BUFFALO

SEISMIC OBSERVATORY, CANISIUS COLLEGE, BUFFALO, N. Y., U. S. A.

Lat. 42° 55' 32"N. Long. 78° 51' 13"W. Alt. 200 m. Foundation--Cherty Limestone

Instruments: Galitzin-Wilip Vertical, Wiechert 80 kg. Horizontal, Spindler-Hoyer Observatory Clock

Bulletin for January, 1931.

Jan. 2.	i	0 - 22 - 24	Italy?
	eL	0 - 56 - 00	
	iP	9 - 55 - 45	Pacific, off Mexico
	eS	10 - 02 - 00	
	eL	10 - 05 - 00	
Jan. 8.	i	0 - 16 - 54	Quebec
	i	0 - 17 - 26	
Jan. 12.	i	20 - 45 - 25	
	i	20 - 52 - 36	
	eL	21 - 09 - 00	
Jan. 15.	iP	1 - 57 - 00	Mexico
	iS	2 - 02 - 05	
	eL	2 - 07 - 00	
	eM	2 - 09 - 00	
Jan. 16.	iP	19 - 26 - 09	
	iS	19 - 31 - 17	
	iL	19 - 32 - 57	
Jan. 17.	eP	2 - 56 - 42	
	e	2 - 57 - 25	
	iS	3 - 01 - 16	
	eL	3 - 06 - 00	
	iP	5 - 42 - 10	
	eS	5 - 47 - 18	
	eL	5 - 52 - 26	
Jan. 23.	iP	5 - 58 - 25	
	iS	6 - 03 - 32	
	eL	6 - 10 - 00	
Jan. 24.	iP	14 - 01 - 47	
	e	14 - 17 - 28	
	e	14 - 31 - 20	
	eL	14 - 46 - 00	
Jan. 25.	i	12 - 41 - 27	
	e	12 - 42 - 31	
	eL	12 - 56 - 00	
Jan. 27.	i	14 - 37 - 36	
	e	14 - 47 - 18	
	eL	14 - 52 - 00	
Jan. 28.	i	21 - 43 - 26	
	iS	21 - 53 - 17	
	eL	22 - 20 - 00	
Jan. 29.	i	17 - 16 - 46	
	e	17 - 23 - 45	
	eL	17 - 26 - 54	
Jan. 27	eP	20 - 24 - 00	
	i	20 - 28 - 34	
	iS	20 - 38 - 00	
	eL	21 - 04 - 00	

Only prominent phases of important quakes are here listed. Other data on request. Time correct within one second.

John P. Delaney, S.J.
Seismologist.

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Instruments: Galitzin-Wilip Vertical, Wiechert 80 kg. Horizontal, Spindler-Hoyer Observatory Clock

Bulletin for March 1931

Mar. 7.	iP	0 - 48 - 26
	iPR_1	0 - 49 - 48
	iS	0 - 54 - 35
	eM	0 - 59 - 00
Mar. 8.	iP	2 - 01 - 02
	iPR_1	2 - 04 - 12
	iS	2 - 10 - 55
	iSR_1	2 - 15 - 33
	eM	2 - 28 - 35
Mar. 9.	iP	4 - 01 - 43
	iPR_1	4 - 05 - 25
	iPS	4 - 13 - 51
	iM	4 - 38 - 45
Mar.11.	e	12 - 45 - 00
	e	12 - 54 - 14
	i	13 - 06 - 17
	i	13 - 10 - 42
	eM	13 - 27 - 00
Mar.12.	e	11 - 07 - 40
	eL	11 - 40 - 00
Mar.18.	iP	8 - 14 - 14
	iPR_1	8 - 17 - 20
	eS	8 - 23 - 54
	iPS	8 - 24 - 32
Mar.18.	iP'	20 - 32 - 42
	iPR_1	20 - 35 - 00
	ePS	20 - 45 - 11
	iPPS	20 - 46 - 12
	eL	21 - 14 - 00
Mar.19.	iPR_1	6 - 44 - 56
	iPS	6 - 54 - 30
	eL	7 - 34 - 00
Mar.23	e	14 - 51 - 21
	i	14 - 51 - 46
	i	14 - 54 - 50
	e	14 - 59 - 10
Mar28	iP'	12 - 57 - 57
	iP'	12 - 58 - 10
	iPR_1	13 - 01 - 14
	iPR_1	13 - 01 - 30
	iPR_2	13 - 03 - 40
	ePS	13 - 12 - 24
	iPPS	13 - 13 - 42
	eL	13 - 36 - 00
Mar.29.	eP	17 - 35 - 00
	eS	17 - 43 - 12
	eM	18 - 00 - 00

Mar. 30,31. Out of Service

Only prominent phases listed here. Time checked twice daily by NAA.

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Seismologist.

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Instruments: Galitzin-Wilip Vertical, Wiechert 80 kg. Horizontal, Spindler-Hoyer Observatory Clock

Bulletin for April 1931

Apr. 1-9	Out of Service	
Apr. 15	iP	17 - 05 - 57
	i	17 - 06 - 14
	iPR_1	17 - 07 - 03
	iS	17 - 11 - 45
	eL	17 - 15 - 43
	eM	17 - 19 - 05
Apr. 16	e	22 - 47 - 12
	eM	22 - 56 - 16
Apr. 18	e	13 - 11 - 57
	eM	13 - 25 - 00
Apr. 19	eP	2 - 07 - 15
	ePR_1	2 - 08 - 05
	eS	2 - 10 - 49
	i	2 - 16 - 31
	eL	2 - 18 - 00
	iM	2 - 19 - 59
Apr. 20	iP	19 - 55 - 27
	iS	19 - 56 - 10
	iL	19 - 56 - 30
Apr. 22.	e	0 - 09 - 00
	e	0 - 11 - 26
	i	0 - 31 - 10
	i	0 - 32 - 06
	eM	0 - 46 - 00
Apr. 24	eP	17 - 37 - 34
	eP'	17 - 41 - 14
	iPR_1	17 - 42 - 33
	iPPS	17 - 52 - 12
	eSR_1	17 - 58 - 52
	eM	18 - 19 - 30
Apr. 27	iP	17 - 03 - 10
	iP'	17 - 06 - 26
	eS	17 - 14 - 29
	eL	17 - 38 - 00

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No.	Date	Char.	Phase	G.M.Time h. m. s.	Instruments	Remarks
48	Apr.26	I	eP_N	4 33 26	W-A	
			eS_E	4 42 30	W-A	
			F	4 50 ±	W-A	
49	Apr.27	I	e_E	17 07 57	W-A	Destructive in Transcancasia.
			e_E	17 14 34	W-A	
			i_E	17 15 24	W-A	
			eM_N	17 47 15	W-A	
			F	18 15 ±	W-A	
50	May.1	I	eP_N	22 43 37	W-A	Venezuela $\Delta = 33°.9$ Time approximate.
			eS_N	22 48 57	W-A	
			F	23 00 ±	W-A	
51	May 2	I	iP_{EN}	22 55 53	W-A	Local.
			F	23 57 ±	W-A	
52	May 5	I	e_N	12 19 14	W-A	Felt in Birmingham, Ala. Time uncertain.
			i_N	12 19 21	W-A	
			i_E	12 19 34	W-A	
			i_E	12 19 26	W-A	
			i_N	12 19 39	W-A	
			e_N	12 19 42	W-A	
			i_N	12 19 47	W-A	
			e_N	12 19 58	W-A	
			i_N	12 20 21	W-A	
			F	12 23 ±	W-A	
53	May 9	I	e_N	10 41 34	W-A	No E-W component.
			e_N	10 45 10	W-A	
			eM_N	10 47 34	W-A	
			F	11 15 ±	W-A	
54	May 10	I	e_N	8 07 53	W-A	
			i_N	8 08 00	W-A	
			F	8 09 ±	W-A	

No.	Date	Char.	Phase	G.M. Time h. m. s.	Instruments	Remarks
42	Apr. 19	I	eP_N	2 05 10	W-A	Epicenter 21.5° N. 111° W.
			iP_{FN}	2 05 12	W-A	
			eS_N	2 08 48	W-A	
			iS_E	2 08 50	W-A	
			eM_N	2 11 25	W-A	
			F	2 40 ±	W-A	
43	Apr. 20	I	eP_N	9 19 14	W-A	
			e_N	9 24 27	W-A	
			F	9 30 ±	W-A	
44	Apr. 20	I	e_N	20 01 10	W-A	Felt in eastern New York.
			e_N	20 01 47	W-A	
			eL_N	20 03 29	W-A	
			F	20 10 ±	W-A	
45	Apr. 22	I	e_{EN}	0 15 30	W-A	
			e_E	0 27 07	W-A	
			e_{EN}	0 27 55	W-A	
				Part of gram lost by changes of record		
			F	1 30 ±	W-A	
46	Apr. 24	I	e_E	2 22 27	W-A	
			e_E	2 31 34	W-A	
			F	2 40 ±	W-A	
47	Apr. 24	I	e_E	17 40 51	W-A	Epicenter 5° S. 155° E. Δ = 112°
			ePR_{1E}	17 41 21	W-A	
			i_E	17 41 53	W-A	
			e_E	17 44 03	W-A	
			ePS_E	17 50 47	W-A	
			e_E	17 51 42	W-A	
			i_E	18 02 25	W-A	May be second shock.
			pM_E	18 15 15	W-A	
			F	19 55 ±		

Bulletin for May 1931

No.	Date	Char.	Phase	G.M.Time h. m. s.	Instruments	Remarks
55	May 10	I	e_{EN}	19 37 00	W-A	
			eM_N	20 01 30	W-A	
			F	20 15 ±	W-A	
56	May 12	I	eP_N	1 48 40	W-A	Δ_{S-P} 70.8
			iS_{EN}	1 58 02	W-A	Time uncertain
			e_{EN}	1 58 36	W-A	
			eM_E	2 18 00	W-A	
			F	2 30 ±	W-A	
57	May 15	I	e_N	7 59 36	W-A	
			e_{EN}	8 05 05	W-A	
			F	8 15 ±	W-A	
58	May 16	I	iP_{EN}	20 51 51	W-A	Time approximate
			eS_E	20 55 20	W-A	Δ_{S-P} 18°.9
			F	21 30 ±	W-A	
59	May 16	I	iP_{EN}	23 35 32	W-A	Local blast.
			F	23 27 ±	W-A	
60	May 19	I	e_N	4 41 25	W-A	
			e_{EN}	4 44 10	W-A	
			F	4 46 ±	W-A	
61	May 20	I	eP_{EN}	2 32 58	W-A	Δ_{S-P} 59°
			eS_N	2 41 04	W-A	
			e_{EN}	2 45 59	W-A	
			eM_N	2 53 10	W-A	
			F	4 00 ±	W-A	
62	May 20	I	eP_{EN}	22 04 41	W-A	Δ_{S-P} 64°.8
			eS_E	22 13 25	W-A	
			F	22 20 ±	W-A	
63	May 20	I	e_N	22 33 18	W-A	
			eS_N	22 41 55	W-A	
			F	22 45 ±	W-A	

Bulletin for May 1931

No.	Date	Char.	Phase	G.M.Time h. m. s.	Instruments	Remarks
64	May 27	I	i_N	6 45 34	W-A	No E-W component.
			e_N	6 52 47	W-A	
			F	7 15 ±	W-A	
65	May 27	I	iP_N	10 25 19	W-A	No E-W component.
			eS_N?	10 28 58	W-A	
			eM_N	10 32 50	W-A	
			F	10 50 ±	W-A	
66	May 29	I	eP_N	5 24 34	W-A	No E-W component.
			eM_N	5 40 00	W-A	
			F	5 55 ±	W-A	

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Instruments: Galitzin-Wilip Vertical, Wiechert 80 kg. Horizontal, Spindler-Hoyer Observatory Clock

Bulletin for May 1931

May 1	iP	22 - 43 - 52
	iPR_1	22 - 45 - 06
	eS	22 - 49 - 46
	eSR_1	22 - 51 - 47
	iSR_2	22 - 52 - 16
	eL	22 - 54 - 00
May 6	eL	15 - 56 - 40
May 9	eS	10 - 46 - 24
	eSR_1	10 - 48 - 00
	i	10 - 51 - 04
	iL	10 - 52 - 00
May 10	eP	19 - 36 - 30
	ePR_1	19 - 39 - 56
	ePR_2	19 - 41 - 12
	eL	20 - 04 - 00
May 12	iP	1 - 48 - 52
	e	1 - 53 - 00
	eS	1 - 57 - 50
	e	1 - 58 - 34
	eM	2 - 18 - 00
May 20	iP	2 - 31 - 22
	iPR_1	[illegible] - 14
	iS	[illegible] - 12
	eL	[illegible] - 56
	iP	22 - 05 - 16
	eS	22 - 14 - 16
May 23	eL	3 - 42 - 00
May 27	iP	6 - 46 - 09
	eS	6 - 56 - 03
	eL	7 - 05 - 00
	e	10 - 26 - 30
	e	10 - 34 - 20
	eL ?	10 - 41 - 00

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Instruments: Galitzin-Wilip Vertical, Wiechert 80 kg. Horizontal, Spindler-Hoyer Observatory Clock

Bulletin for June-July 1931

June	1	eM	12 - 54 - 00	
June	2	eM	6 - 35 - 00	
June	4	e	10 - 07 - 00	
		e	10 - 11 - 46	
		e	10 - 38 - 54	
		eM	11 - 01 - 40	
June	7-July 4	Out of Service		
July	5	eM	7 - 34 - 00	
July	9	eM	21 - 13 - 40	
July	10	eM	21 - 40 - 00	
July	11	iP	6 - 05 - 18	
		iS	6 - 12 - 36	
		e	6 - 22 - 54	
July	12	e	17 - 06 - 00	
		e	17 - 08 - 50	
		e	17 - 15 - 18	
		eL	17 - 44 - 00	
July	15	eP	16 - 38 - 20	
		eS	16 - 51 - 32	
		iM	17 - 11 - 24	
July	17	iP	9 - 20 - 04	
		ePR_2	9 - 21 - 16	
		eS	9 - 25 - 02	
July	18	e	5 - 35 - 50	
		i	5 - 37 - 58	
		e	5 - 44 - 16	
July	18(2)	i	11 - 35 - 19	
		e	11 - 43 - 20	
July	21	eP	3 - 51 - 24	
		eP'	3 - 54 - 50	
		iPR_1	3 - 56 - 18	
		iPS	4 - 06 - 08	
		iPPS	4 - 07 - 02	
		eM	4 - 42 - 00	
July	23	iP'	14 - 39 - 14	
		iPR_1	14 - 40 - 46	
		eL	15 - 10 - 00	
July	27	iP	7 - 21 - 56	
		iS	7 - 26 - 46	
		eM	7 - 31 - 36	
July	27(2)	eP	16 - 36 - 55	
		iS	16 - 43 - 26	
		eL	16 - 49 - 15	

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Instruments: Galitzin-Wilip Vertical, Wiechert 80 kg. Horizontal, Spindler-Hoyer Observatory Clock

Bulletin for August-September 1931

Aug. 2	i	23 - 40 - 54	
	e	23 - 47 - 00	
	e	23 - 50 - 00	
Aug. 7	eP	2 - 27 - 39	
	eP'	2 - 30 - 43	
	iPR_1	2 - 32 - 46	
	ePS	2 - 42 - 17	
	iPPS	2 - 44 - 05	
	iM	3 - 16 - 29	
Aug. 10	iP	21 - 31 - 46	After P light beam left paper
Aug. 11-Sept.9	No service		on both sides, amplitude
Sept. 9	eP	13 - 47 - 24	exceeded 280 mm.
	iPR_1	13 - 48 - 36	
	eS	13 - 52 - 44	
	eL	13 - 59 - 34	
	iP	20 - 52 - 20	
	iPR_1	20- 56 - 46	
	iPS	21 - 05 - 50	
	iPPS	21 - 06 - 52	
	eL	22 - 22 - 00	
Sept.12	eM	2 - 28 - 00	
	e	15 - 51 - 16	
	e	15 - 54 - 42	
	eM	16 - 05 - 00	
Sept.20	i	23 - 07 - 26	Rapid series of impulses
Sept.21	e	2 - 44 - 38	
	eL	3 - 06 - 00	
	eM	3 - 17 - 50	
	e	10 - 54 - 24	
	eL	11 - 02 - 30	
	eM	11 - 30 - 20	
Sept.23	i	22 - 49 - 41	Rapid impulses as on 20 th.
	i	22 - 49 - 51	
	L ?	22 - 50 - 00	
Sept.24	eM	13 - 39 - 00	
Sept.25	iP'	6 - 19 - 08	
	iPR_1	6 - 22 - 18	Amplitude 180 mm.
	iPR_2	6 - 25 - 36	
	ePPS	6 - 34 - 10	
	eL	7 - 05 - 00	
Sept.26	i	20 - 02 - 47	
	i	20 - 03 - 53	
	i	20 - 07 - 42	
	i	20 - 08 - 37	
	i	20 - 09 - 31	
	i	20 - 09 - 51	
	eM ?	20 - 23 - 00	

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Instruments: Galitzin-Wilip Vertical, Wiechert 80 kg. Horizontal, Spindler-Hoyer Observatory Clock

Bulletin for October 1931

Oct. 1	eP	11 - 52 - 00	
	e	11 - 54 - 36	
	e	11 - 56 - 32	
	e	11 - 57 - 44	
	iL	12 - 02 - 06	Amplitude 45 mm.
Oct. 3	eP	19 - 28 - 42	
	iPR_1	19 - 33 - 20	
	iPR_2	19 - 36 - 40	
	i	19 - 49 - 18	
	M	20 - 14 - 00	
	e	23 - 09 - 54	
	e	23 - 13 - 47	
	e	23 - 21 - 54	
	M	23 - 47 - 00	
Oct. 9	eL	23 - 46 - 50	
Oct. 10	eP	00 - 35 - 10	
	eP'	00 - 38 - 52	
	e	00 - 40 - 56	
	e	00 - 43 - 54	
	e	00 - 52 - 36	
	L	01 - 23 - 00	Amplitude over 150 mm.
	e	16 - 59 - 50	
	eL	17 - 16 - 00	
	M	17 - 20 - 30	
Oct. 12	eL	01 - 38 - 00	
	e	03 - 06 - 50	Heavy micros. from 0 h.
	e	03 - 29 - 48	on 12 th to 0 h. on 15 th,
	eL	03 - 58 - 00	amplitude 7 mm. period 6 s.
Oct. 18	e	01 - 06 - 10	
	e	01 - 11 - 00	
	eM	01 - 38 - 00	
	e	04 - 49 - 50	
	e	04 - 58 - 28	
	e	05 - 01 - 40	
Oct. 23	eL	21 - 06 - 00	
Oct. 26	eP	04 - 31 - 26	
	ePR_1	04 - 32 - 20	
	eS	04 - 36 - 39	
	eSR_1	04 - 38 - 54	
	iL	04 - 41 - 50	
	iM	04 - 44 - 00	Aplitude 85 mm. T=8 s.

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Bulletin for November-December 1931

Nov.	2	iP	00 - 38 - 23	Dist. 30.5°
		i	00 - 39 - 00	
		iS	00 - 43 - 22	
		iSR_1	00 - 45 - 06	
		eL	00 - 47 - 00	
		eM	00 - 52 - 00	
	(2)	iP	10 - 16 - 48	Dist. 99.9°
		iPR_1	10 - 20 - 56	
		i	10 - 29 - 30	
		e	10 - 33 - 34	
		i	10 - 36 - 36	
		eL	10 - 50 - 00	
	(3)	e	17 - 24 - 14	
		e	17 - 27 - 06	
		e	17 - 36 - 36	
		e	17 - 38 - 22	
		eM	18 - 07 - 00	
Nov.	4	iP	18 - 05 - 26	Other phases obscure.
Nov.	14	eM	14 - 11 - 00	
Nov.	18	eP	3 - 51 - 00	
		e	4 - 01 - 28	
		e	4 - 07 - 34	
		eM	4 - 28 - 30	
Nov.	20	ePR_1	14 - 36 - 33	Dist. 117°
		ePR_2	14 - 39 - 23	
		iPS	14 - 46 - 26	
		eM	15 - 15 - 16	
Dec.	1	eM	4 - 30 - 00	
	(2)	e	15 - 31 - 50	
		eM	15 - 42 - 12	
	(3)	e	18 - 20 - 47	
		e	18 - 35 - 36	
		e	18 - 59 - 00	
Dec.	3	e	10 - 37 - 11	
		e	10 - 38 - 23	
		e	10 - 39 - 35	
		eM	10 - 40 - 07	
Dec.	18	e	10 - 08 - 52	
		e	10 - 12 - 26	
		e	10 - 16 - 10	
		e	10 - 22 - 12	
		eM	11 - 08 - 30	

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