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PAKISTAN METEOROLOGICAL SERVICE
GEOPHYSICAL INSTITUTE
QUETTA.

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Particulars of Stations and Instruments

(a) Stations

Station	Symbol	Latitude	Longitude	Height (a.s.l.)	Ground
Quetta	Qt	30° 11′·3 N	66° 57′·0 E	1719 meters	Cretaceous Li
Lahore	Lh	31° 33′·0 N	74° 20′·0 E	210 „	Alluvium
Karachi	Kr	24° 49′·8 N	67° 02′·2 E	30 „	Alluvium
Chittagong	Ch	22° 21′·5 N	91° 49′·0 E	15 „	Alluvium and
Warsak	Wr	34° 09′·0 N	71° 25′·0 E	343 „	River Terrace

(b) Instruments

Instruments	Components	Period Seismo & Galvo	Damping	Max. Magnification
Quetta (Central Station)				
Sprengnether	Z	1·9 sec.	Critical	5,500
„	N	1·95 „	„	4,500
„	E	1·95 „	„	5,800
„	N	15·8 „	„	15,000
„	E	16·5 „	„	16,000
Willmore	Z, N & E	Seismo = 1 sec. Galvo = ½ „	—	—
Milne-Shaw	E	12 sec.	20:1	250
Sprengnether Pen recorder	E	1·0 „	—	—
Lahore				
Sprengnether	Z	1·8 „	Critical	4,900
„	N	1·7 „	„	4,200
„	E	1·6 „	„	4,100

(Contd. on inner side of back cover)

Pakistan Seismological Stations — July 1957 — Page 1

Date	Station	Phase	h	m	s
1	Qt	ePZ	00	00	07
1	Qt	ePZ	05	16	19
1	Qt	ePZ	06	32	28c
		USCGS H 06 23 57			
		Near east coast of Sumatra			
1	Qt	ePZ	06	37	44c
1	Wr	ePN	11	43	14
		eSN		44	09
	Qt	ePZ			03
		eSNE		45	27
	Lh	eXZ		44	10
		H 11 42 02			
		Tadzhik, S.S.R.			
1	Qt	ePZ	13	17	21
		USCGS H 13 04 48			
		Atlantic Ocean foreshock			
1	Qt	ePZ	13	30	19
		USCGS H 13 17 45			
		Mid-Atlantic Ocean, near Ascension Islands			
1	Qt	ePZ	14	51	04
1	Qt	ePZ	16	28	24d
1	Kr	ePZ	16	55	07
		iSE			39
	Qt	ePZ			26
		e (S) N		56	46
		H 16 54 23			
		26½ N 64½ E			
		Mekran Range, West Pakistan			
1	Ch	ePZ	19	31	07
	Lh	ePZ		34	34c
		iXZ			37
		iSE		37	59
	Wr	ePN		35	12
	Kr	ePZ			35c
		eSE		39	48
	Qt	iPZ		35	39c
		iXZ			43
		ipPZ			52
		iXZ		36	07
		iPPZN			21
		eSN		39	52
		Mu Sec			
		PZ 5·4 1·9			
		depth about 60 km			
		Felt Dacca, Chittagong and Sylhet			
		USCGS H 19 30 16			
		25 N 94 E			
		Assam-Burma border			
		Mag 6·8 (Qt), 6·7 (Up, Ki)			
1	Qt	ePZ	20	26	37
1	Ch	e(P)Z	22	09	01
	Qt	ePZ		13	19
2	Qt	ePZ	00	45	35c
		iPP ! ZN			46
		Mu Sec			
		PZ 1·1 2·0			
	Wr	ePN		46	06
	Kr	ePZ			19c
		i (S) Z		49	40
	Lh	ePZ		46	40c
		i (S) E		50	20
		USCGS H 00 42 23			
		36 N 53E			
		Northern Iran			
		Mag 7¼–7½ (Pas), 7·2 (Up, Ki), 7·0 (Qt)			
2	Qt	ePZ	01	20	06
		Iran aftershock			

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Date	Station	Phase	h	m	s
2	Qt	ePZ	02	05	20
2	Qt	ePZ	04	59	11
		Iran aftershock			
2	Qt	ePZ	05	12	34
		Iran aftershock			
2	Kr	ePE	06	45	26
		eSE			56
	Qt	ePZ			42
		ePgZ			55
		H 06 44 46			
		27 N 65¼ E			
		Mekran Range,			
		West Pakistan			
2	Qt	ePZ	14	25	54
		ePPZ		26	03
		Iran aftershock			
2	Lh	iXZ	14	49	03
	Qt	ePZ		50	04
2	Lh	iPZ	15	05	15
		iSE		12	04
	Qt	ePZ		05	52c
		eSN		13	12
		Mu Sec			
		PZ 0·2 1·5			
		H 14 56 43			
		Mag 5·9 (Qt)			
2	Qt	ePZ	22	39	59
3	Qt	ePZ	01	58	41
		Mu Sec			
		ME* 1·1 17			
		MN* 1·1 17			
		USCGS H 01 47 40			
		52 N 159 E			
		Near south coast of			
		Kamchatka			
		Mag 5·5 (Qt)			

Date	Station	Phase	h	m	s
3	Qt	ePZ	06	20	33d
3	Lh	iPZ	12	36	26d
		iPcPZ			37
		eSE		46	12
	Wr	ePN		36	26
	Qt	ePZ			55d
		iPcPZ			57
		ePPZ		40	01
		eSN		47	06
		eScSN			20
		ePPSN		48	11
		eXE*		51	50
		iSSN*		52	21
		eLN*		58·5	
		Mu Sec			
		SN 2·2 3.3			
		MN* 2·4 20			
		ME* 2·2 20			
	Kr	ePZ	12	37	15
		USCGS H 12 24 37			
		50½ N 179 W			
		Andreanof Islands,			
		Aleutian Islands			
		Mag 6–6¼ (Pas), 5¾(Berk).			
		6·7 (Up & Ki)			
3	Qt	ePZ	15	23	50d
		eSN		33	58
		USCGS H 15 11 30			
		Andreanof Islands			
		Aleutian Islands			
3	Qt	ePZ	17	17	04
		USCGS H 17 04 26			
		54 N 165 W			
		Fox Islands			
		Aleutian Islands			

Date	Station	Phase	h	m	s
3	Qt	e(P)Z	21	42	20
		i(S)N		46	23
3	Qt	ePZ	22	47	05d
4	Wr	ePN	02	51	49
	Qt	ePNE		52	58
4	Lh	iPZ	08	37	03c
		ipPZ			22
		eSE		43	22
	Kr	ePZ		37	09
		epPZ			29
		eSN		43	44
	Wr	ePN		37	32
	Qt	iPZ			33c
		epPEN			53
		ePPEN		39	31
		eSN		44	21
		esSE*N*			54
		USCGS H 08 29 01			
		4 S 102 E			
		Near south coast of Sumatra			
		depth about 100 km			
4	Qt	ePZ	08	54	22c
4	Qt	ePZ	12	41	17c
		USCGS H 12 31 20			
		34 N 137 E			
		Near south coast of			
		Honshu, Japan			
4	Qt	ePZ	13	06	23
		Iran after shock			
4	Lh	iPZ	19	30	11
	Qt	ePZ			52
		USCGS H 19 19 45			
		20 N 146 E			
		Marianas Islands			
		depth about 150 km			

Date	Station	Phase	h	m	s
4	Qt	ePZ	22	47	06
		Iran aftershock			
5	Wr	ePN	03	13	04
	Qt	ePZ			31
5	Qt	ePZ	05	20	31
		e(S)NE		24	20
5	Qt	ePKPZ	12	52	43
		ePKPZ			51
		eLE*	13	25·0	
		USCGS H 12 33 56			
		28½ S 179 W			
		Kermadec Islands			
5	Qt	ePZ	15	41	03d
		eLN*E*		52	38
5	Wr	ePN	23	06	56
	Qt	ePZ		07	58
		eSNE		09	18
		Hindukush			
6	Qt	ePZ	02	41	17±
6	Kr	ePZ	07	47	06
		iSE			36
	Qt	iPZ			38
		ePgZE			58
		iSNE		48	36
		H 07 46 22			
		26 N 64½ E			
		Mekran Range			
		West Pakistan			
7	Qt	ePZ	06	04	03c
		ePPZ			34
		iSN*E*		08	24
		Mu Sec			
		SE* 0·6 11			
		SN* 0·3 10			

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Date	Station	Phase	h	m	s
		MN* 9·5 19			
		ME* 5·2 18			
	Wr	ePN	06	04	21
	Lh	e(P)Z			51
		USCGS H 05 58 50			
		39 N 40 E			
		Turkey			
		Mag 5·7 (Qt), 5·5 (Up, Ki)			
7	Lh	iPZE	16	23	58c
		iPcPZ		24	10
		ePPZ		27	13
		eSKSE		34	15
		eSE			28
		iScSE			40
	Qt	ePZ		24	27
		e(PP)Z		27	57
		iSKSE*		34	58
		iSKKSN*E*		35	19
		iPSE*		36	43
		ePPSE*		37	16
		eSSE*N*		41	50
		eLN*		49·2	
		Mu Sec			
		PZ 0·4 1·5			
		USCGS H 16 11 15			
		6½ S 156 E			
		Solomon Islands			
		Mag 6¾ (Pas) 6·5 (Qt)			
7	Qt	ePZ	18	16	12
8	Lh	ePZ	00	37	26
		iXZ		40	52
	Wr	ePN		38	03
		Two different shocks ?			
8	Qt	ePZ	09	50	53
8	Qt	ePKPZ	15	49	35d
		epPKPZ		50	06
		eSKPZ		52	51
		USCGS H 15 30 33			
		14½ S 91 W			
		Guatemala			
		depth about 150 km			
		Mag 6 (Berk)			
9	Qt	ePZ	09	12	33
9	Lh	ePZ	10	06	38
		iXZ			47
		iPcPE		08	11
		iPcSE		12	10
		eSE		13	26
	Kr	ePZ		06	42
		eSE		13	39
		Mu Sec			
		PZ 0·4 1·2			
	Wr	ePN		07	06
	Qt	ePZ			08c
		epPZ			19
		ePcPZN		08	26
		ePcSN*		12	22
		iSN*E*		14	16
		iScSN*		16	57
		eLN*		18·0	
		Mu Sec			
		PZ 0·4 1·5			
		MN* 2·9 20			
		ME* 2·6 17			
		USCGS H 09 58 09			
		6 S 104 E			
		Near south coast of Sumatra			
		depth about 60 km			
		Mag 6·1 (Up, Ki), 6·1 (Qt)			
9	Qt	ePZ	20	45	17 ±
		USCGS H 20 35 06			
		150 miles north of Iceland			
9	Qt	ePZ	22	33	17c
		eLE*		53·3	

Date	Station	Phase	h	m	s
10	Lh	iPZ	03	57	08
	Wr	ePN			40
	Qt	ePZ		58	08
10	Qt	ePZ	04	55	22c
		ePcPZ			29
		eSN*	05	05	48
		eScSN*E*		06	02
		e(SS)N*		11	55
		eLN*		19·0	
		Mu Sec			
		PZ 0·4 1·5			
		USCGS H 04 42 48			
		52½ N 170 W			
		Fox Islands, Aleutian Islands			
		Mag 6·5 (Qt)			
10	Kr	ePZ	07	22	02
		iSE			57
	Qt	ePZ			51
		eSNE		24	12
	Wr	eXN		22	56
	Qt	ePKPZ	09	23	26
		ePPZ		25	55
		iPKSN*E*		26	59
		eSKSN*		30	39
		iSKSPN*		35	50
		Mu Sec			
		PPZ 0·5 2·5			
		ME* 2·8 20			
		MN* 3·8 23			
	Wr	ePKPN		23	28
	Lh	ePPE		26	07
		ePKSE		27	05
		USCGS H 09 04 08			
		8 N 82½ W			
		Near coast of Panama			
		Mag 6½–6¾ (Pas), 6¾–7 (Berk)			
		6·6 (Up, Ki), 6·3 (Qt)			
10	Qt	ePZ	13	24	33c
		USCGS H 13 15 28			
		20½ N 123 E			
		Batan Islands			
10	Qt	ePZ	23	33	32
10	Qt	ePZ	23	44	39
10	Wr	ePN	23	58	40
		eXZ		59	50
		e(S)NE	00	02	05
11	Qt	ePZ	04	55	44d
11	Qt	ePZ	08	21	35c
		USCGS H 08 11 05			
		44 N 147 E			
		Kurile Islands			
11	Wr	iPN	17	15	15
		eSN			42
	Lh	iP!Z			56d
		iXZ		16	17
		isPZ			40
		iSN			53
	Qt	ePZ			20d
		e(sP)Z		17	20
		iSN			37
	Kr	ePZNE			23 ±
		H 17 14 39			
		Hindukush			
		depth about 200 km			
		USCGS H 17 14 27			
		37 N 71½ E.			
		Hindukush			
12	Qt	ePZ	02	12	20
12	Qt	ePZ	06	19	35c
12	Qt	ePZ	06	28	19
12	Qt	ePZ	08	21	49
12	Wr	ePN	16	24	16
		eSN			49
	Qt	ePZ		25	14

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Date	Station	Phase	h	m	s
		eSNE		26	33
		H 16 23 31			
		Hindukush			
12	Qt	ePZ	21	08	56c
		eSKSE*		19	15
		iSN*E*			27
		eSSN*		24	56
		eLN*		31·1	
		USCGS H 20 56 18			
		3 S 148½ E			
		Bismarck Sea			
12	Qt	ePZ	22	11	22
		eSN*		21	50
		USCGS H 21 58 45			
		3 S 148½ E			
		Bismarck Sea			
12	Qt	ePZ	22	21	49
		USCGS H 22 12 54			
		22½ N 122½ E			
		Off east coast of Formosa			
13	Wr	ePN	01	11	35
	Lh	ePZ			40
		iPZ			41
		iPcPZ			52
	Qt	iPZ		12	04c
		iPcPZ			14
		iSKSN*		22	28
		eScSN			42
		eLN*		34·3	
		Mu Sec			
		PZ 0·5 1·5			
		SN 1·6 5·0			
	Kr	eXZ		I3	40
		USCGS H 00 59 28			
		52 N 169½ W			
		Fox Islands,			
		Aleutian Islands.			
		Mag 6·5 (Qt)			

Date	Station	Phase	h	m	s
13	Qt	ePZ	02	00	52c
		iPcP		01	03
		eSKSN		11	14
		iSN*			16
		iScSN*			28
		USCGS H 01 48 18			
		52½ N 169½ W			
		Fox Islands,			
		Aleutian Islands.			
13	Qt	ePKPZ	09	51	07
		eLN*	10	21·7	
		USCGS H 09 32 05			
		15 S 173 W			
		Samoa Islands region			
13	Wr	ePN	11	08	56
		eSN		09	30
	Qt	ePZ			47
		eSNE		11	03
	Kr	eXZ			42
		H 11 08 11			
		36 N 69½ E			
		Hindukush			
13	Qt	ePZ	23	21	49
14	Wr	ePN	02	37	02
	Qt	ePZ			39c
		ePcPZ		38	08
		eSN*		46	17
		eLN*		53·1	
		Mu Sec			
		MN* 2·0 20			
		USCGS H 02 26 54			
		46 N 151½ E			
		Kurile Islands			
14	Lh	ePKPZ	06	42	23
		epPKPZ		43	10
		eXE		45	59
	Qt	iPKPZ		42	36d
		iXZ			48

Date	Station	Phase	h	m	s
		epPKPZ		43	24
		i(PP)ZE*		44	15
		iXE*		45	24
		iXE*		51	01
		iXN*		52	06
		iXN*	07	00	43
		Mu Sec			
		PPZ 0·5 2·0			
		MN* 5·3 23			
		ME* 3·1 19			
	Kr	ePKPZ	06	42	37
		USCGS H 06 23 50			
		27½ S 177 W			
		Tonga Islands region			
		depth about 200 km			
		Mag 7-7¼ (Pas), 6¾ (Berk)			
		6·7 (Up, Ki), 6·3 (Qt)			
14	Lh	ePKPZ	08	29	37
	Wr	ePKPN			44
	Qt	iPKPZ			49c
		eXZ		30	29
		ePPZ		31	40
		Mu Sec			
		MN* 5·9 23			
		ME* 7·3 23			
		USCGS H 08 10 45			
		30 S 177 W			
		Kermadec Islands			
		Mag 6¾ (Pas), 7 (Berk)			
		6·9 (Up, Ki), 6·3 (Qt)			
14	Qt	ePZ	09	27	42c
		USCGS H 09 16 12			
		12½ N 144 E			
		Marianas Islands			

Date	Station	Phase	h	m	s
14	Qt	ePKPZ	10	01	30c
		ePPZ		03	22
		USCGS H 09 42 27			
		20 S 174½ W			
		Tonga Islands			
14	Qt	ePZ	19	52	00d
		eSZE			24
		Epicentre about 200 km			
		northeast of Quetta			
15	Wr	ePN	08	19	12
		eSN			53
	Qt	ePZ		20	17
		eSNE		21	49
		H 08 18 18			
		Northern Afghanistan			
15	Qt	iPZ	23	08	50c
		iPgZN			59
		iSN		09	20
		Mu Sec			
		PZ 1·4 1·5			
	Kr	ePZE		09	18
		iSE		10	13
	Lh	ePZ		09	22
		iPgZE			43
	Wr	ePN			30
		H 23 08 05			
		29 N 69½ E			
		Eastern Baluchistan			
		West Pakistan			
		USCGS H 23 08 08			
		29 N 70 E			
		West Pakistan			
		Mag 5·8 (Qt)			

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Date	Station	Phase	h	m	s
15	Qt	ePZ	23	28	04
	Wr	ePN			06
		eSN		29	01
	Lh	eXZ			53
		i(S)E		31	15
15	Qt	ePZ	23	46	34
		ePgZ			43
	Lh	ePgZ		47	27
		Eastern Baluchistan aftershock			
16	Qt	ePZ	00	06	46
	Lh	eXZ		07	41
		iSE		08	50
16	Qt	ePZ	02	12	26d
16	Qt	ePNE	02	58	24
16	Qt	ePZ	03	40	43
		eSN		41	16
		Eastern Baluchistan aftershock			
16	Qt	ePZ	05	26	17d
		eSN			49
		Eastern Baluchistan aftershock			
16	Qt	ePZ	06	14	18d
16	Qt	ePZ	06	30	26d
16	Qt	ePZ	09	18	57
16	Lh	iPZ	17	06	11d
		iXZ			15
	Wr	ePN			35
	Qt	ePZ			46c
		iXZ			50
		ePPZ		08	53
		iSN*E*		14	34
		eLE*		18·5	

Date	Station	Phase	h	m	s
		Mu Sec			
		PZ 0·4 1·5			
		SN 1·5 3·0			
		USCGS H 16 57 03			
		Near east coast of Borneo			
		Mag 6·2 (Qt)			
16	Lh	ePZ	19	35	58
	Qt	ePZ		36	20c
		USCGS H 19 23 42			
		54½ N 164 W			
		Unimak Islands			
		Aleutian Islands			
16	Wr	ePN	20	18	20
		eSN		19	46
	Qt	ePZ			32
		eSZ		21	46
17	Qt	ePKPZ	05	32	24
		ePKSZ		35	56
		USCGS H 05 12 55			
		Northern Chile			
17	Qt	ePZ	09	06	43c
		e(PcP)Z			55
		UCGSC H 08 54 13			
		53 N 170 W			
		Fox Islands			
		Aleutian Islands			
17	Qt	ePZ	09	41	03c
		e(Pg)Z			12
	Lh	ePZ			58
		eSE		43	06
17	Lh	ePZ	11	23	45
		e(pP)Z		24	13
		ePPE		27	41
		eSKSE		34	10
		eSE			59

Date	Station	Phase	h	m	s
	Wr	ePN		23	58
	Qt	ePZ		24	13c
		e(pP)Z			41
		ePPZN		28	27
		iSKSE*		34	44
		iXE*		35	41
		iSE*			58
		ePSE*		37	44
		eSSE*		43	17
		Mu Sec			
		PZ 0·1 1·0			
		PPZ 0·8 2·5			
		USCGS H 11 10 10			
		11 S 167 E			
		Santa Cruz Islands			
		Mag 6¼–6½ (Pas), 6½ (Berk), 6·3 (Up, Ki), 6·5 (Qt)			
17	Qt	ePZ	12	37	47d
		eXZ		38	13
		eSN		47	21
		ePSN			55
		USCGS H 12 26 05			
		2 S 137 E			
		New Guinea			
17	Qt	ePZ	16	56	02c
17	Wr	ePN	17	02	08
		eSN			44
	Qt	ePZ		03	08
		eSN		04	38
		Northern Afghanistan			
17	Qt	ePZ	18	52	22c
		iSN	19	02	42
		ePPSN		03	48
		eLN*		16·0	

Date	Station	Phase	h	m	s
		Mu Sec			
		PZ 0·3 1·5			
		SN 2·4 4·0			
		USCGS H 18 39 58			
		1 S 13 W			
		Mid-Atlantic Ocean			
		Mag 6·2 (Qt).			
18	Lh	iPZ	01	27	00
	Qt	iPZ			24c
		ePcPZ			31
		iXZ			37
		eSKSN		37	42
		eSE*			49
		eScSNE*		38	04
		USCGS H 01 14 52			
		53 N 169 W			
		Fox Islands			
		Aleutian Islands			
18	Lh	iPZ	01	32	01
	Qt	ePZ			24c
		ePcPZ			30
		eSKSE*		42	44
		eSNE*			49
		eScSNE*		43	05
		USCGS H 01 19 52			
		53 N 170 W			
		Fox Islands			
		Aleutian Islands			
18	Qt	ePZN	11	23	31
		eLN*		45·7	
		USCGS H 11 10 58			
		5 S 146 E			
		Near north coast of New Guinea			

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Date	Station	Phase	h	m	s
18	Lh	iPZ	12	15	34d
	Qt	ePZ		16	19d
		iPZ			20
		eSN		24	04
		Mu Sec			
		PZ 0·3 1·0			
		USCGS H 12 06 39			
		30 N 129 E			
		South of Honshu, Japan			
		depth about 400 km			
		Mag 6·1 (Up, Ki),			
19	Wr	iPN	03	25	06
		eSN			30
	Lh	iPZE			49d
	Qt	ePZE		26	08d
		esPZ			46
		iSEZN		27	21
		Mu Sec			
		PZ 0·2 0·6			
		H 03 24 34			
		36 N 71 E			
		Hindukush			
		depth about 200 km			
		USCGS H 03 24 24			
		36 N 71 E			
		Hindukush			
		Mag 5·5 (Qt)			
19	Qt	ePZ	07	48	19d
	Lh	eXE		50	04
19	Qt	ePZ	09	38	15c
19	Qt	ePZ	12	11	17
		USCGS H 11 58 39			
		54 N 166 W			
		Fox Islands			
		Aleutian Islands			
19	Lh	ePZ	13	10	03
		iPZ			06
		eSE		16	19
	Wr	ePN		10	25
	Qt	ePZ			55c
		iPZ			57
		i(sP)Z		11	32
		ePPN		12	47
		iSN		17	58
		i(sS)N*		18	35
		iXNE*			40
		eScSN*		20	42
		eSSE*		21	38
		eLE*			23·8
		Mu Sec			
		PZ 0·5 1·5			
		SN 0·9 2·4			
	Kr	ePZ	13	11	04
		USCGS H 13 02 05			
		25 N 122½ E			
		Near north coast of Formosa			
		Mag 5·9 (Up, Ki), 6·2 (Qt)			
19	Wr	iPN	19	20	06
		eSN			36
	Lh	iSE		21	44
	Qt	ePZ			12c
		eSNE		22	32
		H 19 19 26			
		Hindukush			
19	Lh	ePZ	20	37	34
	Qt	ePZ		38	09c
		ePcPZ			14
		USCGS H 20 26 03			
		3 S 142 E			
		New Guinea foreshock			

Date	Station	Phase	h	m	s
19	Lh	ePZ	21	48	16
	Qt	ePZ			51c
		ePcPZ			56
		iSN*		58	50
		eScSN*		59	06
		eLN*	22	09	·0
		USCGS H 21 36 46			
		3½ S 142 E			
		Northern New Guinea			
20	Qt	ePZ	10	05	49
		iSN*		14	09
20	Qt	ePZ	11	23	44d
		eSN		32	35
		eLN*			40·0
		USCGS H 11 12 50			
		51 N 156 E			
		Off south coast of			
		Kamchatka			
20	Lh	i(P)Z	14	17	55c
		e(P)Z		18	06
		iSE		26	01
	Wr	ePN		18	00
	Qt	iPZ			36c
		iXZ			55
		eSN		26	59
		eScSN*		28	20
		eLN*E*			32·6
		Mu Sec			
		PZ 0·4 1·5			
		SN 0·4 2 0			
		ME* 1·0 17			
		MN* 1·5 20			
		USCGS H 14 08 14			
		43 N 145 E			
		Near east coast of			
		Hokkaido, Japan			
		Mag 6 (Up, Ki), 6·2 (Qt)			
20	Wr	ePN	15	09	05
		eSN			42
	Qt	ePZE		10	11
		eSNE		11	38
		H 15 08 15			
		Northern Afghanistan			
20	Qt	ePKPZ	15	57	50
		USCGS H 15 38 47			
		19½ S 174 W			
		Tonga Islands			
20	Lh	iPZ	19	46	49
	Qt	ePZ		47	14c
		USCGS H 19 34 40			
		52 N 170½ W			
		Fox Islands			
		Aleutian Islands			
21	Qt	ePKPZ	00	42	52
	Lh	ePKPZ		43	11
		USCGS H 00 23 05			
		Northern Chile-Argentina			
		border			
21	Qt	ePKPZ	06	23	19c
		ePKSZN		26	44
		USCGS H 06 04 11			
		14½ N 92 W			
		Near coast of Guatemala			
		depth about 100 km			
		Mag 5¾–6 (Berk)			
21	Qt	ePZ	07	13	07
		eScSN		23	57
		ePSN		24	54

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Date	Station	Phase	h	m	s
		USCGS H 07 00 10			
		4½ S 153 E			
		New Ireland			
21	Qt	eXZN	15	12	57
21	Qt	ePKPZ	19	56	04
	Kr	eXZ		57	58
		USCGS H 19 37 10			
		28 S 175 W			
		Kermadec Islands region			
		depth about 150 km			
21	Wr	ePN	22	29	52
	Qt	ePZ		30	47
		eSE		31	58
	Lh	i(S)E			38
		H 22 29 14			
		36 N 70 E			
		Hindukush			
22	Wr	ePN	05	30	15
	Lh	i(S)E			32
	Qt	ePZ			42
		eSEZ		32	39
22	Qt	ePKPZ	06	36	00
		USCGS H 06 16 52			
		33½ S 178 W			
		Kermadec Islands region			
22	Qt	ePKPZ	06	40	57
		USCGS H 06 21 50			
		34 S 177½ W			
		Kermadec Islands			
		aftershock			
22	Qt	ePZ	10	25	51d
		USCGS H 10 16 31			
		34½ N 136 E			
		South of Honshu, Japan			
		depth about 350 km			
22	Qt	ePZ	14	10	19c
		eSKSN		20	43
		eScSN*		21	00
	Kr	ePZ		10	33
		USCGS H 13 57 41			
		53 N 167 W			
		Fox Islands,			
		Aleutian Islands			
22	Wr	ePN	16	06	56
	Qt	ePZE		07	58
		eSEZ		10	06
		H 16 05 12			
		Tadzhik-Kirghiz border			
23	Wr	ePN	00	56	59
	Lh	ePZ		57	02c
		eSE	01	06	46
		eScSE		07	10
	Qt	ePZ	00	57	30c
		ePcPN			37
		iSN*	01	07	38
		iScSN*			55
		iXE*		08	06
		ePPSN			46
		ePKPPKPZ		24	01

	Mu	Sec
PZ	1·1	1·5
SN	0·6	2·5
MN*	19·2	20
ME*	18·5	20

Kr		ePZ	00	57	52
		e(ScS)E	01	08	45

Date	Station	Phase	h	m	s
		USCGS H 00 45 12			
		52 N 177 W			
		Andreanof Islands			
		Aleutain Islands			
		Mag 6¼–6½ (Pas),			
		6·3 (Up, Ki), 6·6 (Qt)			
23	Qt	ePZ	01	33	49d
		Aleutain Islands			
23	Qt	ePZ	04	02	13
		Aleutian Islands			
23	Qt	ePZ	04	16	12c
		USCGS H 04 03 57			
		Fox Islands			
		Aleutian Islands			
23	Qt	ePZ	05	12	56
23	Qt	ePKPZ	13	48	16
		USCGS H 13 30 17			
		25 S 180			
		Kermadec Islands region			
		depth about 600 km			
23	Lh	iPZ	19	37	02d
		eXZ			24
		eSE	38	37	
		eXE	39	47	
	Wr	e(P)N	38	01	
	Qt	ePZ			26
		iSE	41	09	
		eLN*E*	42	00	
	Kr	ePZ	38	35	
		iXZ	39	00	
		H 19 34 56			
		29¾ N 84 E			
		Southern Tibet			
24	Qt	ePKPZ	02	17	05c
		ePPZN*		20	27
		ePKSN*E*			42
		eSKKSE*		27	17
		eSKSPN*		30	47
		eSSE*		38	56

		Mu	Sec
	PPZ	1·4	3·0
	ME*	1·6	20
	MN*	1·7	20

	Lh	ePKPZ	02	17	20c
		eXZ			32
		epPKPZ			41
		USCGS H 01 57 25			
		30 S 70½ W			
		Central Chile-Argentina			
		border			
		Slightly deeper than normal			
		Mag 6½ (Pas), 6·3 (Up, Ki),			
		6·6 (Qt)			
24	Qt	ePZ	08	56	33
24	Qt	ePKPZ	11	06	49
		iPKSZ		10	20
	Wr	ePKPN		06	56
	Lh	iPKPZE		07	08d
		iXZ			30
		e(SKKS)E		17	02
		USCGS H 10 47 25			
		27 S 65 W			
		Santiago del Estero province,			
		Argentina			
24	Lh	eSKSE	11	27	22
	Qt	eSKSE*			49

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Date	Station	Phase	h	m	s
		ePSN*		31	24
		eXE*		36	18
		USCGS H 11 02 30			
		20 S 169 E			
		New Hebrides Islands			
		Mag 6½ (Pas)			
24	Lh	ePZ	14	51	42c
	Qt	ePZ		52	17
		ePPZ		55	01
		iSN*E*	15	01	42
		eLN*E*		10·3	
		Mu Sec			
		PZ 0·5 2·0			
		USCGS H 14 40 45			
		3 S 134½ E			
		Western New Guinea			
25	Qt	ePZ	00	08	00
25	Qt	ePZ	03	36	58
		USCGS H 03 24 40			
		52 N 177 W			
		Andreanof Islands			
		Aleutian Islands			
25	Wr	ePN	07	54	15
	Lh	ePZ			16
		eSE	08	04	05
	Qt	ePZ	07	54	43c
		iPcPZ			47
		ePPN		57	51
		eSN*	08	04	53
		iScSN		05	07
		ePPSN*			54
		eSSN*		10	38
		Mu Sec			
		MN* 5·8 20			
		ME* 5·9 20			
		USCGS H 07 42 25			
		51 N 177 W			
		Andreanof Islands			
		Aleutian Islands			
		Mag 6¼ (Berk), 6·1 (Up, Ki), 6·2 (Qt)			
25	Qt	ePZ	14	23	53c
25	Wr	ePN	16	37	07
		eSN		38	05
	Qt	ePZ			13
		eSNE		39	57
		H 16 35 50			
		39 N 72 E			
		Tadzhik, S.S.R.			
25	Lh	ePZ	18	41	00
		iPZ			01
		eSE		48	37
	Qt	ePZ		41	43
		iPZ			45
		eSNE*		49	53
		USCGS H 18 31 36			
		42 N 142 E			
		Near south coast of			
		Hokkaido, Japan			
25	Qt	ePZ	22	25	24d
26	Qt	ePZ	00	52	31
		eSN	01	02	49
		USCGS H 00 40 02			
		53 N 171½ W			
		Fox Islands			
		Aleutian Islands			

Date	Station	Phase	h	m	s
26	Qt	ePKPZ	07	08	43
		eSKSE*		15	49
		eLE*		41·2	
		USCGS H 06 49 42			
		35 S 180			
		Off north coast of			
		North Islands, New Zealand			
26	Qt	ePZ	13	51	54c
		eXZ		52	02
		iSZ			36
	Kr	eXZ			24
	Wr	eXN			34
	Lh	eXZ			49
26	Wr	ePN	17	46	23
		eSN			57
	Lh	iP!Z		47	04d
		isPZ		48	03
		eSE			09
	Qt	ePZ		47	15d
		esPN		48	12
		iSEN			33
		H 17 45 37			
		36½ N 70½ E			
		Hindukush			
		depth about 250 km			
26	Wr	ePN	18	32	22
		eSN			56
	Lh	ePZ		33	01
		e(sP)Z			55
		iSE		34	03
	Qt	ePZ		33	22
		eSNE		34	42
		Hindukush			
27	Qt	eLN*E*		07	41·8
		USCGS H 06 49 00			
		14½ N 91½ W			
		Guatemala			
27	Qt	ePZ	09	16	10
		eLN*		25	44
27	Qt	ePZ	13	25	11
27	Qt	ePZ	14	13	14c
27	Qt	ePKPZ	15	04	30d
		USCGS H 14 45 28			
		20 S 174½ W			
		Tonga Islands			
27	Lh	iPZ	15	47	14c
	Qt	ePZ			54c
		eLN*	16	02·5	
		USCGS H 15 37 30			
		5½ N 127½ E			
		Off east coast of Mindanao			
		Philppine Islands			
27	Lh	iPZ	18	55	26d
		eSE	19	05	39
		ePSE		06	29
		iPPSE			46
	Wr	ePN	18	55	43
	Kr	ePZ			54
		eSE	19	06	33
	Qt	iPZ	18	55	57d
		iSKSE*	19	06	26
		iSN*E*			39
		ePSN		07	42
		eLN*		19·7	
		Mu Sec			
		PZ 0·4 1·5			

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Date	Station	Phase	h	m	s
		USCGS H 18 43 01			
		6½ S 151½ E			
		New Britain region			
		Mag 6·4 (Qt)			
27	Lh	ePZ	21	11	03c
		iXZ			38
	Qt	ePZ			32c
		iPcPZ			42
		eSN*		21	37
		iSNE*			40
		iScSE*			53
		eSSN*		26	50
		Mu Sec			
		MN* 0·9 20			
		ME* 0·6 18			
		USCGS H 20 59 21			
		51½ N 180			
		Andreanof Islands			
		Aleutian Islands			
		Mag 5·6 (Qt)			
28	Qt	ePZ	07	08	35
28	Wr	ePKPN	08	59	16
	Qt	iPKPZ			20
		(There is some movement nine seconds earlier)			
		iXZ			30
		iXZ			37
		iXZ	09	01	40
		iPPZN			47
		iXZN			58
		ePKSZ		02	42
		iPKSZN		03	01
		ePPZ		04	43
		eSKSN		06	28
		eSKKSN		08	23
		eSKSPN		11	35
		eLN			33·7
		Mu Sec			
	PPZ	7·6 3·5			
	Lh	ePKPZ	08	59	20d
		iXZ			29
		iXZ			37
		iPPZ	09	01	46
		ePKSZ		02	49
		ePPPZ		04	47
	Kr	ePKPZ	08	59	27
		iXZ			36
		ePPZ	09	02	08
		ePKSE		03	03
		iXZ			59
		iPPPZ		05	18
		Mu Sec			
	PPZ	4·6 3·0			
		USCGS H 08 40 04			
		17 N 99 W			
		Guerrero, Mexico			
		Mag 7½ (Pas), 7¼–7½ (Berk)			
		7·8 (Up, Ki), 7·2 (Kr),			
		7·3 (Qt)			
28	Qt	ePKPZ	10	17	43
		ePPZ		20	02
		USCGS H 09 58 30			
		17 N 99 W			
		Mexico aftershock			
28	Qt	ePKPZ	13	53	33
		ePKSZ		56	57
		ePKSN		57	15

Date	Station	Phase	h	m	s
		USCGS H 13 34 20			
		17½ N 99 W			
		Mexico aftershock			
28	Lh	ePZ	21	41	39
		eSN		42	46
	Qt	ePZ			50
29	Qt	ePZ	05	37	43
		eSEZ		39	12
29	Lh	iPZ	11	14	08d
	Wr	ePN			16
29	Qt	ePZ	13	12	45
		USCGS H 13 00 29			
		51½ N 178 W			
		Andreanof Islands			
		Aleutian Islands			
29	Kr	ePKPZ	17	34	47
		iXZ		35	41
		e(PKS)E		38	35
	Qt	ePKPZ		34	47
		iXZ			53
		iPPZN		37	56
		ePKSN		38	21
		iPKSE			31
		i(SKKS)E*		44	21
		iSKSPE*		48	10
		iPPSE*		50	20
		eSSE*		56	30
		Mu Sec			
	PPZ	5·3 3·5			
	PPN	2·9 3·0			
	ME*	7·0 18			
	MN*	4·8 20			
	Wr	ePKPN	17	34	58
	Lh	ePKPZ		35	03c
		iXZ			26
		ePPZ		38	34
		iPPZ			45
		USCGS H 17 15 14			
		23½ S 71½ W			
		Near coast of Chile			
		Mag 7–7¼ (Pas), 6¾ (Berk)			
		7·1 (Up, Ki), 7·3 (Qt)			
29	Qt	ePZE	21	37	36
		eSEN		38	54
30	Wr	ePN	00	53	18
		eSN			57
	Lh	e(S)E		54	55
	Qt	ePZE			20
		eSEN		55	50
		H 00 52 23			
		Afghanistan-Tadzhikistan border			
30	Qt	ePZ	01	47	04
		eSE*N*		50	01
		eLN*		50·6	
	Wr	e(P)N		47	10
	Kr	ePZ			28
	Lh	iPZ		48	09d
		iXZ			15
		H 01 43 18			
		34 N 49½ E			
		Western Iran			
30	Kr	ePZ	12	09	11
		iXE			26
		iSEZ			51

Date	Station	Phase	h	m	s
		Mu Sec			
	PZ	0·3 0·5			
	Qt	ePZ	12	10	16
		iXZE			41
		eSN		11	31
		iXE*			56
		eLE*		12	10
	Lh	eSNE			37
		eLN		15·1	
		Near Kutch, Western India			
31	Lh	iPZ	07	41	14d
		eSE		48	06
	Qt	iPZ		41	43d
		eSN		49	01
		iXN			22
		eLN*		53·2	
	Wr	ePN		41	45
		USCGS H 07 32 39			
		$6\frac{1}{2}$ S 105 E			
		Sunda Strait			
		depth about 100 km			

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Date	Phase	h	m	s	
	Quetta				
1	ePZ	03	51	31	
3	eXZ	02	17	20	
7	ePZ	05	15	59	d
	iSNE		16	20	
15	ePZ	23	21	54	
16	ePZ	04	35	06	
16	ePZ	09	37	33	
	eSE			47	
16	eXZ	13	40	15	
	eXE			25	
16	iPZ	22	04	10	
	iSN			13·6	
17	ePZ	00	24	20	
17	eXZ	12	15	42·1	
	eSE			52·4	
18	ePE	11	20	35	
	e(S)E			51	
18	eXN	20	00	33	
18	eXN	22	14	51	
19	ePN	00	28	32	
19	eXE	01	41	32	
19	eXE	02	08	50	
19	eXE	02	14	19	
19	ePE	04	41	41	
	eSN		41	54	
	eXE			56	
19	eXE	04	56	41	
19	eXE	14	22	35	
19	ePZ	16	38	25	
	eSE			28	
19	ePZ	17	34	14	
	eSNE		34	23	
	eXE			29	
	eXN			32	
19	eXE	17	54	07	
19	ePZ	19	40	19	
	eSE		40	38	
	eXN			41	
	eXE			52	
19	ePZ	20	21	51	
	eSE		22	14	
20	ePE	16	04	45	
	eSE			53	
20	ePZ	21	15	07	
	eSEN			10	
21	ePZ	04	14	44	
21	eXZ	18	54	43	
21	ePZ	21	38	17	
21	ePZ	22	08	03	
22	ePZ	11	06	42	
	eSE		07	24	
22	ePZ	14	21	54	
22	ePZ	15	53	11	
22	eSZ	18	25	25	
22	ePZ	22	56	05	
23	eXZ	04	48	54	
23	ePZ	05	05	53	
23	ePZ	14	14	22	
23	eXZ	15	37	51	
24	eXZ	17	00	31	
24	ePZ	19	49	23	

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Date	Phase	h	m	s
24	eXZ	22	29	33
25	eXZ	16	55	03·8
	eSN			11·6
26	ePZ	18	33	22
	eSNE		34	43
28	eXZ	09	38	30
28	eXZ	13	07	21
28	ePZ	19	35	44
30	ePZ	17	52	01
	eSE			17
30	ePZ	18	59	09
	eSE			25
31	iPZE	07	43	49
	iXZE		44	20
	eSN		51	31
31	eXZ	19	21	31
31	ePZ	20	56	33·5
	iSE			48·9
31	eXZ	23	15	03

Warsak

1	ePN	00	46	46
1	ePN	03	33	24
1	ePN	05	16	08
1	ePN	09	32	27
1	ePN	06	57	25
2	ePN	01	20	34
2	ePN	14	26	26
2	ePN	20	14	20
	eSN			43
2	ePN	20	36	09
3	ePN	05	15	52
3	ePN	08	07	28
3	ePN	16	42	29
3	ePN	23	11	52
4	ePN	04	34	50
4	ePN	23	04	48
6	ePN	13	21	53
7	ePN	03	42	07
7	ePN	07	16	26
7	ePN	16	24	09
8	ePN	22	49	17
	eSN			34
9	ePN	13	43	21
12	ePN	00	01	41
	eSN		02	16
12	ePN	09	10	03
	eSN			25
12	ePN	11	08	44
	eSN		09	05
13	ePN	19	09	14
15	ePN	00	29	28
	eSN		30	03
15	ePN	07	56	59
	eSN		57	28
15	ePN	08	59	22
15	ePN	16	56	03
15	ePN	21	59	23
16	ePN	10	12	56
17	ePN	06	46	47
17	ePN	13	23	53
17	ePN	23	45	57
18	ePN	11	19	44
18	ePN	12	07	00
18	ePN	22	12	43·4
	eSN		13	17·6
19	ePN	00	09	47
20	ePN	00	17	28
20	ePN	09	49	33
21	ePN	13	23	18
22	ePN	03	47	15
23	ePN	06	56	13

Date	Phase	h	m	s
23	ePN	07	57	15
23	ePN	08	03	51
23	iPN	23	42	51
	eSN		43	11
24	ePN	05	38	58
	eSN		39	26
24	ePN	18	56	12
	eSN			45
25	ePN	05	36	39
25	ePN	16	52	41
	eSN		53	16
25	ePN	22	35	16
26	ePN	13	16	21
27	ePN	04	52	12·5
	eSN			46·6
27	ePN	16	08	32
	eSN		09	04
27	ePN	18	22	29
	eSN			44
30	ePN	03	19	34
31	ePN	10	36	10
31	ePN	12	33	05

Lahore

4	ePZ	00	34	56·8
	iSE		35	11·5
5	eXZ	23	07	22
	e(S)E		08	04
10	eXE	07	25	02
	e(S)E			33
11	iXZ	08	20	55
12	eXZ	16	15	19
	eSE			55
13	eSE	08	20	51
28	iSE	02	47	00·8
30	eXZ	03	20	19
	eSE			57
30	eXZ	23	35	54
31	eXZ	23	45	36

Karachi

7	eXZ	05	03	07	
	eXZ		04	41	
14	eXZ	02	37	46	
14	eXZ	08	30	28	
15	ePZE	06	38	04	d
16	eXZ	17	07	45	
23	ePZE	09	24	53	
	eSE		25	07	
	iXE			14	
23	ePE	09	29	23	
	iSE			40	
23	ePZ	09	53	42	
	eSE			59	
24	eXE	02	17	50	
24	eXZ	14	52	53	
25	eXZ	07	05	49	
25	eXZ	18	48	58	
31	e(P)Z	07	42	59	
	iXZ		44	26	

Correction

Local & Minor Earthquakes (Warsak)
Date 1, Line 4

read 06 32 27

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Instruments	Components	Period Seismo & Galvo	Damping	Max. Magnification
Karachi				
Sprengnether	Z	1·8 sec.	Critical	5,890
,,	N	1·6 ,,	,,	4,700
,,	E	1·4 ,,	,,	4,700
Chittagong				
Sprengnether	Z	1·7 ,,	Critical	5,200
,,	N	1·8 ,,	,,	4,700
,,	E	1·5 ,,	,,	3,600
,,	N	7·0 ,,	,,	6,600
Willmore	Z	Seismo = 1 sec. Galvo = $\frac{1}{4}$,,	—	—
Warsak				
Sprengnether	N	2·0 sec.	Critical	4,000
Willmore (with Sprengnether galvo & recorder	Z	1·0 ,,	—	—

* indicates long period seismographs, Sprengnether or Milne-Shaw

c=compression, d=dilatation X=unidentified phase.

Mu=Actual ground motion of the indicated phase in microns.

Sec=Period of the indicated phase in seconds.

(Pas), (Berk), (Up), (Ki) stand for seismological observatories Pasadena (U.S.A.), Berkley (U.S.A.), Uppsala (Sweden), Kiruna (Sweden) respectively.

All times are in Greenwich Mean Time.

ROYAL OBSERVATORY
15 JUN 1959
EDINBURGH

International Seismological Centre From the ISC collection scanned by SISMOS

SEISMOLOGICAL BULLETIN

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Issued under the authority of the Director, Meteorological Service

PAKISTAN METEOROLOGICAL SERVICE
GEOPHYSICAL INSTITUTE
QUETTA.

Particulars of Stations and Instruments

(a) Stations

Station	Symbol	Latitude	Longitude	Height (a.s.l.)	Ground
Quetta	Qt	30° 11′·3 N	66° 57′·0 E	1719 meters	Cretaceous Limestone
Lahore	Lh	31° 33′·0 N	74° 20′·0 E	210 ,,	Alluvium
Karachi	Kr	24° 49′·8 N	67° 02′·2 E	30 ,,	Alluvium
Chittagong	Ch	22° 21′·5 N	91° 49′·0 E	15 ,,	Alluvium
Warsak	Wr	34° 09′·0 N	71° 25′·0 E	343 ,,	River Terrace

(b) Instruments

Instruments	Components	Period Seismo & Galvo	Damping	Max. Magnification
Quetta (Central Station)				
Sprengnether	Z	1·9 sec.	Critical	5,500
,,	N	1·95 ,,	,,	4,500
,,	E	1·95 ,,	,,	5,800
,,	N	15·8 ,,	,,	15,000
,,	E	16·5 ,,	,,	16,000
Willmore	Z, N & E	Seismo = 1 sec. Galvo = ½ ,,	—	—
Milne-Shaw	E	12 sec.	20:1	250
Sprengnether Pen recorder	E	1·0 ,,	—	—
Lahore				
Sprengnether	Z	1·8 ,,	Critical	4,900
,,	N	1·7 ,,	,,	4,200
,,	E	1·6 ,,	,,	4,100

(Contd. on inner side of back cover)

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Date	Station	Phase	h	m	s
1	Qt	ePZE	03	46	18
		eSEN			47
1	Wr	ePN	08	47	56
		e(S)N		49	12
	Lh	ePZ		47	58
		iSZ		48	56
	Qt	ePZE		49	04
		iSN		51	00
		H 08 46 34			
		Kashmir-Sinkiang border			
1	Wr	ePN	11	00	22
		eSN			56
	Lh	ePZ		01	01
		esPZ			56
		iSNE		02	03
	Qt	iPZE		01	19
		esPZE		02	06
		iSNE			38
		Mu Sec			
	SN	0·6 1·0			
	Kr	eSE	11	04	31
		H 10 59 38			
		36½ N 71 E			
		Hindukush			
		depth about 200 km			
		Mag 5·4 (Qt)			
1	Wr	ePN	11	18	42
		eSN		19	06
	Lh	ePZ		18	42
		eSN		19	08
	Qt	ePZ			45
		eSNE		20	56
		H 11 18 08			
		33½ N 73¾ E			
		Kashmir-Pakistan border			
1	Lh	ePZ	16	30	55 c
	Qt	iPZN		31	20 c
		ePcPZ			24
		eSN		41	42
		eScSE*		42	02
		Mu Sec			
	PN	0·2 1·1			
	Kr	ePZ	16	31	43
		USCGS H 16 18 48			
		52 N 170 W			
		Fox Islands			
		Aleutian Islands			
1	Qt	ePKPZ	17	16	34
		USCGS H 16 57 30			
		30 S 177½ W			
		Kermadec Islands			
1	Lh	iPZ	18	02	06 d
	Kr	ePZE			35
	Qt	iPZ			50 d
2	Qt	ePZ	09	28	20
2	Qt	ePZ	09	50	02
		USCGS H 09 39 42			
		Davao Gulf			
		Philippine Islands			
2	Qt	ePZ	11	16	00
		eSNE			34
2	Qt	ePZ	12	34	02 c
		eSN		44	19
		eScSN			34
		Mu Sec			
	PZ	0·1 1·3			

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Date	Station	Phase	h	m	s	
	Kr	ePZN	12	34	24	c
		USCGS H 12 21 37				
		52 N 175 W				
		Andreanof Islands				
		Aleutian Islands				
2	Wr	ePN	17	48	44	
		eSN		49	13	
	Lh	iSE		50	34	
	Qt	iPZ		49	39	d
		eSNE		50	50	
		H 17 48 05				
		36 N 70 E				
		Hindukush				
2	Qt	ePZ	22	56	18	d
3	Qt	ePZ	06	52	42	
		ePPZ		54	43	
		eSE		59	52	
		eXN*	07	00	00	
		eLN*		04	20	
	Wr	ePN	06	52	54	
		USCGS H 06 43 40				
		7 S 103 E				
		Off south coast of Sumatra				
3	Qt	iPZE	07	12	45	d
		iSE			57	
		About 100 km				
		northeast of observatory				
3	Qt	ePKPZ	08	34	48	
		USCGS H 08 15 45				
		28 S 176½ W				
		Kermadec Islands region				
4	Lh	ePZ	00	51	02	
		ePPE		53	55	
	Qt	ePZ		51	30	
		ePPN		54	37	
		iSNE	01	01	42	
		eXE*		04	22	
		iSSEN		06	56	
		eLN*		12·7		
	Kr	eXZ	00	52	26	
		USCGS H 00 39 12				
		3½ S 145 E				
		Near north coast of				
		New Gninea				
		Mag 6·2 (Up, Ki)				
4	Qt	ePZ	02	32	52	
4	Qt	ePKPZ	06	25	51	
		ePPZN		28	11	
		ePKSN*		29	16	
		e(SKSP)N*		38	29	
		eSSN*		45	49	
		USCGS H 06 06 36				
		17 N 100 W				
		Mexico aftershock				
		Mag 6¼ (Pas), 6·2 (Up, Ki)				
4	Qt	ePZ	09	35	50	d
		iXZ		36	00	
	Kr	ePZE			21	
4	Qt	ePKPZ	11	47	41	
		USCGS H 11 28 24				
		17 N 99½ W				
		Mexico aftershock				
4	Qt	ePKPZ	14	35	32	
		iPKPZ			38	
		iPKSN*		39	00	
		eSSN*		55	26	

Date	Station	Phase	h	m	s	
		USCGS H 14 16 18				
		17 N 99½ W				
		Mexico aftershock				
		Mag 6¼ (Pas), 6·2 (Up, Ki)				
4	Wr	ePN	17	54	27	
		eSN		55	06	
	Qt	ePZ			20	
		eSE		56	40	
	Lh	eXZ		55	34	
		iSE		56	28	
		H 17 53 35				
		37 N 69½ E				
		Northern Afghanistan				
4	Kr	eXZ	21	22	18	
	Qt	ePZ		21	07	d
		ePcPZ			14	
		eSE*		31	16	
		iSE*N*			20	
		eSSN*		36	34	
		eLN*		42·7		
	Lh	ePZ		21	25	
		ePcPZ			29	
		e(PP)E		24	55	
		eSN		31	53	
		USCGS H 21 08 51				
		45 S 35 E				
		Prince Edward Islands region				
5	Qt	ePZ	02	41	19	
5	Qt	ePZ	08	25	48	
		e(S)N		36	31	
		USCGS H 08 12 46				
		5 S 154 E				
		New Britain				
5	Qt	ePKPZ	17	54	02	
		USCGS H 17 34 54				
		Near coast of Oaxaca				
		Mexico				
		depth about 100 km				
5	Qt	ePKPZ	21	49	25	
		USCGS H 21 30 39				
		Kermadec Islands region				
5	Qt	ePZ	23	13	28	
		USCGS H 23 04 00				
		Northern Ryukyu Islands				
6	Qt	ePZ	00	14	59	
		USCGS H 00 03 54				
		52½ N 160 E				
		Kamchatka				
6	Wr	ePN	06	43	27	
		eSN		44	11	
	Qt	ePZ			41	±
		eSZE		46	01	
		Afghanistan-Tadzhikistan				
		border				
6	Qt	ePZ	18	32	02	
6	Qt	ePZ	23	59	52	
		ePcPZ	00	00	01	
		USCGS H 23 47 30				
		Andreanof Islands				
		Aleutian Islands				
7	Qt	iPgZ	05	47	23	c
		iSgZN			30	

	Mu	Sec
PZ	0·9	0·4

About 55 km
northeast of the observatory

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Date	Station	Phase	h	m	s
7	Qt	ePZ	06	00	48
		USCGS H 05 49 43			
		Near coast of Kamchatka			
7	Wr	ePN	15	29	01
		eSN			27
	Lh	ePZ			43
		isP!Z		30	08
		iS!ZE			45
	Qt	ePZ			00
		eXZ			28
		esPZ			39
		iXN			50
		iSN		31	14
	Kr	ePZE			00
		eSNE		33	00
		H 15 28 26			
		36 N 70¾ E			
		Hindukush			
		depth about 150 km			
7	Qt	ePZ	19	57	48
7	Qt	ePKPZ	19	58	31
		iXZ			42
		e(pPKP)Z	20	00	52
		USCGS H 19 40 52			
		17½ S 179 W			
		Fiji Islands			
		depth about 550 km			
7	Qt	ePZ	22	06	15
		eSNE			56
8	Qt	ePZ	01	19	17 ±
		USCGS H 01 12 15			
		32½ N 25½ E			
		Near coast of Egypt			
8	Lh	ePZ	19	48	02 ±
		eSN			52 06
	Wr	ePN			48 28
	Qt	ePZ			49 01
		eSE*			54 06
		USCGS H 19 42 39			
		Sinkiang Province China			
8	Qt	ePZ	22	45	42
		eSKSE*		56	08
		iScSE*N*			19
		eXN*E*	23	00	27
		eSSN*E*		01	42
		eLN*		07	00
		USCGS H 22 33 05			
		7 S 13 W			
		Ascension Islands region			
		Mag 5·9 (Up, Ki)			
8	Qt	ePZ	23	11	13
9	Qt	ePZ	00	05	25
		eXN*		09	51
9	Lh	eLE	02	57·0	
	Wr	ePN		40	45
	Qt	iPZ			58 d
		iXZ		41	04
		eXN*E*		49	45
		iSE*N*		50	30
		iXN*			42
		iPSE*			58
		iSSE*		55	09
		eXN*		57	47
		eLE*		59·1	
		ePKPPKPZN	03	08	24

	Mu	Sec
PZ	0·8	1·7
SN	2·0	3·5
SN*	0·8	10
SE*	0·9	10

Date	Station	Phase	h	m	s
		USCGS H 02 29 20			
		2 S 137 E			
		New Guinea			
		Mag 6·4 (Qt)			
		6·2 (Up, Ki)			
9	Qt	ePZ	04	48	29
9	Qt	ePZ	07	55	15 c
		USCGS H 07 42 50			
		Andreanof Islands			
		Aleutian Islands			
9	Qt	ePZ	11	10	19 c
		USCGS H 10 59 46			
		46 N 151 E			
		Kurile Islands			
		depth about 100 km			
9	Qt	eXZ	11	45	19
9	Qt	eXZ	13	10	45
9	Lh	iXZ	22	02	05
	Qt	ePZ			38 c
10	Lh	eXZ	00	02	30
	Qt	ePZ			59
10	Lh	ePZ	00	11	33 c
	Wr	ePN			34
	Qt	iPZ		12	11 c

	Mu	Sec
PZ	0·2	1·5

		USCGS H 00 01 30			
		46½ N 151 E			
		Kurile Islands			
		Mag 6·1 (Qt)			
10	Qt	ePKPZ	04	14	53
		USCGS H 03 55 46			
		17 S 172 W			
		Tonga Islands			
10	Lh	iP!Z	19	21	52 d
		eXZ		22	15
		epPZ		23	07
		eSE		29	05
	Wr	ePN		22	15
		eSN		29	49
	Kr	ePZ		22	20
		i(pP)Z		23	40

	Mu	Sec
PZ	0·2	1·5

	Qt	iPZ		22	31 d
		eXZ		23	12
		iSNN*		30	17
		isSN*E*		31	45

	Mu	Sec
PZ	0·3	1·4

		USCGS H 19 12 47			
		3½ N 124½ E			
		Celebes Sea			
		depth about 300 km			
		Mag 5·7 (Qt)			
10	Qt	ePZ	20	38	07
11	Wr	ePN	03	56	03
		eSN			35
	Lh	iSE		57	48
	Qt	ePZ			07
		esPZ			30
		eSEN		58	28
		H 03 55 23			
		36¼ N 71½ E			
		Hindukush			
		depth about 100 km			
11	Wr	ePN	10	53	58
	Qt	ePZ		54	40

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Date		Phase	h	m	s
11	Qt	ePZ	11	07	25
11	Qt	ePKPZ	13	59	24
		eLN*E*	14	54·5	
		USCGS H 13 40 18			
		31½ S 177½ W			
		Kermadec Islands			
11	Kr	ePZ	17	40	07
		eSE			34
	Qt	ePZ			25
11	Qt	ePZ	19	46	11
11	Qt	ePKPZ	21	56	42
		eSKSE*	22	03	22
		USCGS H 21 38 05			
		17½ S 169 E			
		New Hebrides Islands			
		Mag 6¾ (Pas)			
12	Qt	ePZ	04	26	43
12	Wr	ePN	05	46	17
		eSN			53
	Lh	iSE		48	03
	Qt	ePZ		47	20
		eSE		48	48
12	Lh	iPZ	07	17	59
	Kr	ePZ		18	28
		eSN		26	12
	Qt	ePZ		18	40 c
		ePcPZ		19	26
		eSN		26	45
		eLN*E*		33·3	
		Mu Sec			
		PZ 0·1 1·3			
		USCGS H 07 08 38			
		6 N 124½ E			
		Mindanao			
		Philippine Islands			
		Mag 5·7 (Qt)			
12	Qt	ePZ	08	09	10 d
		eLN*		26·6	
		USCGS H 07 58 05			
		52½ N 160½ E			
		Near east coast of Kamchatka			
12	Qt	ePZ	10	22	55 d
12	Qt	ePZ	11	29	24
		USCGS H 11 19 30			
		33 N 140 E			
		South of Honshu, Japan			
		depth about 300 km			
12	Wr	ePN	21	42	08
		eSN			18
	Lh	ePZ			55
		iPgE		43	11
		iSE			45
		iSgE		44	02
	Qt	ePZ		43	09
		eSZE		44	07
		H 21 41 53			
		34 N 70½ E			
		Near Parachinar			
		West Pakistan			
13	Qt	ePZ	10	29	54
13	Qt	ePZ	11	50	39
		eSE		51	07
13	Qt	ePZ	12	12	38
		eSN		23	02
		USCGS H 12 00 03			
		61 N 148 W			
		Southern Alaska			

Date		Phase	h	m	s
13	Qt	ePZ	14	52	30 c
		USCGS H 14 42 30			
		9½ N 126 E			
		Northern Mindanao			
		Philippine Islands			
13	Lh	ePZ	15	59	00
	Qt	ePZ			48 c
		eSNE*	16	06	53
		eSSE*		10	26
		Mu Sec			
		PZ 0·1 0·9			
		USCGS H 15 50 58			
		23½ N 121½ E			
		Near east coast of Formosa			
		Mag 5·9 (Qt)			
14	Qt	ePNZ	02	51	10
		eSN		56	30
		eLN*E*		58·8	
		USCGS H 02 44 30			
		36 N 28 E			
		Dodecanese Islands			
14	Qt	ePZ	10	52	43
		eSN		54	24
14	Lh	ePKPZ	18	45	14
14	Qt	ePKPZ			29 d
		ePPN		47	12
		Mu Sec			
		PKPZ 0·1 1·0			
		USCGS H 18 26 52			
		21 S 176½ W			
		Tonga Islands region			
		depth about 200 km			
14	Qt	ePZ	21	35	08
15	Qt	ePKPZ	08	52	05 d
		USCGS H 08 32 56			
		10 N 80 W			
		Near north coast of Panama			
15	Lh	ePZ	20	57	01 d
		epPZ		58	52
		iSE	21	06	36
		iScSE			47
		esSE		10	05
	Wr	ePN	20	57	17
	Qt	ePZ			32 d
		epPZ		59	24
		esPZN	21	00	26
		ePPZN		01	08
		iSKSNE*		07	19
		eSNE*			40
		eXE*		11	30
		eSSE*		13	56
		Mu Sec			
		PZ 0·4 1·8			
		SKSN 1·2 2·4			
		SN 1·2 2·5			
	Kr	eXZ	20	58	40
		USCGS H 20 45 20			
		4½ S 155 E			
		Solomon Islands region			
		depth about 500 km			
		Mag 6·1 (Qt)			
16	Qt	ePZ	02	27	24
		iPZN			28
		iXZ			39
		iSNZ			57
	Wr	ePN			53
	Lh	e(P)Z			58
		iSE		29	07

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Date	Station	Phase	h	m	s
	Kr	e(P)Z			11
		e(S)E		30	20
16	Qt	ePZ	03	39	06
		ePcPZ			09
		ePPPE*		44	34
		eSE*		49	53
		eSSSE*		59	28
		USCGS H 03 26 05			
		5 S 154 E			
		New Britain			
16	Qt	ePZ	08	38	02
16	Lh	ePZ	12	09	50
		eXZ		10	10
	Qt	ePZ			16
		eXZ			44
		eSKSNE*		20	40
		eSN*		21	00
		eXN*			36
		eSSN*		27	08
		eSSSN*		30	38
		eLN*		34	4
		USCGS H 11 57 16			
		5 S 155 E			
		New Britain region			
16	Qt	ePZ	15	01	20
		USCGS H 14 48 19			
		New Britain after shock			
16	Qt	ePZ	21	05	13
		USCGS H 20 54 20			
		24½ N 143 E			
		Volcano Islands			
16	Lh	ePKPZ	23	51	18
		eXE		52	34
		eXE		54	34
	Qt	ePKPZ		51	25
		eXZ			52
		ePPZN*		54	27
		ePKSZ			53
		ePPPZN		57	30
		eSKSN*		58	27
		eSKKSN*	00	01	04
		ePPSN*		06	31
		e(SS)N*E*		12	27
		Mu Sec			
		MN* 7·8 20			
		ME* 5·5 20			
	Kr	eXZ	23	53	08
		iXN		54	08
		USCGS H 23 31 55			
		10½ N 104 W			
		Pacific Ocean			
		Mag 6·4 (Up, Ki)			
		6½–6¾ (Pas), (Berk)			
		6·5 (Qt)			
17	Qt	ePZ	04	43	53
17	Qt	ePZ	08	28	14 c
17	Qt	eXZ	09	02	13 d
17	Qt	ePZ	12	20	05
		USCGS H 12 07 04			
		5 S 155 E			
		New Britain after shock			
17	Qt	ePZ	12	49	56
		eLN*E*	13	04	5
	Kr	ePZ	12	50	00
		USCGS H 12 39 23			
		29 N 141 E			
		Bonin Islands region			
18	Wr	ePN	04	20	06
		eSN			41

Date	Station	Phase	h	m	s
	Qt	ePZ	21	13	
		esPZ		52	
		eSNE	22	32	
		Hindukush			
		depth about 200 km			
18	Qt	ePKPZ	06	53	53
		ePKSZN		57	27
		USCGS H 06 34 25			
		South Pacific Ocean			
18	Lh	iPZ	08	45	48 d
		iPcPZ		47	18
		iXN		49	27
	Wr	ePN		46	11
	Kr	ePZ			20 d
		eSE		54	01
	Qt	ePZ		46	34
		ePcPZ		47	29
		ePcSNZ		51	33
		eSNN*		54	21
		eScSN		56	26
		iSSE*N*		57	57
		eLN*		59	9
		Mu Sec			
		PZ 0·8 2·0			
		MN* 15·7 21·5			
		ME* 10·0 20			
		USCGS H 08 36 57			
		12 N 124 E			
		Philippine Islands			
		Mag 6·5 (Qt), 6·5 (Up, Ki)			
18	Qt	ePKPZ	21	29	59
		ePKPZ		30	48
		USCGS H 21 10 42			
		16½ N 99 W			
		Mexico aftershock			
18	Wr	ePN	21	52	49
	Qt	iPZ		53	25
		iPcPZ			47
		iSNN*E*	22	02	13
		iScSNE*		03	20
		iSSN*		06	36
		Mu Sec			
		PZ 0·6 2·0			
		MN* 50 27			
		ME* 18·6 20			
	Kr	ePZ	21	53	48
		iPZ			50
		iPcPZ		54	04
		iScSZ	22	03	57
		USCGS H 21 42 30			
		50 N 157 E			
		Northern Kurile Islands			
		Mag 6½ (Pas)			
		6¼–6½ (Berk)			
		6·5 (Qt)			
19	Qt	ePZ	00	24	07
		USCGS H 00 11 13			
		4½ S 153 E			
		New Britain aftershock			
19	Wr	ePN	05	56	54
	Qt	ePEZ		57	49
		eSE		59	07
		H 05 56 07			
		Northern Afghanistan			
19	Wr	ePN	06	03	34
		eSN		04	01
	Qt	ePZE			25
		eSE		05	30
	Lh	e(S)Z			20

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Date	Station	Phase	h	m	s	
		H 06 02 58				
		35½ N 69½ E				
		Hindukush				
19	Qt	ePZ	06	22	59	c
		Mu Sec				
		PZ 0·2 1·2				
		USCGS H 06 10 28				
		52½ N 169 W				
		Fox Islands				
		Aleutian Islands				
19	Qt	iPZ	07	26	16	d
		iSE*N*		29	24	
		eLN*		30·9		
		Mu Sec				
		PZ 0·7 1·9				
	Wr	ePN	07	26	37	
	Kr	ePZ		27	01	
	Lh	ePZ			10	
		e(S)Z		31	12	
		USCGS H 07 22 29				
		Caspian Sea				
		Mag 5·5 (Qt)				
19	Qt	eSKSE*	11	58	43	+
		iPSN*E*	12	01	25	
		eSSN*		06	33	
		USCGS H 11 34 36				
		10 S 161 E				
		Solomon Islands				
		Mag 6½ (Pas)				
19	Wr	ePN	21	44	00	
	Lh	ePZ			01	d
	Qt	ePZ			28	d
		ePcPZ			34	
		ePPZ		47	46	
		eSN*N		54	51	
		eScSN*N		55	05	
		eLN*E*	22	06·5		
		Mu Sec				
		PZ 0·4 1·8				
		PPZ 0·3 2·2				
	Kr	ePZ	21	45	00	+
		USCGS H 21 31 55				
		51½ N 171 W				
		Fox Islands				
		Aleutian Islands				
		Mag 6·3 (Qt)				
20	Wr	e(P)N	01	51	17	
	Lh	ePZ			39	
		eSE		52	49	
	Qt	ePZ			20	d
		esPZ			51	
		eSE		54	01	
	Kr	ePZ		53	20	
		H 01 50 10				
		37½ N 73 E				
		Pamirs Tadzhikistan				
		depth about 100 km				
20	Qt	ePZ	05	07	57	
20	Qt	ePZ	06	40	51	
		ePPZ		44	56	
		iSKSN*E*		51	29	
		iSN*		52	15	
		iPSN*E*		53	46	
		eSSN*		59	00	
	Kr	eXZ		42	34	
		USCGS 06 27 07				
		10 S 161 E				
		Solomon Islands foreshock				
		Mag 6–6¼ (Pas)				

Date	Station	Phase	h	m	s	
20	Qt	ePZ	12	15	38	
		iSKSE*N*		26	10	
		iPSE*		28	35	
		iSSN*E*		33	47	
		USCGS H 12 01 54				
		10 S 161 E				
		Solomon Islands				
		Mag 6½ (Pas), 6¼–6½ (Berk)				
20	Wr	iPN	15	21	55	
		eSN		22	28	
	Lh	iPZ		22	31	d
		isPE		23	22	
		iSE			33	
	Qt	iPZ		22	54	c
		iSZN		24	14	
		Mu Sec				
		PZ 0·8 0·9				
		SZ 1·6 1·1				
	Kr	ePZEN	15	23	55	
		isPZ		24	38	
		iSNE		26	03	
		Mu Sec				
		PZ 0·8 0·5				
		PN 0·4 0·5				
		SN 2·1 1·0				
		SE 1·3 1·0				
		H 15 21 13				
		36½ N 71 E				
		Hindukush				
		depth about 200 km				
		Felt Peshawar and				
		Warsak				
		USCGS H 15 21 06				
		37 N 71½ E				
		Hindukush				
		depth about 200 km				
		Mag 5·9 (Qt)				
20	Lh	ePZ	22	29	03	
	Qt	ePZ			30	d
		USCGS H 22 17 05				
		52 N 173 W				
		Andreanof Islands				
		Aleutian Islands				
20	Wr	ePN	22	37	29	
	Lh	ePZ			31	
	Qt	ePZ		38	18	c
		eXZ		40	34	
		USCGS H 22 32 06				
		Outer Mongolia				
21	Qt	ePZ	12	03	48	
		USCGS H 11 51 12				
		52½ N 168 W				
		Fox Islands				
		Aleutian Islands				
21	Wr	ePN	15	43	38	
	Lh	iPZ			42	d
		eSE		51	26	
	Qt	iPZ		44	23	d
		Mu Sec				
		PZ 0·5 1·7				
		USCGS H 15 33 57				
		44½ N 147 E				
		Kurile Islands				
		Mag 6·4 (Qt)				
21	Qt	ePKPZ	17	57	38	
		USCGS H 17 38 38				
		15 S 173½ W				
		Samoa Islands region				
21	Lh	ePZ	19	43	14	
		ePcPZ			20	
	Qt	ePZ			40	d
		ePcPZ			46	
		eSN		54	07	
		Mu Sec				
		PZ 0·3 1·6				

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Date	Station	Phase	h	m	s
		USCGS H 19 31 08			
		51½ N 171 W			
		Fox Islands			
		Aleutian Islands			
		Mag 6·3 (Qt)			
22	Wr	ePN	03	47	29
	Qt	ePZ		48	06 c
		iXZ			10
		eSN		56	20
		Mu Sec			
		PZ 0·2 1·3			
		USCGS H 03 37 57			
		41½ N 142½ E			
		Near south coast of			
		Hokkaido, Japan			
		Mag 6·0 (Qt)			
22	Lh	ePZ	08	04	58 d
		eSE		12	51
	Wr	ePN		05	21
	Kr	ePZ			25
	Qt	ePZ			35 d
		ePcPZ		06	14
		eSNN*		13	59
		iScSN*E*		15	26
		eSSN*		18	02
		eLN*E*		19·9	
		Mu Sec			
		PZ 0·2 1·5			
		USCGS H 07 55 06			
		1 N 126 E			
		Molucca Passage			
		Mag 6·0 (Qt)			
22	Wr	ePN	15	15	29
	Qt	ePZ		16	08
		eSNE		17	19
		H 15 14 34			
		Northern Afghanistan			
22	Qt	ePZ	15	37	38
		USCGS H 15 27 10			
		3 N 126½ E			
		Molucca Passage			
22	Qt	ePKPZ	17	02	05
		USCGS H 16 43 35			
		16 S 168 E			
		New Hebrides Islands			
22	Qt	ePZ	18	06	44
22	Qt	ePZ	18	17	49 c
22	Qt	ePZ	18	23	54
22	Lh	eXE	18	30	15
	Wr	ePN			25
	Qt	iPZ			31 35
		Mu Sec			
		PZ 0·4 1·6			
23	Lh	eXE	02	12	43
	Qt	ePZ		13	07
		ipPZ			33
		isPZ			48
		ePPZ		16	31
		eX!E*N*		19	27
		eSKSE*		23	26
		iSN*NE*			49
		isSN*N		24	32
		eSSN*		29	49
		eLN*		37·1	
	Kr	ePZ		13	28
		eSN		24	32
		H 02 00 16			
		depth about 100 km			
		USCGS H 02 00 05			
		6 S 154½ E			

Date	Station	Phase	h	m	s
		New Britain aftershock			
		Mag 6½ (Pas)			
23	Lh	ePZ	11	50	28
		eXZ			33
	Wr	ePN			56
	Qt	ePZ		51	21
		iXZ			28
		ePcPZ		52	47
		eSN*E*		58	27
		Mu Sec			
		ME* 2·0 16			
		MN* 1·4 16			
	Kr	ePZ	11	51	24
		USCGS H 11 42 34			
		24 N 122 E			
		Off east coast of Formosa			
		Mag 5·8 (Qt)			
23	Qt	ePZ	13	46	46
		epPZ		47	10
		USCGS H 13 33 31			
		6 S 154 E			
		Solomon Islands			
		depth about 100 km			
23	Qt	ePZ	16	33	59
23	Qt	ePZ	17	35	31
		USCGS H 17 24 20			
		Near east coast of			
		Kamchatka			
23	Lh	ePZ	23	00	11
	Wr	ePN			39
	Qt	ePZ			45 c
		ePPZ		02	55
		eSN*		08	35
		eScSN*		10	32
		Mu Mu			
		Mu Sec			
		PZ 0·2 1·5			
		H 22 51 00			
		USCGS H 22 51 10			
		7 S 112 E			
		Java			
		Mag 5·9 (Qt)			
24	Wr	ePN	08	34	03
		eSN			47
	Qt	ePZE		35	08
		eSEN		36	45
		H 08 33 02			
		38 N 71 E			
		Afghanistan-Tadzhikistan			
		border			
24	Wr	ePN	19	19	05
		eSN			38
	Lh	ePZ			30
		eSE		20	18
	Qt	eSNE		21	44
24	Kr	ePZ	21	52	14 d
	Qt	ePZ			32
24	Wr	ePN	23	15	27
		eSN			48
	Lh	eXZ		16	16
		i(S)E		17	05
	Qt	ePZ		16	26
		esPNZ			52
		eSEN		17	30
		H 23 14 58			
		35½ N 70½ E			
		Hindukush			
		depth obout 100 km			
25	Qt	ePZ	13	49	13 d

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Date	Station	Phase	h	m	s	
		eXNZ			16	
		eSNE			27	
	Kr	ePN		50	36	
		eSE		52	08	
		Southern Afghanistan				
25	Qt	ePZE	16	29	18	
25	Qt	ePZE	16	51	40	
25	Wr	ePN	19	07	31	
		eSN		08	03	
	Qt	ePZN			30	
		eSNE		09	48	
		H 19 06 48				
		36¾ N 70 E				
		Northern Afghanistan				
25	Qt	ePZN	21	08	04	d
		iSNE		10	29	
	Wr	ePN		08	08	
25	Wr	ePN	21	21	40	
	Qt	iPZ			43	d
		iXZ			55	
		Mu Sec				
		PZ 0·3 1·5				
		USCGS H 21 11 45				
		10 S 111 E				
		Off south coast of Java				
26	Qt	ePZ	07	06	04	d
		eSN		16	17	
		Mu Sec				
		PZ 0·2 1·5				
	Kr	ePZ	07	06	32	
		USCGS H 06 53 43				
		51 N 177 W				
		Andreanof Islands				
		Aleutian Islands				
26	Qt	iPKPZ	11	48	14	c
		e(PP)ZE*		50	42	
		iPKSE*N*		51	47	
		eSKKSN*		57	47	
		Mu Sec				
		PKPZ 1·1 2·0				
		PPZ 1·4 3·0				
		ME* 11·7 18				
		MN* 6·6 17				
	Wr	ePKPN	11	48	21	
	Kr	ePKPZN			28	
		iPPE		50	54	
		ePKSE		51	57	
	Lh	ePKPZ		48	18	
		iPPE		51	22	
		ePKSE		52	05	
		USCGS H 11 28 50				
		19 S 63 W				
		Southern Bolivia				
		Mag 6·6 (Qt), 6½–6¾ (Pas),				
		6¾ (Berk), 6·2 (Up, Ki)				
26	Wr	ePN	12	54	38	
	Lh	ePZ		55	10	
		eSN			49	
	Qt	ePZE			26	
		iSEN		56	18	
		H 12 54 17				
		33 N 71 E				
		Near Bannu				
		West Pakistan				
26	Kr	e(PKP)ZE	14	18	01	
		ePKPN			29	
	Wr	ePKPN			16	

Date	Station	Phase	h	m	s	
	Qt	ePKPZN			17	
		e(PP)ZN*		20	56	
		ePKSNE*		21	53	
	Lh	ePKPZ		18	18	
		USCGS H 13 58 48				
		12 S 81 W				
		Near coast of Ecuador				
		Mag 6·0 (Pas)				
		6·4 (Up, Ki)				
26	Qt	ePZ	16	13	38	
26	Qt	ePKPZ	18	41	41	c
		USCGS H 18 22 18				
		19 S 63 W				
		Southern Bolivia				
26	Lh	ePZ	20	06	00	
		epPZ			26	
		eSN		16	15	
		esSN			58	
	Qt	ePZ		06	29	
		epPZ			56	
		eSN*		17	14	
		esSN*			58	
		USCGS H 19 53 33				
		5½ S 154 E				
		Solomon Islands region				
		depth obout 100 km				
27	Qt	ePZ	17	26	47	d
	Kr	iPZ		27	04	d
27	Qt	ePZ	20	13	05	
		eSNE		14	18	
27	Qt	ePKPZ	21	14	14	c
		USCGS H 20 56 29				
		25½ S 178 E				
		South of Fiji Islands				
		depth about 650 km				
28	Qt	epKPZ	08	38	18	
		USCGS H 08 19 10				
		28½ S 175 W				
		Kermadec Islands region				
28	Qt	ePZ	12	03	04	
28	Kr	ePZNE	14	05	16	
		iX!E			19	
		eSNE			54	
		iSZ			56	
	Qt	ePZ			18	
		ePgZN			30	
		eSN			59	
		H 14 04 26				
		27½ N 64¾ E				
		Mekran Range				
		West Pakistan				
28	Qt	ePZ	19	29	30	
		eSNE		31	03	
28	Qt	ePZ	23	23	33	
28	Lh	ePZ	23	32	52	
	Qt	ePZ		33	35	
	Kr	ePZE		34	05	
		USCGS H 23 22 21				
		21 N 145 E				
		Mariana Islands				
		Mag 5·7 (Up, Ki)				
28	Lh	ePKPZ	23	42	07	
		USCGS H 23 22 22				
		21½ S 69 W				
		Northern Chile				
		depth slightly greater than normal				

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Date	Station	Phase	h	m	s
29	Lh	ePZ	00	00	45
	Qt	ePZ		01	28
		eSN		10	37
	Kr	eXN		02	29
		USCGS H 23 50 15			
		21 N 145 E			
		Mariana Islands			
29	Qt	ePZ	01	09	01
		USCGS H 00 57 45			
		21 N 145 E			
		Mariana Islands			
29	Qt	ePKPZ	13	06	21
		epPKPZN		07	00
	Wr	ePKPN		06	36
		USCGS H 12 47 06			
		San Juan Province			
		Argentina			
		depth about 150 km			
29	Qt	ePZ	16	51	33
		USCGS H 16 40 22			
		Mariana Islands region			
30	Qt	ePKPZE	04	09	43
		USCGS H 03 50 36			
		Kermadec Islands region			
30	Wr	ePN	16	19	24
	Lh	ePZ			55 c
		iXZ		20	30
		iS!E		21	24
	Qt	ePZ		20	29 c
		iXZN		21	21
		iSN*NE*		22	28
	Kr	ePZ		21	33
		iSNE		24	24
		iSSE			47
		Mu Sec			
		PZ 0·1 0·8			
		SE 0·9 1·5			
		SN 1·0 1·5			
		H 16 17 55			
		39 N 73 E			
		Tadzhik, S.S.R.			
		USCGS H 16 17 56			
		39 N 73 E			
		Tadzhik, S.S.R.			
		Mag 5·8 (Up, Ki)			
		5·9 (Kr)			
30	Qt	ePZ	17	03	55 c
		epPZEN		04	08
		Mu Sec			
		PZ 0·2 1·5			
		USCGS H 16 53 47			
		37½ N 141 E			
		Near east coast of Honshu Japan			
		depth about 60 km			
		Mag 5·8 (Qt)			
30	Lh	ePZ	20	12	06
	Qt	ePZ			56
		eSNN*		20	03
		eSSE*N*		23	28
		USCGS H 20 04 01			
		20½ N 121½ E			
		Batan Islands region			
		Mag 5·6 Up, Ki)			
31	Qt	ePZ	01	39	38 c
31	Wr	ePN	01	48	34
	Lh	ePZ		49	09
	Qt	ePZ			39

Date	Station	Phase	h	m	s
		eSN		51	35
		Tadzhik aftershock			
31	Qt	ePZ	01	56	50
31	Wr	ePN	05	08	23
		eSN			57
	Qt	ePN		09	17 ±
		eSNE		10	27
31	Qt	ePZN	05	44	21
		iSNE			43
31	Wr	ePN	12	06	38
	Lh	ePZ			38
	Qt	ePZ		07	27
		ePPZ		08	24
		eXN		11	30
		e(S)N		12	20
		Mu Sec			
		PZ 0·2 1·5			
		USCGS H 12 01 06			
		49 N 100 E			
		Outer Mongolia			
		Mag 5·6 (Qt)			

Abdul Qadir Khan

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Geophysical Institute
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International Seismological Centre From the ISC collection scanned by SISMOS

Date	Phase	h	m	s
	Quetta			
1	ePZN	05	51	25
	eSEN			31
1	ePZ	**17**	13	44
	eSNE			54
1	ePZ	21	18	53
	eSNE		19	14
2	ePZ	00	46	11
	eSE			31
2	ePZ	14	46	56
	eSN		47	06
3	ePZ	15	05	19
3	eXZ	18	58	04
3	ePZ	18	58	31
3	ePZ	21	05	56
4	ePZ	00	58	33
4	eXZ	23	15	07
5	ePZ	05	44	40
5	ePZ	09	31	30
	eSNE			32
5	ePZ	19	22	27
6	ePZ	02	34	02
	eSNE			23
6	ePZ	15	36	15
	eSE			35
6	ePZ	17	32	17
	eSE			19
7	ePZ	15	06	56
7	ePZ	20	51	20
7	ePZ	22	10	34
7	ePZ	22	27	12
	eSE			31
9	ePZ	00	05	25
	eXN			09	51
9	ePNE	17	30	33
	eSNE			32	02
10	iPZ	00	12	11
10	ePZ	05	44	40
	eSE			44	58
10	ePZ	15	29	17
11	ePZ	01	17	09
	eSE			19
11	ePZ	09	34	25
	eSE			45
11	ePZ	09	40	23
	eSE			41	19
11	ePZ	11	55	06
	eSE			31
11	ePZ	12	26	18
	eSE			39
11	ePZ	15	47	06
11	e(P)Z	16	24	57
	eSE			25	47
11	ePZ	18	15	27
12	eXZ	06	30	44
12	eSE	13	27	30
12	ePE	23	06	19
13	ePZ	04	12	34
	eSE			37
13	ePZ	06	43	34
	eSE			44	05
14	ePZ	10	46	15
	eSE			41
15	ePZ	04	50	24

Date	Phase	h	m	s
	eSE			31
15	iPZE	11	14	03
	iSE			05
16	ePZ	03	20	36
16	ePZ	04	19	28
	eSE			38
16	ePZ	07	39	51
17	iPgZ	01	36	35
	iSgE			42
17	ePZ	02	34	29
17	ePZ	15	17	24
	eSE			49
17	ePZ	19	08	33
18	ePZ	01	52	37
	eSE		53	01
18	ePE	06	23	37
	eSE			49
18	ePZ	11	07	03
	eSE			20
18	ePZ	15	13	16
	eSE			19
18	ePZ	17	38	05
	eSE			23
18	iPZ	22	31	57
	iSN		32	12
19	ePZ	00	55	57
19	eXZ	01	43	36
19	ePZ	**17**	02	51
	eSE		03	11
19	ePZ	18	11	56
	eSE			12	16
19	ePZ	21	27	12
	eSE			35
20	ePZ	04	50	41
	eSE			51	00
20	ePZ	17	11	19
	eSE			56
21	ePZ	16	09	14
	iXZ			15
	eSE			31
21	iPZ	22	38	17
	iSE			19
22	ePZ	16	43	14
	eSE			42
22	ePZ	21	56	27
	e(S)E			59
23	ePZ	04	11	55
23	ePZ	07	00	27
23	ePZ	12	24	36
	eSN			39
23	ePZ	16	25	04
23	ePN	18	45	51
24	ePZ	00	26	00
24	ePZN	00	56	16
	eSN			38
24	ePZE	03	31	37
	eSEN			32	01
25	eXE	16	15	05
25	ePE	19	23	45
	eSNE			48
26	ePNE	03	09	07
	eSE			19

International Seismological Centre From the ISC collection scanned by SISMOS

Date	Phase	h	m	s
26	ePZ	06	43	05
	eSE			18
26	ePZ	16	53	46
	eSNE		54	13
26	ePZ	21	30	22
26	ePZ	21	34	47
	eSE		35	02
27	ePN	04	44	02
	eSNE			33
27	ePZ	13	37	29
27	ePZ	19	10	47
28	ePZ	09	I8	31
	eSN			45
28	ePZ	11	09	50
29	eXZN	07	12	54
29	ePZ	13	30	27
29	ePE	22	14	04
29	ePE	22	21	39
29	ePEN	22	45	21
30	ePZ	20	28	40
31	ePE	08	08	06
	eSE			08
31	eXE	11	30	53
	eXN		31	00
31	ePE	13	50	52
31	ePE	14	37	39
	eSEN		38	50
	eXN			55
31	ePE	20	46	17
	eSEN			24
	Warsak			
3	ePN	06	05	07
	eSN			19
4	ePN	13	51	37
	eSN		52	17
4	ePN	21	24	26
5	ePN	05	42	33
	eSN			52
5	ePN	15	14	08
6	ePN	07	43	32
	eSN		44	03
6	ePN	22	56	54
	eSN		57	24
7	ePN	04	28	53
8	ePN	04	59	32
9	ePN	16	07	53
	eSN		08	27
9	ePN	17	29	34
	eSN		30	07
10	ePN	00	15	19
	eSN			47
11	ePN	11	46	51
12	ePN	02	39	38
	eSN		40	09
12	ePN	07	16	58
13	ePN	15	38	16
	eSN			44
14	ePN	11	01	33·3
	eSN		02	09·8
15	ePN	21	17	33
16	ePN	10	28	32
16	ePN	23	27	38
	eSN		28	11
17	ePN	12	45	52
19	ePN	19	06	14
21	ePN	19	16	45
22	ePN	20	06	08

Date	Phase	h	m	s	
22	ePN	20	15	18	
23	ePN	10	21	52	
23	ePN	21	36	49	
25	ePN	01	04	43	
25	ePN	03	22	47	
25	ePN	07	32	10	
26	ePN	03	26	55	
26	ePN	13	41	34	
	eSN		42	10	
27	ePN	04	43	32	
27	ePN	05	16	06	
27	ePN	09	33	29	
28	ePN	21	42	08	
28	ePN	23	21	22	
29	ePN	11	34	42	
	eSN		35	02	
30	ePN	05	31	22	
30	ePN	15	45	14	
30	ePN	19	17	48	
31	ePN	14	36	42	
	eSN		37	13	
	Lahore				
15	ePZ	21	17	31	
	eSE		18	18	
16	iPZ	15	53	48	d
	eSE		54	12	
19	eXZ	06	05	04	
	iSE			20	
	iXE			42	
21	iPZ	22	11	34	
	iS!E			36	
23	eXZ	23	14	48	
28	eXZ	14	09	27	
30	eXZ	20	27	25	
30	ePZ	20	44	30	
	eSE		45	05	
31	ePZ	05	10	14	
	iSZ		11	13	
	Karachi				
5	ePZ	10	17	48	d
11	eXZ	21	24	48	
11	eXZ	21	57	13	
12	eXE	21	45	58	
13	eXZ	12	13	36	
14	eXN	14	43	23	
14	ePKPE	18	45	00	
16	ePN	07	21	21	
	iSE			59	
17	eXZ	01	37	18	
19	e(P)Z	11	47	31	d
	eXE		57	01	
	iXN		59	14	
19	ePZ	21	45	00	
	eXN		54	58	
21	iXZ	15	46	13	
22	eXZ	15	37	05	
22	ePE	15	55	22	
	eSE		57	18	
23	eXZ	13	48	59	
25	ePE	13	50	36	
25	eSE		52	08	
	eXN	21	11	19	

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Instruments	Components	Period Seismo & Galvo	Damping	Max. Magnification
Karachi				
Sprengnether	Z	1·8 sec.	Critical	5,890
,,	N	1·6 ,,	,,	4,700
,,	E	1·4 ,,	,,	4,700
Chittagong				
Sprengnether	Z	1·7 ,,	Critical	5,200
,,	N	1·8 ,,	,,	4,700
,,	E	1·5 ,,	,,	3,600
,,	N	7·0 ,,	,,	6,600
Willmore	Z	{ Seismo = 1 sec. Galvo = ¼ ,,	—	—
Warsak				
Sprengnether	N	2·0 sec.	Critical	4,000
Willmore (with Sprengnether galvo & recorder	Z	1·0 ,,	—	—

* indicates long period seismographs, Sprengnether or Milne-Shaw

c=compression, d=dilatation X=unidentified phase.

Mu=Actual ground motion of the indicated phase in microns.

Sec=Period of the indicated phase in seconds.

(Pas), (Berk), (Up), (Ki) stand for seismological observatories Pasadena (U.S.A.), Berkley (U.S.A.), Uppsala (Sweden), Kiruna (Sweden) respectively.

All times are in Greenwich Mean Time.

International Seismological Centre From the ISC collection scanned by SISMOS

ROYAL OBSERVATORY
15 JUN 1959
EDINBURGH

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PAKISTAN METEOROLOGICAL SERVICE
GEOPHYSICAL INSTITUTE
QUETTA.

Particulars of Stations and Instruments

(a) Stations

Station	Symbol	Latitude	Longitude	Height (a.s.l.)	Ground
Quetta	Qt	30° 11′·3 N	66° 57′·0 E	1719 meters	Cretaceous Limestone
Lahore	Lh	31° 33′·0 N	74° 20′·0 E	210 „	Alluvium
Karachi	Kr	24° 49′·8 N	67° 02′·2 E	30 „	Alluvium
Chittagong	Ch	22° 21′·5 N	91° 49′·0 E	15 „	Alluvium
Warsak	Wr	34° 09′·0 N	71° 25′·0 E	343 „	River Terrace

(b) Instruments

Instruments	Components	Period Seismo & Galvo	Damping	Max. Magnification
Quetta (Central Station)				
Sprengnether	Z	1·9 sec.	Critical	5,500
„	N	1·95 „	„	4,500
„	E	1·95 „	„	5,800
„	N	15·8 „	„	15,000
„	E	16·5 „	„	16,000
Willmore	Z, N & E	Seismo = 1 sec. Galvo = $\frac{1}{4}$ „	—	—
Milne-Shaw	E	12 sec.	20:1	250
Sprengnether Pen recorder	E	1·0 „	—	—
Lahore				
Sprengnether	Z	1·8 „	Critical	4,900
„	N	1·7 „	„	4,200
„	E	1·6 „	„	4,100

(Contd. on inner side of back cover)

International Seismological Centre From the ISC collection scanned by SISMOS

Date	Station	Phase	h	m	s
1	Wr	ePN	04	36	31
		eSN		37	10
	Lh	e(S)E		38	13
	Qt	ePZN		37	34
		eSNE		39	03
		H 04 35 39			
		Northern Afghanistan			
1	Wr	ePN	12	51	21
		eSN		52	31
	Lh	iPZ		51	46 c
		iXZ			56
		iXZ		52	29
		iXE		53	03
		iSE			14
	Qt	ePZ		52	29 c
		iPZ			31
		iXZ		53	22
		eSN		54	25
		eSNN*			33
		Mu Sec			
		PZ 0·2 1·1			
		SN 1·7 1·5			
Kr		ePZN	12	53	30
		iXZ		54	10
		iSN		56	28
		H 12 49 51			
		39½ N 75 E			
		Western Sinkiang Province China.			
		USCGS H 12 49 55			
		39 N 75 E			
		Western Sinkiang Province China			
		Mag 5·4 (Up, Ki)			
2	Lh	ePZ	00	10	45
		eXZ		12	28
		iSE		19	34
	Qt	ePZ		11	27
		e(PcP)Z			36
		eXN		13	17
		eSN		20	50
		eScSE*N*		21	31
		eSSE*N*		25	32
		Mu Sec			
		PZ 0·2 1·5			
		SN 1·0 2·5			
		USCGS H 23 59 54			
		18 N 147½ E			
		Mariana Islands region			
		Mag 5·9 (Up, Ki), 6·0 (Qt)			
2	Qt	ePZ	00	38	47
		USCGS H 00 27 26			
		18 N 147 E			
		Mariana Islands			
		depth about 100 km			
2	Lh	ePZ	03	40	33
	Wr	ePN		41	05
	Qt	ePZ			36 e
		eSNN*		46	09
		Mu Sec			
		PZ 0·1 1·3			
		USCGS H 03 36 00			
		India-Burma border region			
		Mag 5·4 (Qt)			
2	Wr	ePN	09	58	29
		eSN		59	42
	Qt	ePZN			32

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Date	Station	Phase	h	m	s
		eSNE	10	01	27
	Lh	eXZ	09	59	39
		eSE	10	00	41
		Tadzhik-Kirghiz border			
2	Qt	eXZN	10	07	05
		iSKSE*		12	35
		iSKKSE*		14	14
		iPSE*		17	08
		eXE*		20	30
		e(SS)E*		23	55
		USCGS H 09 46 30			
		15 S 173½ W			
		Somoa Islands			
		Mag 6–6¼ (Berk)			
2	Wr	ePN	14	32	23
	Lh	i!PZ			27 d
		iSE		42	37
	Qt	iPZ		32	52 d
		ePPZN		36	08
		iSNN*E*		43	23
		ePSE*		44	17
		iPPSE*			47
		eSSN*E*		48	40
		eLN*E*		54·4	

	Mu	Sec
PZ	1·3	1·9
PPZ	0·6	2·4
SN	0·8	2·5

Kr		ePZ	14	33	14
		USCGS H 14 20 13			
		51½ N 168 W			
		Fox Islands			
		Aleutian Islands			
		Mag 6·7 (Qt),			
		6·2 (Up, Ki)			
2	Qt	ePZ	18	15	20
		e(S)Z		17	34
2	Wr	ePN	21	28	19

	Mu	Sec
PN	17·7	0·5

	Lh	i!PZ	21	28	57 d
		i(sP)Z		29	25
		iXZ			48
		i!SEZ			53
	Qt	i!PZ			20 d
		isPZN			56
		i!SNN*		30	37

	Mu	Sec
PZ	6·1	1·7
SN*	7·4	8·5

Kr		iPZE	21	30	23 d
		isPZE		31	12
		iSE		32	31

	Mu	Sec
PZ	2·5	1·8
PE	2·2	2·0
SE	4·2	1·5

H 21 27 40
36½ N 71 E
Hindukush
depth about 200 km
Felt Peshawar, Sargodha,
Jhang and Warsak

Date	Station	Phase	h	m	s
		USCGS H 21 27 36			
		37 N 71 E			
		Hindukush			
		depth about 200 km			
		Mag 6·4 (Qt) 6·1 (Kr),			
		5·7 (Up, Ki)			
3	Wr	ePN	02	30	20
		eSN			57
	Lh	eSE		32	17
	Qt	ePNZ		31	29
		H 02 29 30			
		Afghanistan-Tadzhikistan			
		border			
3	Qt	ePZN	05	30	25
3	Qt	ePZN	08	02	26
		USCGS H 07 49 52			
		53 N 167 W			
		Fox Islands			
		Aleutian Islands			
3	Qt	eXZ	13	09	05+
3	Qt	ePKPZN	14	58	14
		USCGS H 14 39 34			
		Fiji Islands region			
		depth about 600 km			
3	Qt	ePZ	20	49	28
4	Qt	ePZ	04	37	35
		USCGS H 04 25 05			
		Fox Islands			
		Aleutian Islands			
4	Qt	ePZ	04	45	33
		ePcPZ			41
		eSN*E*		55	06
		iScSN*			44
		eLN*E*	05	04·0	

	Mu	Sec
MN*	2·3	16
ME*	2·1	18

		USCGS H 04 33 51			
		South Indian Occan			
		About 1000 miles			
		northeast of Kerguelen			
		Islands			
		Mag 5·9 (Qt)			
4	Qt	iPZ	08	08	02 d
		iXZ			11
		iSNE			30

	Mu	Sec
PZ	2·3	1·2
PN	1·8	1·2

	Kr	iPZNE	08	08	14 c
		iSN			55

	Mu	Sec
PZ	1·3	1·0
PN	1·7	0·8
PE	0·5	0·6

	Lh	iPZ	08	09	19 d
		iXE			28
		iXE		10	42
		iSE			52
	Wr	ePN		09	24

	Mu	Sec
PN	0·5	0·5

H 08 07 23
28 N 66¼ E
Near Khuzdar, Kalat
West Pakistan

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Date	Station	Phase	h	m	s
		USCGS H 08 07 15			
		28 N 65½ E			
		West Pakistan			
		Mag 5·9 (Qt),			
		6·0 (Kr)			
4	Lh	ePZ	12	39	02
	Qt	ePZ			25
		USCGS H 12 26 35			
		4 S 151½ E			
		New Britain			
4	Qt	ePZ	20	15	58 c
4	Qt	eXZ	22	32	25
		eXZ			33
5	Qt	ePZ	04	14	30
		USCGS H 04 01 49			
		55½ N 159 W			
		Alaska Peninsula			
5	Qt	eXZ	07	32	26
5	Qt	ePZ	07	36	22
		eSN		45	24
		eLN*		52·0	
		USCGS H 07 25 19			
		53½ N 160½ E			
		Near east coast of			
		Kamchatka			
5	Qt	ePZ	09	40	56
5	Qt	ePZ	11	38	56 d
		iXZ		39	50
		iXN		40	05
		eSEN		41	05
		iSEN			12
		eLNE*			40
	Kr	ePZE		39	08
		iXZ			51
		i(S)N		41	17
		i(S)E			42
	Wr	ePN		39	36
	Lh	ePZ		40	16
		USCGS H 11 36 07			
		Southern Iran			
5	Wr	eSN	12	40	25
	Lh	e(P)Z			37
		iSE		41	35
	Qt	ePZ		40	46
		eSNE		42	00
		H 12 39 11			
		Hindukush			
5	Qt	ePZE	13	59	55
		USCGS H 13 50 33			
		Java			
6	Qt	ePKPZ	00	37	15
		ePPZ		40	26
		e(PKS)Z		41	31
		e(SKKS)E*		46	52
	Lh	ePKPZE		37	24
		epPKPZ			52
		USCGS H 00 17 55			
		20 S 68 W			
		Chile-Bolivia border			
		depth about 100 km			
6	Qt	ePZE	01	26	10
6	Lh	ePZ	05	06	30
	Qt	ePZ			58 d
		e(PcP)Z		07	11
		ePPZ		10	02
		eSE*		17	04

Date	Station	Phase	h	m	s
		iSNE*N*			11
		iScSNN*E*			25
		eSSN*		22	29
		eLN*E*		28·4	
		Mu Sec			
	PZ	0·1 1·1			
		USCGS H 04 54 37			
		51 N 177 W			
		Andreanof Islands			
		Aleutian Islands			
		Mag 5·7 (Up, Ki), 5·8 (Qt			
6	Qt	ePZ	07	17	24
6	Wr	ePN	08	45	03
	Qt	ePZ			09
		eSN		47	15
6	Qt	ePZ	12	00	32
		eSZ		01	07
	Kr	ePE		00	45
		iSE		01	19
		Baluchistan			
6	Qt	ePZ	20	29	36
		eXZN		31	32
	Lh	e(P)Z		30	15
		USCGS H 20 22 10			
		Southern Yugoslavia			
7	Qt	ePKPZ	01	29	34
		USCGS H 01 10 32			
		8½ N 72 W			
		Western Venezuela			
7	Wr	ePN	06	58	54
	Lh	ePZ			54
		eScSE	07	08	45
	Qt	iPZ	06	59	30 c
		ePcPZ			59
		iSN*	07	08	18
		eScSNN*		09	25
		eXN*		13	07
		Mu Sec			
	PZ	0·5 2·0			
	Kr	ePZ	06	59	56 c
		USCGS H 06 48 36			
		50 N 156 E			
		Northern Kurile Islands			
		Mag 6·4 (Qt)			
7	Wr	ePN	07	39	49
		eSN		40	29
	Qt	ePZN			56
		eSN		42	25
		H 07 38 55			
		Afghanistan-Tadzhikistan			
		border			
7	Wr	ePN	10	18	31
	Lh	ePZ			32
		eSE		28	11
	Qt	ePZ		19	00 d
		iPcPZ			08
		ePPZ		22	10
		iSN*E*		29	04
		iScSNE*			18
		iSSE*N*		34	25
		eLN*E*		39·0	
		ePKPPKPZ		45	36
		Mu Sec			
	PZ	0·3 1·5			
	PPZ	0·3 2·0			
	ME*	9·0 20			
	MN*	15·2 24			

Date	Station	Phase	h	m	s
	Kr	ePZ	10	19	23 d
		USCGS H 10 06 47			
		51½ N 178½ W			
		Andreanof Islands			
		Aleutian Islands			
		Mag 6·1 (Up, Ki), 6·0 (Qt)			
7	Wr	ePN	10	28	53
		eSN		29	16
	Qt	ePZ		30	10
		eSN		31	24
		Hindukush			
7	Qt	ePZ	20	00	30 c
		Seismic ?			
7	Wr	ePN	22	19	23
		eSN			54
	Lh	iXE		21	03
	Qt	ePZ		20	16 c
		eSN		21	35
		H 22 18 33			
		Hindukush			
8	Qt	ePZN	02	07	24
		iSN		08	18
	Lh	ePZ		07	44
		iSE		08	53
	Wr	ePN		07	50
8	Qt	eXZ	03	52	06
		eXZ		54	30
8	Qt	ePZ	08	53	21
		eSN*	09	03	11
		e(L)N*		09·7	
		USCGS H 08 41 26			
		2 S 141 E			
		Off north coast of			
		New Guinea			

Date	Station	Phase	h	m	s
8	Qt	ePZ	10	32	21 c
		ePPZ		35	33
		eSKSN*		42	38
		eSNE*			42
		eScSN*E*		43	03
		eLN*		54·4	
		Mu Sec			
		PZ 0·1 1·5			
		USCGS H 10 19 48			
		52 N 171 W			
		Fox Islands			
		Aleutian Islands			
8	Qt	ePZ	13	31	46
		epPZ		32	12
		iSKSE*		42	08
		USCGS H 13 18 55			
		5 S 152 E			
		New Britain			
		depth about 60 km			
9	Lh	ePZ	00	25	51
		ePPE		29	01
	Qt	ePZ		25	56 c
		ePPZ		29	08
		iSE*		36	21
		eSSE*		41	40
		eLE*		47·5	
		Mu Sec			
		ME* 15·4 18			
		USCGS H 00 13 30			
		48 S 100 E			
		South Indian Oceon			
9	Qt	ePKPZ	09	19	28
		eXZ		20	43
		ePPE*N			52

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Date	Station	Phase	h	m	s
		eSKSN*E*		26	23
		eSSE*		37	36
		eSSSE*		42	00
		USCGS H 09 00 33			
		15 S 176½ W			
		Fiji Islands region			
9	Wr	ePN	11	10	14
		eSN			50
	Qt	iPZ		11	14
		eSN		12	42
		Afghanistan-Tadzhik border			
9	Wr	ePN	13	36	50
		eSN		37	20
	Lh	e(S)E		38	30
	Qt	ePZ		37	47
		eSN		39	02
		Hindukush			
9	Kr	ePNE	14	17	03
		iSNE			31
	Qt	ePZ			28 c
		H 14 16 25			
		Mekran,			
		West Pakistan			
9	Kr	ePNE	14	27	11
		eSNE			34
	Qt	ePZ			30
		H 14 26 39			
		Baluchistan,			
		West Pakistan			
10	Qt	ePZ	00	26	20
		ePcPZ			27
		eSE*		36	46
		USCGS H 00 13 55			
		Ascension Islands region			

Date	Station	Phase	h	m	s
10	Lh	ePZ	06	18	12
		eSE		21	45
	Wr	ePN		18	41
	Qt	ePZ		19	15
		epPZ			28
		iXN*		23	11
		eSE*N*			42
		eLE*		24·3	
		Mu Sec			
	PZ	0·3 1·5			
	SN	0·8 2·4			
	Kr	ePE	06	19	28
		eLNE		26·0	
		USCGS H 06 13 40			
		27 N 96½ E			
		India-Burma border			
		Mag 5·4 (Qt)			
10	Wr	ePN	13	57	17
		eSN		58	06
	Lh	eSE		59	23
	Qt	e(S)N			30
10	Lh	ePZ	15	37	16
	Qt	ePZ			54
		USCGS H 15 29 40			
		5 N 125½ E			
		Davao Gulf			
10	Wr	ePN	19	10	44
		eSN		11	10
	Lh	iPZ			22
		iSE		12	21
	Qt	ePZ		11	48
		eSN		13	06
		H 19 10 06			
		36 N 71 E			
		Hindukush			

Date	Station	Phase	h	m	s
11	Qt	ePZ	14	39	34
		ePcPZ			37
		eSKSE*		50	00
		eSE*			08
		eSSE*		55	45
		eLE*	15	03·1	
		USCGS H 14 26 45			
		New Ireland region			
11	Lh	ePKPZ	23	40	57
	Qt	ePKPZ		41	13 c
		ePPZ		43	12
		eSSN*		59	57
		Mu Sec			
		PKPZ 0·2 1·3			
		PPZ 0·4 2·5			
	Kr	ePKPZ	23	41	40
		USCGS H 23 22 09			
		16 S 172 W			
		Samoa Islands region			
12	Qt	ePKPZ	00	47	08
		ePPZN		48	56
		eSKKSN*		56	08
		iSSSN*E*	01	10	53
		USCGS H 00 28 02			
		17½ N 85 W			
		About 100 miles			
		North of Honduras			
		Mag 6·0 (Up, Ki)			
12	Qt	ePKPZ	04	20	42
		USCGS H 04 01 20			
		15½ N 98½ W			
		Off coast of Guerrero, Mexico			

Date	Station	Phase	h	m	s
12	Wr	ePN	17	27	38
		eSN		28	47
		Mu Sec			
		PN 0·1 0·5			
		SN 0·3 1·0			
	Lh	ePZ	17	28	07
	Qt	ePZ			44
		iSNE		30	48
		Mu Sec			
		SN 0·2 1·1			
		H 17 26 05			
		40 N 73¾ E			
		Kirghiz-Tadzhik border S.S.R.			
		USCGS H 17 26 05			
		40 N 73½ E			
		Kirghiz-Tadzhik border S.S.R.			
13	Qt	ePZ	13	06	15 d
		Seismic ?			
13	Qt	ePZ	13	32	46 c
13	Wr	ePN	22	33	26
		eSN		34	02
	Lh	iSE		35	23
	Qt	ePZ		34	16
		iSN		35	32
		H 22 32 37			
		36½ N 69½ E			
		Northern Afghanistan			
14	Lh	ePZ	06	23	54
	Qt	ePZ		24	30 d
		eSN		33	28
		Mu Sec			
		PZ 0·1 1·3			

Date	Station	Phase	h	m	s
		USCGS H 06 13 20			
		4 S 130 E			
		Ceram Islands			
14	Qt	ePKPZ	17	26	21
		ePKSN*E*		29	52
		USCGS H 17 06 49			
		1½ S 80½ W			
		Near coast of Ecuador			
14	Qt	ePZ	20	41	30
14	Wr	ePN	21	35	44
	Qt	ePZ		36	00
		USCGS H 21 26 18			
		Samar Islands			
		Philippine Islands			
15	Lh	ePZ	04	30	52
		ipPZ		32	13
		iSE		37	31
		esSE		39	26
	Kr	ePZ		31	03
	Qt	ePZ			23
		ipPZ		32	30
		epPPZ		34	17
		eXZN*		35	06
		iPcSNE*		36	28
		eSN		38	26
		iSE*			29
		esSN*E*		40	10
		eScSN*			33
		eLN*E*			44·5

Date	Station	Phase	h	m	s
		Mu Sec			
		PZ 1·1 1·9			
		SN 1·1 2·5			
		USCGS H 04 22 34			
		5½ S 108 E			
		Near north coast of Java			
		depth about 300 km			
		Mag 5·9 (Qt)			
15	Lh	iPZ	18	54	40 c
		epPZ		55	02
		eSE	19	04	55
		esSE		05	40
	Wr	ePN	18	55	02
	Qt	ePZ			11 c
		epPZ			35
		eSKSNN*	19	05	26
		eSN*			49
		isSN*		06	35
		eSSN*		12	10
		USCGS H 18 42 20			
		6 S 153½ E			
		Solomon Islands			
		depth about 150 km			
15	Lh	ePZ	22	19	26 c
	Qt	iPZ			53 c
		ePcPZ		20	00
		eSNN*		30	10
		eScSNN*			25
		eLN*			41·5
		Mu Sec			
		PZ 0·4 1·5			
		SN 0·5 2·0			
		USCGS H 22 07 21			

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Date	Station	Phase	h	m	s
		51 N 174½ W			
		Andreanof Islands			
		Aleutian Islands			
16	Qt	ePZ	00	17	47
		USCGS H 00 07 33			
		35 N 140 E			
		Near south coast of			
		Honshu, Japan			
16	Qt	ePZ	01	44	48
		eSN*		51	50
		USCGS H 01 34 36			
		82 N 120 E			
		Arctic Ocean			
16	Wr	ePN	05	25	16
		eSN			50
	Lh	ePZ			57
		iSE		27	00
	Qt	ePZ			21
		eSN			44
		H 05 24 32			
		37 N 71 E			
		Hindukush			
16	Qt	ePZ	09	15	22
		eXZ		16	47
		USCGS H 09 04 23			
		54 N 158½ E			
		Kamchatka			
16	Qt	ePZ	11	19	38
16	Qt	ePZ	14	26	42
		eSE*		37	44
		eLE*		48·0	
16	Qt	ePZ	15	00	43
16	Lh	ePZ	20	04	32
	Qt	ePZ			55 c
17	Qt	ePZ	14	35	00
		iSN*E*		43	56
		eLN*E*		51·5	
		USCGS H 14 24 05			
		36 S 55 E			
		Indian Ocean			
17	Lh	iPZ	18	53	36 d
	Wr	ePN		4	48
	Qt	ePZ		54	21 d
		eSNE*	19	02	40
		USCGS H 18 44 02			
		30½ N 139 E			
		Off south coast of			
		Honshu, Japan			
17	Qt	ePZ	20	25	21
		e(S)N		28	32
18	Qt	ePZ	01	10	23
		eSN*E*		19	27
		eSSE*		23	37
		eLN*E*		27·6	
		USCGS H 00 59 20			
		53 N 160 E			
		Near east coast of			
		Kamchatka			
18	Wr	ePN	13	55	36
		eSN		56	08
	Qt	iSN		58	04
		Hindukush			
18	Qt	ePZ	18	27	47 c
		e(PcP)Z		59	
		eSN*E*		38	13
		eScSN*		26	

	Mu	Sec
PZ	0·2	1·5

Date	Station	Phase	h	m	s
		USCGS H 18 15 10			
		52½ N 168 W			
		Fox Islands			
		Aleutian Islands			
18	Wr	ePN	18	51	44
		eSN		52	16

	Mu	Sec
SN	1·5	0·5

	Lh	ePZ	18	52	23
		eSE		53	26
	Qt	ePZ		52	40
		eSN		53	59
		H 18 50 59			
		37 N 71 E			
		Hindukush			
		depth about 150 km			
18	Wr	ePN	20	34	35
		eSN		35	27
	Qt	ePZ			44
		eSN		37	30
		Tadzhikistan, S.S.R.			
19	Qt	ePZ	13	54	42 d
		e(PcP)Z			54
		eSKSN*	14	05	07
		eLN*E*			12
		eLN*		18·0	

	Mu	See
PZ	0·1	1·2

		USCGS H 13 42 06			
		52 N 168 W			
		Fox Islands			
		Aleutian Islands			
19	Qt	ePKPZ	17	20	40
		USCGS H 17 02 02			
		19 S 176 W			
		Tonga Islands			
		depth about 200 km			
19	Qt	ePZ	17	38	46 c
20	Qt	ePZ	06	38	38
20	Qt	ePZ	08	36	11
		eSN		45	00

	Mu	Sec
PZ	0·2	1·8

		USCGS H 08 25 19			
		46 N 151½ E			
		Kurile Islands			
20	Wr	ePN	10	02	40
		eSN		03	14
	Lh	iPZ		03	23
		isPZ		04	13
		iSZE			25
	Qt	iPZ		03	43 d
		eXZ		04	07
		isPZ			26
		iSN		05	01

	Mu	Sec
PZ	0·1	0·9
SN	0·6	1·5

Kr		ePZ	10	04	46
		iSN		06	50
		H 10 02 03			
		36½ N 71 E			
		Hindukush			
		depth about 200 km			
		USCGS H 10 01 58			
		36½ N 71 E			
		Hindukush			

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Date	Station	Phase	h	m	s	
		depth about 200 km				
		Mag 5·0 (Qt)				
20	Lh	ePZ	23	19	28	
	Wr	ePN			32	±
	Qt	iPZ			54	c
		ePcPZ		20	03	
		e!pPZN		23	04	
		eSN		30	16	
		Mu Sec				
		PZ 0·3 1·6				
		PPZ 0·2 2·0				
	Kr	ePZ	23	20	14	
		USCGS H 23 07 22				
		52 N 170½ W				
		Fox Islands				
		Aleutian Islands				
		Mag 6·2 (Qt)				
21	Wr	ePN	15	37	44	
		eSN		38	12	
	Qt	ePZ			45	
		eSN		40	01	
		Hindukush				
21	Wr	ePN	20	22	36	
	Qt	ePZN			50	
		eSN		27	30	
		Mu Sec				
		PZ 0·3 2·0				
		USCGS H 20 16 58				
		40½ N 34½ E				
		Northern Turkey				
		Mag 5·7 (Up, Ki),				
		5·7 (Qt)				
23	Kr	ePE	04	12	27	
	Qt	ePZ			34	
23	Wr	ePN	05	05	59	
	Qt	ePZ		06	44	
	Lh	iSE		07	07	

Date	Station	Phase	h	m	s	
23	Qt	ePZ	09	25	00	d
		USCGS H 09 12 55				
		52 N 177½ W				
		Rat Islands				
		Aleutian Islands				
23	Lh	ePZ	09	33	22	
	Qt	iPZ			58	c
		ePPZ		36	30	
		e(S)E*N*		42	53	
		eLE*		50·1		
		Mu Sec				
		PZ 0·3 1·5				
		USCGS H 09 22 36				
		6 S 131 E				
		Banda Sea				
24	Ch	ePE	08	28	35	
	Lh	ePE		30	46	
		iScSE		40	26	
	Wr	ePN		31	09	
		eSN		39	07	
	Kr	ePEZ		31	20	
		iXE		32	26	
		e(PP)ZN		33	22	
		iSE		39	34	
		ePKPPKPZ	09	00	48	
		Mu Sec				
		PZ 1·7 1·0				
		PPZ 2·4 2·5				
		SN 7·4 3·5				
		SE 8·5 3·0				
	Qt	ePZ	08	31	27	d
		iPcPZN		32	07	
		iXZ		33	16	
		ePPN			41	
		iSNE*		39	45	
		iScSN		41	11	

Date	Station	Phase	h	m	s	
		iSSN		43	55	
		ePKPPKPZN	09	00	40	
		Mu Sec				
		PZ 3·8 1·8				
		SN 21·5 4·7				
		USCGS H 08 21 05				
		5½ N 127 E				
		Near south coast of				
		Mindanao, Philippine Islands				
		Mag 7¾(Pas), 7·4 (Up, Ki),				
		7·3 (Qt)				
24	Lh	ePZ	09	20	08	
		ePcPZ		21	07	
	Wr	ePN		20	29	
	Qt	ePZ			48	
		iPcPZ		21	32	
		eSN		29	03	
		USCGS H 09 10 30				
		Mindanao aftershock				
24	Qt	ePZ	17	22	47	c
25	Qt	ePZ	06	03	35	
		eSKSN*		13	55	
		iSNN*E*		14	04	
		iPSN*E*			55	
		eSSE*		19	38	
		USCGS H 05 50 56				
		34 N 38½ W				
		Near Azores Islands				
		Mag 6¼–6½ (Pas),				
		6·0 (Up, Ki)				
25	Lh	iSE	07	10	24	
	Qt	ePZ		09	46	
		eSNE		11	50	

Date	Station	Phase	h	m	s	
25	Qt	ePZ	07	48	54	
25	Qt	ePZ	09	51	36	
25	Qt	eXZ Seismic ?	12	48	08	
25	Qt	ePZ	14	19	50	c
25	Qt	ePZ	15	19	54	
25	Qt	ePZ	15	37	46	
25	Qt	ePZ	16	40	15	c
25	Lh	ePZ	16	46	13	c
		iXZ		47	55	
		eSE		53	57	
	Wr	ePN		46	36	
	Kr	ePZ			49	c
		Mu Sec				
	PZ	0·6 2·0				
	Qt	ePZ	16	46	54	o
		ePcPZ		47	35	
		eXZ		48	36	
		ePPZN		49	08	
		eSN		55	13	
		iScSN		56	45	
		ePKPPKPZ	17	16	11	
		Mu Sec				
	PZ	0·9 2·2				
	PPZ	0·6 2·5				
	SN	1·5 3·0				
		USCGS H 16 36 37				
		Mindanao aftershock				
		Mag 6·0 (Up, Ki),				
		6·4 (Qt)				
25	Qt	eXZ	19	33	30	
25	Lh	ePZ	22	26	42	
		eSE		34	25	
	Qt	ePZ		27	23	

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Date	Station	Phase	h	m	s
		ePP		29	45
		eSN		35	42
		eScSN		37	10
		Mu Sec			
		PZ 0·6 1·9			
		SN 1·1 3·0			
		USCGS H 22 17 00			
		6 N 127½ E			
		Mindanao aftershock			
25	Lh	ePZ	23	43	12 c
	Qt	ePZ			52 c
		eSN*		52	10
		Mu Sec			
		PZ 0·3 2·0			
		USCGS H 23 33 30			
		5½ N 127½ E			
		Mindanao aftershock			
25	Lh	ePZ	23	49	33
		ePgZ			49
		iSE		50	23
	Qt	ePZ		49	45
		eSE		50	44
26	Qt	ePZ	02	42	23
		ePcPZ		43	06
		eSNN*		50	38
		eScSN		52	11
		USCGS H 02 32 01			
		5 N 127E			
		Mindanao aftershock			
26	Qt	ePZ	06	11	13 c
		eSN		19	31
		eScSN		20	59
		Mu Sec			
		PZ 0·2 1·5			
		Mindanao aftershock			
26	Qt	ePKZ	08	23	08
		USCGS H 08 03 50			
		Near coast of Chiapas,			
		Mexico			
26	Wr	ePN	10	17	45
	Qt	ePZ		18	03
		eSN		26	22
		eSCS		27	54
		Mu Sec			
		SN 1·0 3·0			
		USCGS H 10 07 42			
		About 150 Miles south			
		of Mindanao Islands,			
		Philippine Islands			
26	Qt	ePZ	10	31	53
		eSN		40	13
		eScSN		41	47
		Mindanao aftershock			
26	Qt	ePKPZ	12	21	41
		epPKPZ		22	21
		ePPZ		23	04
		eSKSN*		28	30
		USCGS H 12 03 01			
		39½ S 174½ E			
		North Island,			
		New Zealand			
		depth about 150 km			
26	Qt	ePKPZ	13	54	26
		USCGS H 13 35 22			
		15 N 92½ W			
		Guatemala-Mexico border			

Date	Station	Phase	h	m	s
		depth about 150 km			
26	Qt	ePZ	14	31	10
26	Lh	ePZ	18	56	18c
		eSE	19	03	57
		eScSE		06	01
	Wr	ePN	18	56	42
		eSN	19	04	35
	Kr	iPZ	18	56	53
	Qt	ePZ		57	00c
		ePcPZ			43
		eSNN*	19	05	13
		eScSN*		06	44
		eLN*		11·5	
		Mu Sec			
		SN 0·3 1·5			
		SN 1·1 2·8			
		USCGS H 18 46 41			
		6 N 126½ E			
		Mindanao aftershock			
		Mag. 6·0 (Up, kir),			
		6·1 (Qt)			
26	Lh	ePZ	19	56	25
	Wr	ePN		57	02
	Qt	ePN			46
26	Wr	ePN	19	57	15
		eSN			43
	Lh	iPZ			54
		iSE		58	53
	Qt	ePZ			20
		eSNE		59	36
		Hindukush			
26	Qt	ePZ	23	16	29
27	Lh	ePZ	04	18	31
		eXZ		20	07
		eSE		26	37
	Wr	ePN		18	53
		eSN		27	23
		Mu Sec			
	PN	0·1 1·4			
	SN	0·6 3·0			
	Kr	ePZ	04	18	55
		Mu Sec			
	PZ	0·9 1·5			
	PE	2·3 1·8			
	Qt	ePZ	04	19	08
		ePcPZ			36
		iXN		21	20
		ePPZ			30
		iSNN*E*		27	50
		iScSN*		29	00
		eSSN*		32	10
		eLN*		35·5	
		Mu Sec			
	PZ	0·5 1·4			
	SN	1·2 2·5			
		USCGS H 04 08 23			
		1 S 127 E			
		Spice Islands			
		Mag 6·2 (Up , Ki),			
		6·3 (Qt)			
27	Lh	ePZ	04	28	53
		eSE		37	02
	Kr	ePZ		29	21
	Qt	ePZ			33
		eSN		38	14

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Date	Station	Phase	h	m	s
		Mu Sec			
		PZ 0·4 1·5			
		SN 0·7 2·2			
		USCGS H 04 18 49			
		1 S 127½ E			
		Spice Islands aftershock			
27	Qt	ePZ	04	47	37±
27	Qt	ePZ	05	10	17c
		ePPZ		12	58
		eSN		19	40
		Mu Sec			
		PZ 0·2 1·5			
		PPZ 0·3 2·2			
		USCGS H 04 58 52			
		64 N 178 E			
		Eastern Siberia			
27	Qt	ePZ	06	00	48
		USCGS H 05 48 15			
		53 N 168 W			
		Fox Islands			
		Aleutian Islands			
27	Lh	ePZ	06	06	58
		eXZ		08	03
		eSE		15	09
	Kr	iPZ		07	26 c
	Qt	ePZ			35
		eSNE*		16	16
		eScSNE*		17	26
		eSSE*		20	38
		eLE*N*			23·5
		Mu Sec			
		PZ 0·4 1·9			
		USCGS H 05 56 50			
		1 S 127 E			
		Spice Islands aftershock			
27	Wr	ePN	11	29	03
	Qt	ePZ			28 c
		eXZ			45
		eSN		39	53
		eLN*			51·6
		Mu Sec			
		PZ 0·2 1·3			
		SN 0·6 2·4			
		USCGS H 11 16 52			
		52½ N 169 W			
		Fox Islands,			
		Aleutian Islands			
27	Qt	ePZ	11	57	57 d
		ePcPZ		58	02
		eSKSN	12	08	11
		Mu Sec			
		PZ 0·2 1·5			
		USCGS H 11 45 24			
		52½ N 169½ W			
		Fox Islands			
		Aleutian Islands			
27	Qt	ePZ	13	53	02 c
27	Qt	ePZ	13	54	44 c
27	Qt	ePZ	14	30	15
		eXZNE			44
		USCGS H 14 21 43			
		18 N 121 E			
		Luzon Islands,			
		Philippine Islands			
27	Qt	ePZ	15	21	33
27	Lh	ePZ	18	55	39

Date	Station	Phase	h	m	s
	Qt	ePZ		56	26 d
		eSN	19	03	57
		Mu Sec			
		PZ 0·2 1·5			
		SN 0·7 2·5			
		Mag 6·0 (Qt)			
28	Ch	ePZ	00	34	41
		eSE		40	25
	Lh	iPZ		36	09 d
		eXZ		38	15
		iSE		43	06
	Wr	ePN		36	22
	Qt	iPZ			54 d
		eXZ		38	58
		epPPZ		40	48
		iSNN*E*		44	30
		iSSN*		48	40
		iLN*E*			51·8
		Mu Sec			
		PZ 0·7 1·8			
	Kr	ePZ	00	37	06 d
		iSE		44	54
		Mu Sec			
		PZ 0·7 1·6			
		USCGS H 00 27 31			
		30½ N 137½ E			
		Off south coast of			
		Honshu, Japan			
		depth about 500 km			
		Mag 6¾ (Pas),			
		6·3 (Up, Ki)			
28	Qt	ePZ	01	05	57
28	Lh	ePZ	04	22	22
	Wr	ePN			49
	Qt	ePN		23	09
		e(S)E*N*		32	26
		e(L)N*		38·5	
		USCGS H 04 11 23			
		3 S 135½ E			
		Near north coast of			
		New Guinea			
28	Lh	ePZ	14	33	55
	Wr	ePN		34	22
	Qt	ePZ			28
28	Lh	ePKPZ	14	37	25
		iXZ			39
		eSKSE		43	31
	Wr	ePKPN		37	40
		eSKSN		43	41
	Kr	iPKPZ		37	48 d
		iPPE			28
		eSKSE		43	56
	Qt	iPKPZ		37	50 d
		ePPZ		39	25
		epPKPZ		40	18
		epPPN		41	40
		eSKSN		43	58
		eSSN		55	05
		esSSN		58	40
		Mu Sec			
		PKPZ 2·0 1·5			
		PKPN 0·9 1·5			
		PPZ 1·3 2·0			
		PPN 1·6 2·0			
		USCGS H 14 20 00			
		20½ S 178 W			

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Date	Station	Phase	h m s
		Fiji Islands	
		depth about 650 km	
		Mag 7½ (Pas), 7-7¼ (Berk), 7·6 (Up)	
28	Qt	eXZN	14 48 00
28	Qt	iPKPZ	15 01 55 d
		USCGS H 14 44 02	
		20½ S 178½ W	
		Fiji Islands aftershock	
		depth about 600 km	
28	Wr	ePN	15 57 26
		eSN	58 01
	Lh	iSE	09
	Qt	ePZ	30
		eS	59 57
		H 15 56 37	
		37 N 71¼ E	
		Hindukush	
28	Qt	ePZ	20 22 21
		eSNE	23 43
28	Lh	ePZ	21 13 35
		epPZ	14 24
	Qt	ePZ	17 d
		epPZ	15 07
		USCGS H 21 03 18	
		17½ N 146 E	
		Mariana Islands	
		depth about 200 km	
29	Lh	ePZ	06 46 57 c
	Wr	ePN	47 19
	Qt	ePZ	34 c
		ePcPZ	48 14
		eSN*N*	55 43
		eScSN*	57 00
		Mu Sec	
	PZ	0·2 1·2	
	SN	0·4 2·2	
	USCGS H 06 37 33		
	0 124 E		
	Celebes		
	depth about 200 km		
29	Qt	ePKPZ	07 23 56
		USCGS H 07 06 11	
		20 S 178 W Fiji Islands	
		depth about 650 km	
29	Lh	ePPZ	08 31 41
		eSKSE	36 50
	Wr	ePKPN	31 05
	Kr	ePPE	32 34
		eSKSE	37 15
	Qt	iPKPZ	31 13d
		e(PP)ZE	32 42
		ePPN	56
		e(pPKP)Z	33 54
		ipPPE*	34 59
		isPPN*E*	35 48
		iSKSNN*E*	37 20
		eSKKSN*	38 31
		eXN	43
		ePSN*E*	42 41
		iPPSE*	44 29
		eSS	48 30
		Mu Sec	
	PPZ	0·6 2·0	
	USCGS H 08 13 22		
	25 S 178½ E		
	South of Fiji Islands		
	depth about 600 km		
	Mag 6¼ (Berk)		
29	Qt	ePZ	08 41 24
		ePPZ	44 14

Date	Station	Phase	h m s
		eSN	51 04
		eScSN	30
		Mu Sec	
	SN	0·6 2·2	
	Lh	iSE	08 51 30
	Wr	ePN	42 10
29	Qt	ePZ	13 41 40
		eScSE*N*	51 31
		eLN*	59.0
		USCGS H 13 30 42	
		53½ N 160 E	
		Near east coast of Kamchatka	
29	Wr	ePN	14 20 50
		eSN	21 25
	Lh	ePZ	30
		eSE	22 33
	Qt	ePZ	21 54
		eSNE	23 18
		H 14 20 06	
		37 N 71½ E	
		Hindukush	
		depth about 200 km	
29	Lh	eXZ	17 43 48
		eSE	51 40
	Wr	ePN	44 26
	Qt	ePZ	39
		eSNN*	52 58
		eScSN*	55 25
29	Qt	ePKPZ	20 12 37
	Lh	ePKPZ	52
		USCGS H 19 53 30	
		13 S 77 W	
		Near coast of Peru	
30	Qt	ePZ	11 13 25
		USCGS H 11 02 36	
		29½ N 140 E	
		South of Honshu, Japan	
30	Lh	ePZ	12 16 48 d
		eSZ	24 58
	Qt	ePZ	17 26 d
		eSN	26 09
		USCGS H 12 06 43	
		1½ S 126½ E	
		Spice Islands aftershock	
	Lh	ePZ	20 31 38 c
		eSE	39 54
	Wr	ePN	31 51
	Qt	ePZ	32 22 c
		eSN	41 12
		Mu Sec	
	PZ	0·2 1·5	
	USCGS H 20 21 30		
	24½ N 143 E		
	Volcano Islands		

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Date	Phase	h	m	s
	Quetta			
1	ePZE	01	24	24
	eXE			29
	eSEN			44
	eXN			51
2	ePNE	06	38	36
	eSN			51
3	ePZN	04	05	38
	iSE			40
3	ePN	07	49	52
3	ePN	17	21	17
4	eXZ	00	47	28
4	ePE	10	30	43
4	ePE	12	08	56
4	eXE	15	02	46
5	eXE	13	46	44
5	ePZ	16	10	09
	eSNE			33
5	ePZE	18	39	33
	eSNE			44
6	eXZ	0	28	35
	eXNE			52
6	ePZ	06	11	25
	iSZ			40
6	ePZ	06	13	38
	eXZ			46
	e(S)Z			54
6	ePZN	06	26	27
	eSN			38
6	ePZ	09	49	07
	eSN			27
6	e(P)ZN	13	02	02
	eXZ			24
	eXZ		04	21
8	ePZN	01	32	24
	eSN			25
8	ePZ	23	00	50
	eSZ		01	16
8	ePZ	23	48	25
9	ePZ	00	11	59
	eSZ		12	21
9	ePZ	00	16	27
	eSZ			30
9	ePZ	02	54	03
9	iPZ	18	07	58
9	iSZN		08	09
10	eXZ	13	58	00
	e(S)E		59	35
10	ePZ	15	37	54
10	ePZ	21	16	23
10	ePZ	22	01	20
12	ePZ	16	28	33
	eSZN			45
	e(S)NE			47
12	ePZ	21	21	35
	eSEN		22	02
13	e(S)Z	18	14	42
13	ePZ	19	07	28
14	ePZ	00	49	25
14	ePZ	08	59	14
14	ePZ	23	11	16
15	ePZ	00	14	48
17	ePZ	01	01	07
	eSN			10
18	ePZ	09	43	02
	eSN		44	21
18	eXZ	13	57	04

Date	Phase	h	m	s
	iSN		58	04
18	eXZ	15	10	03
18	eXZ	20	44	53
18	ePZ	22	49	52
	eSN		50	18
19	eXN	00	14	50
19	iPZ	11	48	51
	eSN			58
19	ePZ	22	34	55
	eSN		35	09
21	ePZ	11	52	42
21	eSN			53
	ePZ	14	00	50
	eSZN			53
21	ePZ	18	52	30
21	ePZ	19	23	45
21	ePZ	22	55	37
22	ePZ	21	08	49
	eSN		09	13
24	ePZ	07	22	38
	eSN			40
24	ePZ	07	35	35
24	ePZ	17	44	03
	eSN		45	16
25	ePZ	14	03	01
25	ePZ	20	36	06
25	iPZ	22	19	07
	ePgZE			12
	iSN			38·5
	iMN			57
26	ePZ	08	44	37
	eSE		45	13
26	eXZ	16	55	58
26	ePZ	17	15	13
26	ePZ	20	27	59
	eSN			28 40
26	ePZ	20	40	05
27	ePZ	00	36	07
27	ePZ	11	24	37
27	ePZ	12	53	33
28	ePZ	20	53	25
	eSEN			47
29	ePZ	04	32	36
29	eXZ	05	13	59
	eSE		14	22
29	ePZ	19	02	56
30	ePZ	03	06	38
	eSNE			49
30	ePZ	13	34	57
30	ePZ	17	32	33
	iSN		33	20
30	ePZN	18	20	24
	eSN		21	11
	Warsak			
1	ePN	00	10	58
5	ePN	12	39	38
5	eXN	12	39	09
6	eSN		40	25
6	ePN	05	06	52
6	ePN	08	45	03
8	ePN	07	46	05
8	ePN	23	00	01
10	ePN	09	45	45
10	ePN	17	36	45
10	ePN	18	22	51
11	ePN	05	27	56
	eSN		28	27
11	ePN	16	21	26
	eSN		21	57

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Date	Phase	h	m	s
11	ePN	16	25	19
12	ePN	14	51	24
12	ePN	17	41	55
	eSN		42	06
15	ePN	22	19	15
15	ePN	22	23	27
	eSN		24	02
16	ePN	06	46	42
	eSN		47	09
16	ePN	19	45	39
17	ePN	18	24	07
	eSN			45
18	ePN	06	32	42
	eSN		33	16
18	ePN	15	08	59
	eSN		09	28
18	ePN	17	41	35
	eSN		42	08
20	ePN	05	53	09
20	ePN	08	29	51
	eSN		30	30
22	ePN	08	42	29
	eSN		43	01
22	ePN	10	30	50
	eSN		31	24
22	ePN	12	53	29
	eSN			56
22	ePN	13	14	15
	eSN			30
23	ePN	04	11	48
24	ePN	03	27	57
	eSN		28	32
24	ePN	17	43	02
24	ePN	18	59	22
24	ePN	23	13	08
	eSN			41
26	ePN	06	10	32
26	ePN	17	54	51
27	ePN	06	06	27
28	ePN	03	59	41
29	ePN	12	11	17
	eSN		11	50
	Lahore			
2	eXZ	18	14	34
2	eXZ	19	09	25
	eSE		10	34
2	iSE	20	17	07
3	iSE	09	23	31
3	eXE	09	53	25
	eSE			48
2	ePZ	19	43	48
	iSE		44	14
3	eXZ	20	50	29
4	eXZ	20	15	32
5	iXE	04	30	54
5	i!SE	22	29	17
6	eXZ	01	25	16
6	iSE	01	56	33
6	eXZ	08	46	11
7	iXE	07	41	38
7	eXE	10	29	35
	iSE		30	12
7	eXE	19	59	49
9	iXE	15	16	25
9	eSE	21	25	09
10	eXZ	00	26	49

Date	Phase	h	m	s
10	eXZ	17	37	45
	eSE		39	54
10	eXZ	18	28	51
	eSE		10	00
14	eXZ	17	26	18
14	eXE	21	35	18
15	iSE	22	25	14
16	e(P)Z	15	00	07
	eXE		01	24
16	eSE	19	47	56
18	ePE	17	43	20
19	eXZ	00	16	00
	eSE			35
21	eXZ	18	40	08
21	ePZ	20	23	30
	eXZ			35
25	ePZ	22	20	32
	eXZ		21	48
	eSE			51
28	iSE	06	39	06
28	eSE	14	58	06
	Karachi			
2	eXZ	04	01	00
3	iXZ	10	30	07
3	eXZ	17	40	25
	iXZ			59
6	eXZ	08	44	22
10	eXZ	19	11	47
18	ePNE	09	43	1
	iSN			22
23	eXZ	05	11	03
25	ePZE	22	19	48
	iSN		20	19
28	ePZ	18	37	51
30	ePZN	17	32	00
	iSNE			23
30	ePN	18	19	53
	eSZN		20	15

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Instruments	Components	Period Seismo & Galvo	Damping	Max. Magnification
Karachi				
Sprengnether	Z	1·8 sec.	Critical	5,890
,,	N	1·6 ,,	,,	4,700
,,	E	1·4 ,,	,,	4,700
Chittagong				
Sprengnether	Z	1·7 ,,	Critical	5,200
,,	N	1·8 ,,	,,	4,700
,,	E	1·5 ,,	,,	3,600
,,	N	7·0 ,,	,,	6,600
Willmore	Z	Seismo = 1 sec. Galvo = ½ ,,	—	—
Warsak				
Sprengnether	N	2·0 sec.	Critical	4,000
Willmore (with Sprengnether galvo & recorder	Z	1·0 ,,	—	—

* indicates long period seismographs, Sprengnether or Milne-Shaw

c=compression, d=dilatation X=unidentified phase.

Mu=Actual ground motion of the indicated phase in microns.

Sec=Period of the indicated phase in seconds.

(Pas), (Berk), (Up), (Ki) stand for seismological observatories Pasadena (U.S.A.), Berkley (U.S.A.), Uppsala (Sweden), Kiruna (Sweden) respectively.

All times are in Greenwich Mean Time.

International Seismological Centre From the ISC collection scanned by SISMOS

SEISMOLOGICAL BULLETIN

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PAKISTAN METEOROLOGICAL SERVICE

GEOPHYSICAL INSTITUTE

QUETTA.

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Particulars of Stations and Instruments

(a) Stations

Station	Symbol	Latitude	Longitude	Height (a.s.l.)	Ground
Quetta	Qt	30° 11′·3 N	66° 57′·0 E	1719 meters	Cretaceous Limestone
Lahore	Lh	31° 33′·0 N	74° 20′·0 E	210 „	Alluvium
Karachi	Kr	24° 49′·8 N	67° 02′·2 E	30 „	Alluvium
Chittagong	Ch	22° 21′·5 N	91° 49′·0 E	15 „	Alluvium
Warsak	Wr	34° 09′·0 N	71° 25′·0 E	343 „	River Terrace

(b) Instruments

Instruments	Components	Period Seismo & Galvo	Damping	Max. Magnification
Quetta (Central Station)				
Sprengnether	Z	1·9 sec.	Critical	5,500
„	N	1·95 „	„	4,500
„	E	1·95 „	„	5,800
„	N	15·8 „	„	15,000
„	E	16 5 „	„	16,000
Willmore	Z, N & E	Seismo = 1 sec. Galvo = ½ „	—	—
Milne-Shaw	E	12 sec.	20:1	250
Sprengnether Pen recorder	E	1·0 „	—	—
Lahore				
Sprengnether	Z	1·8 „	Critical	4,900
„	N	1·7 „	„	4,200
„	E	1·6 „	„	4,100

(Contd. on inner side of back cover)

Date	Station	Phase	h	m	s
1	Lh	ePZ	08	09	47
		iSE		10	30
	Qt	ePZ			34
		iSNE		11	53
		H 08 08 50			
		35 N 73 E			
		Near Muzafferabad			
		West Pakistan			
2	Qt	ePZ	01	42	52
		iSN		43	13
	Wr	ePN			27
	Kr	e(P)E			30
		Southern Afghanistan			
2	Wr	ePN	01	59	04
	Qt	ePZ			23
2	Lh	iPZ	11	34	39 c
	Kr	iPZ		35	14
	Qt	ePZ			20 c
		ePcPZ		36	03
		ePPZ		37	35
		eSNN*		43	37
		eLN*		49·2	
		Mu Sec			
		PZ 0·5 2·0			
		PPZ 0·2 2·0			
		SN 0·7 2·5			
		USCGS H 11 25 02			
		5½ N 127 E			
		Mindanao aftershock			
		Mag 6·2 (Qt)			
2	Qt	ePKPZ	12	46	45 +
		ePPZ		47	50
		eSPN*E*		57	36
		USCGS H 12 27 55			
		11 N 63 W			
		Venezuela foreshock			
		Mag 6½–6¾ (Pas),			
		5·8 (Up, Ki)			
2	Qt	ePZ	13	11	49
		e(S)N		14	00
2	Qt	ePZ	15	45	56
2	Qt	ePZ	16	12	26
2	Kr	ePZ	21	05	04
		eXZ			55
		ePPE		06	04
	Qt	ePZ		05	49 c
		eXZ			55
		ePPZN*		07	13
		eSN*		11	28
		iSNN*			33
		eLN*		14·0	
		Mu Sec			
		PZ 0·9 2·0			
		PPZ 1·1 3·0			
		SN 1·6 3·5			
		SN* 1·8 13·0			
	Lh	iPZ	21	06	00
		iXZ			05
		USCGS H 20 58 39			
		6½ S 69½ E			
		Chagas Islands			
		Mag 6·2 (Qt)			
3	Qt	ePZ	03	53	02
3	Lh	ePZ	06	09	01

International Seismological Centre From the ISC collection scanned by SISMOS

Date	Station	Phase	h	m	s
	Wr	ePN			21
	Qt	ePZ			36 c
		eXZ			45
		eSE*N*		18	47
		eLE*		25·4	
		USCGS H 05 58 12			
		4 S 134 E			
		New Guinea			
3	Qt	eXZ	14	08	01
4	Qt	ePZ	00	34	05±
		USCGS H 00 21 07			
		30½ N 42 W			
		Mid-Atlantic Ocean			
4	Qt	ePKPZ	01	19	14 d
		USCGS H 01 01 00			
		21½ S 178 W			
		Fiji Islands region			
		depth about 400 km			
4	Qt	ePKPZ	05	44	49
		ePPZ		45	50
		iXN*E		47	27
		eSKSN*		51	38
		iSPE*		55	49

	Mu	Sec
PPZ	0·6	2·4

		USCGS H 05 26 09			
		11 N 63 W			
		Near coast of Venezuela			
		depth about 60 Km			
		Mag 6¾ (Pas),			
		7 (Berk) 6·8 (Qt)			
		6·3 (Up, Ki)			
5	Wr	ePN	00	06	53
	Lh	iPZ		07	15 c
		iXZ			59
		eSE		16	26
	Qt	iPZ		07	44 d
		eXZ		08	25
		ePPZ		10	40
		eSNN*E*		17	25
		eScSN			42

	Mu	Sec
PZ	0·2	1·2
PPZ	0·2	2·0
SN	0·4	2·4

		USCGS H 23 55 45			
		53 N 178 E			
		Rat Islands			
		Aleutian Islands			
		Mag. 5·9 (Qt)			
5	Qt	ePZ	11	43	34
		ePPZ		44	49
		eSN		48	52
		eLE*		51·0	
	Kr	ePE		44	00
	Lh	iPZ			21
		ePPE		45	59
		USCGS H 11 36 46			
		34½ N 26 ½ E			
		Near Isle of Crete			
5	Qt	ePZ	15	58	35
		eLN*		16 06	0

Date	Station	Phase	h	m	s
		USCGS H 15 51 48			
		34½ N 27 E			
		Crete aftershock			
5	Lh	ePZ	16	16	02
	Qt	ePZ			34 c
		ePcPZ		17	04
		eScSN		26	28
		USCGS H 16 05 38			
		10½ S 122½ E			
		Timor Islands region			
5	Qt	ePZ	20	46	38
		eSNE		48	06
5	Lh	ePZ	22	42	29 d
		iXZ		43	03
		i!SE			47
	Qt	ePZ		42	38
		eXZ			49
		eSNE		44	04
	Kr	ePE		43	53
		eSE		46	12
		USCGS H 22 40 44			
		38 N 69½ E			
		Afghanistan–Tadzhikistan			
		border			
6	Qt	ePZ	09	10	36
		eXZ			54
6	Lh	ePZ	21	38	05
		esPZ			34
	Qt	ePZ			42
		epPZ		39	11
		eSN*		47	25
		USCGS H 21 27 51			
		49½ N 155 E			
		Northern Kurile Islands			
		depth about 60 km			
6	Qt	ePZ	23	39	26
		eXZ			55
		eSNN*		49	39
		USCGS H 23 27 00			
		52 N 174 W			
		Andreanof Islands			
		Aleutian Islands			
7	Qt	ePZ	00	45	04
		eXZ		48	02
7	Qt	ePZ	05	22	58
		e(PcP)Z		23	11
		eSKSNN*		33	23
		eScSN*			39
		USCGS H 05 10 17			
		53½ N 165 W			
		Unimak Islands region			
7	Wr	ePN	06	42	57
		eSN		43	44
	Qt	ePZ			25
		eSNE		44	32
		Northern Afghanistan			
7	Lh	ePZ	13	30	15
		eSE		38	57
	Qt	ePZ		30	52 c
		ePcPN		31	13
		ePPNN*		33	23
		ePPPNN*		35	00
		eSN*E*		39	53
		eScSN*		40	44
		eLN*E*		47·6	

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Date	Station	Phase	h	m	s
		iMN*E*	14	04·5	
		Mu Sec			
		PZ 0·9 2·4			
		ME* 6·0 17			
		MN* 4·6 16·5			
	Kr	ePZNE	13	31	17 c
		USCGS H 13 19 45			
		51 N 159 E			
		Off southeast coast			
		of Kamchatka			
		Mag 6·5 (UP, Ki),			
		6·5 (Qt)			
7	Wr	ePN	13	38	31
		eSN			56
	Qt	ePZE		39	31
		eSE		40	42
		H 13 37 57			
		36 N 70 E			
		Hindukush			
7	Qt	ePZE	14	41	36
7	Qt	ePKPZE	17	06	33
		USCGS H 16 48 47			
		20 S 179 W			
		Fiji Island			
		depth about 650 km			
8	Lh	iPZ	01	37	02 c
	Qt	ePZ			44 c
		ePcPZ		38	27
		USCGS H 01 27 28			
		Off southeast coast of			
		Mindanao,			
		Philipine Islands			
8	Wr	ePN	03	43	54
	Qt	eSN		44	57
		ePZ			21
		e(S)N		45	38
	Lh	ePZ		44	35
		i(S)E		46	01
8	Lh	ePZ	05	42	08
	Qt	ePZ			47
		USCGS H 05 31 53			
		46 N 153 E			
		Kurile Islands			
8	Qt	ePKPZ	07	12	40±
	Lh	iPKPZ			57 d
		epPKPZ		13	32
		USCGS H 06 53 31			
		23½ S 68 W			
		Northern Chile			
		depth about 150 Km			
9	Qt	ePKPZ	01	45	34
		USCGS H 01 25 25			
		52 S 132 W			
		South Pacific Ocean			
9	Qt	ePZ	03	46	26
		Scismic ?			
9	Qt	ePZ	04	30	58
9	Qt	ePZ	04	38	24
9	Wr	ePN	17	02	12
		eSN			46
	Lh	ePZ			49
		iSE		03	51
	Qt	ePZ			12
		iSNE		04	31
		H 17 01 27			
		36·6 N 71 E			

Date	Station	Phase	h	m	s
		Hindukush			
		depth about 200 km			
9	Qt	ePZ	18	37	27
10	Qt	ePZ	01	55	34 c
		ePcPZ			37
		eXZ			46
		eSNN*	02	05	58
		eScSNN*		06	14
		eLN*			17.6
		Mu Sec			
		PZ 0·2 1·6			
		USCGS H 01 43 00			
		52½ N 169½ W			
		Fox Islands			
		Aleutian Islands			
10	Qt	ePZ	03	51	50
		eSNN*	04	02	20
		USCGS H 03 39 11			
		52½ N 166½ W			
		Fox Islands			
		Aleutian Islands			
10	Qt	ePZ	05	56	57 c
		ePcPZ		57	04
		eXZ			10
		eSN*	06	07	16
		eScSN			28
		Mu Sec			
		PZ 0·2 1·3			
		USCGS H 05 44 32			
		52 N 174½ EW			
		Andreanof Islands			
		Aleutian Islands			
		Mag 6·1 (Qt)			
10	Qt	ePZ	07	02	26
		USCGS H 06 54 44			
		71 N 52½ E			
		Novaya Zemlya			
10	Wr	ePN	07	50	11
	Lh	ePZ			15
	Qt	iPZ			42 c
		ePcPZ			48
		eXZ			54
		eSN	08	00	58
		eScSN		01	15
		Mu Sec			
		PZ 0·3 1·2			
		PN 0·2 1·2			
		USCGS H 07 38 18			
		52 N 174 W			
		Andreanof Islands			
		Aleutian Islands			
		Mag 6·2 (Qt)			
10	Qt	ePZ	14	33	19
10	Wr	ePgN	18	09	42
		eSN		10	02
	Lh	ePZ			12
		eXZ			24
		iSE		11	19
	Qt	ePZ		10	55
		eXZ		11	04
		eSN		12	35

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Date	Station	Phase	h	m	s
		H 18 08 44			
		Pamirs,			
		Tadzhikistan			
10	Ch	ePZN	19	06	08
	L5	ePZ			12
		eScS		16	43
	Qt	ePZ		06	35
		eSN*E*		16	59
		eScSNN*E*		17	17
		ePPSN*		18	21
		eLN*			23·2
		Mu Sec			
		PZ 0·1 1·4			
		USCGS H 18 53 59			
		54 N 166 W			
		Fox Islands			
		Aleutian Islands			
		Mag 5¾ (Berk),			
		5·9 (Qt)			
11	Qt	ePZ	00	34	24 c
		USCGS H 00 21 50			
		52½ N 170 W			
		Fox Islands			
		Aleutian Islands			
11	Wr	ePN	03	51	06
		eSN		52	02
	Lh	ePZ		51	20
		eSE		52	26
	Qt	ePZ			16
		esPZ			53
		eSEN		54	09
		H 03 49 52			
		37½ N 76 E			
		Western Sinkiang			
		Province, China			
		depth about 150 km			
11	Qt	ePZ	10	16	36
		eSN		18	17
11	Qt	ePZ	19	46	56
		eSNE		49	04
	Kr	eXE		47	19
		e(S)E		49	19
	Lh	ePZ		48	16
11	Qt	ePZ	20	09	54
11	Qt	ePZ	20	47	48
		iPZ			52
		eXZ		48	24
	Lh	ePZ		47	58
		eXZ		48	36
11	Qt	ePZ	22	33	00
		iXZNE			34
		e(S)NZ			42
	Lh	ePZ			13
		i(S)E		34	33
	Wr	ePZ		33	30
	Kr	e(P)NE		34	47
12	Ch	ePZ	00	08	57
		iPgZE		09	26
	Lh	ePZ		12	18
		eSE		16	20
	Qt	ePZ		13	17
		H 00 07 16			
		Burma – Yunnan			
		border			
12	Ch	ePZE	19	03	48
		iXZ		04	26
		eXZ		05	23

Date	Station	Phase	h	m	s
	Lh	ePZ	19	06	14
		eXE		13	08
	Kr	iPZNE		06	30 c
		eXN		07	11
		eSNE		13	58
	Wr	ePN		06	44
		eSN		14	23
	Qt	ePZ		06	46 c
		iSNE*		14	31
		eSSN*		18	18
		eMN*E*		31	00
		Mu Sec			
		PZ 0·2 1·3			
		SN 0·2 3·5			
		MN* 5·2 2·4			
		ME* 3 6 2·2			
		USCGS H 18 57 02			
		8 S 111 E			
		Near south coast			
		of Java			
		Mag 6·5 (Up, Ki),			
		6·1 (Qt)			
12	Qt	ePE	20	27	36
12	Qt	ePZ	22	15	29
		eXZE		17	49
12	Wr	ePN		19	17
		eSN			50
	Lh	ePZ			58
		eSZ		21	01
	Qt	ePZ		20	11
		eSNE		21	29
		H 22 18 31			
		36½ N 70½ E			
		Hindukush			
		depth about 200 km			
13	Ch	iPZ	04	29	22
	Wr	ePN			44
	Qt	ePZ		30	19 c
		eS		39	09
		Mu Sec			
		PZ 0·4 2·0			
	Kr	ePZE	04	30	44
		USCGS H 04 19 17			
		52½ N 160 E			
		Off southeast coast			
		of Kamchatka			
		Mag 6·4 (Up, Ki),			
		6·3 (Qt)			
14	Qt	ePZ	13	40	10 c
		USCGS H 13 27 42			
		51½ N 173 W			
		Andreanof Islands			
		Aleutian Islands			
15	Qt	ePKPZ	04	21	24
		USCGS H 04 02 07			
		9 N 84 W			
		Near coast of			
		Costa Rica.			
15	Qt	ePKPZ	06	14	03
		Mu Sec			
		PKPZ 0·2 1·3			
		USCGS H 05 55 21			
		30 S 179 W			
		Kermadec Islands			
		depth about 150 km			
15	Wr	eSN	21	18	37
	Qt	ePZ			57
		eSNE		20	08
		Hindukush			
15	Qt	ePZ	23	13	01 c

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Date	Station	Phase	h	m	s
16	Kr	ePE	02	58	15
		e(S)E			49
	Qt	ePZ			17
		eSE			42
16	Qt	ePZ	15	16	01
16	Qt	ePZ	21	49	35
		USCGS H 21 37 19			
		Andreanof Islands			
		Aleutian Islands			
17	Qt	ePZ	14	32	15 c
		eSN		40	44
		Mu Sec			
		PZ 0·3 1·8			
		USCGS H 14 21 44			
		31 N 141½ E			
		South of Honshu, Japan			
		Mag 6·1 (Qt),			
17	Qt	ePZ	14	48	55
		Mu Sec			
		PZ 0·2 1·9			
		USCGS H 14 37 36			
		47 N 27½ W			
		North Altantic Ocean			
		Mag 5·9 (Qt)			
17	Wr	ePN	15	39	52
	Qt	eSN		40	19
		ePZN			54
		esPZ		41	24
		eSNE		42	11
	Kr	ePNE			03±
		eSNE		44	04
		H 15 39 14			
		36½ N 70½ E			
		Hindukush			
		depth about 150 km			
17	Qt	ePZ	17	47	50
		USCGS H 17 36 25			
		46 N 27½ W			
		North Atlantic			
		aftershock			
17	Wr	ePN	19	18	40
		eSN		19	25
	Qt	ePZ			49
		eSN		21	26
	Kr	ePN		20	55
		eSE		23	22
		H 19 17 40			
		38 N 71½ E			
		Afghanistan–Tadzhikistan			
		border			
18	Qt	ePZ	07	54	00
		USCGS H 07 41 02			
		New Britain region			
18	Qt	iPZ	07	59	43 c
18	Qt	ePZ	16	16	18
	Wr	eSN	17	25	59
18	Qt	ePZ		26	29
		eSNE		27	44
		Hindukush			
18	Ch	ePZ	18	00	35
	Qt	ePZ		05	12
		e(S)N		10	03
18	Qt	ePZ	19	11	49
18	Qt	ePZ	23	22	36

Date	Station	Phase	h	m	s
19	Qt	ePZ	03	51	11
19	Wr	ePN	16	12	46
		eSN		13	27
	Lh	iPZ		12	54
		iXE		13	29
	Qt	ePZ		12	54
		eXZ		13	26
		iSNE			38
		H 16 11 59			
		31¾ N 70½ E			
		Suleman Range			
		West Pakistan			
19	Ch	ePZ	18	34	41 c
	Lh	ePZ		36	48 c
		eSE		43	18
	Wr	ePN		37	09
		eSN		43	57
	Kr	ePZ		37	30±
	Qt	ePZ			40 c
		iPcPZ		39	04
		iPPZNN*			35
		iSNN*		44	42
		eSSNN*		48	08
		iLE*			48·9
		Mu Sec			
		PZ 2·3 2·5			
		PPZ 4·6 3·5			
		SN 4·4 3·5			
		USCGS H 18 28 50			
		23½ N 122 E			
		Near east coast of			
		Formosa			
		Mag 6½–6¾ (Pas),			
		6·5 (Up, Ki),			
		6·8 (Qt)			
19	Ch	ePZ	21	53	37 d
		eSN		50	36
	Lh	iPZ		51	27 d
		iXZ		52	20
		iSNE		59	04
		iXNE	22	01	01
	Qt	iPZ	21	52	08 d
		e(sP)Z			44
		ePcPZ			56
		ePPZ		54	29
		iSNN*E*	22	00	21
		e(sS) N		01	15
		iScSE*			45
		eSSE		04	30
		eLE*			06·8
		Mu Sec			
		PZ 0·6 1·8			
		PPZ 0·5 1·7			
		SN 3·4 2·7			
	Kr	iPZ	21	52	15 d
		eSN	22	00	42 ±
		USCGS H 21 41 59			
		44½ N 14 E			
		Off north east coast			
		of Hokkaido, Japan			
		Mag 6½–6¾ (Pas),			
		6·1 (Up, Ki), 6·2 (Qt)			
20	Qt	ePZ	12	18	14
		ePPZ		22	21

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Date	Station	Phase	h	m	s	
		eSKSE*		28	55	
		iPSE*		31	19	
		eSSE*		36	52	
		USCGS H 12 04 22				
		11½ N 42 W				
		Atlantic Ocean				
		Mag 5·8 (Qt)				
20	Qt	ePZ	16	03	41	
21	Qt	ePZ	14	38	22	±
		USCGS H 14 25 46				
		34 N 38 W				
		North Atlantic Ocean				
21	Qt	ePZ	14	54	32	
21	Wr	ePN	15	48	37	
	Lh	eXZ		49	38	
	Qt	ePZ			12	
		eSN		50	32	
21	Qt	ePZ	17	57	34	
22	Qt	ePZ	09	52	56	
22	Lh	ePN	14	48	17	+
		iSN		49	18	
	Qt	iPZ		48	35	d
		iSNE		49	54	
		Hindukush				
22	Qt	ePZ	20	55	04	
		ePcPZ			48	
		eSNN*E*	21	03	26	
		eLN*			10·7	
		USCGS H 20 44 38				
		43½ N 146 E				
		Near north east				
		coast of Hokkaido,				
		Japan.				

Date	Station	Phase	h	m	s	
23	Ch	iPZN	06	08	51	c
	Qt	iPZN		09	25	c
		ePcPZEN			29	
		eXZ		11	28	
		ePPZN		12	39	
		eSKSNE*		19	45	
		iSNE*N*			48	
		eScSN		20	02	
		iPPSN*E*		21	00	
		eSSN*E*		25	22	
		eLN*E*			31·7	
		Mu	Sec			
	PZ	0·6	1·1			
	PPZ	0·5	2·5			
	SN	1·8	3·0			
	MN*	4·6	18·0			
	ME*	4·5	18 0			
		USCGS H 05 56 52				
		52½ N 169½ W				
		Fox Islands,				
		Aleutian Islands				
		Mag 6¼ (Pas), (Berk),				
		6 0 (Up, Ki), 6·7 (Qt)				
23	Qt	ePKPZ	12	32	50	
		ePPZ		35	05	
		USCGS H 12 13 36				
		Kermadec Islands				
24	Qt	ePKPZ	00	11	10	
		ePPZ		14	19	
	Lh	ePKPZ		11	24	
		i!PKPZ			28	
		ePPE		15	04	

Date	Station	Phase	h	m	s	
		USCGS H 23 51 33				
		32 S 67 W				
		San Luis Province				
		Argentina				
24	Ch	ePZ	00	30	10	
	Qt	ePKPZN		35	33	
		e(PP)E*		36	28	
		eSKSE*		42	26	
		ePSN		45	15	
		USCGS H 00 17 37				
		14½ S 167½ E				
		New Hebrides Islands				
		Mag 6½ (Pas)				
24	Qt	ePZ	02	39	40	
		USCGS H 02 33 13				
		40 N 29 E				
		North western Turkey				
24	Ch	eXZ	09	24	00	
	Qt	iPKPZ		25	27	d
		eXZ		26	51	
		ePPZN		27	03	
		eSKSN		31	31	
		Mu	Sec			
	PKPZ	0·1	1·0			
	PPZ	0·2	2·0			
		USCGS H 09 07 30				
		20½ S 179 W				
		Fiji Islands				
		depth about 550 km				
24	Qt	ePKPZ	20	26	47	
		ePPZ		29	47	
		ePKSZN		30	25	
	Lh	ePKPZ		27	00	

Date	Station	Phase	h	m	s	
		e(PP)N		30	11	
		USCGS H 20 07 17				
		29 S 69 W				
		La Rioja Province,				
		Argentina				
24	Qt	ePKPZ	22	03	39	
		ePPNN*		05	49	
		e(PKS)N*		07	18	
		eSKSE*		10	46	
		eSKKSE*		12	44	
		eSSN*		23	10	
		USCGS H 21 44 28				
		25 N 109½ W				
		Gulf of California				
		Mag 6·0 (Pas), (Berk)				
24	Lh	ePZ	22	33	36	
		ePZ		34	17	
		eSN		36	02	
25	Qt	ePZ	01	51	40	
		eXN		52	45	
		ePcSN		57	01	
		eSNN*		58	46	
		USCGS H 01 42 52				
		21½ N 121 ½ E				
		Formosa foreshock				
25	Qt	ePZ	02	25	45	
		USCGS H 02 18 32				
		39 N 23 E				
		Near east coast of				
		Greece				
25	Qt	ePZ	03	24	54	
		USCGS H 03 16 00				

Date	Station	Phase	h	m	s
		Batan Islands			
25	Qt	iPZ	04	50	09 c
		e(PcP)Z			22
		ePPZ		53	22
		eSN	05	00	33
		Mu Sec			
		PZ 0·1 1·2			
		USCGS H 04 37 35			
		52½ N 169½ W			
		Fox Islands,			
		Aleutian Islands			
		Mag 6·0 (Qt)			
25	Qt	ePZ	06	27	57 c
		ePcPZ		29	21
		eSE*N*		35	01
		eScSE*		37	48
		Mu Sec			
		PZ 0·2 1·6			
		USCGS H 06 19 06			
		21½ N 121 E			
		Off coast of Formosa			
		Mag 5·8 (Qt)			
25	Qt	ePZ	08	27	29
		e(S)E*		30	05
25	Ch	iPZ	10	13	21 c
	Lh	ePZ			52
	Qt	ePZ		14	27 c
		ePcPZ			57
		ePPPNN*		18	29
		eXE*			43
		eSE*N*		23	16
		eSSN*		27	37
		eXN*E*		28	53
		Mu Sec			
		PZ 0·5 2·0			
		PN 0·4 2·0			
		MN* 53·3 26·0			
		ME 26·4 1·0			
	Kr	ePE	10	14	57
		USCGS H 10 03 32			
		50½ N 156½ E			
		Near south coast of			
		Kamchatka			
		Mag 6¾ (Pas), 6½ (Berk),			
		6·3 (Up, Ki),			
		6·4 (Qt)			
25	Wr	ePN	19	12	33
		eSN		13	00
	Qt	ePN		13	33
		eSN		14	48
		Hindukush			
25	Wr	ePN	21	52	37
		eSN		53	10
	Qt	ePZN			36
		eSN		54	55
		Hindukush			
25	Ch	ePZN	22	50	20
		ipPZN			36
		e(S)N		55	12
	Lh	ePE		53	00
		eSN		59	29
	Wr	ePN		53	23

Date	Station	Phase	h	m	s
	Qt	ePZ		47	c
		e(pP)Z		54	24
		eSN*E*	23	00	51
		e(sS)N*E*		02	09
		Mu Sec			
		PZ 0·2 1·5			
		SN 0·5 2·5			
		USCGS H 22 44 51			
		4 N 120½ E			
		Luzon Philipine			
		Islands			
		Mag 5·5 (Qt)			
26	Ch	iPZ	04	38	38
	Wr	ePN		41	16
	Kr	ePE			28
	Qt	iPE*			32
		ePPPE*N*		45	27
		eLN*		57·0	
		USCGS H 04 31 03			
		0 125 E			
		Molucca Passage			
26	Ch	ePPZ	08	42	58
	Qt	ePKPZ		44	05
		eXZ		45	32
		ePPZ			46
		epPKPZ		46	23
		eSKSE*		50	13
		USCGS H 08 26 12			
		20½ S 178 W			
		Fiji Islands			
		depth about 600 km			
		Mag 6–6¼ (Pas)			
26	Qt	ePZ	08	52	03 c
26	Ch	iPZN	14	23	42 c
	Lh	ePE		26	06
	Kr	ePE			31
	Wr	ePN			32
		eSN		34	16
		Mu Sec			
		PN 0·3 1·5			
	Qt	iPZ	14	26	42 c
		iPZ			44
		ePcPZ		27	38
		ePPZ		28	52
		iPPZ			55
		ePcSZN		31	40
		eXNN*		34	08
		iSNN*E*			30
		e(ScS)N		36	10
		eLE*		38·8	
		ePKPPKPZ		56	52±
		Mu Sec			
		PZ 1·2 1·5			
		PPZ 0·9 2·0			
		PN 0·4 1·5			
		SN 2·6 3·0			
		ME* 4·6 20·0			
		MN* 4·8 20·0			
		USCGS H 14 16 57			
		2 S 116 E			
		Borneo			
		Mag 6·3 (Up, Ki)			
26	Qt	ePZ	14	40	49 e
26	Qt	ePZ	14	49	27 c
26	Ch	eXZ		17	51 20

Date	Station	Phase	h	m	s
	Qt	ePZ		52	36
26	Wr	ePN	18	03	54
		eSN		04	21
	Qt	ePZN			54
		iSN		06	07
		Hindukush			
26	Qt	ePZ	21	14	27
		e(S)N		16	42
27	Wr	ePN	09	58	07
		eSN			40
	Lh	ePZ			49
		eSN		59	54
	Qt	ePNZ			03
		eSN	10	00	20
		H 09 57 24			
		36¾ N 70¾ E			
		Hindukush			
		depth about 200 km			
27	Wr	ePN	14	42	39
	Qt	ePZ		43	16
27	Wr	ePN	19	55	29
	Lh	ePZ		56	08
		iSNE		57	13
	Qt	ePZ		56	21
		eSN		57	38
		H 19 54 42			
		36¾ N 70¾ E			
		Hindukush			
		depth about 200 km			
27	Ch	ePZ	22	42	35 c
	Wr	ePN			48
	Lh	ePE			52
		eXE		52	11
	Qt	iPZ		43	24
		i(PcP)Z		44	00
		ePPZ		45	51
		e(PPP)ZN		47	40
		iSNN*E*		52	10
		iScSN*E*		53	16
		eLN*E*		59·5	
		Mu	Sec		
		PZ 0·8	2·0		
		PPZ 0·5	2·0		
		SN 0·9	2·7		
	Kr	ePE	22	43	30
		USCGS H 22 32 25			
		56 N 161 E			
		Kamchatka			
		Mag 6½–6¾ (Pas),			
		6·5 (Qt)			
27	Qt	ePZ	23	11	36
28	Qt	ePNZ	09	18	11
		eSN		19	58
	Kr	ePE		18	14
28	Wr	ePN	11	47	18
		eSN			46
	Qt	ePN		48	00
		eSN		49	25
28	Qt	ePZ	16	29	23
29	Ch	ePZN	02	28	18
	Lh	ePZ		30	41
		ePcPZ		31	57
		eScSN		40	35
	Kr	ePE		31	05
	Wr	ePN			07

Date	Station	Phase	h	m	s
		eXN		37	54
		Mu	Sec		
	PN	0·2	1·6		
	Qt	ePZ	02	31	17 c
		ePcPZ		32	14
		ePPZ		33	23
		ePcSZ		36	15
		eSNN*E*		39	06
		eScSN*		41	05
		eLE*N*		44·1	
		Mu	Sec		
	PZ	0·4	1·4		
	SN	1·0	3·0		
		USCGS H 02 21 30			
		2 S 116 E			
		Borneo aftershock			
		Mag 6·2 (Qt)			
29	Qt	ePZ	04	06	37 c
29	Ch	ePZ	05	55	10 c
	Qt	ePZ		58	09 c
29	Wr	ePN	23	22	15
		eSN			49
		Mu	Sec		
	SN	0 8	0·5		
	Lh	eSE		24	01
	Qt	ePZ	23	23	09
		eSNE		24	27
		H 23 21 30			
		36¾ N 70¾ E			
		Hindukush			
		depth about 200 km			
30	Qt	ePZ	01	49	45
		ePcPZ		50	24
		eSNE*		55	06
		eLN*		57·0	
	Wr	ePN	01	50	06
	Kr	ePZE			06
		USCGS H 01 43 03			
		36 N 27½ E			
		Dodecanese Island			
		Mag 5·7 (Up, Ki)			
30	Wr	ePN	02	25	16
	Qt	iPZ			46 c
		ePcPZ			51
		ePPN		29	06
		eSNE*		36	12
		eScSE*			28
		e(PPP)E*		37	52
		Mu	Sec		
	PZ	0·2	1·4		
	PN	0·1	1·3		
		USCGS H 02 13 08			
		53 N 167 W			
		Fox Islands,			
		Aluetian Islands			
30	Qt	ePZ	03	02	45
30	Qt	ePZ	07	36	59 c
		ePPE*		38	13
		ePcPZN		39	42
		eXN		41	10
		iSE*		4219	
		eLN		44-1	
		Mu	Sec		
	PZ	0·2	1·5		
	Wr	ePN	07	37	19
	Kr	ePZNE			20

Date	Station	Phase	h	m	s	
	Lh	ePZ			46	
		eXN		38	09	
	Ch	ePZ		40	06	c
		USCGS H 07 30 20				
		36 N 27½ E				
		Dodecanese Island				
		Mag 5·7 (Up, Ki),				
		5·7 (Qt)				
30	Qt	ePZ	19	58	46	c
31	Ch	iPZ	02	45	05	d
	Wr	ePN		46	20	
	Qt	ePZ		47	00	
		eXZ			20	
		eSN*		55	06	
		eLN*E*	03	01·8		
		Mu	Sec			
		PZ 0·1	1·4			
		SN 0·2	1·9			
		USCGS H 02 36 56				
		39 N 140 E				
		Honshu, Japan				
		Mag 5.8 (Qt)				
31	Wr	ePN	03	26	23	
		eSN			56	
	Qt	ePZ		27	20	d
		eSNE		28	38	
		Hindukush				
31	Wr	ePKPN	10	27	12	
		ePKSN		30	45	
	Qt	ePKPZ		27	15	
		e(PP)Z		29	34	
		ePPN*			53	
		ePKSN*E*		30	48	
		e(PPP)Z		32	31	
		eSKSN*		34	24	
		eXE*N		41	36	
		eSSN*E*		47	29	
		Mu	Sec			
		MN* 5·2	20·0			
		ME* 5·4	20·0			
	Lh	ePKSE	10	30	56	
		eXE		31	54	
	Ch	ePKPZ		27	50	
		iXZN			55	
		eXN*		32	17	
		USCGS H 10 07 54				
		60½ N 83 W				
		Off coast of Panama				
		Mag 6½–6¾ (Pas) 6¾ (Berk),				
		6·5 (Up, Ki), 6·4 (Qt)				
31	Wr	ePN	15	45	17	
		eSN			49	
	Lh	iSNE		47	00	
	Qt	ePZN		46	14	
		eSNE		47	32	
		Hindukush				
31	Qt	ePKPZ	16	43	51	
		ePPZ		47	00	
		USCGS H 16 24 17				
		1½ N 86 W				
		Galapagos Islands region				

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ate	Phase	h	m	s
	Quetta			
1	ePZ	00	40	05
1	ePZ	15	02	45
1	ePZ	23	35	35
2	ePZ	15	01	08
2	ePZ	22	49	52
3	ePZ	14	01	37
3	ePZ	17	32	16
	eSE			30
3	ePZ	18	16	56
3	ePZ	18	59	06
4	ePZ	10	26	50
	eSN		27	41
5	iPZ	14	31	17
	iSNE			29
6	ePZ	00	04	21·5
	eSN			31·7
7	ePZE	12	34	05
7	ePZE	14	19	12
	iSE			23·7
7	ePE	21	28	35
	eSE		30	26
7	ePZE	23	49	37
8	ePZE	00	20	55
8	ePZ	11	49	53
	eSZN		50	11
8	ePZ	22	53	48
	eSZN			57
8	ePZ	22	55	02
	eSZN			11
9	ePZ	07	19	44

Date	Phase	h	m	s
9	ePZ	07	37	40
9	ePZ	17	26	01
9	ePZ	19	25	28
	eSE			51
10	ePE	02	21	00
10	ePZ	10	39	59
10	ePZ	11	08	57
10	ePZ	14	08	32
12	iPZ	02	54	56
	eSN		55	10
12	iPZ	04	15	11·1
	iSN			13·3
12	ePZ	14	49	40
	eSE			50
13	ePZ	01	57	24
	eSE			49
15	eXZ	01	27	25
16	ePZ	02	54	29
	eSE			55
16	ePZ	23	44	23
	eSE		46	20
17	ePZ	05	13	23
17	ePZ	16	48	34
	eSZ		49	08
17	ePZ	16	48	34
	eS		49	08
17	iPZ	21	05	31
18	ePZ	08	58	59
20	ePZ	08	46	10
20	ePZ	12	21	24
20	ePZ	12	22	22
	eXNE		28	45

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Date	Phase	h	m	s
20	ePZ	21	46	53
21	ePZ	02	56	26
	eSEN			46
21	ePZ	19	49	59
	eSEN		50	21
23	ePZ	09	57	22
	eSEN			26·5
25	ePZN	03	59	49
25	ePZ	04	25	58
	e(S)N		26	24
25	eXZ	07	43	11
	eXE		46	00
	e(S)EN		42	26
	ePZN	11	30	20
25	eSN			30
25	ePZN	13	04	52
	eSEN		05	16
25	ePNZ	15	57	41
	eSN		58	05
26	ePZ	06	26	12
	eSN		27	27
27	ePN	01	08	15·4
	eSN			40
27	eXZ	21	19	25
27	oPN	21	24	56
	eSN		25	11
27	ePN	21	46	31
28	e(P)Z	02	12	17
28	eXN	09	57	37
28	ePN	20	53	48
28	ePZN	22	52	48
	eSN		53	14
29	eXN	03	29	37
29	ePZ	08	1	
29	ePZ	08	2	
	eSNE			
29	ePZ	09	0	
29	ePZ	14	4	
	eSZN			4
29	ePZ	15	5	
	eSN			
29	ePZ	23	5	
	eSN			
30	ePZ	17	1	
30	ePZ	21	2	
	Warsak			
1	ePN	15	0	
	eSN			0
2	ePN	11	1	
2	ePN	12	0	
	eSN			
2	ePN	13	2	
	eSN			2
2	ePN	13	5	
	eSN			5
3	ePN	13	5	
3	ePN	23	4	
4	ePN	01	0	
4	ePN	06	0	
	eSN			0
6	ePN	14	0	
	eSN			
7	ePN	13	2	
10	ePN	02	2	
10	ePN	05	5	
11	ePN	00	16	15
12	ePN	12	39	46
13	ePN	17	34	11
13	ePN	18	11	49
	eSN		12	26
15	ePN	14	07	27
	eSN		08	05
15	ePN	15	09	47
20	ePN	05	32	57
	eSN		33	36
20	ePN	12	19	21
	eSN			51
20	ePN	20	04	28
	eSN			51
20	ePN	21	45	38
	eSN			49
21	ePN	15	32	28
	eSN		33	13
25	ePN	14	50	27
	eSN		51	08
25	ePN	17	23	53
	eSN		24	27
27	ePN	06	23	49
	eSN		24	23
21	ePN	02	12	01
	eSN			35
28	ePN	08	55	24
	eSN			47
28	ePN	13	50	48
	eSN		52	23
28	ePN	23	59	56
	eSN	00	00	35
29	ePN	07	07	12
	eSN			45
29	ePN	10	12	59
	eSN		12	27
29	ePN	16	02	39
	eSN		03	22
30	ePN	06	25	58
	eSN		26	21
31	ePN	01	32	11
	Lahore			
1	iXZ	15	03	59
2	ePZ	13	53	22
	iSE			55
3	ePZ	23	48	41
	eXZ			59
	iSZE		49	08
4	eXZ	05	46	32
7	eXE	17	12	07
7	ePZ	21	27	18
	eSE		28	23
7	ePZ	23	49	54
8	ePZ	00	20	03
9	iSE	18	11	21
10	iPZ	02	20	15
	iSZE			22
11	eXZ	00	47	13
13	eXZ	17	34	03
	eSE		35	30
13	eXZ	18	03	37
13	eXZ	22	10	41
20	eXZ	21	46	46
	eSE		47	22
21	iSE	20	14	19

Date	Phase	h	m	s	
24	ePZ	05	19	03	
	iSN			40	
27	eSN	21	48	05	
28	eXZ	11	49	24	
	Chittagong				
14	ePZ	01	02	45	
	eXZN			54	
18	e(P)Z	20	10	22	
19	ePZ	08	13	28	
19	ePZ	08	36	49	
19	ePZ	09	50	17	
19	ePZ	11	04	23	
19	ePZ	17	58	49	
19	ePZ	20	19	45	
20	ePZ	02	11	17	
20	ePZ	02	58	24	
21	iPZ	14	49	31	d
	iSE			44	
22	ePZN	11	14	45	
22	eXZ	22	02	18	
22	eXZ	23	11	13	
22	eXZ	23	53	35	
23	ePZN	11	51	28	
24	ePZ	06	51	08	c
27	e(P)N	20	11	26	
28	ePZN	05	43	45	
	eXZ		44	53	
	e(S)Z		47	36	
28	ePZ	06	03	02	
30	e(P)Z	02	51	18	
31	e(P)Z	04	54	03	
31	ePZN	15	42	16	

Date	Phase	h	m	s
	Karachi			
1	eXZ	08	09	53
18	ePNE	22	21	55
	eSNE		22	08
29	ePZN	08	56	23
	eSZE			32

Instruments	Components	Period Seismo & Galvo	Damping	Max. Magnification
Karachi				
Sprengnether	Z	1·8 sec.	Critical	5,890
„	N	1·6 „	„	4,700
„	E	1·4 „	„	4,700
Chittagong				
Sprengnether	Z	1·7 „	Critical	5,200
„	N	1·8 „	„	4,700
„	E	1·5 „	„	3,600
„	N	7·0 „	„	6,600
Willmore	Z	Seismo = 1 sec., Galvo = ¼ „	—	—
Warsak				
Sprengnether	N	2·0 sec.	Critical	4,000
Willmore (with Sprengnether galvo & recorder	Z	1·0 „	—	—

* indicates long period seismographs, Sprengnether or Milne-Shaw

c=compression, d=dilatation X=unidentified phase.

Mu=Actual ground motion of the indicated phase in microns.

Sec=Period of the indicated phase in seconds.

(Pas), (Berk), (Up), (Ki) stand for seismological observatories Pasadena (U.S.A.), Berkley (U.S.A.), Uppsala (Sweden), Kiruna (Sweden) respectively.

All times are in Greenwich Mean Time.

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PAKISTAN METEOROLOGICAL SERVICE

GEOPHYSICAL INSTITUTE

QUETTA.

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Particulars of Stations and Instruments

(a) Stations

Station	Symbol	Latitude	Longitude	Height (a.s.l.)	Ground
Quetta	Qt	30° 11′·3 N	66° 57′·0 E	1719 meters	Cretaceous Limestone
Lahore	Lh	31° 33′·0 N	74° 20′·0 E	210 „	Alluvium
Karachi	Kr	24° 49′·8 N	67° 02′·2 E	30 „	Alluvium
Chittagong	Ch	22° 21′·5 N	91° 49′·0 E	15 „	Alluvium
Warsak	Wr	34° 09′·0 N	71° 25′·0 E	343 „	River Terrace

(b) Instruments

Instruments	Components	Period Seismo & Galvo	Damping	Max. Magnification
Quetta (Central Station)				
Sprengnether	Z	1·9 sec.	Critical	5,500
„	N	1·95 „	„	4,500
„	E	1·95 „	„	5,800
„	N	15·8 „	„	15,000
„	E	16·5 „	„	16,000
Willmore	Z, N & E	Seismo = 1 sec. Galvo = ½ „	—	—
Milne-Shaw	E	12 sec.	20:1	250
Sprengnether Pen recorder	E	1·0 „	—	—
Lahore				
Sprengnether	Z	1·8 „	Critical	4,900
„	N	1·7 „	„	4,200
„	E	1·6 „	„	4,100

(Contd. on inner side of back cover)

Date	Station	Phase	h	m	s
1	Qt	ePZ	02	27	21
1	Qt	ePZ	03	41	10
		eSNE		42	27
	Lh	ePZ		41	28
1	Wr	ePZ	06	10	12
		eSN			53
	Lh	ePZ		10	49
	Qt	ePZN		11	23
		eSN		12	56
		H 06 09 16			
		Afghanistan-Tadzhikistan border			
1	Wr	ePZ	14	22	43
		eSN		23	25
	Lh	ePZ			16
		eSE		24	28
	Qt	ePZN		23	50
		esPN		24	22
		eSN		25	28
		H 14 21 45			
		38 N 71 E			
		Afghanistan-Tadzhikistan border			
		depth about 150 km			
2	Ch	ePZ	01	30	01
		eSZ		39	40
		eScSN*		40	10
	Qt	ePZ		30	55 c
		eSN		41	19
		Mu Sec			
		PZ 0·2 1·5			
		USCGS H 01 18 18			
		52½ N 169 W			
		Fox Islands			
		Aleutian Islands			
2	Qt	ePKPZ	07	40	06
		ePKSZ		43	27
	Ch	ePKPZ		40	30 c
		epPKPZ		41	04
		USCGS H 07 20 58			
		15 N 93½ W			
		Near coast of Chiapas			
		Mexico			
		depth about 100 km			
2	Ch	ePZ	16	24	13
		eSNN*		29	57
	Lh	ePE		26	30
		eSE		34	09
	Kr	ePZ		27	04
	Qt	ePZ		27	11
		ePcPZ			54
		eSN		35	26
		eLN*		42·0	
		Mu Sec			
		PZ 0·3 1·7			
		SN 0·6 2·5			
		USCGS H 16 16 53			
		6 N 127½ E			
		Off Southeast coast of Mindanao			
		Philippine Islands			
		Mag 6·1 (Qt)			
2	Ch	iPZ	18	42	49 c
		ePPZN		46	01
		eSN		53	04

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Date	Station	Phase	h	m	s
		iScSN*			22
	Lh	ePE		44	08
		eXE		47	14
		eSKSE		54	43
	Wr	ePZ		44	20
		eXN		47	25
	Kr	ePZ		44	33±
		eXZ		48	08±
		ePPZ			47±
	Qt	ePZ		44	36
		eXZ		47	55
		ePPZ		48	59
		eSKSE*		55	20
		ePSE*		58	10
		eSSN*	19	04	04
		eLN*		15·1	
		Mu	Sec		
	PZ	0·2	1·9		
		USCGS H 18 30 24			
		13 S 166½ E			
		New Hebrides Islands			
		Mag 6·8 (Qt), 6·4 (Up, Ki)			
3	Qt	ePZ	01	35	45
3	Qt	ePZ	10	02	27
		ePPN		05	17
		eSN		12	16
3	Ch	ePZ	10	35	17
		eSN		43	37
	Wr	ePZ		37	12
	Qt	ePZ			29
		eSKSN		47	52
		eSN*E*			57
		USCGS H 10 24 51			
		6 S 147 E			
		Near northeast			
		coast of New Guinea			
3	Qt	ePZ	11	13	27
3	Ch	ePZ	11	24	52
		eSN		33	12
	Qt	ePZ		27	09
		eSNE*		37	36
		USCGS H 11 14 30			
		6½ S 147 E			
		Near northeast coast of			
		New Guinea			
3	Qt	ePZ	12	53	25
3	Wr	ePZ	18	35	50
		e(S)N		36	36
	Qt	ePZ			11
		eP*ZN			29
		eSE		37	37
	Lh	ePZ		36	47
		iSNE		38	33
3	Qt	ePZ	19	12	11
		eXZN			22
		iSNE*			44
		Mu	Sec		
	PZ	0·3	1·3		
	Wr	ePZ	19	12	34
	Lh	ePZ			41
		iSN		13	38
	Kr	ePZ		12	53
		iSNE		14	01

Date	Station	Phase	h	m	s
		Near Fort Munro			
		West Pakistan			
		deeper than normal ?			
4	Ch	ePZ	02	42	13
	Qt	ePZ			52
		USCGS H 02 30 30			
		52 N 175½ W			
		Andreanof Islands			
		Aleutian Islands			
4	Qt	ePZ	13	54	59
4	Wr	ePZ	16	24	11
	Qt	ePZ		25	13
		eSN		26	33
		Hindukush			
4	Qt	ePZ	20	29	37
5	Qt	ePZ	00	43	44
5	Ch	ePZ	10	05	57
		eSN*		15	31
	Qt	eXZ		12	08
		USCGS H 09 54 29			
		13 S 169 E			
		New Hebrides Islands			
		region			
		depth about 650 km			
5	Ch	ePZ	20	02	45
	Qt	ePZ		03	31
		ePPZ		06	32
		USCGS H 19 51 15			
		51 N 178½ W			
		Andreanof Islands			
		Aleutian Islands			
6	Ch	eXZ	00	08	54
	Qt	ePZ		12	30
6	Ch	ePZ	13	22	05 c
		eSN		29	25
	Lh	ePZ		22	54
		eSN		30	56
	Wr	ePZ		22	57 c
	Qt	ePZ		23	34 c
		ePcPN		24	07
		ePPZN		25	55
		eSN*		32	10
		eScSN		33	25
		eLN*		40·3	
		Mu	Sec		
	PZ	0·4	2·0		
	Kr	ePZ	13	23	55
		USCGS H 13 12 53			
		45 N 149½ E			
		Kurile Islands			
6	Qt	ePZ	16	28	59
7	Qt	ePZ	03	19	10
		eXZN		20	38
7	Qt	ePZ	04	27	27
		epPZ		28	04
		eSN		37	11
		USCGS H 04 15 35			
		52 N 179 E			
		Rat Islands			
		Aleutian Islands			
		depth about 150 km			
7	Qt	ePKPZ	06	41	34 d
		eXZ		42	12
		ePPNZ		44	53
		ePKSZE*		45	08
	Wr	ePKPZ		41	34

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Date	Station	Phase	h	m	s
	Lh	ePKPN			46±
		USCGS H 06 21 56			
		57½ S 143½ W			
		South Pacific Ocean			
7	Qt	ePZ	08	00	47
		ePcPN		01	35
		ePPN		03	00
		eSN		08	55
7	Wr	ePZ	20	49	11
		eSN			40
	Lh	ePN			59
		eSE		51	00
	Qt	ePZ		50	02
		eSNE		51	10
		H 20 48 39			
		35¼ N 70 E			
		Hindukush			
7	Qt	ePZ	22	25	28
		e(S)E*		29	19
8	Qt	ePZ	02	59	23
		USCGS H 02 46 22			
		5½ S 155 E			
		Solomon Islands			
8	Qt	ePZ	06	27	40
		eXZ			51
8	Lh	e(P)N	09	12	57
		ePcPN		14	01
	Wr	ePZ		13	19
	Qt	ePZ			56
		eSN		22	17
	Kr	ePZ		14	14
		USCGS H 09 03 34			
		43 N 144½ E			
		Near east coast of			
		Hokkaido, Japan			
8	Wr	ePZ	20	43	28
		eSN		44	34
	Qt	ePZ			33
		eSN		46	26
9	Wr	ePZ	01	32	33
		eSN		33	03
	Lh	ePZ			12
		eSZE		34	15
	Qt	ePZ		33	32
		esPZ		34	15
		eSNE			49
		H 01 31 55			
		36 N 71 E			
		Hindukush			
		depth about 200 km			
9	Qt	ePZ	06	29	41
		USCGS H 06 16 59			
		53½ N 164 W			
		Unimak Islands region			
9	Qt	ePZ	10	53	23
		eSN			42
	Wr	ePZ		54	25
	Lh	ePZ			53
		H 10 52 57			
		31 N 65½ E			
		Southern Afghanistan			
9	Qt	ePZ	19	23	30
		USCGS H 19 10 39			
		Solomon Islands			

Date	Station	Phase	h	m	s
10	Ch	ePZ	02	47	32c
		ePPZ		50	09
		eSN		56	36
		ePKPPKPZ	03	15	44
	Lh	ePNE	02	49	08
		ePPN		52	36 c
		eSN		59	40
	Wr	ePZ		49	20
	Kr	ePZ			21
	Qt	ePZ			36 c
		ePPZ		53	17
		eSKSN	03	00	07
		eSKKSN			21
		iSNN*			37
		ePSN*		01	57
		iSSN*		06	57
		Mu Sec			
		PZ 0·4 2·0			
		USCGS H 02 36 21			
		7 S 155½ E			
		Solomon Islands			
10	Ch	ePZ	03	54	58 c
		eSN	04	04	09
		ePKPPKPZ		23	12
	Qt	ePZ	03	57	03
		ePPZ	04	00	44
		ePPPZN		02	48
		eSKSN		07	32
		eSKKSN			49
		eSN		08	04
		ePSN*		09	27
		eSSN		14	19
		Mu Sec			
		PZ 0·4 2·4			
		USCGS H 03 43 49			
		7½ S 155½ E			
		Solomon Islands			
		Mag 6·0 (Up, Ki)			
		6·2 (Qt)			
10	Wr	ePZ	04	45	51 d
		eSN		46	18
	Lh	ePZ			23
		eXE		47	26
	Qt	ePZ		46	52
		eSN		48	08
		H 04 45 15			
		36 N 72 E			
		Hindukush			
		depth about 200 km			
10	Ch	ePZ	05	59	18
		ePPZN	06	01	35
		eSN		07	38
	Lh	ePZ		01	04
	Kr	ePZ			26
		eSE		11	46
	Qt	ePZ		01	32
		ePPZ		04	48
		eSNN*		11	57
		ePSN		12	55
		ePPSN		13	12
		USCGS H 05 48 57			
		6½ S 147 E			

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Date	Station	Phase	h	m	s
		Near northeast coast of New Guinea			
10	Qt	ePZ	08	36	14
		ePcPZ		37	01
		ePPN		38	30
		eSN		44	28
		eScSN		46	05
		eSSE*		48	18
		eLE*		51·2	
		USCGS H 08 26 06			
		34½ N 139 E			
		Near south coast of Honshu, Japan			
		Mag 5·8 (Up, Ki)			
10	Qt	ePKPZ	10	40	18
		ePPZ		42	14
		ePKSNE*		43	54
		USCGS H 10 21 14			
		8 N 74½ W			
		Northern Colombia			
10	Qt	ePZ	12	24	09
10	Qt	ePZ	13	01	54
		eSN		03	11
10	Lh	ePZ	18	10	46
	Qt	ePZ		11	21 c
10	Ch	ePZ	19	28	12
		eSN		34	38
	Qt	ePZ		30	15
		ePcPZ		31	00
		ePPZ		32	29
		ePcSZ		35	02
		eSE*N*		38	28
		eScSN		40	04
		eSSN*		42	24
		eLE*		45·0	
	Kr	ePZ		30	17
		USCGS H 19 20 05			
		34 N 139½ E			
		Near east coast of Honshu, Japan			
11	Qt	ePZ	11	54	13
11	Qt	ePZ	14	24	44 c
		USCGS H 14 12 26			
		Andreanof Islands			
		Aleutian Islands			
11	Qt	ePKPZ	18	39	59 c
		USCGS H 18 20 38			
		Near coast of Guerrero Mexico			
		Felt Acapulco			
11	Qt	iPZ	20	37	26 c
		iSNE*		28	
		About 20 km northwest of the observatory			
		Felt Quetta			
12	Qt	ePKP	00	39	00
		USCGS H 00 20 03			
		24 S 177 W			
		Tonga Islands region			
12	Wr	ePZ	01	43	25
		eSN		54	
	Qt	ePZ		44	24
		eSNE		45	42
		Hindukush			
12	Ch	ePZ	05	41	06

Date	Station	Phase	h	m	s
	Qt	ePZ		42	53
		USCGS H 05 30 28			
		Andreanof Islands			
		Aleutian Islands			
12	Ch	ePZ	09	42	17
	Qt	ePZ		45	04
		USCGS H 09 33 51			
		7½ S 128½ E			
		Banda Sea			
12	Wr	ePZ	10	57	05 c
		eSN		50	
	Qt	iPZ		59	d
		eSNE		59	10
13	Qt	ePZ	03	38	37
		eSNE		39	57
	Lh	ePZ		42	
13	Ch	e(PKP)Z	17	39	18
		iPPZ		40	43
		iXN*		42	26
		iSKSNN*		47	28
	Lh	ePKPZ		41	32
		e(PP)Z		43	30
	Kr	ePKPZ		41	36
	Qt	ePKPZ		44	
		iPPZE*		43	30
		ePPPZ		46	12
		eSKSNE*		48	47
		ePSE*		53	36
		ePPSE*		55	03
		eSSE*	18	00	38
		eSSSN*		05	14
		USCGS H 17 22 41			
		33 S 179 W			
		Kermadec Islands region			
		Mag 6½-6¾ (Pas), 6¾ (Berk), 6·8 (Up, Ki)			
13	Wr	ePZ	17	57	45
	Lh	ePZ			58
		eXN	18	03	07
	Qt	ePZ	17	58	57
14	Wr	ePZ	02	58	48 c
		eSN		59	21
	Lh	eSN	03	00	34
	Qt	ePZ	02	59	40
		eSNE	03	00	55
		Hindukush			
14	Ch	ePZ	04	46	13
	Qt	ePZ			58 d
		USCGS H 04 34 41			
		51 N 179 W			
		Andreanof Islands			
		Aleutian Islands			
14	Ch	ePZ	05	32	00
	Qt	ePZ			40 c
		USCGS H 05 20 17			
		Andreanof Islands			
		Aleutian Islands			
14	Qt	ePZ	07	00	47
14	Wr	ePZ	20	40	33
		eSN		41	06
	Lh	ePZ			14
	Qt	ePZ			27
		e(S)N		42	48

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Date	Station	Phase	h	m	s
		H 20 39 51			
		36½ N 70½ E			
		Hindukush			
		depth about 150 km			
14	Wr	ePZ	22	12	03
		eSN			37
	Lh	ePZ			40
	Qt	ePZ		13	01 d
		eSEN		14	23
		H 22 11 17			
		37 N 71¼ E			
		Hindukush			
14	Qt	ePZ	22	59	43 c
	Lh	ePZ	23	00	01
15	Wr	ePZ	01	21	18
		eSN			45±
		Mu Sec			
		PN 0·4 0·4			
		SN 2·0 0·5			
	Lh	iPZ	01	21	58
		eSN			59
	Qt	iPZ		22	18 c
		esPZ			57
		iSEN		23	35
		H 01 20 41			
		36 N 70½ E			
		Hindukush			
		depth about 200 km			
15	Ch	iPZ	06	18	54 c
		ePcPZ		19	06
		eSNN*		28	42
	Qt	ePZ		19	29 c
		ePPZN		22	41
		eSNN*		29	50
		USCGS H 06 06 55			
		52 N 171½ W			
		Fox Islands			
		Aleutian Islands			
15	Ch	iPZ	06	52	55 c
	Qt	ePZ		53	24
15	Ch	iPZ	07	59	10 d
		iPcPZN	08	01	53
		iSNN*		04	30
		eScSNN*		09	36
	Lh	ePZ		01	39
		eSN		08	49
	Wr	ePZ		01	53 d
	Kr	ePZ		02	06
	Qt	ePZ			14 d
		ePcPZ		03	09
		ePPZ		04	27
		iSNE*N*		10	03
		eScSN		12	01
		eSSN*		13	57
		eLN*			16·3
		Mu Sec			
		PZ 0·7 2·0			
		PPZ 0·5 2·2			
		SN 1·5 3·0			
		USCGS H 07 52 25			
		8½ N 124*E			
		Mindanao Islands			
		Philippine Islands			
		Mag 6·3 (Qt)			
15	Qt	ePZ	09	46	22
		eSNE		47	28
15	Qt	ePZ	12	20	14

Date	Station	Phase	h	m	s
		USCGS H 12 01 37			
		34 N 141 E			
		South of Honshu, Japan			
15	Ch	ePZ	16	40	26
	Wr	ePZ			48
	Lh	ePZ			51
	Qt	ePZ		41	26
		ePcPZ			56
		ePPN		44	00
		iSNN*		50	16
		eScSE*		51	20
		eSSE		54	40
	Kr	ePZ		41	46
		USCGS H 16 30 29			
		51½ N 158 E			
		Near east coast of			
		Kamchatka			
		Mag 6·0 (Up, Ki)			
16	Ch	ePZ	02	00	24 c
	Lh	ePZ			38
	Qt	ePZ		01	05 c
		ePcPZN			12
		ePPN		04	12
		eSN*E*		11	10
		Mu Sec			
		PZ 0·3 1·5			
	Kr	ePZ	02	01	26 c
16	Ch	ePZ	10	20	57
	Qt	ePZ		22	35
		e(S)N		24	52
16	Lh	ePZ	13	03	51
		iSEN		04	55
	Qt	ePZ			16
		eSEN		05	32
		Hindukush			
16	Qt	ePZ	16	40	49
		eSEN		43	07
17	Ch	ePZ	06	06	23 c
		eSN		13	18
	Lh	ePZ		07	02
		iSE		14	28
	Qt	ePZ		07	40
		ePcPN		08	19
		epPZ		09	00
		iSNN*		15	40
		esSN*		17	58
		eSSN*		19	55
	Kr	ePZE		08	01
		eSE		16	21
		USCGS H 05 57 48			
		49 N 148½ E			
		Sea of Okhotsk			
		depth about 350 km			
17	Kr	ePKPZ	16	01	15
	Qt	ePKP1Z			21
		ePKP2Z		02	00
		eXN*E*		11	42
		USCGS H 15 41 22			
		Southern Chile-Argentina			
		border			
17	Ch	iPZ	18	02	21 d
		eSN		08	06
		ePZ		03	52
		eSN		10	51

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Date	Station	Phase	h	m	s	
	Qt	ePZ		04	35	
		ePcPN		05	15	
		epPZ		06	07	
		ePPZ		07	01	
		eSNE*N*		12	15	
		eScSN		13	30	
		esSN*E*		15	00	
	Kr	ePZ		04	42	d
		USCGS H 17 55 04				
		30½ N 138 E				
		South of Honshu, Japan				
		depth about 450 km				
18	Qt	ePZN	03	03	40	
		iXN		04	13	
		eSNE		05	42	
18	Ch	ePZ	10	23	28	c
		eSN*		32	49	
	Lh	ePZ		23	46	
		ePcPZ			57	
		eSN		33	40	
	Qt	ePZ		24	14	c
		ePcPZ			22	
		ePPZ		27	14	
		eSN*E*		34	20	
		eSSE*N*		39	40	
		eXE*		44	01	
		eLN*			45·0	
		Mu Sec				
	PZ	0·2 1·2				
	Kr	ePZ	10	24	32	c
		USCGS H 10 12 00				
		51½ N 179½ W				
		Andreanof Islands				
		Aleutian Islands				
		Mag 6·1 (Up, Ki),				
		6·0 (Qt)				
18	Qt	ePZ	10	31	01	c
		Andreanof Islands				
		Aleutian Islands				
18	Kr	ePE	13	35	19	
		eSE			48	
	Qt	ePN		36	20	
		eSNE		37	39	
18	Lh	ePZ	15	05	48	
	Qt	ePZ		06	13	c
		ePPZ		09	14	
		eSN*		16	19	
		USCGS H 14 53 56				
		51 N 179½ E				
		Andreanof Islands				
		Aleutian Islands				
18	Qt	ePZ	15	23	04	
		Andreanof Islands				
		Aleutian Islands				
18	Lh	ePZ	15	22	51	c
		eSE		30	43	
	Qt	ePZ		23	29	c
	Kr	ePZ			46	
		USCGS H 15 12 53				
		44 N 148 E				
		Kurile Islands				
18	Qt	ePZ	22	51	03	
		eXZ			14	
		e!XN			19	

Date	Station	Phase	h	m	s	
		eSNE		52	25	
	Lh	ePZ		51	42	
		eXZ			54	
		eSNE		53	38	
19	Qt	ePZ	01	54	00	
		USCGS H 01 44 36				
		27½ N 129 E				
		Ryukyu Islands				
19	Lh	iPgZ	02	24	29	
		iSg			34	
	Qt	eSNE		27	00	
		H 02 24 21				
		Epicentre about 45 km				
		west of Lahore				
		Felt Lahore				
19	Ch	iPZ	16	22	49	c
		epPZ		23	11	
		eSNN*		30	16	
	Lh	ePZ		23	29	c
		eXZ		26	39	
	Qt	ePZ		24	07	c
		e(pP)Z			25	
		eXZ		27	19	
		eSN		32	39	
		Mu Sec				
	PZ	0·4 1·6				
	Kr	ePZ	16	24	35	c
		eXZ		27	19	
		Mu Ses				
	PZ	0·2 1·0				
		USCGS H 16 13 29				
		47 N 152½ E				
		Kurile Islands				
		depth about 100 km				
		Mag 6·1 (Qt), 6·0 (Kr)				
19	Qt	ePZ	19	36	03	
19	Qt	ePZ	23	25	06	
		USCGS H 23 14 45				
		31½ N 140 E				
		Off south coast of				
		Honshu, Japan				
20	Qt	ePZ	02	46	28	
		USCGS H 02 35 30				
		23½ N 143½ E				
		Volcano Islands				
20	Qt	ePZN	07	17	35	
		eSNE		19	03	
	Lh	ePZ		18	06	
20	Ch	ePZN	12	52	34	
		iPcPZN			41	
		ePPZN		55	37	
		eSN	13	02	36	
		eScSN			55	
		Mu Sec				
	PZ	1·4 1·3				
	Lh	ePZ	12	52	50	
	Qt	ePZN		53	03	
		ePcPZ			07	
		eXZ			18	
		eXE*		55	12	
		ePPZN*		56	20	
		eSKSNN*	13	03	27	
		iSNE*			33	
		eScSN			50	

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Date	Station	Phase	h	m	s
		eSSN*E*		09	16
		Mu Sec			
		PZ 0·5 1·5			
		MN* 18·8 18·5			
		ME* 16·0 20·0			
	Kr	ePZ	12	53	23
		eSKSN	13	03	57
		eSN		04	10
		Mu Sec			
		PZ 0·3 1·0			
		USCGS H 12 40 23			
		54 N 165 W			
		Unimak Islands			
		Mag 6¼–6½ (Berk)			
		6·5 (Qt, Kr),			
		6·4 (Up, Ki)			
20	Wr	ePZ	15	45	02 d
		eSN			39
	Qt	ePN		46	06
		eSNE		47	34
		Afghanistan-Tadzhikistan border			
29	Qt	iPZ	16	49	42 c
		eXN			55
		iSNE*N*		50	02
	Kr	ePE			30
		Baluchistan			
20	Wr	ePZ	18	34	01 d
		eSN			42
	Lh	ePZ			36
		eXZ			41
	Qt	ePN		35	06
		eSNE		36	37
		H 18 33 07			
		37½ N 72 E			
		Pamirs, Tadzhikistan			
		depth about 100 km			
20	Wr	ePZ	22	19	44 d
		eSN		20	22
	Lh	ePZ			20
		iSN		21	24
	Qt	ePN		20	50
		eSN		22	19
		H 22 18 56			
		37¼ N 72¼ E			
		Pamirs, Tadzhikistan			
		depth about 100 km			
21	Ch	ePZ	05	19	27
		eSE		25	42
	Lh	iPZ		21	42 d
		eXN		28	55
		iSN		29	52
	Wr	ePZ		22	03
	Kr	iPZ			13 d
		Mu Sec			
		PZ 0·2 1·0			
	Qt	ePZ	05	22	19
		ePcPZ			56
		ePPZN		24	39
		iSNN*		31	00
		eSSN*E*		35	00
		eLE*N*			38·3
		Mu Sec			
		PZ 0·2 1·4			
		SN 1·1 3·0			

Date	Station	Phase	h	m	s
		USCGS H 05 11 33			
		0½ S 127½ E			
		Halmahera Islands			
		region			
		Mag 6·1 (Qt), 6·2 (Kr)			
21	Qt	ePZ	06	37	44
21	Qt	ePZ	17	49	40
21	Lh	ePZ	18	07	52
		eSN		16	22
	Kr	ePZ		08	12
	Qt	ePZ			28
		eSN*		17	30
		USCGS H 17 57 21			
		3 S 130 E			
		Ceram Islands region			
21	Qt	ePZ	22	16	46
22	Ch	ePZ	16	18	41 c
	Qt	ePKPZ		24	20
		e(SKKS)N*		32	12
		eXNN*			43
		e(S)N*		33	05
		USCGS H 16 05 35			
		22½ S 172 E			
		Loyalty Islands region			
22	Lh	iPZ	18	12	02
	Wr	ePZ			14 d
	Qt	iPZ			46 d
22	Wr	ePZ	18	21	31
		eSN		22	04
	Lh	iPZ			12
	Qt	iPZ		22	24
		eXZ		23	21
		eSNE			40
		H 18 20 47			
		36¾ N 70½ E			
		Hindukush			
		depth about 150 km			
22	Wr	ePZ	21	00	55 d
	Lh	ePZ		01	36
		eXN		02	11
		eSN		03	07
	Qt	ePZ		01	55
		eSNE		03	47
		H 20 59 30			
		39½ N 71 E			
		Tadzhikistan S. S. R.			
22	Lh	ePZ	22	01	11
		eSNE		09	22
	Wr	ePZ		01	34
	Kr	ePZ			47±
	Qt	ePZ			49
	Qt	eSNN*E*		10	32
		USCGS H 21 51 04			
		Spice Islands			
23	Qt	ePZ	01	06	51
		USCGS H 00 55 00			
		52 N 172 E			
		Near Islands,			
		Aleutian Islands			
23	Ch	iPZ	01	10	41 c
		iPcPZN			48
		ePPN		13	44
		eSN		20	45
		eScS		21	02

Date	Station	Phase	h	m	s
	Wr	ePZ	10	44	
	Lh	ePZ		49	c
		eSN	21	04	
	Qt	iPX	11	13	c
		eXZ		25	
		ePPZ	14	27	
		iSKSNN*E*	21	36	
		ePSN*	22	39	
		eSSN*	27	03	
		eSSSN*	30	50	
		eLE*N*		33·5	
		Mu Sec			
	PZ	0·5 1·5			
	PN	0·3 1·4			
	Kr	ePZ	01	11	46 c
		Mu Sec			
	PZ	0·2 1·0			
		USCGS H 00 58 33			
		52½ N 168 W			
		Fox Islands			
		Aleutian Islands			
		Mag 6·5 (Qt), 6·2 (Up, Ki)			
23	Qt	ePZ	03	07	03
23	Qt	ePZ	18	52	48 c
24	Qt	ePZ	01	37	54
		Mu Sec			
		PZ 0·2 1·5			
		USCGS H 01 25 35			
		51 N 177½ W			
		Andreanof Islands			
		Aleutian Islands			
24	Wr	ePZ	08	08	02 d
	Qt	ePZ		16	
24	Qt	ePZ	10	41	48
		e(S)NE		43	57
24	Qt	ePZ	22	13	52
25	Ch	ePZ	00	34	21
		eSN		40	38
	Lh	ePZ		36	33
		eSE		44	29
	Wr	ePZ		36	51 c
	Qt	ePZ		37	09 c
		eXZ		24	
		eXZ		39	43
		eSNE*		45	42
		USCGS H 00 26 32			
		3 N 128 E			
		Halmahera Islands			
25	Qt	ePZ	03	38	41
25	Qt	ePZ	04	23	20
		eSN*		33	40
		USCGS H 04 11 09			
		62½ N 151 W			
		Alaska			
		depth about 150 km			
25	Qt	ePZ	04	34	21
25	Qt	ePZ	07	48	34
		USCGS H 07 36 08			
		50½ N 175 ½ W			
		Andreanof Islands			
		Aleutian Islands			
25	Ch	ePZ	20	11	33
	Qt	ePZ		14	36
		eSN*E*		23	32

Date	Station	Phase	h	m	s
		Mu Sec			
	PZ	0·1 1·5			
	SN	0·5 2·7			
25	Wr	ePZ	20	56	02
		eSN		29	
	Qt	ePZ		57	06
		eSNE		58	19
		Hindukush			
25	Ch	ePZ	22	41	46 c
		ePPZN		43	01
		ePPZ		20	
		ePcPZ		44	24
		eSNZ		47	10
	Lh	eSSN		49	16
	Lh	ePZ		44	10 c
		ePcPN		45	17
		ePcSE		49	21
	Kr	ePZ		44	34 c
		iXZ		45	
		ePcPZ		45	38
		Mu Sec			
	PZ	0·5 1·5			
	Wr	ePZN	22	44	38
		Mu Sec			
	PN	0·4 1·2			
	Qt	iPZ	22	44	46 c
		ePcPZ		45	44
		ePPZ		46	55
		ePcSN		49	43
		eSN		52	33
		iSE*		37	
		eScSE*		54	30
		eLN*		58·7	
		eMN*E*	23	10·0	
		ePKPPKPZ		14	41
		Mu Sec			
	PZ	0·8 2·0			
	PPZ	1·3 2·5			
	MN*	7·0 19·5			
	ME*	5·8 18·5			
		USCGS H 22 35 00			
		1½ S 116 E			
		Near east coast of Borneo			
		Mag 6·3 (Up, Ki),			
		6·4 (Qt), 6·3 (Kr)			
26	Wr	ePZN	00	42	28
		eSN		43	12
	Lh	ePZ			03
		iSE		44	19
	Qt	ePZ		43	36
		eSNE		45	12
		H 00 41 30			
		37½ N 72½ E			
		Pamirs, Tadzhikistan			
		S. S. R.			
26	Qt	ePZ	01	45	00
26	Ch	ePZ	01	48	10
	Lh	iPZ		50	38
		e(S)E		56	02
	Qt	ePZ		51	11
		eXZ			40
26	Ch	iPZ	05	16	47 c
		ePPZ		18	03
		eSN		22	04
	Lh	ePZ		19	11 c

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Date	Station	Phase	h	m	s
		ePcPZ		20	22
		eSN		26	35
	Kr	ePZ		19	34 c
		iPcPZ		20	42
		ePPE		21	48
		eSE		27	23±
		Mu Sec			
	PZ	0·5 1·5			
	Wr	ePZ	05	19	39
	Qt	iPZ			47 c
		ePcPZ		20	45
		e!PPZ		21	55
		ePcSNZ		24	43
		iSNE*		27	38
		eSSE		31	33
		ePKPPKPZ		49	43
		Mu Sec			
		PPZ 1·2 2·5			
		SN 2·1 3·0			
		USCGS H 05 10 00			
		2 S 116 E			
		Near east coast of Borneo			
		Mag 6·3, (Up, Ki),			
		6·3 (Kr)			
26	Qt	ePZ	06	33	28
26	Wr	ePZ	07	32	16
		eSN			43
	Qt	ePZ		33	14
		eSNE		34	26
		Hindukush			
26	Qt	ePZ	08	22	39
		USCGS H 08 15 27			
		40 N 23 E			

Date	Station	Phase	h	m	s
		Greece foreshock			
26	Ch	ePZ	11	39	34
	Qt	ePZ		40	17
		Mu Sec			
	PZ	0·3 1·8			
		Aleutian Islands			
26	Ch	ePZ	11	47	22 c
		ePcPZ			37
		ePPNZ		50	10
		ePPPZ		51	56
		eSZ		56	56
		eScSN		57	30
	Wr	ePZ		47	36
	Lh	ePZ			39
		ePcPZ			48
		eSN		57	29
		eScSN			55
	Qt	ePZ		48	05 c
		eXZ			16
		eXZ			41
		ePPZ		51	10
		eSN		58	15
		eSN*			18
		eScSN*			32
		Mu Sec			
	PZ	0·9 1·5			
	MN*	4·9 19·5			
	ME*	4·3 18·5			
	Kr	ePZ	11	48	29 c
		USCGS H 11 35 44			
		51½ N 176 W			
		Andreanof Islands			
		Aleutian Islands			

Date	Station	Phase	h	m	s
26	Qt	ePZ	18	31	34
		eXZ		32	27
26	Ch	ePZ	19	12	53
	Qt	e. Z		16	01
		ePPZ		17	52
		eSN*		23	09
		eSSN*		26	42
		USCGS H 19 07 02			
		19 N 121 E			
		Near north coast of			
		Luzon			
		Philippine Islands			
26	Qt	ePZ	21	18	22
26	Qt	ePZ	22	52	56
26	Qt	ePKPZ	23	43	12
		ePKSZ		46	37
		USCGS H 23 24 03			
		11½ N 86½ W			
		Near east coast of			
		Nicargua			
		depth about 100 km			
27	Qt	ePZ	02	34	33
27	Qt	ePZ	03	15	19
		ePPNZ		16	55
		eSN*		21	09
		eLN*E*		23	7
	Ch	ePZ		18	18
		USCGS H 03 08 06			
		39½ N 22½ E			
		Near east coast of			
		Greece			
		Mag 6·3 (Up)			
27	Qt	ePZ	03	31	15 c

Date	Station	Phase	h	m	s
28	Wr	ePZ	02	39	35 d
		eSN		40	06
	Lh	iSNE		41	16
	Qt	ePZ		40	34 d
		esPZ		41	08
		eSNE			52
		H 02 38 54			
		36½ N 71 E			
		Hindukush			
		depth about 150 km			
28	Ch	ePZ	05	16	40
	Wr	ePZ		19	24
	Kr	ePZ			38
	Qt	ePZ			42
		ePcPZ		20	29
		eSN		27	52
		eScSN		29	28
		USCGS H 05 09 35			
		8½ N 126½ E			
		Near east coast of			
		Mindanao			
		Philippine Islands			
28	Wr	ePZ	17	05	34 d
		eSN		06	04
	Lh	ePZ			14
		eSNE		07	15
	Qt	ePZ		06	38
		eSEN		07	59
		H 17 04 55			
		36½ N 71½ E			
		Hindukush			
		depth about 150 km			

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Date	Station	Phase	h	m	s	
28	Ch	ePN	21	02	49	
		eSN		13	23	
	Qt	e(PKP)Z		08	01	
		ePPZ		09	02	
		eSKSE*		15	14	
		eSKKSE*			58	
		ePSE*		18	15	
		eSSE*		24	25	
		USCGS H 20 50 10				
		15 S 168½ E				
		New Hebrides Islands				
28	Wr	ePZ	22	56	03	d
		eSN			37	
	Lh	ePZ			43	
		eSE		57	45	
	Qt	ePZ		57	10	
		eSE		58	32	
		H 22 55 18				
		37 N 71½ E				
		Hindukush				
29	Wr	ePZ	13	42	20	c
		eSN			51	
	Lh	ePN			51	
	Qt	ePZ		43	22	
		eSNE		44	43	
		H 13 41 39				
		36 N 72½ E				
		Hindukush				
		depth about 200 km				
29	Qt	ePZ	16	01	32	
		eSNE			42	

Date	Station	Phase	h	m	s	
	Kr	ePZ	16	02	48	
		About 80 km from				
		Quetta observatory				
		Felt at Quetta				
29	Ch	iPZ	17	55	32	c
	Lh	ePZ		56	47	
	Qt	ePZ			58	
		ePPZ	18	00	45	
		eSKKSN		07	47	
		USCGS H 17 43 38				
		48½ S 124½ E				
		South Indian Ocean				
29	Ch	iPZ	21	35	07	d
	Qt	ePZ		39	26	
29	Qt	ePKPZ	22	38	38	
		eXZ			45	
		iXZ			53	
		i!sPKPZN		39	51	
		ePPZ		41	34	
		ePKSZ		42	07	
		ipPPZ			31	
		iXN			45	
		isPPN			55	
		eXZ		43	20	
		i!XN			30	
		Mu Sec				
		PPZ 0·4 2·5				
	Wr	ePKPZ	22	38	43	
		esPKPZ		39	57	
		eXN		43	31	
	Kr	ePKPZ		38	43	
		i!X			52	

Date	Station	Phase	h	m	s	
		i!sPKPZ		39	50	
		iXZ		41	37	
		iPPZ		42	00	
		i!XE		43	30	
	Lh	ePKPZ		38	51	
		eXZ		39	00	
		esPKPZN			57	
		ePKSE		42	43	
		epPPN		43	07	
	Ch	ePKPZN		39	19	
		i(pPKP)Z		40	06	
		isPKPN			31	
		eSKSPN		54	07	
		eSPPN		57	48	
		USCGS H 22 19 38				
		21 S 66 W				
		Southern Bolivia				
		depth abaut 200 km				
		Mag 7¾-8 (Pas), 7½				
		(Berk, Up, Ki)				
29	Qt	ePZ	23	14	55	
30	Ch	ePZ	02	06	22	
	Qt	ePZ		07	15	
30	Qt	ePZ	12	48	17	
30	Wr	ePZN	17	50	22	
	Qt	ePZ			55	
		eSN		58	35	
	Ch	ePZ		51	21	
		eSN		59	30	
		USCGS H 17 41 15				
		83½ N 112½ E				
		Arctic Ocean				

Date	Station	Phase	h	m	s	
30	Ch	ePZ	20	37	56	
	Qt	ePZ		39	10	
		USCGS H 20 28 18				
		49 N 154 E				
		Kurile Islands				
30	Ch	ePZ	21	46	51	c
	Lh	ePZ		47	25	c
	Wr	ePZ			32	c
		ePcSN		52	17	
	Qt	ePZ		48	08	c
		ePcPZ			33	
		USCGS H 21 37 11				
		47 N 154½ E				
		Kurile Islands				
30	Ch	iPZ	22	03	47	c
		iXZ		04	10	
		ePPZ		05	44	
		eSN		11	31	
		Mu Sec				
		PZ 1·7 2·2				
	Lh	ePZ	22	04	28	c
	Wr	ePZ			28	
	Qt	ePZ		05	05	c
		eXZ			51	
		eSNN*E*		13	53	
		eScSN		15	00	
		Mu Sec				
		PZ 0·7 2·2				
		SN 0·6 2·8				
		MN* 7·8 17·5				
		ME* 4·0 15·0				

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Date	Station	Phase	h	m	s
	Kr	ePZ	22	05	28 c
		USCGS H 21 54 10			
		47 N 154 E			
		Kurile Islends			
		Mag 6·2 (Up, Ki)			
		Abdul Qadir Khan			
		M. A. Rehman			
		Geophysical Institute			
		P. O. Box No. 2			
		Quetta, Pakistan			

Date	Station	Phase	h	m	s

Date	Phase	h	m	s
	Quetta			
3	ePZ	00	24	08
	eSNE		25	27
3	ePZ	01	29	07
3	ePZ	02	35	57
3	ePZ	11	33	39
	eSN		34	08
4	e(P)Z	16	58	10
	eXNZ			54
4	ePZ	17	15	46
	eSN		16	09
5	ePZ	00	30	26·3
	eSN			44·1
5	ePE	11	21	55
	eSE		22	13
5	ePZ	15	37	29
	eSE			50
7	ePZ	06	48	17
7	ePZ	21	31	04
8	ePZ	18	50	57
9	ePZ	23	42	53
10	eXEN	02	14	02
10	eXE	12	43	20
	eSE		45	10
10	ePZ	20	02	21
10	ePE	20	13	57
	eSE		14	10
11	ePZ	00	18	11
11	eXZ	12	10	27
11	ePN	17	08	59

Date	Phase	h	m	h
11	ePZ	20	51	48
11	eXZ	22	07	59
11	eXN	22	30	52
12	eXE	02	37	30
12	eXZ	10	43	48
	eXZ		45	10
12	eXZ	17	40	31
12	ePZ	17	45	42
	eXN		46	15
	eXZN			27
13	ePZ	01	18	11
13	ePZN	05	04	41
	ePZ	10	42	45
13	ePZN	05	04	41
13	ePZ	10	42	45
13	ePZ	23	15	51
16	ePZ	03	39	25
18	ePN	00	37	33
	eSEN			35
18	ePZ	20	46	35
18	ePZ	23	13	35
19	ePZN	12	46	40
19	ePZ	12	50	38
19	e(P)Z	16	27	19
19	ePZN	19	49	21
	eSN			48
20	eXE	00	03	50
20	ePN	01	30	39
	eSN			49
20	ePZN	01	59	59
	eSN	02	01	19
20	ePZ	16	02	22

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Date	Phase	h	m	s
	eSN			49
20	ePN	19	29	33
20	ePZN	21	03	54
	eSNE		04	31
20	ePN	22	04	37
21	ePZ	14	51	42
	eSNE			56
21	eP?Z	21	14	53
21	iPZ	21	40	21·0
	iSNE			36·2
22	iPZ	01	02	58
	iSN		03	13
22	ePZ	23	46	28
23	iPZ	04	38	02·4
23	ePZ	07	20	21
23	ePgZ	08	04	07·2
	iSgZE			09·3
23	ePZ	13	44	21
	e(S)N			51
	eXN		45	03
	eXZ			15
23	ePgZ	18	02	03
	i!XZ			11
	iSgE			16
24	ePZ	06	23	28
	eSE			56
24	iXN	07	24	00
24	ePZ	22	34	54
	eSNE		35	35
25	ePZ	07	21	45
	eSE			41·6
25	ePZ	09	59	52·6

Date	Phase	h	m	s
	eSNE	10	00	07
25	ePZ	13	13	36
25	ePZ	14	22	10
25	ePZ	18	05	21
25	ePZ	22	03	40
26	ePZ	02	07	02
	eSN		08	44
26	ePZ	03	32	03
	iSN			33
26	ePZ	10	51	47
	iSEN		52	16
26	ePEN	20	30	30
27	ePZ	02	12	32
	eSNE		13	26
27	ePZ	12	32	53
	eSEN		33	19
27	ePZ	12	35	10
	e(S)N			39
28	eXZ	06	45	41
28	ePZ	19	35	30
29	ePZ	02	00	16
29	ePZ	02	18	42
29	ePZ	16	04	56
	eSZ		05	06
29	ePZ	23	23	35
30	ePZ	22	06	57
	eSZN		07	17
	Warsak			
2	ePZ	05	58	12
2	ePZ	11	57	33
	eSN		58	16

Date	Phase	h	m	s	
2	ePZ	12	17	14	c
	eSN			34	
2	ePZ	13	08	18	
	eSN			56	
2	ePZ	16	26	30	
	eSN			51	
2	ePZ	21	56	52	
	eSN		57	10	
3	ePZ	00	23	09	d
	eSN			42	
3	ePZ	05	22	25	
	eSN		23	05	
3	ePZ	09	16	35	
	eSN		17	03	
3	ePZ	11	34	46	
	eSN		35	19	
3	ePZ	23	22	55	
	eSN		23	56	
4	ePZ	06	42	32	
4	ePZ	06	53	31	
	eSN		54	04	
4	ePZ	09	25	10	
	eSN			42	
4	ePZ	13	39	24	
4	ePZ	17	23	47	
5	ePZ	01	58	01	
	ePZ	11	12	27	
	eSN			59	
5	ePZ	17	54	16	d
	eSN			44	
6	ePZ	04	54	55	
	eSN		55	26	
6	ePZ	12	56	51	

date	Phase	h	m	s	
	eSN		57	21	d
6	ePZ	17	03	21	
	eSN			56	
7	ePZ	05	36	26	
	eSN			55	
7	ePZ	08	48	13	d
	eSN			41	
9	ePZ	04	48	02	
	eSN			24	
9	ePZ	19	42	28	
	eSN			44	
10	ePZ	02	11	47	
	eSN		12	27	
10	ePZ	22	02	36	
	eSN		03	05	
11	ePZ	02	29	43	d
	eSN		30	16	
11	ePZ	11	11	34	d
11	ePZ	19	31	30	
	eSN		32	04	
11	ePZ	21	16	57	
11	ePZ	21	30	52	
	eSN		31	18	
12	ePZ	10	04	11	
	eSN			59	
12	ePZ	17	39	51	
	eSN		40	20	
13	ePZ	00	57	03	
13	oPZ	01	18	01	
	eSN			37	
13	ePZ	05	04	10	d
	eSN			37	
13	ePZ	07	58	02	

Date	Phase	h m h
	eSN	28
13	ePZ	13 28 57
13	ePZ	18 04 03
	eSN	29
13	ePZ	21 02 06
	eSN	39
16	ePZ	01 59 00
	eSN	18
22	ePZ	16 21 13
	eSN	47
23	ePZ	00 43 26 c
	eSN	56
23	ePZ	04 55 23
	eSN	56
23	ePZ	06 25 50
23	ePZ	07 14 22
	eSN	57
23	ePZ	13 34 50
23	ePZ	17 58 31
	eSN	43
	ePZ	02 25 32
	eSN	26 08
24	ePZ	04 34 38
	eSN	35 05
24	ePZ	10 29 45
	eSN	30 21
26	ePZ	02 01 57
	eSN	02 54
26	ePZ	02 05 40
	eSN	06 36
26	ePZ	20 27 33
	eSN	28 26
	ePZ	16 26 24 d

Date	Phase	h m s
	eSN	30
27	ePZ	20 21 28 c
	eSN	22 09
28	ePZ	06 43 26 c
	eSN	44 00
28	ePZ	19 08 09 c
	eSN	38
29	ePZ	07 02 55 d
	eSN	03 26
29	ePZ	09 58 44 c
	eSN	59 18
29	ePZ	16 02 38
	eSN	03 36
29	ePZ	19 45 45
	eSN	46 20
30	ePZ	00 32 00 d
	eSN	32 33
30	ePZ	02 06 57
30	ePZ	05 06 56
	eSN	07 20
30	ePZ	20 25 55
	eSN	26 26
30	ePZ	20 38 35 c
	eSN	39 26

Lahore

ePN	06 49 52
ePN	10 25 49
ePZ	06 30 02
ePZ	19 29 27
ePZ	21 16 31
eSE	59
ePZ	10 03 50
7	
7	
8	
10	
11	
12	

Date	Phase	h m s
	eSZ	04 15
13	ePZ	05 05 17
	iSNE	06 17
17	iPZ	16 35 53
	eSE	36 19
23	ePNE	18 00 34
29	ePE	16 02 20

Chittagong

1	ePZ	05 02 54
1	ePX	10 33 16
1	ePZ	21 45 14
1	ePZ	23 00 02
1	ePZ	23 19 05
2	ePNZ	05 56 15
2	ePZN	11 18 57
2	ePZN	11 20 39
2	ePZN	11 24 55
3	ePZN	05 44 05
4	ePZ	10 20 36
4	ePZN	11 50 09
	eSN	20
7	ePZN	08 15 20
8	ePZN	13 45 13
9	ePZN	04 31 25
12	ePZN	00 58 38
12	ePZN	03 04 47
12	ePZN	18 52 15
13	ePZ	00 57 36
13	iPZ	00 57 45
	iSN	58 01
13	ePZN	08 22 33
	eSN	23 02
14	ePZ	05 32 00
15	ePZ	01 33 14
	eSN	26
17	ePZN	10 20 57
	e(S)N	21 33
17	ePZ	07 38 41
19	ePZ	19 55 33
	e(S)N	59
20	ePZ	02 39 23
20	ePZ	09 06 14
20	ePZN	10 52 23
20	ePZN	10 50 32
	eSNZ	51
21	ePZN	04 09 28
	e(S)N	10 04
21	ePZ	12 35 09
22	ePZ	01 40 10
22	ePZN	13 00 45
25	ePZ	04 23 18
	e(S)N	34 05
26	e(P)ZN	01 55 47
26	ePZ	11 39 34
26	ePZ	12 00 16
26	ePZN	13 41 42
	eSN	42 09
26	iPZN	23 09 07 c
	e(S)N	45
28	ePZ	16 23 51
28	ePZ	16 40 49
29	ePZ	01 14 44
30	ePZ	11 37 08
	i(S)N	51

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Date	Phase	h	m	s
30	ePZ	16	58	22 c
	eSN			55
	Karachi			
12	ePZ	06	36	19
12	ePN	08	18	01
20	ePE	00	03	19
20	ePE	01	59	14
27	ePZ	05	19	38
29	ePE	16	02	48

Date	Phase	h	m	s

Instruments	Components	Period Seismo & Galvo	Damping	Max. Magnification
Karachi				
Sprengnether	Z	1·8 sec.	Critical •	5,890
,,	N	1·6 ,,	,,	4,700
,,	E	1·4 ,,	,,	4,700
Chittagong				
Sprengnether	Z	1·7 ,,	Critical	5,200
,,	N	1·8 ,,	,,	4,700
,,	E	1·5 ,,	,,	3,600
,,	N	7·0 ,,	,,	6,600
Willmore	Z	Seismo = 1 sec. Galvo = ¼ ,,	—	—
Warsak				
Sprengnether	N	2·0 sec.	Critical	4,000
Willmore (with Sprengnether galvo & recorder	Z	1·0 ,,	—	—

• indicates long period seismographs, Sprengnether or Milne-Shaw

c=compression, d=dilatation X=unidentified phase.

Mu=Actual ground motion of the indicated phase in microns.

Sec=Period of the indicated phase in seconds.

(Pas), (Berk), (Up), (Ki) stand for seismological observatories Pasadena (U.S.A.), Berkley (U.S.A.), Uppsala (Sweden), Kiruna (Sweden) respectively.

All times are in Greenwich Mean Time.

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GEOPHYSICAL INSTITUTE
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Particulars of Stations and Instruments

(a) Stations

Station	Symbol	Latitude	Longitude	Height (a.s.l.)	Ground
Quetta	Qt	30° 11′·3 N	66° 57′·0 E	1719 meters	Cretaceous Limestone
Lahore	Lh	31° 33′·0 N	74° 20′·0 E	210 „	Alluvium
Karachi	Kr	24° 49′·8 N	67° 02′·2 E	30 „	Alluvium
Chittagong	Ch	22° 21′·5 N	91° 49′·0 E	15 „	Alluvium
Warsak	Wr	34° 09′·0 N	71° 25′·0 E	343 „	River Terrace

(b) Instruments

Instruments	Components	Period Seismo & Galvo	Damping	Max. Magnification
Quetta (Central Station)				
Sprengnether	Z	1·9 sec.	Critical	5,500
„	N	1·95 „	„	4,500
„	E	1·95 „	„	5,800
„	N	15·8 „	„	15,000
„	E	16 5 „	„	16,000
Willmore	Z, N & E	Seismo = 1 sec. Galvo = $\frac{1}{4}$ „	—	—
Milne-Shaw	E	12 sec.	20:1	250
Sprengnether Pen recorder	E	1·0 „	—	—
Lahore				
Sprengnether	Z	1·8 „	Critical	4,900
„	N	1·7 „	„	4,200
„	E	1·6 „	„	4,100

(Contd. on inner side of back cover)

Date	Station	Phase	h	m	s
1	Wr	ePZ	01	09	29
	Qt	ePZ		10	08
		Kurile Islands			
1	Lh	ePZ	01	10	42 c
	Qt	ePZ		11	19 c
		ePcPZ			49
		ePPZ		13	43
		Mu Sec			
		PZ 0·3 1·6			
		USCGS H 01 00 26			
		47½ N 153½ E			
		Kurile Islands			
1	Ch	ePZ	01	18	30±
	Lh	ePZ		19	15
	Wr	ePZ			16
	Qt	ePZ			53 c
		ePcPZ		20	19
		ePPZ		22	22
		eSN		28	45
		Mu Sec			
		PZ 0·5 1·9			
	Kr	ePZ	01	20	13
		USCGS H 01 09 00			
		47½ N 154 E			
		Kurile Islands			
1	Qt	ePZ	01	46	48
1	Ch	ePZ	01	50	14
	Lh	ePZ			25
	Qt	ePZ			49 c
		eXZ		51	01
		eSN	02	01	14
		Mu Sec			
		PZ 0·2 1·6			
		USCGS H 01 38 14			
		52½ N 170 W			
		Fox Islands			
		Aleutian Islands			
1	Lh	ePZ	02	22	47
	Qt	ePZ		23	24 c
		Mu Sec			
		PZ 0·2 1·7			
		USCGS H 02 12 34			
		47½ N 153½ E			
		Kurile Islands			
1	Qt	ePZ	02	28	37
1	Qt	ePZ	03	30	13 c
		Mu Sec			
		PZ 0·1 1·4			
		Kurile Islands			
1	Qt	ePZ	05	21	30
		Kurile Islands			
1	Ch	ePZ	10	09	41
	Wr	ePZ		10	23
	Qt	ePZ			59 c
		ePcPZ		11	26
		Mu Sec			
		PZ 0·2 1·5			
		USCGS H 10 00 05			
		47 N 154 E			
		Kurile Island			
1	Qt	ePZ	14	22	14
1	Ch	ePZ	14	32	56
	Wr	ePZ		35	38

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Date	Station	Phase	h	m	s
	Qt	ePZ			58
1	Ch	ePZ	19	17	33
		eSN		27	23
	Qt	ePZ		18	07
		eSN		28	32
		Mu Sec			
		PZ 0·2 1·5			
		USCGS H 19 05 35			
		52½ N 170 W			
		Fox Islands			
		Aleutian Islands			
2	Qt	ePZ	12	58	18 c
		Mu Sec			
		PZ 0·1 1·2			
		USCGS H 12 48 54			
		37 N 2 E			
		Near coast of Algeria			
3	Qt	ePZ	00	09	19
		USCGS H 23 58 58			
		Near northeast coast			
		of Greenland			
		depth about 100 km			
3	Qt	ePZ	01	58	21
		eSE*	02	08	24
		USCGS H 01 46 05			
		51½ N 178 W			
		Andreanof Islands			
		Aleutian Islands			
3	Qt	ePZ	15	28	11
3	Ch	ePZ	21	58	17 c
	Wr	ePZ			21
	Lh	ePZ			28
		ePcPZ			39
	Qt	ePZ			50 c
		ePcPZ			57
		eXZ		59	02
		eSNN*	22	09	15
		eScSN*E*			32
		Mu Sec			
		PZ 0·3 1·5			
		USCGS H 21 46 18			
		52 N 169 W			
		Fox Islands			
		Aleutian Islands			
		Mag 6·3 (Qt)			
3	Lh	ePZ	22	03	26
	Qt	ePZ			49
		Aleutian Islands			
3	Ch	ePZ	23	42	48 d
	Qt	ePZ		43	29
		USCGS H 23 31 16			
		51 N 178 W			
		Andreanof Islands			
		Aleutian Islands			
4	Ch	ePZ	00	34	34 c
		eSE		40	27
	Lh	ePZ		36	51 c
		iPcPZ		37	47
		eSNE		44	39
		eScSN		46	31
	Wr	ePZ		37	13 c
	Qt	ePZ			27 c
		ePcPZ		38	08
		eXZ		39	14
		ePPZ			37
		eSNN*		45	44

Date	Station	Phase	h	m	s
		eSN			51
		eLN*E*			52·6
		Mu Sec			
		PZ 0·1 1·1			
		SN 0·4 2·2			
		USCGS H 00 27 01			
		O 125 E			
		Molucca Passage			
		Mag 5·9 (Qt)			
4	Wr	ePZ	02	30	41
		eSN		31	15
	Lh	iSNE		32	23
	Qt	ePZE		31	38
		eSNE		33	00
		H 02 29 55			
		37 N 71¼ E			
		Hindukush			
		depth about 200 km			
4	Ch	iPZ	03	42	59 c
	Lh	ePZ		43	01 c
	Wr	ePZ			03
	Qt	ePZ			51 c
		iXZ			59
		iXN		44	42
		Mu Sec			
		PZ 21·5 2·5			
		PN 18·3 2·5			
		USCGS H 03 37 45			
		45½ N 99½ E			
		Outer Mongolia			
		Mag 7·9 (Pas),			
		7¾-8 (Berk),			
		7·8 (Up, Ki), 7·5 (Qt)			
4	Ch	ePZ	05	06	05 c
	Qt	ePZ		07	00
		USCGS H 05 00 48			
		Outer Mongolia			
		aftershock			
4	Ch	ePZ	05	25	07
	Qt	ePZ		26	06
		Outer Mongolia			
		aftershock			
4	Ch	ePZ	07	58	29
	Wr	ePZ			36 c
	Qt	ePZ		59	26 c
		Outer Mongolia			
		aftershock			
4	Ch	ePZ	09	14	32
	Lh	ePZ			36
	Wr	ePZ			37 c
	Qt	ePZ		15	25 c
		USCGS H 09 09 10			
		45½ N 100½ E			
		Outer Mongolia			
		aftershock			
4	Ch	ePZ	11	24	43
		eSN		28	59
	Ch	iPZ		24	50 d
	Wr	ePZ			52
	Qt	ePZ		25	42 d
		USCGS H 11 19 30			
		45½ N 100½ E			
		Outer Monglia			
		aftershock			

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Date	Station	Phase	h	m	s
4	Ch	ePZ	13	25	25
		eSN		29	47
	Lh	iPZ		25	35
		iSE		30	02
	Wr	ePN		25	37
		Mu Sec			
		PN 0·7 2·0			
	Qt	ePZ	13	26	26
		eSE*		31	25
		Mu Sec			
		PZ 0·5 1·7			
		PN 0·4 1·5			
	Kr	ePZ	13	26	55
		USCGS H 13 20 08			
		45 N 101½ E			
		Outer Mongolia			
		Mag 6·5 (Up, Ki), 6·1 (Qt)			
4	Ch	ePZ	22	22	12
	Lh	ePZ			14
	Wr	ePZ			18 c
	Qt	ePZ		23	06 c
		USCGS H 22 16 59			
		45 N 99½ E			
		Outer Mongolia			
		aftershock			
4	Ch	ePZ	23	47	09
		e(S)N		51	30
	Lh	ePZ		47	09
	Wr	ePZ			12 c
		eSN		51	37
	Qt	ePZ		48	01 c
		USCGS H 23 41 57			
		45 N 99 E			
		Outer Mongolia			
		aftershock			
5	Ch	ePZ	02	24	11
	Lh	ePZ			17
	Wr	ePZ			21
	Qt	ePZ		25	10
		Outer Mongolia			
		aftershock			
5	Wr	ePZ	06	13	41 d
		eSN		14	13
		Mu Sec			
		SZ 0·5 0·6			
	Qt	ePZ	06	14	42 d
		eSNE		16	03
		Hindukush			
5	Qt	ePZ	07	50	13
		USCGS H 07 40 09			
		41 N 142½ E			
		Near east coast of Hokkaido, Japan			
		depth about 100 km			
5	Qt	ePZ	14	02	05
5	Qt	ePZ	14	13	49
		Mu Sec			
		PZ 0·2 1·8			
5	Qt	ePZ	16	09	21
5	Ch	ePZ	18	14	43
		eSN		19	04
	Lh	iPZ		14	49
	Wr	ePZ			51
	Qt	ePZ		15	40

Date	Station	Phase	h	m	s
		USCGS H 18 09 32			
		45 N 100 E			
		Outer Mongolia			
		aftershock			
6	Lh	ePZ	03	59	31 c
	Wr	ePZ			35
	Qt	ePZ	04	00	11 c
		epPN			31
		eSN		08	35
		USCGS H 03 49 33			
		45 N 150½ E			
		Kurile Islands			
		depth about 60 km			
6	Qt	ePZ	06	24	41
6	Wr	ePZ	08	08	47
		eSN		09	19
	Lh	eSN		10	27
	Qt	ePZ		09	45
		eSNE		11	04
		H 08 08 03			
		36½ N 71¼ E			
		Hindukush			
		depth about 150 km			
6	Ch	ePZ	08	45	38
	Lh	ePZ		46	24
	Wr	ePZ			28 c
	Qt	ePZ		47	04 c
		eSN*E*		55	42
		USCGS H 08 36 21			
		44½ N 150 E			
		Kurile Islands			
6	Qt	ePZ	10	00	06
6	Qt	ePZ	17	49	47
6	Wr	ePZ	18	48	07
		eSN		50	
	Lh	eSN		49	50
	Qt	ePZ			14
		eSNEZ		50	48
		H 18 47 10			
		37½ N 72½ E			
		Pamirs, Tadzhikistan S.S.R.			
6	Ch	ePZ	23	00	17
	Lh	ePZ		02	24 c
	Wr	ePZ			38
	Qt	ePZ		03	15 c
		e(S)NE*		10	19
		Mu Sec			
		PZ 0·2 1·5			
7	Ch	ePZ	03	23	56
		epPZ		25	35
		eSE		29	34
	Lh	ePPZ		28	12
		iSN		33	29
	Wr	ePZ		26	26
	Qt	ePZ			37
		epPZ		28	47
		eS*N*		34	24
		eXN*		39	07
		Mu Sec			
		PZ 0·1 1·4			
		USCGS H 03 16 43			
		6½ S 123½ E			
		Flores Sea			
		depth about 550 km			
7	Wr	ePZ	06	09	48 d

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Date	Station	Phase	h	m	s	
	Qt	ePZ			50	
7	Wr	ePZ	13	18	47	
	Qt	ePZ		19	35	
		Outer Mongolia aftershock				
7	Ch	ePZ	14	16	09	c
		eSN		20	08	
	Lh	ePZ		16	27	
	Wr	ePZ			33	c
		eSN		20	55	
	Qt	ePZ		17	21	c
		eXZ			28	
		eSN		22	12	
		Mu Sec				
		PZ 0·1 1·0				
		USCGS H 14 11 15				
		43½ N 100 E				
		Outer Mongolia aftershock				
		Mag 6·1 (Up, Ki), 5·7 (Qt)				
7	Qt	ePZ	17	52	51	
7	Lh	ePZ	20	36	14	
	Wr	ePZ			17	c
	Qt	ePZ		37	05	c
7	Kr	ePZ	21	52	35	
		eSE			56	
	Qt	ePZ		53	18	
7	Lh	ePZ	22	15	04	
	Qt	ePZ			42	
		USCGS H 22 05 00				
		45 N 150½ E				
		Kurile Islands				
8	Qt	ePZ	00	12	20	
8	Ch	ePZ	06	18	18	
	Lh	ePZ			21	
		eLE			24·8	
	Wr	ePZ		18	25	
	Qt	ePZ		19	14	
	Kr	ePZ			42	
		USCGS H 06 13 02				
		45 N 100½ E				
		Outer Mongolia aftershock				
8	Wr	ePZ	07	13	26	
		eSN		14	00	
	Qt	ePZ			26	
		eSNE		15	46	
		H 07 12 41				
		Hindukush				
8	Ch	ePZ	12	24	55	
	Lh	ePE		26	13	
	Wr	ePZ			21	d
	Qt	ePZ			56	d
	Kr	ePZ		27	11	
		USCGS H 12 16 30				
		35 N 142 E				
		Off coast of Honshu, Japan				
8	Ch	ePZ	14	50	02	
	Qt	ePZ		52	02	
	Kr	ePZ			18	
		USCGS H 14 41 34				
		34½ N 142 E				
		Off coast of Houshu, Japan				

Date	Station	Phase	h	m	s	
8	Ch	ePZ	15	34	26	
	Lh	ePZ			28	
	Wr	ePZ			30	
	Qt	ePZ		35	18	
		USCGS H 15 29 15				
		45 N 99 E				
		Outer Mongolia aftershock				
8	Ch	ePZ	16	31	51	
		iXZ			57	
		eSN		36	15	
	Wr	ePZ		32	16	c
	Qt	ePZ		33	04	c
		eXZ			11	
	Kr	ePZ			39	
		USCGS H 16 26 33				
		Outer Mongolia aftershock				
8	Ch	ePZ	21	33	59	
		eSN		38	18	
	Lh	ePZ		34	02	
	Wr	ePZ			07	c
	Qt	ePZ			57	c
		USCGS H 21 28 45				
		44½ N 100 E				
		Outer Mongolia aftershock				
9	Qt	ePZ	01	25	17	
		USCGS H 01 16 09				
		18 N 122½ E				
		Near north coast of Luzon				
		Philippine Islands				
9	Wr	iPZ	10	24	25	c
		eSN			58	
	Qt	ePZ		25	24	c
		eSN		26	43	
		H 10 23 40				
		Hindukush				
9	Lh	eXZ	21	18	59	
		eSE		19	43	
	Wr	ePZ			28	
		eSN		20	58	
	Qt	ePZ			09	
		eSN		22	12	
		H 21 17 30				
		30 N 79¾ E				
		Near Nanda Devi Himalayas				
9	Wr	ePZ	22	19	32	±
	Lh	ePZ			58	
		eSE		30	08	
	Qt	ePZ		20	12	c
		eSNE*		30	35	
		Mu Sec				
		PZ 0·2 1·5				
		SN 0·6 2·4				
		USCGS H 22 07 43				
		65½ N 133 W				
		Yukon				
		Mag 6·0 (Qt)				
10	Ch	ePZ	14	47	02	c
		eSE		55	58	
	Kr	ePZ		49	03	
		iXZ		50	17	

International Seismological Centre From the ISC collection scanned by SISMOS

Date	Station	Phase	h	m	s
		ePPZ		52	37
	Lh	ePZ		48	36 c
		iPcPZ			45
		iXE		49	30
		eSE		59	00
	Wr	ePZ		48	49 c
		eSKSN		59	14
	Qt	ePZ		49	06 c
		eXZ		50	08
		eXZ		52	20
		ePPN*E*			48
		ePPPN*E*		54	47
		iSKSNE*		59	38
		eSKKSN			53
		iSN*E*	15	00	04
		iPSN*		01	17
		iSSE*		06	20
		iXE*		10	57

	Mu	Sec
PZ	0·6	1·6

USCGS H 14 35 57
6 S 154½ E
Solomon Islands
Mag 6¾ (Pas),
6½–6¾ (Berk),
6·8 (Up, Ki), 6·7 (Qt)

10	Lh	ePZ	15	08	10
	Qt	ePZ			39
10	Lh	ePZ	16	05	37
		iSE		16	06
	Wr	ePZ		05	51
	Qt	ePZ		06	07
		eSN		17	01

USCGS H 15 53 02
5½ S 155 E
Solomon Islands
aftershock

10	Lh	iPZ	18	20	21 d
	Qt	ePZ			49 d
10	Qt	ePZ	19	45	18
10	Wr	ePZ	22	35	33
		eSN		36	01
	Lh	ePZ			10
		eSNE		37	11
	Qt	ePZ		36	32
		eSNE		37	52

H 22 34 50
36½ N 71½ E
Hindukush
depth about 200 km

11	Qt	ePZ	03	41	52

USCGS H 03 28 44
6½ S 155 E
Solomon Islands
aftershock

11	Wr	ePZ	04	33	43
		eSN		34	16
	Lh	eSEN		35	27
	Qt	ePZ		34	38
		eSNE		35	55

H 04 32 59
Hindukush

11	Ch	ePZ	18	19	29

ate	Station	Phase	h	m	s
	Lh	ePZ	20	55 c	
		eSE		28	49
	Wr	ePZ	21	06 c	
		eSN		29	01
	Qt	ePZ	21	40 c	
		ePcPN		22	11
		ePPN		23	57
		ePPPZ		25	30
		eSE*		30	16
		eScSN*		31	30
		eSSN*		34	20
		eLE*N*		36·6	
	Kr	ePZ		21	55

USCGS H 18 11 07
30½ N 142 E
South of Honshu,
Japan

11	Ch	eP	22	00	26
		eS		04	56±
	Lh	iPZ		00	35 c
		ePPE		01	16
		eSE		04	52
	Wr	ePZ		00	40
	Qt	ePZ		01	27 c
		ePPZ		02	27
		eSE*N*		06	25
		eLE*		07·6	

USCGS H 21 55 10
45½ N 101 E
Outer Mongolia

12	Qt	ePZ	14	12	40
12	Qt	ePZ	15	53	05

Date	Station	Phase	h	m	s
12	Ch	iPZ	18	50	44 c
		ePcPZ			50
		ePPZ		53	54
		ePPPZ		55	48
		eSN*	19	01	00
		eScSNN*			14
	Lh	ePZ	18	52	01
		ePPZ		56	08
	Qt	ePZ		52	29 c
		eXZ		55	36 c
		ePPZN		56	53
		eSKSE*	19	03	11
		ePSE*		06	01

USCGS H 18 38 19
13½ S 167 E
New Hebrides Islands

12	Ch	iPZ	20	05	47 d
		iXZ			57
		iSEN		06	20
	Lh	ePZ		09	02±
		eSN		12	07
	Wr	ePZ		09	42
	Qt	ePZ		10	11
		eXZ			21
		eSNE		14	21

H 20 05 00
Assam – Pakistan
border
Felt at Silchar and
Karimganj

12	Qt	ePZ	23	46	25
		eSN		48	07

Date	Station	Phase	h	m	s	
	Qt	iPZE*N*	01	48	56	d
		i!XZ		49	24	
		eXZ			49	
		iSN		52	01	
		eMZ		56·3		
		Mu Sec				
		PZ 9·5 2·0				
		PN 13·0 2·0				
	Wr	ePZ	01	49	28	d
	Kr	iPZNE			29	d
		iSNE		53	07	
		ePZ		58·6		
		Mu Sec				
		PZ 6·3 1·5				
		PE 20·7 1·5				
	Lh	ePZ	01	49	59	d
		eSE		54	10	
	Ch	ePZ		52	42	d
		ePPZ		54	16	
		ePcPZ			45	
		iSNN*		58	52	
		iScSNN*	02	02	50	
		USCGS H 01 44 59				
		34½ N 84 E				
		Iran				
		Mag 7¼ (Pas),				
		7·1 (Up, Ki), 6·6 (Qt, Kr)				
13	Ch	ePKPZ	01	51	40	c
		epPKPZ		52	10	
		ePPN		55	30	
		eSKSPNN*	02	05	39	
		ePPSN*		08	30	
		USCGS H 01 31 57				
		7 N 76 W				

Date	Station	Phase	h	m	
		Columbia			
		depth about 100 km			
		Mag 6¾ (Pas)			
13	Qt	ePZ	02	40	5
		USCGS H 02 27 45			
		6 S 154½ E			
		Solomon Islands			
		aftershock			
13	Qt	ePZ	04	20	4
13	Wr	ePZ	09	08	41
		eSN		09	11
	Qt	ePZ			39
		iSN		10	58
		Mu Sec			
		PZ 0·2 1·0			
		SN 2·8 1·6			
	Kr	e(P)Z	09	11	03
		H 09 07 58			
		Northern Afghanistan			
13	Wr	ePZ	11	32	54
	Qt	ePZ		34	01
13	Qt	ePZ	17	15	54
		eSN		23	27
		Mu Sec			
		PZ 0·1 1·2			
		SN 0·5 2·4			
13	Qt	ePZ	19	01	03
13	Qt	ePZ	20	17	08
		USCGS H 20 03 58			
		6½ S 155½ E			
		Solomon Islands			
		aftershock			
13	Ch	ePZ	20	38	21
		ePcPZ			31

Date	Station	Phase	h	m	s	
		ePPN*		41	18	
		iSNN*		48	13	
		eScSNN*			39	
	Qt	ePZ		38	56	c
		ePcPZ		39	03	
		iSNN*E*		49	20	
		iScSN*E*			36	
		eSSN*		54	52	
		eLN*E*	21	00·8		
		Mu Sec				
		PZ 0·9 2·0				
		PN 0·6 2·0				
		SN 2·2 3·5				
		MN* 3·8 20·0				
		ME* 3·1 18·0				
	Kr	ePZ	20	39	20	c
		eSKSNE		49	49	
		USCGS H 20 26 22				
		52½ N 170 W				
		Fox Islands				
		Aleutian Islands				
		Mag 6·6 (Qt),				
		5·9 (Up, (Ki)				
14	Qt	ePZ	00	23	23	
14	Wr	ePZ	01	34	17	
		eSN			46	
	Qt	ePZ		35	21	
		eSNE		36	42	
		Hindukush				
14	Qt	ePZ	03	03	34	
14	Qt	ePZ	11	27	16	
14	Lh	ePZ	16	15	56	c
		ePcPZ		16	07	

Date	Station	Phase	h	m	s
	Qt	ePZ			21
		eXZ			31
		e(S)N		26	38
		Aleutian Islands			
14	Qt	ePZ	17	07	30
15	Qt	ePZ	03	33	34
15	Qt	ePZ	14	48	03
15	Qt	ePZ	18	33	39
16	Qt	ePZ	02	41	31
16	Ch	ePZ	13	13	08
		iSN		14	40
	Qt	ePZ		16	36
		eSENN*		20	57
16	Wr	ePZ	15	28	04
		eSN			38
	Lh	eSNE		29	44
	Qt	ePZ			04
		eSNE		30	23
		H 15 27 21			
		36¾ N 71½ E			
		Hindukush			
		depth about 150 km			
16	Qt	ePZ	17	34	34
16	Qt	e(PKP)Z	17	45	32
		USCGS H 17 27 47			
		50 N 127 W			
		Vancover Islands			
16	Qt	ePZ	23	09	28
		eSNE*		12	32
		iSN*			38
		Mu Sec			
		PZ 2·2 1·4			
	Wr	ePZ	23	09	59

International Seismological Centre From the ISC collection scanned by SISMOS

International Seismological Centre From the ISC collection scanned by SISMOS

Date	Station	Phase	h	m	s
	Kr	ePZ			57±
	Lh	ePZ		10	30
		eSE		14	39
		USCGS H 23 05 28			
		34½ N 48 E			
		Iran aftershock			
		Mag 5·0 (Qt)			
17	Ch	ePZ	05	20	25 c
		ePcPZN*		21	11
		ePPZN		22	40
		eSNN*		28	40
		ePSN			54
		eScSN*		30	14
		Mu Sec			
		PN 1·4 1·6			
	Wr	ePZ	05	20	43 c
	Lh	ePZ			46
		iXE		21	36
		ePPE		23	00
		eSE		29	22
	Qt	iPZNE*		21	20 c
		eXZ			40
		iXZ		22	03
		eXZ		23	28
		ePPZN			53
		iXZ		25	07
		eSNN*		30	23
		eSSNN*		34	43
		Mu Sec			
	PZ	1·4 2·1			
	SN	2·0 3·4			
	Kr	iPZ	05	21	49 c
		iPcP		22	01
		eXZ		25	32
		eSN		31	16
		USCGS H 05 10 11			
		43½ N 162 E			
		Near east coast of Kamchatka			
		Mag 6¾ (Pas),			
		6·6 (Up, Ki), 6·8 (Qt)			
17	Qt	ePZ	08	47	26
17	Qt	ePZ	12	56	18 c
17	Ch	ePZ	14	02	23 c
		iPcPZ			30
		ePPZN		05	26
		iSNN*		12	27
		eScSNN*			44
		iPPSNN*		13	27
		iSSN*		17	29
		ePKPPKPZ		29	09
	Lh	ePZ		03	43
		eXZ		04	16
	Wr	ePZ		03	55 c
	Qt	ePZ		04	11
		iPZE*			14
		eXZ			48
		eXZN		07	44
		ePPZN		08	15
		ePPN			30
		eXZ		10	45
		i!SKSN		14	48
		eXN		15	48
		eSSN		23	01
		Mu Sec			
	PZ	2·3 3·0			

Date	Station	Phase	h	m	s
	Kr	ePZ	14	04	13±
		eXZN		07	41
		ePPN		08	27
		USCGS H 13 50 05			
		12 S 167 E			
		Santa Cruz Islands			
		Mag 7¾ (Pas),			
		7·6 (Up, Ki), 7·5 (Qt)			
18	Wr	ePZ	00	52	12 d
		eSN			43
	Qt	ePZ		53	04
		eSN		54	15
		Northern Afghanistan			
18	Qt	ePZ	02	10	30
18	Wr	ePZ	09	51	35 c
		eSN		52	04
	Lh	ePZ			17±
		i!SE		53	16
	Qt	ePZ		52	36 c
		esPZ			58
		eSNE		53	53
		H 09 50 56			
		36½ N 71¼ E			
		Hindukush			
		depth about 100 km			
18	Qt	ePZ	13	26	05
		eSN*		29	06
18	Qt	ePKPZ	21	03	40 c
		eXZ		04	57
	Lh	ePKPZ		03	48 c
		eXZ		05	34
		USCGS H 20 44 58			
		Sandwich Islands			
19	Wr	ePZ	09	02	03 d
	Qt	ePZ			54 d
19	Kr	ePZ	09	35	30
	Qt	ePZ			34
		eSN		37	13
19	Qt	ePZ	12	15	01
		USCGS H 12 03 55			
		Kamchatka			
19	Qt	ePZ	16	01	09 c
		eXN*		02	49
		eXN*E*		04	58
		Mu Sec			
		PZ 0·3 1·6			
	Wr	ePZ	16	02	05
19	Qt	ePZ	19	11	41
		USCGS H 19 01 08			
		South of Honshu, Japan			
20	Qt	ePZ	10	28	37
		USCGS H 10 16 20			
		Andreanof Islands			
		Aleutian Islands			
20	Qt	ePKPZ	11	38	20
		ePPZ		41	37
		eSKKSE*		48	33
		eSKSPE*		51	50
	Wr	ePKPZ		38	28
	Lh	ePKPZ			38±
		USCGS H 11 18 42			
		30½ S 71 W			
		Central Chile			

International Seismological Centre From the ISC collection scanned by SISMOS

Date	Station	Phase	h	m	s
20	Qt	ePZ	12	59	40
21	Wr	ePZ	08	45	07
	Qt	ePZ			56
21	Qt	ePZ	16	14	03
		USCGS H 16 04 35			
		36 N 2 E			
		Algeria			
21	Qt	ePZ	19	02	57
		USCGS H 18 53 27			
		36 N 2 S			
		Algeria			
22	Qt	ePZ	14	35	48 d
		eXZ			59
23	Wr	ePZ	02	24	23
		eSN			53
	Qt	ePZN		25	23
		eSN		26	40
		H 02 23 42			
		Hindukush			
23	Qt	ePZ	12	46	27
		ePcPZ			36
		ePPZN		49	37
		eSNN*		56	40
		eScSN*			54
		iXN*E*		57	32
		eSSE*	13	02	07
		eLE*		07·5	
	Lh	ePZ	12	46	52
		USCGS H 12 34 03			
		35 N 36½ W			
		Atlantic Ocean			
		Mag 5·9 (Up, Ki)			
23	Lh	ePZ	19	37	42
	Qt	ePZ		38	30
24	Kr	ePZ	21	51	48
		iSNE		52	08
	Qt	ePZ			30
		eSN		53	29
25	Wr	ePZ	02	19	53
	Qt	ePZ		20	28
		eXZ			40
		e(S)E*		29	44
		USCGS H 02 09 20			
		53½ N 162 E			
		Near east coast of			
		Kamchatka			
25	Qt	ePZ	11	30	33
		eXN		33	37
25	Qt	ePZ	12	08	59
25	Qt	ePZ	13	53	16
		USCGS H 13 42 12			
		55 N 161 E			
		Near east coast of			
		Kamchatka			
25	Qt	ePZ	20	44	22
26	Qt	ePZ	01	43	34
26	Qt	ePZ	06	53	12
		USCGS H 06 42 03			
		Near east coast of			
		Kamchatka			
26	Wr	ePKPZ	12	28	08
	Qt	ePKPZ			14
		eXZ		29	52
		ePPZN		30	10

Date	Station	Phase	h	m	s
		USCGS H 12 09 11			
		32½ S 178 W			
		Kermadec Islands			
26	Qt	ePZ	15	08	13
26	Qt	ePZ	18	59	24
		USCGS H 18 48 17			
		54 N 162 E			
		Near east coast of			
		Kamchatka			
27	Qt	ePZ	00	57	07
27	Qt	ePZ	01	38	14
		USCGS H 01 28 02			
		36½ N 141 E			
		Near east coast of			
		Honshu, Japan			
27	Lh	ePZ	15	11	20
	Qt	ePZ			54
		eXZ		12	06
		eSN*		20	55
		USCGS H 15 00 45			
		53½ N 162 E			
		Off east coast of			
		Kamchatka			
27	Lh	ePZ	21	25	47
	Qt	ePZ		26	27
		eXZ		27	26
28	Qt	ePZ	12	33	38
		e(S)N		35	41
28	Kr	ePKPZ	14	56	02
	Qt	ePKPZ			02
		ePPZ		58	35
		ePKSZ		59	34
		iPKSE*			38
		eSKSPE*	15	08	44
		ePPSE*		10	45
		eSSE*		16	38
		eSSSE*		21	43
	Wr	ePKPZ	14	56	05
	Lh	ePKPZ			11
		ePPZ		59	10
		USCGS H 14 36 40			
		18 S 64½ W			
		Bolivia			
28	Lh	ePKPZ	19	20	11
	Qt	ePKPZ			25
		USCGS H 19 01 22			
		16 S 172 W			
		Tonga Islands region			
29	Qt	ePZ	00	21	30 c
29	Wr	ePZ	04	19	15
		eSN		20	10
	Qt	ePZ			29
		eSN		22	12
29	Qt	ePKPZ	15	31	42 c
		ePPEN		34	53
	Wr	ePKPZ		31	55 c
	Lh	eXZ			55
		USCGS H 15 12 08			
		Coquimbo province,			
		Chile			
29	Wr	ePZ	17	38	19
		eSN		39	01
	Lh	e(P)Z		38	48
		eSNE		40	01
	Qt	ePZN		39	25
		eSNE		40	59

International Seismological Centre From the ISC collection scanned by SISMOS

Date	Station	Phase	h	m	s	
		H 17 37 23				
		37½ N 72½ E				
		Pamirs, Tadzhikistan				
29	Qt	ePKPZ	19	29	22	
		USCGS H 19 09 55				
		34 S 70½ W				
		Central Chile				
		depth about 100 km				
29	Lh	ePZ	20	50	44	
	Qt	ePZ		51	20	
30	Wr	ePZ	02	46	00	
		eSN			33	
	Qt	ePZN			55	
		eSNE		48	13	
		Hindukush				
30	Qt	ePZ	11	28	25	
30	Qt	ePZ	12	58	42	
		USCGS H 12 46 04				
		53½ N 166 W				
		Fox Islands				
		Aleutian Islands				
30	Wr	ePZ	18	50	17	
	Qt	ePZ			47	
		ePcPZ			52	
		eXZ			58	
		ePPZ		54	06	
		USCGS H 18 38 00				
		53 N 164 W				
		South of Unimak				
		Islands				
30	Lh	ePKPZ	14	46	54	
	Wr	ePKPZ			56	
	Qt	ePKPZ		47	03	c
		eXZ			50	
		ePPZE*N*		48	15	
		eSKSE*		53	50	
		eSKKSN*		55	10	
		e!PSN*E*		58	03	
		eSSE*	15	04	15	
		USCGS H 14 28 15				
		45 S 165½ E				
		Off coast of South				
		Islands, New Zealand				
31	Qt	ePZ	14	57	28	c
31	Wr	iPZ	17	21	10	d
		eSN			41	
	Qt	ePZ		22	10	
		eSEZ		23	28	
		Hindukush				
31	Qt	ePZ	20	57	51	
31	Qt	ePZ	21	28	10	c
		ePcPZ			20	
		ePPZ		31	03	
		eSNN*		38	07	
		eScSN*			29	
		eSSN*E*		43	15	
		eLN*E*		49·5		
		Mu Sec				
PZ		0·1 1·4				
Wr		ePZ	21	28	40	c
		USCGS H 21 16 03				
		45 S 96½ E				
		South Indian Ocean				

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Date	Phase	h	m	s
	Quetta			
1	ePNZ	06	23	12·3
	eSEN			34·7
1	ePZE	07	30	30
	eSN		31	07
1	ePZ	14	35	58
2	ePZ	11	51	19
2	ePZ	15	28	30
2	ePZ	16	43	22
2	ePZ	22	18	22
	e(S)NEZ		19	23
3	ePZ	03	46	01
	e(S)N		47	13
3	ePZ	04	15	41
	eSN		16	50
3	ePZ	08	30	46
	eSE		31	15
5	ePZ	10	03	35·5
5	ePZ	15	54	58
6	ePZ	02	29	39
6	ePZ	02	42	18
6	ePZ	03	45	15·5
	iSE			40·0
6	ePZ	07	10	16
6	ePZ	10	18	19·3
	eSZ			33·6
6	ePZ	13	01	28·2
	eSE			57·9
6	ePZ	16	45	51
6	ePZ	20	32	47
	eSZE		33	04
6	ePZ	21	11	52
	eSEN		12	15
7	ePZ	18	47	20
7	ePZ	23	15	21
7	ePZ	23	41	00
8	ePZ	00	20	06
8	ePZ	09	34	14
9	ePZ	00	51	47
9	ePZ	01	15	39
9	ePZ	05	39	33
9	ePZ	09	10	51
10	ePZ	04	41	54
	eSN		42	04
10	ePZ	09	56	12
10	ePZ	13	08	43
10	ePZ	13	15	01
10	ePZ	22	26	21
10	ePZ	23	44	44
11	ePZ	02	59	09
11	ePZ	17	45	25·7
	eSN			50·5
11	ePZ	23	37	48
	eSZ			50
12	ePZ	06	29	17
	eSN		31	03
12	ePZ	06	39	42
12	ePZ	08	12	32
	eSNE		14	08
15	ePZ	11	36	24
	eSNE		38	07
12	ePZ	13	50	46

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Date	Phase	h	m	s
13	ePZ	06	52	17
13	ePZ	15	43	37
	eSNZ		44	08
13	ePZ	17	07	19
14	ePZ	00	14	40
14	ePZ	21	51	09
	eSN		52	28
15	ePZ	06	29	19
15	ePZ	14	41	22
	eSN			43·7
15	ePZ	17	43	47
15	ePZ	18	55	13·8
	eSN			27·5
15	ePZ	23	21	19
16	ePZ	00	20	46
16	ePZ	03	29	58
16	ePZ	04	26	32
16	ePZ	19	22	09
16	eXZ	22	50	55
	ePNE		52	21
17	ePZ	04	10	47
17	eXZ	14	10	23
17	ePZ	19	57	28·3
	eSNEZ			38·7
17	ePZ	22	23	14
18	ePZ	01	15	45
18	ePZ	07	45	44
18	ePZ	08	00	04
18	ePZ	11	46	05
18	ePZ	22	29	29·2
	eSNE			37·5
18	ePZ	23	39	00·9
	iSN			11·2
19	ePZ	05	17	48
	eSE		18	19
19	ePZ	13	22	05
19	ePZ	17	15	18
	eSN		16	16
19	ePZ	19	56	14
19	ePZ	22	12	10
20	ePZ	20	06	40
	eSZ			59
20	iPZ	20	08	13
	iSN			32
21	ePZN	08	42	34
21	ePZN	20	45	21
	eSN		46	28
23	ePZ	13	01	18
	eSN		02	39
23	ePZ	21	03	32
	iSNZ			40
23	ePZ	21	29	03
24	ePZ	05	19	40
	eSN			54
24	ePZ	12	55	38
	eSZ			42
25	ePZ	00	46	00
	iSZ			08
25	ePZ	07	58	04·4
	eSZ			53·9
25	ePZ	16	45	39
25	ePZ	17	20	40
26	ePZ	01	48	51
	eSNZ		49	07

Date	Phase	h	m	s
26	ePZN	01	49	47±
	eSN			59
26	ePZ	14	13	38
27	ePZ	08	37	58
27	ePZ	21	12	54
28	ePZ	01	02	38
28	ePZ	01	17	33
	eSEN	01	17	42
29	ePZ	22	00	05
	eSNE			29
30	ePZ	11	18	41
	eSN			56
30	ePZ	18	50	47
31	ePZ	00	29	17
31	ePZ	01	40	13
31	ePZ	16	54	30
31	ePZ	19	43	36

Warsak

1	ePZ	08	04	20
	eSN		05	30
1	ePZ	19	59	18
	eSN	20	00	31
2	ePZ	00	27	52
	eSN		28	21
2	ePZ	09	32	01
	eSN			58
2	ePZ	11	50	45
3	ePZ	03	45	22
	eSN		46	12
3	ePZ	04	15	06
	eSN		16	18
3	ePZ	05	50	25
3	ePZ	11	01	24
	eSN		02	09
3	ePZ	11	03	39
	eSN		04	25
3	ePZ	16	48	28 c
	eSN			59
4	ePZ	10	48	48 d
4	ePZ	18	50	23
4	ePZ	10	56	21 d
	eSN			47
6	ePZ	15	47	46
	eSN		48	46
6	ePZ	16	17	28
	eSN		18	00
6	ePZ	23	45	17
	eSN			40
7	ePZ	05	32	23 c
7	ePZ	15	31	33
	eSN			52
7	ePZ	16	34	59
	eSN		35	24
7	ePZ	18	44	58
	eSN		45	42
7	ePZ	19	53	58
8	ePZ	07	49	16
	eSN			56
9	ePZ	03	16	39
	eSN		17	37
9	ePZ	04	55	03
	eSN			34
9	ePZ	09	08	13
	eSN			59

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Date	Phase	h	m	s
9	ePZ	16	30	54
	eSN		31	30
10	ePZ	09	56	09 c
	eSN			52
10	ePZ	12	20	23
	eSN			55
10	ePZ	15	35	56 d
	e(S)N		41	27
10	ePZ	22	05	55
	eSN		06	28
11	ePZ	16	52	12
	eSN			45
11	ePZ	18	40	55
	ePZ		41	29
11	ePZ	20	35	33
	eSN		36	10
11	ePZ	23	16	41
	eSN		17	14
12	ePZ	01	08	12
	eSN		09	08
12	ePZ	04	01	26
14	ePZ	21	20	14
15	ePZ	02	11	37
	eSN		12	04
15	ePZ	06	56	45
	eSN		57	09
15	ePZ	13	20	30
16	ePZ	01	34	34
	eSN		35	01
16	ePZ	13	29	03
16	ePZ	22	51	21
17	ePZ	02	41	25
	eSN		42	1
17	ePZ	06	26	2
	eSN		27	0
18	ePZ	08	58	4
	eSN		59	0
19	ePZ	00	47	4
	eSN		48	1
19	ePZ	10	21	3
19	ePZ	10	37	0
	eSN			4
20	ePZ	11	04	0
20	ePZ	23	54	4
21	ePZ	01	15	0
	eSN			2
21	ePZ	20	44	46
	eSN		45	37
22	ePZ	15	06	24
	eSN		07	18
22	ePZ	17	39	35
	eSN		40	20
22	ePZ	20	16	59
	eSN		17	17
23	ePZ	13	00	37
	eSN		01	32
23	ePZ	13	51	21
	eSN			53
23	ePZ	21	28	31
23	ePZ	22	40	55
24	ePZ	09	16	29
24	ePZ	21	59	42
24	ePZ	22	39	18

Date	Phase	h	m	s
	eSN			47
24	ePZ	23	35	37
	eSN		36	17
25	ePZ	11	51	06 c
	eSN			43
27	ePZ	07	01	19
	eSN		02	03
27	ePZ	11	38	19
27	ePZ	15	05	48
	eSN		06	20
58	ePZ	15	12	17
	eSN			51
28	ePZ	05	41	24
28	ePZ	09	34	19
	eSN			53
29	ePZ	16	46	55 c
29	ePZ	21	01	57 d
	eSN		02	34
29	ePZ	21	48	53 d
30	ePZ	01	55	32
	eSN		56	04
30	ePZ	14	06	54 d
30	ePZ	15	52	43 d
	eSN		53	25
31	ePZ	14	25	14
31	ePZ	15	27	16
	eSN			50

Lahore

1	eXE	08	04	42
1	ePZ	19	59	39 c
4	ePZ	18	50	28
8	eXZ	00	11	12
7	eXZ	18	47	44
	eSN		49	16
7	eXZ	19	56	30
	eSE			43
8	ePE	16	32	19
9	ePZE	17	12	58 c
	eSE			59
10	ePZ	09	56	14
	eSE		57	07
12	iPZ	01	07	43 c
	iSNZ		08	08
12	ePZ	19	00	52 c
14	eXN	10	46	23
14	ePZ	22	04	13
15	iXN	06	58	01
	iSNE			20
15	ePZ	22	37	49
16	ePZ	19	22	30
16	ePZ	22	51	07 d
	iSN			30
21	eXZ	20	46	08
	eSN		47	13
23	eXZN	21	16	10
23	eXZ	21	41	35
	eSNE		42	10
25	eXZN	11	51	14
26	eXN	08	39	21
26	eXN	10	14	45
26	eXN	12	53	21
27	eXZ	11	40	05

Date	Phase	h	m	s
27	ePZ	21	10	33 c
28	eXZ	15	49	42
	iSN		50	11
29	eXZ	19	29	32
31	ePZ	17	30	32
	Chittagong			
1	e(P)Z	01	07	26
1	ePZ	01	10	21 d
	e(S)N		17	54
1	ePZ	10	00	28
1	ePZ	10	09	41
	e(S)N*		17	04
1	ePZ	10	10	07
2	ePZ	00	34	09 c
3	e(P)Z	01	57	40
3	ePZN	21	58	55
4	ePZ	18	50	24
	e(S)N*		54	40
6	ePN	01	18	07
7	ePZ	06	06	53 c
7	ePZ	13	19	33
7	ePZ	15	03	04
7	ePZN	17	51	58 ±
7	e(P)Z	20	35	31
9	ePN	16	02	08
10	ePZ	15	15	24
16	e(P)Z	06	40	12
	eSN*		42	32
17	ePZ	20	20	13
	e(S)N			39
20	ePZ	05	16	56
	eSN		17	22
24	ePZ	05	54	46
	eSZ		55	10
24	ePZ	08	52	44
	eSN		53	01
24	ePZ	13	37	43
25	ePZ	01	23	05
	eSZ			30
25	ePZ	01	53	47
	eSZ		54	24
25	ePZ	02	11	07
	eSZ			28
25	ePZ	02	19	41
27	ePZ	01	23	32
27	e(P)Z	01	38	02
27	e(P)Z	15	10	58
	Karachi			
4	ePZ	22	22	50 c
16	eXEN	13	31	56
19	ePZ	17	15	19
	iSNE			51

Instruments	Components	Period Seismo & Galvo	Damping	Max. Magnification
Karachi				
Sprengnether	Z	1·8 sec.	Critical	5,890
,,	N	1·6 ,,	,,	4,700
,,	E	1·4 ,,	,,	4,700
Chittagong				
Sprengnether	Z	1·7 ,,	Critical	5,200
,,	N	1·8 ,,	,,	4,700
,,	E	1·5 ,,	,,	3,600
,,	N	7·0 ,,	,,	6,600
Willmore	Z	Seismo = 1 sec. Galvo = $\frac{1}{4}$,,	—	—
Warsak				
Sprengnether	N	2·0 sec.	Critical	4,000
Willmore (with Sprengnether galvo & recorder	Z	1·0 ,,	—	—

* indicates long period seismographs, Sprengnether or Milne-Shaw

c=compression, d=dilatation X=unidentified phase.

Mu=Actual ground motion of the indicated phase in microns.

Sec=Period of the indicated phase in seconds.

(Pas), (Berk), (Up), (Ki) stand for seismological observatories Pasadena (U.S.A.), Berkley (U.S.A.), Uppsala (Sweden), Kiruna (Sweden) respectively.

All times are in Greenwich Mean Time.

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