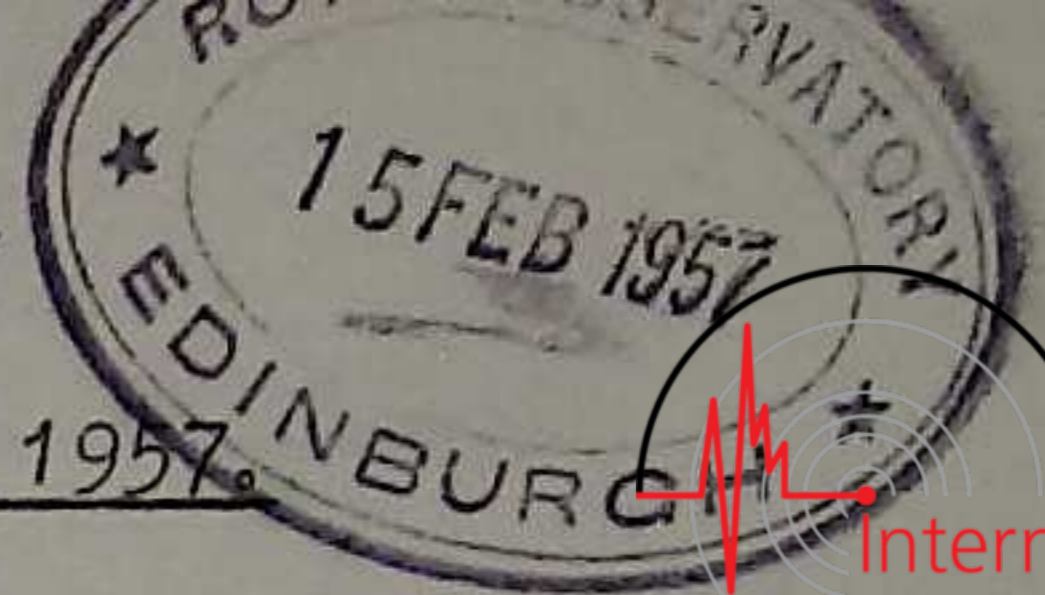


DURHAM UNIVERSITY OBSERVATORY

READINGS FROM SEISMOGRAMS, JANUARY 1957.



International
Seismological
Centre

Time of horizontal components of earth displacement from Milne-Shaw seismographs recording North and East components: free period 12 sec., damping ratio 20 : 1, magnification 250.

Times of vertical component of motion from Wilson-Lamison seismometer free period 1 sec., G.E. galvanometer free period 3.4 sec.

Position:- latitude 54°46'N, longitude 01°35'W, height above M.S.L. 103 metres.

Date	Phase and component	Time G. M. T.	Period Sec.	Amplitude microns	Distance degrees	Time of origin H
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Corrections and additions to earlier lists

1956						
Nov. 20	?Z	23 26 44				
	?Z	23 31 11				
Nov. 21	?NE	07 45 30				
Nov. 25	Delete entries for	15 12 33				
	Insert	PZ 15 24 37				
		Z 15 26 01				
Nov. 26	iPZ	23 49 34				
Nov. 28	iPZ	19 38 53				
	iZ	19 39 39				
	SZ	19 47 58			69	19 27 48
Nov. 29	?Z	09 28 38				
	?Z	09 29 24				
Dec. 18	Z	02 44 56				
Dec. 19	?Z	08 01 56				
Dec. 19	?Z	10 19 13				
Dec. 20	Z	11 19 59				
	Z	11 20 13				
Dec. 25	Identifications wrong					

1957						
Jan. 2	iEZ	00 49 42				
	iEZ	00 49 53				
Jan. 2	iPZ	00 50 54				
	iZ	00 53 42				
	iSNEZ	01 00 22			73	00 39 24
	iNE	01 01 05				
	ME	01 30	19	15		
Jan. 2	PNZ	02 29 09				
	SNZ	02 38 32			72.5	02 17 45
	ScSE	02 39 23				
	NE	02 39 32				
	ME	03 09	16	26		

DURHAM UNIVERSITY OBSERVATORY

READINGS FROM SEISMOGRAMS, JANUARY 1957 continued.



Date	Phase and component	Time G.M.T.	Period Sec.	Amplitude microns	Distance degrees	Time of origin H
Jan. 2	Z	03 24 25				
	MN	04 04	17	16		
Jan. 2	Z	04 00 17				
	Z	04 06 35				
	Z	04 15 00				
	ME	04 40	19	41		
Jan. 2	Z	11 01 00				
	Z	11 03 08				
	ME	11 40	16	5		
Jan. 3	iNEZ	12 16 14				Artificial
Jan. 3	iPNEZ	12 59 02				
	ipPNE	13 01 02				
	iPPZ	13 02 00				
	iNE	13 03 40				
	iNEZ	13 03 44				
	iSNEZ	13 07 48	8	44	74	12 48 30
	iNE	13 08 18				
Jan. 5	iNEZ	12 45 20				Artificial
Jan. 9	?Z	08 12 03				
	?Z	08 13 03				
	?Z	08 16 17				
	?E	08 20 55				
	MN	08 41	16	7		
Jan. 11	MN	05 24				
Jan. 15	iNEZ	16 04 49				?Seismic
	iNEZ	16 07 41				?Seismic
Jan. 18	ME	21 15				
Jan. 19	iZ	05 35 13				

2 February 1957.

DURHAM UNIVERSITY OBSERVATORY

READINGS FROM SEISMOGRAMS, FEBRUARY, 1957



Time of horizontal components of earth displacement from Milne-Shaw seismographs recording North and East components; free period 12 sec., damping ratio 20 : 1, magnification 250.

Time of vertical component of motion from Wilson-Lamison seismometer free period 1 sec., G.E. galvanometer free period 3.4 sec.

Position:- latitude 54°46'N, longitude 01°35'W, height above M.S.L. 103 metres.

Date	Phase and component	Time G. M. T.	Period Sec.	Amplitude microns	Distance degrees	Time of origin H
<u>Corrections and additons to earlier lists</u>						
1956						
Aug. 15	E	05 43 47				
Aug. 15	Delete	12 05 43				
Aug. 17	N	01 30 58				
Aug. 17	N	02 03 35				
Aug. 20	E	05 47 00				
	E	05 56 53				
Dec. 8	Z	16 21 56				
	N	16 29 57				
	E	16 30 46				
1957						
Jan. 23	Z	17 32 00				
	NEZ	17 35 30				
	E	17 36 07				
Jan. 25	Z	03 48 19				
	Z	03 48 28				
	E	03 57 40				
Feb. 3	MNE	18 13	15		9	
Feb. 5	E	04 58 28				
	Z	04 58 32				
Feb. 6	iNEZ	17 52 45			Artificial	
Feb. 6	MN	21 14	14		9	
Feb. 10	Z	05 54 09				
	Z	05 54 15				
	MN	06 05				
Feb. 10	iNEZ	15 27 49			Artificial	

DURHAM UNIVERSITY OBSERVATORY

READINGS FROM SEISMOGRAMS, FEBRUARY, 1957 continued



International
Seismological
Centre

Date	Phase and component	Time G.M.T.	Period Sec.	Amplitude microns	Distance degrees	Time of origin H
Feb. 10	Z	22 46 26				
	E	22 58 39				
Feb. 10	Z	23 04 46				
	NE	23 15 36				
	ME	23 38	15	7		
Feb. 11	MN	02 12	19	27		
Feb. 11	eZ	15 43 35				15 43 00
	PnNEZ	15 43 37			Epicentre	52°50'N
	SnNEZ	15 44 02				01°21'W
Feb. 13	ePnZ	00 00 19				23 59 42
	eE	00 00 40			Epicentre	as above
	SnNEZ	00 00 45				
Feb. 13	MN	01 28				
Feb. 16	iNZ	11 30 18		Artificial		
Feb. 18	ME	15 11				
Feb. 19	iPZ	07 49 16				
	PPZ	07 49 51				
	PPPZ	07 50 07				
	SEZ	07 53 42			25	07 43 50
	ME	07 58	17	21		
Feb. 20	iPNEZ	04 45 35				
	PPZ	04 46 06				
	iSNEZ	04 49 19			21	04 40 58
	SSZ	04 50 05				
	ME	04 53	12	8		
Feb. 20	iNEZ	15 29 23		Artificial		
Feb. 23	EZ	20 38 43				
	E	20 38 51				
	N	20 49 21				
	E	20 49 25				
	NE	20 49 40				
	MN	21 23	14	87		
Feb. 25	EZ	00 21 52				

28 February, 1957.



DURHAM UNIVERSITY OBSERVATORY

CORRECTIONS TO READINGS FROM SEISMOGRAMS, MARCH 1957.

Readings from two Milne-Shaw (horizontal) seismographs recording North and East components respectively. T = 12 secs., damping ratio 20 : 1, magnification 250.

Position:- latitude $54^{\circ}46'N$, longitude $01^{\circ}35'W$, height above M.S.L. 103 metres.

Date	Phase and component	Time G.M.T.	Period sec.	Amplitude microns	Distance degrees	Time of origin H
Mar. 12	PZ	07 40 23			$74^{\circ}.5$	07 28 46 (USCGS)
Mar. 12	iPE iSE	07 49 57 59 32			$74^{\circ}.5$	07 39 17 (USCGS)
Mar. 13	PZ SE	02 59 59 03 09 37			75°	02 48 20 (USCGS)
Mar. 16	iPZ iSE	02 45 46 55 21			$74^{\circ}.5$	02 34 12 (USCGS)
Mar. 17	PZ SE	22 56 06 23 05 34			$73^{\circ}.5$	22 44 44 (USCGS)
Mar. 19	delete ?Z 13 01 37 and ?Z 13 02 19					

10 December 1957

DURHAM UNIVERSITY OBSERVATORY

READINGS FROM SEISMOGRAMS, MARCH, 1957.



Time of horizontal components of earth displacement from Milne-Shaw seismographs recording North and East components; free period 12 sec., damping ratio 20 : 1, magnification 250.

Time of vertical component of motion from Wilson-Lamison seismometer free period 1 sec., G.E. galvanometer free period 3.4 sec.

Position :- latitude $54^{\circ}46'N$, longitude $01^{\circ}35'W$, height above M.S.L. 103 metres.

Date	Phase and component	Time G.M.T.	Period Sec.	Amplitude microns	Distance degrees	Time of origin H
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Additions and Corrections to earlier lists

1956						
Sept. 6	ePNE	11 52 26	delete	11 52 34		
Sept. 20	ePN	23 13 11	delete	iE 22 59 15		
1957						
Jan. 2	Z	11 01 00				
Feb. 19	SZ	07 53 20	delete	S before 07 53 42		
Feb. 23	PEZ	20 39 05	delete	Z before 20 38 43		

There have been no recordings by the NS instrument Feb.26 to Mar.24 inclusive.

Feb. 28	iEZ	17 00 29		Artificial		
Mar. 2	?Z	00 38 04				
	?E	00 38 23				
	PEZ	00 38 30				
	Z	00 38 39				
	Z	00 38 50				
	E	00 43 45			68	00 27 25
	SE	00 47 24				
	SKSE	00 48 28				
	SSE	00 51 50				
	SSSE	00 54 55				
	ME	01 08	18	7		
Mar. 2	iEZ	11 36 41		Artificial		
Mar. 3	Z	15 05 42		?Seismic		
Mar. 3	Z	15 11 23		?Seismic		
Mar. 5	PZ	12 31 25				
	iSEZ	12 37 15			37	12 24 10
	ME	12 42	18	13		
Mar. 7	iEZ	14 33 12		Artificial		
Mar. 8	ePEZ	12 19 15				
	iEZ	12 19 21				
	iSE	12 23 19			23	12 14 15
	iZ	12 23 29				
	iZ	12 26 13				
	ME	12 36	10	125		

DURHAM UNIVERSITY OBSERVATORY

READINGS FROM SEISMOGRAMS, MARCH, 1957 continued (2)



International
Seismological
Centre

Date	Phase and component	Time G.M.T.	Period Sec.	Amplitude microns	Distance degrees	Time of origin H
Mar. 8	PZ	23 40 11				
	EZ	23 40 22				
	EZ	23 40 31				
	EZ	23 40 34				
	E	23 40 49				
	Z	23 40 58				
	E	23 44 11				
	SEZ	23 44 16			23	23 35 11
	iE	23 49 31				
	iE	23 50 39				
	ME	23 56	11	10		
Mar. 9	èPZ	14 34 02				
	iPZ	14 34 23				
	iZ	14 34 31				
	PPE	14 36 57				
	PPPE	14 38 41				
	Z	14 43 36				
	SZ	14 43 47			73	14 22 36
	E	14 43 52				and 14 22 57
	E	14 43 59				
	SKSE	14 44 19				
	SSE	14 48 42				
	ME	15 23	16	480		
Mar. 9	PZ	20 50 47				
	SE	21 00 09			72	20 39 23
	SKSE	21 01 08				
	ME	21 25	20	85		
Mar. 10	PZ	03 17 30				
	SE	03 27 06			75	03 05 52
Mar. 10	PZ	03 20 31				
	SE	03 29 51			72	03 09 10
	ME	03 59	18	20		
Mar. 10	PZ	11 32 23				
	ME	12 11				
Mar. 10	Z	15 38 21				
	E	15 48 07				
	ME	16 17	16	12		
Mar. 11	PZ	03 24 21				
	E	03 34 09				
	ME	04 05	17	33		
Mar. 11	PEZ	10 10 14				
	SE	10 19 32			72	09 58 54
	ME	10 47	17	70		
Mar. 11	PZ	15 07 01				
	SE	15 16 30			73	14 55 30
	ME	15 49	17	45		
Mar. 12	iE	07 49 57				
	iZ	07 50 58				
	iE	07 59 32				
	ME	08 24	15	10		
Mar. 13	èZ	11 E				

DURHAM UNIVERSITY OBSERVATORY

READINGS FROM SEISMOGRAMS, MARCH, 1957, continued (3)



International
Seismological
Centre

Date	Phase and component	Time G.M.T.	Period Sec.	Amplitude microns	Distance degrees	Time of origin
Mar. 13	?PZ	03 00 07				
	?SE	03 09 37			74	02 48 35
	ME	03 38	16	6		
Mar. 13	iZE	13 58 02	Artificial			
Mar. 13	iPZ	15 53 46				
	SE	16 03 28			76	15 42 02
	ME	16 31	20	17		
Mar. 13	ePZ	20 10 46				
	iZ	20 11 51				
	ME	20 47	18	8		
Mar. 14	iPZ	14 59 31				
	iPcPE	14 59 42				
	iSE	15 09 09			75	14 47 51
	iE	15 09 23				
	ME	15 44	19	125		
Mar. 15	iPZ	03 03 38				
	iSE	03 12 59			72	02 52 16
	ME	03 42	15	9		
Mar. 16	iPZ	02 46 09				
	iSE	02 55 21			70	02 34 56
	ME	03 30	16	36		
Mar. 16	iEZ	11 31 49	Artificial			
Mar. 17	PZ	22 53 26				
	SE	23 03 10			76	22 41 39
	ME	23 29	18	15		
Mar. 19	?Z	13 01 37				
	?Z	13 02 19				
	iPZ	13 02 40				
	E	13 10 20				
	SE	13 12 08			73	12 51 10
	SKSE	13 12 52				
	SSE	13 14 09				
ME	13 43	18	20			
Mar. 19	iEZ	13 59 04	Artificial			
Mar. 22	iPZ	14 32 27				
	iSEZ	14 41 43			71	14 21 10
	iSSE	14 45 20				
	ME	15 06	19	47		
Mar. 23	ME	06 19	24	8		
Mar. 24	?Z	08 17 26				
	ME	09 02	18	11		
Mar. 24	ME	11 57				
Mar. 25	MNE	22 12				
Mar. 26	iNEZ	15 36 35	Artificial			
Mar. 28	?Z	20 16 36				
	?E	20 27 01				
	ME	20 58	16	2		
	ME	20 58	16	2		

DURHAM UNIVERSITY OBSERVATORY



READINGS FROM SEISMOGRAMS, MARCH, 1957, continued (4)

Date	Phase and component	Time G.M.T.	Period Sec.	Amplitude microns	Distance degrees	Time of origin H
Mar. 28	eZ	22 31 04				
	E	22 35 00				
	ME	22 41	10	3		
Mar. 29	iPN	05 21 48				
	iPZ	05 21 52				
	iSNE	05 31 00			70	05 10 44
	iSKSNE	05 31 08				
	MN	05 48	26	40		
Mar. 29	PZ	23 01 17				
	SNE	23 11 20			69	22 50 14
	ME	23 41	20	3		
Mar. 30	iNEZ	11 28 54	Artificial			
Mar. 31	iNEZ	15 13 29				

2 April 1957

READINGS FROM SEISMOGRAMS, APRIL, 1957.

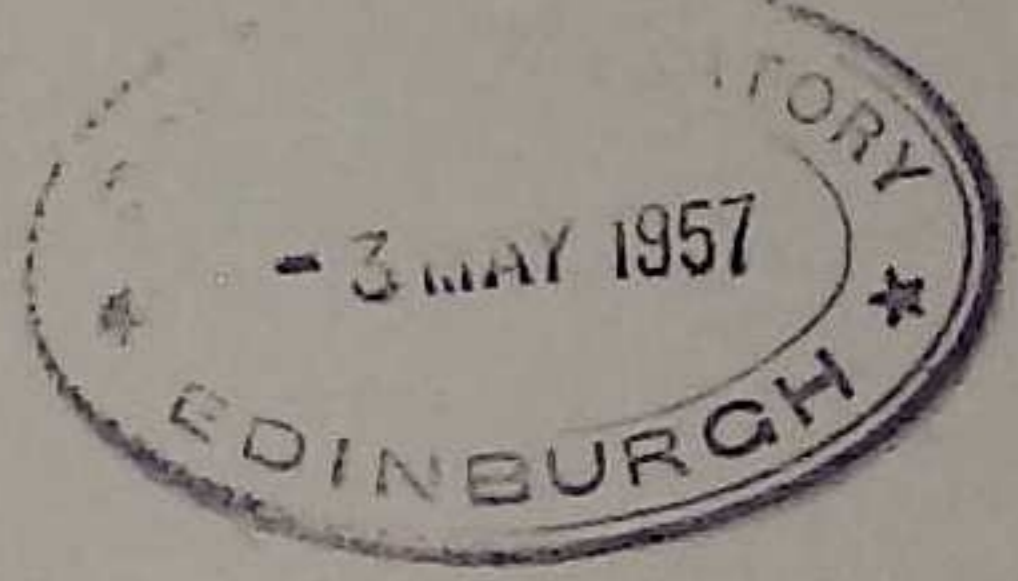


Time of horizontal components of earth displacement from Milne-Shaw seismographs recording North and East components; free period 12 sec., damping ratio 20 : 1, magnification 250.

Time of vertical component of motion from Wilson-Lamison seismometer free period 1 sec., G.E. galvanometer free period 3.4 sec.

Position :- latitude 54°46'N, longitude 01°35'W, height above M.S.L. 103 metres.

Date	Phase and component	Time G.M.T.	Period Sec.	Amplitude microns	Distance degrees	Time of origin H
April 4	iNEZ	14 10 46	Artificial			
April 5	eZ	02 59 30				
	eZ	03 01 28		eN 03 09 20		
	MN	03 39	22	9		
April 5	iZ	07 50 06				
	iZ	07 50 12				
	iZ	07 50 22				
	iZ	07 50 34				
April 6	iZ	11 35 32	Artificial			
	iNE	11 35 35				
April 7	?Z	10 28 32				
	ME	11 19	20	7		
April 7	iZ	15 00 04	Artificial			
	iNE	15 00 07				
April 9	iZ	00 40 20				
	NE	00 40 25				
	NE	00 46 33				
	NE	00 46 50				
	NE	00 49 50				
April 10	iPZ	05 24 25				
	eSNE	05 34 34			81	05 12 12
	iSKSNE	05 34 40				
	ME	06 02	20	4		
April 10	iPNEZ	11 40 57				
	PcPZ	11 41 29				
	PPNE	11 43 29				
	PcSE	11 45 30				
	iSNE	11 49 52			67	11 30 05
	SKSN	11 50 55				
	ScSE	11 50 58				
	ME	12 06	30	100		
MN	12 13	20	110			
April 13	eNZ	03 58 18				
	eEZ	04 04 19		eN 04.04.04		
	ME	04 21	22	5		
April 13	Z	08 53 37				
	Z	08 54 34				
April 13	iNEZ	11 30 30	Artificial			
April 14	iPEZ	07 22 27				
	eSE	07 30 56				
	iSNE	07 30 58			63	07 12 05
	MN	07 48	20	28		
	MN	07 54	12	21		



DURHAM UNIVERSITY OBSERVATORY

READINGS FROM SEISMOGRAMS. APRIL, 1957 continued



Date	Phase and component	Time G.M.T.	Period Sec.	Amplitude microns	Distance degrees	Time of origin H
April 14	PZ	19 37 29				
	iZ	19 37 33				
	iZ	19 40 29				
	ME	20 36	20	63		
April 14	iPZ	21 10 47				
April 15	iPZ	21 44 37				
	iSN	21 54 07			74	21 33 05
	ME	22 21	20	2		
April 16	iPEZ	04 17 10				
	eEZ	04 19 17				
	iEZ	04 20 26				
	iEZ	04 21 16				
	iE	04 21 29				
	iZ	04 23 41				
	iZ	04 23 55				
	iNE	04 26 52				
	iZ	04 29 53				
	iE	04 30 57				
	iNE	04 35 35				
	April 17	Z	08 27 20			
Z		08 28 07				
April 17	MN	14 16				
April 19	Z	15 56 30				
April 19	iPNZ	22 30 58				
	PcPZ	22 31 23				
	Z	22 33 34				
	PPN	22 33 46				
	PPPZ	22 35 33				
	iSNZ	22 40 27			73.5	22 19 26
	SKSN	22 41 16				
	PPSN	22 41 27				
	SSN	22 45 28				
	MN	23 11	14	17		
April, 20	MN	13 43	23	5		
April 21	iPNEZ	21 23 58				
	iN	21 33 24				
	iSNE	21 33 29			74	21 12 24
	SKSN	21 34 07				
	ScSE	21 34 10				
	ME	21 53	18	42		
April 23	ME	23 02	16	1		
April 24	iPNEZ	19 56 54				
	PcPZ	19 19 13				
	PcPNE	19 19 16				
	Z	19 20 07				
	NEZ	19 20 28				
	iSEZ	19 20 43			28	19 10 00
	PcSZ	19 22 51				
	SSSZ	19 22 24				
	ME	19 26	17	90		

DURHAM UNIVERSITY OBSERVATORY

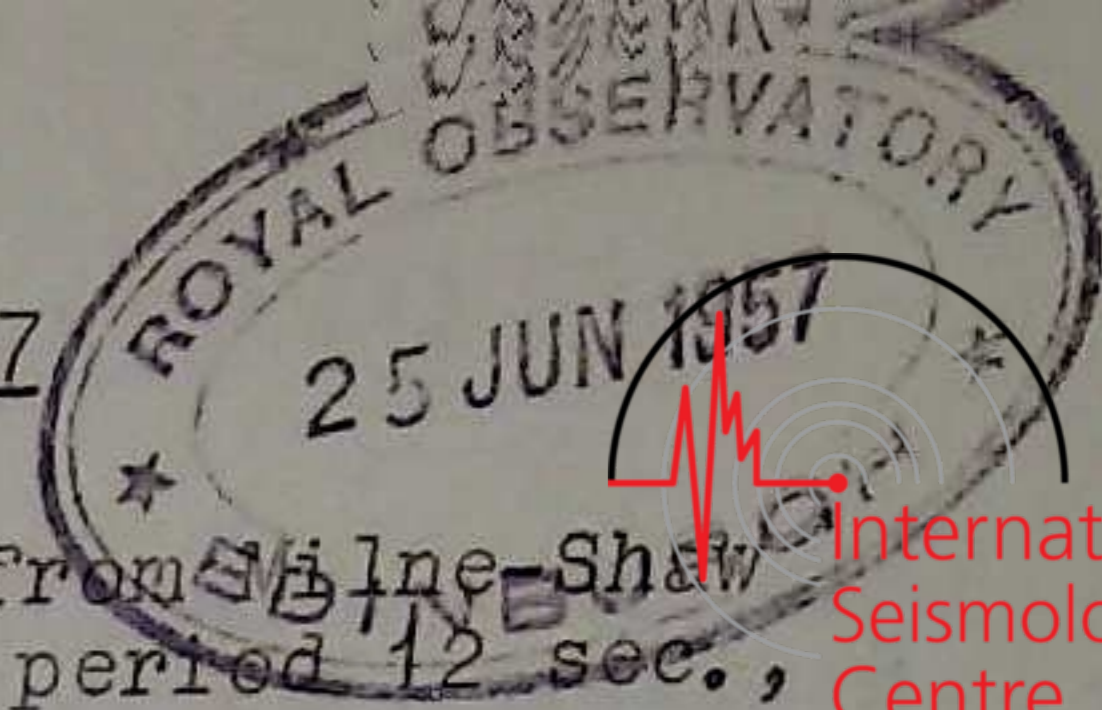
READINGS FROM SEISMOGRAMS, APRIL, 1957 continued (3)



Date	Phase and component	Time G.M.T.	Period Sec.	Amplitude microns	Distance degrees	Time of origin H
April 25	iPNEZ	02 31 22				
	iZ	02 34 41				
	iSNE	02 36 11			28	02 25 28
	iN	02 36 29				
	MN	02 42	12	160		
* April 26	iZ	06 35 44				
	iZ	06 39 30				
	iZ	06 39 51				
	ME	06 50	16	10		
April 26	iNEZ	14 03 14				Artificial
April 26	iNEZ	14 07 37				Artificial
April 27	iNEZ	10 35 51				Artificial
April 28	iNEZ	01 42 15				
	NEZ	01 48 27				
	NE	01 51 24				
	ME	02 27	20	7		
* April 28	iZ	15 00 25				
	iZ	15 07 50				
	MN	15 39	15	2		
April 29	iZ	14 29 18	}			
	iNE	14 29 20				
April 29	ME	21 59	24	2		
April 30	?Z	07 36 14				

DURHAM UNIVERSITY OBSERVATORY

READINGS FROM SEISMOGRAMS, MAY, 1957



Time of horizontal components of earth displacement from Wilson-Lamison seismographs recording North and East components; free period 12 sec., damping ratio 20 : 1, magnification 250.

Time of vertical component of motion from Wilson-Lamison seismometer free period 1 sec., G.E. galvanometer free period 3.4 sec.

Position :- latitude 54°46'N, longitude 01°35'W, height above M.S.L. 103 metres.

Date	Phase and component	Time G.M.T.	Period Sec.	Amplitude microns	Distance degrees	Time of origin H
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ADDITIONS AND CORRECTIONS TO EARLIER LISTS

1956						
Oct. 8	iPZ PKPN	15 15 29) 15 19 25)	in place of identifications given in October 1956 list.			
Oct. 19	SNZ	21 07 14		ditto		ditto
Oct. 24	iSE	15 05 11				
Oct. 26	ePKPZ	23 09 43				
Oct. 29	delete Z	16 12 38 16 24 15	and insert			
Oct. 30	E E	00 14 24 00 17 12				
Oct. 31	PZ SZ	14 31 13 14 38 17				
1957						
Mar. 12	Z	07 40 29				
April 13	eN	04 04 04				
April 24	delete	19 56 54 19 15 54	and replace by			
April 26	N N	06 43 12 06 43 51				
April 28	E	15 10 08				
<hr/>						
May 2	PZ PPZ SE ME ME	04 02 04 04 03 11 04 07 10 04 13 04 20		20 12	10 6	31 03 55 48
May 2	ePZ iZ iZ	10 54 06 10 54 16 10 54 29				
May 2	iPZ	11 40 44				
May 2	iPZ ME	11 50 26 11 58		19	10	
May 2	iZ iNE	21 55 10 22 01 08				
May 4	iZ iE	10 25 16) 10 25 19)	Artificial			

DURHAM UNIVERSITY OBSERVATORY

READINGS FROM SEISMOGRAMS, MAY, 1957 continued (1)



Date	Phase and component	Time G.M.T.	Period Sec.	Amplitude microns	Distance degrees	Time of origin H
May 4	Z	10 44 39	17	2		
	ME	11 09				
May 5	iNEZ	14 03 46	Artificial			
May 11	iZ	09 46 34)	Artificial			
	iE	09 46 36)				
May 12	Z	05 45 35				
	MN	05 53				
May 12	Z	11 39 21	20	6		
	E	11 48 18				
	E	11 48 46				
	E	11 54 35				
	ME	12 42				
May 18	MN	06 24				
	Z	02 10 33	15	2		
	NE	02 12 27				
	N	02 17 40				
MN	02 42					
May 21	?Z	01 25 11	38	24		
	N	01 29 58				
	NE	01 35 52				
	NE	01 36 42				
	MN	02 02				
May 21	iZ	11 48 33				
	iNEZ	11 48 39				
May 21	Z	13 29 22				
	E	13 33 20				
	N	13 37 19				
May 22	iPNE	13 41 36				
	iN	13 41 42				
	PcPN	13 41 52				
	SNE	13 51 19	76		13 29 50	
	SKSN	13 51 56				
	SSN	13 56 15				
	ME	14 22	14	2		
May 23	iNEZ	12 41 00	Artificial			
May 24	iPZ	02 49 44				
	iZ	02 50 02				
	iSN	02 59 33	77		02 37 52	
	iSE	02 59 36				
	ME	03 19	22	5		
May 24	Z	03 55 37				
	N	04 05 21				
	ME	04 25	20	2		
May 25	iNEZ	10 35 18	Artificial			
May 25	iNEZ	13 59 53	Artificial			

DURHAM UNIVERSITY OBSERVATORY

READINGS FROM SEISMOGRAMS. MAY, 1957 continued (2)



Date	Phase and component	Time G.M.T.	Period Sec.	Amplitude microns	Distance degrees	Time of origin H
May 26	ePEZ	06 39 04				
	iNEZ	06 39 11				
	PPPNEZ	06 39 51				
	N	06 42 25				
	PcPZ	06 42 42				
	iSE	06 43 29			25	06 33 39
	iE	06 43 47				
	ME	06 57	12	220		
May 26	iPZ	09 42 10				
	SE	09 46 33			25	09 36 45
	E	09 46 41				
	N	09 46 53				
	SSNE	09 47 42				
	ME	09 54	19	23		
May 27	iPZ	11 07 05				
	Z	11 07 18				
	PPZ	11 07 50				
	PPPZ	11 07 57				
	SNE	11 11 26			25	11 01 45
	NE	11 11 43				
	ScSNE	11 18 21				
	ME	11 19	12	9		
May 28	ePZ	06 03 06				
	iZ	06 03 26				
	iSE	06 12 26			72	05 51 45
	ME	06 38	15	1		
May 29	?Z	10 29 52				
	MN	10 39	12	1		
May 29	iNEZ	14 44 23	Artificial			
May 29	iPEZ	18 44 33				
	iZ	18 44 59				
	SEZ	18 48 40			23	18 39 28
May 30	iPNZ	00 38 35				
	iZ	00 38 47				
	iZ	00 38 55				
	iNE	01 00 43				
	ME	01 46	20	2		
May 30	iNEZ	12 58 58	Artificial			
May 31	E	02 17 04	}	No N or Z record.		
	E	02 38 44				
May 31	NE	22 19 31	}	No Z record.		
	N	22 38 22				

DURHAM UNIVERSITY OBSERVATORY, ENGLAND

Position:- 54°46'N 01°35'W, height above M.S.L. 103 metres



SEISMOLOGICAL BULLETIN FOR AUGUST 1957

Instruments:- Milne-Shaw free period 12 sec, damping ratio 20:1, magnification 250, recording N and E component displacements.
Wilson-Lamison seismometer free period 1 sec. coupled to G.E. galvanometer free period 3.4 sec, recording vertical component of velocity.

No.	Date	Phase and component	Time G.M.T.	Period sec.	Amplitude and direction	microns	Epicentral distance	Notes
1	4	eSSE MN MN	01 16 27 01 41 01 55				122°	H 00 39 12 (USCGS)
				24 15	2 1			
2	4	iPEZ iSNE SSE SSSE	06 18 53 29 08 34 29 37 59		- - - - + -		82°	H 06 06 33
3	4	iPEZ SE	14 28 34 38 45		- - -		81°	H 14 16 18 (USCGS)
4	4	iPPN SKSNE PSNE MN	21 27 24 33 49 36 30 22 11		+ + - - + 9		105°	H 21 08 51 (USCGS)
5	7	iPKPZ	19 59 26		-		145°	H 19 39 48 (BCIS)
6	8	PZ eSN	01 18 30 23 19		-		30°	H 01 12 12 (BCIS)
7	8	ePZ eXE eSE ME	22 43 37 51 59 52 19 23 05				65°	H 22 33 05 (USCGS)
8	9	ePKPZ iPPZ iSKSE ME ME ME	02 48 10 49 26 55 07 03 31 03 43 03 51		- - 1 2 1		118°	H 02 29 20 (USCGS)
9	11	iPKPZ	21 57 32		+		143°	H 21 38 05 (USCGS)
10	14	iPE eSE MN	02 50 06 54 39 03 01		+		26°	H 02 44 30 (BCIS)
11	15	ME	21 45					
12	16/17	PZ XZ XZ PPNEZ iSKSE iSNE iXNE MN	23 44 51 48 22 48 29 48 38 55 26 55 46 00 01 38 00 23		- + + - + + - + + - + 7		93°	H 23 31 42 (USCGS)
				20				

DURHAM UNIVERSITY OBSERVATORY, ENGLAND

SEISMOLOGICAL BULLETIN FOR AUGUST 1957 sheet 2



International
Seismological
Centre

Date	Phase and component	Time G.M.T.	Period sec.	Amplitude microns and direction	Epicentral distance	Notes
13 18	XN	08 56 35		-	99.5	H 08 36 58 (USCGS)
	XZ	59 23		+		
	SKSE	09 01 25		+		
	SKSN	01 31		-		
	SSE	09 19		-		
	MN	09 32	18	22		
14 18	PZ	21 54 07		+	72.5	H 21 42 42 (BCIS)
	PN	54 09		-		
	PPPNEZ	58 39		- - -		
	SN	22 03 30		-		
	SKSNE	04 14		- -		
	MN	22 26	22	11		
	MN	22 33	16	8		
15 19	ePKPZ	11 54 04			135°.5	H 11 34 42 (BCIS)
	ePPZ	56 51				
16 19	PZ	21 43 13		-	71°.5	H 21 31 54 (BCIS)
17 20	eXNE	06 50 25			131°	H 06 27 00 (BCIS)
	MNE	07 41				
18 20	PKPZ	12 21 29		-	135°.5	H 12 01 58 (BCIS)
	PPE	24 23		-		
	SKSE	28 25		-		
	eXNE	41 29				
	MNE	13 11	22			
	MN	13 30	19			
19 23	eXE	02 21 19				No N or Z record
	eXE	34 28				H 02 00 05 (USCGS)
	ME	03 06	25			
20 23	MN	12 39	16	3		No Z record
21 26	eXZ	11 40 32				H 11 28 50 (USCGS)
	eXZ	42 03				
	eXN	52 01				
	iSN	52 47		+		
	XE	59 40		+		
	ME	12 16	20	5		
22 26	eXZ	14 09 22				H 13 58 48 (USCGS)
	eXZ	09 59				
	iXN	21 58		-		
	ME	14 47	20	5		
23 27	eXN	12 00 46				
	eXE	12 01 11				
24 30	eXZ	16 20 14				
	eXE	22 04				
	eXE	30 32				
	eXE	38 12				
	MN	16 51	12	2		
25 31	eXZ	11 59 01				
	eXN	12 00 37				
	eXE	06 33				
	MN	12 39	12	1		

DURHAM UNIVERSITY OBSERVATORY, ENGLAND

Position:- 54°46'N 01°35'W, height above M.S.L. 103 metres.



SEISMOLOGICAL BULLETIN FOR SEPTEMBER 1957

Instruments:- Milne-Shaw free period 12 sec, damping ratio 20:1, magnification 250, recording N and E component displacements.
Wilson-Lamison seismometer free period 1 sec, coupled to G.E. galvanometer free period 3.4 sec, recording vertical component of velocity.

No.	Date	Phase and component	Time G.M.T.	Period sec.	Amplitude and direction	microns	Epicentral distance	Notes
1	1	iPZ	12 59 02		-		52°	H 12 49 55 (USCGS)
2	1-2	ePPZ	00 18 14				104°	H 23 59 54 (USCGS)
3	2	ePKPZ	10 06 01				141°	H 09 46 30 (USCGS)
4	2	iPNZ iSN	14 31 31 41 14		+ - +		74°	H 14 20 13 (USCGS)
5	2	iPZ ipPZ iXE iSN isSE NE XE XN	21 36 32 37 16 40 51 43 34 44 51 48 24 48 41 47 28		- - - + + - - - +		52°	H 21 27 36 (USCGS) .03 deep
6	3	iPN eN MN	20 28 06 30 15 20 34	11	- 1			
7	4	MN	05 49					
8	6	eXZ eXZ eXN	05 05 23 06 10 15 27				73°.5	H 04 54 37 (USCGS)
9	7	ePZ eSE	07 00 10 09 30				74°	H 06 48 36 (USCGS)
10	7	eXNEZ eXNE MN	10 09 21 20 40 10 55				74°	H 10 06 47 (USCGS)
11	9	iXE MN	00 36 20 01 34	22	- 3		130°	H 00 13 30 (USCGS) No Z record
12	11	ePKPZ	23 41 46				141°	H 23 22 09 (USCGS)
13	12	ePN eXZ ME	00 39 35 39 45 01 15	14			72°	H 00 28 02 (USCGS)
14	15	iPKPZ iSKSE	19 02 08 08 42		- +		128°	H 18 42 20 (USCGS)
15	19	iXZ MN MN	17 35 10 17 45 17 45		+			

No.	Date	Phase and component	Time G.M.T.	Period sec.	Amplitude microns and direction	Epicentral distance	Notes
116	20	eXZ	23 18 44				
117	21	ePZ eSN	20 23 25 28 20			29°	H 20 17 23
118	24	iPZ iPPZ iSKSE iXN iPSNE iPPSE iSSE MN	08 36 01 40 00 46 15 47 34 49 25 50 12 54 26 09 26	26	- + + - + - + + 200	107°	H 08 21 05 (USCGS)
119	25	ePNZ ePPZ iPcPZ iSN MN	05 57 33 58 45 06 00 13 03 05 06 06	14	+ - 17	33°.5	H 05 50 56 (USCGS)
120	25	iSSE MN	17 10 13 17 36	25	+ 4	107°	H 16 36 37 (USCGS)
121	27	MN	05 17	20	2	111°	H 04 08 23 (USCGS) No Z record
122	28	ePN ePZ epPNZ iSN isSN eSSN	00 39 13 39 27 41 16 49 29 52 38 55 27		+ +	89°	H 00 27 31 (USCGS) .08 deep
123	28	iPKPNZ iXN iXN iXN iXNZ isPKPZ iPPNZ iXE isSE isPKPN	14 38 35 39 15 39 34 40 00 41 13 42 01 42 27 50 01 15 00 07 42 03		+ - + + - - - - + + + + +	150°	H 14 20 00 (USCGS) .10 deep
124	29	iPKPEZ ipPKPZ	08 32 12 34 25		+ + +	151°	H 08 12 22 (USCGS) .10 deep

DURHAM UNIVERSITY OBSERVATORY, ENGLAND

Position:- 54°46'N 01°35'W, height above M.S.L. 103 metres.



SEISMOLOGICAL BULLETIN FOR OCTOBER 1957

Instruments:- Milne-Shaw free period 12 sec, damping ratio 20:1, magnification 250, recording N and E component displacements.
Wilson-Lamison seismometer free period 1 sec, coupled to G.E. galvanometer free period 3.4 sec, recording vertical component of velocity.

No.	Date	Phase and component	Time G.M.T.	Period sec.	Amplitude and direction microns	Epicentral distance	Notes
1	2	ePZ eXEZ epPZ iSN isSN ME	12 38 14 38 24 38 31 47 14 47 41 13 01	20	- -	65°	H 12 27 55 (USCGS)
2	2	eXZ	21 09 06				
3	4	ePEZ ipPZ epPN eXNE iSNE isSN isSE MN	05 36 43 36 50 36 50 37 25 45 24 45 52 49 34 06 03	20	- - - - - - 11	65°	H 05 26 09 (USCGS) .01 deep
4	5	iSN	00 16 30		-	73°	H 23 55 45 (USCGS)
5	5	ePNE eSN MN	11 42 44 47 27 11 56			29°	H 11 36 46 (USCGS)
6	5	iXE iXE	22 49 55 57 03		- +	50°	H 22 40 44 (USCGS)
7	6	eXNZ MN	09 08 35 09 20	12	2		
8	6	eXZ	21 37 45				
9	7	MN	14 11	15	1		
10	8	eXZ	07 05 08				
11	10	ePNZ	19 05 13			71°	H 18 53 59 (USCGS)
12	12	ePZ ePKPZ ePSN	19 11 36 15 31 25 28			110°	H 18 57 02 (USCGS)
13	13	ePZ ePcPZ eSN MN	04 30 39 31 00 40 07 05 08	18	6	72°	H 04 19 17 (USCGS)
14	13	ePKPZ eSSN	20 55 17 21 18 19			164°	H 20 33 01 (USCGS)
15	15	ePZ eXZ	04 14 08 14 37			78°.5	H 04 02 07 (USCGS)

No.	Date	Phase and component	Time G.M.T.	Period sec.	Amplitude microns and direction	Epicentral distance	Notes
16	15	ePKPNZ	06 14 50			157°	H 05 55 21 (USCGS) .025 deep
17	17	iPE	14 33 38		+	19°	H 14 29 18 (USCGS) No Z record
18	17	iPE	14 41 51		+	19°	H 14 37 36 (USCGS) No Z record
19	18	ePN iXE eSN	01 55 31 56 28 59 26		-	22°	H 01 50 50 (USCGS)
20	19	iPZ ePNE iXZ iPPE iSKSN iSE MN MN	18 41 53 41 56 42 18 45 30 52 17 53 01 19 19 19 26	20 15	- + - - - 60 80	91°	H 18 28 50 (USCGS)
21	19	ePNEZ iSE eSKSZ	21 53 42 22 03 19 03 37		-	77°.5	H 21 41 59 (USCGS) .025 deep
22	20	ePN iPPN iSNE MN	12 13 53 15 55 21 31 12 28	17	+ - -	54°	H 12 04 22 (USCGS)
23	21	ePKPZ ePPZ	00 36 23 39 13			137°	H 00 17 25 (USCGS) .017 deep
24	23	ePZ ePPZ iXN MN	06 08 18 11 09 18 34 06 45	18	+ 6	72°	H 05 56 52 (USCGS)
25	24	ePKPZ ePPZ	00 37 07 40 17			141°	H 00 17 37 (USCGS)
26	24	ePZ	02 38 25			26°	H 02 33 09 (BCIS)
27	24	ePZ MN	21 56 17 22 25	20	9	81°	H 21 44 28 (USCGS)
28	25	ePZ eSNE	01 55 24 02 06 29			91°	H 01 42 32 (USCGS)
29	25	ePZ ePPZ	04 49 09 51 04			74°	H 04 37 35 (USCGS)
30	25	ePZ eSN	06 31 52 43 23			91°	H 06 19 06 (USCGS)

DURHAM UNIVERSITY OBSERVATORY, ENGLAND

SEISMOLOGICAL BULLETIN FOR OCTOBER 1957 sheet 3

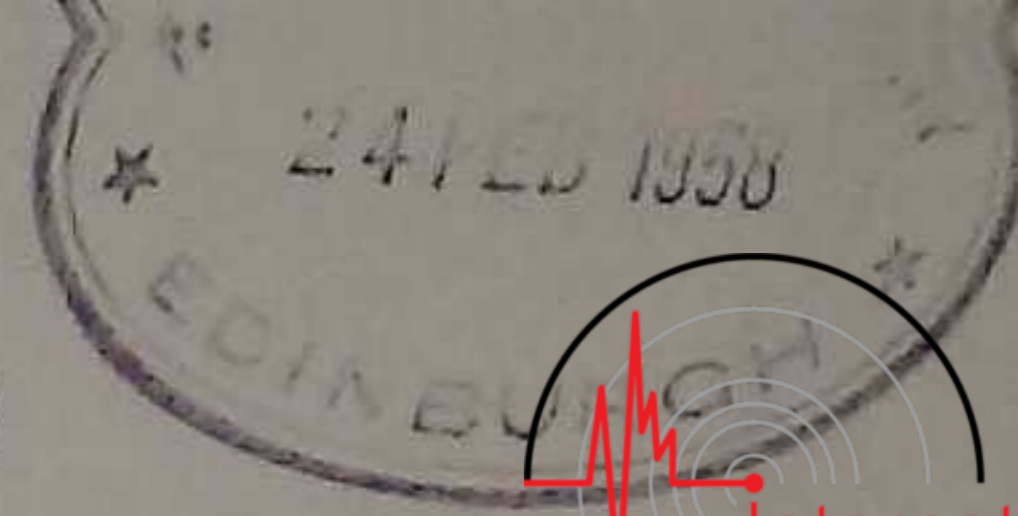
No.	Date	Phase and component	Time G.M.T.	Period sec.	Amplitude microns and direction	Epicentral distance	Notes
31	25	ePZ	10 15 08			74 ^o .5	H 10 03 32 (USCGS)
		iSNE	24 30		- -		
		iSKSN	25 10		+		
		ME	10 47	20	10		
32	27	ePZ	22 43 41			69 ^o .5	H 22 32 25 (USCGS)
		ePPZ	46 08				
33	30	ePZ	01 48 35			28 ^o	H 01 43 02 (BCIS)
		eSZ	53 31				
		MN	01 59	12	5		
34	30	ePZ	07 36 17			28 ^o	H 07 30 24 (BCIS)
		MN	07 46	19	6		
35	31	ePNZ	10 20 06			79 ^o	H 10 08 00
		eXNZ	20 24				
		iSN	30 08		+		
		MN	11 00	15	5		

11 December 1957

DURHAM UNIVERSITY OBSERVATORY, ENGLAND

Position:- 54°46'N 01°35'W, height above M.S.L. 103 metres.

SEISMOLOGICAL BULLETIN FOR NOVEMBER 1957.



International
Seismological
Centre

Instruments:- Milne-Shaw free period 12 sec, damping ratio 20:1, magnification 250, recording N and E component displacements. Wilson-Lamson seismometer free period 1 sec, coupled to G.E. galvanometer free period 3.4 sec, recording vertical component of velocity.

No.	Date	Phase and component	Time G.M.T.	Period sec.	Amplitude and direction	microns	Epicentral distance	Notes
1	2	ePZ ePPZ eSKSN	18 49 37 52 36 56 39				137° .5	H 18 30 24 (USCGS)
2	10	ePKPZ eXNZ eXN eXNZ	02 57 23 57 52 58 57 03 02 18					
3	10	ePKPNZ eXZ	05 47 43 49 33					
4	10	eXZ iSKSN iSN	19 33 24 43 09 43 31		+ +		86°	H 19 20 05 (USCGS) No E record
5	13	ePKPZ eXNEZ ePPN eSKSE iXN ME	17 42 43 43 15 47 05 49 35 57 05 17 52	21	- 9		160° .5	H 17 22 41 (USCGS)
6	15	ePZ eXNE iXE MN	08 06 27 16 48 16 58 08 52	19	2		103°	H 07 52 25 (USCGS)
7	15	iPN iSNE iSKSNE MN	16 41 58 51 20 52 00 17 19	19	- - - 2		74°	H 16 30 29 (USCGS)
8	16	ePN eSN	02 00 40 10 10				75°	H 01 48 48 (USCGS)
9	17	ePNZ	06 08 50				75°	H 05 57 48 (USCGS) .06 deep
10	20	iPN ePZ iSN iSKSN MN	12 51 46 51 47 13 01 01 01 43 13 36	20	- + + 17		71° .5	H 12 40 23 (USCGS)
11	23	ME	00 37	25				
12	23	ePZ eSN	01 09 43 19 05				73°	H 00 58 33 (USCGS)
13	25	eXZ	19 08 23					

DURHAM UNIVERSITY OBSERVATORY, ENGLAND

SEISMOLOGICAL BULLETIN FOR NOVEMBER 1957 sheet 2

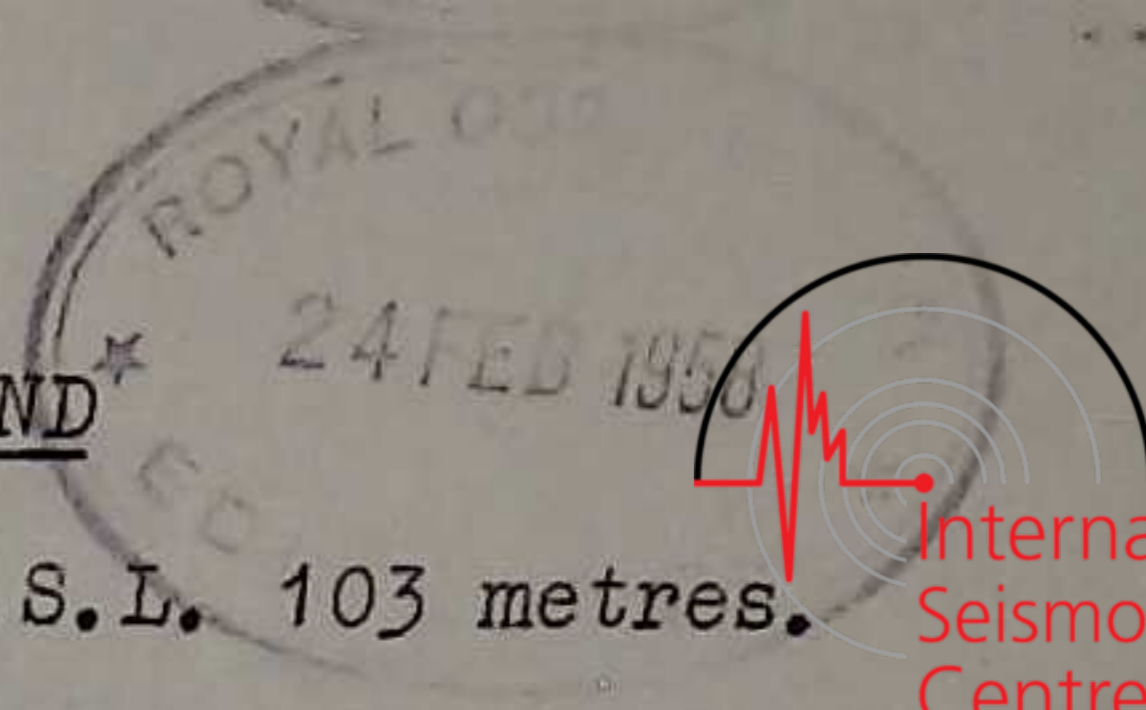


No.	Date	Phase and component	Time G.M.T.	Period sec.	Amplitude and direction	microns	Epicentral distance	Notes
14	25	eXZ MN	20 43 12 21 14					
15	25	iPZ iXE iXE MN	22 49 21 59 18 23 03 07 23 40	18	- + - 4		107°	H 22 35 00 (USCGS)
16	26	iPZ ME	05 24 39 06 11	22	- 2		108°	H 05 10 00 (USCGS)
17	26	ePZ ME	08 20 24 08 30				23°	H 08 15 22 (BCIS)
18	26	ePZ eSN ME	11 47 08 56 32 12 27				74°	H 11 35 34 (USCGS)
19	26	ePZ ME	11 55 05 12 05				23°	H 11 50 02 (BCIS)
20	27	ePZ iSE ME	03 13 05 17 11 03 23	6	- 4		23°	H 03 08 03 (BCIS)
21	29	iPE ipPNE iXN iXE iSKSNE iSN isSNE isSE ME	22 32 43 33 36 37 15 37 19 42 50 43 20 44 55 48 06 23 07	19	- + + - + + + - + + - 70		93°	H 22 19 38 (USCGS) .04 deep No Z record
22	30	eXZ	02 11 07					
23	30	eXZ ME	22 08 46 22 46	15	2			

30 January 1958

DURHAM UNIVERSITY OBSERVATORY, ENGLAND

Position:- $54^{\circ}46'N$ $01^{\circ}35'W$, height above M.S.L. 103 metres.



SEISMOLOGICAL BULLETIN FOR DECEMBER 1957

Instruments:- Milne-Shaw free period 12 sec, damping ratio 20:1, magnification 250, recording N and E component displacements.
Wilson-Lamison seismometer free period 1 sec, coupled to G.E. galvanometer free period 3.4 sec, recording vertical component of velocity.

No.	Date	Phase and component	Time G.M.T.	Period sec.	Amplitude and direction	microns	Epicentral distance	Notes
1	1	ePZ MN	01 12 15 02 00	18	2		76°	H 01 00 26 (USCGS)
2	1	ePZ	01 20 35				76°	H 01 09 00 (USCGS)
3	2	ePE ME	12 52 48 12 59				18°	H 12 48 50 (BCIS)
4	3	ePZ	21 57 41				73°	H 21 46 18 (USCGS)
5	4	iPNEZ iPPZ iSNE iXNE MN MZ	03 47 58 50 16 56 16 56 20 04 16 04 18	in minute break 15 11	break + + + + + 370		61°	H 03 37 45 (USCGS)
6	4	MN	12 00	12	2			
7	4	ePN eSN MN	13 30 29 38 18 13 55	20	3		62°	H 13 20 08 (USCGS)
8	9	eSE	01 40 39				95°	H 01 16 09 (USCGS)
9	10	MN	15 51	22	20			
10	13	iPEZ iSE	01 43 40 53 24		- - -		76°	H 01 31 57 (USCGS) .02 deep
11	13	iPZ iXEZ iXE iPPZ iXE iPPPZ iPcPEZ iXNZ iSEZ iSSE ME	01 52 32 52 33 53 24 54 00 54 03 54 25 54 43 55 06 58 29 02 01 19 02 15		+ - - - + - + + + - - + - - 80		40°	H 01 44 59 (USCGS)
12	13	MN	21 15	16	5			
13	16	iPZ eSN MN	17 38 45 47 35 18 04	20	- 8		$66^{\circ}.5$	H 17 27 47 (USCGS)

DURHAM UNIVERSITY OBSERVATORY, ENGLAND

SEISMOLOGICAL BULLETIN FOR DECEMBER 1957 sheet 2



International
Seismological
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No.	Date	Phase and component	Time G.M.T.	Period sec.	Amplitude and direction	microns	Epicentral distance	Notes
14	17	iPZ	05 22 16		-		80°	H 05 10 11 (USCGS)
		iXE	30 53		-			
		iXN	31 54		-			
		iSN	32 20		-			
		ME	06 03	12	9			
15	17	iPKPNEZ	14 09 25		- - -		136°.5	H 13 50 05 (USCGS)
		iPPEZ	12 10		+ -			
		iXNE	12 13		+ -			
		iXZ	12 55		+			
		iPKSNE	13 04		+ +			
		iXE	15 37		+			
		iXN	16 20		+			
		iXNEZ	16 50		+ - -			
		MN	14 57	25	85			
16	23	iPZ	12 40 27		-		32°	H 12 34 03 (USCGS)
		iPPZ	41 32		-			
		iSE	45 25		-			
		MN	12 48	15	21			
17	25	iPZ	16 36 51		-		65°	H 16 26 01 (USCGS)
18	27	ME	07 59					
19	28	ME	15 23					
20	31	iPZ	10 25 37		-		19°	H 10 21 22
		iXN	27 58		+			
		iSN	29 02		+			
		MN	10 31	15	8			
21	31	MN	12 08					
22	31	MN	13 16	18	2			
23	31	iPKPZ	14 48 21		-			
		iPKPZ	49 28		-			
		iPPZ	53 19		-			
		MN	16 09	22	3			

31 January 1958