

DEPARTMENT OF COMMERCE
U. S. Coast and Geodetic Survey

Preliminary Earthquake Report of the Seismological Station at
TUCSON, Arizona.

Instruments: Wood-Anderson. T_0 - 6.0 s. V - 435. Damping: η - .85

Date	Phase	Time	Period	Trace Amplitude		Remarks
				N	E	
1928		a. m. s.	s.	In 1/10 mm.		
Jan. 1	P	18 55 32				
	S	19 02 05				
	F	19 04.2				
Jan. 3	e _E	6 49 11	4			Local.
	F	6 55				
Jan. 5	P	21 56 18				
	SN	21 56 47				Local.
	L _E	21 59 26				
	F	22 01				
Jan. 6	P	19 51 30				
	PR	19 54 53				
	PS	20 02 54				
	L _N	20 27 48				
	L _E	20 36 49				
	F	22 25				
Jan. 11	e	9 14 04				Local.
	F	9 15.7				
Jan. 12	e _N	11 00 06				Local.
	F	11 01 13				
Jan. 12	P	13 18 04				
	S	13 27 22				
	L _N	13 43 46				
	L _E	13 44 27				
	F	14 03				
Jan. 18	P	12 32 28				
	SN	12 39 50				
	SE	12 40 00				
	L _N	12 51 47				
	L _E	12 51 41				
	F	13 02				

Tucson - January, 1928.

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1928		h. m. s.	s.	
Jan. 20	ePN	4 11 54		Local.
	iP	4 11 59		
	i	4 12 03		
	iN	4 12 18		
	i	4 12 42		
	iLN	4 12 58		
	F	4 30.0		
Jan. 20	PN	5 00 42		Local.
	eE	5 01 30		
	S	5 01 32		
	L	5 02 12		
	F	5 05.5		
Jan. 20	PN	13 59 55		Local.
	SN	14 00 26		
	SE	14 00 32		
	L	14 01 03		
	F	14 04.0		
Jan. 25	P	21 11 41		
	PRN	21 12 15		
	PRE	21 12 07		
	S	21 15 28		
	LN	21 17 20		
	LE	21 17 44		
	M1N	21 18 18		
	M1E	21 18 35		
	F	21 31		
Jan. 26	eN	5 29 45		Local.
	iN	5 30 43		
	iE	5 30 40		
	F	5 34		
Jan. 30	LN	4 51 14		
	LE	5 02 35		
	F	5 06		

Albert K. Ludy,
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Date	Phase	Time	Period	Trace Amplitude		Remarks
				N	E	
1928		h. m. s.	s.	In 1/10 mm.		
Feb. 1	e	1 07 42				Local.
	e _N	1 08 12				
	e _E	1 08 18				
	F	1 10.7				
Feb. 1	e _N	10 44 04				Local.
	e _N	10 44 45				
	e _E	10 44 48				
	L _N	10 45 03				
	F	10 47.0				
Feb. 1	e	11 20 08				Local.
	S _N	11 20 31				
	i _L	11 20 42				
	M _{1N}	11 21 08	3	45		
	M _{1E}	11 21 07	2		53	
	F	11 30				
Feb. 1	e	15 06 18				Local.
	F	15 08.5				
Feb. 3	P _N	3 05 36				Local.
	P _E	3 05 48				
	e _N	3 06 00				
	S	3 06 18				
	L	3 06 41				
	M _{1N}	3 06 44				
	F	3 10.6				
Feb. 3	P	4 43 55				Local.
	i _N	4 43 38				
	i _N	4 44 50				
	i _E	4 44 55				
	F	4 47.7				
Feb. 3	e	5 25 53				Local.
	F	5 27.1				

Tucson - February, 1928.

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1928		h. m. s.	s.		
Feb. 3	e F	6 00 35 6 03.1			Local.
Feb. 5	e F	18 48 48 18 50.0			Local.
Feb. 5	eL F	23 27 16 23 43			
Feb. 7	eP _N L _N L _E F	0 21 22 1 06 35 1 03 00 1 50			
Feb. 10	P PR S eN L _N L _E M _{1N} M _{1E} F	4 42 44 4 43 04 4 46 10 4 46 49 4 48 08 4 48 16 4 49 04 4 48 48 5 23	10 8	200 150	
Feb. 10	e F	15 55 39 15 57.6			Local.
Feb. 14	e F	15 04 51 15 05.8			Local.
Feb. 14	e F	19 04 57 19 06.7			Local.
Feb. 15	eN F	2 01 51 2 02.8			Local.
Feb. 15	eN eN eE eN F	2 08 21 2 08 54 2 08 50 2 09 14 2 12.3			Local.
Feb. 15	eN eE F	2 17 04 2 17 08 2 18.1			Local.

Tucson - February, 1928.

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1928		h. m. s.	s.		
Feb. 21	PN	19 57 02			
	PE	19 58 00			
	PRE	20 00 01			
	en	20 04 10			
	SN	20 05 06			
	SE	20 05 10			
	en	20 08 04			
	LN	20 14 44			
	LE	20 13 12			
	M ₁ N	20 16 40	18	40	
	F	21 04			
Feb. 24	P	14 19 23			
	SN	14 26 29			
	LN	14 35 29			
	LE	14 35 06			
	F	14 55			
Feb. 25	e	20 41 39			Local.
	F	20 43.5			
Feb. 26	PN	1 28 30			
	PE	1 28 33			
	PRGN	1 31 55			
	PRSE	1 31 51			
	S	1 35 28			
	SRN	1 39 29			
	SRE	1 39 24			
	LN	1 44 07			
	LE	1 43 24			
	M ₁ N	1 51 49	12	20	
	M ₁ E	1 50 40	13	46	
	F	2 35			
Feb. 28	e	2 21 55			Local.
	F	2 24.1			
Feb. 29	en	13 56 57			
	ee	13 54 02			
	en	14 02 17			
	ee	14 02 31			
	F	14.06.4			
Feb. 29	en	22 45 24			
	ee	22 45 18			

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Date	Phase	Time	Period	Trace Amplitude		Remarks
				N	E	
1928		h. m. s.	s.	In 1/10 mm.		
Mar. 3	eN	18 59 35				Local.
	eL	18 59 58				
	F	19 03.0				
Mar. 6	eN	1 03 20				Local.
	eE	1 03 08				
	eN	1 04 14				
	eE	1 04 08				
	F	1 08.5				
Mar. 6	eN	2 59 25				Local.
	P _N	2 59 50				
	P _E	2 59 44				
	S	3 00 32				
	S	3 00 48				
	L _N	3 01 13				
	L _E	3 01 00				
	M _{1N}	3 01 36	4	29		
	M _{1E}	3 01 52	5		31	
	F	3 08.6				
Mar. 6	e	14 31 48				Local.
	F	14 36.6				
Mar. 6	e	22 24 17				Local.
	F	22 26.0				
Mar. 8	e	3 12 17				Local.
	F	3 15.0				
Mar. 9	P _N	18 25 07				
	PR _N	18 28 28				
	PR _N	18 30 38				
	SN	18 35 29				
	SR _N	18 47 07				
	eN	18 52 22				
	L _N	19 06 53				
	M _{1N}	19 07.5	50	25		
	F	21 09				

Tucson - March, 1928.

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1928		h. m. s.	s.		
Mar. 13	eN F	18 48 54 18 53.0			
Mar. 14	eN F	2 29 34 2 31.0			Local.
Mar. 16	PN PRN SN LN M ₁ N F	5 14 25 5 17 47 5 24 53 5 39 52 5 46 49 8 11	20	53	
Mar. 22	PN SN LN M ₁ N F	4 21 48 4 25 48 4 27 51 4 29 00 6 48	14	1800	
Mar. 22	eN eN F	6 12 00 6 18 22 6 30			
Mar. 23	eN F	6 45 07 6 50.0			
Mar. 23	eN F	22 33 28 22 35.3			Local.
Mar. 24	eN F	18 14 39 18 17.5			Local.
Mar. 26	PN SN F	17 15 11 17 16 43 17 20.4			Local.
Mar. 27	PN PRN SN LN M ₁ N F	5 15 06 5 15 54 5 19 38 5 24 14 5 26.0 5 37	5	15	
Mar. 29	PN eN iN F	3 18 24 3 21 59 3 28 14 5 58			

Tucson - March, 1928.

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1928		h. m. s.	s.	
Mar. 31	L _N	1 17 17		
	L _E	1 16 10		
	P	1 45		

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Date	Phase	Time	Period	Trace Amplitude		Remarks
				N	E	
1928		h. m. s.	s.	In 1/10 mm.		
Apr. 2	P _N	18 09 14				Local.
	P	18 09 34				
	S _N	18 10 26				
	S _E	18 10 31				
	S _N	18 10 49				
	S _E	18 10 44				
	L	18 11 03				
	M _{1N}	18 11 25	2	35		
	M _{1E}	18 11 19	2		25	
Apr. 3	F	18 24				
	e _N	1 42 04				
	L _N	1 43 23				
	L _E	1 43 02				
	M _{1N}	1 44.2	9	25		
	M _{1E}	1 43 21	9		29	
	F	1 53				
Apr. 6	e	16 35 37				
	F	16 41				
Apr. 9	P	17 44 22				
	e _N	17 46 07				
	e _N	17 48 19				
	S	17 52 32				
	SR _N	17 56 56				
	SR _E	17 57 05				
	L _N	18 00 31				
	L _E	18 02 23				
	M _{1N}	18 09.0	16	20		
	F	18 44				
Apr. 10	e	6 15 45				
	e _N	6 19 52				
	L _N	6 22 32				
	M _{1N}	6 23 06	5	25		
	F	6 34				

Tucson - April, 1928.

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1928		h. m. s.	s.		
Apr. 10	P	16 44 37			
	e	16 46 38			
	LN	16 47 14			
	LE	16 47 00			
	ee	16 47 31			
	LN	16 47 37			
	M ₁ N	16 48.0	10	40	
	M ₁ E	16 49 21	6		36
	F	17 10			
Apr. 10	e	21 38 35			
	F	21 46.5			
Apr. 12	eN	3 30 15			
	eLE	3 31 06			
	LN	3 31 14			
	M ₁ N	3 32 15	5	15	
	M ₁ E	3 31 28	4		15
	F	3.36.6			
Apr. 13	P	23 21 08			
	eN	23 22 51			
	ee	23 22 13			
	S	23 25 14			
	LN	23 27 35			
	LE	23 27 25			
	M ₁ N	23 28 21	6	170	
	M ₁ E	23 28 31	7		225
	F	24 30			
Apr. 14	P	9 13 26			
	eN	9 17 05			
	SN	9 23 58			
	LN	9 37 11			
	LE	9 40 08			
	M ₁ N	9 58.0	16	17	
	F	10 28			
Apr. 15	S	22 03 23			Local.
	LN	22 04 02			
	LE	22 04 08			
	F	22 15			
Apr. 17	F	3 29 52			
	PRN	3 30 02			
	PRE	3 30 08			
	SN	3 33 42			
		(continued)			

Tucson - April, 1928.

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1928		h. m. s.	s.		
Apr. 17		(continued)			
	SE	3 33 49			
	LN	3 35 54			
	LE	3 36 13			
	M ₁ N	3 37 23	4	169	
	M ₁ E	3 37 53	5		141
	F	4 26			
Apr. 18	P	3 48 36			Local.
	P	3 48 56			
	SN	3 49 45			
	SE	3 49 41			
	SN	3 50 06			
	LN	3 50 27			
	LE	3 50 21			
	M ₁ N	3 51 03	5	185	
	M ₁ E	3 50 56			
	F	4 16			
Apr. 18	P	19 36 28			
	SN	19 46 57			
	eN	19 47 44			
	PS	19 47 44			
	eN	19 49 04			
	LN	20 03 41			
	M ₁ N	20 08 54	22	30	
	M ₁ E	20 13 00	25		25
	F	21 14			
Apr. 18	eN	21 43 43			
	eE	21 43 46			
	eN	21 45 22			
	eE	21 45 18			
	F	21 53.4			
Apr. 20	eN	1 52 30			
	eE	1 52 24			
Apr. 22	L	21 03			
	F	21 23			
Apr. 26	i	19 48 39			
	F	19 56			
Apr. 27	i	0 18 30			
	F	0 27			

Tucson - April, 1928.

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1928		h. m. s.	s.	
Apr. 27	P	20 44 13		Local.
	S	20 52 20		
	eSR _N	20 56 30		
	L	21 02 15		
	M _N	21 09.8		
	M _E	21 09.7		
	F	21 34		

A. K. Ludy,
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Date	Phase	Time	Period	Trace Amplitude		Remarks
				N	E	
1928		h. m. s.	s.	In 1/10 mm.		
May 1	eN	2 38 30				
	eE	2 38 47				
	F	2 43.0				
May 1	e	9 22 42				
	F	9 27.5				
May 1	e	9 42 32				
	F	9 46.5				
May 1	LE	19 21 04				
	LN	19 21 49				
	F	19 46				
May 4	P _N	3 00 46				Local.
	P	3 00 52				
	S	3 01 14				
	F	3 03.5				
May 8	eP	4 54 36				
	e	4 56 35				
	IS	5 03 13				
	F	5 13.0				
May 9	e	19 22 30				Local.
	F	19 25.3				
May 10	e	3 43 50				Local.
	F	3 47.3				
May 10	e	7 54 52				Local.
	F	7 57.3				
May 10	P	8 30 11				Local.
	S _N	8 30 58				
		(continued)				

Tucson - May, 1928.

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1928		n. m. s.	s.		
May 10		(continued)			
	SE	8 30 54			
	LN	8 31 34			
	LE	8 31 36			
	F	8 39.5			
May 10	eN	21 01 17			Local.
	eE	21 01 24			
	F	21 04.2			
May 11	eN	17 10 42			Local.
	e	17 11 29			
	eN	17 12 00			
	F	17 16.2			
May 12	e	2 59 10			Local.
	F	3 00 16			
May 14	P	22 23 32			
	SN	22 30 35			
	SE	22 30 32			
	SR	22 34 27			
	LN	22 37 57			
	LE	22 37 44			
	M ₁ N	22 40.7	21	105	
	M ₁ E	22 42.6	15	125	
	F	25 30			
May 15	P	2 44 52			Local.
	SN	2 51 58			
	SE	2 51 53			
	SR _N	2 54 56			
	SR _E	2 54 48			
	LN	2 58 52			
	LE	2 59 30			
	F	3 24			
May 16	e	8 05 34			Local.
	F	8 08.5			
May 16	e	22 51 30			Local.
	F	22 54.5			
May 21	e	2 21 49			
	LE	2 28.5			
	LN	2 30.0			
	F	2 38			

Tucson - May, 1928.

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1928		h. m. s.	s.	
May 23	e F	5 47 07 5 48.7		Local.
May 24	eN eE eLN eLE F	5 45 40 5 45 35 5 57 57 5 57.4 5 17		
May 26	e	8 39 48		
May 27	PE PN SE SN SRN SRN LE LN F	10 02 42 10 02 51 10 12 42 10 12 46 10 18 12 10 24 05 10 24 31 10 25 51 12 05		
May 27	e eE eN F	18 38 33 18 39 29 18 39 31 18 42.6		Local.
May 28	e F	3 41 41 3 44.9		Local.
May 28	e F	5 47 53 5 49.0		Local.
May 28	e F	6 53 33 7 48		

A. K. Ludy,
Officer in Charge.

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Date	Phase	Time	Period	Trace Amplitude		Remarks
				N	E	
1928		h. m. s.	s.	In 1/10 mm.		
June 1	eN	13 24 37				
	eN	13 34 45				
June 3	eN	6 54 38				
	eE	6 56.1				
	F	7 09				
June 3	P	18 52 19				Local.
	S	18 53 12				
	F	18 55.7				
June 8	P	14 51 06				
	S _N	15 00 56				
	S _E	15 01 00				
	L _E	15 13 26				
	L _N	15 14 10				
	F	15 37				
June 9	eN	2 41 10				
	eE	2 41 14				
	i	2 41 30				
	i _N	2 41 53				
	i	2 42 12				
	F	2 59				
June 9	e	3 00 06				Local.
	F	3 3.2				
June 9	e	4 21 08				Local.
	F	4-24.0				
June 9	e	5 10 09				Local.
	F	5 14.2				
June 9	e	6 14 00				Local.
	F	6 18.9				

Tucson - June, 1928.

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1928		h. m. s.	s.	
June 9	e F	8 26 04 8 27.5		Local.
June 9	e F	8 44 24 8 48.0		Local.
June 9	e F	8 49 02 8 51.5		Local.
June 10	e i F	11 19 04 11 19 56 11 22.6		Local.
June 10	e F	16 57 54 17 00.6		Local.
June 10	e F	17 01 53 17 04.0		Local.
June 12	e eN F	14 13 14 14 14 24 14 20.0		
June 12	eN eE F	21 41 56 21 41 59 21 46.8		Local.
June 15	PR e SRN SRE LN LE F	6 32 02 6 39 09 6 48 02 6 48 07 6 58 50 6 59 30 8 40		
June 15	eN eE eE eN F	17 35 30 17 55 50 17 42 57 17 43 01 18 50		
June 17	P S LN LE F	3 24 13 3 28 06 3 30 13 3 30 16 6 45		

Tucson - June, 1926.

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1928		h. m. s.	s.	
June 17	e _N F	5 17 02 5 19.1		Local.
June 17	e _N F	6 39 53 6 43.0		Local.
June 17	e _N F	6 53 31 7 00.6		Local.
June 17	i _N F	7 05 18 7 07.3		Local.
June 17	e _N F	7 10 23 7 14.2		Local.
June 17	e _N F	7 45 01 7 47.3		Local.
June 17	e _N F	7 57 27 8 02.1		Local.
June 17	e _N F	8 20 18 8 24.0		Local.
June 17	e _N F	11 29 59 11 34.0		Local.
June 17	e _N L _N F	11 41 45 11 44 00 11 55		Local.
June 17	e _N F	12 13 13 12 20		Local.
June 17	e _N F	12 26 10 12 30.0		Local.
June 17	e _N F	12 35 58 12 44		Local.
June 17	e _N F	13 25 13 13 30.0		Local.
June 17	e _N F	13 46 51 13 48.3		Local.

Tucson - June, 1928.

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1928		h. m. s.	s.		
June 17	e F	15 13 40 15 19			Local.
June 17	e F	17 23 50 17 26.5			Local.
June 17	e F	20 37 15 20 43.0			Local.
June 17	eN eE F	21 29 48 21 29 58 21 34.1			Local.
June 17	P S SR _E SR _N LN LE M ₁ N F	22 25 54 22 29 57 22 31 21 22 31 24 22 32 09 22 32 15 22 33 19 23 02	5	85	
June 17	P S _N S _E SR LN LE M ₁ E M ₁ N F	23 29 38 23 33 28 23 33 36 23 35 06 23 35 52 23 35 59 23 36 19 23 36 46 24 10	4 4	140 145	
June 18	e F	12 46 18 12 50.0			
June 18	P S LE LN M ₁ E M ₁ N F	15 45 08 15 49 04 15 51 21 15 51 25 15 51 46 15 53 54 16 20	4 9	41 70	
June 19	eE eE F	4 46 08 4 46 12 4 51			

Tucson - June, 1928.

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1928		h. m. s.	s.			
June 19	e	17 03 12				Local.
	F	17 07.0				
June 19	eP	18 58 32				
	LN	19 04 43				
	LE	19 04 55				
	F	19 10				
June 21	P	10 52 41				
	PRN	10 55 50				
	SN	11 03 01				
	SE	11 03 05				
	SRE	11 12 56				
	SRN	11 14 01				
	LN	11 17 55				
	LE	11 27.0				
	F	12 28				
June 21	P	15 52 43				
	eSN	15 56 44				
	L	15 58 45				
	M ₁ N	15 59 20	4	30		
	M ₁ E	15 59 39	4		16	
	F	16 05.0				
June 21	P	16 34 27				
	PRN	16 35 56				
	PRE	16 36 07				
	S	16 40 18				
	SRN	16 42 56				
	SRE	16 43 10				
	LN	16 44 32				
	LE	16 45 17				
	M ₁ E	16 49 02	16		70	
	M ₁ N	16 50 26	14	90		
	F	18 48				
June 22	e	19 20 04				
June 23	L	6 34 25				
June 23	L	21 08 21				
	F	21 12.3				

Tucson - June, 1928.

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1928		h. m. s.	s.	
June 27	L	1 02 01		
	F	1 09		
June 27	e	9 29 02		Local.
	F	9 33.0		
June 29	e	1 36 48		Local.
June 29	P	23 02 36		
	SN	23 13 03		
	SE	23 13 06		
	PSN	23 13 33		
	eE	23 14 29		
	eN	23 14 46		
	SRN	23 19 21		
	LN	23 26 00		
	LE	23 29 11		
	F	24 40		

A. K. Ludy,
Observer in Charge.

U. S. Coast and Geodetic Survey
Department of Commerce



Preliminary Earthquake Report of the Seismological Station at
TUCSON, Arizona.

Instruments: Wood-Anderson T -- 6.0 s. V -- 435 Damping: h -- .85
See quarterly Seismological Reports of the C. and G. Survey for other constants.

Date	Phase	Time h. m. s.	Period s.	Amplitude		Remarks
				E mm	N mm	
1928						
July 2	eL _E	10 59.6	4			No definite phases.
	eL _N	10 59.6	4			
	M _{EN}	11 00	4	0.4	0.6	
	F	11 04				
July 6	eP _E ?	0 59.9				About 2300 km. Mexico?
	eP _N	1 00.1				
	PR _{1E}	1 00 32				
	PR _{1N}	1 00 33				
	S _E	1 03.9				
	S _N	1 04.0				
	L _E	1 06 48	4	1.5		
	L _N	1 06 49	5		2.0	
	M _{1E}	1 07 30	4	3.0		
	M _{1N}	1 07 45	4		3.0	
	M _{2N}	1 08 45	4		1.5	
	F	1.5				
July 6	L _E	22 36.0	4	0.5		Preliminary activity in micros. Mexico?
	L _N	22 36.0	4		1.0	
	F	22 42				
July 7	P _E	3 36 00				About 2100 km. Mexico?
	P _N	3 37 58				
	S _{EN}	3 41.5				
	iL _E	3 42 50	4	9.0		
	L _N	3 42 53	4		12.0	
	F	4.2				
July 7	e _E	5 28 14	3	0.5		No definite phases.
	e _N	5 28 13	3		1.0	
	F	5 33				
July 8	P _{EN}	12 00 50				About 2300 km. Mexico?
	S _E	12 04 28				
	S _N	12 04 29				
	iL _E	12 06 54	4	5.5		
	iL _N	12 06 54	3		6.0	
	F	12 22				

Tucson - July, 1928.

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1928		h. m. s.	s.	mm.	mm.	
July 9	e _E ?	16 40 06	3	0.1		No definite phases.
	e _N	16 39 46	3		0.2	
	F	16 44				
July 9		21 23 30				SPS may be S.
	e _{PE}	21 36 58				
	e _{PN}	21 37 15	94.8			
	SPS	21 47 40				
	S _E	21 48 18	11-18			
	S _N	21 48 16				
	L _N	22 02				
	L _E	22 06.2				
	M _E	22 04	19	0.5		
	M _N	22 10.2	12		0.6	
	F	23.5				
July 10		2 02 23				About 2500 km. Mexico?
	P _{EN}	2 07 29				
	PR _{1N}	2 07 52				
	S _E	2 11 26				
	S _N	2 11 36				
	iL _E	2 13 43	4	12		
	iL _N	2 13 43	4		13	
	F	2 54				
July 10	e _E ?	6 59 34		0.1		
	e _N ?	6 59 22			0.1	
	F	7 02				
July 10	e _{PE} ?	10 27 33				Mexico?
	e _{PN}	10 27 28				
	L _E	10 33 41	4	1.5		
	L _N	10 33 42			3	
	F	10 50				
July 10	e?	11 11 28				Mexico?
	L _E	11 17 39	4	1.0		
	L _N	11 17 31	4		1.5	
	F	11 34				
July 13	L _{EN} ?	20 30 59				
	M _E	20 37 17	4	0.5		
	M _N	20 37 13	4		1.0	
	F	20 45				
July 15	L _{EN}	14 28 56	3	0.2	0.4	
	F	14 38				

1928		h. m. s.	s.	mm.	mm.	
July 17	LE?	16 21 11	3	0.5		
	LN?	16 21 14	3		0.5	
	LE	16 22 48	8			
	LN	16 22 50	8			
	ME	16 23 25	8	0.2		
	MN	16 23 27	8		0.5	
	F	16.5				
July 18	PEN	19 13 46				
	SE	19 20.9				
	SN	19 20.9				
	SR ₁ EN	19 24.8				
	SR ₂ , LN	19 26.1				
	LE	19 27.0	22	4.0		
	LN	19 27.0	22		5.0	
July 19	F	21.5				
	e _{EN}	3 31 39	3	0.2		No definite phases.
	MN	3 33 33	8		0.2	
July 19	F	3.6				
	PEN?	5 48 51				Local.
	e _{EN}	5 49 01				
	L, S _{EN}	5 49 43	2	4.0	6.0	
July 21	F	6.0				
	PEN	6 36 39				Mexico?
	LE	6 42 58				
	LN	6 43 02				
	ME	6 43 47	3	1.0		
	MN	6 43 50	3		2.0	
	F	6.9				
July 22	PE	4 33 01				About 2400 km.
	PN	4 33 00				
	PR ₁ EN	4 33 23				
	SE	4 36 56				
	SN	4 36 55				
	iL _{EN}	4 39 09	4	9.0	14.0	
	ME	4 41 28	8	7.0		
	MN	4 41 25	8		20.0	
	F	5.2				
July 25	PEN	18 52 07				S very doubtful.
	SE?	18 54 56				
	SN?	18 54 59				
	L _{EN}	18 55.8	6	1.5	2.0	
	F	19.4				

Tucson - July, 1928.

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1928		h. m. s.	s.	mm.	mm.	
July 26	e _{EN} F	3 34 20 3.6	4	0.4	0.5	
July 30	P _E P _N e _E e _N S _E ? S _N ? L _E L _N F	2 35 47 2 35 53 2 36 46 2 36 48 2 37 11 2 37 13 2 37 59 2 38 01	 8 10	 0.8	 2.0	There is a possibility that these may be the preliminary tremors of the following quake.
July 30	P _E ? P _N ? L _E L _N F	2 50 41 2 50 36 3 02 3 02 3.4	4 4 18 18	 0.4	 1	No definite phases.
July 30	P _E P _N e _E e _N S _E ? S _N ? L _E L _N F	6 21 01 6 21 05 6 21 20 6 21 21 6 21 59 6 22 02 6 22.9 6 22.9 6 28	 8 10	 0.4	 0.8	Similar to July 30, 2 ^h - 35 ^m

Tucson, Arizona, August 2, 1928.

(Signed) Albert K. Ludy

Observer in Charge.

Additional Observations.

Date	Phase	Time	Period
		h. m. s.	s.
1928			
		University of Virginia, Charlottesville, Va.	
July 18	iP	19 13 05	
	S	19 19 34	
	PS?	19 19 43	
	L	19 24.7	
		San Juan (Porto Rico) Observatory.	
July 18	P	19 10 47	
	S	19 15 31	
	L	19 19.8	
		Sitka (Alaska) Observatory.	
July 18	SR ₁	19 31.8	
	L	19 36.9	

U. S. Coast and Geodetic Survey,
Washington, D. C.
September 17, 1928.



DEPARTMENT OF COMMERCE
U. S. Coast and Geodetic Survey



Preliminary Earthquake Report of the Seismological Station at
TUCSON, Arizona.

Instruments: Wood-Anderson. T - 6.0 s. V - 435. Damping: h - .85

Date	Phase	Time	Period	Trace Amplitude		Remarks
				N	E	
1926		h. m. s.	s.	In 1/10 mm.		
July 1	e	9 43 43				
	F	10 00				
July 2	e	10 59 35				Local.
	M _N	11 00.0	4	6		
	M _E	11 00.0	6		4	
	F	11 04.0				
July 6	P _E	0 59 54				
	P _N	1 00 05				
	PR ₁	1 00 32				
	S _E	1 03 59				
	S _N	1 04 01				
	SR ₁	1 05 26				
	L	1 06 47				
	M _{1N}	1 07 45	4	30		
	M _{1E}	1 08 00	3		25	
	F	1 20				
July 6	M _E	22 36 01	4		5	
	M _N	22 36 04	4	10		
	F	22 42				
July 7	P _N	3 37 55				
	P _E	3 37 58				
	S	3 41 14				
	L _N	3 42 47				
	L _E	3 42 50				
	F	4 02				
July 7	e	5 26 14				Local.
	F	5 32.5				
July 8	P	12 00 50				Local.
	S _E	12 04 28				
		(continued)				

Tucson - July, 1928.

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1928		h. m. s.	S.			
July 8		(continued)				
	S _N	12 04 38				
	L _N	12 06 44				
	L _E	12 06 52				
	M _{1N}	12 07 30	4	48		
	M _{1E}	12 08 00	4		44	
	F	12 22				
July 9	e _N	16 39 48				Local.
	e _E	16 40 06				
	F	16 44				
July 9	P _E	21 36 58				
	P _N	21 37 15				
	S	21 47 40				
	P _S	21 48 17				
	L _N	22 03 05				
	F	23.4				
July 10	P	2 07 29				
	PR _{1N}	2 07 52				
	PR _{1E}	2 07 55				
	S	2 11 26				
	L	2 13 44				
	M _{1E}	2 14.2	4		110	
	M _{1N}	2 16.0	5	120		
	F	2 54				
July 10	e _N	6 59 22				Local.
	e _E	6 59 34				
	F	7 04.0				
July 10	P _N	10 27 28				
	P _E	10 27 33				
	L	10 33 42				
	F	10 50				
July 10	P _N	11 11 26				
	L _N	11 17 31				
	L _E	11 17 39				
	F	11 34				
July 13	e	20 39 59				
	M _{1N}	20 37 13	4	10		
	M _{1E}	20 37 17	4		5	
	F	20 42				

Tucson - July, 1928.

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1928		h. m. s.	s.			
July 15	L	14 28 56				Local.
	F	14 34.0				
July 17	P _E	16 21 11				Local.
	P _N	16 21 14				
	P _E	16 21 29				
	P _N	16 21 32				
	S _E	16 22 05				
	S _N	16 22 11				
	S _N	16 22 30				
	L _E	16 22 48				
	L _N	16 22 57				
	M _{1E}	16 23 25	8		2	
	M _{1N}	16 23 27	9	6		
	F	16 26				
July 18	P	19 13 46				
	PR _{1N}	19 15 22				
	S	19 20 12				
	SR ₁	19 24 48				
	L	19 26 58				
	M _{1N}	19 28.9	24	40		
	M _{1E}	19 28.7	26		27	
	F	21.2				
July 19	e _N	3 31 37				Local.
	e _E	3 31 40				
	F	3 35.6				
July 19	P	5 48 51				Local.
	i	5 49 02				
	S	5 49 42				
	L _E	5 49 45				
	L _N	5 49 49				
	M _{1N}	5 50 13	2	55		
	M _{1E}	5 50 16	2		55	
	F	6 00				
July 20	e _N	0 01 22				Local.
	e _E	0 01 33				
	F	0 03.5				
July 21	e	6 36 39				
	eL _{1E}	6 42 58				
	eL _{1N}	6 43 02				
		(continued)				

Tucson - July, 1928.

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1928		h. m. s.	s.		
July 21		(continued)			
	M _{1E}	6 43 47	4		10
	M _{1N}	6 43 50	4	20	
	F	6 48.7			
July 22	P	7 33 00			
	PR ₁	7 33 23			
	SN	7 36 55			
	SE	7 36 58			
	L	7 39 09			
	M _{1N}	7 41 25	9	185	
	M _{1E}	7 41 28	4		80
	F	8 12			
July 25	P	18 52 07			Local.
	SE	18 54 56			
	SN	18 54 59			
	LN	18 55 51			
	F	19 15			
July 26	e	3 34 20			Local.
	F	3 38.0			
July 30	PE	2 35 47			F runs into next quake.
	PN	2 35 53			Local.
	e	2 36 47			
	SE	2 37 11			
	LE	2 37 59			
	LN	2 38 01			
	M _{1N}	2 38 17	10	15	
July 30	P	2 50 41			Local.
	LE	3 01 51			
	LN	3 02 20			
	F	3 25			
July 30	PE	6 21 01			Local.
	PN	6 21 05			
	e	6 21 20			
	SE	6 21 59			
	SN	6 22 02			
	LN	6 22 51			
	F	6 28			

A. K. Ludy,
Observer in Charge.

U. S. Coast and Geodetic Survey
Department of Commerce



Preliminary Earthquake Report of the Seismological Station at

TUCSON, Arizona.

Instruments: Wood-Anderson T -- 6.0 s. V -- 435 Damping: h -- .85
See quarterly seismological reports of the C. and G. Survey for other constants.

Date	Phase	Time h. m. s.	Period s.	Amplitude		Remarks
				E mm.	N mm.	
1928						
Aug. 4	iP _E	18 30 52				Recorded on magnetograph.
	iP _N	18 30 53				
	iS _E	18 34 44				
	iS _N	18 34 42				
	eL _E	18 36 45	8	70		
	eL _N	18 36 46	8		55	
	F	21.0				
Aug. 5	e _{EN}	7 18 08	4	0.4	1	
	F	7 23				
Aug. 5	e _{EN}	13 40 04	4	0.2	0.5	
	F	13 44				
Aug. 5	P _{EN}	15 57 06				Local.
	S _{EN}	15 57 55				
	L _{EN}	15 58 25	4	3	3	
	M _E	15 59 00	3	2		
	M _N	15 58 54	4		1.5	
	F	16 15				
Aug. 5	P _N ?	19 20 09				Local.
	S _E	19 20 52				
	S _N	19 21 00				
	L _E	19 21 22	5	1		
	L _N	19 21 29	6		1	
	M _E	19 22 08	6	1.5		
	M _N	19 21 58	6		1.5	
	F	19 30				
Aug. 6	e _{EN}	20 58 23	5	0.3	0.8	
	F	21 06				
Aug. 9	e _{EN}	6 39 53	3	0.3	0.3	Local.
	F	6 44				
Aug. 9	e _{EN}	10 40 07	2	0.5	0.5	Local.
	F	10 43				

Tucson - August, 1928.

1928		h. m. s.	s.	mm.	mm.	
Aug. 12	e _{EN} F	10 50 46 10 55	4	0.6	1	Nearby.
Aug. 15	e _{EN} iS _{EN} ? F	17 26 30 17 35 19 17 56	1 4	0.1 2	0.1 3	
Aug. 16	e _{EN} F	16 21 19 16 25	4	0.3	0.5	
Aug. 20	P _{EN} S _E S _N L _E L _N M _N F	17 52 31 17 56 15 17 56 21 17 58 29 17 58 26 18 00 45 18 10	 4 4 9	4	 11 8	
Aug. 22	e _{EN} F	10 37 00 10 39	1	0.2	0.2	Local.
Aug. 22	e _{EN} F	12 08 12 12 10	1	0.2	0.2	Local.
Aug. 22	e _{EN} F	12 43 04 12 45	1	0.2	0.2	Local.
Aug. 24	P _E P _N S _E S _N P _S _E P _S _N L _N ? F	21 56 21 21 56 23 22 06 41 22 06 37 22 07 18 22 07 16 22 21 07 23.0	 12		 0.1	Interpretation doubtful.
Aug. 26	P _N S _{EN} S _{EN} L _E L _N F	15 38 31 15 39 26 15 39 44 15 40 04 15 40 02 15 43	 2 2	0.4	 0.4	Local.
Aug. 26	e _{EN} M _E M _N F	22 09 47 22 10 51 22 10 10 22 17	 4 4	1	 1	
Aug. 29	e _{EN} F	7 35 06 7 50	3	0.1	0.1	

Tucson - August, 1928.

1928		h. m. s.	s.	mm.	mm.	
Aug. 29	e _N	8 38 01				Local.
	e _{EN}	8 38 17				
	e _N	8 38 38	1		0.4	
	F	8 42				
Aug. 29	e _N	8 44 09				Local.
	e _{EN}	8 45 06				
	e _{EN}	8 45 27	1	0.3	0.5	
	F	8 49				
Aug. 30	e _{EN}	0 19 26	1	0.1	0.1	Local.
	F	0 22				
Aug. 30	e _N	0 49 14				Local.
	i _E	0 40 27	2	0.2		
	i _N	0 49 30	2		0.4	
	F	0 52				
Aug. 30	M _{EN}	3 39 11	3	0.5	0.5	
	F	3 43				
Aug. 30	e _{EN}	12 59 55	3	0.5	0.5	
	F	13 08				
Aug. 30	S _{EN} ?	22 12 01				Beginning lost in microseisms.
	M _{EN}	22 16 42	10	1	1	
	F	22 22				

Tucson, Arizona, September 6, 1928.

(Signed) Albert K. Ludy

Observer in Charge.

DEPARTMENT OF COMMERCE
U. S. Coast and Geodetic Survey

Preliminary Earthquake Report of the Seismological Station at
TUCSON, Arizona.

Instruments: Wood-Anderson. T - 6.0 s. V - 435. Damping: h - .65

Date	Phase	Time	Period	Trace Amplitude		Remarks
				N	E	
1926		h. m. s.	s.	In 1/10 mm.		
Aug. 4	1P	18 30 52				M ₁ too large to record. Recorded on magnetograph.
	1S _E	18 34 38				
	1S _N	18 34 42				
	1 _N	18 36 46				
	1 _E	18 36 52				
	F	21.1				
Aug. 5	e	7 18 08				
	F	7 23				
Aug. 5	e	13 40 04				
	F	13 44.0				
Aug. 5	P _N	15 57 02				Local.
	P _E	15 57 06				
	S _E	15 57 54				
	S _N	15 57 57				
	L _E	15 58 02				
	L _N	15 58 14				
	M _{1N}	15 58 29	3	25		
	M _{1E}	15 59 30	2		29	
	F	16 07				
Aug. 5	P _N	19 20 09				Local.
	S _E	19 20 52				
	S _N	19 20 59				
	L	19 21 22				
	M _{1E}	19 22 08	5	10		
	M _{1N}	19 22 22	6		15	
	F	19 30				
Aug. 6	e	20 58 23				Local.
	F	21 06				
Aug. 9	e	6 39 53				Local.
	F	6 43				

Tucson - August, 1928.

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1928		h. m. s.	s.		
Aug. 9	e _N	10 39 25			Local.
	e _E	10 40 07			
	F	10 45			
Aug. 12	e	10 50 46			Local.
	F	10 55			
Aug. 15	e	17 26 30			Local.
	i	17 35 19			
	F	17 45			
Aug. 16	e	16 21 19			Local.
	F	16 25.0			
Aug. 20	P	17 52 28			
	S _E	17 56 15			
	S _N	17 56 21			
	L _N	17 58 26			
	L _E	17 58 29			
	M _{1E}	17 58 55	5		
	M _{1N}	17 59 00	5	92	45
	F	18 21			
Aug. 22	e	10 37 00			Local.
	F	10 39			
Aug. 22	e	12 08 12			Local.
	F	12 10			
Aug. 22	e	12 43 04			Local.
	F	12 45			
Aug. 24	P	21 56 22			
	S _N	22 06 37			
	S _E	22 06 41			
	P _{S_E}	22 07 02			
	P _{S_N}	22 07 16			
	F	23.0			
Aug. 26	P _H	15 36 31			Local.
	S	15 39 26			
	S	15 39 44			
	L _N	15 40 19			
	F	15 44			

Tucson - August, 1926.

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1926		h. m. s.	s.			
Aug. 26	e	22 09 47				Local.
	M _{1N}	22 10 10	4	10		
	M _{1E}	22 10 51	4		10	
	F	22 17				
Aug. 29	e	7 35 06				
	F	7 50				
Aug. 29	e _N	8 37 45				Local.
	e	8 38 17				
	e _N	8 38 35				
	e _E	8 38 47				
	F	8 41.4				
Aug. 29	e _N	8 44 03				Local.
	e	8 45 06				
	e	8 45 27				
	F	8 49.4				
Aug. 30	e	0 19 26				Local.
	F	0 22				
Aug. 30	e _N	0 49 14				Local.
	i _E	0 49 27				
	i _N	0 49 30				
	F	0 52.0				
Aug. 30	M _N	3 39 10	3	5		Local.
	M _E	3 39 11	3		5	
	F	3 43				
Aug. 30	e	12 59 55				
	F	13 06				
Aug. 30	P _E	22 04 26				
	P _N	22 04 36				
	S ₇	22 12 01				
	M _E	22 16 42	10		10	
	F	22 20				

A. K. Ludy,
Observer in Charge.

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1928		h. m. s.	s.	In 1/10 mm.		
(Sept. 11)	M ₁ EN	12 48 28	8	7	13	
	M ₂ E	12 50 57	7	7		
	M ₂ N	12 50 44	8		8	
	F	14.5				
Sept. 12	is, S _c P _c S _c EN	1 42 44	8,5	12	20	Other activity not greater than microseisms.
	e _{EN}	1 55 16	8	2	3	
Sept. 14	P _{EN} ?	15 35 01				
	L, S _{EN} ?	15 39 17	8			
	L _{EN} ?	15 41 09	8			
	F	16.0				
Sept. 19	P _{EN}	2 47 11				Local.
	e _{EN}	2 47 38				
	S _{EN}	2 48 11				
	e _N	2 48 34				
	L _{EN}	2 48 51	2	7	6	
	M _E	2 49 25	5	3		
	M _N	2 49 31	5		4	
	F	3.0				
Sept. 22	e _E	7 45 08				Beginning weak. No distinct maxima.
	e _N	7 45 07				
	PR ₁ EN	7 48 25				
	PR ₂ N	7 50 26				
	S _E	7 55 34				
	S _N	7 55 31				
	SR ₁ EN	8 01 52				
	L _E	8 13 37	18	2		
	L _N	8 13 32	18		2	
	F	9.5				
Sept. 23	eP _{EN} ?	13 45 59	1	5	5	
	S _{EN} ?	13 49 39				
	L _E	13 53 06	5	8		
	L _N	13 53 30	5		10	
	F					
Sept. 23	e _N	16 01 31				Local.
	e _{EN}	16 02 11	1	6	6	
	F	16 05				
Sept. 23	P _{EN}	17 42 49				Local.
	e _{EN}	17 43 38				
	S _E	17 43 48				
	S _N	17 43 51				
		(continued)				

Tucson - September, 1928.

1928		h. m. s.	s.	In 1/10 mm.		
(Sept. 23)	eE	17 44 03				
	eN	17 44 05				
	LE	17 44 22	3	1		
	LN	17 44 27	3		1	
	F	17 48				
Sept. 24	PN?	6 40 30				Local.
	eEN	6 41 16				
	SEN	6 41 29				
	eE	6 41 42	4	1		
	eN	6 41 46	4		1	
	F	6 44				
Sept. 24	eEN	7 38 06	1	3	3	Local.
	F	7 41				
Sept. 24	PN?	8 32 35				Local.
	eEN	8 33 40				
	SE	8 33 48				
	SN	8 33 50				
	eEN	8 34 02				
	LEN	8 34 26	3	8	6	
	F	8 37				
Sept. 27	PEN	0 53 15	2			
	PR ₁ E	0 55 14				
	PR ₁ N	0 55 17				
	SE?	1 00 24				
	SN?	1 00 27				
	eE	1 03 02		4		
	eN	1 03 06	18		4	
	F	2.0				
Sept. 30	LE	16 19 28	4	1		Beginning weak and masked by microseisms.
	LN	16 19 31	4		15	
	LN	16 19 54	4		20	
	F	16 24				

Tucson, Arizona, October 5, 1928.

(Signed) Albert K. Ludy

Observer in Charge.

Additional Observations.

Date	Phase	Time	Period	Trace Amplitude		Remarks
1928		h. m. s.	s.	E	N	
				In 1/10 mm.		
University of Virginia, Charlottesville, Va.						
Sept. 1	eLE	7 03	30			Seismograph not operating from September 5th to September 30th.
	M ₁ E	7 10.5	20	5		
	eLN	7 02	30			
	M ₁ N	7 13	22		4	
	F	7.8				
Sept. 2	eE	0 00.6				
	PN	0 00 10	5		3	
	SE	0 04 40	20	4		
	eSN	0 04 40	20		6	
	iN	0 08 00	8		7	
	LN	0 08.4	25		3	
	LE	0 09.9	14			
	LN	0 09.9	19			
	M ₁ E	0 10.3	15	6		
	M ₁ N	0 12.0	14		23	
	F	0.6				
Sitka (Alaska) Observatory.						
Sept. 11	iPN	12 39 39	9			
	ePE	12 39 40	8			
	eSN	12 42 45	20			
	eSE	12 42 46	8			
	iSR ₁ E	12 43 23	12			
	eLN	12 44 03	12			
	eLE	12 44 08	10			
	M ₁ N	12 44 37	12		9	
	M ₁ E	12 44 38	13	2		
	CE	12 46 30	8			
	CN	12 48 03	12			
	F	13 35 09	11			
Sept. 22	eLN	8 12 21	15			Practically nothing on EW.
	M ₁ N	8 13 33	15		2	
	F	9.4	15			

U. S. Coast and Geodetic Survey
Department of Commerce

Preliminary Earthquake Report of the Seismological Station at

TUCSON, Arizona.

Instruments: Wood-Anderson T -- 6.0 s. V -- 435 Damping: h -- .85
See quarterly seismological reports of the C. and G. Survey for other constants.

Date	Phase	Time h. m. s.	Period s.	Trace Amplitude		Remarks
				E	N	
1928				In 1/10 mm.		
Oct. 2	P _{EN}	19 01 50				Local.
	P _{EN}	19 02 05				
	S _E	19 02 29				
	S _N	19 02 30				
	L _E	19 03 02	2	130		
	L _N	19 03 01	2		100	
	M _N	19 03 30	2		80	
	F	19 19				
Oct. 2	e _N	23 05 36				Local.
	e _{EN}	23 06 12	1	8	8	Preliminary activity weak.
	F	23 09				
Oct. 3	e _N	1 55 55				Local.
	e _E	1 56 37	1	6		Preliminary activity weak.
	e _N	1 56 33	1		5	
	F	2 00				
Oct. 3	M _E	6 42 05	4	15		
	M _N	6 42 07	4		20	
	F	6 47				
Oct. 3	e _{EN}	12 26 30				Local.
	e _{EN}	12 27 24	1	15	10	
	F	12 33				
Oct. 7	e _N	3 52 14				Preliminary activity weak.
	M _{EN}	3 53 39	4	15	15	
	F	4 02				
Oct. 8	e _{EN}	1 29 59	3	3	5	
	F	1 36				
Oct. 8	e _{EN}	2 30 50	3	5	5	
	F	2 37				

Tucson

October, 1928

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1928		h. m. s.	s.	In 1/10 mm.		
Oct. 9	1P _{EN}	3 05 47				L waves off sheet at amplitude 150 mm. for E, and 168 mm. for N. Recorded on magnetograph.
	PR _{1EN}	3 06 09				
	PR _{2E}	3 06 20				
	PR _{2N}	3 06 18				
	S _{EN}	3 09 32				
	L _{EN}	3 11 30	8			
	F	5.6				
Oct. 9	M _{EN}	12 00 32	4	1	1	
	F	12 05				
Oct. 13	P _{EN}	13 13 18				Local.
	S _E	13 17 06				
	S _N	13 16 52				
	L _E	13 19 20	4	4		
	L _N	13 19 18	4		9	
	F	13 30				
Oct. 15	P _E	2 10 35				
	P _N	2 10 32				
	S _E	2 13 15				
	S _N	2 13 12				
	L _E	2 14 34	4	1		
	L _N	2 14 36			2	
	F	2 22				
Oct. 15	PR _{1EN}	14 38 56				
	PS _{EN?}	14 48 52				
	M _E	15 28 20	26	5		
	M _N	15 26 15	26		5	
	F	16.0				
Oct. 16	e _N	17 31 26				Local.
	e _{EN}	17 31 34	1	2	2	
	F	17 35				
Oct. 17	M _N	16 10 15	16		7	Practically nothing on EN.
	F	16.6				
Oct. 19	P _{EN}	10 31 54				
	e _N	10 35 03				
	(continued)					

Tucson - October, 1928.

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1928		h. m. s.	s.	In 1/10 mm.		
(Oct. 19)		(continued)				
	SEN?	10 42 13				
	LE	10 56 35	14	5		
	LN	10 56 39	14		1	
	F	11.5				
Oct. 19	e _{EN}	20 07 32	3	3	3	
	F	20 11				
Oct. 20	e _{EN}	0 17 06	3	3	3	
	F	0 22				
Oct. 23	e ?	18 03 06				Local.
	e ?	18 11 59		5	5	
	F	18 20				
Oct. 23	e _N	21 03 00	3		5	Local?
	F	21 06				
Oct. 25	eP _{EN}	12 39 11				Nicaragua.
	PR _{1N}	12 40 04				
	PR _{2E}	12 40 17				
	PR _{2N}	12 40 19				
	SE	12 45 00				
	SN	12 45 08				
	LE	12 47 50	16	15		
	LN	12 47 46	16		2	
	F	13.6				
Oct. 30	P _N	0 00 48				Local.
	P _{EN}	0 00 53				
	S _{EN}	0 01 17				
	L _{EN}	0 01 37	2	14	11	
	F	0 13				
Oct. 30	P _{EN}	4 28 02				Tucson, Arizona,
	SE	4 31 58				November 6, 1928.
	SN	4 32 00				
	LE	4 34 14	4	8		(Signed) Albert K. Ludy,
	LN	4 34 10	4		11	Observer in Charge.
	F	4 55				

Additional Observations.

Date	Phase	Time	Period	Trace Amplitude		Remarks
1928		h. m. s.	s.	E	N	
				In 1/10 mm.		
University of Virginia, Charlottesville, Va.						
Oct. 8	iP _{EN}	3 06 55	16	220	210	iP is a strong rarefaction. L waves practically impossible to separate from S. Pendulum striking stop for nearly 20 minutes after S.
	iS _{EN}	3 11 32	15	700	420	
	F	7.0				
Oct. 14	L _N	9 26.3	20		3	EW record lost.
	L _N	9 51	18		3	
	F	10.4				
Oct. 15	e _N ?	14 44.6				
	e _E	15 06.5	23	2		
	eL _N	15 10.5	40?		4	
	M _{1N}	15 24.6	18		26	
	eL _E	15 11.4	38	5		
	M _{1E}	15 21.5	22	11		
	F	16.3				
Oct. 17	eL _{EN}	16 01	35			
	M _{1EN}	16 13	25	6	6	
	F	17.0				
Oct. 19	eL _N	19 21.4	16		5	
	F	20.2				
Oct. 23	S _N ?	18 14.2				
	eL _E	18 33	20	2		
	eL _N	18 33	22		3	
	F	19.0				
Oct. 25	iP _N	12 38 48				
	iP _E	12 39 50				
	e _E	12 43 15	5	2		
	e _N	12 43 28				
		(continued)				

Additional Observations - Cont'd.

1928		h. m. s.	s	In 1/10 mm.	
(Oct. 25)		(continued)			
	iS, LN	12 45 51	17		
	iLE	12 44.0	20	10	90
	LE	12 46.2			
	LE	12 47.8	16		
	M ₁ E	12 50.3	18	85	
	LN	12 48.0	23		
	M ₁ N	12 51.2	16		75
	F	14.0			
Oct. 29	i _{EN}	11 47 04	5	5	
	F _{EN}	11 47 22			Light shock felt in Richmond.
	Sitka (Alaska) Observatory.				
Oct. 9	iPN	3 10 07	14		
	ePE	3 10 07	11		
	iPR ₁ N	3 12 07	14		
	iS _{EN}	3 17 23	18		
	iSR ₁ N	3 21 22	14		
	iSR ₁ E	3 21 23	14		
	eSR ₂ E	3 22 24	18		
	iLE	3 26 51	25		
	iLN	3 26 53	23		
	M _N	3 29 08	17		140
	M _E	3 29 36	20	410	
	C _E	3 35 20	15		
	C _N	3 48 48	16		
	F _E	4 41 47	12		
	F _N	6 33 03	15		
	The seismographs were not operating during October at the Cheltenham and San Juan observatories.				

U. S. Coast and Geodetic Survey
Department of Commerce

Preliminary Earthquake Report of the Seismological Station at
TUCSON, Arizona.

Instruments: Wood-Anderson T -- 6.0 s. V -- 435 Damping: h -- .85
See quarterly seismological reports of the C. and G. Survey for other constants.

Date	Phase	Time h. m. s.	Period s.	Trace Amplitude		Remarks
				E	N	
1928				In 1/10 mm.		
Nov. 1	iP _{EN}	4 14 35				Recorded on magnetograph.
	i _{EN}	4 14 56				
	S _E	4 15 49				
	S _N	4 15 46				
	L _E	4 16 25	4	120		
	L _N	4 16 19	4		142	
	F	5.6				
Nov. 1	e _{EN}	6 26 35	2	4	4	Local.
	F	6 30				
Nov. 1	e _{EN}	8 06 55	2	3	3	Local.
	F	8 10				
Nov. 1	e _{EN}	9 06 49	2	5	5	Local.
	F	9 10				
Nov. 1	e _{EN}	11 08 35	2	3	3	Local.
	F	11 12				
Nov. 1	e _{EN}	13 44 56	1	5	5	Local.
	F	13 47				
Nov. 1	e _{EN}	13 57 56	1	3	3	Local.
	F	14 00				
Nov. 1	eP _{EN} ?	16 16.8				
	eS _{EN} ?	16 18 18				
	L _E	16 19 28	3	2		
	L _N	16 19 14	3		2	
	F	16 46				

Tucson - November, 1928.

1928		h. m. s.	s.	In 1/10 mm.		
Nov. 1	e _{EN} F	16 39 06 16 42	2	1	1	Local.
Nov. 1	e _{EN} F	17 33 56 17 37	2	1	1	Local.
Nov. 1	e _{EN} F	18 05 07 18 10	4	5	5	
Nov. 2	e _{EN} F	2 19 55 2 24	1	2	2	Local.
Nov. 2	e _{EN} F	11 15 48 11 20	1	2	2	Local
Nov. 5	M _N M _{2N} F	10 43 17 10 43 58 10 50	3 5		15 2	Beginning masked in microseisms. E time breaks missing.
Nov. 6	P _{EN} ? S _{EN} SR _{1N} L _E L _N F	4 18 30 4 29 21 4 35 34 4 47 49 4 47 47 5.4	 18 18	8	 1	P doubtful on account of heavy microseisms.
Nov. 13	L _{EN} F	13 58 25 14 03	4	16	12	Local. Some weak preliminaries almost obscured by microseisms.
Nov. 13	e _N F	22 28 04 22 32	3		7	
Nov. 13	P _N ? L _{EN} F	23 54 37 24 00 45 24 10	4	3	3	
Nov. 18	iP _{EN} S _{EN} L _E L _N F	18 46 56 18 50 36 18 52 41 18 52 47 19.1	 4 4	6	 6	N time marks missing.

Tucson - November, 1928.

1928		h. m. s.	s.	In 1/10 mm.		
Nov. 20	P _{EN}	20 46 06				
	PR _{1EN}	20 48 58				
	S _{EN}	20 54 53				
	SR _{1EN}	20 59 47				
	L _{EN}	21 05 51	20	8	2	
	F	22.0				
Nov. 22	M _{EN}	15 08 37	3	5	5	
	F	15 11				
Nov. 28	e _{EN}	0 42 07	3	8	8	
	F	0 47				
Nov. 28	P _{EN}	1 27 41				Possibly off west coast of Mexico.
	S _{EN}	1 30 58				
	L _E	1 33 04	4	6		
	L _N	1 33 02	4		13	
	F	2.0				
Nov. 28	e _E	11 15.8	10	3		NS difficult to read because of microseisms.
	L _E	11 44	20	2		
	F _E	12.1				
Nov. 29	P _{N?}	18 12 57				E activity weak.
	S _N	18 22 42				
	e _N	18 36.8	14			
	L _N	18 46 23	16		1	
	F	19.5				
Nov. 29	P _{EN?}	23 22 44				
	S _{EN?}	23 27 12				
	L _{EN}	23 29 59	6	5	5	
	F	23 40				

Tucson, Arizona, December 5, 1928.

(Signed) Albert K. Ludy,
Observer in Charge.

DEPARTMENT OF COMMERCE
U. S. Coast and Geodetic Survey



Preliminary Earthquake Report of the Seismological Station at
TUCSON, Arizona

Instruments: Wood-Anderson T - 6 s., V - 435 , Damping nearly critical.
See quarterly seismological reports of the C. and G. Survey for other constants.

Date	Phase	Time h. m. s.	Period s.	Trace Amplitude		Remarks
				E	N	
1928				In 1/10 mm		
Dec. 1	PEN	4 18 02				
	PR ₁ EN	4 21 00				
	PR ₂ E	4 22 38				
	PR ₂ N	4 22 36				
	SE	4 27 44				
	SN	4 27 42				
	SR ₁ E	4 32 36				
	SR ₁ N	4 32 34				
	SR ₂ E	4 35 52				
	LE	4 40 57	22	2		
	LN	4 40 58	20		5	
	M ₁ E	4 45 05	22	4		
	M ₁ N	4 46 11	20		17	
	F	6.8				
Dec. 1	e _{EN}	18 44 12	2	5	5	Local
	F	18 58				
Dec. 2	PEN	3 10 16				Local
	PN	3 10 35				
	SEN	3 11 12				
	SEN	3 11 29				
	LEN	3 11 48	2	2	2	
	F	3 20				
Dec. 2	PEN	4 32 17				
	PR ₁ EN	4 35 26				
	SE	4 42 01				
	SN	4 41 48				
	PS _{EN}	4 42 26				
	SR ₁ N	4 46 57				
	LE	4 57 44	16	5		
	LN	4 56 44	18		1	
	F 6	6.2				
Dec. 2	e _N	5 53 07	3	5		In end portion of preceding quake.
Dec. 3	e _{EN}	12 39 06				Beginning masked by micro-
	SEN ?	12 45 03		15	15	seisms.
	F	13 10				

		h. m. s.	s.			
Dec. 8	e _{EN} F	19 45 01 19 48	2	5	5	Local
Dec. 9	e _{EN} e _{EN} M _{1N} F	9 43 41 9 44 24 9 45 00 9 50	2		1	Local
Dec. 9	e _{EN} F	11 35 29 11 38	2	2	2	
Dec. 9	e _{EN} e _{EN} F	11 50 50 11 55 30 12.1	8	1	1	
Dec. 12	e _{EN} F	0 15 00 0 20	2	1	1	Local
Dec. 12	e _{EN} F	2 40 08 2 46	2	1	1	Local
Dec. 12	P _E P _N S _{EN} L _{EN} F	20 32 37 20 32 35 20 43 02 20 57 03 23.0	8	1	2	
Dec. 15	P _{EN} L _E L _N F	20 10 17 20 11 25 20 11 27 20 20	2 2	4	4	Local
Dec. 16	e _{EN} F	2 02 11 2 07	3	1	1	Local
Dec. 17	P _N S _N S _{EN} L _{EN} F	6 20 00 6 21 08 6 21 31 6 21 49 6 31	3	3	3	Local
Dec. 19	e _{EN} i _{EN} F	10 44 53 10 45 27 10 48	1	5	5	
Dec. 19	PR _{1EN} P _{SE} P _{SN} SR _{1N} SR _{2N} L _N M _{1E} F	11 57 17 12 06 20 12 06 00 12 12 55 12 16 37 12 23 35 12 33 18 13.8	28 26	1	3	

Tucson.- December 1928

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		h. m. s.	s.		
Dec. 21	EN	5 43 48			EW out of service temporarily.
	eN	5 54 24			
	iLN	5 59 36	4	5	
	F	6.2			
Dec. 21	eN	6 58 58	3	2	
	LN	7 00.3	7	2	
	F	7 01.5			
Dec. 21	eN	10 41 40	3	3	Local
	LN	10 43 12	6	1	
	F	10 45			
Dec. 21	eE	20 51 56	2	1	NS not operating.
	F	20 56			
Dec. 26	PEN	21 38 52			
	PR ₁ N	21 39 47			
	SE	21 43 46			
	SN	21 43 43			
	LE	21 47 36	8	2	
	LN	21 47 29	8	3	
	F	22.4			
Dec. 28	LE	15 14 50	20	5	Beginning weak.
	ME	15 35 54	28	10	
	F	16.5			
Dec. 29	PE	23 25 18	4	5	
	PN	23 25 24	4	5	
	eN	23 28 25	6	4	
	eE	23 29 25	5	5	
	LE	23 32 50			
	M ₁ E	23 33 26	5	5	
	LN	23 32 08			
	M ₁ N	23 33 24	4	4	
	F	23 41			

(Signed) Albert K. Ludy
Observer in Charge.

Tucson, Arizona,
January 3, 1929.