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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 JUNE, 1929

No.	Date	Char.	Phase	G.M.Time h. m. s.	Remarks
194	June 1	I	e_N	14 18 50	
			e_E	14 19 00	
			eL_N	14 21 00	
			eM_{EN}	14 23 45	
			F	15 10 ±	
195	June 2	I	iP_Z	21 51 22	North Japan
			i_{NZ}	21 55 19	$\Delta = 87^{\circ}4$
			$i(N)_Z$	21 57 12	
			i_{EN}	22 01 22	
			i_E	22 02 04	
			iS_N	22 02 08	
			i_N	22 03 23	
			$i(E)N$	22 03 50	
			i_N	22 04 36	
			e_N	22 05 30	
			e_{EN}	22 10 30	
			eM_N	22 26 30	
			F	23 50 ±	
196	June 3	I	iP_Z	20 43 19	
			e_{NZ}?	20 47 00	
			eS_N	20 54 03	
			e_N	20 55 45	
			i_N	20 56 05	
			e_E	21 03 00	
			e_{EN}	21 08 00	
			e_E	21 16 20	
			eL_{NZ}	21 22 00	
			eM_{NZ}	21 27 00	
			F	22 25 ±	
197	June 4	I	e_{EN}	10 40 00	
			eM_{EN}	10 45 00	
			F	10 55 ±	

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BULLETIN FOR JUNE, 1929

No.	Date	Char.	Phase	G.M.Time h. m. s.	Remarks
198	June 4	I	e_{EN}	14 36 00	
			e_{EN}	14 42 00	
			e_{N}	14 45 25	
			e_{N}	14 48 15	
			e_{EN}	14 52 30	
			e_{EN}	14 55 00	
			F	16 00 ±	
199	June 5	I	eL_{NZ}	10 04 00	
			F	10 20 ±	
200	June 6	I	iP_{Z}	11 02 20	$\Delta = 77.^{\circ}7$
			i_{Z}	11 02 22	
			e_{Z}	11 03 40	
			e_{Z}	11 05 20	
			eS_{N}	11 12 20	
			e_{N}	11 12 40	
			e_{EN}	11 13 04	
			e_{E}	11 14 00	
			e_{EN}	11 18 00	
			e_{N}	11 22 50	
			eL_{Z}	11 27 00	
			eM_{Z}	11 29 00	
			F	12 40 ±	
201	June 6	I	e_{Z}	14 38 45	
			eL_{Z}	15 25 00	
			F	16 20 ±	
202	June 7	I	e_{N}	0 36 25	
			eL_{N}	0 55 00	
			F	1 20 ±	
203	June 8	I	e_{E}	18 12 00	
			eL_{EZ}	18 19 00	
			F	18 30 ±	

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BULLETIN FOR JUNE, 1929

No.	Date	Char.	Phase	G.M.Time h. m. s.	Remarks
204	June 9	I	eP_Z	1 08 30	
			eS_{EN}?	1 13 00	
			eL_N	1 18 30	
			eL_E	1 20 30	
			F	2 15 ±	
205	June 9	I	eL_{EN}	7 05 30	
			F	7 15 ±	
206	June 9	I	iP_{NZ}	8 17 14	$\Delta = 42^o$
			eS_{EN}	8 23 30	Kenai Sound, Alaska
			e_{EN}	8 26 29	
			eM_E	8 31 15	
			eM_{NZ}	8 31 40	
			F	9 10 ±	
207	June 9	I	eP_Z	9 19 59	$\Delta = 76^o.9$
			iP_{ENZ}	9 20 00	Kurile Islands
			ePR_{1ENZ}	9 23 06	
			e_Z	9 24 13	
			iS_E	9 29 55	
			e_{EN}	9 29 59	
			i_{EN}	9 30 15	
			i_E	9 30 20	
			eSR_{1N}	9 35 07	
			eSR_{1E}	9 35 41	
			eSR_{2EN}	9 39 29	
			i_E	9 41 11	
			eL_{EN}	9 48 00	
			eM_E	9 51 20	
			F	12 00 ±	

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BULLETIN FOR JUNE, 1929

No.	Date	Char.	P hase	G.M.Time h. m. s.	Remarks
208	June 9	I	eP_Z	23 37 05	
			e_{EN}	23 37 20	
			eL_E	23 57 00	
			F	0 25 ±	
209	June 10	I	e_{EN}	20 13 00	
			e_{EN}	20 15 30	
			eL_{EN}	20 42 00	
			F	21 30 ±	
210	June 10	I	eP_Z	23 12 59	Δ = 56°.6
			eS_{ENZ}	23 20 49	
			eSR_{1EN}	23 24 28	
			e_{ENZ}	23 26 28	
			e_{EZ}	23 27 08	
			e_N	23 27 33	
			eM_E	23 35 15	
			eM_N	23 36 40	
			eM_Z	23 37 10	
			F	0 45 ±	
211	June 12	I	eL_E	3 01 30	
			F	3 40 ±	
212	June 12	I	e_{EN}	11 58 28	
			i_E	12 03 09	
			i_E	12 08 34	
			i_E	12 09 28	
			e_{EN}	12 12 48	
			e_E	12 14 53	
			e_E	12 17 23	
			eL_E	12 40 00	
			eL_N	12 40 30	
			eM_E	12 44 40	
			F	15 00 ±	

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BULLETIN FOR JUNE, 1929

No.	Date	Char.	Phase	G.M.Time h. m. s.	Remarks
213	June 12	I	e_{EN}	18 56 30	
			F	19 20 ±	
214	June 13	II	eP_{EZ}	0 24 21	Compression
			e_Z	0 26 27	$\Delta = 77°.1$
			iS_{EZ}	0 34 18	Kurile Islands
			i_E	0 36 17	
			eSR_{1N}	0 39 30	
			End lost in following		
215	June 13	II	iP_{NZ}	0 37 56	Compression
			ePR_Z	0 40 58	$\Delta = 76°.6$
			iS_E	0 47 50	Kurile Islands
			eS_Z	0 47 52	
			F	3 30 ±	
216	June 13	II	eZ?	9 35 20	Compression
			eP_Z	9 40 15	East of Luzon,
			eP'_Z	9 43 30	Philippines
			iPR_{1Z}	9 45 04	
			iPS_E	9 54 57	
			L	10 15 30	
			M	10 25 30	
			F	12 45 ±	
217	June 13	I	e_Z	20 08 00	
			e_{EN}	20 13 30	
			e_{EN}	20 15 00	
			e_{EN}	20 45 35	
			e_E	20 30 00	
			e_E	20 34 30	
			eL_{EN}	20 47 30	
			F	23 00 ±	

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No.	Date	Char.	Phase	G.M.Time h. m. s.	Remarks
218	June 13	I	e_Z	23 21 00	
			e_Z	23 24 30	
			e_{EN}	23 26 30	
			eL_N	0 02 00	
			eM_E	0 13 30	
			eM_Z	0 15 00	
			F	1 40 ±	
219	June 14	I	e_{EZ}	20 57 00	
			F	21 20 ±	
220	June 15	I	iP_{NZ}	0 40 08	
			iS_E	0 44 34	
			eM_E	0 51 25	
			F	1 15 ±	
221	June 15	I	e_Z	19 56 00	
			e_{EN}	20 01 18	
			e_{EN}	20 02 45	
			eL_E	20 47 00	
			F	21 30 ±	
222	June 16	I	e_{EN}	18 48 00	
			e_{EN}	18 53 30	
			F	19 10 ±	
223	June 16	I	e_{ENZ}	22 41 00	
			eM_{EZ}	22 43 30	
			F	22 50 ±	

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No.	Date	Char.	Phase	G.M.Time h. m. s.	Remarks
224	June 16	III	eP_{EZ}	23 02 43	New Zealand Distructive along west side of north and of South Island
			eP'_{EZ}	23 06 19	
			iPR_{1ENZ}	23 07 47	
			ePR_{2ENZ}?	23 10 18	
			i_Z	23 11 41	
			iPR_{3E}	23 12 43	
			$iS_cP_cS_E$	23 13 11	
			i_E	23 13 18	
			i_Z	23 13 28	
			iPS_N	23 17 24	
			iPS_E	23 17 29	
			iPS_Z	23 17 34	
			iSR_{1N}	23 23 45	
			iSR_{1Z}	23 24 07	
			iSR_{2N}	23 29 04	
			i_N	23 31 42	
			iSR_{3N}?	23 32 28	
			iL_N	23 37 30	
			iM_Z	23 47 20	
			iM_E	23 47 26	
			iM_N	23 47 38	
			F	3 45 ±	
225	June 17	I	e_Z?	10 36 55	
			e_{EN}	10 42 25	
			e_{EN}	10 46 00	
			e_{EZ}	10 53 00	
			eL_E	11 22 00	
			F	12 45 ±	
226	June 18	I	e_E	10 37 57	
			F	11 00 ±	

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BULLETIN FOR JUNE, 1929

No.	Date	Char.	Phase	G.M.Time h. m. s.	Remarks
227	June 19	I	eL_E	5 46 00	
			F	6 30 ±	
228	June 19	I	e_{NZ}?	7 51 00	
			e_{EN}	7 56 30	
			e_{EN}	7 58 00	
			e_{EN}	8 01 00	
			e_{EN}	8 07 00	
			eM_Z	8 44 00	
			F	10 00 ±	
229	June 19	I	eL_E	10 17 00	
			eM_E	10 20 00	
			F	10 50 ±	
230	June 20	I	e_{EN}	8 50 00	
			eM_{EN}	8 55 00	
			F	9 10 ±	
231	June 20	I	e_E	12 24 00	
			eM_{EN}	12 31 00	
			F	12 50 ±	
232	June 20	I	e_{EN}	16 10 30	
			e_{EN}	16 13 00	
			e_{EN}	16 18 17	
			e_{EN}	16 19 30	
			e_E	16 23 40	
			F	18 00 ±	
233	June 21	I	e_E	8 04 00	
			eL_E	8 10 00	
			F	8 45 ±	

The Department of Geophysics acknowledges with thanks the receipt of the following publications from May 15, 1929 to August 6, 1929.

Hawaiian Vol. Res. Assoc. Honolulu, Hawaii	The Volcano Letter, Nos. 224, 225, 226, 227, 228, 229, 230, 231, 232, 234, 235, 236, 238.
Osservatorio Ximeniano Florence, Italy	Boll. Meteorologico, July-Dec., 1928. Suppl. Boll. Meteorologico, July-Dec., 1928. Suppl. Boll. Sismologico, July-Dec., 1928.
Hydrographic Office Navy Department Washington, D.C.	Hydrographic Bulletin, Nos. 2070, 2071, 2072, 2073, 2074, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2068, 2069.
Ill. State Geol. Survey Dept. of Registration and Educ. Urbana, Ill.	Engineering and Legal Aspects of Land Drainage in Illinois, by G.W.Pickets and F.B.Leonard. The Gastropod Genus Yvania, by J. Marvin Weller.
Dominion Observatory Ottawa, Canada	Astrophysics, Vol. IX, No.6, "The Castor System" by D.A. Barlow. Publication of the Dominion Obs., Vol. VIII, No. 9, "Gravity in Western Canada," Vol. 7, No. 4. Seismology,(3 copies)
L'observatoire de Talence Talence(Gironde) France	Trimestriel avec releve mensual des taches solaires. 2 Serie- No.5, Jan.15, 1929.
Hydrographic Office Navy Department Washington, D.C.	Pilot Chart of the Upper Air North Atlantic Ocean, June, July, August, Sept., 1929.
L'Union Geodisique et Geophysique International Paris, France	Bulletin geodesique, Avril, Mai, Juin, 1928.
U.S.Coast and Geodetic Survey Department of Commerce Washington, D.C.	Radio Acoustic Position Finding. Publication No. 146.

The Department of Geophysics acknowledges with thanks the receipt of the following publications from May 15, 1929 to August 6, 1929.

Weather Bureau Manila, P.I.	Annual Report of the Weather Bureau, Part III for 1923. Tests of the 19"Merz Refractor of the Manila Observatory" by Rev. Chas. E. Deppermann, S.J., Vol. 1, No. 6.
U.S.Geological Survey Washington, D.C.	Bull. Nos. 806-B, 797-F, 806-C, 806-D, 806-E, 805-B, 797-B, 797-E, 794, 807, 803, 805, 801. Professional Papers, Nos. 154-B, 154-D, 154-C, 154-E, 144, 154-F, 154-G, 154-H, 154-I, 154-J, 157.
Earthquake Res. Inst. Tokyo, Japan	Observations of some Recent Earthquakes in their Time-Distance Curves, Part I, Part II, Part III, Part IV, by T. Matuzawa.
U.S.Geological Survey Washington, D.C.	Observations of the Brightness of Lunar Eclipses in the Philippines, by Rev. M. Selga, S.J.

The Department of Geophysics acknowledges with thanks the receipt of the following bulletins from May 15, 1929 to Aug 6, 1929

STATIONS	BULLETINS
Riverview College	Prel. Bull. Jan.1-Mar.16, 1929 June 16 and 17, 1929.
Taihoku	Feb.8-23, Mar.14-Apr.9, Apr. 10-27, May 18-June 4.
New Zealand, Fiji	Register for April-June, 1928. Jan.- Mar., 1929.
Hamburg	Jan.-Mar., 1929, Nos. 1-3.
Ottawa	April-June, 1929.
Granada	Nov.-Dec., 1928, Jan.-March,1929.
Sidney, N.S.W.	July-August-September, 1926.
Zi-ka-wei	Nov.-Dec.,1928. Jan.-April, 1929.
Frenze	
Bollettino Sismologico	May-June, 1928.
Supplemento al Boll.Sism.	April, 1928.
Bollettino Meteorologico	May-June, 1928.
Supplemento al Boll. Meteorol.	April, 1928.
Irkutsk	September-December, 1927.
U.S.C.G.S.	
Chicago	March, 1929.
Honolulu	March, 1929.
Tucson	March, 1929.
U. of Virginia	March, 1929.
Sitka	March, 1929.

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No.	Date	Char.	Phase	G.M.Time h. m. s.	Instruments	Remarks
340	Oct.5	I	e_Z	3 02 30	G–W	
			eL_E	3 46 00	"	
			eM_E	3 57 00	"	
			F	5 55 ±	"	
341	Oct.5	II	eP_{ENZ}	17 11 05	G–W	Compression 55°N. 160°E. Δ_{S-P} 68°.5
			eP_{EN}	17 11 05	W–A	
			iS_E	17 20 13	G–W	
			eS_{EN}	17 20 13	W–A	
			iS_N	17 20 14	G–W	
			i_N	17 20 30	G–W	
			e_N	17 20 30	W–A	
			i_E	17 21 25	G–W	
			e_E	17 24 24	G–W	
			eL_E	17 32 30	"	
			eM_E	17 38 30	"	
			eM_N	17 41 00	W–A	
			F	18 50 ±	G–W	
342	Oct.6	I	iP_Z	8 01 32	G–W	Compression 19°.5 N. 156°W. Δ_{S-P} 59°.2
			eP_E	8 01 32	W–A	
			i_E	8 01 33	"	
			iP_N	8 01 34	G–W	
			iP_cP_Z	8 02 24	"	
			e_E	8 03 19	"	
			iS_E	8 09 39	"	
			eS_{EN}	8 09 39	W–A	
			e_E	8 13 30	G–W	
			eL_E	8 17 30	"	
			eL_N	8 19 00	W–A	
			eM_N	8 22 00	"	
			eM_{EN}	8 22 08	G–W	
			F	11 30 ±	"	
343	Oct.7	I	e_E	14 32 25	G–W	
			eL_E	14 55 00	"	
			eM_E	15 00 30	"	
			F	16 45 ±	"	

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No.	Date	Char.	Phase	G.M.Time h. m. s.	Instruments	Remarks
344	Oct.8	I	e_{EN}	17 21 30	G-W	
			e_{E}	17 33 00	"	
			e_{EN}	17 34 10	"	
			e_{EZ}	17 40 33	"	
			e_{N}	17 41 30	"	
			eM_{EN}	18 02 00	"	
			F	20 25 ±	"	
345	Oct.10	I	e_{E}	11 50 00	G-W	
			F	12 10 ±	"	
346	Oct.10	I	e_{E}?	15 00 30	G-W	
			e_{E}?	15 22 30	"	
			F	15 30 ±	"	
347	Oct.14	I	eP_{E}	10 18 53	W-A	Compression from South $\Delta = 50^{o}$
			iP_{EN}	10 18 54	"	
			iP_{Z}	10 18 55	G-W	
			i_{E}?	10 25 07	"	
			eS_{N}	10 26 04	W-A	
			eS_{E}	10 26 05	G-W	
			iS_{N}	10 26 05	"	
			i_{N}	10 28 44	"	
			iSR_{1N}	10 27 46	"	
			i_{N}	10 30 09	"	
			i_{N}	10 30 30	"	
			i_{N}	10 34 40	"	
			i_{N}	10 38 00	"	
			F	11 25 ±	"	
348	Oct.16	I	eL_{E}	19 07 00	G-W	
			F	19 35 ±	"	
349	Oct.16	I	$e(P)_{NZ}$	20 39 30	G-W	
			$e(S)_{EN}$	20 46 40	"	
			eL_{E}	21 26 00	"	
			F	22 45 ±	"	

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No.	Date	Char.	Phase	G.M.Time h. m. s.	Instruments	Remarks
350	Oct.19	II	iP_Z	10 23 21	G-W	Rarefaction. Atacama Deep off North coast of Chile. 21°5 S. 72°W. $\Delta = 61°.4$ Surface waves relatively very small.
			eP_{EN}	10 23 21	W-A	
			eP_N	10 23 21	G-W	
			e_E	10 23 24	"	
			i_Z	10 23 53	"	
			i_{NZ}	10 24 39	"	
			iPR_{1NZ}	10 25 55	"	
			iPR_{3NZ}	10 27 47	"	
			iS_N	10 31 43	"	
			eS_E	10 31 47	W-A	
			iS_E	10 31 49	G-W	
			eS_N	10 31 50	W-A	
			e_N	10 32 34	"	
			$i(S)_N$	10 32 33	G-W	
			i_E	10 32 36	W-A	
			i_E	10 32 39	"	
			i_N	10 32 44	W-A	
			$i(S)_N$	10 33 54	G-W	
			i_E	10 33 57	"	
			F	13 15 ±	"	
351	Oct.21	I	eL_E	11 28 30	G-W	
			F	12 20 ±	"	
352 I	Oct.21	I	eP_{nEN}?	21 28 02.7	W-A	Apparently two earthquakes superposed. Felt at Junction City, Kansas and in neighboring counties.
353	II		$iP_{nE(N)}$	21 28 08.7	"	
			i_{EN}	21 28 10.7	"	
			iP^*_{EN}	21 28 16.5	"	
			i_{EN}	21 28 24.7	"	
			$i(P_g)_E$	21 28 28.3	"	
	I		eS_{nN}	21 29 04.9	"	
	II		iS_{nEN}	21 29 09	"	
			F	21 32 ±	"	
354	Oct.23	I	eL_E	20 13 30	G-W	
			F	20 30 ±	"	

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No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
355	Nov. 4	I	e_{EN}	15 23 00	G–W	
			e_{EN}	15 53 40	"	
			e_{EN}	15 57 30	"	
			eL_E	16 25 00	"	
			eM_E	16 28 30	"	
			F	11 55 ±	"	
356	Nov. 5	I	i_Z	11 58 34	G–W	
			eL_Z?	12 38 30	"	
			F	13 05 ±	"	
357	Nov. 6	I	eL_{EN}	5 56 00	G–W	
			F	6 10 ±	"	
358	Nov. 7	I	eL_E	0 42 00	G–W	
			F	1 00 ±	"	
359	Nov. 8	I	iP_E?	3 29 05	G–W	
			iS_E	3 33 31	"	
			eL_E	3 36 00	"	
			F	4 20 ±	"	
360	Nov. 9	I	iP_{ENZ}	1 50 09	G–W	From north-west. $\Delta = 57^o$
			iPR_{1Z}	1 52 21	"	
			ePR_{2ENZ}	1 53 33	"	
			eS_{EN}	1 58 01	"	
			F	3 30 +	"	
	Same quake as recorded on the Wood-Anderson.					
	Nov. 9	I	iP_{EN}	1 50 09	"	
			eS_N	1 58 03	"	
361	Nov. 10	I	e_E	9 20 00	G–W	
			F	10 05 ±	"	

BULLETIN FOR 1929

No.	Date	Char.	Phase	G.M.Time h. m. s.	Instruments	Remarks
362	Nov.11	I	eS_{EN}	11 16 20	G-W	
			eM_{EN}	11 19 30	"	
			F	11 35 ±	"	
363	Nov.13	I	eL_{E}	1 41 00	G-W	
			eM_{E}	1 48 15	"	
			F	2 45 ±	"	
364	Nov.15	II	eP_{Z}	19 05 01	G-W	North of New Guinea 3°.5 N. 142°.9 E.
			eP'_{E}	19 08 41	W-A	
			e_{E}	19 05 31	G-W	
			eP'_{Z}	19 09 37	G-W	
			iPR_{1EZ}	19 09 46	G-W	
			ePR_{1EN}	19 09 46	W-A	
			e_{EN}	19 17 31	G-W	
			e_{EN}	19 17 33	W-A	
			ePS_{EN}	19 19 11	W-A	
			$iPS_{E(N)}$	19 19 28	G-W	
			e_{E}	19 21 06	W-A	
			e_{E}	19 22 11	W-A	
			e_{E}	19 23 46	W-A	
			eL_{E}	19 37 00	G-W	
			eL_{E}?	19 37 00	W-A	
			iM_{ENZ}	19 49 40	G-W	
			eM_{E}	19 49 45	W-A	
			F	20 50 ±	W-A	
365	Nov.16	I	eP_{Z}	10 57 01	G-W	Δ = 20°.8
			eS_{E}	11 06 46	G-W	
			eL_{E}	11 03 30	W-A	
			eL_{EN}	11 03 30	G-W	
			eM_{Z}	11 06 00	"	
			F	11 25 ±	"	

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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 1929

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
366	Nov. 17	I	e_E	0 12 20	G–W	Microseisms very severe from 17th 2 hrs. to 18th 9hrs.
			eL_E	0 19 00	"	
			F	0 50 ±	"	
367	Nov. 17	I	eP'_E	4 02 11	W–A	Philippines 11°N. 123°.5 E.
			eP'_N	4 02 13	"	
			iP'_E?	4 02 28	G–W	
			e_E	4 03 18	W–A	
			iPR_{1E}	4 03 49	G–W	
			ePR_{1E}	4 03 50	W–A	
			e_N	4 04 18	"	
			e_E	4 04 21	"	
			iPR_{2E}	4 06 30	G–W	
			ePR_{2EN}	4 06 30	W–A	
			e_{EN}	4 09 12	W–A	
			$iS_cP_cS_E$	4 09 30	G–W	
			iPS_E	4 12 42	"	
			iSR_{1E}	4 20 33	"	
			eL_E	4 35 30	"	
			eM_E	4 43 30	"	
			eM_{EN}	4 43 31	W–A	
			F	6 15 ±	G–W	
368	Nov. 18	III	iP_E	20 37 34	G–W	Data partly from Wiechert partly from Galitzin. 46°N. 58°.2 W. Very destructive on Newfoundland coast and to submarine cables.
			eP_E	20 37 34	W–A	
			i_E	20 37 39	W–A	
			i_E	20 37 52	G–W	
			i_E	20 38 00	W–A	
			iPR_{1EN}	20 38 07	G–W	
			iPR_{1E}	20 38 07	W–A	
			iPR_{2EN}	20 38 15	G–W	
			iPR_{2E}	20 38 18	W–A	
			iPR_{3E}	20 38 21	"	
			iS_{EN}	20 41 51	G–W	
			i_{EN}	20 42 08	G–W	
			iS_N?	20 42 10	W–A	

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

BULLETIN FOR 1929

No.	Date	Char.	Phase	G.M.Time h. m. s.	Instruments	Remarks
368	Continued		iSR_{1N}	20 42 54	G-W	
			iSR_{2N}	20 43 15	"	
			iL_{EN}	20 45 05	"	
			iM_{N}	20 45 53	"	
			F	Covered by after-shock		
369	Nov. 18	I	eP_{E}	23 07 24	G-W	After-shock
			eP_{Z}	23 07 25	"	
			ePR_{1EZ}	23 07 58	"	
			eS_{NZ}	23 11 31	"	
			e_{EN}	23 12 02	"	
370	Nov. 19	I	eP_{E}?	2 07 31	G-W	After-shock.
			eS_{E}?	2 11 56	"	
			eM_{E}	2 16 00	"	
			F	2 40 ±	"	
371	Nov. 23	I	e_{Z}	0 21 22	G-W	
			i_{Z}	0 21 43	"	
			i_{Z}	0 22 32	"	
			i_{Z}	0 24 59	"	
			i_{NZ}	0 29 36	"	
			i_{N}	0 32 32	"	
			i_{Z}	0 32 36	"	
			i_{N}	0 39 25	"	
			i_{Z}	0 39 32	"	
			eL_{NZ}	1 02 00	"	
			eM_{NZ}	1 06 00	"	
			eL_{NZ}	1 58 00	"	Possibly new quake.
			F	2 30 ±	"	

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

BULLETIN FOR 1929

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
372	Nov. 23	I	eL_Z	19 47 00	G-W	
			F	20 03 ±	"	
373	Nov. 27	I	eP_E?	7 55 05	G-W	
			i	7 55 05	W-A	
			e_E	8 03 30	G-W	
			F	8 30 ±	"	
374	Nov. 27	I	e_{EN}	20 01 00	G-W	
			e_E	20 04 20	"	
			F	20 15 ±	"	

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

BULLETIN FOR 1929

No.	Date	Char.	Phase	G.M. Time h m s	Instruments	Remarks
375	Dec.3	I	eZ	8 23 30	G–W	
			eL_E	8 39 30	"	
			eM_{ENZ}	8 43 00	"	
			F	9 10 ±	"	
376	Dec.4	I	e_Z	7 56 00	G–W	
			eL_{ENZ}	8 11 00	"	
			F	8 20 ±	"	
377	Dec.5	I	$e_{E(N)}$	15 26 37	W–A	
			e_{EN}	15 26 39	"	
			i_{EN}	15 26 52	"	
			i_{EN}	15 26 54	"	
			F	15 28 ±	"	
378	Dec.6	I	eP_Z	11 56 32	G–W	
			i_{NZ}	11 56 47	"	
			eS_N	12 06 02	"	
			i_N	12 06 42	"	
			e_{EN}	12 11 47	"	
			eL_{EN}	12 32 00	"	
			eL_Z	12 34 00	"	
			eM_{ENZ}	12 38 30	"	
			F	13 10 ±	"	
379	Dec.6	I	e_{ENZ}	17 05 30	G–W	Most likely two earth-quakes.
			e_Z	17 06 07	"	
			i_Z	17 07 34	"	
			e_{EN}	17 11 27	"	
			i_N	17 11 42	"	
			i_N	17 12 32	"	
			$i(S)_{EN}$	17 13 02	"	
			e_{EN}	17 24 50	"	
			e_E	17 31 42	"	
			eL_{EN}	17 36 00	"	
			eM_{EN}	17 40 30	"	
			eM_Z	17 45 45	"	
			F	19 50 ±	"	

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

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

BULLETIN FOR 1929

No.	Date	Char.	Phase	G.M. Time h m s	Instruments	Remarks
375	Dec. 3	I	eZ	8 23 30	G–W	
			eL_E	8 39 30	"	
			eM_{ENZ}	8 43 00	"	
			F	9 10 ±	"	
376	Dec. 4	I	e_Z	7 56 00	G–W	
			eL_{ENZ}	8 11 00	"	
			F	8 20 ±	"	
377	Dec. 5	I	$e_{E(N)}$	15 26 37	W–A	
			e_{EN}	15 26 39	"	
			i_{EN}	15 26 52	"	
			i_{EN}	15 26 54	"	
			F	15 28 ±	"	
378	Dec. 6	I	eP_Z	11 56 32	G–W	
			i_{NZ}	11 56 47	"	
			eS_N	12 06 02	"	
			i_N	12 06 42	"	
			e_{EN}	12 11 47	"	
			eL_{EN}	12 32 00	"	
			eL_Z	12 34 00	"	
			eM_{ENZ}	12 38 30	"	
			F	13 10 ±	"	
379	Dec. 6	I	e_{ENZ}	17 05 30	G–W	Most likely two earth-quakes.
			e_Z	17 06 07	"	
			i_Z	17 07 34	"	
			e_{EN}	17 11 27	"	
			i_N	17 11 42	"	
			i_N	17 12 32	"	
			$i(S)_{EN}$	17 13 02	"	
			e_{EN}	17 24 50	"	
			e_E	17 31 42	"	
			eL_{EN}	17 36 00	"	
			eM_{EN}	17 40 30	"	
			eM_Z	17 45 45	"	
			F	19 50 ±	"	

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 1929

No.	Date	Char.	Phase	G.M.Time h. m. s.	Instruments	Remarks
380	Dec.6	I	e_Z	20 39 52	G-W	Most likely two earthquakes.
			i_Z	20 42 07	"	
			e_{EN}	20 46 02	"	
			e_E	20 47 27	"	
			e_N	20 47 32	"	
			i_E	20 54 52	"	
			e_{EN}	20 59 12	"	
			eL_{EN}	21 10 00	"	
			eM_{EN}	21 15 00	"	
			eM_{2E}	21 19 30	"	
			eM_{2NZ}	21 20 30	"	
			F	23 10 ±	"	
381	Dec.6	I	e_E?	22 03 10.3	W-A	
			e_{EN}	22 03 53.6	"	
			i_E	22 03 58.9	"	
			i_E	22 04 00.3	"	
			i_E	22 04 04.7	"	
			i_{EN}	22 04 07.4	"	
			F	22 05 00	"	
382	Dec.9	I	eP_N	6 47 01.5	W-A	
			iP_{NZ}	6 47 02	G-W	
			iP_{EN}	6 47 02	W-A	
			i_{NZ}	6 47 32	G-W	
			iS_{ENZ}	6 50 50	G-W	
			i_{EN}	6 50 50.5	W-A	
			i_Z	6 51 15	G-W	
			i_{EN}	6 51 18	"	
			i_Z	6 51 38	"	
			End covered by following		"	

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

BULLETIN FOR 1929

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
383	Dec.9	I	iP'_Z	7 09 20	G–W	West of Sumatra, $\Delta = 138^0$
			e_{NZ}	7 11 57	"	
			e_E	7 11 59	W–A	
			i_{NZ}	7 12 52	G–W	
			$e_{E(N)}$	7 12 53	W–A	
			i_E	7 12 54	"	
			eL_E	7 59 00	G–W	
			eL_{NZ}	8 03 30	"	
			iM_E	8 05 00	"	
			F	10 00 ±	"	
384	Dec.9	I	e_E	20 32 20	G–W	
			F	20 45 ±	"	
385	Dec.10	I	e_E	7 32 15	G–W	
			F	7 40 ±	"	
386	Dec.10	I	eL_{EZ}	13 52 00	G–W	
			F	14 10 ±	"	
387	Dec.10	I	e_{ENZ}	14 38 00	G–W	
			F	15 20 ±	"	
388	Dec.11	I	i_{EN}	7 14 40	G–W	
			i_E	7 15 34	"	
			F	7 35 ±	"	
389	Dec.11	I	e_E	12 33 24	W–A	
			i_E	12 37 07	"	
			F	12 43 ±	"	
390	Dec.12	I	iL_{EN}	0 33 00	G–W	
			F	0 40 ±	"	
391	Dec.13	I	eL_{EZ}	5 25 00	G–W	
			F	5 45 ±	"	
392	Dec.13	I	e_{EZ}	8 50 20	G–W	
			eL_{EZ}	9 13 00	"	
			F	9 40 ±	"	

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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 1929

No.	Date	Char.	Phase	G.M.Time h. m. s.	Instruments	Remarks
393	Dec.13	I	e_E	11 28 30	G–W	
			F	11 50 ±	"	
394	Dec.14	I	e_{EN}	4 51 00	G–W	
			F	5 40 ±	"	
395	Dec.14	I	eL_{EN}	22 34 33	G–W	
			eM_{EN}	22 48 30	"	
			F	23 05 ±	"	
396	Dec.16	I	e_E	1 42 58	G–W	
			iS_N	1 47 37	"	
			eL_{EN}	1 54 00	"	
			iM_{EN}	1 57 00	"	
			F	2 30 ±	"	
397	Dec.15	I	e_N	16 09 00	G–W	
			F	16 25 ±	"	
398	Dec.16	I	e_E	0 01 00	G–W	
			e_N	0 14 00	"	
			e_E	0 21 15	"	
			eL_E	0 23 30	"	
			eM_E?	0 29 00	"	
			F	1 20 ±	"	
399	Dec.17	III	eP_{EN}	11 09 07	W–A	
			iP_Z	11 09 08	G–W	
			iP_N	11 09 10	"	
			$i_{E(N)Z}$	11 09 12	"	
			iPR_{1ENZ}	11 11 47	"	
			iS_{EN}	11 17 48	W–A and G–W	
			e_E	11 21 45	W–A	
			eSR_{1E}	11 22 41	"	
			eL_E	11 28 36	"	
			eM_E	11 32 11	"	
			F	16 20 ±	"	

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

BULLETIN FOR 1929

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
400	Dec.17	I	e_E	18 02 36	G-W	
			eL_E	18 13 30	"	
			eM_E	18 17 30	"	
			F	18 50 ±	"	
401	Dec.17	I	eL_E	21 26 30	G-W	
			F	End covered by following		
402	Dec.17	I	e_{ENZ}	21 55 00	G-W	
			eM_{EZ}	22 28 30	"	
			F	23 10 ±	"	
403	Dec.18	I	e_E	5 30 00	G-W	
			eM_E	5 37 00	"	
			F	5 55 ±	"	
404	Dec.18	I	e_E	7 17 30	G-W	
			eL_E	7 57 30	"	
			F	8 35 ±	"	
405	Dec.18	I	e_{EZ}	12 51 00	W-A	
			e_E	13 08 30	"	
			eL_E	13 21 30	"	
			F	14 25 ±	"	
406	Dec.19	I	eP_E	10 31 14	G-W	
			e_E	10 31 31	"	
			$e(S)_{EN}$	10 42 01	G-W and W-A	
			eL_{ENZ}	10 56 00	"	
			F	11 50 ±	"	
407	Dec.19	I	eM_{ENZ}	20 02 00	G-W	
			F	20 30 ±	"	
408	Dec.20	I	eM_{EN}	7 47 00	G-W	
			F	8 00 ±	"	
409	Dec.20	I	eL_{EN}	8 13 00	G-W	
			F	8 30 ±	"	

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

BULLETIN FOR 1929

No.	Date	Char.	Phase	G. M. Time h. m. s.	Instruments	Remarks
410	Dec. 20	I	$eP_{(E)N}$	10 33 23	W-A	
			iP_N	10 32 23	G-W	
			i_N	10 33 19	"	
			i_N	10 36 20	W-A	
			i_N	10 36 23	G-W	
			i_N	10 37 36	"	
			F	11 00 ±	"	
411	Dec. 21	I	eP_{EN}	4 40 16	G-W	
			eL_{EZ}	5 06 00	"	
			F	6 00 ±	"	
412	Dec. 21	I	e_Z	11 29 31	G-W	
			$e(S)_{EN}$	11 39 11	"	
			e_N	11 43 56	"	
			eI_N	11 47 00	"	
			eM_N?	11 52 00	"	
			F	12 45 ±	"	
413	Dec. 21	I	e_E	11 54 05	W-A	
			F	11 58 ±	"	
414	Dec. 24	I	$e(S)_{EN}$	4 57 19	G-W	
			i_E	5 04 00	"	
			e_E	5 08 00	"	
			eL_E	5 22 00	"	
			F	6 30 ±	"	
415	Dec. 24	I	e_E	9 03 00	G-W	
			eM_{ENZ}	9 09 00	"	
			F	9 30 ±	"	
416	Dec. 24	I	e_E?	20 48 00	G-W	
			eM_E	21 04 00	"	
			F	21 20 ±	"	

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

BULLETIN FOR 1929

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
417	Dec. 27	I	e_E	13 52 57	W-A	
			i_E	13 53 27	"	
			e_E	13 59 19.3	"	
			F	14 05 ±	"	
418	Dec. 28	I	e_N?	0 34 41.6	W-A	Reported felt in Elreno, Oklahoma and surrounding counties. Δ = 770 km.
			e_N	0 34 46.8	"	
			i_N	0 34 54.2	"	
			i_N	0 35 05.6	"	
			i_N	0 35 09.7	"	
			i_N	0 36 03.1	"	
			i_E	0 36 03.5	"	
			i_E	0 36 06.2	"	
			i_N	0 36 33.7	"	
			i_{EN}	0 36 38.1	"	
			F	0 45 ±	"	
419	Dec. 28	I	e_{EZ}	2 18 00	G-W	
			eL_E	2 33 00	"	
			eM_{EZ}	2 40 00	"	
			F	3 30 ±	"	
420	Dec. 28	I	e_{EN}	12 09 30	G-W	
			eL_{EN}	12 27 00	"	
			eM_{ENZ}	12 39 00	"	
			F	13 40 ±	"	
421	Dec. 28	I	e_{EZ}	21 40 45	G-W	
			eL_E	21 54 30	"	
			eM_Z	22 02 00	"	
			F	22 20 ±	"	
422	Dec. 30	I	e_Z	6 10 00	G-W	
			F	6 30 ±	"	

BULLETIN FOR 1929

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
423	Dec.30	I	e_E	11 32 45	W-A	
			e_N	11 34 46.1	"	
			e_E	11 39 10.5	"	
			F	11 45 ±	"	
424	Dec.30	I	e_Z	11 39 30	G-W	
			eL_Z	11 43 00	"	
			eM_Z	11 47 00	"	
			F	12 20 ±	"	
425	Dec.31	I	i_{EZ}	1 33 00	G-W	
			eL_E	1 50 00	"	
			eM_Z	2 07 30	"	
			F	3 10 ±	"	
426	Dec.31	I	e_Z	5 11 00	G-W	
			eM_{EZ}	5 21 30	"	
			eM_{2EZ}	5 49 00	"	
			F	6 50 ±	"	
427	Dec.31	I	eL_{EZ}	17 26 30	G-W	
			F	18 15 ±	"	
428	Dec.31	I	eL_E	23 07 00	G-W	
			F	0 40 ±	"	

Please note the omission of an earthquake on page 87 which is dated Dec. 7. For same see below.

381a	Dec.7	I	e_E	8 02 08	W-A	Felt at Manhattan, Kansas.
			e_E	8 02 17	"	
			e_E	8 02 19	"	
			e_E	8 02 29	"	
			e_{EN}	8 02 33	"	