SAINT LOUIS

SEISMOGRAPHIC STATION, ST. LOUIS UNIVERSITY, ST. LOUIS, MO., U. S. A.

One Wiechert 80 Kg., two Wood-Anderson long-period seismographs, Wiechert clock

During the month of January, 1938, two new test seismographs were installed in the Saint Louis Station, in connection with an experimental study of microseisms. These instruments called Macelwane seismographs have been in operation at intervals throughout 1938. Readings taken from the records of these instruments are designated in the bulletins by the symbol Mac. For a description of the instrument and its operation see "A Seismograph for Microseisms" by J. B. Macelwane and W. F. Sprengnether in the Proceedings of the American Geophysical Union, Washington, D. C. Meeting, April, 1938.

Bulletin for January, 1938

No.	Date	Inst.	Phase	G.M.C.T	Remarks
1	1	W-A	iP_{NE}	$11^h30^m30^s$	ΔS-P = 23°3
		W-A	i_N	11 30 35	
		W-A	e_{NE}	11 30 44	
		W-A	$ePR1_N$	11 31 58	
		W-A	$iPR2_E$	11 32 06	
		W-A	eS_N	11 34 46	
		W-A	iS_E	11 34 48	
		W-A	iS_N	11 34 50	
		W-A	$iSR1_N$	11 35 18	
		W-A	i_E	11 35 58	
		W-A	i_{NE}	11 36 17	
		W-A	i_N	11 45 41	
			F	12 30 ±	
2	1	W-A	eP_E	$12^h57^m54^s$	ΔS-P = 23°3
		W-A	iP_N	12 57 54	
		W-A	$e(S)_E$	13 02 32	
			F	13 06 ±	
3	1	W-A	eP_{NE}	$15^h01^m40^s$	ΔS-P = 23°5
		W-A	i_E	15 01 54	
		W-A	e_E	15 01 59	
		W-A	i_E	15 02 35	
		W-A	$e(S)_E$	15 05 34	
		W-A	eS_{NE}	15 05 55	
			F	15 11 ±	
4	1	W-A	(e_E)	23 42 31	
		W-A	e_E	23 43 31	
		W-A	e_E	23 45 32	
		W-A	eS_E	23 52 10	
		W-A	eS_N	23 52 20	
		W-A	iS_{NE}	23 52 32	
	2	W-A	eL_N	00 10 28	
			F	00 45 ±	

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
5	2	W-A	ePN	$22^h32^m27^s$	$\Delta S-P = 23^s.5$
		W-A	$iPNE$	22 32 30	
		W-A	iPR_1NE	22 32 53	Epicenter: 16°.7 N,
		W-A	iPR_2N	22 33 05	98°.3 W.
		W-A	iN	22 34 35	
		W-A	iSN	22 36 42	$H = 22^h27^m17^s$
		W-A	iSE	22 36 44	
		W-A	iSR_1N	22 37 12	Normal!
		W-A	iSR_2N	22 37 23	
		W-A	iE	22 37 28	
		W-A	eL	22 42.2	
		W-A	iN	22 43 41	
			F	23 25 ±	
6	11	W-A	$eSNE$	$15^h36^m00^s$	
		W-A	eN	15 36 43	
		W-A	eE	15 37 52	
		W-A	eN	15 38 06	
		W-A	eLN	15 43 12	
			F	16 25 ±	
7	23	W-A	ePE	$8^h42^m45^s$	$\Delta P-H = 58^s.8$
		Mac	eN	8 42 54	$H = 8^h32^m50^s$
		W-A	iE	8 42 54	
		W-A	ePR_2E	8 45 01	21°.0 N, 156°.2 W.
		W-A	eSN	8 50 47	
		Mac	iSN	8 50 50	Felt throughout the
		W-A Mac	$eScSN$	8 52 34	Hawaiian Islands.
		W-A	eLN	9 00 14	
		Mac	eMN	9 05 03	
8	24	W-A Mac	ePR_1N	$10^h50^m41^s$	$\Delta SKS-H = 103^s.0$
		W-A	$eSKSN$	10 56 47	$H = 10^h31^m45^s$
		W-A Mac	$ePSN$	11 00 02	
		W-A	iN	11 00 11	60°.4 S, 35°.6 W.
		W-A	eLN	11 16.3	
			F	13 00 ±	Normal!

Minor Seismic Activity: Jan 18, 4h38m to 4h50m; Jan. 25, 16h00m to 17h30m.

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Director

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One Wiechert 80 Kg., two Wood-Anderson long-period seismographs, Wiechert clock

Bulletin for February, 1938

No.	Date	Inst	Phase	G.M.C.T.	Remarks
9	1	W-A	e	19h23m30s	Region of the Banda Sea
		Mac	e_N	19 23 55	Felt in Northern Aus-
		W-A	e_{NE}	19 23 55	tralia and on the
		W-A	e_E	19 25 41	Island of Ceram.
		Mac	i_N	19 26 07	
		W-A	i_{NE}	19 26 07	This earthquake is
		Mac	i_N	19 26 52	being studied by Miss
		W-A	i_{NE}	19 26 52	Florence Robertson of
		Mac	i_N	19 28 34	St. Louis University.
		W-A	i_{NE}	19 28 34	
		W-A	e_E	19 30 37	
			F	24 00 ±	
10	4	W-A	$e(S)_E$	10h39m42s	
		W-A	$e(S)_E$	10 40 14	
		W-A	eL_E	10 42 54	
			F	10 53 ±	
11	5	W-A	iP_N	2h30m35s	ΔP-H = 38°5
		W-A	ipP_N	2 31 07	H = 2h23m38s
		W-A	isP_N	2 31 25	5°1 N, 75°7 W.
		W-A	$iPR1_N$	2 31 58	Depth by Brunner Depth
		W-A	eS_N	2 35 59	Chart about 130 Km.
		W-A	isS_N	2 36 53	Destructive in Colombia,
		W-A	iSP_N	2 37 01	South America.
			F	4 00 ±	
12	8	W-A	$e(PR_1)_N$	7h23m56s	Δ about 50°
		W-A	e_N	7 25 50	
		Mac	e_N	7 25 53	
		Mac W-A	$e(S)_N$	7 28 51	
		Mac W-A	$eSR1_N$	7 33 20	
			F	8 07 ±	
13	8	Mac W-A	eS_N	14h35m16s	Δ about 50°
		Mac W-A	$eSR1_N$	14 38 36	
			F	15 02 ±	
14	15	W-A	eP_E	3h37m39s	ΔP-H = 58°4
		W-A	e_E	3 45 30	H = 3h37m45s
		W-A	eS_{NE}	3 45 40	13°3 N, 23°0 W.
		W-A	ePS_E	3 46 50	
		W-A	e_N	3 47 20	Normal.
		W-A	$eSR2_N$	3 52 12	
		W-A	eL_{NE}	3 55 03	
			F	4 30 ±	

Minor Seismic Activity: Feb. 13, 8h32m to 10h00m; Feb. 24, 8h8m-8h12m.

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One Wiechert 80 Kg., two Wood-Anderson long-period seismographs, Wiechert clock

Bulletin for March, 1938

No.	Date	Inst.	Phase	G.L.C.T.	Remarks
15	1	W-A	$e(S)_N$	$15^h10^m27^s$	
		W-A	$e(S)_E$	15 10 30	
		W-A	eL_E	15 14 00	
			F	15 30 ±	
16	4	W-A	e_N	$13^h42^m25^s$	
		W-A	eM_{NE}	13 45 15	
			F	13 53 ±	
17	6	W-A	iP_N	$8^h18^m57^s$	
		W-A	e_N	8 13 54	
		W-A	$e(S)_N$	8 23 36	
			F	8 32 ±	
18	8	W-A	e_N	$6^h00^m54^s$	
		W-A	e_N	6 04 38	
		W-A	eL_N	6 21 06	
			F	6 00 ±	
19	22	Mac W-A	ePE_E	$15^h28^m39^s$	ΔS-P = 32°8
		W-A	ePR_{1E}	15 28 34	
		Mac	iPR_{1E}	15 28 35	52°2 N, 133°1 W.
		W-A	iPR_{2E}	15 28 55	
		W-A	e_E	15 33 37	H = $15^h32^m08^s$
		Mac	iS_E	15 34 05	
		W-A	eSR_{1E}	15 35 24	Normal.
		W-A	eL_E	15 38.8	
		W-A	eM_E	15 39.0	
			F	17 18 ±	
20	22	Mac	eP_N	$22^h34^m11^s$	ΔS-P = 31°5
		W-A	eP_N	22 34 12	
		W-A	ePR_{1N}	22 35 14	
		W-A	iPR_{2N}	22 35 30	
		Mac	iS_N	22 36 27	
		W-A	eS_E	22 37 30	
		Mac	i_N	22 40 37	
		W-A	iM_N	22 44 26	
			F	23 23 ±	

No.	Date	Inst.	Phase	G.C.T.	Remarks
21	23	Mac W-A Mac W-A Mac Mac Mac	eP_N iS_N eS_N iSR_{1N} i_N iL_N F	$14^h11^m00^s$ 14 15 15 14 15 18 14 15 54 14 16 58 14 17 39 Lost in microseisms	$\Delta S-P = 23°5$
22	25	Mac W-A Mac W-A Mac Mac W-A W-A Mac W-A	eP_N iP_{NE} iPR_{1N} eS_N iS_N iS_E iSR_{1N} eL_N F	$8^h27^m46^s$ 8 27 48 8 28 15 8 31 44 8 31 50 8 31 50 8 33 59 8 33 15 9 00 ±	$\Delta P-H = 22°1$ $H = 8^h23^m50^s$ 17°0 N, 85°5 W. Normal.
23	31	W-A W-A	eE $i(S_n)_E$ F	$10^h13^m37^s$ 10 13 47 10 14 35	Near earthquake - New Madrid Region.

Minor Seismic Activity: March 9, 2h 30m to 3h30m; March 17, 3^h48^m to 3h48m; March 21, 1h23m to 2h33m; March 25, 15h08m to 15h00m.

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No.	Date	Inst.	Phase	G.M.C.T.	Remarks
24	Apr 2	W-A	eE	$6^h30^m04^s$	
		W-A	eLE	6 40 44	
			F	7 20 ±	
25	Apr 12	W-A	(eP)E	$11^h08^m21^s$	
		W-A	eE	11 09 31	
		W-A	eS_E	11 12 32	
		W-A	eS_N	11 12 34	
		W-A	eE	11 16 39	
		W-A	eLE	11 18 14	
			F	11 47 ±	
26	Apr 13	W-A Mac	eP_N	$02^h57^m09^s$	$\Delta P-H = 77°1$
		W-A Mac	iP_N	02 57 11	$H = 2^h45^m54^s$
		W-A Mac	ipP_N	02 58 17	Epicenter:
		W-A Mac	isP_N	02 58 44	39°4 N, 15°0 E.
		W-A Mac	iPR_{1N}	02 59 52	Depth by Brunner
		W-A	e_N	03 00 09	Depth Chart about
		W-A Mac	iS_N	03 06 33	300 kms.
		Mac	i_N	03 07 00	
		Mac	i_N	03 08 21	
		W-A	isS_N	03 08 30	
			F	03 45 ±	
27	Apr 14	W-A	iPE	$1^h41^m49^s$	
		W-A	iE	1 41 52	
		W-A	eE	1 42 46	
		W-A	eE	1 43 52	
		W-A	e(S)E	1 45 16	
		W-A	eE	1 45 52	
		W-A	eE	1 47 40	
			F	2 32 ±	
28	Apr 16	W-A	eP_N	$20^h22^m22^s$	
		W-A	i_N	20 22 45	
		W-A	eS_{NE}	20 26 49	
		W-A	eE	20 27 39	
		W-A	eE	20 28 05	
		W-A	eE	20 29 27	
			F	21 00 ±	

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
29	Apr 17	W-A Mac	iP_N	$14^h49^m45^s$	$\Delta P-H = 60°8$
		W-A	epP_N	14 49 56	$H = 14^h39^m42^s$
		Mac	i_N	14 52 02	Epicenter:
		W-A	e_N	14 52 04	18°5 S, 69°0 W.
		W-A	iS_{NE}	14 58 00	Depth by Brunner
		Mac	iS_N	14 58 01	Depth Chart 50+ km.
		W-A	$isSNE$	14 58 21	
		W-A	eE	14 59 28	
		Mac	i_N	15 01 53	
			F	15 30 ±	
30	Apr 18	W-A	eS_{NE}	4 42 15	
		W-A	eNE	4 43 24	
			F	4 50 ±	
31	Apr 19	W-A	$ePNE$	$11^h13^m04^s$	$\Delta P-H = 86°7$
		W-A	eE	11 12 23	$H = 10^h59^m23^s$
		W-A	$eSKS_{NE}$	11 22 35	Epicenter:
		W-A	iS_{NE}	11 22 44	39°0 N, 33°1 E.
		W-A	eL_E	11 31.8	Destructive in
		W-A	eM_E	11 41.3	the district of
			F	14 30 ±	Anatolia, Turkey,
					with heavy loss
					of life.

Minor Seismic Activity: April 13, 11^h30^m to 11^h35^m, April 25, 9^h00^m to 10^h00^m.

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No.	Date	Inst.	Phase	G.M.C.T.	Remarks
32	May 3	T-A	ePN	$2^h20^m13^s$	$\Delta P-H = 21.°8$
		W-A	$iPNE$	2 20 14	$H = 2^h15^m29^s$
		W-A	iE	2 20 27	Epicenter:
		W-A	$ipPNE$	2 20 33	18.°2 N, 99.°1 W.
		W-A	iPR_1N	2 20 40	Depth by Brunner
		W-A	$iSNE$	2 24 11	Depth Chart 100 km.
		W-A	$iPcPNE$	2 24 14	Damage at Iqualc,
		W-A	$isSNE$	2 24 46	Mexico.
		W-A	eLN	2 26 47	
			F	3 00 ±	
33	May 8	Mac	eE	$14^h09^m54^s$	
		Mac	eE	14 12 21	
		Mac	iE	14 14 39	
		Mac	iE	14 28 06	
			F	Lost in change of records	
34	May 9	Mac	ePE	$2^h49^m31^s$	May be two
		Mac	eE	3 01 08	earthquakes.
		Mac	eE	3 05 03	
			F	4 18 ±	
35	May 22	Mac	eE	$8^h14^m37^s$	
		Mac	eE	8 26 02	
		Mac	eLE	8 36 02	
			F	10 00 ±	
36	May 33	W-A	ePN	$7^h31^m28^s$	$iP-H = 90.°5$
		Mac	ePN	7 31 29	$H = 7^h18^m43^s$
		W-A Mac	iPN	7 31 34	Epicenter:
		W-A	ePR_1N	7 35 11	36.°3 N, 141.°1 E.
		Mac	$eSKSE$	7 41 50	Depth by Brunner
		Mac	$eSKKSE$	7 42 27	Depth Chart: 100km.
		Mac	iSE	7 43 28	Felt throughout
		W-A	eSR_1N	7 48 40	the main island of
		W-A	eSR_2N	7 52 44	Japan.
		W-A	eLN	7 57.0	
			F	11 00 ±	

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
37	May 28	W-A Mac	$ePNE$	$10^h19^m49^s$	$\Delta S-P = 26°7$
		Mac	iPE	10 19 50	$H = 10^h14^m06^s$
		W-A	iS_N	10 24 33	Epicenter:
		W-A	iN	10 24 48	43°3 N, 125°0 W.
		W-A	eN	10 27 24	Felt at Marshfield,
		W-A	iM_N	10 29 21	Coast of Oregon.
		W-A	iM_N	10 32 41	
			F	12 00 ±	
38	May 28	Mac	eP_N	$16^h53^m37^s$	
		Mac	ePR_1N	16 56 54	
		Mac	eS_N	17 04 56	
		Mac	iS_N	17 04 59	
			F	18 15 ±	
39	May 30	W-A	eS_E	$23^h49^m33^s$	
		Mac	iS_E	23 49 34	
		W-A	esS_E	23 49 53	
		Mac	isS_E	23 49 54	
		Mac	iE	23 50 26	
		Mac	eE	23 51 17	
40	May 31	Mac	iS_E	$8^h44^m16^s$	
		Mac	eE	8 45 42	
		Mac	eM_E	8 47 34	
		Mac	iM_E	8 47 43	
			F	9 00 ±	

Minor Seismic Activity: May 13, 2h00m to 3h00m; May 14, 23h00m to 01h00m on May 15; May 15, 4h00m to 5h00m.

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Bulletin for June 1938

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
41	June 2	Mac	e_N	$17^h35^m49^s$	Possibly near Earthquake.
		Mac	e_N	17 36 14	
			F	17 38 ±	
42	June 4	Mac	i_N	$6^h38^m07^s$	
		Mac	e_N	6 38 16	
		Mac	e_N	6 39 54	
			F	6 34 ±	
43	June 5	Mac	eP_{NE}	$1^h24^m00^s$	$\Delta S-P = 25°.7$
		Mac	iP_N	1 24 01	Region of 13°.0 N.
		Mac	ipP_N	1 24 11	98°.0 W.
		Mac	iS_{NE}	1 28 26	$H = 1^h18^m37^s$
			F	(Lost in next earthquake)	Depth by the Brunner Depth Chart about 50 km.
44	June 5	Mac	iP_N	$2^h15^m05^s$	$\Delta S-P = 26°.0$
		Mac	iS_N	2 19 10	Aftershock of
		Mac	iS_N	2 19 27	Number 43.
		Mac	eL_N	2 23 42	
			F	2 45 ±	
45	June 9	Mac-W-A	eP'_N	$19^h34^m26^s$	$\Delta P'-H = 133°.0$
		Mac-W-A	ePR_{1N}	19 36 35	$H = 19^h15^m09^s$
		Mac-W-A	$iSKP_N$	19 37 49	Epicenter:
		Mac	i_N	19 38 45.3	3°.1 S., 125°.7 E.
		W-A	$eSKS_N$	19 39 36	Normal.
		W-A	$ePPS_N$	19 48 25	
		W-A	e_N	19 52 29	
		W-A	e_N	19 53 45	
		W-A	e_N	19 56 53	
		W-A	eL_N	19 09 23	
46	June 10	Mac	$e(P)_N$	$10^h08^m15^s$	$\Delta meas = 108°.5$
		Mac	eP'_N	10 11 28	Epicenter:
		W-A	ePR_{1N}	10 12 43	25°.2 N., 124°.6 E.
		W-A	$iSKS_N$	10 18 51	$H = 9^h53^m42^s$
		W-A	$iSKKS_N$	10 19 42	Normal.
		W-A	ePS_N	10 21 53	
		W-A	$ePPS_N$	10 23 03	
		W-A	eSR_{1N}	10 27 53	
			F	(Lost in changing records)	

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No.	Date	Inst.	Phase	G.M.C.T.	Remarks
47	June 10	Mac W-A	eP_N	$18^h11^m06^s$	$\Delta_{P-H} = 23°.1$
		Mac W-A	iP_N	18 11 08	$H = 18^h06^m00^s$
		W-A	i_N	18 12 14	Epicenter:
		W-A	$e(PcP)_N$	18 14 35	16°.5 N, 97°.9 W.
		Mac	eS_N	18 15 17	Near normal.
		Mac	iSR_{1N}	18 16 33	
			F	18 50 ±	
48	June 15	Mac W-A	eP_N	$7^h55^m09^s$	$\Delta_{P-H} = 71°.5$
		W-A	iP_N	7 55 10	$H = 7^h44^m03^s$
		Mac W-A	ipP_N	7 55 27	Epicenter:
		W-A	e_N	8 01 40	31°.3 S, 74°.1 W.
		Mac W-A	iS_N	8 04 25	Depth 100 Km.
		Mac W-A	$esSN$	8 04 57	Felt along Chilean
			F	8 06 ±	coast, strong at Valparais.
49	June 21	Mac	e_N	$0^h04^m04^s$	
		Mac	e_N	0 05 06	
		Mac	i_N	0 08 04	
		Mac	e_N	0 10 10	
		Mac	e_N	0 12 14	
		Mac	e_N	0 14 34	
		Mac	i_N	0 17 09	
			F	0 20 ±	
50	June 23	Mac	$eSKS_E$	$13^h20^m36^s$	$\Delta_{meas} = 109°.9$
		Mac	$eSKKS_E$	13 21 38	Epicenter: 19°.1S,
		Mac	e_E	13 23 23	168°.9 E. Normal?
		Mac	ePS_E	13 24 42	$H = 12^h55^m33^s$
		Mac	i_E	13 31 03	
51	June 28	W-A	eP_E	$19^h22^m33^s$	$\Delta_{P-H} = 22°.0$
		W-A	iPR_{1E}	19 22 57	$H = 19^h17^m48^s$
		W-A	i_E	19 23 26	Depth = 100 Km.
		W-A	$iPcP_E$	19 26 36	Epicenter: 18°.0N,
		W-A	iS_E	19 27 02	99°.3 W. Felt in
			F	Lost in changing record.	Mexico City.

Minor Seismic Activity: June 13, 3^h56^m to 4^h30^m and 6^h44^m to 6^h50^m; June 22, 3^h28^m to 3^h40^m; June 29, 17^h00^m to 18^h00^m

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Saint Louis Bulletin for June 1938

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
47	June 10	Mac W-A	eP_N	$18^h11^m06^s$	$\Delta_{P-H} = 23°.1$
		Mac W-A	iP_N	18 11 08	$H = 18^h06^m00^s$
		W-A	i_N	18 12 14	Epicenter:
		W-A	$e(PcP)_N$	18 14 35	16°.5 N, 97°.9 W.
		Mac	eS_N	18 15 17	Near normal.
		Mac	iSR_{1N}	18 16 33	
			F	18 50 ±	
48	June 15	Mac W-A	eP_N	$7^h55^m09^s$	$\Delta_{P-H} = 71°.5$
		W-A	iP_N	7 55 10	$H = 7^h44^m03^s$
		Mac W-A	ipP_N	7 55 27	Epicenter:
		W-A	eN	8 01 40	31°.3 S, 74°.1 W.
		Mac W-A	iS_N	8 04 25	Depth 100 Km.
		Mac W-A	esSN	8 04 57	Felt along Chilean coast, strong at Valparais.
			F	8 06 ±	
49	June 21	Mac	e_N	$0^h04^m04^s$	
		Mac	eN	0 05 06	
		Mac	i_N	0 08 04	
		Mac	eN	0 10 10	
		Mac	eN	0 12 14	
		Mac	eN	0 14 34	
		Mac	i_N	0 17 09	
			F	0 20 ±	
50	June 23	Mac	$eSKS_E$	$13^h20^m36^s$	$\Delta_{meas} = 109°.9$
		Mac	$eSKKS_E$	13 21 38	Epicenter: 19°.1S,
		Mac	e_E	13 23 23	168°.9 E. Normal?
		Mac	ePS_E	13 24 42	$H = 12^h55^m33^s$
		Mac	i_E	13 31 03	
51	June 28	W-A	eP_E	$19^h22^m33^s$	$\Delta_{P-H} = 22°.0$
		W-A	iPR_{1E}	19 22 57	$H = 19^h17^m48^s$
		W-A	i_E	19 23 26	Depth = 100 Km.
		W-A	$iPcP_E$	19 26 36	Epicenter: 18°.0N,
		W-A	iS_E	19 27 02	99°.3 W. Felt in
			F	Lost in changing record.	Mexico City.

Minor Seismic Activity: June 13, 3^h56^m to 4^h30^m and 8^h44^m to 6^h50^m; June 23, 3^h28^m to 3^h40^m; June 29, 17^h00^m to 18^h00^m

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SAINT LOUIS

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One Wiechert 80 Kg., two Wood-Anderson long-period seismographs, Wiechert clock

Bulletin for July 1938

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
52	July 2	Mac	eP_E	$21^h10^m58^s$	$S-P = 5^m23^s$
		Mac	eS_E	21 16 21	$\Delta S-P = 32°5$
		Mac	F	21 45 ±	
53	July 4	Mac	e_E	$21^h38^m46^s$	
		Mac	eS_E	21 41 16	
		Mac	eS_N	21 41 18	
			F	22 17 ±	
54	July 5	Mac	e_N	$2^h28^m56^s$	
		Mac	e_N	2 29 55	
		Mac	e_N	2 32 24	
			F	5 54 ±	
55	July 6	Mac	e_E	$2^h12^m30^s$	Time doubtful.
		Mac	e_E	2 12 51	
			F	4 10 ±	
56	July 7	Mac	$(e)?_E$	21 09 16	
		Mac	e_E	21 15 18	
		Mac	e_E	21 15 30	
		Mac	e_E	21 17 49	
		Mac	i_E	21 18 18	
			F	22 49 ±	
57	July 14	Mac	eS_N	$11^h49^m24^s$	Pasadena
		Mac	e_N	11 49 30.5	gives Mexico.
		Mac	e_N	11 51 54	
		Mac	$e(M)_N$	11 52 08	
			F	12 09 ±	
58	July 14	Mac	e_E	$23^h56^m58^s$	
		Mac	e_E	23 57 46	
		Mac	e_E	24 00 36	
			F	01 14 ±	
59	July 19	Mac	$e?_N$	$21^h46^m30^s$	
		Mac	e_E	21 46 34	
		Mac	e_N	21 47 23	
		Mac	e_E	21 49 41	
			F	22 23 ±	

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
60	July 20	Mac	iP_N	$0^h36^m00^s$	Epicenter by Strasbourg:
		Mac	ePN	0 36 01	38° 17' N.,
		Mac	eS_{NE}	0 46 17	23° 45' E.
		Mac	e_N	0 47 35	$\Delta S-P = 82°2$
		Mac	e_E	0 47 53	$\Delta meas = 82°9$
			F	1 50 ±	Destructive in Greece.
61	July 20	Mac	eP_{NE}	$12^h11^m03^s$	$\Delta S-P = 54°1$
		Mac	ePR_{1N}	12 13 01	
		Mac	ePR_{1E}	12 13 02	
		Mac	eS_N	12 18 44	
		Mac	eS_E	12 18 46	
		Mac	e_E	12 20 53	
		Mac	e_N	12 20 54	
			F	13 55 ±	
62	July 22	Mac	iP_{NE}	$7^h53^m29^s$	Epicenter:
		W-A	eP_N	7 53 29.5	18°9 N.,106°6 W.
		W-A	iPR_{1N}	7 54 00	$H = 7^h48^m11^s$
		W-A	$ePcP_E$	7 57 17	$\Delta S-P = 24°6$
		W-A	$ePcP_N$	7 57 20	$\Delta meas = 24°2$
		W-A	eS_N	7 57 53	
		W-A	eS_E	7 57 53	
		W-A	iS_E	7 57 58	
			F	7 58 00	
				10 07 ±	
63	July 23	Mac	e_E	$1^h49^m10^s$	
		Mac	F	2 27 ±	
64	July 24	Mac	iP_{NE}	$13^h21^m30^s$	Epicenter:
		Mac	iPR_{1E}	13 23 32	53°0 N.,164°0 W.
		Mac	eS_N	13 28 52	$\Delta S-P = 51°1$
		Mac	iS_E	13 23 53	$\Delta meas = 51°3$
		Mac	isS_N	13 29 11	Depth by the
		Mac	i_E	13 29 12	Brunner Depth
			F	13 31 38	Chart about 50 km.
				15 12 ±	
65	July 29	Mac	$(e)?_E$	$13^h26^m57^s$	Epicenter:
		Mac	$e?_E$	13 27 15	4°2 S., 100°5 E.
		Mac	$e(SKP_2)_E$	13 30 03	$H = 13^h06^m24^s$
		Mac	i_E	13 30 43	$\Delta meas = 144°6$
		Mac	ePR_{3E}	13 34 48	$\Delta PR_3-H = 143°8$
		Mac	iPR_{4E}	13 36 53	
			F	15 37 ±	

Minor Seismic Activity: July 1, 18h21m to 18h24m; July 5, 22h32m to 00h25m; Surface waves of a distant earthquake. July 11, 18h19m to 21h00m; July 12, 12h55m to 14h35m; July 21, 00h13m to 01h21m; July 22, 19h25m to 19h30m; July 24, 22h50m to 22h59m; July 27, 17h52m to 18h21m; July 27, 20h19m to 20h30m; July 29, 19h39m to 20h42m; July 31, 23h07m to 23h12m.

Saint Louis Bulletin for August 1938

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
66	Aug 3	Mac	eP_E	$13^h38^m17^s$	
		Mac	eP_E	13 38 22.5	
		Mac	eS_E	13 43 11	
		Mac	eS_E	13 43 13	
			F	14 28 ±	
67	Aug 4	W-A	iP_E	$9^h05^m15^s$	Epicenter:
		Mac-W-A	iP_E	9 05 15.5	ϕ = 22°7 S.
		W-A	i_N	9 05 20	λ = 66°2 W.
		Mac	ipP_E	9 05 59	H = $8^h55^m02^s$
		W-A	$i(PR_1)_N$	9 07 45	Δ_{P-H} = 65°1
		W-A	iPR_1E	9 07 53	Depth by the
		Mac-W-A	iS_E	9 13 44	Brunner Depth
		W-A	i_E	9 14 11	Chart about
		Mac-W-A	eE	9 14 51	225 km.
		W-A	isS_E	9 15 16	
68	Aug 5	Mac	e_E	$17^h09^m29^s$	
		Mac	e_N	17 09 39	
		Mac	e_E	17 09 45.5	
		Mac	e_N	17 09 47.5	
		Mac	eE	17 10 04	
			F	17 29 ±	
69		Clock not in operation Aug. 8, 2^h to Aug. 9, 1^h GMT. Four earthquakes during this period. First earthquake about 11.5^h GMT weak. Second earthquake about 14^h GMT weak. Third earthquake about 16^h GMT weak. Fourth earthquake about 18^h GMT fairly strong.			
70	Aug 16	Mac	iS_E	$4^h55^m40^s$	Epicenter:
		W-A	ePS_E	4 57 39	ϕ = 34° N.,
		W-A	eSR_1E	5 04 03.5	λ = 95° E.
		W-A	eE	5 05 47	H = $4^h27^m53^s$
		W-A	eE	5 07 33	Δ_{S-H} = 117°4
		W-A	eE	5 08 09	
			F	6 41 ±	

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
71	Aug 18	Mac	$iPKP_1E$	$9^h49^m24^s$	Epicenter by Strasbourg:
		Mac	$iPKP_1N$	9 49 24.5	ϕ = 4°0 S.
		Mac	$i(PKP_2)_E$	9 49 33	λ = 104°0 E.
		Mac	i_N	9 49 39	h = 100 km.
		Mac	$i(pPKP_2)_E$	9 49 57.5	by Brunner Depth Chart.
		Mac	$ipPR_1N$	9 53 05	$H = 9^h03^m00^s$
		Mac	$ipPR_1N$	9 53 06	$\Delta PKP-H = 144°8$.
		Mac	i_N	9 53 58	
		Mac	$isSKS_N$	9 56 53	
		Mac	$iSKKS_E$	9 59 18	
		Mac	$eSKKS_N$	9 59 19.5	
			F	11 22 ±	
72	Aug 20	Mac	e_E	$8^h50^m43^s$	Record weak.
		Mac	e_E	8 57 43	
		Mac	e_E	9 00 42	
			F	12 17 ±	
73	Aug 25	Mac W-A	$i(P')_{EN}$	$1^h47^m32.5^s$	Epicenter:
		Mac	e_E	1 47 34	ϕ = 5°0 S.
		Mac	i_N	1 47 56	λ = 100°0 E.
		W-A	i_E	1 47 56.5	Epicenter by Strasbourg:
		Mac	e_E	1 48 18	ϕ = 3°0 S.
		Mac	e_E	1 48 32	λ = 103° E.
		Mac	$i(PR_1)_N$	1 50 54	$H = 1^h27^m7^s$
			F	3 33 ±	by U.S.C.G.S.
74	Aug 30	Mac	iPR_1E	$12^h09^m48^s$	Epicenter by Strasbourg:
		Mac	$iSKSE$	12 15 29	ϕ = 3°0 S.,
		Mac	iPS_E	12 19 37	λ = 148°0 E.
			F	14 42 ±	$H = 11^h49.7^m$
					$\Delta PS-H = 119°1$
75	Aug 31	Mac	e_N	18 11 31	Record very weak.
		Mac	e_N	18 12 25	Epicenter by Strasbourg:
		Mac	e_N	18 13 17	ϕ = 3°0 S.,
		Mac	e_N	18 13 57	λ = 151°0 E.
		Mac	e_N	18 15 57	h = 340 km.
		Mac	e_N	18 19 32	Wellington:
		Mac	e_N	18 21 50	ϕ = 5°0 S.,
			F	19 12 ±	λ = 140°0 E.
					h = 450-500 km.
					Pasadena:
					ϕ = 4°0 S.,
					λ = 151°5 E.
					h = 350 km.
					$H = 17^h45^m13^s$

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One Wiechert 80 Kg., two Wood-Anderson long-period seismographs, Wiechert clock

No.	Date	Inst	Phase	G.M.C.T.	Remarks
76	Sept. 1	W-A Mac	iP_N	$22^h53^m57^s$	ΔP-H = 25°.6
		Mac	iPR_{1N}	22 54 29	ΔS-P = 25°.4
		W-A Mac	ePR_{2E}	22 54 56	Δmeas = 25°.5
		W-A Mac	$eScP_E$	22 57 07	H = $22^h48^m26^s$
		W-A Mac	iS_{NE}	22 58 26	Epicenter:
		W-A Mac	eX_{NE}	22 59 08	ϕ = 13°N.
		Mac	iSR_{1E}	22 59 36	λ = 89.4 W.
		W-A	$ePcP_N$	23 01 06	Depth normal.
		W-A	M_{NE}	23 01 26	
		W-A Mac	L_N	23 03 00	
			F	23 08 00	
77	Sept. 7	Mac	eP_E	$4^h17^m58^s$	ΔP-H = 110°.0
		Mac	ePR_{1NE}	4 22 30	Δmeas = 110°.0
		Mac	$eSKP_E$	4 23 04	H = $4^h03^m25^s$
		Mac	ePR_{3E}	4 27 08	Epicenter:
		Mac	$eSKKS_{NE}$	4 29 20	ϕ = 24°.9 N,
		Mac	iS_{NE}	4 30 05	λ = 122°E.
		W-A Mac	iPS_{NE}	4 31 51	Depth normal.
		W-A Mac	$ePPS_{NE}$	4 33 06	
		Mac	ePR'_3	4 45 04	
		W-A Mac	L	5 05 00	
		W-A Mac	M	5 13 00	
			F	5 45 00	
78	Sept.12	W-A	iS_{NE}	6h20m53s	ΔS-H = 26°.6
		W-A	eSR_{1N}	6 21 53	Δmeas = 26°.6
		W-A	$eScP_N$	6 22 19	H = $6^h10^m35^s$
		W-A	L_{NE}	6 24 14	Epicenter:
		W-A	M_{NE}	6 25 20	ϕ = 40.2 N,
			F	6 34 00	λ = 125°W. Depth normal. Felt in Vicinity of Humboldt Bay, Calif.
79	Sept.13	Mac	eP_E	$3^h30^m42^s$	ΔS-P = 37.5s
		W-A	iE	3 31 19.5	ΔS-P = 211 miles
		Mac	eS_E	3 31 19.5	This earthquake
		Mac	iS_E	3 31 28.2	is a foreshock
			F	3 32 00	of the following.

No.	Date	Inst	Phase	G.M.C.T.	Remarks
80	Sept.17	W-A	eP^*_N	$3^h35^m20^s$	$\Delta P^*-H = 56.6^s$
		Mac	iP^*_N	3 35 20.4	$\Delta P^*-H = 3^\circ.1$ = 219 mile
		W-A	$iPg?_N$	3 35 25.3	
		Mac	iP_E	3 35 33	$\Delta meas$ = 218 miles
		W-A	$iSnE$	3 35 55	$H = 3^h34^m24^s$
		Mac	$iSnE$	3 35 55.5	Epicenter: $\emptyset$ = $90^\circ20'$ W, λ = $35^\circ28'$ N. A special study of this earthquake h has been made by E. J. Walter of St. Louis University.
		Mac	iS^*E	3 36 00.5	
		W -A	iS^*E	3 36 02	
		W-A	$iSgN$	3 36 06.7	
			F	3 41 00	
81	Sept.17	W-A	eP_N	$7^h21^m22^s.1$	$\Delta S-P = 36.8^s$= 209 miles
		Mac	eP_E	7 21 23.8	$H = 7^h20^m16^s$
		W-A	eP_N	7 21 24.3	This earthquake is an aftershock of the preceding.
		W-A	iS_E	7 22 01.1	
		Mac	iS_E	7 22 01.7	
		W-A	iS_N	7 22 03.1	
		Mac	i_E	7 22 06	
			F	7 23 30	
82	Sept.17	Mac	eP_{NE}	$17^h24^m01^s$	$\Delta P-H = 16^\circ.0$
		Mac	eS_{NE}	17 26 54	$\Delta meas = 16^\circ.0$
		W-A Mac	iSR_{1E}	17 28 20	$H = 17^h20^m16^s$
		W-A Mac	$iPcPNE$	17 29 47	$\emptyset = 33^\circ.6$ N.
		Mac	M	17 30 40	$\lambda = 109^\circ.1$ W.
			F	17 45 00	
83	Sept.28	W-A	iS_E	$23^h32^m21^s$	Reported as being felt at Malden, Missouri.
			L	23 32 30	
84	Sept.29	Mac	iP_{NE}	$23^h40^m02^s$	$\Delta P-H = 16^\circ.0$
		Mac	iS_N	23 43 00	$\Delta meas = 16^\circ.0$
		Mac	eSR_{1NE}	23 43 15	Epicenter: $\emptyset$ = $33^\circ.6$ N, λ = $109^\circ.1$W
		Mac	L_{NE}	23 44 02	$H = 23^h36^m17^s$
			F	23 53 00	Depth normal.

Minor Seismic Activity: Sept. 5, 14^h30^m to 15^h30^m Sept 15, 19^h30^m to 20^h30^m Sept. 18, 0^h25^m to 0^h55^m, Sept. 21 20^h00^m to 21^h00^m Sept.25, 21^h00^m to 22^h00^m, Sept. 27, 2^h00^m to 3^h00^m and 10^h35^m to 11^h10^m, Sept. 28, 18^h10^m to 18^h55^m.

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One Wiechert 80 Kg., two Wood-Anderson long-period seismographs, Wiechert clock

Bulletin for October and November 1938

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
85	Oct 1	W-A	i_N	$22^h17^m42^s$	Near quake.
		W-A Mac	iS_N	22 18 02	Weak beginning.
		W-A Mac	i_N	22 18 05	
			F	22 18 48±	
86	Oct 1	W-A	iP_N	$22^h34^m39^s$	Near quake or
		W-A	iS_N	22 34 48	blast.
			F	22 35 03	
87	Oct 7	Mac	e_N	$16^h46^m23^s$	Weak.
		W-A Mac	e_E	16 46 24	
		W-A Mac	i_E	16 46 40	
			F	16 49 ±	
88	Oct 9	W-A	eS_E	$16^h59^m29^s$	Deep.
		W-A	esS_E	16 59 39	
		W-A	e_E	17 00 46	
			F	17 02 ±	
89	Oct 10	W-A	e_E	$03^h11^m17^s$	Indistinct.
		W-A Mac	i_E	03 11 25	
		W-A	e_E	03 23 10	
			F	04 00 ±	
90	Oct 10	W-A Mac	eP'_E	$21^h07^m12^s$	$\Delta P'-H = 128°7$
		W-A	e_E	21 08 39	$H = 20^h48^m04^s$
		W-A	eS_N	21 17 06	Epicenter:
		W-A	e_N	21 18 06	1°0 N., 125° E.
			F	23 00 ±	
91	Oct 12	W-A	eP_E	$00^h47^m41^s$	
		W-A	$e(S)_E$	00 57 41	
		W-A	$i(S)_E$	00 57 47	
		W-A	e_E	00 58 53	
		W-A	eL_E	01 04 06	
			F	02 00 ±	
92	Oct 13	W-A	iP_E	$19^h15^m29.0^s$	Near earthquake
		W-A	iS_E	19 15 30.5	or blast.
		W-A	iL_E	19 15 31.5	Sharp phases.
			F	19 16.5 ±	

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
93	Oct 19	Mac	iS_E	$04^h37^m49^s$	$\Delta_{S-H} = 92°5$
		W-A	ePS_N	04 38 49	Epicenter by
		W-A	eM_N	05 06 34	Strasbourg:
			F	06 00 ±	49°7 N., 90°5 E.
					$H = 4^h13^m32^s$
94	Oct 20	W-A	eP'_E	$02^h38^m42^s$	$\Delta_{P'-H} = 137°0$
		W-A	iS_E	02 42 15	$H = 2^h19^m30^s$
		W-A	$eSKS_E$	02 45 50	Epicenter:
		W-A	$eSKKS_E$	02 48 10	9°5 S., 122°8 E.
		W-A	$ePPS_E$	02 50 00	Depth by the
			F	05 00 ±	Brunner Depth
					Chart about
					100 km.
95	Oct 21	W-A	eS_E	$06^h53^m00^s$	
		W-A	$e(sS)_E$	06 54 30	
			F	07 00 ±	
96	Oct 21	W-A	$e(S)_E$	$20^h46^m58^s$	
		W-A	e_E	20 49 52	
			F	20 52 ±	
97	Oct 23	W-A	e_E	$05^h15^m58^s$	
		W-A	i_E	05 22 08	
		W-A	eL_E	05 26 18	
		W-A	F	06 00 ±	
98	Nov 2	W-A	ePN	$05^h46^m55^s$	
		W-A	iN_E	05 47 15	
		W-A	eS_N	05 50 43	
		W-A	iS_E	05 50 43	
		W-A	iS_N	05 50 46	
		W-A	i_E	05 51 11	
		W-A	i_E	05 51 47	
			F	07 30 ±	
99	Nov 5	W-A	eP_E	$08^h56^m26^s$	$\Delta_{P-H} = 92°0$
		W-A	iPR_{1E}	09 00 15	Epicenter:
		W-A	e_E	09 01 13	36°8 N.,
		W-A	$eSKS_E$	09 06 52	139°6 E.
		W-A	$iSKKS_E$	09 07 16	$H = 8^h43^m18^s$
		W-A	iS_E	09 07 31	
		W-A	$eSPN$	09 08 40	
		W-A	$ePPS_N$	09 09 26	
		W-A	e_N	09 13 13	
		W-A	iSR_1N	09 13 33	
		W-A	eN	09 19 00	
			F	(Lost in next earthquake)	

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
100	Nov 5	W-A	eP_{NE}	$11^h03^m19^s$	$\Delta_{P-H} = 91°5$
		W-A	eP_{N}	11 07 07	$H = 10^h50^m13^s$
		W-A	$eSKKS_E$	11 14 04	Epicenter:
		W-A	iS_E	11 14 14	38°7 N.,
		W-A	eSR_1N	11 20 25	141°0 E.
		W-A	eL_N	11 29 15	Possibly after-
			F	14 00 ±	shock of No. 99.
101	Nov 6	W-A	eE	$9^h06^m57^s$	$\Delta_{P-H} = 89°6$
		W-A	iE	9 08 58	$H = 8^h53^m58^s$
		W-A	iE	9 08 16	
		W-A	ePR_1E	9 10 31	
		W-A	$e(PR_2)_E$	9 11 09	
		W-A	$eSKS_E$	9 17 22	
		W-A	iS_E	9 17 43	
			F	13 00 ±	
102	Nov 6	W-A	eP_{NE}	$21^h51^m51^s$	$H = 21^h38^m53^s$
		W-A	e_E	21 52 30	Aftershock of
		W-A	ePR_1E	21 55 19	No. 101.
		W-A	iS_{NE}	22 01 39	
			F	00 30 on Nov 7.	
103	Nov 9	W-A	iS_E	$8^h39^m49^s$	Phases weak.
		W-A	eL_E	9 02 45	Mainly surface
			F	10 00 ±	waves.
104	Nov 10	W-A	iP_{NE}	$20^h27^m17^s$	$\Delta_{S-P} = 47°1$
		W-A	iS_{NE}	20 34 15	$H = 20^h18^m48^s$
			F	(Lost in	Epicenter:
				following	55°6 N.,
				quake.)	157°7 W.
					Amptitudes very
					large.
105	Nov 11	W-A	eP_{NE}	$1^h03^m21^s$	$\Delta_{S-P} = 46°1$
		W-A	iP_N	1 07 37	$H = 1^h57^m57^s$
		W-A	$ePcP_{NE}$	1 08 16	Epicenter:
		W-A	ePR_1NE	1 08 24	54°9 N.,
		W-A	iS_{NE}	1 13 13	158°0 W.
		W-A	eSR_1NE	1 16 07	Aftershock of
			F	2 45 ±	No. 104.
106	Nov 13	W-A	eP_{NE}	$13^h25^m52^s$	$\Delta_{P-H} = 79°9$
		W-A	iP_E	13 25 53	$H = 13^h13^m50^s$
		W-A	epP_{NE}	13 26 10	Epicenter:
		W-A	ePR_1E	13 29 01	48°0 N.,
		W-A	iS_{NE}	13 33 55	149°4 E.
		W-A	iN_E	13 36 30	Depth by the
			F	14 30 +	Brunner Depth

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
107	Nov 13	W-A	e_E	$22^h55^m26^s$	
		W-A	eL_E	23 09 31	
			F	02 00 on Nov. 14	
108	Nov 15	W-A	eP_{NE}	$10^h00^m45^s$	
		W-A	iS_E	10 07 38	
		W-A	eL_E	10 19 10	
			F	10 45 ±	
109	Nov 17	W-A	eP_E	$4^h02^m07^s$	$\Delta P-H = 47°4$
		W-A	iP_E	4 03 11	$H = 3^h54^m37^s$
		W-A	ipP_E	4 03 17	Epicenter:
		W-A	i_E	4 04 07	55°3 N.,
		W-A	i_E	4 04 20	159°5 W.
		W-A	iPR_{1E}	4 05 08	Depth by the
		W-A	iS_E	4 09 56	Brunner Depth
		W-A	isS_E	4 10 14	Chart about
					50 km.
110	Nov 22	W-A	eP_E	$1^h27^m05^s$	$H = 1^h14^m06^s$
		W-A	epP_E	1 27 25	Epicenter:
		W-A	$eSKS_E$	1 37 37	36°3 N. 141°6'
		W-A	eS_E	1 37 56	Depth by the
		W-A	eSP_E	1 38 16	Brunner Depth
			F	4 00 ±	Chart 60-80 km.
111	Nov 30	W-A	eP_N	$2^h43^m05^s$	$H = 02^h29^m52^s$
		W-A	e_E	2 53 13	Epicenter:
		W-A	iS_E	2 53 43	37°5 N.,
		W-A	$ePPS_E$	2 54 46	141°3 E.
		W-A	eL_E	3 04 00	
			F	4 30 ±	

Minor Seismic Activity: Oct 4, 8h30m to 9h30m; Oct 5, 00h30m to 01h30m; Oct 21, 24h15m to 25h00m; Oct 23, 4h30m to 4h45m; Oct 23, 16h24m to 16h30m; Nov 7, 02h00m to 03h00m; Nov 7, 04h00m to 05h00m; Nov 7, 19h00m to 20h00m; Nov 11, 9h00m to 10h00m; Nov 12, 9h00m to 10h00m; Nov 15, 21h00m to 22h30m; Nov 18, 23h00m to 24h30m; Nov 19 6h00m to 7h00m.

J. B. Macelwane, S.J.
Director

R. R. Heinrich
Instructor

SAINT LOUIS

SEISMOGRAPHIC STATION, ST. LOUIS UNIVERSITY, ST. LOUIS, MO., U. S. A.

One Wiechert 80 Kg., two Wood-Anderson long-period seismographs, Wiechert clock

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
112	Dec 1	W-A	e_E	$01^h30^m35^s$	Weak.
		W-A	e_E	01 36 24	
		W-A	e_E	01 39 13	
		W-A	e_E	01 41 03	
			F	03 00 ±	
113	Dec 7	W-A	e_E	$13^h52^m57^s$	
		W-A	eL_E	13 53 05	
			F	(Lost in changing records)	
114	Dec 9	W-A	eP_E	$04^h03^m34^s$	
		W-A	e_E	04 05 28	
		W-A	eS_E	04 10 06	
		W-A	esS_E	04 10 26	
		W-A	e_E	04 11 25	
		W-A	i_E	04 13 29	
			F	05 10 ±	
115	Dec 12	W-A	eP_E	$02^h18^m24^s$	
		W-A	eS_E	02 24 49	
		W-A	iS_E	02 24 58	
		W-A	eL_E	02 26 39	
			F	02 30 ±	

Minor Seismic Activity: Dec 1, 21h30m tc 22h00m; Dec 3, 12h34m tc 12h38m; Dec 3, 17h53m to 18h00m; Dec 13, 16h48m to 16h51m; Dec 16, 17h00m to 20h00m; Dec 16, 23h00m to 24h00m; Dec 19, 17h00m to 18h30m.

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