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

Bulletin for 1936

No.	Date	Inst.	C/D	Phase	G.M.C.T.	Remarks
1	Jan 2	W-A		eP'_N	22h55m46s	H = 22h34m05s
		W-A		eP'_E	22 53 48	Region 1.0 S, 97.0 E.
		W-A		$iSKP_{EN}$	22 57 22	From Manila
		W-A		i_{EN}	22 57 36	
		W-A		eS_E	23 06 19	
		W-A		eL_E	23 53.2	
		W-A		F	24 20±	
2	Jan 14	W-A		ePE_N	0h09m35s	ΔS-P = 22°2
		W-A		ePR_2E_N	0 10 07	H = 00h04m40s
		W-A		eS_N	0 13 38	Off eastern lower
		W-A		iLE_N	0 16 19	California coast.
		W-A		i_{EN}	0 17 09	
		W-A		F	0 26±	
3	Jan 14	W-A		i_N	6h03m19s	East of Japan.
		W-A		iPS_N	6 05 28	
		W-A		$iPPS_N$	6 06 21	
		W-A		e_N	6 11 00	
		W-A		iL_N	6 25 09	
		W-A		iM_N	6 37 34	
		W-A		F	6 58±	
4	Jan 14	W-A		iP_{EN}	14h22m43s	ΔS-P = 71°6
		W-A		i_{EN}	14 22 59	H = 14h12m25s
		W-A		ipP_{EN}	14 24 45	Epicenter: 28°2 S,
		W-A		iPR_1E	14 25 25	62°8 W.
		W-A		$ipPR_1E$	14 26 33	Depth 590 Km by the
		W-A		iS_{EN}	14 31 14	Brunner Depth Chart.
		W-A		iSP_N	14 31 47	
		W-A		$isSE_N$	14 34 50	
		W-A		iSR_1E_N	14 35 39	
		W-A		No surface waves.		
		W-A		F	14 59±	
5	Jan 18	W-A		iP_{EN}	1h28m07s	
		W-A		eL_N	1 42 35	
		W-A		iM_N	1 47 04	
		W-A		F	1 55±	

No.	Date	Inst.	C/D	Phase	G.M.C.T.	Remarks
6	Jan 20	W-A W-A W-A W-A		iSP_N iSR_{1N} eL_N F	17h26m47s 17 34 05 17 55 15 18 22±	$\Delta_{SP-H} = 123.^{\circ}0$ H = 16h56m14s from Manila. Probably in Philippine Deep. Felt in eastern and southern Mindaneo

Minor Seismic Activity: Jan 2, 00h49m to 01h30m;
Jan 31, 15h32m .

J. B. Macelwane, S.J.
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Harold L. Link
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No.	Date	Inst.	C/D	Phase	G.M.C.T.	Remarks
7	Feb 3	W-A		eP_N	21h04m04s	
		W-A		eP_E	21 04 06	
		W-A		eM_E	21 19 05	
		W-A		F	21 29±	
8	Feb 7	W-A		iE	1h03m09s	
		W-A		i_E	1 08 54	
9	Feb 7	W-A		iS_N	9h22m37s	From Chiufeng:
		W-A		eL_N	9 46.4	H = 08h56m30s.
		W-A		eM_N	9 54.7	Vicinity 35°.5 N,
		W-A		F	10 28±	104°.0 E.
						Destructive in Kansu, China.
						Δ S-H = 104°.8
10	Feb 10	W-A		$iSKS_E$	18h28m13s	From Chiufeng:
		W-A		$iSKS_N$	18 28 15	H = 18h05m50s.
		W-A		iEN	18 28 49	Region 10°.5 S, 177°.0 E.
		W-A		e_{EN}	18 29 15	Depth about 100 km by
		W-A		F	19 08±	the Brunner Depth Chart
11	Feb 15	W-A		eN	13h06m57s	ΔPR_1-H = 128°.1
		W-A		ePR_1EN	13 08 02	H = 12h46m56s.
		W-A		$iSKP_{EN}$	13 09 30	Region 4°.5 S, 133°.0 E.
		W-A		$eSKS_N$	13 13 16	
		W-A		ePS_N	13 18 10	
		W-A		$ePPS_N$	13 19 38	
		W-A		$ePPPS_N$	13 21 10	
		W-A		eSR_1N	13 24 58	
		W-A		eSR_2N	13 29 58	
		W-A		eL_N	13 36 48	
		W-A		eM_{EN}	13 56 38	
		W-A		F	15 10±	
12	Feb 17	W-A		iP^*_N	5h05m51.0	Local Shock:
		W-A		iP_{gN}	5 05 53.5	Δ Sg-Pg = 227 km.
		W-A		iSn_E	5 06 18.0	H = 05h05m11.4s.
		W-A		iS_{gEN}	5 06 21.0	Felt at Hayti, Mo.
		W-A		F	5 06 47	

No.	Date	Inst.	C/D	Phase	G.M.C.T.	Remarks
13	Feb 22	W-A		ePR_{1EN}	15h53m07s	$\Delta_{PS-H} = 130^{\circ}.4$
		W-A		$eSKKS_N$	15 59 50	H = 15h31m14s, from
		W-A		ePS_N	16 03 00	Wellington.
		W-A		eSR_{1N}	16 10 06	Near 52°.0 S, 160°.0.E.
		W-A		eN	16 13 05	Felt in southern New
		W-A		eL_N	16 30.6	Zealand.
		W-A		eM_N	16 36.0	
		W-A		F	17 53±	
14	Feb 27			Deep earthquake at 10h.		Time interrupter not in operation.
15	Feb 28	W-A		eP_{EN}	3h12m24s	$\Delta_{S-P} = 49^{\circ}.6$
		W-A		ipP_E	3 12 37	H = 03h03m37s.
		W-A		iS_E	3 19 35	Depth 60 km by Brunner
		W-A		esS_N	3 20 02	Depth Chart.
		W-A		eL_{EN}	3 27 56	Possibly 53°.0 N,
		W-A		F	3 57±	162°.0 W.

Minor Seismic Activity: Feb 8, 12h31m; Feb 14, 00h03m to 00h44m; Feb 18, 02h42m to 02h53m; Feb 21, 17h17m to 18h21m; Feb 22, 20h01m to 20h58m.

J. B. Macelwane, S.J.
Director

Harold L. Link
Graduate Assistant

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No.	Date	Inst.	C/D	Phase	G.M.C.T.	Remarks
16	March 1	W-A W-A W-A W-A		iP_{EN} iS_N iS_E F	10h33m23s 10 42 50 10 42 52 covered by following quake.	$\Delta S-P = 72°.3$ H = 10h22m00s. South end of Sakhalin Island. No surface waves.
17	March 1	W-A W-A W-A W-A		e_N e_N eL_N F	11h02m51s 11 06 42 11 14.9 12 40±	
18	March 2	W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A		ePE iP_N epP_E i_N eS_{EN} isS_N eSR_{1N} eL_N eM_{1N} eM_{2N} F	3h31m48s 3 31 55 3 32 04 3 32 11 3 42 04 3 42 26 3 47 54 3 59.4 4 06.7 4 09.4 4 57±	$\Delta S-P = 82°.8$ H = 3h19m20s. East of Hakodate, Japan. Depth about 50 km by Brunner Depth Chart. Strasbourg: 43°.0 N, 139°.0 E.
19	March 5	W-A W-A W-A W-A		$ePEN$ eS_N eL_N F	6h14m55s 6 22 04 6 30.8 6 44±	$\Delta S-P = 49°.0$ Possibly deep. Surface waves of small amplitude.
20	March 14	W-A W-A W-A W-A		iPg_E iSg_{EN} iS^*_{EN} F	21h42m37.5 21 42 38.5 21 42 39.5 21 42 43.5	Local $\Delta Sg-Pg$ = 67 km. H = 21h42m36s.
21	March 20	W-A W-A W-A W-A W-A		iP_{EN} $i(pP)_{EN}$ eS_{EN} $e(sS)_N$ F	17h54m58s 17 55 51 18 01 21 18 02 53 18 13±	$\Delta S-P = 45°.0$ Deep. No surface waves.

No.	Date	Inst.	C/D	Phase	G.M.C.T.	Remarks
22	March 20	W-A		iP_N	18h52m25s	$\Delta S-P = 27°1$
		W-A		iPR_{2N}	18 53 27	H = 18h46m39s.
		W-A		eS_{EN}	18 57 09	from St. Louis and
		W-A		eSR_{1N}	18 58 32	Balboa Heights:
		W-A		iSR_{1EN}	18 58 40	region 12°0 N, 83°0 W.
		W-A		eL_N	19 00 18	
		W-A		F	19 23±	
23	March 22	W-A		iP_{EN}	23h07m01s	H = 22h57m23s
		W-A		$i(pP)_{EN}$	23 07 21	$\Delta S-P = 57°5$
		W-A		i_{EN}	23 07 28	Deep. No surface
		W-A		iS_{EN}	23 14 58	waves.
		W-A		F	23 16±	
24	March 25	W-A		iP_{EN}	9h06m41s	$\Delta S-P = 41°8$
		W-A		iPR_{1N}	9 08 22	H = 08h58m52s
		W-A		iS_N	9 13 02	Epicenter near 56°0 N,
		W-A		eSR_{1N}	9 16 19	32°0 W.
		W-A		eL_{EN}	9 19 59	
		W-A		F	9 51±	

Minor Seismic Activity: March 6, 14h50m to 15h40m;
March 7, 12h to March 8, 12h.
Heavy microseisms.

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Director

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No.	Date	Inst.	C/D	Phase	G.M.C.T.	Remarks
25	April 1	W-A		ipP_{EN}	2h28m32s	$\Delta PR_1-H = 128°0$
		W-A		iPR_{1EN}	2 30 16	H = 02h09m16s.
		W-A		$iSKP_N$	2 31 31	Epicenter: 2°5 N,
		W-A		$iSKS_{EN}$	2 35 28	123°5 E.
		W-A		$esSKS_{EN}$	2 35 56	Depth 75 km by the
		W-A		$iSKKS_{EN}$	2 37 11	Brunner Depth Chart.
		W-A		iPS_{EN}	2 40 15	
		W-A		$ePPS_N$	2 41 53	
		W-A		eSR_{1N}	2 47 19	
		W-A		i_{EN}	2 50 11	
		W-A		iL_N	3 07 16	
		W-A		F	4 55±	
26	April 1	W-A		eP'_{EN}	20h30m07s	Aftershock of No. 25
		W-A		ePR_{1E}	20 31 53	$\Delta PR_1-H = 129°0$
		W-A		$eSKKS_E$	20 38 47	Manila: H = 20h10m47s.
		W-A		eL_E	20 57.3	
		W-A		F	22 58±	
27	April 2	W-A		eP'_N	6h36m09s	$\Delta PR_1-H = 115°2$
		W-A		iPR_{1N}	6 36 48	Chiufeng:
		W-A		ePS_E	6 46 02	H = 06h17m12s.
		W-A		eL_E	7 05 02	Region 1°0 S, 150°0 E.
		W-A		eM_E	7 10 51	
		W-A		F	8 57±	
28	April 12	W-A		ePS_N	21h20m22s	$\Delta PS-H = 113°6$
		W-A		e_N	21 30 20	Chiufeng;
		W-A		eL_N	21 40.8	H = 20h51m21s.
		W-A		F	22 44±	Region 10°0 N, 140°0 E.
29	April 14	W-A		e_N	20h12m05s	Probably Mexico.
		W-A		e_N	20 13 08	
		W-A		e_E	20 13 34	
		W-A		i_{EN}	20 13 56	
		W-A		i_{EN}	20 14 14	
		W-A		F	20 19±	

No.	Date	Inst.	C/D	Phase	G.M.C.T.	Remarks
30	April 15	W-A W-A W-A W-A W-A		i_N i_E i_{EN} i_{EN} F	7h25m25s 7 25 27 7 25 35 7 25 43 7 27 01	Local.
31	April 19	W-A W-A W-A W-A W-A		ePR_{1E} ePS_E eL_N eL_E F	5h26m36s 5 36 07 5 54 21 5 56 43 8 05±	$\Delta PR_1-H = 113°.7$ H = 05h07m12s. Epicenter: 9°.0 S, 156°.0 E. Phases lost by flashing record.
32	April 19	W-A W-A W-A		iP_E i_E F	9h26m34s 9 26 47 9 29 32	
33	April 23	W-A W-A W-A W-A W-A W-A		iP_{EN} ipP_{EN} eS_E iS_{EN} eL_E F	23h24m43s 23 24 56 23 33 04 23 33 11 23 53 42 00 09±	$\Delta P-H = 62°.4$ H = 23h14m34s. Epicenter: 50°.5 N, 178°.0 E. Depth 100 km by the Brunner Depth Chart.
34	April 27	W-A W-A W-A		e_N i_N F	3h21m28s 3 21 29 3 22 32	Local.
35	April 27	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 W-A W-A W-A		eP_N iP_N eP_E epP_E iPR_{1E} isP_N eS_E iS_E isS_E isS_N iSR_{1N} iL_N iM_N F	6h35m58s 6 36 00 6 36 01 6 36 10 6 36 16 6 36 23 6 40 00 6 40 02 6 40 22 6 40 25 6 40 40 6 43 00 6 48 45 7 07±	$\Delta S-P = 22°.6$ H = 06h31m06s Epicenter: 16°.3 N, 87°.7 W. Depth 60 km by the Brunner Depth Chart.

No.	Date	Inst.	C/D	Phase	G.M.C.T.	Remarks
36	April 30	W-A		iP_{EN}	11h01m42s	Δ_{S-P} = 30°0
		W-A		$i(pP)_E$	11 01 52	H = 10h55m34s.
		W-A		eS_E	11 06 46	Probably Central
		W-A		$i(sS)_E$	11 06 59	America.
		W-A		eL_N	11 11 29	
		W-A		eL_E	11 13 07	
		W-A		eM_N	11 13 34	
		W-A		F	11 32±	

Minor Seismic Activity: April 7, 21h to April 10, 07h. Heavy microseisms. April 19, 10h14m to 10h45m; April 27, 01h00m to 01h30m.

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Director

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37	May 7	W-A		ePE_N	10h07m54s	$\Delta S-P = 22.^{\circ}8$
		W-A		eS_N	10 12 03	H = 10h02m51s.
		W-A		eS_E	10 12 10	
		W-A		$eLEN$	10 14 52	
		W-A		F	10 29±	
38	May 8	W-A		eP'_{EN}	9h29m57s	H = 09h11m44s
		W-A		$eSKP_{EN}$	9 33 40	Region 0.°5 N, 108.°0 E.
		W-A		ePR_2EN	9 35 57	West of Borneo. Deep.
		W-A		$eSKKS_{EN}$	9 39 03	No surface waves.
		W-A		F	10 01±	
39	May 8	W-A		eP_N	17h30m15s	Deep.
		W-A		iS_E	17 36 34	
		W-A		eSR_1EN	17 39 55	
		W-A		eL_N	17 44 07	
		W-A		eL_E	17 44 11	
		W-A		F	17 49±	
40	May 11	W-A		ePR_1E	17h46m58s	$\Delta PS-H = 114.^{\circ}2$
		W-A		$eSKS_{EN}$	17 52 52	H = 17h27m32s.
		W-A		$eSKKS_{EN}$	17 54 01	Region 6.°5 S, 150.°5 E.
		W-A		ePS_{EN}	17 56 40	south of New Britain.
		W-A		eSR_1EN	18 02 52	
		W-A		eL_N	18 15 41	
		W-A		eL_E	18 20 48	
		W-A		eM_E	18 24 56	
		W-A		eM_N	18 25 32	
		W-A		F	19 43±	
41	May 16	W-A		$eSKS_{EN}$	7h30m59s	$\Delta S-H = 109.^{\circ}0$
		W-A		eS_{EN}	7 32 41	Strasbourg: 28.°0 N,
		W-A		eL_E	8 03 26	102.°0 E.
		W-A		eL_N	8 04 12	H = 07h06m00s
		W-A		F	8 41±	Felt at Szechuan,
						West China.
42	May 19	W-A		eP_{EN}	7h40m50s	Deep.
		W-A		eP'_N	7 43 37	South China Sea.
		W-A		eP'_E	7 43 39	
		W-A		$eSKP_E$	7 47 04	
		W-A		$i(SKS)_{EN}$	7 49 58	
		W-A		F	8 10±	

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
43	May 20	W-A	eP'_E	3h23m36s	Δ SKS-H = 110°.6
		W-A	ePR_{1EN}	3 24 31	H = 03h05m21s.
		W-A	$eSKS_E$	3 30 30	Epicenter: 7°.7 S,
		W-A	$eSKKS_E$	3 31 35	159°.6 E.
		W-A	ePS_E	3 33 59	
		W-A	iPS_{EN}	3 34 07	
		W-A	$ePPS_E$	3 35 09	
		W-A	eSR_{1E}	3 40 05	
		W-A	eSR_{2E}	3 44 35	
		W-A	eL_N	3 54 15	
		W-A	eL_E	3 55 54	
		W-A	eM_N	4 02 26	
		W-A	eM_E	4 02 45	
		W-A	F	5 00±	
44	May 22	W-A	eP_{EN}	0h27m37s	Δ S-P = 71°.6
		W-A	eS_N	0 37 00	H = 00h16m20s.
		W-A	F	0 42±	North Central Argentina. Deep.
45	May 27	W-A	ePR_{1N}	6h38m29s	Δ PS-H = 112°.6
		W-A	$eSKS_{EN}$	6 44 34	H = 06h19m27s.
		W-A	$eSKKS_E$	6 45 47	Epicenter: 24°.2 N,
		W-A	e_N	6 48 02	85°.3 E.
		W-A	ePS_E	6 48 18	Himalayan Mountains.
		W-A	eSR_{1E}	6 54 29	
		W-A	eL_E	7 11 05	
		W-A	eM_E	7 25 23	
		W-A	F	7 57±	
46	May 28	W-A	iP_E	18h55m15s	Δ P-H = 32°.0
		W-A	ipP_E	18 56 10	H = 18h49m11s.
		W-A	iPR_{1E}	18 56 27	Epicenter: 9°.0 N,
		W-A	isP_E	18 56 44	103°.5 W. Depth 270 km
		W-A	eS_E	19 00 15	by Brunner Depth Chart.
		W-A	isS_E	19 02 04	N-S component out of
		W-A	iSR_{1E}	19 02 30	operation.
		W-A	iL_E	19 04 10	
		W-A	F	19 46±	

Minor Seismic Activity: May 24, 16h50m to 17h00m and 19h48m to 19h56m.

J. B. Macelwane, S.J.
Director

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47	June 3	W-A		eSE	3h18m41s	Δ_{ca} = 91°0
		W-A		iPSE	3 19 26	H = 02h55m28s.
		W-A		eME	3 42 08	Possibly off eastern
		W-A		F	3 52±	Japanese coast.
48	June 3	W-A		iPEN	9h21m00s	Δ_{S-P} = 27°0
		W-A		ipPEN	9 21 11	Epicenter: 40°7 N,
		W-A		iPR1EN	9 21 43	125°5 W.
		W-A		iPR2EN	9 21 54	H = 09h15m20s.
		W-A		iSEN	9 25 40	Depth about 50 km.
		W-A		isSEN	9 26 04	by the Brunner Depth
		W-A		eSR1EN	9 26 54	Chart.
		W-A		iLN	9 27 21	
		W-A		iM1N	9 30 28	
		W-A		iM2N	9 32 40	
		W-A		F	10 17±	
49	June 6	W-A		eN	16h33m54s	
		W-A		eN	16 35 16	
		W-A		eLN	16 37 50	
		W-A		F	17 10±	
50	June 20	W-A		i(Sn)E	3h17m28s	H = 03h13m37s.
		W-A		e(Sn)N	3 17 31	Texas, Foreshock of
		W-A		e(S)N	3 18 25	No. 52.
51	June 20	W-A		e(Sn)N	3h22m10s	H = 03h18m27s.
		W-A		i(S)N	3 23 18	Texas, Foreshock of
						No. 52.
52	June 20	W-A		ePnN	3h26m13s	Δ_{Pn-Sn} = 8°4
		W-A		iSnEN	3 27 51	H = 03h24m06s.
		W-A		iSN	3 28 49	Epicenter near
		W-A		F	3 38±	35°7 N, 100°3 W,
						Texas-Oklahoma State
						Line.

No.	Date	Inst.	C/D	Phase	G.M.C.T.	Remarks
53	June 27	W-A W-A W-A		iS_{EN} isS_{EN} F	21h36m09s 21 36 29 21 39±	Δ_{S-H} = 83°0 H = 21h13m27s. Epicenter near 43°.0N, 147°.5 E, east of Hokkaido Island. Depth about 50 km by Brunner Depth Chart.
54	June 30	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		iP_N ipP_N isP_{EN} iPR_{1EN} iPR_{2EN} i_{EN} iS_N iS_E isS_{EN} $isSP_N$ eL_{EN} eM_{EN} F	15h18m00s 15 18 11 15 18 17 15 20 43 15 22 27 15 26 14 15 27 12 15 27 14 15 27 36 15 28 08 15 37.3 15 44.7 17 08±	Δ_{S-P} = 71°2 H = 15h06m48s. Epicenter: 51°.0 N, 161°.1 E, off eastern coast of Kamchatka. Depth 50 km. by the Brunner Depth Chart.

Minor Seismic Activity: June 7, 04h08m to 04h41m;
June 12, 15h56m to 16h20m.

J. B. Macelwane, S.J.
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Harold L. Link
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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.	C/D	Phase	G.M.C.T.	Remarks
55	July 4	W-A		iP_{NE}	9h02m30s	Δ_{S-P} = 57°.9
		W-A		ipP_N	9 02 58	H = 08h52m54s
		W-A		eS_{NE}	9 10 23	Epicenter near 14°.0 S,
		W-A		isS_{NE}	9 11 18	64°.2 W. Depth about
		W-A		e_E	9 19 23	130 km by the Brunner
		W-A		F	9 35±	Depth Chart.
56	July 5	W-A		e_E	19h14m28s	Deep.
		W-A		epP'_N	19 14 30	
		W-A		i_N	19 16 24	
		W-A		eL_N	19 48 53	
		W-A		F	21 16±	
57	July 13	W-A		eP_{NE}	11h23m00s	Δ_{S-P} = 64°.7
		W-A		iP_{NE}	11 23 02	Epicenter: 23°.0 S,
		W-A		ipP_{NE}	11 23 16	70°.2 W.
		W-A		isP_{NE}	11 23 24	H = 11h12m29s
		W-A		iS_{NE}	11 31 41	Western Chilean Coast.
		W-A		isS_E	11 32 07	Depth 60 km by the
		W-A		$iScS_E$	11 32 52	Brunner Depth Chart.
		W-A		iSR_1E	11 36 03	
		W-A		iSR_2E	11 38 25	
		W-A		iL_E	11 39 11	
		W-A		eM_E	11 49 30	
		W-A		F	Lost	
58	July 14	W-A		i_E	22h31m58s	
		W-A		iN_E	22 38 07	
		W-A		i_N	22 38 18	
		W-A		iN_E	22 38 24	
		W-A		i_N	22 39 02	
		W-A		$(L)_E$	22 39 12	
		W-A		M_E	22 40±	
		W-A		F	22 52±	
59	July 16	W-A		eP_{NE}	7h12m43s	Δ_{P-H} = 21°.6
		W-A		iP_{NE}	7 12 51	Epicenter: 46°.0 N,
		W-A		eS_N	7 16 43	118°.1 W.
		W-A		iS_E	7 16 46	H = 07h07m50s.
		W-A		iL_E	7 18 37	
		W-A		i_N	7 19 36	
		W-A		iM_N	7 19 46	
		W-A		F	8 00±	

No.	Date	Inst.	C/D	Phase	G.M.C.T.	Remarks
60	July 23	W-A		i_N	18h29m53s	Probably foreshock of
		W-A		i_N	18 30 19	No. 61.
		W-A		i_N	18 38 11	
		W-A		F	18 58±	
61	July 23	W-A		$i(P)_{NE}$	19h06m53s	
		W-A		i_{NE}	19 09 56	
		W-A		iM_{NE}	19 13 44	
		W-A		i_{NE}	19 14 06	
		W-A		F	19 43±	
62	July 26	W-A		eP_E	7h47m34s	Δ_{P-H} = 64°1
		W-A		iP_{NE}	7 47 35	H = 07h37m08s.
		W-A		ipP_{EN}	7 47 42	Epicenter: 22°8 S,
		W-A		eS_{EN}	7 56 12	70°8 W.
		W-A		eSP_N	7 56 46	Depth about 40 km by
		W-A		$i(ssP)_N$	7 57 21	Brunner Depth Chart.
		W-A		eSR_1N	8 00 24	Chilean Coast.
		W-A		eL_N	8 16 22	
		W-A		F	8 25±	
63	July 31	W-A		eP_{EN}	17h46m08s	Δ_{S-P} = 21°7
		W-A		iP_{EN}	17 46 11	H = 17h41m00s.
		W-A		ipP_N	17 46 15	Epicenter: 22°7 N,
		W-A		ipP_E	17 46 16	110°7 W.
		W-A		isP_{EN}	17 46 30	Depth about 40 km by
		W-A		eS_N	17 50 05	the Brunner Depth
		W-A		esS_N	17 50 17	Chart.
		W-A		eSR_1EN	17 50 59	Mexican Coast.
		W-A		eL_N	17 51 54	
		W-A		iL_E	17 51 59	
		W-A		iM_N	17 54 11	
		W-A		F	18 46±	

Minor Seismic Activity: July 2, 16h36m to 17h05m; July 28, 06h18m to 06h31m; July 29, 23h10m to 23h19m.

J. B. Macelwane, S.J.
Director

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Graduate Fellow

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

Bulletin for 1936

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
64	August 1	W–A	eP_{EN}	8h10m49s	Δ_{P-H} = 21°.8
		W–A	iP_{E}	8 10 58	By Florissant
		W–A	ipP_{E}	8 11 16	H = 08h06m04s.
		W–A	iE	8 11 36	Depth 100 km by the
		W–A	$e(sS)_{E}$	8 15 10	Brunner Depth Chart.
		W–A	iL_{E}	8 17 06	Probably an after-
		W–A	M_{N}	8 18 11	shock of No. 63 on
		W–A	F	8 43±	July 31, at 22°.7 N, 110°.7 W.
65	August 1	W–A	eNE	15h01m56s	
		W–A	i_{NE}	15 02 12	
		W–A	i_{NE}	15 02 17	
		W–A	i_{NE}	15 02 37	
		W–A	F	16 11 15	
66	August 2	W–A	$i(Pn)_{N}$	22h16m27s	Δ_{Sn-Pn} = 2°.41
		W–A	$i(Sn)_{NE}$	22 16 57	Δ = 167 miles.
		W–A	$iS^{*}EN$	22 17 00	Extreme southwestern
		W–A	iS_{NE}	22 17 02	Kentucky.
		W–A	iL_{NE}	22 17 06	
		W–A	F	22 20 46	
67	August 7	W–A	$i(P)_{NE}$	22h00m05s	Δ_{S-P} = 46°.1
		W–A	i_{E}	22 00 29	
		W–A	e_{E}	22 01 59	
		W–A	$i(S)_{NE}$	22 06 57	
		W–A	iE	22 07 05	
		W–A	eN	22 09 55	
		W–A	F	22 22 47	
68	August 13	W–A	eE	20h23m22s	According to Manila
		W–A	eE	20 28 36	felt in Northeastern
		W–A	iE	20 30 02	Mindanao and southern
		W–A	F	21 53 19	Leyte.
69	August 18	W–A	iP_{E}	7h12m24s	Δ_{P-H} = 25°.2
					H = 07h07m04s
					Epicenter 17°.0 N, 104°.5 W. from J.S.A.
					Depth about 80 km by Brunner Depth Chart.

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
70	August 22	W-A	ePR_1E	7h10m54s	ΔPR_1-H = 112°.7
		W-A	ePR_2E	7 13 29	Epicenter: 22°.3 N,
		W-A	$iSKS_E$	7 16 51	121°.5 E.
		W-A	$iSKKS_E$	7 17 54	H = 06h51m38s
		W-A	$eSSP_E$	7 20 26	Depth 50-60 km by the
		W-A	$ePPS_E$	7 20 47	Brunner Depth Chart.
		W-A	eSR_1E	7 26 51	
		W-A	eL_E	7 41 40	
		W-A	eM_E	7 49 30	
		W-A	F	8 42 00	
71	August 23	W-A	$i(P')_E$	21h31m34s	$\Delta P'$-H = 136°.0
		W-A	$iSKP_{EN}$	21 35 05	H = 21h12m19s.
		W-A	$ipSKP_E$	21 35 28	Epicenter near 5°.8 N,
		W-A	ePR_2E	21 37 00	95°.4 E.
		W-A	$e(SKS)_E$	21 38 36	Depth about 90 km by
		W-A	$esSKS_E$	21 39 24	the Brunner Depth
		W-A	$eSKKS_E$	21 40 56	Chart.
		W-A	eSR_1E	21 52 01	
		W-A	F	22 23 30	
72	August 25	W-A	e_E	6h03m50s	
		W-A	i_E	6 04 05	
		W-A	e_E	6 09 56	
		W-A	i_E	6 10 18	
		W-A	i_E	6 10 28	
		W-A	e_E	6 11 52	
		W-A	F	6 21 26	

Minor Seismic Activity: Aug 6, 5h58m to 6h03m; Aug 25, 22h7m to 22h20m; Aug 28, 21h31m to 21h40m.

J. B. Macelwane, S.J.
Director

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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
73	Sept 3	W–A	$i(P)_N$	5h11m22s	Δ_{S-P} = 24°0
		W–A	ipP_N	5 11 31	H = 05h06m12s.
		W–A	$i(sP)_N$	5 11 41	Epicenter probably
		W–A	i_N	5 11 50	near 15°0 N, 94°0 W.
		W–A	iPR_{1N}	5 12 00	Depth over 50 km by
		W–A	i_N	5 12 28	the Brunner Depth
		W–A	i_N	5 12 57	Chart.
		W–A	$i(S)_N$	5 15 40	
		W–A	isS_N	5 15 55	
		W–A	eSR_{1N}	5 16 37	
		W–A	$e(sSR_1)_N$	5 16 54	
		W–A	F	5 27±	
74	Sept 19	W–A	$e(pP')_N$	1h21m36s	$\Delta_{pP'}$ – H = 136°7
		W–A	e_N	1 24 06	Epicenter: 4°3 N,
		W–A	e_N	1 24 35	97°8 E.
		W–A	$i(SKP)_N$	1 24 38	H = 01h01m58s.
		W–A	ePR_{2N}	1 26 57	Initial phases
		W–A	i_N	1 27 37	masked by microseisms.
		W–A	e(SKS)	1 28 03	Depth near 100 km by
		W–A	eL	2 06.5	the Brunner Depth
		W–A	eM	2 19.5	Chart.
		W–A	F	3 30±	
	Sept 19	W–A	Long Period motion on N–S component during 6th hour. Probably quake.		
75	Sept 19	W–A	$e(P)_N$	14h44m29s	Weak beginning phases
		W–A	i_N	14 44 34	masked by microseisms
		W–A	e_N	14 45 02	
		W–A	iS_N	14 51 48	
		W–A	i_N	14 53 12	
		W–A	F	15 00±	
76	Sept 21	W–A	i_E	23h56m26s	Normal.
		W–A	i_E	23 57 12	Nevada shake?
		W–A	F	23 59±	

No.	Date	Inst.	Phases	G.M.C.T.	Remarks
77	Sept 25	W-A	ePE	12h59m42s	$\Delta P\text{-}H = 30°8$
		W-A	epP_{NE}	13 00 00	Epicenter: 42°5 N,
		W-A	ipP_E	13 00 01	121°0 W.
		W-A	i_E	13 00 04	H = 12h53m30s.
		W-A	i_E	13 00 08	Depth over 80 km
		W-A	esP_E	13 00 24	by the Brunner
		W-A	ePR_{1E}	13 00 48	Depth Chart.
		W-A	$epPR_{1E}$	13 01 00	
		W-A	eS_E	13 04 40	
		W-A	esS_E	13 05 09	
		W-A	e_E	13 05 28	
		W-A	$e(SR_1)_E$	13 06 22	
		W-A	e_E	13 06 49	
		W-A	eL_E	13 08 14	
		W-A	eM_E	13 11 06	
		W-A	F	14 00±	
78	Sept 28	W-A	e_N	13h16m45s	
		W-A	i_N	13 16 54	
		W-A	e_N	13 17 00	
		W-A	e_N	13 17 22	
		W-A	e_N	13 17 43	
		W-A	e_N	13 18 02	
		W-A	e_N	13 20 11	
		W-A	e_N	13 20 58	
		W-A	F	13 30±	

Minor Seismic Activity: Sept 6, 17h27m to 17h47m; Sept 25, 6h57m to 7h07m.

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No.	Date	Inst.	Phase	G.M.C.T.	Remarks
79	Oct 3	W-A	eP'_E	22h07m59s	Distant
		W-A	e_E	22 08 03	
		W-A	e_E	22 08 43	
		W-A	e_E	22 14 26	
		W-A	F	23 14±	
80	Oct 5	W-A	eP'_E	0h11m57s	Distant. Deep. Foreshock of No. 81.
		W-A	epP'_E	0 12 26	
		W-A	ipP'_E	0 12 27	
		W-A	e_E	0 14 04	
		W-A	e_E	0 19 07	
		W-A	e_E	0 10 16	
		W-A	eL_E	0 46 02	
		W-A	F	1 17±	
81	Oct 5	W-A	eP'_E	10h03m25s	$\Delta P'-H = 126°.9$
		W-A	epP'_E	10 03 46	$H = 09h44m34s.$
		W-A	eS'_E	10 05 24	Epicenter: 3°.0 N,
		W-A	ipP'_E	10 05 47	126°.4 E.
		W-A	$eSKP_E$	10 06 58	Depth by the Brunner
		W-A	eSP_E	10 16 54	Depth Chart 100 Km.
		W-A	eL_E	10 43±	
		W-A	F	11 17±	
82	Oct 10	W-A	e_E	1h30m13s	Weak.
		W-A	e_E	1 30 18	
		W-A	e_E	1 35 13	
		W-A	F	1 40±	
83	Oct 16	W-A	eL_{NE}	12h52m41s	
		W-A	F	12 57±	
84	Oct 23	W-A	e_E	0h22m50s	
		W-A	eL_E	0 24 47	
		W-A	F	0 50±	

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No.	Date	Inst.	Phase	G.M.C.T.	Remarks
79	Oct 3	W-A	eP'_E	22h07m59s	Distant
		W-A	e_E	22 08 03	
		W-A	e_E	22 08 43	
		W-A	e_E	22 14 26	
		W-A	F	23 14±	
80	Oct 5	W-A	eP'_E	0h11m57s	Distant. Deep. Foreshock of No. 81.
		W-A	epP'_E	0 12 26	
		W-A	ipP'_E	0 12 27	
		W-A	e_E	0 14 04	
		W-A	e_E	0 19 07	
		W-A	e_E	0 10 16	
		W-A	eL_E	0 46 02	
		W-A	F	1 17±	
81	Oct 5	W-A	eP'_E	10h03m25s	$\Delta P'$-H = 126°.9
		W-A	epP'_E	10 03 46	H = 09h44m34s.
		W-A	ePR_{1E}	10 05 24	Epicenter: 3°.0 N,
		W-A	$ipPR_{1E}$	10 05 47	126°.4 E.
		W-A	$eSKP_E$	10 06 58	Depth by the Brunner
		W-A	eSP_E	10 16 54	Depth Chart 100 Km.
		W-A	eL_E	10 43±	
		W-A	F	11 17±	
82	Oct 10	W-A	e_E	1h30m13s	Weak.
		W-A	e_E	1 30 18	
		W-A	e_E	1 35 13	
		W-A	F	1 40±	
83	Oct 16	W-A	eL_{NE}	12h52m41s	
		W-A	F	12 57±	
84	Oct 23	W-A	e_E	0h22m50s	
		W-A	eL_E	0 24 47	
		W-A	F	0 50±	

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
85	Oct 23	W-A	eP_E	6h32m18s	Δ_{P-H} = 42°4
		W-A	ipP_E	6 32 24	H = 06h24m27s.
		W-A	iPR_2NE	6 34 17	Epicenter: 60°8 N,
		W-A	$eScP_E$	6 38 30	149°4 W.
		W-A	$i(S)_E$	6 38 41	Depth by the Brunner
		W-A	isS_E	6 38 52	Depth Chart somewhat
		W-A	eSR_1E	6 41 24	less than 25 Km.
		W-A	eL_E	6 45 45	
		W-A	eM_{NE}	6 47 16	
		W-A	F	8 15±	
86	Oct 23	W-A	e_E	16h47m25s	
		W-A	e_E	16 48 20	
		W-A	e_E	16 48 42	
		W-A	F	17 00±	
87	Oct 26	W-A	iP_{NE}	23h14m52s	Δ_{S-P} = 44°2
		W-A	$i(pP)_N$	23 14 58	Depth nearly normal.
		W-A	ePR_2N	23 17 08	Probably Alaska.
		W-A	eS_E	23 21 32	
		W-A	e_E	23 21 57	
		W-A	eL_N	23 30 53	
		W-A	eM_{NE}	23 32 10	
		W-A	F	23 57±	
88	Oct 29	W-A	iP_E	5h58m16s	
		W-A	eL_E	6 07 04s.	
		W-A	F	(Overlapped by next quake.)	
89	Oct 29	W-A	iP_{NE}	5h59m30s.	Δ_{S-P} = 30°9
		W-A	ePR_1NE	6 00 19	Panama.
		W-A	i_{NE}	6 00 32	Balboa Heights reports:
		W-A	iS_N	6 04 42	Felt in David and
		W-A	i_N	6 05 06	Santiago.
		W-A	F	6 35±	

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
90	Oct 29	W-A	eSKS$_{NE}$	18h57m35s	Distant.
		W-A	i$_E$	19 03 56	Initial phases weak.
		W-A	i$_N$	19 03 57	Reported felt in Guam.
		W-A	e$_{NE}$	19 04 30	
		W-A	e$_N$	19 08 00	
		W-A	e$_N$	19 13 07	
		W-A	e$_N$	19 13 41	
		W-A	eL$_{NE}$	19 28 57	
		W-A	F	20 00±	

Minor Seismic Activity: Oct 2, 07h11m to 7h22m; Oct 26, 20h50m to 20h57m; Oct 28, 7h00m to 8h00m.

J. B. Macelwane, S.J.
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One Wiechert 80 Kg., two Wood-Anderson long-period seismographs, Wiechert clock

Bulletin for 1936

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
91	Nov 3	W-A W-A W-A W-A W-A W-A	i_{NE} i_{NE} i_{NE} i_{NE} i_{N} F	5h55m43s 5 55 49 5 55 54 5 56 03 5 57 46 6 00±	
92	Nov 12	W-A W-A W-A W-A	$i(P)_N$ i_N e_N F	4h32m36s 4 33 31 4 40 48 5 00±	Deep?
93	Nov 12	W-A W-A W-A W-A W-A	iP_{NE} ipP_{NE} iS_{NE} esS_E F	20h16m49s 20 16 57 20 26 46 20 27 00 20 36±	$\Delta S-P = 79°.1$ Kurile Islands Depth about 40 km by the Brunner Depth Chart.
94	Nov 13	W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A	eP_E iP_N epP_N $iPcP_{NE}$ $iPR_1{}_{NE}$ iS_N $iSR_1{}_N$ $isSR_1{}_N$ eL eM F	12h42m22s 12 42 24 12 42 30 12 42 38 12 44 00 12 51 18 12 55 51 12 56 19 13 02.7 13 07.3 (Lost in change of records)	$\Delta P-H = 67°.0$ H = 12h31m37s Epicenter: 56°.7 N, 162°.3 E. Depth by the Brunner Depth Chart 40 to 50 km.
95	Nov 14	W-A W-A W-A W-A	eE eE eE F	1h42m22s 1 42 54 1 47 32 1 51±	Weak. No apparent surface.
96	Nov 15	W-A W-A	eP_E F	22h31m31s 22 36±	Weak.

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
97	Nov 19	W-A	ePN	21h15m40s	$\Delta_{P-H} = 24.^{\circ}4$
		W-A	iP_{NE}	21 15 41	H = 21h10m30s
		W-A	ipP_{NE}	21 15 55	Epicenter: 14°3 N,
		W-A	iPR_1NE	21 16 06	90°7 W.
		W-A	$ipPR_1N$	21 16 19	Depth nearly 100 km by
		W-A	$iPcP_{NE}$	21 19 17	the Brunner Depth Chart.
		W-A	iS_N	21 19 48	
		W-A	isS_{NE}	21 20 13	
		W-A	iSR_1NE	21 20 39	
		W-A	iLNE	21 22 55	
		W-A	MNE	21 26	
		W-A	F	(Lost in next quake)	
98	Nov 19	W-A	eP_N	21h49m36s	Aftershock of No. 97.
		W-A	F	22 00±	
		Clock not in operation Nov 22 to 24 inclusive.			
99	Nov 26	W-A	eP_N	2h17m52s	Small surface.
		W-A	ipP_{NE}	2 18 00	Deep.
		W-A	i_N	2 18 24	
		W-A	$i(PR_1)_N$	2 18 31	
		W-A	i_N	2 19 03	
		W-A	i_{NE}	2 19 33	
		W-A	$e(S)_N$	2 22 28	
		W-A	e_N	2 22 40	
		W-A	$e(sS)_N$	2 22 47	
		W-A	i_N	2 22 50	
		W-A	F	2 51±	
100	Nov 27	W-A	e_N	2h14m45s.	Weak.
		W-A	i_N	2 15 12	Character indistinct.
		W-A	e_N	2 19 38	
		W-A	F	2 33±	
101	Nov 29	W-A	e_N	7h05m52s	
		W-A	e_N	7 10 48	
		W-A	e_N	7 17 29	
		W-A	F	7 33±	
102	Nov 30	W-A	e_N	23h11m30s	
		W-A	e_N	23 12 16	
		W-A	e_N	23 14 10	
		W-A	F	23 16±	

Minor Seismic Activity: Nov 4, 14h19m to 14h23m; Nov 17, micro-seisms very strong from 10h00m to 24h00m.

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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
103	Dec 5	W-A	i_{PN}	0h48m07s	Δ_{S-P} = 60°0
		W-A	e_E	0 48 08	Depth 100 km by
		W-A	e_{NE}	0 48 25	the Brunner Depth
		W-A	ipP_{NE}	0 48 31	Chart
		W-A	eS_{NE}	0 56 17	Epicentral region
		W-A	isS_{NE}	0 56 57	probably Pacific
		W-A	i_N	0 57 00	coast of Bolivia
		W-A	F	1 00 ±	
104	Dec 20	W-A	eP_N	2h48m49s	Δ_{S-P} = 24°5
		W-A	iP_{NE}	2 48 51	Epicenter 14°.5 N,
		W-A	iPR_1NE	2 49 20	88°.6 W.
		W-A	iPR_2NE	2 49 33	H = 2h43m29s
		W-A	iS_{NE}	2 53 12	Probably normal.
		W-A	iSR_1NE	2 53 51	Destructive in
		W-A	iSR_2NE	2 54 00	San Vicente and
		W-A	eL_N	2 55 23	nearby towns of
		W-A	eM_N	2 56 59	Salvador.
		W-A	F	3 30 ±	
105	Dec 20	W-A	$e(P)_N$	13h29m08s	Δ_{S-P} = 24°3
		W-A	e_N	13 33 16	Aftershock of
		W-A	$e(S)_{NE}$	13 33 30	No. 104.
		W-A	e_N	13 33 47	
		W-A	eL_{NE}	13 40 03	
		W-A	F	14 00 ±	
106	Dec 20	W-A	iP_N	18h49m04s	Weak
		W-A	i_{NE}	18 49 33	
		W-A	e_N	18 53 27	
		W-A	F	19 00 ±	
107	Dec 21	W-A	eP_{NE}	19h09m35s	Δ_{P-H} = 31°.5
		W-A	iPR_1NE	19 10 27	H = 19h03m09s
		W-A	iPR_2NE	19 10 40	Epicenter: 131°.5 W,
		W-A	eS_{NE}	19 14 48	53°2 N.
		W-A	iSR_1NE	19 16 26	
		W-A	eM_{NE}	19 21 32	
		W-A	F	(Lost in next earthquake)	

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
108	Dec 21	W-A W-A W-A W-A	iP_N $e(S)_{NE}$ e_N F	19h33m36s 19 38 39 19 41 13 20 00 ±	Aftershock of No. 107.
109	Dec 25	W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A	eP_E iP_N iP_W ePR_{2NE} eS_E eS_N eSR_{1NE} e_{NE} eL_{NE} eM_{NE} F	20h09m24s 20 09 24 20 09 26 20 10 10 20 13 46 20 13 48 20 14 42 20 16 00 20 16 10 20 18 20 20 45 ±	Δ_{S-P} = 24°3 H = 20h04m07s Epicenter: 17°7 N, 105°0 W.
110	Dec 26	W-A W-A W-A W-A	$epPR_{1E}$ $eSKKS_{NE}$ eL_E F	23h11m17s 23 18 13 23 41 57 24 00 ±	Indefinite beginning. Epicenter by Florissant φ = 53°8 S, λ = 175°4 W. H = 22h52m33s Depth by Brunner Chart 175 km.
111	Dec 27	W-A W-A	eL_E F	0h07m08s 0 30 ±	
112	Dec 29	W-A W-A W-A W-A	i_N i_N e_E F	14h05m20s 14 06 49 14 10 42 14 30 ±	
113	Dec 29	W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A W-A	ePR_{1E} $ipPR_{1NE}$ $eSKS_{NE}$ e_E $eSKKS_E$ eS_N e_E eSR_{1E} $esSR_{1NE}$ eL_E eM_E F	15h07m07s 15 07 47 15 12 47 15 13 01 15 14 05 15 14 39 15 15 06 15 22 51 15 24 12 15 39 37 15 46 37 16 30 ±	Δ_{PR_1-H} = 113°2 H = 14h48m07s Depth 200+ km by Brunner Depth Chart Epicenter: 4°8 S, 154°2 E by Adelaide, Chiufeng, Riverview, and Pasadena.

Minor Seismic Activity: Dec. 29, 17h03m to 17h12m. Dec. 30, 15h35m to 15h41m. Dec. 31, 5h45m to 5h53m.

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No.	Date	Inst.	Phase	G.M.C.T.	Remarks
93	July 3	G–W	eL_Z	3h53m00s	Weak.
		G–W	eM_Z	3 55 54	
		G–W	F	4 26±	
94	July 4	G–W	eP_E	9h02m32s	Tentative Epicenter
		G–W	$iPZN$	9 02 33	near $\phi = 14.^{\circ}0$ S, $\lambda =$
		W–A	eP_E	9 02 33	$64.^{\circ}2$ W.
		G–W	epP_N	9 03 00	Depth = 120 km by the
		G–W	ipP_{ZN}	9 03 03	Brunner Depth Chart.
		G–W	eS_N	9 10 22	Δ(S–P) = $58.^{\circ}1$
		G–W W–A	$iSNE$	9 10 28	H = 08h52m54s.
		G–W	i_{EN}	9 10 35	No surface waves.
		G–W	$e(sS)_E$	9 11 20	
		G–W	i_Z	9 19 26	
		G–W	F	10 01±	
95	July 5	G–W	$eP^{?}_Z$	19h14m09s	$\Delta_{PR_1-H} = 126.^{\circ}5$
		G–W	$ipP^{?}_Z$	19 14 31	$\Delta_{meas} = 126.^{\circ}5$
		G–W	iPR_1Z	19 15 51	Epicenter: $\phi = 4.^{\circ}0$ N,
		G–W	$ipPR_1ZE$	19 16 10	$\lambda = 124.^{\circ}9$ E.
		G–W	$iSKP_Z$	19 16 57	Celebes Sea.
		G–W	$ipSKP_Z$	19 17 25	H = 19h55m04s.
		G–W	$isSKP_Z$	19 17 35	Depth by the Brunner
		G–W	$iSKS_{EZ}$	19 21 17	Depth Chart 70 km.
		G–W	$iSKKS_{EZ}$	19 23 18	
		G–W	$i(sS)_{EZ}$	19 25 09	
		G–W	$e(PS)_E$	19 25 42	
		G–W	i_Z	19 26 11	
		G–W	iSR_1E	19 33 01	
		G–W	$e(L)_E$	19 46 09	
		G–W	$e(M)_E$	19 59 06	
		G–W	F	21 55±	
96	July 12	G–W	$e(SKS)_N$	3h06m24s	Epicenter near
		G–W	e_N	3 07 14	Macquarie Island
		G–W	$i(SKKS)_N$	3 07 17	(Southeast of Australia
		G–W	e_N	3 10 15	
		G–W	e_N	3 28 10	
		G–W	eL_N	3 34 54	
		G–W	e_N	3 40 31	
		G–W	F	4 35±	

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
97.	July 13	G–W	iP_{ENZ}	11h23m02s	Δ_{S-P} = 64°.9
		G–W	ipP_{NEZ}	11 23 17	Δ_{P-H} = 64°.9
		W–A	isP_{E}	11 23 29	Δ_{meas} = 64°.9
		G–W	iPR_{1NE}	11 25 30	H = 11h12m29s
		G–W	$ipPR_{1EN}$	11 25 45	Epicenter: ϕ = 23°.0 S,
		G–W	iS_{NE}	11 31 44	λ = 70°.2 W.
		G–W	isS_{NE}	11 32 07	Western Coast of
		G–W	iSP_{NE}	11 32 22	Chile.
		G–W	$isSP_{NE}$	11 32 34	Depth by the Brunner
		G–W W–A	i_{N}	11 32 42	Depth Chart 60 km.
		G–W	iSR_{1EN}	11 36 16	Numerours phases
		G–W	$isSR_{1N}$	11 36 56	throughout surface
		W–A	eL_{E}	11 40 59	waves.
		G–W	eL_{E}	11 44 10	
		G–W	eM_{E}	11 50 01	
		G–W	F	(lost in changing records)	
98	July 14	G–W	e_{N}	22h35m46s	No P phases
		G–W	i_{N}	22 35 50	
		G–W	i_{Z}	22 38 17	
		G–W	i_{NE}	22 38 19	
		G–W	i_{E}	22 38 34	
		G–W	i_{NZ}	22 38 39	
		G–W	$i(L)_{Z}$	22 39.2	
		G–W	$i(M)_{NZ}$	22 40.25	
		G–W	F	23 32±	
99	July 16	G–W	eP_{E}	7h12m42s	Δ_{S-P} = 21°.5
		W–A	eP_{E}	7 12 43	Δ_{meas} = 21°.5
		G–W	eS_{N}	7 16 39	H = 07h07m50s
		G–W	iS_{E}	7 16 43	Epicenter: ϕ = 46°.0 N,
		G–W	eSR_{1N}	7 17 30	λ = 118°.1 W.
		G–W	eL_{N}	7 18 41	
		G–W	e_{N}	7 18 43	
		G–W	e_{E}	7 19 08	
		G–W	eM_{NE}	7 19 42	
		G–W	F	9 59±	
100	July 23	G–W	e_{Z}	6h33m41s	Weak.
		G–W	e_{NZ}	6 45 12	Initial phases ob-
		G–W	i_{N}	6 45 14	scured by microseisms
		G–W	F	7 08±	and seismic activity.
					Foreshock of 702 ?

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
101	July 23	G-W G-W G-W G-W G-W	e_{NE} e_Z i_N e_E F	18h29 36 18 29 40 18 37 43 18 37 49 18 56±	Probably foreshock of No. 103. Large Microseisms proceeding and following. Weak.
102	July 23	G-W G-W G-W G-W G-W G-W G-W G-W	$e(P)_{NZ}$ $e(PR)_N$ iPR_Z eS_{EN} $e(S)_Z$ eL_{ZN} iM_N F	19h08m59s 19 07 05 19 07 06 19 08 38 19 08 41 19 10 42 19 13 44 (Lost in microseisms)	Large microseisms.
103	July 25	G-W G-W G-W G-W	e_N e_N e_{NZ} e_Z	1h30m03s 1 40 17 1 40 42 1 42 22	Weak.
104	July 25	G-W G-W G-W G-W	e_N i_Z i_{NE} F	2h25m15s 2 25 17 2 26 01 2 39±	Weak. Aftershock of 103 ?
105	July 26	G-W W-A G-W G-W W-A G-W G-W G-W G-W G-W G-W G-W G-W G-W G-W G-W G-W G-W G-W	eP_{NZ} iP_E iP_{NEZ} ipP_{ENZ} iPR_{1N} iPR_{EZ} iS_{EN} isS_E eSP_N $i(sSP)_E$ $eScS_{EN}$ iSR_{1N} eSR_{1E} eL_{EN} eM_{1EN} iM_{2N} F	7h47m35s 7 47 36 7 47 37 7047 44 7 50 01 7 50 04 7 56 15 7 56 29 7 56 51 7 57 25 7 57 53 8 00 26 8 00 30 8 07 29 8 14 59 8 20 05 10 32±	$\Delta_{S-P} = 64.^{\circ}2$ $\Delta_{meas} = 64.^{\circ}2$ H = 07h37m08s. Depth by the Brunner Depth Chart = 40 km. Epicenter $\phi = 22.^{\circ}8$ S. $\lambda = 70.^{\circ}8$ W. Chilean Coast.
106	July 28	G-W G-W	e_Z e_Z	5h38m43s 5 38 57	Weak. Long trace surface waves.

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
107	July 28	G-W	e_N	7h12m19s	Weak.
		G-W	e_{NZ}	7 12 31	
108	July 31	W-A	eP_E	17h46m08s	$\Delta_{P-H} = 23.^{\circ}6$
		G-W	iP_{ENZ}	17 46 11	$\Delta_{meas} = 23.^{\circ}6$
		G-W	ipP_E	17 46 17	H = 17h41m00s.
		G-W	isP_{ENZ}	17 46 31	Epicenter: $\phi = 22.^{\circ}7$ N
		G-W	iS_N	17 50 04	$\lambda = 110.^{\circ}7$ W.
		G-W	eS_{EZ}	17 50 07	Coast of Mexico.
		G-W	isS_Z	17 50 17	Depth 40 km by the
		G-W	isS_E	17 50 18	Brunner Depth Chart.
		G-W	iSR_1EN	17 50 59	
		G-W	iL_{ENZ}	17 52 23	
		G-W	iM_1E	17 53 10	
		G-W	iM_1Z	17 53 23	
		G-W	iM_1N	17 53 38	
		G-W	iM_2N	17 55 35	
		G-W	F	18 51±	

Minor Seismic Activity; July 4, 21h06m to 21h18m; July 6, 19h23m to 20h01m, 23h29m to 23h52m; July 7, 15h17m to 15h56m; July 11, 22h08m to 22h44m; July 14, 10h11m to 11h22m; July 15, 9h03m to 9h58m, 11h28m to 12h01m; July 15, 23h39m to July 16, 5h34m, 11h00m to 13h01m, 16h22m to 16h56m; July 17, 22h13m to 2h25m; July 19, 2h49m to 3h21m, 9h33m to 10h34m, 13h14m to 13h49m; July 22, 18h41m to 19h04m, July 23, 21h01m to 00h03m, 3h40m to 9h27m, 13h35m to 1h10m; July 24, 17h47m to 18h29m, 18h59m to 19h02m, 21h01m to 21h03m; July 25, 22h23m to 00h28m, 6h49m to 9 38m; July 26, 17h04m to 23h33m, 23h40m to 23h43m; July 27, 23h45m to 1h09m, 4h28m to 4h51m, 5h22m to 10h20m, 12h04m to 14h21m; July 28, 14h33m to 23h54m, 5h09m to 10h30m; Sept 29, 16h26m to 16h37m, 16h49m to 17h05m, 17h35m to 17h39m, 17h55m to 18h03m, 19h25m to 19h35m, 19h51m to 21h03m, 23h09m to 23h23m; July 30, 5h24m to 5h38m, 6h14m to 9h33m, July 31, 14h50m to 00h04m, 15h03m to 17h45m, 18h45m to 23h36m.

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