

DURHAM UNIVERSITY OBSERVATORY, ENGLAND

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

SEISMOLOGICAL BULLETIN FOR JANUARY 1963

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

Date	Phase and component	Time G.M.T.	Period Sec.	Amplitude microns and direction	Epicentral distance	Notes
1	✓ ipZ ipPZ isPZ iPPZ iSE ME	23 49 58 50 20 50 27 52 11 58 48 24 09	18	- - - - - 3	67°	H 23 39 06 .01 deep (USCGS)
4	✗ ipZ	24 02 12		-	77°	H 23 50 09 (USCGS)
8	✓ ipZ	15 59 04		-	85°	H 15 46 45 .03 deep (USCGS)
14	✓ PZ	18 37 54			20°	H 18 33 24 .02 deep (BCIS)
15	✓ ipZ ME	01 36 12 01 41 42	11	- 5	17°	H 01 32 20 (USCGS)
15	✓ PZ cXN MN	05 26 52 31 09 32 51	12	8	17°	H 05 23 00 (BCIS)
15	✓ ipKPZ ipKPZ	19 45 18 45 31		+ +	146°	H 19 26 34 .08 deep (USCGS)
25	✓ ipKPZ	00 35 27		-	145°	H 00 16 06 .02 deep (USCGS)
27	✓ cPZ ipZ iPPZ iSE MN	19 42 14 42 18 43 37 47 52 19 56	10	- + - - 4	36°	H 19 35 09 (BCIS)
28	✓ cPSE cSSE ME	12 42 36 49 45 13 12	32	23	123°	H 12 12 20 (USCGS)
28	✓ ipZ ipN ipcPZ iSE iScSE MN MN	13 12 01 12 04 12 27 21 12 22 02 13 44 13 47	20 20	- + - - - 25 29	69°	H 13 00 51 (USCGS)
28	✗ ipZ MN	13 40 14 14 12	20	+ 4		? repetition of the above

0376 Durham
Jan - Dec 1963

sheet 2.

Date	Phase and component	Time G.M.T.	Period Sec.	Amplitude microns and direction	Epicentral distance	Notes
29	✓ iPZ	09 32 38		-	74°	H 09 21 14 .02 deep (USCGS)
	SN	41 47		-		
	iSKSN	42 32		-		
	iXN	43 06		-		
30	✓ iPPE	10 29 38		-	112°	H 10 10 04 (USCGS)
	cSKSN	35 25		-		
	iSE	37 11		-		
	iPSN	39 03		-		
	iXE	39 29		-		
	iSSN	45 13		+		
	ME	11 09	18	18		
	ME	11 24	15	13		
31	✓ cPE	05 19 33		-	85°	H 05 06 46 (USCGS)
	iPPZ	22 55		-		
	iScSE	30 13		-		
	iSSE	35 29		-		
	iXE	36 02		+		
	ME	06 04	12	17		
	MZ	06 04	12			

CORRECTIONS TO BULLETIN FOR DECEMBER 1962

8	iPZ	<u>23</u> 06 44	not <u>22</u> 06 <u>44</u>
22	iPKPZ	01 <u>48</u> 31	not 01 <u>38</u> 31
	iPKPZ	<u>48</u> 38	not <u>38</u> 38

8th May, 1963.

26 JUN 1963

DURHAM UNIVERSITY OBSERVATORY, ENGLAND

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

SEISMOLOGICAL BULLETIN FOR FEBRUARY 1963

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

Date	Phase and component	Time G.M.T.	Period sec.	Amplitude microns and direction	Epicentral distance	Notes
1	X IXE ME	23 36 03 23 46		-		
4	✓✓ iPZ	23 32 50		+	75°	H 23 21 09 .01 deep (USCGS)
5	X ✓ IXE ME	21 02 51 21 49	16	- 11	112°	H 20 39 22 (USCGS)
6	X ME	02 31			112°	H 01 21 29 (USCGS)
13	✓ iPZ iPPZ iSKSZ iSSSE ME MN ME MN MZ	09 02 48 06 16 13 29 23 26 09 40 09 40 09 47 09 47 09 47		- + + - 230 180 150 140	86°	H 08 50 02 (USCGS)
13	✓ iPPE iSKKSE ME ME MN	18 35 45 42 45 19 24 19 30 20 17		- 3 5 1	133°	H 18 13 55 (USCGS)
14	✓ iPKPZ ME	07 23 18 08 05	30	- 5	118°	H 07 04 41 .03 deep (USCGS)
21	✓ ePZ iSE ME	17 20 19 25 05 17 35	15	+ 5	27°	H 17 14 29 (BCIS)
22	✓ iPZ	07 17 38		-	36°	H 07 10 28 (USCGS)
22	✓ ePZ MN	14 17 24 14 25			20°	H 14 12 52 (BCIS)
26	✓ PKPZ ipPKPZ PPZ ipPPZ iSKSE iPSE iSSE iXE	20 32(52) 33 38 34(52) 35 25 42 20 44 06 51 28 51 42	in minute break	- - - - - +	126°	H 20 14 09 .03 deep (USCGS)
27	✓ ePKPZ ME	04 49 09 05 47	20	17	126°	H 04 30 01 .01 deep (USCGS)

31st May, 1963.

DURHAM UNIVERSITY OBSERVATORY, ENGLAND

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

SEISMOLOGICAL BULLETIN FOR MARCH 1963

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

Date	Phase and component	Time G.M.T.	Period sec.	Amplitude microns and direction	Epicentral distance	Notes
1	✗ iPZ	12 04(49)	in minute break		52° .5	H 11 55 23 (USCGS)
2 March 10 hrs to 5 March 0930 hrs no vertical component recording.						
4	✗ ME	14 28	18	21	87°	H 13 38 41 (USCGS)
	ME	14 36	11	8		
4	✓ iPE	15 16 01		+	27°	H 15 10 16 (BCIS)
	iSE	20 36		+		
	ME	16 26				
7	✓ iPPZ	12 36 33		-	117°	H 12 16 29 .01 deep (USCGS)
	ME	13 25	18	6		
8	✓ iPZ	15 16 28		-	59°	H 15 06 05 (USCGS)
	iSE	24 28		-		
	MN	15 34				
	ME	15 36				
10	✗ ME	03 43	18	12	87°	H 02 53 33 (USCGS)
11	✓ iPZ	07 33 02		+	27°	H 07 27 22 (BCIS)
	iSZ	37 36		+		
	ME	07 45 41	11	7		
12	✓ ?iPZ	08 16 41		-	70°	H 08 05 50 (USCGS)
16	✓ iPZ	08 56 41		+	77°	H 08 44 48 (USCGS)
	iPcPZ	56 58		-		
	iXZ	57 11		-		
	iPPZ	58 38		-		
	iXZ	59 18		-		
	iSNEZ	09 06 34		- + +		
	iSSE	11 23		+		
	ME	09 29	25	135		
	ME	09 37	16	45		
17	✓ ePZ	14 22 08			22°	H 14 17 18 (BCIS)
22	✗ eSNE	15 07 42			14°	H 15 01 54 (BCIS)
24	✓ eSSN	02 43 08			116°	H 02 07 13 (USCGS)
	MN	03 08	32	18		
24	✗ iXE	12 53 28		+	39°	H 12 44 01 (BCIS)
	iXE	13 00 26		+		
	iXE	00 37		+		
	ME	13 14	11	9		

Date	Phase and component	Time G.M.T.	Period sec.	Amplitude microns and direction	Epicentral distance	Notes
25	i IPZ	22 59 32		+	94°	H 22 46 16 (USCGS)
26	iPKPZ	10 08 14		+	155°	H 09 48 20 (USCGS)
	iXZ	08 40		+		
	iXZ	09 12		-		
	iPPZ	12 13		+		
	iSKSE	15 05		+		
	iSSE	32 08		+		
	iGE	48 22		-		
	ME	11 27	22	40		
26	iPKPZ	13 44 58			155°	H 13 25 03 (USCGS)
	iXZ	45 17		+		
	iXZ	45 31		-		
	iSSE	14 09 05		-		
	ME	15 02	22	10		
26	iPZ	21 47(02)	in minute break		82°	H 21 34 41 (USCGS)
	iPcPZ	47 20		+		
	iSKSE	57 21		+		
	iScSE	57 35		-		
	ME	22 20	21	32		
	ME	22 26	12	14		
28	iPN	00 19 12		+	14°	H 00 15 46 (BCIS)
	iPZ	19 15		-		
	iXZ	20 25		-		
	iSN	22 10		-		
	ME	00 25	14	640		
28	iPKPZ	11 32 47		-	155°	H 11 12 31 (USCGS)
30	iPKPZ	02 12 45		-	142°	H 01 53 29 .03 deep (USCGS)
30	iPZ	17 03 55		-	77°	H 16 51 57 (USCGS)
	iSE	13 46		+		
	ME	17 36	25	4		
31	PKPZ	05 51	in minute break		155°	H 05 30 49 (USCGS)
	iPKPZ	51 17		-		
	iPPN	54 41		+		
	ME	06 54	21	2		
	ME	06 59	20	3		
31	i ME	13 18	17		80°	H 12 26 12 (USCGS)
31	iPKPZ	19 43 09		-	155°	H 19 22 53 (USCGS)

2nd July, 1963.

DURHAM UNIVERSITY OBSERVATORY, ENGLAND

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

SEISMOLOGICAL BULLETIN FOR APRIL 1963

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

Date	Phase and component	Time G.M.T.	Period sec.	Amplitude microns and direction	Epicentral distance	Notes
2	✓ ePZ	16 29 58			72°	H 16 18 56 (USCGS)
3	✓ ePKPZ	15 07 41			151°	H 14 47 55 (USCGS)
	ME	16 03	26			
	ME	16 16	18			
6	✓ iPKPZ	07 21 31		-	143°	H 07 03 07 .09 deep (USCGS)
7	✓ iPPE	22 54 10		+	103°	H 22 36 03
	iSKSE	23 00 28		-		.01 deep (USCGS)
	iSE	01 26		+		
	ME	23 32	30	5		
	ME	23 41	18	3		
8	✓ ePE	14 46 10			41°	H 14 38 27 (USCGS)
	eSN	52 30				
	ME	14 59	18	1		
13	✓ iPZ	02 33 29		+	86°.5	H 02 20 57
	ipPZ	33 56		+		.02 deep (USCGS)
	iPPZ	36 50		+		
	iSKSE	44 41		-		
	iSE	44 54		+		
	isSE	45 49		+		
	iSSE	49 49		+		
13	✓ ePKPE	14 50 17			118°	H 14 31 21 (USCGS)
	iPPZ	51 20		+		
16	✓ ePE	01 44 29			112°.5	H 01 29 19 (USCGS)
	iPKPE	48 25		+		
	iPPE	49 25		+		
	iPKSE	51 40		-		
	iSKSE	53 49		-		
	iXE	55 20		+		
	ME	02 36	20	110		
16	✓ iPKE	01 56 04		-	112°.5	H 01 36 59 (USCGS)
17	✓ PKPZ	02 31 -- (in minute break)			145°.5	H 02 11 26 (USCGS)
19	✓ iPZ	07 46 10		+	66°	H 07 35 24 (USCGS)
	iPcPZ	47 07		+		
	iPPPE	50 10		+		
	SE	55 -- (in minute break)				
	iSKSE	56 08		-		
	iSSE	59 10		+		

continued on next sheet

SHEET 2

Date	Phase and component	Time G.M.T.	Period sec.	Amplitude microns and direction	Epicentral distance	Notes
continued from previous sheet						
19	ME	08 12	16	40		
	ME	08 17	12	50		
	ME	08 19	13	60		
	ME	08 20	10	38		
	MZ	08 20	10			
21	✓ iPZ	04 51 14		-	88°	H 04 38 22
	✓ iPPPN	05 07 05		-		(USCGS)
	✓ iSSN	05 07 20		+		
	ME	05 27	25	6		
	ME	05 36	15	5		
23	✓ iPZ	03 01 33		+	61°	H 02 51 17
	✓ MN	03 31	11	1		(USCGS)
24	✓ iPKPZ	22 01 22		+	146°	H 21 42 49
						.10 deep (USCGS)
25	✗ ePZ	13 38 45			10°.5	H 13 36 11
	eXE	42 07				(BCIS)
	eXE	42 15				
	eXE	42 19				
	iXE	43 27		-		
27	✗ MNE	00 43	13			
27	✓ ME	03 51	10	1	15°	H 03 42 34
						(USCGS)
29	✓ iPZ	21 55 51		+	73°.5	H 21 44 17
	iSE	22 05 27		-		.01 deep
	✓ iSKSE	06 01		-		(USCGS)
	iSSE	10 16		+		
	ME	22 27	19	2		
	ME	22 34	20	5		
30	✓ iPKPZ	01 17 01		-	113°	H 00 58 18
	✓ iPPZ	17 53		+		(USCGS)
	ME	01 59	19	4		
	ME	02 12	19	8		

12th July, 1963.

MAY '63

DURHAM UNIVERSITY OBSERVATORY, ENGLAND

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

SEISMOLOGICAL BULLETIN FOR MAY 1963

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

Date	Phase and component	Time G.M.T.	Period sec.	Amplitude microns and direction	Epicentral distance	Notes
1	✓ iPKPZ	10 22 36		-	144°	H 10 03 20 .02 deep (USCGS)
	ixZ	22 41		+		
	ixZ	23 24		-		
	ixZ	24 04		-		
	ixZ	24 36		-		
	isSE	44 15		-		
	GE	11 03 56				
	ME	11 13	25	6		
	ME	11 15	23	7		
	ME	11 25	25	8		
8	✓ iPZ	09 01 39		-	69°	H 08 50 56 .01 deep (USCGS)
	ise	10 26		+		
8	✓ ePZ	10 34 36			83°.5	H 10 22 11 .01 deep (USCGS)
	✓ iPcPZ	34 48		-		
	ise	45 19		+		
	isSE	50 50		-		
	ME	11 06	30	25		
	ME	11 16	18	13		
10	✓ ePZ	22 35 08			82°	H 22 22 42 (USCGS)
	ixZ	35 16		-		
	✓ iPcPZ	35 23		-		
	ixZ	36 25		-		
	ixZ	37 40		-		
	ise	45 31		-		
	isKSE	45 58		-		
	ME	23 07	20	14		
11	✗ ME	18 39	20	2	87°	H 17 49 43 (USCGS)
	ME	18 47	13	3		
12	✓ iPZ	20 19 23		-	66°	H 20 08 43 .01 deep (USCGS)
15	✓ iPZ	12 13 19		+	23°	H 12 08 11 (BCIS)
	ise	17 33		+		
	MN	12 21	10	2		
17	✓ iPZ	04 18 31		+	78°	H 04 06 36 (USCGS)
17	✓ iPKPZ	22 59 49		+	149°.5	H 22 40 07 .01 deep (USCGS)
19	✓ iPPE	01 23 09		+	119°	H 01 03 04 (USCGS)
	ixE	30 20		-		
	iPSE	32 58		+		
	ME	01 57	35	8		
	ME	02 00	20	7		
	ME	02 14	18	10		
	ME	02 22	16	2		

sheet 2

Date	Phase and component	Time G.M.T.	Period sec.	Amplitude microns and direction	Epicentral distance	Notes
19	✓ iPZ	10 03 24		-	13° .5	H 10 00 04 (BCIS)
	iSN	05 45		-		
	iXN	07 40		-		
19	✓ ePZ	21 43 58		-	45°	H 21 35 50 (USCGS)
	iXZ	44 02		-		
	iXZ	44 03		+		
	iPPZ	45 46		+		
	iSNE	50 45		-		
	iSSE	54 20		-		
	MN	21 56	19	45		
	ME	22 02	11	15		
	MZ	22 02	11			
	ME	22 10	12	10		
MZ	22 10	12				
20	✓ ePKPZ	11 58 05			157°	H 11 38 01 (USCGS)
	iPKPZ	58 15		+		
	iPKPZ	58 20		+		
	iXZ	58 34		+		
	iXZ	58 40		-		
	iPPE	12 01 58		-		
	iPPPN	05 49		-		
	iSKKSN	08 45		-		
	iPPSN	15 25		+		
	iSSN	21 16		-		
	iSSSN	27 41		-		
	ME	12 55	30	6		
	ME	13 03	21	6		
ME	13 14	20	4			
22	✓ ePZ	14 08 27			75°	H 13 56 43 (USCGS)
	iPcPN	08 40		-		
	iPPN	11 12		+		
	iSN	18 04		+		
	iSKSN	18 36		-		
	ME	14 47	19	5		
22	✓ iPE	22 12 29		-	75°	H 22 00 44 (USCGS)
	iSE	22 03		+		
	ME	23 04	20			
25	✗ eXN	09 02 15		-	78°	H 08 41 10 (USCGS)
	iSNE	02 39		+ -		
25	✓ iXN	16 34 29		+	113° .5	H 16 08 01 (USCGS)
	iXE	35 12		-		
	MN	17 07	19	3		
	MN	17 14	19	3		
	MN	17 27	16	1		
26	✓ eSNE	23 27 11			70°	H 23 06 55 (USCGS)
	ME	23 57	12	2		
27	✓ iPZ	04 09 51		-	70°	H 03 58 48 (USCGS)
	ME	04 49	12	2		
29	✓ iPZ	08 44 26		+	52°	H 08 35 03 (USCGS)

DURHAM UNIVERSITY OBSERVATORY, ENGLAND

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

SEISMOLOGICAL BULLETIN FOR JUNE 1963

Instruments:- Wilson-Lamison seismometer free period 1 sec. coupled to G.E. galvanometer free 3.4 sec., recording vertical component of velocity.
Milne-Shaw free period 12 sec. damping ratio 20.1, magnification 250, recording N and E component displacement.

Date	Phase and component	Time G.M.T.	Period sec.	Amplitude microns and direction	Epicentral distance	Notes
1	✓ ePZ	10 58 57			52°	H 10 49 55 .01 deep (USCGS)
1	✓ ePKPZ ME	21 33 21 22 38			140°	H 21 13 53 (USCGS)
2	✗ iPZ iSNEZ	19 09 09 09 27				
2	✓ ePPN eSSE ME	21 23 58 39 34 21 58	22	5	114°	H 21 04 24 .01 deep (USCGS)
3	✓ iPZ iSE ME	07 48 28 58 57 08 23	21	+ + 3	85°	H 07 35 54 (USCGS)
3	✓ iPZ eSE ME	11 43 23 53 09 12 12	20	- 1	75°.5	H 11 31 49 (USCGS)
4	✓ iPPN eSKSE ME ME	21 24 08 29 56 22 09 22 19	20 18	- 2 1	112°	H 21 04 42 (USCGS)
4	✓ ePZ	22 16 23			21°	H 22 11 33 (BCIS)
6	✓ iPZ ePPE eSKSN eSN ME ME ME	05 31 57 35 34 42 32 43 00 06 12 06 17 06 21	20 15 12	- 5 8 3	90°.5	H 05 18 55 (USCGS)
7	✓ iSKSE eSE ME	16 13 38 14 10 16 43	20	- 1	92°	H 15 49 57 (USCGS)
7	✓ iSN ME ME	19 54 35 20 18 20 29	25 15	- 2 1	90°	H 19 30 36 (USCGS)
7	✓ ePKPN	22 51 42			139°.5	H 22 31 55 (USCGS)
7	✓ ePPN ME	23 00 34 24 04	16		139°.5	H 22 37 30 (USCGS)
8	✓ ePKPN	01 21 24			139°.5	H 01 01 52 (USCGS)

sheet 2

Date	Phase and component	Time G.M.T.	Period sec.	Amplitude microns and direction	Epicentral distance	Notes
8	X ePN eSN ME	04 34 52 44 48 05 04			79°	H 04 22 53 (USCGS)
9	✓ ePE ✓ eSN ME	20 47 21 55 00 21 06			54°	H 20 37 52 (USCGS)
10	✓ iPKPZ iPPZ ✓ cSSE ME	04 37 21 41 14 05 01 33 05 56	20	- - 3	162°	H 04 16 38 (USCGS)
10	✓ iXZ iPKPZ iPPZ ME	06 59 03 59 51 07 03 36 08 09	23	+ - - 6	162°	H 06 39 04 (USCGS)
11	✓ ePZ ✓ eSE ME	03 34 39 41 59 04 00	14		51°	H 03 25 41 (USCGS)
11	✓ iPZ	13 18 41		-	60°	H 13 08 31 (USCGS)
11	X ePZ	18 46 46			77°.5	H 18 34 31 (USCGS)
17	✓ iPZ	18 42 16		-	60°	H 18 32 15 (USCGS)
17	✓ ePKPE ME	18 51 06 20 15	17	3	169°	H 18 30 54 (USCGS)
17	✓ iPKPZ	20 28 13		+	145°	H 20 08 37 (USCGS)
18	✓ ePZ MN	04 15 00 04 59			85°	H 04 02 31 (USCGS)
19	✓ iXE ME	09 26 17 10 15	20	-	105°	H 09 09 04 .01 deep (USCGS)
19	✓ iPZ eSN ME	10 58 45 11 08 21 11 34	18	+	72°	H 10 47 25 .01 deep (USCGS)
19	✓ ePE iPPN iSKSN iSE iSSN ME	23 14 27 18 17 25 17 25 24 31 15 23 57	15	- + - - 1	83°	H 23 01 51 (USCGS)
20	✓ eSN MN	19 55 26 20 01	8	1	19°	H 19 47 45 (BCIS)
20	✓ iPKPZ	23 06 14		+	155°	H 22 46 18 (USCGS)
21	✓ iXN ME	13 54 44 14 27	15	+	69°.5	H 13 44 25 (USCGS)

sheet 3

Date	Phase and component	Time G.M.T.	Period sec.	Amplitude microns and direction	Epicentral distance	Notes
24	✓ iPZ	04 37 08		-	62°.5	H 04.26 38 .01 deep (USCGS)
	ipPZ	37 18		+		
	iPcPZ	37 23		-		
	iSE	45 38		-		
	iScSH	46 56		-		
	ME	04 56		80		
	MN	05 07	16	13		
MN	05 10	16	16			
24	✓ ePZ	16 29 03		-	73°	H 16 17 15 (USCGS)
	eSN	38 16				
	ME	17 01	20			
26	X ME	10 38	12	1	19°	H 10 27 10 (BCIS)
26	✓ iSE	18.04 44		+	79°.5	H 17 42 41 (USCGS)
	ME	18 23	22	2		
	ME	18 33	18	1		
28	X ME	16 11			15°	H 16 01 25 (USCGS)
28	✓ iPN	22 07 32		-	77°	H 21 55 39 (USCGS)
	iPPN	10 28		+		
	iSN	17 20		+		
	ME	22 40	20	25		
	ME	22 47	17	33		
	MZ	22 47	17			
28	Y ✓ PZ	23 01 (33)	in minute break		77°	H 22 49 34
28	J X iPZ	23 09 01		-	77°	H 22 57 03 (USCGS)
30	✓ ePNZ	22 16 47			77°	H 22 04 53 (USCGS)
	eSN	26 37				
	MN	22 57				

2nd December, 1963.

DURHAM UNIVERSITY OBSERVATORY, ENGLAND

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

SEISMOLOGICAL BULLETIN FOR JULY 1963

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

Date	Phase and component	Time G.M.T.	Period sec.	Amplitude microns and direction	Epicentral distance	Notes
1	✓ eSE	21 29 56			64°	H 21 10 29 (USCGS)
4	✓ iPKPZ	11 17 43		+	151°	H 10 58 13
	iPKPZ	17 50		+		.025 deep (USCGS)
	ipPKPZ	17 59		-		
	ipPKPZ	18 10		-		
	iPPZ	22 28		+		
	iSKSN	25 03		+		
	iSKKSN	28 04		+		
4	✓ iPN	23 07 41		+	74°	H 22 56 16 (USCGS)
	iPZ	07 49		-		
	iPcPZ	07 54		+		
	iPPZ	10 43		-		
	MN	23 42	16			
5	✓ iPZ	06 01 18		-	91°.5	H 05 48 14 .01 deep (USCGS)
	eSN	11 43				
8	✓ ePN	11 14 41			56°.5	H 11 05 07 (USCGS)
	iPZ	14 46		-		
	iSN	22 34		-		
9	✓ iPE	09 36 25		+	78°.5	H 09 24 33 (USCGS)
	iPcPE	36 35		+		
	iSE	46 31		+		
	ME	10 07	20	2		
	ME	10 14	16	2		
10	x ME	04 06			77°	H 03 14 42 (USCGS)
10	✓ ePZ	05 34 51			77°	H 05 22 57 (USCGS)
	iPZ	34 55		-		
	iSE	44 40		-		
	ME	06 14	16	6		
	ME	06 16	20	8		
10	x ME	07 33	13		23°	H 07 19 41 .02 deep (USCGS)
10	✓ ePZ	09 58 47		+	54°	H 09 49 30 (USCGS)
	ME	10 16				
12	✓ iPN	15 40 02		+	77°	H 15 28 09 (USCGS)
	iPPN	42 50		-		
	iSN	49 45		-		
	MN	16 20				
13	✓ iSN	14 29 54		+	87°.5	H 14 06 24 (USCGS)
	MN	15 04	15	1		
14	✓ iPPN	00 27 00		-	155°	H 00 02 23 (USCGS)

Date	Phase and component	Time G.M.T.	Period sec.	Amplitude microns and direction	Epicentral distance	Notes
14	✓ iPZ	05 52 24	18	-	65°	H 05 41 43 (USCGS)
	iXZ	52 41		-		
	iSN	06 01 06		-		
	iPSN	01 20		+		
	ME	06 19		4		
16	✓ ePZ	18 33 28	15 12 12	-	30°	H 18 27 18 (USCGS)
	iPPN	34 15		+		
	iPcPZ	36 00		+		
	iXN	39 00		-		
	iSN	39 17		+		
	iScPZ	39 46		-		
	iPeSN	39 54		-		
	MN	18 47		50		
MN	18 50	34				
MZ	18 50	12				
17	x MN	12 16			30°	H 11 57 07 (USCGS)
17	x ePNZ	15 18 54			73°	H 15 07 22 (USCGS)
18	✓ ePKPN	05 17 05	18		117°	H 04 58 09
	eSKSN	23 44				
	eSSN	34 04				
	ME	06 02				
19	✓ iPZ	05 48 30	10	-	13°.5	H 05 45 26 (BCIS)
	iPPZ	48 49		-		
	iXZ	49 07		-		
	iSSN	51 30		+		
	iXN	52 01				
MN	05 55	83				
20	✓ ePKPNZ	06 57 50	21 20 18		163°	H 06 38 11 (USCGS)
	ePPN	07 03 32		+		
	eSKKSN	10 28		5		
	MN	08 10		7		
	MN	08 13		5		
24	✓ iSKSN	11 55 45	21 13	+	87°	H 11 32 18 (USCGS)
	iSN	55 54		+		
	MN	12 22		4		
	MN	12 29		3		
26	✓ iPZ	04 21 46	11	+	19°.5	H 04 17 11 (BCIS)
	iXZ	21 48		-		
	iPPZ	22 09		-		
	iSN	25 24		+		
	iLN	28 22		+		
MN	29 23	57				
26	x iPZ	09 30 56		+	19°	H 09 26 46 .05 deep (USCGS)
eSN	33 56					
28	x ePZ	13 29 19			17°.5	H 13 25 18 (USCGS)
29	✓ iPZ	06 19 10		+	47°	H 06 10 23 (USCGS)
	eSN	25 47				
29	✓ iPKPZ	20 34 21	18	-	155°	H 20 14 07 (USCGS)
	MN	21 51		4		

sheet 3

Date	Phase and component	Time G.M.T.	Period sec.	Amplitude microns and direction	Epicentral distance	Notes
29	✓ iPKPZ	20 36 38		-	155°	H 20 16 37 (USCGS)
30	✓ ePKPZ	06 05 52			155°	H 05 45 53 (USCGS)
	✓ iPKPZ	06 16		-		
	MN	07 12	20	2		
	MN	07 54	17	2		
30	✓ iPPZ	14 11 51		-	116°	H 13 51 58 (USCGS)
30	✓ ePKPZ	14 43 32			154°.5	H 14 23 14 (USCGS)
31	✗ eSN	08 38 16			17°	H 08 32 13 (USCGS)

14th January, 1964.

DURHAM UNIVERSITY OBSERVATORY, ENGLAND

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

SEISMOLOGICAL BULLETIN FOR AUGUST 1963

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

Date	Phase and component	Time G.M.T.	Period sec.	Amplitude microns and direction	Epicentral distance	Notes
1	X ePZ	10 55 45		-	69°	H 10 45 03 .01 deep (USCGS)
2	✓✓ iPZ	09 11 34		+	17°	H 09 07 18 (USCGS)
2	✓✓ iPZ	09 18 03		+	19°	H 09 13 47 (USCGS)
2	X ePN eSN	12 54 11 58 00			21°	H 12 49 35 (USCGS)
3	✓ iPZ iPPZ iPcPZ iPcSN iSN MN	10 31 01 32 34 32 59 36 38 38 38 10 50	10	- + - - +	44°	H 10 21 37 (USCGS)
3	X ePZ	10 43 50			44°	H 10 34 26 (USCGS)
3	X ePN eXN MN	20 17 09 27 05 20 37	10		58°	H 20 07 20 (USCGS)
3	✓✓ iPKPZ	20 46 21		+	156°.5	H 20 26 04 (USCGS)
4	✓✓ iPZ	12 20 09		+	88°	H 12 07 24 (USCGS)
4	✓ iPKPZ	24 12 47		+	143°	H 23 54 14 .08 deep (USCGS)
5	✓ ePKPN	15 58 55			165°.5	H 15 39 07 (USCGS)
6	✓ ePNZ iPPN iSN MN	13 40 46 41 07 44 15 13 47	11	- +	18°	H 13 36 36 (USCGS)
7	✓ ePN	04 45 17			68°	H 04 33 43 (USCGS)
8	✓ iPZ iPPZ iSN iSPZ	02 26 11 28 48 35 28 35 45		- - - -	71°	H 02 14 54 (USCGS)

sheet 2

Date	Phase and component	Time G.M.T.	Period sec	Amplitude microns and direction	Epicentral distance	Notes
8	✓ iPKPZ iSKSN iSSN	11 35 19 42 19 54 09		- - -	125°.5	H 11 16 11 (USCGS)
9	✓ iPZ ✓ iXZ iSN MN	06 08 47 08 57 11 23 06 15		- - +	14°	H 06 05 29 (BCIS)
9	✓ iPPZ	14 59 03		+	140°	H 14 36 46 (USCGS)
12	✓ ePZ	18 38 57			53°	H 18 29 39 (USCGS)
15	✓ iPN ipPZ iPPN iSN isSN MN	06 23 56 24 11 27 10 34 09 34 33 07 03	18	- - + - - 18	82°	H 06 11 35 .01 deep (USCGS)
15	✓ ePZ iPZ iXZ iXN iXN ipPZ iXZ iXN iPPZ iXZ iSKSN iSN iSPN iPSN isSN iSSN	17 37 06 37 08 37 20 37 27 37 33 39 10 39 21 39 35 41 06 44 21 46 57 47 21 48 36 49 09 50 54 53 36		- - + - - - - - - + + + - - - -	89°	H 17 25 06 .09 deep (USCGS)
15	✓ iPZ ipPZ	18 03 04 05 27		+ +	89°	Aftershock of the above.
15	✓ iPZ ipPZ	18 23 38 26 06		- -	89°	Aftershock of the above
17	✓ iPZ iPcPZ iXZ iXZ iPPE iSKSE iSE isSE ME MZ	11 25 18 25 33 25 42 26 04 28 38 35 40 35 47 41 20 12 07 12 07	16 16	+ - - - - - + - 27	86°	H 11 12 41 (USCGS)
18	✓ iPN iSN iSKSN	18 55 05 19 04 35 04 48		+ + -	75°	H 18 43 16 (USCGS)
20	✓ iSN	16 10 04		-	80°	H 15 48 12 .01 deep (USCGS)

sheet 3

Date	Phase and component	Time G.M.T.	Period sec	Amplitude microns and direction	Epicentral distance	Notes
22	✓ ePPN	20 14 08			132°	H 19 52 25 (USCGS)
	MN	21 00	30	5		
	✓ MN	21 12	20	7		
25	✓ eSE	06 23 34			31°	H 06 11 43 (USCGS)
	✓ ME	06 35	12			
25	✓ iPKPZ	12 36 38		+	143°	H 12 18 13 .09 deep (USCGS)
	iXZ	36 45		-		
	ipPKPZ	38 49				
	iSKPZ	39 05		-		
	iPPZ	39 35		+		
	iSKSN	42 35		-		
	iSPPE	51 34		+		
	iSSE	57 47		+		
	isSSE	13 01 30		-		
	MN	13 30	16			
	MN	13 40	20			
27	✗ ME	04 31	20	3	118°	H 03 23 33 (USCGS)
28	✗ MN	14 29	16		170°	H 12 48 22 (USCGS)
29	✓ iPZ	09 02 50		+	50°.5	H 08 53 48 (USCGS)
	iPcPZ	04 08		-		
	iPPZ	04 52		-		
	iSN	10 10		-		
	iSSN	13 59		+		
	ME	09 28	14			
ME	09 31	11				
29	✓ iPZ	15 43 30		+	90°	H 15 30 31 (USCGS)
	iPcPZ	43 45		-		
	iPPZ	47 06		+		
	iSKSE	53 59		+		
	iSE	54 19		-		
	iPSN	55 30		+		
	iSSN	16 00 05		-		
	iPSSE	00 38		-		
	isSSE	03 56		+		
	ME	16 20	20	15		
MN	16 28	16	8			
30	✗ ME	05 18	15		49°	H 04 46 25 (USCGS)

12th March, 1964.

DURHAM UNIVERSITY OBSERVATORY, ENGLAND

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

SEISMOLOGICAL BULLETIN FOR SEPTEMBER 1963

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

Date	Phase and component	Time G.M.T.	Period sec.	Amplitude microns and direction	Epicentral distance	Notes
2	iPE iSE MN	14 22 18 32 21 14 54	17	+ + 	78°.5	H 14 10 45 (USCGS)
4	iPNZ iXN iSE iXNE MN ME MN MZ	05 11 09 11 19 14 51 14 57 05 18 05 20 05 22 05 22	16 10 10 10	- - + - + - 14 15 15	19°.5	H 05 06 41 (BCIS)
4	iPN iPPN iSN ME MN	13 38 54 40 15 44 16 13 51 13 55	20 11	- - + 22 10	34°	H 13 32 12 (USCGS)
6	ePE ePPE eSE eSKSN ME	06 16 14 19 29 26 03 26 24 06 56	13	7	80°	H 06 03 52 (USCGS)
7	ePZ ME	01 29 05 02 09	13	6	80°	H 01 16 55 (USCGS)
7	iPZ iXZ eSE	07 25 31 25 36 35 29		-	77°	H 07 13 40 (USCGS)
7	iPZ eSE ME	09 01 52 10 40 09 27	14	+ 2	67°.5	H 08 50 57 (USCGS)
7	iPZ	12 55 07		-	80°	H 12 44 01 .02 deep (USCGS)
8	iPKPZ iPKPZ ipPKPZ isSE	20 09 16 09 31 11 22 31 18		- - - +	149°.5	H 19 50 30 .09 deep (USCGS)
9	PKPZ MN	03 04 (45) 04 03	in minute break 22		125°	H 02 45 45 (USCGS)
9	ePKPE	13 11 13			141°	H 12 52 15 .03 deep (USCGS)
10	ePKPZ	19 33 57			144°	H 19 14 27 (USCGS)
12	iPKPZ	03 31 33		-	147°	H 03 11 54 (USCGS)

Date	Phase and component	Time G.M.T.	Period sec.	Amplitude microns and direction	Epicentral distance	Notes
12	ME MN	08 38 08 42			31°	H 08 18 58 (USCGS)
13	iPZ	17 11 30		+	74°	H 16 59 56 (USCGS)
15	iPKPZ ipPKPZ iPPN iPKSN iXE ME	01 06 07 06 21 08 40 09 41 09 57 01 55	20	+ - - - - 55	134°	H 00 46 54 (USCGS)
17	iPZ ePPE iSKSE iSE ME	06 07 33 11 04 18 00 18 30 06 47	20	+ + +	91°	H 05 54 34 .01 deep (USCGS)
17	ePKPZ iPKPZ iPPN iSKPE iPKSN ME MN MZ	19 39 28 39 30 42 05 42 58 43 07 19 28 19 40 19 40	24 20 20	+ - - - - 53 62	135°	H 19 20 08 (USCGS)
18	iPZ iXZ iSE isSE ME ME MZ	17 03 33 05 00 07 55 09 10 17 13 17 17 17 17	12 11 11	- - + + 46 47	25°	H 16 58 11 (BCIS)
19	ePE iXE MN	16 53 37 57 23 17 01	10	+ +	18°	H 16 49 30 (USCGS)
22	iPKPZ ME	03 16 00 04 30	18	-	144°	H 02 56 24 (USCGS)
22	iPKPZ	19 41 33		-	144°	H 19 21 57 (USCGS)
23	iPZ eSE ME	09 13 43 23 10 09 45	15	- - 7	75°	H 09 01 57 (USCGS)
24	ME	02 26			25°	H 02 10 40 (BCIS)
24	ePZ iXZ iXZ ipPZ iPPZ iSKSE iSN isSE iPSE iXE ME	16 43 10 43 20 43 27 43 38 46 29 53 45 54 10 54 48 55 22 58 35 17 18	25	- + - - - + - + + - 21	90°	H 16 30 16 .01 deep (USCGS)
27	iXZ	11 47 38			142°	H 11 25 54 (USCGS)

sheet 3

Date	Phase and component	Time G.M.T.	Period sec.	Amplitude microns and direction	Epicentral distance	Notes
29	iPZ iSE	22 21 41 25 49		- -	23°	H 22 16 41 (BCIS)

2nd April, 1964.

HAM UNIVERSITY OBSERVATORY, ENGLAND

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

SEISMOLOGICAL BULLETIN FOR OCTOBER 1963

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

Date	Phase and component	Time G.M.T.	Period sec.	Amplitude microns and direction	Epicentral distance	Notes
3	MN	17 51			114°	H 15 48 17 .01 deep (USCGS)
3	iSN ME	23 47 44 24 20	15	+ 24	84°	H 23 24 35 (USCGS)
5	iSNE ME	15 15 07 15 32	14	- + 7	56°	H 14 57 46 (BCIS)
7	ePKPZ	13 33 11			149°	H 13 14 25 .09 deep (USCGS)
7	iSN iPSN iXN MN	23 54 09 54 51 57 06 24 14	18	- - + 2	66°	H 23 34 27 (USCGS)
8	ePKPN iPPN MN	00 36 28 39 34 01 34	20	+ - 1	$139^{\circ}.5$	H 00 17 01 (USCGS)
12	iPZ iPcPZ iPPZ eSE eSN eSKSE iScSE MN MZ MN MN	11 38 51 39 05 41 29 48 26 48 39 48 48 49 01 12 18 12 18 12 21 12 31	18 18 16 16	- - - - - - + 60 18 52 39	77°	H 11 26 58 (USCGS)
13	ePNEZ iPNEZ iPcPN iXN eSE iSKSE iScSN MNE MZ ME	05 29 49 29 53 30 02 30 20 39 28 40 09 40 20 06 11 06 21 06 21	19 15 15	- + - - + + 720 460	77°	H 05 17 57 .01 deep (USCGS)
13	iPZ	07 15 15		+	77°	H 07 03 24 (USCGS)
13	iPZ	10 03 17		+	77°	H 09 51 50 (USCGS)
13	iPZ	13 10 28		+	77°	H 12 58 22 (USCGS)

Date	Phase and component	Time G.M.T.	Period sec.	Amplitude microns and direction	Epicentral distance	Notes
13	iPZ	16 11 43	18	-	77°	H 15 59 53 (USCGS)
	iPcPZ	11 57		-		
	iSN	21 02		+		
	iSKSN	21 30		+		
	iScSN	21 47		-		
	ME	16 50		5		
14	iPZ	13 33 38	18	-	77°	H 13 21 45 (USCGS)
	iPcPZ	33 53		-		
	eSN	43 27		-		
	iSKSN	43 31		-		
	ME	14 08		4		
15	iPZ	10 03 06	10	-	14°.5	H 09 59 30 (USCGS)
	iSE	05 51		-		
	ME	10 09		66		
16 October 10 hrs to 17 October 08 hrs no recording						
17	iPZ	23 36 30	18	-	77°	H 23 24 34 (USCGS)
	iSN	46 18		+		
	iSKSN	46 38		+		
	MN	24 15		8		
19	ePZ	02 30 26			77°	H 02 18 38 (USCGS)
	MN	03 11				
19	ePZ	03 46 11			77°	H 03 34 20 (USCGS)
	MN	04 27				
19	ePZ	03 58 58			77°	H 03 47 08 (USCGS)
20	iPZ	01 05 14	18	+	77°	H 00 53 07 (USCGS)
	iPcPZ	05 38		-		
	iPPZ	08 09		-		
	iSE	15 07		+		
	iSKSE	15 29		+		
	iScSE	15 39		-		
	ME	01 44		95		
	ME	01 57		70		
20	ePZ	09 22 40			77°	H 09 10 44 (USCGS)
	eSN	32 17				
20	iPZ	12 04 14		-	77°	H 11 52 21 (USCGS)
	iPcPZ	04 29		+		
	iXZ	04 39		-		
	ME	12 43				
20	iPZ	13 06 17		+	31°	H 12 59 59 (USCGS)
22	eSN	03 39 04	18		77°	H 03 17 15 (USCGS)
	MN	04 10		2		
24	ePZ	01 18 34		-	77°	H 01 06 26 (USCGS)
	MN	01 58				
24	MN	08 32			102°	H 07 26 24 .01 deep (USCGS)

sheet 3

Date	Phase and component	Time G.M.T.	Period sec.	Amplitude microns and direction	Epicentral distance	Notes
25	iPnZ iSnZ	04 46 41 47 36			04°	H 04 45 31 (BCIS)
26	ePZ ME	04 07 34 04 45	18		77°	H 03 55 40 (USCGS)
27	iPKPZ	18 44 28		-	149°	H 18 24 43 (USCGS)
28	ePKPZ iPKPZ iPKPZ	08 14 54 14 58 15 04		+ -	149°	H 07 55 12 (USCGS)
29	ePKPZ	22 42 21			149°	H 22 22 38 (USCGS)
29	ME	22 59	14	3	17°.5	H 22 41 12 (BCIS)
30	ePZ eSKSN	01 31 09 40 19			86°	H 01 17 31 .01 deep (USCGS)
31	iPKPZ iPPZ eSKKSE eSSE ME ME ME ME	03 37 29 40 43 47 39 59 41 04 44 04 53 05 14 05 26		- - - - 19 18 19 18	146°.5	H 03 17 42 (USCGS)

DURHAM UNIVERSITY OBSERVATORY, ENGLAND

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

SEISMOLOGICAL BULLETIN FOR NOVEMBER 1963

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

Date	Phase and component	Time G.M.T.	Period Sec.	Amplitude microns and direction	Epicentral distance	Notes
No recording November 1 08 hr. to November 5 08 hr.						
6	iPKPZ	02 33 19		-	153°	H 02 13 17 (USCGS)
	iSKKSE	43 18		-		
	MN	03 24	21	13		
9	iPE	02 50 59		-	17°.5	H 02 46 50 (BCIS)
	iSE	54 02		-		
	ME	02 57	15	10		
	iScSE	03 01 45		+		
9	eXE	21 25 53			86°	H 21 15 30 .10 deep (USCGS)
	ePZ	27 12				
	iPZ	27 14		-		
	iPcPZ	27 31		-		
	ipPZ	29 19		+		
	iPPE	30 29		+		
	ipPPE	32 33		+		
	iXE	33 44		+		
	iSKSE	36 41		+		
	iSE	37 54		-		
	iSPZ	38 10		+		
	iXE	40 41		-		
	iSSE	43 07		+		
	iPKPPKPZ	53 21		-		
iPKSPKPZ	55 44		-			
10	iPZ	01 12 19		+	86°	H 01 00 39 .10 deep (USCGS)
	iPcPZ	12 25		-		
	ipPZ	14 27		+		
	iPPZ	15 46		-		
	iSKSE	21 47		+		
	iSE	22 02		-		
iSSE	28 19		-			
10	iPZ	17 29 58		-	78°	H 17 17 43 .01 deep (USCGS)
	ipPZ	30 19		+		
	ME	18 02				
15	ePZ	21 18 32			78°	H 21 06 34 .01 deep (USCGS)
	iPZ	18 35		+		
	iPcPZ	18 42		-		
	ipPZ	18 51		-		
	iPPE	21 29		-		
	iSE	28 30		+		
	iSKSE	28 59		-		
	iSSN	33 54		+		
ME	21 57	19	26			
16	ePE	02 41 22			78°	H 02 30 07 (USCGS)
	iSE	50 59		-		
	MN	03 22				
	iPKPZ	23 03 13		+		
	iPKPZ	03 31		-		



Sheet 2

Date	Phase and component	Time G.M.T.	Period sec.	Amplitude microns and direction	Epicentral distance	Notes
17	iPZ	00 57 38		-	55°	H 00 48 03 (USCGS)
	iPcPZ	58 43		-		
	iSN	01 05 19		-		
	iSSE	09 02		+		
	ME	01 15	11	45		
18	ME	15 22	16	48	77°	H 14 38 29 (USCGS)
23	ME	08 37			77°	H 07 50 46 (USCGS)

24th April, 1964

DURHAM UNIVERSITY OBSERVATORY, ENGLAND

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

SEISMOLOGICAL BULLETIN FOR DECEMBER 1963

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

Date	Phase and Component	Time G.M.T.	Period sec.	Amplitude microns and direction	Epicentral Distance	Notes
2	iPN iSE MN	21 01 26 05 34 21 09	20	- + 5	25°	H 20 55 57 (BCIS)
3	iXZ ME	21 38 27 23 56	20		136°	H 21 15 10 (USCGS)
4	ePZ iSE	11 29 17 31 08		-	11°	H 11 26 41 (BCIS)
4	ePPE iSKSE iSSE ME	16 20 11 25 17 36 57 17 05	22	+ -	125°	H 15 59 42 (USCGS)
7	ePKPZ	04 26 35			147°	H 04 07 53 .09 deep (USCGS)
9	iPKPZ	11 12 31		+	147°	H 10 53 39 .07 deep (USCGS)
10	iPZ	10 23 35		-	15° .5	H 10 19 52 (BCIS)
15	iPZ iPPE ipPPZ iSKSE iSE iSPZ iPSE	19 47 50 52 15 53 03 57 25 58 05 20 00 19 01 49		+ + - + + - -	105°	H 19 34 45 .10 deep (USCGS)
16	ME	02 55			102°	H 01 51 45 (USCGS)
16	iPZ eSE MN	13 53 07 57 20 14 02		-	23° .5	H 13 47 59 (BCIS)
18	iPKPZ iPKPE iPPE iSKKSN iPKKSE iSSE iSSSE	00 49 45 49 53 53 17 01 00 13 02 31 12 28 18 03		- - + - - - +	150°	H 00 30 03 (USCGS)
18	ePE	06 49 26			53° .5	H 06 40 06 (USCGS)
21	iPKPZ iPKPZ ME	12 54 22 54 33 14 11		+ -	146°	H 12 34 23 (USCGS)
26	iPZ	08 03 38		+	22°	H 07 58 28 (BCIS)

Sheet 2

Date	Phase and Component	Time G.M.T.	Period sec.	Amplitude microns and direction	Epicentral distance	Notes
26	iPZ MN	08 52 38 08 59		+	16°	H 08 48 52 (USCGS)
28	iPKPZ	09 24 19		-	158°	H 09 03 53 (USCGS)
30	iPZ	13 41 16		+	77°	H 13 29 25 (USCGS)
31	iSSN MN	18 12 49 18 36	20	+ 18	113°	H 17 37 32 (USCGS)

27th April, 1964.