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UNIVERSITY OF ARKANSAS

SEISMOLOGICAL BULLETIN

1959

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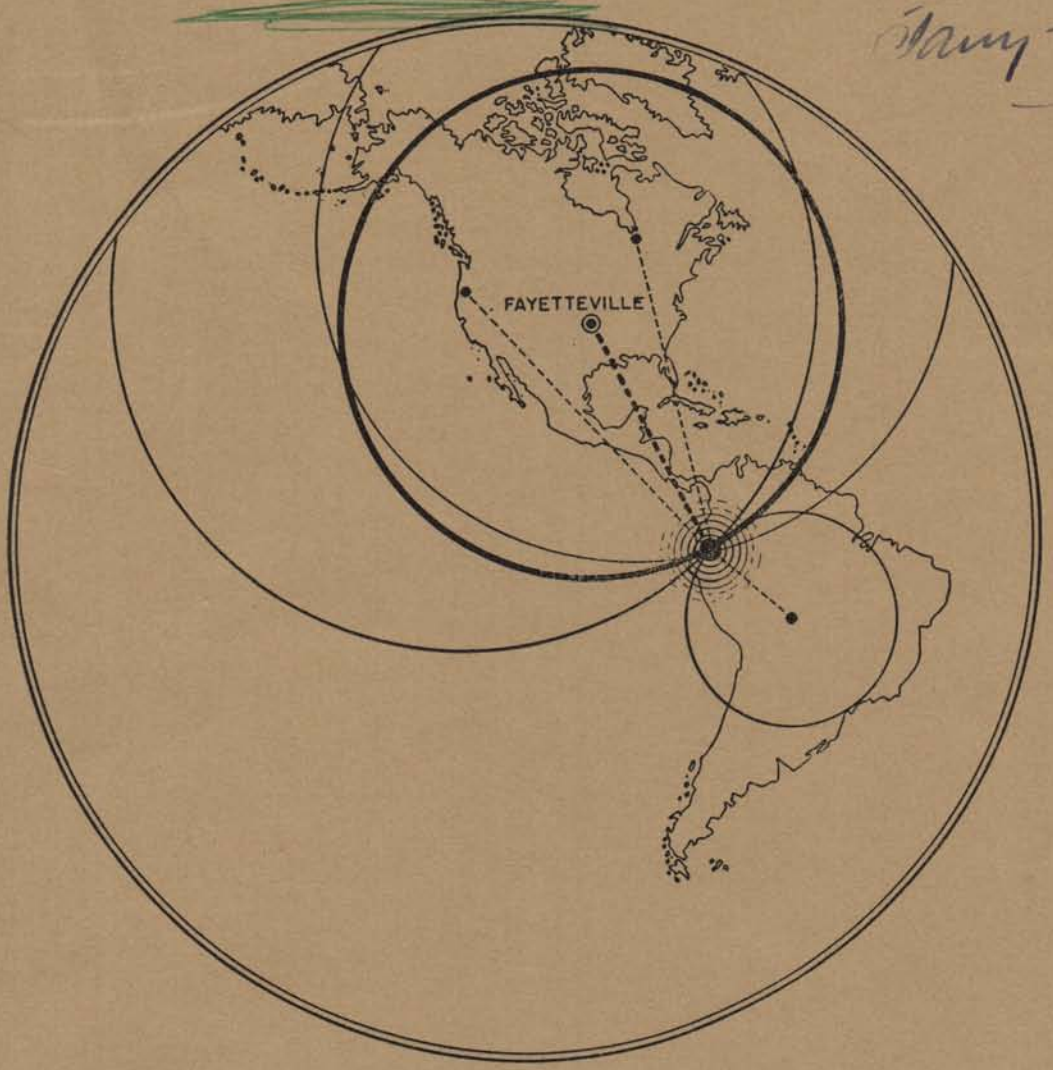
Volume VIII Number 1

FAYETTEVILLE

Thru - Mar



The University Of Arkansas Seismograph Station

Operated by the University's Department of Geology

in conjunction with the

United States Coast and Geodetic Survey

FAYETTEVILLE SEISMOGRAPH STATION

Volume 8, Number 1, March 1959

Data for January, February, March

1959

Instruments

Vertical component - Benioff type, short period electromagnetic-galvanometric

Seismometer period - 1.1 second
Galvanometer period - 0.20 second
Damping ratio - about 20 to 1 (near critical)
Recording drum speed - 60 mm per minute

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

Seismometer period - 6.03 seconds (N-S)
5.97 seconds (E-W)
Galvanometer period - 4.1 seconds (N-S)
3.75 seconds (E-W)
Recording drum speed - 30 mm per minute

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

Radio - Time signals received by a Hallicrafter SX-43 receiver.

(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 Leonard I. Knowles, Observer

Date	Phase	Time GCT h m s	Period (secs) Z	E	N	Trace Amp. (mms) Z	E	N	Remarks
Jan. 3	iP	11-27-03	1.5			6.0			
6	iP	15-07-18	1.5			2.0			
8	iP	01-40-46	2.0			10.0			C&GS 01-33-48 15½N, 61W Windward Islands. Mag 6½ - 6 3/4 (Pas) Felt Trinidad. h about 100 Km. Ca.
8	iP	16-01-30	1.0			2.0			C&GS 15-54-41 Pacific Ocean, about 650 miles northwest of Galapagos Islands (P-H)=3800 km. Ca.
9	iP	20-56-58	.5			1.5			C&GS 20-52-07 14N, 90½W. Guatemala-El Salvador border. Felt western El Salvador h about 150 km. (PH)=1300 km. Ca.
11	iP	07-27-19	.5			3.0			C&GS 07-22-40, 15N 90W Guatemala h about 200 km. (PH)= 2300 km. Ca.
	e(S)ZEN	-31-00	1.2	6.0	6.0	1.5	8.0	15.0	
12	iP	14-28-50	1.0			3.0			C&GS 14-16-28 44N, 146E. Near north coast of Hokkaido Japan. h about 100 km. (P-H)=9200 Km. Ca.
13	eP	07-53-07	1.3			2.0			
13	eP	08-39-52	.5			1.0			C&GS 08-34-08, 9N, 9N, 83½W. Costa Rica h about 100 Km. (P-H)=3000 Km. Ca.
13	eP	09-57-08	.5			1.0			
16	iP	01-40-54	.5			2.5			
22	iP	05-23-27	1.0			2.0			C&GS 05-10-25, 34N 142E. Near east coast Honshu Japan Felt. 6 3/4 7 (Pas) 6 3/4 (Berls) (P-H)= 10,000 Km. Ca.

Date	Phase	Time GCT h m s	Period (secs) Z	E	N	Trace Amp. (mms) Z	E	N	Remarks
Jan.									
24	iPZEN	20-04-44	2.0	3.0	1.0	12.0	3.0	3.0	C&GS 19-55-14, 37½N, 24½W, Azores Islands Mag 6¼-6½ (Pas) (P-H)=6100 Km. Ca.
	e(S)ZEN	-12-27	3.5	6.0	10.0	2.0	8.0	8.0	
27	iP	00-26-14	1.5			1.5			C&GS 00-20-22, 18N, 68½W, Eastern Dominican Republic Felt San Juan, Puerto Rico, h about 100km.
27	iP	03-45-14	1.0			1.5			C&GS 07-33-14 43½N, 144½E, Hokkaido, Japan. (P-H)=8800 Km. Ca
28	iP	10-15-11	.5			1.5			C&GS 10-04-10, 30½S 79W, Juan Fernandez Islands region. Mag 6¼ (Pas) (P-H)=7600 Km. Ca.
29	iPZEN	23-34-37	1.0		1.5	7.0		2.0	C&GS 23-24-30, 71N 8 E. off coast of Norway (P-H)=6500 Km. Ca.
	e(S)ZEN	-42-40	2.0	3.0	4.0	1.0	3.0	2.0	
30	iP	05-23-13	1.0			1.5			C&GS 05-17-32, 61N 78½W, Hudson Bay (P-H)=3000 Km. Ca.
30	iPZEN	16-26-37	1.0	2.0	3.0	10.0	1.5	3.0	C&GS 16-15-58, 26½S, 71W. near coast of Chile. (P-H)=7200 Km. Ca.
	e(S)EN	-35-31		4.0	6.0		2.0	3.0	
30	iPZEN	20-51-35	1.4			3.5			C&GS 20-38-58, 44N, 144E, Hokkaido, Japan. Mag 5 3/4 - 6 (Pas) (P-H)=9400 Km. Ca.
30	iPZEN	22-29-24	1.0			4.0			C&GS 22-16-47, 44N, 144E, Hokkaido, Japan. Mag 6¼ (Pas) Minor damage at Deshikutsu (P-H)= 9500 Km. Ca.
	e(S)EN	-39-49		6.0	8.0		4.0	4.0	
Feb.									
6	iP	08-12-56	1.0			1.5			C&GS 08-08-00, off coast of Oaxaca, Mexico. (P-H)=2400 Km. Ca.

Date	Phase	Time GCT h m s	Period (secs) Z	E	N	Trace Amp. (mms) Z	E	N	Remarks
Feb.									
6	iP	14-42-56	1.0			2.5			C&GS 14-32-55, 51½N, 175½W, Andrean of Is. Aleutian Is. (P-H)= 6500 Km. Ca.
7	iP	09-44-41	1.0			50.0			C&GS 09-36-51, 4S, 81½W, Near coast of Northern Peru, felt strongly at Guayaquil. Mag. 7¼-7½ (Pas) (Berlc) (P-H) = 4600 Km. Ca.
8	iP	01-11-13	.5			2.0			C&GS 01-02-26, 49N, 28½W, North Atlantic Ocean, Mag. 6¼-6½ (Pas) (P-H)=5400 Km. Ca.
9	iP	04-52-35	1.0			2.0			C&GS 04-42-33, 177½W., Andrean of Is. Aleutian Is. (P-H)=6500 Km. Ca.
11	iP	01-46-01	1.0			1.5			C&GS 01-41-20, about 50 Km. off coast of Oaxaca, Mexico. (P-H)=2400 Km. Ca.
11	iPZEN	13-56-53	1.5	2.0	2.0	12.0	2.0	5.0	C&GS 13-52-13, 16N, 97W., Near coast of Oaxaca, Mexico. (P-H)=2400 Km. Ca.
	e(S)ZEN	14-00-53	2.0	7.0	8.0	2.0	5.0	10.0	
						C=A ↓ D=K			
11	iP	20-04-55	1.0			2.0C			C&GS 19-57-05, 4S, 82½W. off coast of Peru (P-H)=4700 Km. Ca.
16	iP	01-47-02	1.7			2.0			
17	iPZEN	12-12-39	1.5			2.5D			C&GS 12-03-05, 51½ N., 171W., Fox Is. Aleutian Is. Mag. 6-6¼, (Pas) (P-H)=6250 Km. Ca.
20	iP	04-24-02	.5			5.0			

Date	Phase	Time GCT h m s	Period (secs) Z	E	N	Trace Amp. (mms) Z	E	N	Remarks
Feb.									
20	iPZEN e(S)ZEN	18-20-55 24-26	1.5			7.0C			C&GS 18-16-22, 15½ N, 91W, Guatemala Felt. h about 150 km. Mag. 6½ (Pas) (P-H)=2200 Km. Ca.
23	iP	10-42-25	1.0			2.0			C&GS 10-31-07, 53½N, 158½E, Kamchatlea (P-H)=7600 Km. Ca.
23	iP	16-16-22	1.5			1.0			C&GS 16-04-48, 50N, 157E, Kurile Islands (P-H)=8200 Km. Ca.
25	iP e(S)	22-36-42 37-22				1.0 10.0			local
Mar.									
1	iP e(PPP)	00-41-20 43-36	1.0 2.0			1.5 1.0			C&GS 00-31-20, 74½N, 9E, Artic Ocean, (P-H)=6500 Km. Ca.
1	iP	17-08-06	1.0			1.0			
2	iP	01-57-25	1.6			2.5			
2	iP	23-32-18	1.5			1.5			C&GS 23-27-15, 37N, 122W, near coast of California, slight damage at Gilroy, Santa Cruz aid Hollister. Mag 4.9 (Pas), 5.6 (Berlc) (P-H)=2500 Km. Ca.
3	iP	11-11-44	1.0			1.0			after shock Calif.
9	iP	22-07-36	1.5			10.0D			C&GS 22-02-58, 15½N, 91W, Guatemala, h about 150 Km. (P-H) =2200 Km. Ca.
10	iP	22-54-36	1.0			1.0			C&GS 22-49-39, 14N, 92½W. near coast of Guatemala (P-H)=2500 Km. Ca.
11	iP	14-36-27	.5			1.0			C&GS 14-31-27, 14N, 92½W. near coast of Guatemala (P-H)=2500 Km. Ca.

Date	Phase	Time GCT h m s	Period (secs) Z	E	N	Trace Amp. (mms.) Z	E	N	Remarks
Mar.									
18	iP	12-43-26	1.2			7.0C			C&GS 12-38-45, near coast of Oaxaca, Mexico. (P-H)=2300 Km. Ca.
18	iP	15-04-34	1.5			2.0D			
19	iPZEN	08-33-55	1.0			1.0			C&GS 08-25-32, 35N. 36W. North Atlantic Ocean. Mag. $6\frac{1}{4}$ (Pas) $6\frac{1}{2}$ (Berlc) (P-H)= 5100 Km. Ca.
	pPZEN	34-07	1.2			9.0			
	e(PP)ZEN	36-03	2.0			4.0			
	e(S)ZEN	41-00			12.			10.	
	e(L)EN	44-08			16.			10.	
23	iP	07-14-48	1.2			4.0d			C&GS 07-10-22, 40N. 118W. Western Nevada felt at Reno, Mag. $6\frac{1}{4}$-$6\frac{1}{2}$ (Pas) (Berlc) (P-H)=2200 Km. Ca.
	e(S)	18-32	2.0			3.0			
	e(Lr)	20-24	3.0			20			
	e(L)	26-52	5.0			3.0			
25	iP	04-32-30	0.5			1.0			
27	iP	07-08-36	1.0			10.0			C&GS 07-01-47, 17N, 61W. Leevard Islands h about 60 Km. (P-H) =3900 Km. 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

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UNIVERSITY OF ARKANSAS

SEISMOLOGICAL BULLETIN

Volume VIII Number 2

FAYETTEVILLE

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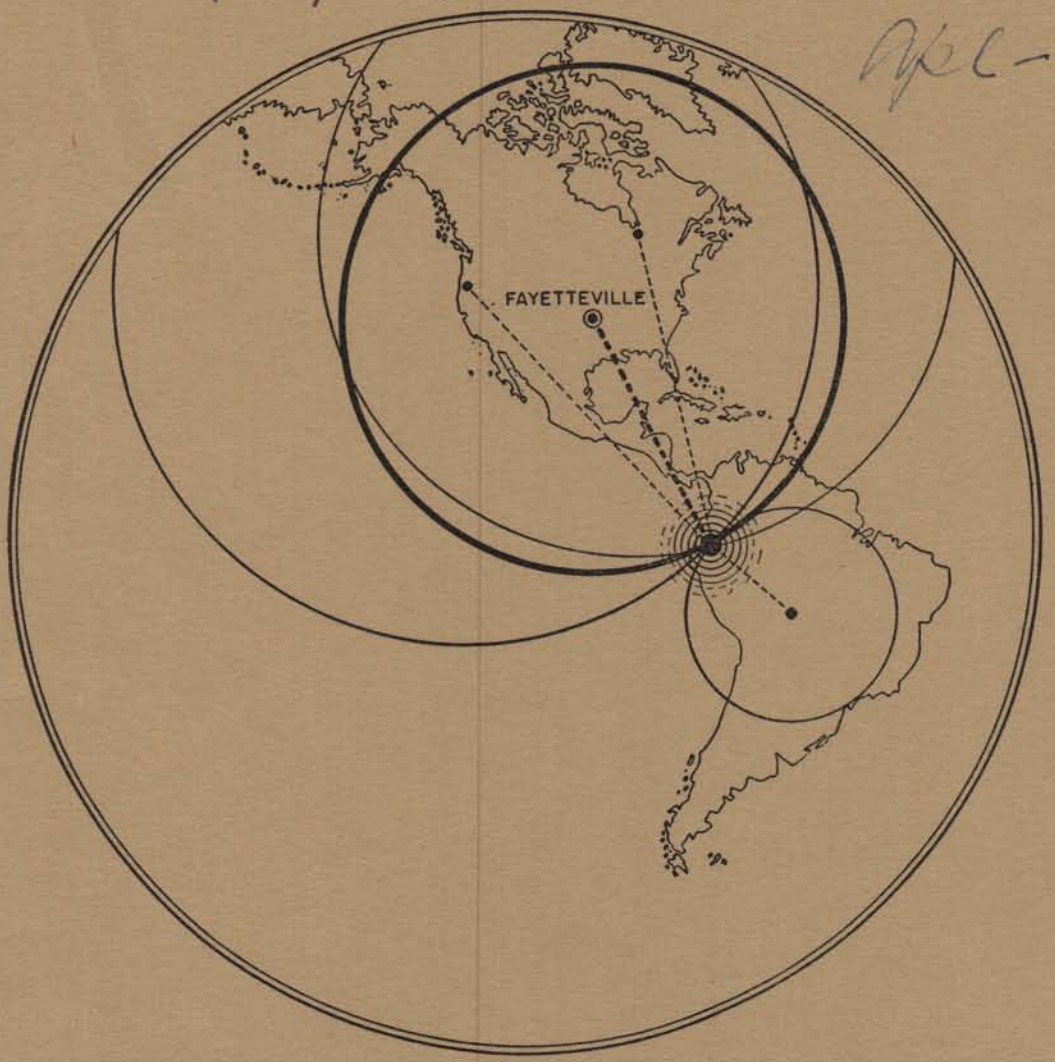

The University Of Arkansas Seismograph Station

Operated by the University's Department of Geology

in conjunction with the

United States Coast and Geodetic Survey

FAYETTEVILLE SEISMOGRAPH STATION

Volume 8, Number 2, June 1959

Data for April, May, June 1959

Instruments

Vertical component - Benioff type, short period electromagnetic-galvanometric

Seismometer period - 1.1 second
Galvanometer period - 0.20 second
Damping ratio - about 20 to 1 (near critical)
Recording drum speed - 60 mm per minute

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

Seismometer period - 6.03 seconds (N-S)
5.97 seconds (E-W)
Galvanometer period - 4.1 seconds (N-S)
3.75 seconds (E-W)
Recording drum speed - 30 mm per minute

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

Radio - Time signals received by a Hallicrafter SX-43 receiver.

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

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

Bulletin compiled by T. D. Mooney, Observer

Date	Phase	GCT h m s	Period (secs) Z	E	N	Trace Amp. (mms) Z	E	N	Remarks
Apr.									
1	iP	18-23-13	.5			2.0			
	e(S)	29-12	1.5			1.5			
5	iP	20-12-11	1.0			1.5			C&GS 19-59-58 46W, 151E, Kurile Islands (P-H)= 9000 Km. Ca.
6	iP	14-32-02	.5			.5			
8	iP	11-57-20	2.0			4.0			C&GS. 11-44-25 50½S 73W. Southern Chile-Argentina border (P-H)=10,000 Km.Ca.
9	iP	06-38-48	2.5			2.0			
	e	44-06	3.0			2.0			
9	iP	13-02-05	1.0			1.0			
9	iP	17-42-30	1.0			2.0			C&GS 17-36-10 7N, 82W. South of Panama Mag 6¼ to 6½ (Pas) (P-H)=3500 Km. Ca.
12	iPZEN	09-59-10		1.0	6.0	80±	12±	45±	C&GS 09-54-51 17½N, 95W. Mexico, Damage at Cordoba, h about 100 Km. Mag 6¼ (Pas) 6(Berk) (P-H)=2150 Km. Ca.
	e(S)ZEN	10-02-40		4.0	6.0	15±	15±	30±	
12	iP	21-07-26	1.0			1.0C			C&GS 20-54-00 15½S, 173 W. Samoa Islands region Felt Apia. Mag 6-6½(Pas) (P-H)= 10,200 Km. Ca.
14	iPZEN	02-57-10	1.0	2.0	2.0	1.0	2.0	2.0	C&GS 02-53-04 24N, 109½W. Gulf of California Mag. 5¼ to 5½ Berk. (P-H)= 1900 Km. Ca.
	e(S)ZEN	03-00-32	1.5			1.0			
	e(S)ZEN	02-20	2.0	4.0	6.0	1.5	2.0	6.0	
14	iP	07-28-40	.8			2.5			C&GS 07-20-28 57½N, 155W. Alaska Peninsula h about 60 Km. (P-H)= 4900 Km. Ca.
	e	29-00	.8			3.5			

Date	Phase	Time GCT h m s	Period (secs) Z	E	N	Trace Amp. (mms) Z	E	N	Remarks
Apr. 15	iP	00-28-07	1.0			1.0d			C&GS 00-15-21 41½N, 143E near south coast of Hokkaido Japan. (P-H)= 9700Km. Ca.
	e	28-56	1.0			2.5			
19	iP	15-11-29	.5			2.5D			C&GS 15-03-26 58N, 152½W. near Kodiak Island Alaska (P-H)=3900Km. Ca.
22	iP	11-04-15	1.0			2.0d			C&GS 10-55-05 54N, 167W. Fox Island, Aleutian Island (P-H)= 5800 Km. Ca.
22	iP	19-07-11	.8			7.0C			C&GS 19-01-41 11½N. 86½W. near coast of Nicaragua (P-H)= 2850 Km. Ca.
22	iP	20-38-13	1.2			2.0C			C&GS 20-26-46 36½S, 97½W. Pacific Ocean Mag. 5 3/4-6 Pas. (P-H)= 8100 Km. Ca.
26	iP	07-36-01	1.5			1.5C			
26	iP	20-54-57	2.0			1.5C			C&GS 20-40-38 25N, 122½E. Near north coast of Formosa 2 Killed minor damage at Taipei h about 150 Km. Mag. 7½-7 3/4 (Pas) 7¼-7½ (Berls) (P-H)= 12,700 Km. Ca.
	e(S)								
27	iP	10-07-25	.5			5.0C			
	e(S)	10-33	1.0			15.0			
28	iPZEN	11-14-25	1.0	4.0	6.0	20±	6±	30±	C&GS 11-09-30 15N. 93W Mexico Guatemala border. Mag. 6½ (Berk) 6½-6 3/4 (Pas) (P-H)= 2500 Km. Ca.
	e(S)ZEN	18-34	.5	8.0	10.0	10±	40±	80±	

Date	Phase	Time GCT h m s	Period (secs) Z	E	N	Trace Amp. (mms) Z	E	N	Remarks
Apr. 29	iP	05-41-06	.8			1.0C			
May									
3	iPZEN	04-46-36	.5			6.0C			C&GS 04-41-24 12½N, 87½W. near coast of Nicaragua (P-H)= 2800 Km.Ca.
4	iPZEN	07-26-55		4.0	10	80±	30.0	85	C&GS 07-15-42 52½N, 159½E near east coast of Kamchatka Mag. 8(Pas) 8¼(Berk) 1 Killed and 13 injured h. about 60 Km. (P-H)=7700 Km.Ca.
	e(S)ZEN	36-00							
8	iP	06-57-35	1.4			2.5d			C&GS 06-46-18 53½N, 159½E. near east coast of Kamchatka (P-H)= 7900 Km. Ca.
8	iP	11-45-59	1.2			10.0C			C&GS 11-34-50 53½N. 160½E near coast of Kamchatka h about 60 Km. (P-H)=7700 Km. Ca.
	e(S)ZEN	55-40	1.2	6.0	4.0	1.0	4.0	2.7	
8	iP	17-29-45	1.0			2.0			
10	iP	00-09-17	1.2			3.5C			
11	iP	16-40-03	1.0			12.0C			C&GS 16-28-49 53½N. 160E Kamchatka, slightly deeper than normal (P-H)=7850 Km. Ca.
12	iPZEN	05-08-17	1.5	6.0	6.0	2.0C	1.5	1.5	C&GS 04-57-35 54½N. 168E. Kimandorskie Is. Mag. 6½(Pas) (P-H)= 7200 Km. Ca.
	e(S)EN	17-04		10.0	10.0		8.0	8.0	
12	iPZEN	09-57-34	1.5	6.0	6.0	12.0C	5.0	8.0	C&GS 09-46-51 23½S. 64½W. Salta Province Argentina Mag. 6 3/4 (Pas) (P-H)=7300 Km. Ca.
	e(S)ZEN	10-06-18	1.5	12.0	14.0	1.0	9.0	13.0	

Date	Phase	Time GCT h m s	Period (secs) Z	E	N	Trace Amp. (mms) Z	E	N	Remarks
May 12	iP	10-24-30	1.0			3.0C			
12	iP	21-50-21	1.5			2.0			C&GS 21-40-22
	e(S)EN	-58-21		8.0	4.0		2.0	2.0	51½N. 177W. Andreans of Is. Aleutian Is.(P-H)= 6500 Km. Ca.
12	iPZEN	22-09-54	1.0			1.0C			C&GS 21-59-56
	e(S)EN	17-55		6.0	4.0		3.0	3.0	51½N, 177W. Andreans of Is. Alentian Is. (P-H)=6500 Km. Ca.
14	iPZEN	06-49-52	1.0	3.0	8.0	2.0	1.0	2.0	C&GS 06-36-57
	e(S)ZEN	07-00-18	2.0	3.0	5.0	1.0	4.0	4.0	35½N, 24½E. Crete, Mag. 6½ (Pas) (P-H)=10,000 Km. Ca.
15	iPZEN	07-54-20	1.0	2.0	6.0	1.5	1.0	2.0	C&GS 07-49-30
	e(S)ZEN	58-32	2.0		8.0	1.0		2.0	14 N. 93 W. Near coast of Mexico h about 100 Km. (P-H)=2500 Km. Ca.
15	iPZE	14-47-17	1.0			15.0			C&GS 14-42-58
	e(S)ZE	51-09	1.5	6.0		1.0	2.0		Oaxaca Mexico
	e(L)E	54-02		4.0			2.0		(P-H)=2200 Km.Ca.
20	iP	01-06-01	1.6			2.0			
20	iP	01-56-25	1.0			2.0			
20	iPZEN	19-47-24	1.2	1.0	3.0	6.5C	.5	1.0	C&GS 19-35-03
	e(S)EN	57-29		10.0	6.0		1.5	1.0	44½N., 149E. Kurile Islands (P-H)=8800 Km. Ca.
21	iPZEN	11-45-20	1.5	4.0	4.0	6.0C	1.2	3.0	C&GS 11-34-23
	e(pP)ZEN	-34	1.8	3.0	3.0	12.0	1.0	4.0	Chile-Argentine
	e(S)EN	55-11		6.0	10.0		3.5	5.0	border h about 60 Km. Mag. 6 Pas 5 3/4-6 (Berk) (P-H)=7600 Km. Ca.
23	iP	00-05-50	1.0		2.0				
24	iPZEN	19-21-54				50±			C&GS 19-17-40 17½N, 97W. Oaxaca Mecico, 1 Killed 10 injured (P-H)=2100 Km. Ca.

Date		Phase	Time GCT h m s	Period (secs) Z	E	N	Trace Amp. (mms) Z	E	N	Remarks
May										
26		iP	05-34-29	1.5			2.5			
29	X	iP	18-41-03	1.4			2.1C			C&GS 18-29-27 50½N. 157E near south coast of Kamchatka (P-H)= 8300 Km. Ca.
31		iP	05-41-01	1.6			1.5			
31	X	oP	10-59-44	1.0			1.5			
June										
3		iP	03-50-44	1.8			2.0			C&GS 03-43-42 4 N. 77W. near West Coast of Columbia (P-H)= 3800 Km. Ca.
3		iP	05-52-50	1.0			1.0			C&GS 05-43-25 52½N, 170W. Fox Is. Aleutian Is. (P-H)=5800 Km. Ca.
3	X	iP	12-11-38	1.2			2.0			
5		iPZEN	20-42-36	1.0			7.0			C&GS 20-37-15 12N, 86½W. h about 100 Km. near coast of Nicaragua (P-H)=2800 Km. Ca.
		e(S)EN	46-33		3.0	3.0		1.5	2.0	
7		iP	13-51-45	1.0			2.3d			C&GS 13-39-38 ½N, 18W. Atlantic Ocean (P-H)=8800 Km. Ca.
14		iPZEN	00-22-06	1.0	2±	4±	17±d	10±	25	C&GS 00-11-57 20½S, 68W. south-western Bolivia 1 killed and minor damage in northern Chile. Mag. 7¼-7½ (Pas) 7, (Berk) h about 100 Km. (P-H)= 6600 Km. Ca.
		e(S)ZEN	30-21.5	3.0	5.0	10	5.0	35	40	
15	X	iPZEN	12-41-18	.5			5.0			

Date	Phase	Time GCT h m s	Period (secs) Z	E	N	Trace Amp. (mms) Z	E	N	Remarks
June 16	iP	08-06-46	.5			.5			C&GS 08-02-05 15N. 93½W Off coast of Chiapas Mexico h about 60 Km. (P-H)=2800 Km. Ca.
16		12-50-35	.5			1.0			C&GS 12-45-55 off coast of Oaxaca, Mexico (P-H)=2200 Km. Ca.
19	iPZEN e(S)ZEN e(L)ZEN	20-38-35 40-05 43-40	2.0	4.0	3.0	2.5C	1.5	1.2	C&GS 20-34-40 27½N, 111W., Gulf of California (P-H)=1600 Km. Ca.
23	iPZEN e(S)ZEN eLZEN	14-39-35 43-20 45-24	1.0 1.5 2.0	4.0 6.0 4.0	4.0 4.0 5.0	2.2C 1.0 2.0	5.0 3.0 5.0	2.0 2.0 15.0	C&GS 14-35-02 39N. 119W. Western Nev. Felt in Nev. and eastern California Mag. 6¼ (Pas.) 6-6¼ (Berk.) (P-H)= 2100 Km. Ca.
23	iP	15-09-07	1.2			2.0C			C&GS 15-04-36 39N. 119W Nev. aftershock. Mag. 5½ (Berk) (P-H)= 2100 Km. Ca.
25	iP	06-55-35	1.2			2.0C			C&GS 06-46-55 62N. 27½ W. South of Iceland (P-H)= 5100 Km. Ca.
26	iP	08-13-20	1.2			2.0d			
26	iP	18-29-49 34-49	2.0		4.0	1.8		5.0	C&GS 18-25-37 Gulf of California (P-H)= 1900 Km. Ca.
28	iP	20-02-39	1.0			2.0C			

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

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UNIVERSITY OF ARKANSAS

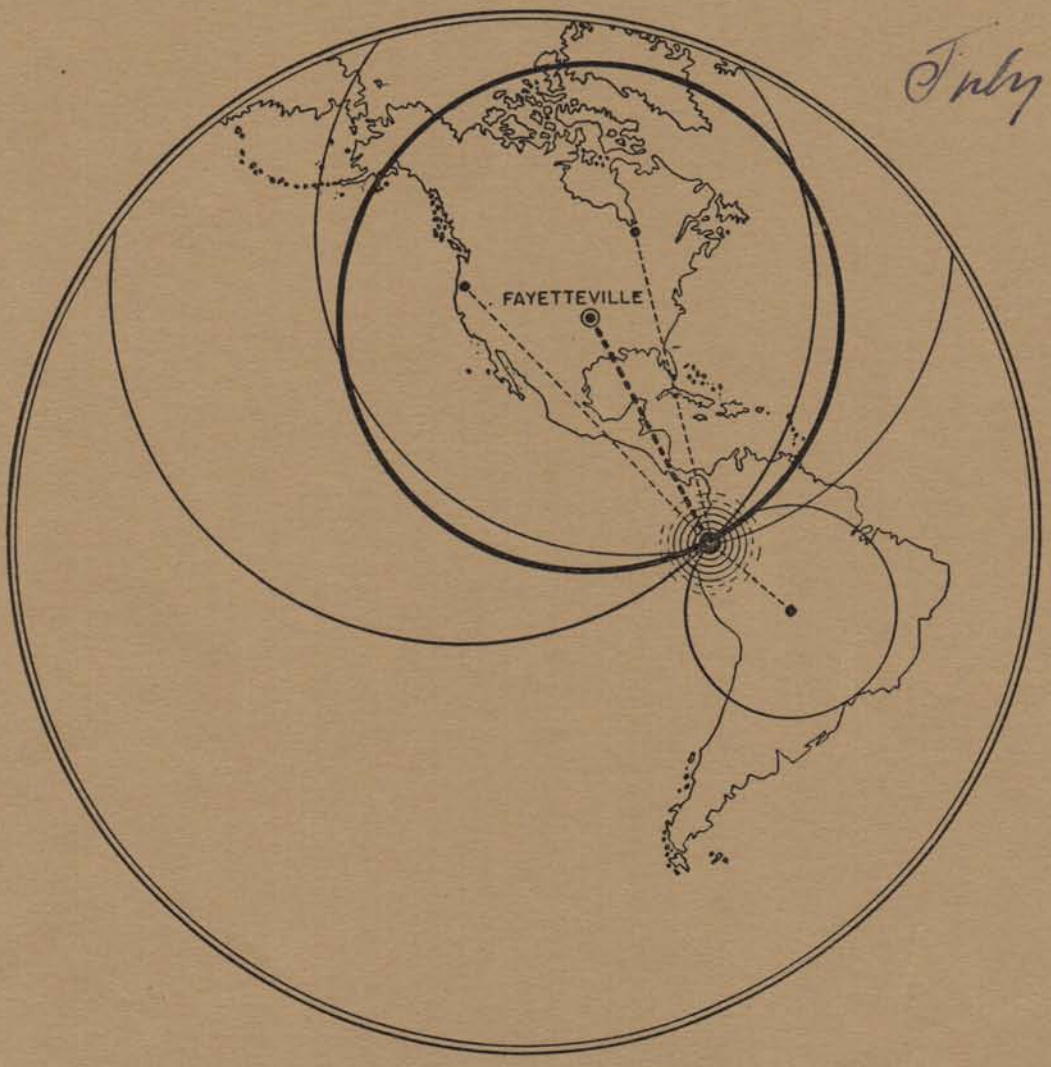
SEISMOLOGICAL BULLETIN

Volume VIII

Number 3

FAYETTEVILLE

Jan - Sept



The University Of Arkansas Seismograph Station

Operated by the University's Department of Geology

in conjunction with the

United States Coast and Geodetic Survey

FAYETTEVILLE SEISMOGRAPH STATION

Volume 8, Number 3, October 1959

Data for July, August, September 1959

Instruments

Vertical component - Benioff type, short period electromagnetic-galyanometric

Seismometer period - 1.1 second
Galvanometer period - 0.20 second
Damping ratio - about 20 to 1 (near critical)
Recording drum speed - 60 mm per minute

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

Seismometer period - 6.03 seconds (N-S)
5.97 seconds (E-W)
Galvanometer period - 4.1 seconds (N-S)
3.75 seconds (E-W)
Recording drum speed - 30 mm per minute

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

Radio - Time signals received by a Hallicrafter SX-43 receiver

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

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

Bulletin compiled by T. D. Mooney, Observer

Date	Phase	Time GCT h m s	Period (secs) Z	E	N	Trace Amp. (mms) Z	E	N	Remarks
July									
6	iPZEN	09-20-30	1.2	3.0	3.2	35±C	12	20	C&GS 09-10-17
	e(S)ZEN	29-40	1.5	6.0	6.0	6.0	35	20	26½S., 61½W. Chaco Province, Argentina Mag. 6 3/4 (Pas.), 6¼-6½ (Berk.) h about 600 km. (P-H)= 7650 Km. Ca.
6	iPZEN	09-33-40	1.2	3.0	3.2	35±C	10	20	C&GS 09-23-27
	eZEN	41-57	1.2	5.0	5.0	8.0	16	15	26½S., 61½W., Chaco Province, Argentina Mag. 6 3/4-7 (Pas.), 6¼-6½ Berk. h about 600 Km (P-H) = 7650 Km. Ca.
	e(S)ZEN	42-33	1.2	6.0	7.0	6.0	12.0	20.0	
13	iPZEN	12-38-21	1.0	2.0	2.0	3.0	2.0	2.5	C&GS 12-28-45
	iSZEN	46-00	-	7.0	4.0	-	4.0	3.0	52N., 172½W., Andreanof Islands, Aleutian Islands Mag 6½ (Pas.) 5 3/4 -6 Berk. (P-H) = 5920 Km. Ca.
	e(Ses)EN	40-03	-	7.0	6.0	-	2.0	5.0	
16	iP	15-27-29	1.2			2.0			C&GS 15-17-27 50½N., 177W., Andreanof Islands region (P-H) = 6605 Km. Ca.
18	iP	20-13-32	1.1			2.0			
19	iP	04-01-39	1.0			1.0			
19	iP	15-15-31	1.0			45±			C&GS 15-06-10
	e(S)	23-04	1.5			7.0			15S., 70½W., Peru Mag. 7 (Pas.) h about 200 Km (P-H) = 6000 Km. Ca.
19	iP	15-45-39	1.0			8.0			C&GS 15-36-17 15½S., 71W., Southern Peru h about 200 Km. (P-H) = 6000 Km. Ca.
20	iP	02-59-38	0.8			7.0			C&GS 02-40-13
	e	03-02-29	1.3			15.0			6S., 110E., Java Sea (P-H) = 5800 Km. Ca.
	e	11-21	1.5			1.6			
21	iPZEN	09-23-50	1.0	3.0	2.0	1.5	1.0	1.0	C&GS 09-17-51
	e(S)EN	29-36		6.0	8.0		2.0	2.0	19N., 68½W., Near north coast of Dominican Republic Mag. 6 (Pas.)

Date	Phase	Time of h m s	Period (secs) Z	E	N	Trace Amp. (mms) Z	E	N	Remarks
									Felt Puerto Rico (P-H) = 2880 Km. Ca.
July									
21	iPZEN	12-33-46	1.6	3.0	6.0	2.0	1.0	10	C&GS 12-29-09 16N., 98W., Near Coast of Oaxaca, Mex. Mag. 6 (Pas.) (P-H) = 2150 Km. Ca.
		37-40		6.0	12		8.0	25	
21	iP	13-08-08	1.0			2.0			C&GS 13-03-31 16N., 98W., Near Coast of Oaxaca, Mex. Mag. 6 (Pas.) (P-H) = 2150 Km. Ca.
21	iPZEN	17-43-00	1.5			1.0			C&GS 17-39-29 37N., 112½W., Utah Ariz. border Mag. 5½-5 3/4 (Pas.) (P-H) = 1620 Km.
	e(S)ZEN	47-05	1.5	2.4	3.0	7.0	1.5	12.0	
22	iPZEN	04-56-12	2.0			1.0			C&GS 04-51-30 15½N., 97½W., Near coast of Oaxaca, Mex. (P-H) = 2100 Km. Ca.
	e(S)EN	05-00-04		4.0	10.0		2.0	5.0	
22	iPZEN	15-58-35	1.8			1.0			C&GS 15-53-53 15½N., 97½W., Near coast of Oaxaca, Mex. (P-H) = 2000 Km Ca.
	e(S)EN	16-02-26		4.0	8.0		2.0	4.0	
Aug.									
3	iPZEN	06-11-26	0.5			1.0			C&GS 06-08-30 33N., 79½W., South Carolina Felt: South Carolina and Georgia. (P-H) = 1450 Km.
	iS	13-38	1.0			2.0			
	e(L)	14-47	0.5			10.0			
3	iP	18-01-10	1.1			11.0C			
4	iP	13-16-32	1.2			2.6C			
12	iP	02-08-40	1.5			2.0			C&GS 02-00-52 3S., 80½W., Near Coast of Ecuador (P-H) = 1780 Km. Ca.
12	iPZEN	18-07-36	0.5			1.0			
		08-44	0.5			2.0			
18	IPZEN	06-40-50	1.5	6.0	6.0	2.5	10.0	10.0	C&GS 06-37-13 44½N., 111W., Yellow stone Park, Wyoming, Many killed and injured. Major

Date	Phase	Time GCT h m s	Period (secs) Z	E	N	Trace Amp. (mms) Z	E	N	Remarks
									property damage Mag. 7.1 Pas. (P-H) = 1500 Km. Ca.
18	iPZEN	11-07-23	1.8	2.5	3.0	6.0	4.5	5.0	C&GS 11-03-49 45N., 111W., Yellowstone aftershock Felt. Mag. 5½-5 3/4 (P-H) = 1650 Km. Ca.
18	iPZEN	15-29-41	1.0	3.0	4.0	25.0	8.0	12.0	C&GS 15-26-06 44½N., 111W., Yellowstone aftershock. Mag. 6½ (Pas.), 6 3/4-7 (Berk.) (P-H) = 1505 Km. Ca.
	3(S)ZEN	34-03	1.2			50.0			
26	iPZEN	08-29-46	2.0	5.0	3.0	61.0C	9.0	10.0	C&GS 08-25-30 18N., 94½W., Vera Cruz, Mexico 40 killed, many injured, Extensive damage throughout Tehuantepec Isthmus Mag. 6 3/4 (Pas.) (P-H) = 2728 Km. Ca.
	e(S)ZEN	32-45	0.5	5.0		60.0	60.0	35.0	
26	iPZEN	10-33-49	1.0	4.5	4.5	5.0C	6.5	6.0	C&GS 10-27-41 51N., 132W., South of Queen Charlotte Islands. (P-H) = 3230 Km. Ca.
	iPPZEN	34-21	2.0	4.0	6.0	3.0	2.0	3.0	
	iSEN	37-33		7.0	7.0		4.0	3.0	
	e(lg)EN	38-30		14.0	14.0		18.0	22.0	
	e(L)Max	45-54	7.0			17.0			
27	iP	08-47-23	1.0			1.5			
27	iP	09-50-27	1.0			2.5			
	e	53-27	1.0			1.0			
28	iPZEN	12-15-43	1.0		3.0	4.5C		1.0	C&GS 12-07-44 63½N., 149W., Central Alaska. (P-H) = 5560 Km. Ca.
	eEN	30-03		8.0	8.0		2.5	4.0	
29	iPZEN	17-16-11	1.5		7.0	4.0D		2.0	C&GS 17-03-10 52N., 106½E., Lake Baikal, U.S.S.R. Mag. 6½-6 3/4 (Pas.) 6 3/4 (Berk.) (P-H) = 10,000 Km.Ca.
	e(S)N	26-34			6.0			3.0	
30	iP	03-51-13	1.5			1.5			
Sept. 1	iPZEN	10-55-57	1.0	3.0		2.5C	1.5		C&GS 10-49-43 20N., 64½W., North of Puerto Rico (P-H) = Km. Ca.

Date	Phase	Time GCT h m s	Period (secs) Z	E	N	Trace Amp. (mms) Z	E	N	Remarks
Sept.									
3	eZEN	05-28-29				0.5			
	eZEN	29-16				2.0			
	eZEN	30-18				6.0			
4	iPZEN	18-38-25	1.5	4.0	4.0	2.5D	1.0	1.0	C&GS 18-26-41 1S., 24W., Atlantic Ocean (P-H) = 7820 Km. Ca.
	e	36	1.5			2.0			
4	iP	23-35-36	2.5			2.0			C&GS 23-22-56 47S., 75W., Near coast of Southern Chile. (9-H) = 9240 Km.Ca.
5	eP	21-22-15	1.0			0.5			C&GS 21-12-02 51½N., 179½E., Rat Islands, Aleutian, Islands (P-H) = 6600 Km.Ca.
5	iP	19-05-21	1.0			1.5C			C&GS 18-55-09 Peru, Boliva border region. h about 150 Km. (P-H) = 5780 Km. Ca.
	e	06-42	1.0			2.0			
8	iP	07-13-36	1.0			1.0			C&GS 07-09-48 45N., 111½W., Yellowstone after-shock Felt. (P-H) = 1800 Km.Ca.
	e(L)	18-20	1.5			1.5			
8	iP	10-16-32	1.0			2.0C			C&GS 10-03-27 36½N., 140E., Honshu, Japan. h about 100 Km. (P-H) = 10,000 Km. Ca.
10	iP	23-08-40	1.0			2.0C			
11	iP	14-27-09	0.5			1.0D			
12	iPZEN	00-41-31	1.5		2.5	4.5C		1.0	
12	iP	01-51-06	0.5			2.0			C&GS 01-41-03 20S., 68W., South-western Bolivia, h about 150 Km. (P-H) = 6750 Km.Ca.
	i(pP)	32	2.0			2.0			
12	iPZEN	17-03-55	1.0		4.0	1.75C		3.0	C&GS 16-59-05 17½N., 106W., off coast of Jalisco, Mexico (P-H) = 2475 Km. Ca.

Date	Phase	H m s	Period (secs) Z	E	N	Trace Amp. (mms) Z	E	N	Remarks
Sept.									
13	iPZEN	19-53-12	2.0	2.0	2.0	0.5	1.0	1.0	C&GS 19-49-36
	e(PP)	23	2.0			3.5			45N., 111W., Yellow
	iSZEN	57-44	1.3	5.0	5.0	2.0	3.0	5.0	stone aftershock
									(P-H) = 1640 Km.Ca.
13	iP	20-44-22	1.0			0.5			
	e(S)ZEN	49-04	1.5	4.0	6.0	1.5	1.0	1.5	
13	iPZEN	21-27-12	2.0		5.0	1.5		1.0	C&GS 21-23-31
	e(S)ZEN	31-26	1.0	5.0	6.0	1.2	2.5	2.0	45N., 111W., Yellow
									stone aftershock
									(P-H) = 1800 Km.Ca.
13	3(P)ZEN	23-44-26							
	e(S)	48-22	1.5			1.0			
14	iPZEN	09-38-27	1.5	3.0	3.0	0.5	1.0	1.0	C&GS 09-34-52
	iSZEN	42-49	1.5	5.0	6.0	2.0	4.0	3.0	45N., 111W.,Yellow-
									stone aftershock
									felt.
									(P-H) = 1580 Km.Ca.
14	iP	14-23-36	2.0			1.5			C&GS 14-09-39
	e	14-44-50	2.0	32.0	20.0	5.0	8.0	8.0	28½S., 177W.,
	e(L)ZEN	15-00-00	23.0	22.0	16.0	1.5	33.0	24.0	Kermadec Islands
	e(PP)	14-28-00							Mag. 7 3/4 (Pas.),
	e	14-28-52							7 3/4-8 (Berk.)
	e(SS)	14-39-42							(P-H) = 9200 Km.Ca.
14	eEN	18-05-00		16.0	18.0		4.0	4.0	
15	iP	06-13-35							
	e(S)ZEN	23-50	14.0	14.0			7.0	6.0	C&GS 05-59-42
	e(L)ZEN	08-02-30±	16.0	18.0	18.0	3.0	20.0	12.0	28½S., 177W.,
									Kermadec aftershock
									Mag. 6½-6 3/4 (Pas.)
									7¼-7½ Berk.
									(P-H) = 9000 Km.Ca.
15	iP	11-18-16	1.0			2.5C			C&GS 11-05-33
	e(S)	22-26	2.5			9.0			21½S., 179½W.,
									Fiji Islands region
									h about 600 Km.
									Mag. 6½ (Berk.)
									(P-H) = 10,800 Km.
									Ca.
15	e(P)	13-48-21	1.0			0.5			
17	iPZEN	21-29-32	1.5	3.0	4.0	3.0C	1.2	3.5	C&GS 21-24-27
	iPPZEN	46	1.5	2.0	2.0	8.0	0.5	2.5	13½N., 88½W., El
	eZEN	30-00	1.5	3.0		8.5	7.0		Salvador, Felt.
	iLZEN	33-57	1.5	12.0	12.0	1.0	3.0	4.0	h about 60 Km.
	e(PPP)	22-00-16	1.5			0.5			(P-H) = 2555 Km.Ca.

Date	Phase	Time GCT h m s	Period (secs) Z	E	N	Trace Amp. (mms) Z	E	N	Remarks
Sept.									
17	iPZEN	21-29-32	1.5	3.0	4.0	3.0C	1.2	3.5	C&GS 21-24-27
	iPPZEN	46	1.5	2.0	2.0	8.0	0.5	2.5	13½N., 88½W., El
	eZEN	30-00	1.5	3.0		8.5	7.0		Salvador, Felt.
	iLZEN	33-57	1.5	12.0	12.0	1.0	3.0	4.0	h about 60 Km.
	e(PPP)	22-00-16	1.5			0.5			(P-H) = 2555 Km.Ca.
17	iP	22-18-43	2.5			2.0d			C&GS 22-14-40
	iPPZEN	22-22-44	2.0	6.0	6.0	0.5	1.5	2.0	30½N., 114W., Gulf
	eZEN	24-00	2.5	4.0	2.0	3.0	2.0	7.0	of California
	eZEN	24-18	4.0	5.0	6.0	7.0	2.2	10.0	Mag. 5¼ (Pas.)
	iSZEN	25-40	2.0	12.0	8.0	1.0	16.0	44.0	(P-H) = Km. Ca.
	iSSZEN	25-55	2.0	11.0	8.0	0.5	15.0	20.0	
	i(L)ZEN	27-23		4.0	7.0		8.0	12.0	
	$i(L_2)EN$	29-20		7.0	8.0		6.0	7.0	
18	iPZEN	07-10-34	1.5	6.0	5.0	1.0d	1.0	0.5	
	iPP	44	1.5			4.0			
20	iP	23-27-53	1.5			2.0D			
		28-18	1.5			1.0			
25	iP	00-34-05	1.5			2.0d			
25	e(P)	02-55-27							
	e	56-37							
	e(S)ZEN	03-05-45	1.5	14.0	14.0	1.0	4.0	3.0	
25	iP	08-29-32	1.25			0.5C			
	e(PP)	45	1.5			2.0			
26	iPZE	08-26-32	1.5	1.0		1.25C	0.5		C&GS 08-20-51
	e	40	2.0			5.0			43½N., 128½W., off
	e(PP)ZE	48	3.0	4.0		8.0	8.0		coast of Oregon
	e(PPP)ZE	27-54	2.0	6.0		4.0	6.0		(P-H) = 3.50 Km.Ca.
	iSE	31-14		9.0			30.0		Note - N-S not in
	iL_1ZE	35-00	5.0	14.0		2.0	16.0		operation.
	iL_2ZE	46	7.0	18.0		3.0	58.0		
	e(P')ZE	39-56	8.0	12.0		3.0	42.0		
	e(P')ZE	40-34	7.0	10.0		4.0	33.0		
	eZE	42-06	7.0	8.0		2.0	17.0		
26	iP	10-28-29	1.5	4.0		8.0	4.0		C&GS 10-18-20
	e(PcP)	45	2.0			1.5			22S., 68½W., Chile
									Felt: Antofagasta
									h about 150 Km.
									(P-H) = 6800 Km.Ca..
28	iP	08-09-21	1.0			0.5			C&GS 08-05-42
	e(PP)	28	2.0			1.0			45N., 111W., Hebgen
									Lake, Felt: Ennis
									Montana
									(P-H) = 1445 Km.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

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UNIVERSITY OF ARKANSAS

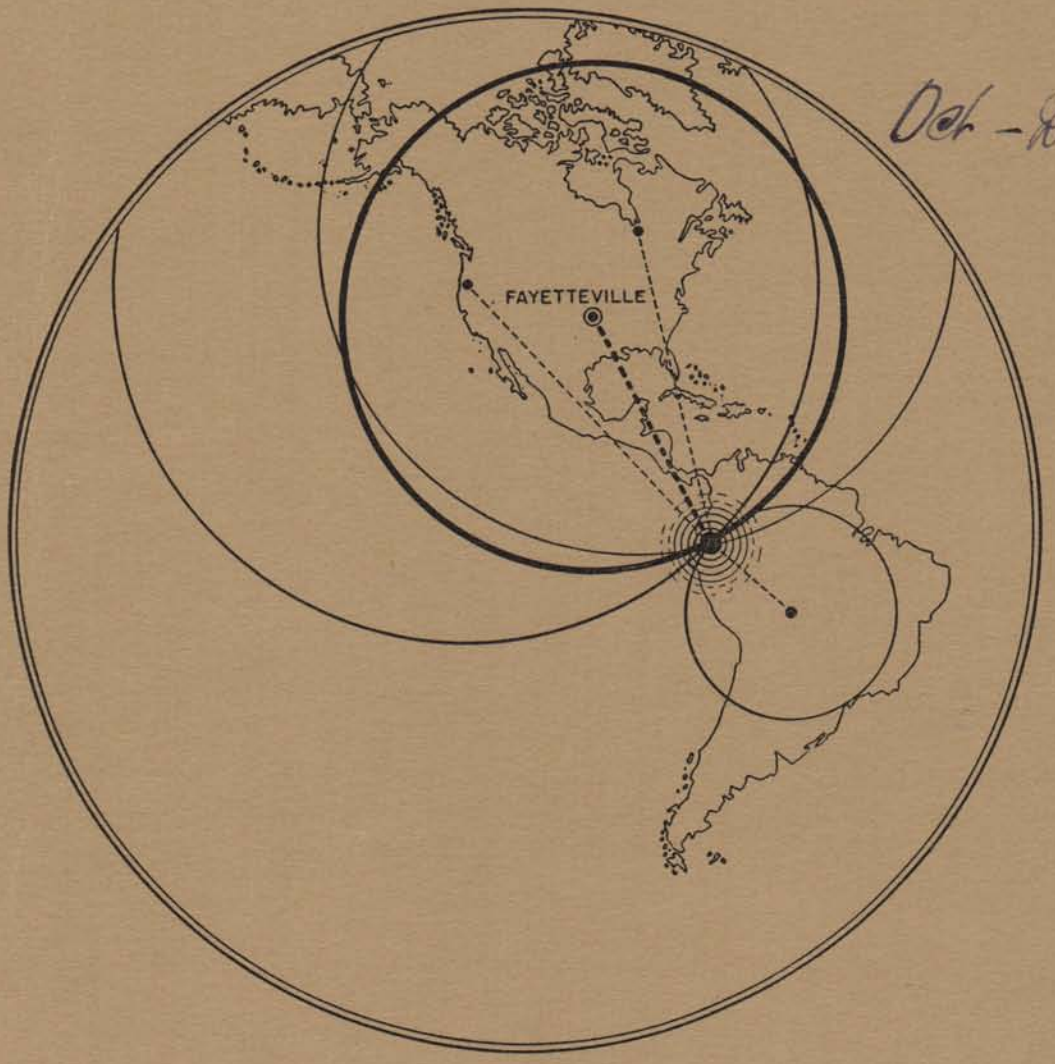
SEISMOLOGICAL BULLETIN

Volume VIII

FAYETTEVILLE

Number 4

Oct - Dec



The University Of Arkansas Seismograph Station

Operated by the University's Department of Geology

in conjunction with the

United States Coast and Geodetic Survey

FAYETTEVILLE SEISMOGRAPH STATION

Volume 8, Number 4, Dec. 1959

Data for Oct., Noc., Dec. 1959

Instruments

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

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

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

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

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

Radio - WWV Time Signal impressed manually by telegraph key on 5th, 10th, and 15th second. Time signals received by a Hallicrafter SX-43 receiver.

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

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

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

Bulletin compiled by T. D. Mooney, Observer

Date	Phase	CGS Time h m s	Period (sec) Z	E	N	Trace(Amp)mms Z	E	N
Oct. 6	C & GS 11-37-21; 45N., 111½ W. - Yellowstone aftershock (P-H) = 1780 Km. ca. Δ = 16°							
	E(P)ZE	11-41-05	1.0	6.0		.5	.5	
	e	45-40	3.0	4.0	6.0	1.0	.5	1.0
	e(S)ZEN	46-00	2.0	6.0	9.0	2.0	2.0	4.0
7	C & GS 08-30-41; 41 N., 20 E. - Albania. (P-H) = 9250 Km. ca. Δ = 83½°							
	iPZEN	08-43-05	1.25	6.0	6.0	4.0c	1.0	1.0
	e -	13	2.0			2.5		
	e -	18	1.5			1.0		
8	C & GS 02-35-20; 52½ N., 171 W., Fox Islands, Aleutian Islands. (P-H) = 3795 Km. ca. = 55°							
	e(P)	02-44-48	1.0			.5		
	3	45-00	1.5			1.0		
	C & GS 10-55-12; 19½ N., 73½ W. - Haiti (P-H) = 1750 Km. ca. = 26°.							
	ip	11-00-38	2.0			2.0c		
	e	44	2.0			2.0		
12	e(P)	03-41-23	.5			.5		
	iP	03-53-36	.5			.25		
	C & GS 03-43-44; 19 S., 68½ W. - Northern Chile - Bolivia border h about 150 Km. (P-H) = 8600 Km. ca.							
	iP	03-53-36	.5			.25		
14	C & GS 08-01-04; 51½ W., 176 W. - Andreanof Islands, Aleutian Islands. (P-H) = 6445 Km. ca.							
	iP	08-10-58	1.5			2.0c		
	e	11-15	1.0			1.5		
15	iP	03-38-48	1.0			1.0D		
	C & GS 04-22-49; 19 N., 104 W. - Jalisco, Mexico. N about 200 Km. (P-H) = 2800 Km. ca.							
	iP	04-27-00	1.0			1.0		
	i(sS)EN	04-33-00		3.0	6.0		4.0	4.0
	C & GS 06-15-32; ½ N., 120½ E. - Celebes. Mag. 6½ (Pas.) (P-H) = 14,500 Km. ca.							
	iP'ZEN	06-34-52	2.5	6.0	6.0	4.0c	2.0	3.0
	iPKSZEN	38-15	2.0	6.0	3.0	6.0	8.0	11.0

Date	Phase	Time GCT h m s	Period (sec) Z	E	N	Trace(Amp)mms. Z	E	N
Oct. 18	C & GS 23-25-13; 6 S., 105 E. - Sunda Strait - h about 150 Km. (P-H) = 16,400 Km. ca.							
	iP'	23-44-40	1.75			3.2c		
	i(pP')	45-00	1.0			2.0		
26	C & GS 07-35-12; 37½ N., 142½ E - Near coast of Honshu, Japan h about 60 Km. Mag. 6½ (Pas.), 6 Berk.) (P-H) = 10,000 Km. ca.							
	iP	07-48-08	2.0			1.0d		
	i	35	1.2			4.0		
	C & GS 10-29-09; 51½ N., 157½ E. - Near coast of Kamchatka h about 150 Km. (P-H) = 7890 Km. ca.							
	iP	10-40-25	1.0			4.5		
	e	46	1.0			.5		
27	C GS 06-12-17; 42½ N., 127 W. - Off coast of Oregon. Mag. 5-5¼ (Berk.) (P-H) = 2890 Km. ca.							
	eEN	06-22-38	8.0	10.0		7.0	6.0	
	$e(L_1)$EN	26-06	10.0	8.0		3.0	3.0	
	eEN	07-14-46	12.0	8.0		11.0	5.0	
29	C & GS 10-35-20; 46 N., 151 E. - Kurile Islands (P-H) = 8890 Km. ca.							
	iP	10-47-30	2.0			2.0		
	e	47	2.0			1.0		
	C & GS 14-30-24; 43 N., 131 E. - China - Korea Border h about 550 Km. Mag. 6¼ Pas. (P-H) = 10,500 Km. ca.							
	iP	14-42-35	.5			15.0		
	i(pP)	44-36	1.5			3.0		
30	C & GS 04-06-26; 66 N., 136½ E. - Yakutsk A.S.S.R. (P-H) = 7890 Km. Ca.							
	iP	04-11-41	1.0			2.5c		
	e	49	1.5			2.0		
31	C & GS 04-27-12 16½ S., 178 W. - Fiji Islands - Felt: Apia Mag. 6½ - 6 3/4 (Pas.) h about 450 Km. (P-H) = 10,300 Km. ca.							
	iP	04-39-49	1.0			11.0d		
	e(pPP)	43-41	1.0			1.5		
	C & GS 18-31-18; 2 N., 77½ W. - Southwestern Columbia h about 100 Km. (P-H) = 4110 Km. ca.							
	iP	18-38-24	1.75			3.10c		

Date	Phase	Time GCT h m s	Period (sec) Z	E	N	Trace(Amp)mms Z	E	N
Nov.								
3	iP	06-06-27	1.25			1.5d		
	iPZEN	09-59-38	2.0	5.0	4.0	15.0d	10.0	7.0
	eZEN	10-00-20	1.5	5.0	3.0	10.0	4.0	2.0
8	C & GS 13-54-55; 44 N., 140½ E. - Near west coast of Hakkaido, Japan. Mag. 6½ (Pas.) Felt. (P-H) = 9665 Km. ca.							
	iPZEN	14-07-39	2.0		2.0	18.0c		3.0
	ePPZEN	14-08-04	2.5		4.0	4.0		4.0
	eSZEN	14-18-02	2.0		8.0	1.0		5.0
15	C & GS 17-08-41; 37½ N. 20½ E. Near west coast of Greece. Felt in Greece and Italy, Slight damage - Mag. 6½-6 3/4 (Pas.) (P-H) = 9555 Km. ca.							
	iPZEN	17-21-20	1.0			5.0		
	e	22-30	.5			4.0		
16	C & GS 00-59-22; 35 S., 70W. - Chile - Argentina border h about 100 Km. (P-H) = 7180 Km. ca.							
	iP	01-10-53	1.5			3.0d		
	e(sP)	01-11-32	2.0			2.0		
	C & GS 10-21-17; i N., 26½ W. - Mid-Atlantic Ocean. Mag. 6¼ to 6½ (Pas.) (P-H) = 8000 Km. ca.							
	iP	10-32-41	3.0			4.0d		
19	C & GS 11-08-32; 5½ S., 146 E. - Near north coast of New Guinea Mag. 7 (Pas.) (P-H) = 12,780 Km. ca.							
	e(P')	11-27-17	1.5			.5		
	e(PP)	28-27	2.25			5.0		
	eP	14-13-16	1.5			2.0		
	e	14-42	1.0			2.5		
	C & GS 23-53-49; 42½ N., 126½ W - Off coast of Oregon (P-H) = 2890 Km. ca.							
	iP	23-59-19	1.5			2.0c		
	iPP	00-00-06						
	iS	00-03-59						
	iSS	00-05-02						

Date	Phase	Time GCT h m s	Period (sec) Z	E	N	Trace(Amp)mms Z	E	N
Dec.								
4	eP	22-28-35.5	1.0			.5		
5	iP	08-00-13.1	1.0			1.0		
5	C & GS 08-13-36; 41½N., 126W-off coast of Northern California Felt: Hemboldt County. Mag. 5 (Berk) (P-H) = 3090 Km. ca. Δ = 27°							
	ePZE	08-19-06.8	1.0	3.0		1.0d	1.0	
	iPZE	-08.6	2.0	3.0		8.0d	2.0	
	ipP	-17.6	2.0			2.0		
	e(L)N	27-38			6.0			3.0
5	ip	18-13-57.9	1.0			.5		
6	e	04-13-24.2	1.5			.5		
7	C & GS 04-10-45; Northern Gulf of California (P-H) = 2220 Km. ca.							
	ePZE	04-14-50.3	1.8	1.5		1.0d	.5	
	iP	54.9	2.0			2.2		
	iPP	15-12.7	2.0			1.0		
	i	25.7	2.0			1.0		
	i	31.5	2.0			1.5		
	i(S)	18-45.9	.5			.5		
	iL	20-03.7	2.5			3.0		
8	C & GS 02-59-56; 36½N., 141½E-Near coast of Honshu, Japan (P-H) = 10,000 Km. ca.							
	iP	03-13-12.3	1.0			1.75c		
	ipP	15.0	1.5			1.0		
	C & GS 04-30-06; 1S., 124 E. - Celibeo region (P-H) = 15,110 Km.ca.							
	iP'	04-49-22.3	1.2			1.0		
	i	29.3	1.0			1.0		
	i	52.2	2.25			1.5		
	ePP	51-51.0	2.0			1.0		
	iPP	52.2	1.2			1.0		
	i	52-54.3	1.5			1.0		
	iPKS	53-07.7	1.2			1.8		
	C & GS 08-08-21; 67N., 18W. - off Coast of Iceland (P-H) = 5780 Km. ca.							
	iP	08-17-28.8	1.75			.5		
	iP	08-59-00.6	.5			1.0		
	i	14.2	1.0			1.0		
	C & GS 13-33-59; 42N., 44½E. - Georgia S.S.R. (P-H) = 10,555							
	iP	13-47-21.0	1.0			.5		
	e(PcP)	42.2	1.2			.8		

Date	Phase	Time GCT h m s	Period (sec) Z	E	N	Trace(Amp)mms Z	E	N
Dec.								
9	C & GS 14-04-28; 17S., 177½W - Fiji Islands N about 450 Km. (P-H) = 10,300 Km. Ca.							
	iP	14-17-37.7	1.0			2.0c		
11	C & GS 00-31-40; 5S., 130E - Banda Sea (P-H) = 14,890 Km. Ca.							
	iP'	00-50-53.7	1.0			.5		
	i	57.2	1.0			1.0		
	iP'	51-1.7	1.5			3.0		
	e	51-12.7	.5			1.0		
12	C & GS 06-24-20; 48½N., 123½W. - Puget Sound, Washington Felt. (P-H) = 3700 Km. ca.							
	eP	06-29-41.8	.5			.5		
	i	06-33-41.3	1.0			.5		
	i	46.5	1.2			2.0		
	i(S)	55.0	1.0			1.0		
13	eP	05-46-33.2	1.0			1.2d		
	eP	05-59-13.9	1.5			1.5d		
	i	15.9	1.75			2.0		
	epP	48.9	2.0			1.5		
	C & GS 17-36-07; 18S., 178½W. - Tonga Islands (P-H) = 10,335 Km.ca.							
	e(P)	17-49-23.3	2.0			1.0		
	i	56	2.0			1.0		
14	eP	01-26-00	1.5			1.0		
	i	18-19-52.2	1.75			1.75		
	i	20-0.5	2.0			1.75		
	i	19.1	1.2			2.0		
	i(sPP)	27.3	1.75			2.0		
	i(SS)	37.5	1.2			2.0		
	i	21-0.5	1.5			1.2		
	i	-27.0	1.75			1.2		
		26-59.0	2.0			1.0		
	C & GS 17-58-31; 5N., 126E. - Near Coast of Mindanao P. I. Felt: Dauao, General Santos and Hinatuam. N about 150 Km. (P-H) = 13,550 Km. ca.							
	iP'	18-17-17.0	1.1			2.5d		
	i(sS)	24.5	1.5			2.0		
	i(ScS)	31.0	1.0			1.5		
	ipP'	52.5	1.1			1.75		
	i	56.2	1.75			2.0		
	i	18-.01	2.0			1.5		
	i	12.5	1.2			2.0		
	i	40.5	1.75			1.5		
	i(PP)	48.5	1.75			1.5		

D Date	Phase	Time GCT h m s	Period (Sec) Z E N	Trace (Amp)mms Z E N
Dec. 14	i	-19-02	2.0	2.5
	i	19.2	2.0	2.0
	i	36.0	2.0	2.0
	i(pPP)	48.5	1.1	1.5
	C & GS 21-49-10; 1 N., 12 S.E. Celebes (P-H) = 14,500 Km. ca.			
	ip'ZEN	22-08-21.3	1.75	1.2d
	i(ScS)	31.3	1.75	1.5
	i(SS)ZN	10-10.7	1.5	1.0
	iPP	14.3	1.75	4.0
	iZEN	58.0	1.2	1.5
	i(PPP)ZEN	11-45.1	1.2	1.7
	iSKKS	16-33.3		
	C & GS 23-21-56; 59½ S., 31 W. - Sandwich Islands, Mag. 7 (Pas.) (P-H) = 11,900 Km. ca.			
	eP	23-36-34		
	iP'	40-6.0	1.5	1.0
	iPP	50	1.25	4.2
	iPKKP	51-31.0	1.0	3.0
	iSKKP	54-29.0	2.2	2.0
	iP'P'	59-12	2.5	1.0
15	iP	17-15-45.2	1.0	1.5c
	i	16-33.2	1.0	2.0
	i	54.7	1.0	1.0
16	ip	11-48-47.8	1.0	1.5
17	C & GS 05-53-46; 5½ S., 102½ E-off coast of Sumatra (P-H) = 16,500 Km. ca.			
	$i(P_1^1)$	06-13-30.9	1.2	2.0d
	$i(P_2^1)$	55.4	.7	3.0
	i	14-8.1	1.2	2.0
	i	43.4	1.0	1.5
	i	47.9	1.0	1.2
	C & GS 16-48-55; 36½ S., 101½ W. - South Pacific Ocean (P-H) = 8,110 Km. ca.			
	iP	17-00-23.9	1.0	.25
	i	34.9	1.2	1.9
	i	43.6	1.2	1.0
	i	54.4	1.5	3.0
	i	01-9.9	1.0	2.0
18	e(P)	01-07-53.8	1.0	1.0

Date	Phase	Time GCT h m s	Period (sec) Z	E	N	Trace(Amp)mms Z	E	N
Dec.								
18	C & GS 16-24-50; 53 N., 168½ W. - Fox Islands, Aleutian Islands Mag. 6½ (Pas.) (P-H) = 5890 Km. ca.							
	iPZEN	16-34-9.3	1.75	8.0	7.0	5.0c	4.0	5.0
	i	19.8	2.0			7.0		
	i	38.8	1.75			5.0		
	i	53.8	1.75			2.0		
	i	35-11.1	2.25			2.0		
	i(PcP)	25.5	2.0			2.75		
	iSZEN	41-39.3	2.0	5.0		1.0	5.0	
	i EN	43-53.1			2.5			5.0
19	iP	13-51-51.7	2.0			2.0c		
	i	52-8.7	1.5			1.75		
	i	20.7	1.2			1.2		
	i	26.2	1.3			2.0		
	iPZEN	15-11-10.2	2.2	4.0		6.0d	4.0	
	i	15.9	2.0			7.0		
	i	19.9	2.0			3.0		
	iZEN	27.4	1.2			5.0		
	i	38.6	1.75			3.0		
	i	52.6	2.0			4.0		
	i	12-11.0	2.0			2.0		
	i	27.9	1.3			2.0		
	i(PP)	59.4	2.75			2.0		
	i(S)	14-16.5	2.2			1.5		
	i(L)ZEN	16-20.4	3.0			3.0		
	iZEN	17-2.1	1.75			3.5		
	iZEN	35.6	3.0			4.0		
20	e(P)	16-44-35.4	1.5			2.0c		
	e	21-06-55.1	1.2			.75		
21	e	02-32-33.0	.5			.75		
	C & GS 11-19-14; 14 N., 52 E. - Gulf of Aden. Mag. 6½-6 3/4 (Pæ). (P-H) = 13,800 Km. ca.							
	iP'	11-39-10.5	1.2			.75		
	iPP	39-24.6	2.2			1.75		
	iP	15-04-44	.75			1.0		
	Near Finley, Tenn. (P-H) = 367 Km.							
	eP	16-24-31.6						
	iP	38.9	.1			4.0		
	eS	25-8.9	.1			3.0		
	eL	17.4	.1			5.0		
22	C & GS 02-39-02; 40½ N., 124 W., California Felt: Humboldt County. Mag. 4½ (Berk.) (P-H) = 3080 Km. ca.							
	eP	02-44-12.2	1.0			.5		

Date	Phase	Time GCT h m s	Period (sec) Z	E	N	Trace(Amp)mms Z	E	N
Dec.								
22	C & GS 17-20-19; 37½ N., 141½ E. off coast of Honshu, Japan. Slightly deeper than normal. (P-H) = 10,000 Km. ca.							
	iP	17-33-19.4	1.2			2.0c		
	ipP	32.1	1.75			5.0		
	i	46.1	1.2			2.0		
	e(P)	21-57-50.1	.75			.5		
23	iP	01-00-19.9	1.0			3.0		
	i	01-7.6	1.0			1.2		
	C & GS 03-49-00; 56½ N., 158 W. - Alaska Peninsula. (P-H) = 5220 Km. ca.							
	iP	03-57-28.8	1.5			1.0		
	C & GS 09-28-56; 38 N., 14½ E. - Near north Coast of Sicily- Several injured and minor damage. (P-H) = 9,110 Km. ca.							
	eP	09-41-12.0	1.0			.5		
24	e(P)	02-21-54.0	.75			.3		
	C & GS 08-09-32; 18½ N., 95 W. - Vera Cruz, Mexico. Felt: Jaltipan and Coatzacoalcos. N about 200 Km. (P-H) = 1950 Km.ca.							
	iP	08-13-22.9	1.0			1.5d		
	i	26.6	1.0			9.0		
	iS	16-35.6	.4			1.5		
	C & GS 12-50-35; 13½ S., 74½ W. - Southern Peru. (P-H) = 5920 Km. ca.							
	iP	12-59-53.3	2.0			4.0c		
25	e(P)	01-10-43.5	.5			1.0		
	iP	06-18-15.0	.5			1.0d		
	i	19-28.8	.75			1.0		
	C & GS 10-18-35; 25½ S., 67 W. - Chile, Argentina border region Mag. 6½-6 3/4 (Pas.) N about 100 Km. Felt: at Autofagasta, Chile (P-H) = 7000 Km. ca.							
	iPZEN	10-29-26.4	1.0	2.0	2.0	35.0d	3.0	5.0
	ipPZEN	54.6	1.0	6.0	5.0	23.0	4.0	6.0
	isPZEN	30-11.2	1.0	2.0	3.0	8.0	3.0	4.0
	i(PcP)	39.7	1.0			3.0		
	iZEN	31-18.9	1.2	5.0	5.0	3.0	2.0	3.0
	i(PP)	45.4	1.2			1.5		
	i(pPP)ZEN	32-6.9	2.0	6.0	8.0	4.0	3.0	3.0
	i(sPP)	28.4	1.75			2.0		
	i	39.6	1.0			2.5		

Date	Phase	Time GCT h m s	Period (sec) Z	E	N	Trace(Amp)mms. Z	E	N
Dec. 25	i	33-55.1	1.2			1.5		
	i	34-42.6	1.75			1.0		
	i(S)ZEN	37-56.0		6.0	6.0		6.0	4.0
	e(P'P')	58-00.2	2.0			1.0		
	e(P)	16-55-51.6	1.0			.5		
	i	58-58.6	1.5					
	i	59-6.1	1.2			2.0		
26	C & GS 18-19-10; 59½ N., 151½ W - Kenai Peninsula, Alaska (P-H) = 4810 Km. ca.							
	iPZN	18-27-10.9	1.5		5.0	6.0c		2.0
	i	17.5	1.5			4.5		
	iZN	40.0	2.0			3.0		
	iZN	54.9	1.75			2.2		
	iZN	28-11.9	1.2			1.5		
	iZN	59.2	1.75			2.0		
	iPPZN	29-13.2	1.75			1.2		
	iZN	42.1	1.75			1.2		
	iZN	32-50.9	2.0			1.0		
	iS	33-37	3.0			1.0		
	eL	39-30						
	iP	22-04-24.6	.5			1.0		
	i	25.9	.7			4.0		
	eP	22-13-50.4	1.0			5.0		
	i	14-1.4	1.5			2.0		
	i	13.9	1.2			2.0		
	eP	22-47-33.6	.75			.3		
27	eP	02-31-28.4	1.0			.5		
	C & GS 04-47-45; 52½ N., 160½ E. - Kamchatta Foresbock (P-H) = 7890 Km. ca.							
	eP	04-59-1.4	1.0			1.5		
	i	24.9	1.5			2.2		
	C & GS 05-01-55; 52½ N., 160 E. - Kamchahatta Foresbock (P-H) = 7890 Km. ca.							
	eP	05-13-13.0	.5			.25		
	i	54.6	1.0			1.6		
	C & GS 05-06-14; 52½ N., 160 E. - Near Southeast Coast of Kamchatta. (P-H) = 7890 Km. ca.							
	eP	05-17-31.4	1.5			1.0		

Date	Phase	Time GCT h m s	Period (sec) Z	E	N	Trace(Amp)mms. Z	E	N
Dec. 27	C & GS 05-22-39; 35 N., 26E., - Near east coast of Crete. (P-H) = 10,555 Km. ca.							
	e	05-35-59.4						
	C & GS 06-18-08; Near Southeast coast of Kamachatka. (P-H) = 7900 Km. ca.							
	eP	06-29-24						
	C & GS 06-51-35; 52½ N., 159½ E. - Kamchatka Foreshock (P-H) = 7890 Km. ca.							
	eP	07-02-51.1	1.2			1.0		
	i	03-4.9	1.2			2.0		
	e	53.4	2.0			1.2		
	C & GS 08-05-30; 52½ N., 160 E., - Near southeast coast of Kamchatka. (P-H) = 9890 Km. Ca.							
	eP	08-16-49.4	1.0			.5		
	i	17-27.6	.75			.75		
	i	53.4	2.0			1.2		
	C & GS 11-48-55; 52½ N., 160 E. - Near southeast coast of Kamachatka. (P-H) = 7900 Km. ca.							
	eP	12-00-11.2						
	eP	12.9	1.0			.5		
	i	22.9	1.7			1.5		
	i	39.9	1.5			1.0		
	i	43.9	1.?			1.0		
	C & GS 11-54-48; 52½ N., 160 E. - Kamchatka foreshock. (P-H) = 7890 Km. ca.							
	i(P)	12-06-05.6	1.2			.7		
	i	16.9	1.2			3.0		
	i	38.2	1.0			1.8		
	i	43.6	1.5			2.0		
	i	50.4	1.0			1.5		
	C & GS 12-39-09; 28 S., 63 W. - Santiago del Estero Province, Argentina. N about 650 Km. (P-H) = 7700 Km. ca.							
	iPZEN	12-49-26.8	.7	2.0	1.7	12.0c	2.0	2.0
	i	30.2	1.2			4.5		
	i(PcP)	50-11.4	1.0			2.0		
	i(pP)	51-27.8	2.0			2.8		
	i(PP)	46.4	.75			1.5		
	i	52-4.2	1.2			1.75		
	i(s)ZEN	57-50.6		6.0	6.0		11.0	15.0
	iZEN	58-28.4	1.2	8.0	10.0	.5	3.0	3.0

Date	Phase	Time GCT h m s	Period (sec) Z	E	N	Trace(Amp)mms. Z	E	N
Dec. 27	C & GS 15-52-55; 56 N., 162½ E. - Kamchatka (P-H) = 7890 Km. ca.							
	iPZEN	16-03-52.4	2.0			5.0c		
	iZEN	09.6	.75	3.0	4.0	9.0	6.0	7.0
	i(PP)	05-20.2	1.2			2.5		
	i	06-12.0	1.2			2.0		
	i	07-29.8	1.5			1.2		
	iSZEN	12-48.4		7	0			12.0
	e(L)	18- ?						
	iP'P'	32-14	3.0			3.0		
	C & GS 19-28-39; 56 N., 162 E. - Near east coast of Kamchatka (P-H) = 7890 Km. ca.							
	iP	19-39-36.2	1.0			2.5		
29	C & GS 21-27-17; 8½ S., 122 E. - Flores Island. (P-H) = 15,000 Km. ca.							
	e	21-46-29.0						
	3	49-58.8	1.75			1.0		
30	C & GS 13-55-45; 6 S., 105½ E. - Sunda Strait. N about 150 Km. (P-H) = 16,400 Km. ca.							
	iP'	14-15-13.5	2.0			1.5c		
	i	24.1	1.2			1.8		
	i	32.1	1.8			2.0		
31	i(P)	17-02-27.8	1.0			1.0		
	i	38.2						
	C & GS 20-52-55; 37½ N., 25 W. - Azores Islands. (P-H) = 6110 Km. ca.							
	eP	21-02-23.6	1.2			1.8d		

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
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