

FLORISSANT

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

Three Galtzin-Willp, two Wood-Anderson short-period seismographs, Shortt synchronous clock



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Florissant Bulletin for January, 1943

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
1	Jan. 10	W-A	cN	02 35 53.6	Local shock Very weak
		W-A	eN	02 36 02.1	
		W-A	iN	02 36 04.6	
		W-A	iN	02 36 05.3	
		W-A	i(L)N	02 36 07.9	
		W-A	i(M)N	02 36 08.5	
2	Jan. 10	G-W	iN	09 59 42	Very weak
		G-W	iN	10 02 50	
			F	10 18	
3	Jan. 10	G-W	iN	15 35 05	Very weak
		G-W	eN	15 40 27	
			F	15 53	
4	Jan. 14	W-A	iN	21 39 50	Did not register on long period instruments.
		W-A	iN	21 41 13	
		W-A	iN	21 41 24	
			F	21 48	
5	Jan. 24	G-W	iZ	09 32 38	Weak
		G-W	iZ	09 33 01	
		G-W	eE	09 35 53	
		G-W	iE	09 36 50	
			F	09 51	
6	Jan. 24	G-W	iPZ	20 47 10	$\Delta S - P = 23^{\circ}6$
		G-W	iSN	20 51 26	
		G-W	eLN	20 55 11	
		G-W	eMN	20 59 11	
			F	21 26	
7	Jan. 27	G-W	iPZ	02 55 23	J.S.A. gives $t 51^{\circ}2 N.$ $176^{\circ}9 W.$ $H=02 45 26$ $\Delta P - H = 59^{\circ}2$ $\Delta S - P = 59^{\circ}1$ $\Delta_{meas} = 59^{\circ}2$
		G-W	iSN	03 03 36	
		G-W	eLN	03 13 42	
		G-W	eMN	03 19 12	
			F	05 51	
8	Jan. 30	G-W	iPZ	05 40 47	J.S.A. gives region of $0^{\circ}3 S., 80^{\circ}2 W.$ h about 500 km. $H=05^h 33^m 53^s$ $\Delta P - H = 40^{\circ}2$ $\Delta_{meas} = 40^{\circ}1$
		G-W	iZ	05 41 02	
		G-W	ippZ	05 42 21	
		G-W	iSN	05 46 45	
			F	06 26	
9	Jan. 31	G-W	iPZ	08 33 45	J.S.A. gives region of $18^{\circ}8 N., 94^{\circ}7 W.$ h \approx 100 km. $H=08^h 29^m 12^s$ $\Delta P - H = 20^{\circ}6$ $\Delta_{meas} = 20^{\circ}5/$ Weak
		G-W	ippZ	08 34 01	
		G-W	iSE	08 37 46	
			F	09 06	

Minor Seismic Activity - Jan. 11 - 20^h48^m to 21^h11^m; 17 - 17^h11^m to 17^h25^m. Microseisms Strong - Jan. 1-7, 14, 20-23.

James B. Macelwane, S. J.
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Florissant Bulletin for February, 1943

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
10	Feb. 3	W-A	eN	15 29 41.1	Local shock Very weak
		W-A	eN	15 29 46.2	
		W-A	iN	15 29 48.0	
		W-A	iN	15 29 49.4	
		W-A	i(L)N	15 29 51.8	
		W-A	i(M)N	15 29 53.3	
		F		15 30 22	
11	Feb. 16	G-W	iPz	07 38 00	J.S.A. gives tenta- tive 15° 2 S., 68° 5 W. H = 07 28 41 h = 300 km. $\Delta P - H = 57.9$ $\Delta_{meas} = 58.0$
		G-W	i(P ^c P)z	07 38 44	
		G-W	ipPz	07 38 58	
		G-W	iSN	07 45 35	
		G-W	i(SP)N	07 46 40	
		G-W	isSN	07 47 33	
		F		08 14	
12	Feb. 22	About 09 ^h 30 ^m G.M.T. Record loaned to Harvard station. For data on quake see J. S. A. Preliminary Bulletin #6 for 1943.			
13	Feb. 23	G-W	iPz	23 00 11	Very weak $\Delta S - P = 25.1$
		G-W	i(S)N	23 04 39	
		G-W	eM _N	23 08 20	
		F		23 29	
14	Feb. 24	G-W	ePz	04 29 10	Very weak
		G-W	iN	04 37 21	
		G-W	i(M)N	04 39 31	
		F		04 59	

Minor Seismic Activity -

Feb. 5 - 03^h42^m to 04^h09^m
 7 - 05 19 to 07 01
 16 - 15 33 to 15 42
 17 - 03 16 to 03 40

Microseisms strong - Feb. 5-7, 12, 13, 18-20.

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MARCH 1943

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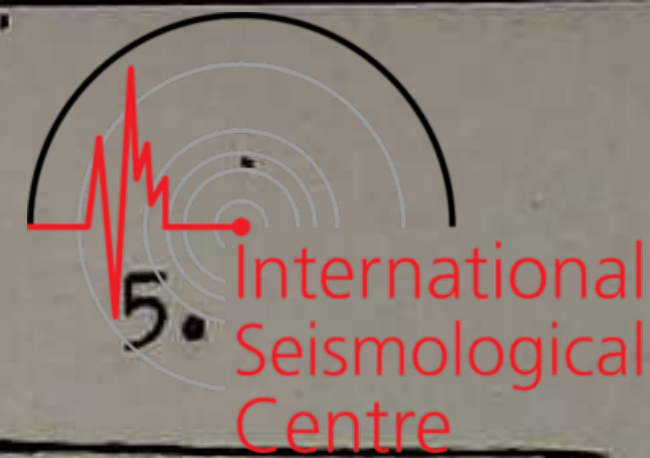
No.	Date	Inst.	Phase	G.M.C.T.	Remarks
15	March 5	GW GW GW GW	iPz iP ₁ Z iS ₁ e(M)E F	00h38m28s 00 39 37 00 43 57 00 51 00 01 51	J.S.A. gives 05°5' N 83°30' W h=Greater than normal H=00h31m53s ΔP-H=33°0' Δmeas = 33°5'
16	March 7	GW GW GW	iPz eSN e(M)E F	03h12m17s 03 20 59 03 35 55 05 14	J.S.A. gives tenta- tive 58°2' N 166°5' E H=03h01m45s May be slightly deep ΔP-H= 64°5' Δmeas = 64°4'
17	March 8	GW GW GW GW	iN iN iN iN F	09h39m26s 09 42 08 09 42 18 09 43 01 09 52	Weak
18	March 9	WA WA WA WA WA WA WA WA WA	eP ₄ N eN eN iP ₁ N eN iN iS ₃ N e(L) _N e(M) _N F	03h27m14s 03 27 18 03 27 24 03 27 36 03 27 47 03 28 35 03 28 39 03 29 11 03 29 32 03 33 33	Local Shock J.S.A. gives tenta- tive 41°0' N 81°3' W H=03h25m25s ΔP ₄ -H = 7°2' Felt in and around Cleveland, Ohio

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No.	Date	Inst.	Phase	C.V.C.T.	Remarks
19	March 9	GW GW GW GW GW	ePR ₁ Z ePR ₂ N e(SKS) _N iPS _N e(M) _E F	10 ^h 08 ^m 07 ^s 10 20 24 10 14 06 10 17 36 10 37 03 12 47	J.S.A. gives tentative 61°0 S 31°2. W H=09-49-04 ΔPR ₁ -H=110°5 ΔPS-H=110°8 Δmeas.=110°1
20	March 10	GW GW GW	iE eF eF F	08 ^h 44 ^m 03 ^s 08 45 07 08 49 49 09 57	Very Weak
21	March 14	GW GW GW GW GW	eZ ePS _E eSR ₁ E eSR ₂ E e(M) _E F	17 ^h 20 ^m 17 39 17 46 17 50 18 36 (Lost	J.S.A. gives Region of 23°0 S 169°0 E H=17 ^h 10 ^m 57 ^s ΔPS-H=112°5 Δmeas=112° (in following quake)
22	March 14	GW GW GW GW GW	ePZ e(pP)Z eSE esSE e(M) _E F	18 ^h 48 ^m 05 ^s 18 48 32 18 56 09 18 57 58 19 10 28 20 17	J.S.A. gives near 18°5 S 68°3 W H=18 ^h 38 ^m 08 ^s h=120 km. (ca.) ΔP-H=61°3 Δmeas=61°1
23	March 15	GW GW GW	e(P)Z e(L)N e(M) _E F	02 ^h 39 ^m 10 ^s 03 10 23 03 23 53 (Lost	J.S.A. gives 21°S 169°E H=02 ^h 24 ^m 5 ΔP-H=111°1 in next shock. Δmeas =111°
24	March 15	GW GW GW	eE e(L) _E e(M) _E F	05 ^h 14 ^m 56 ^s 05 35 53 05 46 43 07 15	J.S.A. gives 10°N 142°E H=04 ^h 48 ^m Δmeas=112°
25	March 15	GW GW GW GW GW	iPZ ip ₂ PZ eZ iSN esSN F	23 ^h 12 ^m 13 ^s 23 13 29 23 16 08 23 22 21 23 24 33 00 07	J.S.A. gives near 15°0 S 177°5 W H=22 ^h 59 ^m 17 ^s h=ca. 300 km. ΔP-H=95°9 Δmeas=96°9

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March--1943



No.	Date	Inst.	Phase	G.M.C.T.	Remarks
26.	March 16	GW GW GW GW	iZ iZ eN iN F	09 ^h 59 ^m 21 ^s 10 00 55 10 05 19 10 09 03 10 21	Very Weak
27	March 17	GW GW GW GW	iPZ iSE iE eLE F	23 ^h 08 ^m 24 ^s 23 17 00 23 18 10 23 34 50 23 53	Weak $\Delta S-P=62.7$
28	March 20	WA WA WA WA WA	eN iN iN iLN eMN F	21 ^h 29 ^m 46 ^s 21 29 49.5 21 29 50.2 21 29 52.3 21 29 57.5 21 30 10	Local Shock Weak
29	March 21	GW GW GW GW GW GW GW GW	eZ iZ iZ iSKKS _E iPS _E iSR ₁ N eMz F	20 ^h 55 ^m 17 ^s 20 55 52 20 56 42 21 02 28 21 05 16 21 11 26 21 34 45 23 28	J. S. A. gives 06.5 S 15.04 E E=20.55.50 ^s LPS-P=116.01 Amens=116.04
30	March 25	GW GW GW GW GW	eZ iZ eN eZ eMN F	18 ^h 46 ^m 37 ^s 18 49 21 18 55 52 19 02 57 19 36 40 21 03	Very Weak
31	March 26	GW GW GW GW	iPZ iZ iSE eLE F	17 ^h 52 ^m 22 ^s 17 56 04 18 02 26 18 25 20 19 09	$\Delta S-P=79.5$ Wellington gives SE of Tonga Apia says felt in Nukualofa
32	March 31	GW GW GW	iE eE eE F	22 ^h 01 ^m 23 ^s 22 04 00 22 07 50 22 21	Very Weak

FLORISSANT BULLETIN
March 1943

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MINOR SEISMIC ACTIVITY

March	9	20 ^h 37 ^m	21 ^h 00 ^m
	11	10 33	11 32
	12	22 57	23 53
	14	09 47	10 00
		12 23	lost (change records)
	15	15 10	15 28
	20	05 24	06 51
	29	06 25	06 45

MICROSEISMS STRONG

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APRIL 1943

No.	Date	Instr.	Phase	G.M.C.T.	Remarks
33	April 1	GW GW GW GW	eN eN eLN eMN F	14 ^h 51 ^m 32 ^s 14 56 28 15 23 57 15 37 12 16 29	Weak Phases marked by micro- seisms
34	April 5	GW GW GW	iZ iZ iZ F	08 36 04 08 37 01 08 38 13 08 50	Very Weak
35	April 6	WA WA WA WA WA WA WA WA WA WA	iPN ipPN isPN ePcPN ePR ₁ N epPR ₁ N iSE isSE iSPN eSR ₁ N F lost	16 ^h 18 ^m 36 ^s 16 18 53 16 19 03 16 19 09 16 21 18 16 21 35 16 27 51 16 28 21 16 28 31 16 32 29	J.S.A. gives 29° 8' S 71° 0' W H=16 ^h 07 ^m 28 ^s h=ca. 80 km. Destructive in northern Chile ΔP-H=71.02 ΔS-P=71.02 Δmeas=71.02
36	April 7	GW GW GW GW GW	iPZ ipPZ iZ iSE e(L)N F	23 ^h 29 ^m 16 ^s 23 29 29 23 33 52 23 38 35 23 51 00 01 51	Aftershock of #35 H=23 ^h 18 ^m 08 ^s
37	April 9	GW GW GW GW GW GW GW	ePZ epPZ iPR ₁ Z i(SKS)N iSN isSN eMN F	09 ^h 02 ^m 34 ^s 09 03 25 09 06 46 09 12 57 09 14 11 09 15 55 09 40 05 10 52	J.S.A. gives re- gion of 15° 7' N 141° 0' E H=09 ^h 48 ^m 42 ^s h=ca. 210 km ΔP-H=106° Δmeas=107.01
38	April 11	GW GW GW	iSE iE e(L)Z F	15 ^h 09 ^m 28 ^s 15 15 32 15 32 33 16 53	Beginning lost in paper change Surface waves small

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APRIL 1943

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
30	April 15	Gw Gw Gw Gw	iZ iZ' iE iE F lost	11 ^h 10 ^m 22 ^s 11 46 12 11 55 32 12 00 06	Weak
40	April 15	Gw Gw	iZ iZ' F	17 ^h 52 ^m 23 ^s 17 55 32 18 14	Very Weak
41	April 15	Gw	e _F F	21 ^h 45 ^m 45 ^s 21 51	Very Weak
42	April 10	Gw Gw Gw Gw	i(P)Z iS _E iE iZ F	01 ^h 24 ^m 46 ^s 01 28 26 01 32 36 01 33 42 01 52	Weak
43	April 21	WA	iN iN eN eN iN iN iN i(L) _N eN i(V) _N F	22 ^h 48 ^m 53 ^s .4 22 48 55.5 22 48 57.9 22 49 00.8 22 49 04.5 22 49 07.3 22 49 10.3 22 49 11.7 22 49 25.7 22 49 39.0 22 49 45	Local Shock
44	April 21	WA WA WA WA WA WA WA WA WA WA	eN iN iN iN iN iN iN iLN iN F	22 ^h 40 ^m 54 ^s .9 57.8 50 03.1 06.5 07.4 08.0 12.9 14.5 17.5 20.1 58	Local Shock

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APRIL--1943

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
45.	April 21	WA WA WA WA WA	e(P) _F i(S) _E i _E i(L) _F i(M) _E F	17 ^h 01 ^m 00 ^s .4 17 01 06.0 17 01 07.7 17 01 14.7 17 01 17.5 17 02 10	Local Shock Phases doubtful
46.	April 28	GW GW GW GW GW	e(P) _E i(P) _E i _N i _E i _N F	00 ^h 07 ^m 37 ^s 00 07 40 00 07 45 00 10 21 00 11 13 00 43	Weak Deep?
47.	April 29	WA WA WA WA	i _N e _N i(L) _N i(M) _N F	15 ^h 15 ^m 41 ^s .2 15 16 55.0 15 17 00.8 15 17 12.2 15 17 27	Local Shock Very Weak
48.	April 29	GW GW GW GW	i _Z i _N i _N i _N F	15 ^h 37 ^m 11 ^s 15 47 20 15 47 33 15 47 55 15 46	Weak

MINOR SEISMIC ACTIVITY

April 4	02 ^h 10 ^m	03 ^h 42 ^m
5	21 42	22 11
5	lost	20 53
7	09 48	10 12
	lost	14 34
12	05 21	05 39
	20 30	21 11
15	01 02	01 11
23	18 43	18 54

MICROSEISMS STRONG

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MAY--1943

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
49	May 2	GW GW GW	i _E i _E e _E F	06 ^h 45 ^m 29 ^s 06 45 35 06 46 49 06 50	Very Weak
50	May 2	WA WA WA WA WA WA GW GW GW GW	i _P N i _p P i _{PR} 1N i _{PR} 2N i _{Pe} P i _S F i _s S i _X F i _S 1E F	17 ^h 24 ^m 11 ^s 17 25 07 17 25 43 17 26 04 17 27 39 17 29 58 17 30 38 17 30 59 17 31 33 20 40	Epicenter 7°0 N 80°1 W H=17 ^h 18 ^m 13 ^s Depth about 100 km Δ _{S-P} =32°8 Δ _{P-H} =32°8 Δ _{meas} =32°8
51	May 3	GW GW GW GW GW GW GW GW GW GW GW	e _P 'Z i _Z i _Z i _{PR} 1Z i _Z i _N i(SKS) _N i(SKKS) _N i _N i _N i _{SP} N F	02 ^h 19 ^m 05 ^s 02 18 48 02 19 17 02 19 26 02 21 40 02 24 21 02 25 17 02 26 47 02 29 05 02 29 13 02 29 21 04 27	Epicenter region of 11°8 N 103°0 E H=01 ^h 59 ^m 11 ^s Δ _{P'-H} =121°5 Δ _{meas} =121°4
52	May 3	WA WA GW GW	i(P) _E i _E i _E e _E F	10 ^h 21 ^m 56 ^s 10 25 42 10 26 17 10 26 45 10 34	Very Weak
53	May 5	GW GW GW	(e) _Z e _E i _N F	16 ^h 53 ^m 31 ^s 16 53 46 16 55 28 17 04	Very Weak
54	May 5	WA WA WA WA	e _N i _N i _N e _N F	17 ^h 37 ^m 09 ^s .4 17 37 10.2 17 37 11.2 17 37 13.0 17 37 30	Local Shock

FLORISSANT BULLETIN
MAY--1943

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
55	May 5	WA WA WA WA	e _N e _N e _N e _N F	17 ^h 40 ^m 23. ^s 4 17 40 24.4 17 40 25.1 17 40 25.0 17 40 38.4	Local Shock
56	May 13	GW GW	i _E e _F F	23 ^h 40 ^m 05. ^s 23 42 29 23 57	Very Weak
57	May 17	GW	e _F F	08 ^h 00 ^m 52. ^s 08 24	Very Weak
58	May 17	GW GW GW	e _E e _E e _F F	10 ^h 12 ^m 51. ^s 10 13 00 10 14 53 10 46	Very Weak
59	May 17	GW GW GW GW	e _Z e _Z i _E e(L) _E F	17 ^h 37 ^m 05. ^s 17 38 30 17 30 34 17 42 05 18 05	Weak
60	May 18	GW GW GW	e _Z e _Z e _F F	06 ^h 24 ^m 29. ^s 06 29 52 06 41 29 07 40	Weak
61	May 22	WA GW GW GW	i _P i(pP) _Z e _Z i _E i(ss) _E F	09 ^h 13 ^m 19. ^s 09 13 29 09 16 43 09 22 32 09 22 50 10 28	Depth about 50 km $\Delta_{s-p}=70.6$
62	May 24	WA WA WA WA	i _N i _N i _N i _N i _N F	19 ^h 33 ^m 50. ^s 9 19 33 54.2 19 33 57.6 10 34 02.1 10 34 09.2 19 34 56	Local Shock

FLOPISSANT BULLETIN
MAY--1943

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
63	May 25	GW	eP ¹ z	23 ^h 26 ^m 26 ^s	Epicenter region of 07° N 127° E H=23 ^h 07.7 ^m ΔP ¹ -H=1220 ΔS-P=1230 Δmeas=1220
		GW	iP ¹ z	23 26 29	
		GW	iPR ₁ z	23 28 06	
		GW	eSKPN	23 29 41	
		GW	iS _E	23 36 08	
		GW	iP _S E	23 37 59	
			F	03 32	
64	May 26	GW	iPz	10 ^h 36 ^m 53 ^s	Epicenter near 15°5 N 106°5 W H=10 ^h 31 ^m 12 ^s ΔP-H=2698 Δmeas = 2791
		GW	iS _E	10 41 20	
		GW	i(L) _E	10 44 30	
			F	11 58	
65	May 27	GW	e(s)z	15 ^h 16 ^m 56 ^s	Weak
		GW	eE	15 20 18	
		GW	eE	15 20 41	
			F	15 38	

MINOR SEISMIC ACTIVITY

May 1	17 ^h 32 ^m	17 ^h 49 ^m
3	17 05	18 11
7	20 46	21 35
18	08 48	10 11
21	07 43	08 06
31	02 41	02 55

Microseisms Strong

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JUNE----1943

No.	Date	Inst	Phase	G.M.C.T.	Remarks
66	June 1	GW GW GW	e(P)Z e(S)E e(L)E F	04 ^h 20 ^m 35 ^s 04 24 59 04 28 19 05 24	$\Delta S-P=24^{\circ}5$
67	June 2	GW GW GW	e(P)Z e _R (S)E i(S)E F	05 ^h 29 ^m 04 ^s 05 33 07 05 33 13 06 05	$\Delta S-P=22^{\circ}9$
68	June 3	GW GW GW	e(S)E e(L)E e(M)E F	20 ^h 17 ^m 37 ^s 20 40 20 20 43 20 indeterminate	Very Weak
69	June 3	GW GW	e(S)E e(M)E F	21 ^h 12 ^m 03 ^s 21 39 01 22 34	Very Weak
70	June 5	WA WA WA WA	e _N e _N i _N e _N F	20 ^h 50 ^m 13 ^s .9 20 50 16.5 20 50 17.6 20 50 39.5 20 50 34	Local Shock Weak
71	June 7	GW GW GW GW	eZ eZ e ^(L) (I)N e _N F	23 ^h 39 ^m 14 ^s 23 43 23 00 22 40 00 26 20 indeterminate	Very Weak
72.	June 8	GW GW GW	e _N i _N e ^(M) (M)N F	01 ^h 30 ^m 14 ^s 01 30 21 01 35 29 02 30	P phases lost in #71 Recorded weak
73.	June 8	GW GW GW	eZ iP _Z e(S _{R1})E F	21 ^h 02 ^m 13 ^s 21 02 21 21 24 52 00 49	Epicenter by J.S.A. near 05° S, 102° 5' E H= 20h42m52s $\Delta_{meas}=145^{\circ}3$



No.	Date	Inst.	Phase	G.M.C.T.	Remarks
74	June 9	G-W G-W G-W	e(P') _Z iPR _{1Z} iPR _{2Z} F	03 ⁿ 25 ^m 41 ^s 03 28 51 03 31 58 08 04	Epicenter from JSA about same as #73 H = 03 06 41 Δ _{meas} = 145.3
75	June 13	G-W G-W G-W G-W G-W G-W G-W G-W G-W	iPZ iZ iZ iSE iSKKSE i(PS) _E eSR _{1E} e(L) _N e(M) _N F	05 24 24 05 24 45 05 28 04 05 34 57 05 35 10 05 35 40 05 40 45 05 50 40 05 57 40 08 07	Epicenter by JSA near 42°0 N, 145°0E H = 05 ⁿ 11 ^m 52 ^s "Epicenter deter- mination difficult" Δ _{P-H} = 84.9 Δ _{meas} = 85.7
76	June 13	G-W G-W G-W G-W G-W G-W G-W	iPZ eE iSE iE i(SR ₁) _E eLE eME F	08 49 40 09 00 04 09 00 14 09 00 42 09 06 00 09 28 00 09 34 00 11 07	Main Aftershock of #75 H = 08 ⁿ 37 ^m 08 ^s Δ _{P-H} = 84.9 Δ _{meas} = 85.7
77	June 13	G-W G-W G-W G-W	ePZ eSE eLE e(M) _E F	16 36 13 16 46 40 17 17 10 17 29 10	Aftershock of #75 J.S.A. gives H = 16 23 29 Δ _{S-P} = 84.5 Δ _{meas} = 85.7
78	June 14	G-W G-W	i(P) _Z e(L) _E F	02 25 02 03 22 20 03 58	Aftershock of #75 Record weak
79	June 14	G-W	e(P) _Z eLE F	16 35 19 17 05 40	Aftershock of #75 Very weak record lost in following
80	June 14	G-W G-W G-W G-W G-W	e(P)? _Z e(S)? _N eN iN iN F	17 28 26 17 32 27 17 34 53 17 35 00 17 35 13 17 59	

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
81	June 15	G-W G-W G-W G-W	1PZ 1SE e(L)E e(M)E	11 ^h 23 ^m 28 ^s 11 33 50 11 53 00 12 20 40 13 26	Aftershock of #75 $\Delta S-P = 83^{\circ}3$ $\Delta_{meas} = 85^{\circ}7$
82	June 15	G-W G-W G-W	1PZ 1PR ₁ Z 1SE F lost in following	18 27 01 18 27 32 18 31 30	Epicenter by JSA 13.7 N, 93.1 W h = slightly greater than normal H = 18 21 36 $\Delta P-H = 25^{\circ}0$ $\Delta_{meas} = 25^{\circ}2$
83	June 15	W-A W-A W-A W-A W-A W-A	eN iN iN iN iN iN F	19 41 14.8 19 41 15.4 19 41 20.7 19 41 24.0 19 41 32.0 19 41 33.6 19 41 43	Local shock
84	June 15	G-W G-W	1PZ 1SE F	19 50 42 19 55 13	Aftershock of #82 H = 19 ^h 45 ^m 15 ^s $\Delta P-H = 25.2$
85	June 15	G-W G-W G-W	1PZ e(PR ₂)Z 1SN F	20 30 58 20 31 46 20 35 29 21 49	Aftershock of #82 $\Delta S-P = 25^{\circ}4$
86	June 15	G-W	eSN F	22 15 34 22 34	Probably aftershock of #82
87	June 17	W-A W-A W-A W-A	eN iN iN eN F	22 51 59.2 22 52 00.4 22 52 03.0 22 52 04.3 22 52 18	Local shock Record Weak
88	June 20	G-W G-W G-W G-W G-W	1PZ eSKSN eSE e(L)E eME F	15 45 26 15 55 47 15 56 11 16 14 10 16 23 10 17 17	St. Louis gives H = 15 32 12 $\Delta S-P = 93^{\circ}3$ $\Delta P-H = 93^{\circ}3$

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
89	June 20	G-W	ePz	17 ^h 52 ^m 20 ^s	H = 17 ^h 38 ^m 40 ^s ΔS-P = 98.6
		G-W	e(SKS)E	18 02 59	
		G-W	e(S)E	18 03 32	
		G-W	e(L)E	18 20 10	
			F	19 19	
90	June 24	G-W	e(S)?E	20 50 38	Very weak record
		G-W	e(L)E	21 03 10	
			F	21 41	
91	June 25	W-A	iPE	04 16 13	Very weak record
		W-A	iE	04 16 21	
		G-W	e(S)?E	04 32 53	
			F	04 41	
92	June 30	G-W	iZ	11 07 14	Weak record
		G-W	iZ	11 09 49	
		G-W	iZ	11 10 03	
		G-W	iE	11 10 49	
			F	12 12	

Minor Seismic Activity

June 4	23 ^h 23 ^m	to	23 ^h 26 ^m
6	19 35	to	20 06
11	09 04	to	09 45
18	20 08	to	20 52
19	09 49	to	10 49
27	18 05	to	18 32
28	03 30	to	04 41

Note: Minor Seismic Activity beginning about 15^h19^m GMT
June 28 was interrupted by a cessation of recording.
Other activity, beginning after resumption of recording,
could not be placed in time.

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Director

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20.11.1948
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INSTITUTE OF GEOPHYSICAL TECHNOLOGY

3621 OLIVE STREET, SAINT LOUIS 8, MO., U. S. A.

SEISMOLOGICAL BULLETIN

FLORISSANT STATION

Latitude: geographical, $38^{\circ} 46' 06''$ N; geocentric, $38^{\circ} 37'$ N.
Longitude: $90^{\circ} 22' 12''$ W. Altitude: $h = 160\text{m}$, $H+h = 4$ km.
Lithologic foundation: Pennsylvanian shale.
Seismographs: Calitzin-Wilip ENZ, Wood-Anderson short period EN.
Clock: Shortt synchronome.

Bulletin for July, 1943.

17.

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
93	July 11	G.W.	iPZ	$02^{\text{h}}24^{\text{m}}44^{\text{s}}$	$32^{\circ}7$ S, $178^{\circ}6$ W. $H = 02^{\text{h}}10^{\text{m}}32^{\text{s}}$. $h = 180$ km. $\Delta_{\text{PR}_1-H} = 109^{\circ}2$ $\Delta_{\text{meas}} = 108^{\circ}4$
		G.W.	epPZ	02 25 31	
		G.W.	i(P')Z	02 28 29	
		G.W.	iPR ₁ Z	02 29 09	
		G.W.	e(SP)Z	02 38 39	
		G.W.	i(sSP)N	02 39 07	
		G.W.	F	05 33.0	
94	July 12	G.W.	eLZ	23 02 00	
		G.W.	F	23 27.0	
95	July 22	G.W.	ePZ	02 16 53	$0^{\circ}7$ S, $81^{\circ}3$ W. $H = 02^{\text{h}}09^{\text{m}}23^{\text{s}}$. $\Delta_{\text{P-H}} = 39^{\circ}3$ $\Delta_{\text{meas}} = 39^{\circ}9$
		G.W.	e(PR ₂)Z	02 18 27	
		G.W.	eSE	02 22 56	
		G.W.	e(SR ₂)E	02 25 43	
		G.W.	F	02 53.0	
96	July 23	G.W.	iP'N	15 12 37	$7^{\circ}0$ S, $111^{\circ}3$ E. $H = 14^{\text{h}}53^{\text{m}}22^{\text{s}}$. $h = 120$ km. $\Delta_{\text{P}'-H} = 143^{\circ}0$ $\Delta_{\text{meas}} = 143^{\circ}4$
		G.W.	ipPN	15 13 17	
		G.W.	iPR ₁ N	15 15 56	
		G.W.	iSKF ₁ Z	15 16 14	
		G.W.	iSKF ₂ E	15 16 39	
		G.W.	iPR ₂ N	15 19 09	
		G.W.	iSKSZ	15 19 54	
		G.W.	iSKKSE	15 22 46	
		G.W.	i(S)?N	15 24 24	
		G.W.	F	18 42.0	



No.	Date	Inst.	Phase	G.M.C.T.	Remarks
97	July 25	W-A W-A W-A	ePoN eN iSoN	06 ^h 49 ^m 29 ^s .6 06 49 36.0 06 49 42.1	38°05 N, 91°3 W. H = 06 ^h 49 ^m 09 ^s .5 ΔSo-Po = 71.4 miles Δmeas = 71.4 miles Southeast of Cuba, Mo. For details see Trans. Amer. Geoph. Union, Vol. 27, page 320, 1946.
98	July 26	G.W.	eN	02 33 08	
99	July 28	G.W. G.W. G.W. G.W. G.W. G.W. G.W.	ePZ eZ eSE eE e(SR ₂)E iE F	04 12 33 04 12 41 04 18 51 04 19 05 04 22 12 04 28 09 05 00.0	59°6 N, 149°0 W. H = 04 ^h 04 ^m 43 ^s . May be slightly deeper than normal. ΔP-H = 41°8 Δmeas = 41°6
100	July 29	G.W. W-A W-A G.W.	iPZ iPR ₁ N iSE F	03 08 09 03 08 50 03 12 54 07 30.0	18°7 N, 66°9 W. H = 03 ^h 02 ^m 15 ^s . ΔP-H = 28°0 Δmeas = 28°3
101	July 29	G.W. G.W. G.W. G.W.	eN e(S)N eLN F	11 50 08 11 53 40 11 57.0 12 55.5	Indefinite beginning. Aftershock of No. 100.
102	July 30	G.W. G.W. G.W. G.W. G.W.	ePZ ePR ₁ Z iSE iSR ₁ E F	01 08 25 01 09 04 01 13 10 01 14 34 02 54.0	18°8 N, 66°7 W. H = 01 ^h 02 ^m 30 ^s . ΔP-H = 28°1 Δmeas = 28°3
103	July 30	W-A W-A G.W. G.W.	ePN eN e(S)N F	02 19 44 02 19 54 02 25 01 Lost	South America Aftershock.
104	July 30	G.W. G.W.	ePZ F	04 29 10 05 04.0	Puerto Rico Aftershock of No. 100.
105	July 30	G.W. G.W.	e(L)N F	18 33 18 18 38.0	

FLORISSANT STATION BULLETIN FOR JULY, 1943.

19.

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
106	July 30	G.W.	ePZ	21 ^h 26 ^m 01 ^s	Aftershock of No. 100.
		G.W.	eSN	21 30 30	
		G.W.	F	22 09.0	
107	July 31	G.W.	ePR ₁ Z	03 28 35	Puerto Rico Aftershock of No. 100. Deep?
		G.W.	eSN	03 32 43	
		G.W.	F	04 35.0	

Minor Seismic Activity:

Date	From		To	
	h.	m.	h.	m.
July 1	21	36	21	48
2	07	49	07	57
8	14	54	15	21
9	03	21	03	44
15	00	33	00	51
23	10	01	10	08
24	20	37	23	49
26	08	52	08	53
26	12	17	12	37
30	20	00	20	31
31	20	14	20	18

FLORISSANT STATION

Bulletin for August, 1943.

20.

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
108	Aug. 1	G.W.	ePZ	16 ^h 32 ^m 49 ^s	21°0 S, 170°9 E. H = 16 ^h 18 ^m 42 ^s . h = 200 km. $\Delta_{SKS-E} = 109^{\circ}6$ $\Delta_{meas} = 109^{\circ}8$
		G.W.	eZ	16 35 41	
		G.W.	epPKPZ	16 37 23	
		G.W.	eSKSE	16 43 02	
		G.W.	iSKKSE	16 44 02	
		G.W.	iSN	16 44 46	
		G.W.	esSN	16 46 26	
		G.W.	e(SP)E	16 46 40	
		G.W.	eE	16 52 03	
		G.W.	F	18 13.0	
109	Aug. 2	G.W.	ePKPZ	01 05 33	47°1 S, 166°4 E. H = 00 ^h 46 ^m 31 ^s . $\Delta_{PS-H} = 124^{\circ}9$ $\Delta_{meas} = 124^{\circ}8$
		G.W.	ePR ₁ Z	01 07 15	
		G.W.	eE	01 07 47	
		G.W.	eSKPE	01 08 42	
		G.W.	ePSN	01 17 23	
		G.W.	e(PPS)E	01 18 46	
		G.W.	e(FPSS)E	01 25 29	
		G.W.	eLE	01 46 44	
		G.W.	F	04 00.0	
110	Aug. 2	G.W.	eSE	04 35 35	Puerto Rico.
		G.W.	eLN	04 38.6	
		G.W.	F	04 54.0	
111	Aug. 2	G.W.	ePZ	05 44 04	Deep.
		G.W.	epPZ	05 44 32	
112	Aug. 2	G.W.	eLN	10 09 08	Puerto Rico.
		G.W.	F	10 26.0	
113	Aug. 2	G.W.	eLE	12 16 30	Puerto Rico.
		G.W.	F	12 32.0	
114	Aug. 7	W-A	e(P)N	16 04 05	Deep.
		G.W.	e(pP)Z	16 04 30	
		G.W.	eZ	16 04 47	
		G.W.	e(S)?E	16 08 05	
		G.W.	e(sS)E	16 08 50	
		G.W.	eE	16 09 11	
		G.W.	F	16 12.0	

FLORISSANT STATION BULLETIN FOR AUGUST, 1943.

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
115	Aug. 8	W-A W-A G.W. G.W. G.W. G.W. G.W.	ePE epPE ePR ₁ Z e(S)E eSR ₁ E e(sSR ₁)E F	00 ^h 44 ^m 34 ^s 00 44 43 00 44 58 00 49 23 00 50 49 00 51 50 01 41.0	18°5 N, 67°3 W. H = 00 ^h 38 ^m 45 ^s . h = 50 km. ΔP-H = 27°9 Δ _{meas} = 28°2
116	Aug. 8	W-A W-A W-A G.W.	ePN ePN eSN F	08 37 15 08 37 18 08 41 28 09 01.0	16°0 N, 96°4 W. H = 08 ^h 32 ^m 11 ^s . ΔP-H = 22°9 Δ _{meas} = 23°0
117	Aug. 9	G.W. G.W. G.W. G.W.	e(P)Z eZ eN F	17 18 14 17 18 51 17 28 07 17 41.0	
118	Aug. 10	G.W. G.W. G.W. G.W. G.W. G.W. G.W.	ePZ iPZ ePR ₃ Z iSE eN eLE F	15 24 19 15 24 21 15 28 56 15 33 19 15 35 26 15 41 54 17 52.0	55°1 N, 163°5 E H = 15 ^h 13 ^m 31 ^s . ΔP-H = 66°9 Δ _{meas} = 66°7
119	Aug. 10	W-A W-A W-A W-A	ePN eSN eN F	15 47 34 15 56 34 15 56 51 Lost.	Aftershock.
120	Aug. 13	G.W. G.W. G.W. G.W. G.W. G.W. G.W.	ePZ eSZ esSE e(sSR ₂)E eE eLE F	07 48 06 07 56 59 07 57 25 08 04 40 08 06 29 08 08 56 08 36.0	1°8 N, 30°5 W. H = 07 ^h 37 ^m 25 ^s . h = 50 km. ΔP-H = 66°3 Δ _{meas} = 66°0
121	Aug. 14	G.W. G.W. G.W. G.W.	ePZ e(PR ₁)Z eSN F	02 45 18 02 45 37 02 49 33 03 16.0	Mexico.

FLORISSANT STATION BULLETIN FOR AUGUST, 1943.



No.	Date	Inst.	Phase	G.M.C.T.	Remarks
122	Aug. 15	G.W. G.W. G.W. G.W. G.W.	ePZ eZ eSE eLE F	00 ^h 19 ^m 03 ^s 00 20 55 00 23 53 00 25 44 01 27.5	19°8 N, 66°8 W. H = 00 ^h 13 ^m 12 ^s . $\Delta_{P-H} = 27^{\circ}6$ $\Delta_{meas} = 27^{\circ}9$
123	Aug. 18	G.W. G.W.	eSE esSE	16 46 26 16 47 16	20°7 S, 68°4 W. H = 16 ^h 27 ^m 50 ^s . h = 100 [±] km. $\Delta_{S-H} = 62^{\circ}8$ $\Delta_{meas} = 63^{\circ}0$
124	Aug. 20	G.W. G.W. G.W. G.W. G.W.	e(SKS)N e(SKKS)N e(PS)E eSR ₁ E F	01 52 26 01 53 21 01 54 52 01 59 04 03 30.5	About 95°.
125	Aug. 21	G.W. G.W. G.W.	ePZ eSN F	09 21 34 09 30 40 09 52.0	Probable Epicenter: 26°4 S, 113°6 W. H = 09 ^h 10 ^m 33 ^s . $\Delta_{P-H} = 68^{\circ}9$ $\Delta_{meas} = 68^{\circ}9$
126	Aug. 22	G.W. G.W. G.W. G.W. G.W.	iPZ epPZ eSE esSE F	11 13 25 11 13 35 11 21 25 11 21 47 12 13.5	51°0 N, 174°5 W. H = 11 ^h 03 ^m 42 ^s . h = 50 [±] km. $\Delta_{P-H} = 57^{\circ}5$ $\Delta_{meas} = 57^{\circ}6$
127	Aug. 29	G.W. G.W. G.W. G.W.	(ePN) eSN eLN F	02 51 23 02 55 56 02 59 47 03 17.0	Indefinite beginning. Region: 17° N, 101° W. H = 02 ^h 46 ^m 2
128	Aug. 29	G.W. G.W. G.W. G.W.	e(S)E eN eNE F	03 54 28 03 56 52 03 58 43 04 11.0	Region: 33° N, 117° W. H = 03 ^h 45 ^m 2
129	Aug. 31	G.W. G.W. G.W.	ePZ eSE F	15 41 40 15 47 51 Lost.	Time uncertain. Region: 31° N, 42° W. H = 15 ^h 34 ^m 0

FLORISSANT STATION BULLETIN FOR AUGUST, 1943.

23.

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
130	Aug. 31	G.W.	ePZ	16 15 59	Time uncertain. 14°1 N, 91°3 E. H = 16 ^h 10 ^m 45 ^s . h = 100 km. ΔF-H = 24°7 Δ _{meas} = 24°8
		G.W.	ipPZ	16 16 17	
		G.W.	eE	16 19 10	
		G.W.	eE	16 19 53	
		G.W.	iSE	16 20 17	
		G.W.	isSE	16 20 46	
		G.W.	iE	16 21 02	
		G.W.	iE	16 22 19	
		G.W.	F	17 48.5	

Minor Seismic Activity:

Date	From h. m.	To h. m.
Aug. 15	03 02	03 19
17	03 27	03 29
23	08 06	08 10
31	00 51	01 19

FLORISSANT STATION

Bulletin for September, 1943.

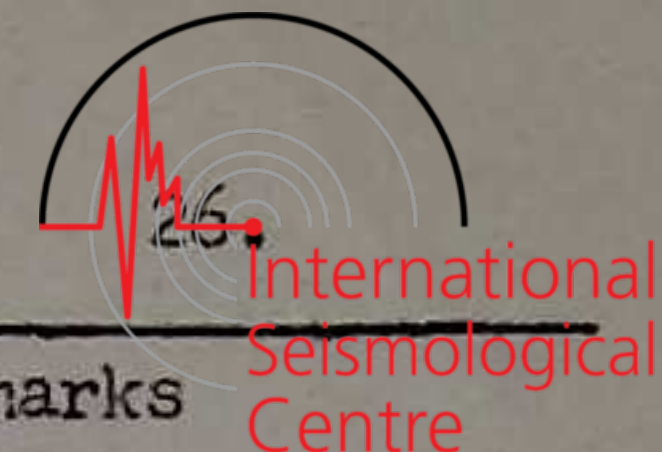


24.

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
131	Sept. 2	G.W. G.W. G.W. G.W. G.W.	dPZ epPZ e(S)E e(ScS)E F	23 18 02 23 18 20 23 21 05 23 28 09 23 34.0	16.5 S, 100.4 W. H = 23 ^h 12 ^m 54 ^s . h = 100±km. ΔP-H = 24 ^o 0 Δmeas = 24 ^o 0
132	Sept. 4	G.W.	eLE	07 51.0	
133	Sept. 5	G.W. G.W. G.W. G.W. G.W. G.W.	e(P')Z iPR ₁ Z i(SK P)Z iSKPZ eSKKSE F	08 53 47 08 56 10 08 57 04 08 57 14 09 03 08 11 30.0	Region: 1/2° N, 125 1/2° E. H = 08 ^h 35.0 ^m
134	Sept. 6	G.W. W-A W-A W-A W-A W-A W-A G.W.	iP'Z eN ePR ₁ N eSKPN e(PR ₂)N eSN eN F	04 00 43 04 01 30 04 03 07 04 04 05 04 05 21 04 11 24 04 13 47 08 40.0	52°7 S, 159°6 E. H = 03 ^h 41 ^m 40 ^s . ΔPR ₁ -H = 131°3 Δmeas = 131°0
135	Sept. 7	G.W. G.W. G.W.	eZ iLE F	19 46 21 19 47 16 20 16.0	Surface waves very sharp. Northwest Canada. Epicentral Region: 68°2 N, 137°7 W. H = 19 ^h 26 ^m 27 ^s . Δmeas = 39°4
136	Sept. 14	W-A W-A W-A W-A W-A W-A	eE ePR ₁ E e(pPR ₁)E e(SKKS)E eSE F	07 34 51 07 36 00 07 37 01 07 43 56 07 44 19 09 15.5	C.W.'s not operating. General Region: 29° S, 178° W. H = 07 ^h 18.3 ^m h = 100±km.
137	Sept. 17	G.W.	eLE	05 18.5	
138	Sept. 17	G.W. G.W. G.W. G.W. G.W. G.W.	e(SK S)E e(SKKS)E eSE eN eSPN F	10 33 57 10 34 38 10 35 35 10 36 13 10 37 15 Lost.	15°1 S, 167°5 E. H = 10 ^h 09 ^m 37 ^s . h = 150±km. ΔSP-H = 109°0 Δmeas = 108°7

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
139	Sept. 19	G.W. G.W. G.W. G.W. G.W. G.W. G.W.	ePZ e(pP)Z iSN ePSE esSE eSR ₁ E F	04 59 01 04 59 20 05 08 19 05 08 52 05 09 10 05 12 54 Uncertain	30°8 S, 113°6 W. H = 01 ^h 17 ^m 48 ^s . h = 100±km. Δ _{P-H} = 72°4 Δ _{meas} = 72°5
140	Sept. 20	G.W. G.W. G.W. G.W. G.W.	ePZ eSE isSN iMN F	00 59 05 01 03 36 01 03 51 01 06 28 02 36.0	20°3 N, 108°7 W. H = 00 ^h 53 ^m 52 ^s . h = 80 km. Δ _{P-H} = 24°3 Δ _{meas} = 23°9
141	Sept. 21	G.W. G.W.	eLE F	04 28 06 05 33 --	
142	Sept. 22	G.W. G.W. G.W. G.W. G.W. G.W. G.W. G.W.	ePR ₁ Z eSKSN e(SKKS)N e(S)N e(PS)N eSR ₁ E eSR ₂ E F	23 37 22 23 43 23 23 44 35 23 45 16 23 46 50 23 51 57 23 57 15 02 28 --	Region: 33° S, 179 1/2° E. H = 23 ^h 18.6 ^m h = 150±km.
143	Sept. 26	G.W. G.W. G.W. G.W. G.W. G.W.	iP'Z eSKSZ eZ ePR ₁ Z e(PFSS)Z F	02 28 07 02 35 12 02 37 37 02 38 55 02 51 50 04 18 --	EW, NS not operating. Distance about 145°, off West coast of Madagascar.
144	Sept. 26	G.W. G.W. G.W. G.W. G.W. G.W.	ePZ eSE eSR ₁ E eSR ₂ E eLE F	18 21 15 18 29 40 18 33 19 18 36 11 18 40.5 19 39 --	Epicentral Region: 51°0 N, 179°7 W. H = 18 ^h 11 ^m 04 ^s . Δ _{P-H} = 61°3 Δ _{meas} = 61°1
145	Sept. 26	G.W. G.W. G.W. G.W.	eZ eE eSE F	22 45 00 22 48 16 22 50 27 23 09.0	5°1 N, 82°9 W. H = 22 ^h 38 ^m 08 ^s . Δ _{S-H} = 33°9 Δ _{meas} = 34°1

FLORISSANT STATION BULLETIN FOR SEPTEMBER, 1943.



No.	Date	Inst.	Phase	G.M.C.T.	Remarks
146	Sept. 27	W-A W-A W-A	ePN eSE F	17 ^h 09 ^m 10 ^s .5 17 10 33.7 17 12.0	
147	Sept. 27	G.W. G.W. G.W. G.W. G.W. G.W. G.W. G.W. G.W. G.W. G.W. G.W.	e(P)Z ePR ₁ Z eSKSE eSKKSE ePSE eZ eE eZ eSR ₁ E isSR ₁ E eSR ₂ E F	22 17 55 22 22 19 22 28 27 22 29 19 22 31 37 22 32 10 22 32 36 22 32 40 22 36 59 22 37 30 22 41 35 24 42.0	Epicentral Region: 31°1 S, 176°9 W. H = 22 ^h 03 ^m 47 ^s . h = 80±km. ΔPR ₁ -H = 107°0 Δmeas = 107°0
148	Sept. 28	G.W. G.W. G.W. G.W.	e(PR ₁)Z e(SKS)E ePSE F	11 03 44 11 10 07 11 12 21 12 32.0	17°9 N, 148°2 E. H = 10 ^h 45 ^m 36 ^s . Possibly deeper than normal. ΔPS-H = 101°4 Δmeas = 101°5
149	Sept. 29	G.W. G.W.	eLE F	10 03.0 10 44.0	
150	Sept. 29	G.W. G.W.	eLE F	24 07.0 24 16 --	
151	Sept. 30	G.W. G.W.	eLE F	08 16.0 08 42.0	
152	Sept. 30	G.W. G.W.	eLE F	12 52.5 13 11.0	

Minor Seismoc Activity:

Date	From h. m.	To h. m.
Sept. 6	14 59	15 06
15	07 06	07 33
16	13 35	13 41
17	00 37	00 52
20	04 28	04 40
20	07 20	08 00
21	19 40	19 48

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INSTITUTE OF GEOPHYSICAL TECHNOLOGY



3621 OLIVE STREET, SAINT LOUIS 8, MO., U. S. A.

SEISMOLOGICAL BULLETIN

FLORISSANT STATION

Latitude: geographical, $38^{\circ} 46' 06''$ N; geocentric, $38^{\circ} 37'$ N.
 Longitude: $90^{\circ} 22' 12''$ W. Altitude: $h = 160\text{m}$, $H+h = 4 \text{ km}$.
 Lithologic foundation: Pennsylvanian shale.
 Seismographs: Galitzin-Wilip ENZ, Wood-Anderson short period EN.
 Clock: Shortt synchronous.

Bulletin for October, 1943.

27.

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
153	Oct. 1	G.W. G.W. G.W.	e(S)E eLE F	$12^{\text{h}} 37^{\text{m}} 54^{\text{s}}$ 12 42 36 12 51.0	
154	Oct. 1	G.W. G.W. G.W.	ePZ eSE F	18 02 43 18 10 29 18 58.0	$9^{\circ} 1' \text{ N}$, $37^{\circ} 3' \text{ W}$. $H = 17^{\text{h}} 53^{\text{m}} 14^{\text{s}}$. $\Delta P-H = 55^{\circ} 1'$ $\Delta_{\text{meas}} = 55^{\circ} 0'$
155	Oct. 2	G.W. G.W.	eLE F	05 46.1 06 00.0	
156	Oct. 2	G.W. G.W. G.W.	e(S)E eLE F	07 08 34 07 11.5 07 17.0	U.S.C.G.S. gives: $40^{\circ} 6' \text{ N}$, $124^{\circ} 9' \text{ W}$. $H = 06^{\text{h}} 56^{\text{m}} 41^{\text{s}}$.
157	Oct. 2	G.W. G.W. G.W.	e(pP)Z e(sS)E F	11 28 06 11 32 40 12 00.0	$14^{\circ} 0' \text{ N}$, $91^{\circ} 8' \text{ W}$. $H = 11^{\text{h}} 22^{\text{m}} 34^{\text{s}}$. $\Delta_{\text{meas}} = 24^{\circ} 7'$
158	Oct. 3	G.W. G.W. G.W. G.W. G.W.	ePZ eSE eSR ₁ E eE F	01 01 40 01 08 41 01 11 40 01 12 47 01 50.0	North Atlantic Azores.

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
159	Oct. 4	G.W. G.W. G.W. G.W. G.W. G.W. G.W.	ePR ₁ Z eSKSE eSKKSE eN ePSE ePPSE F	10 ^h 58 ^m 37 ^s 11 04 48 11 05 43 11 06 32 11 08 04 11 09 09 12 29.0	15°0 S, 167°9 E. H = 10 ^h 39 ^m 46 ^s . $\Delta_{PR_1-H} = 108^{\circ}9$ $\Delta_{meas} = 108^{\circ}9$
160	Oct. 9	G.W. G.W.	eLE F	10 43 31 10 48.0	
161	Oct. 10	G.W. G.W.	eLE F	10 08 41 10 15.0	
162	Oct. 13	G.W. G.W. G.W. G.W. G.W. G.W.	ePZ eSE eE iLE iME F	04 49 35 04 53 24 04 55 01 04 55 53 04 57 50 05 43.0	Region: 26°5 N, 110° W. H = 04 ^h 44 ^m 48 ^s . $\Delta_{S-P} = 20^{\circ}6$ $\Delta_{meas} = 20^{\circ}5$ Surface waves very sharp.
163	Oct. 16	G.W. G.W.	eLE F	10 13 46 10 27 --	
164	Oct. 16	G.W. G.W.	iPZ epPZ	13 21 27 13 21 48	All other phases lost changing records. 33°9 N, 27°8 E. H = 13 ^h 08 ^m 50 ^s . h = 100 ⁺ km. $\Delta_{P-H} = 87^{\circ}5$ $\Delta_{meas} = 87^{\circ}7$
165	Oct. 17	G.W. G.W. G.W.	e(SKKS)E eE e(PS)E	23 03 43 23 06 14 23 07 31	$\Delta =$ about 130° New Guinea?
166	Oct. 19	G.W. G.W. G.W. G.W.	eSE eLE iME F	17 48 27 17 51 22 17 53 48 18 09.0	Epicentral Region: 18°0 N, 104°3 W. H = 17 ^h 38 ^m 50 ^s . $\Delta_{S-H} = 24^{\circ}1$ $\Delta_{meas} = 24^{\circ}1$
167	Oct. 20	G.W. G.W. G.W. G.W.	eSE e(sS)E eLE F	04 18 19 04 18 40 04 21 48 04 36.0	Region: 16° N, 107° W. H = 04 ^h 08 ^m 2 Probably deeper than normal.

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
168	Oct. 20	G.W. G.W. G.W.	eSE eLE F	12 ^h 53 ^m 02 ^s 12 56 20 13 02 --	Region: 20° N, 109° W. H = 12 ^h 43 ^m .2
169	Oct. 21	G.W. G.W. G.W. G.W. G.W. G.W. G.W.	iPZ iPR ₁ Z iSKSE iSKKSE iSE iSP eSR ₁	23 21 47 23 25 37 23 32 25 23 33 05 23 33 18 23 34 08 23 40 40	16°5 S, 177°4 W. H = 23 ^h 08 ^m 08 ^s . ΔP-H = 98°7 Δ _{meas} = 98°7
170	Oct. 22	G.W. G.W. G.W. G.W.	ePR ₁ Z eE eSR ₁ E F	16 20 26 16 30 17 16 36 08 17 42 --	Epicentral Region: 24.1 N, 121.8 E. H = 16 ^h 01 ^m 22 ^s . ΔPR ₁ -H = 110°7 Δ _{meas} = 110°1
171	Oct. 24	G.W. G.W. G.W. G.W. G.W.	(e)E eE e(PS)E eSR ₁ E F	14 01 46 14 02 01 14 02 18 14 06 35 14 47 --	U.S.C.G.S. gives: 48° N, 156° E. H = 13 ^h 40 ^m .3 All preceding phases lost changing records.
172	Oct. 24	G.W. G.W. G.W. G.W. G.W. G.W.	ePZ eZ ePR ₁ Z eSKSE iSKKSE F	16 18 19 16 21 34 16 22 18 16 28 54 16 29 29 18 56 --	22°0 S, 174°6 W. H = 16 ^h 04 ^m 40 ^s . ΔP-H = 98°7 Δ _{meas} = 99°0
173	Oct. 24	G.W. G.W. G.W. G.W. G.W. G.W.	iPZ ipPZ eSE iSE esSE F	23 34 01 23 34 14 23 43 06 23 43 08 23 43 30 24 17.0	54.2 N, 162.0 E. H = 23 ^h 23 ^m 06 ^s . h = 50 km. ΔP-H = 68.4 Δ _{meas} = 68°4
174	Oct. 26	G.W. G.W. G.W.	ePE eLE F	04 55 52 05 05 38 05 19.0	37°0 N, 123°6 W. H = 04 ^h 50 ^m 20 ^s . ΔP-H = 25°8 Δ _{meas} = 26°0
175	Oct. 29	G.W. G.W.	eLN F	17 31 -- 17 37 --	

FLORISSANT STATION BULLETIN FOR OCTOBER, 1943

30.

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
176	Oct. 29	G.W.	eE	17 ^h 47 ^m 30 ^s	
		G.W.	eLE	17 50 27	
		G.W.	F	18 02 --	

Minor Seismic Activity:

Date	From h. m.	To h. m.
Oct. 3	19 56	20 17
4	12 47	13 11
5	20 29	20 45
16	01 21	02 05
27	07 56	08 13
27	17 07	17 41

FLORISSANT STATION



Bulletin for November, 1943.

31.

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
177	Nov. 2	G.W. G.W.	eME F	18 ^h 04 ^m 00 ^s 18 10 --	Probably the earthquake reported by Pasadena as 32° 58' N, 116° 00' W. H = 17 ^h 50 ^m 41 ^s .
178	Nov. 2	G.W. G.W. G.W. G.W. G.W. G.W. G.W. G.W. G.W. G.W. G.W.	e(PR ₁)Z eSKSE eE eSKKSE eSE eE ePSE eE ePPSE eE F	18 27 27 18 33 43 18 34 12 18 34 42 18 35 10 18 35 32 18 36 38 18 37 11 18 37 43 18 38 10 22 01 --	General Region: 59° S, 30° W. H = 18 ^h 08 ^m 7 Possibly deeper than normal.
179	Nov. 3	G.W. G.W. G.W. G.W. G.W. G.W. G.W. G.W. G.W. G.W. W-A G.W.	ePZ iPZ iZ iZ i(FcP)Z iZ e(ScP)E iSE iE iSR ₁ E iLN F	14 40 20 14 40 22 14 40 27 14 40 52 14 42 08 14 43 12 14 46 03 14 46 46 14 47 31 14 49 13 14 54 -- 19 08 --	61°0 N, 149°0 W. H = 14 ^h 32 ^m 25 ^s . Δ _{P-H} = 42°4 Δ _{meas} = 42°3
180	Nov. 4	G.W. G.W. G.W. G.W.	ePZ eSE e(PS)E F	06 20 29 06 29 13 06 30 16 07 10 --	Epicentral Region: 57°1 N, 163°0 E. H = 06 ^h 09 ^m 48 ^s . h = 50±km. Δ _{P-h} = 66°2 Δ _{meas} = 66°3
181	Nov. 4	G.W. G.W. G.W. G.W. G.W.	eZ ePR ₁ Z ePSE ePPSE F	07 02 10 07 04 45 07 14 04 07 14 32 09 09 --	Region: 57° S, 28° W. H = 06 ^h 45 ^m 8

FLORISSANT STATION BULLETIN FOR NOVEMBER, 1943



No.	Date	Inst.	Phase	G.M.C.T.	Remarks
182	Nov. 5	G.W. G.W.	eLE F	10 ^h 55 ^m 00 ^s 11 15 --	
183	Nov. 6	G.W. G.W. G.W. G.W. G.W. W-A W-A W-A W-A W-A W-A W-A W-A W-A	e(P)?Z eP'Z e(pP')Z iPR ₁ Z ipPR ₁ Z iE iL iSKPE i(sSKP)E eE eSKSE esSKSE eE eE F	08 48 02 08 50 46 08 51 16 08 52 45 08 53 02 08 53 14 08 53 21 08 54 04 08 54 18 08 56 44 08 57 24 08 58 12 09 00 10 09 00 17 Lost	6°1 S, 133°1 E. H = 08 ^h 31 ^m 40 ^s . h = 50 ⁺ km. Δ _{PR₁-H} = 129°6 Δ _{meas} = 129°0
184	Nov. 8	G.W. G.W. G.W. G.W. G.W. G.W.	e(P)Z e(PR ₁)Z eSE eSR ₁ E eLE F	07 08 39 07 10 37 07 15 41 07 19 32 07 23 09 08 00 --	U.S.C.G.S. gives: 81° N, 2 1/2° W. H = 06 ^h 59 ^m 19 ^s .
185	Nov. 9	G.W. G.W. G.W. G.W. G.W. G.W. G.W. G.W.	iPZ iPcPZ ipPZ ipFcPZ iSE eSKSE isSE F	11 58 51 11 58 59 11 59 11 11 59 19 12 08 57 12 09 16 12 09 32 13 07 --	43°8 N, 118°2 E. H = 11 ^h 46 ^m 42 ^s . h = 100 ⁺ km. Δ _{P-H} = 82°2 Δ _{meas} = 82°3
186	Nov. 13	G.W. G.W. G.W. G.W.	eE eE eE F	19 09 32 19 11 52 19 13 11 21 14 --	Time Doubtful. Epicenter by St. Louis: 19°9 S, 169°9 E. H = 18 ^h 43 ^m 59 ^s . Δ _{meas} = 109°8
187	Nov. 16	G.W. G.W. G.W.	ePN iSE F	11 47 34 11 55 19 13 24 --	Vertical out of operation. Epicentral Region: 14°9 S, 74°8 W. H = 11 ^h 38 ^m 06 ^s . h = 80 km. Δ _{P-H} = 55°6 Δ _{meas} = 55°6

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
188	Nov. 17	G.W. G.W. G.W. G.W. G.W.	ePZ ePR ₁ Z eSE esSE F	15 ^h 10 ^m 10 ^s 15 14 08 15 20 11 15 20 53 15 55 --	Deep. Japan?
189	Nov. 18	G.W. G.W. G.W. G.W. G.W. G.W.	ePZ eSE eScSE esSE esScSE F	22 00 53 22 09 01 22 10 15 22 11 10 22 12 37 22 27 --	Epicentral Region: 20°8 S, 63°5 W. H = 21 ^h 50 ^m 46 ^s . h = 300+km. ΔP-H = 65°1 Δ _{meas} = 61°8
190	Nov. 20	G.W. G.W. G.W. G.W.	ePZ eSE eLE F	08 30 59 08 35 38 08 38 55 08 46 --	Region: 15°5 N, 105°5 W. H = 08 ^h 25 ^m 3
191	Nov. 20	G.W. G.W. G.W. G.W.	ePZ eSE eLE F	19 05 22 19 12 04 19 15 32 20 -- --	Time doubtful. Region: 4° S, 106° W. H = 18 ^h 57 ^m 1
192	Nov. 21	G.W. G.W. G.W. G.W.	ePZ eSE e(sS)E F	19 47 00 19 51 12 19 51 29 20 14.5	Epicentral Region: 17°0 N, 98°5 W. H = 19 ^h 42 ^m 00 ^s . h = 50 km. ΔP-H = 22°7 Δ _{meas} = 22°7
193	Nov. 24	G.W. G.W. G.W. G.W.	ePR ₁ Z e(PS)E eSR ₁ E F	13 36 27 13 46 07 13 51 55 15 41 --	Region: 23° N, 121° E. H = 13 ^h 17 ^m 2
194	Nov. 26	G.W. G.W. G.W.	ePZ iSE F	22 33 26 22 43 54 03 13 --	41°5 N, 34°2 E. H = 22 ^h 20 ^m 42 ^s . Δ _{meas} = 85°7 ΔP-H = 87°3 ΔS-P = 84°5
195	Nov. 28	G.W. G.W. G.W. G.W. G.W.	e(FR ₁)Z e(SKKS)E e(PS)E ePPSE F	06 40 27 06 46 58 06 49 32 06 51 01 08 29 --	Region: 10° N, 129° E. H = 22 ^h 20 ^m 2

FLORISSANT STATION BULLETIN FOR NOVEMBER, 1943

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
196	Nov. 28	G.W. G.W. G.W.	ePZ iSE F	17 ^h 22 ^m 28 ^s 17 31 44 19 31 --	Epicentral Region: 52°6 N, 153°4 E. H = 17 ^h 10 ^m 58 ^s . ΔP-H = 73°7 Δmeas = 73°8
197	Nov. 29	G.W. G.W. G.W. G.W.	iPZ iSE iE F	19 48 13 19 57 19 19 57 30 21 18 --	27°7 S, 67°3 W. H = 19 ^h 37 ^m 05 ^s . ΔP-h = 70°0 Δmeas = 70°0 Possibly deeper than normal.
198	Nov. 29	G.W. G.W. G.W.	eSE eLE F	21 38 39 21 53 39 23 25 --	Region: 57° N, 174° E. H = 21 ^h 19 ^m 8

Minor Seismic Activity:

Date	From h. m.	To h. m.
Nov. 6	07 09	07 57
7	08.0	09.0
8	23 03	23 59
18	19 30	20 00
20	00 32	00 46
20	07 56	08 20

FLORISSANT STATION

Bulletin for December, 1943.



No.	Date	Inst.	Phase	G.M.C.T.	Remarks
199	Dec. 1	G.W. G.W. G.W. G.W. G.W. G.W. G.W.	iPR ₁ Z ipPR ₁ Z eSKSE esSKSE eSKKSE iFSE F	06 ^h 25 ^m 02 ^s 06 25 41 06 30 23 06 31 21 06 31 47 06 34 52 08 55 --	4.5 S, 111.7 E. H = 06 ^h 04 ^m 50 ^s . h = 100 ⁺ km. ΔP-H = 122.2 Δ _{meas} = 122.1
200	Dec. 1	G.W. G.W. G.W. G.W. G.W.	iPZ ipPZ iSE isSE F	10 45 02 10 45 31 10 53 19 10 54 04 13 30 --	Epicentral Region: 18.6 S, 69.4 W. h = 100+km. H = 10 ^h 35 ^m 00 ^s . ΔP-H = 61.0 Δ _{meas} = 61.1
201	Dec. 2	G.W. G.W. G.W. G.W.	eSKSE eSKKSE ePSE F	02 18 57 02 19 51 02 22 08 04 40 --	U.S.C.G.S. Gives: 30° S, 178° W. H = 01 ^h 54 ^m 0
202	Dec. 2	G.W. G.W. G.W.	iZ eE F	05 28 21 05 37 53 07 18 --	
203	Dec. 3	G.W. G.W. G.W. G.W.	eSKSE eSKKSE e(PS)E F	05 03 54 05 05 27 05 08 38 Lost in following	New Guinea. Δ = about 126° U.S.C.G.S. gives: 3° S, 140° E.
204	Dec. 3	G.W. G.W. G.W. G.W. G.W.	i(pP)Z iZ eSE eSR ₁ E F	07 05 37 07 08 38 07 15 37 07 21 24 07 54 --	42.3 N, 114.0 E. H = 06 ^h 52 ^m 50 ^s . h = 50 ⁺ km. ΔPR ₁ -H = 85.0 Δ _{meas} = 85.4
205	Dec. 8	G.W. G.W. G.W.	iPZ eSE F	19 44 08 19 48 37 20 57 --	Epicentral Region: 14.4 N, 96.3 W. H = 19 ^h 38 ^m 46 ^s . ΔP-H = 24.5 Δ _{meas} = 24.5
(No Florissant Records from Dec. 16 to Dec. 26)					

Minor Seismic Activity:

Date	From h. m.	To h. m.
Dec. 9	03 50	04 10

James B. Macelwane, S. J.
Director

Harry K. Hail
Student Assistant