PAKISTAN METEOROLOGICAL SERVICE

Director

Mohammed Aslam

The Secretariat, Karachi.

Seismological Bulletin

1952

Prepared by

The Seismological Section,

Geophysical Research Laboratory

Kings Road Quetta.

QUETTA OBSERVATORY

1. Station Constants

Latitude N.	Longitude E.	Height (meters)	Foundation	Instruments	Microseism amplitudes
30°12.5'	67°02.1'	1719	Mountain fan gravels	Milne-Shaw. 2 components	Average Less than 0.5 mm.

2. Instrument Constants.

To (Secs)	Vs	ξ	Paper Speed (mm/min.)	Time Control
10	350	20:1	16	Contactor Unit BC 608-A rated 12 hourly by recorded BBC time signals.

3. Tables.

Jeffreys and Bullen, 1948.

Bulletin No. 3 May 1952.

DATE	COMPT.	PHASE	GMT h. m. s.	Δ km.	REMARKS
2	E	e	18 24 57		
	N	e	18 25 04		
4	NE	e	02 29 33		
4	NE	e	14 33 35		
	NE	L	15 22		
5	N	e	08 55 26		

May, 1952.

DATE	COMPT.	PHASE	GMT h. m. s.	Δ km.	REMARKS
5	N	eP	09 41 02		
	N	eS?	09 45 35		
	N	L	09 48		
6	NE	e	21 02 48		
7	NE	e	10 57 23		
7	NE	eP	13 43 09	710	H=13:41:35
		iS	13 44 22	6°.4	
8	E	eP	01 08 52	6680	H=00:58:46
		eS	01 17 01	60°.1	N.record damaged.
8	NE	iP	21 21 08	6870	H=21:10:50.Surface
		eS	21 29 27	61°.8	waves small amplitude.
	N	iScS	21 30 43		USCGS:2½°N,127°E.
	E	iScS	21 30 55		H=21:10:40.
	N	i	21 31 46		Mag.6½-6¾(Pasadena)
	E	i	21 31 48		
	NE	iSS	21 33 30		
9	NE	eP	18 00 49	10310	H=17:47:46.h=c.50 kms.
		ipP	18 01 05		Max.surface wave
		iSKS	18 11 14	92°.8	amplitudes 4 mms.
		iS	18 11 43		USCGS:6½°S,155°E.
	E	isS	18 12 17		H=17:47:40 h=60 km.
	N	isS	18 12 31		Mag:7 (Pasadena)
	NE	e	18 13 04		
	NE	i	18 13 24		
		L	18 28		
11	NE	eP?	03 29 43		Felt in N.W.Pakistan.
		iS?	03 31		
13	NE	ePKP	19 50 56	130°	H=19:31:44.Worked as
		iPKS	19 54 20		surface focus.
	N	eSKS	19 58 05		USCGS:10½°N,85°W.
	E	iSKS	19 58 00		h=100 km.H=19:31:45
	NE	L	20 42		
14	E	eP	00 47 19	7010	H=00:36:54
	N	iP	00 47 20	63°.1	USCGS:43°N,145½°E.
	E	eS	00 55 46		H=00:36:54
	N	eS	00 55 47		Mag:6½(Pasadena)
	NE	L	01 14		
14	E	e	10 18 02		
		e	10 18 57		
	N	e	10 18 07		
		e	10 18 59		
15	N	eP	10 34 23	5580	H=10:25:29
		eS	10 41 31	50°.2	USCGS: H=10:25:25
	E	eP	10 34 25		
		eS	10 41 33		
	NE	L	10 49		
16	N	e	03 35 25		
16	NE	eP	10 17 27	5500	H=10:08:38
		eS	10 24 31	49°.5	
		L	10 32		

May, 1952.

DATE	COMPT.	PHASE	GMT h. m. s.	Δ km.	REMARKS
16	NE	ePKP	21 04 59		USCGS:6½°N,79°W.
		iPP	21 07 09		H=20:45:40
		iPKS	21 08 22		
		L	21 55		
17	NE	eP?	06 06 16		
		iS?	06 07 34		
17	NE	eP	09 58 31	6920	H=09:48:10 h=50 kms.
	N	ipP	09 58 45	62°.3	USCGS:42½°N,144½°E.
	NE	eS	10 06 52		H=09:48:16
	NE	L	10 19		
19	NE	iP	18 42 38	6920	H=18:32:17 h=50 kms.
	N	ipP	18 42 53	62°.3	USCGS:43°N,144½°E.
	NE	iS	18 51 00		H=18:32:24
		LQ	19 02		
		LR	19 08		
		M	19 12 40		
20	N	e	18 39 12		
	E	e	18 43 22		
20	N	e	19 26 21		
		i	19 27 22		
	E	e	19 26 27		
		i	19 27 28		
21	NE	eP?	02 32 47		
	E	iS?	02 33 03		
	N	iS?	02 33 05		
22	NE	eP	23 17 53		H=23:08:21
	N	eS	23 25 32	55°.2	USCGS:29½°N.131½°E.
	E	eS	23 25 42	6130	H=23:08:21
	NE	L	23 37		
23	NE	e	14 50 13		
23	NE	e	18 15 18		
24	E	iPKP	02 18 47		USCGS:21½°S,71°W.
	E	iPKS	02 22 22		H=01:59:05
	E	L	03 25		Mag:6¾ (Pasadena)
24	E	iP	16 38 58	44°.1	H=16:05:51
	N	iP	16 14 03	4900	USCGS:W.Coast Sumatra
	E	ipP	16 15 43		H=16:05:53
	N	iPP	16 15 53		Mag.6½-6¾ (Pasadena)
	E	iPPP	16 16 24		
	N	iPPP	16 16 28		
	NE	iS	16 20 28		
	N	eSS	16 23 45		
	NE	iSS	16 23 58		
	NE	L	16 26		

May, 1952.

DATE	COMPT.	PHASE	GMT h. m. s.	Δ km.	REMARKS
26	NE	iP	02 51 50	2700	H=02:46:35 h=50 kms ca.
	NE	ipP	02 52 03	24°.3	USCGS:Assam.
	NE	iS	02 56 04		H=02:46:25
28	NE	iPn	07 49 23	760	H=07:47:40;Felt in
		iSn	07 50 42	6°.8	Kashmir & N.W.Pakistan.
28	NE	eP	08 08 13	6020	H=07:59:06 h=c.250 kms.
		eS	08 15 33	54°.2	USCGS: 35½°N,136°E.
	N	isS	08 16 51		h=400 kms. H=07:59:09.
	E	isS	08 16 58		
	E	iScS	08 17 52		
29	NE	e	13 07 52		
31	NE	e	15 27 55		

PAKISTAN METEOROLOGICAL SERVICE

Director
Mr. Mohammed Aslam
The Secretariat, Karachi.

Seismological Section Bulletin No. 1.

June 1952

From data recorded at Quetta Observatory.

Prepared by
Geophysical Research Laboratory
Kings Road Quetta.

QUETTA OBSERVATORY

1. Introduction

This is the first Seismological Bulletin of the Pakistan Meteorological Service.

It is hoped to publish subsequent bulletins every month.

Quetta Observatory came into operation on 27th December, 1951. Data recorded prior to June, 1952 will be published later.

The instruments were installed and this bulletin prepared by the Geophysical Research Laboratory of the Pakistan Meteorological Service with the technical assistance of UNESCO.

2. Station Constants

Latitude N.	Longitude E.	Height (meters)	Foundation	Instruments	Microseism amplitudes
$30^{\circ}12.5'$	$67^{\circ}02.1'$	1719	Mountain fan gravels	Milne-Shaw. 2 components	Average less than 0.5 mm.

3. Instrument Constants.

To (Secs)	Vs	{	Paper Speed (mm/min.)	Time Control
10	350	20:1	16	Contacter Unit BC 608-A rated 12 hourly by recorded BBC time signals.

4. Tables.

Jeffreys and Bullen, 1948.

June, 1952.

DATE	COMPT.	PHASE.	GMT. h. m. s.	Δ° and kms	REMARKS
2	NE	eP	02 59 55	24.6°	H=02:54:37
		eS	03 04 11	2730	Delhi: 27°N. and 45°E.
		L	03 09		
2	N	e	07 25 47		
	E	e	07 26 47		
2	NE	iP	10 13 16	19.3°	H=10:08:51
		eSS	10 17 12	2140	
		L	10 20		
2	NE	iP	10 38 29	19°	H=10:34:07
		eSS	10 42 22	2110	
		L	10 45		
2	NE	e	16 15 58		
2	NE	i	18 17 01		
2	NE	i	19 04 35		
2	NE	e	23 02 39		
3	NE	eP	11 23 06	6.7°	H=11:22:28. Slight, felt in
		iS	11 24 22	740	Nathiagali. (N.W. Pakistan)
		L	11 25		
3	NE	iP	23 26 13	740	H=23:25:35. Slight, felt in
		iS	23 27 29		Nathiagali. (N.W. Pakistan)
		L	23 28		
4	NE	eP	06 22 42	10.9°	H=06:20:05
		eS	06 24 44	1210	
		L	06 26		
7	NE	iP	16 03 01	6.7°	H=16:01:19
		iS	16 04 19	740	
		L	16 04		
8	E	e	12 45 27		
	N	e	12 45 45		
10	N	ePKP	10 18 20	142.2°	H=09:58:51. Felt in Argen-
		ePPP	10 24 40	15820	tina.
		eSKKS	10 28 21		
		L	11 11		
	E	e	10 18 10		
11	N	ePKP	00 51 13	140°	H=00:31:43. Felt in Argen-
		ePKS	00 54 38	15600	tina.
		eSKS	00 57 53		
		eSS	01 12 33		
		L	01 48		
	E				Record damaged
11	NE	e	17 10 23		
13	E	e	21 56 10		
15	NE	iP	15 20 40	21.7°	Delhi: Near 32.5°N. and
		iS	15 24 33	2410	91.5°E.
		L	15 27		

June.1952.

DATE	COMPT.	PHASE.	GMT. h. m. s.	Δ° and kms	REMARKS
15	NE	i	22 52 11		Felt at Quetta
17	E	eP	12 14 16		
	N	e	12 15 13		
19	NE	iP	12 19 12	31.1°	H=12:07:53.Delhi:Moderate
		iS	12 24 14	3460	intensity;near 28°N.100°E.
		L	12 28		
19	NE	eP	21 28 10		
		L	22 12		
20	NE	iP	05 55 04	49.5°	H=05:46:15
		iS	06 02 08	5490	USCGS: 25.5°N.122°E.
		L	06 12		H=05:46:20
20	NE	e	23 01 50		
21	N	eP	06 39 54		
		L	07 07		
	E	eP	06 39 56		
		L	07 07		
21	E	e	08 49 02		
	N	e	08 49 11		
22	NE	e	05 49 14		
22	NE	eP	14 52 34	11.2°	H=14:49:53.
		eS	14 54 39	1240	
22	NE	iP	21 52 46	67.3°	USCGS:46°N.153.5°E.
		iPP	21 55 05	7480	H=21:41:53
		iPcS	21 57 17		Mag.=7(Pas.)
		iS	22 01 37		
		L	22 17		
23	N	iP	12 11 59	49.5°	H=12:03:10.
		iS	12 19 04	5500	
		L	12 29		
	E	iP	12 11 59	49.0°	
		iS	12 19 00	5440	
		L	12 29		
24	N	eP	16 39 58		
	E	eP	16 40 03		
	NE	L	17 09		
26	NE	iP	23 26 09	31.1°	H=23:19:51.
		iS	23 31 11	3460	Delhi:near 32.5°N.102°E.
		L	23 37		

PAKISTAN METEOROLOGICAL SERVICE

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Seismological Section Bulletin No. 2.

July 1952

Prepared by
Geophysical Research Laboratory
Kings Road Quetta.

QUETTA OBSERVATORY

1. Station Constants

Latitude N.	Longitude E.	Height (meters)	Foundation	Instruments	Microseism amplitudes
30°12.5'	67°02.1'	1719	Mountain fan gravels	Milne-Shaw. 2 components	Average less than 0.5 mm.

2. Instrument Constants.

To (Secs)	Vs	ℰ	Paper Speed (mm/min.)	Time Control
10	350	20:1	16	Contactor Unit BC 608-A rated 12 hourly by recorded BBC time signals.

3. Tables.

Jeffreys and Bullen, 1948.

July, 52.

DATE	COMPT.	PHASE	GMT h. m. s.	Δ° km.	REMARKS.
2	NE	e	22 13 53		
4	NE	e	23 00 06		
5	NE	iP	17 21 30	6°.4	H=17:19:56. Felt in
	N	iS	17 22 43	710	Kashmir and N.W.Pakistan
	E	iS	17 22 48		USCGS:36°.5 N, 71° E.
					h=200 km. H=17:19:47.
7	NE	e	01 40 49		
7	NE	e	23 02 08		Felt at Quetta
9	NE	e	18 38 10		
13	N	e	12 15 49		
	E	e	12 16 49		
	E	L	19 30		

DATE	COMPT.	PHASE	GMT h. m. s.	Δ° km.	REMARKS.
13	N	iP	17 45 21	66°.2	H=17:34:34.
		iPP	17 47 22	7360	USCGS:3°S, 128°E.
		iS	17 54 06		H=17:34:26.
		L	18 05		Mag: 6¾ - 7.
	E	iP	17 45 21		
		iPP	17 47 48		
		iS	17 54 06		
		L	18 03		
17	NE	iP	16 19 32	58°.3	H=16:09:49 h=100 km.
		ipP	16 19 55	6480	USCGS:34½°N,136°E.
	N	iPP	16 21 31		H=16:09:52 h=100 km.
	NE	iS	16 27 22		Mag.7(Pasadena)
	E	isS	16 27 58		
	NE	L	16 40		
18	NE	e	00 52 21		
18	NE	ePn	08 56 13	3°.2	H=08:55:20
		iSn	08 56 53	360	
18	NE	e	09 15 13		
18	N	e	19 00 01		
18	E	e	19 01 37		
		L	20 13		
21	N	ePP	12 11 55	120°	
		i	12 19 08	13340	
		iPS	12 21 45		
		ePPS	12 23 02		
		L	12 47		
	E	ePP	12 11 58		
		i	12 19 08		
		iPS	12 21 45		
		iPPS	12 23 05		
		L	12 45		
23	E	L	00 17		
23	NE	ePn	22 19 39	3°.4	H=22:18:44
		iSn	22 20 21	380	
24	NE	iP	22 19 41	61°.2	H=22:09:27
		iS	22 27 57	6800	USCGS:42½°N, 145½°E.
		L	22 45		H=22:09:20
26	NE	e	14 32 35		
27	E	e	08 41 27		USCGS:20½°S,179°W
		ePPP	08 44 24		h=500 km.
		iSKS	08 47 40		H=08:23:22
		eSKKS	08 48 10		
		eS?	08 49 06		
		epS?	08 51 22		
	N	e	08 41 26		
		ePPP	08 44 17		
		eS?	08 49 02		
		ePKKP	08 51 49		
31	NE	e	12 36 14		

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QUETTA OBSERVATORY

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30°12.5'	67°02.1'	1719	Mountain fan gravels	Milne-Shaw. 2 components	Average Less than 0.5 mm.

2. Instrument Constants.

To (Secs)	Vs	ε	Paper Speed (mm/min.)	Time Control
10	350	20:1	16	Contactor Unit BC 608-A rated 12 hourly by recorded BBC time signals.

3. Tables.

Jeffreys and Bullen, 1948.

Bulletin No. 4 August, 1952.

DATE	COMPT.	PHASE	GMT h. m. s.	Δ km.	REMARKS
1	E	e	10 34 28		
	N	e	10 34 30?		
	NE	i	10 38 11		
		i	10 38 47		
2	NE	e	22 40 33		
3	E	e	01 53 11?		
	N	e	01 53 20		
	NE	iS	01 56 11?		
		i	01 57 49		
4	N	e	05 44 29?		
	E	i	05 44 53		
4	NE	Tr	21 11		
5	NE	e	19 00 55		
7	NE	L	22 33		
8	NE	Tr	13 20		

August, 1952.

DATE	COMPT.	PHASE	GMT h. m. s.	Δ kms	REMARKS.
10	NE	Tr	06 46		
12	E	e	06 36 24		
	N	e	06 36 26		
13	NE	e	03 17		
	N	i	03 18 08		
13	E	eP	14 34 58	18°.2	H=14:30:47
		eS	14 38 17	2022	
		L	14 40		
	N				Record damaged
14	NE	eP	16 08 53	37°.4	H=16:01:42
		iS	16 14 39	4154	
		L	16 20		
15	NE	i	20 56 59		
16	NE	e	14 04 48		
17	NE	iP	16 06 55	20°.3	H=16:02:19
	E	iS	16 10 35	2257	Delhi:Lat.29°.8 N,90°.3 E.
	N	iS	16 10 40		
17	NE	eP	21 45 59		
	E	eS	21 49 55?		
	N	eS	21 50 01		
18	E	e	13 24 27		
	N	e	13 24 32		
19	NE	e	10 12 15		
19	NE	i	12 07 45		
20	NE	e	14 06 14		
20	N	e	15 43 50		
	E	e	15 50 03		
	N	i	15 50 06		
	NE	i	15 53 02		
		L	16 18		
22	NE	Tr	16 09		
24	NE	Tr	18 35		
25	NE	iP	01 50 04	24°.6	H=01:44:46
		iS	01 54 20	2734	
		L	01 59		

August, 1952.

DATE	COMPT.	PHASE	GMT h. m. s.	Δ km.	REMARKS
27	NE	eP	11 40 25	90°.1	H=11:27:31, h=60 kms.
	N	ipP	11 40 42	10,010	
	E	ipP	11 40 46		
	N	iPP	11 44 00		
	E	ePP	11 44 02		
	NE	eSKS	11 50 50		
		iS	11 51 11		
28	NE	iP	11 05 22	89°.3	H=10:52:28
		eSKS	11 15 47	9920	
		iS	11 16 08		
29	NE	eP	05 35 13	37°.2	H=05:28:03
		eS	05 40 57	4132	Delhi:5°.5 N,90°E in
		L	05 47		N.Sumatra.
30	NE	iP	06 18 06	12°.6	H=06:15:06
		iS	06 20 26	1400	
31	NE	eP	16 19 36	60°.3	H=16:09:28
		eS	16 27 46?	6700	
		L	16 41 00		
31	E	e	19 47 17		
	N	i	19 47 22		

5

PAKISTAN METEOROLOGICAL SERVICE

Director

Mohammed Aslam

The Secretariat, Karachi.

Seismological Bulletin

1952

Prepared by

The Seismological Section,

Geophysical Research Laboratory

Kings Road Quetta.

QUETTA OBSERVATORY

Latitude: 30°12'.5 N. Longitude: 67°02'.1 Ht: 1719 m.

Foundation: Mountain Fan Gravels. Normal Microseism Amplitudes: 0.5 mm.

Instruments.

1. Milne-Shaw Seismograph (NS,EW)

2. Sprengnether Series H (NS,EW)
   Sprengnether Series DH (Vertical)

Constants.

Compt.		To Pend. (Sec)	T Galv. (Sec)	Vs.	ℰ	Paper speed (mm/min)	Time Control
N	1	10	-	350	20:1	16	Standard Electric Time Coy.(Mass.) invar pendulum clock rated daily by BBC time signals.
	2	1.9	1.9	-	Critical	60	
E	1	10	-	350	20:1	16	
	2	1.9	1.9	-	Critical	60	
Z	2	1.9	1.9	-	Critical	60	

Jeffreys and Bullen 1948 tables.

The Sprengnether equipment was sent to Pakistan by UNESCO under the Technical Assistance Programme.

This equipment began regular operation on 8th September, 1952. From this date, readings are from Sprengnether seismograms unless otherwise stated.

Bulletin No. 5 September, 1952.

DATE	COMPT.	PHASE	GMT h. m. s.	Δ km.	REMARKS
4	NE	e	09 07 23		Milne-Shaw
6	NE	i	20 25 28		Milne-Shaw
8	ZE	iPn	06 14 05		
	Z	iSn	06 14 27		
9	Z	iP ?	13 02 10.8		
	N	iP ?	13 02 11		
9	Z	iPKP	13 14 02		
	N	iPKP	13 14 04		
	N	ePP	13 16 25		
	N	iPKS	13 17 29		
10	ZN	eP	09 12 17	30°.8	H=09:06:02
	N	eS	09 17 17	3423	
	N	ePcS	09 19 02		

September, 1952.

DATE	COMPT.	PHASE	GMT h. m. s.	Δ km.	REMARKS
11	Z	e	05 44 09		
	Z	e	08 34 16		
11	E	iP	22 13 46	51°.9	H=22:04:39
		iS	22 21 07	5770	
12	ZNE	iPg	21 31 36	0°.69	H=21:31:22
		iSg	21 31 45	76	
13	Z	e	11 52 01		
	N	e	11 52 02		
	E	e	11 52 03		
14	ZNE	iPn	08 34 46	1°.3	Felt at Sibi
		iSn	08 35 04	143	H=08:34:21
14	Z	iP	09 39 12.5	23°.6	H=09:34:04.Delhi:35°N
	N	iS	09 43 21.5	2621	93°E.
	NE	L	09 47		(L from Milne-Shaw)
14	ZE	ePn	21 36 53	1°.5	H=21:36:24
	E	iSn	21 37 14	168	
15	Z	eP	04 34 08		
	N	eS ?	04 37 15		
	E	iS	04 37 22		
15	ZNE	iPn	11 28 54		Subsequent phases lost due to large amplitudes.
15	E	ePn	11 48 37		
	E	iSn	11 49 26.6		
15	Z	ePn	14 52 52		
	ZN	i	14 53 20		
	ZNE	iSn	14 53 39		
15	ZNE	eP	18 04 18		
	N	iS	18 08 18		
	Z	iPn	19 35 49		
	Z	i	19 36 16		
	N	i	19 36 35.5		
	N	i	19 36 54.5		
15	ZE	e	20 03 04		
16	ZE	ePn	14 02 29	3°.8	H=14:01:28
	N	ePn	14 02 30.5	423	
	Z	i	14 02 36.5		
	N	iPg	14 02 44		
	E	iPg	11 02 44.8		
	Z	i	14 02 56.5		
	ZE	iSn	14 03 15.5		
	N	iSg	14 03 21.5		
	Z	iSg	14 03 23		
	E	iSg	14 03 24.9		
16	Z	e	14 23 07		
	NE	e	14 23 08		
16	Z	iPn	20 27 30		
	Z	i	20 27 35		
	E	i	20 27 43.4		
	E	iSn	20 27 53		
	N	iSn	20 27 54		
	Z	iSn	20 27 56		

September, 1952.

DATE	COMPT.	PHASE	GMT h. m. s.	Δ km.	REMARKS
17	Z	iPn	21 53 18		
	Z	i	21 53 25.5		
	E	i	21 53 36.7		
	E	i	21 53 50.1		
	N	i	21 53 51		
	Z	i	21 54 06		
	E	i	21 54 07.4		
	N	i	21 54 12		
	E	i	21 54 25		
18	Z	i	06 08 51		
	NE	i	06 08 52		
19	Z	ePn	06 36 30.5	3°.4	H=06:35:35
	Z	iPg	06 36 43	378	
	E	i	06 36 47.5		
	E	i	06 37 10		
	Z	iSn	06 37 12		
	N	iSn	06 37 17		
	Z	iL?	06 38 34		
19	Z	e	17 40 30		
20	E	i	10 32 41		
20	ZE	iPn	18 42 41.5		
	N	ePn	18 42 42		
	Z	iPg	18 42 58.5		
	N	iPg	18 42 59		
	E	iSn	18 43 31		
	Z	iSn	18 43 33		
	N	iSn	18 43 37		
21	Z	e	02 49 20		
	E	i	02 49 33.7		
	Z	i	02 49 34.5		
	N	i	02 49 36.5		
	Z	i	02 52 18.9		
	E	i	02 52 20.7		
	N	i	02 52 23.7		
	E	i	02 58 49.1		
	N	i	02 58 50.5		
	Z	i	02 58 50.9		
	E	e	03 11 28.5		
21	Z	e	11 22 32.5		
	N	e	11 22 33.7		
	E	e	11 22 35		
23	ZNE	eP	22 43 59.5	8°	H=22:42:03
	Z	i	22 44 58.2	890	
	E	iS	22 45 28.9		
	Z	iS	22 45 29.5		
24	Z	iP	20 41 54.5	85°	H=20:29:21
	NE	iP	20 41 55	9445	
	ZNE	iPP	20 45 13		
	NE	eSKS	20 52 13.5		
25	ZNE	iPn	07 19 19.5	4°.8	H=07:18:06
	Z	iP*	07 19 30	530	
	NE	iSn	07 20 15		
	Z	iSn	07 20 15.8		
		iS*	07 20 32.8		
		iSg	07 20 43.6		

September, 1952.

DATE	COMPT.	PHASE	GMT h. m. s.	Δ km.	REMARKS
25	Z	iPn	13 51 38	4°.8	H=13:50:24
	N	i	13 51 46	530	
		iP*	13 51 49		
	Z	iPg	13 51 57.5		
	ZE	iSn	13 52 35		
		iS*	13 52 50.8		
		iSg	13 53 04.1		
27	ZN	ePn	15 42 43.5		
	Z	i	15 42 53.5		
	N	i	15 42 54		
	N	i	15 43 20		
	N	iSn	15 43 39.5		
	Z	iSn	15 43 40		
27	Z	iP	19 16 35.5	66°.4	H=19:05:48
	Z	i	19 17 08.5	7490	
	N	eS	19 25 21.5		
	N	eScS	19 26 27.5		
30	Z	eP?	02 55 25		
30	ZE	ePn	11 18 57	7°.3	H=11:17:09
	ZE	iSn	11 20 21	811	
30	Z	iP	12 58 19.2		
	Z	iS	13 03 18		
	N	iS	13 03 22.5		(Also NE Milne-Shaw)

Minor Shocks:

8th 0912, 1510; 10th 1218, 1244; 11th 2245;
12th 0026, 0355, 0618; 13th 1923, 1959;
15th 0908, 1121, 1211, 1219, 1237, 1334, 1539,
2009, 2237; 16th 0009.4, 061115; 17th 1145;
18th 1943, 2107; 19th 0002, 0427; 21st 2255;
22nd 0936; 23rd 6014; 24th 1147; 25th 1508,
1722, 2248; 26th 2200; 27th 0525; 28th 1524;

6

PAKISTAN METEOROLOGICAL SERVICE

Director
Mohammed Aslam
The Secretariat, Karachi.

Seismological Bulletin
1952

Prepared by
The Seismological Section,
Geophysical Research Laboratory
Kings Road Quetta.

QUETTA OBSERVATORY

Latitude: 30°12'.5 N. Longitude: 67°02'.1 Ht: 1719 m.

Foundation: Mountain Fan Gravels. Normal Microseism Amplitudes: 0.6mm.

Instruments.

1. Milne-Shaw Seismograph (NS,EW)
2. Sprengnether Series H (NS,EW)
   Sprengnether Series DH (Vertical)

Constants.

Compt.		To Pend. (Sec)	T Galv. (Sec)	Vs.	ε	Paper speed (mm/min.)	Time Control
N	1	10	-	350	20:1	16	Standard Electric Time Coy.(Mass.) invar pendulum clock rated daily by BBC time signals.
	2	1.9	1.9	-	Critical	60	
E	1	10	-	350	20:1	16	
	2	1.9	1.9	-	Critical	60	
Z	2	1.9	1.9	-	Critical	60	

Jeffreys and Bullen 1948 tables.

Readings are from Sprengnether seismograms unless otherwise stated.

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DATE	COMPT.	PHASE	GMT h. m. s.	Δ km.	REMARKS
1	Z	iP	07 54 54	28°	H=07:49:04
	NE	eP	07 54 55	3110	
	N	eS	07 59 34		S & L from Milne-Shaw
		L	08 03		
1	Z	i	08 03 33		
1	Z	i	09 06 16		
1	Z	i	12 34 23		
1	ZE	iP	13 26 05	23°.3	H=13:20:59
	N	eS	13 30 11	2588	S & L from Milne-Shaw
		L	13 32		
2	Z	e	04 55 06		
3	Z	e	02 24 52		
3	Z	i	05 27 01		
3	Z	e	07 26 05		

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DATE	COMPT.	PHASE	GMT h. m. s.	Δ km.	REMARKS
3	ZN	iPg	09 26 29.8	0°.65	H=09:26:16
	E	iPg	09 26 30.3	71	
		iSg	09 26 37.9		
	ZN	iSg	09 26 38.5		
5	Z	e	11 02 22		USCGS: H=10:55:00,Near West Greece.M from Milne-Shaw
	NE	M	11 20.9		
5	ZNE	iP	22 09 32	24°.4	H=22:04:16, S from Milne-Shaw USCGS:H=22:04:28, 37°N.93°E.Chinghai Province,China.
	N	iS	22 13 47	2710	
5	ZNE	iPn	23 23 50	1°.6	H=23:23:22
		iSn	23 24 10.7	177	
	N	iSg	23 24 15.7		
6	ZNE	eP	02 10 41.7	6°.7	H=02:09:02
	N	eS	02 11 58.6	743	
6	Z	iP	11 57 36	6°.8	H=11:55:51.Felt in Chitral
	NE	iP	11 57 37	760	
		iS	11 58 56.5		
	Z	iS	11 58 58		
7	Z	iPg	10 40 15.5	0°.1	H=10:40:12
	N	iSg	10 40 17.8	12	
7	Z	eP	18 06 21		USCGS:H=18:02:10,Central Tibet.S from Milne-Shaw.
	N	i(S)	18 09 34		
8	Z	iP	04 31 00.5	6°.56	H=04:29:20.Felt in Chitral
	NE	iS	04 32 17	729	
8	Z	iP	08 43 54.1	6°.54	H=08:42:14.Felt in Chitral
	E	iS	08 45 10.4	726	
8	Z	iPg	11 51 20.9	1°.1	H=11:50:58
	ZN	iSg	11 51 36	125	
8	Z	i	14 31 26		USCGS:H=14:24:02, 39°N., 113°E. Northeastern China.
9	Z	i	07 39 20.5		
		i	07 40 19.5		
9	Z	e	19 15 18		
10	Z	e	11 59 24		
10	Z	i	13 10 08		
10	ZNE	iPn	18 48 13.2		Subsequent phases lost due to large amplitude.Felt in Fort Sandeman and Loralai Districts.One man killed at Mekhtar,60 miles South Fort Sandeman.Fissuring & Warming up of spring water reported from Mekhtar. Many small aftershocks. USCGS:H=18:47:37,30½°N., 69°E.
10	N	ePn	19 17 18		
	N	i(Sn)	19 17 44.5		
10	E	iPn	19 21 40.5		Subsequent phases confused with after shock.

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DATE	COMPT.	PHASE	GMT h. m. s.	Δ km.	REMARKS
10	NE	ePn	19 57 42		
10	NE	ePn	20 26 23		
10	N	ePn	20 57 42		
10	N	ePn	21 05 25		
10	E	e	21 18 25		USCGS:H=21:09:38,Near South-West Coast of Sumatra.
10	NE	iPn	21 46 44.4		
	N	i(Sn)	21 47 05		
	E	i(Sn)	21 47 13.8		
	N	i	21 47 20.5		
10	NE	iPn	22 32 53		
	E	i(Sn)	22 33 14.9		
	N	i(Sn)	22 33 15		
10	E	iPn	22 39 49.5		
	N	iPn	22 39 50		
		i(Sn)	22 40 15.5		
11	NE	iPn	00 32 49.3		
11	E	i	01 34 47		
11	NE	ePn	02 21 59		
11	NE	ePn	02 26 34		
11	Z	iPn	05 30 06.5		
11	Z	ePn	07 41 50		
11	ZE	iPn	09 09 34.5		
	N	iPn	09 09 35		
		i	09 09 45		
		i(Sn)	09 09 54.7		
		i	09 10 02		
	ZN	i	09 10 13.4		
11	Z	iPn	10 05 57		
		i(Sn)	10 06 17		
		i	10 06 54		
11	Z	iPn	13 19 49		
		i	13 20 00.5		
		Sn	13 20 10.5		
		i	13 20 23		
	N	i	13 20 24		
11	E	iPn	14 05 48.4		
11	NZE	iPn	16 32 58		
	N	iSn	16 33 20.5		
	Z	i	16 33 25.5		
	N	i	16 33 27		
	E	i	16 33 28.6		
	NE	i	16 33 30.5		
11	Z	ePn	17 39 02		

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DATE	COMPT.	PHASE	GMT h. m. s.	Δ km.	REMARKS
11	Z	iPn	20 31 28.5		
	N	iSn	20 31 49		
		i	20 31 57		
	Z	i	20 32 00		
12	Z	iPn	11 51 21.5		
	N	i	11 51 56.8		
	Z	i	11 52 08.7		
12	ZNE	iPn	18 00 24.5		
	NE	iSn	18 00 45		
	Z	iSn	18 00 45.5		
	ZNE	i	18 00 59.5		
13	ZNE	iPn	04 45 40.5		
	E	i	04 45 48.7		
	N	i	04 45 50.7		
		iSn	04 46 02.2		
	Z	iSn	04 46 03.2		
	N	i	04 46 11.5		
	E	i	04 46 14.7		
	Z	i	04 46 15		
13	ZNE	iPn	12 42 26		
	Z	i	12 42 36		
	E	iSn	12 42 46.6		
	Z	e	23 43 11		USCGS:H=23:24:10,34°S., 178°W.South of Kermadec Islands.
14	Z	iPn	01 53 37.5		
		i	01 53 47		
	N	i	01 54 20.5		
	Z	i	01 54 41.3		
14	Z	iPn	13 00 27.2		
14	Z	iPn	13 22 37.4		
15	Z	e	00 15 22		
15	Z	iP	00 20 40		USCGS:H=00:10:25,36°N., 141½°E.Near east Coast of Honshu, Japan.
15	Z	e(PKP)	02 31 58		USCGS:H=02:12:29,North
		e	02 34 50		Chile. h=about 100 km.
15		e	02 55 12		
15	Z	iPn	07 53 14		
	Z	i	07 53 25		
15	Z	iPn	11 29 18		
15	Z	e	17 56 49		
15	Z	e	19 14 24		
16	Z	iP	00 44 15		Felt in Chitral
16	Z	i	09 57 56		
16	Z	iPn	10 36 21		
		i	10 36 27		
		iSn	10 36 54		

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DATE	COMPT.	PHASE	GMT h. m. s.	Δ km.	REMARKS
16	Z	iPg	16 58 26.3	0°.1	
		iSg	16 58 28.3	10	
17	Z	i	15 26 33		
18	Z	ePn	07 42 01		
		i	07 43 12		
18	Z	iPn	20 26 36.6		
18	ZN	iP	21 27 56	6°.8	H=21:26:17.Felt in
	N	iS	21 29 12.7	756	Chitral.
	E	iS	21 29 12.9		USCGS:H=21:26:12,36½°N., 71°E.Hindu Kush h=about 200 km.
19	Z	i	05 15 14.2		
		i	05 15 24.6		
		i	05 15 48.5		
19	Z	e	10 48 18		
		i	10 48 26		
19	Z	iPn	11 16 25.3		
		i	11 16 50.4		
	N	i	11 16 54.1		
20	Z	e	01 28 33		
		i	01 28 42.7		
		i	01 30 09		
20	Z	e	14 39 24		
20	Z	e	15 16 49		
20	ZNE	iPn	16 53 01		
21	Z	iPg	07 19 07	0°.13	
	ZNE	iSg	07 19 09.5	14	
22	ZN	iP	17 06 22		USCGS:H=17:00:35
	E	eP	17 06 23		Southern Turkey.
	Z	eS	17 11 08		
	E	eS	17 11 11		
26	Z	iPn	08 23 43.5		Felt Sibi and Quetta subsequent phases lost due to large amplitude. USCGS: H=08:23:18
26	NE	iP	08 50 32		H=08:41:03, h=about 300
		ipP	08 51 21		km. USCGS:H=08:41:03
		iPP	08 52 49		34½°N.,137°E. h=about
		iPPP	08 54 16		300 km.
	N	eS	08 58 11		
		eSS	09 01 58		
26	Z	iP	13 30 35		USCGS: H=13:20:14
		eS	13 39 04		39°N.,143½°E. Japan.
	E	eS	13 39 08		
26	Z	iP	14 40 20		USCGS: H=14:30:04 40°N., 143½°E. Japan.
26	Z	eP	15 56 33		USCGS: H=15:46:14.
	N	e(S)	16 05 17		Foreshock 39°N.,143°E., Off east Coast of Honshu Japan.S from Milne Shaw.

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DATE	COMPT.	PHASE	GMT h. m. s.	Δ km.	REMARKS
26	Z	eP	16 03 21		
	N	eS	16 11 53		
26	Z	eP	18 12 20		USCGS: H=18:02:20 main shock,39°N.,143°E. Off east Coast of Honshu,Japan.Felt.Mag: 6½(Pas).
		eS	18 20 47		
26	Z	iP	19 29 35		USCGS:H=19:19:12,38½°N., 143½°E.Off East Coast of Honshu,Japan.Mag:6(Pas)
	ZN	i	19 30 14		
	N	iS	19 38 01		
26	ZN	iP	20 37 46		USCGS:H=20:14:26,Off East Coast of Honshu, Japan.
	N	e(S)	20 46 07		
26	Z	iP	22 10 56		USCGS:H=22:00:38,40°N., 143°E.Off East Coast of Honshu,Japan.
26	Z	e	23 58 31		
27	Z	iP	03 27 32		USCGS:H=03:17:12,39°N., 143°E.Off East Coast of Honshu,Japan.Mag:6½(Pas)
	N	iS	03 35 58		
27	Z	i	20 49 46		USCGS:H=20:31:58.Fiji Islands,h=about 600 km.
28	Z	e	04 48 22		
28	Z	eP	06 41 19		USCGS:H=06:31:04. 40°N., 144°E.Off East Coast of Honshu, Japan.
	N	eS	06 49 45		
28	ZN	eP	16 55 39		USCGS:H=16:45:21. 39°N., 143°E.Off East Coast of Honshu, Japan.
	Z	eS	17 04 08		
29	ZN	iPn	03 57 17	2°.4	
	Z	i	03 57 25	267	
	N	iSn	03 57 47		
	E	i	03 57 53		
29	Z	iP	09 15 58		USCGS:H=09:04:20, 52°N., 177°E.Rat Islands Aleutian Island.h=about 100km
29	Z	iPP	19 53 01		USCGS:H=19:34:14, 17°S., 174°W.Tonga Island.Felt Apia h=about 150 km.SKS and SKKS from Milne Shaw.
	E	i(SKS)	19 56 57		
	N	eSKKS	20 01 32		
30	Z	i	23 57 09		
31	Z	iP	16 47 36	63°.1	H=16:37:10, S and ScS from Milne Shaw.USCGS: H=16:37:14, 39°N.,143°E. Off East Coast of Honshu Japan.
		iPcP	16 48 06	7010	
	E	eS	16 56 03		
	N	eS	16 56 04		
		eScS	16 57 28		
31	Z	i	19 27 53		
	Z	iP	23 57 39	30°	H=23:51:32 USCGS:H=23:51:37,Sikang province,China. S from Milne Shaw.
		eS	00 02 33	3335	

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Minor Shocks: 4th 0359, 0417; 5th 0000, 1151, 1501, 2012;
6th 0532, 0644; 9th 0948; 10th 2006, 2034,
2046, 2054, 2202, 2220, 2230, 2313, 2324, 2333,
2348; 11th 6008, 0016, 0027, 0128, 0135, 0213,
0325, 0351, 0409, 0857, 1000, 1503, 1535, 2302,
12th 0230, 0447, 0634, 0714, 0828, 1156, 1210,
1228, 1313, 1703, 1820, 2021, 2052, 2055;
13th 0353, 0505, 0529, 0655, 0715, 0830, 0854,
1012, 1015, 1238, 1259, 1347, 1457, 1617,
1635, 1756; 14th 0229, 0941, 16th 0006, 0351,
0622, 1623, 2249; 17th 1338, 2333; 18th 1843;
19th 0358; 20th 1448; 21st 1451, 2057, 2222;
22nd 1232, 1310, 2054, 2132, 2225; 24th 1503;
25th 0520, 1838, 1926, 2214; 26th 0140;
27th 1601, 1043, 2001; 28th 1730, 1221;
29th 1711; 30th 2244; 31st 0126, 0525.

PAKISTAN METEOROLOGICAL SERVICE

Director

Mohammed Aslam

The Secretariat, Karachi.

Seismological Bulletin

1952

Prepared by

The Seismological Section,

Geophysical Research Laboratory

Kings Road Quetta.

QUETTA OBSERVATORY

Latitude: 30°12'.5 N. Longitude: 67°02'.1 E. Ht: 1719 m.

Foundation: Mountain Fan Gravels. Normal Microseism Amplitudes:0,5mm.

Instruments.

1. Milne-Shaw Seismograph (NS,EW)
2. Sprengnether Series H (NS,EW)
   Sprengnether Series DH (Vertical)

Constants.

Compt.		To Pend. (Sec)	T Galv. (Sec)	Vs.	ε	Paper speed (mm/min.)	Time Control
N	1	10	-	350	20:1	16	Standard Electric Time Coy.(Mass) invar pendulum clock rated daily by BBC time signals.
	2	1.9	1.9	-	Critical	60	
E	1	10	-	350	20:1	16	
	2	1.9	1.9	-	Critical	60	
Z	2	1.9	1.9	-	Critical	60	

Jeffreys and Bullen 1948 tables.

Readings are from Sprengnether seismograms unless asterisked.

Bulletin No.7 November, 1952.

DATE	COMPT.	PHASE	GMT h. m. s.	Δ km.	REMARKS
1	Z	ePKP	05 47 04		USCGS: H = 05:29:26 500 miles South Fiji Islands. h = 500 km.
2	Z	i(PKP)	00 04 18		USCGS: H = 23:45:36 23½S.,178°W Fiji.
2	Z	eP	01 52 05		USCGS: H = 01:41:58 Honshu. Felt Tokyo, Yokohama. h = 60 km.
2	Z	iPn	12 18 26.1		
	N	iSn	12 18 50		
2	Z	ePn	12 35 56		
2	Z	ePn	15 30 43.9	4°.5	H = 15:29:35
	N	iSn	15 31 37	500	
3	Z	eP	05 19 26		
3	Z	ePn	16 53 05		
4	Z	iP	01 16 37	7°.3	H = 01:14:52
	N	iS	01 17 58.7	810	
4	Z	e	11 59 18		

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DATE	COMPT.	PHASE	GMT h. m. s.	△ km.	REMARKS
4	Z	iP	17 09 23	67°.8	Dilatation. H = 16:58:22
	ZNE	iS	17 18 21	7530	USCGS: H = 16:58:20
					52½°N.,159°E.Mag 8¼ (Pas)
					Main Kamchatka Shock.
4	ZNE	iP	20 40 17		
4	Z	iP	20 59 45.1	67°	Compression.H = 20:48:48
	N	eS	21 08 38	7445	USCGS: H = 20:48:53
	*N	iSS	21 13 18		50°N.,157°E.Near S.Coast
	*N	M1	21 26½		Kamchatka.
	*N	M2	21 32¼		
	*N	M3	21 34		
4	Z	iP	21 11 56	17°.4	H = 21:00:57. USCGS:
	*E	eS	21 20 51	7490	H = 21:00:53. 52½°N.,
					159½°E. Kamchatka.
4	Z	iP	22 03 53.0		
	Z	i	22 03 58.3		
4	ZE	iP	22 24 04	69°.2	H = 22:12:54. USCGS:
	*NE	iS	22 33 10	7690	H = 22:12:54. 52°N.,
					161°E. Kamchatka.
4	Z	iP	22 30 29.1		
4	Z	iP	23 40 00		
5	Z	iP	02 30 53		
5	Z	iP	03 40 45.3		USCGS: H = 03:29:44.
	E	L	04 06		51°N.,159°E.Near E.Coast
	ZNE	M	04 14.5		Kamchatka.
5	ZN	eP	06 08 40	67°.3	H = 05:57:46. USCGS:
	*E	eS	06 17 31	7480	H = 05:57:43. 9°N.,
	*E	L	06 34		56°E. Kurile Islands.
	*E	M	06 43		
5	Z	iP	07 53 30½		
5	Z	iP	09 09 34¼		
	N	eS?	09 13 32		
5	Z	iP	09 41 21		
5	Z	iP	11 28 56		
	*E	M	12 01		
5	Z	iP	11 57 24		
	*E	M	12 24		
5	Z	iP	13 17 28	68°.9	Dilatation. H = 13:06:19.
	E	eS	13 26 30½	7655	USCGS: H = 13:06:24.
	N	iS	13 26 31½		52°N.,159½°E. Kamchatka.
	E	L	13 42¾		
	E	M	13 51½		
5	NE	eP	14 20 56		Z time relay sticking.
5	NE	eP	14 59 37		Z time relay sticking.
	*NE	M	15 31		USCGS: H = 14:48:41.
					50°N.,156½°E.Off S.Coast
					Kamchatka.

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DATE	COMPT.	PHASE	GMT h. m. s.	Δ km.	REMARKS
5	Z	eP	19 19 29	68°.4	H = 19:08:23. USCGS:
	*NE	eS	19 28 30	7600	H = 19:08:26. 53½°N.,
	*E	L	19 42¾		161½°E. Off E. Coast Kamchatka.
5	Z	eP	20 21 48		
5	Z	eP	20 41 23		
5	Z	iP	21 57 01½	67°.8	H = 21:45:59
	N	eS	22 05 59	7530	
5	Z	iP	22 57 04	69°.2	H = 22:45:54. Compression
	NE	eS	23 06 10	7690	
	*N	L	23 13½		
	*NE	M	23 30½		
5	Z	iP	02 34 49		
6	Z	iP	04 05 26½		USCGS: H = 03:54:21.
	*N	M	04 40		50°N.,159½°E. Kamchatka.
6	Z	iP	05 53 30	68°.4	H = 05:42:24.
	N	eS	06 02 31	7600	
	*N	L	06 25¾		
6	Z	iP	06 39 50		
6	Z	iP	08 16 09		
6	Z	iP	19 57 04	69°.2	H = 19:45:54. USCGS:
	*N	iS	20 06 10		H = 19:45:57. 51½°N., 159½°E. Off SE Kamchatka.
6	Z	iP	19 59 42.7	82°	Dilatation. Horizontal
	ZN	iPP	20 02 52½	9110	Components wrote
	Z	iPPP	20 04 38½		emergent onsets 3 secs.
	*N	iS	20 09 53		earlier. H = 19:47:25.
	*NE	iSKS	20 10 00		USCGS: H = 19:47:20.
	*N	i	20 11 37		5°S.,145½°E.N.Coast
	*N	i	20 11 49		New Guinea.
	*N	i	20 14 31		
	*NE	L	20 21		
	*NE	M	20 31		
7	Z	iP	04 39 16.3		
	Z	ipP?	04 42 26.2		
7	ZN	iP	12 20 19	69°.1	H = 12:09:09. USCGS:
	N	eS	12 29 24	7680	H = 12:09:09. 52°N.,
	N	L	12 47		161°E. Off SE Coast Kamchatka.
7	Z	iP	13 52 53.5		
	E	eS	14 01 52		
7	Z	eP	14 19 24	67°.5	H = 14:08:24.
	NE	iS	14 28 20	7500	
	NE	M	14 49½		
7	Z	iP	22 16 14	67°.6	H = 22:05:14.
	NE	iS	22 25 11	7510	
	N	L	22 42		
	NE	M	22 49½		

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DATE	COMPT.	PHASE	GMT h. m. s.	△ km.	REMARKS
7	Z	e	23 31 09		USCGS: H = 23:12:09.
	Z	iPKP	23 31 12		31°S.,177°W. Kermadec Islands.
8	Z	iP	07 09 23	13°.8	H = 07:06:11. h about
	Z	ipP?	07 09 32	1535	50 kms.30°N.,83°E.N.Nepal
	Z	isP	07 09 49		Foreshock : 06:36:52
	N	eS	07 11 54		Aftershock : 10:45:14
	Z	i	07 12 50		
	N	iScP	07 18 03		
8	Z	iP	15 48 10		
	ZE	ipP?	15 48 19		
	N	eS?	15 51 30		
8	Z	iP	19 44 18	68°.4	H = 19:33:12.
	N	eS	19 53 19	7600	
	*NE	L	20 01		
	*NE	M	20 17¾		
9	Z	iP	00 33 16		USCGS: H = 00:22:15.
	NE	M	01 06½		48½°N.,155½°E. Kurile Islands.
9	Z	iP	01 28 40		
	*N	M	02 03		
9	Z	eP	04 46 03		
	*NE	L	05 12½		
9	Z	iP	05 17 22		
	*NE	L	05 42½		
9	Z	iP	06 07 52		
	N	eS?	06 16 45		
	*NE	M	06 42		
9	Z	iP	15 33 52		S lost in following earthquake.
9	ZE	iP	15 41 52½		Dilatation. H = 15:31:09
	NE	eS	15 50 34		USCGS: H = 15:31:06.
	*NE	M	16 08½		45°N.,151½°E.Kurile Isles.
9	Z	iP	15 58 51		
	*N	M	16 33½		
10	Z	iP	01 06 05	68°.5	H = 00:54:59. USCGS:
	N	eS	01 15 07	7610	H = 00:55:00. 50°N., 158½°E.S.Coast Kamchatka.
10	ZNE	iPn	15 09 02.6	2°.2	H = 15:08:26.Compression.
	ZNE	iPg	15 09 10.0	245	33½°N.,66½°E. S. E.
	ZNE	iSn	15 09 29½		Afghanistan.
10	Z	iPn	15 35 13.9		Aftershocks of preceding
	ZN	iPn	17 38 33.0		earthquake.
10	Z	iP	20 37 43		
	Z	i	20 39 53		
	*NE	L	21 01		
11	Z	iP	19 31 51		
	NE	eS?	19 40 57		
	NE	L	20 01		

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DATE	COMPT.	PHASE	GMT h. m. s.	△ km.	REMARKS
12	ZNE	iPn	15 47 21	2°.2	Dilatation. H = 15:46:45.
	E	i	15 47 30	245	31°N.,69°E.
	NE	i	15 47 34½		
	NE	iSn	15 47 48		
13	Z	iP	08 09 43½	67°.1	Dilatation. H = 07:58:46.
	Z	i	08 10 41	7450	USCGS: H = 07:58:45.
	Z	iPP	08 12 30		50½N.,157°E.Near S.Coast
	*NE	iS	08 18 37		Kamchatka.
	*NE	L	08 26		
	*NE	M	08 40		
13	Z	eP	15 33 51		
	*NE	L	16 00		
13	Z	iP	22 36 38		USCGS: H = 22:25:34.
	*E	L	23 02		50°N.,158°E.Off S.Coast
					Kamchatka.
14	ZNE	ePn	08 53 41	2°.7	Near 31°N.,70°E.
	E	iPg?	08 53 48.3	301	
	N	iPg?	08 53 50		
	ZE	i	08 53 54		
	N	i	08 53 53		
	NE	iSn	08 54 13		
	E	iSn	08 54 14½		
	NE	iSg	08 54 25½		
15	Z	iP	05 13 40		
15	Z	iP	05 34 11		
16	Z	eP	04 21 35		
	*N	M	04 55		
16	Z	eP	07 51 15		USCGS: H = 07:38:25.
	ZNE	eSKS	08 02 04		NE Coast N. Guinea.
17	Z	iP(n)	14 16 05		
	ZNE	iP(g)	14 16 16		
18	Z	iP	08 24 28	67°.5	Compression.H = 08:13:28.
	Z	i	08 24 41	7500	USCGS: H = 08:13:25.
	N	i	08 24 43		49½°N.,156½°E. S.Coast
	E	eS	08 33 24		Kamchatka.
	*NE	L	08 49		
19	Z	eP	10 27,30	17°.2	H = 10:23:31. USCGS:
	Z	i	10 27 35	1910	H = 10:23:28. 29½°N.,
	N	i	10 27 38		86½°E. S. Tibet.
	E	i	10 27 39		
	Z	iPP	10 27 44		
	E	i	10 27 48		
	*E	eS	10 30 39		
	NE*	iSS	10 31 01		
	NE	iSSS	10 31 11		
	N	iPcP	10 32 12		
20	Z	iP	11 36 51		
	*NE	L	12 03½		
20	Z	ePKP	15 56 28		USCGS: H = 15:37:17.
					12½°N.,88°W.Off Nicatagua
					Coast. Mag. 6¼ (Pas).

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DATE	COMPT.	PHASE	GMT h. m. s.	△ km.	
20	Z	eP	16 46 30		
21	Z	eP	03 30 17		
	*NE	M	04 01		
23	Z	iPn	12 25 03.3	2°.0	
	ZNE	iPg	12 25 09.7	222	
	NE	iSn	12 25 29.0		
24	Z	eP	02 25 10		
	Z	e	02 25 27		
	NE	eS?	02 32 55		
26	Z	iP	13 36 21	68°.3	Dilatation. H = 13:25:16.
	NE	eS	13 45 21	7590	USCGS: H = 13:25:18.
	*N	M	14 11		Foreshock of 29:08:22:34.
27	Z	iP	07 22 07.9	6°.7	Compression. Deep focus.
	NE	iS	07 23 24	745	H = 07:20:29. USCGS:
					H = 07:20:13.37°N.,70°E.
28	Z	iP	05 39 49	24°	H = Ca. 05:34.5.
	Z	i	05 40 07	2700	Naga Hills, Assam.
	Z	iPP	05 40 25		
	Z	iPPP	05 40 36		
	*E	i	05 44 12		
	N	i	05 44 34		
	E	iSS	05 44 54		
28	Z	iP	08 16 35	68°.9	Dilatation. H = 08:05.5.
	*N	eS	08 25 39	7650	
	*N	M	08 51		
28	Z	iP	14 50 00		
	Z	i	14 50 10		
	NE	eS	14 58 28		
28	Z	iP	21 14 34		USCGS: H = 21:01:27.
	Z	ipP	21 15 00		h=100 kms. 6½°S.,155½°E.
	E	eS	21 24 54		Solomon Islands.
29	Z	eP	08 33 40	67°.7	H = 08:22:39. USCGS:
	Z	i	08 34 10	7550	H = 08:22:34. 53°N.,160°E.
	*N	iS	08 42 37		Near E. Coast Kamchatka.
	N	iScS	08 43 40		Mag. 7 (Pas).
	Z	eP'P'	09 01 57		
	*N	L	08 49		
	*N	M1	09 00		
	*N	M2	09 02		
	*N	M3	09 08		
	*N	F	11 30		
29	ZNE	iPn	18 55 04.4	0°.9	Compression. Near 30°N.,
	E	i	18 55 07.6	100	68°S. SW of Quetta.
	E	iSg(Sn)	18 55 16.1		
29	Z	iPn	18 57 38		Aftershocks of 29:18:55:04
	Z	iPn	19 14 43		

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DATE	COMPT.	PHASE	GMT h. m. s.	△ km.	REMARKS
29	Z	iP	23 59 15	87°	Dilatation. H = 23:46:27.
	Z	iPP	00 02 40	9650	USCGS: H = 23:46:25.
	Z	iPPP	00 04 38		56°N.,155°W. S. Coast
	N	i	00 04 54		Alaska Peninsula.
	*N	iSKS	00 09 41		
	*N	iS	00 09 58		
	N	i	00 10 11		
	N	i	00 10 42		
	*N	L	00 18		
	*NE	M	00 43½		
30	Z	eP	19 39 48		

Minor Shocks: 1st 07:07:19, 07:30:45, 16:12:36; 2nd 08:56.5, 12:18:26, 12:35:56; 3rd 07:52:05, 12:46:27, 21:38:24; 4th 04:35:14, 14:43: 2, 22:48:06; 5th 00:00:35, 00:55:12, 01:03:21, 01:34:49, 03:04½, 03:07½, 04:27, 06:47, 06:53, 07:17¼, 08:49½, 10:19:52, 14:58½, 15:37½, 15:47½, 16:15, 16:57½, 17:15, 17:34½, 18:11¾, 20:14, 21:19:23; 6th 01:06:53, 01:09:44, 03:13, 05:59:59, 11:23:05, 12:52:56, 14:18:05, 14:24:54, 14:32:51, 17:51½, 18:00½, 20:48½, 22:42½, 23:40, 23:46¾; 7th 02:26:32, 03:17½, 04:06:13, 06:02:35,06:36:55, 07:00½, 07:37:07, 07:52½, 15:51½, 17:05:47, 18:53; 8th 00:51½, 02:24¾, 03:16:04, 05:12, 06:36:52, 09:18:50, 10:45:14, 13:07:18, 17:15½, 19:46:02, 19:20, 22:37¼, 23:38:45; 9th 00:04, 01:47½, 02:06, 04:46, 05:43, 09:31:31, 10:14:55, 12:34:00, 15:19¾, 16:15, 18:23½, 20:53½; 10th 00:38:10, 01:15½, 02:50½, 02:57½, 03:21½, 03:55, 05:20:56, 05:36:37, 06:09½(L), 06:43(L), 06:18, 06:54¾, 09:51, 13:34½, 16:33, 19:56:09, 22:05; 11th 01:07:44, 05:37¾, 08:26¾, 12:11, 13:07, 13:52:51, 14:21½, 16:35, 17:36; 12th 00:16, 03:16½, 05:07, 06:31½, 08:49, 11:54, 13:49:28, 14:32, 15:39, 16:53, 17:11, 17:37½, 20:14, 21:52, 23:16, 23:58; 13th 06:39, 10:48¾, 16:18½, 17:48, 19:56; 14th 00:30:11, 03:21¼, 13:12½, 13:15:07, 23:27; 15th 01:15, 07:11½, 07:35, 07:43, 11:40, 14:48, 14:56, 15:04½, 15:36:54; 16th 00:24, 00:34:16, 00:59:15, 01:59, 04:54¾, 05:34½, 12:41½, 14:25¼, 14:46½, 17:45, 20:45;

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Minor Shocks: 17th 11:26, 12:15¼, 12:57:03, 22:25:03; 18th 08:53:21, 17:39; 19th 02:08½, 05:27¾, 06:08½, 15:23½; 20th 00:19¼, 05:15½, 05:34:18, 12:28½; 21st 02:39:05, 04:49½, 07:37, 07:48:58, 09:20:45, 10:25½, 11:04, 13:14:32, 14:15, 15:48¾, 17:38:33, 19:56:05, 20:30½; 22nd 03:75, 05:30:21, 08:05½, 08:20¼, 09:12, 16:24½, 23:07¾; 23rd 03:35:29, 08:19¼, 10:15¼, 19:55½, 22:31; 24th 05:44¼, 08:59¼, 08:16:02, 11:08½, 17:09, 20:16, 22:26:18; 25th 07:50½, 09:32:26, 12:58½, 13:22, 14:41, 17:32:04; 26th 21:13, 21:34, 22:10; 27th 00:02½, 14:31:09, 16:28, 17:00, 20:15:59, 23:04; 29th 05:13, 12:30, 21:26:46; 30th 06:48, 09:52½, 11:55, 12:40¾, 19:43, 22:27¼.

PAKISTAN METEOROLOGICAL SERVICE

Director

Mohammed Aslam

The Secretariat, Karachi.

Seismological Bulletin

1952

Prepared by

The Seismological Section,

Geophysical Research Laboratory

Kings Road Quetta.

QUETTA OBSERVATORY

Latitude: 30°12'.5 N. Longitude: 67°02'.1 E. Ht: 1719 m.

Foundation: Mountain Fan Gravels. Normal Microseism Amplitudes:0,5 mm.

Instruments.

1. Milne-Shaw Seismograph (NS,EW)
2. Sprengnether Series H (NS,EW)
   Sprengnether Series DH (Vertical)

Constants.

Compt.		To Pend. (Sec)	T Galv. (Sec)	Vs.	ℭ	Paper speed (mm/min.)	Time Control
N	1	10	-	350	20:1	16	Standard Electric Time Coy.(Mass) invar pendulum clock rated daily by BBC time signals.
	2	1.9	1.9	-	Critical	60	
E	1	10	-	350	20:1	16	
	2	1.9	1.9	-	Critical	60	
Z	2	1.9	1.9	-	Critical	60	

Jeffreys and Bullen 1948 tables.

Readings are from Sprengnether seismograms unless asterisked.

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DATE	COMPT.	PHASE	GMT h. m. s.	△ km.	REMARKS
1	Z	iPg	03 52 35		
	Z	iSg	03 52 38		
	N	iSg	03 52 38.2		
	E	iSg	03 52 38.7		
1	Z	Trace	06 32		
1	Z	i	13 10 26		
1	Z	i	14 42 41		
1	Z	iP	19 24 50.7		
	E	i(S)	19 25 57.9		
	N	i(S)	19 25 59.9		
	Z	i(S)	19 26 05.5		
2	Z	Trace	04 49		
2	Z	iP	05 20 02		USCGS: H = 05:06:38. Solomon Islands.
2	Z	e	09 03 27		
2	Z	Trace	19 11		
3	Z	e	00 40 54		
3	Z	e	11 10 49		
3	Z	i	14 19 31		

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DATE	COMPT.	PHASE	GMT h. m. s.	△ km.	REMARKS
4	Z	iP	04 03 29		USCGS: H = 03:51:25. 52°N.,178°E. Rat Islands, Aleutian Islands. h=about 100 kms. Mag = 6 (Berk).
	Z	i(pP)	04 04 06		
	ZNE	i(S)	04 13 17		
4	Z	i	07 15 44		
4	Z	ePn	11 00 32		USCGS: H = 10:49:35. 49°N.,157°E. Off South Coast of Kamchatka.
4	Z	e	15 03 53		
5	Z	iPn	14 57 16		
	ZNE	iSn	14 57 38		
	Z	iSn	14 57 40		
6	Z	ePn	10 54 35	95°.1	Compression. H=10:41:09
	*N	i	10 54 58	10566	USCGS: H = 10:41:14. 8°S.,157°E. Solomon Islands. Mag = 7 (Pas), 7½ - 7½ (Berk).
	*E	iPP	10 58 30		
	E	eSKS	11 05 13		
	*E	iSKS	11 05 16		
	E	iS	11 05 48		
	NE	eSS	11 11.7		
	*E	L	11 25.5		
6	Z	i	16 25 26		
6	Z	ePn	16 51 08		
	Z	i(SorL)	16 52 59.9		
6	Z	iP	21 03 52		Dilatation. USCGS: H = 20:50:35. Solomon Islands-Aftershock.
7	Z	iP	01 02 07	77°	Dilatation. H=00:50:15.
	Z	i	01 02 23	8555	USCGS: H = 00:50:12. 53°N.,172½°E. Near Islands, Aleutian Islands. Mag=6½ (Pas).
	ZN	i	01 02 33		
	N	eS	01 11 50		
	N	i	01 12 05		
	*N	eL	01 28.7		
7	Z	iP	16 44 16	69°.5	Dilatation. H=16:33:09.
	EN	eS	16 53 20	7720	USCGS: H = 16:33:10. 51½°N.,159°E. Off South East Coast of Kamchatka.
7	Z	iPn	17 48 23.9		
	E	iSn	17 48 45.7		
7	Z	i	19 52 22		Dilatation.
8	Z	iP	15 15 42	29°.5	H = 15:09:34. USCGS:
	*N	eS	15 20 36	3280	H = 15:09:30. 25°N., 99½°E. China - Broma border.
	Z	L(r)	15 27.1		
9	Z	i	06 07 17		
9	Z	iP	07 29 49		
	Z	i	07 30 14		

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DATE	COMPT.	PHASE	GMT h. m. s.	△ km.	REMARKS
10	Z	iP	06 07 52	57°.6	Compression.H=05:58:03
	E	eS	06 15 45	6400	USCGS: H = 05:58:06.
	N	eS	06 15 46		71°N.,7°W.(Jan Mayen Islands region).
10	N	ePn	07 39 19		
11	*N	eP	09 09 03		USCGS: H = 08:58:18,
	*E	eS	09 17(59)		49°N.,155°E.(Kurile
	*N	M	09 42		Islands).h=about 60 kms. Mag = 6 (Pas).
11	NE	e	17 59 33		
12	N	eP	01 00 43	86°.5	H = 00:47:57. USCGS:
	*N	eSKS	01 11 07	9610	H = 00:47:56. 56½°N.,
	N	eSKS	01 11 10		154°W.(Near South
	N	iS	01 11 19		Coast of Kodiak
	*N	iS	01 11 20		Islands, Alaska).
12	Z	i	17 32 12		
12	Z	i	20 42 53		Dilatation.
13	Z	eP	13 17 25		USCGS: H = 13:06:45. Kurile Islands.
14	Z	iPg	01 38 40.8		
	E	iSg	01 38 43.5		
14	Z	i	04 59 45		Dilatation.
14	Z	e	08 59 21		
14	Z	i	12 15 40		
14	Z	iP	16 57 12		
14	Z	eP	20 33 46		
15	Z	eP	09 33 50		
15	Z	iP	09 56 20		USCGS: H = 09:45:12.
	Z	i	09 56 52		51½°N.,160½°E.Off East Coast of Kamchatka.
15	Z	iP	23 31 21		USCGS: H = 23:25:00. Ningsia Province,China.
16	Z	i	12 09 34		
	Z	i	12 10 15		
17	Z	e	05 35 45		
17	Z	(e)	11 28 49		
	Z	i	11 29 09		
17	Z	iP	12 10 08		
17	Z	iP	23 11 03	36°	H = 23:03:59. USCGS:
	*N	iS	23 16 42	4000	H = 23:03:58. 34½°N., 24°E.(Near South Coast of Crete).Mag=6¾ (Pas).

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DATE	COMPT.	PHASE	GMT h. m. s.	△ km.	REMARKS
18	NE	e	09 31 39		USCGS: H = 09:20:28. 53½°N.,162°E.Off East Coast of Kamchatka.
18	NE	e	10 42		
19	Z	e	07 04 12		
19	Z	i	19 24 48		The clock stopped from 0012 on 20.12.1952 to 1400 gmt. on 21.12.52.
22	Z	i	04 25 54		
22	Z	i	06 39 34		
22	Z	e	10 13 50		
22	Z	eP	22 35 44		USCGS: H = 22:24:42. 54°N.,160½°E. Near East Coast of Kamchatka.
23	NE	iPn	06 04 52.5	1°.4	H = 06:04:27. 31½°N.,67¾°E.
	Z	iPn	06 04 52.7	150	
	E	iSn	06 05 09.9		
	N	iSn	06 05 10.4		
	Z	iSn	06 05 10.5		
23	Z	iPn	09 28 49.7		
	E	i(Sn)	09 29 11.7		
23	Z	iP	12 16 32		
	N	iS	12 17 49		
	E	iS	12 17 50		
23	Z	i	13 16 25		
23	Z	iPg	19 54 49		
	NE	iSg	19 54 54.2		
23	Z	i	23 13 01		
24	Z	i	01 15 52		
24	Z	iP	08 46 16		USCGS: H = 08:33:25. New Britain Foreshock.
	Z	i	08 46 31		
24	Z	iP	14 36 50		USCGS: H = 14:27:21. 29°N.,130°E. Ryukyu Islands.
24	Z	iP	18 13 10		USCGS: H = 18:00:13. 5½°S.,151°E.New Britain Foreshock.
	NE	eS	18 23 54		
	*E	eS	18 23 55		
24	Z	iP	18 28 20		USCGS: H = 18:15:25. 5½°S.,152°E.New Britain Foreshock.

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DATE	COMPT.	PHASE	GMT h. m. s.	△ km.	REMARKS
24	Z	iP	18 52 25	88°	Dilatation.H=18:39:32
	*E	iSKKS	19 03 01	9780	USCGS: H = 18:39:33.
	E	iS	19 03 08		5½°S.,151½°E. New
	*E	iS	19 03 08		Britain. Mag = 7 (Pas)
	*E	i(ScS)	19 03 23		
	*E	iPPS	19 04 36		
	*N	L	19 20.5		
24	Z	eP	21 34 05		USCGS: H = 21:21:07. 5½°S.,150½°E. New Britain Aftershock.
24	Z	iP	21 50 01		USCGS: H = 21:37:05.
	*E	i(S)	22 00 40		5½°S.,151½°E. New Britain Aftershock. (S.Phases overlapped by local shock).
25	Z	eP	02 41 35		USCGS: H = 02:28:39.
	E	i	02 52 04		New Britain Aftershock.
	*E	i	02 52 04		
	*E	i(ScS)	02 53 27		
	*E	i(PPS)	02 53 42		
25	Z	eP	03 32 44		Probably New Britain
	E	e	03 43 14		Aftershock.
	*E	i	03 43 38		
	E	e	03 44 01		
25	Z	eP	04 03(57)		USCGS: H = 03:51:01.
	E	e	04 14 43		5½°S.,151½°E. New
	*E	i	04 14 44		Britain Aftershock.
25	Z	iP	15 09 33		USCGS: H = 14:56:42.
	NE	i(S)	15 20 03		5½°S.,153°E.New Britain.
25	Z	iPn	22 23 26.8	2°.6	Compression.H=22:22:45
	N	i	22 23 36.3	290	USCGS: H = 22:22:42.
	N	iSn	22 23 58.2		29°N.,69½°E. Felt at
	N	i	22 24 06		Sui.
25	Z	iPn	23 15 08.9		
	Z	i	23 15 18.1		
25	Z	iPn	23 49 21.3		
	E	iSn	23 49 43.2		
26	Z	iP	07 29 44		
	N	iS	07 31 03		
	E	iS	07 31 04		
26	Z	i(PKP)	11 32 56		USCGS: H = 11:15:06. About 200 miles South of Fiji Islands. h = about 600 kms.
26	Z	iPn	22 00 51		
27	Z	i(P)	00 03 28		
27	Z	iP	01 36 51		Dilatation. USCGS:
	Z	i	01 37 03		H = 01:25:54. 53°N.,
	*N	iS	01 45 54		160°E.Near East Coast
	E	iS	01 45 54		of Kamchatka.
	*E	iS	01 45 55		

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DATE	COMPT.	PHASE	GMT h. m. s.	△ km.	REMARKS
27	Z	i	18 24 06		
27	Z	iP	18 47 20.5	6°.3	Dilatation.H=18:45:48
	N	iS	18 48 30.7	700	Felt severely Lahore
	E	iS	18 48 31.7		& N.W.Pakistan.
					USCGS: H = 18:45:38.
27	Z	iPn	20 22 02		
27	Z	iPn	21 13 27		
28	Z	iP	05 06 55		Compression. USCGS: H = 04:55:06. 65½°N., 167½°W.Near West Coast of Seward Peninsula, Alaska.
28	Z	iP	05 37 58		USCGS: H = 05:26:08. Seward Peninsula Aftershock.
28	Z	iP	14 59 29		Dilatation.
28	Z	iP	15 11 33		
	Z	e(P'P')	15 40 55		
28	Z	iPn	18 41 55		Dilatation. USCGS:
	NE	i	18 42 31		H = 18:40:20. Off
	E	iSn	18 43 10.8		South Coast of
	Z	i	18 43 14.3		Pakistan.
	E	i	18 43 43		
29	Z	iP	02 20 20	69°.5	H = 02:09:13. USCGS:
	*NE	iS	02 29 24	7720	H = 02:09:13. 49°N.,
	Z	e(P'P')	02 48 24		158°E. Off South
	*NE	L	02 45		Coast of Kamchatka.
29	Z	iP	09 28 10		Dilatation.
	Z	i(pP)	09 28 25		
	N	eS	09 35 11		
	*N	eS	09 35 11		
29	Z	i	12 36 00		
29	Z	iP	17 39 28		
	N	i(S)	17 42 32		
	*N	i(S)	17 42 33		
	E	i	17 42 45		
29	Z	i	23 39 18		Compression.
30	Z	i	18 46 40		
31	Z	iP	08 11 39		
	N	i	08 12 52		
	N	i(S)	08 12 56		
31	Z	i	12 27 34		
31	E	e	14 55 35		USCGS: H = 14:48:41. Near N.Coast of Crete.
31	Z	iPn	15 46 38		
	Z	iSn	15 47 02		

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DATE	COMPT.	PHASE	GMT h. m. s.	△ km.	REMARKS
31	Z	iPn	16 07 42	1°.9	H = 16:07:10.
	NE	iSn	16 08 06	210	
31	Z	iP	17 25 36		USCGS: H = 17:18:44. Near North Coast of Crete.

Minor Shocks: 2nd 0713, 1925, 2030; 3rd 1106, 1302, 2237; 5th 1750; 6th 0528; 7th 1536, 1803, 1840; 8th 1101; 9th 2053; 10th 0810, 2307; 11th 1838, 2129; 12th 1211, 1443; 13th 1417; 16th 0517; 17th 0029; 25th 0139, 0321, 2335, 2359; 26th 0030, 0403, 0500, 0530, 0842, 1344; 28th 0711; 30th 1020, 1120, 1612;