

CAPE GIRARDEAU

SEISMIC STATION, SOUTHEAST MISSOURI STATE TEACHERS COLLEGE, CAPE GIRARDEAU, MO., U. S. A.

(In cooperation with Saint Louis University, St. Louis, Mo.—Records kept in Saint Louis)

Latitude: 37°19' N. Longitude: 89°32' W. Altitude: 134 m. Foundation: limestone.

Short period Wood-Anderson seismographs, N and E components. Time checked by radio signals on records.

Bulletin for January, February, 1941

1.

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
1	Jan. 2	W-A W-A W-A	iP ^{NE} _{NE} eSKS _N eS _{NE} F	17 ^h 10 ^m 30 ^s 17 14 14 17 16 16 17 16 16	By Strasbourg, 2°0 N, 124°0 E. h = 500 Km. Δ about 130°0
2	Jan. 3	W-A W-A W-A W-A	eP _N ePR _{2N} e _N eS _{NE} F	9 ^h 20 ^m 57 ^s 9 21 37 9 22 07 9 25 21 9 27 ±	ΔS-P = 24°6 Possibly near 13°0 N, 91°5 W. H = 9 ^h 15 ^m 40 ^s
3	Jan. 5	W-A W-A W-A	eP ^E eSKP _{NE} eSKP _N F	19 ^h 06 ^m 14 ^s 19 09 37 19 09 50 19 12 ±	ΔSKP-H = 131°6 Epicenter by Florissant 2°0 N, 120°0 E. H = 9 ^h 15 ^m 40 ^s
4	Jan. 6	W-A W-A W-A W-A	iP _N isP _N e(S) _N e _E	9 ^h 54 ^m 04 ^s 9 54 47 9 58 17 9 59 37	ΔP-H = 26°2 Epicenter: 11°5 N, 86°3 W H = 9 ^h 48 ^m 33 ^s h = 70 km.
5	Jan. 8	W-A W-A	iP _{NE} is _{NE} F	19 ^h 23 ^m 27 ^s 19 23 28 19 23 37	Probably local distur- bance
6	Jan. 13	W-A W-A	e(S) _{NE} e _E	13 ^h 55 ^m 05 ^s 13 56 30	Very weak record
7	Jan. 14	W-A	iP _{NE}	20 ^h 29 ^m 44 ^s	Local disturbance
8	Jan. 24	W-A W-A	eP _{NE} eS _N F	5 ^h 51 ^m 50 ^s 5 58 00 5 00 ±	ΔS-P = 41°5. Epicenter by J.S.A. 2°2 S, 76°9 W. H = 5 ^h 44 ^m 17 ^s . h = 150 Km.
9	Jan. 31	W-A	e _N e _N	3 ^h 01 ^m 45 ^s 3 02 15	Indistinct
10	Feb. 8	W-A W-A W-A	e(P) _E i _N e(S) _{NE} F	14 ^h 25 ^m 35 ^s 14 25 36 14 31 57 14 33 ±	ΔS-P = 41°2 H = 14 ^h 17 ^m 50 ^s Possibly near 2°0 S, 77°0 W. Deep?
11	Feb. 9	W-A W-A W-A W-A W-A W-A W-A W-A W-A	eP _E iPR _{1E} iPR _{2E} i _E eS _E eSR _{1E} e _E eL _E eM _E F	9 ^h 49 ^m 56 ^s 9 50 35 9 50 53 9 51 34 9 54 48 9 56 03 9 56 33 9 58 23 10 02 17 11 30 ±	ΔS-P = 28°1 Epicenter by J.S.A. 41°1 N, 125°5 W. H = 9 ^h 44 ^m 05 ^s Felt in Eureka, California

No.	Date	Inst.	Phase	G.M.C.T.	Remarks
12	Feb. 11	W-A	eP _{NE}	14 ^h 40 ^m 31 ^s	$\Delta_{S-P} = 23^{\circ}0$ Epicenter by J.S.A. 14 ^o .2 N, 94 ^o .0 W. H = 14 ^h 35 ^m 23 ^s
		W-A	i _{NE}	14 40 44	
		W-A	iPR _{2N}	14 41 11	
		W-A	e _E	14 41 44	
		W-A	e _{SN}	14 44 41	
			F	15 30 ±	
13	Feb. 13	W-A	eP _E	14 ^h 54 ^m 12 ^s	$\Delta_{P-H} = 21^{\circ}2$ Epicenter by J.S.A. 24 ^o .0 N, 108 ^o .5 W. H = 14 ^h 49 ^m 26 ^s
		W-A	e _E	14 56 03	
		W-A	e _{SN}	14 58 15	
		W-A	e _E	15 00 30	
		W-A	i _N	15 01 00	
		W-A	e _{FF}	15 01 30	
			F	15 20 ±	
14	Feb. 15	W-A	eP _{NE}	9 ^h 01 ^m 21 ^s	$\Delta_{S-P} = 22^{\circ}6$ Possibly near 14 ^o 8 N, 90 ^o .6 W. H = 8 ^h 55 ^m 20 ^s
		W-A	iP _N	9 01 22	
		W-A	i _N	9 01 46	
		W-A	e _E	9 02 22	
		W-A	e _{SN}	9 05 28	
		W-A	eSR _{1N}	9 05 57	
			F	9 15 ±	
15	Feb. 18	W-A	iP _{NE}	19 ^h 19 ^m 49 ^s	Local disturbance
		W-A	F	19 20 08	
16	Feb. 22	W-A	e _{NE}	15 ^h 10 ^m 08 ^s	Probably local tremor
		W-A	F	15 10 18 15 10 53	
17	Feb. 23	W-A	eP _N	11 ^h 36 ^m 50 ^s	Felt at Guerrero, Mexico Epicenter by Tacubaya 18 ^o 04' N, 99 ^o 55' W. H = 11 ^h 32 ^m 14 ^s $\Delta_{P-H} = 20^{\circ}2$
		W-A	eP _E	11 36 52	
		W-A	iP _{PN}	11 36 55	
		W-A	i _{NE}	11 37 10	
		W-A	i _N	11 37 15	
		W-A	e _{SE}	11 40 45	
			F	11 43 ±	

Minor Seismic Activity

 Feb. 9, 20^h00^m to 21^h00^m

 Feb. 13, 16^h41^m to 16^h47^m

 James B. Macelwane, S.J.
 Director, St. Louis Univ.
 Dept. of Geophysics

 John Harty
 Director of the
 Station

 Records read by
 Ross R. Heinrich

CAPE GIRARDEAU

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Latitude: 37°19' N. Longitude: 89°32' W. Altitude: 134 m. Foundation: limestone.

Short period Wood-Anderson seismographs, N and E components. Time checked by radio signals on records.

Bulletin for March, April and May, 1941

3.

No.	Date	Phase	G.M.C.T.	Remarks
18	Mar. 1	iP _{NE} F	18 ^h 20 ^m 36 ^s 18 20 58	Local disturbance.
19	Mar. 4	eP _{NE} iE eS _N F	21 ^h 44 ^m 22 ^s 21 44 33 21 48 49 21 50 ±	$\Delta_{S-P} = 25^{\circ}0$ $H = 21^h39^m00^s$ Possibly near 18.0 N, 107.0 W.
20	Mar. 9	iP _N i(pP) _N	16 ^h 57 ^m 08 ^s 16 57 48	Region of 5.0° N, 81.0° W. Deep. $H = 16^h50^m26^s$ $\Delta_{P-H} = 33^{\circ}1$
21	Mar. 10	eP _N e _N F	4 ^h 15 ^m 00 ^s 4 14 40 4 15 ±	$\Delta_{P-H} = 29^{\circ}1$. Epicenter by J.S.A. 9.0° N, 81.08° W. $H = 4^h05^m56^s$ Felt through- out the Panama Canal Zone.
22	Mar. 15	eP _{NE} iP _{NE} eS _E iS _{NE} eL _E F	5 ^h 51 ^m 13 ^s 5 51 17 5 55 15 5 55 22 5 57 48 5 20 ±	$\Delta_{S-P} = 22^{\circ}1$ Epicenter by J.S.A. 28.7° N, 114.0° W. $H = 5^h46^m17^s$ h = about 50 km.
23	Mar. 16	eP _{NE} eE eE eS _{NE} es _{SE} eP _{SE} F	7 ^h 54 ^m 02 ^s 7 54 27 7 54 47 8 03 38 8 03 57 8 04 17 9 00 ±	$\Delta_{S-P} = 73^{\circ}9$ Epicenter near: 48.0° N, 162.0° E. Character of surface waves indistinct.
24	Mar. 19	e(P) _N eP _N e _N e(S) _{NE} e _{NE} F	21 ^h 29 ^m 25 ^s 21 29 37 21 29 48 21 33 59 21 34 35 21 35 ±	Beginning of phases masked by microseisms - identifica- tion difficult.
25	Mar. 21	iP _{NE} ePR _{1E} ePR _{2E} eS _N e _N F	8 ^h 07 ^m 56 ^s 8 10 03 8 11 18 8 15 56 8 17 46 9 00 ±	$\Delta_{P-H} = 61^{\circ}0$ Epicenter by J.S.A. 7.0° N, 31.4° W. $H = 7^h58^m10^s$ h = 250 Km.
26	Mar. 23	iP _N eP _E i _{NE} eS _E F	9 ^h 05 ^m 09 ^s 9 05 09 9 05 17 9 09 22 9 20 ±	$\Delta_{P-H} = 20^{\circ}8$ Epicenter by J.S.A. 17.3° N, 83.8° W. $H = 9^h00^m27^s$

No.	Date	Phase	G.M.C.T.	Remarks
27	Apr. 1	eP _E eP _N e(P _{R1}) _E eS _N iS _E i _E eSR ₁ _{NE} eE eL _E F	10 ^h 49 ^m 25 ^s 10 49 32 10 50 51 10 56 07 10 56 08 10 56 16 10 59 24 11 03 02 11 04.5 11 45 ±	ΔP-H = 49°0 Epicenter by J.S.A. 53°7 N, 155°7 W. H = 10 ^h 40 ^m 55 ^s
28	Apr. 1	iP _{NE} i _N F	18 ^h 52 ^m 44 ^s 18 52 45 18 53 07	Local disturbance
29	Apr. 3	eP _N iP _N iP _c P _N eS _N i _N eS _c S _N F	15 ^h 05 ^m 15 ^s 15 05 16 15 06 14 15 13 36 15 13 37 15 15 10 15 17 ±	ΔP-H = 61°5 Epicenter by J.S.A. 21°5 S, 68°1 W. H = 14 ^h 55 ^m 27 ^s Foreshock of No. 30
30	Apr. 3	eP _{NE} i _N i _N i _N iP _c P _{NE} iPR ₁ _N iS _{NE} i _{NE} i _{NE} iS _c S _N F	15 ^h 31 ^m 43 ^s 15 31 44 15 31 46 15 31 52 15 32 44 15 34 10 15 40 02 15 40 08 15 40 20 15 41 47 16 15 ±	ΔP-H = 61°5 Epicenter by J.S.A. 21°5 S, 68°1 W. H = 15 ^h 21 ^m 57 ^s
31	Apr. 4	iP _N i _N F	18 ^h 44 ^m 05 ^s 18 44 06 18 44 24	Local disturbance
32	Apr. 6	eP _N iP _N ip _N eS _{NE} es _{SNE} F	23 ^h 00 ^m 27 ^s 23 00 28 23 00 32 23 04 43 23 04 55 23 08 ±	ΔP-H = 24°3 Epicenter by J.S.A. 13°3 N, 89°4 W. H = 22 ^h 55 ^m 09 ^s Felt strongly in Salvador
33	Apr. 7	e _{NE} e _{NE} Record Changed	20 ^h 19 ^m 40 ^s 20 19 52 20 20	
34	Apr. 7	eP _{NE} iP _{NE} i _{NE} iS _{NE} iL _N i _N F	23 ^h 34 ^m 10 ^s 23 34 11 23 34 19 23 38 23 23 40 48 23 42 48 1 00 ±	ΔP-H = 21°9 Epicenter by J.S.A. 17°7 N, 78°4 W. H = 23 ^h 29 ^m 16 ^s

No.	Date	Phase	G.M.C.T.	Remarks
35	Apr. 8	iP _{NE} e(S) _{NE} e _{NE}	10 ^h 11 ^m 20 ^s 10 15 25 10 15 20	Aftershock of No. 34
36	Apr. 9	eP _E eL _N F	17 ^h 13 ^m 31 ^s 17 20.5 17 35 ±	Δ _{P-H} = 23°0 Epicenter by J.S.A. 28°3 N, 114°9 W. H = 17 ^h 08 ^m 26 Felt in San Diego, Calif.
37	Apr. 10	eP _N iP _N e(S) _E F	14 ^h 36 ^m 13 ^s 14 36 23 14 40 15 14 45 ±	Δ _{S-P} = 22°1 Mexico?
38	Apr. 15	iP _E iS _E	19 ^h 14 ^m 29 ^s 19 18 31	Δ _{P-H} = 20°2 (Time uncertain). J.S.A. epicenter: 18°9 N, 103°5 W. H = 19 ^h 10 ^m 00 ^s h = 100 Km. (No North-South records. Other phases lost on East-west record - recording at bottom)
39	Apr. 15	eP _{NE} ep _{NE} i _N eS _E F	23 ^h 47 ^m 56 ^s 23 48 02 23 48 13 23 51 56 0 10	H = 23 ^h 43 ^m 00 ^s Aftershock of No. 38.
40	Apr. 16	eP _{NE} eS _{NE} F	1 ^h 43 ^m 20 ^s 1 47 19 2 10	H = 1 ^h 38 ^m 18 ^s Aftershock of No. 38.
41	Apr. 20	eSKS _{NE} e(S) _{NE} F	18 ^h 03 ^m 04 ^s 18 04 09 19 00 ±	Δ _{SKS-H} = 103°1. Epicenter by J.S.A. 38°5 N, 69°0 E. H = 17 ^h 33 ^m 30 ^s
Station ceased operation from Apr. 20, 1941 to May 10, 1941				
42	May 13	eP _E eS _N i(SR ₁) _N eL _N eM _N F	16 ^h 07 ^m 44 ^s 16 12 49 16 14 36 16 16 29 16 18 04 16 40 ±	Δ _{P-H} = 29°1 Epicenter by J.S.A. 39°8 N, 127°5 W. H = 16 ^h 01 ^m 40 ^s Felt in Eureka, California
43	May 13	iP _{NE} i _N F	21 ^h 51 ^m 05 ^s 21 51 06 21 51 24	Local disturbance
44	May 17	e _E eP _{RIE} eSKS _E ePS _E F	2 ^h 42 ^m 40 ^s 2 43 41 2 49 50 2 53 00 5 00 ±	Δ _{P_{RIE}-H} = 108°5. Epicenter by J.S.A. 11°2 S, 165°8 E. H = 2 ^h 24 ^m 53 ^s

Due to instrumental difficulties there were no records from May 17, 1941, to May 22, 1941, and from May 26, 1941 to June 6, 1941.

Minor Seismic Activity : Mar. 4, 11^h00^m to 13^h00^m; Mar. 22, 9^h00^m to 11^h00^m; Mar. 28, 23^h00^m to 24^h00^m; Apr. 18, 13^h30^m to 13^h35^m

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June

6.

Bulletin for July, 1941

No.	Date	Phase	G.M.C.T.	Remarks
45	June 7	iPN iE F	16 ^h 21 ^m 45 ^s 16 21 46 16 22 07	Local disturbance
46	June 9	ePE eE eE eE eSE eE eLNE F	6 ^h 23 ^m 20 ^s 6 23 23 6 23 50 6 25 40 6 23 10 6 29 00 6 31 50 6 55 ±	$\Delta S-P = 27^{\circ}8$ 42°5' N, 125°0' E. H = 6 ^h 17 ^m 30 ^s
47	June 9	ePE eLE F	8 ^h 49 ^m 44 ^s 9 01 54 9 12 ±	
48	June 13	ePN ipPN iN iSN F	15 ^h 06 ^m 12 ^s 15 06 30 15 08 19 15 10 17 15 15 ±	$\Delta S-P = 22^{\circ}4$ Tacubaya gives: 13°18' N, 103°33' W. H = 15 ^h 01 ^m 14 ^s
49	June 18	ePNE iPN iPcFN eSN eSR1N F	11 ^h 16 ^m 57 ^s 11 17 05 11 18 23 11 23 10 11 25 17	$\Delta S-P = 39^{\circ}8$ Epicenter by J.S.A. near 52°6' N, 35°0' W. H = 11 ^h 09 ^m 17 ^s
50	June 18	iPN F	11 ^h 31 ^m 19 ^s Indistinct	Lost in next earthquake
51	June 20	iFN iE F	18 ^h 34 ^m 20 ^s 18 34 21 18 34 34	Local disturbance
52	June 26	eP'E iPR1NE iN iSKPNE iNE eN eN erSKSE eN F	12 ^h 11 ^m 25 ^s 12 13 43 12 14 23 12 14 42 12 15 24 12 20 25 12 23 20 12 24 00 12 25 20 15 00 ±	$\Delta P'-H = 138^{\circ}0$ Epicenter by J.S.A. near 9°0' N, 93°0' E. H = 11 ^h 52 ^m 00 ^s

No.	Date	Phase	G. .C.T.	Remarks
53	June 30	eE eN eN F	17 ^h 17 ^m 47 ^s 17 16 17 17 16 32 17 30 ±	Time uncertain
54	July 1	ePE ePN ² E eSE eLE eME F	7 ^h 56 ^m 14 ^s 7 56 58 8 00 35 8 03 43 8 05 43 8 30 ±	$\Delta S-P = 24.7$ Pasadena gives: 34.3° N, 119.06° W. H = 7 ^h 50 ^m 56 ^s . Felt in Santa Barbara, Calif. with Intensity VII.
55	July 3	ePNE iPN eN iE eE eSNE iSN F	7 ^h 23 ^m 05 ^s 7 23 09 7 24 04 7 24 12 7 26 02 7 32 26 7 32 35 7 45 ±	$\Delta S-P = 71.2$ Epicenter by J.S.A. 31.0° S, 68.7° W. H = 7 ^h 11 ^m 51 ^s Felt in Mendoza, Argentina
56	July 9	ePE iPE eE e(S)E F	0 ^h 54 ^m 10 ^s 0 54 19 0 54 45 0 58 25 1 00 ±	Weak
57	July 10	ePNE iPN eSNE eSSN F	9 ^h 39 ^m 24 ^s 9 39 53 9 47 10 9 48 06 9 50 ±	
58	July 11	iPNE eN eSNE eLE F	1 ^h 23 ^m 04 ^s 1 23 46 1 28 17 1 30 30 1 45 ±	$\Delta S-P = 31.1$ Epicenter by J.S.A. 5.6° N, 83.1° W. H = 1 ^h 16 ^m 35 ^s
59	July 11	iPN eN	2 ^h 06 ^m 03 ^s 2 07 19	Aftershock of No. 58
60	July 12	eN eN eN	6 ^h 26 ^m 20 ^s 6 27 46 6 27 57	

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Short period Wood-Anderson seismographs, N and E components. Time checked by radio signals on records. 6.



Due to Instrumental difficulties no records were obtained during June, 1941. At various times during July, 1941, one or both components ceased recording. Normal Operation was resumed during August, 1941.

No.	Date	Phase	G.M.C.T.	Remarks
45	July 13	eLN F	15 ^h 11 ^m 48 ^s 15 14 ±	EW not operating. Weak
46	July 16	e(P) _E e(P) _N i _N e _{NE} F	03 18 13 03 18 18 03 19 27 03 24 58 uncertain	Epicenter 24.9 N., 109.0 W. H = 03 ^h 13 ^m 30 ^s Phase weak
47	August 4	eS _{NE} i _{NE} F	11 11 56 11 13 19 11 17 ±	Epicenter 54.3 N 179.2 E H = 10 53 17 Depth 75 Km
48	August 5	i _E F	18 54 44 18 54 50	Local Disturbance
49	August 6	eP _E i(pP) _E i _{SE} e _{SE} i _E i _E	06 23 53 06 24 21 06 30 58 06 31 37 06 31 57 06 33 28	Epicenter 55.2 N., 161.1 W H = 06 15 14 Depth 150 Km.
50	August 10	(e) e _{NE} i _{NE} i _{NE} F	05 14 50 05 23 36 05 24 48 05 53 06 06 00 ±	Probably more than one quake super- imposed. Phases not clear.
51	August 14	eP _{NE} eS _{NE}	01 53 56 02 02 23	Epicenter 21.5 S. 67.8 W. H = 01 44 02 Depth 200 Km. No Surface Waves

CAPE GIRARDEAU STATION BULLETIN July, August, September, ¹⁹⁴¹~~1944~~

No.	Date	Phase	G.M.C.T.	Remarks
52	Aug. 15	ePN eN eN eSN F	06 ^h 19 ^m 19 ^s 06 19 31 06 19 59 06 27 12 07 00 ±	No EW Component 20°1 N., 27°8 W. H = 06 09 35 Depth = 35 Km.
53	Aug. 28	iNE	18 32 41	Local Disturbance
54	Aug. 29	eLE eME F	13 21 50 13 23 53 13 30 ±	Weak
55	Sept. 1	eN eN eE F	15 42 02 15 43 07 15 43 33 15 46 ±	
56	Sept. 4	ePR ₁ E e(pPR ₁) _E isSP ₁ iE iE eLE F	10 41 15 10 42 04 10 50 57 11 01 40 11 02 04 11 36 12 30 ±	13°S., 152.3°E H = 10 21 15 Deep Focus felt at Rabaul, New Guinea
57	Sept. 7	e(S)E F	22 40 50 22 43 ±	
58	Sept. 9	ePR ₁ E eSP ₁ E eLE F	07 39 13 07 48 54 08 19 09 45 ±	7°3 S., 155°0 E H = 07 ^h 19 ^m 44 ^s
59	Sept. 13	ePE iPE iE iE iE iSE iE eME F	18 20 13 18 20 15 18 20 28 18 21 30 18 22 50 18 24 42 18 25 18 18 27 56 19 30 ±	19°0 N., 106°7 W. H = 18 14 55



No.	Date	Phase	G.M.C.T.	Remarks
60	Sept. 14	eMEN F	18 ^h 33 ^m 28 ^s Lost in next earthquake	
61	Sept. 14	iPE iME F	18 44 24 18 51 22 19 00 ±	Felt in Owens Valley, Sierra, Nevada and San Joaquin Valley, California. Pasadena Gives: 37°5 N., 118°5 W. H = 18 ^h 39 ^m 11 ^s
62	Sept. 17	iSKPE isSKPE iPR ₂ E eE iE iE eE F	07 09 51 07 10 17 07 11 27 07 11 55 07 16 43 07 17 05 07 28 37 07 32 ±	2°2 N., 124°0 E. H = 06 ^h 48 ^m 07 ^s Deep.
63	Sept. 18	iPN ePE ipPN eSE eSE esSE eE F	13 23 33 13 23 23 13 23 47 13 30 43 13 30 51 13 31 22 13 33 27 14 00 ±	12°3 S., 72°5 W. H = 13 ^h 14 ^m 24 ^s Depth by Brunner Chart 110 km.
64	Sept. 24	iPN ipPE iE eSE F	01 12 54 01 13 15 01 14 25 01 22 27 02 00 ±	50°0 N., 158°3 W. H = 01 ^h 01 ^m 27 ^s Depth by Brunner Chart 100 km.

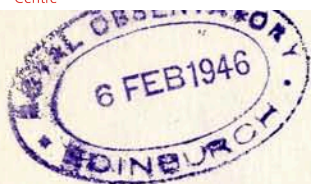
Minor Seismic Activity

August 2 Surface Waves 12^h00^m - 13^h30^m
August 19 Surface Waves 18^h00^m - 19^h00^m
September 12 Surface Waves during 08^h.....
September 16 Surface Waves during 21 and 22 hours

John Harty
Director of the Station

J. B. Macelwane, S. J.
St. Louis University

Records Read by
Ross R. Heinrich
Saint Louis University



CAPE GIRARDEAU BULLETIN

1941

8.

THE EARTHQUAKES REPORTED IN THE CAPE GIRARDEAU STATION BULLETIN FOR JULY-DECEMBER, 1941 ISSUED DURING 1944 WERE INCORRECTLY NUMBERED. THE FOLLOWING IS A REVISION OF THE BULLETIN WITH THE NEW PAGE AND EARTHQUAKE NUMBERS. NO CHANGES HAVE BEEN MADE IN THE SEISMOMETRIC DATA.

No.	Date	Phase	G.M.C.T.	Remarks
At various times during July, 1941, one or both components ceased recording. Normal operation was resumed during August, 1941.				
61	July 13	eLN F	15 ^h 11 ^m 48 ^s 15 14±	EW not operating. Weak
62	July 16	e(P) _E e(P) _N i _N e _M NE F	03 18 13 03 18 18 03 19 27 03 24 58 uncertain	Epicenter 24°9 N., 109°0 W. H = 03 ^h 13 ^m 30 ^s phases weak
63	Aug. 4	eS _{NE} i _{NE} F	11 11 56 11 13 19 11 17±	Epicenter 54°3 N. 179°2 E. H = 10 ^h 53 ^m 17 ^s Depth 75 Km.
64	Aug. 5	i F	18 54 44 18 54 50	Local Disturbance
65	Aug. 6	ePE i(pP) _E iSE esSE iE iE	06 23 53 06 24 21 06 30 58 06 31 37 06 31 57 06 33 28	Epicenter 55°2 N. 161°1 W. H = 06 ^h 15 ^m 14 ^s Depth 150 Km.
66	Aug. 10	(e) _{FF} e _{FF} i _{FF} i _{FF} F	05 14 50 05 23 36 05 24 48 05 53 06 06 00±	Probably more than one quake super- imposed. Phases not clear.
67	Aug. 14	eP _{NE} es _{NE}	01 53 56 02 02 23	Epicenter 21°5 S. 67°8 W. H = 01 ^h 44 ^m 02 ^s No Surface Waves. Depth 200 Km.

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Short period Wood-Anderson seismographs, N and E components. Time checked by radio signals on records.

October, November, December, 1941

9

No.	Date	Phase	G.M.C.T.	Remarks
65	Oct. 3	eP _E iE _E eS _E eE _E eE _E eE _E eE _E F	18 ^h 18 ^m 57 ^s 18 19 15 18 23 46 18 24 05 18 25 11 18 27 03 18 28 03 19 40 ±	Epicenter 40°6 N., 124°6 W. H = 16 ^h 13 ^m 17 ^s Felt in Humboldt County, California.
66	Oct. 5	eP _E eE eSKS _E eSKKS _E eS _E e _F F	10 24 37 10 24 45 10 35 04 10 35 30 10 35 47 10 38 14 11 15 ±	Epicenter 14°0 S., 173°5 E. H = 10 ^h 11 ^m 22 ^s
No Records Were Obtained October 6 and 7, 1941				
67	Oct. 9	iE	19 30 54	Local Disturbance
68	Oct. 14	eE eE	10 32 20 10 36 36 10 37	Very Weak.
69	Oct. 21	iP _{1E} iS _{1E}	16 53 22 16 53 28	$\Delta S_1 - P_1 = 34$ mi. H = 16 ^h 53 ^m 12.8 ^s Felt at Cairo, Ill. and Wickliffe, Ky.
70	Oct. 27	eN	03 58 51	Local-weak. Felt at Cape Girardeau
71	Nov. 6	eS _E eL _E F	12 45 57 12 53 13 30 ±	Epicenter 54.5 N., 157.8 W. H = 12 30 03

No.	Date	Phase	G.M.C.T.	Remarks.
68	Aug. 15	eP _N e _N e _N eS _N F _N	06 ^h 19 ^m 19 ^s 06 19 31 06 19 59 06 27 12 07 00±	No EW Component 20°1 N. 27°8 W. H = 06 ^h 09 ^m 35 ^s Depth = 35 Km.
69	Aug. 28	i _{NE}	18 32 41	Local Disturbance
70	Aug. 29	eL _E eM _E F _E	13 21 50 13 23 53 13 30±	Weak
71	Sept. 1	e _N e _N e _F F _F	15 42 02 15 43 07 15 43 33 15 46±	
72	Sept. 4	ePR _{1E} e(pPR ₁) _E isSP _E i _E i _E eL _E F _E	10 41 15 10 42 04 10 50 57 11 01 40 11 02 04 11 36 12 30±	13°S. 152°3' E. H = 10 ^h 21 ^m 15 ^s Deep Focus Felt at Rabaul, New Guinea
73	Sept. 7	e(s) _E F _E	22 40 50 22 43±	
74	Sept. 9	ePR _{1E} eSP _E eL _E F _E	07 39 13 07 48 54 08 19 09 45±	7°3 S., 155°00 E. H = 07 ^h 19 ^m 44 ^s
75	Sept. 13	eP _E iP _E i _E i _E i _E iSE i _E eM _E F _E	18 20 13 18 20 15 18 20 28 18 21 30 18 22 50 18 24 42 18 25 18 18 27 56 19 30±	19°0 N., 106°7 W. H = 18 ^h 14 ^m 55 ^s
76	Sept. 14	eM _{EN} F _{EN}	18 33 28	lost in next earthquake
77	Sept. 14	iP _E iM _E F _E	18 44 24 18 51 22 19 00±	Felt in Owens Valley, Sierra Nevada, and San Joaquin Valley, Calif. Pasadena Gives 37°5 N.; 118°5 W. H = 18 ^h 39 ^m 11 ^s

CAPE GIRARDFAU STATION BULLETIN

October, November, December, 1941

No.	Date	Phase	G.M.C.T.	Remarks
72	Nov. 8	eP ^N _N ePR ^N _N eSKP ^N _N e _N F	23 56 44 23 58 54 23 59 58 24 00 30 Not clear	0°7 N., 125°0 E. H = 23 ^h 37 ^m 40 ^s Depth 120 km.
73	Nov. 10	iR _N ep _N eS _N iS _N es _N F _N	09 54 59 09 55 43 10 03 08 10 03 12 10 04 30 10 06 ±	21°3 S., 67°1 W. H = 09 ^h 45 ^m 02 ^s Deep Focus
74	Nov. 14	eS _N	07 11 17	Only phase recorded
75	Nov. 14	eM _N F	08 55 08 09 00 ±	Felt in Los Angeles, California. Only surface waves recorded.
76	Nov. 16	eP _N iP _N ip _N eS _N F	09 44 58 09 44 59 09 45 16 09 49 09 09 56 ±	13°2 N., 88°5 W. H = 09 ^h 39 ^m 47 ^s Depth 100 km.
77	Nov. 17	iP _N iS _N F	03 08 15 03 08 37.5 03 11 ±	$\Delta p_4 - p_4 \approx 125$ mi. Felt in Western Tennessee.
78	Nov. 27	eP ^N _N e _N i _N e _N F	08 56 03 09 00 41 09 00 47 09 08 ±	Weak Distant
79	Dec. 5	eP _N eP _E i _E iS _E iM _E F	20 53 01 20 53 02 20 54 02 20 57 54 21 01 54 F lost in changing records	$\Delta p - H = 28.7$, 9.0 N., 83.2 W H = 20 47 00

No.	Date	Phase	G.M.C.T,	Remarks
78	Sept.17	iSKP _E isSKP _E iPR _{2E} e _E i _E i _E e _E F	07 ^h 09 ^m 51 ^s 07 10 17 07 11 27 07 11 55 07 16 43 07 17 05 07 28 37 07 32 [±]	2°2 N., 124°0 E. H = 06 ^h 48 ^m 07 ^s Deep
79	Sept.18	iP _N eP _E ip _N eS _E eS _E esS _E e _F F	13 23 23 13 23 23 13 23 47 13 30 43 13 30 51 13 31 22 13 33 27 14 00 [±]	12°3 S., 72°5 W. H = 13 ^h 14 ^m 24 ^s Depth by Brunner Chart 110 Km.
80	Sept.24	iP _N ip _E i _E eS _E F	01 12 54 01 13 15 01 14 25 01 22 27 02 00 [±]	50°0 N., 158°3 W. H = 01 ^h 01 ^m 27 ^s Depth by Brunner Chart 100 Km.

Minor Seismic Activity

- August 2 Surface Waves 12^h00^m - 13^h30^m
- August 19 Surface Waves 18^h00^m - 19^h00^m
- September 12 Surface Waves during 08^h
- September 16 Surface Waves during 21 and 22 hours.

John Hartly
Director of the Station

J. B. Macelwane, S. J.
St. Louis University
Director

Records Read by:
Ross R. Heinrich
Saint Louis University

CAPE GIRARDEAU

SEISMIC STATION, SOUTHEAST MISSOURI STATE TEACHERS COLLEGE, CAPE GIRARDEAU, MO., U. S. A.

(In cooperation with Saint Louis University, St. Louis, Mo.—Records kept in Saint Louis)

Latitude: 37°19' N. Longitude: 89°32' W. Altitude: 134 m. Foundation: limestone.

Short period Wood-Anderson seismographs, N and E components. Time checked by radio signals on records.

11.

Bulletin for October, November, December, 1941

No.	Date	Phase	G.M.C.T.	Remarks
81	Oct. 3	e _E i _E e _E e _E e _E e _E e _E F	18 18 57 18 19 15 18 23 46 18 24 05 18 25 11 18 27 03 18 28 03 19 40±	Epicenter 40°6 N., 124°6 W. H = 16h13m17s Felt in Humboldt County, California
82	Oct. 5	e _E e _E e _{SKSE} e _{SKKSE} e _{SE} e _E F	10 24 37 10 24 45 10 35 04 10 35 30 10 35 47 10 38 14 11 15±	Epicenter 14°0 S. 173°5E. H = 10h11m22s
No Records were obtained October 6 and 7, 1941				
83	Oct. 9	i _E	19 30 54	Local Disturbance
84	Oct. 14	e _E e _E F	10 32 20 10 36 36 10 37	Very Weak
85	Oct. 21	i _{P1E} i _{S1E}	16 53 22 16 53 28	$\Delta S_1 - P_1 = 34$ mi. H = 16h53m12.8s Felt at Cairo, Ill. and Wickliffe, Ky.
86	Oct. 27	e _N	03 58 51	Local-Weak. Felt at Cape Girardeau
87	Nov. 6	e _{SE} e _{LE} F	12 45 57 12 53 13 30±	Epicenter 54°5 N. 157°8 W. H = 12h30m03s
88	Nov. 8	e _{P1N} e _{PR1N} e _{SKPN} e _N F	23 56 44 23 58 54 23 59 58 24 00 30	0.7 N. 125.0 E. H = 23 37 40 Not clear Depth 120 Km.

CAPE GIRARDEAU STATION BULLETIN 11.
 October, November, December, 194

No.	Date	Phase	G.M.C.T.	Remarks
80	Dec. 6	e _F ^{PN}	01 30 42 02 00 ±	Weak
81	Dec. 6	e(P) _E e _E ^E e _E ^{SE} i _F ^{EF}	21 30 52 21 31 34 21 35 32 21 37 37 23 00 ±	897 N., 8493 W. H = 21 ^h 24 ^m 36 ^s Deep?
82	Dec. 7	i _F ^{PN} e _F ^N e _F ^{SN}	00 00 40 00 02 10 00 05 27 00 07 ±	Aftershock of #81
83	Dec. 7	i _F ^{PN}	05 48 54	Aftershock of #81
84	Dec. 7	i _F ^{PN}	11 48 00	Aftershock of #81
85	Dec. 8	i _F ^{PN} e _F ^N e _F ^{SE}	07 47 16 07 48 22 07 52 07 07 54 ±	Aftershock of #81
86	Dec. 14	e(P) _N e _N ^{SN}	09 29 50 09 33 26	15°0' N., 96°3' W. H = 09 ^h 23 ^m 48 ^s
87	Dec. 21	e _F ^{PN} e _F ^N e _F ^{SN}	05 48 44 05 49 01 05 57 52	Weak 29.3 S., 71.7 W. H = 05 37 43
88	Dec. 24	e(PR) _N e _F ^{MN}	03 38 45 03 45 10 03 52 ±	Weak
89	Dec. 24	e(PR) _N e _F ^N	12 06 39 12 12 16 12 23 ±	Aftershock of #88
90	Dec. 31	i _F ^N i _F ^N e _F ^N i _F ^{EE} e _F ^{EE} e _F ^{EE}	17 43 42 17 43 55 17 45 37 17 50 06 17 53 04 17 54 08 17 58 ±	South Pacific Deep?

Minor Seismic Activity

- November 18 Surface waves of distant earthquake recorded
17^h00^m -- - 19^h00^m No time marks on records.
- November 25 Large quake recorded on EW. Instrument during
18 hour. Unable to interpret phases due to
instrumental drift.
- November 26 Slight shock during 8 hour no time marks.
- December 26 Surface Waves 15^h30^m to 16^h30^m.
-
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John Harty

Director of the Station

James B. Masekane, S. J.
Dean, Institute of
Geophysical Technology

Records read by:
Ross R. Heinrich

No.	Date	Phase	G.M.C.T.	Remarks.
89	Nov.10	iPN epPN eSN iSN esSN F	09 54 59 09 55 43 10 03 08 10 03 12 10 04 30 10 06±	21°3 S., 67°1 W. H = 09h45m02s Deep Focus.
90	Nov.14	eSN	07 11 17	Only phase recorded
91	Nov.14	eMN F	08 55 08 09 00±	Felt in Los Angeles, California only surface waves recorded.
92.	Nov.16	ePN iPN ipPN eSN F	09 44 58 09 44 59 09 45 16 09 49 09 09 56±	13.2 N. 88.5 W. H = 09 39 47 Depth 100 Km.
93	Nov.17	iP ₄ N iS ₄ N F	03 08 15 03 08 37.5 03 11±	$\Delta S_{41}-P_{41} = 125\text{mi}$ Felt in Western Tennessee.
94	Nov.27	eP'N eN iN eN F	08 56 03 09 00 41 09 00 47 09 05 06 09 08±	Weak Distant
95	Dec.5	ePN ePE iE iSE iME F	20 53 01 20 53 02 20 54 02 20 57 54 21 01 54	$\Delta p-H = 28^{\circ}7$ 9°0 N 83°2 W. H = 20h47m00s lost in changing records
96	Dec.6	eP _N F	01 30 42 02 00±	Weak
97	Dec.6	e(P) _E e _E e _S _E i _E F	21 30 52 21 31 34 21 35 32 21 37 37 23 00±	897 N. 8493 W. H = 21h24m36s Deep?
98	Dec.7	iPN eN eSN F	00 00 40 00 02 10 00 05 27 00 07±	Aftershock of #97

No.	Date	Phase	G.M.C.T.	Remarks
99	Dec.7	iP _N	05 ^h 48 ^m 54 ^s	Aftershock of #97
100	Dec.7	iP _N	11 48 00	Aftershock of #97
101	Dec. 8	iP _N e _M e _S F _E	07 47 16 07 48 22 07 52 07 07 54±	Aftershock of #97
102	Dec.14	e(P) _N e _S	09 29 50 09 33 26	15°0 N. 96°3 W H = 09h23m48s
103	Dec.21	eP _N e _M e _S	05 48 44 05 49 01 05 57 52	Weak 29°3 S. 71°7 W. H = 05h37m43s
104	Dec.24	e(PR ₁) _N e _M F	03 38 45 03 45 10 03 52±	Weak
105	Dec.24	e(PR ₁) _N e _E F	12 06 39 12 12 16 12 23±	Aftershock of 104
106	Dec.31	i _N i _N e _N i _E e _E e _E F	17 43 42 17 43 55 17 45 37 17 50 06 17 53 04 17 54 08 17 58±	South Pacific Deep?

Minor Seismic Activity

- November 18 Surface waves of distant earthquake recorded 17^h00^m - 19^h00^m No time marks on records.
- November 25 Large quake recorded on EW Instrument during 18 hour, unable to interpret phases due to instrumental drift.
- November 26 Slight shock during 8 hour no time marks.
- December 26 Surface waves 15^h30^m to 16^h30^m

John Harty
Director of the Station

J. B. Macelwane, S. J.
Dean, Institute of Geophysical
Technology

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Ross R. Heinrich