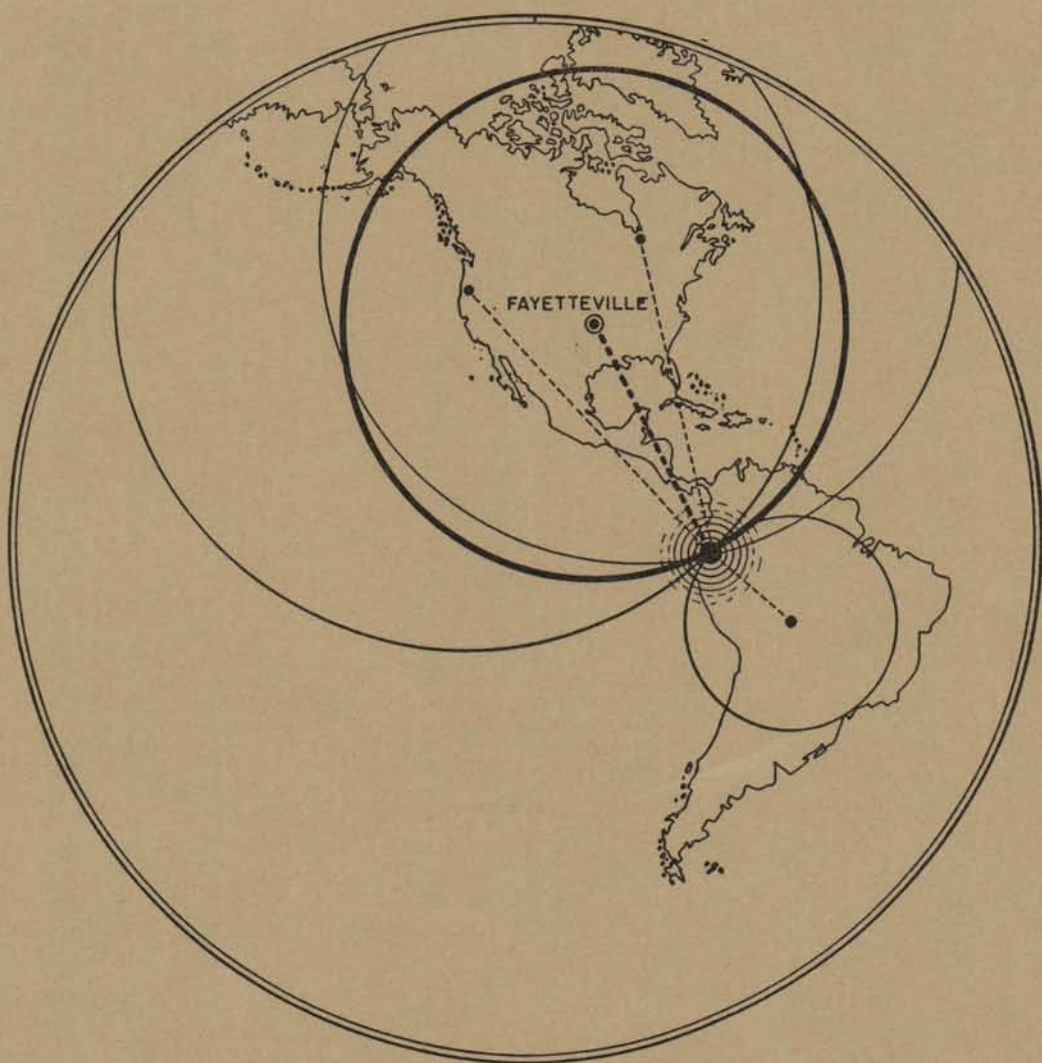


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# UNIVERSITY OF ARKANSAS SEISMOLOGICAL BULLETIN

Volume XV

Number 1



## The University Of Arkansas Seismograph Station

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



Earthquakes for the First Quarter of 1966

Keith Patton

## FAYETTEVILLE SEISMOGRAPH STATION

Volume XV, Number 1, January 1967  
Data for January, February, March 1966

## Instruments

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

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

Horizontal component - Wilson - Silson 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  
in 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 Keith Patton, Observer

Date	Phase	Time G. C. T.			Period Sec.			Trace amp. (mms) 1		
		h	m	s	Z	E	N	Z	E	N
Jan.										
1	C & GS 19-25-50.9; 0.6 N., 25.4 W., h about 33 km, Central Mid-Atlantic Ridge, Mag. 4.8 (CGS), (P-H) = 8000 km ca or 72°.									
	iPZ	19-37-15.5			1.2			0.6		
2	C&GS 00-13-42*; 39.9 N., 104.8 W., h about 5 km, Colorado, Felt at Denver, (P-H) = 1110 km ca or 10°.									
	eSZ	00-18-32.3			0.7			0.6		
2	C&GS 03-53-48.0; 18.9 S., 69.6 W., h about 101 km, Northern Chile, Mag. 4.5 (CGS) (P-H) = 6555 km ca or 59°.									
	iPZ	04-03-40.3			1.0			2.0		
2	C&GS 04-52-17.1; 54.3 N., 164.5 W., h about 57 km, Unimak Island region, Mag. 5.3 (CGS) (P-H) = 5555 km ca or 50°.									
	iPZ	05-01-10.3			0.5			1.0		
2	C&GS 11-51-48*; 74.6 N., 71.2 W., h about 33 km, Baffin Bay, Mag. 4.7 (CGS) (P-H) = 4445 km ca or 40°.									
	iPZ	11-59-20.7			0.6			0.5		
2	C&GS 23-12-18.8; 37.5 N., 23.4 E., h about 22 km, Southern Greece, Felt in Corinth area, Mag. 4.9 (CGS) (P-H) = 9335 km ca or 84°.									
	ePZ	23-25-00.8			0.8			1.5		
3	C&GS 18-16-05.9; 4.7 N., 76.0 W., h about 103 km, Colombia, Felt at Bogota Cali and Pereira, Mag. 4.8 (CGS) (P-H) = 3890 km ca or 35°.									
	iPZ	18-22-53.7			1.0			1.5		
4	iPZ	23-35-15.9			0.4			0.5		
	e(PP)Z	23-35-31.0			0.8			0.9		
	e(S)Z	23-35-34.9			1.1			0.7		
	e(L)Z	23-35-00.4			2.0			1.0		
4	C&GS 02-40-48*; 18.3 N., 108.6 W., h about 33 km, Revilla Gigedo Islands Region, Mag. 4.4 (CGS) (P-H) = 2665 km ca or 24°.									
	iPZ	02-45-41.0			1.0			1.0		
4	C&GS 06-29-27*; 22.3 N., 70.2 W., h about 52 km, Near coast of Northern Chile, Mag. 4.4 (CGS) (P-H) = 7000 km ca or 63°.									
	iPZ	06-39-45.1			0.7			1.5		

Date	Phase	Time G. C. T.			Period Sec.			Trace Amp. (mms)		
		h	m	s	Z	E	N	Z	E	N
Jan.										
4	ePZ	10-23-22.2			0.5			0.5		
4	C&GS 12-48-13.2, 15.4 S., 70.9 W., h about 189 km, Southern Peru, Mag. 5.4(CGS) (P-H) = 6445 km ca or 58°.									
	iPZ	12 57 37.5			1.3			4.0		
4	ePZ	21-39-9.2			0.5			0.6		
4	iPZ	23-44-05.9			0.5			0.5		
	i(S)Z	23-44-59.4			0.6			0.7		
5	C&GS 00-37-17.8; 39.8 N., 104.7 W., h about 5 km, Colorado, Felt at Denver, Mag. 4.6.(CGS), (P-H) = 1110 km ca or 10°.									
	ePZ	00-39-32.1			0.5			0.5		
	e(S)Z	00-42-07.9			2.0			5.0		
	e(L)Z	00-43-33.9			1.2			1.0		
5	C&GS 07-01-58*; 51.2 N., 178.2 W., h about 33 km, Andreonof Islands, Aleutian Islands, Mag. 5.0 (CGS) (P-H) = 6665 km ca or 60°.									
	ePZ	07-11-57.1			0.8			0.7		
5	iPZ	20-08-25.8			1.0			1.0		
6	C&GS 04-19-59.3; 6.8 N., 73.1 W., h about 168 km, Northern Colombia, Felt at Bogota, Mag. 5.3(CGS) (P-H) = 3780 km ca or 34°.									
	iPZ	04-26-36.8			1.0			5.0		
6	iPZ	13 59 11.3			0.5			1.0		
	e(S)Z	13 59 17.1			2.0			1.5		
	e(L)Z	13 59 57.3			1.5			1.0		
6	iPZ	19 -52-17.1			1.0			1.0		
	e(S)Z	19-52-42.3			1.0			2.0		
6	ePZ	21-00-40.8			1.0			2.5		
6	iPZ	23-02-53.5			0.5			1.0		
7	iPZ	07-56-39.4			1.0			1.2		
	C&GS 07-45-27.3; 52.6 N., 160.0 E., h about 92 km, off east coast of Kamchatka, Mag. 5.1 (CGS), (P-H) = 8110 km ca or 73°.									
8	ePZ	06-26-35.9			1.2			1.0		
9	C&GS 09-11-30.3; 11.5 N., 62.3 W., h about 156 km, Windward Islands, Felt at part of Spain and in eastern part of Venezuela, Mag. 5.1 (CGS) (P-H) = 4335 km ca or 39°.									
	iPZ	09-18-33.0			1.0			1.0		

Date	Phase	Time G. C. T.			Period Sec.			Trace Amp. (mms)			3	
		h	m	s	Z	E	N	Z	E	N		
Jan.												
11	iPZ	29	33	23.8	1.0			1.0				
10	C&GS 00-00-47*; 16.4 N., 94.3 W., h about 154 km, Oaxaca, Mexico, Mag. 4 2(CG ), (P-H) = 1890 km ca or 17°.											
	iPZ	00	05	08.3	1.0			1.0				
	e(L)Z	00	08	41.5	1.0			0.5				
17	C&GS 14-42-22.9; 14.0 N., 91.7 W., h about 126 km, near coast of Guatemala, Mag. 4.6(CGS) (P-H) = 2335 km ca or 21°.											
	i(P)Z	14	47	09.8	1.0			1.0				
13	iPZ	22	17	01.5	1.0			2.5				
	e(S)Z	22	17	53.5	0.6			0.5				
13	C&GS 10-30-51.1; 19.1 N., 64.7 W., h about 41 km, Virgin Islands, Mag. 4 1/2 - 4 3/4 (Pal), 5.0 (CGS), (P-H) = 3335 km ca or 30°.											
	iPZ	10	37	07.1	1.2			1.0				
	e(PP)Z	10	37	42.0	.5			.5				
	e(SS)Z	10	43	13.0	0.7			.5				
13	C&GS 10-41-11.0; 52.9 N., 172.0 E., h about 14 km, Near Islands, Aleutian Islands, Mag. 4-4 1/2 (Brk), 5 1/2-5 3/4 (Pal), 5.6(CGS) (P-H) = 6220 km ca or 56°.											
	iPZ	10	51	47.8	1.0			1.2				
18	iPZ	05	03	29.8	1.0			1.0				
18	iPZ	22	50	52.3	0.8			1.0				
	eSZ	22	51	07.3	1.0			2.0				
19	C&GS 04-44-28.9; 17. S., 71.3 W., h about 50 km, near coast of Peru, Felt at Arequipa, Mag. 5.1 (CGS) (P-H) = 6445 km ca or 58°.											
	iPZ	04	54	16.9	1.0			1.5				

Date	Phase	Time G. C. T.			Period Sec.			Trace Amp. (gms)		
		h	m	s	Z	E	N	Z	E	N
Feb.										
5	ePZ	01	10	17.5	0.5			0.5		
	e(s)Z	01	10	35.5	0.4			0.5		
	e(L)Z	01	10	47.5	1.5			0.5		
5	C7Gs 02-01-48.3; 39.2 N. 22.0 E., h about 38 km, Greece, one killed, 50 injured, 8500 homeless. Towns of Alestia, Fournas, Klistos, and Krent destroyed. Felt in Greece. Mag. $6\frac{1}{4}$ (Pas), $5\frac{3}{4}$ - 6 (Brk), 5.8 (CGS) (P-H) = 9445 km ca or 85°.									
	iPZE	02	14	25.1	1.0	1.0		6.0	1.0	
	e(S) ZE	02	43	03.0		26.0		2.5		
	e(L)E	02	50	34.0		20.0		2.0		
5	C&GS 02-58-00.6; 39.2 N., 22.2 E., h about 45 km, Greece felt. Mag. 4.8 (CGS) (P-H) = 9445 km ca or 85°.									
	iPZ	03	40	32.5	1.5			2.0		
5	C&GS 14-24-45*; 52.8 N., 158.8 E., h about 44 km, Near coast (east) of Kamchatka, Mag. 5.2(CGS) (P-H) = 7780 km ca or 70°.									
	iPZ	14	36	01.5	1.0			2.0		
5	iPZ	16-27	45.2		1.5			4.0		
	e(L)Z	16	28	45.0	1.2			0.9		
	e(S)Z	16	29	23.0	1.2			0.7		
6	C&GS 23-28-07.8; 60.4 N., 152.3 W., h about 91 km, Southern Alaska, Mag. 5.3 (CGS) (P-H) = 5000 km ca or 45°.									
	iPZ	23	36	04.7	1.5			2.0		
7	ePZ	04	44	22.5	0.6			.6		
7	ePZ	04	55	35.9	0.5			0.5		
	e(L)E	05	19	33.0	24.0			5.0		
7	C&GS 07-40-22*; 19.0 N., 108.3 W., h about 33 km, Revilla Gigedo Islands Region, Mag. 4.9 (CGS) (P-H) = 2665 km ca or 24°.									
	iPZE	07	45	03.2	1.0			1.5		
8	iPZE	17	11	15.7	1.0	1.0		2.5	2.0	
	e(S)E	17	15	16.7		7.0			5.0	
	e(L)E	17	18	02.7		10.0			5.5	
9	CGS 00-55-19.8; 14.3 N., 93.0 W., h about 53 km, Near coast of Chiapas, Mexico, Mag. 5.12(CGS) (P-H) = 2110 km ca or 19°.									
	iPZN	01	00	09.5	0.6		4.0	2.5		2.5
	e(L)N	01	04	17.0	2.0			1.0		



Date	Phase	Time G. C. T.			Period Sec.			Trace Amp. (mms)			5
		h	m	s	Z	E	N	Z	E	N	
Feb.											
9	ePZN	04	58	04.2	1.0		1.5	1.0		1.5	
	e(PP)Z	04	58	34.2	1.0			2.0			
9	C&GS 06-22-38.1; 12.8 N., 87.5 W., h about 33 km, Near coast of Nicaragua, Mag. 4.5(CGS) (P-H) = 2280 km ca or 25°.										
	e(P)Z	06	27	52.8	1.0			2.5			
9	ePZ <sup>N</sup>	07	38	10.2	1.0		1.0	3.0		1.0	
9	iPZN	14	09	09.6	1.2		0.5	3.0		0.7	
	e(S)Z	14	09	39.6	1.0			0.7			
	e(L)Z	14	10	02.6	2.0			0.5			
9	iPZN	15	22	51.3	1.5		1.5	2.5		1.2	
10	ePZ	03	56	16.4	0.5			1.0			
10	C&GS 14-21-10.9; 20.8 N., 146.3 E., h about 43 km, Mariana Islands Region, Mag. 6½ (Pas), 6½ (Brk), 6¼-6½ (Pal), 6.2 (CGS) (P-H)= 11,110 km ca or 100° .										
	ePZN	14	34	51.2	1.2		0.5	0.9		0.5	
	e(PP)ZN	14	39	08.2	2.1		4.0	0.6		2.0	
	e(S)N	14-45-42.2					6.0			3.0	
	e(L)N	15	10	20.2			22.0			4.5	
10	C&GS 23-31-28.7; 14.6 N., 92.6 W., h about 56 km, Near coast of Chiapas, Mexico, Mag. 4.4(CGS) (P-H) = 2335 km ca or 21°.										
	ePZ	23	36	17.0	1.5			1.0			
	e(S)Z	23	40	21.0	0.7			0.7			
12	C&GS 04-32-15*; 35.9 N., 90.0 W., h about 33 km, Tennessee, Mag. 4.4 (CGS) (P-H) = 445 km ca or 4°.										
	iPZE	04	33	08.5	1.0			2.5			
					0.5			1.0			
12	ePZ	17	44	48.0	0.5			0.5			
	e(S)Z	17	45	29.0	1.0			0.7			
13	ePZ	05	09	42.0	0.2			1.0			
	e(S)Z	05	11	26.2	1.0			3.0			
	e(L)Z	05	14	39.0	1.0			0.5			
13	C&GS 06-07-24.1; 14.1 N., 61.4 W., h about 192 km, Windward Islands, Mag. 5.0 (CGS) (P-H) = 4110 km ca or 37°.										
	iPZ	06	14	14.5	0.7			2.0			



Date	Phase	Time G. C. T.			Period Sec.			Trace Amp. (mms)			6
		h	m	s	Z	E	N	Z	E	N	
13	iPZE	06	31	22.3	1.0	0.5		4.0	1.0		
	e(S)Z	06	34	23.0	1.5			2.0			
13	C&GS 06-35-55.7; 6.6S., 132.6 E., h about 12 km, Tonimbar Islands Region, Mag. 3/4-6 (Pal), 5.9(CGS) (P-H) = 14445 km ca or 130°.										
	iPZ	06	55	04.5	1.0			1.5			
13	C&GS 10-00-45.3; 10.5 N., 104.2 W., h about 33 km, off coast of Mexico, Mag. 4.5(CGS) (P-H) = 2890 km ca or 26°.										
	ePZ	10	05	41.0	0.2			0.5			
	e(PP)Z	10	06	28.0	1.5			0.5			
13	C&GS 23-19-26.9; 27.1 N., 91.0 W., h about 7 km, Eastern Missouri, Mag. 4.7(CGS) (P-H) = 334 km ca or 3°.										
	iPZE	23	20	24.3	1.0	0.5		3.0	1.0		
	eZ	23	25	20.7	1.0			0.5			
	eE	23	27	64.7	34.0			2.0			
14	C&GS 00-08-56* ; 37.2 N., 90.9 W., h about 1km, Eastern Missouri, (P-H) = 334 km ca or 3°.										
	iPZ	00	09	44.2	0.5			1.0			
	e(S)Z	00	10	20.7	1.0			2.5			
	eZ	00	13	24.7	0.3			0.7			
14	C&GS 17-06-29.8; 31.9 S., 70.2 W., h about 97 km, Chile-Argentina border region, Felt at Santiago. Mag. 4.8(CGS) (P-H) = 7780 km ca or 70°;										
	iPZ	17	17	47.3	1.5			0.6			
	e(PP)Z	17	20	01.0	0.5			1.4			
15	C&GS 00-16-54*; 14.7 N., 91.3 W., h about 66 km, Guatemala, Mag. 4.4 (CGS) (P-H) = 2335 km ca or 21°.										
	ePZ	00	21	33.5	0.5			0.5			
16	C&GS 11-58-14.2; 52.4 N., 169.6 W., h about 47 km, Fox Islands, Aleutian Islands, Mag. 4.8 (CGS) (P-H) = 6335 km ca or 57°.										
	iPZ	12	07	33.2	1.0			1.0			
17	C&GS 11-48-00.8; 32.2 S., 7819 E, h about 33 km, Mid-Indian rise. Mag. 6 1/4 (Pas), 6.2-6.6(Brk), 6 1/2 (Pal), 6.4(CGS) (P-H) = 19780 kmca or 178°.										
	i(P1)Z	12	08	07.5	2.0	4.0		3.0	2.0		
	e(P2)ZE	12	09	36.0	1.5			2.0			
	e(PP)ZE	12	13	37.5	4.0	20.0		1.0	3.0		

Date	Phase	Time G. C. T.			Period Sec.			Trace Amp. (mms)			7
		h	m	s	Z	E	N	Z	E	N	
Feb. 17	C&GS 20-45-45*; 06.1 N., 104.3 E., h about 33 km, Sunda Strait, Mag. 5.6 (CGS) (P-H) = 16220 km ca or 146°.										
	i(P)Z	21	05	22.9	1.0			1.5			
18	C&GS 19-02-55.5.; 44.3N., 143.1 E., h about 225 km, Hokkaido, Japan, reg. Mag. 5.2 (CGS) (P-H) = 9445 km ca or 85°.										
	iPZ	19	15	01.2	1.5			1.5			
	eZ	19	15	53.7	2.0			1.0			
19	C&GS 02-00-44*; 15.4 N., 94.2 W., h about 43 km, Near coast of Oaxaca, Mexico, Mag. 4.8 (CGS) (P-H) = 2220 km ca or 20°.										
	i(PP)Z	02	05	21.5	1.2			3.0			
	eZ	02	06	32.7	2.0			0.5			
19	eZ	06	60	08.2	1.0			1.2			
19	eZ	19	52	53.2	1.5			0.75			
19	C&GS 22-48-55.0; 43.9 N., 147.0E., h about 98 km, Kurile Islands, Mag. 4.8 (CGS) (P-H) = 8890 km ca or 80°.										
	iPZ	23	01	11.3	1.0			0.5			
20	C&GS 05-58-09.6; 53.1 N., 159.8 E., h about 44 km, Near east coast of Kamchatka, Mag. 4.9 (CGS) (P-H) = 8000 km ca or 72°.										
	iPZ	06	09	21.1	1.0			1.0			
20	C&GS 15-25-40.1; 9.8 S., 75.6 W., h about 22 km, Peru, Mag. 4.8 (CGS) (P-H) = 5555 km ca or 50°.										
	iPZ	15	34	26.3	2.0			0.7			
20	iPZ	18	12	36.5	1.2			0.7			
20	C&GS 18-59-57*; 16.9 N., 99.9 W., h about 33 km, Near Coast of Guerrero, Mexico, Mag. 4.4 (CGS) (P-H) = 2220 km ca or 20°.										
	ePZ	19	04	26.0	1.2			1.0			
	eZ	19	05	22.5	0.5			1.0			
	eZ	19	1	45.0	0.6			1.0			
21	C&GS 00-28-27*; 55.7 S., 26.7 W., h about 9 km, south Sandwich Islands region, Mag. 5.5 (CGS) (P-H) = 12,220 km ca or 110°.										
	e(P)Z	00	40	47.2	1.0			1.5			

Date	Phase	Time G. C. T.			Period Sec.			Trace Amp. (mms)			8
		h	m	s	Z	E	N	Z	E	N	
Feb. 21	C&GS 14-14-29.6; 55.6 N., 162.9 E., h about 33 km, Near east coast of Kamchatka, Mag. 4.9 (CGS) (P-H) = 8000 km ca or 72°.										
	iPZ	14	25	25.1	1.2			0.9			
22	C&GS 05-02-37.2; 5.4 S., 151.5 E., h about 28 km, New Britain Region, Felt widely, Mag. 6 3/4 (Pas), 6 3/4-7 (Brk), 6 3/4 - 7 (Pal), 6.2 (CGS) (P-H) = 12,445 km ca or 112°.										
	ePZ	05	17	20.0	0.5			0.5			
	e(PP)Z	05	21	11.4	1.0			2.0			
	eE	05	28	08.4	6.0			3.0			
	iZE	05	31	59.4	1.0	4.0		2.5	1.0		
	eE	05	56	21.4		48.0			2.5		
25	ePZ	03	56	37.7	1.7			1.0			
25	C&GS 22-50-47.1; 15.1 S., 173.2 W., h about 33 km, Tonga Islands, Mag. 5.5 (CGS) (P-H) = 10,000 km ca or 90°.										
	iPZ	23	03	52.4	1.2			1.0			
26	C&GS 00-33-50.1; 52.4 N., 173.6 E., h about 51 km, Near Islands, Aleutian Islands, Mag. 5.3 (CGS) (P-H) = 6665 km ca or 60°.										
	iPZN	00	44	21.7	1.0	0.5		2.5		1.0	
26	C&GS 07-54-36.0; 15.6 N., 92.1 W., h about 156 km, Mexico-Guatemala border region, Mag. 4.8 (CGS) (P-H) = 2220 km ca or 20°.										
	iPZEN	07	59	06.3	1.0	1.0	0.5	1.0	1.0	0.5	
	e(S)ZEN	08	03	00.0	1.0	6.0	4.0	1.5	1.5	0.6	
26	C&GS 08-10-19.4; 37.1 N., 91.0 W., h about 30 km, Eastern Missouri, Mag. 4.2 (CGS) (P-H) = 334 km ca or 3°.										
	iPZEN	08	11	09.0	1.0	1.0	1.0	5.0	2.0	2.0	
27	C&GS 11-49-10*; 14.2 N., 92.0 W., h about 33 km, Near coast of Chiapas, Mexico, Mag. 4.3 (CGS) (P-H) = 2445 km ca or 22°.										
	iPZ	11	54	06.4	1.0			0.5			
27	30.7 S., 179.5 W., h about 502 km, Kermadec Islands, Mag. 5.0 (CGS) 11, 665 km ca or 105° = (P-H)										
	iPZ	16-	40	39.9	0.5			1.0			
27	ePZ	18	11	01.7	0.5			0.5			
	e(S)Z	18	13	12.7	1.0			0.5			

Date	Phase	Time G. C. T.			Period Sec.			Trace Amp (mms)			9
		h	m	s	Z	E	N	Z	E	N	
Feb.											
27	iPZEN	20	49	07.8	1.5	1.5	3.2	6.0	1.0	5.0	
	e(S)ZEN	20	50	20.7	1.5	6.0	6.0	1.0	1.0	2.5	
	e(L)ZEN	20	55	03.7	5.0	6.0	6.0	1.0	3.0	1.5	
28	C&GS 01-57-33* ; 21.9 S., 176.4 W., h about 171 km, Figi Islands, region, Mag. 4.9 (CGS) (P-H) = 10,55 km ca or 95°										
	i(PP)Z	02	14	33.3	1.0			3.5			
28	C&GS 21-38-52.4; 26.0 S., 70.4 W., h about 67 km, Near coast of northern Chile, Felt at Copiapo, Mag. 4 3/4-5(PAL), 5.7 (CGS) (P-H) = 7220 km ca or 65°.										
	iPZE	21	49	31.0	1.5	1.0		3.5	1.0		
28	ePZEN	23	12	56.0	1.0	0.5	1.0	4.0	0.5	0.5	
March											
1	ePZ	23	28	49.0	1.0			3.5			
2	ePZ	01	54	59.4	.5			.4			
	e(S)Z	01	55	27.9	1.0			.7			
3	C&GS 03-25-28.0; 48.3 N., 154.3 E., h about 45 km, Kurile Islands, Mag. 5 1/2 (Pal), 5.9 (CGS) (P-H) = 8445 km ca or 76°.										
	iPZEN	03	37	13.1	1.5	3.0	2.0	5.0	1.0	2.0	
	eZ	03	38	05.8	2.0			1.0			
6	ePZ	02	34	08.0	0.5			0.5			
	e(S)Z	02	35	13.0	3.0			1.5			
6	C&GS 02-15-56.7; 31.6 N., 80 .5 E., h about 44 km, Tibet, Mag. 6 1/2 (Pas) 6.5-7(Brk), 6 1/2-6 3/4 (Pal), 6.1 (CGS) (P-H) = 2335 km ca or 111°.										
	e(SS)Z	02	45	13.0	1.0			1.0			
6	e(S)EN	03	12	11.0		50.0	30.0	2.5	3.0		
	e(L)EN	03	20	59.0		18.0	16.0	3.5	8.0		
7	C&GS 09-10-54.5; 14.5 N., 93.2 W., h about 22 km, Near coast of Chiapas, Mexico, Mag. 5.3(CGS) (P-H) = 2445 km ca or 22°.										
	iPZEN	09	15	45.4	1.5	0.5	2.0	2.0	0.5	2.5	
	e(S)ZEN	09	19	43.3	1.5	1.0	1.0	1.0	1.0	0.7	
7	C&GS 18-09-43.6; 46.1 N., 11.4 W., Montana. Felt widely in southwestern Montana. Mag. 4.17 (CGS) (P-H) = 2000 km ca or 18°.										
	ePZEN	18	13	35.3	1.0			2.5			
	e(L)ZEN	18	20	25.8	1.0	6.0	3.0	1.0	1.5	8.5	

Date	Phase	Time G. C. T.				Period Sec.			Trace Amp. (mm) 10	
		h	m	s	Z	E	N	Z	E	N
March										
7	C&GS 21-29-17.0; 37.2 N., 114.8 E., about 33 km, Northeastern China, Moderate to heavy damage and injuries in Hopeh Province. Felt widely. Mag 6 3/4(Pas), 6.4 (Brk), 7 - 7 1/4 (Pal). (P-H) = 11335 km ca or 102°.									
	e(L)ZEN	22	19	58.8	22.0	22.0	22.0	2.0	14.0	9.0
8	iPZ	06	00	06.7	1.0			1.0		
8	C&GS 01-13-42.3; 13.9 S., 166.6 E., h about 37 km, New Hebrides Islands, Mag 6 (Pas), 5.9-6.3 (Brk), 6 1/4-6 1/2 (Pal), 5.8 (CGS) (P-H) = 10,000 km ca or 90°.									
	e(L)EN	02	04	30.7		18.0	20.0		4.0	4.0
8	C&GS 00-18-09.8; 18.9 S., 173.3 W., h about 33 km, Tonga Islands, Mag. 5.3 (CGS) (P-H) = 10,220 km ca or 92°.									
	iPZ	00	31	19.7	1.0			1.5		
8	iPZ	02	44	01.7	1.0			2.5		
8	C&GS 20-46-12.0; 20.0 S., 68.0 W., h about 122 km, Chile-Bolivia border region, Felt at Copiapo and Iquigus. Mag. 5.9 (CGS) (P-H) = 6890 km ca or 62°.									
	iPZEN	20	56	13.2	1.0	1.0	3.0	5.0	1.0	1.5
9	C&GS 05-08-30;* 16.5 N., 95.9 W., h about 33 km, Oaxaca, Mexico, Mag. 4.5 (CGS) (P-H) = 2220 km ca or 20°.									
	iPZN	05	12	58.9	1.2		4.0		2.5	1.5
9	C&GS 14-02-12.8; 27.6 N., 115.0 W., h about 33 km, Baja, California, Mag. 5.4 (CGS) (P-H) = 2220 km ca or 20°.									
	iPZEN	14	06	40.2	1.5		1.0	2.0		0.5
	e(L)ZEN	14	12	32.0	4.0	14.0	4.0	0.5	2.0	2.5
9	iPZE	23	33	11.7	1.0	1.0		4.5	1.0	
11	C&GS 01-48-34.8; 19.5 S., 69.2 W., h about 115 km, northern Chile, Mag. 4.7-5.2 (Brk), 5.3 (CGS) (P-H) = 6555 km ca or 59°.									
	iPZ	01	58	31.2	1.0			3.0		
11	C&GS 01-32-31*; 15.4N., 104.5 W., h about 56 km, off coast of Michoacoa, Mexico, Mag. 4.9 (CGS) (P-H) = 2445 km ca or 22°.									
	ePZ	01	37	28.5	1.5			1.5		

Date	Phase	Time G. C. T.			Period Sec.			Trace Amp. (mms)			11
		h	m	s	Z	E	N	Z	E	N	
March											
11	C&GS 09-30-42.0; 23.7 S., 69.2 W., h about 67 km, Northern Antofagasta, Felt at Santiago, Mag. 5.5(CGS) (P-H) = 7335 km ca or 66°.										
	ePZ	09	41	11.0		.75				.75	
11	C&GS 09-49-27*; 15.3 N., 104.5 W., h about 333 km, off coast of Michoacan Mexico, Mag. 4.6(CGS) (P-H) = 2445 km ca or 22°.										
	ePZ	09	54	21.5		1.5				1.0	
11	C&GS 10-24-20*; 21.7 N., 95.4 W., h about 46 km, Gulf of Mexico, Mag. 4.7 (CGS) (P-H) = 1555 km ca or 14°.										
	iPZN	10	27	58.6		1.0		1.0		2.5	1.0
	e(S)ZN	10	29	52.0		1.5		1.0		6.0	1.0
12	C&GS 00-53-21*; 14.7 N., 93.0 W., h about 511 km, Near coast of Chiapas, Mexico, Mag. 4.3(CGS) (P-H) = 2220 km ca or 20°.										
	iPZ	00	58	07.7		1.0				0.75	
	e(S)Z	01	20	03.5		1.2				0.6	
12	C&GS 06-58-37.5; 31.6 S., 67.1 W., h about 128 km, San Juan Province, Argentina, Mag. 5.0 (CGS) (P-H) = 7890 km ca or 71°.										
	iPZ	07	09	47.3		1.5				2.0	
12	C&GS 16-31-21.8; 24.1 N., 122.6 E., h about 63 km, Taiwan region. 7 killed sev. injured, and major damage on Taiwan and Okinawa. Mag. 7½ - 7 3/4 (Pas), 7 - 7½ (Brk), 7 3/4 - 8 (Pal), 6.7 (CGS) (P-H) = 12,110 km ca or 109°.										
	iPZN	16	45	49.8		1.2		1.0		1.1	1.0
	ePPZN	16	49	55.1		1.5		8.0		4.5	24.0
	eZN	16	57	17.1		6.0		23.0		1.0	47.0
	e(L)ZN	17	31	31.0		20.0		18.0		1.5	4.5
13	C&GS 01-36-34.0; 28.3 N., 43.8 W., h about 33 km, North Atlantic Ridge, Mag. 4.9 (CGS) (P-H) = 4665 km ca or 42°.										
	iPZ	01	44	31.5		1.5				0.7	
13	C&GS 09-39-39*; 17.0 N., 100.9 W., h about 52 km, near coast of Guerrero, Mexico, Mag. 4.1(CGS) (P-H) = 2220 km ca or 20°.										
	iPZ	09	44	07.5		1.0		0.5			
16	C&GS 00-08-19*; 33.1 N., 75.9 E., h about 57 km, Eastern Kashmir, Mag. 5.2 (CGS) (P-H) = 11, 780 km ca or 106°.										
	ePPZ	00	28	18.7		1.0				0.7	

Date	Phase	Time G. C. T.			Period Sec.			Trace Amp. (mms)			12
		h	m	s	Z	E	N	Z	E	N	
March											
16	C&GS 12-13-02.4; 21.2 S., 174.3W., h about 66 km, Tonga Islands, Mag. 5.4 (CGS) (P-H) = 10,665 km ca or 96°.										
	i(P)Z	12	26	17.5	1.0			0.5			
17	C&GS 11-47-49*; 41.8 N., 11.4 W., h about 38 km, Utah, Felt in Cache Valley and at Salt Lake City, Mag. 4.5 (CGS) (P-H) = 1665 km ca or 15°.										
	ePZEN	11	51	12.6	1.0	0.5	0.5	1.0	0.5	0.5	
	e(S)ZEN	11	55	14.6	1.5	11.0	6.0	2.0	4.0	3.0	
17	C&GS 15-50-32.3; 21.1 S., 179.2 W., h about 626 km, Fiji Islands Region, Mag. 6 3/4(Pas), 6.2 (CGS) (P-H) = 10,890 km ca or 98°.										
	ePZE	16	03	05.3	1.0	1.0		2.5	0.5		
	e(PP)ZE	16	07	14.3	1.8	6.0		2.0	5.5		
18	C&GS 18-05-23.5; 43.7 N., 127.3 W., h about 33 km, off coast of Oregon, Mag. 4 (Brk), 4.6 (CGS), (P-H) = 3110 km ca or 28°.										
	e(P)Z	18	11	01.4	1.0			1.3			
	e(L)ZEN	18	18	47.8	1.0	10.0	16.0	1.0	5.0	5.0	
19	ePZ	04	27	29.5	1.0			0.7			
19	C&GS 08-11-40*; 43.3 N., 145.8 E., h about 11 km, Hokkaido, Japan region, Mag. 5.6(CGS) (P-H) = 9110 km ca or 82°.										
	iPZ	08	24	11.5	1.5			1.0			
20	C&GS 01-42-49.9; 0.6 N., 30.2 E., h about 36 km, Uganda, More than 100 dead, Extensive damage to buildings at Fort Portal and nearby areas; felt in western Uganda. Mag. 6 3/4 - 7 (Pas), 6.4-6.6(Brk), 7-7 1/4 (Pal), 6.1 (CGS) (P-H) = 12,335 km ca or 111°.										
	e(PP)ZN	02	01	33.8	1.0						0.7
	eZN	02	02	40.8	3.0		6.0	1.2		2.0	
	e(PS)ZN	02	12	02.7	1.0		6.0	1.0		1.5	
	e(SS)ZN	02	16	03.7	2.0		26.0	0.5		3.5	
	e(L)ZN	02	46	33.7	20.0		16.0	1.0		18.0	
20	ePZ	04	14	18.6	0.5			0.5			
20	C&GS 09-04-31.8; 21.0 S., 174.5 W., h about 95 km, Tonga Islands, Mag. 5 3/4-6 (Brk), 5.2 (CGS) (P-H) = 10,555 km ca or 95°.										
	ePZ	09	17	43.5	2.0			1.0			
20	iPZ	06	03	19.4	1.0			6.0			



Date	Phase	Time G. C. T.			Period Sec.			Trace Amp. (mms)		
		h	m	s	Z	E	N	Z	E	N
<b>March</b>										
20	C&GS 10-00-41.7; 7.2 S., 105.6 E., h about 33 km, Java, Mag. 5.0(CGS) (P-H) = 16,000 km ca or 144°.									
	i(P)ZN	10	20	29.4	1.0		12.0	2.0		1.0
22	C&GS 08-19-33.8; 37.5 N., 115.1 E., h about 33 km, Northeastern China, several casualties and major property damage. Mag. 6 3/4-7 (Pas), 6.5-6.8(B7 7/4-7 1/2 (Pal), 6.0 (CGS) (P-H) = 11,335 km ca or 102°.									
	e(P)ZE	08	33	30.0	0.5		2.0	1.0		1.0
	e(SKS)ZE	08	44	06.0	2.0		6.0	0.5		2.0
	e(L)ZE	09	06	59.0	15.0		10.0	1.0		25.0
23	C&GS 05-11-32.5; 16.8 N., 85.9 W., h about 33 km, Caribbean Sea, Mag. 4 3/4 (Pal) 5.3 (CGS) (P-H) = 2220 km ca or 20°.									
	ePZ	05	16	12.5	1.0			2.5		
	e(S)Z	05	19	48.5	1.0			5.0		
23	e(P)Z	15	55	32.1	0.6			5.0		
25	C&GS 06-17-04*; 37.5 N., 115.3 E., h about 33 km, Northeastern China, Mag. 4.3(CGS) (P-H) = 11,335 km ca or 102°									
	e(PS)Z	06	44	21.5	0.5			0.5		
25	i(P)Z	23	2	27.5	0.5			6.0		
26	i(P)Z	05	17	41.8	0.5			6.0		
26	e(P)Z	20	02	33.0	1.0			1.0		
27	iPZ	03	50	56.0	1.0			1.0		
27	C&GS 18-53-41.3; 8.9 N., 83.4 W., h about 40 km, Costa Rica, Mag. 5.5-6 (Brk), 5 1/4-5 1/2 (Pal), 5.6 (CGS), (P-H) = 3110 km ca or 28°.									
	i(P)ZN	18	59	37.0	1.5		6.0	2.0		2.0
	e(L)ZN	19	06	04.0	6.0		8.0	1.0		2.0
27	C&GS 21-07-33*; 14.9 N., 93.4 W., h about 33 km, Near coast of Chiapas, Mexico, Mag. 3.6(CGS) (P-H) = 2000 km ca or 18°.									
	e(P)Z	21	12	19.5	1.0			0.5		
28	C&GS 15-29-18.4; 3.9 S., 80.9 W., h about 19 km, Peru-Ecuador border region, Mag. 4.7-5.3(Brk), 5-5 1/4(Pal), 5.1(CGS) (P-H) = 1665 kmca or 42°.									
	iPZN	15	37	09.6	1.0		4.0	7.5		2.0
	e(S)AN	15	43	28.0	(1.0)		6.0	(1.5)		1.5

Date	Phase	Time G. C. T.			Period Sec.			Trace Amp. (mms)			14
		h	m	s	Z	E	N	Z	E	N	
<b>March</b>											
28	C&GS 17-42-47.6; 4.0 S., 80.8 W., h about 52 km, Peru-Ecuador border region, Mag. .48-5.2 (Brk), 5 (Pal), 5.3 (CGS) (P-H) = 4665 km ca or 42°										
	iPZN	17	50	34.6	1.0		3.0	5.0		1.5	
	e(S)ZN	17	56	48.0	2.0		5.0	0.5		1.5	
28	C&GS 20-29-32.3; 4.0 S., 80.9 W., h about 22 km, Peru-Ecuador border region, Mag. 4.7-5.3 (Brk), 5 -5 $\frac{1}{4}$ (Pal), 5.1 (CGS) (P-H) = 4665 km ca or 42°										
	iPZ	20	37	23.2	1.2			3.0			
29	C&GS 02-17-38.5; 23.7 N., 142.1 E., h about 79 km, Volcano Islands Region, Mag. 5 $\frac{1}{2}$ (Pal), 5.9 (CGS) (P-H) = 11,110 km ca or 100°.										
	iPZ	02	31	17.4	1.0			1.0			
29	C&GS 04-05-06.6; 8.6 S., 105.9 E., h about 54 km, South of Java, (P-H) = 16,335 km ca or 147°.										
	e(P)Z	04	24	45.9	0.5			0.5			
29	eZ										
		06	08	34.8	0.5			0.6			
29	C&GS 15-37-37*; 16.9 N., 96.0 W., h about 43 km, Oaxaca, Mexico. Mag 3.7 (CGS) (P-H) = 2000 km ca or 18°.										
	ePZ	15	42	00.7	0.5			0.7			
30	ePZ										
		03	27	19.4	0.5			0.5			
30	C&GS 04-53-41.0; 29.9 S., 71.4 W., h about 87 km, near coast of central Chile, felt at Serena, Mag. 4.8(CGS) (P-H) = 7780 km ca or 70°.										
	ePZ	05	04	37.4	0.5			0.7			
30	C&GS 12-40-01.0; 49.8 N., 129.7 W., h about 33 km, Vancouver Island region. Mag. 5 $\frac{1}{2}$ -5 $\frac{3}{4}$ (Pas), 6 (Brk), 6 $\frac{1}{4}$ (Pal), 5.3 (CGS) (P-H) = 3110 km ca or 28°.										
	iPZ	12	46	00.0	1.0			1.5			
	e(S)Z	12	50	04.2	3.0			0.7			
	e(L)Z	12	55	31.2	11.0			1.0			
31	C&GS 23-38-00.5; 36.4 N., 70.8 E., h about 200 km, Hindu Kush region, Mag. 5.6 (CGS) (P-H) = 11,780 km ca or 106°.										
	e(PP)Z	23	55	03.9	1.0			1.5			

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



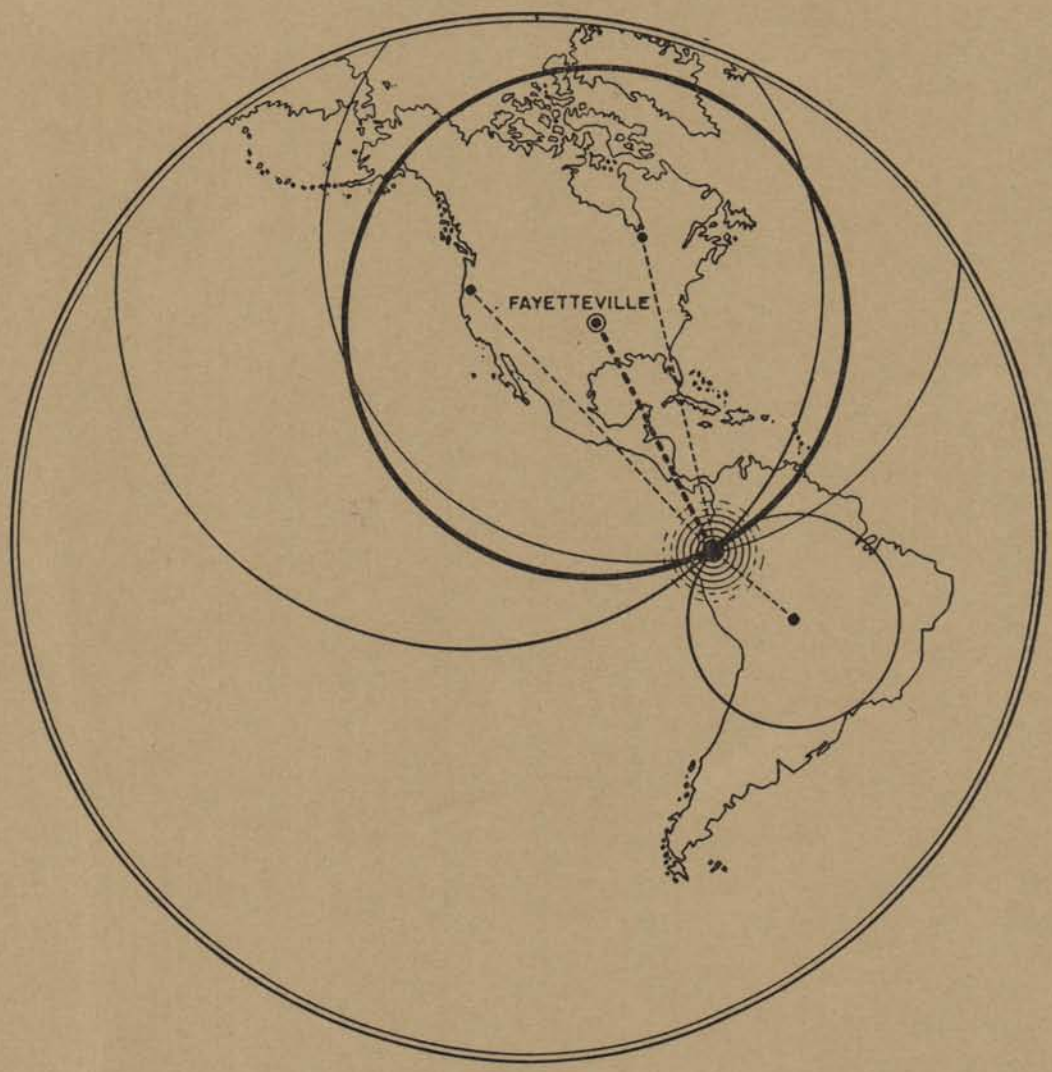
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# UNIVERSITY OF ARKANSAS SEISMOLOGICAL BULLETIN

Volume XV

Number 2



## The University Of Arkansas Seismograph Station

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

Earthquakes for the Second Quarter of 1966

Royal H. Mapes

## FAYETTEVILLE SEISMOGRAPH STATION

Volume XV, Number 2, October 1968  
Data for April, May, June 1966

## Instruments

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

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

Horizontal component - Wilson - Wilson-Lamison hinges type: E-W  
N-S electromagnetic -galvanometric

Seismograph period - 6.0 seconds (N-S)  
6.0 seconds (E-W)  
Galvanometer-General Electric period - 4.4 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 Royal H. Mapes, Observer



DATE	PHASE	Time G.C.T.			Period			Trace Amp. (mms)			1
		h	m	s	Z	E	N	Z	E	N	
April											
4	ePZ	07	01	32.6	1.0			0.5			
4	iZ	19	50	58.6	0.5			1.0			
4		C&GS 19-50-07.6, 13.8 N., 89.7W, h about 108 km., El Salvador, felt at San Salvador, Mag. 5.5 (CGS), (P-H) = 2,445 km. ca. or 22°.									
4	iZ	19	55	01.2	2.0			6.5			
5		C&GS 04-57-37, 44.0 N., 147.7 E., h about 33 km., Kurile Islands, Mag. 5.0 (CGS), (P-H) = 9,000 km. ca. or 81°.									
5	iPZ	05	09	57.7	0.5			0.7			
5	eZ	03	19	05.8	0.5			0.5			
5	iPZ	23	15	45.7	1.0			2.0			
6	eZ	10	00	56.4	0.5			0.5			
7	iPZ	01	57	59.5	2.0			6.0			
	e(S)Z	02	04	15.5	3.0			0.7			
9		C&GS 02-34-23.0, 9.4 N., 84.2 W., h about 40 km., Costa Rica, Mag. 5.3 (CGS), (P-H) = 3,110 km. ca. or 28°.									
9	iPZ	02	40	11.9	1.0			2.0			
9		C&GS 02-42-08.7, 9.6 N., 84.1 W., h about 30 km., Costa Rica, Mag. 5.3/4 (PAL), 5.7 (CGS), (P-H) = 3,110 km. ca. or 28°.									
9	iPZ	02	47	58.1	1.0			3.0			
10		C&GS 06-46-12, 41.4 N., 125.5 W., h about 33 km., off coast of northern California, Mag. 5.6 (CGS), (P-H) = 2,665 km. ca. or 24°.									
10	iPZ	22	32	24.5	2.0			9.5			
11		C&GS 17-17-33.8, 18.4 N., 102.3 W., h about 72 km., Michoacan, Mexico, Mag. 5 1/4 - 5 1/2 (PAL), 5.7 (CGS), (P-H) = 2,000 km. ca. or 18°.									
11	i(PP)Z	17	21	53.0	1.4			6.5			
	e(S)Z	17	23	25.0	3.0			1.0			



DATE	PHASE	Time G.C.T.			Period		Sec.	Trace	Amp. (mms)			2
		h	m	s	Z	E			Z	E	N	
April												
11	eZ	17	28	02.0	3.0			1.5				
	e(L)Z	17	30	11.0	4.0			0.7				
10		C&GS 10-33-35.0, 6.9 N., 73.0W., h about 155 km., Northern Colombia, felt widely, Mag. 5.1 (CGS), (P-H) = 3,780 km. ca. or 34°.										
10	iPZ	10	40	13.7	2.0			6.0				
10		C&GS 16-36-14.6, 31.5 S., 71.2 W., h about 64 km., near coast of Central Chile, felt at Santiago, Ovalle, and San Juan, Argentina, Mag. 6 (PAS), 5 1/4 - 5 1/2 (PAL), 5.7 (CGS) (P-H) = 8,000 km. ca. or 72°.										
10	iPZ	16	47	24.7	1.5			9.5				
12		C&GS 23-37-42.1, 38.1 S., 73.0 W., h about 44 km., Central Chile, felt at Concepcion, Valdivia, and Temuco. Mag. 6 (PAS), 6.4 (BRK), 6 - 6 1/4 (PAL), 5.7 (CGS), (P-H) = 8,445 km. ca. or 76°.										
12	ePZ	23	49	12.1	2.0			2.0				
13		C&GS 03-35-16.3, 38.2 S., 73.2 W., h about 40 km. near coast of Central Chile, felt at Concepcion. Mag. 5 1/2 (PAS), 5 1/2 - 5 3/4 (PAL), 5.8 (CGS), (P-H) = 8,445 km. ca. or 76°.										
13	iPZ	03	46	59.4	2.0			2.0				
13		C&GS 13-07-36, 25.6 N., 109.3 W., h about 33 km., Gulf of California, Mag. 4.3 (CGS), (P-H) = 1,780 km. ca. or 16°.										
13	iPZ	13	11	08.6	0.8			1.0				
	eZ	13	16	17.2	2.4			2.0				
	e(L)Z	13	19	10.2	5.0			1.0				
14		C&GS 06-19-13.6, 25.0 S., 64.5 W., h about 25 km., Salta Province, Argentina, Mag. 5.3 (CGS), (P-H) = 7,445 km. ca. or 67°.										
14	iPZ	06	30	04.4	2.0			2.5				
14	eZ	11	20	20.1	2.0			1.0				
14	iPZ	14	17	53.9	1.2			1.0				
	e(PP)Z	14	23	10.1	3.0			1.0				

DATE	PHASE	Time G.C.T.			Period		Sec.	Trace Amp. (mms)			3
		h	m	s	Z	E	N	Z	E	N	
April											
16		C&GS 01-27-15.3, 57.0 N., 153.6 W., h about 33 km., Kodiak Island Region, Mag. 6 1/4 (PAS), 6 (PAL), 5.7 (CGS), (P-H) = 5,000 km. ca. or 45°.									
16	iPZ	01	35	22.7	1.0			3.5			
	e(S)Z	01	40	55.9	4.0			0.7			
	e(L)Z	01	51	05.9	16.0			0.5			
16		C&GS 10-13-28, 35.0 N., 141.5 E., h about 63 km., off east coast of Honshu, Japan, Mag. 5.2 (CGS), (P-H) = 10,000 km. ca. or 90°.									
16	ePZ	22	35	44.3	1.5			1.5			
16		C&GS 11-32-01.1, 19.0 N., 70.4 W., h about 46 km., Dominican Republic Region, Mag. 4.7 (CGS), (P-H) = 3,110 km. ca. or 28°.									
16	ePZ	11	37	44.7	1.0			1.5			
17	e(L)Z	17	04	04.1	5.0			0.7			
24		C&GS 06-03-52.2, 13.0 N., 88.9 W., h about 62 km., off coast of Central America, felt at San Salvador. Mag. 4.6 (CGS), (P-H) = 2,445 km. ca. or 22°.									
24	i(PF)Z	06	08	59.0	1.0			1.0			
26	e(P)Z	19	04	11.9	0.8			1.0			
	e(P)Z	19	21	52.3	1.0			5.0			
	e(S)Z	19	22	31.1	0.5			1.0			
26	eZ	19	28	07.5	1.0			2.5			
	eZ	19	28	58.9	0.5			2.5			
	eZ	19	34	09.9	0.5			1.5			
	eZ	20	16	45.9	0.5			1.5			
	e(S)Z	20	20	27.9	1.0			6.0			
28		C&GS 10-39-07, 15.2 N., 94.9 W., h about 33 km., near coast of Oaxaca, Mexico, Mag. 5.1 (CGS), (P-H) = 2,220 km. ca. or 20°.									
28	i(P)Z	10	43	47.8	1.5			6.0			

DATE	PHASE	Time G.C.T.			Period		Sec. N	Trace Amp. (mms)		
		h	m	s	Z	E		Z	E	N
April										
28	C&GS 22-30-05, 44.0 N., 127.8 W., h about 18 km., off coast of Oregon, Mag. 5.0 (CGS), (P-H) = 3,110 km. ca. or 28°.									
28	ePZ	22	35	44.3	1.5			1.5		
29	C&GS 01-46-43, 53.8 N., 157.8 W., h about 33 km., south of Alaska, Mag. 5.2 (CGS), (P-H) = 5,335 km. ca. or 48°.									
29	ePZ	01	55	18.2	1.2			1.5		
29	C&GS 17-13-28, 16.2 N., 94.0 W., h about 50 km., Oaxaca, Mexico, Mag. 3.6 (CGS), (P-H) = 2,220 km. ca. or 20°.									
29	e (PP)Z	17	18	13.0	1.0			1.5		
30	C&GS 13-01-19, 18.8 N., 106.7 W., h about 54 km., off coast of Jalisco, Mexico, Mag. 5 1/2 (PAS), 5.2 (CGS), (P-H) = 2,220 km. ca. or 20°.									
30	iPZN	13	05	52.7	2.5 D.	4.0		3.5 D.		5.5
	cSZN	13	09	23.8	2.0	8.0		0.5		11.0
	e(L)ZN	13	13	17.8	8.0	7.0		1.7		4.0
May										
2	e(P)Z	14	14	38.1	1.0			0.7		
	e(S)ZEN	14	19	49.6	3.0	4.0	4.0	0.7	0.7	2.0
2	iPZ	15	59	00.1	0.7			2.5		
1	C&GS 16-22-56.3, 8.5 S., 74.3 W., h about 165 km., Peru-Brazil border region, Mag. 6 3/4 (PAS), 5.7 (CGS), (P-H) = 5,555 km. ca. or 50°.									
1	iPZEN	16	31	20.4	1.5	4.0	4.0	7.5	3.0	6.5
	e(S)ZEN	16	38	31.3	1.5	6.5	8.0	1.5	5.5	3.5
	e(L)ZEN	16	43	27.3	4.0	8.0	10.0	0.5	4.0	2.0
3	C&GS 12-45-32.1, 37.1 S., 147.2 E., h about 116 km., near coast of Chiapas, Mexico, Mag. 4.3 (CGS), (P-H) = 2,220 km. ca. or 20°.									
3	e(P)Z	12	50	04.3	1.0			1.0		

DATE	PHASE	Time G.C.T.			Period		Sec.	Trace Amp. (mms)		
		h	m	s	Z	E	N	Z	E	N
May										
3	e(S)Z	12	53	49.8	1.0			2.0		
5	C&GS 15-52-41.1, 61.5 N., 27.5 W., h about 33 km., Iceland Region, Mag. 5.0 (CGS), (P-H) = 5,335 km. ca. or 48°.									
5	e(P)ZEN	16	01	17.5	1.0	24.0	12.0	1.2	1.0	1.5
5	C&GS 15-16-31.9, 61.4 N., 27.5 W., h about 33 km., Iceland Region, Mag. 5.0 (CGS), (P-H) = 5,335 km. ca. or 48°.									
5	e(P)ZEN	15	25	09.3	1.5	1.0	22.0	1.0	24.0	3.0
6	iPZEN	15	04	10.1	1.0	0.5	0.5	2.5	0.2	0.2
	e(S)ZEN	15	09	37.1	2.0	6.0	4.0	0.7	2.0	4.5
	e(L)Z	15	11	09.6	3.0			0.6		
7	C&GS 03-26-51, 31.6 N., 116.1 W., h about 33 km., Baja California, Mag. 5.1 (CGS), (P-H) = 2,220 km. ca. or 20°.									
7	iPZ	03	31	11.0	1.0			1.0		
	e(S)Z	03	35	49.0	1.0			0.5		
	e(L)Z	03	36	48.0	4.0			0.5		
8	C&GS 17-23-38, 36.9 N., 106.9 W., h about 5 km., New Mexico, Mag. 4.5 (CGS), (P-H) = 1,335 km. ca. or 12°.									
8	ePZ	17	26	30.3	1.0			1.5		
	e(S)Z	17	28	59.3	1.0			1.2		
8	C&GS 17-50-36, 37.0 N., 106.8 W., h about 5 km., Colorado, Mag. 4.2 (CGS), (P-H) = 1,335 km. ca. or 12°.									
8	e(P)Z	17	53	41.3	0.5			1.0		
	e(S)Z	17	55	48.8	0.5			0.6		
9	C&GS 00-42-55.6, 34.5 N., 26.5 E., h about 33 km., Crete, Mag. 5.5 (CGS), (P-H) = 9,555 km. ca. or 86°.									
9	iPZ	00	55	57.8	1.5			1.0		



DATE	PHASE	Time G.C.T.			Period		Sec. N	Trace Amp. (mms)			6
		h	m	s	Z	E		Z	E	N	
May											
9	C&GS 02-57-24, 37.0 N, 106.9 W., h about 5 km., New Mexico, Mag. 4.4 (CGS) (P-H) = 1335 KmCa, or 120°.										
9	ePZ	03	00	32.0	0.5			0.5			
	e(S)Z	03	02	47.0	1.0			0.7			
9	C&GS 03-41-00.0, 13.6 N., 91.0 W., h about 68 km., near coast of Guatemala, Mag. 4.4 (CGS), (P-H) = 2220 km. ca. or 20°.										
9	ePZ	03	45	57.0	1.2			0.7			
11	C&GS 01-55-51, 16.7 N., 96.6 W., h about 57 km., Oaxaca, Mexico, Mag 4.6 (CGS), (P-H) = 2220 Km. Ca. or 20°.										
11	iPZ	01	60	16.3	1.0			1.0			
11	C&GS 14-17-34.1, 48.9 N., 156.2 E., h about 13 km, Kurile Islands Region, Mag. 5.4-5.8 (BRK), 6 (PAL), 5.8 (CGS), (P-H) = 8335 Km. Ca. or 75°.										
11	i(P)ZE	14	29	15.6	1.5	2.0		4.0	1.0		
	e(S)ZE	14	38	18.9	1.2	6.0		1.2	4.0		
	e(L)E	14	56	04.9		18.0			3.0		
11	C&GS 21-39-35.3, 48.8 N., 156.3 E., h about 28 km., Kurile Islands Region, Mag. 5.1-5.3 (BRK), 5 1/2-5 3/4 (PAL), 5.7 (CGS), (P-H) = 8335 km. ca. or 75°.										
11	iPZEN	21	51	14.4	1.5	4.0	2.0	3.0	1.0	0.5	
13	iPZEN	13	34	07.1	2.5	3.0	5.0	2.5	1.3	1.3	
	e(S)ZEN	13	39	14.6	2.0	3.0	4.0	1.8	1.3	5.0	
	e(L)ZEN	13	41	15.6	2.0	5.0	4.0	0.8	1.5	3.0	
13	e(P)Z	16	34	57.7	1.5			0.5			
	e(S)Z	16	39	54.7	2.0			0.7			
15	e(P)Z	02	02	10.1	0.8			0.3			
15	iPZ	04	08	33.15	0.6			0.3			
15	C&GS 14-46-06.5, 51.5 N., 178.4 W., h about 31 km, Andreanof Islands, Aleutian Is., Mag. 5 3/4-6 (PAS), 5.5-5.7 (BRK), 6 (PAL), 5.8 (CGS), (P-H) = 6665 Km. Ca. or 60°.										

DATE	PHASE	Time G.C.T.			Period		Sec. N	Trace Amp. (mms)			7
		h	m	s	Z	E		Z	E	N	
May											
15	iPZ	14	56	06.5	5.0			4.5			
	e(S)Z	15	01	25.7	1.5			1.0			
	e(L)Z	15	04	43.0	2.0			<del>0.8</del>			
	eZ	15	10	42.7	1.5			0.8			
18	C&GS 07-32-07.3, 25.0 N., 109.0 W., h about 33 km, Gulf of California, Mag 5 3/4 (PAS), 5-5.4 (BRK), 6-6 1/4 (PAL), 5.3 (CGS), (P-H) = 2000 km. ca. or 18°.										
18	iPZEN	07	36	05	1.0	4.0	4.0	2.0	3.5	1.0	
	eSZEN	07	39	26	2.0	5.0	5.0	2.0	4.5	3.5	
	eLZEN	07	41	01	3.0	10.0	8.0	4.0	<del>40.0</del>	26.0	
	eZEN	07	44	11	5.0	5.0	6.0	2.0	20.0	13.0	
	eZEN	07	48	04	2.0	6.0	3.0	.8	6.5	3.5	
18	C&GS 08-04-59.2, 24.6 N., 108.9 W., h about 33 km, Gulf of California, Mag 4.5 (CGS), (P-H) = 2000 Km. Ca. or 18°.										
18	e(P)Z	08	09	59	1.0			.5			
	e(L)Z	08	14	03	2.5			.5			
19	e(P)Z	02	04	49.9	0.8			1.0			
19	C&GS 07-06-26.8, 54.1 N., 164.1 W., h about 28 Km, Unimak Island Region, Mag 6 (PAS), 5.6-6.0 (BRK), 6 (PAL), 5.8 (CGS), (P-H) = 5555 Km. Ca. or 50°.										
19	iPZN	07	15	20.7	1.0		4.0	2.0		.8	
	e(SS)N	07	26	2.7			8.0			1.0	
19	iPZN	19	00	34.4	1.5		2.0	3.5		1.0	
	e(S)ZN	14	05	19.4	1.0		4.0	2.0		1.8	
	e(L)ZN	14	10	30.4	2.5		6.0	1.0		2.5	
19	e(P)Z	15	41	35.3	1.0			.5			
	e(L)Z	15	46	39.3	1.5			.6			

DATE	PHASE	Time G.C.T.			Period		Sec. N	Trace		Amp. (mms) E N	8
		h	m	s	Z	E		Z	E		
May											
20	e(P)Z	02	29	05.9	1.0			1.0			
20	C&GS 09-14-49.2, 13.9 N., 146.1 E., h about 66 km, south of Mariora Islands, Mag. 6 1/4-6 1/2 (PAS), 6-6.4 (BRK), 6.0 (CGS), (P-H) = 11,220 Km. Ca. or 101°.										
20	e(S)Z	09	28	47.6	1.2			0.5			
	eZ	09	33	08	1.5			0.5			
20	e(P)Z	11	40	25.4	0.5			0.9			
20	C&GS 11-44-29, 55.0 N., 165.7 E., h about 46 km, Komandorsky Islands Region, Mag. 5.2 (CGS), (P-H) = 7335 Km. Ca. or 66°.										
20	ePZ	11	55	15.4	1.0			0.5			
21	C&GS 23-58-51.7, 50.2 N., 129.7 W., h about 37 Km., Vancouver Island Region, Mag. 5.0 (CGS), (P-H) = 3335 Km. Ca. or 30°.										
21	e(P)Z	00	04	50.9	1.0			0.5			
22	C&GS 06-06-30, 21.0 N., 108.9 W., h about 28 km, Revilla Giedo Islands Region, Mag. 4.7 (CGS), (P-H)=2445 Km. Ca. or 22°.										
22	ePZ	06	11	0.3	1.0			0.6			
	eLZE	06	16	58.3	1.0	4.0		0.5	1.5		
22	C&GS 07-42-50, 21.2 N., 108.7 W., h about 53 km, Revilla Giedo Islands Region, Mag. 4.2-4.6 (BRK), 5.5 (CGS), (P-H) = 2445 Km. Ca. or 22°.										
22	iPZE	07	47	04.8	1.5	5.0		3.5	1.8		
	e(S)ZE	07	50	57.3	2.0	10.0		0.5	6.0		
	eZE	07	52	57.3	7.0	9.0		0.8	6.5		
22	C&GS 09-29-23, 21.1 N., 108.7 W., h about 48 Km, Revilla Giedo Islands Region, Mag 4.4-4.8 (BRK), 5.2 (CGS), (P-H) = 2445 Km. Ca. or 22°.										
22	iPZE	09	33	48.3	1.5	6.0		0.8	1.0		
	e(L)ZE	09	39	55.3	2.0	7.0		0.5	2.6		



DATE	PHASE	Time G.C.T.			Period		Sec.	Trace Amp. (mms)			
		h	m	s	Z	E		N	Z	E	N
May											
23		C&GS 11-51-30, 21.4 N., 108.7 W., h about 58 Km, Revilla Gigedo Islands Region, Mag 4.6-5.0 (BRK), (P-H) = 2445 Km. Ca. or 22°.									
23	iPZE	11	55	51.5	1.0	3.0		2.0	1.1		
	e(S)ZE	11	59	17.0	1.5	10.0		0.5	8.0		
	e(L)ZE	12	01	58.0	1.9	11.0		0.5	14.0		
24		C&GS 05-49-06.3, 39.5 N., 125.5 W., h about 1 km. off coast of northern California chemical explosion (Chase V). Mag. 5.0 (BRK), 5.2 (CGS), (P-H) = 2890 Km. Ca. or 26°.									
24	e(P)Z	05	54	48	1.0			1.0			
24	i(P)Z	09	52	05	1.0			0.3			
24		C&GS 20-19-41, 21.3 N., 108.7 W., h about 57 Km, Revilla Gigedo Islands Region, Mag. 4.9 (CGS), (P-H) = 2445 Km. Ca. or 22°.									
24	iPZ	20	24	05	1.2			1.6			
	e(PP)Z	20	25	03	2.0			0.8			
	e(L)Z	20	30	19	4.0			0.6			
25		C&GS 13-20-56.2, 52.9 S., 160.0 E., h about 33 km, Macquarie Island Region, Felt on Macquarie, Mag. 6.6 (CGS), (P-H) = 14,220 Km. Ca. or 128°.									
25	eZ	13	40	57.5	1.0			0.8			
	e(PP)Z	13	41	58.5	2.0			0.8			
	e(SKSP)ZE	13	52	03.5	2.5	5.0		0.5	1.0		
	e(L)E	14	24	58.5		16.0			1.5		
26	e(P)Z	22	44	53.5	1.0			0.8			
27	e(P)Z	03	23	01	1.0			1.0			
27	iPZ	20	04	11	1.0			1.0			
	e(S)Z	20	05	30	1.5			0.8			
	e(L)Z	20	09	19	2.0			1.0			

DATE	PHASE	Time G.C.T.			Period		Sec. N	Trace Amp. (mms)		
		h	m	s	Z	E		Z	E	N
May 27	ePZ	20	19	46	1.0			0.6		
	e(S)Z	20	19	57	0.5			1.0		
	e(L)Z	20	20	06	1.0			1.0		
27	iPZ	20	17	44	0.5			2.0		
27	ePZ	22	44	38	1.0			1.5		
28	e(P)Z	02	53	17.8	1.0			0.6		
	e(L)E	02	56	54.8	5.0			0.9		
28	e(P)Z	19	14	23.1	1.0			1.2		
28	C&GS 21-50-12, 51.5 N., 178.4 W., h about 33 km., Andreanof Islands, Alcutian Islands, Mag. 5.2 (CGS), (P-H) = 6665 Km. Ca. or 60°.									
28	ePZ	22	00	12	0.5			2.5		
29	e(P)Z	03	28	44	1.0			1.0		
	e(S)Z	03	29	06	0.5			0.6		
29	ePZ	14	06	12	1.0			1.0		
29	ePZ	21	05	33	0.8			1.0		
30	C&GS 03-09-34.4, 7.6 N., 77.0 W., h about 32 Km, Northern Colombia, Mag. 5.3 (CGS), (P-H) = 3665 Km. Ca. or 33°.									
30	iPZ	03	15	59	1.0			4.0		
	e(PP)Z	03	16	52	1.0			0.8		
31	ePZ	10	25	42	0.8			0.6		
	e(S)ZEN	10	30	48	2.0	5.0	4.0	0.7	2.3	1.8
31	e(P)Z	19	14	41	0.5			0.9		
31	e(P)Z	04	31	33	0.5			0.7		
	e(S)Z	04	33	10	0.8			1.0		

DATE	PHASE	Time G.C.T.			Period		Sec. N	Trace Amp. (mms)			11
		h	m	s	Z	E		Z	E	N	
<b>May</b>											
31	C&GS 06-19-02, 37.6 N., 78.0 W., h about 33 Km., Virginia, Felt widely. Mag. 3.4 (PAL), 3.1 (CGS), (P-H) = 1335 Km. Ca. or 12°.										
31	e(P)Z	06	22	09	0.5			0.6			
	e(S)Z	06	25	47	1.0			1.5			
<b>June</b>											
1	C&GS 02-33-56, 51.5 N., 176.2 E., h about 15 km, Rat Islands, Aleutian Islands, Mag. 5.1 (CGS), (P-H) = 6780 Km. Ca. or 61°.										
1	ePZ	02	44	19.0	0.5			0.5			
1	C&GS 11-47-33.1, 23.4 S., 174.9 W., h about 24 km, Tonga Islands Region Mag 5.9 (CGS), (P-H) = 10,555 Km. Ca. or 95°.										
1	e(P)ZE	12	01	00.9	1.5			1.2			
	e(L)E	12	34	34.0		3.0		16.0			
2	C&GS 03-27-53.3, 51.1 N., 176.0 E., h about 41 km, Rat Islands, Aleutian Islands, Mag. 6 (PAS), 5 1/2-5 3/4 (PAL), 6.0 (CGS), (P-H) = 6780 Km. Ca. or 61°.										
2	iPZ	03	38	15.7	1.0			7.5			
	e(PP)Z	03	39	45.0	1.5			1.5			
	eZ	03	42	53.7	2.0			1.0			
2	ePZ	07	26	59.0	1.0			1.5			
2	iPZ	15	34	06.8	1.5			5.0			
	e(S)Z	15	35	28.5	1.0			2.5			
	e(L)Z	15	39	14.0	3.0			2.0			
2	C&GS 16-53-56.6, 18.6 S., 173.4 W., h about 33 km, Tonga Islands, Mag 5.0 (CGS), (P-H) = 10,555 Km. Ca. or 95°.										
2	e(P)Z	17	07	06.0	1.0			1.0			
	eZ	17	07	55.0	1.0			1.5			
3	iPZEN	14	04	07.8	1.5	4.0	1.0	3.0	1.0	1.0	

DATE	PHASE	Time G.C.T.			Period		Sec. N	Trace Z	Amp. (mms)		
		h	m	s	Z	E			Z	E	N
June											
3	e(PP)ZE	14	05	22.7	1.6	3.0		2.5	1.5		
	e(S)ZEN	14	09	08.2	3.0	4.0	4.0	1.5	1.5	6.0	
	e(L)ZEN	14	11	26.2	2.5	8.0	7.0	1.0	1.5	2.5	
4	C&GS 12-12-00, 19.9 N., 107.8 W., h about 33 Km, off coast of Jalisco, Mexico, (P-H) = 2445 Km. Ca. or 22°.										
4	ePZ	12	16	32.4	1.0			0.5			
4	ePZ	18	17	02.7	1.0			1.0			
4	C&GS 06-16-57.4, 36.6 N., 21.0 E., h about 80 Km, Mediterranean Sea, Mag 5.1 (CGS), (P-H) = 9335 Km. Ca. or 84°.										
4	iPZ	06	29	30.6	1.0			2.5			
4	C&GS 10-29-39, 37.0 N, 107.0 W, h about 5 km, New Mexico, Mag 4.1 (CGS), (P-H) = 1110 Km. Ca. or 10°.										
4	ePZ	10	32	46.5	0.5			1.0			
5	C&GS 23-48-17.8, 46.5 N, 152.5 E, h about 27 Km, Kurile Islands, Mag 5 3/4-6 (PAS), 5 3/4-6 (PAL), 5.9 (CGS), (P-H) = 8890 Km. Ca. or 80°.										
5	iPZE	00	00	16.3	1.5	6.0		7.5	1.5		
	e(S)ZE	00	09	06.0	1.0	6.0		1.0	3.0		
	e(L)E	00	25	07.0		18.0			1.5		
6	C&GS 07-46-16.2, 36.3 N, 71.2 E, h about 225 Km, Afghanistan-USSR border region, Felt at Faizabad and Dushambe, Mag. 6 3/4 (PAS), 6.3 (CGS), (P-H) = 11,780 Km. Ca. or 106°.										
6	iPZN	08	00	06.0	1.0		4.0	1.5		1.5	
	eZN	08	09	41.5	2.5		16.0	0.7		5.5	
	e(PP)ZN	08	04	30.5	2.0		6.0	5.6		4.0	
7	C&GS 00-59-46.6, 15.0 S, 75.8 W, h about 48 km, near coast of Peru, Mag 6 1/4 (PAS), 6-6 1/4 (PAL), 5.5 (CGS), (P-H) = 6110 Km. Ca. or 55°.										



DATE	PHASE	Time G.C.T.			Period		Sec. N	Trace			Amp. (rms)			
		h	m	s	Z	E		Z	E	N	Z	E	N	
June														
7	iPZN	01	09	04.3	2.0		4.0	2.5				5.0		
	e(S)ZN	01	16	34.5	4.0		10.0	0.5				19.0		
	e(L)N	01	21	13.5			18.0					5.0		
7	C&GS 13-59-36.0, 11.3 N, 139.6 E, h about 50 km, West Caroline Islands, Mag 6 3/4-7 (FAS), 6 3/4-7 (PAL), 6.5 (CGS), (P-H) = 12,445 Km. Ca. or 112°.													
7	ePZN	14	14	07.5	1.5		6.0	0.7				2.0		
	e(Pi)ZN	14	17	56.0	2.5		6.0	1.25				2.5		
	e(L)N	14	46	01.5			32.0					10.0		
7	C&GS 15-14-42.1, 15.1 S, 75.8 W, h about 51 Km, near coast of Peru, Mag, 4.8 (CGS), (P-H) = 4000 Km. Ca. or 54°.													
7	i(P)ZN	15	24	01.5	1.5		2.5	1.5				2.5		
8	C&GS 14-56-54, 15.2 S, 75.8 W, h about 39 km, near coast of Peru, Mag, 4.4 (CGS), (P-H) = 6000 Km. Ca. or 54°.													
8	iPZ	15	06	15.6	1.5			1.0						
9	C&GS 15-39-27.8, 44.3 N, 147.6 E, h about 110 km, Kurile Islands, Mag 5.5 (CGS), (P-H) = 9110 Km. Ca. or 82°.													
9	iPZ	15	51	41.9	2.0			4.0						
10	iPZ	13	20	26.5	1.0			1.0						
10	iPZ	18	21	43.4	0.5			0.5						
10	ePZ	18	53	23.7	1.0			0.5						
11	iPZ	03	17	388	1.0			0.7						
11	ePZ	18	43	39.4	1.0			1.0						
13	C&GS 18-08-38.4, 12.2 S, 167.1 E, h about 259 Km, Santa Cruz Islands, Mag 6 3/4 (PAS), 6.1-6.4 (BRK), 6.2 (CGS), (P-H) = 11,555 Km. Ca. or 101°.													
13	iPZ	18	22	15.2	2.0			1.5						
	e(PP)ZEN	18	26	34.0	4.0	14.0	5.0	1.5	3.5	1.6				

DATE	PHASE	Time G.C.T.			Period		Sec.	Trace Amp. (mms)			14
		h	m	s	Z	E		Z	E	N	
June											
13	e(L)EN	19	02	03.0		20.0	20.0		2.0	2.5	
14	ePZ	02	27	06.8	1.0				0.7		
14	ePZ	17	00	23.4	1.5				0.5		
15	C&GS 00-59-45.8, 10.4 S, 160.8 E, h about 31 km, Solomon Islands, Felt on Guadalcanal, Malaita, and San Cristobal. Mag 7 1/2-7 3/4 (PAL), 7 1/2 (PAS), 7-7.3 (BRK), (P-H) = 12000 Km. Ca. or 108°.										
15	ePZE	01	14	10.1	1.0	1.0			0.5	1.0	
	e(PP)ZEN	01	18	33.1	3.5	6.0	6.0		1.6	1.5	3.0
	eZEN	01	22	45.1	8.0	10.0			0.7	2.5	
	eZ(EN)	01	29	26.1	1.0				1.0		
	e(L)ZEN	01	57	02.1	19.0	17.0			1.0	20.0	
15	C&GS 02-05-38, 10.2 S, 160.3 E, h about 33 km, Solomon Islands, Mag 4.8 (CGS), (P-H) = 12,000 Km. Ca. or 108°.										
15	i(PP)Z(EN)	02	24	06.5	1.0				2.0		
	eZ(EN)	02	27	27.0	1.0				1.0		
15	ePZ	17	04	12.4	1.0				0.5		
15	ePZ	18	06	53.4	0.6	1.0			1.0	0.5	
	e(S)Z	18	08	11.9	2.0	4.0	4.0		0.7	1.0	4.5
	e(L)Z	18	12	04.4	2.0				1.0		
	eLZ	18	13	33.4	3.0				0.5		
15	e(P)ZEN	06	46	39.6	1.0	1.0	6.0		1.0	1.0	5.0
16	C&GS 08-59-38, 16.3 N, 104.2 W, h about 33 km, off coast of Michoacan, Mexico, Mag 3.9 (CGS), (P-H) = 2335 Km. Ca. or 21°.										
16	iPZ	09	04	28.7	1.5				.5		
16	C&GS 10-14-04, 15.5 N, 104.3 W, h about 33 km, off coast of Michoacan, Mexico, Mag 4.5 (CGS), (P-H) = 2335 km. ca. or 21°.										

DATE	PHASE	Time G.C.T.			Period		Sec. N	Trace Amp. (mms)			15
		h	m	s	Z	E		Z	E	N	
June											
16	i(P)ZEN	10	19	04.0	1.5	1.0	2.0	1.0	0.5	1.5	
	e(L)ZEN	10	26	05.5	4.0	6.0	6.0	0.3	2.5	4.5	
16	iPZ	17	14	42.0	1.0			1.0			
16	C&GS 20-32-24.1, 22.1 S, 67.2 W, h about 190 km, Chile-Bolivia border region, Mag 5.5 (CGS), (P-H) = 6890 km. ca. or 62°.										
16	ePZ	20	42	33.6	0.5			0.5			
	e(PeP)Z	20	43	20.1	2.0			1.0			
17	iPZ	13	07	02.4	1.0			1.5			
18	iPZ	15	50	07.8	1.5			1.5			
19	C&GS 19-28-43.1, 51.7 N, 176.2 W, h about 57 km, Andreanof Islands, Aleutian Islands, Mag 5.2 (CGS), (P-H) = 6445 km. ca. or 58°.										
19	iPZ	19	38	27.0	1.0			1.0			
20	C&GS 01-24-12.9, 51.5 N, 178.6 W, h about 34 R, Andreanof Islands, Aleutian Islands, Mag 5.1 (CGS), (P-H), 6445 km. ca. or 58°.										
20	iPZ	01	34	14.2	1.0			1.0			
20	e(L)ZEN	09	57	45.2	3.5	6.0	8.0	0.5	1.0	4.5	
21	C&GS 18-11-43.0, 16.3 N, 94.8 W, h about 62 km, Oakaca, Mexico, Felt Mag 5.2 (CGS), (P-H) = 2445 km. ca. or 22°.										
21	i(P)ZEN	18	16	09.3	2.0	6.0	6.0	14.0	1.0	4.0	
21	e(S)ZEN	18	20	00.1	1.0	1.0	5.5	2.0	1.0	4.5	
21	C&GS 23-06-25.9, 50.1 N, 157.8 E, h about 14 km, Kurile Islands, Mag 5 1/4-5 1/2 (PAL), 5.8 (CGS), (P-H) = 8555 km. ca. or 77°.										
21	iPZ	23	17	58.3	2.0			4.5			
22	C&GS 07-11-00.8, 14.7 N, 92.1 W, h about 87 km, near coast of Chipas, Mexico, Mag 4 3/4 (PAL), 5.1 (CGS), (P-H) = 2110 km. ca. or 19°.										
22	iPZEN	07	15	43.2	1.0	1.0	6.0	2.5	1.0	3.0	



DATE	PHASE	Time G.C.T.			Period			Sec.			Trace Amp. (mms)			16
		h	m	s	Z	E	N	Z	E	N				
June														
22	e(PcP)ZEN	07	19	45.7	1.5	10.0	10.0	1.5	2.0	3.0				
22	C&GS 11-38-53.7, 61.4 N, 147.6 W, h about 53km, Southern Alaska, Mag 5-5 1/4 (PAL), 5.2 (CGS), (P-H) = 4445 km. ca. or 46°.													
22	iPZ	11	46	36.5	1.5				2.5					
22	e(L)EN	12	01	06.5		6.0	8.0		3.0	3.0				
22	iPZ	16	05	23.8	1.5				0.7					
22	C&GS 20-29-03.6, 7.2 S, 124.6 E, h about 507 km, Banda Sea, Mag. 6.1 (CGS), (P-H) = 15,110 km. ca. or 136°.													
22	e(SP)ZEN	20	47	09.6	1.5	1.5	4.0	9.5	0.5	2.0				
	e(pP <sup>1</sup> )ZEN	20	50	07.1	1.5	3.0	4.0	10.0	1.5	4.0				
	e(SPP)EN	20	53	02.7		6.0	6.0		4.0	4.5				
	e(L)ZEN	21	01	19.1	4.0	16.0	16.0	1.0	3.0	6.0				
23	C&GS 05-01-42.4, 43.8 N, 139.9 E, h about 218 km, Eastern Sea of Japan, Mag 5.5 (CGS), (P-H) = 9,055 km. ca. or 86°.													
23	iPZ	05	14	01.8	1.5				4.5					
24	ePZ	06	28	09.6	1.0				2.0					
25	C&GS 23-17-06.1, 16.0 N, 96.5 W, h about 40 km, Oaxaca, Mexico, Mag 4.8 (CGS), (P-H) = 2445 km. ca. or 22°.													
25	iPZN	23	21	39.5	2.0		2.0	4.0	2.0					
	e(S)ZN	23	25	33.0	1.0		8.0	1.0	4.5					
	e(L)ZN	23	29	22.0	4.0		6.0	1.0	3.0					
25	C&GS 01-46-10.4, 29.6 N, 142.1 E, h about 49 km, south of Honshu, Japan, mag. 5.5 (CGS), (P-H) = 10,555 km. ca. or 95°.													
25	iPZ	01	59	43.8	1.5				2.0					
25	C&GS 17-24-38.9, 13.7 N, 91.2 W, h about 119 km, near coast of Guatemala, felt at San Salvador, Mag. 5.3 (CGS), (P-H) = 2445 km. ca. or 22°.													

DATE	PHASE	Time G.C.T.			Period		Sec. N	Trace Amp.		(mms) N	17
		h	m	s	Z	E		Z	E		
June											
25	iPZEN	17	29	22.8	1.5	0.5	2.0	2.5	0.5	2.0	
	e(S)ZEN	17	33	41.3	2.0	6.0	6.0	1.0	1.5	2.5	
25	ePZ	21	59	05.0	1.0			1.0			
27	C&GS 08-29-33, 19.2 N, 108.1 W, h about 33 km, Revilla Gigedo Islands region, mag. 4.4 (CGS), (P-H) = 2555 km. ca. or 23°.										
27	iPZN	08	34	12.7	1.2		4.0	1.2		1.0	
27	C&GS 10-41-08.6, 29.7 N, 80.9 E, h about 37 km, Nepal-India Border Region, 80 killed, many injured, major damage at Baitadi, Dorchula and Chainpur, Nepal. Mag. 5 3/4 (PAS), 6 1/4-6 1/2 (PAL), 6.1 (CGS) (P-H) = 12,780 km. ca. or 115°.										
27	i(Pi)ZN	10	59	46.3	1.0		4.0	0.5		1.0	
	e(SKS)ZN	11	06	33.5	1.0		6.0	1.0		1.2	
	eZN	11	19	01.5	2.0		6.0	1.0		3.0	
	eZN	11	28	35.5	1.0		14.0	1.0		4.0	
	e(L)ZN	11	44	09.5	2.0		18.0	0.5		10.0	
28	C&GS 04-08-54.7, 35.8 N, 120.6 W, h about 5 km, central California, slight damage at Parkfield, San Luis Obispo, and San Miguel, felt widely, Mag 4.8 (PAS), 5.3 (BRK), 5 1/4 (PAL), (P-H) = 2220 km. ca. or 20°, Mag. 5.0 (CGS).										
28	iPZEN	04	13	43.7	2.0	0.5	0.5	2.5	0.5	0.5	
	e(L)ZEN	04	20	12.2	4.0	10.0	8.0	1.0	2.0	7.5	
28	C&GS 04-26-12.4, 35.9 N, 120.5 W, h about 4 km, central California, Mag 5.8 (PAS), 5.5 (BRK), 6 1/2 (PAL), (P-H) = 2220 km. ca. or 20°.										
28	ePZEN	04	31	00.7	1.5	6.0	16.0	4.5	51.0	60.0	
	e(S)E	04	34	14.0		5.0			3.0		
28	e(P)Z	23	29	02.0	0.7			0.5			
29	e(P)Z	08	19	10.8	1.0			1.0			

DATE	PHASE	Time G.C.T.			Period		Sec. N	Trace Amp. (mms)			18
		h	m	s	Z	E		Z	E	N	
June											
29		C&GS 19-53-24.1, 35.8 N, 120.5 W, h about 5 km, Central California, felt at Coalinga, Fresno, and Parkfield, mag 4.7 (PAS), 5.0 (BRK), 4.9 CGS), (P-H) = 2220 km. ca. or 20°.									
29	iPZEN	19	58	13.6	1.5	1.0	6.0	1.5	1.0	1.0	
	e(L)ZEN	20	04	07.6	3.0	8.0	8.0	0.7	2.0	8.0	
30		C&GS 21-46-54.5, 13.8 S, 166.7 E, h about 35, New Hebrides Islands, Mag 5.4-5.8 (BRK), 6.2 (CGS), (P-H) = 12,000 km. ca. or 100°.									
30	IZEN	22	18	59.5	2.0	3.0	2.0	9.0	2.0	2.0	
	eZEN	22	24	40.5	4.0	8.0	8.0	4.0	14.0	32.0	



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



University of Arkansas  
Seismograph Station  
Department of Geology  
Fayetteville, Arkansas

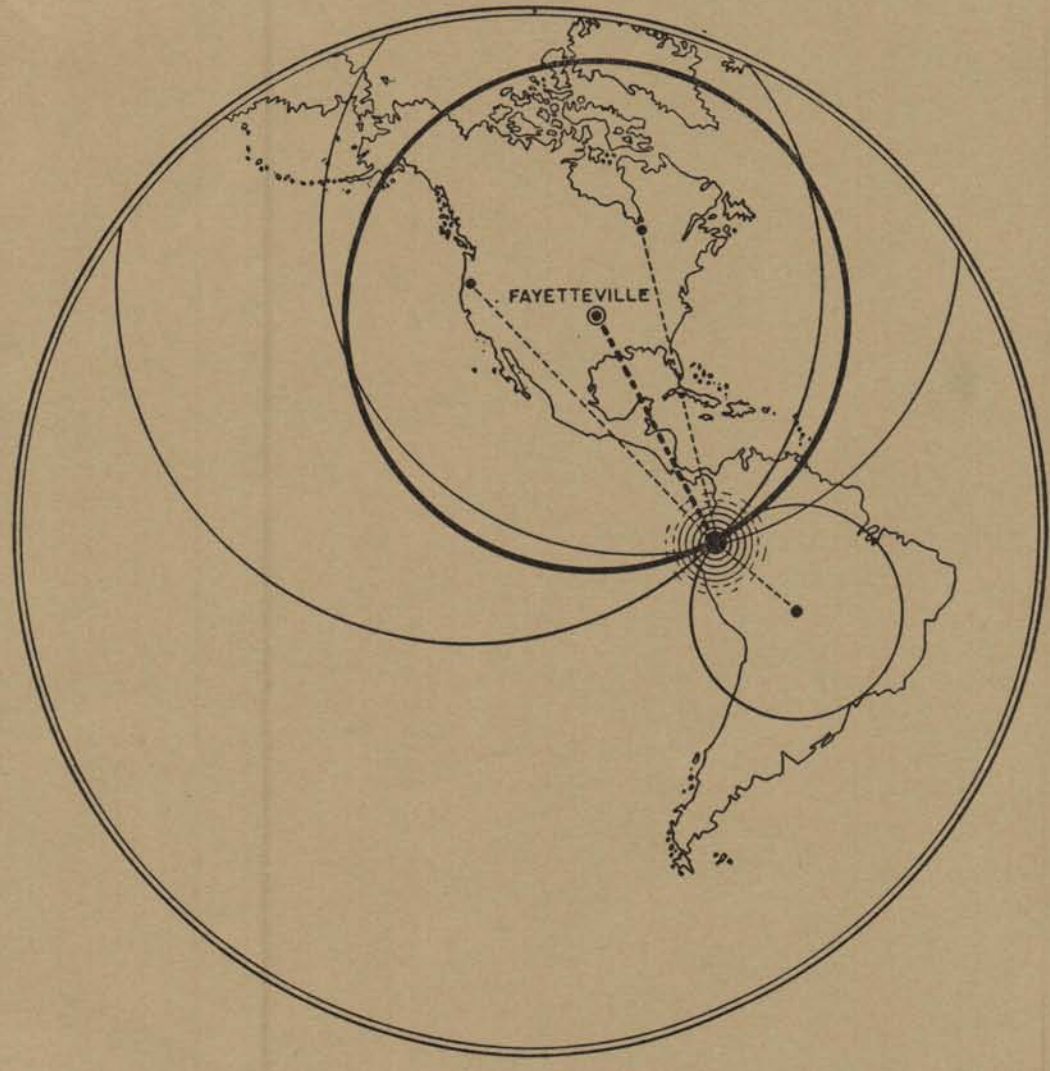
*Richard*  
14 AUG 1969

*FAY*

# UNIVERSITY OF ARKANSAS SEISMOLOGICAL BULLETIN

Volume XV

Number 3



## The University Of Arkansas Seismograph Station

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



Earthquakes for the Third Quarter of 1966

Royal H. Mapes

## FAYETTEVILLE SEISMOGRAPH STATION

Volume XV, Number 3, July 1968  
Data for July, August, September 1966

## Instruments

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

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

Horizontal component - Wilson-Silson Lamison hinges types E-W  
N-S electromagnetic - galvanometric

Seismograph 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  
in 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 Royal H. Mapes, Observer

DATE	PHASE	Time G. C. T.			Period		Sec. N	Trace Amp. (mms)		
		h	m	s	Z	E		Z	E	N
Jul.										
1	e(P)ZEN	06	34	59.5	1.0	3.0	6.0	1.0	1.0	1.5
1	C&GS 20-17-49.3; 13.7 N., 88.4 W., h about 201 km, El Salvador. Mag. 5.3 (CGS); (P-H) = 2,335 km. ca. or 21°.									
1	iPZEN	06	04	57.8	1.0	4.0	6.0	1.0	1.0	4.0
2	e(S)Z	04	49	47.4	2.0			2.0		
	ePZ	04	48	10.6	0.5			0.5		
4	iPZ	03	05	55.8	1.5			3.5		
	C&GS 12-15-28.1; 37.5 N., 24.8 W., h about 33 km., Azores Island Region, Mag. 5.5 (CGS) (P-H) = 5.780 km. ca. or 52°.									
	iPZEN	12	24	52.0	2.0	6.0	6.0	9.5	1.5	1.5
	e(S)EN	12	32	3.5		6.0	6.0		1.5	2.0
	iPZEN	18	43	44.3	1.5	8.0	4.0	9.5	2.5	10.0
	e(S)ZE	18	51	45.0	1.5	14.0		1.0	6.0	
	C&GS 18-33-35.7; 51.7 N., 179.9 E., h about 13 km., Rat Islands, Aleution Islands felt on ADAK. Mag. 6 3/4 - 7 (PAS), 6-6.5 (BRK), 6.2 (CGS) (P-H) = 6,665 km. ca. or 60°.									
	e(L)ZEN	19	03	09.0	14.0	19.0	±8.0	2.5	60.0	70.0
5	C&GS 02-21-43.8; 52.2 N., 178.4 W., h about 66 km., Andeanof Islands. Mag. 4.9-5.3 (BRK), 4.9 (CGS), (P-H) = 6,665 km. ca. or 60°.									
	iPZEN	02	31	49.7	1.5	1.0	4.0	2.0	1.0	1.5
	e(S)EN	02	40	29.2		5.0	5.0		2.0	2.0
	e(L)EN	02	52	01.2		12.0	16.0		1.5	4.0
6	iPZ	23	59	42.3	1.5			1.0		
6	C&GS 00-05-51; 15.3 S., 75.5 W., h about 7 km., near Coast of Peru. Mag. 5.1 (CGS), (P-H) = 6,335 km. ca. or 57°.									
13	C&GS 08-20-59.4; 12.6 N., 87.7 W., h about 61 km. near Coast of Nicaragua, felt at San Salvador. Mag. 5 (PAL), 5.3 (CGS), (P-H) = 2,665 km. ca. or 24°.									
	iPZEN	08	26	10.3	1.5	2.0	4.0	7.5	1.0	5.0
	e(S)EN	08	30	34.0		12.0	6.0		3.0	6.0

DATE	PHASE	Time G. C. T.			Period		Sec. N	Trace Amp. (mms)		
		h	m	s	Z	E		Z	E	N
Jul. 13	e(L)EN	08	36	14.0	26.0	26.0		1.0	1.0	
15	C&GS 08-00-00.7; 16.9 N., 61.5 W., h about 89 km., Leeward Islands. Mag. 5.4 (CGS), (P-H) = 3,665 km. ca. or 33°.									
	iPZEN	08	06	43.9	1.5	1.0	1.0	5.0	0.5	0.5
18	C&GS 22-15-38; 38.3 S., 93.7 W., h about 33 km., West Chile Rise. Mag. 5.1 (CGS), (P-H) = 7,890 km. ca. or 71°.									
	ePZ	22	27	13.0	1.0			1.0		
19	CGS 01-40-53.9; 56.2 N., 164.9 E., h about 18 km., Komandorsky Islands Region. Mag. 6-6.1 (PAS), 6-6.3 (BRK), 6 (PAL), 5.4 (CGS) (P-H) = 7,220 km. ca or 65°.									
	iPZEN	01	51	41.5	1.0	1.0	4.0	1.5	0.5	1.0
	e(S) EN	02	00	14.0		6.	8.0		1.5	2.0
	e(L)EN	02	12	47.0		26.0	24.0		1.5	3.0
19	C&GS 19-20-33.41 51.7 N. 173.3 W., h about 47 km., Andreanof Islands, Aleution Islands felt on ADAK, Mag. 5-5.4 (BRK), 5½ (PAL), 5.5 (CGS) (P-H) = 6,220 km. ca., or 56°.									
	iPZEN	19	30	15.5	0.5	1.0	2.0	1.5	0.5	1.5
	e(L)EN	19	52	21.0		20.0	14.0	1.5	3.0	
20	C&GS 09-04-58.2; 35.7 N., 101.2 W., h about 33 km. Texas Panhandle Region Felt. Mag. 4.8 (C&GS) (P - H) = 667 km. ca. or 6°.									
	e(S)EN	03	00	47.0		8.0	5.0		1.0	1.5
20	iPZE	09	06	24.3	0.5	1.0		3.0	0.5	
	e(S)ZEN	09	07	53.0	1.0	1.0	2.0	14.0	1.0	3.5
20	e(S)EN	11	13	03.0		6.0	5.0		1.0	1.5
20	C&GS 13-22-54; 13.3S., 111.4 W., h about 33 km. N., Easter Island Cordillera, Mag. 5.0 (CGS) (P-H) = 5,890 or 53°.									
20	e(L)	13	48	07.0		24.0	16.0		1.0	1.0
20	C&GS 14-33-12; 18.3 N., 94.3 W., h about 33 km. Gulf of Compeche Felt in Coatzacoalcos, Minatitlon and Vera Cruz. Mag. 4.5 (CGS), (P-H) = 2,000 km. ca. or 18°.									
	iPZ	14	37	18.8	0.5			1.0		
	e(S)ZE	14	40	19.0	0.5	0.5		2.0	0.5	

DATE	PHASE	Time G. C. T.			Period		Sec. N	Trace		Amp. E	(mms) N	3
		h	m	s	Z	E		Z	E			
Jul. 21	iPZ	18	42	41.0	0.5			1.0				
22	C&GS 10-17-22.5; 51.7 N., 173.5 W., h about 56 km. Andreanof Islands, Aleution Islands. Felt on Adak. Mag. 5 3/4 (PAL), 5.6 (CGS), (P-H)= 6,335 km. ca. or 57°.											
22	iPZEN	10	26	58.8	1.5	3.0	6.0	3.0	1.0	0.7		
	e(S)ZEN	10	34	22.5	2.0	6.0	6.0	1.5	1.5	4.0		
	e(L)EN	10	48	16.5		18.0	16.0		2.0	3.5		
23	C&GS 14-31-51.2; 51.7. N., 173.5 W., h about 55 km. Andreanof Islands, Aleution Islands. Mag. 4.5 - 4.9 (BRK), 5.3 (CGS), (P-H)= 6,335 miles or 57°.											
23	iPZEN	14	41	28.5	1.0	2.0	3.0	1.7	1.0	1.5		
	e(S)EN	14	49	07.1		6.0	5.0		1.5	2.5		
	e(L)EN	15	03	38.1		18.0	16.0		2.0	4.0		
23	C&GS 20-12-00.1; 51.8 N., 173.5 W., h about 36 km. Andreanof Islands, Aleution Islands. Mag. 4.9 (C&GS), (P-H)= 6,335 km. ca. or 57°.											
	ePz	20	21	38.2	1.0			1.0				
25	e(L)Z	08	32	51.7	0.3			1.5				
	e(L)Z	09	32	51.2	0.3			1.5				
26	e(L)Z	09	32	51.0	0.8			1.5				
	e(P)Z	20	58	25.5	0.5			1.0				
27	C&GS 04-48-59.4; 24.2 S., 70.3 N., h about 35 km. near Coast of Northern Chile, felt at Antofogosta. Mag. 5.4-5.8 (BRK), 6.0 (CGS), (P-H)=6,896 km. ca. or 62°.											
27	e(L)Z	08	32	49.7	0.7			1.0				
	e(L)Z	09	32	51.7	0.7			1.0				
28	ePZ	08	01	11.7	1.0			1.0				
28	C&GS 08-30-00, 09-30-00; 10,680 lb. charges of Dupont Nitromon WW (EL).											
	e(L)Z	08	32	51.1	0.7			1.0				
	e(L)Z	09	32	50.9	0.8			1.5				
28	eZ	19	17	53.1	0.5			0.7				
	e(S)Z	19	18	25.1	0.5			1.0				
28	e(P)Z	21	31	26.0	0.5			1.0				
29	C&GS 36.3° N., 74.3° W., off Cape Hatteras 300 tons of TNT detonated on ship the SS Horace Greely.											



DATE	PHASE	Time G. C. T.			Period		Sec. N	Trace		Amp. (mms)	
		h	m	s	Z	E		Z	E	N	
Jul.											
29	eZ	04	40	13.0	0.7			2.5			
	eZEN	04	44	36.2	1.0	2.0	3.0	2.5	0.75	2.0	
31	ePZ	02	11	35.4	1.0			0.5			
	e(S)Z	02	12	05.3	0.5			1.0			
Aug.											
1	e(S)EN	21	30	39.1		12.0	16.0		2.0	2.5	
	e(L)EN	21	54	25.1		18.0	18.0		11.0	23.0	
3	ePZ	00	25	01.9	0.5			0.7			
	e(S)Z	00	26	06.9	1.0			0.5			
3	ePZ	00	39	38.9	1.0			0.7			
4	ePZ	06	03	25.9	1.0			0.5			
6	iPZ	14	46	00.2	0.5			1.2			
7	C&GS 02-13-05.1; 50.6 N., 171.3 W., h about 39 km, Aleution Islands region, felt on Adak. Mag. 6.5 (CGS), 7.0 (BRK), (P-H) = 5890 km. ca., or 53°.										
	iPZ	02	22	35.5	1.0			12.5			
	e(SS)Z	02	34	12.5	4.0			0.5			
7	C&GS 17-36-26.7; 31.8 N., 114.5 W., h about 33 km. Gulf of Calif. Widely felt in S. Calif., Ariz. and North Mexico. Mag. 6.3 (CGS), 6 1/4 - 6 1/2 (PAS), 6.7 - 7.0 (BRK), (P-H) = 1890 km. ca. or 17°.										
	iPZ	17	40	28.9	2.4			7.2			
	eSZ	17	45	30.3	3.0			10.0			
	e(L)Z	17	52	57.9	6.0			1.0			
8	iPZ	08	07	24.3	1.0			1.5			
	e(S)Z	08	08	47.3	2.0			0.5			
	e(L)Z	08	14	55.3	10.0			1.0			
8	C&GS 09-57-29.7; 27.7 S., 69.0 W., h about 83 km. N. Chile. Mag. 5.6 (CGS), (P-H) = 7,220 km. ca. or 65°.										
	i(P)Z	10	08	19.4	1.0			8.5			
8	C&GS 23-10-47; 19.4 N., 103.9 W., h about 33 km. Jalisco, Mexico. Mag. 4.5 (CGS) (P-H) = 2,110 km. ca. or 19°.										
	ePZN	23	15	03.0	1.0		10.0	0.9		1.5	
	eSZN	23	20	26.0	3.0		5.0	0.5		1.5	

DATE	PHASE	Time G. C. T.			Period		Sec. N	Trace		Amp. (mms) N
		h	m	s	Z	E		Z	E	
Aug. 7	C&GS 08-58-53; 16.9 N., 98.0 W., h about 106 km. Oaxaca, Mexico. Mag. 4.6 (CGS) (P-H) = 2,110 km. ca. or 19°.									
10	iPZN	05	14	21.4	1.5		4.0	1.5		1.0
11	C&GS 05-12-42.2; 19.3 S., 173.9 W., h about 33 km. Tonga Islands, Mag. 5.5 (CGS), 4.7-5.2 (BRK), (P-H)=9,890 or 89°.									
11	ePZN	05	25	54.2	1.2		4.0	1.0		0.7
	e(L)Z	05	29	42.2	1.5			0.2		
11	C&GS 10-45-59.6; 52.8 N., 169.7 W., h about 61 km, Fox Isalnds, Aleutions. Mag. 5.3 (CGS), (P-H) = 5,780 km.ca. or 52°.									
	e(P)Z	10	55	16.9	0.7			1.0		
11	ePZN	15	04	16.6	1.2		4.0	0.5		1.0
	e(S)N	15	10	41.6	0.5		6.0	0.2		2.5
12	e(L)N	00	15	39.1			20.0			2.0
12	ePZ	17	48	01.1	0.5			0.7		
12	C&GS 20-16-59.8; 52.9 N., 161.6 W., h about 31 km. South of Alaska. Mag. 5.6 (CGS), 4.5-4.6 (BRK), (P-H) = 5,220 or 47°.									
12	iPZ	20	25	45.5	0.7			2.0		
15	iPZ	03	04	25.8	1.1			0.7		
15	ePZN	13	44	05.4	1.5		5.0	1.0		1.5
	e(L)ZN	13	58	11.9	4.0		16.0	0.5		9.0
16	eZ	02	34	19.4	1.5			0.5		
16	C&GS 04-43-25; 30.2N., 113.5W., h about 33 km. G. Cal. Mag. 4.5(CGS)(P-H)=2,000 km or 18°.									
16	e(P)Z	04	47	21.6	1.0			0.5		
	e(L)ZN	04	51	56.9	4.0		7.0	1.0		10.0
16	eZ	10	03	02.0	0.5			1.5		
16	ePZN	18	06	21.3	1.5		3.0	1.0		1.0
	e(S)ZN	18	07	31.8	2.0		3.0	4.0		3.5
	e(L)ZN	18	10	56.3	3.0		±6.0	4.0		35.0
20	iPZ	06	38	42.8	1.0			2.0		
	e(S)Z	06	41	40.4	1.5			2.0		
20	C&GS 07-43-27.6; 3.2 S., 77.2 W., h about 116 km. Peru - Ecquador border region. Mag. 5.6 (CGS), (P-H)=4,890 km. ca. or 44°.									
	iPZ	07	51	09.3	1.0			2.0		
20	C&GS 09-32-31.7; 43.1 N., 140.6 E., h about 161 km. Hoddaido - Japan region, felt on Hokkaido. Mag. 5.8(CGS), 6¼ (PAS), (P-H)=9,555 km.ca. or 86°.									

DATE	PHASE	Time G. C. T.			Period		Sec.		Trace		Amp. (mms)		6
		h	m	s	Z	E	N	Z	E	N			
Aug.													
20	iPZ	09.	44	58.8.	1.0				1.3	0			
20	iPZ	11	50	35.5	0.7				1.0				
22	ePZ	18	04	24.9	0.5				1.5				
24	C&GS 07-17-17.8; 19.9 S., 69.2 W., h about 100 km. N. Chile, felt at Arequipa, Peru. Mag. 5.5 (CGS), 4.7-5.1 (BRK), 6,780 km. ca. or 61°.												
	i(P)Z	07	27	18.5	1.0				3.0				
	e(S)Z	07	36	12.0	3.0				0.5				
25	e(P)Z	10	36	00	1.0				1.5				
25	G&GS 23-18-50.8; 22.4 S., 68.6 W., h about 112 km. N. Chile, felt at Calama. Mag. 5.3 (CGS), (P-H)=7,000 km. ca. or 63°.												
	e(P)Z	23	29	06.7	1.0				4.0				
30	e(P)Z	16	44	20.6	0.5				0.5				
30	e(E)Z	19	37	41.6	0.5				0.4				
30	eZ	21	25	59.7	1.5				0.3				
31	iPZ	21	10	16.6	1.0				2.0				
31	ePZ	18	12	47.9	0.9				0.8				
31	iPZ	20	28	43.7	2.1				1.5				
	e(S)Z	20	16	7.7	0.5				1.2				
31	ePZ	00	13	53.8	1.0				0.8				
31	ePZ	05	34	41.3	1.0				0.5				
31	iPZN	23	42	07.5	0.8			5.0	0.9			4.0	
Sept.													
1	C&GS 19-18-00.6; 71.6 N., 02.9 W., h about 33 km., Jan Mayen Region. Mag. 5.2 (CGS), (P-H)=6,000 km. ca. or 54°.												
	e(PeP)Z	19	28	18.3	0.6				1.0				
2	C&GS 07-59-05.7; 4.5 S., 105.9 W., h about 33 km. Northern Easter Island, Cardillera, Mag. 6 $\frac{1}{4}$ (PAS), 5.7-6.1 (BRK), (P-H)=5,000 km. ca. or 45°.												

D. TB	PHASE	Time G. C. T.			Period		Sec.	Trace Amp.		(mms)
		h	m	s	Z	E		N	Z	
Sept.										
2	C&GS 21-20-17*; 26.8 N., 110.8 W., h about 34 km. Gulf of California. Mag. 5.2 (CGS), (P-H)=2,000 km. ca. or 18°.									
	eEN	21	29	39.7		4.0	6.0		3.0	3.6
4	eEN	16	05	42		6.0	6.0		2.0	3.0
	eEN	16	09	08		6.0	7.0	.	3.3	4.0
6	ePZ	15	55	41.5	0.5			0.9		
6	e(P)Z	20	48	29.0	0.5			0.8		
9	C&GS possible small local quake or explosion.									
	iPZ	09	50	56.0	0.5			0.8		
	e(PP)Z	09	51	08.0	0.5			1.1		
	e(S)Z	09	52	01.0	0.5			1.8		
	e(L)Z	09	52	47.0	0.6			2.5		
9	C&GS 12-04-30.9; 4.2S, 102.8 E., h about 25 km. Southern Sumatra. Mag. 5.3 (CGS), (P-H)= 15,890 km. ca. or 143°.									
	iP Z	12	23	54.6	0.4			1.5		
9	C&GS 18-33-52.8; 49.2 N., 129.5 W., h about 33 km. Vancouver Island Region. Mag. 4.9 (CGS), (P-H)= 3,110 km. ca. or 28°.									
	e(P)Z	18	39	45.5	1.6			0.6		
9	eSZ	18	49	55.5	6.0			2.8		
10	ePZ	00	05	14.0	0.6			0.9		
	e(PP)Z	00	05	36.0	1.2			1.0		
10	C&GS 02-27-47.7; 46.6 N., 144.1 E., h about 33.5 km. Sea of Okhotsk. Mag. 5.2 (CGS), (P-H)= 8,780 km. ca. or 79°.									
	iPZ	02	39	33.9	0.5			1.0		
10	e(P)Z	18	52	14.1	0.6			0.9		
10	e(P)Z	20	00	55.0	0.5			0.7		
10	e(P)Z	21	06	22.0	0.6			0.9		
11	iPZ	00	13	36.2	0.3			0.7		
11	C&GS 01-42-11*; 27.8 N., 111.1 W., h about 33 km Gulf of California. Mag. 4.8 (CGS), (P-H)= 1,780 km. ca. or 16°.									



DATE	PHASE	Time G. C. T.			Period		Sec. N	Trace Z	Amp. (mms)		8
		h	m	s	Z	E			E	N	
Sept.											
11	ePZ	01	46	03.2	0.8			0.5			
	eZEN	01	51	0.1	1.5	8.0	8.0	0.7	3.0	3.0	
	eZEN	01	53	0.1	2.5	8.0	5.0	1.0	2.0	1.5	
11	ePZ	14	15	20.3	0.5			1.0			
11	C&GS 17-38-04.2; 6.8 N., 72.9 W., h about 167 km., Northern Colombia, Slight damage at Bogota, felt at Bucaramanga, Cali and Medellin, Mag. 5-5.4 (BRK), 5.9 (CGS), (P-H)= 3,780 km. ca. or 34°.										
	iPZEN	17	44	42.0	1.0	2.0	5.0	4.0	1.2	2.0	
	iZEN	17	47	06.5	1.0	4.0	4.0	2.0	1.0	2.5	
	i(S)EN	17	50	17.0	.	3.6	4.0	.	2.0	4.5	
12	C&GS 11-29-40.3; 23.1 S., 170.6 E., h about 49 km. Loyalty Islands Region. Mag. 6 $\frac{1}{2}$ -6 $\frac{3}{4}$ (PAS), 6.4-6.7 (BRK), 6 $\frac{3}{4}$ (PAL), 6.1 (CGS), (P-H)= 12000 km. ca. or 108°.										
	i(SKS)EN	11	54	29.8		8.0	8.0		5.0	4.0	
	eEN	12	30	25.7		17.0	16.0		5.0	5.0	
	eEN	12	41	31.7		14.0	16.0		2.5	3.8	
12	C&GS 16-41-01.7; 39.4 N., 120.1 W., h about 8 km. Northern California, Damage at Truckee, California, and at Carson City and Reno Nevada. Felt widely. Mag. 6 $\frac{1}{4}$ -6 $\frac{1}{2}$ (PAS), 6.1 (BRK), 5.4 (CGS), (P-H)= 2,220 km. ca. or 20°.										
	iPZEN	16	45	42.4	0.8	4.0	5.0	1.6	3.0	3.0	
	eSEN	16	49		38.4	6.0	6.0		3.0	3.8	
	e(L)ZEN	16	50	35.4	2.5	12.0		1.5	16.0	NM	
	e(L)ZEN	16	57	39.4	4.0	6.0	7.0	0.8	4.5	5.5	
12	eZ	20	44	32.1	0.3			0.5			
12	eZ	21	01	08.1	0.5			0.8			
12	eZ	21	03	33.1	0.3			1.0			
13	iPZ	01	55	36.1	0.6			0.8			
13	ePZ	15	42	30.5	0.4			0.6			
13	ePZ				0.2			0.5			
	e(S)Z				0.5			0.9			
13	e(P)Z	20	39	39.0	0.9			1.1			
13	ePZ	21	36	46.0	0.4			0.5			
13	iPZ	23	08	1.8	0.5			1.0			



DATE	PHASE	Time G. C. T.			Period		Sec.	Trace	Amp. (mms)		9
		h	m	s	Z	E			N	Z	
Sept. 14	ePZ	06	16	58.3	0.4			0.6			
14	ePZ	06	54	59.4	0.4			0.6			
14	ePZ	20	49	22.0	0.5			0.9			
14	ePZ	21	51	30.0	0.5			0.5			
14	iPZ	22	44	28.3	0.3			1.0			
	eSZ	22	44	55.8	0.4			1.5			
14	ePZ	23	14	11.8	0.3			0.8			
	e(S)Z	23	14	27.8	1.1			0.6			
14	ePZ	23	16	35.8	0.5			1.0			
14	e(P)Z	23	37	12.7	1.8			0.6			
14	iEN	23	47	3.7		6.0		.		2.0	
15	C&GS 10-37-16*; 19.1 N., 107.9 W., h about 33 km off Coast of Jalisco, Mexico. Mag. 4.8 (CGS), (P-H)=2,445 or 22°.										
	e(P)Z	10	41	57.3	1.0			0.6			
15	eEN	05	16	55.0		4.0				1.0	
15	eLEN	12	54	58.2		18.0				1.5	
15	iPZ	18	07	20.4	0.4			1.5			
	i(S)Z	18	07	57.6	0.7			1.0			
15	iPZ	21	31	23.0	0.3			1.5			
15	iPZ	21	36	43.5	0.5			1.0			
15	iPZ	21	47	37.4	0.5			1.1			
	eSZ	21	47	51.4	0.5			2.0			
16	C&GS 02-48-21.8; 54.1 N., 163.5 W., h about 39 km. Unimak Island Region. Mag. 5.3 (CGS), (P-H)=5,555 or 50°.										
	i(P)Z	02	57	12.9	0.9			1.0			
16	C&GS 14-52-52.1; 14.2 N., 91.2 W., h about 81 km. Guatemala, felt at San Salvador, El Salvador. Mag. 4.5 (CGS), (P-H)=2,445 or 22°.										
	e(P)Z	14	57	40.6	0.5			0.5			
16	ePZ	15	26	47.6	0.5			0.9			
	eSZ	15	27	15.1	0.6			1.0			
16	ePZ	17	47	36.3	0.5			0.9			

DATE	PHASE	Time G. C. T.			Period		Sec.	Trace	Amp. (mms)		10
		h	m	s	Z	E			N	E	
Sept. 16	eSZ	17	48	04.3	0.6			1.1			
16	ePZ	20	58	12.0	0.3			0.5			
	e(PP)Z	20	58	21.0	0.6			1.0			
	e(S)Z	20	58	38.0	0.9			1.5			
17	ePZ	00	36	14.2	0.7			0.6			
17	ePZ	19	55	43.0	0.9			0.6			
17	ePZ	20	30	12.5	0.8			0.7			
	eSZ	20	30	41.0	0.9			0.6			
	eLZ	20	32	59.0	4.0			0.5			
17	ePZ	21	34	12.0	0.5			0.5			
18	ePZ	04	50	55.4	0.4			0.6			
18	ePZ	05	41	34.3	0.7			0.6			
18	ePZ	06	51	16.7	0.6			0.6			
19	C&GS 04-24-05.1; 47.6 N., 153.8 E., h about 80 km. Kurile Islands. Mag. 5.1 (CGS), (P-H)= 8,335 or 75°.										
	iPZ	04	35	49.9	0.5			1.0			
19	e(P)Z	10	15	06.9	0.6			0.6			
19	ePZ	18	45	05.2	0.5			0.7			
19	ePZ	19	01	46.2	0.8			0.7			
19	ePZ	19	23	09.0	0.4			0.8			
	eSZ	19	23	22.0	0.9			0.6			
19	e(S)Z	19	42	09.1	0.9			0.5			
19	iPZ	20	44	16.5	0.5			0.8			
19	ePZ	22	55	03.9	0.6			1.0			
20	ePZ	18	08	34.9	0.4			1.0			
20	i(P)Z	21	01	28.2	0.5			1.5			
20	iPZ	21	15	57.1	0.8			1.2			
20	ePZ	23	46	57.8	0.6			1.8			
20	e(S)Z	23	49	43.8	0.6			1.0			

DATE	PHASE	Time G. C. T.			Period		Sec. N	Trace Z	Amp. E	(mms) N	11
		h	m	s	Z	E					
Sept.											
21	ePZ	01	12	51.7	0.3			0.8			
	e(S)Z	01	13	40.7	0.9			1.5			
21	ePZ	11	58	07.3	0.9			1.0			
21	iPZ	18	23	39.5	0.8			1.0			
	iZ	18	24	51.5	0.5			1.4			
22	ePZ	10	36	38.0	0.5			1.0			
22	ePZ	19	01	19.3	0.4			0.6			
	i(PP)ZE	19	02	33.3	0.8	2.2		0.9	1.5		
	i(S)ZE	19	05	51.3	2.0	4.0		2.0	3.5		
	eLZE	19	13	28.3	3.0	6.0		0.6	1.5		
23	C&GS 01-29-47.2; 44.7 N., 150.3 E., h about 34 km. Kurile Islands region. Mag. 5.2 (CGS), (P-H)= 8,555 km. ca. or 77°.										
	eZ	01	41	57.8	1.0			0.5			
23	ePZ	02	23	37.7	0.8			0.6			
23	ePZ	16	41	47.0	0.5			0.6			
23	eZ	21	01	51.6	0.8			0.6			
24	ePZ	02	11	17.3	0.6			0.5			
	e(S)Z	02	11	47.3	0.8			0.8			
24	C&GS C7-33-46*; 36.5 N., 105 W., h about 20 km., New Mexico. Mag. 4.1 (CGS), (P-H)= 1,220 km. ca. or 110°.										
	iPZ	07	35	54.1	0.5			0.6			
	e(PP)Z	07	36	23.1	0.9			2.8			
	e(S)Z	07	38	21.1	0.6			4.0			
24	ePZ	08	29	47.1	0.5			0.8			
	eSZ	08	31	42.1	0.8			1.0			
24	e(P)Z	19	08	48.6	0.5			0.7			
24	ePZ	20	42	02.6	0.4			0.8			
	eSZ	20	44	54.6	0.6			0.6			
24	iPZ	22	13	10.0	0.7			0.9			
24	e(P)Z	23	47	31.0	0.6			0.9			
25	iPZ	06	06	40.9	0.9			8.5			
25	ePZ	10	09	17.5	0.5			0.6			
	e(PP)Z	10	13	23.5	0.8			2.0			

DATE	PHASE	Time G. C. T.			Period		Sec. N	Trace Z	Amp. (mms)		12
		h	m	s	Z	E			E	N	
Sept. 25	ePZ	10	15	16.5	0.9			3.0			
25	G&GS 12-22-40*; 36.4 N., 105 W., h about 20, New Mexico. Mag. 3.6 (CGS), (P-H)= 1,220 km. ca. or 11°.										
	e(PP)Z	12	25	19.4	0.8			1.4			
	e(S)Z	12	27	15.4	0.8			2.3			
27	ePZ	07	17	38.6	0.8			0.7			
27	ePZ	05	40	29.7	0.8			0.6			
27	ePZ	18	55	39.1	0.5			1.5			
27	ePZ	21	53	07.0	0.7			1.0			
28	iPZ	16	43	31.7	0.6			0.9			
28	ePZ	17	19	09.7	0.6			0.9			
28	eLEN	15	03	27.7		22.0	28.0		2.5	3.0	
29	iPZ	18	12	18.7	0.7			1.5			
	i(PP)Z	18	12	51.7	0.8			1.0			
29	eZ	20	16	05.6	1.1			0.8			
29	ePZ	22	09	19.5	0.6			0.9			
29	iPZ	15	14	20.2	0.5			1.0			



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



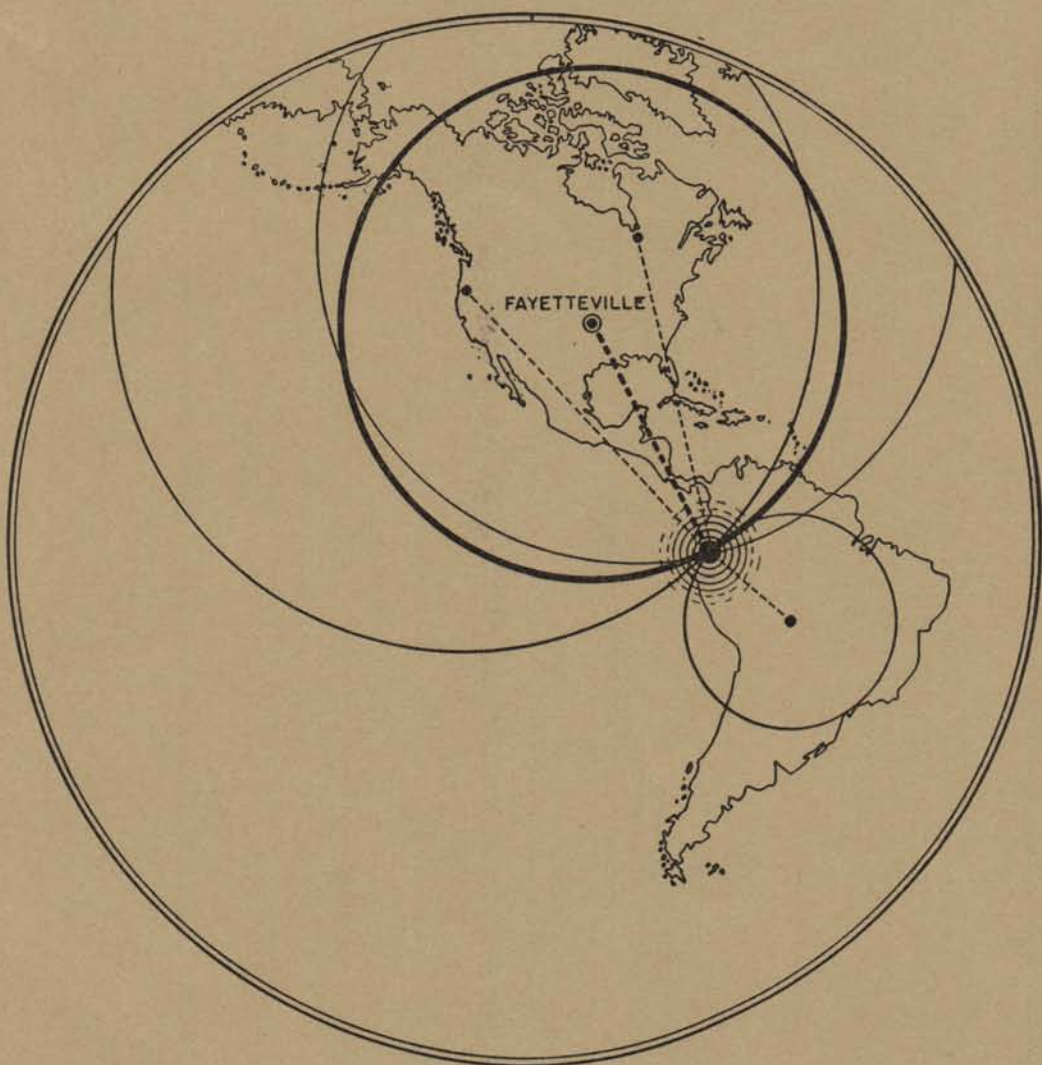
University of Arkansas  
Seismograph Station  
Department of Geology  
Fayetteville, Arkansas

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# UNIVERSITY OF ARKANSAS SEISMOLOGICAL BULLETIN

Volume XV

Number 4



## The University Of Arkansas Seismograph Station

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



**Earthquakes for the Fourth Quarter of 1966**

**James E. Edson, Jr.**

## FAYETTEVILLE SEISMOGRAPH STATION

Volume XV, Number 4, January 1969  
Data for October, November, December 1966

## Instruments

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

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

Horizontal component - Wilson - Wilson-Lamison hinges type: E-W  
N-S electromagnetic-galvanometric

Seismograph 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 singals 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 James E. Edson, Jr.  
Observer



DATE	PHASE	Time G.C.T.			Period		Sec. N	Trace Amp. (mms)		
		h	m	s	Z	E		Z	E	N
October										
2	ePZ	07	33	18.8	0.4			0.6		
2	ePZ	14	01	47.7	0.6			0.9		
3	C&GS 02-26-01.9, 37.4 N, 104.1 W, h = 10R km, Colorado, felt at Trinidad and Pueblo, Colorado and Ration, New Mexico, Mag. 4.5 (CGS), (P-H) 950 km. or 8.5°.									
3	ePZ	02	28	01.5	0.6			1.0		
	eZE	02	28	32.5	0.8	2.0		3.6	1.6	
	eZ	02	29	30.5	0.7			4.0		
	eZE	02	30	16.5	0.8	3.0		18.0	1.5	
3	iPZ	03	11	48.5	0.6			1.8		
4	ePZ	04	30	30.7	0.7			1.0		
4	ePZ	17	35	58.2	0.6			0.6		
4	e(P)Z	23	43	48.9	0.5			1.0		
5	e(P)Z	18	17	49.2	0.6			1.1		
	e(S)Z	18	18	50.7	0.6			1.5		
5	ePZ	18	44	51.1	0.5			1.0		
	i(S)Z	18	45	12.1	0.6			1.5		
6	e(P)Z	06	34	08.8	0.5			0.9		
6	e(P)Z	21	10	42.0	0.6			1.0		
6	ePZ	23	33	33.5	0.6			1.1		
	e(S)Z	23	38	17.5	0.7			1.4		
7	iPZ	16	22	25.1	0.5			1.0		
	eSZ	16	22	52.6	0.6			1.1		

DATE	PHASE	Time G.C.T.			Period		Sec. N	Trace Amp. (mms) <sup>2</sup>		
		h	m	s	Z	E		Z	E	N
October										
7	ePZ	18	31	00.0	0.5			1.0		
7	e(P)Z	20	43	36.0	0.8			1.0		
7	C&GS 20-55-56.0, 61.6 N., 150.1 W., h= 56 km, Southern Alaska, felt at Anchorage, Valdez and Kenai, Mag 5.7 CGS, (P-H) 4,825 km. or 43.5°.									
7	eZ	21	03	56.0	0.9			1.0		
8	e(P)Z	06	47	28.0	0.7			0.8		
8	C&GS 17-43-56.1, 51.6 N., 173.8 W., h = 35 km, Andreanof Islands, Aleutian Is., Mag. 5.5 (CGS), (P-H) 6,555 km. or 59°.									
8	e(P)Z	17	53	37.0	0.6			0.9		
8	ePZ	19	29	38.0	0.5			1.0		
8	ePZ	21	08	37.0	0.5			1.0		
9	C&GS 08-10-28.0, 31.3 N., 114.3 W., h = 33r km, Gulf of Calif., Mag. 5.0 (CGS), 5.25-5.50 (PAS), (P-H) 1,950 km. or 17.5°.									
9	ePZEN	08	14	28.8	1.1	2.0	5.0	1.0	1.0	2.5
	eSZEN	08	19	45.8	3.0	12.0	8.0	1.2	5.5	24.0
9	e(P)Z	13	01	55.7	0.5			1.0		
10	C&GS 01-19-45.0, 16.1 N., 98.1 W., h = 43 km, Near coast of Guerrero, Mexico, mag. 4.7 (CGS), (P-H) 2200 km. or 20°.									
10	e(P)Z	01	24	18.0	0.8			0.8		
10	eZ	19	06	03.0	0.8			1.0		
10	e(S)E	21	36	03.0		4.2			1.5	
11	e(P)Z	05	50	06.0	1.0			0.6		
11	eZ	06	44	58.0	2.0			0.7		
11	eZ	20	38	18.0	0.9			0.8		

DATE	PHASE	Time G.C.T.			Period		Sec. N	Trace		Amp. (mms) E N	3
		h	m	s	Z	E		Z	E		
October											
12	e(P)Z	00	24	06.9	0.6				1.4		
	e(S)Z	00	25	54.9	0.8				0.9		
12	iPZ	16	26	23.7	0.8				1.5		
12	eZ	20	41	17.0	0.9				1.0		
13	e(P)Z	00	35	03.9	0.6				1.2		
13	e(S)E	02	37	53.8		8.0				3.0	
13	C&GS 15-45-15.6, 8.8 S, 74.3 W, h = 155 km, Peru-Brazil border region, Mag. 5.6 (CGS), (P-H) 5,220 km. or 47°.										
13	ePZ	15	53	41.2	0.6				1.0		
13	ePZ	18	12	46.1	0.5				1.0		
13	ePZ	19	11	51.1	0.6				0.8		
13	e(L)E	19	22	39.1		18.0				0.2	
13	eZ	21	03	41.0	0.5				0.6		
13	eZ	21	51	51.0	0.5				0.6		
13	eZ	22	10	35.0	0.5				1.0		
14	e(P)Z	20	41	06.1	0.6				1.6		
	e(S)Z	20	44	10.1	0.6				1.0		
15	eZ	17	57	29.2	0.5				1.0		
16	eZ	15	54	12.8	0.5				1.0		
17	eZ	20	55	56.5	0.5				1.0		
17	C&GS 21-41-56.3, 10.7 S, 78.4 W, h = 38 km, near coast of Peru, about 125 killed, over 3,000 injured, and major property damage, Tsunami of 11.3 feet at La Punta, Peru and 1.6 feet at Vaparaíso, Chile; Mag. 7.5 (PAS), 7.5 (BRK), (P-H) 5,220 km. or 47°.										

DATE	PHASE	Time G.C.T.			Period		Sec. N	Trace Z	Amp. (mms)			4
		h	m	s	Z	E			Z	E	N	
October												
17	iPZEN	21	50	39.5	1.0	5.0	07.0	11.0	7.5	16.0		
	e(S)ZEN	22	01	56.5	0.8	14.0	08.0	1.0	34.0	24.0		
	eLZEN	22	08	10.5	26.0	20.0	12.0	1.5	15.0	12.5		
17	C&GS 23-04-22.1, 10.5 S, 78.6 W, h = 39R km, near coast of Peru, Mag. 5.2 (CGS), (P-H) 5,335 km. or 48°.											
17	iZ	23	13	04.5	1.0			1.5				
17	C&GS 23-46-51.6, 10.0 S, 79.6 W, h = 46 km, off coast of Peru, Mag. 4.9 (CGS), (P-H) 5,335 km or 48°.											
17	eZ	23	55	27.0	1.0			1.2				
18	e(P)Z	18	50	43.0	0.8			0.9				
19	C&GS 08-01-33.8, 1.6 S, 15.5 W, h = 33r km, north of Ascension Island, Mag. 6.75 (PAS), 6.75 (CGS surface wave), (P-H) 8,890 km. or 80°.											
19	ePZEN	08	13	50.0	0.9	3.0	3.8	1.5	3.5	5.0		
	e(S)EN	08	24	02.0		6.4	6.0		5.0	10.0		
	eLEN	08	40	50.0		24.0	14.0		7.5	7.5		
19	eZ	21	04	48.0	0.5			1.0				
19	eZ	23	40	16.9	0.5			0.8				
20	ePZ	15	32	40.3	0.6			1.0				
	e(S)Z	15	33	25.3	0.6			1.0				
21	C&GS 10-33-23.7, 14.2 N, 91.2 W, h = 31 km, Guatemala, Mag. 4.6 (CGS), (P-H) 2,555 or 23°.											
21	ePZ	10	38	14.0	0.6			0.9				
21	C&GS 10-36-17, 14.4 N, 90.8 W, h = 46 km, Guatemala, Mag. 4.7 (CGS), (P-H) 2,555 or 23°.											
21	e(P)Z	10	41	09.5	0.6			0.9				



DATE	PHASE	Time G.C.T.			Period		Sec. N	Trace			Amp. (mms) E N
		h	m	s	Z	E		Z	E	N	
October											
22	C&GS 12-47-18.2, 55.2 N, 162.0 E, h = 59R km, near east coast of Kamchatka, Mag. 5.4 (CGS), (P-H) 7,555 km. or 68°.										
22	ePZ	12	58	14.0	0.9						0.8
22	ePZ	21	44	38.0	0.5						1.0
	e(S)Z	21	45	16.0	0.6						4.5
23	C&GS 15-32-54.2, 10.8 S, 78.9 W, h = 44 km, near coast of Peru, Mag. 5.0 (CGS), (P-H) 5,445 km. or 49°.										
23	eZ	15	41	36.6	0.8						0.5
23	eZ	18	52	34.6	0.5						0.9
24	ePZ	20	45	58.0	0.5						1.0
	eSZ	20	50	16.0	0.5						1.0
25	eZ	15	25	57.3	0.6						0.8
25	e(P)Z	19	31	40.1	0.4						0.6
25	eZ	20	26	28.1	0.5						0.8
25	eZ	21	23	56.0	0.7						1.0
27	e(P)Z	02	28	17.8	0.5						0.9
27	ePZ	06	09	04.1	1.0						9.0
27	ePZE	14	45	16.1	0.6	6.0					0.6 1.5
	eSZE	14	47	15.1	0.6	8.0					0.5 1.5
	eLE	15	07	56.1		22.0					2.0
27	ePZ	20	24	48.0	0.6						0.8
	eSZ	20	30	23.0	0.8						0.8
28	ePZ	02	11	21.8	0.5						1.0
29	ePZ	02	27	45.3	0.5						1.0

DATE	PHASE	Time G.C.T.			Period		Sec. N	Trace Amp. (mms) <sub>6</sub>		
		h	m	s	Z	E		Z	E	N
October										
29		C&GS 02-39-29.4, 39.2 N, 21.2 E, h = 20 km, Greece, one killed, twenty-three injured, and major property damage, Mag. 5.7 (CGS), (P-H) 9,335 km. or 84°.								
29	iPZ	02	52	01.8	0.6			1.5		
29	eZ	14	45	21.8	1.0			0.6		
30	eZ	00	48	35.9	0.6			0.5		
30	eZ	20	29	22.1	0.6			0.6		
November										
2	eZ	20	50	04.2	0.7			1.0		
2	eZ	21	21	0.1	0.6			1.5		
3		C&GS 11-37-22.7, 19.1 N, 67.9 W, h = 47 km, Mona Passage, Mag. 5.6 (CGS), (P-H) 3,220 km. or 29°.								
3	ePZ	11	43	16.9	0.5			1.0		
3		C&GS 16-24-31.0, 19.2 N, 67.9 W, h = 22km, Mona Passage, felt at Cayey and Cagulas, Puerto Rico, Mag. 5.6 (CGS), 6.0-6.25 (PAS), 5.25 (PAL), (P-H) 3,220 km. or 29°.								
3	iPZE	16	30	27.5	0.6	4.0		1.5	2.0	
	e(S)E	16	42	46.5		16.0			09.0	
	e(L)ZE	17	03	32.5	4.0	16.0		0.6	02.5	
3	ePZ	21	30	51.1	0.5			1.0		
4		C&GS 06-05-16.1, 14.7 N, 93.2 W, h = 11 km, near coast of Chiapas, Mexico, Mag. 4.8 (CGS), (P-H) 2,445 km. or 22°.								
4	eZ	06	10	06.5	0.8			1.0		
	eZ	06	14	06.5	0.6			0.5		
4		C&GS 06-36-36.4, 14.3 N, 93.3 W, h = 35 km, near coast of Chipas, Mexico, Mag. 4.8, (CGS), (P-H) 2,445 or 22°.								
4	eZ	06	41	26.5	0.9			0.8		

DATE	PHASE	Time G.C.T.			Period		Sec. N	Trace Amp. (mms)			7
		h	m	s	Z	E		Z	E	N	
November											
4	eZ	06	45	24.5	0.6			0.6			
4	C&GS 14-50-02.7; 17.2 N, 99.3 W, h=63 km; Guerrero, Mexico, felt at Acapulco; Mag. 4.8 (CGS), (P-H) 2,110 km. or 19°.										
4	iPZ	14	54	25.6	0.8			1.0			
4	eZ	23	30	06.9	0.6			1.0			
5	eZ	09	18	03.3	0.5			1.5			
5	C&GS 12-45-13.9; 15.3 S, 175.2 W, h=38 km; Tonga Islands, Mag. 5.3 (CGS), 6.0-6.25 (PAS), (P-H) 10,220 km or 92°.										
5	e(P)Z	12	58	23.0	0.5			0.5			
	e(S)ZEN	13	09	30.0	0.8	7.0	7.0	1.0	2.5	9.5	
	e(L)EN	13	29	43.0		18.0	8.0		3.0	4.5	
5	eZ	21	32	01.5	0.5			1.0			
5	eZ	23	41	06.4	0.5			1.0			
10	eZ	18	03	20.2	0.8			0.6			
	i(S)Z	18	04	25.2	0.5			1.5			
10	ePZ	23	31	13.9	0.6			0.9			
	eSZ	23	32	07.9	0.8			0.8			
11	ePZ	03	04	29.9	0.9			0.9			
	eSZ	03	04	57.9	0.9			1.1			
	e(L)ZEN	03	28	14.8	1.0	4.0	4.0	0.5	1.0	2.5	
11	eZ	06	07	32.8	0.9			0.8			
11	C&GS 15-31-04.2; 52.3 N, 169.1 W, h=38 km; Region of Fox Islands, Aleutian Islands; Mag. 5.4 (CGS), (P-H) 6,000 km or 54°.										
11	i(P)Z	15	40	22.2	0.5			1.0			

DATE	PHASE	Time G.C.T.			Period		Sec. N	Trace Z	Amp. (mms)			8
		h	m	s	Z	E			Z	E	N	
November												
11	C&GS 18-20-05; 40.3 N, 127.1 W; h=33R km; off coast of Northern California, Mag. 4.5 (CGS), 4.9 (BRK) (P-H) 2890 km or 26°.											
11	eZ	18	26	40.6	0.6			0.6				
12	eZ	05	44	33.9	0.7			0.8				
12	iPZ	12	00	57.4	0.9			1.5				
12	iPZEN	13	02	22.3	1.0	1.2	1.2	1.5	0.5	0.5		
12	eZ	19	03	27.8	0.9			0.5				
12	eEN	19	36	33.8		22.0	20.0		4.0	5.0		
	eEN	19	48	47.8		17.0	16.0		4.0	5.0		
12	eZ	19	49	47.8	0.9			0.7				
12	eZ	23	46	36.9	0.7			0.8				
13	C&GS 02-51-50.6; 17.1 N, 61.9 W, h=65R km; Leeward Islands, felt on Antigua, Guadalupe & Montserrat; Mag. 5.5 (CGS); (P-H) 3780 km or 34°.											
13	i(P)ZEN	02	58	31.7	1.1	1.5	0.8	4.5	0.5	1.0		
	e(S)Z	03	06	36.7	1.0			1.0				
13	C&GS 06-04-10.4; 13.6 N, 89.5 W; h = 83 km; El Salvador, felt at San Salvador; Mag. 4.5 (CGS); (P-H) 2555 km or 23°.											
13	ePZ	06	09	07.5	1.0			1.0				
14	ePZ	14	08	24.5	0.6			1.0				
14	ePZ	21	04	52.1	1.0			2.5				
	eSZ	21	07	24.6	0.6			8.0				
15	C&GS 16-19-07.4; 51.2 N, 176.6 W; h = 48R km; Andreanof Islands, Aleutian Islands, Mag. 5.0 (CGS); (P-H) 6,445 km or 58°.											
15	e(P)Z	16	28	58.1	0.5			1.0				



DATE	PHASE	Time G.C.T.			Period		Sec.	Trace Amp. (mms)			9
		h	m	s	Z	E		N	Z	E	
November											
15	eZ	20	51	26.1	0.9			0.6			
	eZ	20	56	05.1	0.5			1.0			
16	eZ	06	54	45.1	1.0			0.6			
16	C&GS 17-22-20; 17.6 S, 73.2 W; h=33R km; off coast of Peru; Mag. 4.5 (CGS); (P-H) 6,335 km or 57°.										
16	eZ	17	32	04.0	0.9			0.7			
17	C&GS 14-43-10.2; 51.1 N, 176.5 W; h=45 km; Andreanof Islands, Aleutian Islands; Mag. 4.7 (CGS), (P-H) 6,445 or 58°.										
17	eZ	14	53	08.1	0.8			0.7			
17	e(P)Z	20	34	37.6	0.9			0.9			
18	C&GS 09-12-09.9; 36.3 S, 100.7 W; h= 33R km; Southern Pacific Ocean; Mag. 5.1 (CGS); (P-H) 8,000 km or 72°.										
18	iPZ	09	23	32.3	1.0			1.0			
19	C&GS 18-20-30; 10.7 S, 79.1 W; h=34 km; off coast of Peru; Mag. 4.8 (CGS) (P-H) 5445 km or 49°.										
19	i(P)Z	18	29	13.2	1.0			1.1			
19	e(P)Z	20	27	22.1	0.8			0.9			
20	C&GS 09-29-59.1; 51.4 N, 176.6 W; h=54 km; Andreanof Islands, Aleutian Islands, felt on Adak; Mag. 5.1 (CGS) (P-H) 6,445 km or 58°.										
20	iPZ	09	39	49.5	1.0			1.3			
	e(S)Z	09	41	47.0	0.9			0.8			
20	eZ	18	08	29.3	0.6			0.6			
21	C&GS 11-12-02.4; 18.8 N, 102.3 W; h = 87R km; Michoacan, Mexico; Mag. 4.7 (CGS) (P-H) 2110 km or 19°.										
21	iPZEN	11	16	16.4	0.7	1.6	3.0	1.5	0.8	3.0	
21	C&GS 12-19-27.3; 46.7 N, 152.5 E; h = 40R km; Kurile Islands, Mag. 5.6 (CGS); (P-H) 8665 km. or 78°.										

DATE	PHASE	Time G.C.T.			Period		Sec. N	Trace Amp. (mms) <sup>10</sup>		
		h	m	s	Z	E		Z	E	N
November										
21	iPZN	12	31	23.4	0.9		1.0	1.5		1.0
22	iPZEN	06	41	16.0	0.8	1.5	3.0	3.5	1.0	3.5
22	eZ	09	02	48.4	0.8			1.5		
22	iPZ	21	28	12.1	0.6			2.0		
23	eE	03	13	54.6		15.0			1.3	
23	eZ	15	26	23.6	0.9			0.8		
24	e(P)ZN	16	57	26.6	1.2		1.2	1.2		1.8
26	C&GS 02-18-17.0; 25.6 S, 70.6 W; h = 54R km; near coast of northern Chile; Mag. 5.5 (CGS); (P-H) 7220 km or 65°.									
26	i(P)Z	02	28	54.3	0.7			1.0		
27	i(P)Z	20	22	43.4	1.9			4.0		
27	e(S)E	20	41	43.9		14.0				3.5
28	e(P)Z	02	25	43.6	0.6			1.1		
	e(S)ZE	02	26	43.6	0.6	1.2		2.0	0.5	
28	e(P)Z	07	39	07.3	0.8			1.0		
	e(S)E	07	45	43.3		8.0			1.5	
28	e(P)Z	20	15	06.0	0.6			1.3		
30	eZ	22	00	48.0	0.6			1.0		
December										
1	C&GS 04-29-23.3; 60.1 N, 146.4 W; h = 38 km; Southern Alaska, Mag. 4.6 (CGS); (P-H) 4,555 or 41°.									
1	iPZ	04	37	03.0	0.7			1.0		
1	ePZE	05	15	03.9	2.0	2.0		0.9	1.0	
	eSZE	05	26	35.9	0.8	7.0		0.8	2.5	
	e(L)E	06	02	06.8		16.0			2.0	

DATE	PHASE	Time G:C.T.			Period		Sec. N	Trace Amp. (mms)			11
		h	m	s	Z	E		Z	E	N	
December											
1		C&GS 18-56-23.1; 41.6 N, 139.6 E; h = 173R km; Hokkaido, Japan region; Mag. 5.4 (CGS); (P-H) 9,665 km or 87°.									
1	i(P)Z	19	08	56.7	0.5			1.0			
5	e(P)Z	10	13	59.0	0.7			0.5			
	e(S)ZE	10	16	19.0	1.0	0.8		2.0	0.4		
5	eZ	19	16	28.2	0.9			1.2			
6		C&GS 07-18-40.0; 50.1 N, 159.8 E; h = 27 km; Kurile Islands Region; Mag. 5.4 (CGS); (P-H) 7,890 km or 71°.									
6	iPZ	07	30	03.8	1.0			0.6			
7	iPZE	23	00	21.8	1.0	1.5		1.4	0.5		
8		C&GS 15-02-59.0; 56.1 N, 164.7 E, h = 33R km; Komandorsky Islands region; Mag. 4.8 (CGS); (P-H) 7,665 km or 69°.									
8	ePZ	15	13	52.9	1.0			1.0			
8	eZ	15	00	25.8	0.9			1.5			
8	eZ	21	03	06.2	0.8			1.1			
8		C&GS 23-18-09.0; 60.1 N, 146.5 W; h = 35 km; Southern Alaska; Mag. 4.5 (CGS); (P-H) 4,665 km or 42°.									
8	i(P)Z	23	25	48.9	1.0			1.0			
9		C&GS 16-43-57.7; 51.7 N, 174.6 E; h = 21 km; near Islands, Aleutian Islands; Mag. 5.2 (CGS); (P-H) 7,220 km or 65°.									
9	e(P)Z	16	54	26.4	1.0			0.8			
10	eZ	02	37	22.6	0.9			1.0			
10		C&GS 10-38-35.6; 24.2 S, 67.9 W; h = 91 km; Chile-Argentina border region; Mag. 5.4 (CGS); (P-H) 7,220 km or 65°.									
10	i(P)Z	10	49	06.9	0.7			1.0			

DATE	PHASE	Time G.C.T.			Period		Sec. N	Trace Amp. (mms)			12
		h	m	s	Z	E		Z	E	N	
December											
10	C&GS 13-06-32.6; 14.3 N, 92.0 W; h = 70 km; Guatemala, felt at San Salvador; Mag. 5.6 (CGS), 6.5 (PAS), 6.5-6.7 (BRK); (P-H) 244.5 km or 22°.										
10	iPZEN	13	11	20.7	1.0	2.4	4.0	14.0	3.5	17.0	
	e(S)ZEN	13	15	20.7	0.9	8.0	6.0	10.5	7.5	12.0	
	e(L)ZEN	13	18	44.7	13.0	20.0	16.0	1.0	12.0	15.0	
10	iPZ	19	01	22.7	0.6			1.0			
	e(S)Z	19	01	29.2	1.5			1.5			
	e(L)EN	19	05	48.2		18.0	16.0		2.0	3.0	
11	eZ	02	35	32.2	1.0			1.0			
11	e(P)Z	07	04	25.6	1.0			1.5			
11	i(P)Z	20	10	30.3	0.7			0.7			
12	eZ	23	06	41.5	1.0			1.0			
12	e(P)Z	23	09	0.4	0.7			0.6			
	e(S)Z	23	11	51.4	0.5			0.7			
14	eZ	22	32	44.8	0.6			1.0			
14	eZE	22	03	39.8	4.0	20.0		0.6	3.0		
15	eZ	02	26	49.2	0.9			1.5			
16	C&GS 02-00-44.0; 37.0 N, 107.0 W; h = 33R km; New Mexico; Mag. 4.2 (CGS); (P-H) 1,165 km or 10.5°.										
16	e(P)Z	02	03	13.0	0.9			0.7			
	e(P)Z	02	03	52.0	0.8			2.3			
	e(S)Z	02	06	03.0	0.6			2.5			
16	eZ	20	30	26.0	0.9			0.8			
17	eZ	05	04	29.1	0.7			0.8			



DATE	PHASE	Time G.C.T.			Period		Sec. N	Trace Amp. (m)		
		h	m	s	Z	E		Z	E	N
December										
17		C&GS 05-59-10.2; 70.7 N, 14.0 W; h = 27 km; Janmayen Island Region; Mag. 5.0 (CGS); (P-H) 6,000 km or 54°.								
17	eZ	06	08	27.0	0.6			0.6		
17		C&GS 17-41-20.4; 22.8 S, 68.9 W; h = 105R km; Northern Chile; Mag. 5.1 (CGS); (P-H) 6,890 km or 62°.								
17	i(P)Z	17	51	38.5	0.5			1.0		
17	e(P)Z	22	03	34.0	1.0			1.0		
18	eZ	03	53	48.3	0.5			1.0		
18	eZ	04	18	55.3	0.9			1.2		
18	i(P)Z	05	11	19.2	0.9			1.5		
18		C&GS 05-21-32; 16.5 N, 95.3 W, h = 170 km; Oaxaca, Mexico; Mag. 3.9 (CGS); (P-H) 2,110 km or 19°.								
18	i(P)Z	05	25	47.2	0.9			1.6		
18	eZ	06	26	05.1	0.6			0.7		
19		C&GS December 18, 23-59-30.8; 10.8 S, 79.0 W; h = 19 km, near coast of Peru; Mag. 4.7 (CGS); (P-H) 5,445 km or 49°.								
19	eZ	00	08	16.3	0.9			1.0		
19		C&GS 02-10-31.7; 16.0 S, 71.8 W, h = 118 km; Southern Peru; Mag. 4.8 (CGS); (P-H) 6,110 km or 55°.								
19	i(P)Z	02	19	58.9	0.9			1.2		
19	e(P)Z	04	43	05.9	1.0			1.0		
20	e(P)Z	01	46	16.2	0.7			0.8		
20	e(P)Z	01	49	36.2	0.8			1.0		
20		C&GS 02-27-03.4; 18.7 N, 106.5 W; h = 33R km, off coast of Jalisco, Mexico, Mag. 4.4 (CGS), 5.0 (PAS); (P-H) 2,335 km or 21°.								
20	ePZ	02	31	40.1	1.6			2.0		
	eSEN	02	37	32.1		8.0	8.0		7.5	19.0

DATE	PHASE	Time G.C.T.			Period		Sec. N	Trace Amp. (mms)		
		h	m	s	Z	E		Z	E	N
December										
20	e(P)Z	03	08	15.1	0.9			1.5		
20	C&GS 07-55-38.6; 18.8 N, 106.3 W; h = 33R km off coast of Jalisco, Mexico; Mag. 4.6 (CGS), 5.25 (PAS); (P-H) 2,335 km or 21°.									
20	iPZ	08	00	14.7	1.1			2.0		
	eSEN	08	06	33.7		10.0	8.0		10.5	11.5
20	iPZEN	12	36	59.8	1.1			6.0		
20	iPZEN	15	34	10.1	1.0	2.0	4.4	10.0	3.5	9.0
	eSZEN	15	39	19.1	1.5	6.0	6.0	7.0	23.0	25.0
	e(L)ZEN	15	41	45.0	4.5	6.0	6.0	4.5	5.5	8.5
21	e(P)Z	04	34	01.5	0.5			1.0		
21	e(P)Z	15	40	40.5	0.5			1.5		
22	eZ	04	50	57.8	0.6			0.8		
22	C&GS 05-49-18; 51.6 N, 177.7 E; h = 75 km, Rat Islands, Aleutian Islands; Mag. 4.8 (CGS); (P-H) 6,780 km or 61°.									
22	i(P)Z	05	59	28.4	0.5			1.0		
22	e(P)Z	22	39	28.9	0.6			1.5		
23	e(S)Z	00	38	38.7	0.8			1.1		
23	e(P)Z	02	07	24.5	0.9			1.5		
23	C&GS 02-02-19; 13.0 N, 88.5 W; h = 78 km, El Salvador; Mag. 4.5 (CGS); (P-H) 2,555 km or 23°.									
23	e(P)EN	16	15	46.3		4.0	6.0		3.5	4.0
	e(S)EN	16	17	06.3		8.0	8.0		10.5	7.0
23	e(L)EN	16	45	07.2		21.0	20.0		6.0	6.5
27	iPZ	21	27	18.4	0.9			5.0		

DATE	PHASE	TIME G.C.T.			PERIOD		Sec. N	Trace		Amp. (mms) N	15
		h	m	s	Z	E		Z	E		
-											
December											
27	e(S)ZE	21	27	45.4	1.0		1.7	4.5		4.0	
	iZ	21	34	37.4	0.6			1.5			
27	C&GS 21-27; 13.2 N, 88.8 W; h = 66R km, El Salvador, felt in San Salvador Area; Mag. 5.5(CGS), 6.0(PAS); (P-H) 2,555 km or 23°.										
28	iPZEN	08	28	44.9	1.2	1.0	1.0	37.0	6.0	6.0	
	eSZEN	08	37	33.3	2.5	10.0	20.0	2.5	18.0	29.0	
	eLZEN	08	51	37.3	30.0	32.0		2.0	23.0		
	eZEN	08	57	27.3	2.0	16.0		3.0	14.0		
28	C&GS 08-18-07.4; 25.5 S, 70.7 W; h = 47 km, near coast of northern Chile, 3 killed, at least 6 injured, extensive property damage in the Tal Tal area, felt in northern and central Chile, southern Peru, and northern Argentina. A seiche was recorded at Caldera with an amplitude of 90 cm; Mag. 6.9 (CGS), 7.75 (PAS), 7.5-7.8 (BRK); (P-H) 7,110 km or 64°.										
31	eEN	18	52	45.5		32.0	20.0		24.0	53.0	
31	Quake in progress when record was changed.										
31	eE	22	40	06.8		22.0			10.0		
	eE	22	43	00.8		28.0			13.0		