicenters will be determined by electronic digital computer by the U. S. C. & G. S. All coordinates and times are calculated to the nearest tenth. The depths listed are those at which the epicenters are calculated, however, they represent mean values and are subject to variations of about ± 25 km.

Date	Phase	Time GCT			Period (Sec)			Trace (Amp) mms		
		h	m	s	Z	E	N	Z	E	N
July 27	C & GS 08-56-22.9; 5.6 S., 103.6 E., h about 93 km, near coast of Sumatra. (P-H) = 16,200 Km. ca. or 146°.									
	iP'	09	15	53.3	.7			.8		
	iP'	16	00	0.8	.6			2.0		
	isP'ZEN	✓	06	0.8	1.5	2.0	2.8	2.5	.5	1.0
	C & GS 10-04-53.0; 44.7 S., 75.1 W.; h about 25 km., near coast of southern Chile. Mag. $6\frac{1}{4}$ - $6\frac{1}{2}$ (Pas.), 6 (Berk.). (P-H) = 9360 Km. ca. or 84°.									
	iPZEN	10	17	23.5	2.0	2.6	3.0	2.5D	.8	1.7
	iSEN	✓	27	28.3		7.0	7.0		2.5	1.7
29	ePZEN	00	42	31.0		3.0			1.8	
	e(S)EN	49	11	0.0		2.5			1.5	
	eLEN	01	16	07.0						
	C & GS 17-31-39.5; 40.1 N., 142.3 E., h about 50 km., Honshu, Japan. Mag. $6\frac{3}{4}$ (Pas.), $6\frac{3}{4}$ -7 (Berk.). (P-H) = 9725 Km. ca. or 87½°.									
	iPZEN	17	44	26.0	1.0	.5			1.0	1.0
	iSEN	54	43	0.0	2.0	3.0			1.5	1.0
	eLEN	18	14	11.0	7.0	5.5			3.0	2.5
31	e(P)	03	14	22.7	.7			.5		
	iZE	15	27	2.2	3.0	2.5		.5	.8	
	i(S)EN	22	24	2.2		2.0	2.0		4.0	.5
	i	25	16	7.7	1.5			.5		
	e(L)EN	✓	50	26.2		15.5			5.0	
	C & GS 14-55-03.3; 43.6 S., 74.3 W., h about 97 km. near coast of central Chile. (P-H) = 9040 Km. ca. or 81½°.									
	iPZEN	15	07	12.4	1.8	1.5	1.5	.5D	1.0	1.8
	iSEN	15	17	24.4		2.0	4.8		.8	1.0
Aug. 1	i(P)	18	37	22.2	2.0			.5		
2	C & GS 05-07-22.1; 22.2 S., 171.5 E., h about 108 km. Loyalty Islands. Mag. $6\frac{1}{2}$ (Pas.), $6\frac{1}{4}$ (Berk.). (P-H) = 12,080 Km. ca. or 108 3/4°.									
	iP	05	21	39.0	.8			.2		
	isP	22	11	1.2	1.0			.7		
	iPP	26	12	2.2	2.0			1.0		
	isP'ZEN	✓	27	07.7	2.5	1.4	2.0	.8	1.8	1.0

Date	Phase	Time GCT			Period (Sec)			Trace(Amp)mms		
		h	m	s	Z	E	N	Z	E	N
Aug. 2	(continued)									
✓	iSEN	31	14	5	5.0	6.0		2.2	2.0	
	isSEN	33	14	0	4.2	5.0		1.4	1.7	
	C & GS 06-14-47.1; 51.5 N., 178.3 W., h about 34 km. Andreanof Islands Aleutian Islands. (P-H) = 6615 Km. ca. or 60 3/4°.									
✓	iP	06	24	49.2	1.0			2.0C	a	
	iP	24	59	7	1.1			1.7		
	e(L)EN	10	32	15.3	2.0	7.0		1.0	1.0	
	C & GS 13-42-28.2; 4.5 S., 104.7 W., h about 93 km. Southwest of Galapagos Islands. (P-H) = 4660 Km. ca. or 42°.									
✓	iP	13	50	13.4	1.1			.5		
	C & GS 20-51-03.8; 84.2 N., 2.3 E., h about 40 km. North Polar Region. (P-H) = 6110 Km. ca. or 55°.									
✓	iP	21	00	32.0	.5			.5		
	iP				1.0			1.0		
	iPP				1.5			.7		
	eLE					6.0			1.1	
3 X	i(P)	01	25	36.1	2.0			1.5C		
4	C & GS 07-34-53.8; 51.4 N., 179.1 E., h about 83 km. Rat Is., Aleutian Is. Mag. 6-6 1/4 (Pas.), (P-H) = 6830 Km. ca. or 61 1/2°.									
✓	iPZEN	07	45	02.1	1.1	1.3	1.0	1.0C	1.0	.7
	ipP			21.1	1.0			2.0		
	isPZEN			33.6	1.6	2.0	1.8	3.5	2.0	3.7
	iPP	47	17	3	.9			1.4		
	ipPP			52.5	1.1			1.7		
	iPPP	48	42	5	2.0	1.0	1.0	1.5	1.2	.9
	iSEN	53	00	6	5.0	4.6		2.0	1.0	
	iScSEN	55	49	0	4.6	4.0		5.4	16.5	
	ePKKP	08	03	38.0	8.4	4.6		2.5	3.2	
X	iP	11	27	41.6	1.5			1.5		
X	C & GS 14-05-28.2; 51.3 N., 178.8 E., h about 59 Km. Rat Islands, Aleutian Islands. (P-H) = 6765 Km. ca. or 61°.									
X	iP	14	15	39.2	.8			.5C		
5	C & GS 16-06-33.4; 50.1 N., 156.8 E., h about 42 km. Off south coast of Kamchatka. (P-H) = 8055 Km. ca. or 73 1/2°.									
✓	iP	16	18	06.0	1.0			5.0C	a	
	iP			20.0	.9			3.0		

Date	Phase	Time GCT			Period (Sec)			Trace(Amp)mms (7)		
		h	m	s	Z	E	N	Z	E	N
Aug. 5	C & GS 22-27-34.2; 51.0 N., 178.7 E., h about 15 km. Rat Islands, Aleutian Islands. (P-H) = 6800 Km. ca. or 61°.									
	iP	22-37-47.2			.8			1.0C	a	
	iP	62.0			1.0			1.0		
	iSEN	46-06.0				4.0	4.0		1.5	3.0
6	e	12-58-45.0			.5			.5		
	C & GS 14-49-44.9; 42.4 S., 74.8 W., h about 35 km., near coast of Chile. (P-H) = 8920 Km. ca. or 80°.									
	iPZEN	15-01-54.0			1.5	2.0	3.0	2.0	1.0	1.0
	iPZN	02-04.0			1.0		2.2	1.4		.9
7	iP	10-13-36.3			.5			.3		
	C & GS 16-27-13.3; 42.3 N., 111.5 W., h about 16 km. Idaho. (P-H) = 985 Km. ca. or 8 3/4°.									
	iP	16-29-19.0			1.0			.5		
9	i	04-18-01.5			.7			.5		
	C & GS 06-10-11.0; 21.2 S., 71.6 W., h about 104 km. off coast of Chile. (P-H) = 6720 Km. ca. or 60 1/2°.									
	iP	06-20-14.9			.8			1.0D		
	iSEN					3.0	4.0		1.0	.8
	iSS	32-39.7			.7			.5		
	C & GS 07-39-22.6; 40.0 N., 126.6 W., h about 25 km. Off coast of northern California. Felt: Eureka, California. Mag. 7 (Berk.) (P-H) = 2950 Km. ca. or 26 1/2°.									
	iPZEN	07-44-57.3			1.0	1.2	1.8	1.0C	1.2	.8
	iP	45-50.7			1.5			5.0		
	iSZEN	49-36.0			3.1	5.0	7.0	1.8	4.5	7.6
	iLmaxZEN	56-01.5			8.0	9.6	9.0	4.0	1:11.5	2:0.0
	C & GS 16-46-37.7; 24.5 S., 177.1 W., h about 186 km. Tonga Islands region. Mag. 6-6 1/4 (Pas.), 6 1/4 (Berk.). (P-H) = 11,060 Km. ca. or 99 1/2°.									
	iP	17-00-01.9			.5			.7D		
	iPPZEN	04-03.9			1.2	3.0	2.2	.5	.8	.5
	iSKSEN	10-53.0				4.0	7.0		2.0	.7
	iSEN	11-41.0				4.8	7.0		2.5	1.3
	eEN	36-13.0				3.6	5.0		.9	.5
10	e(L)EN	00-30-00				22.0	20.0		2.0	2.0
	C & GS 12-38-48.3; 8.9 N., 83.5 W., h about 25 km. Near coast of Costa Rica. (P-H) = 3200 Km. ca. or 28 3/4°.									
	iP	12-44-42.7			.5			3.2D		

Date	Phase	Time GCT			Period (Sec)			Trace(Amp)mms (8)		
		h	m	s	Z	E	N	Z	E	N
Aug. 11	C & GS 02-36-56.5; 52.2 N., 176.2 W., h about 97 km. Andreanof Islands, Aleutian Islands. (P-H) = 6410 Km. ca. or 57 3/4°.									
	iP	02-46-39.6			.5			11.5C		
	ipP	47-01.0			.9			1.0		
	iPcP	✓32.1			.5			4.5		
	C & GS 02-53-16.3; 0.0, 121.6 E., h about 46 km. Celebes. (P-H) = 14,665 Km. ca or 132°.									
	iP'	03-12-26.5			.8			.5		
	iPP	15-48.0			1.0			1.0		
	iPKS	✓16-13.0			1.5			1.3		
	C & GS 04-50-33.9; 8.8 N., 126.1 E., h about 79 km. Mindanao, Philippine Islands. (P-H) = 13,340 Km. ca. or 120°									
	iP'	05-09-19.3			1.0			5.0C		
	iPP	✓10-47.0			1.0			1.8		
12	e(P)	11-25-25.3			.5			.3		
	e(P)	11-45-37.8			1.0			.5		
	C & GS 13-12-34.3; 36.1 N., 141.4 E., h about 95 km. Near east coast of Honshu, Japan. (P-H) = 10,200 Km. ca. or 92°.									
	iP	13-25-34.8			1.0			2.1C		
	i(P)	25-46.8			.7			2.0		
	ipP	✓26-07.8			1.0			2.0		
13	C & GS 07-11-05.5; 40.6 N., 142.0 E., h about 60 km. Near east coast of Honshu, Japan. (P-H) = 9860 Km. ca. or 88 1/2°.									
	iPZEN	07-23-51.0			1.0	2.0	2.0	4.5C	.5	1.0
	ipPZEN	✓24-06.0			1.0	1.4	1.6	6.3	1.5	1.7
	iPP	26-37.0			1.0			.5		
	iSEN	✓34-29.0				5.0	6.0		3.0	2.7
	C & GS 14-44-57.7; 39.7 S., 74.8W., h about 61 km. Near coast of southern Chile. (P-H) = 8670 Km. ca. or 78°.									
	iPZEN	14-26-50.0			1.5	2.0	1.4	6.5D	.5	1.0
	ipP	27-13.5			1.5			4.0		
	iPP	29-47.4			1.7			1.7		
	iSZEN	36-43.0			3.0	9.0	6.8	1.0	14.0	13.5
	iEN	✓47-43.0				18.0	9.0		4.0	2.5
	i(P)ZEN	17-17-11.0			1.0	2.0	1.6	1.0	.4	.5
	i(pP)ZN	17-33.0			1.0		4.0	1.0		.8
	i(S)ZEN	23-28.0			2.0	4.0	4.0	.8	2.7	1.5
14	C & GS 04-00-52.3; 45.4 N., 151.1 E., h about 54 km. Ryukyu Islands. (P-H) = 8785 Km. ca. or 79°.									
	iP	04-12-56.3			1.0			1.5C		
	i(pP)	✓13-09.8			1.5			1.0		

Date	Phase	Time GCT			Period (Sec)			Trace(Amp)mms (9)		
		h	m	s	Z	E	N	Z	E	N
Aug. 14	X iP	09	03	30.3	.6			1.0		
		C & GS 22-46-07.6; 23.5 S., 66.4 W., h about 245 km. Jujuy Province, Argentina. (P-H) = 7100 Km. ca. or 64°.								
	✓ iPZEN	22	55	24.5	1.0	2.0	2.4	6.6D	1.5	2.5
	iPcP	56	02	5	1.0			2.0		
	✓ iP	25	5		1.0			1.2		
15	X C & GS	05	35	21.0						
		05-35-21.0; 55.7 N., 163.9 E., h about 25 km. Komandorskie Islands. (P-H) = 7450 Km. ca. or 67°.								
	X iP	05	46	12.0	.7			.5D		
	iP				1.2			1.0		
	X iP	06	08	00.0	1.0			1.7		
	✓ e(P)	07	18	48.5	1.0			.2		
	✓ iP	14	53	33.5	.7			1.7		
16	C & GS	02	47	18.8						
		02-47-18.8; 16.5 S., 71.5 S., h about 113 km. Southern Peru. (P-H) = 6000 km. ca. or 54°.								
	✓ iP	02	56	51.4	1.0			1.5D		
	ipP	57	16	7	1.1			1.4		
	isP	25	3		1.0			1.0		
18	C & GS	20	47	02.5						
		20-47-02.5; 44.5 N., 147.6 E., h about 32 km. Kurile Islands. (P-H) = 9120 Km. ca. or 82°.								
	iP	20	59	22.3	.9			3.5C		
	iP	54	4		1.3			.9		
19	X C & GS	04	07	07.5						
		04-07-07.5; 40.7 N., 127.2 W., h about 27 km. Off coast of Northern California. (P-H) = 2988 Km. ca. or 27°.								
	X iP	04	12	44.5	1.5			1.0E		
	X iP	11	19	45.4	.8			1.3C		
		C & GS 17-03-39.0; 54.1 N., 160.6 E., h about 25 km. Near east coast of Kamchatka. (P-H) = 7745 Km. ca. or 69.8°.								
	✓ iP	17	14	48.5	1.5			1.8D		
	iP	15	00	2	1.0			5.0		
20	C & GS	00	19	34.4						
		00-19-34.4; 14.3 N., 91.4 W., h about 158 km. Guatemala. Felt El Salvador. Mag. 6 (Pas.). (P-H) = 2460 Km. ca. or 22.2°.								
	✓ iP	00	24	16.3	1.0			.8D		
	ipPZEN	34	8		1.4	2.8	3.4	2.3	1.0	2.8
	iSZEN	28	24	9	1.2	6.2	5.0	.8	4.8	3.5
	X e(P)	14	50	18.6	.5			.5		
	i(S)ZN	54	37	6	1.5	2.8		1.5		1.1

Date	Phase	Time GCT			Period (Sec)			Trace (Amp) mms			(10)
		h	m	s	Z	E	N	Z	E	N	
Aug. 20	X e(L)EN	20	58	00.0	25.0	23.0		4.0	4.0		
	X e(L)	22	44	08.5	2.5			1.0			
21	X e(P)	05	07	54.3	.5			.2			
	X i(S)	11	54	1.1	1.0			3.0			
	C & GS 12-49-37.6; 4.9 N., 125.1 E., h about 211 km. Near south coast of Mindanas, P. I. (P-H) = 13,560 Km. ca. or 122°.										
	iP'	13	08	16.7	1.1			2.3D			
	ipP'	09	05	0.0	.9			1.0			
	iPP		44	5.0	.9			1.0			
	iS	17	56	5.5	1.0			1.2			
23	X iP	02	14	57.6	.7			2.0D			
	X iP	08	14	32.8	1.0			1.0D			
	C & GS 14-08-14.9; 0.9 N., 26.0 W., h about 25 km. Atlantic Ocean. (P-H) = 8035 Km. ca. or 72.3°.										
	iP	14	19	39.8	1.0			2.0D			
	iP		57	0.0	1.0			.8			
24	C & GS 01-44-09.9; 56.3 N., 163.8 E., h about 25 km. Near east coast of Kamchatka. (P-H) = 7400 Km. ca. or 66.5°.										
	eP	01	54	58.9	.8			.5			
	iP	55	14	9.0	1.0			1.8			
	C & GS 05-49-01.1; 19.0 S., 174.1 W., h about 42 km. Tonga Islands. (P-H) = 10,400 Km. ca. or 93.6°.										
	iP	06	02	15.0	1.0			1.0D			
	iP		27	5.0	1.2			1.5			
25	Probable local earthquake (P-S) = 506 Km. ca. or 4.5°.										
	X iP	17	19	00.6	.4			.6			
	X i(S)		52	8.0	.2			4.7			
	C & GS 17-41-58.8; 52.7 N., 169.6 W., h about 38 km. Fox Islands, Aleutian Islands. (P-H) = 5985 Km. ca. or 54°.										
	iP	17	51	18.4	1.5			1.5D			
	iP		31	4.0	1.3			2.8			
	iP		53	5.0	1.1			1.3			
26	C & GS 00-14-04.9; 37.8 S., 73.2 W., h about 25 km. Near coast of Chile. (P-H) = 8500 Km. ca. or 76.5°.										
	X iP	00	25	54.1	2.0			1.0			
	X iP		26	06.0	1.0			.7			

Date	Phase	Time GCT			Period (Sec)			Trace (Amp) mms (11)		
		h	m	s	Z	E	N	Z	E	N
Aug. 27	C & GS 18-16-15.7; 49.9 N., 153.7 E., h about 220 km. Kurile Islands. (P-H) = 8660 Km. ca. or 78°.									
	iP	18-27-39.0			1.0					3.1C
	ipP	28-19.7			1.8					2.2
28	C & GS 06-05-22.6; 3.7 N., 82.8 W., h about 108 km. South of Panama. (P-H) = 3175 Km. ca. or 28.5°.									
	iP	06-11-54.5			1.0					2.2C
	ipP	12-19.0			.7					1.0
	isP	26.2			.9					1.5
30	C & GS 06-45-16.4; 20.9 S., 113.7 W., h about 40 km. South Pacific Ocean, about 500 miles northwest of Easter Island. (P-H) = 6635 Km. ca. or 59.7°.									
	eP	06-55-18.5			1.5					1.5
	iP	24.6			1.3					1.0
	eLEN	07-15-02.0				10.0	8.0			3.0 2.0
Sept. 1	C & GS 05-59-55.2; 7.0 N., 77.3 W., h about 56 km. Panama-Columbia border. (P-H) = 3665 Km. ca. or 33°.									
	iP	06-06-24.6			1.0					.8C
	e(L)E	08-41-19.2				4.0				.7
	e(L)EN	10-23-20.2				4.0	4.0			.5 .8
	C & GS 15-37-14.4; 56.1 N., 153.7 W., h about 24 km. Kodiak Island, Alaska. Mag. 6-6 $\frac{1}{4}$ (Pas.) (P-H) = 4945 Km. ca. or 44.5°.									
	iPZEN	15-45-23.6			1.0	3.0	3.2			.5 .5 .5
	iP	31.6			.6					2.0
	iSEN	51-28.6				5.0	5.0			1.7 1.0
	iLEN	55-19.1				5.0	8.0			4.0 3.5
	eL _m ZEN	16-03-39.1				10.0	16.4			5.0 9.0
	C & GS 18-41-16.2; 15.8 S., 179.2 E., h about 33 km. Fiji Islands. (P-H) = 10,575 Km. ca. or 95.2°.									
	iP	18-54-38.6			1.0					.9D
	C & GS 20-02-12.8; 16.1 S., 179.6 W., h about 183 km. Fiji Islands. (P-H) = 10,735 Km. ca. or 96.6°.									
	eP	20-15-23.0			.8					.9
2	iP	11-15-06.5			1.0					.8D
	C & GS 18-32-18.9; 31.9 S., 68.9 W., h about 25 km. San Juan Province Argentina. (P-H) = 7965 Km. ca. or 71.7°.									
	iP	18-43-40.0			1.0					2.5D
	iP	56.5			1.0					1.0

Date	Phase	Time GCT			Period (Sec)			Trace(Amp)mms (12)		
		h	m	s	Z	E	N	Z	E	N
Sept.										
2	C & GS 22-02-48.9; 52.0 N., 171.4 W., h about 49 Km. Fox Islands, Aleutian Islands. (P-H) = 6320 Km. ca. or 56.9°.									
✓	iPZEN	22-12-17.3			.8	1.4	1.8	1.7D	.5	.7
	ipZEN	33.3			1.0	1.6	1.8	2.5	1.5	1.5
	isPZEN	49.3			1.2	3.0	1.6	3.0	1.8	.8
	iPP	14-27.8			1.1			1.6		
	ipPP	48.0			1.6			1.7		
✓	iSEN	19-51.8				9.0	2.2		5.7	1.0
	iScSN						7.0			6.0
	eEN	34-07.8				6.0	13.0		2.2	3.0
3	C & GS 00-19-57.3; 43.2 N., 144.4 E., h about 14 km. Near north coast of Hokkaido, Japan. (P-H) = 8650 Km. ca. or 78°.									
✓	iP	00-31-52.0			.6			.9C		
	iP	32-06.4			.9			1.0		
	C & GS 12-41-34.9; 6.1 S., 154.5 E., h about 457 km. Solomon Islands. Felt at Karoola and Rabaul. Mag. 6 1/2 - 6 3/4 (Pas.) (P-H) = 13,500 Km. ca. or 121°.									
✓	eP	12-55-38.2			.8			.4C		
	eP'	59-19.2			.6			1.0		
✓	iPP	13-00-35.7			1.1			.9		
	ipPP	02-22.2			1.1			1.0		
	iPS	10-30.2			.6			.6		
X	i(P)	21-00-51.6			1.0			.5C		
	C & GS 23-46-23.9; 44.6 N., 149 E., h about 27 km. Kurile Islands. Mag. 6 1/4 (Pas.) (P-H) = 9045 Km. ca. or 81.4°.									
✓	iP	23-58-39.1			1.0			4.8C		
	iP	52.1			.8			3.5		
✓	iP	59-18.6			1.0			2.0		
	iSEN	00-08-22.6				5.8	4.0		9.0	3.0
4 X	iP	03-30-38.6			1.0			8.0		
5 X	e(P)	07-52-34.1			.6			.5C		
X	e(P)	10-01-40.6			1.0			.3		
6	C & GS 15-24-40.5; 41.9 N., 142.5 E., h about 109 Km. Near south coast of Hokkaido, Japan. (P-H) = 9640 Km. ca. or 86.8°.									
✓	iP	15-37-17.0			1.0			1.7C		
	ipP	44.1			1.0			1.3		
X	C & GS 21-24-26.4; 64.7 N., 86.4 W., h about 25 km. Southampton Island region. (P-H) = 3335 Km. ca. or 30°.									
	eP	21-30-32.0			.7			.3		
	iSZEN	39-33.0			1.5	2.0	4.0	.8	1.0	.8

Date	Phase	GCT			Period (Sec)			Trace (Amp) mms (13)		
		h	m	s	Z	E	N	Z	E	N
Sept. 7	iP	01	00	43.5	.8			.5D		
	eZE	01	34	51.5	2.5	3.0	1.7 1.3			
	C & GS 11-44-56.6; 44.3 N., 149.1 E., h about 89 km. Kurile Islands. (P-H) = 9120 Km. ca. or 82.1°.									
	iP	11	57	08.9	1.0			.9C		
	ipP			22.9	1.4			1.7		
8	iP	10	56	58.8	.7			1.2C		
	C & GS 11-07-40.8; 6.2 N., 126.2 E., h about 47 km. Near east coast of Mindanao, P. I. (P-H) = 13,780 Km. ca. or 124°.									
	iP'	11	26	35.8	.9			1.0C		
	i			36-24.3	.6			.8		
	C & GS 14-32-00.3; 52.5 N., 158.8 E., h about 29 km. Kamchatka. (P-H) = 7930 km. ca. or 71.3°.									
	iP	14	43	19.3	.6			10.0C		
	iP			21.8	1.0			1.7		
	C & GS 23-12-45.4; 45.4 N., 149.8 E., h about 94 km. Kurile Islands. (P-H) = 8900 Km. ca. or 80°.									
	iP	23	24	48.7	1.0			1.0C		
	ipP			25-10.8	1.1			.8		
9	C & GS 16-19-15.9; 71.5 N., 2.4 W., h about 23 km. Jan Mayen Island region. (P-H) = 6415 km. ca. or 57.7°.									
	iP	16	29	04.2	1.4			1.0		
	iP	17	11	04.2	1.0			2.0C		
	iP	17	59	26.7	1.0			1.2D		
10	e(P)	10	04	07.2	1.0			.5		
	i			05-31.2	1.0			.8		
	C & GS 10-44-51.2; 4.0 N., 122.6E., h about 629 km. Celebes Sea. (P-H) = 13,900 Km. ca. or 125.1°.									
	iP'	11	02	51.2	1.2			1.2D		
	ipP'			05-15.0	.7			1.7		
	C & GS 15-06-32.5; 47.5 N., 122.7 W., h about 25 km. Near Seattle, Washington. Felt: western Washington. (P-H) = 2700 Km. ca. or 24.3°.									
	iP	15	11	45.7	.6			.8D		
	e	17	28	18.2	1.0			.7D		
11	i(P)	01	26	06.7	1.0			.8D		

Date	Phase	Time GCT			Period (Sec)			Trace(Amp)mms (14)		
		h	m	s	Z	E	N	Z	E	N
Sept. 11	e(P)	08	07	43.3	1.0			.8		
12	C & GS 02-44-48.1; 60.8 N., 151.9 W., h about 230 km. Southern Alaska. (P-H) = 4800 Km. ca. or 43.3°.									
	eP	02	52	35.5	.4			1.0		
	ipP	53	13	0	1.0			1.3		
	e	12	31	15.1	.7			.5		
	e	35	24	6	1.0			.7		
	e(P)	16	20	23.7	.7			.7		
	i	23	09	1	1.0			1.3		
13	e(P)	00	54	47.2	1.0			.5		
	C & GS 17-51-10.8; 13.8 N., 90.3 W., h about 122 km. Guatemala. (P-H) = 2500 Km. ca. or 22.6°.									
	iP	17	56	02.5	.8			.5C		
	ipPZEN		21	2	1.2	.5	.6	1.3	.2	.5
	isPZN		33	3	1.3		3.0	2.0		1.3
	iPP		53	4	1.4		2.4	1.7		1.4
14	C & GS 01-53-32.1; 19.6 N., 70.3 W., h about 103 km. Dominican Republic. (P-H) = 2940 km. ca. or 26.5°.									
	iP	01	59	03.6	1.2			1.5D		
	ipP		23	6	1.0			1.0		
	isP		37	1	1.3			1.3		
	eSEN	02	03	38.1	2.2	1.2		1.0	.5	
	C & GS 04-57-12.5; 35.1 S., 167.3 E., h about 40 km. South Pacific Ocean. (P-H) = 8000 Km. ca. or 72°.									
	iP	05	08	34.5	1.0			3.5C		
	iP		09	11.7	1.5			1.5		
	C & GS 23-18-35.1; 20.9 S., 174.1 W., h about 25 km. Tonga Islands. (P-H) = 10,610 Km. ca. or 95.5°.									
	iP	23	31	58.5	1.0			.8C		
	iP				1.2			.6		
15	e	12	12	08.8	.9			.5		
	eN	14	35	09.7	2.0			2.5		
	i(P)	15	49	08.5	.6			1.7C		
	C & GS 17-57-42.7; 21.4 N., 142.9 E., h about 361 km. Volcano Islands region. (P-H) = 11,320 Km. ca. or 102°.									
	iP	18	10	56.5	1.3			.8D		
	iPP		15	07.5	1.5			2.0		

Date	Phase	Time GCT			Period (Sec)			Trace (Amp) mms		
		h	m	s	Z	E	N	Z	E	N
Sept.										
21	C & GS 03-44-25.0; 10.7 N., 88.9 W., h about 60 km. Off coast of El Salvador. (P-H) = 2870 Km. ca. or 25.8°.									
	ePZN	03-49-50.3			.7		4.0		.7	.8
	ipP	50-04.8			1.2				.5	
	isPZE	16.8			1.0		3.0		1.2	.8
	iPP	32.8			1.5				1.0	
	iSZEN	54-21.5			1.5		2.2		.7	.8
	C & GS 10-38-31.0; 53.4 N., 166.1 W., h about 38 km. Fox Islands, Aleutian Islands. (P-H) = 5780 Km. ca. or 52°.									
	iP	10-47-36.0			1.0				.5C	
	iP	46.1			1.1				.5	
22	C & GS 09-05-36.8; 3.3 S., 29.3 E., h about 28 km. Belgian Congo. Mag. 6¼-6½ (Pal.). (P-H) = 13,445 Km. ca. or 121°.									
	iP'	09-24-25.3			1.2				.5C	
	iPP	25-47.3			2.5				1.3	
	iSZEN	33-45.3			1.0	4.0	7.0		.5	1.0 1.8
	iPSZEN	35-07.8			2.0	5.2	5.2		1.3	2.8 1.5
	eLEN	58-36.3				4.4	5.0			1.2 1.3
	C & GS 22-47-00.6; 51.5 N., 168.8 W., h about 33 km. Fox Islands, Aleutian Islands. (P-H) = 6000 Km. ca. or 54°.									
	iP	22-56-21.7			1.0				2.0D	
	iP	24.7			.6				1.1	
	iP	36.2			1.0				.8	
23	C & GS 23-17-11.5; 30.5 S., 67.2 W., h about 298 Km. La Rioja Province, Argentina. (P-H) = 8000 Km. ca. or 72°.									
	iP	23-28-05.4			1.0				5.0D	
	iPcP	19.4			.7				.6	
	ipP	33.9			.6				1.5	
	isP	45.4			1.0				.7	
	e(L)N	46-25.9					6.0			.6
24	C & GS 13-58-23.1; 2.3 S., 73.3 W., h about 122 km. Northern Peru. (P-H) = 4710 km. ca. or 42.4°.									
	iP	14-06-15.0			.6				1.3C	
	ipP	46.6			1.0				.8	
	iPP	08-05.6			.9				.8	
	isPP	41.1			.6				.9	
26	C & GS 00-32-05.0; 27.4 S., 68.2 W., h about 25 km. Catamarca Province, Argentina. (P-H) = 7590 Km. ca. or 68.3°.									
	iP	00-43-04.7			.6				2.5C	
	iP	26.2			1.1				.8	
	iP	46.2			1.5				1.5	
	C & GS 15-13-25.8; 51.6 N., 172.2 W., h about 44 km. Fox Islands, Aleutian Islands. (P-H) = 6205 Km. ca. or 56°.									

Date	Phase	Time GCT			Period (Sec)			Trace (Amp) mms			(17)
		h	m	s	Z	E	N	Z	E	N	
Sept. 26 (continued)											
✓	iP	15-23	-01.1		1.0			.8D			
	iPZE		10.9		1.0	4.0		1.5	.8		
	iP		25.5		1.5			2.0			
	eLEN	✓	48-49.0			3.4	5.0		.8	1.2	
C & GS 16-58-13.9; 15.9 S., 72.9 W., h about 115 km. Southern Peru. Felt: Arequipa. (P-H) = 6160 Km. ca. or 55.5°.											
X	iPZEN	17-07	-41.0		1.0	3.0	3.0	.8D	.8	1.0	
	ipPZEN		08-09.0		1.2	3.0	3.0	3.7	1.0	2.5	
	isPZE		22.5		1.3	3.8		3.2	1.0		
	iPcPZEN		40.0		1.0	2.8	3.0	1.5	1.0	1.0	
27 C & GS 02-13-50.6; 44.6 S., 73.6 W., h about 59 km. Coast of southern Chile. (P-H) = 9110 Km. ca. or 82°.											
X	iP	02-26	-08.9		1.5			1.0D			
	i(pP)		16.4		1.1			1.5			
X	i(P)	06-01	-36.4		.7			.8C			
X	e(P)	17-01	-19.2		.5			.6			
	i(P)		27.7		.8			.5			
X	e(P)	17-17	-09.2		.5			.5			
	e(S)N		25-18.7		2.4			.5			
29 C & GS 06-27-56.3; 17.3 S., 68.5 W., h about 115 km. Peru-Bolivia border. Felt: Arequipa, Peru. (P-H) = 6360 Km. ca. or 57.1°.											
	iPZEN	06-37	-43.6		1.0	2.0	2.4	7.0C	1.3	1.6	
	iP		38-14.2		.8			1.5			
✓	isP		24.0		.8			1.8			
	iPP		40-08.5		1.0			1.2			
	iSZN		45-36.0		1.5		3.0	.8		2.2	
	iScSEN	✓	47-19.0			4.8	5.0		1.6	.6	
✓	iP	11-32	-01.6		1.3			1.0C			
	i(S)ZEN		36-15.0		1.5	4.2	3.0	1.5	1.5	.8	
	i(L)EN		41-54.9			3.0	3.0		.9	1.5	
X	i(P)	12-42	-51.6		.6			.9C			
C & GS 18-54-23.0; 14.9 N., 90.3 W., h about 56 km. Guatemala. Felt: El Salvador. (P-H) = 2415 km or 21.7°.											
X	iPZEN	18-59	-07.4		1.0	3.0	1.5	1.3C	.4	.7	
	ipP		15.2		1.0			3.0			
	isPZE		33.2		1.1	1.6		4.8	1.5		
	iSZEN	19-02	-49.7		.9	2.4	3.0	1.2	1.0	.8	
	i(ScS)EN		09-01.7			5.0	4.0		1.0	.8	
X	i(P)	21-52	-53.2		.9			.7C			

Date	Phase	Time GCT			Period (Sec)			Trace(Amp)mms			(18)
		h	m	s	Z	E	N	Z	E	N	

Sept.

29 C & GS 22-12-18.8; 32.5 S., 70.2 W., h about 25 km. Central Chile.
 Felt: Santiago. (P-H) = 8000 Km. ca. or 72°.

X

iP	22-23-41.5	1.2			1.7D
i(P)	24-11.0	1.0			1.0

30 C & GS 06-35-08.9; 49.2 N., 129.7 W., h about 55 km. Vancouver
 Island region. (P-H) = 3300 Km. ca. or 29.7°.

✓

iPZEN	06-41-08.5	1.1	1.0	1.6	.5C	.5	.7
i(pP)	19.5	1.4			1.5		
iPPZEN	42-10.0	1.5	2.6	3.0	1.2	.7	.5
iZEN	46-06.5		4.0	8.0		.8	1.5
iScSEN	51-08.5		3.4	5.0		1.0	1.6

C & GS 07-37-05.3; 41.4 S., 73.5 W., h about 53 km. Southern Chile.
 (P-H) = 8900 Km. ca. or 80°.

X

iP	07-49-08.5	1.0			.9C
i(pP)	18.5	.6			.6
e(P)	09-45-48.4	.6			.4

The University of Arkansas Seismograph Station is located on the University Farm, 2.5 miles northwest of the main campus at Fayetteville. Coordinates of the station are $36^{\circ} 05.46'$ north latitude and $94^{\circ} 11.47'$ west longitude. Altitude above mean sea level is 1,325 feet. The seismometer pier rests on the Boone limestone of lower Mississippian age. Approximately 2,500 feet of limestone, shale and sandstone overlie the pre-Cambrian crystalline rocks in the vicinity of the station.



University of Arkansas
Seismograph Station
Department of Geology
Fayetteville, Arkansas

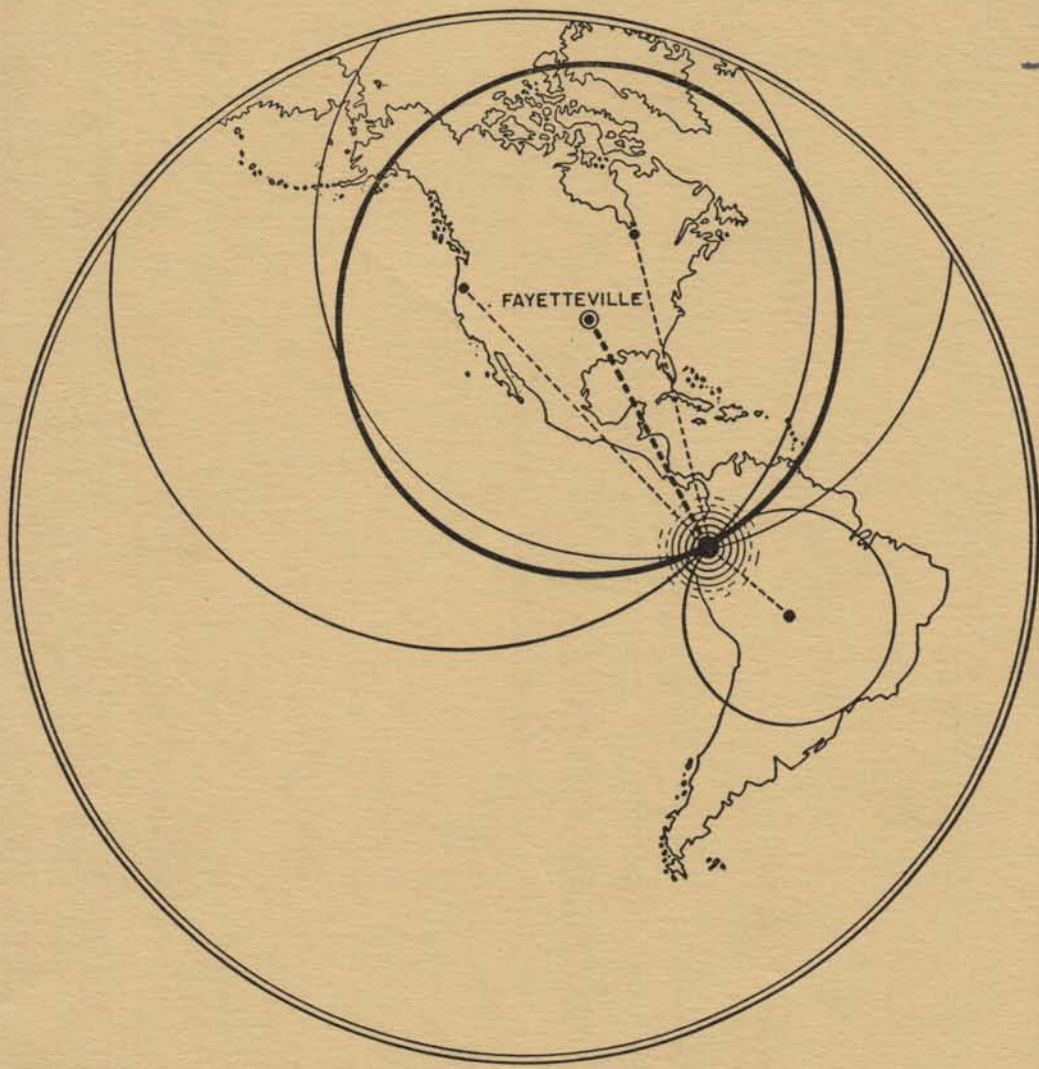
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UNIVERSITY OF ARKANSAS SEISMOLOGICAL BULLETIN

Volume IX

OCT - DEC Number 4
1960



The University Of Arkansas Seismograph Station

Operated by the University's Department of Geology
in conjunction with the
United States Coast and Geodetic Survey

FAYETTEVILLE SEISMOGRAPH STATION

Volume 9, Number 4, December 1960

Data for October, November, December, 1960

Instruments

Vertical component - Benioff moving coil type, short period
electromagnetic-galvanometric, Mass =
100 lbs.

Seismometer-Benioff moving coil period = 1.1 second
Galvanometer-Geotechnical Corp. period = 0.2 second
Damping ratio - about 15:1 (near critical)
Recording drum speed = 60 mm. per minute

Horizontal components - Wilson-Lamison hinges types: E-W,
N-S. electromagnetic - galvanometric

Seismometer period - 6.0 seconds (N-S)
6.0 seconds (E-W)
Galvanometer-General Electric period - 4.1 seconds (N-S)
3.8 seconds (E-W)

Recording drum speed - 30 mm. per minute

Clock - IBM, electrically wound, invar pendulum type.
Accuracy limits generally within one tenth second.

Radio - WWV Time Signal impressed manually by telegraph key
on 5th, 10th, and 15th second. Time signals received
by a Hallicrafter receiver, S-40B.

Vertical-Ground motion trace up (compression)
reading from left to right
N-S - Ground motion trace up - North
E-W - Ground motion trace up - East

(Additional information regarding the station is given on
the back cover.)

Information in "Remarks column is usually from U. S. Coast and
Geodetic Survey epicenter cards. "C" following the trace amplitude
indicates a compressional motion of the wave; "D" indicates dilation.

Bulletin compiled by P. D. Cate, Observer

Date	Phase	T			Period (Sec)			Trace (Amp) mms			(1)
		h	m	s	Z	E	N	Z	E	N	

Oct.											
1	C & GS	05-30-38.1;	35.4	N.	26.2	E.	h about 36 km.;	near Crete.			
		(P-H) - 9835 km. ca.	or 88.5°.								
✓	eP	05-43-34.2			1.0				.8C		
	iP	49.2			1.0				.7		
1	C & GS	16-10-56.9;	52.2	N.	172.6	W.	h about 41 km.;	Fox Islands,			
		Aleutian Islands;	Mag. 6 (Berk.),	6½ (Pas.).	(P-H) = 6210 km. ca.	or 55.9°.					
✓	iP	16-20-32.0			1.6				12.0		
	iP	43.5			1.0				13.8		
	iP	52.2			1.3				3.7		
	iPP	21-31.5			1.0				7.5		
	iPPP	23-31.0			1.4				1.7		
	iS	25-30.0			1.0				1.0		
2 X	iP	07-19-49.4			.6				.7C		
2	C & GS	11-53-44.1;	38.7	S.	1.5	W.	h about 84 km.;	Pacific Ocean,			
		SE of Easter Island.	(P-H) - 8100 km. ca.		or 72.9°.						
✓	iP	12-05-17.7			1.0				.5C		
	iPcP	32.4			1.4				2.0		
	ipP	40.7			2.4				2.0		
3	C & GS	15-10-37.3;	38.7	S.	75.3	W.	h about 43 km.;	near coast of			
		southern Chile.	(P-H) = 8475 km. ca.		or 76.3°.						
✓	iP	05-22-25.5			1.2				1.5D		
	iP	41.5									
3	C & GS	19-50-48.8;	05.7	S.	103.0	E.	h about 51 km.;	off coast of			
		Sumatra.	(P-H) = 16,440 km. ca.		or 148°.						
✓	iP	20-10-25.0 A			2.0				5.4C		
	i(pP')	40.6			1.2				4.0		
	i(sP')	51.0			1.0				4.0		
6 X	iEN	06-05-05.9			4.0	4.0			1.5	1.0	
6	C & GS	16-16-37.6;	38.3	S.	74.9	W.	h about 53 km.	near coast of			
		southern Chile.	(P-H) = 8520 km. ca.		or 76.8°.						
✓	iP	16-28-23.2 K			1.2				4.5D		
	ipP	37.0			1.4				1.0		
	iPP	32-08.7			1.0				.4		
6 X	e(P)	17-04-32.2			1.1				.5		
6	C & GS	19-55-42.2;	58.2	N.	31.6	W.	h about 63 km.;	north Atlantic			
		Ocean.	(P-H) = 5130 km. ca.		or 46.1°.						
✓	iPZEN	20.04-02.5 K			1.2	4.0	4.0		1.0D	1.0	1.0
	iPP	05-50.0			2.0				1.0		
	iSEN	11-04.8				3.0	7.0			1.8	3.5
	iEN	22-24.0				14.0	8.0			4.0	3.0

Date	Phase	Time GCT			Period (Sec)			Trace (amp) mms (2)		
		h	m	s	Z	E	N	Z	E	N
Oct. 7	C & GS 03-15-34.9; 58.1 N., 31.9 W.; h about 71 km; north Atlantic Ocean; mag. 4½-4¾ (Pal.). (P-H) = 5100 km. ca. or 46°.									
	iP	03	23	52.2	1.0			.7C		
7	C & GS 15-18-30.8; 7.4 S., 130.7E.; h about 45 km; Banda Sea, mag. 6½-6¾ (Berk.), 6¾-7 (Pal.). (P-H) = 14,000 km. ca. or 126°.									
	iP'	15	37	28.6	1.0			.5		
	iP'			40.2	1.6			3.3D		
	iPPZEN	38	44	4.6	.7	3.2	2.4	1.8	1.4	1.3
	i(PP)ZEN	39	58	6.6	1.6	5.0	6.0	3.5	3.2	4.0
	i(PKS)ZEN	41	00	0.0	1.6	6.0	4.4	4.5	3.7	3.2
	i(PS)EN	49	43	6.6		5.6	3.0		3.2	2.0
8	C & GS 01-51-51.22; 16.7 N., 97.9 W.; h about 74 km; Oaxaca, Mexico, mag. 4¾-5 (Pal.) (P-H) = 22.60 km. or 20.4°.									
	iPZEN	01	56	15.5	2.4	2.0		.5	5.5	
	ipPZEN			37.5	2.2	1.2		2.5	3.5	
	isPZE			49.0	1.2			2.5		
	iSEN	02	00	00.7	4.0	4.0		3.0	4.0	
	iScPEN	03	00	0.5	4.4	4.0		2.0	1.8	
8	C & GS 05-53-01.1; 40.0 N., 129.7 E.; h about 608 km; Sea of Japan, mag. 6½-6¾ (Pas.), 6¼-6½ (Berk.). (P-H) = 10,350 km. ca. or 93.1°.									
	iPZEN	06	05	21.3	3.2	4.8		1.8	2.5	
	i(SKS)EN	14	53	3.3	4.8	7.0		10.0	7.5	
	iSEN	15	35	3.3	10.0	9.0		13.0	19.7	
	isSEN	19	35	3.3	10.0	10.0		20.0	11.5	
	i(SSS)EN	28	00	0.0	10.0	14.0		9.5	8.0	
8	C & GS 20-40-06.6; 7.9 N., 92.9E.; h about 84 km; Nicobar Islands. (P-H) = 15,490 km. or 139.4°.									
	eP'	20	59	23.3	1.5			.6		
	ipP'			43.3	1.2			.7		
	i(PP)	21	03	00.3	2.1			1.0		
9	X e(P) 06-02-14.7 1.1 .8									
	i			32.2	1.5			1.0		
	e	07	26	2.2	2.0			.7		
9	C & GS. 09-00-42.0; 40.8 N., 141.2 E. p h about 155 km.; near coast of northern Honsu, Japan; felt: mag. 6¼ (Pas.), 6 (Pal.) (P-H) = 9690 km. ca. or 87.4°.									
	iP	09	13	20.1	1.4			5.8D		
	i			27.1	1.4			3.3		
	ipP			34.9	1.1			3.3		
	isP			54.6	1.6			6.7		
	i(S)EN	23	53	3.2	8.0	6.0		9.5	7.0	
	i(sS)EN			30.2	5.8	6.0		5.0	8.0	
	iPSEN			54.3	7.0	6.4		8.0	12.5	

Date	Phase	h m s	Period (Sec)			Trace (amp) mms			(3)
			Z	E	N	Z	E	N	
Oct. 9	C & GS 09-51-19.1; 15.1 S., 174.0 W.; h about 129 km; Samoa Islands region; Felt: Apia. (P-H) = 10,040 km. ca. or 90.0°.								
	iP	10-04-12.1	1.0			.7C			
	isP	47.6	1.0			1.0			
	i(PPP)	09-00.1	2.0			1.4			
	i(pPPP)	10.5	2.0			1.0			
	iSKS	14-06.1	2.4			1.2			
	iSZEN	18.1	3.0	4.4	5.0	2.0	3.2	3.5	
	ipSEN	15-05.1		5.6	9.0		7.5	10.0	
	isSZN	22.1	2.2		5.2	1.8		6.0	
10	eP	13-13-19.0	1.0			.5			
10	iP	16-12-54.0	1.4			2.0D			
	i(P)	13-13.0	1.2			1.1			
10	iP	22-04-16.6	1.0			1.1D			
11	iP	04-35-21.7	1.0			.7C			
11	C & GS 08-05-30.5; 38.1 N., 107.6 W.; h about 49 km. Western Colorado Felt: Mag. 4 3/4-5 (Pal.), 5 1/2 (Berk.). (P-H) = 1240 km. ca. or 11.2°.								
	i(P)ZEN	08-08-04.8	.7	3.0		.8C	1.0		
	i(P)ZE	16.3	1.1	1.4		3.2	1.5		
	ipZEN	47.3	1.0	1.0		13.0	6.0		
	iSZEN	11-09.5	1.0	3.4		10.0	12.8		
	i(PcP)ZEN	12-16.3	1.0	4.4		8.0	10.0		
	i(ScP)ZE	16-07.3	2.5	3.4		3.5	5.7		
	i(ScS)E	20-34.3		4.0			4.3		
11	ep	16-22-46.0	1.0			.5			
11	e(P)	18-46-35.4	1.0			.6			
13	C & GS 02-21.12.7; 45.2 N., 25.8 E.; h about 63 km.; Romania. (P-H) = 9240 km. ca. or 83.2°.								
	iP	02-33-30.9 K	1.2			1.3D			
13	C & GS 14-52-34.7; 54.8 N., 161.2 E.; h about 35 km.; Kamchatka; Mag. 6 3/4 (Pas.), 6 1/2-6 1/2 (Berk.) (P-H) = 7665 km. ca. or 69°.								
	iP	15-03-39.5	.9			2.5C			
	iP	04-07.0	.8			7.0			
	iPP	05-43.4	1.0			1.5			
	i(S)	09-40.4	2.0			2.0			
	e(L)	31-39.9	2.0			1.5			
14	iP	01-08-00.0	1.0			.7			
14	C & GS 11-33-14.0; 52.1 N., 166.1 W.; h about 64 km.; Fox Islands, Aleutian Islands. (P-H) = 5780 km. ca. or 52°.								
	iP	11-42-17.4	1.0			1.2C			

Date	Phase	P			Period (Sec)			Trace (amp) mms			(4)
		h	m	s	Z	E	N	Z	E	N	
Oct. 14	C & GS 12-16-30.5; 4.7 S., 103.1 E.; h about 159 km; near coast of Sumatra. (P-H) = 16,460 km. ca. or 148.2°.										
	iP'	12-35	52.5		1.1			1.0C			
	ipP'	36-49.0			1.0			.8			
14	C & GS 13-12-07.9; 59.8 N., 136.4 W.; h about 32 km.; southeastern Alaska; felt: Yakutat. (P-H) = 4055 km. ca. or 36.5°.										
	iP	13-19	10.5		1.1			1.6C			
	iP		26.0		.9			1.0			
	iPP	20.30	0.0		1.5			1.0			
	eLZEN	31-08.5			1.1	5.0	5.0	1.0	2.2	2.5	
	eLEN	35-05.5				7.0	7.4		3.0	5.5	
14	C & GS 17-48-28.5; 37.9 S., 74.7 W.; h about 25 km.; off coast of Chile; mag. 5 1/4 - 5 1/2 (Pal.). (P-H) = 8520 km. ca. or 76.7°.										
	iP	18-00	18.5		1.1			1.0C			
	iP		40.3								
14	C & GS 21-19-11.4; 51.7 N., 172.1 W.; h about 50 km.; Fox Islands, Aleutian Islands. Mag. 6 1/2 (Pas.), (Berk.), (Pal.). (P-H) = 6260 km. ca. or 56.4°.										
	iPZEN	21-28	45.0	A	1.0	3.0	3.0	1.0C	1.3	2.3	
	ipPZE		54.0		.8	4.0		1.3	4.3		
	i(sp)ZEN	29-00	0.0		1.0	3.4	3.6	5.0	5.5	5.5	
	iPcPZEN	29-33	3.5		1.5	2.4	3.0	5.5	3.8	3.8	
	i(PP)ZEN	30-56	5.5		1.0	4.4	5.0	1.0	3.0	3.0	
	i(pPP)ZEN	31-18	1.1		1.0	5.0	4.0	2.7	4.0	2.5	
	i(PPP)ZEN	32-18	5.5		1.0	3.0	2.2	2.0	2.5	1.2	
	i(ScP)	34-33	3.5		1.6			2.0			
	iSEN	36-08	5.5			5.0	6.0		4.5	3.0	
	iScS	38-14	5.5			7.0			7.0		
	i(SS)ZEN	50-20	5.5			7.0	11.0		4.5	3.5	
	i(G)EN	52-42	5.5			12.0	5.0		8.0	5.-	
14	C & GS 22-55-41.7; 55.5 N., 35.2 W.; h about 40 km.; north Atlantic Ocean. (P-H) = 4890 km. ca. or 44°.										
	iP	23-03	47.5		1.2			1.0C			
	iP		04-07.0		1.3			1.2			
	i(PP)	05-44	4.5		1.3			1.0			
15	3P	02-02	16.5		1.0			.6			
15	eP	08-47	39.5		.7			.5			
	i		51-08.0		1.2			1.5			
	i		15.9		1.1			1.8			
15	e(P)	10-30	22.5		1.0			.5			
16	C & GS 09-34-00.9; 9.4 N., 90.6 W.; h about 25 km.; off coast of Nicaragua. Mag. 5 (Pal.). (P-H) = 2965 km. ca. or 26.8°.										
	iP	09-39	35.5		1.1			.6C			
	i(P)		45.0		1.1			1.0			
	eSEN	44-07	0.0			5.0	6.8		1.5	1.5	

Date	Phase	Time GMT			Period (Sec)			Trace (amp) mms			(5)
		h	m	s	Z	E	N	Z	E	N	
Oct. 16	X e(P)	11	15	06.0	.6			.4			
17	X C & GS	13-36-35.5; 39.6 S., 88.5 W.; h about 60 km.; off coast of Chile. (P-H) = 8445 km. ca. or 76°.									
	X iP	13	48	17.0	1.0			2.1D			
	X ipP			38.1	1.0			.8			
17	C & GS	15-45-36.9; 4.8 N., 78.4 W.; h about 83 km.; off coast of Columbia; mag. 4 3/4 (Pal.). (P-H) = 3820 km. ca. or 34.4°.									
	✓ iPZEN	15	52	18.9	1.5	3.0	3.0	2.4D	1.0	2.3	
	ipP			42.0	1.5			2.5			
	isP			55.4	1.0			1.2			
	iPPZN			53-42.5	2.0		4.0	1.8		1.3	
	iEN					5.0	3.0		1.5	1.0	
	iSEN			57-43.5		4.0	4.4		1.5	2.0	
	eGEN			16-00-21.5		8.0	8.0		1.8	1.7	
17	X C & GS	18-05-32.7; 30.7 N., 40.4 W.; h about 65 km.; Atlantic Ocean. (P-H) = 4985 km. ca. or 44.9°.									
	X iP	18	13	42.0	1.5			1.2D			
17	C & GS	19-02-20.9; 31.7 N., 40.7 W.; h about 47 km.; Atlantic Ocean. (P-H) = 4950 km. ca. or 44.4°.									
	✓ iP	19	10	27.0	1.0			.6C			
17	X eP	20	33	49.5	.8			.5			
	X iZN			34-11.8			1.0	2.5		1.0	
17	C & GS	22-15-32.0; 14.6 N., 92.8 W.; h about 128 km.; Mexico-Guatemala border; mag. 5 3/4-6 (Pal.). (P-H) = 2320 km. ca. or 20.9°.									
	✓ iPZN	22	20	16.8	.7		3.0	1.0C		1.5	
	ipPZN			31.3	1.1		1.4	4.2		1.5	
	isPZN			43.8	1.5		2.0	5.5		1.5	
	iPP			51.3	1.0			3.5			
	iSZEN			24-22.3	1.5	4.0	2.0	1.5	1.5	1.0	
	eScSEN			31-36.3		4.0	3.4		1.4	1.6	
18	X e(P)	00	16	13.3	.6			.5			
	X i			23.8	1.4			.7			
18	X e(P)	04	17	47.4	.6			.5			
18	X iP	05	03	04.8	.6			.8C			
18	X C & GS	06-34-11.0; 14.5 N., 92.6 W.; h about 112 km.; Mexico-Guatemala border. (P-H) = 2440 km. ca. or 22°.									
	X iPZN	06	38	57.3	1.0		1.2	1.5D		1.0	
	X ipPZN			39-15.3	1.0		1.6	1.5		.5	
	X iPPZN			34.8	1.1		2.0	1.7		.8	
	X iSZEN			43-00.8	.8	4.0	3.0	.5	1.0	.9	

Date	Phase	TIME (GUT)			Period (Sec)			Trace (amp) mms			(6)
		h	m	s	Z	E	N	Z	E	N	
Oct. 18	iPZN	17	40	41.3	.9		.8	1.0C		.5	
	i(P)		41	01.8	.5			.9			
	i(S)		44	12.3	.6			1.0			
19	iP	05	22	17.7	1.0			1.5C			
19	eP	06	40	40.2	.6			.5			
19	eP	10	16	37.2	1.0			.5			
20	C & GS	23-40-08.2; 45.3 N., 147.0 E.; h about 25 km.; Kurile Islands region. (P-H) = 9110 km. ca. or 82°.									
	iP	23	52	26.5	1.0			2.0C			
21	e(P)	05	56	43.7	.6			.5			
21	e	13	54	13.5	1.2			.5			
22	C & GS	08-22-00.9; 10.3 S., 161.2 E.; h about 93 km.; Solomon Islands region. (P-H) = 12,180 km. ca. or 109.6°.									
	eP'	08	40	04.5	.9			.4			
	iPP			40.0	2.1			1.0			
	i(PPP)		43	42.5	3.0			1.0			
	i(PSP or PPS)		51	48.4	1.3			1.0			
23	C & GS	06-32-24.9; 31.2 N., 40.7 W.; h about 61 km. Atlantic Ocean (P-H) = 2870 km. ca. or 25.8°.									
	iP	06	40	31.4	1.5			.7D			
	ipP		52	3	1.1			1.0			
23	iP	21	53	45.4	.7			.5C			
	i			11.3	1.4			.9			
24	e	21	12	06.1	.6			.4			
24	i(P)	22	56	21.5	.6			1.7C			
	i			40.3	1.0			1.5			
25	C & GS	12-14-47.5; 43.5 S., 175.8 W.; h about 32 km.; near coast of Chile. (P-H) = 9050 km. ca. or 81.4°.									
	iP	12	27	03.1	1.0			1.0			
26	C & GS	01-48-04.1; 52.4 N., 160.1 E.; h about 53 km. near coast of Kamchatka. (P-H) = 7840 km. ca. or 70.5°.									
	eP	01	59	13.8							
26	e(P)	11	59	12.4	.4			.5			
26	C & GS	14-47-39.4; 32.9 S., 68.7 W.; h about 60 km.; Mendoza Province Argentina. (P-II) = 8040 km. ca. or 72.3°.									
	iP	14	58	59.9	1.0			2.5D			

Date	Phase	Time (h m s)	Period (Sec)			Trace (amp) mms			(7)
			Z	E	N	Z	E	N	
Oct. 26	e(P)	16-46-41.5	1.0			.6			
27	C & GS 00-16-44.2; 23.7 S., 70.2 W.; h about 39 km.; near coast of Chile; Felt: Antofagasta. (P-H) = 7020 km. ca. or 63.1°.								
	e	00-27-10.9	.8			.5			
	iP	17.9	.8			1.5D			
	iS	36-36.9	1.5			1.0			
	i(S)	45.4	1.2			1.5			
27	C & GS 05-25-03.6; 1.4 N., 90.9 W.; h about 46 km.; Galapagos Islands region. Mag. 4 3/4 (Pal.). (P-H) = 3890 km. ca. or 35°.								
	iP	05-31-52.6	1.2			.5C			
	i(pP)	32-04.4	1.1			.8			
	e	49-32.9	.8			.4			
27	e	14-48-21.9	1.3			.7			
27	C & GS 14-46-58.1; 6.2 S., 104.0 E.; h about 168 km.; near south coast of Sumatra. (P-H) = 16,900 km. ca. or 152.9°.								
	eP'	15-06-28.0	.6			.5C			
	iP'	42.4	1.4			1.5			
	ipP'	07-24.9	1.0			.7			
27	C & GS 22-27-55.1; 15.2 S., 175.0 W.; h about 253 km.; Samoa Islands region. (P-H) = 10,000 km. ca. or 90°.								
	iP	22-40-36.5 A	.7			.9C			
	i(pP)	41-18.0	1.0			.4			
28	C & GS 04-18-41.9; 71.3 N., 8.6 W.; h about 48 km.; Jan Mayen Island Mag. 5 1/2 (Pal.), 6 3/4 (Pas.). (P-H) = 6165 km. ca. or 55.4°.								
	iP	04-28-09.5	1.1			2.5D			
	i(pP)	15.0	1.1			1.5			
	i(sP)	22.5	1.0			2.0			
	i(PcP)	41.5	1.3			1.7			
28	C & GS 07-46-38.5; 71.3 N., 8.4 W.; h about 61 km.; Jan Mayen Island. (P-H) = 6140 km. ca. or 55.2°.								
	iP	07-56-04.0	1.0			.5			
	ipP	25.0	1.0			.9			
28	C & GS 13-18-14.3; 52.0 N., 157.4 E.; h about 96 km.; Kamchatka. (P-H) = 8000 km. ca. or 72°.								
	iPZEN	13-29-32.1	1.5	1.5	1.6	7.5C	6.5	11.0	
	ipPZE	51.0	1.0	4.1		3.5	3.3		
	isP	30-07.5		2.8			3.5		
	iSZEN	38-46.3	3.0	3.4	3.4	1.5	22.5	20.0	
	isSEN	29-24.5		3.2	4.4		12.5	23.3	
	iSSEN	43-09.5		6.4	7.0		4.7	4.5	

Date	Phase	Time GCT			Period (Sec)			Trace (amp) mms			(8)
		h	m	s	Z	E	N	Z	E	N	
Oct. 29	C & GS	04-17-02.1; 15.4 N., 46.4 W.; h about 38 km.; north Atlantic Ocean. (P-H) = 5270 km. ca. or 47.4°.									
	iP	04-25-33.6			1.1					.7C	
	iP	26-02.5									
29	C & GS	09-37-41.6; 15.8 S., 172.9 W.; h about 99 km.; Samoa Islands region; mag. 5 1/2 - 5 3/4 (Pal.). Felt: Apia. (P-H) = 10,000 km. ca. or 90°.									
	eP	09-50-36.0			.6					.4	
	ipP	51-04.6			1.0					.8	
29	C & GS	11-54-17.4; 47.4 N., 27.6 W.; h about 25 km.; north Atlantic Ocean. (P-H) = 5575 km. ca. or 50.3°.									
	eP	12-03-10.8			1.0					.5	
29	e(P)	13-32-06.6			.5					.5	
	i	35-01.1			1.0					.5	
29	iP	15-31-06.0			1.0					.9D	
29	C & GS	23-42-16.4; 49.8 N., 156.0 E.; h about 61 km.; near southern coast of Kamchatka. (P-H) = 8300 km. ca. or 74.8°.									
	iP	23-53-50.1			1.0					1.0	
	ipP	54-06.1									
30	C & GS	12-14-36.1; 23.3 S., 70.3 W.; h about 76 km.; near coast of Chile. Felt: Antofagasta and Mejillones. Mag. 6 3/4 (Berk.), 6 3/4 (Pas.). (P-H) = 7045 km. ca. or 63.4°.									
	iPZEN	12-25-00.0			1.0	3.0	2.0		.8C	1.0	1.0
	ipPZN	24.0			1.0		3.0		1.5		1.4
	isP	41.6			1.2				1.5		
	iPPZN	27-32.1			1.0		2.8		1.2		1.7
	iSEN	33-13.5				6.0	8.0			12.0	11.0
	iSSEN	37-40.6					6.8				3.0
30	C & GS	13-11-54.2; 23.3 S., 70.6 W.; h about 65 km.; near coast of Chile. Felt: Antofagasta and Mejillones. (P-H) = 6925 km. ca. or 62.3°.									
	iP	13-22-19.6			1.5					1.1C	
	i(PP)	28.1			1.0					1.0	
30	C & GS	16-16-22.9; 51.2 N., 157.0 E.; h about 42 km.; near south coast of Kamchatka. (P-H) = 8075 km. ca. or 72.7°.									
	iP	16-27-49.6			.7					.7	
30	eP	16-48-25.6			.6					.5	



Date	Phase	Time GCT			Period (Sec)			Trace (amp) mms			(9)
		h	m	s	Z	E	N	Z	E	N	
Oct. 30	C & GS 21-32-47.7; 22.8 S., 68.0 W.; h about 60 km.; Chile-Boliva border. Felt: Antofagasta, Mejillones, Tocopilla, San Pedro de Atacame, Calama. Mag. 6 3/4 (Pas.). (P-H) = 6930 km. ca. or 62.4°.										
	iPZN	21-43-	15.4		1.0		2.8	7.5D		3.4	
	ipPZEN		40.6		1.0	2.4	2.0	11.5	7.5	6.2	
	isP		52.0		1.1			4.4			
	i(PcP)ZN	44-00-	0.1		1.2		1.8	4.5		2.5	
	iPPZN	46-14-	6.6		1.1		3.0	2.0		1.5	
	iPPPZN	47-16-	6.6		1.6		4.8	1.7		1.5	
	iSEN	52-11-	1.1			2.4	2.2		5.1	4.2	
31	C & GS 07-03-43.7; 30.3 N., 113.5 W.; h about 25 km.; Gulk of California. (P-H) = 1945 km. ca. or 17.5°.										
	iP	07-07-	43.2		2.0			.8C			
	iZEN	13-03-	4.4		1.5		3.6	.7		1.5	
31	e	14-58-	46.5		.6			.5			
Nov. 1	C & GS 06-15-29.4; 11.1 S., 12.7 W.; h about 35 km.; Ascension Island region. Mag. 5 (Pal.). (P-H) = 10,020 km. ca. or 90.2°.										
	iPZE	06-28-	28.2		2.0			3.9D			
	iP		48.7		1.2			1.2			
1	C & GS 08-46-01.9; 38.4 S., 74.4 W.; h about 97 km.; near coast of Chile. Mag. 6 3/4-7 (Berk.), 7 1/4-7 1/2 (Pas.), 6 1/2-6 3/4 (Pal.). (P-H) = 8485 km. ca. or 76.4°.										
	iPZEN	08-57-	45.2		2.0	4.0	4.0	7.5D	2.5	5.4	
	ipPZN	58-04-	3.3		1.4		4.0	16.5		8.0	
	isPZE		18.2		.6	2.4		6.5	2.2		
	iPPZE	09-00-	27.8		1.4	2.0		1.5	2.5		
	iSZEN	07-38-	8.8		2.0	10.0	9.0	.9	10.7	15.5	
	isSZEN	08-02-	8.8		1.7	7.0	7.0	1.1	15.5	13.0	
	iSSEN	12-04-	0.0			10.0	11.0		4.0	5.0	
	eSSEN	16-08-	8.8			6.0	12.0		1.7	4.0	
	eGEN	17-19-	8.8			10.0	14.0		3.5	5.0	
1	C & GS 10-23-57.2; 5.5 S., 102.4 E.; h about 43 km.; near south coast of Sumatra. (P-H) = 16,335 km. ca. or 147°.										
	iP'	10-43-	34.0		1.2			2.0C			
	i(P')		48.1		1.1			5.0			
1	C & GS 12-29-31.6; 38.5 S., 75.0 W.; h about 64 km.; near coast of Chile. Mag. 5-5 1/4 (Pal.) (P-H) = 8500 km. ca. or 76.5°.										
	iP	12-41-	15.9		1.3			2.2C			
	i(PcP)		29.0		1.1			1.8			
1	C & GS 22-26-52.7; 45.1 N., 111.2 W.; h about 38 km.; Hebgen Lake Montana. (P-H) = 1810 km. ca. or 16.3°.										
	iP	22-30-	36.5		1.0			1.0C			
	e		35-01.5		2.0			.8			

Date	Phase	Time GCT			Period (Sec)			Trace (amp) mms			(10)
		h	m	s	Z	E	N	Z	E	N	
Nov. 2	C & GS	15-29-48.8; 57.6 N., 153.8 W.; h about 96 km.; Kodiak Island, Alaska. (P-H) = 4900 km. ca. or 44.1°.									
	iP	15-37-51.8			1.0			.8D			
2	C & GS	17-14-49.3; 10.9 S., 164.9 E.; h about 25 km.; Santa Cruz Islands (P-H) = 12,410 km. ca. or 111.8°.									
	eP	17-29-23.4			.7			.6			
	e	33-16.9			2.5			2.0			
	e	44-55.9			1.5			1.8			
3	iP	16-41-20.1			1.3			.8D			
3	e	21-31-39.6			.6			.7			
4	e	06-47-30.7			.4			.5			
4	iP	14-02-27.4			.6			.8C			
	i(PP)	05-55.6			.7			.6			
	i(S)	09-29.6			.8			.5			
4	iP	18-28-40.5			1.0			1.1D			
5	C & GS	20-20-53.7; 39.2 N., 20.5 E.; h about 49 km.; near coast of Greece.; mag. 5 (Pal.). (P-H) = 9145 km. ca. or 82.3°.									
	iP	20-33-22.2			1.2			4.7C			
	i(FcP)	27.1			1.2			2.2			
	i(pP)	40.1			.7			1.0			
6	C & GS	04-38-16.7; 53.0 N., 159.8 E.; h about 32 km.; near east coast of Kamchatka. Mag. 5½-5¾ (Pal.), 6-6¼ (Berk.), 6¼ (Pas.) (P-H) = 7740 km. ca. or 69.7°.									
	iPZEN	04-49-26.1			1.0			9.0C			
	iP	40.8			1.1			12.0			
	i	50-19.8			1.0			3.5			
	iSZEN	57-23.3			4.0			1.0			
6	iP	05-17-23.3			.7			1.0			
		31.3			1.0			1.8			
6	C & GS	22-10-06.4; 52.7 N., 168.0 W.; h about 42 km.; Fox Islands. Aleutian Islands. Mag. 5-5¼ (Berk.), 5½ (Pal.). (P-H) = 5890 km. ca. or 53°.									
	iP	22-19-20.6 A			.7			2.3C			
	i	28.5			.7			2.0			
	i	48.4			1.0			1.3			
7	eP	20-34-39.9			1.0			1.0			
8	C & GS	04-28-11.4; 27.8 N., 44.3 W.; h about 25 km.; North Atlantic Ocean. (P-H) = 4880 km. ca. or 43.9°.									
	eP	04-36-15.3			1.2			.9			
	e(S)	41-27.8			1.0			.7			

Date	Phase	GCT			Period (Sec)			Trace (amp) mms			(11)
		h	m	s	Z	E	N	Z	E	N	
Nov. 8	C & GS	05-22-09.4; 45.2			N., 149.8 E.; h about 25 km.; Kurile Islands (P-H) = 90.5 km. ca. or 81.1°.						
	iP	05-34-23.8			1.0			2.5C			
8	C & GS	05-27-21.7; 54.2			N., 149.7 E.; h about 25 km.; Kurile Islands (P-H) = 9005 km. ca. or 81°.						
	iP	05-39-35.3			1.0			2.4C			
	iP	46.3			1.0			.8			
8	C & GS	11-36-27.2; 44.9			N., 125.2 W.; h about 44 km.; near coast of Oregon, U. S. A. Felt: Newport and Umpqua, Oregon, and Aberdeen, Washington. (P-H) = 2722 km. ca. or 24.5°.						
	iP	11-41-42.5			1.0			4.5C			
	i(P)	42-11.5			1.0			1.8			
	iPP	23.8			1.0			2.2			
	i(S)N	48-50.0			6.0			3.5			
9	C & GS	01-17-36.8; 21.5			S., 67.5 W.; h about 131 km.; near Chile-Bolivia border. (P-H) = 6890 km. ca. or 62°.						
	iP	01-27-51.5			1.4			2.8D			
	iPcP	28-38.0			1.2			1.5			
	i(PP)	29-46.0			1.0			.8			
9	eP	02-12-06.0			1.3			1.0D			
9	C & GS	03-17-58.5; 60.7			S., 24.8 W.; h about 37 km.; Sandwich Islands. Mag. 6¼-6½ (Pal.) (P-H) = 12,725 km. ca. or 114.5°.						
	eP'	03-36-30.2			1.4			.6			
	iPP	11.5			1.0			.8			
	iPSN	46-41.5			7.0			3.0			
	i(PPS)ZN	47-23.5			1.1			6.0 .4 2.0			
9	C & GS	10-43-43.1; 32.7			N., 103.4 E.; h about 47 km.; Szechwan Province, China. Mag. 6¼-6½ (Pal.) (P-H) = 12,480 km. ca. or 112.3°.						
	eP'	11-02-08.5			.5			.4			
	eLN	41-51.7			6.0			2.5			
9	C & GS	20-06-16.2; 23.2			S., 70.6 W.; h about 52 km.; near coast Chile. Felt: Antofagasta. Mag. 5¼-5¾ (Pal.) (P-H) = 7080 km. ca. or 63.8°.						
	iPZN	20-16-42.3 A			1.2			3.0 1.7C 1.5			
	ipP	57.3			1.1			3.0			
	esP	17-05.3			1.0			1.5			
	i	31.3			1.3			1.5			
	iPPZN	18-41.8			1.0			3.0 1.2 1.0			
	iSN	25-12.8			9.6			7.2			
10	C & GS	01-33-43.8; 26.2			N., 87.5 W.; h about 21 km.; Gulf of Mexico (P-H) = 1280 km. ca. or 11.5°.						
	iPZN	01-36-25.9			.6			.8D			



Date	Phase	TIME (CT)			Period (Sec)			Trace (amp) mms (12)		
		h	m	s	Z	E	N	Z	E	N
Nov.										
10	(continued)									
	i			35.4			.5			1.8
	iSZEN			38-22.9			.8			4.2
10	C & GS	05-31-30.1;	30.2 N.,	40.4 W.;						h about 28 km.; North Atlantic Ocean. Mag. 5 (Pal.). (P-H) = 5505 km. ca. or 45.5°.
	iP	05-39-46.6					.7			.6C
	iPP	41-30.3					1.2			.8
11	C & GS	02-53-37.4;	17.3 N.,	96.0 W.;						h about 60 km.; southern Mexico. (P-H) = 2150 km. ca. or 19.4°.
	iP	02-57-54.9					.7			2.0C
	i	58.9					1.0			2.7
	i	58-06.2					.9			2.2
11	eP	05-44-04.3					1.7			1.2
11	iP	06-13-31.2					1.2			1.0C
11	iP	C & GS 06-53-23.9;	16.1 S.,	72.0 W.;						h about 124 km.; Southern Peru. Felt: Arequipa. (P-H) = 6200 km. ca. or 56.8°.
	iP	07-02-54.3					.7			1.8
11	C & GS	13-45-14.3;	54.8 N.,	161.7 E.;						h about 28 km.; near east coast of Kamchatka. (P-H) = 7630 km. ca. or 68.7°.
	iP	13-56-16.9					.6			.8C
11	C & GS	22-23-44.8;	23.1 S.,	70.7 W.;						h about 33 km.; near coast of Chile. Felt: Antofagasta. (P-H) = 7060 km. ca. or 60.6°.
	iP	22-34-12.3					1.0			.5C
12	iP	05-31-05.2					.7			1.5C
12	C & GS	07-56-16.9;	43.4 S.,	74.1 W.;						h about 25 km.; near coast of Chile. (P-H) = 9035 km. ca. or 81.6°.
	iP	08-08-32.6					1.0			1.0D
	i	39.3					.9			.9
12	ep	19-50-06.5					.6			.5
12	ep	23-40-40.4					.9			.4
	i	43-11.9					1.0			.7
13	C & GS	06-37-05.7;	1.4 N.,	127.2 E.;						h about 59 km.; Molucca Passage. (P-H) = 14,090 km. ca. or 126.8°.
	iP'	06-56-04.9					1.0			2.3C
	i	59-19.8					1.3			1.4
13	C & GS	07-10-04.6;	15.7 S.,	71.7 W.;						h about 153 km.; Southern Peru. Felt: Arequipa. (P-H) = 6140 km. ca. or 55.3°.
	iP	07-19-30.1					.9			1.3C

Date	Phase	T			Period (Sec)			Trace (amp) mms (13)		
		h	m	s	Z	E	N	Z	E	N

Nov. 13 C & GS 09-20-36.8; 51.1 N., 168.8 W.; h about 65 km.; Fox Islands, Aleutian Islands. Mag. 7 (Pas), 7 1/4 (Berk.), 6 3/4 (Pal.). (P-H) = 6000 km. ca. or 54°.

iPZEN	09-29-54.1	.7	4.8	3.0	5.6D	13.5	10.3
ipP	30-07.8	.7			5.0		
isP	17.8	1.0			6.0		
iPcPZEN	48.8	.7	6.6	5.0	4.0	8.5	7.5
iPPZEN	31-50.8	1.2	4.0	6.0	4.0	7.0	8.8
ipPPZN	32-03.3	2.0		5.6	5.0		9.0
isPPZEN	26.8	1.0	4.0	5.0	4.0	7.5	5.5
i(PPP)	54.3	2.1			3.2		
iSZEN	37-26.1	2.0	8.8	6.6	1.0	20.0	7.0
iEN	38-56.3		7.0	9.0		8.8	13.0
i(SSS)ZEN	39-42.3	1.5	8.0	9.0	1.0	15.0	15.5
i(SS)EN	41-14.3		13.0	8.0		17.5	7.5
i(ssS)EN	42-03.3		9.0	10.0		21.5	11.5
iEN	33.3		10.0	10.2		5.5	11.0
i(PKKP)EN	50-02.5		8.4	8.0		13.4	21.5
i(SKKP)EN	52-06.4		10.2	12.8		20.0	25.0
i(P'P')EN	10-00-18.3		5.2	11.0		20.0	19.0

13 C & GS 13-24-25.6; 51.1 N., 168.6 W.; h about 25 km.; Fox Islands, Aleutian Islands. (P-H) = 6025 km. ca. or 54.2°.

eP	13-33-48.7	.6			.8		
iP	57.3	1.1			.7		
i	34-55.3						
i	37-26.7	.6			.7		

13 C & GS 13-52-28.9; 51.3 N., 168.6 W.; h about 46 km; Fox Islands, Aleutian Islands. (P-H) = 5990 km. ca. or 53.9°.

iP	14-01-48.5	.9			.8C		
i	02-53.8	.6			.7		

13 C & GS 17-19-24.6; 51.8 N., 167.2 W.; h about 78 km; Fox Islands, Aleutian Islands. (P-H) = 5820 km. ca. or 52.4°.

eP	17-28-30.8	.8			.8		
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13 C & GS 20-45-09.1; 39.5 N., 30.4 W.; h about 25 km.; Awores, North Atlantic Ocean. (P-H) = 5,555 km. ca. or 50°.

iP	20-54-00.5	1.3			1.3D		
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14 e 16-09-46.5 .5 .3

14 e 16-30-21.3 .8 .7

14 C & GS 19-59-31.8; 14.5 N., 92.8 W.; h about 100 km.; near coast of Chipas, Mexico. Mag. 5-5 1/4 (Pal.). (P-H) = 2340 km. ca. or 21°.

iPZEN	20-04-17.7 A	1.5	1.6	4.0	2.0C	.7	1.5
ipZEN	41.5	1.2	3.8	2.8	2.3	1.0	3.5
isPZE	51.2	2.0	2.2	2.6	3.0	1.3	4.3
i(PP)ZEN	05-07.0	1.4	2.0	3.0	2.5	1.0	4.0
iSZEN	08-22.5	.7	3.4	2.8	2.3	2.5	2.0
iZEN	09-28.5	1.5	4.0	5.6	1.5	3.3	2.8

Date	Phase	TIME GCT			Period (Sec)			Trace (amp) mms (14)		
		h	m	s	Z	E	N	Z	E	N
Nov. 15	X e	02	23	57.5						
15	X e	16	15	28.0						
15	X e	16	40	34.0	.7			.4		
15	X e	18	36	31.0	.6			.4		
15	X e	21	17	51.2	.7			.2		
15	X e	22	47	32.7	.6			.8		
16	X C & GS	15-38-26.5; 10.4 N., 74.2 W.; h about 83 km.; near coast of Columbia. (P-H) = 3480 km. ca. or 31.3°.								
	X iP	15	44	41.6	1.1			1.3C		
	X ipP		45	08.7	1.0			1.0		
17	X C & GS	01-28-39.6; 38.5 S., 73.6 W.; h about 25 km.; near coast of Chile. (P-H) = 7955 km. ca. or 71.7°.								
	X iP	01	40	30.8	1.1			1.0D		
	X i			41.3	.7			.9		
17	X C & GS	05-16-10.3; 43.5 S., 74.4 W.; h about 123 km.; near coast of Chile. (P-H) = 9000 km. ca. or 81°.								
	X iP	05	28	18.3	1.3			2.0D		
	X i(PcP)			27.3	1.2			2.5		
	X i(pP)			38.3	1.2			1.0		
17	X iP	09	03	14.9	.6			1.2C		
	X i			26.8	.9			.8		
17	X iP	15	44	58.8	1.1			1.6C		
	X i			45-19.8	1.1			1.1		
18	X C & GS	12-42-46.9; 22.5 S., 69.4 W.; h about 163 km.; Northern Chile. Felt: Antofagasta. (P-H) = 6970 km. ca. or 63.7°.								
	X iP	12	52	58.0	.7			1.7D		
	X ipP			53-41.0	1.7			1.8		
18	X iP	15	44	33.5	1.0			1.2D		
18	X i(P)	18	55	43.1	1.0			.8		
				56-16.1	1.6			1.9		
				46.1	1.5			3.3		
19	X iP	04	58	46.8	.7			1.7D		
20	X e	06	30	24.5	.6			.5		
20	X e	10	57	40.5	1.0			.5		

Date	Phase	GCT			Period (Sec)			Trace (amp) mms (15)		
		h	m	s	Z	E	N	Z	E	N
Nov. 20	C & GS 22-01-59.9; 6.8 S., 80.7 W.; h about 93 km.; near coast of Peru. 2 killed and extensive property damage from seismic sea wave at Pimentel, Eten, and Santa Rosa. Mag. 6 1/2 (Berk.), 6 1/2 (Pal.), 6 3/4 Pas.). (P-H) = 4990 km. ca. or 45.9°.									
	iPZEN	22-10-08.4			1.4	4.0	4.0	1.7C	2.1	4.5
	iZEN	18.0			1.2	3.2	4.0	4.5	3.5	7.0
	iPZPN	34.0			1.5		2.0	8.5		5.0
	iSPZEN	49.0			1.4	2.2	3.0	4.0	4.0	7.2
	iPPZEN	11-50.0			1.0	4.0	6.0	2.5	3.5	7.0
	iPPPZEN	12-14.0			1.0	4.0	5.0	3.0	6.5	7.0
	iSZEN	16-35.0			1.2	15.0	8.4	.7	24.8	11.2
	i(scS)EN	18-49.0				7.0	14.0		24.0	21.5
	i(G)EN	19-45.0				8.0	8.0		12.3	17.5
21	C & GS 04-21-42.1; 6.2 S., 80.8 W.; h about 25 km.; near coast of Peru. (P-H) = 4950 km. ca. or 44.6°.									
	iP	04-29-52.2			1.0			1.0C		
	iP	60.5			1.6			2.0		
	i	30-12.4			1.0			1.3		
21	iP 08-49-34.5 .9 .8D									
	i	43.1			1.0			.8		
21	C & GS 18-44-04.9; 54.8 N., 159.7 E.; h about 64 km.; near east coast of Kamchatka. (P-H) = 7720 km. ca. or 69.4°.									
	iP	18-55-07.4			.6			1.0C		
	iPP	30.3			.6			.8		
	iSP	48.5			.8			.9		
22	C & GS 02-32-15.2; 7.0 S., 80.8 W.; h about 19 km.; near coast of Peru. (P-H) = 5040 km. ca. or 45.4°.									
	iP	02-40-31.1			1.0			.8C		
	iP	46.5			1.0			1.2		
22	C & GS 03-03-02.7; 8.2 N., 38.4 W.; h about 33 km.; Atlantic Ocean. (P-H) = 6455 km. ca. or 58.1°.									
	iP	03-12-54.0			1.0			.4D		
22	C & GS 03-31-54.3; 19.2 S., 173.1 W.; h about 25 km.; Tonga Islands region. (P-H) = 10,380 km. ca. or 93.4°.									
	iP	03-45-06.8			.7			.6C		
	e(S)	58-31.5			1.1			.4		
22	iP 05-26-30.0 1.0 1.4D									
22	C & GS 06-21-45.0; 35.9 S., 52.3 E.; h about 21 km.; Indian Ocean, north of Crozet Islands. Mag. 6 3/4 (Pas.). (P-H) = 17,460 km. ca. or 157.1°.									
	iP'	06-41-43.0			1.1			1.0D		
	iP'	54.0			1.6			3.3		
	i(PP)	45-32.0			1.6			1.8		

Date	Phase	Time GCT			Period (Sec)			Trace (amp) mms (16)		
		h	m	s	Z	E	N	Z	E	N
Nov. 22		C & GS 07-09-14.8; 53.0 N., 159.4E.; h about 28 km.; near coast of Kamchatka. (P-H) = 7855 km. ca. or 70.7°.								
	iP	07-20-29.5			.7			1.2C		
	i	42.0			.9			1.5		
22		C & GS 12-28-58.4; 40.0 S., 74.3 W.; h about 107 km.; near coast of southern Chile. Mag. 6½ (Pas.), 5½-5¾ (Pal.) (P-H) = 8620 km. ca. or 77.6°.								
	iPZEN	12-40-48.4			1.5	4.0	4.0	5.7D	3.0	6.3
	iPcPZEN	59.4			1.5	1.8	2.2	3.2	2.5	3.8
	ipPZEN	41-10.0			1.5	4.0	3.0	4.7	3.0	3.5
	isPZN	28.4			1.1		4.4	2.2		2.5
	iSEN	50-42.0				7.0	7.0		2.2	7.0
23		01-55-07.6								
	e				.6			.4		
	i	38.6			.8			.6		
23		C & GS 14-12-21.1; 24.2 S., 176.1 W.; h about 28 km.; South of Tonga Islands region. (P-H) = 11,000 km. ca. or 99°.								
	iP	14-26-00.2			2.2			.8D		
	iP	09.5			1.2			1.9		
	i	12.6			1.0			2.5		
	iPPZE	30-07.2			2.4	6.0		2.5	4.0	
	iSEN	36-29.2				5.4	9.0		3.5	4.5
	eLEN	51-55.2				6.8	5.0		3.5	6.2
23	i(P)	17-10-60.4			.6			1.1C		
23		C & GS 17-56-38.0; 24.0 S., 176.3 W.; h about 51 km.; south of Tonga Islands region. (P-H) = 11,020 km. ca. or 99.2°.								
	iP	18-10-12.7			1.5			1.0D		
23		21-14-51.6								
	iP				1.0			1.5D		
	i(P)	15-00.8			1.0			1.0		
24		C & GS 04-50-15.8; 4.6 S., 153.0 E.; h about 87 km.; New Britain region. Felt: mag. 6½ (Pas.) (P-H) = 12,840 km. ca. or 115.5°.								
	eP'	05-08-59.5			1.0			.3		
	e(pP')	09-20.5			1.1			.5		
	e(PS)	19-50.5			.9			.4		
24		C & GS 06-52-41.1; 24.2 S., 175.1 W.; h about 23 km.; south of Tonga Islands region. Mag. 7 (Pas.), 7½-7¾ (Berk.), 7-7¾ (Pal.), (P-H) = 11,000 km. ca. or 99°.								
	iPZEN	07-06-19.5			2.8	2.7	3.4	4.7C	2.2	2.0
	iPZEN	40.0			2.0	4.0	3.0	3.0	2.5	2.0
	iPPZEN	10-15.0			1.5	4.8	2.8	1.0	3.0	3.0
	iSEN	16-59.5				8.0	4.8		5.0	3.5
	eLmaxZEN	31-41.5				10.0	20.0		5.0	4.8

Date	Phase	Time GCT			Period (Sec)			Trace (amp) mms (17)		
		h	m	s	Z	E	N	Z	E	N
Nov. 24		C & GS 18-25-46.4; 57.8 N., 155.9 W.; h about 46 km.; Alaska Peninsula. (P-H) = 5090 km. ca. or 45.8°.								
	eP	18-34-05.5			.5			.5D		
24	iP	22-43-44.1			1.1			.7C		
24	eP	23-01-25.1			.9			.6		
25		C & GS 03-27-57.3; 7.2 S., 81.4 W.; h about 18 km.; near coast of Peru. (P-H) = 4930 km. ca. or 44.4°.								
	iP	03-36-15.1			1.0			1.5D		
	iP	23.6			1.0			.8		
	i	39.1			1.4			.8		
25	e	04-34-48.6			.5			.3		
25	eP	05-46-47.1			1.0			.7		
25	iP	09-47-33.4			1.8			1.0D		
25	e(P)	16-05-55.3			.6			.5		
25	eP	17-58-24.8			.9			.7		
25	iP	23-07-02.0			1.0			2.9C		
	i(pP)	27.5			1.4			2.3		
	i(sP)	37.5			1.3			3.0		
25	e	23-53-16.5			.6			.5		
26	iP	08-50-01.4			1.1			1.8D		
	i(pP)	16.0			1.3			1.7		
26	iP	13-20-34.7			.5			.6C		
	i(pP)	48.0			.9			1.2		
	i	53.0			1.0			1.0		
27	iP	00-40-49.1			.6			.8		
27		C & GS 01-40-24.1; 7.6 S., 81.5 W.; h about 25 km.; near coast of northern Peru. (P-H) = 5060 km. ca. or 45.6°.								
	iP	01-48-42.1			1.0			.9D		
	i(pP)	50-53.1			.9			.8		
27		C & GS 12-00-26.3; 62.9 N., 150.9 W.; h about 171 km.; Alaska (P-H) = 4750 km. ca. or 43.7°.								
	iP	12-08-17.4			1.0			3.0D		
	i	26.9			.5			1.0		
	i(PP)	10-02.4			1.0			1.5		
27		C & GS 15-17-15.2; 42.8 N., 143.3 E.; h about 122 km.; near coast of Hokkaido, Japan. (P-H) = 9540 km. ca. or 85.9°.								
	iP	15-29-44.8			1.0			4.3C		
	i(P)	30-10.3			1.4			1.5		

Date	Phase	Time GCT			Period (Sec)			Trace (amp) mms			(18)
		h	m	s	Z	E	N	Z	E	N	
Nov.											
27	e(P)	19	36	11.7							
28	e(P)	15	15	14.2							
28	ip	21	15	52.6	1.0			1.0			
29	C & GS 09-32-01.5; 44.0 S., 74.9 W.; h about 86 km.; near coast of southern Chile. mag. $5\frac{1}{4}$ (Pal.), (P-H) = 9100 km. ca. or 81.9° .										
	ip	09	44	13.8	1.0			2.2D			
	i(PcP)			21.8	1.0			2.5			
	ipP			42.3	1.2			1.5			
	isP			54.3	1.0			1.5			
29	e	16	58	24.2	.5			.5			
	i			59-04.2	.9			1.3			
29	ip	18	04	06.2	1.5			2.0D			
29	C & GS 19-17-07.3; 15.8 S., 73.3 W.; h about 100 km.; near coast of Peru. Felt: Arequipa. (P-H) = 6150 km. ca. or 55.4° .										
	ip	19	26	34.7	1.1			2.2D			
	isP			27-11.0	1.0			.8			
Dec.											
1	C & GS 08-42-26.5; 32.3 S., 113.1 W.; h about 25 km.; Easter Island region. (P-H) = 7855 km. ca. or 70.7° .										
	ip	08	53	41.6	1.0			1.0D			
1	e	10	00	41.6	.5			.5D			
1	C & GS 20-49-45.5; 48.8 N., 129.3 W.; h about 15 km.; off coast of Vancouver Island. Mag. 6 (Berk.). (P-H) = 3265 km. ca. or 29.4° .										
	ip	20	55	44.3	1.0			1.4D			
	i(P)			55.9	1.5			2.3			
	isZEN	21	00	37.3	5.0	4.0	4.8	1.2	5.0	7.0	
	eLZEN			05-19.3	10.0	8.8	12.6	1.1	8.0	17.3	
1	C & GS 21-49-37.2; 49.0 N., 129.3 W.; h about 60 km.; near coast of Vancouver Island. (P-H) = 3180 km. ca. or 28.8° .										
	ip	21	55	29.3	1.0			1.3			
	i(pP)			44.8	1.5			1.5			
	i(sP)			54.8	1.0			2.0			
	i(ScS)	22	05	40.3		9.0	12.0		4.0	3.5	
1	ip	21	11	27.3	.8			1.0C			
2	C & GS 09-10-41.0; 24.5 S., 69.9 W.; h about 37 km.; near coast of Chile. Felt: Antofagasta. Mag. $7-7\frac{1}{4}$ (Berk.), $6\frac{3}{4}-7$ (Pal.). (P-H) = 7160 km. ca. or 64.3° .										
	ipZEN	09	21	16.1	1.0	2.8	3.2	4.0C	3.5	8.5	
	ipZE			42.6	1.0	2.0	3.2	10.0	7.8	8.0	
	i(P)			22-01.6	1.0			5.5			

Date	Phase	Time GCT			Period (Sec)			Trace (amp) mms			(19)
		h	m	s	Z	E	N	Z	E	N	
Dec.											
2	(continued)										
	iPPZE	23	33	.4	2.0	3.6	5.0	7.0	6.3	8.5	
	iSZEN	30	08	.6		7.0	8.0		8.0	13.0	
	iS ^c EN	33	49	.7		6.0	8.0		13.0	10.0	
	eLZEN	37	18	.0		20.0	18.0		20.0	15.0	
2	C & GS	09-37-38.6; 24.3 S., 69.8 W.; h about 64 km.; near coast of Chile. Mag. 6 3/4 (Pas.). (P-H) = 7200 km. ca. or 64.8°.									
	Note: Some waves of this quake were masked by later waves of the preceding quake.										
	iP	09	48	-11.6	1.4			7.5C			
	ipP			24.0	.8			7.0			
	i(PcP)			40.1	.7			9.5			
	iPP	50	37	.7	3.0			6.0			
	iPPP	52	19	.5	1.4			3.0			
	i(S)	57	16	.2	2.0			1.5			
	i(P'P')	10	16	-59.9	2.0			2.0			
2	C & GS	22-29-59.8; 24.2 S., 69.6 W.; h about 45 km.; northern Chile. Felt: Antofagasta. (P-H) = 7170 km. ca. or 64.6°.									
	iP	22	40	-35.4	1.0			1.2			
	i(P)			44.8	1.0			1.0			
3	C & GS	04-24-17.5; 42.8 N., 104.5 E.; h about 45 km.; outer Mongolia. Mag. 7 (Pas.), 7 (Berk.), 6 1/2-6 3/4 (Pal.) (P-H) = 11,090 or 99.8°.									
	iP	04	38	-00.2	2.0			2.0D			
	iPP	41	58	.7	3.5			2.0			
	iSEN	49	37	.0		7.5	13.0		5.0	5.3	
	i(SS)E	56	23	.1		8.0			9.0		
3	C & GS	04-55-17.0; 15.8 N., 101.00 W.; h about 60 km.; off coast of Guerrero, Mexico. (P-H) = 2350 km. ca. or 21.2°.									
	iP	04	59	-54.7	1.0			2.0C			
	ipP	00	11	.0	1.0			1.7			
3	C & GS	07-07-42.7; 52.5 N., 177.3 W.; h about 79 km.; Andreanof Islands, Aleutian Islands. (P-H) = 6500 km. ca. or 58.5°.									
	iP	07	17	-31.2	1.0			1.5C			
	iPcP	18	21	.2	1.4			3.5			
	i(ScP)	22	01	.7	.9			1.5			
3	C & GS	20-21-01.3; 76.7 N., 131.1 E.; h about 28 km.; Laptev Sea. (P-H) = 7110 km. ca. or 64°.									
	iP	20	31	-33.5	1.0			.8D			
	i			39.5	1.0			1.3			
4	C & GS	16-20-36.1; 32.5 N., 141.6 E.; h about 106 km.; off coast of Honshu, Japan. (P-H) = 9510 km. ca. or 85.6°.									
	iP	16	33	-49.5	1.5			.9C			
	i			35-13.5	.6			1.2			

Date	Phase	Time GCT			Period (Sec)			Trace (amp) mms (20)		
		h	m	s	Z	E	N	Z	E	N
Dec. 4	C & GS 18-30-20.4; 12.8 N., 88.6 W.; h about 56 km.; near coast of El Salvador. Felt: El Salvadore. (P-H) = 2710 km. ca. or 24.4°.									
	iP	18-35-31.5			1.0			1.0C		
	ipP	47.6			1.0			2.0		
	isP	36-01.6			1.5			1.7		
	iPP	10.0			1.3			1.5		
5	i(P)	12-12-30.6			1.0			1.0D		
5	iP	18-00-47.0			1.0			1.3C		
5	iP	18-18-33.0			1.0			2.0C		
5	C & GS 21-21-51.7; 35.7 N., 6.5 W.; h about 66 km.; Straits of Gibraltar. (P-H) = 7580 km.ca. or 68.3°.									
	iP	21-32-47.4			1.0			3.0C		
	ipP	33-01.4			1.0			1.2		
6	C & GS 08-56-16.5; 8.5 N., 82.7 W.; h about 116 km.; near coast of Panama. Mag. 5½ (Pal.). (P-H) = 3260 km. ca. or 29.4°.									
	iPZEN	09-02-13.7			.6	1.0	1.2	3.0C	.4	1.0
	ipPZE	39.2			1.3	2.0		2.0	1.0	
	isPZN	51.7			1.1		2.8	2.0		2.0
	iPPZEN	03-12.7			1.3	6.0	7.0	2.6	2.0	6.0
6	C & GS 08-56-07.6; 21.4 S., 69.0W.; h about 25 km.; Northern Chile Felt: Antofagasta. Mag. 6 (Pal.) (P-H) = 6940 km. ca. or 62.5°.									
	iPZEN	09-06-29.7			2.0	3.0	3.4	16.3C	10.0	15.0
	iPZEN	42.7			1.5	1.6	3.0	29.0	9.0	13.8
	iPPZEN	08-47.2			1.2	4.0	4.8	5.8	4.5	4.8
	IZE	09-21.2			1.5	5.0		4.5	6.2	
	iSEN	14-48.7				6.0	6.0		9.5	9.5
	eLEN	21-28.7				6.0	6.0		1.8	3.0
6	e	12-55			.6			.3		
6	C & GS 21-34-09.3; 2.6 S., 101.5E.; h about 54 km.; Sumatra. (P-H) = 16,160 km. ca. or 145.5°.									
	iP'	21-53-39.9			1.0			3.2C		
	ipP'	56.9			1.2			2.3		
	isP'	54-15.6			1.3			2.0		
6	e(P)	23-43-10.0			1.0			.5		
	i(pP)	32.0			1.0			1.6		
8	C & GS 09-21-32.2; 31.2 N., 112.8 W.; h about 83 km.; Baja, California. (P-H) = 1800 km. ca. or 16.2°.									
	eP	09-25-14.7			1.3			.7		
	eZEN	30-33.3			2.5	4.8	4.0	.9	1.5	1.8
	e(ScP)EN	33-00.3				7.0	6.4		5.0	4.5

Date	Phase	Time GCT			Period (Sec)			Trace (amp) mms (21)		
		h	m	s	Z	E	N	Z	E	N
Dec. 8	C & GS 11-20-07.8; 31.6 S., 68.9 W.; h about 140 km.; San Juan Province, Argentina. Felt: Santiago, Chile. (P-H) = 7860 km. ca. or 71.7°.									
	iP	11	31	18.8	1.0			6.2D		
	ipP			49.8	1.0			3.6		
9	eP	01	30	23.5	1.5			1.0C		
	e		35	30.0	2.0			1.0		
9	eP	04	03	20.0	1.2			.7D		
9	C & GS 06-00-34.5; 30.8 N., 113.2 W.; h about 85 km.; Baja, California. (P-H) = 1880 km. ca. or 16.9°.									
	iP	06	04	24.5	1.3			1.5C		
	eZEN		09	45.0	2.0	3.4	3.0	.9	1.7	3.0
10	e	07	34		1.0			.4		
10	e	08	16	53.4	.7			.3		
10	iP	14	16	48.3	1.3			1.3D		
10	e	16	50	18.3	.7			.4		
10	e	20	07	12.8	.9			.5		
10	e	20	34	12.3	.7			.5		
11	e(P)	01	55	39.2	1.0			.8		
	e(PP)		57	58.7	1.0			1.0		
11	C & GS 03-18-10.9; 1.6 N., 126.4 E.; h about 52 km.; Molucca Passage. (P-H) = 14,240 km. ca. or 128.2°.									
	eP'	03	37	13.7	.7			.6		
12	e	19	19	35.0	1.4			.8		
12	iP	11	35	41.6	.6			2.4D		
	i(P)		36	12.1	1.3			2.0		
13	C & GS 07-36-13.8; 52.1 S., 160.9 E.; h about 29 km.; Macquarie Islands. Mag. 7 $\frac{1}{4}$ (Pas.), 7 (Pal.). (P-H) = 14,445 km. ca. or 130°.									
	eP'	07	55	20.5				.8		
	i(P')			39.9	1.4			3.0	4.0	4.0
	iPPZEN		57	35.1	3.0	4.4	8.0			
13	e(P)	09	16	30.6	1.5			1.0		
13	C & GS 10-06-24.3; 27.7 N., 142.4 E.; h about 28 km.; Bonin Islands region. (P-H) = 10,975 km. ca. or 97.9°.									
	iP	10	18	57.1	.7			.8		
	iP		19	21.6	1.0			1.0		

Date	Phase	Time GCT			Period (Sec)			Trace (amp) mms			(22)
		h	m	s	Z	E	N	Z	E	N	
Dec. 15	iP	00	10	24.4	1.3			2.5D			
	iZE		12	15.4	2.1	4.2		4.7	3.0		
	eE		22	21.4		4.8			2.3		
15	e	15	31	17.9	.5			.2			
15	C & GS 23-24-35.8; 12.2 N., 87.8 W.; h about 39 km.; near coast of Nicaragua. (P-H) = 2760 km. ca. or 24.9°.										
	iP	23	29	54.7	1.1			2.7D			
	i(P)		30	02.2	1.4			4.5			
	iPP			25.6	1.2			2.2			
16	C & GS 01-20-02.2; 51.1 N., 170.6 W.; h about 32 km.; Fox Islands, Aleutian Islands. (P-H) = 6140 km. ca. or 55.2°.										
	iP	01	29	32.2	1.1			1.2C			
16	C & GS 18-21-31.7; 43.8 N., 28.9 W.; h about 21 km.; north Atlantic Ocean. (P-H) = 5550 km. ca. or 50°.										
	iP	18	30	22.0	1.5			2.0D			
	i			46.0	1.4			1.0			
17	C & GS 02-04-35.4; 50.6 N., 175.3 W.; h about 92 km.; Andreanof Islands, Aleutian Islands. (P-H) = 6400 km. ca. or 57.6°.										
	eP	02	14	18.2	1.2			.9			
17	iP	13	23	09.5	.9			1.3D			
17	iP	14	52	19.4	1.0			2.0D			
17	C & GS 07-38-31.1; 15.1 S., 73.5 W.; h about 28 km.; Southern Peru. (P-H) = 6145 km. ca. or 55.2°.										
	iP	07	48	01.5	1.2			9.5D			
	iP		49	16.4	1.0			1.5			
	i			31.6	1.0			1.2			
	i(PP)		51	00.5	1.0			1.2			
17	C & GS 10-37-14.1; 6.4 S., 109.3 E.; h about 295 km; Java Sea. (P-H) = 8060 km. ca. or 72.6°.										
	iP	10	56	16.0	1.0			19.3D			
	iPcPZE			34.5	1.0	1.6		4.3	1.1		
	ipP		57	20.5	.7			2.2			
	isP			49.0	1.0			4.5			
	i(PP)		59	18.9	1.2			2.0			
	i			31.0	1.0			1.7			
17	C & GS 16-44-45.4; 47.3 N., 153.6 E.; h about 15 km.; Kurile Islands. (P-H) = 8410 km. ca. or 75.7°.										
	iP	16	56	29.0	1.2			2.3D			
	iP			50.0	1.2			2.5D			

Date	Phase	Time GCT			Period (Sec)			Trace (Amp) mms			(23)
		h	m	s	Z	E	N	Z	E	N	
Dec. 17		C & GS 18-05-37.0; 39.5 N., 29.6 W.; h about 33 km.; Azores. (P-H) = 5620 km. ca. or 50.6°.									
	iP	18-14-32.5			1.0			.9C			
18	e(P)	07-54-41.4			1.0			.7D			
18	e(P)	2 ⁰ -03-39.0			.6			.4			
	e	07-08.5									
19	iP	10-10-26.3			1.0			1.2D			
19		C & GS 13-22-01.3; 24.3 S., 69.6 W.; h about 17 km.; northern Chile. Felt: Antofagasta. (P-H) = 7220 km. ca. or 65°.									
	iP	13-32-40.2			1.0			1.0D			
	i	47.8			1.4			1.5			
19	iP	13-40-11.8			1.0			1.0C			
	i(P)	23.8			1.0			1.0			
21		C & GS 23-55-07.0, Dec. 20; 3.8 S., 103.1 E.; h about 164 km.; southwestern Sumatra. (P-H) = 16,360 km. ca. or 147.3°.									
	iP	00-14-27.9			1.0			7.0C			
	i	42.0			.7			1.7			
21		C & gs 14-40-01.6; 61.6 N., 152.3 W.; h about 169 km.; Alaska Mag. 5 3/4 (Pas.). (P-H) = 4920 km. ca. or 44.3°.									
	iPZEN	14-47-55.5			1.1	3.0	3.0	9.0D	3.0	4.0	
	iPPZEN	49-45.0			1.8	3.0	2.4	5.0	2.2	3.6	
	i(S)	53-18.2			.8			1.7			
	eEN	15-03-44.0				5.0	5.0		3.0	3.0	
22		C & GS 03-47-21.7; 16.1 S., 72.9 W.; h about 147 km.; near coast of southern Peru. Felt: Arequipa. (P-H) = 6080 km. ca. or 35.8°.									
	iP	03-56-46.9			1.3			3.0D			
	ipP	57-11.4			1.5			2.5			
	isP	18.1			1.3			1.8			
	iPcP	46.2			1.3			1.7			
22		C & GS 11-41-06.0; 43.1 N., 126.2 W.; h about 51 km.; off coast of northern California. (P-H) = 2900 km. ca. or 26.1°.									
	iP	11-46-33.3			1.4			1.0D			
22		C & GS 12-21-33.0; 30.5 S., 71.5 W.; h about 110 km.; near coast of Chile.; (P-H) = 5740 km. ca. or 51.6°.									
	iP	12-32-34.5			1.1			4.0C			
	ipP	59.2			1.3			1.0			
22	e(P)	21-27-20.5 K			1.0			1.2D			

Date	Phase	Time GCT			Period (Sec)			Trace (Amp) mms (24)		
		h	m	s	Z	E	N	Z	E	N
Dec. 23	X C & GS	06-07-01.1; 14.3 N., 92.2 W.; h about 48 km.; Guatemala-Mexico border region. (P-H) = 2500 km. ca. or 22.1°.								
	iP	06-11-54.2			1.2			1.3D		
23	C & GS	09-41-48.4; 3.3 S., 101.9 E.; h about 134 km.; near coast of Sumatra. (P-H) = 15,760 km. ca. or 141.8°.								
	iP'	10-01-10.6			1.4			8.5C		
	i	27.6			1.0			6.5		
	i	37.1			.7			5.3		
23	X i(P)	13-08-44.6			1.0			1.0C		
24	X eP	12-30-58.4			.5			.5		
	i	31-27.4			1.5			1.2		
24	X C & GS	23-18-29.2; 3.6 S., 77.8 W.; h about 25 km.; Peru-Ecuador border region. (P-H) = 4880 km. ca. or 43.9°.								
	iP	23-26-24.8			1.5			1.8C		
	i	27-09 7			1.1			1.0		
25	C & GS	05-21-03.1; 29.0 N., 142.8 E.; h about 25 km.; Bonin Islands. (P-H) = 10,665 km. ca. or 96°.								
	eP	05-34-27.8			1.0			.4		
25	X eP	11-20-00.8			1.0			.9		
26	C & GS	01-44-48.7; 33.8 N., 136.2 E.; h about 109 km.; near south coast of Honshu, Japan. (P-H) = 10,680 km. ca. or 96.2°.								
	iP	01-58-08.7			1.0			1.5D		
	ipP	35.6			1.0			1.0		
	i(sP)	42.1			1.4			1.0		
26	C & GS	04-32-30.1; 57.4 S., 26.2 W.; h about 25 km.; Sandwich Islands, Mag. 5½ (Pal.). (P-H) = 12,055 km. ca. or 108.5°.								
	eP'	04-50-43.1			1.4			.4		
	e(PPS)	05-02-04.8			.8			.4		
26	X C & GS	05-36-43.8; 8.3 N., 83.2 W.; h about 104 km.; Costa Rica-Panama border region. (P-H) = 3260 km. ca. or 29.4°.								
	iP	05-42-41.1			.9			1.3D		
27	C & GS	10-35-28.0; 41.3 N., 124.9 W.; h about 30 km.; off coast of northern California. Mag. 5-5½ (Berk.), 5 3/4-6 (Pal.). (P-H) = 2755 km. ca. or 24.8°.								
	iPZEN	10-40-45.7			.6 2.0 4.6			1.3C 1.5 2.5		
	iPPZEN	41-18.4			1.0 4.0			3.0 2.5		
	iSEN	45-05.9			5.0 3.0			2.0 1.5		
	i(L)ZEN	48-48.7			7.0 9.0			7.5 15.3		

Date	Phase	Time GCT			Period (Sec)			Trace (Amp) mms (25)		
		h	m	s	Z	E	N	Z	E	N
Dec. 27	C & GS 11-08-46.0; 41.4 N., 125.2 W.; h about 61 km.; off coast of northern California. Mag. $4\frac{1}{4}$ (Berk.). (P-H) = 2800 km. ca. or 25.2° .									
	iP	11-14-05.7			1.0			.7D		
	i(pP)	26.9			1.3			2.0		
	eEN	22-22.7				4.0	9.0		2.2	4.5
	e(ScS)EM	24-32.7				12.0	11.0		9.0	6.0
27	C & GS 18-09-41.6; 13.7 S., 74.3 W.; h about 82 km.; near coast of Peru. (P-H) = 5890 km. ca. or 53° .									
	iP	18-18-52.2			1.4			3.5D		
	ipP	19-14.7			1.5			8.5		
	isP	33.0			1.3			3.1		
	iPcP	20-00.2			1.1			2.5		
29	e	01-00-45.9			1.0			.8		
29	C & GS 06-02-13.9; 18.4 S., 174.7 W.; h about 104 km.; Tonga Islands. (P-H) = 10,400 km. ca. or 93° .									
	eP	06-15-21.8			1.0			.9		
29	C & GS 10-36-40.0; 44.8 S., 75.6 W.; h about 30 km.; near coast of southern Chile; mag. $6\frac{1}{2}$ - $6\frac{3}{4}$ (Pas.), $5\frac{3}{4}$ -6 (Berk.), (Pal.). (P-H) = 9065 km. ca. or 82.6° .									
	iP	10-49-01.3			1.5			4.0C		
29	C & GS 11-04-19.0; 10.1 S., 76.0 W.; h about 19 km.; Peru (P-H) = 5530 km. ca. or 49.9° .									
	iP	11-13-08.8			1.0			1.3		
29	C & GS 18-19-41.6; 35.3 N., 22.6 E.; h about 54 km.; near Crete, Mediterranean Sea. (P-H) = 9830 km. ca. or 88.5° .									
	eP	18-32-25.7			1.5			.7		
29	C & GS 19-01-38.1; 18.8 S., 69.4 W.; h about 39 km.; northern Chile. Felt: Arequipa. (P-H) = 6615 km. ca. or 59.6° .									
	iPZEN	19-11-40.2			1.0	1.0	1.4	11.3D	1.2	2.0
	iZEN	56.1			1.2	2.0	2.0	7.5	2.5	4.0
30	C & GS 11-03-36.8; 16.9 S., 70.0 W.; h about 47 km.; Southern Peru. (P-H) = 6395 km. ca. or 57.7° .									
	iP	11-13-23.9			.6			1.2C		
	i	50.7			.6			1.3		
31	e	11-30-12.8			1.2			.8		
31	i(P)	14-54-22.1			.9			.6D		



Date	Phase	CT			Period (Sec)			Trace (Amp) mms (26)		
		h	m	s	Z	E	N	Z	E	N
Dec. 31	C & GS 18-08-12.3; 43.9 S., 75.0 W.; h about 92 km.; near coast of southern Chile; mag. $6\frac{1}{2}$ - $6\frac{3}{4}$ (Pas.), $5\frac{1}{4}$ - $5\frac{1}{2}$ (Pal.). (P-H) = 9100 km. ca. or 81.9° .									
	iP	18	20	23.9	2.1			5.7D		
	i(PcP)			31.9	1.7			5.5		
	isP			21-02.8	1.6			2.1		

The University of Arkansas Seismograph Station is located on the University Farm, 2.5 miles northwest of the main campus at Fayetteville. Coordinates of the station are $36^{\circ} 05.46'$ north latitude and $94^{\circ} 11.47'$ west longitude. Altitude above mean sea level is 1,325 feet. The seismometer pier rests on the Boone limestone of lower Mississippian age. Approximately 2,500 feet of limestone, shale and sandstone overlie the pre-Cambrian crystalline rocks in the vicinity of the station.



University of Arkansas
Seismograph Station
Department of Geology
Fayetteville, Arkansas