

FLORISSANT

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

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

BULLETIN FOR 1930

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
1	Jan. 5	I	iP _{ENZ}	1 31 16	G-W	Dilatation Kamchatka 53°5 N. 155°7 E.
			eP _{EM}	1 31 16	W-A	
			iP _{C¹ENZ}	1 31 51	W-A; G-W	
			eP _{R1Z}	1 34 17	G-W	
			eP _{R2Z}	1 35 48	"	
			eS _{EN}	1 40 41	W-A	
			iS _N	1 40 42	G-W	
			eSR _{1N}	1 45 42	"	
			eL _N	1 54 45	"	
			eM _Z	1 59 35	"	
			F	2 50 ±		
2	Jan. 5	I	iP _{ENZ}	19 04 30	W-A; G-W	Compression Kurile Is- lands. 46°N. 149°E.
			iP _{R1Z}	19 07 37	G-W	
			eS _E	19 14 36	W-A	
			iS _{EN}	19 14 39	G-W	
			eL _{EN}	19 29 30	"	
			eM _{ENZ}	19 34 30	"	
			F	20 05 ±		
3	Jan. 7	I	e _{EN}	0 20 30	G-W	
			F	1 45 ±		
4	Jan. 8	I	e _{ENZ}	14 19 20	G-W	
			F	15 00 ±		
5	Jan. 11	I	eL _{EZ}	22 10 30	G-W	
			F	22 30 ±		
6	Jan. 12	I	eP _E	5 34 34	W-A	Δ = 38.1
			eP _Z	5 34 35	G-W	
			eS _N	5 40 25	"	
			eL _E	5 43 00	"	
			eL _{NZ}	5 43 30	"	
			eM _{NZ}	5 45 35	"	
			eM _E	5 46 05	"	
			F	6 00 ±		

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7	Jan. 12	I	eE	3 15 34	W-A	Local
			iE	3 15 47	"	
			iEN	3 15 49.4	"	
			F	3 17 ±		
8	Jan. 13	I	eZ	5 36 55	G-W	
			eE	5 39 15	"	
			eLE	5 41 20	"	
			eZ	6 21 00	"	
			F	7 00 ±		
9	Jan. 14	I	eP'EZ	21 40 18	G-W; W-A	
			eE	21 44 31	G-W	
			eScPcSE	21 46 59	W-A	
			iScPcSE	21 47 01	G-W	
			eE	21 48 59	"	
			eLz	22 41 00	"	
			eMENZ	22 55 00	"	
F	24 00 ±					
10	Jan. 15	I	eLE	0 59 00	G-W	
			eME	1 02 10	"	
			F	1 15 ±		
11	Jan. 15	I	eZ	11 44 47	G-W	
			eE	11 51 16	"	
			eN	11 54 06	"	
			eE	11 53 31	"	
			F	12 15 ±		
12	Jan. 16	I	iPEZ	0 29 27	G-W; W-A	Compression Δ = 23.8
			iSEN	0 33 35	G-W	
			eLN?	0 35 30	"	
			iMN	0 36 26	"	
			iMEZ	0 37 50	"	
			F	1 00 ±		

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No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
13	Jan. 17	I	eL _{EZ} F	1 23 20 1 30 ±	G-W "	
14	Jan. 17	I	eL _{EZ} F	12 29 30 12 50 ±	G-W	
15	Jan. 17	I	eP _Z eE _Z iS _N eL _{NZ} iM _Z F	17 01 14 17 02 29 17 06 36 17 11 00 17 14 37 17 45 ±	G-W " " " "	
16	Jan. 18	I	iPR _{1Z} iS _C P _C P _C S _E iP _C P _C P _C P _C iSR _{1N} iE iZ eL _E eM _{ENZ} F	7 23 46 7 30 23 7 33 39 7 39 03 7 43 23 7 44 58 7 47 18 8 00 00 9 40 ±	G-W " " " " " " "	Epicenter by Manila. 5° S. 153° E.
17	Jan. 20	I	eP _Z iS _E eL _E eL _{NZ} eM _{EZ} F	7 30 23 7 40 46 8 04 30 8 07 30 8 10 00 8 45 ±	G-W " " " "	$\Delta = 82^{\circ}4$
18	Jan. 21	I	iP _{ENZ} iS _N iL _{ENZ} iM _E iM _N iM _Z F	3 47 01 3 51 33 3 54 23 3 55 01 3 55 06 3 55 56 4 15 ±	W-A; G-W G-W " " " "	Dilatation $\Delta = 27^{\circ}$

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No.	Date	Char.	Phase	G. M. Time h. m. s.	Instruments	Remarks
<small>Three Cantzlin-Wilip, two Wood-Anderson short-period seismographs, Shortt synchronous clock</small>						
19	Jan. 21	I	eS _N ? eL _{EN} eM _{EN} F	21 43 05 21 44 40 21 46 00 21 50 ±	G-W G-W " "	
20	Jan. 21	I	eP _{ENZ} eS _N eL _{EN} eM _{EN} F	22 20 09 22 24 39 22 27 26 22 28 19 22 40 ±	W-A; G-W G-W " "	Δ = 26°8
21	Jan. 24	I	eL _{EZ} F	3 06 45 9 30 ±	G-W "	
22	Jan. 25	I	eZ eE eL _{ENZ} eM _Z F	1 58 00 2 08 30 2 36 30 2 51 00 3 30 ±	G-W " " "	
23	Jan. 27	I	iE eN iE iN iE iE iN iN F	20 56 22.7 20 56 23.8 20 56 24.3 20 56 40.8 20 56 41.6 20 56 44.1 20 56 45.3 20 56 48.3 20 58 30	W-A " " " " " " "	Local
24	Jan. 28	I	iZ eZ eEN eL _{NZ} eLE eM _{EZ} F	6 47 50 6 49 00 6 54 08 7 09 10 7 09 40 7 13 00 7 45 ±	G-W " " " " "	

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No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
25	Feb. 1	I	ePEN	19 08 40	W-A	
			eEN	19 10 52	"	
			eLEN	19 13 32	G-W	
			eLZ	19 17 32	"	
			F	20 20 ±		
26	Feb. 2	I	eE	0 53 00	G-W	
			F	1 25 ±		
27	Feb. 2	I	iPEN	15 06 10	W-A	Epicenter 49°N. 177°W. Δ = 59.5
			eSE	15 14 19	G-W	
			iN	15 15 58	"	
			eLEN	15 24 02	"	
			eLZ	15 27 32	"	
			F	16 52 ±		
28	Feb. 3	I	eZ	23 01 31	G-W	
			eN	23 02 31	"	
			F	23 15 ±	"	
29	Feb. 4	I	iEN	24 41 52	W-A	
			F	24 55 ±		
30	Feb. 7	I	eEN	6 43 46	G-W	
			iLEZ	7 04 10	"	
			F	8 15 ±		
31	Feb. 7	I	eLE	12 59 01	G-W	
			eLE	7 07 31	"	
			F	7 40 ±		
32	Feb. 8	I	eLEZ	19 45 27	G-W	
			F	19 50 ±	"	
33	Feb. 9	I	eE	1 14 52	W-A	
			eNZ	1 18 20	G-W	
			eLEN	1 24 02	"	
			iMENZ	1 27 02	"	
			F	2 00 ±		

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No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
42	Feb. 19	I	e _E e _Z eL _{EN} F	13 18 11 13 23 59 13 34 32 14 00 ±	W-A G-W " "	
43	Feb. 20	I	e _E e _E i _E F	19 48 06 19 48 12 19 48 45 19 50 ±	W-A " " "	Local
44	Feb. 20	I	eL _{EN} F	20 23 00 20 58 ±	G-W "	
45	Feb. 23	I	e _{EZ} F	7 00 00 7 30 ±	G-W "	
46	Feb. 23	I	e _E i _E F	10 36 23 10 36 45 10 50 ±	W-A " "	
47	Feb. 23	I	i _Z L _{EN} M _{ENZ} F	18 31 29 18 57 30 19 08 40 19 50 ±	G-W " " "	
48	Feb. 24	I	eL _E F	1 05 00 1 20 ±	G-W "	
49	Feb. 24	I	i _{EN} i _E eL _E F	1 25 13 1 33 00 1 51 00 2 30 ±	W-A G-W " "	
50	Feb. 24	I	e _{NZ} e _{EN} e _{EN} e _{ENZ} e _{EN} F	21 09 30 21 12 49 21 13 39 21 13 50 21 18 30 22 50 ±	G-W W-A W-A G-W " "	
51	Feb. 25	I	e _{ENZ} F	9 58 04 10 50 ±	G-W	

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No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
34	Feb. 11	I	e _{EZ} e _{ENZ} F	23 56 45 24 01 11 24 40 ±	W-A G-W "	
35	Feb. 12	I	e _{EZ} e _{EN} i _{NZ} e _Z e _{EN} e _{L_{EZ}} e _{MEZ} F	6 21 16 6 48 16 6 51 01 6 57 01 7 01 00 7 17 00 7 22 00 9 25 ±	G-W; W-A G-W " " " " "	
36	Feb. 13	I	e _{ENZ} e _{NZ} F	0 36 36 0 40 08 1 00 ±	G-W "	
37	Feb. 13	I	i _E i _E F	10 19 49 10 20 11 10 21 ±	W-A " "	Local
38	Feb. 14	I	i _{PEZ} i _{SEN} i _{EZ} i _{SR_{1EN}} e _{ME_{EN}} F	18 50 40 19 00 51 19 01 35 19 06 32 19 20 00 20 10 ±	G-W; W-A G-W " " "	Destructive in Crete
39	Feb. 14	I	e _{PR_{1Z}} e _{PR_{2Z}} e _{ScP_{CSE}} i _{SR_{1EN}} i _{L_{ENZ}} F	20 58 43 21 01 38 21 05 31 21 13 09 21 30 33 23 40 ±	G-W " " " " "	Epicenter ac- cording to Manila 30°S. 175°W.
40	Feb. 17	I	e _{LN} F	11 48 10 12 15 ±	G-W "	
41	Feb. 18	I	e _{EN} F	2 23 22 4 10 ±	G-W "	

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No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
52	Feb. 25	I	eP _{GN}	12 46 03.8	W-A	Felt at Cairo, Illinois. Δ = 200 km.
			eP _{gE}	12 46 03.9	"	
			iS _{GN}	12 46 27.7	"	
			iS _{gE}	12 46 27.9	"	
			F	12 48 ±	"	
53	Feb. 26	I	e _N	1 28 52	G-W	
			F	2 00 ±	"	
54	Feb. 26	I	eP _E	2 34 19	W-A	Felt in Calexico, California
			eS _N	2 38 10	G-W	
			eS _{EZ}	2 38 30	"	
			eL _N	2 40 05	"	
			iM _N	2 41 00	"	
			iM _{EZ}	2 42 00	"	
			F	3 30 ±	"	
55	Feb. 26	I	e _E	3 26 34	W-A	
			eL _N	3 35 00	G-W	
			F	4 00 ±	"	
56	Feb. 26	I	e _E	4 19 41	W-A	
			e _E	4 34 30	G-W	
			F	5 00 ±	"	
57	Feb. 26	I	e _E	7 44 40	W-A	
			eL _N	7 49 00	G-W	
			F	8 30 ±	"	
58	Feb. 26	I	e _{NZ}	21 16 00	G-W	
			F	21 30 ±	"	
59	Feb. 27	I	e _E	2 34 45	W-A	
			i _E	2 38 18	"	
			F	2 40 ±	"	
60	Feb. 28	I	eP _E	1 06 17	W-A	
			iS _E	1 13 00	G-W	
			eM _{EZ}	1 21 30	"	
			F	2 20 ±	"	
61	Feb. 28	I	eL _{EZ}	18 54 00	G-W	
			F	19 40 ±	"	

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No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
62	Mar. 1	I	e _{EN}	1 22 00 2 30 ±	G-W "	
63	Mar. 1	I	e _{PE} e _{SEN} i _{MN} F	23 48 47 23 55 30 23 55 44 24 10 ±	W-A G-W G-W "	Δ = 24.5°
64	Mar. 6	I	i _{PR₁EZ} e _{EZ} i _E i _{PS_N} e _E e _{LE} e _{MEZ} F	15 53 56 15 59 45 16 01 11 16 01 51 16 03 18 16 27 50 16 31 30 18 50 ±	G-W " " " " " " "	Epicenter near Wellington, N. Z.
65	Mar. 8	I	i _{P_{ENZ}} i _{NZ} i _Z i _{SEN} e _{SR₂E} F	3 51 47 3 51 59 3 56 37 3 56 43 3 59 47 5 15 ±	W-A; G-W G-W " " " "	Reported from Panama Δ = 30.3°
66	Mar. 10	I	e _{LE} F	14 37 00 Covered by following	G-W	
67	Mar. 10	I	e _N i _{NZ} F	15 11 09 15 15 57 15 30 ±	W-A G-W "	
68	Mar. 10	I	P	10 38 ±	Lost in changing record sheets.	

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No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
69	Mar. 20	I	e _E	13 25 00	G-W	
			iL _E	13 30 00	"	
			F	14 30 ±	"	
70	Mar. 20	I	e _E	22 52 05	W-A	Local
			i _F	22 52 06	"	
			F	22 53 ±	"	
71	Mar. 23	I	eL _E	4 42 00	G-W	
			F	5 15 ±	"	
72	Mar. 25	I	eL _{EZ}	12 17 00	G-W	
			F	13 00 ±	"	
73	Mar. 26	I	e _Z	7 30 46	G-W	Epicenter 8°5' S. 127°5' E According to Manila.
			i _Z	7 31 36	"	
			i _{EZ}	7 34 09	"	
			i _{NZ}	7 34 52	"	
			eL _N	8 07 00	"	
			F	10 00 ±	"	
74	Mar. 28	I	e _{EN}	18 09 10	W-A	Local
			i _{EN}	18 09 11	"	
			F	18 10 ±	"	
75	Mar. 29	I	eL _E	0 33 00	G-W	
			F	1 10 ±	"	
76	Mar. 30	I	e _E	1 16 00	G-W	
			eL _{EZ}	1 20 00	"	
			F	1 55 ±	"	

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No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
77	Mar. 30	I	iP ¹ Z	8 44 13	G-W	Near 55°S. 28°W. St. Louis, La Paz, and Cartuja.
			iPR ₁ ENZ	8 44 53	"	
			iN	8 51 05	"	
			iENZ	8 55 11	"	
			iEN	8 55 31	"	
			iSR ₁ ENZ	8 59 49	"	
			eLEN	9 16 00	"	
			eM ₂ EZ	9 22 00	"	
F	11 30 ±	"				
78	Mar. 30	I	eZ	14 40 30	G-W	
			eEN	14 48 35	"	
			eL ₂ EZ	15 00 30	"	
			F	15 15 ±	"	
79	Mar. 30	I	eZ	15 38 40	G-W	Near 8°S. 128°E. Manila, Batabia. Riverview.
			eE	15 41 03	W-A	
			iPR ₁ Z	15 41 17	G-W	
			eEN	15 42 16	"	
			iPR ₂ Z	15 44 02	"	
			eEN	15 51 45	"	
			eLZ	16 25 15	"	
			F	17 30 ±	"	
80	Mar. 31	I	ePZ	12 46 06	G-W	39.5 N. 23°E. Adjacent to Strasbourg. Δ = 79.2
			iS _N	12 56 14	"	
			eLEN	13 11 00	"	
			eLZ	13 13 30	"	
			iM ₁ EN	13 19 30	"	
			F	13 40 ±	"	

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No	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
81.	Apr. 1	I	eEZ eMEZ F	0 49 30 1 04 30 1 30 ±	G-W " "	
82	Apr. 1	I	eEZ eEN eMEN F	12 10 40 12 16 30 12 21 00 12 45 ±	G-W " " "	
83	Apr. 2	I	eE eN eE iE iN F	9 39 07.2 9 39 08.3 9 39 36.2 9 39 38.3 9 39 41.6 9 42 ±	W-A " " " " "	Felt at Caruthersville, Missouri. $\Delta = 275$ km.
84	Apr. 2	I	eLEZ F	21 03 00 21 45 ±	G-W "	
85	Apr. 3	I	eMEN F	0 58 00 1 15 ±	G-W "	
86	Apr. 4	I	iPRZ eEN iPSENZ eSR ₁ E eLE F	9 44 00 9 51 30 9 53 30 9 59 15 10 16 30 11 35 ±	G-W " " " " "	Solomon Islands
87	Apr. 5	I	eLEZ F	12 01 00 12 40 ±	G-W "	
88	Apr. 5	I	eEN F	20 55 00 21 30 ±	G-W "	

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No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
89	Apr. 6	I	eL _{EZ} F	8 42 30 9 45 ±	G-W "	
90	Apr. 10	I	e _{EZ} eM _{EZ} F	15 11 00 15 27 00 16 55 ±	G-W " "	
91	Apr. 13	I	e _Z e(S) _{ENZ} F	1 03 28 1 07 43 1 40 ±	G-W " "	
92	Apr. 13	I	eL _{EN} F	6 27 00 6 40 ±	G-W "	
93	Apr. 15	I	eL _{EZ} eM _{EZ} F	11 36 00 11 46 00 12 20 ±	G-W " "	
94	Apr. 16	I	eP _N eS _{EN} ? F	14 36 51 14 41 56	W-A G-W	Seismogram spoiled in changing record.
95	Apr. 17	I	eP _{NZ} iS _{EN} eL _E F	20 19 01 20 29 17 20 45 30 21 40 ±	G-W " " "	Destructive in Greece.
96	Apr. 21	I	eL _E F	11 02 00 11 30 ±	G-W "	

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No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
97	Apr. 21	I	iPR _i NZ	12 09 46	G-W	South Atlantic about 55°S. 28°W.
			e _{EN}	12 16 41	"	
			eP _S _{EN}	12 19 05	"	
			i _{EN}	12 19 41	"	
			iSR ₁ IE	12 25 09	"	
			eL _{EN}	12 41 00	"	
			eM _{EN}	12 46 30	"	
			eM _Z	12 48 30	"	
			F	15 10 ±	"	
98	Apr. 22	I	iP _g EN	18 50 35.5	W-A	Local
			iS _g EN	18 50 36.7	"	
			F	18 52 ±	"	
99	Apr. 23	I	iP _N Z	18 36 03	G-W	Dilatation
			iS _{EN}	18 43 03	"	
			eL _{EN}	18 54 00	"	
			F	19 25 ±	"	
100	Apr. 23	I	iP _N	19 16 09.4	W-A	Local
			i _E	19 16 14.4	"	
			i _N	19 16 15.3	"	
			i _N	19 16 17.2	"	
			F	19 18 ±	"	
101	Apr. 23	I	eP _{EZ}	22 00 59	G-W; W-A	Δ = 77°5 Kurile Islands
			e _Z	22 02 58	G-W	
			iS _E	22 10 59	G-W; W-A	
			eL _Z	22 30 00	G-W	
			F	24 15 ±		

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102	Apr. 24	I	eS _E eL _E F	0 45 30 1 05 00 1 40 ±	G-W " "	
103	Apr. 25	I	e _N eL _N F	15 48 55 15 53 00 16 20 ±	G-W " "	
104	Apr. 25	I	eL _E F	23 28 50 23 35 ±	G-W	
105	Apr. 26	I	e _E eM _E F	7 18 56 7 31 30 7 55 ±	G-W " "	
106	Apr. 26	II	iP _Z iS _{ENZ} i _{EN} iM _E iM _Z F	16 28 24 16 36 37 16 38 12 16 46 40 16 50 00 19	G-W; W-A " " G-W " "	Compression Aleutian Islands
107	Apr. 27	I	iP' _Z e _Z iPR _{1Z} e _Z eL _{NZ} F	14 46 08 14 48 28 14 50 09 14 51 32 15 42 00 17 15 ±	G-W " " " " "	S.E. of Madagascar about 34°S. 57°E.
108	Apr. 28	I	eL _E eM _E eM _{NZ} F	19 31 30 19 36 00 19 40 00 20 30 ±	G-W " " "	

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No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
109	Apr. 29	I	e _N	8 47 30	G-W	
			e _L _{NZ}	9 02 00	"	
			F	9 25 ±	"	
110	Apr. 30	I	i _Z	16 20 03	G-W	Seismogram spoiled by change of record.
			e _L _{EZ}	16 55 00	"	
			e _L _E	17 12 00	"	
			F	17 30 ±	"	

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

BULLETIN FOR 1930

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
111	May 1	I	e _{NZ}	0 55 02	G-W; W-A	
			e _{ENZ}	1 11 02	" "	
			e _{NZ}	1 14 32	G-W	
			e _{EN}	1 21 30	"	
			e _{LENZ}	1 43 00	"	
			F	2 58 ±	"	
112	May 1	I	e _Z	10 48 00	G-W	
			e _Z	10 57 50	"	
			e _{MZ}	11 17 20	"	
			F	12 00 ±	"	
113	May 2	I	e _Z	2 00 32	G-W	
			i _E	2 09 55	"	
			e _E	2 15 32	"	
			e _E	2 19 30	"	
			e _{LEZ}	2 32 00	"	
			e _{MEZ}	2 35 00	"	
			F	4 20 ±	"	
114	May 2	I	e _{MNZ}	10 54 50	G-W	
			F	11 20 ±	"	
115	May 2	I	e _{ENZ}	6 11 47	G-W	
			i _{EZ}	6 20 32	"	
			e _E	6 29 56	"	
			e _E	6 35 32	"	
			e _{MEZ}	6 53 30	"	
			F	8 35 ±	"	
116	May 3	I	e _{LZ}	13 17 00	G-W	
			F	13 50 ±	"	
117	May 3	I	e _{LN}	16 08 00	G-W	
			F	17 15 ±	"	
118	May 5	I	e _{MNZ}	10 20 00	G-W	
			F	10 35 ±	"	

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

BULLETIN FOR 1956

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

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
119	May 5	II	ez	14 01 27	G-W	Destructive in Pegu and Rangoon. $\Delta = 120^{\circ}.7$
			eP ^r Z	14 04 57	"	
			iPR ₁ Z	14 06 32	"	
			iPR ₂ Z	14 09 31	"	
			iScPcSN	14 12 11	"	
			iPS _N	14 16 40	"	
			eSR ₁ N	14 22 50	"	
			eSR ₂ N	14 28 08	"	
			eLNZ	14 56 00	"	
			iMNZ	15 05 31	"	
F	18 40 ±	"				
120	May 6	II	iz	22 47 40	G-W	Destructive in N.W.Persia.
			iz	22 47 50	"	
			iPR ₁ Z	22 51 31	"	
			iPR ₂ Z	22 54 22	"	
			iScPcSEN	22 58 13	"	
			iPS _{ENZ}	23 00 00	"	
			eM _Z	23 28 00	"	
			F	26 45 ±	"	
121	May 8	I	ez	13 53 30	G-W	
			eEZ	14 03 00	"	
			eM _{EZ}	14 27 00	"	
			F	17 40 ±	"	
122	May 9	I	ez	22 50 30	G-W	
			eS _{EN}	22 50 20	"	
			eM _{EN}	22 58 40	"	
			F	28 20 ±	"	
123	May 9	I	e _{EN}	7 30 45	G-W	
			L _{EN}	7 54 30	"	
			F	8 20 ±	"	
124	May 9	I	e _{EN}	9 15 00	G-W	
			F	9 35 ±	"	

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BULLETIN FOR 1930

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

No.	Date	Char.	Phase	G. M. Time h. m. s.	Instruments	Remarks
125	May 9	I	e _{ENZ} i _{SE} i _{MEN} F	14 08 23 14 12 45 14 16 15 15 30 ±	G-W " G-W; W-A	
126	May 10	I	i _N i _N F	20 40 12 20 44 19 20 41 ±	W-A " "	Local
127	May 10	I	e _{PEZ} i _{SE} i _{MEN} F	22 15 45 22 19 41 22 22 28 23 00 ±	G-W; W-A G-W " "	
128	May 11	I	e _{ENZ} e _{LE} F	23 03 45 23 38 00 24 30 ±	G-W " "	
129	May 12	I	e _{LE} F	1 28 00 1 40 ±	G-W "	
130	May 12	I	e _{EN} F	7 23 25 8 00 ±	G-W "	
131	May 12	I	e _E e _{ME} F	22 37 00 22 50 00 23 30 ±	G-W " "	
132	May 13	I	e _{ME} F	1 02 00 2 25 ±	G-W "	
133	May 13	I	e _E F	5 43 00 6 10 ±	G-W "	
134	May 13	I	e _E F	6 56 00 7 50 ±	G-W "	

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

BULLETIN FOR 1930

No.	Date	Char.	Phase	G. M. Time h. m. s.	Instruments	Remarks
135	May 13	I	eE eL _{EN} F	8 36 30 8 40 00 10 40 ±	G-W " "	
136	May 13	I	eL _E F	18 27 00 19 50 ±	G-W "	
137	May 14	I	eE F	8 04 00 8 15 ±	G-W "	
138	May 14	I	eEZ eENZ eL _{ENZ} eL _{ENZ} F	19 42 12 19 50 00 20 00 00 20 07 30 21 50 ±	G-W; W-A G-W " " "	
139	May 16	I	eE eZ eL _{EN} F	2 51 23 2 54 47 2 09 00 4 15 ±	W-A G-W " "	
140	May 18	I	eZ eEZ eL _{EZ} F	0 22 00 0 32 00 0 58 00 2 20 ±	G-W " " "	
141	May 19	I	eNZ eNZ eL _E F	3 31 00 3 40 30 3 52 40 5 25 ±	G-W " " "	
142	May 19	I	iPNZ iSNZ eL _{NZ} F	15 23 09 15 32 28 16 12 00 16 40 ±	G-W; W-A G-W " "	

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

BULLETIN FOR 1930

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
143	May 20	I	e _E eL _{EZ} F	8 13 30 8 38 30 10 00 ±	G-W " "	
144	May 20	I	e _E iP _{NZ} iS _E eL _{EN} eM _{EZ} F	11 25 11 11 25 14 11 33 25 11 43 00 11 49 03 14 30 ±	W-A G-W " " " "	U.S.C.G.S. 51°N. 180°W.
145	May 21	I	e _N e _N F	11 51 31 11 59 00 13 00 ±	G-W " "	
146	May 21	I	iP _{EZ} e _E eS _E e _E eL _{EZ} eM _{EZ} F	22 17 34 22 19 18 22 24 15 22 27 32 22 31 00 22 35 00 23 25 ±	W-A; G-W " " G-W " " " " Y	
147	May 22	I	e _{EN} F	16 56 32 17 15 ±	G-W "	
148	May 22	I	i _E F	23 23 14 23 34 ±	W-A "	Local
149	May 23	I	eL _Z F	0 39 00 1 30 ±	G-W "	
150	May 24	I	e _E i _E F	23 27 34 23 27 36 23 28 ±	W-A " "	Local

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

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BULLETIN FOR 1930

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
151	May 26	I	eM _{EN} F	16 52 00 17 00 ±	G-W "	
152	May 26	I	eZ e _E eL _E F	22 52 30 22 56 00 23 03 00 23 25 ±	G-W " " "	
153	May 27	I	eL _N F	6 10 15 6 20 ±	G-W "	
154	May 29	I	iP _{EZ} iS _E i _E e _E i _E i _E F	8 37 32 8 42 54 8 44 02 8 45 55 8 47 32 8 48 50 9 20 ±	W-A; G-W " " G-W " W-A; G-W " "	
155	May 29	I	e _{EN} eM _{ENZ} F	17 58 30 18 11 30 18 30 ±	G-W " "	
156	May 31	I	eP _E eS _E eM _E F	16 27 58 16 32 58 16 40 00 17 30 ±	W-A G-W W-A "	46°N. 132°W. U. S. C. G. S.

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

BULLETIN FOR 1930

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
157	June 1	I	eL _E Z	2 59 30 3 40 ±	G-W	
158	June 1	I	eZ eEN i _E e _E e _E eL _E Z eM _E Z F	13 20 00 13 29 05 13 38 43 13 46 05 13 54 25 14 00 30 14 08 30 16 30 ±	G-W " " " " " "	
159	June 3	I	e _E eM _E Z F	16 32 35 16 34 30 16 45 ±	G-W "	
160	June 4	I	eZ i _E Z eEN i _{EN} F	10 11 20 10 11 53 10 14 06 10 17 38 11 40 ±	G-W G-W; W-A G-W " "	
161	June 5	I	eZ e _E i _Z i _{EN} eL _E Z F	11 56 55 12 07 31 12 11 31 12 15 55 12 32 00 14 35 ±	G-W " " " " "	
162	June 6	I	e _E eL _E F	8 23 30 8 35 00 9 30 ±	G-W "	

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

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BULLETIN FOR 1930

No.	Date.	Char.	Phase	G.M. Time h m. s.	Instruments	Remarks
163	June 10	I	eL _E F	17 18 00 17 50 ±	G-W	
164	June 11	I	e _Z e _Z e _Z e _{EN} e _E i _{EZ} e _{EZ} e _{EN} e _{LN} e _{MENZ} F	1 04 30 1 08 08 1 09 28 1 15 13 1 16 39 1 19 36 1 25 30 1 30 30 1 39 00 1 49 00 4 15 ±	G-W " " " " " " " " "	
165	June 12	I	e _E e _{MN} F	9 19 18 9 21 15 9 35 ±	W-A G-W	
166	June 12	I	e _{PE} e _S e _{SE} i _{MN} F	9 50 27 9 53 34 9 53 37 9 54 56 Covered by following quake	W-A G-W W-A G-W	Δ 16.5 0=9 -46-34
167	June 12	I	e _E e _{EZ} e _{MEN} F	10 27 24 10 31 00 10 34 30 10 40 ±	W-A G-W G-W	
168	June 12	I	e _E e _{MEN} F	10 43 26 10 50 00 11 00 ±	W-A G-W	

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

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BULLETIN FOR 1930

No.	Date.	Char.	Phase	G. M. Time h. m. s.	Instruments	Remarks
169	June 13	I	eP _{EZ}	1 03 31	W-A; G-W	Aleutian Islands
			iS _{EN}	1 11 12	" "	
			eL _{EZ}	1 25 00	G-W	
			F	3 30 ±		
170	June 15	I	eL _Z	8 20 00	G-W	
			F	9 25 ±		
171	June 15	I	e _Z	21 21 00	G-W	
			e _Z	21 25 10	"	
			i _Z	21 32 10	"	
			e _N	21 50 00	"	
			eL _Z	21 55 30	"	
			eM _{NZ}	24 10 ±		
172	June 18	I	e _N	16 00 20	G-W	Lost in changing records
			eL _{NZ}	10 05 30	"	
			F			
173	June 19	I	e _Z	13 26 54	G-W	
			e _Z	13 26 16	"	
			e _Z	13 52 31	"	
			eL _Z	14 30 30	"	
			F	15 50 ±		
174	June 19	I	e _E	22 10 16	W-A; G-W	
			F	22 15 ±		

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

BULLETIN FOR 1930

No.	Date.	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
175	June 22	I	eL _E F	2 49 50 3 30 ±	G-W	
176	June 22	I	e _Z eS _E eL _{EZ} F	18 37 05 18 46 50 18 59 00 19 45 ±	G-W " "	
177	June 23	I	e _Z e _E e _E eL _{EZ} F	19 53 56 20 01 20 20 03 30 20 33 20 22 10 ±	G-W " " "	
178	June 25	I	iP _{NZ} iS _N e _E eM _{EN} F	10 27 19 10 35 01 10 37 05 10 50 45 Covered by following	W-A; G-W G-W " "	Compression Destructive in Peru
179	June 25	I	e _{EZ} eS _{EN} F	12 12 08 12 17 03 Covered by following	G-W "	Peru
180	June 25	I	e _E eS _E e _{EN} F	12 17 - 12 22 09 12 22 44 14 05 ±	W-A G-W "	

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

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BULLETIN FOR 1930

No.	Date.	Char.	Phase	G.M. Time			Instruments	Remarks
				h.	m.	s.		
181	June 25	I	e _N F	18 30 30 19 05 ±		G-W		
182	June 25	I	eP _{NZ} eS _{NZ} eL _E F	20 22 52 20 27 21 20 31 30 21 00 ±		W-A G-W G-W		
183	June 25	I	eP _{NZ} iP _{NZ} i _Z iS _{EN} i _E e _N eM _E F	21 31 11 21 31 13 21 32 17 21 38 52 21 40 59 21 43 45 21 55 30 24 30 ±		G-W " " " " " " "	Destructive in Peru.	
184	June 26	I	eP _N e _N eS _N eL _E F	19 14 57 19 19 21 19 19 24 19 23 00 19 50 ±		W-A G-W G-W; W-A G-W		
185	June 26	I	e ? eP _N e _N e _N e _N e _N e _N i _N i _N i _N iS _N eM _E F	20 49 21 20 49 34.2 20 49 41.2 20 49 45.3 20 49 48.3 20 49 06.9 20 50 08.2 20 50 20.4 20 50 24.7 20 50 26.0 20 50 41.0 20 51 08 21 00 ±		W-A " " " " " " " " " " " G-W "	Reported from West Central Ohio. Δ = 570 km.	

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

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BULLETIN FOR 1930

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
136	June 27	I	eM _E F	5 15 20 5 30 ±	G-W "	
187	June 27	I	eM _E F	10 19 00 10 25 ±	G-W "	
188	June 28	I	e _{NZ} eM _E F	7 10 55 7 15 30 7 35 ±	G-W " "	
189	June 29	I	Small quake	11-12 A.M. lost in changing record		
190	June 30	I	eL _N eM _N F	13 41 30 13 46 15 15 30 ±	G-W " "	

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

BULLETIN FOR 1930

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
191	July 1	I	iP _{EN}	1 15 43	G-W	$\Delta = 32^\circ$
			eS _E	1 20 51	"	
			i _E	1 23 35	"	
			eL _{EN}	1 25 35	"	
			iM _{EN}	1 26 00	"	
			iM _{2EN}	1 28 30	"	
			F	3 00 \pm	"	
192	July 2	II	eP _Z	21 18 37	G-W	Destruction in W. Assam. Phases hard to identify. Apparently several schocks superposed.
			e _Z	21 23 00	"	
			iPR _{1Z}	21 23 53	"	
			i _Z	21 26 00	"	
			i _E	21 31 23	"	
			iPS _N	21 33 22	"	
			i _N	21 34 33	"	
			eSR _{1EN}	21 39 32	"	
			e _E	21 43 30	"	
			eL _E	21 56 00	"	
			eM _E	22 08 00	"	
			F	24 35 \pm	"	
			193	July 3	I	
F	1 40 \pm	"				
194	July 3	I	e _{EN}	19 55 00	G-W	
		F	20 05 \pm	"		
195	July 3	I	iP _E	21 30 23	W-A	Local. $\Delta = 34$ miles N or S.
			iP _N	21 30 24.2	"	
			i _N	21 30 25.1	"	
			iS _E	21 30 29.3	"	
			iS _E	21 30 31.5	"	
196	July 4	I	e _N	23 56 00	G-W	
			F	24 10 \pm	"	

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

BULLETIN FOR 1930

Nô.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
197	July 5	I	e _M EN F	10 47 30 10 50 ±	G-W	
198	July 5	I	e _Z e _E eL EZ F	18 16 20 18 24 05 18 53 00 20 15 ±	G-W " " "	
199	July 5	I	e _{EN} F	22 00 20 22 10 ±	G-W	
200	July 7	I	iP _Z iS _E F	2 30 46 2 35 34 3 00 ±	G-W "	Dilation
201	July 7	I	iP _N eP _Z iP _Z iS _N iS _E iS _N iS _{EZ} eM _E F	13 36 58 13 36 59 13 38 28 13 41 29 13 42 51 13 42 59 13 43 02 13 46 30 15 40 ±	W-A G-W G-W; W-A W-A G-W W-A G-W G-W	Most probably two earthquakes Guatamala
202	July 7	I	eP _Z eS _N eL _E F	20 48 10 20 52 34 20 56 35 21 30 ±	G-W " " "	Δ=2599

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

BULLETIN FOR 1930

No.	Date	Char	Phase	G.M. Time h. m. s.	Instruments	Remarks
203	July 9	I	eP _{NZ}	15 59 02	G-W	Δ = 26°
			eS _N	16 03 27	"	
			eL _E	16 07 30	"	
			F	16 30 ±		
204	July 13	I	iP _E	1 03 27	W-A	Felt in Mont- ana, Three Forks Dis- trict.
			iP _{EZ}	1 03 31	G-W	
			eS _E	1 06 32	"	
			eL _E	1 06 50	"	
			eM _N	1 08 16	"	
			eM _E	1 08 28	"	
			F	end covered by following		
205	July 13	I	eM _{EN}	2 06 00	G-W	
			F	3 40 ±		
206	July 13	I	eS _{EN?}	19 53 04	G-W	
			eL _E	20 19 30	"	
			F	21 45 ±		
207	July 14	III	eP _Z	22 45 56	G-W	In Pacific Ocean south of Guata- mala
			iP _N	22 45 57	W-A	
			iP _Z	22 46 00	G-W	
			iS _N	22 50 13	"	
			iS _N	22 50 23	W-A	
			iS _N	22 50 31	"	
			iL _N	22 53 00	G-W	
			iM _N	22 55 40	"	
			F	23 40 ±	"	

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BULLETIN FOR 1930

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
208	July 15	I	eP _{NZ}	9 08 01	G-W	
			eS _N	9 12 39	"	
			F	9 45 ±	"	
209	July 17	I	eP _{NZ}	18 35 30	G-W	
			iS _N	18 39 54	"	
			F	19 15 ±	"	
210	July 19	I	e _E	18 54 36	W-A	
			e _{EN}	18 56 00	G-W	
			e _E	18 56 07	W-A	
			e _E	18 56 14	"	
			i _E	18 56 20	"	
			F	19 05 ±	"	
211	July 20	I	iP _{EN}	11 10 45	G-W	
			iS _N	11 15 07	"	
			F	12 10 ±	"	
212	July 20	I	iP _{(E)N}	12 59 14	G-W	
			eS _{(E)N}	13 03 36	"	
			F	13 40 ±	"	
213	July 22	I	iP _{EN}	19 37 59	W-A	Kurile Islands
			iP _{EN}	19 38 00	G-W	
			i _N	19 41 09	"	
			iS _N	19 48 00	"	
			iS _E	19 48 02	"	
			i _N	19 48 51	G-W; W-A	
			F	21 20 ±		
214	July 23	I	eP _{EN}	0 20 25	G-W	Destructive in South Italy.
			e _E	0 23 00	"	
			eS _N	0 30 01	"	
			eS _{?N}	0 30 34	"	
			eL _{EN}	0 43 00	"	
			eM _{EN}	0 53 30	"	
			F	2 30 ±	"	

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

BULLETIN FOR 1930

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
215	July 23	I	i _E	1 55 44	W-A	
			F	1 59 ±	"	
216	July 23	I	e _{NZ}	17 52 25	G-W	
			F	18 30 ±	"	
217	July 25	I	i _{PEN}	21 39 23	W-A	
			e _{PE}	21 39 26	G-W	
			i _{SE}	21 43 36	"	
			i _{MN}	21 46 30	"	
			F	22 40 ±	"	
218	July 27	I	e _N	8 36 00	G-W	
			F	9 00 ±	"	
219	July 27	I	e _{P_{NZ}}	12 29 31	G-W	
			e _{S_N}	12 33 59	"	
				Covered by following quake		
220	July 27	I	i _{P_{NZ}}	12 59 21	G-W	
			e _{S_N}	13 03 44	"	
			F	13 30 ±	"	
221	July 27	I	e _{NZ}	15 06 30	G-W	
			F	16 10 ±	"	
222	July 27	I	i _{P_{NZ}}	19 94 02	G-W	Compression
			i _{PR₁NZ}	19 04 45	"	
			i _{S_{EN}}	19 08 35	"	
			i _{S_N}	19 08 39	"	
			i _{SR₁N}	19 09 54	"	
			F	21 30 ±	"	
223	July 28	I	e _N	9 44 10	G-W	Felt at Rock Springs, Wyo.
			F	10 00 ±	"	

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

BULLETIN FOR 1930

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
224	July 29	I	iP _{NZ}	0 29 36	G-W	
			i(P) _N	0 32 39	"	
			iS _N	0 34 09	"	
			eL _E	0 37 04	"	
			iS _N	0 37 39	"	
			F	0 15 ±	"	
225	July 29	I	iP _N	17 53 28.3	W-A	Local
			iS _{EN}	17 53 34.5	"	
			F	17 55 ±	"	
226	July 30	I	e _E	22 32 01	W-A	
			F	22 38 ±	"	

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

Three Galitzin-Wilip, two Wood-Anderson short-period sismographs, Shortt synchronome clock
 BULLETIN FOR 1930

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
224	July 29	I	iP _{NZ}	0 29 36	G-W	
			i(P) _N	0 32 39	"	
			iS _N	0 34 09	"	
			eL _E	0 37 04	"	
			iS _N	0 37 39	"	
			F	0 15 ±	"	
225	July 29	I	iP _N	17 53 28.3	W-A	Local
			iS _{EN}	17 53 34.5	"	
			F	17 55 ±	"	
226	July 30	I	e _E	22 32 01	W-A	
			F	22 38 ±	"	

Three Gaultz-Wilip, two Wood-Anderson short-period seismographs, Shortt synchronous clock

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
227	Aug. 1	I	e _P _{NZ}	7 19 00	G-W	$\Delta=55.9^{\circ}$
			e _S _{EN}	7 26 46	"	
			e _E	7 30 22	"	
			e _M _N	7 38 00	"	
			F	8 40 ±		
228	Aug. 1	I	e _N	21 58 32	G-W	
			e _L _{EN}	22 09 00	"	
			F	22 40 ±		
229	Aug. 2	I	Beginning lost in e _{EN} F	16 48 27 18 25 ±	change of record G-W	
230	Aug. 2	I	e _{EN}	22 45 00	G-W	
			F	23 30 ±		
231	Aug. 3	I	e _{EN}	1 57 00	G-W	
			F	2 30 ±		
232	Aug. 3	I	e _{EN}	23 30 00	G-W	
			e _L _N	23 36 00	"	
			F	23 45 ±		
233	Aug 4	I	i _P _{ENZ}	5 12 39	G-W; W-A	Time somewhat uncertain
			i _Z	5 13 45		
			e _{ENZ}	5 14 40		
			i _Z	5 15 41		
			i _S _{ENZ}	5 19 09		
			F	6 20 ±		

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

BULLETIN FOR 1930

No.	Date	Char.	Phase	G. M. Time h. m. s.	Instruments	Remarks
234	Aug. 4	I	e _N F	10 37 30 10 50 ±	G-W	
235	Aug. 5	I	eP(E)Z eS _N eL _N eM _N F	0 17 02 0 21 59 0 25 30 0 27 25 1 20 ±	G-W " " " "	Δ = 30°5
236	Aug. 5	I	e _N F	11 38 25 11 45 ±	G-W	
237	Aug. 7	I	eL _{EZ} F	6 07 30 6 30 ±	G-W "	
238	Aug. 9	I	eM _N F	16 40 25 16 50 ±	G-W "	
239	Aug. 9	I	e _N eM _Z F	18 31 25 18 47 30 18 50 ±	G-W " "	
240	Aug. 9	I	e _N F	19 17 45 19 50 ±	G-W "	
241	Aug. 9	I	e _{NZ} eL _{NZ} F	20 10 00 20 36 00 21 10 ±	G-W " "	
242	Aug. 10	I	e _N F	0 29 25 1 10 ±	G-W "	
243	Aug. 12	I	e _N F	17 15 10 11 16 ±	W-A "	Local
244	Aug. 12	I	e _E e _E i _E F	22 30 30.4 22 30 33 22 30 37.5 22 31 ±	W-A " " "	Local

BULLETIN FOR 1930
SEISMOGRAPHIC STATION, ST. LOUIS UNIVERSITY, ST. LOUIS, MO., U. S. A.

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

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
245	Aug. 13	I	e _E F	1 16 00 1 35 ±	G-W	
246	Aug. 13	I	e _{EZ} eL _{EZ} F	5 08 55 5 37 25 6 05 ±	G-W "	
247	Aug. 13	I	e _N i _N F	19 59 51.6 19 59 53.1 20 01 ±	W-A "	Local
248	Aug. 13	I	e _{EZ} F	22 03 00 22 35 ±	G-W	
249	Aug. 17	I	e _{EN} F	9 52 00 9 55 ±	G-W	
250	Aug. 17	I	e _Z e _{EZ} F	12 48 00 12 57 20 14 00 ±	G-W "	
251	Aug. 18	II	eP _Z iP _Z eP _Z iSR _Z i _Z iScPcS _{EN} iPS _{EZ} i _Z iSR _{EN} iSR _{ZE} eL _{EN} eL _Z F	10 08 10 10 08 14 10 10 56 10 12 31 10 14 40 10 18 30 10 21 46 10 22 56 10 27 50 10 32 55 10 43 00 10 46 00 13 30 ±	G-W " " " " " " " " " " " "	Time some- what un- certain. Epicenter S. Atlantic about 57°S 26°W

**FLORISSANT****SEISMOGRAPHIC STATION, ST. LOUIS UNIVERSITY, ST. LOUIS, MO., U. S. A.**BULLETIN FOR 1930
Three Galitzin-Wilip, two Wood-Anderson short-period seismographs, Shortt synchronome clock

No.	Date	Char.	Phase	C.M. Time h. m. s.	Instruments	Remarks
252	Aug. 19	I	e _E F	5 25 00 6 15 ±	G-W	
253	Aug. 19	I	iP _N iP _E i _N i _N F	21 03 45.4 21 03 46.8 21 03 52.2 21 03 55.5 21 05 ±	W-A " " "	Local
254	Aug. 20	I	e _N e _E F	9 20 38 9 26 00 9 40 ±	G-W "	
255	Aug. 21	I	e _E eL _{EZ} F	19 06 23 19 09 00 19 20 ±	G-W "	
256	Aug. 20	I	e _{ENZ} e _{NZ} e _{NZ} e _N e _{EN} e _N eM _{EN} F	21 13 03 21 15 50 21 23 20 21 33 10 21 38 00 21 44 00 21 57 30 23 45 ±	G-W " " " " " "	
257	Aug. 21	I	i _Z e _{EZ} e _N eM _{EN} F	19 56 29 19 58 20 20 07 30 20 14 00 21 05 ±	G-W " " "	

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

BULLETIN FOR 1930

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
258	Aug. 22	I	e _Z i _Z i _{EZ} e _E i _Z e _{EZ} e _M _{EZ} F	11 07 20 11 12 00 11 15 53 11 19 33 11 21 09 11 26 38 11 56 20 13 15 ±	G-W " " " " " "	
259	Aug. 24	I	e _Z e _E e _E e _M _{EZ} F	9 28 57 9 37 35 9 44 50 10 08 00 12 15 ±	G-W " " "	
260	Aug. 25	I	e _N e _N F	8 19 59 8 24 30 8 40 ±	W-A "	
261	Aug. 26	I	e _E F	4 16 55 4 19 ±	W-A	
262	Aug. 28	I	e _P _{NZ} i _P _Z i _S _{ENZ} F	13 44 24 13 44 27 13 48 55 14 10 ±	G-W; W-A G-W "	
263	Aug. 29	I	e _P _N i _P _{EN} e _S _N i _S _N F	6 26 53.7 6 26 54.2 6 27 21 6 27 22.5 6 29 ±	W-A " " "	Δ=147 miles epicenter towards southeast

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

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

BULLETIN FOR 1930

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
264	Aug. 29	I	e _{ENZ}	7 33 41	G-W	
			e _N	7 37 11	"	
			e _{LN}	7 38 50	"	
			F	7 55 ±		
265	Aug. 29	I	e _{PN}	8 33 52	W-A	
			i _{PNZ}	8 33 55	G-W	
			e _Z	8 34 47	"	
			e _{SN}	8 39 01	"	
			e _{LE}	8 40 00	"	
			F	end covered by following		
266	Aug. 29	I	e _{PN}	9 00 04.7	W-A	Local
			e _{SE}	9 00 10.1	"	
			i _{SEN}	9 00 10.5	"	
			F	9 01 ±		
267	Aug. 29	I	e _{EN}	9 04 28	W-A	
			F	9 45 ±		
268	Aug. 29	I	e _N	20 24 32	W-A	
			F	20 30 ±		
269	Aug. 31	I	e _E	0 45 46	W-A	Felt in Los Angeles California
			i _{MN}	0 53 50	G-W	
			F	1 20 ±		

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

BULLETIN FOR 1930

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
269	Sept. 1	I	iP _N	20 27 23.7	W-A	Δ = 250 km. Felt in New Madrid area.
			i _N	20 27 37.6	W-A	
			iS _{EN}	20 27 53.7	W-A	
			iS _{EN}	20 27 55.9	W-A	
			F	20 30 ±	W-A	
	Sept. 6-7		Long period microseisms			
270	Sept. 10	I	iP _N	23 13 09.1	W-A	Quarry blast?
			i _N	23 13 10.1	W-A	
			iS _N	23 13 15.4	W-A	
			F	23 14 ±	W-A	
271	Sept. 17	I	e _N	3 09 06.8	W-A	
			i _N	3 09 18.0	W-A	
			i _N	3 09 19.2	W-A	
			F	3 11 ±	W-A	
272	Sept. 21	I	iPR _{1Z}	23 23 59	G-W	Compression. 26° N. 98.5° E. according to Manila.
			iPR _{2Z}	23 26 33	G-W	
			eScPc _{SN}	23 29 35	G-W	
			eP _{SNZ}	23 33 30	G-W	
			eL _{NZ}	23 59 00	G-W	
			eM _{NZ}	24 08 45	G-W	
			F	26 00 ±	G-W	
273	Sept. 22	II	eP' _Z	1 49 13	G-W	Dilatation New Hebrides Islands.
			iPR _{1Z}	1 50 27	G-W	
			e _N	1 57 35	G-W	
			i _{NZ}	2 00 01	G-W	
			eSR _{1N}	2 05 57	G-W	
			eM _{NZ}	2 32 00	G-W	
			F	4 40	G-W	
274	Sept. 22	I	eP _Z	5 08 25	W-A	
			eS _N	5 13 20	G-W	
			eM _N	5 16 50	G-W	
			F	5 45 ±	G-W	

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

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BULLETIN FOR 1930

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
275	Sept. 25	I	iP _N	15 28 29.2	W-A	Quarry blast. 19 tons of dy- namite 50 feet below surface in limestone. $\Delta = 12.5$ km.
			iS _N	15 28 31.9	W-A	
			i _N	15 28 32.9	W-A	
			i _N	15 28 41.2	W-A	
			F	15 30 \pm	W-A	
276	Sept. 25	I	eZ	18 25 30	G-W	
			e _N	18 33 30	G-W	
			eL _N	19 07 00	G-W	
			F	20 40 \pm	G-W	
277	Sept. 26	I	eP _N	4 27 35	W-A	$\Delta = 25^{\circ}$
			eS _{NZ}	4 31 52	G-W	
			eL _Z	4 37 00	G-W	
			eM _{NZ}	4 41 00	G-W	
			F	4 55 \pm	G-W	
278	Sept. 29	I	eP _N	22 51 35.1	W-A	$\Delta = 555$ km. Felt at Sid- ney, Ohio and in neigh- boring towns.
			e _N	22 51 41.7	W-A	
			e _N	22 52 09.5	W-A	
			e _N	22 52 14.0	W-A	
			e _N	22 52 20.2	W-A	
			i _N	22 52 23.8	W-A	
			iS _N	22 52 40.4	W-A	
			F	22 56 \pm	W-A	
279	Sept. 30	I	eP _N	20 41 43.8	W-A	Probably same origin as the above. Light. Very weak.
			iP _N	20 41 48.2	W-A	
			e _N	20 42 04.6	W-A	
			e _N	20 42 20.5	W-A	
			e _N	20 42 38.3	W-A	
			i _N	20 42 50.9	W-A	
			F	20 47 \pm	W-A	

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

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

BULLETIN FOR 1930

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
280	Sept. 30	I	i _Z	21 40 55	G-W	
			i _Z	21 50 00	G-W	
			eM _Z	22 30 00	G-W	
			eM _Z	22 40 00	G-W	
			F	24 15 ±	G-W	

Besides, the above partial records of earthquakes were recorded at
 11d. 13.4-13.6h; 13d. 1.1-1.3h; 23.6-25h; 14d. 3.4-5.5h; 8.8-9.1h;
 17.7-19h; 15d. 23.7-25h; 17d. 3.6-4h; 18d. 18.2-19h; 20d. 2.3-3h;
 21d. 7.7-8.2h; 22d. 12.5-13.2h; 13.9-14.3h; 14.6-16h; 14.6-16h; 17.4-
 17.9h; 23d. 3.2-3.5h; 6.6-7h; 24d. 0.2-0.5h; 12.4-14.5h.

281	Oct. 1	I	e _Z	14 01 06	G-W	No record on E-W.
			i _{NZ}	14 02 05	G-W	
			e _N	14 06 14	G-W	
			eM _N	14 13 34	G-W	
			F	14 50 ±	G-W	
282	Oct. 5	I	iP _N	14 59 03.3	W-A	Microseisms Δ = about 40km
			i _N	14 59 09.1	W-A	
			i _N	14 59 11.8	W-A	
			iS _N	14 59 13.4	W-A	
			i _N	14 59 14.3	W-A	
			i _E	14 59 15.2	G-W	
			F	15 01 ±	G-W	
283	Oct. 8	I	eP _Z	10 33 41	G-W	New Hebrides Islands
			eP _Z	10 57 19	G-W	
			iPR _{1Z}	10 38 04	G-W	
			e _{EZ}	10 45 14	G-W	
			i _N	10 45 43	G-W	
			iPS _{NZ}	10 47 20	G-W	
			eSR _{1EN}	10 52 29	G-W	
			eM _{EZ}	11 11 00	G-W	
			F	13 20 ±	G-W	

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

BULLETIN FOR 1930

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
284	Oct. 11	I	iP _Z	3 15 17	G-W	Dilatation $\Delta = 50.5$
			iS _{EN}	3 22 28	G-W	
			e _E	3 24 57	G-W	
			e _E	3 26 00	G-W	
			eL _E	3 30 30	G-W	
			F	4 10 ±	G-W	
Oct. 15 to 16 Strong Microseisms						
285	Oct. 17	I	eP _N	1 35 46	W-A	$\Delta = 29.9$
			eS _E	1 40 39	G-W	
			eM _{EN}	1 45 30	G-W	
			F	2 00 ±	G-W	
286	Oct. 17	I	iP _N	8 58 04	W-A;G-W	Dilatation Dilatation Apparently two shocks $\Delta_{S-P} 70.5$ Epicenter near Val- paraiso, Chile 73.5 distant, possibly deep focus.
			iP _Z	8 58 27	" "	
			iZ	9 03 18	G-W	
			iS _E	9 07 24	G-W	
			iS _E	9 07 58	G-W	
			Surface waves irregular and small			
			F	10 15 ±		
Amplitudes of P and especially S very large as compared with M.						
287	Oct. 19	I	eP _N	11 14 15	W-A	$\Delta = 55.1$
			iS _{EN}	11 21 56	W-A;G-W	
			Surface waves indistinct			
F	12 00 ±					
288	Oct. 19	I	iP _N	12 17 15	W-A	Felt at New Orleans,
			eS _E	12 19 32	G-W	
			F	12 30 ±		

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

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BULLETIN FOR 1930

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
Oct. 20-21 Strong Microseisms						
289	Oct. 23	I	eP _N eM _N F	8 57 07 9 42 02 10 40 ±	W-A G-W G-W	Phases in- distinct
290	Oct. 24	II	iP _Z iP' _Z iPR _{1Z} iS _{PP} _{SEN} iS _{CC} _{PP} _{SEN} iN iPS _{EN} eL _{EN} eM _{EN} F	20 29 04 20 33 02 20 33 22 20 39 40 20 40 08 20 40 40 20 42 22 20 57 00 21 06 00 23 15 ±	G-W G-W G-W G-W G-W G-W G-W G-W G-W G-W	Dilatation Epicenter 18°N 145°E
291	Oct. 25	I	iP _{NZ} iS _E eSR _{iE} eM _E F	12 11 25 12 17 58 12 21 17 12 27 00 13 15 ±	G-W; W-A G-W G-W G-W G-W	Compression Δ = 44.5 58°N 154°W
Oct. 25-26-27-28-29 Strong Microseisms						
Besides the above faint but unmistakable traces of seismic movement were recorded on the Galitzin at 2d. 1-2.3h; 3d. 11.9-12.3h; 4d. 0.1-0.3h, 10d. 1.7-2.2h; 22d. 19.1-19.5h; 23d. 21.4-23.2h; 30d. 7.4-8.3h; 31d. 10.7-13h; 31d. 17.1-17.5h; 31d. 19.6-19.8h.						
292	Nov. 4	I	eP _N eS _E F	5 48 24 5 52 35 6 25 ±	W-A G-W G-W	No records for N-S component of Galitzin Nov. 1.3 to Nov. 6.4
Nov. 6-7 Microseisms						

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

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BULLETIN for 1930

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
293	Nov. 8	I	e _{P_N}	1 16 01	W-A	
			i _{M_{NZ}}	1 29 00	G-W	
			F	1 40 ±	G-W	
294	Nov. 9	I	e _{P_N}	10 41 08	W-A	Local
			i _{S_N}	10 41 23	W-A	
			F	10 45 ±	W-A	
295	Nov. 9	I	e _Z	19 27 00	G-W	
			e _Z	19 29 30	G-W	
			i _Z	19 30 29	G-W	
			i _{E_N}	19 34 35	G-W	
			i _Z	19 44 35	G-W	
			i _{M_Z}	20 22 00	G-W	
			F	23 00 ±	G-W	
296	Nov. 10	I	i _{P_Z}	14 04 35	G-W	
			e _{NZ}	14 11 42	G-W	
			e _{E_N}	14 15 44	G-W	
			i _N	14 21 19	G-W	
			e _{L_Z}	14 42 00	G-W	
			F	17 10 ±	G-W	
297	Nov. 12	I	i _{P_Z}	19 19 39	G-W	Δ = 53 ^o .8
			i _{S_{E_N}}	19 27 11	G-W	
			e _{L_Z}	19 40 41	G-W	
			F	21 45 ±	G-W	
298	Nov. 16	I	e _N	12 34 43	W-A	Local
			i _N	12 34 45	W-A	
			i _N	12 34 50	W-A	
			i _N	12 35 03	W-A	
			i _N	12 35 04	W-A	
			i _N	12 35 06	W-A	
			F	12 38 ±	W-A	
Nov. 17-18-19 Strong microseisms.						

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BULLETIN FOR 1930

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
299	Nov. 20	I	iP _N	20 41 41	W-A	Quarry blast?
			iS _N	20 41 47	W-A	
			F	20 43 ±	W-A	
300	Nov. 24	I	iP _N	6 14 42	W-A	Δ = 42°2
			eS _{EN}	6 21 00	W-A; G-W	
			iS _{EN}	6 21 03	G-W	
			e _N	6 24 31	G-W	
			e _E	6 25 26	G-W	
			F	6 50 ±	G-W	
	Nov. 25	Japanese earthquake lost while taking constants				
	Nov. 26-27	Microseisms.				
301	Nov. 28	I	eP _Z	7 38 10	G-W; W-A	Epicenter 18°2 N. 108°4 W.
			iP _Z	7 38 15	" "	
			i _Z	7 38 41	G-W	
			eS _{EN}	7 42 35	G-W	
			iS _E	7 42 41	G-W	
			eL _E	7 44 30	G-W	
			F	9 40 ±	G-W	
302	Nov. 30	I	eP _{NZ}	21 36 03	W-A; G-W	Epicenter 18°N. 108°W.
			iP _Z	21 36 05	G-W	
			iS _E	21 40 31	G-W	
			iS _N	21 40 33	G-W	
			eL _E	21 43 00	G-W	
			F	23 00 ±	G-W	

Besides the above surface waves or unidentifiable phases on following days: Nov. 1d. 1.5-1.8h.; 2d. 17.0-17.4h.; 5d. 8.8-8.9h; 8d. 3.7-4.0h; 11d. 20.7-21.3h; 13d. 9.1-9.2h; 15d. 0.2-0.7h; 16d. 4.0-5.8h; 17d. 12.8-13.3h; 21d. 2.0-3.1 h; 21d. 3.6-4.6h; 22d. 22.8-23.3h; 23d. 2.3-3.3h; 23d. 17.2-17.8h; 23d. 18.3-18.7h; 24d. 3.3-4.9h; 25d. 5.0-6.5h; 25d. 8.7-9.8h.

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SEISMOGRAPHIC STATION, ST. LOUIS UNIVERSITY, ST. LOUIS, MO., U. S. A. 48

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

BULLETIN FOR 1930

No.	Date	Char.	Phase	G. M. Time h. m. s.	Instruments	Remarks
303	Dec. 2	I	e _Z	7 26 13	G-W	
			e _Z	7 28 30	G-W	
			eL _E	8 00 00	G-W	
			F	8 45 ±	G-W	
	Dec. 3		6h. to 18h.	Strong microseisms with peak at 10h.		
304	Dec. 3	I	e _Z	19 11 30	G-W	Record very hard to interpret because of microseisms and possibly superposition of successive shocks.
			iPR ₁ Z	19 12 24	G-W	
			i _Z	19 14 19	G-W	
			iS _c P _c S _E	19 20 15	G-W	
			i _Z	19 21 45	G-W	
			i _E	19 23 12	G-W	
			i _E	19 23 56	G-W	
			i _E Z	19 29 07	G-W	
			i _E	19 32 04	G-W	
			i _E	19 34 01	G-W	
			iL _E	19 39 01	G-W	
			iM _E	19 57 00	G-W	
			F	23 00 ±	G-W	
	Dec. 4-5	I	18h to 18h			
305	Dec. 4	I	eP _N	19 12 54	W-A	Δ = 54 ⁰ 7
			iP _Z	19 13 00	G-W; W-A	
			iS _E	19 20 32	G-W	
			eL _E	19 28 00	G-W	
			M _E	19 33 00	W-A	
			F	21 15 ±	W-A	
	Dec. 7	I	3h. to 9h.			
306	Dec. 8	I	e _E Z	17 39 06	G-W	
			e _E	17 46 23	G-W	
			i _E	17 47 13	G-W	
			e _E	17 57 00	G-W	
			M _E Z	18 20 00	G-W	
			F	20 20 ±	G-W	

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BULLETIN FOR 1930

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
307	Dec. 9	I	eP _N	19 21 05	W-A	
			iP _{EZ}	19 21 07	G-W	
			iS _E	19 25 08	"	
			iM _{EN}	19 27 35	G-W	
			F	20 25 ±		
Dec. 10-12		Moderate Microseisms.				
308	Dec. 13	I	e _N	14 35 15	W-A	
			eS _N	14 45 28	W-A	
			i _N	14 45 38	W-A	
			e _E	14 51 00	W-A	
			F	15 20 ±	W-A	
Dec. 14-18		Microseisms with maximum at 16h.24h. on 14th. 15h.20h. on 16th. 18h.20h. on 18th.				
309	Dec. 21	I	e _E	7 48 32	W-A	
			e _E	7 49 09	W-A	
			F	7 55 ±	W-A	
310	Dec. 21	I	e _N	15 09 29	W-A	
			eP _Z	15 10 23	G-W	
			iP _Z	15 10 39	G-W	
			i _Z	15 10 40	G-W	
			i _Z	15 11 45	G-W	
			i _Z	15 12 59	G-W	
			iS	15 16 11	W-A	
			i _Z	15 21 14	G-W	
			F	Break due to change of record 16 40 ±		
311	Dec. 21	I	i _N	20 26 21.7	W-A	
			i _N	20 26 27.4	W-A	
			F	20 28 ±	W-A	

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

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

BULLETIN FOR 1930

No.	Date	Char.	Phase	G. M. Time h. m. s.	Instruments	Remarks
312	Dec. 23	I	iP _{EN}	14 44 00	W-A	Felt in St. Louis County and surrounding region Epicenter 38° 33.5' N. 90° 30.5' W. near Fern Glen 15.5 mi. W.S.W. of St. Louis Station.
			i _{EN}	14 44 03.5	W-A; G-W	
			i _S	14 44 03.6	W-A	
			i _{NZ}	14 44 04.2	G-W	
			i _E	14 44 05.4	G-W	
			F	14 46 ±	G-W	
313	Dec. 24	I	eP _Z	6 13 30	G-W	$\Delta = 66.5$
			eS _E	6 22 25	G-W	
			eM _E	6 39 00	G-W	
			F	7 50 ±	G-W	
314	Dec. 25	I	e _Z	13 11 30	G-W	
			e _Z	13 17 05	G-W	
			e _E	13 31 30	G-W	
			eM _{EZ}	13 56 00	G-W	
			F	14 45 ±	G-W	
315	Dec. 25	I	e _N	22 11 23	W-A	
			e _N	22 14 19	W-A	
			e _E	22 14 36	W-A	
			e _E	22 14 42	W-A	
			e _E	22 14 46	W-A	
			eL _N	22 16 00	W-A	
			F	22 25 ±	W-A	
31	Dec. 27-29 Microseisms with maximum at 2h.10h. on 28th and at 14h.23h. on 29th.					
316	Dec. 30	I	i _N	2 51 39	W-A	
			i _{EN}	3 01 21	W-A	
			F	3 15 ±	W-A	

Besides the above partial records of seismic motion at following dates: 2d. 21.7h. 22.3h; 8d. 7.3h.7.6h; 8d. 8.4h.9.7h; 9d. 1.3h. 1.8h; 10d. 4.1h. 4.7h; 10d. 10.9h 11.1h; 11d. 9.1h. 9.6h; 12d. 9.7h. 9.9h; 14d. 18.4h. 18.8h; 16d. 11.3h. 11.7h; 20d. 19.6h. 20.th; 22d. 0.7h. 2.1h; 22d. 4.8h. 5.7h; 23d. 22.0h. 23.6h; 26d. 13.2h. 13.9h; 29d. 6.3h. 6.6h; 29d. 9.2h. 9.3h; 30d. 7.1h. 7.4h.