

1919
No Feb, Aug,
Sept, Oct

Washington, D. C.

Seismological Bulletin

of the Georgetown University Department of Geology



$\phi=38^{\circ} 54' 25''$ N $\lambda=77^{\circ} 4' 24''$ W $h=42.4$ m Sub-Soil, Decayed Diorite

INSTRUMENTS: Astatic pendulums after Wiechert, 200 kg. (horizontal), 80 kg. (vertical). Astatic pendulums after Mainka, 135 kg., two Bosch-Omori pendulums 25 kg. and two Bosch Photographic pendulums (horizontal) 200 gms.

Wiechert Horizontal (200 kg.) Vertical (80 kg.)				Bosch Photographic Pendulums				Mainka Bosch-Omori			
	V	T _O	$\epsilon:1$		V	T _O	$\epsilon:1$		V	T _O	$\epsilon:1$
A _N	143	5.2		A _N	133	5.0		A _N	59	9.0	
A _E	165	5.4		A _E	133	5.0		A _E	47	9.0	
A _Z	80	3.0						A _N	13.5	8.65	
								A _E	13.7	8.84	

Date	Character	Phase	Time	Periods	Amplitude			Δ	Remarks
					A _N	A _E	A _Z		
Jan. 1		ePE	1 56 19					Microseisms. No distinct main.	
		ePN	1 56 18						
		eL?	2 25.1						
		LE	2 33 19	17					
		LN	2 33 00	17					
		F	In second quake						
Jan. 1		ePE	3 17 57						
		ePN	3 18 17						
		SE	3 24 37						
		iN	3 26 39						
		eLE	3 28.4						
		eLN	3 28.7						
		iE	3 30 20						
		iN	3 34 20						
		iN	3 38 30						
		F	5 46						
Jan. 5		eE	20 03 00					Little value can be set on these data because of some local dis- turbances.	
		eN	20 03 00						
		SE?	20 10 11						
		SN?	20 10 11						
		F	20 35						
Jan. 8		eE	1 58 17					Scarcely visible on N. S. component.	
		eLE	2 01						
		F	2 09						
Jan. 17		ePE	11 53 41					Heavy microseisms. F difficult.	
		ePN	11 54 00						
		SE	12 01 07						
		SN	12 01 08						
		LE	12 16 55	11					
		LN	12 17 55	11					
		F?	12 50						
Jan. 17		ePZ	11 53 46						
		LZ	12 18 12	10					
		FZ	12 43						
Jan. 27		iE	21 59 25						
		eE	21 59 11						
		eLE?	22 16.9						
		F?							
Jan. 31 Feb. 1		eN	23 58 22					Microseisms.	
		eLE?	0 3.5						
		eLN?	0 3.5						
		LE	0 05 43	11					
		LN	0 07 25	11					
		F	0 20						

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Sub-Soil, Decayed Diorite

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		V	T_0	$\epsilon:1$			V	T_0	$\epsilon:1$			V	T_0	$\epsilon:1$
Wiechert Horizontal (200 kg.) Vertical (80 kg.)	A_N	143	5.2		Bosch Photographic Pendulums	A_N	133	5.0		Mainka	A_N	59	9.0	
	A_E	165	5.4			A_E	133	5.0			A_E	47	9.0	
	A_Z	80	3.0							Bosch-Omori	A_N	13.5	8.65	
											A_E	13.7	8.84	

Date	Character	Phase	Time	Periods	Amplitude			Δ	Remarks
					A_N	A_E	A_Z		
March 2		ePE	3 39 05					Heavy microseisms. No distinct main. F doubtful.	
		iPN	3 39 05						
		iSN	3 49 18						
		eSN	3 49 18						
		eLE	4 2.4	22					
		LE	4 13 09						
		LN	4 18 09	21					
March 2		F	4 50						
		ePE	11 57 46				Heavy microseims. No distinct main. F difficult.		
		ePN	11 57 26						
		SE	12 07 45						
		eLE	12 21.2	32					
		LE	12 28 08	22					
	LN	12 30 57	16						
March 9		F?	13						
		SE	3 39 12				e is so masked in microseisms that interpreta- tion is impossible F impossible.		
		SN	3 39 12						
		eLE	3 59.9	22					
	F?								
March 21		eLE	17 13.2	26			Heavy microseisms.		
		eLN	17 13.2	26					
		LE	17 02	22					
		F	17 27						

No press dispatches.

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Wiechert Horizontal (200 kg.) Vertical (80 kg.)		V	T ₀	$\epsilon:1$	Bosch Photographic Pendulums		V	T ₀	$\epsilon:1$	Mainka		V	T ₀	$\epsilon:1$	Bosch-Omori		V	T ₀	$\epsilon:1$
Wiechert Horizontal (200 kg.) Vertical (80 kg.)	A _N	143	5.2		Bosch Photographic Pendulums	A _N	133	5.0		Mainka	A _N	59	9.0		Bosch-Omori	A _N	13.5	8.65	
	A _E	165	5.4			A _E	133	5.0			A _E	47	9.0			A _E	13.7	8.84	
	A _Z	80	3.0																

Date	Character	Phase	Time	Periods	Amplitude			Δ	Remarks
					A _N	A _E	A _Z		
April 17		ePE	11 41 24					N-S Component does not show. Sheets off at 13 hrs. 9 m. Quake still on.	
		SE?	11 52 08						
		LE	12 03 27	22					
		LE	12 18	22					
April 17		ePE	20 58 52						
		ePN	20 58 53						
		SE	21 03 38						
		SN	21 03 38						
		eLE?	21 5.5						
		ME ₁	21 08 38	6		1.9mm			
		MN ₁	21 12 02	14	1.6mm				
		ME ₂	21 09 21	6		1.5mm			
		ME ₃	21 10 00	6		1.7mm			
		F	22 15						
April 18		ePE	21 07 30					PN hardly shows. Microseisms. F difficult.	
		SE	21 13 00						
		SN	21 13 00						
		eL	21 16.0	6					
		LE	21 19 10	16					
		LN	21 18 57	19					
		ME	21 20 31			0.9mm			
		MN	21 20 03	11	0.8mm				
		F	22 20						
April 19		LE	3 21 13					No other phases discernible. Microseisms.	
			3 25						
April 21		PE	11 34 34					N-S Component poorly defined. F lost in changing of sheets.	
		SE	11 41 12						
		SN	11 41 12						
		eLE	11 47.0	38					
April 28		F?						Microseisms. N-S Component poorly defined.	
		ePE	6 51 45						
		ePN?	6 51 45						
		SE?	6 56 25						
		eLE	7 1.2	16					
	F	7 30							

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Wiechert Horizontal (200 kg.) Vertical (80 kg.)	V	T_0	$\epsilon:1$	Bosch Photographic Pendulums	V	T_0	$\epsilon:1$	Mainka	V	T_0	$\epsilon:1$	
	A_N				A_N				A_N			
	A_E				A_E				A_E			
A_Z				Bosch-Omori	A_N			A_N				
					A_E			A_E				

Date	Character	Phase	Time	Periods	Amplitude			Δ	Remarks
					A_N	A_E	A_Z		
April 30		ePE	7 31 20					N-S Component not well defined. Vertical component poorly defined.	
		ePN?	7 31 20						
		PR ₁	7 35 53						
		SE	7 42 20						
		SN?	7 42 23						
		eLE	8 1.1	22					
		ME ₁	8 17 53	19					
		MN ₁	8 20 18	16		5.2mm			
		ME ₂	8 20 20	19	1.8mm				
		ME ₃	8 24 20	16		4.4mm			
		F	13 23			3.8mm			

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	A_N				A_N				A_N		
	A_E				A_E				A_E		
A_Z				Bosch-Omori	A_N			A_N			
					A_E			A_E			

Date	Character	Phase	Time	Periods	Amplitude			Δ	Remarks
					A_N	A_E	A_Z		
May 18		eE?	10 41 05	6					
		eN?	10 41 05						
		SE	10 45 15						
		SN	10 45 15						
		eLE?	10 47.2						
		F	11 50						
May 20		eE	4 27 15	14					
		eE	4 32 43						
		eN	4 32						
		eL	4 41.0						
		F	4 47						
		ePE	12 03 20						
May 22		ePN	12 03 18	13				Heavy Microseisms.	
		SE?	12 12 01						
		SN?	12 12 01						
		eL	12 30.1						
		F	13						

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Wiechert Horizontal (200 kg.) Vertical (80 kg.)				Bosch Photographic Pendulums				Mainka				Bosch-Omori			
	V	T ₀	$\epsilon:1$		V	T ₀	$\epsilon:1$		V	T ₀	$\epsilon:1$		V	T ₀	$\epsilon:1$
Wiechert Horizontal (200 kg.) Vertical (80 kg.)	A _N	143	5.2	Bosch Photographic Pendulums	A _N	133	5.0	Mainka	A _N	59	9.0	Bosch-Omori	A _N	13.5	8.65
	A _E	165	5.4		A _E	133	5.0		A _E	47	9.0		A _E	13.7	8.64
	A _Z	80	3.0												

Date	Character	Phase	Time	Periods	Amplitude			Δ	Remarks
					A _N	A _E	A _Z		
June 29		eE	15 17 29						Heavy microseisms. i of doubtful seismic origin.
		eN	15 17 29						
		iE	15 21 46						
		iN	15 21 48						
		F	16 (ca)						
June 29		ePE	23 20 08						Heavy Microseisms. F very doubtful. eL on Bosch photographic machine. 23hrs., 27.6m.
		ePN	23 20 08						
		iSE	23 24 48						
		iSN	23 24 48						
		eL?	23 26.5	11					
		ME ₁	23 27 07	11	1.7mm.				
		ME ₂	23 30 41	16	1.4mm.				
June 29		F?	1 00						
		ePZ	23 20 08						Heavy microseisms.
		eSZ	23 24 49						
		eLZ	23 26.4	11					
		MZ	23 33 15	16			0.3mm		
	FZ	1 et postea.							

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Wiechert Horizontal (200 kg.) Vertical (80 kg.)	V	T_0	$\epsilon:1$	Bosch Photographic Pendulums	V	T_0	$\epsilon:1$	Mainka	V	T_0	$\epsilon:1$
	A_N	143	5.2			A_N	133		5.0		A_N
A_E	165	5.4		A_E	133	5.0		A_E	47	9.0	
A_Z	80	3.0						Bosch-Omori	Under Repair.		
								A_N			
								A_E			

Date	Character	Phase	Time	Periods	Amplitude			Δ	Remarks
					A_N	A_E	A_Z		
July 1		eE	21 36 27						
		eLE	21 49.5						
		eLN	21 49.6						
		F	22 46						
July 6		ePE	7 10 15						
		ePN	1 10 05						
		SE	7 15 35						
		SN	7 15 35						
		eL	7 18.6	10					
		F	7 50						
July 6		ePZ	7 10 04						
		SZ	7 15 35						
		F	8 00						
July 7		eE	14 48					N-S does not show. Microseisms.	
		F	15 20						
July 8		eE	21 25 52					Heavy Microseisms.	
		eN	21 25 52						
		eSN?	21 34 42						
		eLE	21 47.0	11					
		eLN	21 47.1	11					
		FN	23 25						
July 9		eE	19 26					Heavy Microseisms.	
		eN	19 26						
		eSN?	19 31 40						
		eLE	19 38.0	11					
		eLN	19 38.0	15					
		LN	19 42	11					
		LE	19 43	9					
		F	20 15						
July 10		eE	2 41 30					Microseisms.	
		eN	2 41 26						
		LN	2 44 19	10					
		F	3 (ca)						

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Wiechert Horizontal (200 kg.) Vertical (80 kg.)	V	T ₀	$\epsilon:1$	Bosch Photographic Pendulums	V	T ₀	$\epsilon:1$	Mainka	V	T ₀	$\epsilon:1$	
	A _N				A _N				A _N			
	A _E				A _E				A _E			
A _Z								Bosch-Omori	A _N			
									A _E			

Date	Character	Phase	Time	Periods	Amplitude			Δ	Remarks
					A _N	A _E	A _Z		
July 11		eE	0 37					Microseisms.	
		eN	0 37						
		SE?	0 42 12						
		SN?	0 42 13						
		eLE	0 44.5	8					
		eLN	0 44.5	8					
		F	1 30						
July 14		eE?	14 16 17						
		eN?	14 16 28						
		eLE?	14 26.6	12					
		eLN?	14 26.6	12					
		F	14 48						
July 17		iPE	16 25 58						
		iPN	16 25 58						
		eSE	16 31 04						
		eSN	16 31 04						
		eLE	16 36.0	16					
		eLN	16 36.0	16					
		LE	16 41	14					
		LN	16 41	11					
	F	16 55							
July 22		iPE	22 07 13						
		iPN	22 07 12						
		SE	22 11 48						
		SN	22 11 48						
		eL	22 13.8	6					
		F	22 55						
July 22		iPZ	22 07 11						
		SZ	22 11 53						
		eLZ	22 13.5	6					
		F	22 35						
July 25		eE	17 13				Does not show on N-S component.		
		F	17 21						
July 31		eE?	22 05 43				Heavy Microseisms. Does not show on N-S component.		
		SE?	22 12 16						
		F	22 27						

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	V	T _O	$\epsilon:1$		V	T _O	$\epsilon:1$		V	T _O	$\epsilon:1$		V	T _O	$\epsilon:1$
Wiechert	A _N	143	5.2	Bosch Photographic Pendulums	A _N	133	5.0	Mainka	A _N	59	9.0	Bosch-Omori	A _N	Under Repair.	
	A _E	165	5.4		A _E	133	5.0		A _E	47	9.0		A _E		
	A _Z	80	3.0												

Date	Character	Phase	Time	Periods	Amplitude			Δ	Remarks
					A _N	A _E	A _Z		
Nov. 6		P _E	7 19 29					Very heavy microseisms.	
		P _N	7 19 34						
		S _E	7 25 36						
		S _N	7 25 25						
		F	7 50						
Nov. 18		e _E	4 21 44						
		e _N	4 21 44						
		F	5 00						
Nov. 18		L _E	22 37 36	22				Very heavy microseisms.	
		L _N	22 33 26	24					
		F	23 (ca.)						
Nov. 18		eL _Z	22 40.6					Microseisms.	
		L _Z	22 44	06	16				
		F	23 (ca.)						
Nov. 20		e _E	14 41 00					Very heavy microseisms.	
		e _N	14 41 31						
		eL _E ?	15 14.6						
		L _E	15 17 00	20					
		F	15 30						

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Wiechert Horizontal (200 kg.) Vertical (80 kg.)	V	T_0	$\epsilon:1$	Bosch Photographic Pendulums	V	T_0	$\epsilon:1$	Mainka	V	T_0	$\epsilon:1$	
	A_N				A_N				A_N			
	A_E				A_E				A_E			
A_Z								Bosch-Omori	A_N			
									A_E			

Date	Character	Phase	Time	Periods	Amplitude			Δ	Remarks
					A_N	A_E	A_Z		
Nov. 20		eZ	14 41 48	16					Very heavy microseisms.
		LZ	15 14 59						
		F	15 30						
Nov. 28		eE?	14 20 00	15					Very heavy microseisms. Difficult.
		eN	14 23 00						
		LE	14 27 50						
		LN	14 27 50						
		F	14 38						
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	V	T_0	$\epsilon:1$		V	T_0	$\epsilon:1$		V	T_0	$\epsilon:1$
A_N	143	5.2		A_N	133	5.0		A_N	59	9.0	
A_E	165	5.4		A_E	133	5.0		A_E	47	9.0	
A_Z	80	5.0							Under Repair.		

Date	Character	Phase	Time	Periods	Amplitude			Δ	Remarks
					A_N	A_E	A_Z		
Dec. 5		ePE	0 21 23					No distinct M.	
		ePN	0 21 23						
		eSE	0 26 00						
		eSN	0 26 00						
		eL	0 28.8						
		F	0 49						
Dec. 14		L	2 15 to	9				Very heavy microseisms. E-W hardly discernable.	
			2 34						
		F	2 42						
Dec. 18		eE	1 26 37					Very heavy microseisms.	
		eN	1 26 37						
		S _N ?	1 32 00						
		F	1 50						
Dec. 20		eL	21 35 00	16					
		L	21 44 16						
		F	22 14						

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