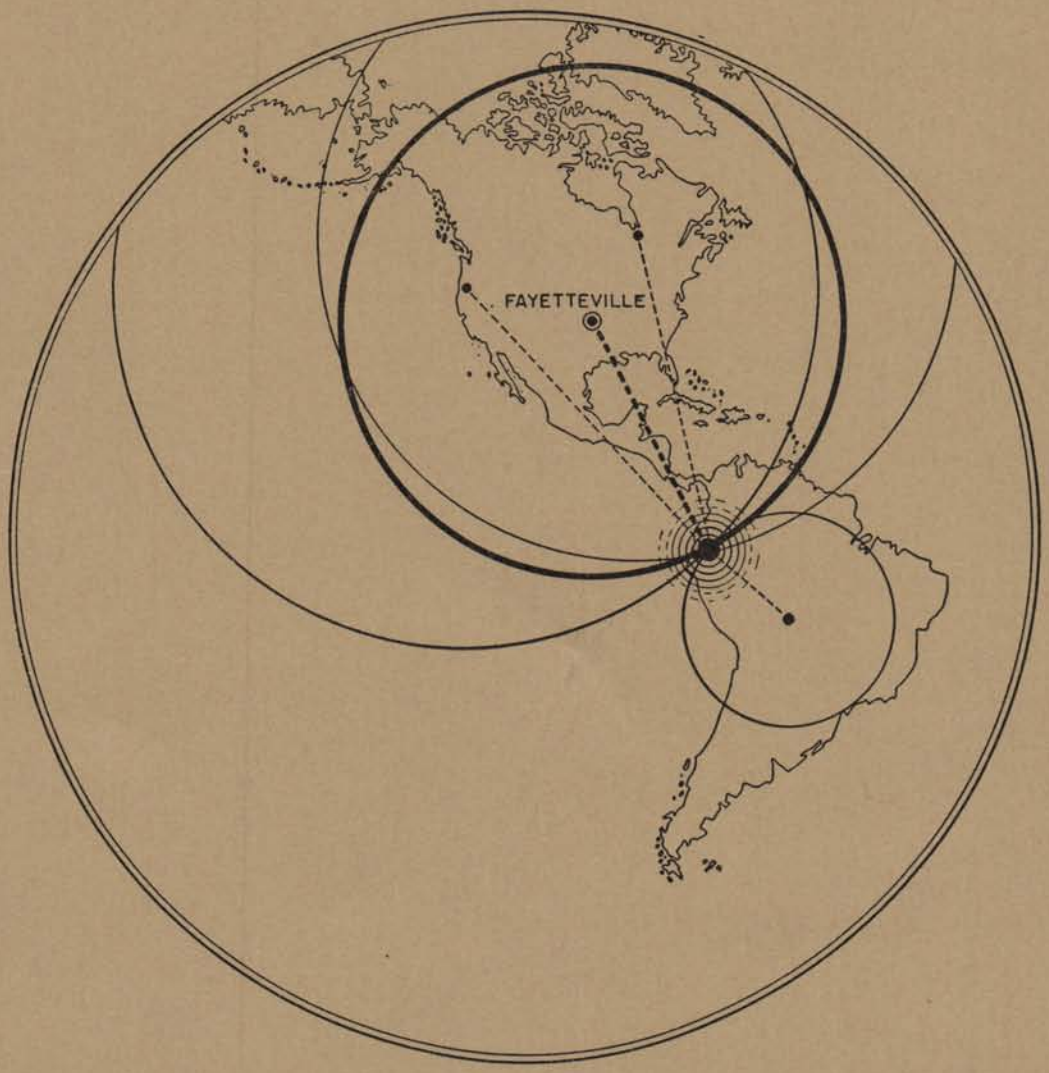
UNIVERSITY OF ARKANSAS

SEISMOLOGICAL BULLETIN

Volume XVII **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 Half of 1968

James E. Edson, Jr.

Volume XVII of the Fayetteville Seismograph Station Bulletin will consist of two issues because of instrument failure and relocation of station

FAYETTEVILLE SEISMOGRAPH STATION

Volume XVII, Number 1, January 1970
Data for January, February, March
April, May, June 1968

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 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 James E. Edson, Jr.
Observer

DATE	PHASE	Time G.M.T. h	m	s	Period Z	E	Sec. N	Trace Z	Amp. (mms) E	N	2
January											
26	iPN	12	35	05.2			4.6			10	
	iPPN	12	37	48.2			6.0			9	
	iSN	12	40	34.2			13.0			17	
	C&GS 12 30 46.3, 24.3 N; 111.5 W; d = 33 R. Baja, California; Mag 5.5 (GOL), 5.3 (CGS); (P-H) 2110 km or 19° ca.										
28	iPZEN	10	31	29.1	.9	1.5	3.0	12.0	8.5	9.0	
	iSZEN	10	40	52.4	.8	26.0	30.0	.5	62.0	40.0	
	eLZEN	11	01	12.4	1.5	16.0	24.0	17.0	7.0	6.0	
28	iPZ	18	55	15.3	.8			2.5			
28	eLEN	21	17	09.0		11.0	12.0		4.5	4.0	
29	iPZ	02	00	52.8	0.8			1.8			
29	iPZ	02	59	10.4	0.6			4.8			
29	iPZEN	04	02	43.4	1.0	.8	.8	5.0	1.0	1.0	
30	iPZEN	01	28	01.4	1.1	1.0	1.0	2.0	1.0	1.0	
	iSEN	01	33	31.5		8.0	10.0		4.5	3.5	
31	iPEN	08	04	06.1		1.1	1.0		2.5	1.0	
	iSEN	08	13	58.1		13.0	12.0		10.0	8.5	
	iLEN	08	20	39.9		9.0	8.0		3.0	2.5	
February											
3	iPEN	05	40	56.8		1.0	4.0		1.5	5.0	
	iPPEN	05	44	38.0		4.0	5.0		22.0	12.0	
	iSEN	05	47	44.6		9.0	5.0		22.5	18.0	
	iLEN	05	56	07.0		6.0	7.0		10.0	6.0	
3	iPEN	15	45	10.6		2.0	2.0		4.0	4.0	
	C&GS 15 40 44.5; 16.6 N; 93.5 W; d = 142 km, Chiapas, Mexico; Mag 5.5; (P-H) 2220 km or 20 ° ca.										
7	iPE	22	53	47.5		1.0			1.5		
	iSE	22	55	49.4		6.0			7.0		
12	iPE	06	03	27.6		4.0			3.5		
	eSE		?			20.0			22.0		
	eLE		?			16.0			6.0		

DATE	PHASE	Time G.M.T. h	m	s	Period Sec. Z	E	N	Trace Amp. (mms) Z	E	N
February										
19	iPEN	22	58	31.7	2.0	3.0			4.5	3.5
	iSEN	23	09	02.5	30.0	23.0			44.0	48.0
	iLEN	00	17	48.3	20.0	24.0			9.0	7.0
	C&GS 22 45 41.2, 39.4 N; 25.0 E; d = 7 km, Aegean Sea, 20 Dead, 18 injured. Damage on Lesbos, Felt in Greece, Italy, and Turkey. Mag. 7.25 - 7.5 (PAS); 6.4 - 6.7 (BRK); 7.25 - 7.5 (PAL); 7.25 - 7.5 (GOL), (P-H) 9555 km or 86° ca.									
21	iPEN	15	33	55.0	1.0	1.0			2.0	1.5
	iPPEN	15	35	13.5	.9	1.0			3.5	1.5
	iSEN	15	35	55.5	2.4	2.4			5.0	19.0
21	eLEN	21	44	06.5	16.0	24.0			4.0	3.5
March										
7	eLEN	07	50	44.5	3.0	3.5			12.0	16.0
7	eLEN	14	16	48.9	5.0	4.0			21.0	20.0
10	iPZ	03	59	20.3	1.0			2.2		
	C&GS 03 49 25.0, 52.1 N; 177.3 W; d = 7 km, Andreanof Islands, Aleutian Islands; Felt on Adak; Mag 4.8 - 5.1 (BRK), 5.25 - 5.75 (PAL), 5.4 (CGS), (P-H) 6555 km or 59° ca.									
14	iPZ	23	57	27.3	0.5			2.0		
17	iPZ	10	06	47.4	.9			1.0		
	C&GS 09 56 34.5; 21.2 S; 68.1 W; d = 122 R; Chile-Bolivia Border Region; Mag 5.1 (CGS); (P-H) 6780 km or 61° ca.									
19	i(P)ZEN	20	20	04.0	.9	.2	.2	1.5	.2	.2
	i(PP)Z	20	24	04.3	1.0			1.0		
	C&GS 20 15 33.2; 14.7 N; 92.9 W; d = 43 km; Near Coast of Chiapas, Mexico; Mag 4.7 (CGS); (P-H) 2220 km or 20o ca.									
20	ePZ	12	23	26.0	.8			2.0		
	C&GS 12 13 08.4; 51.4 N; 177.7 E; d = 45 km; Rat Islands, Aleutian Islands; Mag 5.1 (CGS); (P-H) 6780 km or 61 ° ca.									
20	iPZ	06	30	36.9	1.0			1.5		

DATE	PHASE	Time G.M.T. h	m	s	Period Z	E	N	Sec. Z	Trace Amp. (mms) E	N
March										
24	ePZEN	00	54	24.4	.7	.2	.2	1.5	.2	.2
24	iPZEN	02	55	49.7	1.0	1.0	1.5	5.5	1.5	2.0
	i(PP)ZEN	02	59	05.9	1.0	1.0	1.0	1.5	2.0	1.0
	C&GS 02 51 40.9; 18.0 N; 95.5 W; d = 104 km; Vera Cruz, Mexico; Mag 4.7 (CGS); (P-H) 2000 km or 18° ca.									
26	iPZEN	01	15	17.3	1.0	.8	.9	4.0	1.0	1.0
31	iPZ	03	56	14.0	.9			2.1		
	i(PP)Z	03	59	27.4	.7			2.5		
April										
7	iPZN	04	50	40.6	.8		1.0	1.5		1.0
	C&GS 04 40 19.3; 51.5 N; 176.5 E; d = 33 R; Rat Islands, Aleutian Islands; Mag 5.3 (CGS); (P-H) 6780 km or 61° ca.									
7	iPZ	05	11	03.4	1.0			2.0		
	C&GS 05 02 55*; 62.2 N; 149.5 W; d = 33 R; Central Alaska; Mag -- (P-H) 4890 km or 44° ca.									
10	ePZE	10	47	10.6	1.0	1.0		.7	.7	
	iSZE	10	52	59.4	3.0	2.0		.5	2.0	
	C&GS 10 42 34.7; 31.7 N; 117.0 W; d = 15 R; Off West Coast of Baja, California; Mag = 4.8 (CGS); (P-H) 2220 km or 20° ca.									
11	iPZ	17	23	44.0	.6			6.0		
	C&GS 17 13 40.5; 21.2 S; 66.6 W; d = 225 km, Southern Bolivia; Mag 5.2; (P-H) 6890 km or 62 ° ca.									
14	iPZ	08	50	26.1	1.0			1.0		
	C&GS 08 37 12.2; 33.4 N; 141.4 E; d = 44 km; Off East Coast of Honshu, Japan; Mag 5.4 (CGS); (P-H) 10445 km or 94° ca.									
14	iPZ	14	31	35.1	1.0			4.8		
	i(PP)Z	14	32	08.9	1.0			5.4		
	C&GS 14 24 55.3; 6.8 N; 73.0 W; d= 161 R, Northern Colombia; Felt at Bogota, Medellin, Bucaramanga, and Cali. Mag 5.0 (CGS); (P-H) 3890 km or 35 ° ca.									
17	iPZ	09	23	39.7	1.0			3.0		
18	ePEN	14	12	26.2		.8	.8		.2	.2
	iSEN	14	14	32.8		3.0	2.0		2.5	1.5

DATE	PHASE	TIME h	m	s	PERIOD Z	E	SEC. N	Z	TRACE AMP. (mms) E	N	5
April											
18	ePEN	17	53	11.7		1.0	1.0		.5	1.3	
20	ePZE	12	38	07.9	.9	1.0		1.0	1.2		
	eLEN	13	08	03.9		18.0	20.0		2.0	2.5	
	C&GS 12 25 10.1; 15.7 S; 172.6 W, d = 30 km; Samoa Island Region; Felt at APIA. Mag 6 (PAS), 5.8 - 6 (BRK), 6-6.25 (GOL; (P-H) 10,000 km or 90° ca.										
21	iPZEN	07	09	43.7	.6	.2	.2	1.7	.2	.2	
23	iPZ	20	37	08.9	1.0	1.0	1.0	12.0	8.5	12.0	
	iSEN	20	52	59.0		12.0	16.0		20.0	28.0	
	eLEN	21	18	08.6		10.0	6.0		2.0	4.0	
	C&GS 20 29 14.5; S 8.7 N; 150.0 W; d = 23R; Gulf of Alaska; Felt on Kodiak; Mag 6-6.25 (RAS); 5.1 - 6.1 (BRK); 6.0 - 6.25 (GOL); (P-H) 4780 km or 43° ca.										
26	iPZEN	15	04	10.8	1.0	1.0	1.0	11.4	11.2	6.2	
	i(PP)ZEN	15	05	34.3	1.0	4.0	1.5	7.2	13.6	4.5	
	iSZEN	15	09	12.4	1.2	4.0	2.0	8.0	19.0	11.6	
	iLZEN	15	11	11.6	7.0	5.0	8.0	4.6	51.0	32.0	
	C&GS 1500 00.1; 37.3 N; 116.5 W; d = 0 km; Southern Nevada; 37° 17' 43.5"N; 116° 27' 20.5" W; Nevada Test site Box car. Slot elevation 783.3 meters (AEC); Mag 6.4 (BRK); 6.5 (GOL); 6.3 (CGS);(P-H) 2000 km or 18° ca.										
26	iPEN	17	52	22.4		5.0	5.0		6.0	21.0	
	iSEN	17	56	18.8		6.0	4.0		54.0	46.0	
	C&GS 10 48 02.3; 18.7 N; 103.3 W; d = 65 km; Near Coast of Michoacan, Mexico, Mag 5.5 - 5.9 BRK; 5.5 (CGS); (P-H) 2110 km or 19° ca.										
28	iPEN	04	29	5.1		2.0	2.0		1.0	.5	
	eSEN	10	13	22.4		1.5	8.0		1.5	2.0	
	C&GS 10 03 31.5; 11.8 N; 88.8 W; d = 39 km; off Coast of Central America; Mag 4.9 (CGS); (P-H) 2665 km or 24° ca.										
29	ePEN	00	27	08.0		1.0	1.0		2.0	.5	
	eSEN	00	33	40.4		2.6	5.6		2 0	2.5	
May											
2	iPZ	23	45	5.3	1.0			1.0			
	i(S)Z	23	48	15.3	0.8			2.0			
6	iPZN	14	42	43.1	1.0		2.0	2.0		3.0	
	C&GS 14 37 49.8; 14.6 N; 90.8 W; d = 123 km; Guatemala Felt at San Salvador; Mag 5.1 (CGS); (P-H) 2445 km or 22° ca.										

DATE	PHASE	TIME G. M. T. h	m	s	PERIOD Z	E	SEC. N	Z	TRACE E	N	AMP. (mms) 6
May											
7	iPZN	10	07	06.9	0.8		1.0	40.5		2.5	
	iPPZN	10	07	43.1	1.0		1.0	13.5		1.5	
11	iPZ	13	40	13.6	1.0	1.0	1.0	11.0	.6	.6	
12	iPZEN	04	37	13.0	1.0	1.0	1.0	5.0	1.0	1.1	

C&GS 04 32 49*; 16.8 N; 95.3 W; d = 55 R; Oaxaca, Mexico; Mag 4.4 (CGS); (P-H) 2110 km or 19° ca.

13	iPZ	19	42	49.5	1.0			2.5			

C&GS 1936 05.2; 9.0 N; 71.1 W: d = 46 km; Lake Maracaibo; Felt at Caracas, Maracaibo and San Christobal; Mag 4.8 (CGS) (P-H) 3780 km or 34° ca.

15	eLEN	15	49	49.9		18.0			6.0		
16	ePZEN	01	01	41.3	1.0	1.0		1.7	1.5		
	e(PP)ZEN	01	01	58.1	0.8	5.0		4.6	5.0		
	e(PeP)ZEN	01	02	16.5	1.0	2.0		28.0	13.0		

C&GS 00 48 55.4; 40.8 N; 143.2 E; d = 7 km; Off East Coast of Honshu, Japan; 47 killed, 281 injured, 18,500 homes destroyed or damaged. Aomori; Prefecture had the greatest number of casualties and damage at least 95 ships were lost to Tsunami. Tsunami Leights in meters: Miyako 4.5; Hachinoke 2.3, Hakodate 1.2; Cresent City, Calif. 1.4, Honolulu 0.2, Attu 0.2, Mag 8.2 (PAS); 7.9 (BRK); 8.4 (PAL); 8.0 (GOL); 7.9 (CGS); (P-H) 9780 km or 88° ca.

16	ePZEN	10	51	43.8	1.0	2.0	2.0	4.9	8.6	4.0	
	iSEN	11	20	12.8		20.0	24.0		34.0	40.0	

C&GS 10 39 01.6; 41.5 N; 142.7 E; d = 33 R; Hokkaido, Japan Region; Felt Hachinohe; Recorded 1.2 meters; Tsunami, Mag 7 (PAS); 7.3 (BRK); 7 (PAL); (P-H) 9555 km or 85° ca.

16	ePZ	16	26	33.1	1.0			1.0			

C&GS 15 13 45.1; 39.7 N; 143.6 E; d = 29 km; Off east of Honshu Coast, Japan; Mag. 6.4 - 6.6 (BRK); 5.6 (CGS); (P-H) 9780 km or 88° ca.

16	iPZ	18	56	04.7	1.0			2.5			

C&GS 18 43 21.0; 40.7 N; 142.1 E; d = 59 km; Near East Coast of Honshu, Japan; Mag 5.7 (CGS); (P-H) 9665 km or 87° ca.

16	iPZ	19	29	30.4	0.9			1.7			

C&GS 19 16 47.2; 41.3 N; 142.4 E; d = 42 R; Hokkaido, Japan Region; Mag 5.5 - 5.8 (BRK); 5.6 (CGS); (P-H) 9665 km or 87° ca.

DATE	PHASE	TIME G. M. T. h	m	s	PERIOD Z	E	SEC. N	Z	TRACE E	AMP (mms) N	Z
May 16	iPZ	20	34	55.7	1.0			1.0			

C&GS 20 22 14.9; 142.6 E; 41.4 N; d = 39 R; Hokkaido, Japan Region; Mag 5.4 - 5.7 (BRK); 5.6 (CGS); (P-H) 9665 km or 87° ca.

16	iPZ	23	17	42.0	1.0			4.0			

C&GS 23 04 54.7; 39.8 N; 143.1 E; d = 97 km; Off East Coast of Homshu, Japan; Mag 6.4 - 6.7 (BRK); 5.8 (CGS); (P-H) 9780 km or 88° ca.

17	ePZ	10	55	34.6	1.0			0.5			

C&GS 10 42 45.9; 39.6 N; 143.4 E; d = 33 R; Off East Coast of Honshu, Japan; Mag 5.3 (CGS); (P-H) 9780 km or 88° ca.

17	iPZ	13	15	18.8	1.0			1.7			

C&GS 13 02 37.3; 41.5 N; 142.8 E; d = 45 R; Hokkaido, Japan Region; Mag 5.3 - 5.4 (BRK); 5.6 (CGS); (p-H) 9665 km or 87° ca.

17	ePZ	18	29	56.7	1.0			1.0			

C&GS 18 17 07.3; 39.6 N; 143.0 E; d = 33 R; Off East Coast of Honshu, Japan; Mag 5.2 - 5.3 (CAS); (P-H) 9780 km or 88° ca.

19	iPZ	22	29	30.9	0.9			1.0			

C&GS 22 16 44.8; 40.9 N; 143.2 E; d = 18 km; Off East Coast of Honshu, Japan; Mag 4.9 - 5.3 (BRK); 5.1 (CGS); (P-H) 9780 km or 88° ca.

20	iPZ	03	29	04.7	1.0			1,2			

C&GS 03 16 19.6; 40.0 N; 144.0 E; d = 33R; Mag 5.5 (CGS); (P-H) 9780 km or 88° ca, Off East Coast of Honshu, Japan.

20	ePZ	07	06	30.8	1.0			0.5			

C&GS 06 53 35.2; 40.3 N; 143.7 E; d = 33R; Off East Coast of Honshu, Japan; Mag 5.2 - 5.0 (CGS); (P-H) 9890 km or 89° ca.

20	iPZ	10	45	59.1	1.0			2.0			

C&GS 10 34 16.8; 48.8 N; 154.7 E; d = 40 km; Kurile Islands; Mag 5.4 (CGS); (P-H) 8335 km or 75° ca.

20	iPZ	21	21	54.8	1.0			3.0			

C&GS 21 09 44.8; 44.8 N; 150.3 E; d = 38 km; Kurile Islands Region; Mag 5.8 (CGS); (P-H) 8890 km or 80° ca.

DATE	PHASE	TIME h	m	s	PERIOD Z	E	SEC N	Z	TRACE E	AMP(mms) N	δ
May											
21	iPZ	00	31	43.4	1.0			1.5			
	C&GS 00 19 34.8; 44.8 N; 150.2 E; d = 45 R; Kurile Islands Region; Mag 5.2 (CGS); (P-H) 8890 km or 80° ca.										
27	ePEN	21	19	08.3		1.0	1.0		1.5	1.5	
	eSEN	21	29	16.1		6.0	8.0		4.5	6.0	
30	ePZN	05	35	58.7	0.7		1.5	0.7			
	iSN	05	46	2.2			3.5			1.4	
	e(L)N	06	12	48.2			3.25			4.25	
	C&GS 05 23 48.9; 44.7 N; 150.3 E; d = 49R; Kurile Islands Region, Mag 5.4 - 5.8 (BRK); 5.5 (CGS); (P-H) 8890 km or 80° ca.										
31	iPZ	20	14	51.1	1.0			1.0			
	i(S)Z	20	14	56.1	2.5			.5			
June											
2	ePZ	19	33	44.1	1.0			0.6			
	e(S)Z	19	37	26.1	1.0			0.4			
	C&GS 19 29 14*; 15.9 N; 93.3 W; d = 100 km, Near Coast of Chiapas, Mexico Mag 4.5; (P-H) 2220 km or 20° ca.										
4	ePEN	02	38	57.7	1.0	1.5	1.0	0.5	2.0	2.0	
	e(?)ZEN	02	43	10.2	1.7	2.5	1.6	0.5	1.5	3.0	
	iSEN	02	45	20.4		2.5	5.0		2.0	2.0	
	iLEN	02	47	28.8		6.0	4.5		2.5	1.5	
	C&GS 02 34 15.7, 42.3 N; 119.9 W; d = 21 km, Oregon, Slight damage at Adel, also felt in Northern California. Mag 5.0-5.2 (BRK), 4.7 (CGS); (P-H) 2334 km or 21° ca.										
4	ePZ	22	16	3.7	1.0			0.8			
	i(S)Z	22	18	23.0	3.0			0.5			
	i(L)Z	22	19	14.5	7.0			1.0			
	C&GS 22 13 18*, 27.2 N; 103.0 W; d = 33 R; Northern Mexico, Mag 4.4 (CGS); (P-H) 1335 km or 12° ca.										
17	ePZ	03	33	56.0	.8			.8			
	ePPZN	03	34	46.7	.8			1.1			
17	ePZ	08	21	43.8	1.0			1.0			
18	ePZ	02	46	47.1	1.0		1.0	2.5		2.5	
24	ePZEN	01	47	33.8	.8		1.0	1.0		.7	
	i(S)N	01	51	56.8			2.5			2.5	
	i(L)N	01	54	59.8			9.0			32.0	

DATE	PHASE	TIME	G. M. T.		PERIOD		SEC	TRACE		AMP (mms)	
			m	s	Z	E	N	Z	E	N	9
June											
24	iPZN	10	36	28.9	.9		1.4	1.5		.7	
	i(S)N	11	00	37.0			4.5			6.5	
27	iPZN	12	26	14.0	1.0		1.0	2.0		.5	
28	iSN	19	23	28.1			3.0			9.0	
30	iPZN	20	09	13.8	1.0		2.5	1.0		2.0	
	i(S)N	20	13	08.8			5.0			2.0	
	i(L)N	20	15	53.8			6.0			6.5	
	C&GS 20 04 34.1, 17.9 N; 105.8 W; d = 33 R; Off Coast of Jalisco, Mexico. Mag 4.5 CGS (P-H) 2334 km or 21° ca.										
30	iPZN	20	26	07.8	1.0		2.5	1.5		2.0	
	iSN	20	30	05.8			5.0			4.5	
	iLN	20	32	26.8			7.0			31.0	
	C&GS 20 21 27.7; 17.9 N; 105.8 W; d = 35 km; Off Coast of Jalisco, Mexico, Mag 4.8 (CGS); (P-H) 2335 km or 21° ca.										

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° 05.46' north latitude and 94° 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

UNIVERSITY OF ARKANSAS

SEISMOLOGICAL BULLETIN

Volume XVII 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 Half of 1968

James E. Edson, Jr.

Volume XVII of the Fayetteville Seismograph Station Bulletin will consist of two issues because of instrument failure and relocation of station

FAYETTEVILLE SEISMOGRAPH STATION

Volume XVII, Number 2, February 1970
Data for July, August, September,
October, November and December

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 theth 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 James E. Edson, Jr.
Observer

DATE	PHASE	Time h	G M T m	s	Period Z	E	N	Trace Amp (mm) Z	E	N
July										
1	iPZN	10	58	18.3	1.0	-	2.0	2.0	-	1.0
	C & GS 10 45 11.9; 36.0N; 139.3E; d=67km; Honshu, Japan; 1 killed 9 injured and minor damage in Tokyo area; Mag 5.9 (CGS); (P-H) 10,220 km or 92° ca									
2	iPZN	03	49	10.5	1.0	-	2.0	4.5	-	32.0
	iSN	03	52	52.7	-	-	3.0	-	-	45.0
	C & GS 03 44 48.9; 17.6N; 100.3W; d=41km; Guerrero, Mexico; 1 killed and minor damage a t Cuajimalpa; Felt at Mexico City, Acapulco and Cuernavaca; Mag. 6.0 (PAS); 6.0 (BRK); 5.9 (CGS); (P-H) 2110 km or 19° ca									
5	iPN	00	47	19.1	-	-	3.0	-	-	1.4
	iPPN	00	50	04.5	-	-	1.6	-	-	2.0
	iSN	00	54	11.1	-	-	3.6	-	-	2.5
	iLN	00	56	21.3	-	-	4.4	-	-	35.5
5	iPN	11	41	09.8	-	-	2.4	-	-	1.1
	iSN	11	51	32.2	-	-	4.2	-	-	6.0
	C & GS 11 28 12.6; 38.5N; 142.0E; d=43 km; Near East coast of Honshu, Japan; Felt in Tokyo area; Mag 6.0 (BRK); 5.9 (CGS); (P-H) 9890 km or 89° ca									
7	i(P)N	14	44	41.1	-	-	3.0	-	-	3.9
7	i(P)N	23	11	17.6	-	-	3.0	-	-	1.5
	i(S)N	23	20	54.6	-	-	5.6	-	-	3.3
	C & GS 23 05 18.2; 8.5N; 103.3W; d=33R; off coast of Mexico; Mag 5.75 - 6.0 (GOL) 5.0 (CGS); (P-H) 3320 km or 29° ca									
8	e(P)N	09	30	04.9	-	-	3.0	-	-	1.8
12	i(P)N	00	57	29.3	-	-	3.6	-	-	3.1
	i(S)N	00	07	53.7	-	-	5.0	-	-	8.6
	C & GS 00 44 36.5; 39.5N; 143.2E; d=28 km; off east coast of Honshu, Japan; Mag 6.25 (PAS); 6.0 (GOL); 6.0 (CGS); (P-H) 9890 km or 89° ca									
12	iPN	04	09	19.3	-	-	2.0	-	-	1.5
	iSN	04	20	05.8	-	-	6.0	-	-	4.0
	C & GS 03 56 27.5; 39.5N; 143.2E; d=26 km; off east coast of Honshu, Japan; Mag 5.5 (CGS); (P-H) 9890 km or 89° ca									
15	iPN	13	11	30.0	-	-	3.0	-	-	1.8
	i-N	13	15	24.0	-	-	5.0	-	-	2.5
	i-N	13	18	01.0	-	-	5.0	-	-	3.0

DATE	PHASE	Time h	m	s	Period Z	E	Sec N	Trace Amp (mm) Z	E	N
July										
15	iPN	18	02	32.0	-	-	3.0	-	-	2.0
	iN	18	06	22.0	-	-	5.0	-	-	2.5
	iN	18	08	59.0	-	-	4.0	-	-	4.5
18	iPN	05	19	12.8	-	-	2.0	-	-	1.7
22	iPN	18	32	43.6	-	-	3.0	-	-	9.5
	iSN	18	36	41.6	-	-	6.0	-	-	18.0
	iLN	18	39	21.6	-	-	6.0	-	-	44.0
22	i(P)N	23	26	03.6	-	-	6.0	-	-	3.0
23	iPN	04	11	22.8	-	-	3.0	-	-	6.5
	i(?)N	04	15	18.2	-	-	2.5	-	-	4.0
	iSN	04	17	58.2	-	-	7.0	-	-	14.5
25	iPN	06	38	50.3	-	-	2.0	-	-	5.0
	iSN	06	43	00.3	-	-	8.0	-	-	9.0
26	i(P)N	03	09	47.6	-	-	6.0	-	-	3.0
30	iPN	20	46	53.0	-	-	1.6	-	-	6.0
	iSN	20	53	28.6	-	-	6.4	-	-	9.5

C & GS 20 38 42.0; 6.9S; 80.5W; d=37 km: near coast of northern Peru; Mag 6.0 - 6.2 (BKS); 5.5 - 5.75 (PAL); 5.75 - 6.0 (GOL); 5.8 (CGS); (P-H) 5000 km or 45° ca

August										
1	iPN	20	38	32.6	-	-	3.0	-	-	1.8
4	ePN	12	00	18.0	-	-	1.0	-	-	1.0
5	iPN	16	30	40.9	-	-	2.0	-	-	1.5
	i(?)N	16	34	40.3	-	-	2.0	-	-	2.5
	i(?)N	16	41	16.3	-	-	5.0	-	-	5.5

C & GS 16 17 04.8; 33.3N; 132.2E; d=41km; Shikoku, Japan; 14 injured and minor damage on Kyushu and Shikoku, also felt on western Honshu; Mag 7.0 - 7.25 (PAS); 6.4 - 6.6 (BRK); 6.3 (CGS); (P-H) 10,890 km or 98° ca

5	iPN	18	38	47.2	-	-	3.0	-	-	3.0
	i(?)N	18	45	09.0	-	-	5.0	-	-	3.5

C & GS 18 34 10.8; 18.1N; 106.0 W; d=33R; off coast of Jalisco, Mexico; Mag 4.6 (CGS) (P-H) 2335 km or 21° ca

6	iPN	03	28	27.0	-	-	2.0	-	-	115

C & GS 03 240 4.3; 17.2 N; 92.6W d=13 km; Chiapas, Mexico; mag 4.4 (CGS) (P-H) 2110 km or 19° ca

DATE	PHASE	Time G M T h	m	s	Period Z	E	N	Trace Amp (mm) Z	E	N
August	iPN	08	43	06.0	-	-	3.0	-	-	6.5
	C & GS 08 38 48.4; 18.5N; 102.8W; d=72 km; Michoacan, Mexico; Felt at Mexico City; Mag. 5.5 - 5.7 (BRK); 5.0 - 5.25 (PAL); 6.0 - 6.25 (GOL) 5.4 (CGS) (P-H) 2110 km or 19° ca									
16	iPN	18	30	21.1	-	-	1.6	-	-	3.0
	C & GS 18 25 55.1; 16.7N; 97.7W; d=46 km; Oaxaca, Mexico; Mag. 4.9 - 5.3 (BRK); 5.25 (GOL); 5.4 (CGS) (P-H) = 2220 km or 20° ca									
16	iPN	21	29	02.7	-	-	2.0	-	-	2.5
	C & GS 21 24 38.1; 18.4N; 102.9W; d=25 km; Michoacan, Mexico; Mag. 4.2 - 4.6 (BRK); 5 - 5.25 (GOL); (P-H) = 2110 km or 19° ca									
18	ePN	18	55	36.o	-	-	3.0	-	-	1.8
21	eN	18	21	34.5	-	-	5.0	-	-	2.0
22	iPN	14	10	36.8	-	-	2.0	-	-	1.5
23	iPN	22	46	36.2	-	-	1.0	-	-	1.5
	iSN	22	54	34.2	-	-	3.0	-	-	6.5
29	iPN	22	49	14.5	-	-	1.0	-	-	1.5
	iSN	22	54	22.5	-	-	3.0	-	-	17.0
Sept. 3	eN	08	32	50.2	-	-	3.0	-	-	2.5
	C & GS 08 19 52.2; 41.8N; 32.3E; d=5km; Turkey, 25 killed, 200 injured and considerable damage in Bartin area; Mag. 6.5 (PAS); 6.7 (BRK) 6.75 (PAL); 6.5 (GOL); 5.7 (CGS) (P-H) 9890 km or 89° ca									
3	ePN	15	43	28.9	-	-	1.0	-	-	1.5
	C & GS 15 37 00.2; 20.6N; 62.2W; d= 33R; North Atlantic Ocean; felt at San Juan, Puerto Rico; Mag 5 - 5.25 (PAL); 5.5 (CGS); (P-H) 3665 km or 33° ca									
6	iPN	07	57	43.2	-	-	1.0	-	-	1.0
	C & GS 07 49 42.0; 5.85; 80.3 W; d=66R; near coast of northern Peru; Mag. 4.4 - 4.8 (BRK); 5.3 (CGS); (p-h) 4890 km or 44° ca									
6	iPN	14	04	09.5	-	-	2.0	-	-	1.5
	iSN	14	09	15.9	-	-	3.0	-	-	15.0

DATE	PHASE	Time h	G M T m	s	Period Z	E	Sec N	Trace Amp (mm) Z	E	N	S
September											
11	iPN	18	38	47.7	-	-	2.0	-	-	1.5	
	iSN	18	49	04.7	-	-	4.0	-	-	2.5	
	C&GS 18 26 36.8; 43.0 S; 75.2 W; d = 31 R; Off west coast of southern Chile; Mag. 5.7 (CGS); (P-H) = 8890 km or 80° ca.										
13	iPN	07	35	27.4	-	-	1.0	-	-	4.0	
	iSN	07	39	32.6	-	-	2.0	-	-	2.5	
	C&GS 07 30 43.6; 15.1 N; 93.9 W; d = 34 km; Near coast of Chiapas, Mexico; Mag. 5.1 (CGS); (P-H) 2335 km or 21° ca.										
November											
2	iPN	04	00	29.8	-	-	1.0	-	-	1.5	
	iSN	04	07	01.3	-	-	8.0	-	-	25.5	
9	iPN	17	02	54.5	-	-	1.0	-	-	3.0	
	eSN	17	03	46.5	-	-	3.0			80.0	
	C&GS 17 01 41.1; 37.96 N; 88.46 W; d - 19 km; Southern Illinois, several injured and minor damage in widely scattered areas. Felt in 23 states and Ontario, Canada. Maximum intensity VII. Epicenter based on regional crustal model and PN velocity of 8.24 km/sec. to distance of 810 km. Depth based on observed depth phases. Mag. 5.0 - 5.5 (PAL), 6.0 (GOL), 5.3 (CGS); (P-H) = 556 km or 5° ca.										
24	iPN	21	33	46.6	-	-	1.0	-	-	1.75	
25	iPN	00	57	48.3	-	-	1.5	-	-	1.0	
	iSN	01	01	35.3	-	-	6.5	-	-	6.0	
	iLN	01	04	49.3	-	-	6.0	-	-	8.5	
	C&GS 00 53 01.3; 20.3 N; 109.3 W; d = N; Revilla Gigedo Islands Region; Mag. 4.8 - 5.0 (BRK); 5.0 (CGS); (P-H) = 2335 km or 21° ca.										
December											
1	ePN	13	23	58.2	-	-	1.0	-	-	3.0	
1	ePN	19	25	49.3	-	-	1.5	-	-	1.5	
5	e(P)N	09	53	14.6	-	-	1.0	-	-	1.0	
	e(L)N	10	12	43.1	-	-	13.0	-	-	13.5	
	C&GS 09 44 11.0; 63.9 N; 21.7 W; d = 5 G; Iceland Region. Felt at Hafnarfjordur and Reykjavik. Mag. 5.9 (PAS); 6.25 (BRK); 6.0 (GOL); (P-H) = 5780 km or 52° ca.										

DATE	PHASE	Time GMT h	m	s	Period Z	E	Seconds N	Trace Amp. (mm) Z	E	N	6
December											
15	iPN	02	24	50.5	-	-	1.0	-	-		1.0
	iSN	02	34	31.0	-	-	5.0	-	-		6.5
	iLN	02	48	48.0	-	-	5.0	-	-		4.5
16	iPN	12	10	15.0	-	-	1.0	-	-		1.0
	i(S)N	12	16	24.0	-	-	4.0	-	-		19.0
	i(L)N	12	20	04.0	-	-	4.0	-	-		33.0
19	iPN	16	34	10.2	-	-	1.0	-	-		1.0

C&GS 16 30 00.0; 37.2 N; 116.5 W; d = 0 km; Southern Nevada, 37° 13" 53.3' N; 116° 28" 24.9'; W. Nevada Test Site "Benham". Shot elevation 512.1 meters (AEC). Mag. 6.4 (BRK); 6.3 (CGS); (P-H) = 2000 km or 18° ca.

21	e(P)N	00	23	05.8	-	-	1.0	-	-		1.0
	iSN	00	23	54.8	-	-	3.0	-	-		5.0
29	iPN	17	41	17.8	-	-	1.0	-	-		1.0
	i(S)N	17	45	18.8	-	-	2.0	-	-		4.0

C&GS 17 36 29.9; 14.5 N; 92.4 W; d = 60 km; Near Coast of Chiapas, Mexico. Mag. 5.25 (BRK); 5.4 (CGS); (P-H) 2445 km or 22° ca.

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