

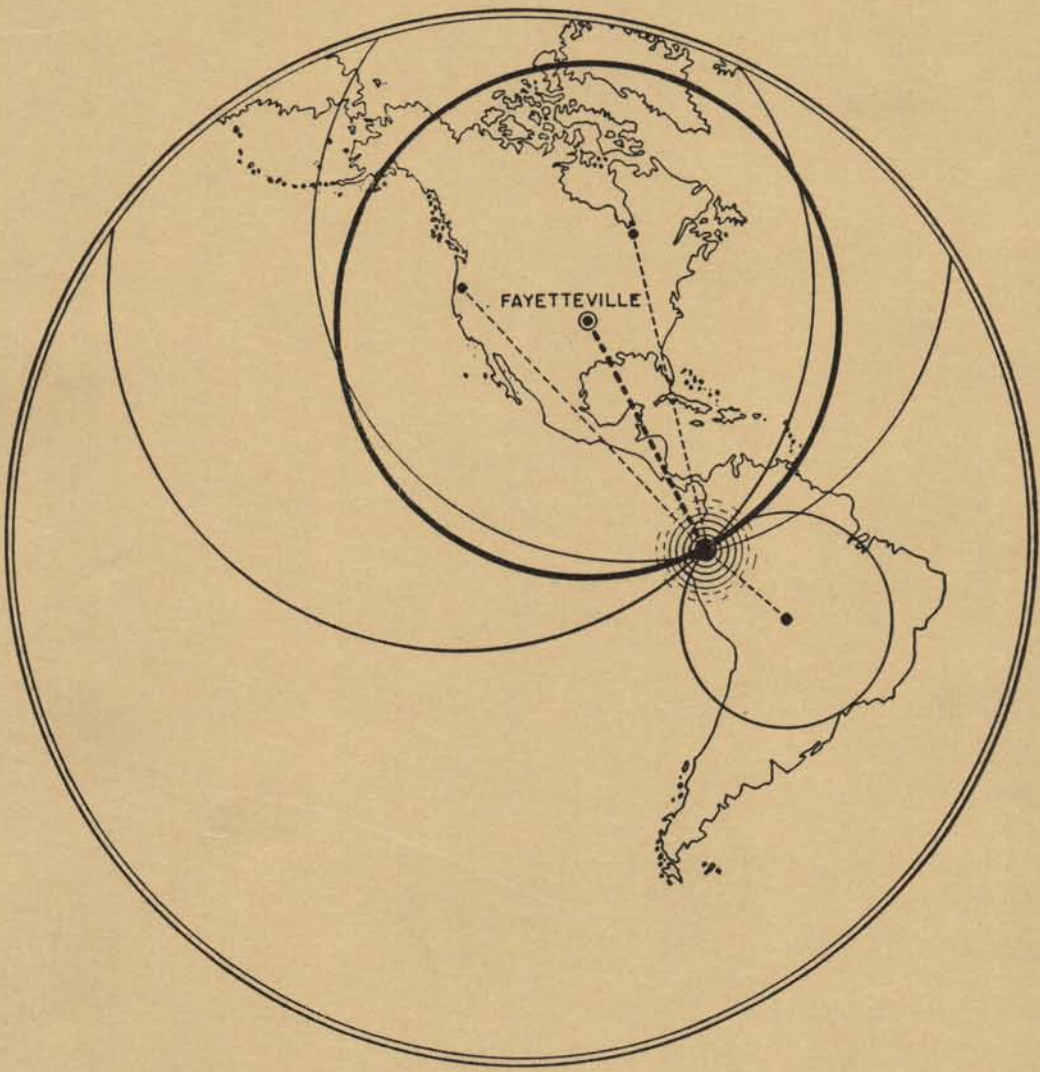
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UNIVERSITY OF ARKANSAS SEISMOLOGICAL BULLETIN

Volume X

Jan-March

Number 1 1961



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 10, Number 1, March 1961

Data for January, February, March, 1961

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 - WWW 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 (CT) h m s	Period (Sec)			Trace (Amp) mms (1)		
			Z	E	N	Z	E	N
Jan. 1	X e(P)	11-06-52.4	1.1			.7		
1	✓ i(P)	16-41-08.7	.7			.8C		
1	X C & GS	20-22-14.6; 49.5 S., 125.5 E; h about 59 km; South of Australia. (P-H) = 16,600 km. ca. or 149.5°.						
	iP'	20-41-54.5	1.0			.4		
2	X C & GS	13-16-41.0; 41.4 S., 88.8 W.; h about 25 km; off coast of Chile. (P-H) = 8600 km. ca. or 77.4°.						
	iP	03-28-34.8	.7			.5		
2	✓ C & GS	10-11-56.9; 12.4 S., 166.4 E.; h about 161 km; Santa Cruz Islands region. Mag. 6 3/4 (Pas.), 6 1/2-6 3/4 (Berk.). (P-H) = 12,440 km. ca. or 112°.						
	eP	10-26-16.7	1.0			.8		
	i(PP)	30-19.7	1.7			.8		
	i(SPP)	41-51.5	1.3			2.5		
	i	42-12.1	1.2			1.2		
	eGEN	11-04-32.4		8.0	4.4		6.0	2.8
2	X eP	12-50-43.1	.8			.6C		
3	X C & GS	05-26-54.8; 44.7 S., 76.6 W.; h about 25 km.; off coast of southern Chile. (P-H) = 9175 km. ca. or 82.6°.						
	iP	05-39-15.8	1.0			.8		
3	X C & GS	08-10-40.4; 1.1 N., 29.2 W.; h about 25 km; mid-Atlantic Ocean. (P-H) = 7780 km. ca. or 70°.						
	iP	08-21-50.9	1.1			1.0C		
3	✓ iP	12-03-04.9	1.0			5.3D		
3	e	12-59-41.9	.7			1.0		
3	X C & GS	17-41-58.7; 20.3 S., 68.2 W.; h about 211 km.; southern Bolivia. (P-H) = 6820 km. ca. or 61.4°.						
	iP	17-51-57.0	.8			2.5D		
		52-24.5	1.1			1.0		
4	X C & GS	12-04-33.8; 17.6 N., 101.2 W.; h about 40 km.; near coast of Guerrero, Mexico. (P-H) = 2175 km. ca. or 19.5°.						
	iP	12-08-59.2	1.1			2.5D		
	i(PP)ZN	09-16.3	1.1	3.0		1.8	1.0	
4	i	19-38-07.2	1.0			2.1C		
5	✓ C & GS	14-06-25.9; 51.6 N., 176.3 W.; h about 37 km.; Andreanof Islands, Aleutian Islands. Felt: Adak. mag. 6 3/4 (Pas.), 6 1/4-6 1/2 (Berk.). (P-H) = 6480 km. ca. or 58.4°.						
	IPZEN	14-16-18.7	2.1	4.2	5.0	4.5C	5.5	5.0

Date	Phase	JCT			Period (Sec)			Trace (Amp) mms (2)		
		h	m	s	Z	E	N	Z	E	N
Jan.										
5 (continued)										
✓	i(P)ZEN			33.2	1.2	3.0	5.0	7.3	3.0	4.7
	iZEN			17-10.7	1.1	3.0	3.0	3.3	2.0	2.5
	i(PP)			18-10.3	1.0			3.0		
	i(PPP)			19-06.7	1.2			2.2		
	iZEN			24-14.7		6.0	4.0	24.1	5.5	
	iEN			26-05.1		3.2	4.4	3.7	16.5	
	eLEN			35-14.7		8.0	6.0	3.9	4.0	
5	C & GS 15-09-37.9; 45.7 N., 149.3 E.; h about 19 km; Kurile Islands (P-H) = 9000 km. ca. or 81°.									
✓	iP			15-21-50.7	1.1			1.0C		
	i(P)			22-14.7	1.3			4.4		
5	C & GS 15-53-56.0; 4.1 S., 143.0 E.; h about 108 km.; New Guinea Felt mag. 6 3/4-7 (Pas.) (P-H) = 13,040 km. or 117.4°.									
✓	eP'			16-12-35.0	1.0			1.3		
	i			13-12.1	.7			1.0		
	iPP			51.6	1.0			1.2		
5	e(P) 18-16-32.6 1.4 .8									
✓	e			33-18.6	2.0			1.5		
5	C & GS 18-37-48.3; 51.3 N., 176.6 W.; h about 30 km.; Andreanof Islands, Aleutian Islands. (P-H) = 6535 km. ca. or 58.9°.									
X	eP			18-47-44.0	1.0			.5		
	eEN			49-12.6		5.0	6.0	5.0	2.5	
5	C & GS 18-47-33.5; 8.2 N., 83.1 W.; h about 82 km.; Costa Rica- Panama border region. (P-H) = 3280 km. ca. or 29.6°.									
X	iP			18-53-32.6	.9			1.0D		
5	C & GS 01-20-30.8; 42.5 N., 143.4 E.; h about 21 km; Hokkaido, Japan. (P-H) = 9620 km. ca. or 86.7°.									
X	iP			01-33-11.0	1.0			1.2C		
	i			25.5	2.5			1.4		
6	C & GS 06-21-38.6; 51.8 N., 176.2 W.; h about 48 km; Andreanof Islands, Aleutian Islands. (P-H) = 6300 km. ca. or 56.8°.									
✓	iP			06-31-29.5	1.0			1.4C		
	i(pP)			39.6	.5			1.2		
	i			32-21.0	.7			2.2		
6	C & GS 07-05-47.7; 53.3 N., 159.7 E.; h about 24 km.; Kamchatka (P-H) = 7845 km. ca. or 70.7°.									
X	iP			07-17-02.4	1.0			2.0C		
	i			14.9	1.0			1.3		
	i			19.9	.7			1.5		

Date	Phase	CT			Period (Sec)			Trace (Amp) mms (3)		
		h	m	s	Z	E	N	Z	E	N
Jan. 6	C & GS	10-49-22.9; 14.2 N., 95.8 W.; h about 45 km.; off south coast of Mexico. (P-H) = 1940 km. ca. or 17.5°.								
	iP	10-53-11.4			1.0			5.0C		
	i	17.7			1.0			4.5		
	i	37.8			.6			2.1		
	i	41.2			1.0			2.3		
	i(S)	57-00.9			1.0			1.3		
7	e	16-05-35.1			.8			.5		
8	C & GS	05-21-46.7; 15.8 S., 73.1 W.; h about 135 km.; Southern Peru. Felt: Arequipa. (P-H) = 6100 km. ca. or 54.9°.								
	iP	05-31-11.2			1.2			3.7D		
	ipP	37.7			1.1			1.0		
8	iP	23-58-02.8			1.1			1.0C		
	i	29.8			1.5			1.8		
9	C & GS	03-08-27.7; 31.2 N., 41.0 W.; h about 49 km; north Atlantic Ocean. (P-H) = 4950 km. ca. or 44.5°.								
	iP	03-16-44.3			1.0			1.0		
	i(pP)	17-00.0			1.4			.9		
9	C & GS	11-06-56.9; 17.7 N., 61.1 W.; h about 25 km.; Leeward Islands. (P-H) = 3890 km. ca. or 35°.								
	iP	11-13-45.8			1.0			.7C		
	i(S)	17-57.8			.7			.5		
9	eP	19-43-52.3			1.3			1.0		
10	C & GS	14-22-18.2; 29.9 N., 156.2 E.; h about 29 km.; Kurile Islands region. Mag. 6 3/4 (Pas.), 6 1/4 (Berk.), 6 1/4 - 6 1/2 (Pal.) (P-H) = 8265 km. ca. or 74.4°.								
	iPZEN	14-33-54.8			1.5	4.8	4.8	15.5C	5.0	3.5
	i(P)ZE	34-10.3			1.3	2.6		8.0	3.3	
	i(P)ZE	22.3			1.0	2.0		5.7	3.2	
	iSEN	43-24.3				9.6	6.8		13.3	4.0
	iSEN	48.3				5.2	4.8		5.5	8.3
	eLEN	59-13.3				6.0	7.0		4.5	3.0
11	C & GS	11-59-55.0; 51.8 N., 171.0 W.; h about 47 km.; Fox Islands, Aleutian Islands. (P-H) = 6160 km. ca. or 55.5°.								
	iP	12-09-23.2			.6			1.5		
	i(pP)ZE	38.2			.6	1.0		2.0	.8	
	i(sP)	46.2			.7			2.0		
	i(PP)	11-36.6			1.1			1.3		
	eEN	31-35.2				18.0	11.0		6.0	7.5
14	C & GS	02-26-30.6; 53.4 N., 172.4 E.; h about 90 km; Near Islands Aleutian Islands. (P-H) = 7180 km. ca. or 64.7°.								
	eP	02-37-02.2			1.4			.8		

Date	Phase	TIME GCT			Period (Sec)			Trace (Amp) mms (4)		
		h	m	s	Z	E	N	Z	E	N
Jan. 14	eP	03	04	43.2	.7			.7		
14	e(P)	03	35	44.7	.7			.6		
14	e(P)	04	00	05.7	.6			.6		
14	C & GS 16-17-25.5; 6.7 N., 73.0 W.; h about 177 km; (P-H) = 3860 km. ca. or 34.7°.									
	iPZE	16	24	05.1	1.2	1.0		7.0C	1.0	
	ipP			38.6	1.0			1.5		
	i(P ^{DP})	26	34	34.1	1.1			1.5		
14	C & GS 16-38-55.6; 53.9 N., 163.7 W.; h about 41 km.; Unimak Island region. mag. 5 3/4 (Pal.) (P-H) = 5560 km. ca. or 50.1°.									
	iP	16	47	47.4	1.2			1.5		
	iP		48	01.1	1.0			2.0		
	e(I)EN	17	09	13.6		11.0	8.0		6.5	2.0
15	C & GS 08-19-45.0; 30.3 S., 70.1 W.; h about 25 km.; near coast of northern Chile. (P-H) = 7780 km. ca. or 70°.									
	iP	08	30	56.1	1.0			1.0C		
	i		31	07.2	1.3			1.4		
15	C & GS 11-53-10.9; 39.5 N., 143.3 E.; h about 285 km.; near east coast of Honshu, Japan. (P-H) = 9700 km. ca. or 87°.									
	iP	12	05	53.6 A	.6			1.8C		
15	C & GS 20-34-14.3; 5.2 S., 110.0 E.; h about 565 km.; Java Sea. (P-H) = 16,060 km. ca. or 144.6°.									
	iP'	20	52	45.0	1.0			8.3D		
	ipP'		55	34.1	.7			2.0		
16	C & GS 01-48-50.2; 13.0 N., 99.4 W.; h about 25 km.; off coast of Mexico. (P-H) = 2590 km. ca. or 23.7°.									
	iP	01	53	57.1	1.0			1.5		
	i		54	05.1	1.0			2.5		
16	C & GS 03-58-52.5; 18.2 N., 102.4 W.; h about 153 km.; near coast of Mexico. (P-H) = 2160 km. ca. or 19.5°.									
	iP	04	03	07.1	.6			.9		
	i			16.6	1.6			3.5		
	i			32.6	1.4			6.8		
	iZEN	09	24	24.1	1.9	3.0	3.0	1.7	5.0	4.7
16	C & GS 07-20-18.6; 36.0 N., 141.1 E.; h about 131 km.; near east coast of Honshu, Japan. Felt: central and northeastern Honshu. mag. 6 3/4-7 (Pas.) (P-H) = 10,120 km. ca. or 91.1°.									
	iP	07	33	15.1	1.0			3.0D		

Date	Phase	CT			Period (Sec)			Trace (Amp) mms (5)		
		h	m	s	Z	E	N	Z	E	N
Jan. 16 (continued)	i			26.1	1.8			6.5		
	i			43.1	1.0			3.3		
	ipP			55.0	1.2			4.0		
	ipP		37-04.9		1.9			1.5		
	iSEN		43-21.3			10.0	4.0		5.5	4.4
	e(L)EN	08-07-23.9				8.8	10.0		3.5	5.0
16	C & GS	08-48-17.7; 35.0 N., 141.3 E.; h about 188 km.; near east coast of Honshu, Japan. (P-H) = 10,085 km. ca. or 90.7°.								
	iP	09-01-13.1			1.1				1.7D	
16	C & GS	11-19-46.5; 35.7 N., 140.6 E.; h about 157 km.; near east coast of Honshu, Japan. (P-H) = 10,100 km. ca. or 90.9°.								
	iP	11-32-42.2			1.2				2.0D	
	i	50.6			1.0				2.5	
16	C & GS	11-41-06.2; 35.2 N., 141.0 E.; h about 149 km.; near east coast of Honshu, Japan. (P-H) = 10,160 km. ca. or 91.4°.								
	i(P)	11-54-05.6			1.0				.8D	
	i	17.6			.8				1.0	
16	C & GS	12-12-34.4; 36.2 N., 141.7 E.; h about 105 km.; Honshu, Japan. Mag. $6\frac{1}{2}$ -6 $\frac{3}{4}$ (Pas.). (P-H) = 10,120 km. ca. or 91.1°.								
	iP	12-25-31.1			1.0				1.5D	
		42.1			1.2				11.3	
	ipP	56.1			1.4				3.3	
	iSEN	36-25.1				11.0	12.0		13.0	8.8
	eEN	13-01-19.1				18.4	14.0		6.0	4.5
16	C & GS	13-09-17.7; 35.6 N., 140.8 E.; h about 144 km.; near east coast of Honshu, Japan. (P-H) = 10,120 km. ca. or 91.1°.								
	iP	13-22-14.6			1.0				.8D	
	i	25.6			1.0				2.5	
16	C & GS	14-04-05.3; 36.3 N., 141.2 E.; h about 127 km.; near east coast of Honshu, Japan. (P-H) = 10,000 km. ca. or 90.7°.								
	iP	14-17-00.5			1.0				2.5D	
	i	10.2			1.0				2.7	
	ipP	29.6			1.3				1.5	
16	C & GS	14-44-15.1; 36.7 N., 141.6 E.; h about 99 km.; Honshu, Japan. (P-H) = 10,075 km. ca. or 90.7°.								
	eP	14-57-10.1			1.5				.9	
16	C & GS	15-41-23.3; 36.4 N., 140.6 E.; h about 147 km.; near east coast of Honshu, Japan. (P-H) = 10,000 km. ca. or 90.0°.								
	iP	15-54-16.2			1.0				2.3D	
	i	25.6			1.5				2.8	
	iSEN	16-05-12.1				3.2	3.0		7.5	3.0
	eE	137-44.1				9.0			2.5	



GCT

Period (sec)

Trace (Amp) mms (6)

Date	Time	GCT	Period (sec)			Trace (Amp) mms (6)		
			Z	E	N	Z	E	N
Jan.	17	X	C & GS 00-20-35.7; 36.5 N.; 141.8 E.; h about 100 km.; near east coast of Honshu, Japan. (P-H) = 10,120 km. ca. or 91.1°.					
			i(P)	00-42-33.0	.6		1.0D	
			i	43.0	1.0		.8	
17		✓	C & GS 06-41-36.8; 36.2 N., 141.6 E.; h about 99 km.; Honshu, Japan. (P-H) = 10,180 km. ca. or 91.7°.					
			iP	06-54-36.5	1.0		3.0D	
			i	47.0	1.0		2.0	
18		X	C & GS 04-22-24.3; 31.9 S.; 63.3 W.; h about 57 km.; Cordoba Prinvince, Argentina (P-H) = 8200 km. ca. or 73.8°.					
			iP	04-33-53.3	.5		2.2D	
18		✓	C & GS 16-48-34.5 S.; 35.9 N., 141.7 E.; h about 137 km.; near coast of Honshu, Japan. (P-H) = 10,100 km. ca. or 90.9°.					
			eP	17-01-30.8	.7		.7D	
18		X	e	17-20-23.8	1.0		.5	
18		X	e	17-33-30.8	.7		.5	
18		X	C & GS 19-55-12.8; 51.7 N., 150.4 W.; h about 150 km. n southern Alaska. (P-H) = 4740 km. ca. or 42.6°.					
			eP	20-03-03.3	.9		.9	
19		✓	C & GS 17-22-16.9; 49.7 N., 155.8 E.; h about 31 km.; Kurile Islands. mag. 5 $\frac{1}{4}$ -6 $\frac{1}{2}$ (Pal.). (P-H) = 8290 km. ca. or 74.6°.					
			iP	17-33-54.8	1.2		4.2C	
			i	34-08.3	1.1		4.0	
20		X	C & GS 01-51-56.6; 20.3 N., 108.6 W.; h about 84 km.; off coast of Mexico. (P-H) = 2350 km. ca. or 21.1°.					
			eP	01-56-34.1	1.2		1.5	
20		X	C & GS 08-50-34.0; 59.4 N., 154.3 W.; h about 91 km.; southern Alaska. (P-H) = 5340 km. ca. or 48°.					
			iP	08-59-09.0	1.0		1.8C	
20		✓	C & GS 17-09-15.7; 56.4 N., 152.3 E.; h about 46 km.; Kodiak Island, Alasks. mag. 6 $\frac{3}{4}$ (Pas.) (P-H) = 4860 km. ca. or 43.8°.					
			iP	17-17-18.5	1.0		2.4	
			i(pP)	24.0	1.0		2.6	
20		X	e	20-14-45.5	.6		.6	
20		✓	e	22-37-58.1	1.0		1.1	
21		X	3	00-58-14.6	1.0		1.0	



Date	Station	Time (UTC)	Period (Sec)			Trace (Amp) mms (7)		
			Z	E	N	Z	E	N
Jan. 21	C & GS	14-47-57.0; 8.6 N., 82.8 W.; h about 40 km.; Costa Rica-Panama border region. (P-H) = 3275 km. ca. or 29.5°.						
	iP	14-53-58.4	1.0			1.5D		
21	eP	23-09-51.3	1.0			.8		
22	i(P)	01-09-53.1	.9			1.0D		
22	eLZEN	05-18-40.0	5.5			1.4		
22	eP	20-20-49.9	1.3			.8		
23	C & GS	04-48-21.4; 42.9 N., 145.3 E.; h about 46 km.; Hokkaido, Japan. (P-H) = 9850 km. ca. or 88.6°.						
	iP	05-00-52.0	1.0			3.0D		
	i(pP)	01-07.5	1.0			1.5		
24	e	08-21-41.2						
24	e	12-51-38.1						
24	C & GS	23-12-49.0; 8.3 N., 82.9 W.; h about 78 km.; Panama-Costa Rica border. (P-H) = 3280 k. ca. or 29.6°.						
	iP	23-18-47.9	1.1			2.5D		
	i(pP)	56.4	.7			1.5		
25	C & GS	00-54-09.2; 4.9 S., 102.7 E.; h about 135 km.; near west coast of Sumatra. (P-H) = 17,000 km. ca. or 153°.						
	iP	01-13-35.9	1.1			3.0C		
	i	47.4	1.1			1.8		
	e(PPP)	19-51.4	.7			.8		
26	C & GS	17-45-42.9; 12.2 S., 78.1 W.; h about 60 km.; near coast of Peru. (P-H) = 5540 km. ca. or 49.9°.						
	eP	17-54-31.1						
	i(pP)	42.4						
27	e	08-36-23.1	.6			.6		
	i	46.5	1.4			.5		
27	C & GS	20-07-00.4; 45.4 N., 149.3 E.; h about 60 km.; Kurile Islands. (P-H) = 9010 km. ca. or 81.1°.						
	iP	20-19-09.1	1.0			1.5D		
	i	22.9	.8			1.2		
28	C & GS	03-24-39.2; 13.6 S., 76.6 W.; h about 35 km.; near coast of Peru, Mag. 5 (Pal.) (P-H) = 5845 km. ca. or 52.6°.						
	iP	03-33-50.2	.7			1.6C		
	iP	34-03.9	1.0			1.5		
	i	11.2	1.0			4.5		
	i	21.2	1.0			2.5		
		35.9	1.5			4.0		

Date	Phase	CT			Period (Sec)			Trace (Amp) mms (8)		
		h	m	s	Z	E	N	Z	E	N
Jan. 28	3P e(S)	06-31-32.3 39-03.8			.6 .6			.7 .4		
28	C & GS 08-12-45.3; 35.5 N., 118.1 W.; h about 21 km.; Kern County California. Felt: Bakersfield, China Lake, Los Angeles, and Mojave. Mag. 5¼-5½ (Pas.), 5½ (Berk.) (P-H) = 2115 km. ca. or 19°.									
	iPZE	08-17-13.8			1.2	2.8		1.4	1.5	
	iZE	28.0			1.3	2.8		1.8	1.7	
	iSZEN	21-48.8			1.6	3.8	2.8	1.5	2.0	7.0
	i	21-58.3			2.1			3.0		
	iZE	23-36.8			2.0	6.0		1.5	5.4	
28	C & GS 14-06-21.0; 45.0 S., 105.8 W.; h about 144 km.; South Pacific Ocean, about 1200 miles south of Easter Island. (P-H) = 9000 km. ca. or 81°.									
	iP	14-18-28.9			.8			2.8C		
	i	35.4			1.0			5.0		
29	C & GS 13-23-54.7; 51.8 N., 175.9 W.; h about 41 km.; Andreanof Islands, Aleutian Islands. (P-H) = 6445 km. ca. or 58°.									
	iP	13-33-44.7			1.0			3.0C		
	iP	57.7			1.0			3.8		
30	C & GS 12-12-39.7; 65.2 N., 149.9 W.; h about 34 km.; Central Alaska. Mag. 5½ (Pal.) (P-H) = 4845 km. ca. or 43.6°.									
	iP	12-20-42.8			.9			2.4C		
	e(L)ZEN	35-12.8			2.5	6.4	4.0	1.5	4.0	2.5
	iZEN	45.8			2.5	6.0	5.2	1.8	7.5	8.0
31	C & GS 00-48-36.5; 55.8 N., 163.9 W.; h about 26 km.; near Kodiak Island, Alaska. Mag. 6½ (Pas.), 6 (Berk.). (P-H) = 5945 km. ca. or 44.5°.									
	iPZEN	00-56-46.1			1.0		4.4	1.3D		2.5
	i	56.2			.8			2.5		
	i(PP)	58-38.6			1.1			1.5		
	iSEN	01-03-14.3				5.2	6.4		2.5	3.1
	i(S)E	35.1				5.0			4.2	
	iSSN	06-44.3					8.0			6.0
	eLEN	13-03.1				17.0	19.0		5.0	7.0
	eL _{max} EN	15-20.1				17.0	16.0		17.5	16.0
31	e	05-51-08.1			.6			.4		
	i	26.3			1.2			.6		
31	e	06-00-14.5			.7			1.2		
	e	29.0			.7			.4		
31	C & GS 18-32-19.5; 51.4 N., 178.4 W.; h about 53 km.; Andreanof Islands, Aleutian Islands (P-H) = 6280 km. ca. or 60.1°.									
	iP	18-42-21.0			.7			1.4C		
	i(pP)	31.3			.7			1.4		
	i(PcP)	43-09.3			.7			1.7		



Date	Phase	GCT H M S	Period (Sec)			Trace (Amp) mms. (9)		
			Z	E	N	Z	E	N
Jan. 31	eP	21-42-24.2	1.0			.7		
	i(S)ZEN	47-21.4	2.0	3.0	4.0	1.2	2.0	2.5
Feb. 1	C & GS 00-36-00.3; 50.2 N., 129.7 W.; h about 42 km.; off coast of Vancouver Island. (P-H) = 3265 km. ca. or 29.4°.							
	iPZEN	00-42-00.6	1.1	1.6	1.4	1.5C	.6	.5
	iEN	54-14.4		6.0	5.0		1.8	2.5
1	eP	07-53-42.6	.6			.5		
1	eP	11-32-18.1	1.5			.5		
1	e	12-26-02.4	1.0			.5		
2	C & GS 00-04-16.3; 37.2 N., 118.6 W.; h about 25 km.; Inyo County, California Mag. 4 3/4-5 (Pas.), 5-5 1/4 (Berk.) Felt. (P-H) = 2360 km. ca. or 21.2°.							
	eP	00-08-58.2	.7			.7		
	i	12-20.3	1.0			.7		
	iZN	14-42.7	3.5		3.0	1.3		6.0
	iZE	16-26.7	2.0	10.0		.9	4.4	
	i	18-10.0	2.5			1.3		
2	e	05-55-26.0	1.4			.7		
3	C & GS 11-02-51.7; 33.3 S., 72.3 W.; h about 27 km.; near coast of Central Chile. Felt: Aconcagua, Santiago, and Valparaiso provinces. (P-H) = 9320 km. ca. or 83.8°.							
	eP	11-14-25.0	1.0			.4		
3	C & GS 12-00-25.3; 33.2 S., 72.2 W.; h about 22 km.; near coast of Central Chile. Felt: Aconcagua, Santiago and Valparaiso provinces. (P-H) = 8220 km. ca. or 74°.							
	eP	12-12-00.5	1.1			.8		
3	iP	13-44-44.2 K	1.0			.9D		
3	C & GS 14-07-07.7; 33.3 S., 73.1 W.; h about 25 km.; off coast of Chile. (P-H) = 8600 km. ca. or 77.4°.							
	iP	14-18-01.9	.6			.7D		
3	i(P)	14-36-06.5	1.2			1.2D		
3	i(P)		1.1			1.5D		
3	e	23-52-02.5	.9			.8		
4	C & GS 01-13-05.0; 18.3 S., 69.3 W.; h about 178 km. Chile-Bolivia border. (P-H) = 6620 km. ca. or 60.6°.							
	iPZEN	01-22-51.0	1.0	2.0	2.0	6.5D	1.5	1.6
	i(pP)	23-19.5	1.3			2.0		



date	Phase	Time (GCT) h m s	Period (SEC)			Trace (Amp) mms			(10)
			Z	E	N	Z	E	N	
Feb. 4	X iP	06-54-00.5	.7			1.2D			
4	✓ iP	09-10-59.4 A	.6			.6C			
	i	20-37.3	1.0			1.0			
4	✓	C & GS 12-49-37.7; 50.3 N., 156.4 E.; h about 161 km; Kamchatka. (P-H) = 8230 km. ca. or 74.1°.							
	iP	13-00-57.6	1.1			4.4D			
4	X iP	15-35-53.0	1.5			2.2			
	i	36-01.2	.9			1.3			
4	X	C & GS 16-11-23.6; 11.8 N., 87.5 W.; h about 79 km; near coast of Nicaragua. (P-H) = 2800 km. ca. or 25.2°.							
	iP	16-16-43.0	.9			1.2C			
	ipP	17-02.0	.9			1.3			
4	X eP	22-26-38.7	.6			.9			
5	X eP	C & GS 00-01-07.6; 45.2 N., 148.2 E.; h about 25 km.; Kurile Islands. (P-H) = 6610 km. ca. or 59.5°.							
	eP	00-11-08.9	.6			.5			
5	X e	08-01-09.2	.6			.5			
	e	05-39.7	.7			.7			
5	X eP	10-30-40.7	.6			.8C			
5	✓	C & GS 15-38-34.0; 8.0 N., 82.8 W.; h about 49 km.; South of Panama. (P-H) = 3350 km. ca. or 30.1°.							
	iP	15-44-39.0 A	1.1			3.5C			
	i(PP)	52.0	.8			2.3			
	i(sP)	44-15.5	1.0			2.3			
6	✓	C & GS 10-30-07.2; 19.2 S., 68.6 W.; h about 181 km.; Chile-Bolivia border. (P-H) = 67.0 km. ca. or 61.2°.							
	iP	10-39-59.2	1.0			3.6D			
	i(pP)	29.2	.6			1.3			
	i(sP)	44.7	.7			2.3			
6	X eP	11-15-18.2	1.0			.5			
6	✓	C & GS 12-12-26.0; 51.6 N., 174.8 W.; h about 77 km.; Andreanof Islands, Aluetian Islands Mag. 5¼-5½ (Pal.) (P-H) = 6400 km. ca. or 57.6°.							
	iP	12-22-08.7 A	1.0			1.0C			
	ipP	22.6	1.0			1.8			
	isP	40.7	1.0			1.1			

Date	Phase	GCT			Period (Sec)			Trace (Amp) mms			(11)
		h	m	s	Z	E	N	Z	E	N	
Feb. 6		C & GS 18-15-21.6; 44.8 N., 149.1 E.; h about 25 km.; Kurile Islands. (P-H) = 9055 km. ca. or 81.5°.									
	iP	18-27-38.1	A	1.0			4.5C				
	i	48.6		1.0			3.3				
6	eP	22-03-43.7		.5			.6				
	i	04-11.3		1.1			.9				
	iE	13-44.5		8.0			4.0				
6	iP	22-14-53.2		.7			1.0C				
	i	15-05.6		1.2			2.4				
7	eP	03-26-08.3		.6			1.1				
	i	25.1		.8			1.8				
	i	29.1		.9			2.3				
7		C & GS 05-11-45.0; 4.1 S., 103.3 E.; h about 82 km; Sumatra. (P-H) = 16,100 km. ca. or 144.9°.									
	iP'ZEN	05-31-14.3	A	.9			12.1C				
	i(pP)	31.1		1.0			4.2				
	i(sP')	46.6		.7			1.3				
7	e	06-45-27.8		.7			.5				
7	e(P)	15-06-04.1		1.0			.8				
7		C & GS 21-01-37.3; 43.9 N., 147.1 E; h about 36 km.; Kurile Islands. (P-H) = 9230 km. ca. or 83.1°.									
	iP	21-14-01.5		1.0			1.2C				
7		C & GS 23-27-10.8; 51.4 N., 177.2 W.; h about 15 km.; Andreanof Islands, Aleutian Islands. (P-H) = 6570 km. ca. or 59.2°.									
	iP	23-37-10.5		1.1			2.6C				
	i	25.1		1.0			1.8				
	i	34.7		1.0			2.0				
8		C & GS 08-04-13.8; 10.6 S., 71.0 W. p h about 669 km.; Brazil-Peru border. Mag. 5 3/4 (Pas.) (P-H) = 5580 km. ca. or 50.2°.									
	iP	08-12-23.1		1.0			7.0D				
	i	47.1		1.0			2.0				
	i(PcP)	13-29.1		.8			3.5				
	iS	18-56.1		2.0			2.5				
9		C & GS 20-21-20; 9.9 S., 111.3 E.; h about 73 km.; off south coast of Java. (P-H) = 16,360 km. ca. or 147.2°.									
	iP'	20-40-55.1		.9			1.4D				
	ipP'	41-15.6		1.1			1.7				
9	e	22-01-00.3		1.0			.4				



		GCT	Period (Sec)			Trace (Amp) mms			(12)
			Z	E	N	Z	E	N	
Feb.									
10	X	e	12-16-44.7	.4			.3		
10	X	iP	13-09-33.4	.5			1.2C		
11		C & GS 21-01-06.4; 28.2 S., 177.5 W. h about 41 km.; Kermadec Islands, Mag. 6 3/4 (Pas.), 6 3/4 (Berk). (P-H) = 11,290 km. ca. or 101.7°.							
	✓	eP	21-14-57.6	1.0			.7		
		ePP	19-03.5	1.5			.9		
		eSE	25-30.3		7.0		2.9		
		i	31-01.5	1.0			.9		
11	X	C & GS 22-44-04.8; 24.2 S., 66.6 W.; h about 176 km.; Salta Province, Argentina (P-H) = 7315 km. ca. or 65.8°.							
		iP	22-54-33.2	.6			3.5D		
12	X	C & GS 01-19-21.8; 34.8 S., 106.9 W.; h about 100 km.; Easter Island region. (P-H) = 7970 km. ca. or 71.7°.							
		iP	01-30-37.8	1.0			1.3		
12	X	C & GS 03-51-14.6; 31.0 N., 109.1 W.; h about 63 km.; Mexico-Arizona, U.S.A. border. (P-H) = 1520 km. ca. or 13.7°.							
		eP	03-54-24.1	1.0			.8		
		e(S)ZEN	58.18.6	1.2	3.6	2.1	3.8	4.9	2.2
12	X	e	13-10-11.4	1.2			.3		
	✓	e	14-28.0	1.5			.7		
12		C & GS 21-53-43.5; 43.7 N., 147.6 E.; h about 45 km.; Kurile Islandsm Mag. 6 3/4-7 (Pas.) 7 (Pal). (p-H) = 9220 km. ca. or 83°.							
	✓	iPZEN	22-06-06.1	1.5	4.0	4.8	8.5C	4.3	4.5
		IZE	18.1	.7	4.8		5.4	5.8	
		iZN	32.2	1.0		3.0	8.8		3.0
		iPPZN	09-12.7	1.2		2.8	3.2		1.7
		iSZEN	16-18.6	2.4	8.8	11.6	2.0	41.0	28.5
		i(S)EN	37.7		5.6	8.6		21.8	30.8
		iSSEN	21-28.6		9.0	4.0		4.0	3.5
		eLEN	31-21.5		13.0	25.0		6.0	8.0
		eL _{max} ZEN	36-41.5		23.4	25.8		20.4	15.5
12		C & GS 23-26-34.5; 44.0 N., 147.7 E.; h about 23 km.; Kurile Islands. (P-H) = 9200 km. ca. or 82.8°.							
	✓	iPZEN	23-38-56.1	1.0	1.4	.6	2.8C	.6	.3
		IZE	10.4	.8	1.6		4.7	1.1	
		iSEN	49-07.4.		6.8	6.0		6.0	2.5
13	X	C & GS 09-06-55.9; 43.8 N., 147.0 E.; h about 25 km.; Kurile Islands. (P-H) = 9245 km. ca. or 83.2°.							
		iP	09-19-20.3	1.0			1.7C		
		i	31.0	.7			1.0		

Date	Phase	Time GCT			Period (Sec)			Trace (Amp) mms			(15)
		h	m	s	Z	E	N	Z	E	N	
Feb. 13		C & GS 16-17-20.1; 5.1 S., 128.7 E.; h about 66 km; Banda Sea. (P-H) = 14,280 km. ca. or 128.6°.									
	iP'	16	36	23.4	.5			1.3D			
13		C & GS 16-27-20.9; 43.7 N., 149.6 E.; h about 25 km.; Kurile Islands. Mag. 6-6 $\frac{1}{4}$ (Pas), 5 $\frac{1}{2}$ -5 $\frac{3}{4}$ (Pal). (P-H) = 9270 km. ca. or 83.4°.									
	i(P)	16	39	21.7	.7			1.5C			
	iPZEN	16	39	45.7	1.0	4.0	3.2	7.8C	2.0	2.3	
	iZEN		39	57.8	1.0	2.2	3.8	8.5	2.0	2.1	
	iSN		49	58.1	3.0			1.8			
13		C & GS 21-11-40.9; 43.6 N., 147.8 E.; h about 51 km.; Kurile Islands. (P-H) = 9240 km. ca. or 83.2°.									
	iP	21	24	02.0	.7			.7C			
	i(pP)		16	0	1.0			.7			
13		C & GS 22-37-12.9; 43.6 N., 148.1 E.; h about 40 km.; Kurile Islands. P-H) = 9220 km. ca. or 83°.									
	iP	22	49	35.5	1.1			1.8C			
14		C & GS 00-15-40.6; 43.7 N., 147.5 E.; h about 92 km.; Kurile Islands. (P-H) = 9150 km. ca. or 82.4°.									
	iP	03	03	29.2	.6			1.2C			
	i(pP)		42	5	1.4			1.3			
14		C & GS 03-15-25.0; 43.8 N., 147.4 E.; h about 25 km.; Kurile Islands. (P-H) = 9270 km. ca. or 83.4°.									
	eP	03	27	49.7	.8			.5			
	i		28	01.7	1.1			1.3			
14		C & GS 03-22-00.7; 43.8 N., 147.9 E.; h about 20 km.; Kurile Islands. Mag. 6-6 $\frac{1}{4}$ (Pas.) (P-H) = 9295 km. ca. or 83.6°.									
	iPZEN	03	34	26.2	.9	1.2	1.0	4.1C	.5	.7	
	iZEN		40	6	1.4	3.0	3.2	6.0	1.2	1.2	
	iSEN		44	38.7	4.8 5.0			1.9 4.5			
14		C & GS 05-44-24.3; 42.3 S., 73.1 W.; h about 58 km.; near coast of southern Chile. (P-H) = 9000 km. ca. or 81°.									
	iP	05	56	32.3	1.0			2.3D			
	i(pP)		44	5	1.1			1.3			
14		e 23-49-36.4 .6 .3									
15		i(P) 04-00-15.2 16 .5									
15		C & GS 10-45-15.9; 43.7 N., 147.4 E.; h about 69 km.; Kurile Islands. Mag. 6-6 $\frac{1}{4}$ (Pas), 6 (Pal). (P-H) = 9225 km. ca. or 83°.									
	iPZEN	10	57	35.7	2.0	1.4	1.4	5.7C	1.0	1.2	



			Period (Sec)			Trace (Amp) mms (14)		
			Z	E	N	Z	E	N
Feb. (continued)								
15	✓ ipPZEN	56.6	1.6	3.0	3.0	6.7	1.0	1.5
	iZN	58-24.9			2.0			1.0
	iSEN	11-08-09.2		5.0	5.2		2.5	5.0
15	e	12-09-23.3	.7			.5		
	i	10-12.7	1.0			.5		
15	iP	13-17-19.8	.6			.8C		
16	iP	05-27-11.4	.6			.7C		
	i	33.5	.9			2.3		
16		C & GS 13-54-53.7; 43.2 N., 148.0 E.; h about 71 km.; Kurile Islands. Mag. 6-6½ OPas.). (P-H) = 9220 km. ca. or 83°.						
	✓ ipZEN	14-07-13.2	1.5	2.0	2.0	5.2C	1.2	1.0
	i(pP)ZEN	28.4	1.2	3.0	2.0	7.5	1.9	1.3
16	C & GS	14-54-23.3; 43.7 N., 147.5 W.; h about 25 km.; Kurile Islands. (P-H) = 9270 km. ca. or 83.4°.						
	iP	15-06-48.4	.7			.6C		
16	C & GS	16-09-32.4; 8.4 S., 111.3 E.; h about 89 km. Java. (P-H) = 16,280 km. ca. 146.6°.						
	iP	16-28-52.2	.5			.7D		
	i	29-16.1	1.2			1.1		
17	C & GS	06-11-35.7; 6.5 N., 73.5 W.; h about 25 km.; Columbia (P-H) = 3940 km. ca. or 35.5°.						
	iP	06-18-30.5	.6			2.8C		
18	C & GS	01-04-00.8; 44.0 N., 147.5 E.; h about 28 km.; Kurile Islands. (P-H) = 9245 km. ca. or 83.2°.						
	✓ iP	01-16-24.4	1.0			1.0C		
	i	36.3	1.0			1.2		
18	iP	08-34-53.9	1.0			.8D		
	i	35-07.6	1.1			.8		
18	C & GS	17-02-10.0; 1.3 S., 15.7 W.; h about 25 km.; Atlantic Ocean north of Ascension Island. (P-H) = 9110 km. ca. or 82°.						
	✓ iP	17-14-27.6	1.6			2.0		
19	e	03-16-35.9	.5			.5		
19	C & GS	07-55-27.6; 56.1 N., 153.4 W.; h about 61 km.; Kodiak Island, Alaska. (P-H) = 4950 km. ca. or 44.5°.						
	eP	08-03-33.5	.6			.8		

Date	Phase	Time GCT			Period (Sec)			Trace (Amps) mms (15)		
		h	m	s	Z	E	N	Z	E	N
Feb. 19	C & GS 13-07-45.5; 56.1 N., 153.4 W.; h about 44 km.; Kodiak Island, Alaska. (P-H) = 4950 km. ca. or 44.5°.									
	eP	13	15	51.4		.5			.8	
20	e	00	10	32.6		.6			.4	
20	iP	13	10	10.1		1.0			1.7C	
	i		11	11.7		1.5			1.0	
	i(PP)		13	17.7		1.0			1.2	
20	iP	18	20	03.4		.8			.7D	
	i(pP)			17.9		1.0			1.2	
20	iP	18	36	57.2		1.1			14.7D	
✓	i(pP)		37	27.2		.7			6.7	
	i(sP)			40.0		1.0			5.0	
	i		37	57.9		1.0			4.0	
20	C & GS 22-27-00.4; 2.5 S., 77.6 W.; h about 50 km.; Ecuador. (P-H) = 4600 km. ca. or 41.4°.									
✓	iP	22	34	43.8		1.4			3.3C	
	ipP		35	05.5		1.0			2.0	
21	C & GS 03-01-55.3; 36.5 N., 23.3 E.; h about 49 km.; near south coast of Greece. (P-H) = 9690 km. ca. or 87.2°.									
✓	eP	03	14	39.5		.8			.5	
21	eP	16	36	59.1		.7			.9C	
21	e	21	25	02.3		.5			.5	
	i			11.9		.9			1.0	
21	e	23	49	38.4		2.0			1.0	
	i		50	34.9		1.0			1.0	
22	e	03	14	18.9		.4			.4	
22	e(P)	08	49	39.7		.5			.5	
22	eP	14	52	37.7		.6			.5	
	i		53	15.4		1.0			.8	
23	C & GS 03-19-03.8; 35.0 N., 27.0 E.; h about 10 km.; Dodecanse Islands. (P-H) = 6715 km. ca. or 60.4°.									
	iP	04	29	11.7		1.0			1.1D	
	i			33.0		1.5			1.9	
23	eP	14	36	36.5		.6			.5	
3			40	36.3		.9			.6	

Date	Phase	GCT			Period (Sec)			Trace (Amp) mms			(16)
		h	m	s	Z	E	N	Z	E	N	
Feb.											
24	X	C & GS 08-16-05.4; 17.8 S., 68.5 W.; h about 100 km.; Western Bolivia, Felt: Arequipa, Peru. (P-H) = 6600 km. ca. or 59.4°.									
	iP	08-25-58.7			.7			1.5C			
25	✓	C & GS 15-02-04.8; 15.4 S., 175.8 W.; h about 62 km.; Samoa Islands region. (P-H) = 10,060 km. ca. or 90.6°.									
	eP	15-15-11.8			.4			.5			
26	✓	C & GS 05-48-46.3; 32.7 S., 111.2 W.; h about 29 km.; Easter Island region. Mag. 6½-6¾ (Pas.), 6 (Berk.), 5½-5¾ (Pal). (P-H) = 7855 km. ca. or 70.6°.									
	iPZN	06-00-01.5			1.2		2.0	4.0		3.1	
	iZEN	26.8			1.6	3.4	3.8	2.8	1.8	2.5	
	iSN	09-16.8					8.2			2.5	
29	X	C & GS 18-10-48.7; 31.4 N., 131.2 E.; h about 54 km.; near coast of Kyushu, Japan. Mag. 7-7¼ (Pas.), 7 (Berk), 7¼ (Pal). 1 killed, several injured, and extensive property damage at Miyazaki. 3 ft. tsunami observed in southwest shikoku. (P-H) = 11,260 km. ca. or 101.4°.									
	iP	18-24-33.4			1.5			1.7C			
	i(pP)	57.2			1.8			4.0			
	iPPZEN	28-42.3			1.7	7.2	8.0	2.4	6.8	5.7	
	i(PPP)EN	31-58.4				4.0	7.0		2.3	3.0	
	iEN	35-11.8				3.4	3.0		6.5	7.6	
	iSZEN	36-06.0				8.2	7.0		24.0	22.0	
	e(SS)EN	43-09.2				10.0	12.8		16.0	14.0	
	eL _{max} ZEN	19-01-23.2				31.0	32.2		19.5	26.8	
27	✓	iPSEN 01-14-29.7 1.1 .7 .8 13.5D 1.0 1.0									
		45.2			1.0			1.2			
27	✓	C & GS 10-29-48.3; 38.7 S., 72.4 W.; h about 57 km.; Southern Chile (P-H) = 8620 km. ca. or 77.6°.									
	iP	10-41-38.7			1.0			.9D			
	i	47.7			2.0			1.5			
27	✓	C & GS 13-06-35.8; 52.5 N., 168.8 W.; h about 56 km.; Fox Islands, Aleutian Islands (P-H) = 5960 km. ca. or 53.6°.									
	iP	13-15-50.7			.6			.6C			
	i(pP)	16-02.6			1.0			2.6			
27	X	iP 15-50-03.6 .4 .8									
28	✓	C & GS 12-33-32.1; 46.5 N., 152.2 E.; h about 29 km.; Kurile Islands. (P-H) = 8720 km. ca. or 78.5°.									
	iP	12-45-31.8			1.0			1.7C			
	i	47.2			1.4			1.2			
28	X	e 18-33-39.6 .3 .4									
	i	34-19.1			1.0			1.0			

Date	Phase	Time GCT			Period (Sec)			Trace (Amp) mms (17)		
		h	m	s	Z	E	N	Z	E	N
Feb. 28	i(P)	20	12	29.3	.6			1.0C		
28	C & GS 21-18-11.3; 24.1 S., 66.6 W.; h about 30 km.; Salta Province, Argentina (P-H) = 7295 km. ca. or 65.5°.									
	iP	21	28	54.7	1.3			6.0D		
	i	44	25	7	1.2			1.4		
Mar. 1	C & GS 03-24-10.4; 30.7 S., 66.0 W.; h about 259 km.; La Rioja Province, Argentina. (P-H) = 8080 km. ca. or 72.7°.									
	iP	03	35	08.2	.7			1.0C		
	i			50.4	1.0			1.0		
1	i	13	06	42.3	1.1			.8		
1	C & GS 13-13-41.4; 8.0 S., 107.4 E.; h about 33 km.; near coast of Java. Felt: Djakarta. (P-H) = 15,970 km. ca. or 143.7°.									
	iP'	13	33	11.4	.6			2.0D		
	i				.6			.8		
1	e	14	10	14.9	1.0			.8		
1	C & GS 23-42-43.8; 2.8 S., 105.7 W.; h about 59 km.; about 1500 (?) km. west of Galapagos Islands. (P-H) = 4520 km. ca. or 40.7°.									
	iP	23	50	19.3	1.1			.7		
2	C & GS 00-04-12.7; 15.7 N., 92.2 W.; h about 98 km.; Mexico-Guatemala border. (P-H) = 2320 km. ca. or 20.9°.									
	iP	00	08	46.9	1.0			1.0D		
	i(pP)ZEN	09	01	2	1.2	1.0	1.2	3.4	.2	.8
	iZN	10	01	9	1.3		1.0	1.8		.9
	iSZE	13	06	4	1.0	1.4		1.2	.7	
3	C & GS 05-15-55.8; 42.3 N., 143.9 E.; h about 60 km.; Hokkaido, Japan. (P-H) = 9660 km. ca. or 87°.									
	iP	05	28	31.3	.8			.7		
	i			41.8	.9			.7		
3	iP	23	03	28.7	1.4			2.0D		
4	C & GS 10-19-33.7; 20.4 S., 67.6 W.; h about 109 km.; near Chile-Bolivia border. (P-H) = 6800 km. ca. or 61.2°.									
	iP	10	29	43.0	.9			3.1D		
	ipP	30	10	3	1.4			1.0		
	isP			23.9	1.1			1.5		

Date	Phase	Time GCT			Period (Sec)			Trace (Amp) mms (18)		
		h	m	s	Z	E	N	Z	E	N
Mar.										
4		C & GS 21-09-09.9; 12.6 N., 88.0 W.; h about 85 km.; near coast of El Salvador. (P-H) = 2670 km. ca. or 24.0°.								
	iP	21-14-20.9			.6			1.5D		
	ipP	40.4			1.0			2.0		
	isP	56.4			1.5			2.9		
4		C & GS 22-26-01.2; 37.8 N., 151.6 E.; h about 61 km.; near coast of Honshu, Japan. (P-H) = 11,600 km. ca. or 104.4°.								
	iP	22-39-58.3			1.0			1.5C		
5		C & GS 01-26-26.1; 10.7 S., 161.6 E.; h about 99 km.; Solomon Islands region. Map. 6¼ (Pas.) (P-H) = 12,920 km. ca. or 116.3°.								
	eP'	01-45-02.3			1.1			.5		
5	e(P)	18-41-26.6			.9			.6		
6		C & GS 12-13-31.0; 48.1 N., 80.0 W.; h about 49 km.; Ontario Province, Canada. 9P-H) = 1860 km. ca. or 16.7°.								
	iP	12-17-17.5								
	i	21-51.4								
7		C & GS 06-43-10.6; 43.3 S., 80.4 W.; h about 60 km.; off coast of Chile (P-H) = 9020 km. ca. or 81.2°.								
	eP	06-55-19.7			.7			.6		
7		C & GS 10-10-38.9; 28.2 S., 175.7 W.; h about 43 km.; Kermadec Islands region. Map. 7¼-7½ (Pas.), (Berk), 7-7¼ (Pal). (P-H) = 11,110 km. ca. or 100°.								
	iPZEN	10-24-22.5			2.0	7.0	6.0	2.3C	3.1	
	iPPZEN	28-27.8			2.1	6.6	6.8	3.5	9.0	7.8
	iSEN	35-00.1				11.0	11.0		14.5	8.4
	eSSEN	42-25.8				14.0	18.0		12.0	17.0
	eLEN	50-48.4				22.0	20.0		8.0	10.0
	eL _{max} ZEN	11-18-05.0				15.2	15.0		57.5	30.0
7	i(P)	19-43-52.6			1.6			1.7C		
	e(S)	49-21.1			2.5			1.0		
8		C & GS 00-17-58.4; 52.2 N., 165.2 W.; h about 63 km.; Fox Islands, Aleutian Islands; 9P-H) = 5710 km. ca. or 51.4°.								
	iP	00-26-57.8			1.1			1.8		
	i	07.8			.9			.9		
9		C & GS 04-08-30.0; 40.6								
	iP	04-08-30.0			1.9			1.2		
	i	40.6			1.1			3.7		

Date	Phase	Time GCT			Period (Sec)			Trace (Amp) mms (19)			
		h	m	s	Z	E	N	Z	E	N	
Mar. 9	iP	08	36	40.5	1.4			1.7C			
10	e	15	13	02.8	.9			.8			
10	C & GS 23-12-20.4; 10.1 N., 83.6 W.; h about 56 km.; near coast of Costa Rica. (P-H) = 3100 km. ca. or 27.9°.										
	iP	23	18	06.0	1.2			1.4D			
	i(S)	24	28	1	1.0			.7			
11	C & GS 01-31-34.4; 48.7 N., 154.6 E.; h about 26 km.; Kurile Islands. Mag. 6½ (Berk.) (P-H) = 8445 km. ca. or 76°.										
	iP	01	43	20.0	1.1			3.8C			
	i			31.4	1.1			4.2			
	i			46.7	2.0			4.7			
12	iP	01	35	16.2	.7			1.2C			
	i			29.4	1.1			1.0			
12	C & GS 02-49-33.4; 17.4 N., 107.3 W.; h about 57 km.; off coast of Mexico. Mag. 5¼-5½ (Berk.). (P-H) = 2510 km. ca. or 22.4°.										
	iPZN	02	54	26.1	1.0		5.2	1.5D		3.4	
	ipZEN			44.6	1.3	4.0	3.4	2.5	2.3	2.7	
	iSEN			58-26.9		5.6	5.0		4.0	3.4	
	iZEN	03	01	02.3	2.1	8.0	8.0	.9	3.5	3.9	
12	C & GS 12-09-10.7; 19.2 N., 107.1 W.; h about 64 km.; off west coast of Mexico. (P-H) = 2320 km. ca. or 20.9°.										
	iP	12	13	44.5	1.2			.9			
12	C & GS 14-59-16.8; 43.8 N., 129.1 W.; h about 19 km.; off coast of Oregon. (P-H) = 3220 km. ca. or 29°.										
	e	15	05	12.7	1.1			.7			
13	C & GS 08-03-43.9; 19.2 N., 107.3 W.; h about 49 km.; off west coast of Mexico. Mag. 6¼-6½ (Pas.) (P-H) = 2320 km. ca. or 20.9°.										
	iPZEN	08	08	19.0	1.3	2.0	1.8	1.8D	1.5	2.5	
	i(pP)ZEN			39.0	2.0	5.0	4.8	4.7	4.8	5.7	
	isPZEN			46.0	1.4	4.8	5.0	5.4	4.0	8.8	
	iPPZE	09	06	1	1.5	5.2		5.0	6.0		
	iZN			45.1	2.1		4.2	4.0		6.2	
	iSEN	12	12	5		12.0	11.2		61.7	49.2	
	i(ScP)EN	15	01	5		14.6	10.0		55.3	42.0	
	i	16	33	7	5.1			6.0			
13	C & GS 19-17-16.1; 34.4 N., 26.5 E.; h about 25 km.; Crete; (P-H) = 10,120 km. ca. or 91.1°.										
	eP	19	30	18.9	.7			.7			

Date	Phase	Time GCT			Period (Sec)			Trace (Amp) mms (20)		
		h	m	s	Z	E	N	Z	E	N
Mar.										
14		C & GS 01-05-06.2; 42.9 N., 140.2 E.; h about 147 km.; off west coast of Hokkaido, Japan. (P-H) = 9620 km. ca. or 86.6°.								
	iP	01	17	40.4	1.0			1.3D		
15	eLE	11	17	06.6		20.0			2.5	
16		C & GS 04-58-00.5; 51.7 N., 176.1 E.; h about 39 km.; Rat Islands, Aleutian Islands. (P-H) = 6985 km. ca. or 62.9°.								
	eP	05	08	24.5	1.0			.5		
	i		09	02.5	1.0			1.0		
16		C & GS 07-15-41.7; 6.6 S., 106.5 E.; h about 135 km.; Soenda Strait. (P-H) = 13,920 km. ca. or 125.3°.								
	iP'	07	35	06.9	.9			2.3C		
16		C & GS 07-52-39.6; 19.0 S., 172.7 W.; h about 25 km.; Tonga Islands. (P-H) = 10,335 km. ca. or 93°.								
	iP	08	05	50.9	1.0			.8		
16		C & GS 11-19-43.5; 6.4 S., 130.7 E.; h about 77 km.; Banda Sea. (P-H) = 14,480 km. ca. or 130.3°.								
16	eP'	11	38	49.1	1.0			.7		
	i		42	01.7	1.3			1.7		
16	eP	14	04	45.9	1.1			.6		
	i			57.1	1.0			1.3		
	i		07	46.0	2.0			1.5		
16		C & GS 15-26-56.2; 49.6 N., 154.3 E.; h about 42 km.; Kurile Islands. (P-H) = 8410 km. ca. or 75.6°.								
	iP	15	38	39.7	1.3			2.0D		
16	e	17	50	17.4	.5			.2		
	i			40.9	1.3			.8		
16		C & GS 18-21-12.2; 8.1 S., 122.0 E.; h about 43 km.; Flores Island. (P-H) = 15,335 km. ca. or 138°.								
	eP'	18	40	31.6	.5			.4		
	e(PP)		43	14.3	1.5			.6		
15		C & GS 23-31-27.2; 10.5 S., 74.9 W.; h about 201 km.; central Peru. (P-H) = 5560 km. ca. or 50°.								
	iP	23	40	03.8	1.1			1.7D		
	i			19.3	.9			.7		
17	i	03	49	04.0	.7			1.0D		
	i			31.4	1.1			.7		

Date	Phase	Time GCT			Period (Sec)			Trace (Amp) mms (21)		
		h	m	s	Z	E	N	Z	E	N
Mar. 17	i	10	15	14.0	.9			.8D		
17	C & GS 20-10-36.4; 24.3 S., 175.6 W.; h about 79 km.; Tonga Islands region. Mag. 6 (Pas.) (P-H) = 11,000 km. ca. or 99°.									
	iP	20	24	09.1	1.1			.9D		
19	C & GS 07-47-51.2. 4.8 S., 153.8 E.; h about 157 km.; New Britain region. (P-H) = 8620 km. ca. or 77.6°.									
	eP	07	59	29.6	.7			.5		
18	C & GS 13-55-34.7; 30.5 S., 71.1 W.; h about 53 km.; near coast of central Chile (P-H) = 7820 km. ca. or 70.2°.									
	iP	14	06	43.2	.8			.8D		
18	C & GS 14-54-59.3; 49.9 S., 163.3 E.; h about 38 km.; south of New Zealand. Mag. 6 3/4-7 (Pas), 6 1/2-6 3/4 (Berk.), 6 1/2 (Pal). (P-H) = 14,110 km. ca. or 127°.									
	eP'	15	14	00.8	.7			1.2		
	eEN	58	23	5		7.0	15.0		4.6	5.2
19	C & GS 04-59-19.3; 6.4 S., 105.5 E.; h about 120 km. Soenda Strait. Felt: Djakarta (P-H) = 16,100 km. ca. or 144.9°.									
	iP'	05	18	47.8	.6			4.3C		
	i(pP')	19	02	2	.7			5.0		
	i(sP')	10	2		.8			3.0		
19	C & GS 07-51-35.0; 2.3 N., 127.4 E.; h about 83 km.; Molucca Passage. (P-H) = 13,960 km. ca. or 125.5°.									
	eP'	08	10	30.7	.8			.6		
19	C & GS 09-18-53.4; 37.2 N., 140.7 E.; h about 115 km.; Honshu, Japan. (P-H) = 9920 km. ca. or 89.3°.									
	eP	09	31	48.2	.6			.5		
	i	32	02	8	1.0			1.0		
19	eP 14-27-10.8 .5 .3									
	i		25	4	.9			1.3		
	i		31	04.4	1.0			.6		
20	C & GS 06-16-23.9; 11.5 N., 86.3 W.; h about 122 km.; off west coast of Nicaragua. Felt at Managua. Mag. 6-6 1/4 (Pas.) (P-H) = 2820 km. ca. or 25.4°.									
	iPZEN	06	21	46.7	1.6	1.1	1.4	23.0C	.7	1.7
	i(pP)	22	01	4	.7			5.8		
	isP	27	6		.7			3.5		
	i(PP)ZE	48	5		1.5	4.0		4.9	2.5	
	i	23	25	4	1.9			3.3		
	iSEN	26	37	6		3.4	4.0		2.6	2.0
	e(ScS)EN	30	20	2		10.0	10.0		3.5	4.0

Date	Phase	Time GCT			Period (Sec)			Trace (Amp) mms (22)		
		h	m	s	Z	E	N	Z	E	N
Mar. 20		C & GS 11-38-39.3; 36.3 N., 142.7 E.; h about 354 km.; Sakhalin Island. (P-H) = 9240 km. ca. or 83.2°.								
	iP	11	50	31.3	1.0			5.8C		
20		C & GS 15-53-09.9; 18.4 S., 175.2 W.; h about 175 km.; Tonga Islands. Mag. 6½-6 ¾ (Pas.), (Berk.). (P-H) = 9480 km. ca. or 85.3°.								
	iPZEN	16	06	12.9	1.0	1.6	1.8	22.0	3.5	1.5
	i(pP)ZN			35.0	1.2		2.0	2.5		2.0
	i(sP)ZEN	07	06	.2	1.4	3.6	2.2	11.2	4.5	2.7
	iZN			41.7	1.4		3.0	4.5		2.0
	iPPZE	09	57	.9	1.6	4.0		6.8	2.5	
	ipPPZE	10	44	.4	1.9	6.0		3.0	3.0	
	iSKsEN	16	29	.6		8.0	10.0		23.2	9.5
	iSZEN	17	07	.8	9.0	10.0	9.2	1.5	23.6	38.5
	iSSE	23	28	.4		9.0	7.0		6.0	7.0
20		C & GS 23-42-31.9; 24.2 S., 175.9 W.; h about 25 km.; Tonga Islands region. (P-H) = 8290 km. ca. or 74.6°.								
	iP	23	56	11.4	1.1			.8		
21	eLEN	00	32	24.5		6.0	10.0		2.0	2.7
21		C & GS 04-33-47.5; 21.7 S., 67.4 W.; h about 25 km.; southern Bolivia. (P-H) = 6900 km. ca. or 62.1°.								
	i	04	44	16.6	.9			1.0		
22		C & GS 14-19-46.5; 11.8 N., 86.8 W.; h about 172 km.; near coast of Nicaragua. (P-H) = 2750 km. ca. or 24.7°.								
	iP	14	24	57.8	.9			2.0D		
23	iS	04	52	52.8	1.0			.8		
23	i	17	34	27.3	1.4			.8		
24		C & GS 02-13-14.1; 8.5 S., 74.7 W.; h about 175 km.; Peru. (P-H) = 5390 km. ca. or 48.5°.								
	iP	02	21	39.4	.8			.7		
	i			58.2	.9			1.1		
	i			22-11.8	1.0			.8		
24	iP	15	24	27.4	1.1			.7C		
24		C & GS 22-57-14.2; 35.3 N., 140.9 E.; h about 102 km.; near east coast of Honshu, Japan. (P-H) = 10,260 km. ca. or 92.4°.								
	iP	23	10	16.9	1.1			2.0C		
	i(pP)			29.2	1.1			4.3		
	isP			57.5	1.0			2.0		
	i	12	08	.5	1.3			1.2		

Date	Phase	me GCT			Period (Sec)			Trace (Amp) mms (23)		
		h	m	s	Z	E	N	Z	E	N
Mar. 25	C & GS 02-09-59.9; 2.1 S., 79.4 W.; h about 25 km.; Ecuador. (P-H) = 4565 km. ca. or 41.1°.									
	iP	02-17-40.9			1.2			.8		
25	e	15-26-05.7			.7			.4		
25	iP	21-18-27.1			1.1			1.3D		
26	C & GS 14-29-23.8; 5.7 N., 126.4 E.; h about 147 km.; Mindanao, Philippine Islands. (P-H) = 13,4000 km. ca. or 120.6°.									
	iP	14-48-11.6			.7			1.0		
27	e	09-09-53.2			.5			.4		
27	e(P)	15-10-43.0			.6			.6		
27	C & GS 20-52-39.3; 8.8 N., 104.2 W.; h about 26 km.; Pacific Ocean, about 700 miles south of Michoacan, Mexico. (P-H) = 3250 km. ca. or 29.3°.									
	iP	20-58-37.0			1.2			1.0		
	iSZN	21-03-17.4			1.0		6.0	1.3		2.5
	iLEN	07-52.4					6.0 6.0		3.5	3.4
	iLEN	12-11.6					6.0 5.0		4.5	3.5
27	iP	22-40-30.4			1.1			1.3C		
28	C & GS 09-35-55.4; 123.6 E.; h about 83 km.; Northern Celebes. Mag. 6 3/4 (Pas), 7 (Pal). (P-H) = 14,340 km. ca. or 129°.									
	iP'ZEN	09-54-59.6			1.6	3.0	2.2	10.0	2.5	1.4
	ipP'ZE	32.0			.9	3.0		5.0	2.6	
	iPPZEN	57-09.4			2.1	3.2	3.0	10.8	5.0	4.3
	i(SKP)ZN	58-07.1			2.3		4.0	7.5		4.0
	iEN	21.2				4.2	4.2		5.7	12.2
	i(SKSP)EN	10-07-06.8				6.4	5.0		4.0	4.0
	eSSEN	14-32.8				8.0	11.0		9.5	10.0
	eSSSEN	19-27.8				15.0	12.0		9.2	9.3
28	C & GS 12-29-12.7; 51.7 N., 176.2 W.; h about 60 km.; Andreanof Islands, Aleutian Islands. Mag. 6 1/4 (Pas), 5 1/2 (Pal). (P-H) = 6520 km. ca. or 58.7°.									
	iPZEN	12-39-02.1			1.2	3.0	3.0	7.5C	5.7	5.0
	ipPZN	19.9			1.5		4.0	7.8		3.3
	i(PcP)ZE	50.3			.6	2.4		1.5	2.4	
	i(S cP)	43-48.7			3.0			5.3		
	iSZEN	46-57.0			3.0	4.8	3.0	2.0	12.0	3.0
	iN	48-46.0					4.8			8.3
	iScS)N	49-08.0					4.0			7.5
28	C & GS 13-59-03.7; 52.0 N., 175.3 W.; h about 89 km.; Andreanof Islands, Aleutian Islands. (P-H) = 6400 km. ca. or 58°.									
	iP	14-08-48.2			1.0			2.2C		
	i(pP)	09-03.1			.6			1.3		

Date	Phase	Time GCT			Period (Sec)			Trace (Amp) mms (24)		
		h	m	s	Z	E	N	Z	E	N
Mar. 28	C & GS 21-01-56.2; 22.0 S., 68.0 W.; h about 125 km.; Chile-Bolivia border region. Felt: Antofagasta. Mag. 6 (Pas). (P-H) = 6960 km. ca. or 62.6°.									
	iPZEN	21	12	14.3	.7	1.2	3.2	10.0D	2.8	8.7
	ipZEN		40	.3	.9	2.0	3.0	6.0	3.0	6.8
	isPZEN		55	.7	1.0	2.8	2.4	5.0	8.8	3.7
	iSEN	20	17	.2		7.0	6.0		8.3	3.0
	isSEN	21	10	.4		7.6	7.2		11.7	6.8
	iEN	22	24	.3		6.6	6.0		7.6	8.0
29	C & GS 06-43-43.3; 33.5 N., 140.9 E.; h about 116 km.; near east coast of Honshu, Japan. (P-H) = 10,360 km. ca. or 93.2°.									
	iP	06	56	51.1	.6			.9		
	i		57	08.1	.8			1.0		
29	eP	09	37	01.7	.6			.6		
29	iP	10	09	05.3	.9			.8D		
30	C & GS 07-42-59.4; 22.0 N., 107.8 W.; h about 20 km.; Gulf of California. Mag. 5½ (Pal) (P-H) = 2110 km. ca. or 19°.									
	iPZEN	07	47	16.9	1.5	2.4	2.4	2.0C	1.5	1.8
	iSEN		50	39.9		7.8	8.4		7.5	4.0
	i(S)EN		51	05.9		6.6	6.8		5.6	6.0
	iEN		52	19.1		8.4	9.0		6.0	6.5
	iZEN		38	.4	2.5	4.2	3.0	3.0	14.0	14.0
	iEN		53	42.5		6.0	6.0		34.0	22.0
	iEN		55	12.9		6.0	7.4		10.0	12.4
30	C & GS 11-06-11.8; 22.3 N., 107.8 W.; h about 67 km.; Gulf of California. (P-H) = 2070 km. ca. or 18.7°.									
	iP	11	10	22.1	1.0			.7C		
	i		15	48.9	1.0			1.0		
30	iP	11	10	22.1	1.0			.6		
	e(S)		15	48.9	1.2			.6		
30	e	12	05	55.0	.5			.2		
31	C & GS 05-20-36.8; 32.6 N., 135.7 E.; h about 300 km.; South of Honshu, Japan. (P-H) = 10,780 km. ca. or 97°.									
	iP	05	33	39.8	1.1			.8C		
31	e	13	48	26.2	.6			.5		
31	C & GS 23-19-00; 29.9 S., 69.4 W.; h about 100 km.; San Juan Province, Argentina. (P-H) = 7740 km. ca. or 69.6°.									
	iP	23	30	05.4	.7			1.5C		

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.



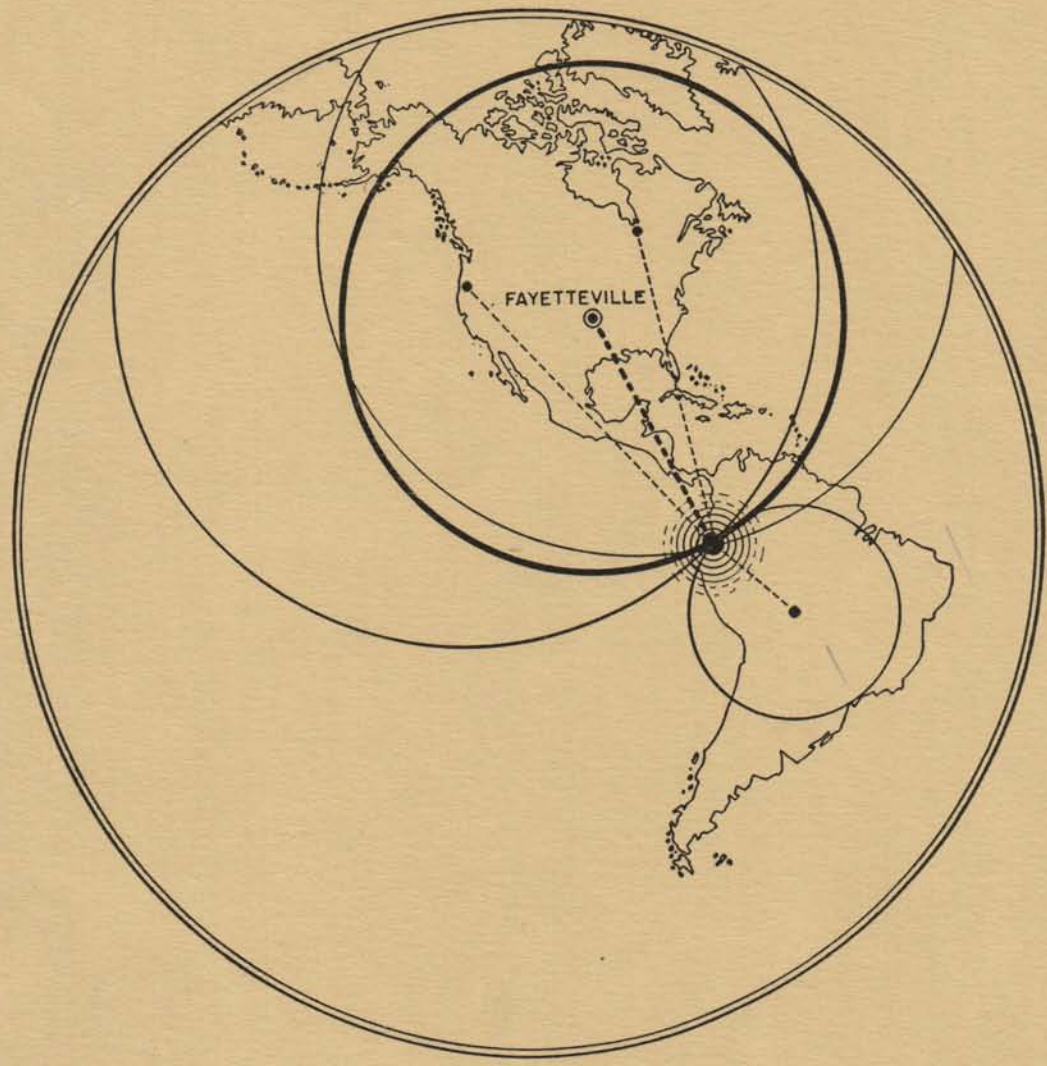
University of Arkansas
Seismograph Station
Department of Geology
Fayetteville, Arkansas

Copied 4/13

UNIVERSITY OF ARKANSAS SEISMOLOGICAL BULLETIN

Volume X

April - June 1964 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 10, Number 2, June 1961

Data for April, May, June, 1961

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 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 h m s	Period (sec)			Trace Amp (mms)		
			Z	E	N	Z	E	N
April								
1	e(P)	04-52-43.7	.9			.7		
1	C & GS 08-08-19.4; 50.6 N., 159.9 E.; h about 38 km; off east coast of Kamchatka. (P-H) = 7990 km. ca. or 72°.							
	iP	08-19-41.3	.6			1.2		
1	C & GS 15-18-22.8; 39.6 N., 77.7 E.; h about 21 km; Sinkiang Province, China. Mag. 6 (Pal.). (P-H) = 11,690 km. ca. or 105.2°.							
	eP	15-32-30.6	1.1			.8		
	i(PP)ZN	36-41.5	1.5			2.5 2.8		
	iN	43-08.3				6.4 11.0		
	iSE	44-20.3	5.0			6.8		
	eLEN	16-19-16.5	18.0 21.0			4.7 6.8		
2	C & GS 13-00-26.4; 1.6 S., 100.6 E.; h about 25 km; near coast of Sumatra. (P-H) = 15,960 km. ca. or 143.7°.							
	eP'	13-19-56.4	.7			.7		
3	C & GS 01-10-32.2; 6.8 N., 72.9 W.; h about 221 km; Colombia. (P-H) = 3680 km. ca. or 33.1°.							
	iP	01-17-07.7	.7			5.7D		
3	C & GS 17-55-52.1; 17.5 N., 84.1 W; h about 92 km; north of Swan Island, Caribbean Sea. (P-H) = 2310 km. ca. or 20.8°.							
	iP	08-00-26.3	1.0			1.0		
	ipP	47.5	1.0			1.5		
4	C & GS 09-46-36.6; 40.1 N., 77.6 E; h about 16 km; Sinkiang Province, China. (P-H) = 11,810 km. ca. or 106.3°.							
	eP'	10-04-42.3	1.0			.5		
	i	58.0	1.2			.9		
	eLEN	46-22.5	8.0 8.0			2.5 5.0		
6	C & GS 03-18-28.1; 44.3 N., 148.1 E; h about 26 km; Kurile Islands. (P-H) = km. ca. or 82.6°.							
	iP	03-30-49.0	.7			1.5C		
6	C & GS 04-04-46.1; 40.1 N., 124.8 W; h about 73 km; near coast of northern California. Mag. 5 (Berk.) (P-H) = 2730 km. ca. or 24.5°.							
	iPZEN	04-09-59.3	.6 3.0 4.4			2.1C 6.5 2.8		
	ipP	10-19.9	1.0			3.0		
	isP	27.7	1.0			2.5		
	iSEN	14-25.0	5.4			3.5		
	iN	19-05.6	5.0			4.0 5.3		
	iEN	35.8	14.0 10.0			6.0		

Date	Time GCT h m s	Period (sec) Z E N	Trace Amp (mms)		
			Z	E	N
April 6	iP 12-46-03.7	.5	1.5C		
6	C & GS 14-05-00.3; 2.2 N., 97.2 E; h about 25 km; near coast of Sumatra. (P-H) = 15,670 km. ca. or 141°.				
	eP ¹ 14-24-23.7	.5	.5		
	iPP 27-23.8	1.0	.6		
7	C & GS 05-50-40.6; 44.8 N., 112.0W; h about 25 km; Hebgen Lake, Montana. (P-H) = 2025 km. ca. or 18.2°.				
	iP 05-54-31.6	1.0	.7		
7	C & GS 08-35-54.9; 51.1 N., 156.7 E; h about 32 km; near coast of Kamchatka. (P-H) = 8120 km. ca. or 73.1°.				
	eP 08-47-24.6	.8	.9		
7	C & GS 10-06-49.5; 0.3 S., 97.0 E; h about 25 km; near coast of Sumatra. (P-H) = 15,960 km. ca. or 143.7°.				
	iP ¹ 10-26-19.6	.6	.8C		
7	e 14-06-13.5				
		.7	.5		
7	C & GS 19-54-51.9; 57.2 N., 163.3 E; h about 20 km; near east coast of Kamchatka. (P-H) = 7425 km. ca. or 66.9°.				
	iP 20-05-42.6 A	.8	1.5C		
8	e(P) 00-44-21.5				
		1.0	.5		
8	C & GS 03-06-49.9; 2.6 S., 81.0 W.; h about 25 km; near coast of Ecuador. (P-H) = 4690 km. ca. or 42.3°.				
	iP 03-14-30.8	1.1	1.0		
8	C & GS 04-22-08.7; 2.2 S., 79.2 W; h about 25 km; Ecuador. Several injured and extensive property damage in southern Chimborazo Province. (P-H) = 4553 km. ca. or 41°.				
	iP 04-29-48.5 A	.6	.9C		
8	C & GS 04-47-01.8; 2.1 S., 79.1 W; h about 24 km; Ecuador. (P-H) = 4558 km. ca. or 41°.				
	iP 04-54-42.2	1.0	2.0C		
8	C & GS 09-03-48.9; 2.1 S., 79.1 W; h about 24 km; Ecuador. (P-H) = 4555 km. ca. or 41°.				
	iP 09-11-29.0	.6	.9C		
8	C & GS 17-59-46.7; 38.2 S., 72.7 W; h about 60 km; Chile. Mag 6½ (Pas.), 5 3/4-6 (Pal.). (P-H) = 8560 km. ca. or 77°.				

		Time GCT			Period (sec)			Trace Amp (mms)		
		h	m	s	Z	E	N	Z	E	N
April										
8 (continued)										
✓	iPZN	18-11-33.5			2.1		4.4	3.1C		4.0
	i(PcP)	41.8			1.5			4.5		
	i(pP)	49.9			1.2			2.5		
	i	12-25.0			1.7			2.2		
	iSEN	21-14.2				8.0	8.0		6.5	4.7
8	C & GS 19-18-54.8; 37.6 N.; 140.3 E; h about 189 km; Honshu, Japan. (P-H) = 10,140 km. ca. or 91.3°.									
✓	iP	19-31-41.8			.9			1.5		
8	C & GS 21-36-41.6; 14.8 N., 145.1 E; h about 105 km; Mariana Islands region. Mag. 6½ (Pas). (P-H) = 12,960 km. ca. or 116.6°.									
✓	eP'	21-54-55.3			.6			.3		
9	X i(P) 04-34-18.4 .5 1.0C									
9	C & GS 07-23-16.0; 36.5 N., 121.3 W; h about 11 km; San Benito County, California. Moderate property damage at and near Hollister. Mag. 5 3/4 (Pas), 5½-5 3.4 (Berk), 6 (Pal). (P-H) = 2520 km. ca. or 22.7°.									
✓	iP	07-28-13.7			1.0			1.5		
	iPP	33.0			1.0			1.8		
	i	30-36.2			1.2			1.7		
	iSEN	32-17.8				8.0	5.0		8.0	3.7
	iEN	34-55.8				6.0	3.0		3.8	4.3
	iLEN	35-49.8				7.2	11.0		7.5	18.0
	iLEN	36-45.0				11.8	7.8		14.7	22.3
	i	40-06.2				7.0	6.0		7.3	5.0
9	C & GS 15-35-05.4; 24.1 N., 122.2 E; h about 13 km; near coast of Formosa; h about 60 km. (P-H) = 11,780 km. ca. or 106°.									
✓	eP'	15-53-09.8			1.5			.5		
	eE	16-40-04.8				15.0			4.5	
9	C & GS 17-17-47.6; 18.2 S., 70.2 W.; h about 29 km; Chile-Peru border. (P-H) = 6555km ca. or 59°.									
	iP	17-27-44.8			1.2			2.1C		
10	X iP 00-39-49.7 .8 1.7D									
10	X iP 00-39-39.9 .9 1.7D									
11	C & GS 00-29-49.2; 36.7 N., 141.6 E. h about 100 km; off east coast of Honshu, Japan. (P-H) = 10,080 km. ca. or 90.8°.									
✓	eP	00-32-44.1			1.0			.6		

Note: Components of the station were not in operation from 19:46, April 11,
to 20:38, April 17.

Date	Phase	Time GCT h m s	Period (sec)			Trace Amp. (mms)		
			Z	E	N	Z	E	N
April								
17	C & GS 20-35-15.4; 20.8 S., 68.5 W; h about 200 km; Chile-Bolivia border. (P-H) = 6880 km. ca. or 61.2°.							
	iP	20-45-17.1		.7			4.8D	
	i	22.9		.6			4.0	
	i(PcP)	48.5		.7			1.7	
	ipP	46-03.5		.9			2.5	
18	C & GS 08-26-54.8; 44.6 N., 150.1 E; h about 25 km; Kurile Islands. (P-H) = 9045 km. ca. or 81.4°.							
	iP	08-39-09.9		.7			1.5C	
19	e 01-44-11.1							
19	C & GS 11-03-45.9; 18.8 S., 67.4 W; h about 60 km; Bolivia (P-H) = 6780 km. ca. or 61°.							
	iP	11-13-53.6		1.0			.7	
	ipP	14-19.0		1.1			.8	
19	C & GS 16-12-28.7; 44.2 N., 148.0 E; h about 51 km; Kurile Islands. (P-H) = 9280 km. ca. or 83.6°.							
	iP	16-24-47.8		1.1			12.0D	
	i(pP)	25-03.6		1.0			5.0	
19	C & GS 18-13-51.8; 55.1 N., 163.6 E; h about 21 km; Kamchatka. (P-H) = 7535 km. ca. or 67.9°.							
	iP	18-24-49.1		1.0			10.0D	
	i	25-03.7		.9			3.0	
	i	08.5		.7			2.8	
19	C & GS 20-19-46.4; 44.6 N., 150.2 E; h about 27 km; Kurile Islands. (P-H) = 9045 km. ca. or 81.4°.							
	iP	20-32-01.6		1.4			2.0D	
	iP	14.8		1.1			3.0	
19	C & GS 22-07-51.2; 44.9 N., 149.5 E; h about 34 km; Kurile Islands. (P-H) = 8990 km. ca. or 80.9°.							
	eP	22-20-03.7		.5			.7	
	iP	16.1		1.0			2.0	
20	C & GS 05-44-34.7; 50.0 N., 155.4 E; h about 71 km; Kurile Islands. (P-H) = 8240 km. ca. or 74.2°.							
	iP	05-56-06.6		.9			.6D	
20	C & GS 14-15-27.7; 54.7 N., 159.6 E.; h about 25 km; Kamchatka. (P-H) = 7770 km. ca. or 69.9°.							
	iP	14-26-38.2		.8			1.4D	



		Time GCT i m s	Period (Sec)			Trace Amp (mms)		
			Z	E	N	Z	E	N
April								
21	X	e	06-55-24.4	1.1			.5	
21	X	i(P)	14-57-09.0	.8			1.2C	
21	X	C & GS 19-30-36.9; 48.1 N., 154.6 E; h about 23 km; Kurile Islands. (P-H) = 8500 km. ca. or 76.5°.						
	X	iP	19-42-25.6	1.5			1.3C	
	X	i	37.4	1.3			1.0	
21		C & GS 20-10-38.3; 47.7 N., 154.6 E; h about 27 km; Kurile Islands. (P-H) = 8520 km. ca. or 76.7°.						
	✓	iP	20-22-27.9	1.3			6.0D	
	✓	i	39.9	.7			1.8	
21		C & GS 21-26-42.1; 51.7 N., 173.9 W; h about 36 km; Andreanof Islands, Aleutian Islands, Mag. 5 1/2-5 3/4 (Pal). (P-H) = 6335 km. ca. or 57°.						
	✓	iP	21-36-25.0	1.0			1.0	
	✓	i	38.1	1.3			2.5	
	✓	i	45.0	1.1			2.3	
22	X	C & GS 19-01-34.4; 2.8 S., 80.8 W.; h about 30 km; near coast of Ecuador. (P-H) = 4585 km. ca. or 41.3°.						
	X	iP	19-09-15.9	1.4			2.5C	
	X	i	34.0	1.3			1.7	
23	X	e(P)	03-25-10.5	.4			.4	
	X	i	27-05.2	.6			.9	
23		C & GS 09-01-41.8; 44.6 N., 150.2 E; h about 44 km; Kurile Islands Mag. 6 1/4 (Pas), 6 1/2 (Berk), (Pal). (P-H) = 8890 km. ca. or 80°.						
	✓	iPZEN	09-13-52.3	1.2	3.2	4.0	2.8C	2.0 2.7
	✓	iZEN	14-03.2	1.6	1.4	2.2	6.3	1.8 2.0
	✓	iZEN	08.7	1.5	1.4	1.2	8.7	2.0 1.8
	✓	iSEN	23-27.7		7.4	6.0		15.7 9.0
	✓	iSSN	29-15.7			8.0		4.0
	✓	eLN	39-04.7			21.0		4.0
	✓	eLEN	42-24.3	20.0	21.0		4.0	4.5
23	✓	e(P)	12-30-07.6	.9			.7	
	✓	i	21.1	.9			1.0	
23	X	i	14-27-24.0	1.0			.8C	
23		C & GS 16-51-03.6; 44.5 N., 150.1 E; h about 76 km; Kurile Islands. (P-H) = 9020 km. ca. or 81.2°.						
	✓	iP	17-03-13.0	.7			.6D	
	✓	i(pP)	41.3	1.4			1.2	

		Time GCT			Period (Sec)			Trace Amp (mms)		
		h	m	s	Z	E	N	Z	E	N
April										
24	C & GS 12-27-39.5; 44.5 N., 150.2 E; h about 76 km; Kurile Islands. (P-H) = 9020 km. ca. or 81.2°.									
	eP	12	39	49.0	1.0					.7
25	C & GS 00-28-15.4; 44.6 N., 150.0 E; h about 72 km; Kurile Islands. (P-H) = 9620 km. ca. or 86.6°.									
	iP	00	40	51.0	1.0					.9D
	ipP		41	16.7	1.3					1.0
25	C & GS 01-09-16.2; 14.4 N., 90.1 W; h about 139 km; Guatemala. (P-H) = 2430 km. ca. or 21.9°.									
	iP	01	14	02.0	.7					2.0
	ipP			19.9	.8					1.3
	isP			31.3	1.0					1.0
	iPP			43.2	1.0					1.6
25	C & GS 01-17-42.7; 44.5 N., 150.0 E; h about 78 km; Kurile Islands. (P-H) = 8980 km. ca. or 80.8°.									
	iP	01	29	49.3	1.0					.7
	i		30	02.7	1.1					2.5
	ipP			14.4	1.1					1.7
25	e	22	06	44.2	.8					.5
25	i	22	47	31.7	.5					.6
26	C & GS 02-21-10.5; 5.6 S., 105.6 E; h about 93 km; southern Sumatra. (P-H) = 16,280 km. ca. or 145.6°.									
	iP	02	40	43.5	1.4					1.5C
26	C & GS 07-38-54.1; 44.6 N., 149.9 E.; h about 20 km; Kurile Islands. Mag. 6 (Berk), 5 3/4-6 (Pal). (P-H) = 9065 km. ca. or 81.6°.									
	iP	07	51	09.9	1.0					1.3
	i			25.4	1.2					3.5
	iSEN	08	01	11.3		8.0	7.0			3.5 2.0
	eLEN			26-29.3		12.0	17.0			2.5 2.2
26	e	12	24	16.8	.8					.5
26	C & GS 19-32-34.2; 44.6 N., 150.1 E; h about 51 km; Kurile Islands. (P-H) = 9060 km. ca. or 81.6°.									
	iP	19	44	45.3	1.0					1.7C
	ipP			59.9	1.1					2.6

Date	Phase	Time GCT			Period (Sec)			Trace Amp. (mms)		
		h	m	s	Z	E	N	Z	E	N
April										
27		C & GS 17-52-16.5; 12.9 S., 126.8 E; h about 1100 miles south of western Australia. (P-H) = 5740 km. ca. or 51.6°.								
	iP	18-01-17.7			1.1					3.5D
	ipP	43.5			1.1					1.2
	isP	57.0			1.1					1.9
28		C & GS 08-42-55.9; 21.8 S., 68.0 W; h about 132 km; southern Bolivia. (P-H) = 6940 km. ca. or 62.5°.								
	iP	08-53-12.8			.9					1.7D
	i(sP)	43.1			.7					.8
28	e(P)	14-11-22.3			.6					.5
	i	15-04.1			.8					1.0
28	e	16-53-56.5			.8					.7
29	e	00-47-58.1			.6					.5
	i	48-18.5			1.0					1.2
29	e(P)	07-03-50.0			1.0					.4
29		C & GS 09-19-28.3; 40.6 N., 127.5 W; h about 26 km; off coast of northern California. Mag. 5½-5 3/4 (Pas), 5½ (Berk), 5½-5 3.4 (Pal). (P-H) = 3025 km. ca. or 27.2°.								
	iPZE	09-25-08.1			1.7	2.0				3.5C 2.2
	IZE	29.1			1.6	3.0				5.7 3.7
	IZEN	45.9			1.7	4.2	3.2			7.2 6.7 3.0
	IZE	26-08.3			2.1	3.0				3.2 2.7
	iSEN	48.1				8.0	7.2			24.4 7.7
	iLEN	35-33.3				15.0	10.2			11.0 13.5
	eL _{max} EN	56-42.2				21.0	12.0			10.0 4.0
30		C & GS 07-33-53.5; 52.0 N., 31.9 W; h about 38 km; north Atlantic Ocean. Mag. 5½-5 3/4 (Pal). (P-H) = 5135 km. ca. or 46.3°.								
	iP	07-42-16.8			1.1					1.8D
	i	22.5			1.2					2.3
	eLEN	59-16.1				13.4	16.0			3.0 3.0
30		C & GS 11-00-46.8; 45.8 N., 150.2 E; h about 100 km; Kurile Islands. (P-H) = 8880 km. ca. or 79.9°.								
	eP	11-12-48.6			.6					.7
30		C & GS 11-15-19.8; 44.6 N., 149.7 E; h about 70 km; Kurile Islands. (P-H) = 9040 km. ca. or 81.4°.								
	iP	11-27-29.5			1.0					1.0D
	i(pP)	59.3			1.1					2.0

Date	Phase	Time GCT			Period (Sec)			Trace Amp (mms)		
		h	m	s	Z	E	N	Z	E	N
April										
30		C & GS 14-48-11.5; 15.3 S., 174.4 W; h about 25 km; Samoa Islands region. (P-H) = 10,310 km. ca. or 92.8°.								
	eP	15-01-21.0			1.0			.6		
30	e(P)	16-30-32.0			.4			.2		
30		C & GS 17-30-38.6; 40.7 N., 127.2 W; h about 44 km; off coast of northern California. (P-H) = 3025 km. ca. or 27.2°.								
	eP	17-36-18.0			.9			.6		
May										
1	i(P)	01-28-32.0			.9			.7D		
1		C & GS 02-50-48.8; 40.5 N., 127.4 W; h about 51 km; off coast of northern California. (P-H) = 3005 km. ca. or 27°.								
	eP	02-56-25.7			1.4			.8		
1		C & GS 07-21-26.2; 40.7 N., 127.4 W; h about 54 km; off coast of northern California. (P-H) = 3005 km. ca. or 27°.								
	eP	07-27-03.1			1.5			.8		
1		C & GS 12-19-05.6; 40.6 N., 127.5 W; h about 29 km; off coast of northern California. (P-H) = 3010 km. ca. or 27.1°.								
	eP	12-24-44.4			1.5			.8		
	iLEN	35-04.7			15.0	11.0		3.0	2.5	
1		C & GS 18-45-28.9; 40.7 N., 127.3 W; h about 69 km; off coast of northern California. (P-H) = 3000 km. ca. or 27°.								
	iP	18-51-03.0			1.1			.6		
	ipP	23.3			2.0			1.8		
2		C & GS 01-28-59.1; 40.9 N., 127.3 W; h about 29 km; off coast of northern California. (P-H) = 2985 km. ca. or 26.9°.								
	eP	01-34-35.7			1.3			.5		
2		C & GS 03-11-45.7; 71.2 N., 6.9 W; h about 22 km; Jan Mayer Island region. (P-H) = 6220 km. ca. or 56°.								
	eP	03-21-21.9			1.4			.6		
2		C & GS 10-10-32.3; 40.7 N., 127.2 W; h about 36 km; off coast of northern California. (P-H) = 3010 km. ca. or 27.1°.								
	eP	10-16-11.0			1.5			.7		

Date	Phase	Time GCT h m s	Period (Sec)			Trace Amp (mms)		
			Z	E	N	Z	E	N
May								
2		C & GS 11-18-45.2; 16.0 N., 93.1 W; h about 68 km; southern Mexico. (P-H) = 2295 km. ca. or 20.7°.						
	iP	11-23-17.2	.7			1.5C		
	i	27.0	1.0			1.7		
	iS	26-53.4	.7			1.0		
2	e	15-01-11.6	1.0			.5		
2		C & GS 22-37-55.5; 40.8 N., 127.0 W; h about 22 km; off coast of northern California. (P-H) = 2980 km. ca. or 26.8°.						
	eP	22-43-32.0	1.2			.6		
2		C & GS 22-44-44.3; 27.8 S., 176.5 W; h about 47 km; Kermadec Islands region. (P-H) = 11,190 km. ca. or 100.7°.						
	eP	22-58-24.3	1.0			.8		
	e	23-02-27.5	1.5			.8		
	iSEN	09-11.2	8.0	6.0		5.5	3.4	
	iE	11-43.4	8.0			4.0		
	eLEN	33-29.8	10.0	11.6		5.7	3.9	
	eL _{max} ^{EN}	46-34.0	14.8	15.0		4.3	5.0	
3		C & GS 00-26-17.0; 1.0 N., 26.4 W; h about 25 km; mid-Atlantic Ocean. (P-H) = 7905 km. ca. or 71.9°.						
	eP	00-37-39.2	1.0			.7		
	i	46.2	1.1			1.6		
3		C & GS 14-03-03.5; 17.7 N., 103.1 W; h about 20 km; near coast of Mexico. (P-H) = 2255 km. ca. or 20.5°.						
	iP	14-07-36.3	.8			1.2D		
	i	48.3	1.1			2.1		
	iLZEN	13-34.2	1.0	3.4	3.8	.7	1.5	1.8
4		C & GS 02-17-34.0; 40.6 N., 127.1 W; h about 25 km; off coast of northern California. (P-H) = 2990 km. ca. or 26.9°.						
	iPZE	02-23-11.2	1.7	1.8		.7	.8	
	i	20.3	1.5			2.0		
	iSE	27-52.2	8.2			2.0		
	eLEN	34-08.8	13.0	11.2		3.5	2.5	
4		C & GS 07-00-32.9; 17.7 N., 46.4 W; h about 19 km; Atlantic Ocean. (P-H) = 5220 km. ca. or 47°.						
	iP	07-09-02.0	1.0			.6		
4	e(P)	18-50-23.3	.6			.7		

Date	Phase	Time GCT			Period (Sec)			Trace Amp (mms)		
		h	m	s	Z	E	N	Z	E	N
May										
4	C & GS 20-20-36.5; 5.1 S., 81.0 W; h about 49 km; near coast of northern Peru. (P-H) = 4780 km. ca. or 43°.									
	iP	20-28-33.6			1.0			1.3		
	i(pP)	44.1			1.0			3.0		
4	C & GS 20-59-08.8; 40.6 N., 127.5 W; h about 67 km; off coast of northern California. (P-H) = 2980 km. ca. or 26.8°.									
	eP	21-04-43.3			1.6			.7		
5	C & GS 13-07-53.3; 40.5 N., 127.1 W., h about 36 km; off coast of northern California. (P-H) = 3020 km. ca. or 27.2°.									
	eP	13-13-33.4			1.6			.6		
5	eLEN	14-31-34.6			12.0	10.0		2.0	2.3	
6	C & GS 03-55-01.2; 20.1 S., 68.5 W; h about 66 km; Chile-Bolivia border. (P-H) = 6850 km. ca. or 61.7°.									
	iP	04-05-12.1			.9			2.0D		
6	e	08-30-46.5			.6			.5		
6	C & GS 16-12-20.7; 39.4 N., 110.2 W; h about 25 km; Utah. (P-H) = 2120 km. ca. or 19.1°.									
	iPZE	16-16-39.5			.7	1.4		2.8C	.5	
6	C & GS 19-38-04.6; 1.2 S., 15.5 W; h about 24 km; Atlantic Ocean, north of Ascension Island. (P-H) = 9155 km. ca. or 82.4°.									
	eP	19-50-24.8			1.7			.7		
7	C & GS 23-40-54.7; 51.5 S., 161.3 E; h about 21 km; Macquarie Island region.									
	eLEN	01-20-51.7			20.0	19.0		3.0	3.0	
7	C & GS 04-22-19.5; 20.0 N., 108.9 W; h about 20 km; Revilla Gigedo Islands region. (P-H) = 2380 km. ca. or 21.7°.									
	iP	04-27-03.6			1.1			.7		
7	C & GS 04-32-14.5; 8.6 S., 111.4 E; h about 113 km; near coast of Java. (P-H) = 16,010 km. ca. or 144.1°.									
	i	04-49-48.5			1.3			1.0		
	iP'ZEN	51-41.0			1.2	1.8	1.1	4.0C	1.4	.8
	ipP'ZEN	52-07.5			.8	2.0	2.0	2.9	1.0	1.5
	iPP	54-51.1			1.1			1.2		
7	C & GS 10-22-43.7; 5.8 N., 126.8 E; h about 89 km; off coast of Mindanao, P. I. (P-H) = 13,700 km. ca. or 123.3°.									
	iP'	10-41-35.5			1.0					
	iPP	43-41.8			1.0					

	Time	GCT	Period (Sec)			Trace Amp (mms)		
			Z	E	N	Z	E	N
May								
7	X	C & GS 16-19-05.9; 40.4 N., 127.2 W; h about 31 km; off coast of northern California. (P-H) = 3000 km. ca. or 27°.						
	X	eP	16-24-43.9	1.5			.5	
8	X	C & GS 01-54-17.1; 31.3 S., 67.4 W; h about 84 km; San Juan Province, Argentina. (P-H) = 8020 km. ca. or 72.2°.						
	X	iP	20-05-35.6	.7			2.5D	
	X	ipP	06-02.0	.6			.6	
	X	isP	14.6	.7			.6	
8	X	e(P)	14-29-10.5	1.4			.4	
8		C & GS 19-23-35.4; 24.3 S., 69.7 W; h about 48 km; northern Child. Mag. 5½-5¾ (Pal). Felt. (P-H) = 7080 km. ca. or 63.7°.						
	✓	iPZE	19-34-10.7	1.2	3.0		3.2C 2.0	
		ipP	26.2	1.6			2.0	
		i(PP)E	36-25.2		3.8			1.2
		iSEN	42-23.2	4.4	6.2			4.7 6.0
8	X	Near Earthquake: Arkansas. (P-S) = 150 km. ca. or 1.4°.						
	X	iP	23-10-42.2	.2			.7	
	X	iS	57.7	.4			1.1	
	X	i	14-00.0	1.0			1.2	
9	X	C & GS 00-01-03.5; 43.7 N., 127.8 W; h about 47 km; off coast of Oregon. (P-H) = 1720 km. ca. or 15.5°.						
	X	iP	00-04-36.3	1.4			1.0	
9	X	eP	02-24-36.3	1.0			.4	
9	X	C & GS 11-48-54.8; 7.0 S., 106.8 E; h about 81 km; near coast of Java. (P-H) = 14,600 km. ca. or 131.4°.						
	X	iP	12-08-04.0	1.0			1.2D	
	X	isPKS	12-04.0	1.0			.5	
10	X	Near earthquake to Fayetteville Station. (P-S) = 148 km. ca. or 1.3°.						
	X	iP	01-48-22.3	.2			1.7	
	X	i(S)EN	37.6		.2 .2			1.4 1.2
10	X	C & GS 08-55-59.3; 9.1 N., 71.1 W; h about 50 km; Venezuela. (P-H) = 3980 km. ca. or 35.8°.						
	X	eP	09-02-42.6	.7			.5	
10	X	C & GS 10-05-13.7; 15.8 S., 172.3 W; h about 52 km; Samoa Islands region. (P-H) = 10,000 km. ca. or 90°.						
	X	eP	10-18-10.8	.5			.4	
	X	ipP	28.6	.9			.5	

		Time GCT			Period (Sec)			Trace Amp (mms)		
		h	m	s	Z	E	N	Z	E	N
May										
10	X e	11	44	47.3	.7			.6		
11	X C & GS 00-51-24.2; 8.4 S., 112.5 E; h about 39 km; near coast of Java. (P-H) = 15,930 km. ca. or 143.3°.									
	X iP'	01	10	54.9	.8			2.5D		
11	X C & GS 04-59-33.5; 40.9 N., 126.8 W; h about 61 km; off coast of northern California. (P-H) = 2950 km. ca. or 26.5°.									
	X eP	05	05	05.4	1.7			.6		
11	C & GS 08-38-27.1; 37.2 S., 73.6 W; h about 47 km; near coast of southern Chile. (P-H) = 8500 km. ca. or 76.5°.									
	✓ iP	08	50	10.1	1.6			1.1C		
	i(pP)	✓ 26.4			1.3			1.5		
11	X C & GS 18-48-50.7; 40.7 N., 127.3 W; h about 43 km; off coast of northern California. Mag. 4½ (Berk). (P-H) = 2930 km. ca. or 26.3°.									
	X eP	18	54	32.5	1.7			.8		
12	C & GS 03-40-20.1; 0.0 N., 97.9 E; h about 81 km; near coast of Sumatra. (P-H) = 15,990 km. ca. or 143.9°.									
	✓ eP'	✓ 03	59	46.7	.6			.6		
12	X C & GS 17-36-59.9; 40.6 N., 127.4 W; h about 27 km; off coast of northern California. Mag. 4½ (Berk). (P-H) = 3070 km. ca. or 27.6°.									
	X i	17	42	43.9	1.5			.8		
13	C & GS 05-43-16.1; 40.9 N., 127.6 W; h about 26 km; off coast of northern California. (P-H) = 3135 km. ca. or 28.3°.									
	iP	05	49	05.1	1.6			.8		
13	C & GS 08-47-36.7; 40.6 N., 127.6 W; h about 43 km; off coast of northern California. Mag. 4½ (Berk). (P-H) = 2995 km. ca. or 27°.									
	iPZE	08	33	14.1	1.7	2.4		.8	1.0	
	iSE	58	10	0.6		4.0			1.8	
	eLE	09	04			15.0			1.5	
13	C & GS 12-45-04.2; 11.8 N., 88.1 W; h about 74 km; off coast of Nicaragua. Felt in southern El Salvador. (P-H) = 2790 km. ca. or 25.1°.									
	iP	12	50	23.1	.4			.7D		
	ipP	40	02		.8			1.2		
	isP	52	07		.8			1.2		

	Time GCT	Period (Sec)			Trace Amp (mms)			
		n	m	s	Z	E	N	
May								
13	C & GS 14-52-55.3; 17.5 S., 178.8 W; h about 556 km; Kiji Islands regions. (P-H) = 10,720 km. ca. or 96.5°.							
✓	iP	15-05-27.3	1.1			1.3		
	eSSE	23-12.8	16.0			2.0		
13	C & GS 14-49-29.6; 43.4 N., 147.8 E; h about 31 km; off northeastern coast of Hokkaido, Japan. (P-H) = 9265 km. ca. or 83.6°.							
✓	iP	16-01-54.3	1.0			2.0		
	i	02-07.3	1.0			2.1		
13	C & GS 19-47-42.4; 13.7 N., 99.4 W; h about 64 km; off southern coast of Mexico. (P-H) = 2570 km. ca. or 23.1°.							
	eP	19-52-41.5	.7			.5		
	iSE	56-36.8	5.0			1.8		
	eE	59-17.8	3.2			1.0		
14	C & GS 19-31-34.4; 40.8 N., 127.4 W; h about 45 km; off coast of northern California. Mag. 4½ (Berk), 5 (Pal). (P-H) = 3035 km. ca. or 27.3°.							
✓	ePZE	19-37-15.5	1.7	3.8		1.2	1.5	
16	C & GS 03-32-11.7; 51.8 N., 171.3 W; h about 38 km; Fox Islands, Aleutian Islands. (P-H) = 6150 km. ca. or 55.4°.							
	iP	03-41-43.0	.7			.7D		
16	iP	09-50-19.4	.8			.9D		
16	C & GS 17-57-20.8; 15.1 N., 87.3 W; h about 117 km; near coast of Honduras. (P-H) = 2330 km. ca. or 20.9°.							
✓	eP	18-01-57.0	1.6			.7		
16	eP	21-59-14.9	1.6			.9		
17	eP	02-03-36.5	.6			.5		
17	C & GS 03-21-52.4; 40.5 N., 127.4 W; h about 48 km; off coast of northern California. (P-H) = 3030 km. ca. or 27.3°.							
	eP	03-27-31.6	1.2			.5		
17	C & GS 08-34-03.2; 49.0 N., 155.6 E.; h about 36 km. Kurile Islands. (P-H) = 8468 km. ca. or 75.2°.							
	iP	08-45-44.4	1.1			2.5C		
17	C & GS 19-29-19.3; 52.0 N., 173.9 E; h about 21 km. Near Aleutian Islands. Mag. 6 (Pas), 6¼-6½ (Pal). (P-H) = 7110 km. ca. or 64°.							
✓	iPZEN	19-39-51.5	1.5	4.0	4.0	3.0	2.0	2.0
	i	40-30.7	1.1			4.4		



Date	Phase	h m s	Period (Sec)			Trace Amp. (mms)		
			Z	E	N	Z	E	N
May								
17 (continued)								
	iSEN	47-21.4	8.0	4.2		6.0	2.5	
	iSEN	48-41.4	3.0	6.0		8.5	9.2	
	eLEN	20-03-27.4	19.0	18.0		3.0	3.2	
18	e(P)	04-40-12.6	.6			.5		
18	C & GS 09-37-54.8; 40.5 N., 127.5 W; h about 36 km; off coast of northern California. (P-H) = 3085 km. ca. or 27.8°.							
	eP	09-43-40.1	1.6			.9		
18	C & GS 22-08-00.4; 3.3 Slk 103.3 W; h about 60 km; southwest of Galapagos Islands. (P-H) = 4510 km. ca. or 40.6°.							
	iP	22-15-35.6	1.0			.6D		
	i	41.9	.7			1.3		
18	C & GS 23-10-13.7; 38.2 S., 73.4 W; h about 25 km; near coast of central Chile. Felt: Angol. (P-H) = 8540 km. ca. or 76.9°.							
	iP	23-22-04.8	1.4			1.1		
	i	13.4	1.6			1.5		
19	C & GS 09-25-26.6; 11.3 N., 88.3 W; h about 34 km; off coast of Nicaragua. (P-H) = 2815 km. ca. or 25.3°.							
	iPZEN	09-30-49.9	.8	4.0	3.0	1.5D	1.0	1.6
	iZEN	31-05.4	1.0	4.2	3.8	5.0	0.5	3.4
	iPP	35.6	1.4			4.0		
	i	44.6	1.0			2.8		
	iSEN	35-25.7		6.0	6.0		1.5	2.0
19	e(P)	21-14-37.9	.8			.5		
20	i(P)	00-08-04.4	1.0			1.2C		
20	C & GS 11-51-01.2; 44.0 N., 148.8 E; h about 59 km; Kurile Islands. (P-H) = 9220 km. ca. or 83°.							
	iP	12-03-18.0	1.0			.7D		
20	e(P)	12-23-33.6	1.0			.5		
20	e(P)	19-09-44.8	.6			.4		
21	e(P)	03-46-48.6	1.5			.5		
21	i(P)	05-36-54.2	1.0			.7D		
21	e	08-04-15.0	1.5			.5		
21	i(P)	08-10-22.3	.5			.5		
21	i(P)	08-42-42.6	.9			.7		

Date	Phase	Time GCT			Period (Sec)			Trace Amp (mms)		
		h	m	s	Z	E	N	Z	E	N
May 21	C & GS 15-15-14.7; 40.5 N., 127.5 W; h about 25 km; off coast of northern California. (P-H) = 3015 km. ca. or 27.1°.									
	eP	15	20	53.9	1.5			.6		
	e		23	40.1	1.6			.6		
21	C & GS 17-41-28.2; 3.1 S., 80.9 W; h about 27 km; near coast of Ecuador. (P-H) = 4620 km. ca. or 41.5°.									
	iPZN	17	49	13.2	1.3		2.8	1.2D		.7
	iZEN			27.3	1.5	4.0	3.0	2.0	.9	.8
	iZN			41.8	1.0		4.0	1.7		1.0
21	C & GS 18-13-02.9; 18.8 S., 173.6 W; h about 60 km; Tonga Islands. (P-H) = 10420 km. ca. or 93.8°.									
	iP	18	26	13.2	1.0			.8D		
21	i(P)	21	59	09.8	1.4			.7		
22	C & GS 01-19-05.1; 25.0 S., 67.3 W; h about 273 km; Salta Province, Argentina. (P-H) = 7370 km. ca. or 66.3°.									
	iP	01	29	26.3	.8			1.2D		
	i(PcP)			43.9	.6			.7		
22	C & GS 13-44-35.8; 21.3 S., 174.4 W; h about 97 km; Tonga Islands. Mag. 6 (Pas), 5 3/4 (Berk), 6 1/4 (Pal). (P-H) = 16,610 km. ca. or 95.5°.									
	iP	13	57	53.1	1.5			1.0C		
	ePP	14	01	45.1	1.7			.8		
	iSEN		09	07.4		10.0	10.4		2.7	5.0
	eGEN		32	44.4		20.0	18.0		2.5	2.5
22	i(P)	14	20	26.9	.9			.7C		
22	C & GS 17-32-21.6; 22.8 S., 176.1 W; h about 35 km; Zonga Islands region. Mag. 6 1/2 - 6 3/4 (Pas). (P-H) = 9420 km. ca. or 84.8°.									
	iP	17	45	53.3	1.1			1.5C		
	iPPZEN		49	46.7	1.5	2.6	4.0	2.0	1.0	1.3
	iSEN		56	29.4		5.0	4.4		4.2	2.2
	iSEN			59.3		7.0	6.4		5.5	3.0
	eLEN		18	18-47.2		28.0	23.2		2.5	5.6
22	eP	22	16	30.7						
	e(S)ZEN		21	44.9						
	iEN			53.2						
23	C & GS 02-45-16.0; 36.4 N., 28.3 E; h about 49 km; Dodecanese Islands. Moderate property damage in Rhodes area and in southwestern Turkey. Mag. 6 1/4 (Pas), (Pal). (P-H) = 10,120 km. ca. or 91.1°.									
	iPZEN	02	58	13.4	1.4	2.0	1.4	4.8C	1.6	1.6
	i(pP)ZE			23.7	1.6	1.6		3.0	.8	

Date	Phase	Time GCT			Period (Sec)			Trace Amp (mms) ¹⁶		
		h	m	s	Z	E	N	Z	E	N
May										
23	(continued)									
✓	i(sP)			50.9	1.1				2.6	
	iSEN	03	08	59.1		6.0	7.0		5.5	5.6
	eLEN			31-28.1		20.0	25.0		3.0	4.0
23		C & GS 03-40-26.1; 9.8 N., 84.0 W; h about 136 km; Costa Rica. (P-H) = 3040 km. ca. or 27.4°.								
✓	iP	03	46	05.6	.6				1.0	
	ipP			22.6	.6				2.5	
	iPP			47-06.1	1.5				1.8	
	i(PcP)			48-47.9	.6				1.0	
	iSEN			49-05.4		2.6	3.0		1.7	1.5
23	X eP	13	05	50.0	1.5				.5	
23		C & GS 16-44-59.4; 12.6 N., 87.3 W; h about 138 km; near coast of Nicaragua. Felt at Managua and southeastern El Salvador. Mag. 6½ (Pas). (P-H) = 2660 km. ca. or 24°.								
	iPZEN	16	50	07.0	1.2				6.0C	
	ipPZN			28.5	1.0	3.0			4.0	7.0
	isPZEN			39.6	1.0	3.4	2.0		3.5	7.0 3.5
	iEN			52-10.0		3.0	4.2			5.7 6.7
	iSZEN			54-16.0	1.5	3.0	5.0		1.8	5.0 5.7
24	eP	00	36	42.1	1.1				.5	
24	eP	01	21	14.7	1.3				.6	
24	eP	02	35	45.8	1.5				.5	
	e(S)ZEN			41-14.3	3.0	3.2	3.8		.7	2.2 2.2
24	i(P)	11	39	16.0	.7				.5	
		C & GS 13-34-31.4; 43.3 N., 126.9 W; h about 14 km; off coast of Oregon. (P-H) = 3110 km. ca. or 28°.								
	iP	13	40	08.1	1.1				.7C	
24	e(P)	19	04	55.3	2.0				.7	
	e(S)ZEN			10-23.3	3.0	3.6	3.4		.9	2.3 1.9
25		C & GS 04-44-15.1; 27.2 S., 71.3 W; h about 46 km; near coast of northern Chile. (P-H) = 7395 km. ca. or 66.6°.								
	iP	04	55	03.9	.6				1.7C	
25		C & GS 19-33-05.7; 4.2 S., 103.3 E; h about 93 km; Sumatra. (P-H) = 15,580 km. ca. or 140.2°.								
	iP'	19	52	23.5	.7				6.0C	
25	iP	20	51	41.6	1.5				.8	
	e(S)			56-04.5		3.6	4.0		.9	2.7



	Time GCT	Period (Sec)			Trace Amp (mms) ¹⁷		
		h	m	s	Z	E	N
May							
25	C & GS 21-07-29.7; 14.8 S., 177.4 W; h about 417 km; Fiji Islands region. (P-H) = 10,350 km. ca. or 92.9°.						
X	iP	21-20-03.3		1.0			1.5C
26	C & GS 03-22-08.6; 32.9 S., 109.6 W; h about 54 km; about 350 miles south of Easter Island. (P-H) = 7880 km. ca. or 70.9°.						
X	iP	03-33-20.8		1.0			2.0D
	i(pP)	28.7		1.0			1.7
	iPP	36-05.6		1.0			.7
26	C & GS 04-36-08.5; 32.7 S., 109.1 W; h about 43 km; Easter Island region. (P-H) = 7800 km. ca. or 70.2°.						
X	iPZN	04-47-20.3		1.4	2.6		6.8D 1.4
	i(pP)	31.5		1.1			2.2
26	C & GS 05-06-27.0; 15.4 N., 91.9 W; h about 123 km; western Guatemala. (P-H) = 2340 km. ca. or 21°.						
✓	iP	05-11-03.4		1.0			1.4C
	ipPZN	25.5		1.2	1.2		3.3 1.0
	isP	37.3		1.0			2.5
	iPP	46.8		1.0			3.0
	iEN	12-07.9			4.0 3.2		1.3 2.9
	iS	15-13.5		1.4			1.4
	iZEN	17-20.1		1.3	4.0 3.0		2.5 1.3 3.0
26	C & GS 08-42-15.0; 10.1 S., 70.6 W; h about 678 km; Peru-Brazil border. (P-H) = 6020 km. ca. or 54.2°.						
X	iP	08-50-21.3		.5			1.5C
26	C & GS 22-49-49.4; 38.4 N., 142.9 E; h about 60 km; near east coast of Honshu, Japan. (P-H) = 9870 km. ca. or 88.8°.						
✓	eP	23-02-41.4		.6			.6
27	C & GS 02-56-50.1; 51.2 N., 176.3 W; h about 60 km; Andreanof Islands, Aleutian Islands. (P-H) = 6460 km. ca. or 58.1°.						
X	eP	03-06-42.9		.8			.6
27	e(P)	09-53-48.5		.8			.4
27	e(P)	16-56-44.9		.4			.4
27	C & GS 17-26-32.2; 1.2 N., 98.4 E; h about 36 km; near northwest coast of Sumatra. (P-H) = 15,805 km. ca. or 142.2°.						
✓	eP'	17-45-57.1		.5			.4
27	i(P)	04-46-03.4		.7			.5

Date	Phase	me GCT			Period (Sec)			Trace Amp mms			18
		h	m	s	Z	E	N	Z	E	N	
May 27	C & GS 07-18-12.2; 41.0 N., 142.1 E; h about 156 km; near north coast of Honshu, Japan. (P-H) = 9620 km. ca. or 86.7°.										
	iP	07-30-46.5			.7						1.5C
	i(pP)	31-04.5			1.1						1.0
28	C & GS 03-59-53.5; 5.4 S., 102.4 E; h about 74 km; off coast of southern Sumatra. (P-H) = 17,440 km. ca. or 157°.										
	iP'	04-19-29.0			1.8						2.2D
28	C & GS 17-14-37.7; 29.8 N., 113.8 W; h about 25 km; Gulf of California. (P-H) = 2020 km. ca. or 18.2°.										
	iP	17-18-45.7			1.4						1.1C
	iZEN	24-11.2			2.9	4.0	2.8				1.4 3.9 3.2
28	e	22-41-55.3			.8						.4
29	C & GS 00-22-55.6; 52.1 N., 166.6 W; h about 67 km; Fox Islands, Aleutian Islands. (P-H) = 5820 km. ca. or 52.4°.										
	iP	00-32-01.8			.7						1.3C
29	i(P)	05-05-18.1			1.1						.8
	i	41.9			1.4						1.0
29	eP	07-25-41.3			1.0						.5
29	C & GS 07-28-11.7; 39.0 S., 73.4 W; h about 13 km; near coast of southern Chile. Felt: Temuco and Valdivia. (P-H) = 8665 km. ca. or 78°.										
	eP	07-40-08.9			1.0						.5
29	C & GS 10-29-27.8; 27.7 N., 141.7 E; h about 25 km; Bonin Islands. (P-H) = 10,890 km. ca. or 98°.										
	eP	10-43-02.1			.9						.4
30	e	07-31-48.3			.7						.4
30	i(P)	13-55-18.7			1.5						.6
30	iP	15-39-58.5			1.0						1.5D
30	iP	22-14-56.0			.7						1.4C
31	eP	04-46-15.5			1.3						.8
	i(S)ZEN	51-31.5			3.0	3.4	3.4				.7 2.7 1.5
31	eP	06-40-12.0			1.3						.7
	i(S)EN	45-33.5				3.4	3.4				1.0 1.1

	Name	GCT			Period Sec			Trace Amp (mms)		
		h	m	s	Z	E	N	Z	E	N
May										
31	Near earthquake to Fayetteville Station. (P-S) = 575 km. ca. or 5.2°.									
	eP	07-36-27.5			.1			.2		
	i	36.5			.4			.4		
	iSZEN	37-26.3			.2	.7	.6	2.0	1.0	1.0
31	C & GS 14-17-43.8; 29.8 N., 114.0 W; h about 74 km; Gulf of California. Mag. 5½ (Pas), 6 (Pal). (P-H) = 1970 km. ca. 17.8°.									
	iPZEN	14-21-44.2			2.2	2.8	3.4	1.50	1.5	2.2
	iSEN	25-08.5				5.0	5.0		2.0	3.7
	iZEN	27-08.1			3.0	4.4	5.0	4.0	12.0	13.5
June										
1	C & GS 07-58-21.5; 44.1 N., 148.2 E; h about 67 km; Kurile Islands. (P-H) = 9220 km. ca. or 83°.									
	iP	08-10-38.5			1.0			.7		
	i	51.5			1.0			.7		
1	i	08-52-48.9			.5			.5		
1	C & GS 10-02-45.1; 19.5 N., 69.3 W; h about 53 km; near coast of Cominican Republic. (P-H) = 3090 km. ca. or 27.8°.									
	iF	10-08-29.3			1.2			.8D		
	ipP	50.3			1.4			1.3		
	iE	16-13.3				4.0			.9	
1	e	12-00-16.8			.4			.5		
1	C & GS 23-29-21.1; 10.6 N., 39.3 E; h about 51 km; Ethiopia. Considerable damage at Kara-Kore. Felt: Addis Ababa. Mag. 6½-6¾ (Pas), 6½ (Pal). (P-H) = 13,590 km. ca. or 122.3°.									
	iP'	23-48-11.9			.8			.7		
	eLEN	00-23022.9				32.0	36.0		2.5	1.8
2	C & GS 04-51-10.4; 9.8 N., 40.0 E; h about 41 km; Ethiopia. Felt: Addis Abba. Mag. 6¼-6½ (Pas). (P-H) = 13,605 km. ca. or 122.4°.									
	iP'	05-10-01.6			1.0			.7		
	eLEN	48-29.7				24.0	24.0		2.0	2.5
2	C & GS 18-26-08.9; 2.9 S., 79.9 W; h about 25 km; near coast of Ecuador. (P-H) = 46.5 km. ca. or 41.6°.									
	iP	18-33-54.1			.9			1.2		
	i	34-09.1			1.1			1.8		
3	C & GS 01-13-25.4; 56.1 N., 164.8 E; h about 29 km; off east coast of Kamchatka. (P-H) = 7480 km. ca. or 67.3°.									
	iP	01-24-15.0			.9			1.0D		
	i	23.8			1.0			1.6		

		Time GCT			Period (Sec)			Trace Amp. (mms)		
		h	m	s	Z	E	N	Z	E	N
June										
3	(continued)									
	iSEN	33	05	.3	7.0	7.0		1.2	1.3	
	eLEN	50	09	.3	20.0	20.0		2.2	2.0	
3	e	03	00	-27.8	1.0			.5		
3	e	04	31	-49.3	.7			.5		
3	i(P)	18	05	-36.2	1.0			1.0C		
4	e(P)	03	11	-34.5	.6			.5		
4	e	03	44	-42.5	.4			.4		
4	e	04	14	-52.0	.3			.3		
4	C & GS 07-33-05.4; 33.8 N., 81.8 E; h about 46 km; Tibet Mag. $6\frac{1}{2}$ (Pas). (P-H) = 11,840 km. ca. or 106.5° .									
	eP	07	47	-36.5	.5			.5		
	iPPZN	52	06	.0	1.5			.8		3.2
	iEN	08	01	-27.0		5.0	7.0		1.5	1.5
	iN	02	32	.0			6.0			3.0
4	iP	11	08	-48.2						
4	eP	18	57	-45.0	1.4			.5		
5	eP	15	56	-28.2	1.0			.6		
6	C & GS 00-33-38.2; 17.6 N., 60.9 W; h about 50 km; Leeward Islands. (P-H) = 3875 km. ca. or 34.9° .									
	iP	00	40	-26.1	.7			1.0D		
6	C & GS 03-46-08.6; 43.4 N., 127.7 W; h about 25 km; off coast of Oregon. (P-H) = 3060 km. ca. or 27.5° .									
	iP	03	51	-51.8	1.4			1.1D		
6	eP	07	06	-06.7	1.1			.6		
7	C & GS 05-03-10.7; 45.3 N., 150.8 E; h about 61 km. Kurile Islands. (P-H) = 8930 km. ca. or 80.6° .									
	eP	05	15	-16.2	.9			.5		
	i(pP)	30	4		1.1			.7		
7	C & GS 14-15-18.9; 5.4 S., 11.6 W; h about 17 km; Ascension Island region. Mag. $5\frac{1}{4}$ - $5\frac{1}{2}$ (Pal). (P-H) = 9785 km. ca. or 88° .									
	iPZE	14	28	-07.4	1.1	2.6		2.7	1.7	
	iSEN	38	46	.5		5.2	4.0		1.5	1.7

		Time GCT h m s	Period (Sec)			Trace Amp. (mms)		
			Z	E	N	Z	E	N
June								
8	X e	08-02-55.9	.4			.3		
8	X eP	16-03-17.6	.7			.4		
9	X C & GS	05-53-56.4; 0.4 N., 80.2 W; h about 15 km; near coast of Ecuador. (P-H) = 4270 km. ca. or 38.5°.						
	iP	06-01-15.5	.9			.6D		
9	✓ C & GS	09-36-49.2; 40.8 N., 50.7 E; h about 17 km; Caspian Sea. (P-H) = 10,780 km. ca. or 97°.						
	iP	09-50-19.3	.9			1.2C		
10	X i(P)	08-25-12.5	.7			.5		
10	✓ C & GS	08-52-01.1; 8.1 N., 103.4 W.; h about 25 km; south of Mexico. Mag. 4 3/4 (Pal). (P-H) = 4010 km. ca. or 36.1°.						
	iPZE	08-58-59.5	1.4			1.1		
	eSEN	09-04-16.5		8.0	8.0		1.5	1.9
	eLEN	07-24.7		6.0	5.0		2.3	1.5
10	X C & GS	11-44-49.8; 32.0 S., 70.3 W; h about 83 km; San Juan Province, Argentina. (P-H) = 7960 km. ca. or 71.6°.						
	iP	11-56-06.2	.9			2.7C		
10	X i	16-00-53.2	.9			.9		
10	✓ C & GS	20-31-50-.9; 24.1 S., 112.1 W; h about 47 km; Easter Island region. Mag. 6 (Pas), 5 1/2-5 3/4 (Pal). (P-H) = 6930 km. ca. or 62.4°.						
	iPZN	20-42-11.3	1.4		2.8	1.2C		1.2
	iSN	50-41.5			7.8			3.8
	eLEN	21-05-20.5		17.0	21.6		2.0	6.0
11	X eP	04-14-07.5	.9			.5		
11	✓ C & GS	05-10-26.0; 28.9 N., 54.6 E; h about 38 km; Southern Iran. Major property damage, many casualties in Lar area. Mag. 6 1/2-6 3/4 (Pas), 6 1/4-6 1/2 (Pal). (P-H) = 12,380 km. ca. or 111.4°.						
	eP	05-25-03.1	.6			.4		
	i(PP)	28-51.6	.7			1.7		
	eSE	37-22.5		4.0			1.4	
	iPSZEN	39-04.7	3.0	6.0	6.0	1.0	3.0	5.2
	iPPSZN	40-02.4	1.5		10.0	1.0		5.0
	e(SS)EN	45-01.5		6.0	9.0		2.2	2.2
	iSSSEN	49-14.6		9.0	5.2		2.2	3.0
	eLEN	06-00-42.5		40.0			4.4	

	Time GCT	Period (Sec)			Trace Amp (mms)		
		h	m	s	Z	E	N
June							
11	C & GS 05-52-51.7; 51.4 N., 159.3 E; h about 18 km; near south coast of Kamchatka. (P-H) = 8220 km. ca. or 74°.						
	eP	06-04-13.6		1.1			.5
	i	32.5		1.1			1.3
11	C & GS 10-19-23.6; 46.6 N., 27.4 W; h about 22 km; north Atlantic Ocean. (P-H) = 5610 km. ca. or 50.5°.						
	eP	10-28-19.0		1.0			.5
11	e	12-49-21.6		1.0			.4
11	eP	13-01-04.2		.6			.4
11	eP	14-16-03.1		.7			.4
11	C & GS 20-42-52.4; 51.3 N., 159.5 E; h about 43 km; near south coast of Kamchatka. (P-H) = 8165 km. ca. or 73.5°.						
	eP	20-54-24.6		1.0			.5
12	eP	00-19-09.5		1.1			1.0
	e(S)EN	23-03.7		13.2 13.0			6.5 6.5
12	C & GS 06-54-39.5; 9.2 S., 110.4 E; h about 44 km; off south coast of Java. (P-H) = 16,000 km. ca. or 144°.						
	iP'	07-14-10.5		.7			1.5
13	C & GS 02-24-25.9; 51.9 N., 176.5 W; h about 56 km; Andreanof Islands, Aleutian Islands. (P-H) = 6465 km. ca. or 58.2°.						
	iP	02-34-16.7		1.1			1.2D
13	i(P)	12-18-20.2		1.1			1.0C
13	C & GS 13-36-29.4; 8.6 N., 83.2 W; h about 43 km; near the coast of Costa Rica. (P-H) = 3295 km. ca. or 29.6°.						
	iP	13-42-31.3		.7			1.4D
13	C & GS 21-37-55.0; 21.4 S., 176.4 W; h about 146 km; Tonga Islands region. (P-H) = 10,580 km. ca. or 95.2°.						
	iP	21-51-11.3		.6			.6
	iP	50.4		1.2			5.0C
	iPP	55-08.4		1.3			1.0
	iSE	22-01-17.1		5.0			2.3
14	C & GS 18-44-30.2; 26.0 N., 109.8 W; h about 30 km; Gulf of California. (P-H) = 1895 km. ca. or 17°.						
	iP	18-48-24.7		1.0			.8
	iZEN	53-22.7		2.3 3.0 2.8			1.0 1.0 1.4

		Time GCT			Period (Sec)			Trace Amp. (mms)		
		h	m	s	Z	E	N	Z	E	N
June										
15	eP	00	00	14.1	.7			.6		
15	C & GS 00-51-32.0; 6.8 N., 73.0 W; h about 198 km; Venezuela. (P-H) = 3840 km. ca. or 34.5°.									
	iP	00	58	10.1	1.1			1.2D		
15	Near earthquake to Fayetteville station. (P-S) = 569 km. ca. or 5.1°.									
	e	17	26	17.8	.3			.4		
	eZEN		27	16.1	.7	.4	.4	3.5	.3	.6
15	C & GS 22-25-50.6; 51.7 N., 158.8 E; h about 25 km; near south coast of Kamchatka. (P-H) = 7855 km. ca. or 70.7°.									
	iP	22	37	05.9	.6			1.2D		
15	C & GS 23-24-40.5 ; 45.4 N., 151.3 E; h about 38 km; Kurile Islands. (P-H) = 8855 km. ca. or 79.7°.									
	iP	23	36	46.9	1.1			5.8C		
16	e	02	53	22.2	.6			.5		
16	C & GS 06-31-43.4; 51.4 N., 173.2 W; h about 25 km; Andreanof Islands, Aleutian Islands. (P-H) = 6285 km. ca. or 56.6°.									
	iP	06	41	23.3	.6			.6		
16	Near earthquake to Fayetteville station. (P-S) = 616 km. ca. or 5.6°.									
	eP	07	05	29.0	.2			.3		
	i			43.7	.3			.9		
	i(S)ZEN	06	31	.9	.4	.2	.2	1.8	.6	.6
16	C & GS 07-08-16.5; 41.1 S., 74.5 W; h about 17 km; off coast of southern Chile. (P-H) = 8825 km. ca. or 79.4°.									
	iP	07	20	21.7	1.4			2.8D		
16	C & GS 10-31-56.2; 8.8 N., 73.4 W; h about 120 km; northern Columbia. Felt at Barrancabermeja; maracaibo, Venezuela. Mag. 6 (Pas). (P-H) = 3780 km. ca. or 34°.									
	iPZEN	10	38	25.1	1.6	3.0	2.0	20.0D	12.2	10.5
	ipZEN			44.7	1.0	3.0	2.2	7.1	5.0	3.5
	ispZEN			56.7	1.1	4.0	4.0	5.5	6.2	8.0
	iPPZEN			39-30.2	1.1	2.0	4.0	5.7	2.5	4.0
	i(s))ZEN			40-25.6	1.0	4.4	4.0	8.0	7.2	6.5
	ize			41-06.6	1.5	3.0		5.3	1.5	
	isen			43-35.1		6.0	6.0		9.0	10.7
	i(PcS)ZEN			44-41.2	1.4	6.0	4.6	10.9	5.8	5.7
	i(G)ZEN			45-35.6	2.4	5.0	6.0	5.5	5.0	4.4
	iEN			46-04.5		6.0	9.0		6.0	8.2
	i(ScS)EN			47-38.2		7.0	6.0		7.0	9.2

		Time GCT			Period Sec.			Trace Amp. (mm)		
		h	m	s	Z	E	N	Z	E	N
June										
16	X	iP	15-56-19.6		.9			.8D		
		i	49.7		1.0			2.7		
17	✓	C & GS 10-56-30.3; 11.9 S., 75.3 W; h about 29 km; Peru. Mag. 5 (Pal). (P-H) = 5730 km. ca. or 51.6°.								
		iP	11-05-31.9	A	1.4			1.2C		
		i	43.9		1.5			2.0		
		i	06-07.8		1.0			2.5		
17	✓	C & GS 15-07-36.1; 14.2 N., 92.2 W; h about 147 km; Mexico-Guatemala border. Mag. 6 (Pas). (P-H) = 2420 km. ca. or 35°.								
		iPZEN	15-12-20.9		1.0	2.2	2.0	3.2C	2.5	2.9
		ipPZEN	44.4		.9	2.8	1.6	10.3	3.4	5.0
		isPZE	54.9		1.0	2.0	2.0	10.7	9.0	5.0
		iPPZEN	13-05.6		1.2	1.1	2.0	12.5	5.5	8.5
		iSEN	16-22.8			10.8	12.0		10.0	10.0
		i(PcP)	28.0		.9				3.4	
17	✓	C & GS 18-39-51.4; 14.5 N., 92.1 W; h about 105 km; near coast of Guatemala. (P-H) = 2440 km. ca. or 22°.								
		iP	18-44-37.1		.8	1.0	1.4	1.3C	.6	1.8
		isPZEN	45-14.9		1.1	3.0	2.8	5.4	1.4	3.0
		iPPZN	24.9		1.0		3.2	4.7		3.5
		iSZEN	48-48.0		.9	5.0	5.2	1.1	5.0	1.8
18	X	e	02-13-37.4		.5			.5		
18	✓	C & GS 03-12-35.7; 5.9 S., 113.0 E; h about 641 km; Java Sea. (P-H) = 15,260 km. ca. or 137.4°.								
		iP'	03-30-54.4		.6			1.0D		
		i(PP)	31-17.4		.6			1.7		
		i(pP')	32-40.9		.6			5.5		
18	X	C & GS 08-12-07.1; 32.2 N., 112.5 W; h about 25 km; Southern Arizona, U.S.A. (P-H) = 1825 km. ca. or 16.4°.								
		eP	08-15-53.6		.4			.4		
		e(L)ZEN	21-01.9		1.5	4.0	3.2	.5	1.0	1.2
18	✓	C & GS 13-55-16.6; 31.3 S., 179.8 E; h about 434 km; Kermadec Islands region. (P-H) = 11,400 km. ca. or 102.6°.								
		eP	14-12-31.4		.6			.5		
19	X	iP	01-38-55.6		.8			.5		
		i	39-12.4		1.3			2.1		
19	✓	C & GS 01-45-29.9; 12.6 N., 121.9 E; h about 120 km; Luzon, Philippine Islands. (P-H) = 13,260 km. ca. or 119.4°.								
		iP	02-04-13.4		1.0			.7C		

			Time GCT			Period Sec.			Trace Amp (mms)		
			h	m	s	Z	E	N	Z	E	N
June											
19	✓	i(P)	02	58	46.8	1.0				.5	
19	X	eP	07	00	17.5	.9				.5	
19		C & GS 07-38-29.6; 39.2 N., 142.9 E; h about 98 km. off east coast of Konshu, Japan. (P-H) = 9885 km. ca. or 89°.									
	✓	eP	07	51	15.2	.7				.4	
19	✓	C & GS 07-59-38.1; 39.7 N., 142.6 E; h about 23 km; near east coast of Honshu, Japan. (P-H) = 9875 km. ca. or 88.8°.									
		eP	08	12	30.0	.8				.5	
19	✓	eP	17	37	29.0	1.0				.5	
19		C & GS 22-17-13.5; 53.7 N., 160.7 E; h about 25 km; Kamchatka. (P-H) = 7760 km. ca. or 69.8°.									
		iP	22	28	23.8	1.0				.8C	
20		i(P)	01	34	36.6	.5				.5	
20		C & GS 02-22-02.1; 38.3 S., 74.1 W.; h about 25 km; off coast of southern Chile. (P-H) = 8555 km. ca. or 77°.									
		eP	04	33	53.7	.9				.5	
20		iP	09	53	48.2	1.0				.7	
20		eP	13	24	23.5	.4				.4	
		i			46.8	.8				.5	
20		C & GS 21-21-54.2; 15.8 N., 87.4 W; h about 137 km; near north coast of Honduras. (P-H) = 2370 km. ca. or 21.3°.									
		iP	21	26	31.6	.8				.9C	
21		C & GS 03-57-44.0; 15.3 N., 87.3 W; h about 114 km; northwestern Honduras. (P-H) = 2400 km. ca. or 21.6°.									
	✓	iPZE	04	02	25.8	1.0	3.0			2.7C	1.0
		ipP			47.0	1.0				1.6	
		eSZE	✓	06	37.9	1.1	4.0			.8	1.5
21		e(P)	12	23	15.4	.6				.4	
21		e(P)	12	53	04.0	.6				.3	
21		eP	13	19	34.7	.6				.5	
21		eP	15	15	25.9	.8				.5	
21		e(P)	20	41	28.5	1.0				.5	

Date	Time GCT	Period (Sec)			Trace Amp (mms)		
		h	m	s	Z	E	N
June							
21	C & GS 20-25-00.9; 7.5 S., 110.0 E; h about 163 km; near north coast of Java. (P-H) = 16,360 km. ca. or 147.2°.						
	iP'	20-44-21.1	K	.8			2.5D
	ipP'	45-14.1		1.0			3.3
	isP'	38.0		1.0			2.7
	iPP	47-50.9		.8			3.5
21	X i(P)	23-08-50.9		.6			.4
22	C & GS 00-56-04.7; 42.4 N., 19.6 E; h about 53 km; northern Albania-Yugoslavia border. (P-H) = 9130 km. ca. or 82.2°.						
	i(P)	01-08-17.6		.6			.5C
22	C & GS 07-43-54.5; 19.2 S., 70.6 W; h about 162 km; near coast of northern Chile. (P-H) = 6740 km. ca. or 60.6°.						
	iP	07-53-45.5		.9			1.0D
22	e(P)	13-37-07.5		.5			.4
22	C & GS 20-00-13.1; 12.8 N., 89.9 W; h about 99 km; Off coast of El Salvador. (P-H) = 2620 km. ca. or 23.6°.						
	iP	20-05-17.2		.6			.7
	ipP	44.0		.9			1.2
23	X iP	01-15-57.9		1.1			.7
23	C & GS 08-55-55.2; 43.9 N., 128.9 W; h about 56 km; off coast of Oregon. Mag. 5 1/4-5 1/2 (Berk), 5 3/4-6 (Pal). (P-H) = 3110 km. ca. or 28°.						
	iP	09-01-41.8	K	1.4			1.0D
	i(PP)	02-18.7		1.8			4.0
	iSE	06-05.4					
	i(sS)E	28.3		9.4			7.2
	i(ScS)EN	11-01.3		15.0			12.5
23	C & GS 09-22-49.8; 43.9 N., 128.8 W; h about 53 km; off coast of Oregon. (P-H) = 3070 km. ca. or 27.6°.						
	iP	09-28-32.6		1.3			1.4D
24	e(P)	01-34-40.5		.5			.4
24	C & GS 05-07-56.0; 13.6 N., 90.2 W; h about 90 km; near coast of El Salvador. Mag. 4 3/4-5 (Pal). (P-H) = 2540 km. ca. or 22.9°.						
	ePZN	05-12-51.9		.6	3.2		.5 1.7
	ipP	13-16.2		.9			1.3
	isP	24.6		1.3			1.6
	eSEN	17-20.2			10.0 12.4		1.5 1.5
24	e(P)	06-57-31.1		.6			.3

		Time GCT			Period (Sec)			Trace Amp (mms)		
		h	m	s	Z	E	N	Z	E	N
June										
24	X	e	18-44-50.2		.7			.5		
25		C & GS 02-29-29.9; 40.8 N., 144.1 E; h about 57 km; near north coast of Honshu, Japan. (P-H) = 9760 km. ca. or 87.8°.								
	✓	iP	02-42-10.1		1.0			2.0D		
		ipP	25.2		1.0			1.0		
25	X	C & GS 10-58-24.0; 10.8 N., 76.0 W; h about 76 km; near north coast of Columbia. (P-H) = 3350 km. ca. or 30.1°.								
		iP	11-04-28.7		.8			.6C		
25		e(P)	17-01-31.3		.3			.3		
		e	04-09.1		1.5			.5		
25	X	C & GS 19-14-02.3; 36.6 N., 141.6 E; h about 25 km; near east coast of Honshu, Japan. (P-H) = 6345 km. ca. or 91.6°.								
		iP	19-27-07.6		1.0			.5D		
25	X	C & GS 19-32-14.4; 37.9 S., 73.3 W; h about 124 km; near coast of southern Chile. (P-H) = 8620 km. ca. or 77.6°.								
		iP	19-43-54.6		1.4			.8D		
		i	49-21.6		1.1			.5		
26		C & GS 07-02-57.7; 21.3 S., 170.1 E; h about 89 km; Loyalty Islands. (P-H) = 9120 km. ca. or 82.1°.								
	✓	eP	07-15-10.1		.9			.6		
		ipP	39.8		1.1			.8		
		isP	50.7		.9			.8		
26	X	C & GS 12-56-56.6; 27.1 N., 112.9 W; h about 60 km; Baja, California. (P-H) = 2070 km. ca. or 18.7°.								
		eP	13-01-06.6		1.0			.6		
		eZE	06-13.1		1.5			.6		
26	✓	C & GS 14-47-26.1; 52.4 N., 174.5 E; h about 60 km; near Islands, Aleutian Islands. Mag. 5 1/2 - 5 3/4 (Pal). (P-H) = 7070 km. ca. or 63.7°.								
		iP	14-57-50.9		1.0			.8		
26	X	C & GS 16-43-40.5; 11.2 N., 74.5 W; h about 89 km; near north coast of Columbia. (P-H) = 3400 km. ca. or 30.6°.								
		iP	16-49-49.6		.8			.8C		
27	X	C & GS 03-07-47.8; 8.5 S., 74.4 W; h about 170 km; Peru-Brazil border. (P-H) = 5400 km. ca. or 48.6°.								
		iP	03-16-14.2		.6			.7C		
		i	32.6		.5			.7		

			Time GCT			Period (Sec)			Trace Amp (mms)		
			h	m	s	Z	E	N	Z	E	N
June											
27	✓	eP	07	22	27.7	.6			.5		
27		C & GS 07-52-23.7; 54.6 N., 157.7 E; h about 19 km; Kamchatka. (P-H) = 7860 km. ca. or 70.8°.									
	✓	iPZEN	08	03	39.4	1.2	1.8	2.0	9.3C	.9	1.5
		iZEN	04	38.5		1.5	1.2	1.6	2.9	.6	.8
		ePPP	07	27.8		.6			.5		
		eSN	13	21.0				12.4			2.5
		eSSN	17	03.0				16.0			6.0
27	X	iP	19	19	37.5	.7			1.2C		
		i	23	22.0		.6			.8		
28	X	C & GS 02-06-10.2; 11.4 S., 74.0 W; h about 25 km; Central Peru. (P-H) = 5745 km. ca. or 51.8°.									
		eP	02	15	14.1	1.0			.6		
28		C & GS 13-15-31.0; 4.7 S., 102.7 E; h about 142 km; near south coast of Sumatra. (P-H) = 16,440 km. ca. or 148°.									
	✓	iP'	13	34	58.0	1.0			3.8C		
		i			12.8	1.0			2.2		
28	X	e(P)	15	54	37.2	2.0			.7		
28	X	iP	18	09	26.1	.7			1.8D		
28	X	eP	19	26	03.5	.8			.4		
		e	34	28.7		1.0			.6		
29		C & GS 09-22-55.8; 13.8 S., 166.0 E; h about 37 km; new Hebrides Islands. Mag. 6¼-6½ (Berk), 5½-5¾ (Pal). (P-H) = 13,000 km. ca. or 117°.									
	✓	eP'	09	41	43.9	1.0			.3		
29	X	e	09	53	08.4	1.0			.5		
29	X	iP	11	46	56.5	1.3			.6		
29		C & GS 14-02-42.5; 52.2 N., 173.4 W; h about 76 km; Andreanof Islands, Aleutian Islands. (P-H) = 6260 km. ca. or 56.4°.									
	✓	iP	14	12	16.9	.8			2.2D		
		i(pP)			35.1	1.0			2.8		
		iPP	13	14.5		.7			2.2		
		i			34.5	1.1			2.8		
29		C & GS 22-01-21.0; 85.0 N., 97.3 E; h about 11 km; Severnaya Zemlya region. (P-H) = 6595 km. ca. or 59.4°.									
	✓	iP	22	11	20.7	1.5			.7C		
30	X	iP	06	42	22.0	1.5			1.0		



			Time GCT			Period (Sec)			Trace			Amp (mm)
			h	m	s	Z	E	N	Z	E	N	
June												
30	X	iP	19	13	17.7							1.9C
30	X	e(P)	19	57	24.1							.5
30	X	e(P)	23	13	27.7							.5

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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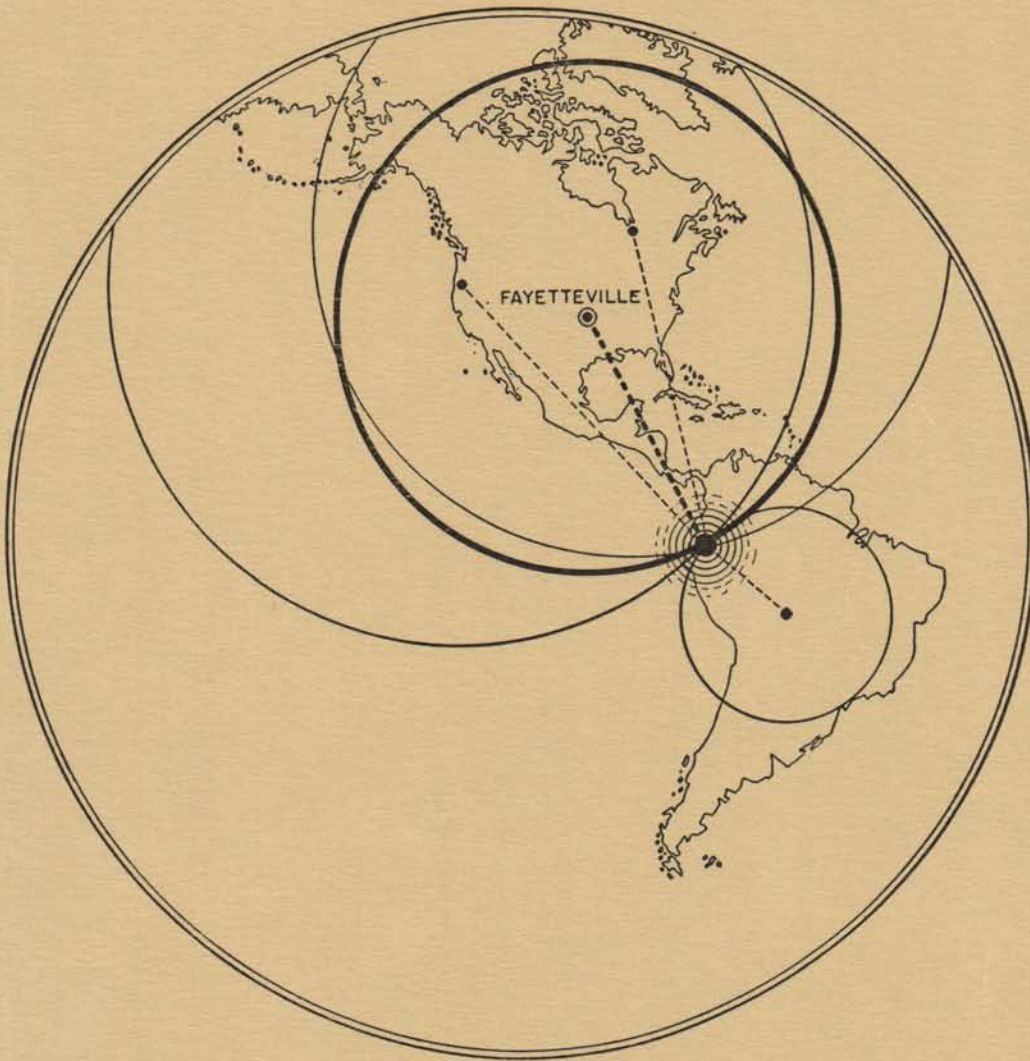
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UNIVERSITY OF ARKANSAS SEISMOLOGICAL BULLETIN

Volume X

July-Sept 1961

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 10, Number 3, September 1961

Data for July, August, September, 1961

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 - 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 Jack C. White, Observer

Date	Phase	Time GCT			Period (Sec)			Trace (Amp) mms			(1)
		h	m	s	Z	E	N	Z	E	N	
July											
1		C & GS 00-02-39.2; 53.9 N., 164.3 W; h about 34 km; Unimak Island. (P-H) = 5550 km. ca. or 50.1°.									
	iP	00	11	36.6	0.6			1.1	C		
1	iP	12	49	27.9							
1		C & GS 13-10-46.6; 15.3 S., 75.0 W. h about 146 km; near coast of Peru (P-H) = 5940 km. ca. or 53.7°.									
	iP	13	20	01.6	1.6			4.7			
	ipP			12.7	1.4			2.9			
	isP			28.4	1.0			1.9			
1		C & GS 23-44-05.7; 53.7 N., 169.8 E.; h about 19 km. near Islands region, Aleutian Islands. (P-H) = 7420 km. ca. or 66.9°.									
	iP	23	54	58.4	.9			1.3	D		
2		C & GS 02-07-14.4; 42.8 N., 143.1 E. h about 151 km. Hokkaido, Japan. (P-H) = 9480 km. ca. or 85.1°.									
	iP	02	19	41.4	.9			.7	D		
2		C & GS 11-43-36.6; 19.2 S., 174.8 W. h about 114 km. Tonga Islands. (P-H) = 10,320 km. ca. or 92.6°.									
	eP	11	57	17.9	.8			.5			
2	eP	21	41	29.8	.6			.4			
	i			42-12.8	1.0			1.5			
	i(PP)			44-43.3	1.0			2.5			
3		C & GS 07-06-16.5; 33.4 N., 106.9 W. h about 15 km. Central New Mexico (P-H) = 1155 km. ca. or 10.5°.									
	eP	07	08	53.4	.5			.3			
	es			11-55.1	1.0			1.8			
3		C & GS 12-15-27.3; 15.2 N., 104.6 W. h about 25 km. off coast of Mexico. (P-H) = 2640 km. ca. or 23.8°.									
	iP	12	20	38.4	1.4			.9			
3		C & GS 14-49-30.8; 8.6 S., 79.2 W. h about 86 km. near coast of Peru. (P-H) = 5220 km. ca. or 47°.									
	iP	14	57	56.3	1.1			2.3			
	ipP			58-11.3	1.4			3.0			
3	iP	20	57	42.3	.9			1.2	D		
3	e(P)	22	16	47.1	.6			.3			
	e			19-16.9	.7			.5			

Date	Phase	Time GCT			Period (Sec)			Trace (Amp) mms			(2)
		h	m	s	Z	E	N	Z	E	N	
July 4	C & GS 04-56-03.7; 40.8 N., 118.0 W. h about 61 km. western Nevada. Felt mag. 5-5 3/4 (Berk.). (P-H) = 2145 km. ca. or 19.3°.										
	iPZEN	05-00-22.5			.8	1.8		.9	3.0		
	iSZEN	06-12.9			2.4	5.0	5.0	.9	2.5	6.0	
4	C & GS 06-10-44.8; 17.9 N., 146.4 E. h about 145 km. Mariana Islands. (P-H) = 10,260 km. ca. or 92.2°.										
	eP	06-24-24.5			.6			.4			
4	C & GS 11-09-10.6; 40.8 N., 117.8 W. h about 43 km. Western Nevada. Felt Mag. 5 1/4 (Berk.) (P-H) = 2100 km. ca. or 18.9°.										
	eP	11-13-32.5			.8			.5			
	eS	19-31.3			3.0			.8			
5	C & GS 02-38-05.1; 48-02.1										
	eP	02-38-05.1			.5			.3			
	eS	48-02.1			.7			.3			
5	C & GS 05-02-28.9; 15.1 N., 60.4 W. h about 91 km. Windward Islands. (P-H) = 3945 km. ca. or 57.1°.										
	iP	05-09-29.8			.7			.5			
	iP	44.6			1.0			2.2			
5	i(P) 17-17-07.8 .4 .4										
5	e(P) 19-00-17.9 1.2 .6										
5	eP 22-54-04.3 .5 .3										
6	eP 01-21-48.1 .6 .4										
6	iP 05-17-22.1 1.0 .7D										
6	iP 16-21-05.7 1.4 3.8C										
6	C & GS 22-09-31.4; 20.0 S., 169.0 E. h about 47 km. New Hebrider Islands. Mag. 6 1/2 (Pas.), 6 1/2-6 3/4 (Pal) (P-H) = 11,260 km. ca. or 111.4°.										
	eP	22-23-47.2			0.6			0.1			
	iPP	27-20.6			0.9			1.0			
	eSEN	34-21.4				8.0	10.0		1.0	1.2	
	iSSS	39-13.6			0.9			0.5			
	eLEN	23-00-30			24.0	24.0				1.5	
7	iP 02-10-25.7										
7	C & GS 08-05-03.5; 46.7 N., 153.0 E. h about 106 km. Kurile Islands. (P-H) = 8300 km. ca. or 74.9°.										
	eP	08-16-43.0			0.6			0.2			
7	i(P) 12-19-44.1										
7	i 12-43-17.9										

Date	Phase	Time GCT			Period (Sec)			Trace Amp. (mms)			(3)
		h	m	s	Z	E	N	Z	E	N	
July											
7		C & GS 13-10-43.8; 5.7 S., 149.7 E. h about 57 km. New Britain, Felt. Mag 6-6 $\frac{1}{4}$ (P-H) = 13,000 km. ca. or 117 $^{\circ}$.									
	iP'	13	29	21.7	0.5			0.3D			
	iPS	13	40	06.0							
	eLE	14	05	19.6		32.0			2.0		
7	iP	15	39	23.2							
7	e(P)	23	01	09.6							
8	eLEN	03	32	09.6							
8	eP	22	51	42.5	.5			.5			
	e(PP)	53	57	9	.7			1.0			
9		C & GS 04-57-52.8; 17.0 N., 88.5 W. h about 150 km. British Honduras. (P-H) = 2185 km. ca. or 19.5 $^{\circ}$.									
	iPZEN	05	02	13.5	.8	2.8	2.8	.6D	.7	1.0	
9	e	05	12	02.9	.3			.3			
9	e	05	24	27.6	.3			.3			
9		C & GS 06-32-52.4; 15.0 N., 87.2 W. h about 165 km. Honduras. (P-H) = 2440 km. ca. or 22 $^{\circ}$.									
	iPZEN	06	37	33.8	1.0	3.2	3.3	1.8	1.3	2.7	
	ipP			47.8	1.1			2.3			
	iSEN	41	38	7		4.8	5.2		1.0	2.9	
9	eP	08	19	27.6	.6			.5			
9	eP	10	51	51.7	.9			.5			
9	eP	13	53	52.0	.5			.4			
	e(PP)	55	58	5	.9			.5			
9	eP	14	17	55.0	.5			.3			
9		C & GS 16-46-02.0; 51.7 N., 176.2 E. h about 33 km. Aleutian Islands. (P-H) = 2630 km. ca. of 23.8 $^{\circ}$.									
	iP	16	51	12.5	.7			.3			
10	eP	00	15	39.2	.7			.4			
10		C & GS 03-49-56.4; 19.2 S., 68.4 W. h about 117 km. Chile-Bolivia border (P-H) = 6760 km. ca. or 60.8 $^{\circ}$.									
	iPZEN	03	59	56.5	1.4	2.4	2.4	3.5D	1.4	1.8	
	ipZEN	04	00	24.2	1.6	1.8	1.6	4.0	1.0	.9	
	iSEN	08	01	5		6.0	5.8		1.5	1.7	
	isSEN	23		2		4.0	4.0		1.3	2.8	

Date	Phase	Time GCT			Period (Sec)			Trace Amp. (mms)			(4)
		h	m	s	Z	E	N	Z	E	N	
July 10	C & GS 12-54-04.6; 18.4 N., 104.9 W. h about 20 km. off coast of Jalisco, Mexico. Mag. $4\frac{1}{2}$ (Berk) (P-H) - 2250 km. ca. or 20.2° .										
	ePZEN	12-58-40.4			1.0	2.0	2.0		.9	.7	.9
	iSEN	13-02-29.4				8.2	8.0			2.0	1.7
	iZEN	05-02.6				5.6	5.6			11.5	7.5
10	C & GS 14-18-13.7; 18.2 N., 89.8 W. h about 56 km. Campeche, Mexico. (P-H) = 2020 km. ca. or 18.1° .										
	iP	14-22-26.1				.7				.5	
10	eP	14-58-49.6				.4				.2	
10	eP	16-48-32.4									
11	C & GS 01-20-57.8; 43.4 N. 149.0 E. h about 25 km. off coast of Hokkaido, Japan. (P-H) = 9240 km. ca. or 83.1° .										
	i	01-33-22.3			1.1					.8	
11	eP	09-51-05.2			.6					.5	
	i(S)EN	54-18.6				4.0	4.2			2.2	4.0
11	e	18-06-30.1									
11	e	18-54-01.1									
	i	56-51.9									
11	e	20-24-45.7									
11	e	23-45-28.1									
12	C & GS 02-48-48.0; 40.1 N., 23.5 E. h about 129 km. northeastern Greece. (P-H) = 9310 km. ca. or 83.5° .										
	eP	03-01-08.2			2.0					0.5D	
12	C & GS 13-29-56.6; 45.2 N., 151.0 E. h about 40 km. Kurile Islands. (P-H) = 8870 km. ca. or 79.9° .										
	iP	13-42-03.4			1.4					0.5	
12	C & GS 17-19-43.9; 43.2 S., 73.7 W. h about 60 km off coast southern Chile. (P-H) = 8960 km. ca. or 80.6° .										
	iP	17-31-55.8			.8					1.0C	
12	C & GS 22-37-51.5; 4.9 N., 83.0 W. h about 70 km. south of Panama. (P-H) = 3640 km. ca. or 32.8° .										
	iP	22-44-19.7			.8					.7	
14	e	07-52-41.5			.7					.4	
14	i(P)	09-11-46.7			1.0					.8	

Date	Phase	Time GCT			Period (Sec)			Trace Amp. (mms)			(5)
		h	m	s	Z	E	N	Z	E	N	
July											
14	X e	15	02	46.1	.7			.5			
14	X iP	00	36	40.1	.8			.7D			
15	X iP	00	47	53.6	.8			.8D			
15	X C & GS	05-43-06.7; 48.4 N., 157.6 E. h about 17 km. off southern coast of Kamchatka; (P-H) = 8310 km. ca. or 74.8°.									
	X iP	05	54	46.1	1.0			.8D			
15	C & GS	13-55-26.5; 6.8 S., 116.9 E. h about 565 km. Java Sea. (P-H) = 15,550 km. ca. or 40°.									
	eP ¹	14	13	47.7	.7			.4			
	e(SP ¹)	16	06	0.0	2.8			0.3			
16	X e	01	06	51.2							
16	C & GS	05-22-36.5; 19.0 S., 175.4 W; h about 200 km. Tonga Islands. (P-H) = 10,460 km. ca. or 94.2°.									
	eP	05	35	38.2	.7			.5			
	epP	36	33	0.0	1.0			0.6			
16	C & GS	06-47-19.7; 18.6 S., 175.7 W. h about 172 km. Tonga Islands. (P-H) = 10,510 km. ca. or 94.5°.									
	eP	07	00	23.4	.6			.3			
	epP	01	21	0.0	1.2			0.8			
16	X e	19	45	37.2	.4			.3			
16	X i	21	06	30.7	.9			.6			
16	Earthquake near Fayetteville Station (P-S) not determinable.										
	iP	21	20	26.4	1.1			2.5C			
	i(S)	35	0	0.0	1.0			1.1			
17	C & GS	01-01-11.2; 16.7 N., 97.7 W. h about 74 km. Oaxaca, Mexico. (P-H) = 2120 km. ca. or 19.1°.									
	iPZEN	01	05	35.3	1.1	2.6	1.4	6.0C	.8	1.8	
	iPN	59	8	0.0			2.2			6.6	
	iSEN	09	23	8.0	7.0	5.0		2.7	2.5		
	iScPEN	12	08	8.0	5.0	6.0		2.0	2.0		
17	X C & GS	03-30-54.7; 17.0 N., 97.8 W. h about 77 km. Oaxaca, Mexico. (P-H) = 2190 km. ca. or 19.7°.									
	iPZN	03	35	16.0	1.0	1.2		1.2C		.8	

Date	Phase	Time GCT			Period (Sec)			Trace Amp. (rms.)			(6)
		h	m	s	Z	E	N	Z	E	N	
July											
17		C & GS 09-08-02.1; 16.5 N., 105.0 W. h about 60 km. off coast of Mexico. (P-H) = 2460 km. ca. or 22.2°.									
	iP	09-12-51.2			1.9			.6			
	iScPEN	19-28.9			6.8	6.2			4.9	3.3	
17	iP	11-47-30.7			.5			.5			
17		C & GS 14-02-48.2; 1.8 N., 29.5 W. h about 25 km. Mid-Atlantic Ocean. (P-H) = 7580 km. ca. or 68.3°.									
	iP	14-13-49.7			.8			.8D			
17		C & GS 16-20-22.6; 35.7 N., 141.2 E. h about 75 km. near east coast of Honshu, Japan, Felt. (P-H) = 10,190 km. ca. or 91.7°.									
	iP	16-33-23.2	K		1.0			1.2D			
18		C & GS 14-03-36.5; 29.4 N., 131.6 E. h about 21 km. northern Ryukyu Islands. Felt: Kyushu, Japan. Mag. 6½-6¾ (Pas), 6¾-7 (Berk), 6½ (Pal). (P-H) = 11,180 km. ca. or 100.5°.									
	iPZEN	14-17-29.5			1.8	2.0	2.0	1.3D	.9	.7	
	iEN	21-38.0				4.2	6.0		2.5	2.5	
	iSKKSEN	28-05.0				8.4	9.0		5.8	5.7	
	eLEN	48-37.0			14.0	19.0			6.0	6.0	
18		C & GS 16-20-08.8; 29.5 N., 131.2 E. h about 62 km. northern Ryukyu Islands (P-H) = 11,230 km. ca. or 101.1°.									
	iP	16-33-51.4			.7			3.7D			
19		C & GS 09-19-24.2; 37.5 N., 142.0 E. h about 25 km. off coast of Honshu, Japan. (P-H) = 10,000 km. ca. or 90°.									
	e	09-32-25.0						0.1			
19	iP	16-37-07.8			.6			1.5C			
19	e	16-50-23.2									
19		C & GS 18-00-28.3; 19.8 S., 173.9 W. h about 66 km. Samoa Islands region. (P-H) = 10,510 or 94.6°.									
	iP	18-13-41.3			.9			.7			
19		C & GS 22-36-36.5; 51.7 N., 173.4 W. h about 42 km. Andreanof Islands, Aleutian Islands. (P-H) = 6140 or 55.2°.									
	e	22-46-03.4									
20	iP	02-36-12.7			1.0			.6C			
20		C & GS 08-44-21.1; 18.7 N., 103.0 W. h about 14 km. off coast of Jalisco, Mexico. (P-H) = 2130 km. ca. or 19.3°.									
	iP	08-48-45.4			.9			.8			

Date	Phase	Time GCT			Period (Sec)			Trace Amp (mms.)			(7)
		h	m	s	Z	E	N	Z	E	N	
July											
20	(continued)										
	iSEN	08	54	27.1	3.6	3.6			1.2	2.5	
20	C & GS 10-33-14.3; 4.6 N., 82.1 W. h about 50 km. south of Panama. (P-H) = 3600 km. ca. or 32.5°.										
	iP	10	39	48.8	.8				.7		
20	C & GS 13-18-04.2; 20.7 S., 64.7 W. h about 128 km. southern Bolivia. (P-H) = 6970 km. ca. or 62.8°.										
	iP	13	28	23.5	.7			3.2D			
20	eP	18	28	35.7	.4			.4			
21	e(L)	01	55	39.8	.6			.4			
21	iP	04	41	16.0	1.0			.8			
21	e(P)	10	38	38.6	.7			.4			
21	e(P)	10	49	23.4	.5			.4			
21	eP	23	37	45.3	.9			.5			
22	C & GS 09-56-35.1; 7.4 S., 107.9 E. h about 142 km. Java. (P-H) = 16,150 km. ca. or 145.4°.										
	iP'	10	16	03.4	1.0			2.5D			
	i			07.7	0.7			0.8			
	i			11.5	0.8			0.8			
	i			17.4				0.6			
	i(pP')			27.5				1.0C			
22	C & GS 13-53-45.5; 36.8 N., 70.3 E. h about 96 km. northeastern Afghanistan. (P-H) = 12,820 km. ca. or 115.5°.										
	e(PPP)	14	16	01.0	1.0			.6			
22	C & GS Epicenter not given										
	iP	16	29	47.1	.8			.7			
23	C & GS 00-05-31.9; 20.2 N., 105.1 W. h about 48 km. Jalisco, Mexico. (P-H) = 2030 km. ca. or 18.4°.										
	iP	00	09	45.7	1.4			1.0			
	i(PP)			10-03.2	1.5	2.2		1.8	1.0		
	i(L)ZN			15-26.2	2.4	4.0		.7	2.0		
23	C & GS 13-35-51.6; 25.4 S., 68.9 W. h about 35 km. northern Chile. (P-H) = 7280 km. ca. or 65.2°.										
	iP	13	46	36.4	.8			.7D			

Date	Phase	Time GCT			Period (Sec)			Trace Amp. (mms.)			(8)
		h	m	s	Z	E	N	Z	E	N	
July 23	C & GS 14-38-03.5; 6.9 N., 123.5 W. h about 89 km. Pacific Ocean, about 2000 miles northwest of Galapagos Islands. Mag. 5 3/4-6 (Pas) (Berk). (P-H) = 4370 km. ca. or 39.5°.										
	iPZN	14	45	27.7	.7		5.8	2.5C		5.0	
	i(pP)			38.1	.9			4.5			
	i(pP)			57.8	.8			2.7			
	iSN			51-33.6			7.0			13.0	
	iScSN			54-41.7			8.8			5.0	
	iN			58-48.5			8.8			15.3	
23	C & GS 21-51-07.5; 18.3 S., 168.3 E. h about 44 km. New Hebrides Islands. (P-H) = 11,960 km. ca. or 107.8°.										
	iP	22	05	30.1	0.8			0.5D			
	iPPZEN	09	46	3	1.4	7.0	6.2	1.5	1.7	2.7	
	iPSEN	19	07	5		15.0	10.0		40.0	21.5	
	iSSEN	25	13	9		23.6	24.0		44.0	31.5	
	eEN	32	47	5		20.0	24.0		23.0	11.0	
	iLEN	41	14	5		31.0	20.0		9.0	30.0	
24	C & GS 01-53-26.7; 2.3 S., 79.6 E. h about 25 km. Ecuador. Felt. (P-H) = 4500 km. ca. or 40.5°.										
	iP	02	01	07.2	.7			1.4			
24	C & GS 08-48-13.8; 0, 124.1 E. h about 159 km. northern Celebes region. (P-H) = 13,060 km. ca. or 117.5°.										
	iP'	09	07	09.3	.8			1.6			
	iPPP	10	24	4	1.3			1.0			
24	e(P) 17-17-54.2 .7 .5										
25	C & GS 02-48-13.5; 8.8 S., 71.3 W. h about 642 km. western Brazil. (P-H) = 5480 km. ca. or 49.4°.										
	iPZN	02	56	12.8	.7		2.0	7.5D		1.1	
	iSN	03	02	34.6			4.0			2.5	
25	iP 05-20-14.9 .7 .6										
25	C & GS 05-59-39.3; 55.3 N., 163.9 E. h about 25 km. near east coast of Kamchatka; (P-H) = 7440 km. ca. or 67°.										
	iP	06	10	33.3	1.0			.7			
25	C & GS 17-56-48.4; 8.7 S., 110.5 E. h about 245 km. near south coast of Java. (P-H) = 15,400 km. ca. or 139°.										
	iP'	18	15	53.2	.8			.4			
25	e 18-48-40.6 .7 .3										

Date	Phase	Time GCT			Period (Sec)			Trace Amp. (mms.)			(9)
		h	m	s	Z	E	N	Z	E	N	
July 25		C & GS 18-39-24.1; 0.0, 124.7 E. h about 43 km. northern Celebes. (P-H) = 13,360 km. ca. or 120.3°.									
	iP'	18-58-32.0			1.4			1.1D			
26		C & GS 01-34-18.2; 35.7 S., 104.5 W. h about 24 km. southeast of Easter Island. (P-H) = 8,050 km. or 72.5°.									
	iP	01-45-43.6			1.1			2.1			
26	iP	13-06-46.6			1.3			.9			
26	i(P)	16-36-34.6			1.0			.7			
26	i(P)	16-40-13.5			.6			.5			
27		C & GS 06-09-23.5; 18.2 S., 69.8 W. h about 31 km. Bolivia-Chile border Felt: Arica, Chile. (P-H) = 6440 km. ca. or 58°.									
	iP	06-19-19.9			.6			1.0C			
27	eP	15-38-52.9			.6			.5			

Note: Station not in operation from 27 July to 30 July, 1961.											

31		C & GS 00-07-070; 35.5 N., 120.4 W. h about 23 km. San Luis Obispo County, California. Felt Mag. 4½ (Pas) 4¼-4½ (Berk) (P-H) = 2360 km. ca. or 21.3°.									
	eP	00-11-52.9			.7			.5			
31		C & GS 00-15-55.3; 5.3 S., 107.2 E. h about 244 km. off north coast of Java. (P-H) = 16,100 km. ca. or 145°.									
	iP'	00-35-00.9			1.0			5.8			
	ipP	48-08.4									
31	iP	07-09-29.5			.7			2.5e			

Date	Phase	Time GCT			Period (Sec)			Trace Amp (mms) (ll)		
		h	m	s	Z	E	N	Z	E	N
August										
7	X i	11	05	44.5		.9			.3	
8	X C & GS 05-36-28.9; 51.9 N., 176.3 W. Andreanof Islands, Aleutian Islands. (P-H) = 6460 km. ca. or 58.2°.									
	X iP	05	46	16.2		.8			.8C	
	X ipP		29	.4		.7			1.0	
8	C & GS 12-18-18.9; 50.9 N., 170.7 W. h about 24 km. Fox Islands, Aleutian Islands. Mag. 6-6 $\frac{1}{4}$ (Pas.) 5-5 $\frac{3}{4}$ (Berk.) 5 $\frac{3}{4}$ -6 (Pal) (P-H) = 6060 km. ca. or 54.5°.									
	✓ iPZEN	12	27	50.9	1.0	5.0	5.0	1.9D	4.8	3.7
	eSEN		35	32.9		10.0	4.2		4.8	1.5
	i(L)E		19	24.5		12.0			6.3	
9	Near Fayetteville Station.									
	iP	20	15	20.9						
9	Near Fayetteville Station.									
	ep	20	25	11.6						
	i(S)		26	06.1						
10	C & GS 12-03-21.8; 37.2 N., 136.9 E. h about 51 km. Near west coast of Honshu, Japan. (P-H) = 10,500 km. ca. or 152.1°.									
	✓ iP	12	16	32.8	1.0			0.9D		
10	C & GS 12-05-21.4; 43.3 N., 144.9 E. h about 25 km. Northern Hokkaido, Japan. (P-H) = 9430 km. ca. or 84.9°.									
	✓ iP	12	17	55.2	1.0			2.4D		
	iP		18	09.8	0.9			1.2		
11	X C & GS 00-43-29.6; 56.1 N., 164.3 E. h about 27 km. Kamchatka (P-H) = 6330 km. ca. or 57°.									
	X iP	00	53	19.2	0.5			0.8D		
	X ePcP		54	16.2	1.0			1.1		
11	C & GS 11-04-39.1; 0.2 N., 124.0 E. h about 143 km. Northern Celebes (P-H) = 13,930 km. ca. or 125.3°.									
	✓ iP(D)	11	23	32.8	0.9			4.6		
	i(PKS)		26	42.0	1.0			2.1		
11	C & GS 15-51-35.4; 42.9 N., 154.1 E. h about 71 km. Eastern Hokkaido, Japan Slight tsunami- Mag. 7 (Pas.), (Berk.) (P-G) = 9480 km. ca. or 85.4°.									
	✓ iPZEN	16	04	03.3	1.5			19.2C		
	iSZEN	16	14	19.3	6.0	5.4	3.5	8.0	10.5+	30.6
	e(SKPP')E		33	39.7		7.0			10.0	
	e(SKPP')N		34	05.7			7.0			9.0

Date	Phase	Time GCT			Period (Sec)			Trace Amp. (mms)(12)		
		h	m	s	Z	E	N	Z	E	N
August										
11	C & GS 22-37-22.0; 2.8 S., 122.1 E. h about 20 km. Eastern Celebes (P-H) = 15,240 km. ca. or 137.2°.									
	i(PKS)	23	01	15.9	0.5			1.8D		
	i(SKS)	23	03	19.5	0.8			1.0D		
11	C & GS 23-33-51.9; 42.8 N., 154.1 E. h about 72 km. Eastern Hokkaido, Japan. (P-H) = 15,240 km. ca. or 137.2°.									
	iP	23	43	05.1	0.6			1.0D		
	iPCP	23	44	55.4	1.0			1.3D		
	iPPP P	23	45	20.4	1.0			2.5		
	i	23	46	33.3	1.2			3.6		
14	iP	02	58	54.6	1.5			11.1		
14	C & GS 13-46-05.1; 57.6 N., 158.7 W. h about 93 km. Alaska Peninsula (P-H) = 5200 km. ca. or 46.9°.									
	iP	13	54	29.3	0.6			0.5		
12	C & GS 13-05-30.2; 21.4 S., 67.7 W. h about 97 km. Chile-Bolivia border (P-H) = 6820 km. ca. or 61.8°.									
	iP	13	15	39.8	0.9			1.2D		
12	Earthquake near Fayetteville Station.									
	iP	15	36	20.8	0.7			3.0C		
	i		36	23.7	0.6			2.7		
14	C & GS 18-50-50.3; 24.2 S., 175.7 W. h about 21 km. Tonga Islands Mg. 5½ (Berk) (P-H) = 10,680 km. ca. or 96.4°.									
	iP	19	04	24.2	1.6			1.0D		
15	C & GS 19-03-55.7; 32.8 N., 142.4 E. h about 39 km. south of Honshu, Japan. (P-H) = 10,220 km. ca. or 92°.									
	iP	19	17	09.2	1.3			2.1D		
	ePcP		17	24.0	1.4			1.5		
15	C & GS 21-47-33.8; 25.2 N., 103.2 W. h about 25 km. Central Mexico. (P-H) = 1620 km. ca. or 14.6°.									
	iP	21	50	48.3	0.6			0.4D		
	e(P)		51	36	1.1			0.8		
	e(L)ZEN		54	05	1.0	3.0	4.0	1.2	1.2	1.0
16	iP	04	29	25.1	0.7D			0.8		
16	C & GS 08-57-36.9; 32.2 N., 142.1 E. h about 32 km. South of Honshu, Japan. (P-H) = 10,720 km. ca. or 96.7°.									
	iP	09	10	55.0	1.1			0.5C		
16	iP	10	52	48.4	1.0C			0.4		

Date	Phase	Time GCT			Period (Sec)			Trace Amp. (mms)13		
		h	m	s	Z	E	N	Z	E	N
August										
16	C & GS 16-15-57.5; 13.8 S., 14.7 W. h about 25 km. South of Ascension Island (P-H) = 10,080 km. ca. or 90.7°.									
	eP	16-29-05.2			1.8			0.6D		
	i	16-29-12.6			1.6			0.8		
17	C & GS 17-49-47.5; 17.1 S., 71.8 W. h about 105 km. near coast of southern Peru. (P-H) = 6360 km. ca. or 57.3°.									
	iP	17-59-27.9			0.9			0.5D		
	ipP	59-41.2			1.1			0.9D		
17	C & GS 21-16-30.0; 46.3 N., 149.3 E. h about 186 km. Kurile Islands Mag. 6 3/4 (Pas); 6 1/2-6 3/4 (Berk); (P-H) = 8980 km. ca. or 80.9°.									
	iPZEN	21-28-22.8			1.0	2.4	1.5	15.1C	4.5	4.8
	ipZEN	29-00.9			2.5	3.6	2.3	9.7	11.8	16.5
	eSZEN	38-08			4.5	5.0	2.7	2.0	64.2	32.9
19	C & GS 02-42-58.2; 43.1 N., 145.0 E. h about 32 km. Eastern Hokkaido, Japan. (P-H) = 9420 km. ca. or 84.8°.									
	iP	02-55-30.4			1.5			0.5C		
	i	42.8			1.4			1.4		
19	C & GS 05-09-49.5; 10.7 S., 71.0 W. h about 649 km. Peru-Brazil border Mag. 7 (Pas), Mag 7 3/4-8 (Berk) (P-H) = 5720 km. ca. or 51.7°.									
	iPZEN	05-18-01.9			2.2			32.2		28.0
	iSEN	24-26.9				2.1	2.0		72.0	23.0
	i(s)	35.1			3.1			19.0C		
	iplpl	46-51.7			2.7			2.5		
19	C & GS 05-33-30.6; 36.0 N., 136.5 E. h about 17 km. off west coast Honshu, Japan. 5 killed, many injured. moderate property damage at Fukii, Gifu, Ishikawa. Mag. 7 1/2 (Pas) (P-H) = 10,460 km. ca. or 94.3°.									
	iP	05-46-51.6			2.6			2.4C		
	iPP	49-14.5			3.0			2.0		
	eLEN	06-19-20.7			12	10.0		2.4	1.8	
19	C & GS 12-44-57.7; 43.4 N., 145.2 E. h about 20 km. near east coast of Hokkaido, Japan. (P-H) = 9380 km. ca. or 84.5°.									
	iP	12-57-29.3			0.9			0.7D		
19	C & GS 14-52-31.4; 18.0 N., 68.8 W. h about 146 km. Mona Passage, felt: Puerto Rico and Ciudad Triyillo, Dominican Republic (P-H) = 3160 km. ca. or 38.5°.									
	iPZEN	14-58-20.7			1.0			0.8C		
	isP	55.1			1.4			2.1		
	iSEN	15-03-02.2				4.2	6.0		5.0	4.5

Date	Phase	Time GCT			Period (Sec)			Trace Amp. (mms)		
		h	m	s	Z	E	N	Z	E	N
Aug. 19	C & GS 16-01-25.6; 11.4 S., 70.6 W. h about 645 km. Peru-Brazil border (P-H) = 5710 km. ca. or 51.7°.									
	iP	16-09-42.3			0.6			3.5D		
	iPcP	10-44.8			1.0			1.1		
20	C & GS 00-07-24.5; 15.55, 70.9 W., h about 659 km. Peru-Brazil border (P-H) = 5620 km. ca. or 50.6°.									
	iP	00-15-34.8			0.4			0.8C		
20	iP	00-31-56.3			0.5			0.4C		
	i	32-08.5			0.6			0.8		
20	C & GS 05-04-14.3; 17.8 S., 178.8 W. h about 592 km. Fiji Islands. (P-H) = 10,680 km. ca. or 96.2°.									
	iP	05-16-43.8			1.1			0.6D		
	iSKKS	26.30.8				5.0			1.4	
20	iP	15-19-43.7			1.7			0.4D		
21	C & GS 16-06-55.4; 17.85-174.4 W. h about 74 km. Tonga Islands, Mag. 5 3/4-6 (Berk). (P-H) = 10,340 km. ca. or 93°.									
	iP	16-20-03.3			1.2			3.4D		
	iP	07.8			1.2			2.8		
	ipP	23.1			1.7			2.0		
	eSEN	31-01.8				12	9.2		0.9	3.0
21	C & GS 17-00-37.0; 40.9 N., 138.9 E. h about 49 km. off coast of Honsu, Japan. (P-H) = 10,000 km. ca. or 90°.									
	iP	17-13-30.6			1.4			2.7		
22	C & GS 22-21-47.6; 52.3 N., 172.2 W. h about 53 km. Fox Islands, Aleutian Islands. (P-H) = 6200 km. ca. or 55.8°.									
	i	22-31-17.3			1.3			0.5D		
23	e	00-13-38.4			0.6			0.2D		
23	C & GS 61-00-47.1; 32.9 N., 116.3 W. h about 27 km. San Diego County, Calif. Felt. Mag. 4 3/4 (Pas). (P-H) = 2070 km. ca. or 18.7°.									
	i(P)	01-05-04.6			2.0			0.8D		
		10-40.0				4.0	4.0		0.9	1.5
23	e(L)ZEN	01-10-36.8			2.7	3.6	4.0	1.4	0.6	1.5
23	e(P)	01-16-23.1			0.4			0.3		
23	e(P)	02-19-14.8			0.4			0.1		

Date	Phase	Time GCT			Period (Sec)			Trace Amp (mms.) 15		
		h	m	s	Z	E	N	Z	E	N
Aug. 23	C & GS 04-12-35.9; 38.7 N., 68.7 E. h about 25 km. Tadzhik, S.S.R., Felt: Stalinabad (P-H) = 11,480 km. ca. or 103.5°.									
✓	i(P)	04	26	39.2	1.0			0.6D		
	i		29	57.7	0.4			0.1		
	iPP		30	55.4	1.2			0.6		
24	C & GS 04-52-20.5; 42.9 N., 145.3 E. h about 44 km. Eastern Hokkaido, Japan (POH) = 9390 km. ca. or 84.5°.									
✓	iP	05	04	52.1	0.9			0.3D		
24	eP	19	38	37.1	1.1			0.3D		
24	3P	21	56	08.0	0.7			0.3D		
24	C & GS 22-40-49.1; 43.0 N., 145.0 E. h about 18 km. Eastern Hokkaido, Japan. (P-H) = 9440 km. ca. or 85°.									
✓	iP	22	53	23.1	1.0			1.6D		
	i			35.5	1.2			1.8C		
24	iP	23	38	02.2	0.6			0.7D		
25	iP	00	01	48.9	0.6			0.3D		
25	eP	00	51	30.2	1.0			0.3		
25	C & GS 05-42-01.2; 15.2 N., 87.0 W. h about 48 km. Northern Honduras. (P-H) = 2460 km. ca. or 22.2°.									
	eP	05	46	48.3	0.8			0.5		
25	C & GS 06-59-30.2; 53.5 N., 161.2 W. h about 36 km. Alaska Peninsula. (P-H) = 5360 km. ca. or 48.3°.									
✓	iP	07	08	14.5	0.5			0.6C		
	i(PcP)		09	39.2	0.7			0.6D		
25	iP	20	20	14.8	1.1			0.7D		
26	C & GS 01-19-39.1; 7.0 N., 73.2 W. h about 183 km. Columbia (P-H) = 3790 km. ca. or 34.1°.									
	iP	01	26	16.5	0.7			1.2D		
26	iP	14	41	53.6	0.8			0.4C		
27	eP	01	03	06.2	1.6			0.3		
	iEN		06	53.4	5.4	5.6		2.0	2.0	
	eEN		09	08.4	3.6	3.4		2.0	2.0	
27	C & GS 01-51-51.8; 15.3 S., 131.1 W. h about 49 km. South of Ascension Island. (P-H) = 11,350 km. ca. or 101.8°.									
✓	iP	02	04	58.1	2.2			0.4		

Date	Phase	Time GCT			Period (Sec)			Trace Amp. (mms) 16		
		h	m	s	Z	E	N	Z	E	N
Aug. 27	C & GS 16-22-08.1; 46.6 N., 154.1 E. h about 31 km. Kurile Islands-Mag. $6\frac{1}{2}$ (Pas), $5\frac{1}{4}$ - $5\frac{1}{2}$ (Berk), $5\frac{1}{4}$ (Pal) (P-H) = 8640 km. ca. or 77.8° .									
✓	iP	16	34	03.1	0.9			1.3D		
	iP			14.0	1.7			3.0D		
	i(PcP)			15.4		3.6	3.6		2.1	2.2
	iSEN			43-44.8		6.0	5.4		4.1	2.4
27	C & GS 16-47-44.8; 18.3 N., 146.6 E. h about 27 km. Mariana Islands Mag. $6\frac{1}{4}$ - $6\frac{1}{2}$ (Pas), $5\frac{1}{2}$ (Berk) (P-H) = 11,160 km. ca. or 100.5° .									
✓	eP	17	01	35.4	1.5			0.7D		
	e(sKS)			12-11.4		5.0	4.0		2.9	1.5
27	X iP	17	20	0.9	0.8			0.6D		
27	C & GS 20-56-15.6; 46.8 N., 153.9 E. h about 25 km. Kurile Islands (P-H) = 8660 km. ca. or 78° .									
✓	iP	21	08	11.7	1.0			0.6D		
28	C & GS 06-28-19.4; 15.1 S., 70.2 W. h about 185 km. Peru-Bolivia border (P-H) = 6240 km. ca. or 56.1° .									
✓	iPZEN	06	37	41.5	0.7	0.8	0.8	5.9C	2.2	2.2
	iScS			47-11.7		4.0	4.4		4.0	3.2
28	Y eP	10	26	25.0	1.1			0.3		
28	Y iP	10	49	57.0	0.4			0.8D		
28	Y iP	12	40	41.8	1.1			0.5		
28	Y eP	15	37	34.0	1.0			0.3		
28	C & GS 20-26-04.2; 22.9 S., 113.4 W. h about 56 km. Easter Island region (P-H) = 6840 km. ca. or 61.8° .									
✓	eP	20	36	15.5	2.3			0.6C		
28	C & GS 21-27-12.1; 14.0 S., 74.4 W. h about 73 km. near coast of Peru (P-H) = 5970 km. ca. or 53.8° .									
✓	iPZEN	21	36	28.2	0.9	2.4	3.2	1.1D	1.2	2.0
	epPZEN			52.5	2.3	3.4	3.6	0.9	1.4	2.2
	eSEN			43-55.5		8.0	6.0		1.6	2.2
29	C & GS 14-51-14.2; 52.2 N., 170.8 W. h about 41 km. Fox Islands, Aleutian Islands. Mag. 5 - $5\frac{1}{4}$ (Pal). (P-H) = 6000 km. ca. or 54° .									
✓	iP	15	00	42.7	1.5			2.7D		
30	X iP	02	49	48.8	0.6			1.1		
30	✓ iP	03	53	23.1	1.0			0.7		

Date	Phase	Time GCT			Period (Sec)			Trace Amp. (mms.)17		
		h	m	s	Z	E	N	Z	E	N
Aug. 31	C & GS 01-48-37.5; 10.6 S., 70.9 W. h about 626 km. Peru-Brazil border Mag. 7-7 $\frac{1}{4}$ (Pas), 6 $\frac{1}{2}$ (Berk) (P-H) = 5640 km. ca. or 50.8 $^{\circ}$.									
	iP	01-56-49.3			1.5	2.0	2.0	54.3D	42	49
	iSE	02-03-12.1				3.2			109	
	iSN	16.5				4.8			72	
	iS	23.1			1.0			6.8		
	eLEN	11-42.0				4.8	4.6		85	114
	iL	49.0								
	iSKPP'	34-09.5			1.1			0.4		
	i	42-39.9			0.9			0.		
31	C & GS 14-59-00.9; 9.5 S., 79.0 W. h about 100 km. near coast of Peru. (P-H) = 5310 km. ca. or 47.8 $^{\circ}$.									
	iP	15-07-32.7			1.5				0.9	
Sept. 1	C & GS 00-09-34.6; 59.3 S., 27.3 W. h about 131 km. Sandwich Islands region Mag. 7 $\frac{1}{2}$ (Pas.), 7 (Berk). (P-H) = 12020 km. ca. or 108.1 $^{\circ}$.									
	eP	00-23-45.1			4.0			0.2		
	ePPZEN	27-12.1			3.0	4.0	3.0	0.7	1.0	1.5
	eSEN	34-19.7				8.0			6.3	9.4
	esSEN	35-16.9					5.4		3.4	4.0
	iPZEN	37-38.5				12.8	13.8		20.0	24.0
1	C & GS 04-43-13.4; 16.4 N., 93.8 W. h about 155 km. Chiapas, Mexico. (P-H) = 2180 km. ca. or 19.7 $^{\circ}$.									
	eP	04-47-31.3			0.8			0.2		
	ePN	37.1					2.0			1.3
	i(pP)	48-11.7			1.0			2.2		
	es	50-58.1			0.4			0.1		
	iSN	51-14.1					3.8			1.0
1	C & GS 18-50-35.4; 13.5 N., 92.5 W. h about 37 km. off coast of Guatemala Mag. 6 $\frac{1}{2}$ (Pas), 6 (Berk), (P-H) = 2470 km. ca. or 22.2 $^{\circ}$.									
	iPZEN	18-55-31.6			0.6	5.0	5.0	10	5.0	22
	eSZEN	59-27.5			2.0	3.0	11.0	2.4	11.0	27.5
1	C & GS 20-14-56.8; 15.2 N., 87.3 W. h about 75 km. near coast of Honduras. (P-H) = 2130 km. ca. or 19.1 $^{\circ}$.									
	eP	20-19-42			1.1			0.5		
2	C & GS 00-26-06.2; 52.0 N., 170.9 W. h about 39 km. Fox Islands, Aleutian Islands. (P-H) = 6030 km. ca. or 54.2 $^{\circ}$.									
	iP	00-35-35.9			0.9			1.4C		
2	C & GS 17-52-46.1; 6.0 S., 105.9 E. h about 127 km. Soenda Strait. (P-H) = 15,520 km. ca. or 139.7 $^{\circ}$.									
	iP'	18-12-08.8			1.2			3.6D		

Date	Phase	Time GCT			Period (Sec)			Trace Amp (mms.) 18		
		h	m	s	Z	E	N	Z	E	N
Sept.										
3		C & GS 04-48-25.6; 12.1 N., 86.9 W. near coast of Nicaragua. Felt: Managua, Nicaragua. (P-H) = 2700 km. ca. or 24.5°.								
	iP	04	53	36.6	1.3			1.2D		
3		C & GS 17-29-20.6; 51.8 N., 158.9 E. h about 22 km. near coast of Kamchatka (P-H) 7980 km. ca. or 71.9°.								
	iP	17	40	43.5	1.0			0.8D		
4		C & GS 09-49-10.7; 51.4 N., 178.1 W. h about 35 km. Andreanof Islands. Aleutian Islands Mag. 6¼ (Berk), (P-H) = 6520 km. ca. or 58.7°.								
	iPZEN	09	59	11.9	1.0	2.0	2.2	3.3C	2.7	2.5
	iPEN			23.0		3.2	3.2		2.3	2.3
	iPcP	10	00	00.9	1.1			1.8D		
	iSE			07-19.0		4.0			3.7	
	iScS			08-59.0			5.0			4.2
4		C & GS 04-53-12.9; 46.9 N., 154.2 E. h about 22 km. Kurile Islands. (P-H) = 8600 km. ca. or 77.6°.								
	eP	05	05	06	1.0			0.1		
5		C & GS 00-39-30.3; 38.4 N., 23.5 E. h about 25 km. Near coast of Greece. Slight damage at Chalkis, Euboca, Islands, (P-H) = 9600 km. ca. or 86.5°.								
	iP	00	52	11.3	0.7			0.6D		
5		C & GS 02-37-34.9; 80.0 N., 2.3 W. h about 18 km. Artic Ocean. (P-H) = 6060 km. ca. or 54.3°.								
	iP	02	47	07.3	0.9			0.5C		
5		C & GS 09-11-22.2; 44.2 N., 149.2 E. h about 49 km. Kurile Islands. (P-H) = 9070 km. ca. or 81.7°.								
	iP	09	23	38.5	0.8			0.4		
5		C & GS 11-34-37.3; 59.8 N., 150.6 W. h about 44 km. Kenai Peninsula Felt: Anchorage Mag. 6-6¼ (Pas). (P-H) = 4670 km. ca. or 42.0°.								
	iPZEN	11	42	32.4	1.0	3.4	2.6	4.5C	1.5	1.5
	iPcPZEN			44-19.8	1.0	2.2	2.0	10 D	5.0	6.7
	iScSEN			52-29.8		9.0	6.2		8.2	6.5
	iLEN			57-08.8		4.6	4.4		5.2	7.5
5	i(P)	13	47	02.5	0.5			0.8D		
5	i(P)	14	07	24.9	0.8			0.6C		
	i(pP)			36.5	1.1			1.0C		
6		C & GS 08-14-17.4; 2.8 N., 125.8 E. h about 58 km. Malucca Passage. (P-H) = 14,140 km. ca. or 127.2°.								
	iP'	08	33	18.4	0.6			0.6C		

Date	Phase	Time GCT			Period (Sec)			Trace Amp (mms) 19		
		h	m	s	Z	E	N	Z	E	N
Sept. 6	C & GS 15-30-20.4; 10.8 S., 79.1 W. h about 45 km. near coast of Peru. (P-H) = 5380 km. ca. or 48.4°.									
	iP	15	39	05.1	1.1			1.2D		
7	iP	05	39	15.7	0.9			0.5D		
7	iP	21	18	28.4	0.5			0.7C		
8	C & GS 00-05-13.8; 63.1 N., 150.5 W. h about 135 km. Alaska. (P-H) = 4700 km. ca. or 42.4°.									
	iP	00	13	02.8	0.5			0.9C		
8	C & GS 04-52-10.3; 51.8 N., 131.2 W. h about 54 km. Queen Charlotte Islands Mag. 5 (Berk). (P-H) = 3430 km. ca. or 30.8°.									
	iP	04	58	21.9	0.9			2.4D		
	eScSEN	04	08	30.6	4.3	3.6	3.0	1.7	3.5	5.3
	eEN	09	54	4.0		9.6	8.6		7.4	10.0
8	C & GS 06-07-55.0; 1.5 S., 81.0 W. h about 56 km. near coast of Ecuador (P-H) = 4460 km. ca. or 40.2°.									
	eP	06	15	24.5	1.0			0.2		
8	C & GS 11-26-32.8; 56.1 S., 27.3 W. h about 125 km. Sandwich Islands region Mag. 7½ (Pas), 8 (Berk), (P-H) = 11,880 km. ca. or 107.0°.									
	iP	11	40	41.7	3.8			1.3		
	i(pP)	41	03	7.7	1.0			0.8		
	e	43	35	0.0	3.0			0.5		
	ieN	43	46	0.0		7.4	7.0		1.3	3.3
	ePPZEN	45	11	0.0	3.4	9.0	8.8	4.1	6.5	10.0
	iSKSEN	51	08	0.0		2.8	3.0		19.2	29.2
	iPSEN	54	21	0.0		6.0	6.0		19.2	23.2
	iSSEN	12	00	01.4		6.4	11.0		4.2	11.2
9	i	01	19	22.8	0.8			0.5D		
9	C & GS 09-10-25.2; 52.5 N., 169.4 W. h about 61 km. Fox Islands, Aleutian Islands (P-H) = 6000 km. ca. or 54.0°.									
	eP	09	19	43	0.5			0.1		
9	C & GS 09-16-08.6; 33.8 N., 139.6 E. h about 151 km. off coast of Honshu, Japan. (P-H) = 10,250 km. ca. or 92.2°.									
	iP	09	29	11.0	0.6			0.4C		
9	C & GS 19-10-47.6; 1.5 N., 90.6 W. h about 54 km. Galapagos Islands. (P-H) = 3780 km. ca. or 34.0°.									
	iP	19	17	37.4	1.2			0.8D		
9	iP	20	04	44.0	0.9			1.2C		

Date	Phase	Time GCT			Period (Sec)			Trace Amp (mms.)			20
		h	m	s	Z	E	N	Z	E	N	
Sept.											
9	Earthquake near Fayetteville Station. (P-S) = 00-00-49.1; 520 km. ca. or 04.7°.										
	iP	22	43	45.9	0.4			0.5D			
	eS	44	35	0	0.5			4.4			
10	C & GS 01-43-07.2; 49.2 N., 158.2 E. h about 33 km. off south coast of Kamchatka. (P-H) = 8200 km. ca. or 73.9°.										
	iP	01	54	40.2	1.0			1.0C			
10	C & GS 04-45-27.1; 22.7 S., 63.1 W. h about 519 km. Salta Province, Argentina (P-H) = 7270 km. ca. or 65.6°.										
	iP	04	55	19.6	0.9			6.0D			
	iPcP			44.9	1.2			1.7			
	i			56-08.1	0.8			1.6			
	ipP			57-11.0	1.5			1.2			
	isPP	05	00	38.0	5.0			0.9			
10	eP	20	23	37.6	0.6			0.5C			
11	C & GS 02-46-43.4; 51.3 N., 179.7 W. h about 15 km. Andreanof Islands, Aleutian Islands. (P-H) = 6680 km. ca. or 60.1°.										
	iP	02	56	55.0	1.3			1.0C			
11	C & GS 04-39-44.9; 43.5 N., 127.2 W. h about 23 km. off coast of California. (P-H) = 3020 km. ca. or 27.1°.										
	iP	04	45	20.7	2.1			1.0C			
11	C & GS 05-56-25.5; 28.3 S., 67.9 W. h about 60 km. La Rioja Province, Argentina. (P-H) = 7680 km. ca. or 69.2°.										
	iP	06	07	26.8	0.9			2.2D			
	isP			08-10.8	0.7			0.9D			
11	C & GS 09-44-36.6; 44.7 N., 150.5 E. h about 25 km. Kurile Islands. (P-H) = 9340 km. ca. or 84.0°.										
	iP	09	57	05.5	0.7			0.7C			
11	C & GS 22-15-02.6; 10.8 N., 62.4 W. h about 134 km. off north coast of Venequela. Felt: Trinidad. (P-H) = 4150 km. ca. or 37.3°.										
	iP	22	22	10.6	0.6			3.2D			
	iPcP			24-23.4	0.5			2.5D			
12	C & GS 05-38-03.5; 63.2 N., 149.0 W. h about 72 km. Southern Alaska. (P-H) = 4740 km. ca. or 42.7°.										
	iP	05	45	55.6	0.9			0.7D			

See over
for 23 for
475

Date	Phase	Time GCT			Period (Sec)			Trace Amp (mms)			21
		h	m	s	Z	E	N	Z	E	N	
Sept.											
11	C & GS 23-47-19.5; 42.8 N., 145.4 E. h about 18 km. near east coast of Hokkaido, Japan. (P-H) = 9400 km. ca. or 84.7°.										
✓	iP	23	59	52.0	1.0			1.6D			
	iP	00	00	04.0	1.0			2.3D			
12	C & GS 09-28-14.9; 13.9 N., 92.3 W. h about 83 km. off coast of Guatemala. (P-H) = 2480 km. ca. or 22.4°.										
	iP	09	33	05.1	0.8			0.9C			
12	C & GS 11-18-26.3; 10.8 S., 69.8 W. h about 618 km. Peru-Bolivia border. (P-H) = 5730 km. ca. or 51.7°.										
	iP	11	26	44.1	0.4			2.2D			
	iPcP	27	48	2	1.0			0.8C			
12	C & GS 12-27-09.2; 43.8 N., 147.8 E. h about 96 km. near east coast of Hokkaido, Japan. (P-H) = 9210 km. ca. or 83.0°.										
✓	iP	12	39	25.7	1.0			1.7C			
12	C & GS 19-18-39.2; 32.1 N., 115.1 W. h about 25 km. Baja California. Felt: southern California. Mag. 5¼-5½ (Pas), 5¼ (Berk) (P-H) = 2010 km. ca. or 18.1°.										
✓	ePZE	19	22	50.4	1.5	5.6		0.8?	2.2		
	iLr	28	05	4	1.7			1.2			
	iLrN		02	9			4.4			2.5	
	iLrE	11	9		4.4			4.8			
13	C & GS 21-19-26.2; 41.6 S., 73.2 W. h about 154 km. Southern Chile. Mag. 7 (Berk). (P-H) = 9010 km. ca. or 81.1°.										
✓	iPZEN	21	31	22.4	1.5	6.4	6.4	1.3C	1.0	1.5	
14	e(P)										
		01	12	02.9	0.8			0.2C			
14	i(P)										
		01	16	02.6	0.5			0.1C			
14	iP										
		22	03	40.4	0.6			0.9D			
15	C & GS 01-46-08.4; 35.1 N., 33.9 E. h about 25 km. Cyprus. (P-H) = 10,370 km. ca. or 93.5°.										
✓	iPZEN	01	59	26.8	0.7	0.8	1.0	1.8C	1.2	1.0	
15	i(P)										
		04	15	21.8	0.6			0.5C			
15	C & GS 21-24-08.5; 10.7 S., 112.7 E. h about 100 km. south of Java. (P-H) = 16,170 km. ca. or 145.6°.										
	iP	21	43	38.6	1.5			0.8C			

Date	Phase	Time GCT			Period (Sec)			Trace Amp. (mms)			22
		h	m	s	Z	E	N	Z	E	N	
Sept.											
16	C & GS 03-25-00.3; 45.9 N., 121.9 W. h about 37 km. Southern Washington (P-H) = 2560 km. ca. or 23.0°.										
	eP	03	30	05.2	1.2			0.5			
16	C & GS 17-17-46.1; 52.1 N., 158.5 E. h about 49 km. Kamchatka. (P-H) = 8060 km. ca. or 72.3°.										
	iP	17	29	07.9	0.6			1.6C			
	iPcP			22.0	1.0			1.2			
16	C & GS 21-15-26.9; 12.8 S., 66.3 E. h about 25 km. Indian Ocean, 900 km southwest of Chagos Islands. (P-H) = 17,060 km. ca. or 153.3°.										
	iP'	21	35	21.7	1.0			0.6D			
16	i	22	47	54.5	0.5			0.5C			
16	i	23	23	28.1	0.5			0.2C			
17	i	00	28	42.7	0.6			1.3D			
17	C & GS 15-55-58.9; 45.9 N., 122.0 W. h about 24 km. Skamania County, Wash. Slight damage in Portland area. Felt: Western Wash. and northwestern Oregon. (P-H) = 2570 km. ca. or 23.1°.										
	e(P)	16	01	04.4	3.0			0.5			
	iLN			08-13.4	4.0			2.5			
17	C & GS 23-22-06.3; 5.9 S., 147.4 E. h about 45 km. near east coast of New Guinea. (P-H) = 13,080 km. ca. or 117.7°.										
	eP	23	40	45.4	0.8			0.5			
17	eP	23	51	20.1	1.1			0.5			
18	C & GS 02-25-19.3; 48.8 N., 128.9 W. h about 21 km. Vancouver Island region (P-H) = 3150 km. ca. or 28.3°.										
	iP	02	31	16.0	1.0			0.4D			
19	i	00	19	38.0	0.5			0.7C			
	i(pP)			20-44.6	0.9			1.7C			
19	C & GS 02-25-49.2; 20.3 S., 63.2 W. h about 609 km. Southern Bolivia. Mag. 6½ (Pas), 6¼ (Berk). (P-H) = 7000 km. ca. or 63.0°.										
	iPZEN	02	35	24.8		3.2	3.2	16.0C	3.8	2.9	
	epPZEN			37-23.0	2.0	2.8	2.8	13.0	3.0	4.2	
	iSZEN			43-11.0	2.0	5.0	4.8	1.8	10.0	10.2	
	eScSZEN			44-21.0	2.0	3.2	10.0	4.0	11.0	11.6	
	eGE			51-13.2		15.2			5.1		
	eGN			16.2			10.0			3.2	
19	i	05	58	50.6	0.9			0.8C			

Date	Phase	Time GCT			Period Sec.			Trace Amp (mms)			24
		h	m	s	Z	E	N	Z	E	N	
Sept. 25	iP	01	31	54.4	1.7			1.0D			
25	C & GS 02-27-13.4; 60.3 N., 153.0 W. h about 125 km southern Alaska Mag. 5 3/4-6 (Pas) (P-H) = 4820 km. ca. or 43.4°.										
	iP	02	35	10.6	1.2			1.8C			
	ipP			34.8	1.2			5.7			
25	iP	05	05	35.1	0.8			1.4D			
25	C & GS 05-29-00.8; 19.9 N., 155.3 W. h about 82 km. Hawaii Island, Hawaii. Minor damage at Hilo. Mag. 5 3/4-6 (Pas) (P-H) = 6220 km. ca. or 56.0°.										
	iP	05	38	32.6	1.5			2.0C			
	eLE			57-18.6		10.0			2.1		
	eLN			46-16.6			8.0			3.0	
25	iP	06	07	14.9	0.7			0.9			
25	iP	06	32	13.6	0.7			1.4D			
25	iP	20	07	43.0	0.5			0.1			
25	C & GS 20-22-44.9; 61.9 N., 150.w W. h about 196 km. southern Alaska. (P-H) = 5670 km. ca. or 51.0°.										
	eP	20	31	30.6	1.1			0.8D			
25	iP	23	30	50.6	0.5			0.6C			
26	iP	15	39	34.9	0.7			0.7C			
26	eP	15	59	33.0	0.8			0.3			
27	C & GS 06-46-38.4; 15.4 S., 175.1 W. h about 295 km. Fiji Islands region (P-H) = 10,200 km. ca. or 91.9°.										
	iP	00	59	17.5	1.5			0.5C			
27	C & GS 01-55-31.9; 19.2 N., 105.1 W. h about 54 km. Jalisco, Mexico (P-H) = 1730 km. ca. or 15.7°.										
	iP	01	59	06.3	1.0			0.7D			
	iLEN	02	05	47.4		3.8	4.0		5.0	4.1	
27	C & GS 06-34-03.7; 17.4 S., 178.7 W. h about 576 km. Fiji Islands. (P-H) = 10680 km. ca. or 96.1°.										
	iP	06	46	33.5	1.0			1.7			
	ipP			48-36.7	1.6			1.5			
27	iP	10	43	08.1	1.3			0.7			

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 X

Oct-Dec

Number 4 1961



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 10, Number 4, December 1961
Data for October, November, December, 1961

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 - 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 Jack C. White, Observer

Date	Phase	GCT			Period Sec.			Trace Amp. (mms)		
		h	m	s	Z	E	N	Z	E	N
Oct. 1	i	04	42	37.8	0.9			0.7D		
2	C & GS 06-21-32.8; 7.6 S., 107.0 E; h about 85 km. Near coast of Java. (P-H) = 16,300 km. ca. or 146.7°.									
	iP	06	41	05.9	1.0			9.2D		
2	C & GS 07-21-49.4; 37.2 N., 22.2 E.; h about 72 km. Near coast of Greece Felt. (P-H) = 9,650 km. ca. or 86.9°.									
	iP	07	34	25.8	1.0			2.2		
2	e(P)	12	25	55.8	0.9			0.3		
3	iP	06	43	49.7	0.7			0.8C		
4	eN	03	15	00.0	20	18		0.2	0.1	
4	C & GS 04-30-42.7; 51.8 N., 158.8 E.; h about 25 km. Near coast of Kamchatka. (P-H) = 6,000 km. ca. or 54.0°.									
	iP	04	42	06.2	1.3			1.1D		
4	e(P)	08	22	45.0	1.0			0.4		
5	i	00	20	06.5	0.6			6.5C		
5	iP	05	47	01.0	0.1			0.5D		
5	C & GS 23-01-07.3; 51.0 N., 149.7 E. h about 518 km. Sea of Okhotsk. (P-H) = 8560 km. ca. or 77.0°.									
	iP	23	12	07.8	0.9			2.5D		
6	C & GS 01-25-29.3; 47.6 N., 152.0 E. h about 31 km. Kurile Islands. (P-H) = 8,650 km. ca. or 77.9°.									
	iP	01	37	24.9	1.2			3.2D		
6	eP	07	11	11.0	1.0			0.5		
6	C & GS 08-02-19.1; 16.0 N., 97.9 W. h about 32 km. Near coast of Mexico. (P-H) = 2270 km. ca. or 20.4°.									
	iP	08	06	56.9	1.1			1.3D		
6	C & GS 11-04-22.5; 42.4 N., 142.1 E. h about 115 km. Hokkaido, Japan. (P-H) = 9560 km. ca. or 86.0°.									
	iP	11	16	53.9	1.0			0.6D		
6	Earthquake near Fayetteville Station (P-S) 445 km. ca. or 04.0°.									
	iP	16	15	14.1	0.5C			1.0		
	eS			57.0	1.5			4.7		
7	i	00	07	37.7	0.6			1.5D		

Date	Phase	GCT			Period Sec.			Trace Amp. (mms)		
		h	m	s	Z	E	N	Z	E	N
Oct. 7	C & GS 08-15-08.0; 21.3 S., 67.5 W. h about 149 km. Southern Bolivia. (P-H) = 6800 km. ca. or 61.2°.									
	iP	08-25-16.2			0.7			1.7D		
	ipP	43.8			0.7			0.8		
	iPcP	51.6						0.8		
7	C & GS 09-55-54.2; 0.4 S., 80.2 W. h about 48 km. Near coast of Ecuador (P-H) = 4190 km. ca. or 37.7°.									
	iP	10-03-14.0			1.0			1.0D		
7	iP	14-29-37.7			1.0			2.1D		
7	C & GS 15-54-01.3; 43.5 N., 128.8 W. h about 25 km off coast of Oregon. (P-H) = 2560 km. ca. or 23.0°.									
	eP	15-59-05.7			1.5			0.2		
	eZEN	47.3			1.1	3.0	2.6	1.3	1.0	0.5
	eS _{LN}	16-04-30.7				4.0	4.0		1.3	1.3
	eLE	16-10-27.0				17.0			2.2	
7	eP	16-10-23.5			1.0			0.7		
7	C & GS 17-26-48.8; 20.1 S., 68.3 W. h about 179 km. Chile-Bolivia border (P-H) = 6780 km. ca. or 61.0°.									
	iP	17-36-44.9			1.2			2.0C		
	ipP	17-37-30.2			1.2			1.3		
7	i	22-30-48.0			0.6			2.7D		
8	C & GS 12-41-35.1; 29.9 S., 71.8 W. h about 65 km. Near coast of Chile (P-H) = 7690 km. ca. or 69.2°.									
	iP	12-52-36.9			1.1			6.1D		
8	iP	19-54-33.4			1.1			0.7D		
8	C & GS 21-56-44.0; 53.1 N., 166.7 W. h about 48 km. Fox Islands, Aleutian Islands. (P-H) = 5800 km. ca. or 52.2°.									
	iP	22-05-49.0			1.0			0.6D		
8/9	C & GS 23-41-32.2; 1.6 N., 127.3 E. h about 102 km. Halmahera. (P-H) = 13,720 km. ca. or 123.5°.									
	iP'	00-00-25.0			1.0			1.4D		
	i	03-31.1			0.9			1.0		
	iZEPKKP	00-09-57.2			0.6	4.4		0.6	2.1	
	i(P'P')	00-20-27.0			0.9			1.8C		
9	C & GS 03-16-58.2; 16.1 N., 94.0 W. h about 154 km. near south coast of Mexico. (P-H) = 2240 km. ca. or 20.1°.									
	eP	03-21-24.5			1.0			1.2C		

Date	Phase	GCT			Period Sec.			Trace Amp. (mms.)			3
		h	m	s	Z	E	N	Z	E	N	
Oct. 9	eP	10	12	34.6	1.1			0.6			
10	C & GS 03-44-38.3; 22.9 S., 180.0 E.; h about 576 km. South of Fiji I Islands. (P-H) = 11,080 km. ca. or 99.7°.										
	i(PP)	04	01	39.1	1.5			1.0			
10	i	08	55	20.1	0.5			1.1D			
10	e	09	13	03.2	0.5			0.1			
10	e(p)	13	15	36.2	0.7			0.6			
10	C & GS 17-24-58.9; 4.7 S., 138.2 E.; h about 36 km. New Guinea. (P-H) = 13,240 km. ca. or 119.1°.										
	eP'	17	43	52.1	1.0			0.6D			
10	C & GS 18-44-28.6; 16.1 S., 176.3 W. h about 361 km. Fiji Islands region. (P-H) = 10,060 km. ca. or 90.5°.										
	iP	18	57	04.1	1.5			2.6D			
11	C & GS 07-03-58.6; 57.5 N., 154.1 W., h about 42 km. Kodiak Island (P-H) = 4,970 km. ca. or 44.8°.										
	iP	07	12	06.6	2.2			1.1C			
	ipP	07	12	23.3	0.9			1.0			
	i	07	13	48.9	0.9			0.8			
12	iP	06	01	12.3	0.9			1.7D			
12	C & GS 13-53-41.3; 19.1 N., 66.0 W. h about 63 km. North of Puerto Rice. Felt: San Juan (P-H) = 3360 km. ca. or 30.2°.										
	iP	13	59	48.1	1.0			1.7C			
	i	13	59	51.2	0.9			1.5			
	ipP	14	00	11.6	1.1			1.3			
13	i	00	12	42.4	0.5			1.0D			
13	i	05	28	54.9	1.5			1.0D			
13	C & GS 17-28-21.5; 22.0 S., 176.9 W. h about 155 km. Tonga Islands region; (P-H) = 10,540 km. ca. or 94.9°.										
	iP	17	41	36.5	0.8			0.4D			
14	C & GS 12-30-45.3; 33.3 N., 142.2 E. h about 47 km. South of Honshu, Japan. (P-H) = 10,130 km. ca. or 91.2°.										
14	e(P)	14	17	16.6	1.0			0.2			
14	C & GS 21-58-57.4; 51.1 N., 159.1 E. h about 80 km. Kamchatka. (P-H) = 7,950 km. ca. or 71.6°.										
	iP	22	10	14.0	1.6			2.0C			

Date	Phase	Time GUT			Period Sec.			Trace Amp. (mms.)			4
		h	m	s	Z	E	N	Z	E	N	
Oct. 15	e(P)	02	53	10.5	0.7			0.2			
15	e(P)	09	02	11.2	0.5			0.5			
15	C & GS 17-07-55.6; 5.1 S., 102.3 E. h about 66 km. Near southwest coast of Sumatra. (P-H) = 16,180 km. ca. or 145.6°.										
	iP'	17	27	26.7	0.8			C			
	i			45.3				0.8			
15	C & GS 21-05-00.1; 39.3 N., 111.5 W. h about 25 km. Central Utah. (P-H) = 1,510 km. ca. or 13.6°.										
	eP	21	08	17.5	1.3			0.7			
	iL		12	37.8	1.0			1.3			
16	C & GS 01-07-08.2; 50.9 N., 157.9 E. h about 44 km. Kamchatka. (P-H) = 8,140 km. ca. or 73.2°.										
	iP	01	18	34.1	1.2			1.6C			
16	i(P)	17	19	48.5	0.9			0.1			
16	iP	18	36	11.4	0.7			1.0D			
16	i	20	44	37.0	0.4			0.9D			
17	C & GS 00-59-41.8; 39.2 N., 111.5 W. h about 21 km. Central Utah. (P-H) = 2100 km. ca. or 18.9°.										
	iP	01	04	01.5				0.5D			
18	C & GS 10-44-10.7; 53.6 N., 165.6 W. h about 47 km. Fox Islands, Aleutian Islands. (P-H) = 5740 km. ca. or 51.7°.										
	iP	10	53	11.9	1.0			1.3C			
	iPcP	10	54	27.2				0.8			
18	iP	15	09	18.7	0.6			1.0C			
18	C & GS 16-52-00.2; 36.7 S., 72.6 W. h about 67 km. Near coast of southern Chile. Minor damage in area between Curico and Valdivia Mag. 6½ (Pas.). (P-H) = 8360 km. ca. or 75.2°.										
	iP	17	03	35.5	1.6			1.5			
18	C & GS 18-10-30.4; 36.9 S., 73.5 W. h about 55 km. Near coast of Central Chile. (P-H) = 8400 km. ca. or 75.6°.										
	iP	18	22	09.9	1.3			1.5C			
19	e	03	53	09.1	0.6			1.0			
19	C & GS 05-09-44.0; 35.8 N., 117.9 W. h about 22 km. Southern California Felt. Mag. 5.3 (Pas.). (P-H) = 2140 km. ca. or 19.2°.										

Date	Phase	Time GCT			Period Sec.			Trace Amp (mms.)		
		h	m	s	Z	E	N	Z	E	N
Oct. 19	(Continued)									
	eP	05	14	08.9	1.2			0.8		
	iLZN	19	43	0	1.0		3.8	0.5		7.5
	iLE		50	2		4.8			2.1	
19	Earthquake near Fayetteville Station (P-S) = 00-46.3. 480 km. ca. or 4.4°.									
	iP	06	01	32.7	0.1			0.5D		
	iSEN		02	19.0		1.0	1.0		1.3	2.5
19	C & GS 08-31-29.3; 36.9 S., 72.7 W. h about 61 km. Near coast of Central Chile. (P-H) = 8,330 km. ca. or 75.0°.									
	eP	08	43	05.3	1.2			0.6		
19	C & GS 11-19-19.6; 37.1 S., 69.8 W. h about 155 km. Neuquen Province Argentina. Mag. 6 $\frac{1}{4}$ (Pas.). (P-H) = 8,480 km. ca. or 76.3°.									
	iPZEN	11	30	51.3	1.2		1.5	8.1D	1.8	2.7
	eSEN		40	20.7		5.4	6.8		5.3	4.0
19	C & GS 19-26-32.2; 55.3 S., 146.4 E. h about 50 km. South of Australia (P-H) = 15,550 km. ca. or 140.0°.									
	iP'	19	45	49.5	0.9			1.2D		
20	iP	16	08	42.6	0.7			1.2C		
21	C & GS 22-21-52.2; 51.6 N., 176.0 W. h about 35 km. Andreanof Islands. Aleutian Islands. (P-H) = 6,350 km. ca. or 57.1°.									
	e	22	31	44.5	1.1			0.7		
	iP	23	36	13.1	1.0			1.2D		
22	C & GS 15-13-32.3; 10.5 N., 86.6 W. h about 51 km off west coast of Costa Rica. (P-H) = 3,000 km. ca. or 27°.									
	iP	15	19	07.9	1.0			3.1D		
23	C & GS 00-08-33.3; 60.4 S., 33.4 W. h about 25 km. Sandwich Islands region. (P-H) = 12,580 km. ca. or 113.2°.									
	eP'	00	27	08.8	1.2			1.0		
23	C & GS 01-24-00.6; 28.9 S., 70.5 W. h about 125 km. Chile. (P-H) = 7,510 km. ca. or 67.6°.									
	iP	01	34	52.3	1.2			1.8D		
23	iP	10	42	09.2	0.9			4.0D		
23	C & GS 14-39-33.5; 3.5 N., 126.4 E. h about 25 km. Molucca Passage Mag. 6 $\frac{1}{2}$ (Pas.), 6 $\frac{1}{4}$ (Berk). (P-H) = 12,870 km. ca. or 115.9°.									

Date	Phase	Time GCT			Period Sec.			Trace Amp. (mms.)			6
		h	m	s	Z	E	N	Z	E	N	
Oct. 23	(Continued)										
✓	eP'	14	58	16.9	1.5			1.0			
	ePP	15	00	21.9	2.1			1.5			
23	C & GS 14-52-28.2; 3.5 N., 126.6 E. h about 32 km. Molucca Passage. (P-H) = 13,680 km. ca. or 123.2°.										
	iP'	15	11	30.4	1.0			0.8D			
24.	C & GS 07-25-19.9; 45.0 N., 146.4 E. h about 82 km. off north coast of Hokkaido, Japan. (P-H) = 9180 km. ca. or 82.7°.										
✓	iP	07	37	35.2	1.0			4.7C			
	ipP	38	04	3	1.0			7.6			
25	C & GS 08-54-36.6; 9.7 S., 78.6 W. h about 110 km. off west coast of Peru. (P-H) = 5260 km. ca. or 47.4°.										
✓	iPZEN	09	03	05.6	1.6			11.0C	1.8	1.8	
	ipP			22.9	1.4			5.5			
	iPcP			04-32.3	1.2			2.3			
	iPP			05-07.7	1.1			1.6			
25	C & GS 14-20-20.8; 20.3 S., 174.1 W. h about 25 km. Tonga Islands. (P-H) = 10,380 km. ca. or 93.4°.										
✓	e	14	33	39.5	2.0			1.0			
25	C & GS 00-38-20.3; 3.1 S., 147.4 E. h about 14 km. Bismark Sea. Mag. 6 $\frac{1}{4}$ (Pas.), 6 $\frac{1}{4}$ (Berk.). (P-H) = 14,000 km. ca. or 126.0°.										
✓	eP'	00	57	40.8	3.0			0.5			
	eLrE	01	34	30.8		21			2.0		
	eLrN			31-20.8			16			2.0	
26	C & GS 08-16-03.4; 37.9 S., 73.4 W. h about 55 km. off coast of Chile (P-H) = 8480 km. ca. or 76.3°.										
	eP	08	27	47.1	1.1			0.4			
26	C & GS 14-27-02.0; 0.4 S., 98.6 E. h about 18 km. off west coast Sumatra. Mag. 6 (pas.) (P-H) = 15,940 km. ca. or 143.3°.										
✓	eP'	15	46	33.5	2.5			1.8			
	iN			48-16.8						2.1	
	iPP			49-42.6	3.0			1.8			
	eLE			16-41-51.0				1.0			
	eLN			16-50-11.0				2.0			
26	C & GS 17-22-18.4; 18.0 N., 100.0 W. h about 43 km. Guerrero, Mexico. (P-H) = 2180 km. ca. or 19.7°.										

Date	Phase	Time GCT			Period Sec.			Trace Amp. (mms.)			7
		h	m	s	Z	E	N	Z	E	N	
Oct. 26	(Continued)										
	iPZN	17	26	39.2	0.8		2.0	4.0D		3.3	
	iPcP		31	00.1	0.8			1.5			
	e(sS)EN			29.0		4.8	2.0		5.2	2.2	
	iLE		33	43.4		4.0			3.5		
	eLN			44.8			4.4			3.2	
26	C & GS 19-28-37.3; 0.3 S., 98.5 E. h about 58 km. Off west coast of Sumatra. (P-H) = 15,980 km. ca. or 143.9°.										
	iP'		19	48-03.6		0.6			1.0C		
26	C & GS 21-56-18.2; 6.9 N., 73.1 W. h about 167 km. Columbia. (P-H) = 3800 km. ca. or 34.2°.										
	iP		22	02-54.8		0.6			3.1D		
27	C & GS 10-30-30.1; 4.7 S., 104.7 E. h about 20 km. Sumatra. (P-H) = 16,540 km. ca. or 148.9°.										
	iP'		10	50-16.0		1.1			0.4C		
27	e(P) 22-29-57.9 1.0 0.4										
28	C & GS 05-30-04.5; 9.3 S., 80.0 W. h about 33 km. off coast of Peru. (P-H) = 5220 km. ca. or 47.0°.										
	iP		05	38-38.6		1.0			0.8C		
28	C & GS 14-49-13.6; 38.7 S., 73.3 W. h about 43 km. Near coast of Chile. (P-H) = 8600 km. ca. or 77.4°.										
	eP		15	01-02.2		1.2			1.7		
28	C & GS 22-44-33.6; 13.9 S., 166.0 E. h about 89 km. New Hebrides Islands. (P-H) = 11,800 km. ca. or 106.2°.										
	iP		22	58-39.2		1.7			0.9C		
29	C & GS 09-12-15.7; 49.0 N., 128.7 W. h about 16 km. Vancouver Island region. (P-H) = 3,120 km. ca. or 28.1°.										
	iPZEN		09	18-11.6	1.3	1.4	1.4	4.7C	0.7	0.5	
	iSiN			23-04.4		11.0	12.0		6.1	10.5	
	iLEN			27-56.0		14.4	17.2		6.0	9.5	
29	C & GS 14-47-18.3; 48.7 N., 128.3 W. h about 73 km. Vancouver Island region. (P-H) = 3155 km. ca. or 28.4°.										
	iP		14	53-09.4				0.9C			
	eLEN		15	03-20.4		11.2	11.0		1.3	2.5	
30	C & GS 01-44-53.2; 42.5 N., 126.6 W. h about 50 km. off coast of Oregon. (P-H) = 2920 km. ca. or 26.2°.										
	iP		01	50-23.5		1.4			1.3D		

Date	Phase	Time G. C. T. h m s	Period Sec.			Trace Amp. (mms.)		
			Z	E	N	Z	E	N
Oct.								
30		C & GS 02-16-32.7; 42.3 N., 126.7 W. h about 36 km. off coast of Oregon. (P-H) = 2860 km. ca. or 25.8°.						
	iPZEN	02-22-04.8	1.5	5.0	5.0	2.3C	13.7	4.9
	iSN	26-45.0			6.0			3.6
	iSE	48.4		6.2			6.6	
	eLqN	30-17.4			6.0			4.9
	eLrZE	32-26.4	16.8			0.8	11.5	
30		C & GS 04-47-59.8; 50.8 N., 158.3 E. h about 32 km. off south coast of Kamchatka. (P-H) = 8,060 km. ca. or 72.4°.						
	iP	04-59-26.4	1.2			1.0		
30		C & GS 08-44-31.2						
	iP	08-44-31.2	1.1			3.2C		
30		C & GS 13-13-54.8; 1.0 N., 29.5 W. h about 25 km. Mid-Atlantic Ocean. (P-H) = 7,760 km. ca. or 69.9°.						
	eP	13-25-06.0				0.3		
30		C & GS 16-06-34.2						
	iP	16-06-34.2						
30		C & GS 21-15-35.2; 28.9 N., 141.8 E. h about 31 km. South of Honshu, Japan. (P-H) = 10,620 km. ca. or 95.6°.						
	eP	21-29-03.5	1.0			0.1		
31		C & GS 01-43-53.3; 51.9 N., 176.1 E. h about 35 km. Rat Islands, Aleutian Islands. (P-H) = 6,880 km. ca. or 62.0°.						
	iP	01-54-17.1	0.5			1.3D		
31		C & GS 13-39-03.5						
	eP	13-39-03.5	0.8			1.1		
31		C & GS 08-40-23.8						
	i	08-40-23.8	1.3			1.0		
31		C & GS 16-57-11.0						
	e(P)	16-57-11.0	0.9			0.1		
31		C & GS 23-47-45.4						
	iP	23-47-45.4						
Nov.								
1		C & GS 23-58-50.7; 43.6 N., 146.5 E. h about 15 km. off east coast of Hokkaido, Japan. (P-H) = 9320 km. ca. or 83.9°.						
	I'	00-11-19.3	1.5			0.7D		
1		C & GS 00-49-33.7						
	e	00-49-33.7	0.5			0.2		
1		C & GS 10-03-08.2						
	e	10-03-08.2	0.9			0.2		
1		C & GS 21-21-47.2						
	i(P)	21-21-47.2	0.7			0.6D		
2		C & GS 23-03-55.6; 17.2 N., 62.7 W. h about 29 km Leeward Islands. (P-H) = 3670 km. ca. or 33.0°.						
	iP	23-10-35.0	1.0			1.3C		

Date	Phase	Time GCT			Period Sec.			Trace Amp. (mms.)			9
		h	m	s	Z	E	N	Z	E	N	
Nov.											
2		C & GS 23-03-55.6; 17.2 N., 62.7 W. h about 29 km. Leeward Islands. (P-H) = 3670 km. ca. or 33.0°.									
	iP	23	10	35.0	1.0			1.3C			
2		C & GS 23-35-50.7; 54 N., 162.3 W. h about 40 km. Alaska Peninsula (P-H) = 5520 km. ca. or 49.7°.									
	e	23	44	37.0	1.1			0.2			
3	iP	17	09	35.1	0.5			0.9D			
3	i	16	19	05.7	0.6			0.5D			
4		C & GS 03-38-30.1; 50.0 N., 155.5 E. h about 32 km. Kurile Islands. (P-H) = 8290 km. ca. or 74.6°.									
	iP	03	50	08.5	1.1			2.1C			
	i			22.1	1.1			3.2			
4	i	07	31	25.2	1.3			1.1			
4		C & GS 18-13-38.6; 52.2 N., 167.4 W. h about 13 km. Fox Islands, Aleutian Islands. (P-H) = 9470 km. ca. or 85.3°.									
	iP	18	26	13.7	1.1			1.0			
5		C & GS 03-41-40.0; 44.2 N., 148.4 E. h about 18 km. Kurile Islands. (P-H) = 9200 km. ca. or 82.9°.									
	iP	03	54	02.5	1.4			0.8C			
5	iP	10	37	17.1	1.0			1.7C			
	ipP			45.2	1.1			1.0C			
5		C & GS 10-36-39.5; 45.7 N., 147.9 E. h about 142 km. Kurile Islands (P-H) = 8930 km. ca. or 80.3°.									
	iP	10	48	44.0	1.4			1.7D			
	ipP			49.0	1.1			3.1D			
5	iP	19	37	25.8	1.2			1.5D			
	i(pP)			35.3	1.2			1.3			
7	iP	23	46	45.6	1.1			0.6D			
8	iP	01	12	51.7				2.2			
8		C & GS 04-54-43.8; 15.6 N., 95.8 N. h about 45 km. near coast of Oaxaca, Mexico. (P-H) = 2360 km. ca. or 23.0°.									
	iPZN	04	59	22.0	1.2	1.1		1.2C		0.5	
	ipP			30.6	1.0			6.4			

Date	Phase	GCT			Period Sec.			Trace Amp. (mms.)		
		h	m	s	Z	E	N	Z	E	N
Nov.										
9	C & GS 04-19-42.0; 22.9 S., 67.9 W. h about 84 km. Northern Chile. Argentine border Mag. $6\frac{1}{4}$ (Pas.) (P-H) = 7060 km. ca. or 63.5° .									
	iPZE	04-30-05.9			1.4			7.0D	2.5	
	i(PcP)	49.9			1.0			11.5		
	eSE	04-38-29.0				6.0			2.8	
	eScSE	49-26.0				7.0			2.5	
9	i	12-39-51.5			0.6			0.8C		
9	i	13-48-41.4			0.8			0.5C		
9	i(P)	16-11-40.7			1.1			0.5D		
9	C & GS 18-37-11.8; 5.95 S., 129.8 E. h about 87 km. Banda Sea (P-H) = 14540 km. ca. or 130.9° .									
	i(sPP)	18-59-15.9			1.2			1.7D		
9	C & GS 23-06-55.5; 15.8 S., 174.9 W., h about 289 km. Tonga Islands region. (P-H) = 10,140 km. ca. or 91.1° .									
	iP	23-19-32.0			1.4			1.1C		
10	C & GS 02-07-34.7; 14.3 S., 71.9 W. h about 68 km. Southern Peru (P-H) = 6,060 km. ca. or 54.4° .									
	iP	02-16-55.5			0.9			0.8C		
10	C & GS 18-00-49.6; 17.5 S., 178.8 W. h about 586 km. Fiji Islands; (P-H) = 10,680 km. ca. or 96.2° .									
	iP	18-13-19.5			1.0			0.8D		
10	iP	20-25-11.0			1.4			1.5C		
11	C & GS 12-27-03.8; 13.2 N., 91.0 W. h about 94 km. off coast of Guatemala. (P-H) = 2540 km. ca. or 22.9° .									
	iP	12-32-01.0			1.0			0.9D		
12	i	04-20-35.9			1.4			0.5D		
12	iP	17-52-42.4			0.9			0.7C		
13	iP	10-47-49.7			1.5			0.7D		
13	C & GS 19-38-15.5; 46.8 N., 153.9 E. h about 39 km. Kurile Islands. (P-H) = 8630 km. ca. or 77.8° .									
	iP	19-50-10.4			1.5			1.1D		
	iP	21.1			1.1			1.0C		
14	iP	02-09-28.4			0.8			0.5D		

Date	Phase	Time GCT			Period Sec.			Trace Amp. (mms.)			11
		h	m	s	Z	E	N	Z	E	N	
Nov.											
14	C & GS 04-42-26.5; 7.3 N., 82.4 W. h about 29 km. off coast of Panama Mag. $6\frac{1}{4}$ (Pas.), 6 (Berk.). (P-H) = 3350 km. ca. or 30.1° .										
	iPZN	04	48	40.4	1.2			2.2C		0.5	
	iSEN		53	46.1		5.2	5.4		4.2	5.4	
	eLqEN		55	22.9		6.8	7.4		6.5	9.7	
14	C & GS 10-02-32.7; 36.1 N., 139.0 E. h about 167 km. Honshu, Japan. Felt, Tokyo. (P-H) = 10,310 km. ca. or 92.8° .										
	iP	10	15	26.7	1.2			0.7D			
14	C & GS 10-28-33.4; 47.0 N., 153.7 E. h about 26 km. Kurile Islands (P-H) = 8700 km. ca. or 78.6° .										
	iP	10	40	30.9	1.0			0.6C			
	iP			39.9	1.2			0.8			
14	C & GS 17-14-00.1; 5.7 S., 104.3 E. h about 16 km. near coast of Sumatra (P-H) = 16,280 km. ca. or 146.3° .										
	iP'	17	33	39.6	1.2			6.0C			
	i		34	06.7	1.0			3.7			
14	C & GS 22-26-47.9; 44.2 N., 147.6 E. h about 25 km. Kurile Islands. (P-H) = 9240 km. ca. or 83.1° .										
	iP	22	39	12.0	1.0			0.6C			
15	C & GS 04-22-51.9; 4.1 S., 105.0 E. h about 126 km. Sumatra. (P-H) = 16,320 km. ca. or 146.8° .										
	eP'	04	42	25.5	0.5			1.7C			
	i(P'Q)			39.6	1.6			2.2			
15	C & GS 05-38-54.3; 34.9 N., 119.1 W. h about 26 km. Kern County, California; Mag. 4.9 (Pas.), $5\frac{1}{4}$ (Berk.) (P-H) = 2310 km. ca. or 20.9° .										
	e(P)	04	43	35.7	1.1			0.7D			
	i(S)N		49	28.0			1.5			0.9	
	e(S)E			33.0		1.5			0.2		
15	C & GS 07-17-12.4; 43.1 N., 145.1 E., h about 43 km. Near coast of Hokkaido, Japan, Felt. (P-H) = 9330 km. ca. or 84.0° .										
	iPZEN	07	29	41.8	1.3	5.4	5.4	19.5	6.4	6.4	
	iPP		33	14.9				2.7			
	iSEN		39	30.1		9.6	6.8		39.5	10.5	
	iSSE		46	05.0		4.8			5.0		
	eSSN			11.0						5.0	
	eLE	08	00	22.0	4.2			29.0			
	iLN						5.0			3.5	
	eLN						5.5			26.0	

Date	Phase	Time GCT			Period Sec.			Trace Amp. (mms.)			12
		h	m	s	Z	E	N	Z	E	N	
Nov. 16	C & GS 08-19-54.3; 18.6 N., 68.9 W. h about 147 km. near coast of Dominican Republic. (P-H) = 3050 km. ca. or 27.3°.										
	iP	08	25	36.5	1.2			1.3C			
17	i(P)	04	21	12.1	0.8			0.6D			
17	C & GS 14-49-03.0; 52.4 N., 170.7 W. h about 27 km. Fox Islands, Aleutian Islands. (P-H) = 5980 km. ca. or 53.9°.										
	iP	14	58	30.2	1.0			1.1D			
	iPcP		59	33.3	0.8			1.9			
18	C & GS 10-34-05.8; 8.8 S., 74.7 W. h about 50 km. Peru. (P-H) = 5275 km. ca. or 47.5°.										
	iP	10	42	43.3	1.2			2.3C			
	i		43	18.4	1.3			1.0			
19	i	22	39	27.4				0.7D			
19	C & GS 23-21-55.5; 0.8 N., 124.3 E. h about 157 km. Northern Celebes (P-H) = 14,250 km. ca. or 128.2°.										
	iP'	23	40	46.0	0.9			1.7D			
	i			58.2	0.8			1.0			
	ipP'	41	31	1.1	1.0			0.7			
	iPP	42	52	1.1	1.3			1.4			
	ipPP	43	47	3.3	1.0			2.7			
20	C & GS 06-40-20.9; 54.7 N., 161.8 E. h about 71 km. near east coast of Kamchatka. (P-H) = 7600 km. ca. or 68.4°.										
	iP	06	51	17.7	1.0			1.0D			
20	i(P)	08	13	16.8				0.6D			
20	eLE	12	07	11.2							
	eLN		10	11.2							
20	iP	14	50	57.1	1.0			2.0D			
19	C & GS 00-35-14.1; 51.6 N., 178.5 W. h about 68 km. Andreanof Islands Aleutian Islands (P-H) = 6620 km. ca. or 59.7°.										
	iP	00	45	11.0	1.4			1.6C			
	iPcP			58.8	1.0			1.4			
19	C & GS 08-05-07.4; 4.3 S., 101.7 W. h about 25 km. west of Galapagos Islands. (P-H) = 4550 km. ca. or 41.0°.										
	iP	08	12	53.4	1.5			1.0D			

Date	Phase	Time GCT			Period Sec.			Trace Amp. (mms.)		
		h	m	s	Z	E	N	Z	E	N
Nov. 20	C & GS 17-58-17.5; 31.3 N., 40.9 W. h about 44 km. North Atlantic Ocean (P-H) = 4860 km. ca. or 43.7°.									
	iP	18-06-25.2			1.1			0.7D		
	iPE	35.2				3.8		4.2		
	3PN	36.8					3.6			1.7
	eSN	13-06.8					7.0			11.8
	esE	13-14.2				4.2		5.8		
	eLrE	19-25.2				3.2		1.3		
21	e(P)	07-26-11.3			0.8			0.4		
21	C & GS 11-06-38.1; 0.9 N., 122.5 E. h about 85 km. Northern Celebes (P-H) = 14,660 km. ca. or 132.0°.									
	ePP	11-28-10.6			1.4			0.5D		
	eSKP	52.8						1.0		
22	e	08-55-39.2			1.0			0.6D		
22	C & GS 12-30-01.9; 15.4 N., 91.7 W. h about 84 km. Mexico-Guatemala border. (P-H) = 2360 km. ca. or 21.3°.									
	iP	12-34-41.2			0.7			1.5		
	i(PP)	35-41.0						3.5		
	i	36-54.3			1.6			1.3		
	iPcP	38-48.5			1.4			1.2		
22	C & GS 13-01-40.1; 2.7 N., 84.8 W. h about 37 km. South of Panama (P-H) = 3760 km. ca. or 34.1°.									
	eP	13-08-26.5			1.1			0.7D		
22	C & GS 22-30-52.1; 8.8 S., 110.5 E. h about 188 km. Near south coast of Java. (P-H) = 16,220 km. ca. or 146.0°.									
	iP'	22-50-09.7			0.6			1.0D		
	ipP'	51-04.2			1.0			0.7		
23	C & GS 10-36-11.0; 11.1 N., 84.7 W. h about 234 km. Costa Rica-Nicaragua Border. (P-H) = 2830 km. ca. or 25.3°.									
	iP	10-41-27.9			1.0			0.7D		
	ipP	42-06.9			1.1			0.5		
23	i(P)	15-59-15.8			0.7			0.8C		
25	C & GS 20-19-50.7; 36.4 N., 141.4 E. h about 64 km. near east coast of Honshu, Japan. Felt: Honshu. (P-H) = 10,200 km. ca. or 91.8°.									
	iP	20-32-51.5			1.1			1.5		
	i(sP)	33-32.2						0.8		
26	i	11-54-41.7			0.7			1.0D		
	i	55-27.2			0.7			0.8C		

Date	Phase	Time GCT			Period Sec.			Trace Amp. (mms.)			14
		h	m	s	Z	E	N	Z	E	N	
Nov.											
27		C & GS 00-55-44.3; 38.9 N., 106.1 W. h about 19 km. Colorado. (P-H) = 1050 km. ca. or 9.5°.									
	iP	00-58-07.9			0.9			1.8D			
	ePE	08.3							0.1		
	i	18.1			0.6			3.0			
	e	42.1			0.6			8.2			
	iE	44.1				0.8			1.9		
	e(L)	01-00-53.3			0.6			13.0			
	i(L)EN	54.1				0.6			2.0	7.0	
27		C & GS 05-57-07.6; 31.6 N., 131.1 E. h about 25 km. near south coast of Kyushu, Japan. Felt: Jyushu Mag. $6\frac{1}{4}$ - $6\frac{1}{2}$ (Pas.) (P-H) = 11,120 km. ca. or 100.0°.									
	iP	06-10-56.5						0.7D			
	ePP	15-18.5						0.9			
27		C & GS 17-10-33.3; 0.6 S., 127.1 E. h about 25 km. Halmahera region. Mag. $6\frac{1}{4}$ - $6\frac{1}{2}$ (Pas.). (P-H) = 14,100 km. ca. or 127.0°.									
	iP'	17-29-42.2			1.5			0.5C			
	ePPZE	31-41.7			1.2	5.0		1.0	1.8		
28		C & GS 08-58-51.3; 40.6 N., 26.5 E. h about 119 km. Greece-Turkey border (P-H) = 9,410 km. ca. or 84.7°.									
	iP	09-11-19.5			0.9			1.0C			
	i	24.6			1.0			1.1C			
29		C & GS 04-43-07.7; 38.5 S., 75.0 W. h about 85 km. near coast of Chile. (P-H) = 8460 km. ca. or 76.1°.									
	iP	04-54-50.2			1.0			1.8D			
29		C & GS 17-50-05.6; 52.2 N., 158.4 E. h about 76 km. near east coast of Kamchatka. (P-H) = 7940 km. ca. or 71.3°.									
	iP	18-01-20.8			1.0			1.4C			
29		C & GS 20-38-06.5; 6.9 S., 75.9 W. h about 25 km. North-central Peru (P-H) = 5,120 km. ca. or 46.0°.									
	iP	20-46-32.3			0.8			0.7D			
30	i(P)	13-51-14.0			0.8			0.4D			
Dec.											
1		C & GS 07-34-17.9; 56.6 N., 158.8 E. h about 18 km. Kamchatka. (P-H) = 7690 km. ca. or 69.2°.									
	eP	07-45-25.0			0.7			6.5D			
2	iP	04-52-48.2			1.0			0.8D			
	i	53-28.3			1.1			0.8			

Date	Phase	Time GCT	Period Sec.			Trace Amp. (mms.)			15
			Z	E	N	Z	E	N	
Dec. 2	iP	07-24-54.8	0.9			0.5D			
2	C & GS 12-40-17.8; 36.5 N., 8.6 E. h about 62 km. northern Tunisia Felt. Bone, Lamy, and Philippeville. (P-H) = 8730 km. ca. or 78.6°.								
	iP	12-52-13.0	1.0			2.3C			
3	C & GS 01-00-35.2; 17.9 N., 99.3 W. h about 31 km. Guerrero, Mexico (P-H) = 2100 km. ca. or 18.9°.								
	iPZN	01-04-55.2	2.1	2.6	1.0	4.2			
	eSN	08-46.5				6.0			
	e	11-47.0	3.0			1.2			
	eN	12-04.5				4.1			
	eLM	14-06.3	1.6			4.5			
3	iP	11-21-27.3	1.0			1.5D			
	i	24-08.0	0.6			0.6			
3	C & GS 12-09-18.7; 5.7 S., 113.8 E. h about 633 km. Java Sea (P-H) = 16,420 km. ca. or 147.9°.								
	iP'	12-27-54.9	0.8			0.8C			
3	C & GS 19-55-05.3; 43.6 N., 134.9 E. h about 420 km. near Valadivostok, U.S.S.R.. (P-H) = 9,850 km. ca. or 88.7°.								
	iP	20-07-19.2 A	1.1			3.1C			
4	C & GS 07-36-26.0; 18.9 N., 68.8 W. h about 164 km. South of Dominican Republic. (P-H) = 3460 km. ca. or 31.1°.								
	eP	07-42-34.2				0.4			
4	C & GS 08-20-14.0; 60.3 N., 160.4 E. h about 15 km. off northwest coast of Kamchatka. (P-H) = 7340 km. ca. or 66.0°.								
	iP	08-31-02.8	1.0			0.6D			
4	C & GS 12-38-11.9; 33.2 N., 95.3 E. h about 45 km. Tibet1 (P-H) = 11,590 km. ca. or 104.3°.								
	eLE	13-35-07.9	26			2.0			
	eLN	40-34.9	21			2.5			
5	C & GS 06-44-12.7; 45.9 S., 74.6 W. h about 25 km. Southern Chile. (P-H) = 8,080 km. ca. or 72.8°.								
	iP	06-56-40.5	1.1			1.4C			
5	C & GS 13-01-04.7; 50.8 S., 139.8 E. h about 64 km. Southwest of Tasmania. (P-H) = 15,580 km. ca. or 140.2°.								
	eP'	13-20-22.6	1.4			0.2			

Date	Phase	Time GCT			Period Sec.			Trace Amp. (mms.)		
		h	m	s	Z	E	N	Z	E	N
Dec. 6	C & GS 05-48-39.3; 13.7 N., 93.6 E. h about 53 km. Andaman Islands Mag. 5 3/4-6 (Pal.). (P-H) = 14,700 km. ca. or 132.0°.									
	iP'	06-07-48.0			1.5			2.6D		
	iP'	55.6			2.0			2.1		
	iPP	10-06.4						1.0		
	iPKS	11-11.8			1.4	4.0	4.0	1.5	2.5	1.7
6	C & GS 13-35-43.8; 23.5 S., 176.0 W. h about 18 km. Tonga Islands region Mag. 6 1/4 (Berk.) (P-H) = 10,760 km. ca. or 96.9°.									
	iP	13-49-17.9			1.0			0.4D		
	eLN	14-25-57.4					36.4			2.5
	eLE	27-57.4				38.0		2.0		
6	C & GS 16-39-31.5; 49.4 N., 155.2 E. h about 22 km. Kurile Islands. Mag. 6-6 1/4 (Pas.), 6 1/4 (Berk.). (P-H) = 8,400 km. ca. or 75.7°.									
	iPZEN	16-51-14.4			1.2	4.0	4.0	7.0	4.5	5.0
	iP	24.6			1.2	4.0		6.2	4.7	
	iSZEN	17-01-56.8			4.0	5.4	6.0	1.9	17.7	11.1
	i(ScS)ZEN	02-11.4			3.5	6.0	4.0	2.3	7.3	16.2
	eLN	16-27.4					3.0			2.5
	eLE	17-27.4				25		2.5		
7	C & GS 00-18-26.0; 23.4 S., 175.9 W. h about 45 km. Tonga Islands region. (P-H) = 10,780 km. ca. or 97.0°.									
	iP	00-32-00.0			1.3			0.5		
8	C & GS 07-58-02.0; 16.3 N., 104.3 W. h about 65 km. South of Guadalajara, Mexico. (P-H) = 2300 km. ca. or 20.7°.									
	eP	08-02-51.8			1.1			0.7		
8	C & GS 09-36-24.9; 1.8 S., 139.4 E. h about 55 km. near north coast of New Guinea. (P-H) = 13,460 km. ca. or 121.1°.									
	iP'	09-55-13.6			0.6			1.0C		
8	iP	15-33-17.0			0.9			1.0		
9	e(P)	00-39-35.1			1.0			0.6		
9	i(P)	01-00-25.5			0.9			0.9C		
9	C & GS 02-15-22.0; 56.3 N., 153.9 W. h about 31 km. Kodiak Island, Alaska region. Mag. 5 1/2-5 3/4 (Berk.) 5 1/2 (Pal.); (P-H) = 4870 km. ca. or 43.9°.									
	iP	02-23-31.1			1.6			1.0C		
	ePP	25-22.6			0.8			2.2		
9	C & GS 03-58-55.4; 14.9 S., 75.7 W., h about 39 km. off coast of Peru (P-H) = 5900 km. ca. or 53.0°.									
	iP	04-08-17.1			2.0			3.5C		

Date	Phase	Time GCT			Period Sec.			Trace Amp (mms.)			17
		h	m	s	Z	E	N	Z	E	N	
Dec. 9	C & GS 10-18-23.8; 7.5 S., 108.3 E. h about 295 km. Java. (P-H) = 16,550 km. ca. or 149.0°.										
	iP	10-37-34.9			1.0			4.1C			
9	e(P)	11-14-16.3						0.5			
9	C & GS 11-18-08.9; 43.7 S., 75.2 W. h about 34 km. near coast of Southern Chile. Mag. 6 3/4 (Pas.), 6 1/2 (Berk.), 5 3/4-6 (Pal.) (P-H) = 9,000 km. ca. or 81.0°.										
	iP	11-30-22.8			1.1			2.5			
9	C & GS 16-35-53.2; 8.9 S., 105.6 E. h about 35 km. South of Java. (P-H) = 16,500 km. ca. or 149.0°.										
	eP	16-55-44.0						0.9C			
9	C & GS 19-49-41.3; 21.7 S., 179.9 E. h about 620 km. Fiji Islands (P-H) = 10,990 km. ca. or 99.0°.										
	iP	20-02-22.9			1.1			0.6D			
	iPP	06-35.2			1.6			2.3			
	iPP	06-42.2			1.4			1.5			
10	iP	00-08-02.4						1.0C			
10	C & GS 04-58-41.3; 65.5 N., 152.1 W. h about 68 km. Kodiak Island region. (P-H) = 4850 km. ca. or 43.4°.										
	iP	05-06-41.2			0.7			0.5D			
10	iP	11-06-44.8			0.6			0.3C			
10	Cnome 19-00-00; 32°15'49" north 103°51'57" W. h about 1184 feet Carlsbad, New Mexico. Height of working point: 2212.6 feet above mean sea level. Yield: 5 KT (P-H) = 925 km. ca. or 8.7°.										
	iPZEN	19-02-07.3			0.6	0.6	0.6	10±C	0.1	0.1	
	ePE	18.6							0.5		
	eSEN	04-46.1				1.8	1.0		1.5	2.4	
11	iP	04-51-57.9			1.0			1.2			
12	C & GS 11-18-14.8; 11.8 N., 59.8 W. h about 36 km. Windward Islands region. (P-H) = 4330 km. ca. or 39.0°.										
	iP	11-25-44.6			0.9			0.6D			
12	C & GS 22-14-36.3; 18.9 N., 107.6 W. h about 33 km. Revilla Gigedo Islands region. (P-H) = 2440 km. ca. or 22.0°.										
	eSEN	22-23-19.6			11.0	12.0			6.0	5.0	
	eLEN	26-07.1			12.0	11.2			8.0	7.0	

Date	Phase	Time GCT			Period Sec.			Trace Amp. (mms.)			18
		h	m	s	Z	E	N	Z	E	N	
Dec. 12	C & GS 23-06-18.4; 43.5 N., 146.2 E. h about 44 km. near east coast of Hokkaido, Japan. (P-H) = 9240 km. ca. or 83.1°.										
	ePZEN	23	18	44.0	1.2	3.0	3.6		1.3	1.0	
	iP	19	01	1.3	1.1			1.0			
13	C & GS 11-23-28.9; 50.9 S., 73.0 W. h about 82 km. southern Chile-Argentina border. (P-H) = 9880 km. ca. or 89.0°.										
	iP	11	36	15.5	1.0			0.9C			
13	eP	14	16	49.6	0.9			0.2			
13	C & GS 19-59-13.4; 9.9 N., 125.8 E. h about 69 km. near north coast of Mindanao, P. I. (P-H) = 11,180 km. ca. or 100.6°.										
	iP	20	12	53.7	1.0			0.7D			
14	iP	00	49	24.2	1.2			0.8C			
14	C & GS 01-40-24.7; 21.2 N., 109.0W. h about 60 km. off south coast of Baja, California. (P-H) = 2240 km. ca. or 20.2°.										
	eP	01	44	52.1	0.9			0.4			
	e(S)EN	50	39	1		4.2	4.6		2.7	1.4	
	iE	52	29	6		8.0			3.0		
14	C & GS 07-10-23.2; 3.1 S., 140.9 E. h about 44 km. near north coast of New Guinea. (P-H) = 12,660 km. ca. or 114.0°.										
	eP†	07	29	13.0	0.5			0.3			
16	e	04	17	06.5	0.8			1.1			
16	C & GS 13-40-20.1; 51.9 N., 160.2 E. h about 23 km. near east coast of Kamchatka. (P-H) = 7920 km. ca. or 71.2°.										
	eP	13	51	39.0	2.0			0.3			
16	iP	14	54	05.5	1.0			0.5D			
17	eP	00	56	20.1	0.8			0.3			
17	C & GS 21-32-01.8; 14.4 S., 75.8 W. h about 85 km. near coast of Southern Peru. (P-H) = 5920 km. ca. or 53.2°.										
	iiP	21	41	14.9	1.6			7.2C			
17	C & GS 22-12-32.3; 54.5 S., 143.9 E. h about 45 km. south of Tasmania (P-H) = 14,600 km. ca. or 132.0°.										
	eP†	22	31	39.9	1.0			0.2			
18	iP	20	27	55.3	1.2			1.5C			

Date	Phase	Time GCT			Period Sec.			Trace Amp. (mms.)			19
		h	m	s	Z	E	N	Z	E	N	
Dec. 20	C & GS 13-25-34.4; 4.6 N., 75.6 W. h about 176 km. west-central Columbia 23 killed, 100 injured moderate property damage in Caldas Province Mag 6 3/4 (Pas.), 6 (Pal.). (P-H) = 3900 km. ca. or 35.1°.										
	iPZEN	13-32-16.6			2.0	2.0		28	12.4	6.5	
	eGEN	39-58.9				5.0	5.0		22.5	35.0	
20	e	21-08-12.5			0.9				0.2		
20	eP	23-05-19.0			0.9				0.3		
21	C & GS 13-30-43.3; 7.5 S., 129.2 E. h about 201 km. Banda Sea. (P-H) = 14,660 km. ca. or 132.0°.										
	iSKP	13-52-41.9			1.4				0.60		
21	iP	15-22-51.1			0.5				0.70		
	i(pP)	23-07.7							0.90		
21	iP	20-58-23.4			1.0				0.70		
22	C & GS 11-26-45.2; 40.7 N., 126.0 W. h about 25 km. off coast of northern California Mag. 4.6 (Berk.) (P-H) = 2840 km. ca. or 25.6°.										
	iP	11-32-16.1			1.0				0.70		
22	iP	15-41-44.0			0.9				3.20		
22	iP	15-50-01.8			1.0				0.90		
22	e	16-52-30.5							0.7		
22	iP	18-25-11.0			1.4				1.30		
23	C & GS 06-53-36.5; 44.9 N., 111.2 W. h about 23 km. Yellowstone National Park, Montana										
	e(L)	07-01-50.0			1.0				0.3		
23	C & GS 14-36-27.1; 6.4 N., 73.4 W. h about 197 km. Columbia. (P-H) = 3820 km. ca. or 34.3°.										
	iP	14-43-03.4			0.8				3.7		
24	C & GS 06-50-48.4; 43.8 N., 143.9 E. h about 79 km. near coast of northern Hokkaido, Japan. (P-H) = 9470 km. ca. or 85.2°.										
	iP	07-03-16.0			1.4				4.00		
	ipP	45.5			1.1				1.5		
24	C & GS 09-19-02.7; 20.4 S., 173.6 W. h about 45 km. Tonga Islands (P-H) = 10,520 km. ca. or 94.6°.										
	eP	09-32-16.0			0.9				0.5		

Date	Phase	Time GCT			Period Sec.			Trace Amp. (mms.)			20
		h	m	s	Z	E	N	Z	E	N	
Dec. 24	C & GS 14-25-32.7; 5.7 S., 80.9 W. h about 52 km. near coast of northern Peru. (P-H) = 4850 km. ca. or 43.6°.										
	iP	14	33	32.4	1.2			2.8C			
	isP			56.2	1.0			2.9			
24	C & GS 17-15-41.7; 6.0 S., 81.7 W. h about 25 km. near coast of northern Peru. (P-H) = 4820 km. ca. or 43.4°.										
	iP	17	23	47.0	1.0			1.0D			
24	C & GS 23-43-19.2; 38.3 S., 74.6 W. h about 31 km. near coast of Chile (P-H) = 8440 km. ca. or 76.0°.										
	iP	23	55	05.4	0.8			0.4C			
25	B & GS 08-00-59.3; 3.7 S., 127.7 E. h about 47 km. Ceram. (P-H) = 14,100 km. ca. or 127.0°.										
	iP†	08	20	09.0	2.0			1.2C			
25	C & GS 12-20-05.0; 38.9 N., 94.6 W. h about 25 km. Kansas-Missouri border. Felt. (P-H) = 290 km. ca. or 2.6°.										
	iP	12	20	48.9				0.3D			
	e			58.1				2.5			
	e			21-42.8							
25	C & GS 12-58-22.7; 38.9 N., 94.6 W. h about 20 km. Kansas-Missouri border. felt. (P-H) = 310 km. ca. or 2.8°.										
	eP	12	59	09.2				0.5			
	i			17.3				2.5			
	e			48.1							
25	C & GS 13-55-38.8; 20.4 S., 173.7 W. h about 64 km. Tonga Islands. (P-H) = 10,400 km. ca. or 93.6°.										
	iP	14	08	48.0	1.6			1.7D			
25	iP	14	33	13.1	1.0			1.1D			
25	C & GS 22-25-00.2; 8.9 S., 110.2E. h about 155 km. off coast of Java (P-H) = 16,000 km. ca. or 144.0°.										
	iP†	22	44	26.8	0.9			1.4D			
26	iP	03	36	04.1	1.1			1.6C			
26	C & GS 04-24-55.4; 5.5 S., 110.7 E. h about 566 km. Java Sea. (P-H) = 16,000 km. ca. or 144.0°.										
	iP†	04	43	25.1	1.2			1.4C			
	iPP			44-23.7	0.8			1.3			
	ipP†			45-28.3	1.4			1.4			
	iSKP			46-16.3	1.0			4.3			
	ipPP			48-27.5	2.0			1.8			

Date	Phase	Time GCT			Period Sec.			Trace Amp. (mms.)		
		h	m	s	Z	E	N	Z	E	N
Dec. 26	C & GS 06-17-30.6; 44.2 S., 38.1 E. h about 22 km. Prince Edward Islands region. (P-H) = 16,200 km. ca. or 145.9°.									
	iP'	06	37	08.6	1.2			0.6D		
27	C & GS 02-25-48.2; 2.7 S., 141.3E. h about 22 km. near north coast of New Guinea; (P-H) = 13,710 km. ca. or 123.3°.									
	iP'	02	41	18.0	0.8			3.0D		
	iP'		42	06.6	0.9			1.0		
27	i	03	39	32.1	0.6			0.7D		
27	iP	09	42	43.9	0.7			0.5D		
27	C & GS 15-19-15.8; 53.4 N., 160.3 E. h about 35 km. near east coast of Kamchatka; (P-H) = 7740 km. ca. or 69.7°.									
	iP	15	30	25.7	0.6			0.8D		
27	iP	15	41	35.1	1.0			1.0C		
27	C & GS 16-46-31.2; 1.7 S., 12.9 W. h about 37 km. Atlantic Ocean, north of Ascension Island. (P-H) = 10,660 km. ca. or 96.0°.									
	iP	16	59	59.7				1.2C		
	iP		06	06.7	1.4			2.2		
28	e	00	17	28.9	1.2			0.6		
	eLE		44	07.2	21.2			3.7		
28	iP	00	56	17.0	0.9			1.0C		
	i		27	5	1.2			1.2		
28	e	05	57	20.0	1.5			1.0		
30	i	22	23	32.9	1.0			0.8D		
31	C & GS 13-46-01.8; 1.6 N., 127.3 E. h about 140 km. Halmahera. (P-H) = 13,340 km. ca. or 120.0°.									
	iP'	14	04	47.2	1.0			0.6D		
31	C & GS 16-07-46.4; 7.8 S., 106.8 E. h about 66 km. near coast of Java (P-H)=16,460 km. ca. or 148.1°.									
	iP'	16	27	23.0	0.7			0.7D		
	i(P' ₂)		37	8	1.2			1.1		
31	C & GS 16-35-58.7; 44.4 N., 100.5 W. h about 16 km. Central south Dakota felt. (P-H) = 1040 km. ca. or 9.4°.									
	iPZF ₂	16	38	19.8	0.9			4.7	0.3	
	e		39	01.4				4.3		
	i		41	02.1	0.7			14.2		
	iE		06	0		2.2				4.9



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

Dec.

31 C & GS 18-04-25.4; 18.2 N., 105.8 W. h about 32 km. off coast of Mexico. (P-H) = 1710 km. ca. or 15.5°.

iP	18-08-06.5	0.9		1.7
eE	13-10.6		4.4	3.7
e(S)E	15-17.1		9.2	3.7

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