FLORISSANT

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

Three Galitzin-Wilip, two Wood-Anderson short-period seismographs, Shortt synchronome clock

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
1	Jan 18	G–W W–A	iP_{NE}	$1^h55^m27^s$	Epicenter by J.S.A.:
		G–W	ipP_N	1 55 45	$\emptyset$ = 29°3 S.,
		G–W	iN	1 55 53	λ = 71°6 W.
		G–W W–A	iS_E	2 04 33	$H = 1^h44^m24^s$
		G–W	isS	2 05 05	Depth by the
		G–W	F	2 16	Brunner Depth
					Chart 80-100 km.
					Δ_{P-H} = 70°3
					Δ_{meas} = 70°3
2	Jan 19	G–W	eP_{NZ}	$10^h07^m59^s$	Epicenter by J. S. A.:
		W–A	eP_{NE}	10 08 00	$\emptyset$ = 18°4 N.,
		G–W	eS_E	10 12 24	λ = 106°0 W.
		G–W	iS_E	10 12 31	$H = 10^h02^m40^s$
		G–W	iN_E	10 15 48	Δ_{P-H} = 24°4
			F	10 58	Δ_{meas} = 24°2
3	Jan 20	G–W	eP_{NZ}	$20^h45^m49^s$	Epicenter by J. S. A:
		G–W W–A	iP_{ZN}	20 45 50	$\emptyset$ = 13°0 N.,
		G–W	ipP_Z	20 46 11	λ = 89°5 W.
		G–W	iP	20 50 15	$H = 20^h40^m28^s$
		G–W	iS_E	20 50 23	Depth by the
		G–W	$i(sS)_N$	20 50 55	Brunner Depth
		G–W	LZ	20 53 51	Chart about 80 km.
		G–W	MZ	20 58 10	Δ_{P-H} = 25°3
			F	21 56	Δ_{meas} = 25°5
4	Jan 25	G–W	iP_Z	$3^h43^m59^s$	Epicenter by J. S. A:
		G–W	$iPcP_Z$	3 44 16	$\emptyset$ = 36°4 S.,
		G–W	ipP_Z	3 44 25	λ = 72°1 W.
		G–W	ipP_Z	3 44 28	$H = 3^h32^m20^s$
		G–W	iS_E	3 53 39	Depth by Brunner
		G–W	$i(ScS)_E$	3 54 09	Depth Chart slight-
		G–W	isS_E	3 54 20	ly greater than
			F	7 37	100 km. Great
					destruction and
					loss of life in
					the cities of
					Chillan, Concep-
					cion, Talca, and
					Parral, Chile,
					South America.
					Δ_{P-H} = 76°6
					Δ_{meas} = 77°0

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
5	Jan 27	G–Z	eP_{NZ}	$14^h17^m15^s$	Secondary phases lost in changing of records.
		G–N	eZ	14 17 17	
		G–N	i_{NZ}	14 17 30	
		G–W	iZ	14 18 22	
		G–W	M_{NZ}	14 28	
		G–W	F	15 01	
					Epicenter by J.S.A.: $\emptyset = 13.^o4$ N., $\lambda = 91.^o3$ W.
					San Salvador gives epicenter $\emptyset = 12.^o9$ N., $\lambda = 91.^o7$ W.
					with "Damage V"
6	Jan 29	G–N	eP_Z	$18^h55^m42^s$	Probable epicenter after San Salvador: $\emptyset = 13.^o5$ N., $\lambda = 90.^o3$ W.
		G–N	eZ	18 55 53	
		G–N	iZ	18 55 54	
		G–W	eN	18 00 19	
		G–W	eN	18 00 34	
		G–W	iZ	19 00 47	"Damage VI"
			F	19 48	Record weak.
7	Jan 30	G–W	eP_Z	$2^h33^m11^s$	Epicenter by J.S.A.: $\emptyset = 6.^o0$ S., $\lambda = 155.^o8$ E. $H = 2^h18^m29^s$ $\Delta_{P-H} = 112.^o7$ $\Delta_{meas} = 112.^o5$
		G–W	iP_{EZ}	2 33 15	
		G–W	eP'_Z	2 36 54	
		G–N	ePR_{1E}	2 37 47	
		G–W	$e(PR_3)_E$	2 41 39	
		G–W	$eSKS_E$	2 43 46	
		G–N	$iSKKS_E$	2 44 56	
		G–N	iPS_E	2 47 13	
		G–W	iN	2 47 42	
			F	8 03	
8	Jan 31	G–W	eZ	$0^h10^m10^s$	Record very weak.
		G–W	eZ	0 10 54	
		G–N	eE	0 16 55	
		G–W	iZ	0 19 50	
		G–W	eN	0 20 55	
		G–W	e_{NE}	0 26 15	
			F	2 16	

Minor Seismic Activity: Jan 3, 17h29m to 18h05m; Jan 16, 00h36m to 00h54m; Jan 16, 03h16m to 03h46m; Jan 20, 02h08m to 02h23m, Surface Waves; Jan 20, 15h07m to 15h21m, Surface Waves; Jan 22, 05h27m to 05h44m, Surface Waves; Jan 22, 14h32m to 15h35m, Surface Waves; Jan 22, 19h36m to 20h00m, Surface Waves; Jan 23, 03h07m to 03h17m; Jan 25, 18h19m to 18h38m; Jan 29, 07h47m to 08h07m.

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Three Galitzin-Wilip, two Wood-Anderson short-period seismographs, Shortt synchronome clock

Bulletin for February, 1939

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
9	Feb 3	G–W	eP_E	$5^h41^m04^s$	Epicenter by J.S.A.
		G–W	ePR_{1E}	5 45 35	Region of ϕ = 10°.5S.
		G–W	iPR_{1Z}	5 45 39	λ = 159°.4 W
		G–W	i_E	5 51 16	H = $5^h23^m18^s$
		G–W	$i(SKKS)_E$	5 52 54	Δ_{P-H} = 112°.7
		G–W	iPS_E	5 55 12	Δ_{meas} = 112°.7
		G–W	M_Z	6 23 ±	
			F	8 19	
10	Feb 8	G–W	eNE	$6^h50^m24^s$	Record very weak
		G–W	eNE	6 55 45	
		G–W	e_E	6 57 11	
			F	7 29	
11	Feb 8	G–W	i_E	$20^h59^m29^s$	Record very weak
		G–W	iL_E	21 05 ±	
		G–W	M_E	21 07 ±	
		–	F	21 36	
12	Feb 9	G–W	LZ	$15^h45.5^{\pm m}$	Tentative Epicenter
		G–W	MZ	15 51.5±	by J.S.A. ϕ = 10°.6 N.
			F	16 38	λ = 88°.1 W.
					H = $15^h30^m24^s$. Pre-
					liminary and secondary
					phases lost in
					changing records.
13	Feb 15	W–A	eP_N	$2^h36^m09.5^s$	Epicenter by J.S.A.
		G–W	e_N	2 36 15	probably off Pacific
		G–W	$e(pP)_Z$	2 36 27	coast of Mexico in
		G–W	i_{NEZ}	2 36 30	vincinity of 95°.0 W
		G–W	i_{NE}	2 36 37	longitude. H= $2^h31.3^m$
		G–W	iS_N	2 40 07	Depth by Brunner Char.
		G–W	$i(sS)_Z$	2 40 43	about 80 km.
			F	2 50	Δ_{S-P} = 23°.0
					Record weak.
14	Feb 18	G–W	$eSKS_N$	$19^h14^m34^s$	Epicenter from Stras-
		G–W	$iSKKS_E$	19 14 57	bourg bulletin
		G–W	iS_E	19 15 02	ϕ = 38°.5 N, λ = 141°.5E
			L_E	19 31.5	H = $18^h51.2^m$
			M_E	19 38	Δ_{S-H} = 39°.2.
			F	20 43	Record weak.

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
15	Feb 24	W-A G-W W-A G-W G-W	$1P_{EZ}$ ipP_{EZ} ePR_{1E} F	$14^h24^m39^s$ 14 24 53 14 26 38 15 23	Epicenter by J.S.A. region of $\emptyset$ = 53°2 N λ = 159°3 W H = $14^h18^m00^s$ Depth about 100 km. ΔP-H = 49°4 Secondary phases lost in changing records. Strasbourg gives region of $\emptyset$ = 55°0N λ = 160°0W H = $14^h18.0^m$
16	Feb 26	G-W G-W G-W G-W G-W G-W	iP_Z ePR_{1Z} e_N eS_{NE} e_Z i_F	$23^h32^m30^s$ 23 32 55 23 36 23 23 36 32 23 36 44 23 38 55 00 01	Epicenter by J.S.A. $\emptyset$ = 28°0 N λ = 114°5 W H = $23^h27^m30^s$ ΔP-H = 22°5 Δmeas = 22°8

Minor Seismic Activity

Feb 3, 0^h17^m to 0^h44^m; Feb 3, 21^h03^m to 21^h35^m surfacr waves;
Feb 4, 5^h48^m to 7^h22^m surface waves; Feb 14, 4^h14^m to 4^h31^m
Feb 20, 4^h42^m to 5^h42^m surface waves.

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No.	Date	Inst.	Phase	G.M.C.T.	Remarks
37	May 1	G–W	iP_Z	$6^h11^m24^s$	Epicenter:
		G–W	e_E	6 22 00	$\emptyset = 39°.4$ N.,
		G–W	$i(SKS)_E$	6 22 07	$\lambda = 139^c$ E.
		G–W	iS_E	6 22 18	$H = 5^h58^m30^s$
		G–W	i_E	6 22 37	$\Delta_{P-H} = 89°.3$
		G–W	M_E	6 41.7	$\Delta_{meas} = 90°.0$
					This replaces the interpretation in J.S.A. Preliminary Bulletin #16 for May 1, 1939
38	May 1	G–W	iP_Z	$6^h13^m13^s$	Epicenter same as preceeding earthquake.
		G–W	iPR_1Z	6 16 46	
		G–W	iS_E	6 24 02	
39	May 1	G–W	iP_E	$16^h18^m50^s$	Record very weak. Probable aftershock of May 1st., 6^h
		G–W	$e(S)_E$	16 29 17	
		G–W	L_E	16 45.8±	
		G–W	M_E	16 51.8±	
			F	17 57	
40	May 2	G–W	e_E	$0^h02^m35^s$	Record weak.
		G–W	e_N	0 05 10	
		G–W	iN	0 05 34	
			F	0 25	
41	May 2	W–A	iP_E	$13^h19^m35^s$	Epicenter by J.S.A.:
		W–A	i_E	13 19 36	$\emptyset = 29°.4$ N.,
		W–A	i_E	13 22 55	$\lambda = 113°.5$ W.
		W–A	eS_N	13 23 34	$H = 13^h14^m49^s$
		W–A	e_N	13 23 42	Located in Gulf of Lower Calif. Felt in San Diego Calif. and Tucson, Arizona
		W–A	e_E	13 22 47	
		W–A	i_E	13 26 06	
		W–A	L_E	13 26 27	
			F	14 39	$\Delta_{P-H} = 21°.2$
					$\Delta_{meas} = 21°.3$
42	May 4	G–W	e_E	$0^h07^m48^s$	
		G–W	M	0 12 56	
			F	0 23	

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
43	May 6	G–W	eP_Z	$6^h06^m52^s$	Epicenter by J.S.A.: Region of $\phi = 7°.5$ N., $\lambda = 84°.5$ W. $H = 6^h00^m30^s$ $h = 50$ km by Brunner Depth Chart. $\Delta P\text{–}H = 31°.5$ $\Delta meas = 31°.7$
		G–W	iP_Z	6 06 56	
		G–W	iPR_1Z	6 07 45	
		G–W	eS_E	6 12 06	
		G–W	iS_E	6 12 14	
		G–W	i_E	6 13 06	
			F	8 05	
44	May 6	G–W	ePR_1Z	$20^h23^m36^s$	Vicinity of Japan probably $\Delta PS\text{–}PR_1 = 108°.5$ H = about $20^h04.6^m$
		G–W	ePS_E	20 33 12	
		G–W	ePS_Z	20 33 16	
		G–W	$ePPS_Z$	20 34 16	
		G–W	eZ	20 43 46	
		G–W	L_E	20 56.8±	
		G–W	M_E	20 58.5±	
			F	21 48	
45	May 8	G–W	iP_EZ	$1^h55^m55^s$	Epicenter by J.S.A.: $\phi = 36°.4$ N., $\lambda = 24°.3$ W. $H = 1^h46^m58^s$ $h = 90$–100 km. by the Brunner Depth Chart. $\Delta P\text{–}H = 51°.8$ $\Delta meas = 52°.1$ Felt heavily in Central and Eastern groups of the Azores. Slight damage on Santa Maria Island at Santo Espirito and San Pedro.
		G–W	iP_NE	1 55 57	
		G–W	$e(pP)_EZ$	1 56 10	
		G–W	ipP_N	1 56 15	
		G–W	iS_E	2 03 14	
		G–W	iS_N	2 03 15	
		G–W	$i(SR_1)_E$	2 06 47	
			F	5 21	
46	May 9	G–W	eP_Z	$7^h36^m45^s$	Epicenter by J.S.A.: $\phi = 51°.0$ N., $\lambda = 152°.5$ W. $H = 7^h28^m43^s$ $\Delta P\text{–}H = 43°.2$ $\Delta meas = 43°.2$
		G–W	eS_E	7 43 19	
		G–W	$e(SR2)_E$	7 46 35	
		G–W	M_N	7 52±	
			F	8 50	

No.	Date	Inst	Phase	G.M.C.T.	Remarks
47	May 10	G–W	iP_{NZ}	$7^h54^m22^s$	Epicenter by J.S.A.
		G–W	iS_{NE}	8 02 31	$\phi = 51.^\circ0$ N, $\lambda = 177.^\circ2$ W.
		G–W	iP_N	8 02 56	$H = 7^h44^m25^s$
		G–W	L_{NE}	8 12 ±	
		G–W	M_E	8 16 ±	
			F	10 45	
48	May 11	G–W	iP_Z	$17^h50^m23^s$	$\Delta S-P = 45.^\circ7$?
		G–W	$e(S)_N$	17 57 12	
		G–W	e_E	18 09 40	
		G–W	i_E	18 09 41	
		G–W	e_N	18 13 36	
		G–W	e_E	18 13 43	
		G–W	M_E	18 16.8	
			F	18 55	
49	May 12	G–W	M_E	$3^h12.3^m$	
		G–W	F	3 22	
50	May 14	G–W	M_E	19^h07^m ±	
		G–W	F	19 47	
51	May 16	G–W	e_N	$7^h49^m10^s$	
		G–W	L_N	8 16.0	
		G–W	M_N	8 26.7	
		G–W	F	9 01 40	
52	May 16	G–W	M_N	$15^h06^m49^s$	
			F	15 21	
53	May 17	G–W	M_{EZ}	$0^h13^m45^s$	
54	May 17	G–W	M_E	$1^h11^m45^s$	
55	May 17	G–W	L_N	$16^h01.3^m$	
		G–W	M_Z	16 10	
56	May 17	G–W	eP'_Z	$18^h44^m29^s$	Regional Epicenter
		G–W	$iSKS_{NE}$	18 54 56	by J.S.A. $\phi = 29.^\circ0$ N,
		G–W	i_E	18 55 06	$\lambda = 143.^\circ5$ E. $H = 18^h31.0^m$
		G–W	i_N	18 55 09	Record poor. $\Delta P'-H = 96.^\circ4$
		G–S	M_N	19 25.4	Strasbourg gives $\phi = 24.^\circ0$N
			F	21 01	$\lambda = 143.^\circ0$ E.
57	May 19	G–W	iP_Z	$18^h35^m33^s$	Epicenter by J.S.A. North
		G–W	epP_Z	18 35 57	Chile, $\phi = 17.^\circ0$ E, $\lambda = 70.^\circ0$W
		G–W	iS_{NE}	18 43 38	$H = 18^h25^m47^s$ h = 100 km.
		G–W	$iesS_{NE}$	18 44 21	by the Brunner Depth Chart
		G–W	i_E	18 45 12	$\Delta S-P = 59.^\circ2$
		G–W	i_E	18 46 01	$\Delta meas = 59.^\circ2$
			F	18 13	

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
50	May 6	Mac W–A W–A W–A Mac Mac W–A	$ePNE$ $epPE$ iN iS_E isS_E F	$6^h06^m51^s$ 6 07 01 6 08 14 6 12 04 6 12 14 9 33	Epicenter by J.S.A. Region of $\emptyset$ = 7°5 N. λ = 84°5 W. H = $6^h00^m30^s$ h = 50 km. by Brunner Depth Chart ΔP–H = 31°2 Δmeas = 31°6
51	May 6	Mac Mac	$e(SR_1)N$ eLN F	$17^h37^m04^s$ 17 38.4 18 45	Felt in Philippines especially in Mindoro.
52	May 6	Mac Mac Mac	$e(PS)_E$ eSR_1E eL_E F	$20^h33^m08^s$ 20 39 08 20 56.2± 21 49	J.S.A. gives H = about $20^h04.6^m$
53	May 8	Mac Mac W–A Mac Mac Mac Mac Mac W–A W–A	iP_{NE} ipP_{NE} iE eN eS_E $(e)_E$ iS_{NE} esS_{NE} F	$1^h55^m54^s$ 1 56 09 1 56 13 2 02 50 2 03 05 2 03 07 2 03 13 2 03 39 5 23	Epicenter by J.S.A. $\emptyset$ = 36°4 N., λ = 24°3 W. H = $1^h46^m58^s$ h = 90–100 km. by Brunner Depth Chart ΔP–H = 51°4 Δmeas = 51°4 Felt heavily on central and eastern groups of the Azores
54	May 8	Mac Mac	$e(S)_E$ eL_E F	$16^h31^m35^s$ 16 40.2 17 07	Aftershock of #53
55	May 9	Mac Mac Mac	iS_{NE} eNE MNE F	$7^h43^m22^s$ 7 47 04 7 53 9 21	Epicenter by J.S.A. $\emptyset$ = 51°0 N., λ = 15°°5 W. H = $7^h28^m43^s$ ΔS–H = 43°5
56	May 10	Mac W–A Mac W–A Mac Mac Mac	$iPNE$ eS_E iSN $iPSN$ iSR_1N MN F	$7^h54^m24^s$ 8 02 2? 8 03 31 8 03 57 8 06 45 8 17 ± 11 2?	Epicenter by J.S.A. $\emptyset$ = 51°0 N., λ = 177°2 W ΔP–H = 59°5 Δmeas = 59°5 H = $7^h44^m25^s$

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
57	May 11	Mac Mac	eE MNE F	$17^h59^m34^s$ 18 16.6 19 14	
58	May 12	Mac	ME F	$3^h12.4^m$ 3 39	
59	May 14	Mac Mac Mac	eN eE eLNE F	$18^h39^m24^s$ 18 42 19 18 56.9 20 30	
60	May 16	Mac Mac Mac	eNE eLE ME F	$7^h48^m54^s$ 8 10 8 18 9 02	
61	May 19	W-A W-A W-A W-A W-A	iPNE ipPNE ipPcP iS isS F	$18^h35^m32^s$ 18 35 57 18 36 06 18 43 36 18 44 19 19 59	Epicenter by J.S.A. $\emptyset$ = 17°0 S., λ = 70°0 W. H = $13^h25^m47^s$ h = 100 km. by the Brunner Depth Chart. Δ_{S-P}= 59°0 Δ_{meas} = 59°0
62	May 22	Mac Mac	eNE MNE F	$2^h05^m21^s$ 2 33 3 51	
63	May 23	Mac W-A Mac Mac W-A W-A	ePNE eNE iSNE iE F	$2^h54^m40^s$ 2 54 58 2 58 44 2 59 00 3 27	Epicenter by J.S.A. $\emptyset$ = 18°0 N., λ = 101°0 W. H = $2^h49^m42^s$ Depth slightly greater than norm Δ_{S-P} = 22°3 Δ_{meas} = 22°3
64	May 27	Mac Mac	eN e(L)N F	$4^h15^m04^s$ 4 43.0 5 19	

Minor Seismic Activity: Surface waves were recorded May 1, 12h36m to 13h05m; May 2, 6h44m to 7h13m; May 3, 7h53m to 8h58m; May 9, 3h34m to 7h38m; May 10, 15h53m to 17h09m and 20h10m to 20h53m; May 11, 3h43m to 4h27m and 10h10m to 14h23m; May 12, 7h50m to 9h24m; May 15, 4h9m to 4h50m and 21h33m to 22h03m; May 16, 23h07m to 24h21m; May 19, 8h14m to 8h32m; May 21, 4h18m to 4h47m; May 22, 6h38m to 6h51m; May 23, 5h18m to 6h10m; May 26, 10h23m to 11h09m; May 27, 1h47m to 2h02m.

No.	Date	Inst	Phase	G.M.C.T.	Remarks
58	May 22	G-W	M_E	$2^h33.4^m$	
59	May 23	G-W	iP_Z	$2^h54^m41^s$	Epicenter by J.S.A.
		G-W	iPR_{1Z}	2 55 17	$\emptyset$ = 18°0 N, λ = 101°0 W.
		G-W	eS_{NE}	2 58 45	$H = 2^h49^m42^s$ Depth
		G-W	iS_{NE}	2 58 49	slightly greater than nor-
		G-W	M_Z	3 04 39	mal. Felt in Central
			F	3 20	Mexico.
60	May 24	G-W	M_E	$12^h05.7^m$	
61	May 26	G-W	M_N	$10^h29.3^m$	
62	May 28	G-W	iP_Z	$18^h11^m05^s$	Reccrd weak
		G-W	eS_E	18 20 49	ΔS-P = 75°5
		G-W	e_E	18 22 14	
		G-W	L_E	18 44.0 ±	
		G-W	M_E	18 50.7 ±	
			F	20 26	

Minor Seismic Activity:

May 3, 2^h38^m to 2^h46^m, 7^h58^m to 8^h52^m; May 6, 17^h56^m to 18^h35^m surface waves; May 18, 17^h39^m to 17^h50^m; May 21, 20^h43^m to 21^h02^m May 27, 3^h to 7^h; May 28, 2^h43^m to 3^h13^m; May 29, 6^h19^m to 6^h25^m May 30, 10^h55^m to 11^h20^m surface waves.

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No.	Date	Inst.	Phase	G.M.C.T.	Remarks
63	June 3	W-A	i_N	$23^h21^m29^s$	Local shock
64	June 4	G-W	eS_N	$1^h27^m17^s$	Pasadena gives Arizona.
		G-W	$(e)S_E$	1 27 19	
		G-W	iS_Z	1 27 23	
		G-W	i_N	1 27 30	
		G-W	i_E	1 27 31	
		G-W	i_E	1 27 40	
		G-W	M_E	1 28 30	
			F	1 38	
65	June 4	G-W	M_{EZ}	$13^h48^m \pm$	
66	June 5	G-W	iZ	$23^h11^m31^s$	
		G-W	iZ	23 13 28	
		G-W	e_{NZ}	23 18 07	
		G-W	L_{EZ}	23 24.2 ±	
		G-W	M_{NE}	23 26.1 ±	
			F	24 00	
67	June 7	G-W	MZ	$2^h18^m \pm$	
68	June 8	G-W	MZ	$16^h21^m \pm$	
69	June 8	G-W	eP_Z	$21^h00^m06^s$	
		G-W	iP_Z	21 00 07	
		G-W	epP_Z	21 00 33	
		G-W	iS_E	21 10 34	
		G-W	isS_E	21 11 16	
			F	23 35	
70	June 9	G-W	iP_{NZ}	$0^h20^m51^s$	Probable Epicenter Region of $\phi = 15°.1$ N., $\lambda = 97°.7$ W. $H = 00^h15.6 \pm^m$ $\Delta_{P-H} = 24°.1$
		G-W	eS_N	0 25 12	
		G-W	iS_N	0 25 15	
			F	(Lost in following earthquake)	
71	June 9	G-W	ePN	$0^h56^m24^s$	Probable after-shock of $0^h20^m51^s$
		G-W	iPZ	0 56 25	
		G-W	iS_N	1 00 51	
			F	1 40	

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
72	June 12	G–W	eP_E	$4^h11^m00^s$	Epicenter by J.S.A.
		G–W	iP_{NE}	4 11 03	$\emptyset$ = 20°1 N.,
		G–W	iPR_1NE	4 11 40	λ = 67°6 W.
		G–W	iS_E	4 15 43	$H = 4^h05^m14^s$
		G–W	i_E	4 15 46	$\Delta P-H$ = 27°1
		G–W	i_N	4 16 30	$\Delta meas$ = 27°0
		G–W	M_E	4 19 20	
			F	5 57	
73	June 13	W–A	$iPgNE$	$22^h51^m36^s$	$\Delta Sg-Pg = 11.5^m$
		W–A	iSg_N	22 51 38.4	18 km.
74	June 18	G–W	iP_{NZ}	$16^h52^m05^s$	Record weak.
		G–W	i_{NZ}	16 52 18	
		G–W	i_{NZ}	16 52 54	
		G–W	e_N	16 55 52	
		G–W	i_N	16 56 53	
		G–W	i_N	16 56 55	
		G–W	L_Z	17 00.8 ±	
			F	17 30	
75	June 19	W–A	iPg_E	$21^h44^m31.6^s$	Epicenter
		W–A	i_E	21 44 47	$\emptyset$ =,33°04' N.,
		W–A	i_E	21 44 50.6	λ = 92°38' W.
		W–A	iSn_E	21 45 09	$H = 21^h42^m29^s$
		W–A	iS^*_E	21 45 26	$\Delta Pg-H = 660^m$
		G–W	$iSgN$	21 45 48	$\Delta meas$ = 656 km.
		W–A	iSg_N	21 45 49	
		W–A	i_N	21 45 56	
		W–A	i_N	21 46 10	
76	June 22	G–W	eP	$19^h32^m08^s$	Epicenter by J.S.A
		G–W	eS	19 42 36	$\emptyset$ = 8°3 N.,
		G–W	iS	19 42 42	λ = 1°1 W.
		G–W	iS	19 42 46	$H = 19^h19^m42^s$
		G–W	iPS	19 43 51	Felt in Gold Coas Region of Africa.
					$\Delta S-P$ = 85°6
					$\Delta meas$ = 85°6
77	June 24	G–W	eP_E	$0^h01^m06^s$	Record weak.
		G–W	eE	0 01 10	
		G–W	iE	0 01 15	
		G–W	eS_E	0 05 03	
		G–W	iS_{NE}	0 05±06	
		G–W	iE	0 07 ±	
		G–W	M_E	0 07.9 ±	
			F	0 53	

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
78	June 24	W-A	e(P)E	$11^h28^m04.6^s$	Local shock.
		W-A	i_E	11 28 07.5	
		W-A	i_E	11 28 57.5	
		W-A	iS_E	11 29 05.7	
		W-A	iS_E	11 29 06.6	
		W-A	iS_E	11 29 10.5	
		W-A	iS_E	11 29 11.8	
		W-A	i_E	11 29 17.1	
79	June 24	G-W	M_E	12^h03 ±	
80	June 24	G-W	e_E	$13^h11^m49^s$	
		G-W	M_E	13 17 ±	
81	June 24	G-W	eP_Z	$16^h32^m38^s$	
		G-W	eZ	16 32 52	
		G-W	e_E	16 36 49	
		G-W	e_E	16 36 53	
		G-W	L_N	16 38.9 ±	
		G-W	M_N	16 39.9 ±	
82	June 27	G-W	e(P')E	$23^h23^m19^s$	Epicenter by J.S.A.
		G-W	iPR_1E	23 24 52	ϕ = 7°8 N.,
		G-W	e_N	23 34 36	λ = 126°3 E.
		G-W	iPS_N	23 34 46	$H = 23^h04^m27^s$
		G-W	$e(SR_1)N$	23 42 00	Δ_{PR1-H} = 122°1
		F		01 41	Δ_{meas} = 122°3

Minor Seismic Activity: June 2, 03h59m to 05h41m Surface waves were recorded; June 8, 06h14m to 06h36m; June 8, 09h28m to 10h15m; June 10, 19h38m to 19h45m; June 12, 10h03m to 10h12m; June 13, 17h26m to 17h36m; June 17, 13h26m to 13h51m Surface waves were recorded; June 17, 22h37m to 22h57m; June 24, 8h22m to 8h35m; June 29, 10h01m to 10h12m.

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Three Galitzin-Wilip, two Wood-Anderson short-period seismographs, Shortt synchronome clock

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
83	July 1	G–W	i_N	$20^h40^m39^s$	
		G–W	e_Z	20 41 51	
		G–W	e_E	20 41 54	
84	July 2	G–W	i_{NEZ}	$19^h52^m59^s$	Record weak.
		G–W	e_N	20 01 04	
		G–W	i_{NEZ}	20 01 08	
		G–W	F	20 59	
85	July 4	G–W	iP_Z	$18^h36^m14^s$	Epicenter by J.S.A.
		G–W	$iPcP_Z$	18 36 52	$\emptyset$ = 19°9 S.
		G–W	epP_Z	18 37 16	λ = 67°3 W.
		G–W	$ipPcP_Z$	18 37 58	H = $18^h26^m24^s$
		G–W	eS_Z	18 44 21	h = 300 km. by
		G–W	$iSNE$	18 44 24	Brunner Depth
		G–W	i_E	18 45 40	Chart.
		G–W	isS_E	18 46 19	ΔP–H = 62°7
		G–W	e_E	18 47 45	Δ_{meas} = 62°7
86	July 5	G–W	(e)P_Z	$22^h54^m06^s$	Epicenter by J.S.A.
		G–W	epP_Z	22 56 23	$\emptyset$ = 34°0 S.,
		G–W	$iSKS_E$	23 03 44	λ = 180°0 W.
		G–W	iS_N	23 05 02	H = $22^h40^m54^s$
		G–W	i_N	23 08 10	h = 550 km. by
		G–W	isS_N	23 09 10	Brunner Depth
			F	01 51	Chart.
					ΔP–H = 104°6
					Δ_{meas} = 104°2
		No Time Corrections July 6 to July 31			
87	July 8	Earthquake about $21 \pm^h$			
88	July 12	Earthquake about $8+^h$			
89	July 12	Earthquake about $23+^h$			
90	July 13	Earthquake about $3.5+^h$			

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
91	July 14	Earthquake about $8.5+^{h}$			$S-P = 8^{m}40^{s}$ $\Delta S-P = 63°5$
92	July 15	Earthquake about $11+^{h}$			
93	July 18	G—W G—W	iPNEZ eSN	$3^{h}32^{m}44^{s}$ 3 37 38	Epicenter by J.S.A. $\emptyset = 49°2$ N., $\lambda = 128°1$ W. $H = 3^{h}28^{m}46^{s}$ Time doubtful. $\Delta S-P = 28°4$ $\Delta P-H = 28°4$ $\Delta meas = 28°6$
94	July 20	G—W G—W G—W G—W	eP_Z ipP_Z iS_N esS_N	$2^{h}35^{m}54^{s}$ 2 38 13 2 46 45 2 50 55	Epicenter by J.S.A. Region of $\emptyset = 22°6$ S., $\lambda = 177°0$ W. $H = 2^{h}23.0^{m}\pm$ h = 650 - 700 km. by Brunner Depth Chart $\Delta meas = 105°4$ Time doubtful.
95	July 23	Earthquake about $9+^{h}$			$S-P = 7^{m}13^{s}$ $\Delta S-P = 49°6$
96	July 26	Seismic Activity $04.5+^{h}$			
97	July 31	Seismic Activity $02+^{h}$			
98	July 31	Seismic Activity $19.4+^{h}$			

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No.	Date	Inst.	Phase	G.M.C.T.	Remarks
99	Aug 1	Nc Time Corrections August 1 – August 5			
100	Aug 2	Earthquake about $01+^{h}$			Weak.
101	Aug 12	Nc time on records Earthquake at $02+^{h}$			Epicenter by J.S.A. $\emptyset$ = 14º2 S., λ = 168º9 E. H = $2^{h}07^{m}35^{s}$ h = 150 – 175 km. by Brunner Depth Chart.
102	Aug 12	Nc time on records Earthquake at $10+^{h}$			Epicenter by J.S.A. $\emptyset$ = 44º3 N., λ = 152º5 E. Slight indication of depth. H = $9^{h}49^{m}55^{s}$
103	Aug 15	G–W G–W G–W G–W G–W	(e)Z eZ eE iE iE F	$3^{h}56^{m}47^{s}$ 3 56 56 4 02 10 4 02 22 4 02 35 4 22	
104	Aug 16	Earthquake about $16.5+^{h}$			Epicenter by J.S.A. $\emptyset$ = 10ºS., λ = 93º0 W. H = $17^{h}06^{m}31^{s}$ Δ_{S-P} = 26º7
105	Aug 18	G–W G–W G–W G–W G–W	ePZ i(PR1)Z eE iSKKSE ePSE	$22^{h}30^{m}33^{s}$ 22 35 06 22 41 15 22 42 07 22 44 31	Epicenter by J.S.A. $\emptyset$ = $18.^{o}0$ S., λ = $167.^{o}9$ E. H = $22^{h}16^{m}00^{s}$ Δ_{P-H} = $110.^{o}1$ Δ_{meas} = $110.^{o}2$

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
106	Aug 25	G–W	e_E	$4^h07^m40^s$	
		G–W	e_E	4 14 34	
		G–W	e_E	4 17 19	
		G–W	e_E	4 23 21	
		G–W	M_E	4 45.2 ±	
			F	5 33	
107	Aug 28	G–W	i_N	$16^h52^m35^s$	
		G–W	i_{NE}	16 53 49	
		G–W	e_E	16 54 34	
			F	17 04	

Minor Seismic Activity: Aug 3, 3.3±h Surface waves; Aug 5, 9.5 ± h
Aug 6, 3h36m to 3h57m

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Three Galitzin-Wilip, two Wood-Anderson short-period seismographs, Shortt synchronome clock

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
108	Sept 2	G-W	eE	$9^h 23^m 44^s$	
		G-W	iE	9 27 02	
		G-W	MZ	9 52 ±	
			F	11 38	
109	Sept 8	G-W	iP_Z	$12^h 15^m 17^s$	Epicenter by J. S. A.
		G-W	iP_{NE}	12 15 23	$\phi = 53.^\circ 7$ N.,
		G-W	ipP_{NE}	12 15 35	$\lambda = 175.^\circ 8$ E.
		G-W	iPR_1N	12 17 44	$H = 12^h 05^m 07^s$
		G-W	iS_{NE}	12 23 50	h = 50 km. by
		G-W	iS_{NE}	12 23 54	Brunner Depth
		G-W	isS_N	12 24 05	Chart
		G-W	iSP_N	12 24 20	$\Delta_{S-P} = 62.^\circ 5$
		G-W	$isSP_N$	12 24 39	$\Delta_{P-H} = 62.^\circ 5$
		G-W	$iScS_{NE}$	12 25 18	$\Delta_{meas} = 62.^\circ 0$
		G-W	LN	12 31.8 ±	
		G-W	MN	12 34.3 ±	
			F	16 27	
110	Sept 11	G W	$e(P)_Z$	$8^h 03^m 13^s$	Record weak.
		G-W	$i(S)_{NE}$	8 10 23	$\Delta_{S-P} = 49.^\circ 1$
		G-W	MZ	8 24 ±	
			F	9 42	
111	Sept 12	G-W	$e(S)_{NEZ}$	$10^h 48^m 08^s$	Record weak.
			F	11 26	Time uncertain.
112	Sept 12	G-W	LZ	$12^h 57^m$ ±	Record weak.
		G-W	MZ	12 59 ±	
			F	13 40	
113	Sept 15	G-W	$i(S)_{NE}$	$12^h 13^m 05^s$	Record weak.
		G-W	LZ	12 35.7	
		G-W	LZ	12 38.4	
			F	13 08	
114	Sept 15	G-W	ePZ	$21^h 59^m 38^s$	Record weak.
		G-W	eZ	21 59 51	$\Delta_{S-P} = 62.^\circ 0$
		G-W	iCNE	22 07 59	
		G-W	$i(ScS)_N$	22 09 21	
		G-W	MN	22 25 ±	
			F	22 50	

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
115	Sept 15	G–W G–W G–W	iP_Z iSN MZ F	$23^h29^m02^s$ 23 39 27 00 05.5 ± 00 25	Record weak. ΔS-P = 8°.8
116	Sept 21	G–W G–W G–W G–W G–W	e_Z e_{NE} e_{NE} e_E M_{NE} F	$12^h52^m47^s$ 12 52 52 12 57 35 13 04 07 13 06.6 ± (Lost in change of records)	Record weak.
117	Sept 21	G–W G–W G–W G–W	iP_{EZ} eS_{NE} iS_N M_N F	$21^h33^m20^s$ 21 36 15 21 36 20 21 38 55 22 36	Epicenter by J. S. A. Ø = 30°.0 N. λ = 114°.0 E. H = $21^h27^m31^s$ ΔS-P = 21°.3 ΔP-H = 21°.4
118	Sept 22	G–W G–W G–W G–W G–W	iP_Z e_Z $e(S)_E$ L_Z M_{NEZ} F	$0^h49^m03^s$ 0 50 41 0 53 25 1 16 ± 1 23 ± 2 40	ΔS-P = 8°.3 Record weak
119	Sept 28	W–A W–A	iPg_E iSg_E	$22h13m55.5s$ 22 13 59.5	Local blast Time uncertain
120	Sept 28	W–A	iSg_E	$22^h28^m29.4^s$	Local blast.

Minor Seismic Activity: Sept 5, 13^h30^m to 14^h40^m; Sept 10, 18^h09^m to 18^h29^m; Sept 14, 0^h27^m to 0^h40^m; Sept 14, 10^h11^m to 10^h40^m surface waves; Sept 17, 20^h22^m to 20^h42^m; Sept 19, 20^h17^m to 20^h22^m very small on W–A; Sept 20, 0^h31^m to 0^h36^m W–A; 0^h42^m to 1^h17^m G–W; Sept 20, $3^h59^m.5$ to $4^h06.5^m$; $7^h02.5^m$ to 7^h07^m W–A; 7^h10^m to 7^h14^m G–W; 7^h59^m to 9^h00^m surface waves; Sept 21, 11^h39^m to 12^h22^m; Sept 25, 16^h36^m to 17^h06^m surface waves; Sept 26, 10^h49^m to 17^h10^m; Sept 30, 02^h57^m to 03^h09^m surface waves.

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Three Galitzin-Wilip, two Wood-Anderson short-period seismographs, Shortt synchronome clock

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
121	Oct 4	W-A	ePE	$22^h28^m47^s$	$\Delta_{S-P} = 21°.1$
		G-W	iPZ	22 28 49	
		G-W	eSE	22 32 42	
		G-W	eSN	22 32 46	
		W-A	eN	22 35 18	
		G-W	LNE	22 35.3 ±	
		G-W	MN	22 35.7 ±	
			F	22 59	
122	Oct 7	G-W	eZ	$21^h02^m18^s$	Record weak.
		G-W	i(S)NE	21 05 43	
			F	23 56	
123	Oct 8	W-A	ePN	$0^h01^m48^s$	$\Delta_{S-P} = 54°.8$
		G-W	iPZ	0 01 49	h = 100 + Km. by
		G-W	iZ	0 02 01	the Brunner Depth
		W-A G-W	iSNE	0 09 25	Chart
		G-W	isSE	0 10 10	Record weak
		W-A G-W	isSN	0 10 11	
		G-W	eE	0 11 01	
		G-W	eE	0 11 47	
			F	0 13	
124	Oct 10	G-W	ePZ	$18^h45^m00^s$	Epicenter by J.S.A.
		G-W	iSKSE	18 55 19	Region of
		G-W	iSE	18 55 38	$\emptyset = 41°.2N$, $\lambda = 143°.4E$.
					$H = 18^h32^m12^s$
125	Oct 10	G-W	ePZ	$19^h03^m55^s$	Epicenter same
		G-W	iSE	19 14 31	as $18^h45^m00^s$
126	Oct 17	G-W	ePZ	$6^h36^m24^s$	Epicenter by J.S.A.
		G-W	iP'Z	6 40 19	$\emptyset = 16°.8$ S.
		G-W	ipP'Z	6 40 44	$\lambda = 167°.7$ E.
		G-W	iPR1Z	6 40 53	$H = 6^h22^m08^s$
		G-W	iZ	6 41 34	h = 110 Km by the
		G-W	iSKSE	6 46 52	Brunner Depth
		G-W	iSKKSE	6 47 46	Chart
		G-W	eSN	6 48 26	$\Delta P'-H = 110°$
		G-W	esSN	6 49 25	$\Delta meas = 110°$
		G-W	iSPE	6 50 22	
			F	9 31	

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No.	Date	Inst	Phase	G.M.C.T.	Remarks
127	Oct 17	W-A	iE	$16^h31^m28.6^s$	Local shock
		W-A	iS_E	16 31 31.2	
		W-A	iS_{NE}	16 31 32.2	
		W-A	iS_E	16 31 33.9	
		W-A	iN	16 31 37	
		W-A	iNE	16 31 37.9	
128	Oct 19	W-A	eP_{NE}	$11^h57^m55^s$	Epicenter by J.S.A.
		W-A	iP_E	11 58 03	$\emptyset = 47^\circ.6$ N, $\lambda = 70^\circ.0$ W.
		W-A	iPR_1E	11 58 10	$H = 11^h53^m58^s$
		W-A	iN	12 01 04	$\Delta eP-H = 17^\circ.0$
		W-A	iS_E	12 01 19	$\Delta iP-H = 17^\circ.5$
		W-A	iS_N	12 01 20	$\Delta meas = 17^\circ.3$
		W-A	L_E	12 02.8	
			F	12 08	
129	Oct 20	G-W	$i(S)_N$	$20^h12^m25^s$	Record weak
		G-W	$i(S)_N$	20 12 28	
		G-W	e_N	20 13 24	
		G-W	L_N	20 17.5 $\pm$	
		G-W	M_N	20 19.5 $\pm$	
		G-W	F	21 26	
130	Oct 27	W-A	eS_E	$1^h43^m53^s$	Dominion Observatory
		W-A	eS_E	1 43 59	Bulletin gives
		W-A	eS_E	1 44 05	$H = 1^h36^m34^s$
		W-A	iN	1 45 29	$\Delta S-H = 17^\circ.3$ =
		W-A	iN	1 45 35	1920 Km.
		W-A	F	1 49 $\pm$	

Minor Seismic Activity:

Oct 9, 2^h43^m to 4^h55^m; Oct 18, 11^h20^m to 11^h36^m
Oct 26, 1^h33^m to 1^h58^m Surface waves
Oct 26, 22^h19^m to 22^h58^m Surface waves
Oct 30, 23^h08^m to 23^h28^m; Oct 31, 23^h37^m to 23^h42^m

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