

# LITTLE ROCK

LITTLE ROCK COLLEGE SEISMOLOGICAL OBSERVATORY, PULASKI HEIGHTS, LITTLE ROCK, ARK., U. S. A.

(In cooperation with St. Louis University, St. Louis, Mo.—Records kept in St. Louis)

Two Wood-Anderson short-period seismographs, Howard clock, time checked by radio signals.

1.

## Bulletin for 1935

No.	Date	Inst.	C/D	Phase	G.M.C.T.	H--Remarks
1	Jan. 1	W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A		iPEN ipP <sub>N</sub> ePR <sub>N</sub> eSKS <sub>N</sub> iSKSE eS <sub>N</sub> iSE eE iSS <sub>N</sub> F	13-33-44 13-34-58 13-37-27 13-43-46 13-43-52 13-44-14 13-44-17 13-45-57 13-46-26 14-00 <sup>+</sup>	$\Delta = 92^{\circ}7$ H = 13h21m10s. Epicenter: 14.8 S, 175 <sup>o</sup> W. Depth of focus 300 kms. by Brunner Depth Chart.
2	Jan. 2	W-A W-A W-A W-A W-A W-A		ePE ePR <sub>1</sub> EN eS <sub>N</sub> eSR <sub>1</sub> EN eMEN F	22-46-42 22-47-17 22-51-16 22-52-17 22-55-32 23-15 <sup>+</sup>	$\Delta = 26^{\circ}1$ H = 22h41m06s. Epicenter: 40.9 N, 124.3 W.
3	Jan. 4	W-A W-A W-A W-A W-A W-A		ePEN eSKSE iE eSE eMEN F	14-54-15 15-04-46 15-04-59 15-05-58 15-31-50 16-00 <sup>+</sup>	$\Delta = \text{Ca } 100^{\circ}$
4	Jan. 4	W-A W-A W-A W-A W-A		ePEN eSKSN? eS <sub>N</sub> eLN F	16-32-49 16-43-00 16-43-44 17-10-20 17-35 <sup>+</sup>	
5	Jan. 23	W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A		ePE epPE iN iEN eSEN ess <sub>SEN</sub> epSEN eLEN eMEN F	07-33-41 07-33-51 07-34-03 07-34-13 07-41-23 07-41-41 07-41-49 07-49-00 07-55-38 09-30 <sup>+</sup>	$\Delta = 54^{\circ}$ H = 07h24m18s. Epicenter: 52.4 N, 166 <sup>o</sup> W. Depth of focus 38 kms. by Brunner Depth Chart.

## Little Rock Bulletin for 1935

2.

No.	Date	Inst.	C/D	Phase	G.M.C.T.	H--Remarks
6	Jan. 25	W-A		eP <sub>F</sub>	19-35-52	Local earthquake.
		W-A		eS <sub>N</sub>	19-36-43	
		W-A		eM <sub>N</sub>	19-36-46	
		W-A		eM <sub>E</sub>	19-36-47	
				F	19-38 <sup>±</sup>	

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 Minor Seismic Movements: Jan. 25, 16h36m-16h39m.
 

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 Director of the Station

 Rev. James B. Macelwane, S.J.  
 Director of the Department of  
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7	Feb. 13	W-A W-A W-A W-A		eF <sub>E</sub> eS <sub>E</sub> e <sub>E</sub> F	17-32-27 17-40-42 17-41-30 17-50±	Δ = 61° Depth About 100 kms. by Brunner Depth Chart.
8	Feb. 20	W-A W-A W-A W-A W-A		eP <sub>E</sub> ep <sub>E</sub> eS <sub>E</sub> es <sub>E</sub> F	11-31-08 11-31-23 11-35-01 11-35-29 11-50±	Δ = 20° Depth about 100 kms. by Brunner Depth Chart.
9	Feb. 22	W-A W-A W-A W-A W-A		eP <sub>E</sub> eS <sub>E</sub> eL <sub>E</sub> iM <sub>E</sub> F	17-16-36 17-25-23 17-37-00 17-42-55 19-50±	Δ = 64.96 Epicenter: 5095 N, 17696 W. H=17h05m59s.
10	Feb. 25	W-A W-A W-A W-A W-A W-A		eP <sub>E</sub> ep <sub>E</sub> eS <sub>E</sub> ? is <sub>E</sub> i <sub>E</sub> F	03-04-22 03-04-38 03-14-32 03-14-55 03-15-30 03-35±	Δ = Ca 82° Depth of focus 75 kms. by Brunner Depth Chart.
11	Feb. 28	W-A W-A W-A W-A		eP <sub>E</sub> iS <sub>E</sub> i <sub>E</sub> F	07-20-19 07-28-17 07-29-14 07-35±	No surface waves.

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12	March 26	W-A		ePE	21-37-19	$\Delta = 23^{\circ}4$
		W-A		(epPE)	21-37-52	Assuming $\Delta t = -(2m$
		W-A		eSE	21-41-15	56s), $H = 200$ km.
		W-A		(esSE)	21-42-11	according to
		W-A		F	21-53 $\pm$	Florissant using the Brunner Depth Chart.
13	April 1	W-A		ePEN	9-21-09	$\Delta = 20^{\circ}6$
		W-A		eSN	9-24-57	
		W-A		eLEN	9-27-51	
		W-A		F	9-45 $\pm$	
14	April 3	W-A		ePEN	8-45-33	$\Delta = 15^{\circ}6$
		W-A		(epPE)	8-45-53	$H = 150$ km. accord-
		W-A		esPE	8-46-39	ing to the Brunner
		W-A		eSEN	8-48-31	Depth Chart.
		W-A		(esSE)	8-49-07	
W-A		F	8-55 $\pm$			
15	April 5	W-A		ePEN	17-52-57	$\Delta = 18^{\circ}2$
		W-A		epPE	17-53-10	$H = 100$ km. accord-
		W-A		esPN	17-53-46	ing to the Brunner
		W-A		eSEN	17-56-21	Depth Chart.
		W-A		iEN	17-56-34	
		W-A		isSE	17-56-55	
		W-A		isSN	17-56-57	
		W-A		iE	17-57-50	
16	April 10	W-A		ePEN	22-39-28	Possibly $H = 150$
		W-A		(epPEN)	22-39-46	km.
		W-A		eSN	22-42-32	$\Delta = 16^{\circ}4$ by the
		W-A		eLEN	22-46-55	Brunner Depth
		W-A		F	23-01 $\pm$	Chart, but the interpretation is uncertain.



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17	April 11	W-A		P <sup>1</sup> N	23-31-59	$\Delta = 101^{\circ}8$ Destructive in Mezandaran Province of northern Persia. The E component drum stopped shortly before the earth- quake and the N component record was changed before the movement had ceased.
		W-A		PR <sub>1</sub> N	23-32-50	
		W-A		PR <sub>2</sub> N	23-35-07	
		W-A		SKSN	23-39-25	
		W-A		SN	23-40-35	
		W-A		PSN	23-41-52	
		W-A		PPSN	23-42-36	
		W-A		SR <sub>1</sub> N	23-47-25	
		W-A		eLN	00-04-36	
W-A		eMN	00-10-15			
18	April 17	W-A		ePN	4-44-42	
19	April 18	W-A		ePN	22-22-44	
		W-A		iN	22-28-00	
		W-A		iN	22-30-33	
		W-A		iN	22-31-07	
		W-A		iN	22-31-26	
		W-A		iN	22-31-58	
		W-A		iLN	22-34-27	
		W-A		F	22-58 $\pm$	
20	April 19	W-A		ePEN	15-35-59	$\Delta(P-H) = 85^{\circ}6$ $H = 40$ km, according to the Brunner Depth Chart. J.S.A. ten- tative epicenter $32^{\circ}$ N, $15^{\circ}$ E. $H = 15h23m32s$ .
		W-A		epPEN	15-36-09	
		W-A		ePR <sub>1</sub> E	15-39-13	
		W-A		eSKSE	15-46-10	
		W-A		eSEN	15-46-32	
		W-A		iSPE	15-47-17	
		W-A		iE	15-49-18	
		W-A		eSR <sub>1</sub> E	15-50-41	
		W-A		iE	15-52-06	
		W-A		iE	15-56-13	
		W-A		eLN	16-01-16	
		W-A		eLE	16-03-13	
		W-A		iMEN	16-08 $\pm$ 24	
		W-A		F	17-20-	
21	April 20	W-A		ePEN	5-23-29	After shock of 19d $15h35m59s$ . $H = 35$ km. by the Brunner Depth Chart. $\Delta = 85^{\circ}6$ $H = 5h10m58s$ .
		W-A		epPEN	5-23-37	
		W-A		ePR <sub>1</sub> E	5-26-49	
		W-A		iSEN	5-33-58	
		W-A		iS <sub>LN</sub>	5-22-11	
		W-A		eLEN	5-53-19	
		W-A		iMEN	5-57-19	
		W-A		F	6-30 $\pm$	



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No.	Date	Inst. C/D	Phase	G.M.C.T.	Remarks
22	April 20	W-A	eP'EN	22-20-24	Destructive in Formosa. Amplitudes very small. Record changed before the end of the motion.
		W-A	ePR <sub>1</sub> EN	22-21-22	
		W-A	eSKKSEN	22-28-26	
		W-A	eSEN	22-29-10	
		W-A	eSR <sub>1</sub> E	22-37-14	
		W-A	(eSR <sub>2</sub> EN)	22-41-12	
23	April 24	W-A	iPN	18-56-10	$\Delta(S-P) = 20^{\circ}2$ H = 60 km. by the Brunner Depth Chart. H = 18h51m41s.
		W-A	ipPN	18-56-19	
		W-A	iPR <sub>1</sub> N	18-56-27	
		W-A	isPN	18-56-37	
		W-A	eSN	18-59-52	
		W-A	iN	19-00-02	
		W-A	iSR <sub>1</sub>	19-00-27	
		W-A	F	19-20 <sup>+</sup>	
24	April 29	W-A	eN	20-13-08	
		W-A	eN	20-18-39	
		W-A	iN	20-18-55	
		W-A	F	20-27 <sup>+</sup>	
25	May 14-15	W-A	eEN	23-40-54	$\Delta(\text{meas}) = 108^{\circ}8$ H = 23h23m00s J.S.A. Tentative epicenter: 58° S, 25° W. Records changed before the end of the motion.
		W-A	eP'EN	23-41-30	
		W-A	ePR <sub>1</sub> EN	23-41-48	
		W-A	ePR <sub>2</sub> EN	23-43-18	
		W-A	iE	23-47-40	
		W-A	iE	23-48-30	
		W-A	eSKKS	23-49-00	
		W-A	eS	23-49-47	
		W-A	ePS	23-51-09	
		W-A	ePPS	23-52-07	
		W-A	eE	23-56-45	
		W-A	eSR <sub>1</sub> EN	23-57-20	
		W-A	eE	00-08-10	
		W-A	eLEN	00-13-30	
26	May 24	W-A	ePR <sub>1</sub> N	05-56-48	$\Delta_{\text{meas}} = 121^{\circ}0$ Epicenter 12°8 N, 125° E. Felt in the eastern Philippines. E.W. Component not operating.
		W-A	eSKPN	05-58-04	
		W-A	ePSN	06-06-41	
		W-A	eSR <sub>1</sub> N	06-13-03	
		W-A	eSR <sub>2</sub> N	06-17-56	
		W-A	F	08-05 <sup>+</sup>	

## Little Rock Bulletin for 1955

No.	Date	Time. O/D Phase	O.M.O.T.	Remarks
22	April 20	7-A	52-50-24	Destructive in Pomona. Amplitude very small. Record changed before the end of the station.
23	April 24	7-A	52-52-10	(A.G.P.) = 20% H = 50 km by the Stanner Dept. Chart H = 120 km
24	April 29	7-A	52-52-10	
25	May 14-15	7-A	52-52-10	(A.G.P.) = 100% H = 100 km 1. E. Component collected; 20% Record changed before the end of the station.
26	May 24	7-A	52-52-10	(A.G.P.) = 151% Collector 12.8 H 1. E. Component felt in the eastern Philippines. 2. W. Component not operating.



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Bulletin for 1935

8.

Station out of operation June 3 to  
October 16, 1935

No.	Date	Inst.	C/D	Phase	G.M.C.T.	Remarks
30	Oct 19	W-A W-A W-A W-A W-A W-A		eP <sub>EN</sub> eP <sub>EN</sub> eS <sub>EN</sub> eS <sub>SE</sub> eL <sub>E</sub> F	0h51m19s 0 53 09 0 53 02 1 01 38 1 05 51 1 14 <sup>+</sup>	$\Delta_{P-H} = 50^{\circ}7$ H = 00h43m26s. Region 21 <sup>o</sup> 0 N, 36 <sup>o</sup> 0W. Atlantic Ocean. Depth about 700 km by Brunner Depth Chart.
31	Oct 19	W-A W-A W-A W-A W-A W-A W-A		eP <sub>EN</sub> eS <sub>N</sub> iS <sub>E</sub> iS <sub>R</sub> IN eL <sub>N</sub> iM <sub>EN</sub> F	4h52m23s 4 55 53 4 55 57 4 56 35 4 57 07 4 58 02 6 00 <sup>+</sup>	$\Delta_{P-H} = 18^{\circ}8$ H = 04h48m04s. Destruction at Helena, Montana.
32	Oct 19	W-A W-A		eP <sub>EN</sub> F	18h02m22s 18 09 <sub>-</sub>	
Time clock stopped Oct 21 to Oct 27.						
33	Oct 31	W-A W-A W-A W-A W-A W-A		eP <sub>N</sub> iS <sub>N</sub> iS <sub>R</sub> IN iL <sub>N</sub> iM <sub>N</sub> F	18h42m15s 18 45 52 18 46 36 18 47 20 18 48 18 19 48 <sup>+</sup>	$\Delta_{S-P} = 19^{\circ}2$ H = 18h37m51s. Destructive at Helena, Montana.
34	Nov 1	W-A W-A W-A W-A W-A W-A		eP <sub>EN</sub> iP <sub>R</sub> IN iS <sub>N</sub> eL <sub>N</sub> iM <sub>N</sub> F	6h07m40s 6 07 51 6 10 34 6 11 40 6 12 47 7 23 <sup>+</sup>	$\Delta_{S-P} = 15^{\circ}0$ H = 06h03m35s. Epicenter: 46. <sup>o</sup> 6 N, 79. <sup>o</sup> 3 W. Felt in eastern Cana- da and United States.



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 (Incorporated with the State of Arkansas, July 1, 1925, as Little Rock College Seismological Observatory)  
 The Little Rock College Seismological Observatory is located on Pulaski Heights, Little Rock, Arkansas, U. S. A.

8.

Bulletin for 1935

Station out of operation June 3 to  
 October 18, 1935

No.	Date	Time	Phase	C/D	Remarks
30	Oct 19	1 02 51	W-A		Depth about 10 km Atlantic Ocean Region 2190 N. Station H = 0043380 Ap-H = 5097 Chart.
29	Oct 19	1 01 38	W-A		
		1 01 38	W-A		
		1 02 51	W-A		
		1 42	W-A		
31	Oct 19	4 55 53	W-A		Helena, Montana Destructive H = 048230 Ap-H = 1928
		4 55 57	W-A		
		4 58 38	W-A		
		4 57 07	W-A		
		4 52 02	W-A		
32	Oct 19	18 02	W-A		
33	Oct 31	19 42 18	W-A		Helena, Montana Destructive H = 184745 Ap-H = 1992
		19 43 38	W-A		
		19 47 32	W-A		
		19 48 18	W-A		
		19 49	W-A		
34	Nov 1	8 13 47	W-A		ds and United States H = 020320 Ap-H = 5020
		8 10 34	W-A		
		8 11 40	W-A		
		8 13 47	W-A		
		7 23	W-A		

Time clock stopped Oct 21 to Oct 27.



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9.

No.	Date	Inst	C/D	Phase4	G.M.C.T.	Remarks
35	Nov 1	W-A W-A W-A W-A W-A		ePEN i(S) <sup>N</sup> i(S) <sup>E</sup> iLEN F	14h38m38s 14 40 18 14 40 19 14 40 27 14 46 <sup>+</sup>	
36	Nov 4	W-A W-A W-A		eLN eLE F	4h06m41s 4 06 50 4 13 <sup>+</sup>	Foreshock of No. 37.
37	Nov 4	W-A W-A W-A W-A W-A W-A		ePEN eSE eSN iLN iLE F	10h17m16s 10 20 42 10 20 49 10 22 37 10 22 43 10 35 <sup>+</sup>	$\Delta_{S-P} = 18^{\circ}1$ H = 10h12m58s. Florissant and Pasadena: 25 <sup>o</sup> 0 N, 110 <sup>o</sup> 0 W.
38	Nov 4	W-A W-A W-A W-A W-A W-A W-A		ePEN iPR <sub>1</sub> <sup>N</sup> eSEN iLN iLE iMEN F	13h57m39s 13 57 46 14 00 57 14 02 57 14 03 07 14 03 25 (Covered by following quake)	$\Delta_{S-P} = 18^{\circ}3$ H = 13h53m12s. Aftershock of No. 37.
39	Nov 4	W-A W-A W-A W-A		eLN eLE iME F	14h10m18s 14 10 28 14 11 30 14 22 <sup>+</sup>	Aftershock of No. 37. Preliminary phases in preceding quake.
40	Nov 7	W-A W-A W-A W-A		ePE ePN eSE F	21h18m13s 21 18 15 21 24 39 21 26 <sup>+</sup>	$\Delta_{P-H} = 42^{\circ}7$ H = 21h10m26s. Depth 75 km by the Brunner Depth Chart.
41	Nov 10	W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A		ePE iPR <sub>1</sub> <sup>EN</sup> iPR <sub>2</sub> <sup>E</sup> iSN iSE iSR <sub>1</sub> <sup>N</sup> eLEN eMN eME F	18h34m06s 18 35 01 18 35 13 18 39 18 18 39 21 18 40 53 18 41 17 18 43 44 18 43 53 19 21 <sup>+</sup>	$\Delta_{S-P} = 30^{\circ}9$ H = 18h27m49s. Epicenter: 19 <sup>o</sup> 0 N, 62 <sup>o</sup> .5 W.



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42	Nov 23	W-A W-A W-A W-A W-A		ePN eN eSR <sup>1</sup> EN eLN F	7h59m14s 8 00 33 8 07 10 8 08 56 8 30 <sup>+</sup>	$\Delta P-H = 35^{\circ}0$ H = 07h52m34s. Epicenter: 0 <sup>o</sup> 0 N, 86 <sup>o</sup> 0 W. Depth 170 km by Brunner Depth Chart.
43	Nov 28	W-A W-A W-A W-A W-A W-A		ePE ePN e(S)EN eLEN iMEN F	14h46m08s 14 46 11 14 49 53 14 51 32 14 51 52 15 11 <sup>+</sup>	
44	Nov 30	W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A		iPN ePE ipPEN isPN iN iSEN isSE isSN iSR <sup>1</sup> EN iLN iLE F	3h45m33s 3 45 34 3 45 42 3 45 49 3 46 24 3 50 13 3 50 34 3 50 36 3 51 34 3 54 31 3 54 34 4 35 <sup>+</sup>	$\Delta S-P = 26^{\circ}3$ H = 03h39m59s. Epicenter: 11 <sup>o</sup> 0 N, 80 <sup>o</sup> 5 W. Depth about 50 km by the Brunner Depth Chart.
45	Dec 3	W-A W-A W-A		eLN eLE F	2h29m09s 2 29 12 2 34 <sup>+</sup>	$\Delta ca = 19^{\circ}0$ Florissant and Pasadena: 26 <sup>o</sup> 5 N, 111 <sup>o</sup> 0 W.
46	Dec 3	W-A W-A		eLEN F	6h05m06s 6 13 <sup>+</sup>	Probably aftershock of No. 45.
47	Dec 14	W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A		ePEN iPEN iE ipPEN iE iSE iSN isSN iEN F	1h39m05s 1 39 07 1 39 19 1 40 16 1 44 24 1 45 18 1 45 20 1 47 31 1 47 49 2 08 <sup>+</sup>	$\Delta S-P = 44^{\circ}0$ H = 01h31m24s. Epicenter: 5 <sup>o</sup> 5 S, 73 <sup>o</sup> 3 W. Depth about 350 km by the Brunner Depth Chart.



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48	Dec 14	W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A		ePN ePE iPEN iPR <sub>1</sub> N iPR <sub>2</sub> E iSE iSN iSR <sub>1</sub> EN iLN iLE iM <sub>1</sub> E iM <sub>2</sub> E F	22h09m56s 22 09 58 22 10 07 22 10 18 22 10 23 22 13 35 22 13 38 22 14 22 22 15 50 22 15 55 22 19 25 22 24 35 23 50 <sub>-</sub> <sup>+</sup>	$\Delta$ S-P = 19.95 H = 22h05m20s. Epicenter: 15.0° N, 92.9° W.
49	Dec 15	W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A		iPR <sub>1</sub> E eSKSE eSKSN eSKKSEN ePSE iSR <sub>1</sub> E eLE eLN eME eMN F	7h27m04s 7 33 07 7 33 10 7 34 27 7 36 31 7 42 19 7 50 42 7 51 06 8 04 19 8 04 22 10 00 <sub>-</sub> <sup>+</sup>	$\Delta$ PR <sub>1</sub> -H = 112.7 H = 07h07m49s. Epicenter: 10.7° S, 160.7° E. Felt in Solomon Islands.
50	Dec 16			Quake at 17h. Time clock stopped.		$\Delta$ ca = 44.0 H = 16h57m29s. Epicenter: 5.5° S, 72.2° W. Depth 350 km by the Brunner Depth Chart. After- shock of No. 47.
51	Dec 17	W-A W-A W-A		ePR <sub>1</sub> E eLEN F	19h36m40s. 20 08 19 20 54 <sub>-</sub> <sup>+</sup>	$\Delta$ PR <sub>1</sub> -H = 112.2 H = 19h17m25s. Region 21.0° N, 126.5° E, east of Formosa. Felt in Luzon.
52	Dec 18	W-A W-A W-A W-A W-A W-A		ePE eSN eSE iLE iLN F	5h36m40s 5 39 28 5 39 30 5 39 46 5 39 48 5 46 <sub>-</sub> <sup>+</sup>	$\Delta$ S-P = 14.3 H = 05h33m42s. by Little Rock and Pasadena: Region: 29.0° N, 108.0° W. Northern Mexico.



No.	Date	Inst.	C/D	Phase	G.M.C.T.	Remarks
53	Dec 19	W-A W-A W-A W-A W-A W-A		eP <sub>E</sub> e(S) <sub>E</sub> e(S) <sub>E</sub> eLN iLE F	2h00m15s 2 02 38 2 02 39 2 03 16 2 03 19 2 09 <sub>+</sub>	By Florissant and Pasadena: H = 01h56m32s. Northern Mexico. Probably aftershock of No. 52.
54	Dec 20	W-A W-A W-A W-A		eP <sub>E</sub> eSE iLE F	7h50m24s 7 54 07 7 55 57 8 07 <sub>+</sub>	$\Delta$ S-P = 20°0 H = 07h45m31s. Felt in Imperial Valley, about 33°2 N, 115°5 W.
55	Dec 20	W-A W-A W-A W-A W-A W-A W-A		iPR <sub>E</sub> iSKSE eSKKSE ePSE eLE eM <sub>E</sub> F	18h56m03s 19 02 07 19 03 08 19 05 23 19 31 54 19 46 55 20 15 <sub>+</sub>	$\Delta$ PR <sub>1</sub> -H = 111°1 H = 18h36m56s. Region 10°0 S, 160°0 E. Solomon Islands.
56	Dec 21	W-A W-A W-A W-A W-A W-A		ePN iE iE eLEN eE F	5h23m58s 5 24 16 5 24 26 5 32 17 5 36 04 5 40 <sub>+</sub>	Probably several shocks.
57	Dec 21	W-A W-A W-A W-A W-A W-A		ePEN iEN iEN e(S) <sub>E</sub> e(S) <sub>N</sub> F	7h28m30s 7 28 37 7 28 51 7 32 00 7 32 04 7 36 <sub>+</sub>	
58	Dec 21	W-A W-A W-A W-A W-A W-A W-A W-A W-A		ePN ePE iPN iPPEN iSPEN iSE i(S) <sub>E</sub> iSR <sub>1</sub> EN F	11h55m42s 11 55 44 11 55 46 11 56 04 11 56 27 11 59 27 11 59 59 12 00 12 12 20 <sub>+</sub>	$\Delta$ S-P = 21°0 H = 11h50m51s. Epicenter region: 14°0 N, 92°0 W. Depth about 100 km by the Brunner Depth Chart.



## Little Rock Bulletin for 1936

13.

No.	Date	Inst.	C/D	Phase	G.M.C.T.	Remarks
59	Dec 22	W-A W-A W-A W-A W-A		eN eN eLN iLN F	7h51m41s 7 53 54 7 55 46 7 56 28 8 10±	
60	Dec 23	W-A W-A W-A W-A W-A W-A		ePE eSE iSN iLE iLN F	1h59m08s 2 01 52 2 01 53 2 02 11 2 02 12 2 07±	$\Delta_{S-P} = 20^{\circ}1$ H = 01h54m33s
61	Dec 24	W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A		ePEN iPN iPE iPR <sub>1E</sub> iPR <sub>2N</sub> eSE iN eLN eLE F	12h30m54s 12 30 56 12 30 58 12 31 54 12 32 18 12 36 20 12 36 28 12 40 53 12 41 01 13 06±	$\Delta_{S-P} = 33^{\circ}0$ H = 12h24m10s. Region 4 <sup>o</sup> 0 N, 77.5 W.
62	Dec 24	W-A W-A W-A W-A W-A W-A W-A		ePE eEN eSN eSE eLE eLN F	18h53m17s 18 55 45 18 55 56 18 55 59 18 56 39 18 56 41 18 59±	$\Delta_{S-P} = 13^{\circ}4$ H = 18h50m04s.
63	Dec 24	W-A W-A W-A W-A		ePE eSE iSN F	19h17m38s 19 20 15 19 20 20 19 23±	$\Delta_{S-P} = 13^{\circ}2$ H = 19h14m28s. Aftershock of No. 62.



No.	Date	Inst.	C/D	Phase	G.M.C.T.	Remarks
64	Dec 28	W-A		eP <sup>i</sup> <sub>N</sub>	2h55m09s	$\Delta$ PR <sub>1</sub> -H = 146 <sup>o</sup> 3 H = 02h35m20s. Region 2 <sup>o</sup> 5 S, 99 <sup>o</sup> 5 E. Southwest of Sumatra. Surface waves greatly tangled.
		W-A		eP <sup>i</sup> <sub>E</sub>	2 55 11	
		W-A		iEN	2 55 14	
		W-A		iPR <sub>1</sub> EN	2 58 16	
		W-A		iSKP <sub>N</sub>	2 58 35	
		W-A		1(SKS) <sub>N</sub>	3 01 54	
		W-A		iSKKS <sub>N</sub>	3 05 11	
		W-A		iPSKS <sub>N</sub>	3 08 33	
		W-A		iN	3 10 20	
		W-A		iPPSE	3 10 49	
		W-A		eSR <sub>1</sub> E	3 16 54	
		W-A		eSR <sub>1</sub> N	3 17 03	
		W-A		eLE	3 29 46	
		W-A		eME	3 53 03	
W-A		F	5 31 <sup>±</sup>			
65	Dec 28	W-A		iPEN	4h58m38s	Deep. Northwestern South America. Superimposed on No. 64.
		W-A		iN	4 58 46	
		W-A		iSEN	5 04 48	
		W-A		F	5 09 <sup>±</sup>	
66	Dec 28	W-A		ePN	18h56m21s	$\Delta$ S-P = 24 <sup>o</sup> 7 H = 18h50m59s.
		W-A		iN	18 57 26	
		W-A		iE	18 57 31	
		W-A		iPR <sub>1</sub> EN	18 57 54	
		W-A		eSE	19 00 36	
		W-A		iSR <sub>1</sub> EN	19 01 43	
		W-A		F	19 06 <sup>±</sup>	
67	Dec 28	W-A		ePN	19h07m36s	
		W-A		iEN	19 07 55	
		W-A		eE	19 09 23	
		W-A		eLN	19 10 59	
		W-A		eLE	19 11 06	
		W-A		F	19 17 <sup>±</sup>	
68	Dec 28	W-A		eP <sub>E</sub>	22h19m05s	
		W-A		eN	22 21 24	
		W-A		iN	22 21 52	
		W-A		iE	22 21 54	
		W-A		F	22 27 <sup>±</sup>	



## Little Rock Bulletin for 1935

15.

No.	Date	Inst.	C/D	Phase	G.M.C.T.	Remarks
69	Dec 31	W-A		ePE	5h13m10s	
		W-A		e(S)EN	5 15 42	
		W-A		iEN	5 15 56	
		W-A		iE	5 16 16	
		W-A		iN	5 16 18	
		W-A		iLEN	5 16 41	
		W-A		F	5 20 <sup>+</sup>	
Minor Seismic Activity: Oct. 19, 03h14m to 03h19m; Nov. 4, 12h48m to 12h53m; Nov 22, 04h09m to 04h12m; Dec. 5, 00h to Dec. 6, 20h; Dec 13, 21h28m to 21h31m; Dec. 20, 10h39m to 10h44m; Dec 20, 12h30m to 12h35m; Dec. 23, 12h to Dec. 24, 12h; Dec. 31, 01h50m to 01h54m						

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# LITTLE ROCK

**LITTLE ROCK COLLEGE SEISMOLOGICAL OBSERVATORY, PULASKI HEIGHTS, LITTLE ROCK, ARK., U. S. A.**

(In cooperation with St. Louis University, St. Louis, Mo.—Records kept in St. Louis)

Two Wood-Anderson short-period seismographs, Howard clock, time checked by radio signals.

1.

## Bulletin for 1935

No.	Date	Inst.	C/D	Phase	G.M.C.T.	H--Remarks
1	Jan. 1	W-A W-A W-A W-A W-A W-A W-A W-A W-A		iPEN ipP <sub>N</sub> ePR <sub>1</sub> EN eSKS <sub>N</sub> iSKSE eS <sub>N</sub> iSE eE iss <sub>N</sub> F	13-33-44 13-34-58 13-37-27 13-43-46 13-43-52 13-44-14 13-44-17 13-45-57 13-46-26 14-00 <sup>±</sup>	$\Delta = 92^{\circ}7$ H = 13h21m10s. Epicenter: 14.8 S, 175° W. Depth of focus 300 kms. by Brunner Depth Chart.
2	Jan. 2	W-A W-A W-A W-A W-A W-A		ePE ePR <sub>1</sub> EN eS <sub>N</sub> eSR <sub>1</sub> EN eMEN F	22-46-42 22-47-17 22-51-16 22-52-17 22-55-32 23-15 <sup>±</sup>	$\Delta = 26^{\circ}1$ H = 22h41m06s. Epicenter: 40.9 N, 124.3 W.
3	Jan. 4	W-A W-A W-A W-A W-A W-A		ePEN eSKSE iE eSE eMEN F	14-54-15 15-04-46 15-04-59 15-05-58 15-31-50 16-00 <sup>±</sup>	$\Delta = \text{Ca } 100^{\circ}$
4	Jan. 4	W-A W-A W-A W-A W-A		ePEN eSKSN? eS <sub>N</sub> eLN F	16-32-49 16-43-00 16-43-44 17-10-20 17-35 <sup>±</sup>	
5	Jan. 23	W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A		ePE epPE iN iEN eSEN ess <sub>EN</sub> ePSEN eLEN eMEN F	07-33-41 07-33-51 07-34-03 07-34-13 07-41-23 07-41-41 07-41-49 07-49-00 07-55-38 09-30 <sup>±</sup>	$\Delta = 54^{\circ}$ H = 07h24m18s. Epicenter: 52.4 N, 166° W. Depth of focus 38 kms. by Brunner Depth Chart.



## Little Rock Bulletin for 1935

2.

No.	Date	Inst.	C/D	Phase	G.M.C.T.	H--Remarks
6	Jan. 25	W-A		eP <sub>T</sub>	19-35-52	Local earthquake.
		W-A		eS <sub>T</sub> N	19-36-43	
		W-A		eM <sub>N</sub>	19-36-46	
		W-A		eM <sub>E</sub>	19-36-47	
				F	19-38 <sup>±</sup>	

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 Minor Seismic Movements: Jan. 25, 16h36m-16h39m.
 

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Two Wood-Anderson short-period seismographs, Howard clock, time checked by radio signals.

3.

## Bulletin for 1935

No.	Date	Inst.	C/D	Phase	G.M.C.T.	H--Remarks
7	Feb. 13	W-A W-A W-A W-A		eP <sub>E</sub> eS <sub>E</sub> e <sub>E</sub> F	17-32-27 17-40-42 17-41-30 17-50±	$\Delta = 61^\circ$ Depth About 100 kms. by Brunner Depth Chart.
8	Feb. 20	W-A W-A W-A W-A W-A		eP <sub>E</sub> epP <sub>E</sub> eS <sub>E</sub> es <sub>E</sub> F	11-31-08 11-31-23 11-35-01 11-35-29 11-50±	$\Delta = 20^\circ$ Depth about 100 kms. by Brunner Depth Chart.
9	Feb. 22	W-A W-A W-A W-A W-A		eP <sub>E</sub> eS <sub>E</sub> eL <sub>E</sub> iM <sub>E</sub> F	17-16-36 17-25-23 17-37-00 17-42-55 19-50±	$\Delta = 64.96$ Epicenter: 5095 N, 17696 W. H=17h05m59s.
10	Feb. 25	W-A W-A W-A W-A W-A W-A		eP <sub>E</sub> epP <sub>E</sub> eS <sub>E</sub> ? is <sub>E</sub> i <sub>E</sub> F	03-04-22 03-04-38 03-14-32 03-14-55 03-15-30 03-35±	$\Delta = \text{Ca } 82^\circ$ Depth of focus 75 kms. by Brunner Depth Chart.
11	Feb. 28	W-A W-A W-A W-A		eP <sub>E</sub> iS <sub>E</sub> i <sub>E</sub> F	07-20-19 07-28-17 07-29-14 07-35±	No surface waves.

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Little Rock Bulletin for 1935

No.	Date	Inst.	C/D	Phase	G.M.C.T.	Remarks
27	May 30	W-A		eP <sub>1</sub> N	21-51-31	$\Delta_{PR_1-H} = 112^{\circ}3$ Epicenter in the vicinity of $30^{\circ}2$ N, $66^{\circ}9$ E. Destructive at Quetta and towns in British Boluchistan.
		W-A		ePR <sub>1</sub> EN	21-52-14	
		W-A		ePR <sub>2</sub> N	21-54-42	
		W-A		eSK <sub>1</sub> SEN	21-58-13	
		W-A		eSK <sub>2</sub> SEN	21-59-06	
		W-A		eSE	22-00-05	
		W-A		ePS <sub>1</sub> EN	22-01-53	
		W-A		ePP <sub>1</sub> SEN	22-02-51	
		W-A		eSR <sub>1</sub> N	22-08-05	
		W-A		eLN	22-26-17	
		W-A		eLE	22-26-43	
		W-A		eME	22-35-13	
		W-A		F	23-20 <sub>-</sub>	
28	May 31	W-A		ePR <sub>1</sub> EN	08-34-54	$\Delta_{meas} = 96^{\circ}2$ Depth of focus 480 km. by Brunner Depth Chart. Epicenter in vicinity of $37^{\circ}3$ N, $134^{\circ}2$ E.
		W-A		eSK <sub>1</sub> SEN	08-40-48	
		W-A		eS <sub>N</sub>	08-41-37	
		W-A		esS <sub>E</sub>	08-44-43	
		W-A		F	09-00 <sub>+</sub>	
29	June 2	W-A		eP <sub>E</sub>	11-02-51	
		W-A		epP <sub>E</sub>	11-03-06	
		W-A		eE	11-10-06	
		W-A		eE	11-12-44	
		W-A		F	11-20 <sub>+</sub>	

Minor Seismic Activity: March 26, 5h18m-5h24m,  
 March 30, 0h00m-0h21m, April 15, 7h08m-7h24m.

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Two Wood-Anderson short-period seismographs, Howard clock, time checked by radio signals.

Bulletin for 1935

8.

Station out of operation June 3 to  
October 16, 1935

No.	Date	Inst.	C/D	Phase	G.M.C.T.	Remarks
30	Oct 19	W-A		eP <sub>EN</sub>	0h51m19s	$\Delta P-H = 50^{\circ}7$ H = 00h43m26s. Region 21 <sup>o</sup> 0 N, 36 <sup>o</sup> 0W. Atlantic Ocean. Depth about 700 km by Brunner Depth Chart.
		W-A		ep <sub>EN</sub>	0 53 09	
		W-A		eS <sub>EN</sub>	0 53 02	
		W-A		es <sub>SE</sub>	1 01 38	
		W-A		eL <sub>E</sub>	1 05 51	
		W-A		F	1 14 <sup>+</sup>	
31	Oct 19	W-A		eP <sub>EN</sub>	4h52m23s	$\Delta P-H = 18^{\circ}8$ H = 04h48m04s. Destruction at Helena, Montana.
		W-A		eS <sub>N</sub>	4 55 53	
		W-A		iS <sub>E</sub>	4 55 57	
		W-A		iS <sub>R</sub> IN	4 56 35	
		W-A		eL <sub>N</sub>	4 57 07	
		W-A		iL <sub>EN</sub>	4 58 02	
		W-A		F	6 00 <sup>+</sup>	
32	Oct 19	W-A		eP <sub>EN</sub>	18h02m22s	
		W-A		F	18 09 <sup>+</sup>	
Time clock stopped Oct 21 to Oct 27.						
33	Oct 31	W-A		eP <sub>N</sub>	18h42m15s	$\Delta S-P = 19^{\circ}2$ H = 18h37m51s. Destructive at Helena, Montana.
		W-A		iS <sub>N</sub>	18 45 52	
		W-A		iS <sub>R</sub> IN	18 46 36	
		W-A		iL <sub>N</sub>	18 47 20	
		W-A		iM <sub>N</sub>	18 48 18	
		W-A		F	19 48 <sup>+</sup>	
34	Nov 1	W-A		eP <sub>EN</sub>	6h07m40s	$\Delta S-P = 15^{\circ}0$ H = 06h03m35s. Epicenter: 46 <sup>o</sup> .6 N, 79 <sup>o</sup> .3 W. Felt in eastern Cana- da and United States.
		W-A		iP <sub>EN</sub>	6 07 51	
		W-A		iS <sub>N</sub>	6 10 34	
		W-A		eL <sub>N</sub>	6 11 40	
		W-A		iM <sub>N</sub>	6 12 47	
		W-A		F	7 23 <sup>+</sup>	



# LITTLE ROCK

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 Information on the Observatory: For details, see the Handbook for the Station.  
 The Catalogue of Earthquake Observations at this Station is published by the Station.

## Station for 1935

Station out of operation June 2 to  
 October 18, 1935

No.	Date	Instr.	Obs. Phase	O.M.V.T.	Remarks
30	Oct 19 1935	W-A	W-A	1.14	Chart. Depth about 700 km Atlantic Ocean Region 21.90° N, 60.00° W H = OBSERVATION AS-H = 1935
31	Oct 19 1935	W-A	W-A	8.00	Reference, Montana. Destruction at H = OBSERVATION AS-H = 1935
32	Oct 19 1935	W-A	W-A	19.09	
Time clock stopped Oct 21 to Oct 27.					
33	Oct 31 1935	W-A	W-A	19.22	Reference, Montana. Destruction at H = OBSERVATION AS-P = 1935
34	Nov 1 1935	W-A	W-A	7.23	Went in eastern zone and United States H = OBSERVATION AS-P = 1935



Little Rock Bulletin for 1935

9.

No.	Date	Inst	C/D	Phase4	G.M.C.T.	Remarks
35	Nov 1	W-A W-A W-A W-A W-A		ePEN i(S) <sub>N</sub> i(S) <sub>E</sub> iLEN F	14h38m38s 14 40 18 14 40 19 14 40 27 14 46 <sup>+</sup>	
36	Nov 4	W-A W-A W-A		eLN eLE F	4h06m41s 4 06 50 4 13 <sup>+</sup>	Foreshock of No. 37.
37	Nov 4	W-A W-A W-A W-A W-A W-A		ePEN eSE eSN iLN iLE F	10h17m16s 10 20 42 10 20 49 10 22 37 10 22 43 10 35 <sup>+</sup>	$\Delta_{S-P} = 18^{\circ}1$ H = 10h12m58s. Florissant and Pasadena: 25 <sup>o</sup> 0 N, 110 <sup>o</sup> 0 W.
38	Nov 4	W-A W-A W-A W-A W-A W-A		ePEN iPR <sub>1</sub> N eSEN iLN iLE iMEN F	13h57m39s 13 57 46 14 00 57 14 02 57 14 03 07 14 03 25 (Covered by following quake)	$\Delta_{S-P} = 18^{\circ}3$ H = 13h53m12s. Aftershock of No. 37.
39	Nov 4	W-A W-A W-A W-A		eLN eLE iME F	14h10m18s 14 10 28 14 11 30 14 22 <sup>+</sup>	Aftershock of No. 37. Preliminary phases in preceding quake.
40	Nov 7	W-A W-A W-A W-A		ePE ePN eSE F	21h18m13s 21 18 15 21 24 39 21 26 <sup>+</sup>	$\Delta_{P-H} = 42^{\circ}7$ H = 21h10m26s. Depth 75 km by the Brunner Depth Chart.
41	Nov 10	W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A		ePE iPR <sub>1</sub> EN iPR <sub>2</sub> E iSN iSE iSR <sub>1</sub> N eLEN eMN eME F	18h34m06s 18 35 01 18 35 13 18 39 18 18 39 21 18 40 56 18 41 17 18 43 44 18 43 53 19 21 <sup>+</sup>	$\Delta_{S-P} = 30^{\circ}9$ H = 18h27m49s. Epicenter: 19 <sup>o</sup> 0 N, 62 <sup>o</sup> 5 W.



Little Rock Bulletin for 1935

No.	Date	Inst.	O/D	Phase	G.M.C.T.	Remarks
42	Nov 23	W-A W-A W-A W-A W-A		ePN eN eSR <sup>1</sup> EN eLN F	7h59m14s 8 00 33 8 07 10 8 08 56 8 30 <sup>±</sup>	$\Delta_{P-H} = 35^{\circ}0$ H = 07h52m34s. Epicenter: 0 <sup>o</sup> 0 N, 86 <sup>o</sup> 0 W. Depth 170 km by Brunner Depth Chart.
43	Nov 28	W-A W-A W-A W-A W-A		ePE ePN e(S)EN eLEN iMEN F	14h46m08s 14 46 11 14 49 53 14 51 32 14 51 52 15 11 <sup>±</sup>	
44	Nov 30	W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A		iPN ePE ippEN ispN iN isEN isSE isSN iSR <sup>1</sup> EN iLN iLE F	3h45m33s 3 45 34 3 45 42 3 45 49 3 46 24 3 50 13 3 50 34 3 50 36 3 51 34 3 54 31 3 54 34 4 35 <sup>±</sup>	$\Delta_{S-P} = 26^{\circ}3$ H = 03h39m59s. Epicenter: 11 <sup>o</sup> 0 N, 80 <sup>o</sup> 5 W. Depth about 50 km by the Brunner Depth Chart.
45	Dec 3	W-A W-A W-A		eLN eLE F	2h29m09s 2 29 12 2 34 <sup>±</sup>	$\Delta_{ca} = 19^{\circ}0$ Florissant and Pasadena: 26 <sup>o</sup> 5 N, 111 <sup>o</sup> 0 W.
46	Dec 3	W-A W-A		eLEN F	6h05m06s 6 13 <sup>±</sup>	Probably aftershock of No. 45.
47	Dec 14	W-A W-A W-A W-A W-A W-A W-A W-A W-A		ePEN ipEN iE ippEN iE iSE iSN isSN iEN F	1h39m05s 1 39 07 1 39 19 1 40 16 1 44 24 1 45 18 1 45 20 1 47 31 1 47 49 2 08 <sup>±</sup>	$\Delta_{S-P} = 44^{\circ}0$ H = 01h31m24s. Epicenter: 5 <sup>o</sup> 5 S, 73 <sup>o</sup> 3 W. Depth about 350 km by the Brunner Depth Chart.



No.	Date	Inst.	C/D	Phase	G.M.C.T.	Remarks
48	Dec 14	W-A		eP <sub>N</sub>	22h09m56s	$\Delta_{S-P} = 19^{\circ}5$ H = 22h05m20s. Epicenter: 15 <sup>o</sup> 0 N, 92 <sup>o</sup> 9 W.
		W-A		eP <sub>E</sub>	22 09 58	
		W-A		iP <sub>EN</sub>	22 10 07	
		W-A		iP <sub>R1N</sub>	22 10 18	
		W-A		iP <sub>R2E</sub>	22 10 23	
		W-A		iS <sub>E</sub>	22 13 35	
		W-A		iS <sub>N</sub>	22 13 38	
		W-A		iS <sub>R1EN</sub>	22 14 22	
		W-A		iL <sub>N</sub>	22 15 50	
		W-A		iL <sub>E</sub>	22 15 55	
		W-A		iM <sub>1E</sub>	22 19 25	
		W-A		iM <sub>2E</sub>	22 24 35	
		W-A		F	23 50 <sup>+</sup>	
49	Dec 15	W-A		iP <sub>R1E</sub>	7h27m04s	$\Delta_{P_{R1}-H} = 112^{\circ}7$ H = 07h07m49s. Epicenter: 10 <sup>o</sup> 7 S, 160 <sup>o</sup> 7 E. Felt in Solomon Islands.
		W-A		eSK <sub>SE</sub>	7 33 07	
		W-A		eSK <sub>SN</sub>	7 33 10	
		W-A		eSK <sub>KSEN</sub>	7 34 27	
		W-A		eP <sub>SE</sub>	7 36 31	
		W-A		iS <sub>R1E</sub>	7 42 19	
		W-A		eL <sub>E</sub>	7 50 42	
		W-A		eL <sub>N</sub>	7 51 06	
		W-A		eM <sub>E</sub>	8 04 19	
		W-A		eM <sub>N</sub>	8 04 22	
W-A		F	10 00 <sup>+</sup>			
50	Dec 16	Quake at 17h. Time clock stopped.				$\Delta_{ca} = 44^{\circ}0$ H = 16h57m29s. Epicenter: 5 <sup>o</sup> 5 S, 72 <sup>o</sup> 2 W. Depth 350 km by the Brunner Depth Chart. After- shock of No. 47.
51	Dec 17	W-A		eP <sub>R1E</sub>	19h36m40s.	$\Delta_{P_{R1}-H} = 112^{\circ}2$ H = 19h17m25s. Region 21 <sup>o</sup> 0 N, 126 <sup>o</sup> 5 E, east of Formosa. Felt in Luzon.
		W-A		eL <sub>EN</sub>	20 08 19	
		W-A		F	20 54 <sup>+</sup>	
52	Dec 18	W-A		eP <sub>E</sub>	5h36m40s	$\Delta_{S-P} = 14^{\circ}3$ H = 05h33m42s. by Little Rock and Pasadena: Region: 29 <sup>o</sup> 0 N, 108 <sup>o</sup> 0 W. Northern Mexico.
		W-A		eS <sub>N</sub>	5 39 28	
		W-A		eS <sub>E</sub>	5 39 30	
		W-A		iL <sub>E</sub>	5 39 46	
		W-A		iL <sub>N</sub>	5 39 48	
		W-A		F	5 46 <sup>+</sup>	



No.	Date	Inst.	C/D	Phase	G.M.C.T.	Remarks
53	Dec 19	W-A W-A W-A W-A W-A W-A		eP <sub>E</sub> e(S) <sub>E</sub> e(S) <sub>E</sub> eLN iLE F	2h00m15s 2 02 38 2 02 39 2 03 16 2 03 19 2 09 <sub>±</sub>	By Florissant and Pasadena: H = 01h56m32s. Northern Mexico. Probably aftershock of No. 52.
54	Dec 20	W-A W-A W-A W-A		eP <sub>E</sub> eS <sub>E</sub> iLE F	7h50m24s 7 54 07 7 55 57 8 07 <sub>±</sub>	$\Delta_{S-P} = 20^{\circ}0$ H = 07h45m31s. Felt in Imperial Valley, about 33 $\phi$ 2 N, 115 $\phi$ 5 W.
55	Dec 20	W-A W-A W-A W-A W-A W-A W-A		iPR <sub>1E</sub> iSKS <sub>E</sub> eSKKSE ePS <sub>E</sub> eLE eM <sub>E</sub> F	18h56m03s 19 02 07 19 03 08 19 05 23 19 31 54 19 46 55 20 15 <sub>±</sub>	$\Delta_{PR_1-H} = 111^{\circ}1$ H = 18h36m56s. Region 10 $\phi$ 0 S, 160 $\phi$ 0 E. Solomon Islands.
56	Dec 21	W-A W-A W-A W-A W-A		ePN iE iE eLEN ee F	5h23m58s 5 24 16 5 24 26 5 32 17 5 36 04 5 40 <sub>±</sub>	Probably several shocks.
57	Dec 21	W-A W-A W-A W-A W-A W-A		ePEN iEN iEN e(S) <sub>E</sub> e(S) <sub>N</sub> F	7h28m30s 7 28 37 7 28 51 7 32 00 7 32 04 7 36 <sub>±</sub>	
58	Dec 21	W-A W-A W-A W-A W-A W-A W-A W-A W-A		ePN ePE iPN ipPEN isPEN iSE i(S) <sub>E</sub> iSR <sub>1EN</sub> F	11h55m42s 11 55 44 11 55 46 11 56 04 11 56 27 11 59 27 11 59 59 12 00 12 12 20 <sub>±</sub>	$\Delta_{S-P} = 21^{\circ}0$ H = 11h50m51s. Epicenter region: 14 $\phi$ 0 N, 92 $\phi$ 0 W. Depth about 100 km by the Brunner Depth Chart.



No.	Date	Inst.	C/D	Phase	G. M. C. T.	Remarks
64	Dec 28	W-A		eP <sup>1</sup> N	2h55m09s	$\Delta$ PR <sub>1</sub> -H = 146 <sup>0</sup> 3 H = 02h35m20s. Region 2 <sup>0</sup> 5 S, 99 <sup>0</sup> 5 E. Southwest of Sumatra. Surface waves greatly tangled.
		W-A		eP <sup>1</sup> E	2 55 11	
		W-A		iEN	2 55 14	
		W-A		iPR <sub>1</sub> EN	2 58 16	
		W-A		iSKP <sup>N</sup>	2 58 35	
		W-A		i(SKS) <sup>N</sup>	3 01 54	
		W-A		iSKKS <sup>N</sup>	3 05 11	
		W-A		iPSKS <sup>N</sup>	3 08 33	
		W-A		iN	3 10 20	
		W-A		iPPSE	3 10 49	
		W-A		eSR <sub>1</sub> E	3 16 54	
		W-A		eSR <sub>1</sub> N	3 17 03	
		W-A		eLE	3 29 46	
		W-A		eME	3 53 03	
		W-A		F	5 31 <sup>+</sup>	
65	Dec 28	W-A		iPEN	4h58m38s	Deep. Northwestern South America. Superimposed on No. 64.
		W-A		iN	4 58 46	
		W-A		iSEN	5 04 48	
		W-A		F	5 09 <sup>+</sup>	
66	Dec 28	W-A		ePN	18h56m21s	$\Delta$ S-P = 24 <sup>9</sup> 7 H = 18h50m59s.
		W-A		iN	18 57 26	
		W-A		iE	18 57 31	
		W-A		iPR <sub>1</sub> EN	18 57 54	
		W-A		eSE	19 00 36	
		W-A		iSR <sub>1</sub> EN	19 01 43	
		W-A		F	19 06 <sup>+</sup>	
67	Dec 28	W-A		ePN	19h07m36s	
		W-A		iEN	19 07 55	
		W-A		eE	19 09 23	
		W-A		eLN	19 10 59	
		W-A		eLE	19 11 06	
		W-A		F	19 17 <sup>+</sup>	
68	Dec 28	W-A		ePE	22h19m05s	
		W-A		eN	22 21 24	
		W-A		iN	22 21 52	
		W-A		iE	22 21 54	
		W-A		F	22 27 <sup>+</sup>	



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No.	Date	Inst.	C/D	Phase	G.M.C.T.	Remarks
69	Dec 31	W-A		eP <sub>E</sub>	5h13m10s	
		W-A		e(S)EN	5 15 42	
		W-A		iEN	5 15 56	
		W-A		iE	5 16 16	
		W-A		iN	5 16 18	
		W-A		iLEN	5 16 41	
		W-A		F	5 20 <sup>+</sup>	
Minor Seismic Activity: Oct. 19, 03h14m to 03h19m; Nov. 4, 12h48m to 12h53m; Nov 22, 04h09m to 04h12m; Dec. 5, 00h to Dec. 6, 20h; Dec 13, 21h28m to 21h31m; Dec. 20, 10h39m to 10h44m; Dec 20, 12h30m to 12h35m; Dec. 23, 12h to Dec. 24, 12h; Dec. 31, 01h50m to 01h54m						

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