

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

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

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
1	Jan. 2	III	iP _{EN}	9 54 22	W-A	Compression Epicenter 18°N. 108.5°W.
			iP _{RN}	9 54 57	W-A	
			iP _{2EN}	9 55 09	W-A	
			iS _N	9 58 44	W-A	
			iS _{EN}	9 59 53	W-A	
			eL _E	10 00 50	W-A	
			eM _{EN}	10 02 05	W-A	
			F	End covered by following		
2	Jan. 2	I	eP _{EN}	11 17 23	W-A	$\Delta = 26.5$
			iP _{EN}	11 17 26	W-A	
			iS _{EN}	11 21 52	W-A	
			eL _{EN}	11 23 15	W-A	
			iM _{EN}	11 23 15	W-A	
			F	End covered by following		
3	Jan. 2	I	eP _N	11 41 01	W-A	
			eS _E	11 45 38	W-A	
			F	13 00 ±	W-A	
4	Jan. 8	I	e _{EN}	0 17 36	W-A	Felt in Province of Quebec.
			e _N	0 20 33	W-A	
			e _N	0 20 39	W-A	
			iS _{N?}	0 20 45	W-A	
			i _N	0 20 54	W-A	
			iM _N	0 22 15	W-A	
Jan. 9 Microseisms with maximum at 16-22h.						
5	Jan. 12	I	eP _N	20 45 07	W-A	$\Delta = 65.6$
			iP _{EN}	20 45 14	W-A	
			eS _{EN}	20 53 56	W-A	
			eL _{EN}	21 04 00	W-A	
			F	21 40 ±	W-A	
6	Jan. 15	III	iP _{EN}	1 55 48	W-A; Wiechert	Compression Destructive in southern part of Mex- ico. Epi- center. Aca- pulco Deep 15°N. 97°W
			i _{EN}	1 56 17	Wiechert	
			eS _N	2 00 02	Wiechert	
			iL _N	2 03 50	Wiechert	
			iM _N	2 06 00	Wiechert	
			F	4 30 ±	Wiechert	

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7	Jan. 15	I	eP _N iP _N eS _{EN} F	13 56 31 13 56 39 14 00 44 14 10 ±	W-A W-A W-A W-A	$\Delta = 24^{\circ}5$
8	Jan. 16	II	iP _N i _N i _N i _N iS _N i _N i _E i _E i _N F	16 57 10 16 57 45 16 58 05 16 58 48 17 01 14 17 01 25 17 01 47 17 02 25 17 02 30 17 40 ±	W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A	Compression. $\Delta = 23^{\circ}4$ No surface waves.
9	Jan. 16	II	iP _{EN} i _{EN} i _N iS _{EN} i _N L _N iM _N F	19 24 59 19 25 27 19 25 43 19 29 13 19 29 32 19 32 06 19 36 00 20 50 ±	W-A W-A W-A W-A W-A W-A W-A W-A	Compression Acapulco Deep $14.5^{\circ}N\ 96^{\circ}W$ Surface waves relatively small.
10	Jan. 17	III	iP _N iP _{R1N} eS _N iS _N L _N M F	2 54 59 2 55 24 2 58 53 2 58 55 3 01 00 3 02 00 4 40 ±	W-A W-A W-A W-A W-A W-A W-A	Compression. $\Delta = 23^{\circ}$ Epicenter $25^{\circ}N. 110^{\circ}W.$
11	Jan. 17	II	iP _N iS _N L _N M _N F	5 41 00 5 45 12 5 50 25 5 52 30 6 40 ±	W-A W-A W-A W-A W-A	Compression. $\Delta = 24^{\circ}4$ L and M relatively small.

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No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
	Jan. 14-17 Jan. 17-19		Microseisms moderate Microseisms with maximum at 2-4h. on 16th.			
12	Jan. 23	I	eP _N iP _{EN} i _N eS _N (?) iS _N i _{EN} eL _E F	5 57 16 5 57 26 5 57 57 6 01 20 6 01 28 6 01 32 6 05 25 6 25 ±	W-A W-A W-A W-A W-A W-A W-A W-A	Δ = 24°4
13	Jan. 24	I	eP _N eS _N eM _{EN} F	15 29 11 15 33 43 15 38 40 16 00 ±	W-A W-A W-A W-A	Δ = 27°0
14	Jan. 25	I	eP _{EN} eS _{EN} iS _N eM _{EN} F	12 40 07 12 44 43 12 44 51 12 49 00 13 40 ±	W-A W-A W-A W-A W-A	Δ = 27°6
15	Jan. 27	II	ePR _{1N} ePR _{2N} iScPcS _N i _N e _{EN} eP _{SEN} i _N eSR _{1EN} eL _E eM _E eM _{2E} F	20 28 52 20 31 29 20 34 46 20 35 56 20 36 44 20 38 30 20 38 46 20 44 34 20 01 24 20 09 25 21 12 44 23 40 ±	W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A	Epicenter: W. China. 31°N. 108°E.

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No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
16	Jan. 28	II	ePR ₁ EN	21 43 11	W-A	Epicenter near Marianas Is- lands.
			iScPc ₂ SEN	21 49 14	W-A	
			eP ₂ SEN	21 52 27	W-A	
			iSR ₁ EN	21 58 28	W-A	
			eL ₁ EN	21 08 45	W-A	
			eM ₁ E	21 24 00	W-A	
			F	24 20 ±	W-A	
17	Jan. 29	I	eP ₁ N	16 47 18	W-A	$\Delta = 24^{\circ}.4$
			eS ₁ E	16 51 30	W-A	
			M ₁ E	16 58 10	W-A	
			F	17 00 ±	W-A	
18	Jan. 29	I	eP ₁ EN	17 15 35	W-A	$\Delta = 24^{\circ}.8$
			iP ₁ EN	17 15 36	W-A	
			eS ₁ EN	17 19 51	W-A	
			iM ₁ E	17 20 03	W-A	
			F	18 00 ±	W-A	

Besides the above seismic movement was recorded at 2d. 0.4h-1.3h; 2d. 18.8h-19.2h; 15d. 21.7h-22.7h; 15d. 23.1h-25.3h; 23d. 23.6h-23.7h; 24d. 14.1h-15.4h; 27d. 14.7h-15.1h.

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No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
19	Feb. 2	III	e _{PN}	23 01 37	W-A	Very des- tructive in N. Island, New Zealand
			e _N	23 05 18	W-A	
			i _{PR} e _N	23 06 29	W-A	
			i _{EN}	23 06 47	W-A	
			e _{EN}	23 09 05	W-A	
			e _E	23 12 37	W-A	
			i _E	23 13 30	W-A	
			i _{PS} e _N	23 16 07	W-A	
			i _{SR} e _N	23 22 08	W-A	
			L _{EN}	23 33 45	W-A	
			i _{ME}	23 48 18	W-A	
			F	Covered by following		
20	Feb. 3	I	e _N	1 03 26	W-A	Aftershock of the pre- ceding.
			i _N	1 04 32	W-A	
			e _N	1 07 30	W-A	
			F	3 30 ±	W-A	
	Feb. 3	Long period microseisms				
	Feb. 10	6h. Quake recorded but time clock not functioning				
	Feb. 11	6h. Quake recorded but time clock not functioning				
	Feb. 13	1h. Quake recorded but time clock not functioning				
	Feb. 14	14h. Quake lost by change of record.				
21	Feb. 14	I	i _{PN}	15 54 06.2	W-A	Quarry blast
			i _{PN}	15 54 06.7	W-A	
			i _{SE}	15 54 09.1	W-A	
			i _N	15 54 10.4	W-A	
			i _N	15 54 14.9	W-A	
	Feb. 15	Microseisms				

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No.	Date	Char.	Phase	C.M. Time h. m. s.	Instruments	Remarks
22	Feb. 16	I	eP _N	19 01 16	W-A	
			iS _E	19 11 39	W-A	
			iP _{S_E}	19 11 50	W-A	
			iE	19 18 17	W-A	
			iS _E	19 29 30	W-A	
			M _E	19 35 00	W-A	
			F	20 00 ±	W-A	
23	Feb. 19	I	iP _N	18 00 06	W-A	
			eP _N	18 43 56	W-A	
			eM _E	19 01 50	W-A	
			F	20 35 ±	W-A	
24	Feb. 20	I	eP _N	5 45 34	W-A	
			iP _{EN}	5 45 38	W-A	
			eN	5 46 56	W-A	
			eP _{EN}	5 48 43	W-A	
			eS _N	5 55 25	W-A	
			iS _{EN}	5 55 26	W-A	
			iEN	5 55 45	W-A	
			iN	5 57 53	W-A	
			iEN	6 01 19	W-A	
			eL _E	6 10 15	W-A	
			F	7 20 ±	W-A	

Feb. 25

Microseisms

Besides, the above seismic movements at 4d. 13.0h-13.3h; 7d. 1.1h-1.3h; 7d. 3.5h-4.3h; 8d. 0.3h-0.6h; 8d. 4.2h-4.5h; 10d. 2.4h-2.6h; 11d. 17.9h-18.4h; 12d. 6.0h-7.0h; 12d. 8.2h-8.5h; 26d. 9.9h-10.5h.

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22	Feb. 16	I	eP _N	19 01 16	W-A	
			iS _E	19 11 39	W-A	
			iP _{S_E}	19 11 50	W-A	
			i _E	19 18 17	W-A	
			i _S	19 29 30	W-A	
			M _E	19 35 00	W-A	
			F	20 00 ±	W-A	
23	Feb. 19	I	iP _N	18 00 06	W-A	
			eP _N	18 43 56	W-A	
			eM _E	19 01 50	W-A	
			F	20 25 ±	W-A	
24	Feb. 20	I	eP _N	5 45 34	W-A	
			iP _{EN}	5 45 38	W-A	
			e _N	5 46 56	W-A	
			eP _{EN}	5 48 43	W-A	
			eS _N	5 55 25	W-A	
			iS _{EN}	5 55 26	W-A	
			i _{EN}	5 55 45	W-A	
			i _N	5 57 36	W-A	
			i _{EN}	6 01 19	W-A	
			eL _E	6 10 15	W-A	
			F	7 20 ±	W-A	

Feb. 25

Microseisms

Besides, the above seismic movements at 4d. 13.0h-13.3h; 7d. 1.1h-1.3h; 7d. 3.5h-4.3h; 8d. 0.3h-0.6h; 8d. 4.2h-4.5h; 10d. 2.4h-2.6h; 11d. 17.9h-18.4h; 12d. 6.0h-7.0h; 12d. 8.2h-8.5h; 26d. 9.9h-10.5h.

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No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
25	Mar. 1	I	i _N	14 34 52	W-A	
			F	14 40 ±	W-A	
Mar. 1		Moderate microseisms.				
26	Mar. 2	I	e _N	2 37 50	W-A	Solomon Islands
			i _N	2 44 52	W-A	
			i _N	2 45 41	W-A	
			i _E	2 48 31	W-A	
			i _{EN}	2 53 26	W-A	
			L F	3 08 00 4 45 ±	W-A	
Mar. 4-6		Very intense microseisms max. 12h. on 4th to 12h. on 5th.				
27	Mar. 7	I	e _{P_N}	0 47 38	W-A	Δ = 30.5° Epicenter ca. 11°N. 87°W. Earthquake in Serbia. superposed.
			i _N	0 48 24	W-A	
			e _{S_E}	0 52 35	W-A	
			F	2 00 ±	W-A	
28	Mar. 8	I	i _{P_{EN}}	2 02 30	W-A	Time ap- proximate. Destruct- ive in Greece and Serbia.
			i _{S_E}	2 12 32	W-A	
			i	2 17 46	W-A	
			e _{L_E}	2 25 30	W-A	
			M _E	2 29 30	W-A	
			F	3 40 ±	W-A	
29	Mar. 8	I	i _{EN}	3 40 55	W-A	Local
			F	3 42 ±	W-A	

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30	Mar. 9	II	iP _N	4 01 45	W-A	Time approxi- mate.
			e _N	4 04 33	W-A	
			e _E	4 12 05	W-A	
			i _{EN}	4 12 21	W-A	
			i _E	4 17 15	W-A	
			L	4 25 30	W-A	
			M	4 35 30	W-A	
			F	6 35 ±	W-A	
Mar. 9 Moderate microseisms with maximum at 15 hrs.						
31	Mar. 11	I	iS _{EN}	12 51 03	W-A	Time approxi- mate.
			L	13 09 00	W-A	
			eM _{EN}	13 19 00	W-A	
			F			
32	Mar. 18	II	eP _N	8 13 54	W-A	Δ _{S-P} 72.0 Off coast of Chile
			iS _{EN}	8 23 24	W-A	
			i _E	8 23 41	W-A	
			L	8 35 30	W-A	
			M	8 44 30	W-A	
			F	11 30 ±	W-A	
33	Mar. 18	I	eP' _N	20 32 40	W-A	Philippines S.E.
			eS _C P _C S _{EN}	20 39 33	W-A	
			i _{EN}	20 40 14	W-A	
			i _{EN}	20 41 53	W-A	
			e _{EN}	20 44 39	W-A	
			eSR _{1E}	20 51 09	W-A	
			L _E	21 05 30	W-A	
			F	22 40 ±	W-A	
34	Mar. 19	I	ePR _{1EN}	6 44 57	W-A	Philippines W. W.
			e _N	6 49 30	W-A	
			e _E	6 52 12	W-A	
			eP _S EN	6 54 31	W-A	
			eSR _{1EN}	7 00 51	W-A	
			eL _E	7 15 30	W-A	
			F	8 40 ±	W-A	

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No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
35	Mar. 21	I	e _E ?	13 52 16.3	W-A	Felt at Sidney, Ohio
			e _{EN}	13 52 20.4	W-A	
			e _N	13 53 19.6	W-A	
			e _N	13 53 24.4	W-A	
			e _{EN}	13 53 27.7	W-A	
			i _{EN}	13 53 28.5	W-A	
			i _N	13 53 29.2	W-A	
			i _N	13 53 33.0	W-A	
		F	13 55 ±	W-A		
36	Mar. 25	I	e _N	2 58 20.6	W-A	Local
			F	3 00 ±	W-A	
37	Mar. 25	I	e _N	3 02 27.8	W-A	Local
			F	3 03 ±	W-A	
38	Mar. 28	II	e _N	12 57 35	W-A	Epicenter 7°S. 128°E.
			e _N	12 57 48	W-A	
			i _N	12 58 02	W-A	
			i _{EN}	13 01 02	W-A	
			i _{EN}	13 01 13	W-A	
			i _{EN}	13 01 33	W-A	
			i _{EN}	13 02 32	W-A	
			e _{EN}	13 04 30	W-A	
			i _{EN}	13 07 02	W-A	
			i _{EN}	13 07 26	W-A	
			i _{EN}	13 10 30	W-A	
			e _E	13 11 57	W-A	
			i _E	13 17 47	W-A	
			e _{EN}	13 22 50	W-A	
			e _{LE}	13 32 00	W-A	
			e _{LE}	13 40 00	W-A	
			e _{ME}	13 47 00	W-A	
F	15 50 ±	W-A				
					Surface waves relatively very small.	

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39	Mar. 29	I	eP _{EN}	17 34 33	W-A	Δ_{S-P} 54 ^o .2
			eS _N	17 42 08	W-A	
			iS _E	17 42 10	W-A	
			eL _{EN}	17 50 30	W-A	
			eM _{EN}	17 56 30	W-A	
			F	Covered by following		
40	Mar. 29	I	iP _{EN}	18 04 16	W-A	Δ_{S-P} 80 ^o .4 No surface waves.
			iS _{EN}	18 40 30	W-A	
			i _{EN}	18 14 37	W-A	
			i _{EN}	18 15 19	W-A	
			F	Covered by following		
41	Mar. 29	I	e _{EN}	19 21 54	W-A	
			eS _{EN}	19 29 07	W-A	
			eM _E	19 46 00	W-A	
			F	20 20 ±	W-A	
42	Mar. 31	I	eP _N	16 07 51	W-A	Managua destroyed.
			iP _N	16 07 55	W-A	
			i _N	16 08 26	W-A	
			eS _E	16 12 26	W-A	
			i _N	16 12 41	W-A	
			i _N	16 13 38	W-A	
			i _N	16 14 05	W-A	
			eM _E	16 22 30	W-A	
			F	17 15 ±	W-A	

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42	Apr. 1	I	eF _N	13 19 08	W-A	$\Delta_{S-P} 26^{\circ}$
			eS _N	13 23 33	W-A	
			eM _N	13 33 19	W-A	
			F	13 50 ±	W-A	
43	Apr. 1	II	eE	23 20 51.5	W-A	$\Delta = 234$ km. Felt in west- ern Kentucky.
			iP _N	23 20 53.1	W-A	
			iE _N	23 21 13.5	W-A	
			iS _{EN}	23 21 20.7	W-A	
			iL _{EN}	23 21 25.9	W-A	
			F	23 27 ±	W-A	
Apr. 2. Slight microseisms.						
44	Apr. 3	I	iP _N	2 04 58	W-A	$\Delta_{S-P} 49^{\circ}7$
			iS _{EN}	2 12 04	W-A	
			eE	2 14 45	W-A	
			eL _E	2 17 38	W-A	
			F	3 15 ±	W-A	
45	Apr. 3	I	eE	23 34 44	W-A	
			iS _{EN}	23 41 47	W-A	
			iE _N	23 42 32	W-A	
			iE	23 43 07	W-A	
			eE	23 44 40	W-A	
			eE	23 45 30	W-A	
			eL _E	23 48 40	W-A	
			F	00 45 ±	W-A	
46	Apr. 5	I	eP _N	5 08 54	W-A	$\Delta = 25.1$
			eS _N	5 13 12	W-A	
			eM _E	5 19 37	W-A	
			F	5 25 ±	W-A	

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No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
47	Apr. 6	I	ePR _{1E}	7 08 58	W-A	Epicenter Caroline Islands $\Delta = 110^\circ$
			e _E	7 15 42	W-A	
			i _E	7 16 38	W-A	
			ePS _{EN}	7 18 32	W-A	
			e _E	7 19 41	W-A	
			eSR _{1E}	7 24 33	W-A	
			eL _E	7 42 47	W-A	
			eM _{EN}	7 48 47	W-A	
F	9 30 ±	W-A				
48	Apr. 6	I	e _E	15 37 52.3	W-A	$\Delta = 236$ km. Epicenter: 36°44' N. 88° 52' W. Felt in western Kentucky.
			iP _{EN}	15 37 57.5	W-A	
			iS _{EN}	15 38 25.4	W-A	
			iL _{EN}	15 38 30.3	W-A	
			F	15 43 ±	W-A	
Apr. 7-8-9 Slight microseismic activity.						
49	Apr. 9	I	eP _N	23 13 42	W-A	$\Delta_{S-p} 80.8$
			eS _E	23 23 58	W-A	
			iS _{EN}	23 23 59	W-A	
			i _E	23 24 20	W-A	
			eL _{EN}	23 40 56	W-A	
			F	00 15 ±	W-A	
50	Apr. 15	I	eP _{EN}	17 07 15	W-A	Epicenter 46°N. 28°W. $\Delta = 45.6$
			eS _N	17 13 55	W-A	
			e _{EN}	17 17 26	W-A	
			eL _{EN}	17 20 51	W-A	
			F	17 45 ±	W-A	
Apr. 16-17			Slight microseisms.			
51	Apr. 18		eS _{EN}	13 16 48	W-A	
			eM _E	13 19 44	W-A	
			F	13 30 ±	W-A	



BULLETIN FOR 1931

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
52	Apr. 19	I	eP _{EN}	2 05 42	W-A	$\Delta = 25^{\circ}9$
			iP _{EN}	2 05 44	W-A	
			eS _{EN}	2 10 06	W-A	
			iS _{EN}	2 10 08	W-A	
			eE _N	2 10 54	W-A	
			eL _{EN}	2 11 45	W-A	
			iM _{EN}	2 13 07	W-A	
			F	3 40 \pm	W-A	
53	Apr. 20	I	eP _N	9 19 38	W-A	
			eS _N	9 24 11	W-A	
			F	9 40 \pm	W-A	
54	Apr. 20	I	eP _{EN}	19 58 29	W-A	Felt in eastern New York.
			e _N	19 58 49	W-A	
			i _N	20 00 07	W-A	
			eS _N	20 01 20	W-A	
			iS _N	20 01 24	W-A	
			eL _N	20 02 26	W-A	
			F	20 10 \pm	W-A	
55	Apr. 22	I	eE _N	0 07 02	W-A	
			e _E	0 27 08	W-A	
			e _E	0 32 05	W-A	
			eM _E	0 52 20	W-A	
			F	1 40 \pm	W-A	
56	Apr. 24	I	eP _N	2 23 20	W-A	$\Delta = 42^{\circ}6$
			eS _{EN}	2 29 41	W-A	
			F	2 45 \pm	W-A	
57	Apr. 24	I	eP _{1E}	17 40 45	W-A	Epicenter in the Caroline Islands. $\Delta = 110^{\circ}$
			eP _{R1E}	17 41 38	W-A	
			eS _{CPCPcSE}	17 43 23	W-A	
			eP _{SE}	17 51 04	W-A	
			e _E	17 52 33	W-A	
			eSR _{1E}	17 57 12	W-A	
			eSR _{2E}	18 01 42	W-A	
			eL _N	18 10 24	W-A	
			eM _E	18 16 14	W-A	
			F	20 20 \pm	W-A	

BULLETIN FOR 1931

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
58	Apr. 25	I	eP _{EN}	11 08 50	W-A	$\Delta = 24^{\circ}4$ No surface waves.
			e _N	11 09 43	W-A	
			eS _N	11 13 02	W-A	
			e _N	11 13 59	W-A	
			F	11 35 ±	W-A	
59	Apr. 26	I	eP _N	4 33 15	W-A	Surface waves very small.
			iS _{EN}	4 42 20	W-A	
			eL _E	4 53 27	W-A	
			eM _E	5 01 30	W-A	
			F	5 20 ±	W-A	
60	Apr. 27	I	e _E	17 03 53	W-A	Destructive in Transcandoscia. Poor records, - phases not clear.
			i _N	17 07 24	W-A	
			e _{EN}	17 14 21	W-A	
			i _N	17 15 43	W-A	
			i _N	17 16 12	W-A	
			eL _N	17 38 30	W-A	
			F	19 10 ±	W-A	

Besides the above there were traces of seismic movement at
 8d. 19.9-21.3h; 11d. 15.6-16.5h; 12d. 2.4-3.4h; 16d. 22.6-23.4h;
 17d. 6.2-6.4h; 19d. 17.5-17.7h; 23d. 12.0-12.4h; 25d. 1.8-2.0h;
 25d. 20.1-20.4h; 25d. 23.0-23.6h.

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

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

BULLETIN FOR 1931

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
61	May 1	I	iP _{EN}	22 43 52	W-A	Δ_{S-P} 35 ^o .7 Epicenter 8 ^o N. 70 ^o W.
			iPR _{1EN}	22 45 07	W-A	
			eS _N	22 49 26	W-A	
			eSR _{1N}	22 51 42	W-A	
			eM _E	22 56 20	W-A	
			F	23 20 ±	W-A	
62	May 5	I	e _N	12 18 09.3	W-A	Felt in Birmingham, Ala. $\Delta = 610$ km.
			eP _N	12 18 22.6	W-A	
			i _N	12 19 30.5	W-A	
			iP _{EN}	12 19 32.8	W-A	
			iS _{EN}	12 19 34.4	W-A	
			F	12 22 ±	W-A	
63	May 9	I	eP _{EN}	10 39 30	W-A	Δ_{S-P} 23 ^o Epicenter 24 ^o N. 109 ^o W.
			ePR _{1N}	10 59 51	W-A	
			eS _E	10 43 19	W-A	
			eL _N	10 44 48	W-A	
			iM _E	10 46 11	W-A	
			F	11 40 ±	W-A	
64	May 10	I	e _E	8 06 41	W-A	Local
			e _N	8 06 42	W-A	
			iS _E	8 06 46	W-A	
			e _E	8 06 49	W-A	
			i _E	8 07 54	W-A	
			F	8 08 ±	W-A	
65	May 10	I	e _{EN}	19 33 08	W-A	
			e _N	19 33 50	W-A	
			e _{EN}	19 35 59	W-A	
			e _{EN}	19 44 19	W-A	
			e _N	19 44 54	W-A	
			i _N	19 45 32	W-A	
			e _{EN}	19 49 07	W-A	
			eL _E	19 56 30	W-A	
			eM _{EN}	20 02 00	W-A	
			F	20 30 ±	W-A	

BULLETIN FOR 1931

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
66	May 12	I	eP _E	1 48 24	W-A	Δ_{S-P} 69.9 Epicenter 54°N. 161°E.
			iE _N	1 48 28	W-A	
			eFR _{1EN}	1 51 20	W-A	
			eFR _{2N}	1 52 51	W-A	
			iS _N	1 57 41	W-A	
			iE	1 58 14	W-A	
			eL _{EN}	2 11 25	W-A	
			eM _{EN}	2 17 10	W-A	
			F	2 45 ±	W-A	
67	May 16	II	iP _{EN}	20 52 38	W-A	Δ_{S-P} 24.3 Epicenter 14.7N. 96.5 W. No characteristic surface waves.
			iN	20 53 11	W-A	
			iS _N	20 56 49	W-A	
			iE _N	20 56 53	W-A	
			eN	20 57 36	W-A	
			iSR _{1EN}	20 57 55	W-A	
			F	21 40 ±	W-A	
			68	May 20	II	
iE	2 34 44	W-A				
eS _N	2 40 24	W-A				
iS _N	2 40 26	W-A				
eL _N	2 43 10	W-A				
eM _E	2 52 00	W-A				
F	5 40 ±	W-A				
69	May 20	I				iP _{EN}
			eS _{EN}	22 14 00	W-A	
			F	22 35 ±	W-A	
70	May 27	I	eS _E	6 19 53	W-A	End covered by following
			eM _E	6 36 55		
			F			

BULLETIN FOR 1931

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
71	May 27	I	iP_N	6 45 30	W-A	Δ_{S-P} 64°.2 Epicenter 56°N. 168°E.
			eS_E	6 54 00	W-A	
			eS_S	7 09 40	W-A	
			F	7 15 ±	W-A	
72	May 27	I	iP_{EN}	10 26 11	W-A	Δ_{S-P} 23°.2 Epicenter 18°N. 102°W.
			eS_{EN}	10 30 14	W-A	
			iN	10 30 31	W-A	
			eN	10 34 20	W-A	
			F	11 00 ±	W-A	
73	May 28	I	eN	3 25 11	W-A	No character- istic surface waves.
			iS_E	3 33 29	W-A	
			eE	3 34 19	W-A	
			F	3 40 ±	W-A	
74	May 28	I	eS_E	18 64 33	W-A	
			eM_E	19 11 41	W-A	
			F	19 45 ±	W-A	
75	May 29	I	iP_N	5 24 29	W-A	Δ_{S-P} 46°.9 Epicenter 58°N. 158°W.
			$iS_{(E)N}$	5 31 17	W-A	
			eL_E	5 34 02	W-A	
			eM_E	5 39 12	W-A	
			F	5 55 ±	W-A	

Besides the above partial records of seismic movement at
 2d. 22.6-22.9h; 4d. 18.2-18.4h; 6d. 16.5-17.3h; 7d. 6.9-7.2h;
 8d. 0.4-0.7h; 14d. 18.1-18.5h; 15d. 7.9-8.7h; 17d. 12.9-13.4h;
 22d. 1.7-1.9h; 23d. 3.7-4.0h; 24d. 1.1-1.7h.

SAINT LOUIS

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

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BULLETIN FOR 1931

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
76	June 1	I	i _N	20 45 31	W-A	
			i _N	20 45 40	W-A	
			i _N	20 45 44	W-A	
			i _N	20 45 57	W-A	
			i _N	20 46 16	W-A	
			F	20 48 ±	W-A	
77	June 6	I	eP _N	22 46 39.7	W-A	
			i _E	22 46 41.1	W-A	
			i _N	22 46 41.9	W-A	
			i _N	22 46 42.5	W-A	
			i _N	22 46 43.8	W-A	
			F	22 47 ±	W-A	
78	June 9	I	e _E	12 34 45	W-A	
			eL _E	12 48 30	W-A	
			eM _E	12 52 10	W-A	
			F	13 15 ±	W-A	
79	June 9	I	e(P) _{EN}	14 05 46	W-A	
			e _E	14 10 16	W-A	
			e _E	14 13 26	W-A	
			e(S) _E	14 16 14	W-A	
			e _E	14 16 38	W-A	
			F	15 45 ±	W-A	
80	June 9	I	e _N	16 24 16	W-A	
			eM _E	16 50 40	W-A	
			F	17 50 ±	W-A	
81	June 13	I	e _N	15 59 41	W-A	
			eM _E	16 27 10	W-A	
			F	17 15 ±	W-A	
82	June 15	I	eP _N	11 29 29	W-A	Δ = 55.1
			iP _N	11 29 31	W-A	
			i _N	11 29 42	W-A	
			eS _E	11 37 10	W-A	
			F	12 15 ±	W-A	

BULLETIN FOR 1931

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
83	June 17	I	eP _{EN}	12 22 43	W-A	$\Delta = 84^{\circ}.6$
			eS _{EN}	12 33 16	W-A	
			e _{EN}	12 33 49	W-A	
			F	12 40 ±	W-A	
84	June 20	I	iP _N	1 27 29	W-A	$\Delta = 67^{\circ}.8$
			eS _E	1 36 33	W-A	
			F	1 45 ±	W-A	
85	June 21	I	eP _{EN}	12 28 31	W-A	19°N. 110°W. $\Delta = 26^{\circ}.3$
			iP _{EN}	12 28 34	W-A	
			eS _N	12 32 58	W-A	
			iS _N	12 33 02	W-A	
			e _N	12 34 03	W-A	
			i _N	12 34 09	W-A	
			eL _E	12 35 32	W-A	
			eM _N	12 36 58	W-A	
			F	13 15 ±	W-A	
			86	June 23	I	
i _{EN}	6 39 26	W-A				
F	7 38 ±	W-A				
87	June 28	I	iP _N	16 37 57	W-A	$\Delta = 67^{\circ}.3$
			eS _N	16 46 58	W-A	
			F	17 15 ±	W-A	
88	June 29	I	iP _N	20 35 22 I	W-A	29°S. 72°W. $\Delta = 69^{\circ}$ Apparently 2 shocks I, II.
			iP _N	20 35 34 II	W-A	
			iS _{EN}	20 44 34 I	W-A	
			iS _E	20 44 48 II	W-A	
			F	21 00 ±	W-A	

Besides the above, partial records of weak or distant quakes.
1d. 12.8-13.0h; 2d. 6.4-6.7h; 4d. 5.1-5.4h; 17d. 17.7-18.7h.

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BULLETIN FOR 1931

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
89	July 7	I	eP _{EN}	3 59 33	W-A	Epicenter 13°N. 94°W. Surface Waves Absent.
			iP _N	3 59 35	W-A	
			iS _N	4 33 52	W-A	
			iS _E	4 03 55	W-A	
			F	4 50 ±	W-A	
90	July 9	I	iP _E	12 08 46	W-A	Epicenter 47°N. 28°W.
			iS _{EN}	12 15 31	W-A	
			iL _E	12 22 15	W-A	
			F	12 45 ±	W-A	
91	July 9	I	eP _N	21 05 49	W-A	Δ _{S-P} 27°3
			eS _N	21 10 23	W-A	
			F	21 35 ±	W-A	
92	July 12	I	eP _N	6 04 54	W-A	
			iS _N	6 11 40	W-A	
			F	6 25 ±	W-A	
July 15th, Earthquake at 11 a.m. missed by changing of record sheets.						
3	July 17	I	iP _E	9 18 52	W-A	Epicenter 14.5 N. 97°W.
			iS _{EN}	9 22 50	W-A	
			i _N	9 23 04	W-A	
			e _E	9 23 45	W-A	
			eL _E	9 25 56	W-A	
			F	10 00 ±	W-A	
4	July 18	I	iP _{EN}	5 37 27	W-A	Epicenter 21°S. 71°W. No surface waves.
			eS _N	5 45 45	W-A	
			iS _{EN}	5 45 53	W-A	
			i _E	5 43 36	W-A	
			F	6 10 ±	W-A	

BULLETIN FOR 1931

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
95	July 18	I	iP _{EN}	11 34 53	W-A	Epicenter 58.3 N. 159°E
			iS _{EN}	11 43 54	W-A	
			e _E	11 44 21	W-A	
			eL _E	11 56 30	W-A	
			F	12 30 ±	W-A	
96	July 18	I	eP _N	14 45 53	W-A	Felt in New Madrid, Mo.
			iP _N	14 45 54	W-A	
			eS _E	14 46 20	W-A	
			iS _E	14 46 23	W-A	
			F	14 49 ±	W-A	
97	July 19	I	eP _{EN}	20 20 59	W-A	Δ _{S-P} 58°
			iS _{EN}	20 29 02		
End covered by following.						
98	July 19	I	e _{EN}	20 53 37	W-A	No surface waves.
			iS _{EN}	21 01 32	W-A	
			F	21 21 ±	W-A	
99	July 20	I	iP _E	8 43 47	W-A	Δ _{S-P} 84°
			eS _N	8 54 08	W-A	
			eL _E	9 13 00	W-A	
			F	10 00 ±	W-A	
100	July 23	I	eP _E	14 39 48	W-A	Δ _{S-P} 32°5
			eS _{EN}	14 45 00	W-A	
			e _{EN}	14 43 07	W-A	
			F	15 45 ±	W-A	
101	July 27	I	iP _N	7 21 09	W-A	
			i _N	7 21 14	W-A	
			i _N	7 21 18	W-A	
			eS _E	7 25 04	W-A	
			iS _{EN}	7 25 11	W-A	
			eL _E	7 26 46	W-A	
			F	8 00 ±	W-A	
102	July 27	I	eP _E	16 36 07	W-A	Δ _{S-P} 37°9
			eS _N	16 41 56	W-A	
			F	17 10 ±	W-A	

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BULLETIN FOR 1931

No	Date	Char.	Phase	G.M. Time			Instruments	Remarks
				h.	m.	s.		
103	Aug. 2	I	e _P E _N	23	40	48	W-A	
			i _S E	23	49	51	W-A	
			F	24	00	±	W-A	
104	Aug. 6	I	e _N	18	28	40	W-A	
			F	18	32	±	W-A	
105	Aug. 7	II	e _E	2	30	19	W-A	Near New Guinea
			i _P R ₁ E	2	32	00	W-A	
			e _N	2	38	09	W-A	
			e _E N	2	39	11	W-A	
			e _N	2	39	40	W-A	
			e _P S _E N	2	41	48	W-A	
			e _S R ₁ N	2	48	21	W-A	
			e _L E _N	3	02	20	W-A	
			e _M E _N	3	12	20	W-A	
			F	5	15	±	W-A	
106	Aug. 8	I	i _E	4	29	50	W-A	
			F	4	32	±	W-A	
108	Aug. 9	I	e _P E	6	19	15.8	W-A	Felt in Kansas City.
			e _S N	6	20	05	W-A	
			F	6	22	±	W-A	
109	Aug. 9	I	e _N	7	06	45	W-A	Felt in Kansas City.
			i _S N	7	07	28	W-A	
			F	7	09	±	W-A	
110	Aug. 10	III	e _P N	21	32	05	W-A	Epicenter 49°N. 92°E.
			i _N	21	35	33	W-A	
			i _P R ₁ N	21	35	51	W-A	
			i _N	21	42	55	W-A	
			i _S C _P C _S N	21	42	34	W-A	
			i _S E _N	21	43	16	W-A	
			i _S R ₁ E	21	49	32	W-A	
			e _L E _N	21	59	20	W-A	
			e _M E _N	22	16	05	W-A	
			F	26	20	±	W-A	

BULLETIN FOR 1931

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
111	Aug. 13	I	eP _{LN}	22 27 49	W-A	
			eS _{EN}	22 34 51	W-A	
			eM _{EN}	23 10 00	W-A	
			F	24 40 ±	W-A	
112	Aug. 14	I	e _E	5 06 24	W-A	
			F	5 07 ±	W-A	
113	Aug. 14	I	eP _E	16 21 22	W-A	
			eS _E	16 28 52	W-A	
			F	17 05 ±	W-A	
114	Aug. 16	I	iP _E	8 11 19	W-A	
			iS _{EN}	8 15 30	W-A	
			F	8 50 ±	W-A	
115	Aug. 16	I	eP _{EN}	11 18 14	W-A	Felt in Western Texas.
			eS _{EN}	11 20 43	W-A	
			eM _E	11 22 08	W-A	
			F	11 30 ±	W-A	
116	Aug. 16	III	iP _{EN}	11 43 41	W-A	Destructive in Texas. Epicenter: 30°6 N. 103°8 W.
			i _N	11 45 59	W-A	
			i _N	11 46 06	W-A	
			iS _N	11 46 12	W-A	
			eL _N	11 47 13	W-A	
			eM _N	11 47 43	W-A	
			F	13 10 ±	W-A	
117	Aug. 16	I	iP _{EN}	13 36 30	W-A	Felt in Western Texas.
			i _E	13 36 40	W-A	
			e _{EN}	13 38 51	W-A	
			iS _{EN}	13 38 59	W-A	
			F	14 05 ±	W-A	

BULLETIN FOR 1931

No.	Date	Char.	Phase	G. M. Time h. m. s.	Instruments	Remarks		
118	Aug. 18	II	eP _M	14 34 36	W-A	Epicenter 46°N. 89°W.		
			Portion of gram lost by changing record.					
			iS _C P _C S _{EN}	14 44 54	W-A			
			eE	14 45 35	W-A			
			iP _S N	14 46 51	W-A			
			eL _E	15 04 20	W-A			
			eL _M	15 18 40	W-A			
F	16 40 ±	W-A						
119	Aug. 18	I	eP _{EN}	19 39 30	W-A			
			eS _N	19 42 01	W-A			
			eL _N	19 43 40	W-A			
			F	20 00 ±	W-A			
120	Aug. 23	I	iP _E	18 07 25	W-A	Epicenter 42°N. 126°5 W.		
			eS _N	18 12 02	W-A			
			eE _N	18 15 05	W-A			
			eL _{EN}	18 15 55	W-A			
			F	18 50 ±	W-A			
121	Aug. 24	I	eP _{R₁N}	21 54 19	W-A	Epicenter 30°N. 67°E.		
			eS _C P _C S _{EN}	22 00 23	W-A			
			iE _N	22 01 23	W-A			
			iP _S EN	22 03 29	W-A			
			iM _N	22 40 29	W-A			
			F	25 00 ±	W-A			
122	Aug. 25	I	iP _N	22 26 20	W-A			
			eS _N	22 31 03	W-A			
			eM	22 37 00	W-A			
			F	23 00 ±	W-A			
123	Aug. 27	II	eP _{R₁EN}	15 46 03	W-A	Epicenter 30°N. 67°E.		
			eE _N	15 49 16	W-A			
			eS _C P _C S _{EN}	15 52 22	W-A			
			eS _C P _C P _C S _{EN}	15 53 16	W-A			
			iP _S EN	15 55 33	W-A			
			iE _N	15 56 26	W-A			
			iM _E	16 32 40	W-A			
			F	19 20 ±	W-A			

BULLETIN FOR 1931

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
124	Aug. 29	I	eP _N	4 17 30	W-A	
			F	4 20 ±	W-A	
125	Aug. 30	I	eP _N	7 41 17	W-A	
			e _N	7 42 18	W-A	
			eS _{EN}	7 46 39	W-A	
			F	8 10 ±	W-A	
126	Aug. 31	I	eP _N	5 34 44	W-A	
			i _N	5 35 31	W-A	
			i _E	5 36 13	W-A	
			F	5 39 ±	W-A	

Besides, the above seismic movement at 1d. 0.4h-1.0h; 1d. 20.4h-20.7h; 8d. 21.9h-22.2h; 9d. 1.5h-1.9h; 10d. 10.9h-11.1h; 17d. 13.3h-13.7h; 22d. 23.4h-24.0h; 29d. 17.6h-17.8h.

SAINT LOUIS

SEISMOGRAPHIC STATION, ST. LOUIS UNIVERSITY, ST. LOUIS, MO., U. S. A. 26

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

BULLETIN FOR 1931

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
127	Sept. 6	I	eP _E eS _N eL _E F	8 09 56 8 16 07 8 28 42 9 00 ±	W-A W-A W-A W-A	Δ_{S-P} 41 ^o .1
128	Sept. 9	I	eP _E eS _N iSR _{1N} eL _N iM _N F	13 46 20 13 50 57 13 51 49 13 53 31 13 54 59 14 30 ±	W-A W-A W-A W-A W-A W-A	Δ_{S-P} 27 ^o .7 Epicenter: 40 ^o .5 N. 126 ^o .5 W.
129	Sept. 9	II	eP _E e _N iPR _{1E} i _{EN} i _{EN} i _N i _N i _E ePS _{EN} i _{EN} eM _{EN} F	20 52 04 20 55 28 20 56 16 21 02 25 21 03 04 21 03 32 21 03 39 21 03 41 21 05 04 21 05 25 21 24 40 22 40 ±	W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A	Epicenter Mariaime Islands 18 ^o .5 N. 146 ^o E.
130	Sept. 12	I	eP _N eS _{EN} F	15 48 28 15 53 58 16 15 ±	W-A W-A W-A	Δ_{S-P} 35 ^o .1
131	Sept. 16	I	e _{EN} e _N i _N i _N iM _{EN} F	12 24 34 12 28 45 12 29 00 12 29 07 12 32 45 12 40 ±	W-A W-A W-A W-A W-A W-A	

BULLETIN FOR 1931

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
132	Sept. 20	II	e _E	23 06 20	W-A	Destructive at Anna, Ohio. Δ_{S-P} 555 km.
			i _E	23 06 24	W-A	
			i _{EN}	23 06 32	W-A	
			i _{PE}	23 06 35	W-A	
			i _{SEN}	23 07 07	W-A	
			i _{EN}	23 07 21	W-A	
			i _{EN}	23 07 24	W-A	
			i _{EN}	23 07 30	W-A	
			i _{SEN}	23 07 40	W-A	
			i _N	23 07 44	W-A	
			e _{LE}	23 08 15	W-A	
			i _{MN}	23 08 42	W-A	
			F	23 23 ±	W-A	
133	Sept. 21	I	e _{PEN}	2 33 14	W-A	Destructive in Japan $\Delta_{ScPcS-O}$ 89 ^{0.5}
			e _{EN}	2 34 39	W-A	
			i _N	2 36 52	W-A	
			i _{ScPcSEN}	2 43 44	W-A	
			i _{ScPcPcSN}	2 44 12	W-A	
			e _{MEN}	3 06 30	W-A	
			F	4 10 ±	W-A	
134	Sept. 21	I	e _N	10 47 21	W-A	
			e _{ME}	11 26 31	W-A	
			F	12 25 ±	W-A	
135	Sept. 19	6h. to Sept. 23		6h. strong microseisms.		
135	Sept. 25	II	e _N	6 19 23	W-A	Epicenter off southwest border of East Indies.
			e _{EN}	6 19 24	W-A	
			i _E	6 19 25	W-A	
			i _{EN}	6 19 26	W-A	
			i _E	6 19 48	W-A	
			i _N	6 22 42	W-A	
			e _E	6 33 02	W-A	
			e _E	6 41 12	W-A	
			e _E	6 43 02	W-A	
			i _{ME}	7 07 32	W-A	
			i _{ME}	7 21 12	W-A	
			F	9 30 ±	W-A	

BULLETIN FOR 1931

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
136	Sept. 26	I	iP _N	19 55 45	W-A	$\Delta_{S-P} 26^{\circ}$
			i _N	19 55 56	W-A	
			iS _{EN}	20 00 10	W-A	
			End covered by following			
137	Sept. 26	I	iP _N	20 08 28	W-A	$\Delta_{S-P} 26^{\circ}5$
			iE _N	20 08 31	W-A	
			iS _N	20 12 57	W-A	
			i _N	20 13 01	W-A	
			eL _E	20 15 30	W-A	
			F	21 20 ±	W-A	

2d. 15h-15.8h; 3d. 8.8h-9.8h; 4d. 1.1h-1.2h; 5d. 10.6h-10.7;
 6d. 2.1h-2.3h; 8d. 19.5h-20.5h; 11d. 23.4h-23.5h; 12d. 2.3h-2.6h;
 20d. 3.9h-4.1h; 21d. 5.3h-5.4h; 23d. 22.8-23.0h; 29d. 9.8h-10.3h.

SAINT LOUIS

SEISMOGRAPHIC STATION, ST. LOUIS UNIVERSITY, ST. LOUIS, MO., U. S. A29

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

BULLETIN FOR 1931

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
138	Oct. 1	II	eP _{EN}	11 50 31	W-A	$\Delta_{S-P} 22^{\circ}4$ Epicenter: 29 ^o .8 N. 115 ^o .2 W.
			iS _N	11 54 28	W-A	
			iL _N	11 56 45	W-A	
			iM _N	11 58 15	W-A	
			F	13 00		
139	Oct. 3	III	eP' _N	19 31 31	W-A	Epicenter Sol- omon Islands. $\Delta_{PS-O} 110^{\circ}6$
			e _N	19 32 15	W-A	
			ePR _{1E}	19 32 28	W-A	
			eScPcSE	19 38 54	W-A	
			i _N	19 40 27	W-A	
			iP _{SE}	19 41 53	W-A	
			eSR _{1N}	19 47 58	W-A	
			iPPSS _E	19 48 53	W-A	
			e _E	19 52 28	W-A	
			iSR _{3E}	19 55 58	W-A	
			eL _{EN}	19 59 06	W-A	
			iM _E	20 05 20	W-A	
F	Covered by following					
140	Oct. 3	I	e _E	23 06 20	W-A	
			i _E	23 12 46	W-A	
			e _E	23 16 18	W-A	
			e _E	23 17 40	W-A	
			i _E	23 22 44	W-A	
			i _E	23 26 37	W-A	
			eL _E	23 39 14	W-A	
			F	24 40 ±	W-A	
141	Oct. 7	I	eP _N	9 26 38	W-A	
			eEN	9 31 18	W-A	
			F	9 36 ±	W-A	
142	Oct. 10	II	ePR _{1E}	00 39 24	W-A	Epicenter Sol- omon Islands $\Delta_{PR_1-O} 110^{\circ}$
			eScPcSE	00 45 14	W-A	
			eL _E	1 08 50	W-A	
			eM _E	1 14 26	W-A	
			F	4 10 ±	W-A	

BULLETIN FOR 1931

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
143	Oct. 12	I	eE	1 06 53	W-A	
			eLE	1 30 13	W-A	
			F	2 06 ±	W-A	
144	Oct. 12	I	eE	3 28 23	W-A	
			eLE	3 52 33	W-A	
			F	Covered by following		
145	Oct. 12	I	iFN	4 03 55	W-A	
			eSN	4 09 05	W-A	
			eM	4 12 00	W-A	
			F	5 00 ±	W-A	
146	Oct. 12	I	eE	13 52 26	W-A	
			eLE	14 16 14	W-A	
			F	14 55 ±	W-A	
Heavy microseisms, maximum at 12h. on 13h. to 18h. on 14th.						
147	Oct. 17	I	ePN	12 43 15	W-A	
			F	13 05 ±	W-A	
148	Oct. 18	I	eN	1 05 29	W-A	
			eN	1 13 30	W-A	
			eN	1 33 30	W-A	
			eMN	1 34 30	W-A	
			F	3 03 ±	W-A	
149	Oct. 18	I	eN	4 44 29	W-A	
			iEN	4 54 19	W-A	
			iN	4 55 15	W-A	
			F	6 00 ±	W-A	
150	Oct. 23	I	eE	20 35 12	W-A	
			eME	21 01 40	W-A	
			F	21 40 ±	W-A	
151	Oct. 26	I	ePEN	4 30 00	W-A	
			eSEN	4 34 02	W-A	
			iSEN	4 34 08	W-A	
			iMEN	4 36 44	W-A	
			F	5 30 ±	W-A	

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

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

BULLETIN FOR 1931

No.	Date	Char.	Phase	G.M. Time	Instruments	Remarks
152	Nov. 2	II	iP _{EN}	00 37 11	W-A	Epicenter 15 ^o .7 N. 96.2 W.
			iN	00 37 22	W-A	
			iN	00 37 44	W-A	
			iS _N	00 41 17	W-A	
			i _{EN}	00 41 30	W-A	
			iN	00 41 45	W-A	
			eL _N	00 43 38	W-A	
			F	1 30 ±	W-A	
153	Nov. 2	II	eP _{EN}	10 16 50	W-A	Destructive in South- ern Japan.
			eP _{1EN}	10 20 47	W-A	
			e _N	10 23 17	W-A	
			e _{EN}	10 24 41	W-A	
			iS _{cP_cSE}	10 27 19	W-A	
			iN	10 27 40	W-A	
			iS _{cP_cP_cSE}	10 27 58	W-A	
			eSR _{1EN}	10 34 57	W-A	
			e _E	10 38 18	W-A	
			eL _{EN}	10 46 20	W-A	
			F	13 00 ±	W-A	
			154	Nov. 2	I	
e _E	17 30 17	W-A				
e _E	17 33 13	W-A				
e _E	17 35 45	W-A				
e _E	17 39 15	W-A				
e _E	17 44 15	W-A				
eM _E	18 04 15	W-A				
F	Covered by following					
155	Nov. 2	I	e _E	18 52 15	W-A	
			eM _E	19 10 15	W-A	
			F	19 55 ±	W-A	

BULLETIN FOR 1931

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
156	Nov. 4	I	iP _{EN}	18 05 15	W-A	
			iS _{EN}	18 14 50	W-A	
			e _{EN}	18 50 10	W-A	
			i _E	18 15 12	W-A	
			i _E	18 15 50	W-A	
			i _N	18 15 50	W-A	
			eM _N	18 33 08	W-A	
			F	19 00 ±	W-A	
157	Nov. 12	I	iP _N	8 14 36	W-A	Δ = 44.8 No surface waves.
			iS _E	8 21 11	W-A	
			i _E	8 23 17	W-A	
			F	8 25 ±	W-A	
Nov. 14-15 Microseisms from 20h. on 14th to 16h. on 15th.						
158	Nov. 18	I	eP _N	3 52 51	W-A	
			e _E	3 55 49	W-A	
			e _{EN}	4 23 00	W-A	
			F	5 10 ±	W-A	
159	Nov. 20	I	ePR _{1E}	14 35 33	W-A	Solomon Islands
			eS _{CPCSE}	14 41 33	W-A	
			e _E	14 44 54	W-A	
			iP _{SE}	14 45 11	W-A	
			eSR _{1EN}	14 51 12	W-A	
			eM _E	15 07 00	W-A	
			F	16 30 ±	W-A	
160	Nov. 27	I	e _E	9 23 21	W-A	Several shocks felt in Nashville, Tennessee.
			e _E	9 23 31	W-A	
			F	9 27 ±	W-A	

SAINT LOUIS

SEISMOGRAPHIC STATION, ST. LOUIS UNIVERSITY, ST. LOUIS, MO., U. S. A. 33

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

BULLETIN FOR 1931

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
	Dec. 4 Dec. 5-7					Microseisms moderate, 0h. to 12h. Heavy microseisms with maximum at 18 to 20h. on 6th.
161	Dec. 10	I	e _N i _N e _E i _E i _E i _E F	8-12 09.5 8 12 11.3 8 12 42.8 8 12 44.2 8 12 45.0 8 12 46.1 8 15 ±	W-A W-A W-A W-A W-A W-A W-A	Felt at Blytheville Arkansas. Δ = 193 mi.
162	Dec. 14	I	e _P _E i _P _E _N i _S F	19 26 06 19 29 07 19 37 46 20 10 ±	W-A W-A W-A W-A	Δ _{S-P} 64.2°
163	Dec. 17		i _E _N i _N P _L _E _N i _E i _E i _E i _E i _E F	3 36 29.2 3 36 37.7 3 36 41.8 3 36 51.0 3 37 10.1 3 37 30.8 3 37 36.8 3 37 38.4 3 37 38.7 3 45 ±	W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A	Felt in Ala., Miss., Ark., and Tenn., epicenter near Batesville, Miss.
164	Dec. 18	I	e _E F	5 52 55 6 05 ±	W-A W-A	Short period vibrations. No distinct phases.
165	Dec. 18	I	i _E _N e _L _E F	10 09 01 11 06 30 12 10 ±	W-A W-A W-A	

BULLETIN FOR 1931

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
166	Dec. 20	I	i _P N	15 05 10	W-A	Time approximate.
			e _S N	15 11 00	W-A	
			i _S N	15 11 30	W-A	
			F	16 30 ±	W-A	
167	Dec. 24	I	i _E N	3 48 41	W-A	
			i _E N	3 49 03	W-A	
			i _E N	3 50 52	W-A	
			i _E N	3 55 10	W-A	
			i _E N	3 58 28	W-A	
			F	4 30 ±	W-A	
168	Dec. 28	I	e _N	11 37 14	W-A	Time approximate Small amplitudes and short periods.
			e _N	11 37 29	W-A	
			e _E	11 41 26	W-A	
			F	11 45 ±	W-A	

Dec. 28 Heavy microseisms with max. at 23h.
 Dec. 30 " " " " " 5h.

Besides the above, seismic movements at 1d. 3.6h-5.8h;
 1d. 18.8h-20.5h; 3d. 10.6h-10.9h; 10d. 2.2h-2.4h; 13d. 16.4h-
 16.7h; 31d. 1.6h-2.4h.