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MATSUSHIRO SEISMOLOGICAL OBSERVATORY, JAPAN.

Seismological Bulletin

for January 1 to February 28, 1958.

Date	Phase	Comp.	Time(GMT)	Date	Phase	Comp.	Time(GMT)
			h m s				h m s
1. ✓	eP	Z	03 14 13	2. ✓	iP	Z	04 19 28.7
	Unimak I.				dilatation		
	H=03 06 16		USCGS				
1. ✓	P	Z	05 34 21	2. ✓	iP	Z	19 05 03.9
					compression		
1. ✓	P	Z	07 07 24.5	✓ 2.	eP	Z	21 15 04.16
1. ✓	P	Z	10 21 49	✓	i	Z	45 N., 151 E. Kurile Is.
	e	N	47.4		h:60 km ca.		
					H=21 12 07		USCGS
1. ✓	P	Z	11 44 18.9	✓ 2.	eP	Z	22 54 42
	iS	Z	24.7	✓	11½ N., 60½ W.		
1. ✓	eP	Z	14 33 49	✓	Northeast of Trinidad.		
					H=22 35 29		USCGS
1. ✓	iP	Z	15 13 30.9	3.	eP	Z	01 57 01
	e	Z	15 45	✓	i	Z	02.6
	eS?	N	19 17	✓	S	Z	58 43
	eL	N	21 55		29½ N., 141 E.		
	iP:dilatation				South of Honshu, Japan.		
	Mag. 5¼ - 5½ (Matsushiro)				H=01 55 10		USCGS
	52 N., 171½ W. Fox Is.						
	H=15 06 08		USCGS	3.	P	Z	16 37 42.5
1. ✓	iP	Z	15 26 20.7	✓	e	Z	38 00
	e	Z	27 53	3.	iP	Z	18 00 16.9
	iP:dilatation			✓	eL	N	25.7
1. ✓	P	Z	15 58 42	✓	iP:compression		
	e	Z	59 09		Mag. 6 (Matsushiro)		
1. ✓	iP	Z	16 58 55.8		22 S., 65 E. Mascarene Is. region.		
	iS?	Z	57.3		H=17 47 12		USCGS
	iP:compression			3. ✓	eL	N	22 17 10 ca.
2. ✓	eP	Z	00 29 28	4.	P	Z	08 35 32
	e	Z	31 30	✓	27 N., 92 E.		
	eS	N	35 41		India-Tibet border.		
	L?	E	39 00		H=08 27 53		USCGS
	Mag. 5 3/4 (Matsushiro)			4. ✓	P	Z	13 13 28
	5 S., 152 E. New Britain.				e	N	28.6
	H=00 21 22		USCGS	4. ✓	P	Z	18 23 46.0
2. ✓	eP	Z	02 20 59	✓	i	Z	51.8
	eSKS	N	31 20 ca.	4. ✓	eP?	Z	20 44 10
	eL	N	57.4	4. ✓	eP	Z	23 30 26
	Mag. 5 3/4 - 6 (Matsushiro)			✓	8½ S., 112 E.		
	36½ N., 22 E.						
	Off south coast of Greece.						
	H=02 08 15		USCGS				

(cont.)

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued					
Off south coast of Java.					
h:200 km ca.					
H=23 21 38 USCGS					
5.	iP	Z	06	24	19.9
	dilatation				
5.	iP	Z	06	46	47.6
	i	NE		47	11.3
	iP:compression				
5.	P 1	Z	08	11	39.5
	iP2	E			40.9
	pP	N		13	07
	e	Z			11
	iS	Z		16	47.9
	iS	N			52
	S	E			54
	L	E	19	38	ca.
	L	N			47 ca.
	iP2:dilatation				
	Mag. 6 $\frac{1}{2}$	(Matsushiro)			
	2 N., 122 $\frac{1}{2}$ E.	Celebes Sea.			
	h:550 km ca.				
	H=08 05 11	USCGS			
5.	P	Z	11	35	52
	iS	N		40	05
	L	E		41	32 ca.
	L	N		42	14
	eL	Z		43	30 ca.
	Mag. 6 $\frac{1}{4}$ - 6 $\frac{1}{2}$	(Matsushiro)			
	56 $\frac{1}{2}$ N., 121 E.	Stanovoi Mountains region,			
	Siberia.				
	H=11 30 44	USCGS			
5.	eP	Z	12	36	37
	6 S., 155 E.	Solomon Is.			
	h:100 km ca.				
	H=12 28 20	USCGS			
5.	eP	Z	13	12	45
	eS	Z		13	28
6.	iP	Z	02	03	44.6
	e	Z		04	09
	iP:compression				
6.	P	Z	05	36	35.0
6.	P	Z	09	15	54
	e	N		31.3	
	54 $\frac{1}{2}$ N., 161 W.	Unimak I. region.			
	H=09 07 40	USCGS			

Date	Phase	Comp.	Time(GMT)		
			h	m	s
6.	iP	Z	11	31	21.1
	i	Z			24.9
	e	N		39	56
	eL	N		42	30
	iP:dilatation				
	Mag. 5 $\frac{3}{4}$ - 6	(Matsushiro)			
	26 N., 96 $\frac{1}{2}$ E.	Burma.			
	H=11 24 11	USCGS			
6.	iP	Z	17	49	39.7
	S	Z			56
	iP:compression				
6.	eP	Z	19	16	30
6.	eP	Z	19	23	34
7.	P	Z	02	40	02.1
	S?	Z		41	33
7.	P	Z	06	14	24
	eL?	N		32	08
	Mag. 5 $\frac{1}{4}$	(Matsushiro)			
	39 N., 70 E.	Tadzhik, S.S.R.			
	H=06 05 08	USCGS			
7.	P	Z	09	09	33.5
	i	Z			35.5
7.	iP	Z	09	55	06.2
	i	NE			20
	iP:compression				
7.	eP	Z	11	36	57
	i	Z			59
	S?	Z		37	10
8.	eP	Z	03	22	33
	New Hebrides Is.				
	H=03 12 55	USCGS			
8.	eP	Z	04	52	24
8.	eP	Z	07	41	31
	i	Z			31.7
	S	Z			52
8.	P	Z	08	44	29
8.	eP	Z	13	45	35
	eS	Z			58
8.	iP	Z	23	01	59.1
	iS	Z		02	08.5
9.	iP	Z	11	21	43.5
	ipP	Z		22	22.0
	(cont.)				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued					
	i	Z	11	22	25.3
	iScP?	Z		27	04
	iS N,S	Z			51
	iS	E			54
	e	N	31		07
	e	N	33		13
	iP:dilatation				
	Mag. 6 $\frac{1}{2}$ (Matsushiro)				
	5 $\frac{1}{2}$ S., 147 E.				
	Near north coast of New Guinea.				
	H=11 13 56 USCGS				
9.	eP	Z	12	17	59
	eS?	Z		18	41
9.	eP	Z	14	34	38
9.	eP	Z	16	06	09
	e	Z			58
9.	eP	Z	17	47	07
	i	Z			15.3
	eL?	N			58.9
	eL?	E	18		00.7
	i	NE			02 23
	44 $\frac{1}{2}$ N., 85 E.				
	Sinkiang Province, China.				
	H=17 39 24 USCGS				
9.	eP	Z	18	53	44
	iS	Z			45.7
9.	eP	Z	21	45	40
10.	P	Z	04	19	30.7
10.	P	Z	05	34	58.4
	S	Z			35 13
	P:compression				
10.	P	Z	13	44	40.7
	e	Z			46 52
	P:compression				
	52 N., 171 W. Fox Is.				
	H=13 37 14 USCGS				
10.	eP	Z	19	48	23
10.	P	Z	22	59	57.1
	i	Z			57.7
	eS	E	23	01	55
	44 $\frac{1}{2}$ N., 148 E. Kurile Is.				
	H=22 57 12 USCGS				
10.	eP	Z	23	28	36
	eS?	EZ			30 01

Date	Phase	Comp.	Time(GMT)		
			h	m	s
11.	P	Z	00	10	05.4
	dilatation				
11.	eP	Z	01	02	49
	S	Z			03 08
11.	iP	Z	04	53	06.9
	i	Z			09.2
	Kamchatka.				
	H=04 47 35 USCGS				
11.	eP	Z	06	16	47
	e	Z			57
11.	iP	Z	12	41	40.8
	iS	Z			58.9
	iP:dilatation				
11.	P	Z	13	30	20.4
	i	Z			23.9
	pP	Z			31 06
	i	N			13
	S	N			39 22
	i	N			40 29
	sS	N			53
	esSS	N			45 26
	L	N			48 36
	P:compression				
	Mag. 6 $\frac{1}{4}$ (Matsushiro)				
	23 $\frac{1}{2}$ S., 177 W.				
	Tonga Is. region.				
	H=13 18 47 USCGS				
11.	iP 1	Z	23	23	56.3
	iP 2	Z			57.1
	iP 1:compression				
	iP 2:dilatation				
	45 $\frac{1}{2}$ N., 143 E.				
	Near north coast of				
	Hokkaido, Japan.				
	H=23 21 00 USCGS				
12.	iP	Z	11	46	20.0
	iS	Z			22.7
	iP:compression				
12.	e	N	15	55	21 ca.
	eL	N			58 31 ca.
	31 $\frac{1}{2}$ N., 41 W.				
	Atlantic Ocean.				
	H=14 55 09 USCGS				
12.	eP	Z	20	06	27
	S	Z			31.5
12.	P	Z	20	31	55
12.	P	Z	21	05	10

Date	Phase	Comp.	Time(GMT)		
			h	m	s
13.	iP	Z	00	08	36.3
	pP	Z		09	01.7
	PP	Z			28.
	e	N			41 ca.
	S?	N	13	31	
	i	N	14	20	
	eL	N	16	33	
iP:dilatation					
52½ N.,177 E. Rat Is.					
h:100 km ca.					
H=00 02 24 USCGS					
13.	P	Z	00	46	34
13.	eP	Z	03	01	45
	e	N		02	46
	e	N		03	30
13.	iP	Z	03	03	57.2
	i	Z		04	14.4
	e	N		07	00
	e	N		10	54
	S?	N		11	50
	eLq	N		17	00
	Lr	Z		19	43
	Lr	N			55
iP:compression					
Mag. 6½ (Matsushiro)					
11 S.,166 E. Santa Cruz Is.					
H=02 54 37 USCGS					
13.	iP	Z	07	21	25.9
compression					
Fiji Is.					
H=07 10 30 USCGS					
13.	e	Z	09	49	50
	i	Z			57
13.	P	Z	09	54	29
13.	P	Z	13	04	25
13.	eP	Z	13	22	36
27½ N.,130 E.					
Ryukyu Is.					
H=13 19 49 USCGS					
13.	P	Z	13	29	34
13.	P	Z	20	23	07.2
	iPcP	Z		24	37
	S	N		30	00
	eL	N		37	49
Mag. 6 (Matsushiro)					
11½ N.,92½ E.					
Andreanof Is.					
H=20 14 27 USCGS					

Date	Phase	Comp.	Time(GMT)		
			h	m	s
13.	iP	Z	20	28	26.5
compression					
13.	P	Z	22	52	34
	iS	N		53	16
14.	eP	Z	06	06	22
	e	N			23.8
	e	N			26.3
Mag. 5 3/4 - 6 (Matsushiro)					
22 S.,175 W. Tonga Is.					
H=05 54 48 USCGS					
14.	iP	Z	07	31	43.7
dilatation					
Mag. 6½ (Matsushiro)					
29 S.,179 W. Kermadec Is.					
H=07 20 25 USCGS					
14.	eP	Z	13	46	09 ca.
	e	N		14	12 39
	e	N			15 50
Mag. 5½ - 5 3/4 (Matsushiro)					
39½ N.,41 E.					
Eastern Turkey.					
H=13 34 40 USCGS					
14.	iP	Z	14	40	28.5
dilatation					
14.	eP	Z	15	51	43
14.	iP	Z	19	28	29.0
	iS	NZ			40.8
	i	E			41.8
iP:compression					
14.	eP	Z	21	53	04
15.	eP	Z	01	27	53
	i	Z		28	00.9
15.	iP	Z	02	28	54.1
	i	Z		29	03.3
	e	N			25
	i	Z			56
	e	N		30	11
iP:dilatation					
15.	P 1	Z	04	12	53.9
	iP2	Z			56.4
	i	E		14	11
	iS	Z			18
43 N.,136 E. Near coast					
of Siberia.					
H=04 10 45 USCGS					

Date	Phase	Comp	Time(GMT)			Date	Phase	Comp.	Time(GMT)		
			h	m	s				h	m	s
15.	iPKP	Z	19	34	03	17.	iP	Z	09	06	28.0
	pPKP	E			32	✓	e	Z		07	42
✓	i	N		40	12		i	E			54
✓	i	N		44	14		iP:dilatation				
	i	N		48	27	18.	eP	Z	01	20	34
	SS	N		56	21	✓	i	Z			47
	SSS	N	20	01	59	18.	eP	Z	03	33	04
	PKP:dilatation					18.	eP	Z	04	54	21
	Mag. 7 - 7 $\frac{1}{2}$ (Matsushiro)					✓	e	Z			52
	16 $\frac{1}{2}$ S., 71 $\frac{1}{2}$ W.					18.	ePKP	Z	15	34	30
	Southern Peru.					✓	eL	N	16	32	28
	h:100 km ca.						eL	E		33	14
	H=19 14 29 USC GS					✓	29 S., 13 W.				
						✓	North of Tristanda Cunha.				
							H=15 14 26 USC GS				
15.	iP	Z	22	25	31.5	18.	eP	Z	20	40	37
✓	i	Z			38.0	19.	P	Z	02	46	30
	S	N		33	28	✓	i	N			56
	L	N		41	58		eS	N		47	02
	iP:compression					19.	P	Z	07	07	14
	Mag. 6 $\frac{1}{2}$ - 6 $\frac{1}{2}$ (Matsushiro)					19.	eP	Z	09	15	09
	13 $\frac{1}{2}$ S., 167 E. New Hebrides Is.					19.	iP	Z	12	19	37.6
	H=22 15 44 USC GS					✓	S	NZ		20	21
							iP:dilatation				
16.	P	Z	04	27	25.2	19.	ePKP 1	Z	14	26	28
✓							PKP 2	Z			38
	16 S., 175 W.					✓	i	Z			56
	Tonga Is. region.						PP	E		28	40
	h:250 km ca.					✓	iPP	Z			46
	H=04 16 46 USC GS						i	NE		30	02
						✓	SKS	E		34	35
16.	eP	Z	10	24	00		PPS	E		40	40
✓							SS	E		46	04
16.	P	Z	11	13	20.7		L	E	15	09	13
✓	eL	N		29	16		L	Z			19
	P:compression					✓	Mag. 7 $\frac{1}{2}$ - 7 $\frac{3}{4}$ (Matsushiro)				
	Mag. 6. (Matsushiro)						1 $\frac{1}{2}$ N., 79 $\frac{1}{2}$ W. Near coast				
	14 S., 167 E. New Hebrides Is.						of Ecuador.				
	H=11 03 32 USC GS						H=14 07 23 USC GS				
17.	iP	Z	04	21	30.6	19.	PKP	Z	15	02	32
✓	S	N		27	39	✓	1 $\frac{1}{2}$ N., 79 $\frac{1}{2}$ W.				
	eL	NE		30	22		Near coast				
	eL	NE		37	23		of Ecuador.				
	iP:compression						H=14 43 24 USC GS				
	Mag. 6 - 6 $\frac{1}{2}$ (Matsushiro)					19.	P	Z	16	59	16
	1 S., 127 E. Spice Is.					✓	5 $\frac{1}{2}$ N., 95 E.				
	H=04 14 02 USC GS						Near coast				
							of Sumatra.				
							H=16 50 13 USC GS				
17.	eP	Z	07	28	30						
✓	i	Z			39						
✓	i	Z		29	38						
	S	E		39	15						
	ePS	E		40	30						
	Lq	E		51	56						
	L	E		55	26						
	Mag. 6 $\frac{1}{2}$ - 6 $\frac{3}{4}$ (Matsushiro)										
	52 S., 139 $\frac{1}{2}$ E.										
	Antarctic Ocean.										
	H=07 15 38 USC GS										

Date	Phase	Comp.	Time(GMT)			Date	Phase	Comp.	Time(GMT)		
			h	m	s				h	m	s
20. ✓	P	Z	01	07	58.2	22. ✓	eP	Z	18	33	20 ca.
	e	Z		08	19		i	N			27.7
	P:compression						i	Z			29
20. ✓	PKP 1	Z	02	39	47		L	NE		38	00
	i	Z			56		Mag. 6 - 6 $\frac{1}{2}$ (Matsushiro)				
20. ✓	PKP 2	Z		40	20.9		23 N., 121 $\frac{1}{2}$ E.				
	eL	N	03	29	-		Near east coast of Formosa.				
	eL	E		34.3			h:200 km ca.				
	PKP 2:compression						H=18 29 11 USCGS				
	Mag. 6 $\frac{1}{2}$ (Matsushiro)					22. ✓	eP	Z	23	37	30
	30 $\frac{1}{2}$ S., 71 $\frac{1}{2}$ W.						54 N., 170 E.				
	Northern Chile.						Komandorski Is.				
	H=02 19 53 USCGS						H=23 31 43 USCGS				
20. ✓	eP	Z	07	18	36	22. ✓	eP	Z	23	56	33
	eS?	N		23	32		iS	Z			39.3
	i	E		24	21	23. ✓	iP	NZ	02	36	26.7
	i	N			24		eP	E			27
	L	NE		25	11		i	Z		37	34
	Mag. 5 - 5 $\frac{1}{4}$ (Matsushiro)						iS	E		38	09.0
	16 N., 120 E.						iS	Z			13.3
	Luzon, Philippine Is.						i	Z		39	58
	h:100 km ca.						iP:N,dilatation				
	H=07 13 08 USCGS						Mag. 6 - 6 $\frac{1}{2}$ (Matsushiro)				
20. ✓	P	Z	09	59	12		44 $\frac{1}{2}$ N., 146 $\frac{1}{2}$ E. Kurile Is.				
	h:150 km ca.						H=02 34 09 USCGS				
20. ✓	ePKP	Z	10	15	48	23. ✓	iP	Z	13	46	28.4
	e	N	11	17	50		e	N		53	27
	eL	N		22	54		L	N	14	17.3	
	30 $\frac{1}{2}$ S., 71 $\frac{1}{2}$ W.						iP:compression				
	Northern Chile.						Mag. 5 $\frac{3}{4}$ - 6 (Matsushiro)				
	H=09 55 44 USCGS						65 N., 6 $\frac{1}{2}$ E.				
20. ✓	e	N	12	16	48		Off west coast of Norway.				
	e	E			58		H=13 35 03 USCGS				
21. ✓	eP	Z	00	02	34	23. ✓	P	Z	16	36	06
	S	Z			46						
21. ✓	ePKP	Z	08	27	03	23. ✓	iP	Z	18	41	34.7
	29 S., 73 W.						iS	Z			54.4
	Near coast of Chile.						iP:dilatation				
	H=08 06 56 USCGS					23. ✓	iP	Z	22	12	04.8
21. ✓	iP	NEZ	19	01	35.4		S	Z			32
	S	NEZ			54.4		iP:dilatation				
	iP:N,W,compression					24. ✓	eP	Z	04	41	21 ca.
21. ✓	P	Z	19	38	42		S	E		45	35
	eS	Z		41	03		S	N			39
21. ✓	P	Z	23	38	15.3		L	NE		47	58
	S	N			36.2		L	NZ		50	31
	S	Z			37.2		Mag. 5 $\frac{3}{4}$ - 6 (Matsushiro)				
22. ✓	eP	Z	13	44	46		56 $\frac{1}{2}$ N., 115 $\frac{1}{2}$ E.				
	S	Z		45	30		Northeast of Lake Baikal.				
	H=04 35 55 USCGS						H=04 35 55 USCGS				

Date	Phase	Comp.	Time(GMT)			Date	Phase	Comp.	Time(GMT)		
			h	m	s				h	m	s
24.	iP	NZ	05	59	32.4	25.	eP	NEZ	04	41	09
	PcP	Z	06	03	03		iS	NEZ			20.7
	S	N			54						
	L	NE	05	47		25.	eP	Z	08	30	02
	iP:S,compression					25.	iP	EZ	09	23	59.4
	Mag. 6 $\frac{1}{2}$ - 6 $\frac{3}{4}$ (Matsushiro)						S	NEZ		24	20
	56 $\frac{1}{2}$ N.,163 E.						i	Z		25	14 ca.
	Near east coast of Kamchatka.						iP:E,dilatation				
	H=05 53 58 USCGS										
24.	eP	Z	06	12	32	25.	eP	Z	10	04	43
24.	P	Z	06	16	37.9		eS?	Z		05	09
	compression					25.	eP	Z	11	45	36
	Mag. 5 $\frac{3}{4}$ - 6 (Matsushiro)						eS?	Z		47	20
	56 $\frac{1}{2}$ N.,163 E.					25.	iP	Z	13	03	06.4
	Near east coast of Kamchatka.						S	Z			30
	H=06 11 03 USCGS						iS	Z			30.7
24.	iP 1	NZ	11	09	29.7		iP:dilatation				
	iP 2	NEZ			30.7	25.	iP	Z	18	04	47.7
	i	E			40.1		compression				
	iS	NE			47.7	25.	eP	Z	19	24	27
	i	NEZ	10	00			iS	EZ			54.2
	iP 1:S,dilatation					25.	eP?	N	21	34	08
	iP 2:S,E,compression						e	N		42	03
							L	N			45.4
24.	P	Z	18	09	21 ca.	25.	eP?	Z	21	49	53
	S?	N		12	59	26.	iP	Z	05	08	12.5
	L	NE		14	01		dilatation				
	Mag. 5 $\frac{1}{2}$ - 5 $\frac{1}{2}$ (Matsushiro)					26.	iP	Z	06	46	02.7
	54 N.,170 E.						S	NE		49	16
	Komandorski Is. region.						L	NE		50	48
	H=18 03 32 USCGS						iP:dilatation				
24.	iP 1	Z	23	26	15.9		Mag. 5 $\frac{1}{2}$ - 5 $\frac{3}{4}$ (Matsushiro)				
	iP 2	NEZ			16.9		47 $\frac{1}{2}$ N.,154 $\frac{1}{2}$ E. Kurile Is.				
	eS	N	33	26			H=06 42 13 USCGS				
	iP 1:compression					26.	iP	NZ	07	32	45.0
	iP 2:N,E,dilatation						S	NE		36	11
	Mag. 6 $\frac{1}{2}$ (Matsushiro)						L	E		38	03
	60 N.,152 W.						L	N			40
	Kenai Peninsula,Alaska.						iP:N,dilatation				
	h:60 km ca.						Mag. 5 $\frac{3}{4}$ (Matsushiro)				
	H=23 17 29 USCGS						49 $\frac{1}{2}$ N.,155 E. Northern Kurile Is.				
25.	iP	Z	00	03	36.1		H=07 23 33 USCGS				
	compression					26.	eP	Z	16	07	47
	Mag. 6 $\frac{1}{2}$ (Matsushiro)					26.	iP 1	Z	21	37	47.5
	17 $\frac{1}{2}$ S.,178 $\frac{1}{2}$ W. Fiji Is.						iP 2	NEZ			48.6
	h:550 km ca.						(cont.)				
	H=23 53 29 USCGS										
25.	eP	Z	00	22	14						
	eS?	Z		23	03						
25.	P	Z	03	00	44						

Date	Phase	Comp	Time(GMT)			Date	Phase	Comp	Time(GMT)			
			h	m	s				h	m	s	
continued						28.	P	Z	19	48	41	
✓	i	NEZ	21	37	54	✓	S	N		54	00	
	S	N		38	30		L	N		57	01	
	iP 1:compression						L	E		57.4		
	iP 2:S,E,compression					Mag. 5 (Matsushiro)						
	Mag.5.1 (Matsushiro)					3 1/2 N., 127 E.						
						Molucca Passage.						
						H=19 41 54 USCGS						
27.	iP	Z	07	55	03.7	28.	✓	P	N	21	41	28
	iP	NE			04.5	✓	i	N		43	23	
✓	i	Z			23	28.	i	Z	21	49	43	
	iS	NE	08	04	08	✓	i	Z		50	08	
	L	N			11.4		i	Z			37	
	L	E			12.4	28.	✓	eP	Z	21	56	31
	iP Z:compression					e	Z			57	05	
	iPNE:N,E.					29.	iP	Z	00	17	26.0	
	Mag.6. - 6 1/4 (Matsushiro).					✓	S	NEZ		18	07	
	15 S., 174 W. Samoa Is.					Mag.5 1/2 (Matsushiro)						
	H=07 43 58 USCGS					37.2 N., 142.2 E. Off east coast of Fukushima, Japan.						
						h:30 km ca. J.M.A.						
27.	eP	Z	09	01	01	29.	P	Z	00	22	03	
	e	N			52 ca.	✓	i	N			46	
✓	Solomon Is.					✓	i	Z			53	
	H=08 12 26 USCGS					29.	✓	eP	Z	02	35	01
27.	✓	eP	09	10	55	S	Z				11	
✓	e	N			12 14	29.	✓	P	Z	04	20	07
27.	✓	eP	21	50	20	29.	✓	P	Z	07	45	15.2
28.	✓	iP	00	27	31.4	29.	✓	eP	Z	12	43	46
	S	NEZ			28 15.8	✓	i	Z			44	55
	iP:dilatation					29.	✓	eP	Z	20	28	09
28.	✓	iP	02	09	22.8	✓	iS	E			51	
	S	Z			46	S?	Z				58	
	iP:compression					29.	✓	iP	NZ	21	26	33.9
28.	✓	P	05	01	30	N,dilatation						
✓	S	Z			02 29	30.	✓	eP	Z	02	31	13
28.	✓	P	06	49	25 ca.	30.	✓	P	Z	05	09	32.1
28.	✓	P	07	11	08	19 S., 172 1/2 W. Tonga Is.						
✓	i	Z			12 02	H=04 48 01 USCGS						
28.	✓	iP	09	59	55.5	30.	✓	eP 1	Z	06	21	54
	S	EZ	10	01	10.5	✓	P 2	Z			57.9	
	iP:compression					i	Z				23 11.9	
28.	✓	eP	10	28	05	(cont.)						
28.	✓	eP	14	59	36							
28.	✓	eP	17	25	31							
	eL	N			52.4							
	36 N., 58 1/2 E. Iran.											
	H=17 15 00 USCGS											

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued					
✓	S	E	06	28	37
✓	Lq	E	31	57	
✓	Lq	N	32	00	
✓	Lr	E	34	16	
iP 2:dilatation					
Mag. $6\frac{1}{4}$ - $6\frac{1}{2}$ (Matsushiro)					
$7\frac{1}{2}$ S., $155\frac{1}{2}$ E. Solomon Is.					
H=06 13 24 USCGS					
30. ✓	eP	Z	10	05	52
✓	S	Z	06	55	
30. ✓	eP	Z	16	02	03
✓	eS	Z		18	
30. ✓	P	Z	18	30	19
✓	S	Z	31	24	
30. ✓	P	Z	22	51	57.1
Tonga Is. region.					
h:600 km ca.					
H=22 41 27 USCGS					
31. ✓	P	Z	06	25	55.1
compression					
$44\frac{1}{2}$ N., 153 E.					
Kurile Is. region.					
H=06 22 35 USCGS					
31. ✓	P	Z	06	45	07
✓	e	N	07	00	59
✓	L	N		13.5	
Mag. $5\frac{3}{4}$ (Matsushiro)					
40 S., $176\frac{1}{2}$ E.					
North Island, New Zealand.					
H=06 32 39 USCGS					
31. ✓	P	Z	11	27	22
✓	S?	Z		54	
31. ✓	P	Z	11	39	13.6
31. ✓	eP	Z	14	43	55
31. ✓	eP	Z	15	38	03
✓	S	N		48	
31. ✓	P	Z	16	47	35
✓	i	Z		39.6	
✓	i	Z		43.6	
✓	i	NEZ	48	09	
31. ✓	i	Z	17	11	43.4
31. ✓	P	NZ	21	11	13
✓	S	N	20	50	
✓	e	E	21	24	

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued					
✓	eSS	N	21	24	51
✓	SSS	N		28	50
✓	L	E		30.5	
P :S,compression					
31. ✓	iP	Z,P NE	22	18	08.5
✓	iS	NEZ		30.7	
iP:dilatation					
31. ✓	eP	Z	22	31	27
31. ✓	P	Z	22	55	41.5
✓	i	Z		44.0	
✓	i	EZ		56.4	
✓	i	Z	56	02.0	

Date	Phase	Comp.	Time(GMT)		
February			h	m	s
1.	iP	NEZ	00	34	12.4
	iS	EZ			24.6
	iP:W,compression				
1.	iP	EZ	03	12	31.8
	i	N			32.7
	e	Z			48
	e	N	13	50	
	iP:E,dilatation				
1.	iP	NEZ	09	34	24.1
	S,W,compression				
1.	P	NEZ	12	49	55
	e	NEZ		50	00
	i	Z			27
	i	Z			53.2
1.	iPKP	Z	16	29	21.6
	i	Z		31	46.6
	i	E		32	43
	e	N		39	13
	eSKSP?	E		41	59
	ePPS?	Z		43	05
	SS	N		48	02
	Lr	Z	17	09	18
	L	N		22	56
	L	E		28	08
	L	E		37	02
	L	Z	18	01	40
	iPKP:dilatation				
	Mag.6 3/4 - 7(Matsushiro)				
	2 N.,79 W. Near coast of Ecuador.				
	H=16 10 15 USCGRS				
1.	P	NEZ	17	23	52.7
	S?	E		24	12.5
1.	iPKP 1	Z	18	21	47.6
	iPKP 2	Z			55.1
	iPP	Z		24	02
	i	Z		25	05
	iPKP 1:dilatation				
	iPKP 2:dilatation				
	iPP :compression				
	2 N.,79 W.				
	Ecuador aftershock.				
	H=18 02 39 USCGRS				
1.	iP	Z	18	32	30.0
	S	E			55
	iP:dilatation				
1.	PKP	Z	21	04	53.9
	iPP	N		07	10
	SKSP	N		17	01
	SS	E		24	23
	(cont.)				

Date	Phase	Comp.	Time(GMT)		
continued			h	m	s
	SSS	N	21	29	11
	Lr	E		42	41
	PKP:compression				
	Mag.6 1/4 (Matsushiro)				
	1 1/2 N.,79 W.				
	Ecuador aftershock.				
	H=20 45 45 USCGRS				
1.	eP	Z	21	43	45
1.	iP	Z	21	44	46.7
	e	Z		45	05
	iP:dilatation				
1.	iP	Z	21	50	48.2
	S	Z		51	17.2
	iP:dilatation				
1.	P	Z	22	08	47.9
	e	E		12	59
	7 S.,156 E. Solomon Is.				
	H=22 00 15 USCGRS				
2.	iP	Z	01	19	48.0
	dilatation				
2.	iP	Z	01	53	40.9
	dilatation				
2.	iP	NEZ	08	15	48.7
	S	NEZ		19	04.0
	Lq?	N			31
	Lr	E		21	03
	Lr	N			10
	Mag.6 1/4 (Matsushiro)				
	48 1/2 N.,154 1/2 E.				
	Northern Kurile Is.				
	H=08 11 53 USCGRS				
2.	P	E	19	17	13.7
	i	E			20.8
	S	EZ		18	05
2.	P	Z	20	56	07
3.	iP	Z	08	36	52.4
	dilatation				
	21 S.,174 W. Tonga Is.				
	H=08 25 19 USCGRS				
3.	eL	N	20	01	24 ca.
4.	iP	EZ	01	17	46.7
	iS	NE		18	33.3
	iP:W,dilatation				
4.	P	Z	02	24	02.1
	eL	N		37	29
	(cont.)				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued					
	P:dilatation				
	6 S., 131½ E.		Banda Sea.		
	H=02 16 00		USCGS		
4.	✓ P	Z	06	49	05.7
	compression				
4.	iP	NEZ	15	40	43.0
	✓ i	Z			48.8
	S	NEZ	41	15	8
	iP:compression				
4.	iP	Z	19	52	30.3
	✓ eL	N	20	04	18
	iP:compression				
4.	iP	EZ	23	38	52.5
	✓ S	Z			39 43
	i	Z			55
	i	N			40 18
	iP:W,compression				
	Mag.5.3(Matsushiro)				
	Near east coast of Honshu, Japan.				
	H=23 37 50			USCGS	
5.	✓ iP	NEZ	03	52	45.5
	iS	E			50.8
	iP:N,dilatation				
5.	eP	Z	04	40	51
	✓ i	N			52.4
	i	E			58.9
	e	N			56 57
	10½ S., 164½ E.				
	Santa Cruz Is. region.				
	H=04 31 32			USCGS	
5.	✓ iP	NEZ	05	45	22.4
	S	N			51
	iP:S,E,dilatation				
	36.4 N., 141.1 E.				
	Off east coast of Honshu, Japan.				
	h:40 km ca.				
	J.M.A.				
5.	✓ iP	EZ	08	11	42.1
	i	Z			45
	✓ eS	N			14 52
	L	N			15 33
	iP:dilatation				
	Mag.5½ - 5¾ (Matsushiro)				
	47 N., 153 E. Kurile Is.				
	H=08 08 10			USCGS	
5.	✓ P	E	16	47	31.1

Date	Phase	Comp.	Time(GMT)		
			h	m	s
6.	eP	Z	01	46	24
	i	E			27
	✓ i	E			31
	eS	N			49 43
	L	N			50 53
	Mag.4¾ - 5(Matsushiro)				
	24½ N., 122½ E.				
	Near northeast coast of Formosa.				
	H=01 42 09			USCGS	
6.	✓ iP	EZ	11	00	58.3
	dilatation				
6.	iP	EZ	16	11	35.3
	pP	Z			12 37
	sPPorPPP	N			16 19
	S?	N			21 30
	iP:compression				
	27½ S., 178 W.				
	Kermadec Is. region.				
	h:250 km ca.			USCGS	
	H=16 00 12			USCGS	
6.	✓ iP	EZ	16	45	07.9
	e	E			46 22
	iP:dilatation				
6.	iP	Z	22	18	21.7
	i	Z			33.7
	✓ e	N			54
	S?	E			19 34
	e	N			48
	iP:compression				
7.	✓ eP	Z	00	41	28
	i	Z			42 46.3
	Near northwest of Sumatra.				
	H=00 32 25			USCGS	
7.	✓ iP	Z	01	05	02.7
	iS	Z			06.9
7.	✓ iP	Z	01	22	31.9
	pP?	Z			23 08
	iP:dilatation				
	31 S., 179 W. Kermadec Is.				
	H=01 10 31			USCGS	
7.	✓ P	Z	03	09	06.9
	i	Z			18.9
7.	✓ P	EZ	04	43	19.0
	S	N			47 59
	i	E			48 18
	eL	E			51 16
	55 N., 167 E.				
	Komandorskie Is.				
	H=04 37 33			USCGS	

7. ✓ iP Z 07 02 53.6
 i Z 03 04.1
 eS N 05 05
 L N 53
 27½ N., 128½ E. Ryukyu Is.
 H=06 59 53 USCGS

7. ✓ P EZ 09 44 19.3
 S EZ 39

7. ✓ iP NEZ 15 57 35.8
 S NE 56
 iP:dilatation
 Mag.4.9 (Matsushiro)

7. ✓ iP EZ 21 39 01.2
 S Z 40 24
 e E 41 10

7. ✓ iP Z 23 29 30.1
 sP Z 30 41
 e E 33 39
 S E 34 17
 SS? N 36 13
 L N 45
 L N 39 28
 iP:compression
 Mag.6 (Matsushiro)
 31½ N., 104 E.
 Szechwan Province, China.
 H=23 23 30 USCGS

8. P Z 03 03 30.9
 i Z 49.4
 ✓ i N 04 18
 i E 23

8. ✓ iP Z 07 10 34.5
 S E 49.6
 iP:dilatation

8. ✓ P EZ 21 18 28.8

8. ✓ iP NEZ 21 50 05.9
 i Z 20.8
 S NE 51 02
 i NE 30

9. ✓ iP Z 01 17 51.0

9. ✓ P Z 09 18 31.3
 dilatation

9. ✓ P Z 09 38 55.8
 eL N 54 56
 25 N., 90½ E.
 Pakistan-India border.
 H=09 31 03 USCGS

9. ✓ iP NEZ 14 05 38.3
 S N 53.0
 S E 54.8
 iP:N,E,compression

9. ✓ iP Z 22 35 19.2
 sP Z 31.0
 e N 38
 S N 40 00
 i E 35
 e E 41 28
 L NE 30

iP:compression
 Mag.6(Matsushiro)
 12½ N., 121 E.
 Mindoro, Philippine Is.
 H=22 29 23 USCGS

10. ✓ iP Z 03 32 09.8
 iS NEZ 28.8
 iP:dilatation

10. ✓ iP Z 05 26 43.9
 i Z 27 10
 i NEZ 27

10. ✓ P Z 14 45 18.8
 S N 47 14
 i E 28
 iL N 51
 26 N., 142½ E. Volcano Is.
 H=14 42 30 USCGS

10. ✓ iP Z 15 56 27.8
 iS NEZ 43.8

11. ✓ iP Z 00 55 25.9
 e N 01 08 33

iP:compression
 Mag.5 ¾ - 6(Matsushiro)
 9 S., 107½ E.
 Off south coast of Java.
 H=00 46 02 USCGS

11. ✓ P Z 05 51 07.0
 i Z 09.9
 e Z 13

11. ✓ iP NEZ 09 48 30.6
 i Z 34.1
 iS NE 35.0
 i Z 36.4
 iP:N,E,compression

11. ✓ iP Z 20 07 48.3
 i Z 49.3
 e N 17 05
 e E 12

(cont.)

Date	Phase	Comp.	Time (GMT)		
continued			h	m	s
✓	eL	N	20	20	26
	iP:dilatation				
12.	eP	Z	02	39	16
✓	i	E			17.3
	i	Z			17.7
	Mariana Is. h:150 km ca. H=02 34 14				
	USCGS				
12.	eP	Z	07	29	35
✓	i	Z			39.5
	6 S., 151½ E. New Britain. h:100 km ca. H=07 21 37				
	USCGS				
12.	P	E	22	12	18
✓	i	Z			20
	i	Z			27.0
	e	N			46
12.	iP	Z	23	33	29.6
✓	i	EZ			30.4
	i	Z			36.4
	i	Z	34		36.0
	S	E	35		00
	i	N			26.6
	i	Z			27.7
	iP:compression 43½ N., 145½ E. Near east coast of Hokkaido, Japan. H=23 31 21				
	USCGS				
12.	iP	NEZ	23	50	51.1
✓	S	E			56 29
	eL	N			58 55
	eL	N	00	01.7	ca.
	e	N			06 23
	iP:S,W,compression Mag. 6¼ (Matsushiro) 52 N., 175 W. Andreanof Is. H=23 43 45				
	USCGS				
13.	P	Z	00	19	06
✓	i	E			07.7
	e	N			24 01
	27½ N., 92 E. Northern Assam. H=00 11 36				
	USCGS				
13.	iP	Z	06	31	37.8
✓	P	E			38.2
	e	E			45
	iP:dilatation				
13.	iP	Z	09	34	12.4
✓	(cont.)				

Date	Phase	Comp.	Time (GMT)		
continued			h	m	s
✓	i	E	09	34	13.2
	i	Z			14.7
	S	E			35 36
✓	i	Z			39
	iP:dilatation				
13.	iP	Z	13	30	39.4
✓	i	Z			43.1
	i	E			45.1
	i	Z			45.6
	iP:compression				
13.	iP	Z	17	11	03.2
✓	i	E			08.5
	i	Z			08.7
	iP:compression				
13.	iP	Z	21	44	33.6
✓	eS	E			45 04
	eS	Z			06
	iP:compression				
13.	iP	Z	23	26	35.7
✓	iP	E			36.4
	S	E			27 24
	S	Z			25
	iP:compression				
14.	iP	Z	00	06	44.0
✓	e	Z			57
	eS?	Z			07 21
14.	iP	NEZ	09	25	51.9
✓	i	Z			29 13.1
	S	N			23.4
	iP:N,E,dilatation				
14.	iP	Z,P E	18	49	00.6
✓	P	N			01.0
	S?	NE			21.6
	iP:dilatation				
14.	iP	EZ	19	30	41.0
✓	i	Z			42.2
	i	NE			31 02.2
	S	N			28
	i	Z			31
	i	E			32 37
	iP:W,compression Mag. 5 - 5¼ (Matsushiro)				
15.	iP	NEZ	01	37	40.1
✓	iS	NE			38 28.0
	iS	Z			28.8
	iP:S,W,dilatation				

Date Phase Comp Time(GMT)
 h m s
 15. iP EZ 01 49 07.4
 iP N 08.3
 i E 21.9
 i Z 59
 i Z 50 49
 S E 57
 S N 51 00
 L NE 33
 iP:W,compression
 Mag.6 (Matsushiro)
 44 N.,147 E. Kurile Is.
 H=01 46 40 USCGS

15. iP NEZ 09 48 31.4
 i E 32.5
 S E 49 45.2
 S N 46.6
 S Z 47.9
 iP:N,W,compression
 Mag. 5(Matsushiro)

15. iP? Z 11 36 03.6
 iP? NE 03.8
 i Z 04.5
 e Z 19
 i E 23.6
 i N 25.0
 iP?:N,E,dilatation

16. iP Z 01 46 47.7
 iP E 48.1
 i NE 47 01.2
 e E 09
 iP:dilatation
 Local shock?

16. iP NEZ 06 05 06.1
 i EZ 08.8
 S NZ 52
 i N 56
 iP:N,E,dilatation
 Mag. 6.4(Matsushiro)
 39 N.,142 E. Near east coast of Honshu, Japan.
 H=06 04 05 USCGS

16. iP EZ 06 48 27.2
 P N 28.0
 S NEZ 41.2
 iP:E,dilatation

16. iP Z 07 46 35.1
 i N 45.9
 i E 49.4
 i Z 51.3
 i Z 57.5
 i N 47 00.6
 iP:compression

Date Phase Comp Time(GMT)
 h m s
 16. P E 08 09 22.1
 e Z 45
 e N 46
 S Z 10 10.7
 16. iP NEZ 22 18 58.6
 S N 19 26.9
 S EZ 27.3
 i Z 28.0
 iP:S,E,compression

17. eP Z 00 03 06
 e N 53
 e Z 04 03
 6 S.,155 E. Solomon Is.
 H=23 54 45 USCGS

17. iP EZ 01 00 41.3
 S Z 01 03.1
 S N 05
 iP:E,compression

17. eP Z 02 28 30
 eP E 31
 e E 46

17. iP NZ 02 30 42.1
 iP E 42.4
 i NEZ 53
 e N 34 56
 eL E 37 23
 iP:N,dilatation
 52 N.,159½ E.
 Near east coast of Kamchatka.
 H=02 25 46 USCGS

17. iP NZ 03 56 50.4
 iP E 50.6
 i E 51.0
 S E 57 19.4
 iS NZ 20.0
 iP:N,compression

17. iP NEZ 05 27 38.8
 pP Z 28 29
 PP Z 29 40
 S NE 34 55
 sS N 36 16
 ScS E 37 07
 ScS N 08
 SS E 38 40
 e E 40 14
 SSS N 41 08
 SSS Z 15

iP:S,E,compression
 Mag. 6½ - 6¾ (Matsushiro)
 35½ N.,70 E. Hindu Kush.
 h:200 km ca.
 H=05 18 35 USCGS

Date	Phase	Comp.	Time(GMT)		
			h	m	s
17.	iP	NEZ	15	12	18.5
	iS	NE			51.9
	iP:N,E,compression				
17.	iP	Z	22	09	33.7
	iP	N			33.8
	iP	E			34.0
	e	NE			48
	e	N			53
	iP:N,E,dilatation				
18.	iP	NEZ	00	20	43.6
	S	NE		21	05
	iP:N,W,compression				
	Mag.4 3/4 - 5(Matsushiro)				
18.	iP	Z	07	45	40.3
	iP	N			40.8
	i	E			42.3
	e	Z		46	05
	e	Z			24
	S	NE		55	06
	eL	E	08	06	19
	eL	N			34
	Mag.5 3/4 (Matsushiro)				
	21 S.,173 1/2 W. Tonga Is.				
	H=07 34 07 USCGS				
18.	P	Z	10	42	57.6
	P	E			58.8
	i	Z		43	04.9
	P:compression				
18.	iP	NEZ	12	21	22.0
	e	N			39
	e	E			49
	eS?	Z			50
	iP:N,W,compression				
18.	iP	NEZ	13	33	20.4
	i	N			21.6
	i	Z			23.3
	S	E		43	13
	S	N			17
	ScS?	N		44	08
	SS	E		48	10
	SS	N			13
	SSS	E		51	52
	SSS	N			55
	eL	E		54	29
	eL	N			46
	eL	E		58	15
	eL	N			20
	iP:N,W,compression				
	Mag.5 1/2 - 5 3/4 (Matsushiro)				
	31 S.,178 1/2 W. Kermadec Is.				
	H=13 21 20 USCGS				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
18.	iP	Z	18	57	41.5
	i	EZ			43.0
	S	NE	19	01	51
	eL	E		03	55
	eL	N		04	06
	eL	Z		05	27
	iP:compression				
	Mag.5 - 5 1/4 (Matsushiro)				
	20 1/2 N.,120 1/2 E.				
	Batan Is. region.				
	H=18 52 41 USCGS				
18.	iP	Z	19	13	02.1
	i	EZ			05.5
	eS	E		17	00
	eL	NE		20	49
	iP:compression				
	Mag.5 - 5 1/4 (Matsushiro)				
	21 N.,120 E. Off south coast of Formosa.				
	H=19 08 05 USCGS				
18.	iP	NEZ	19	53	40.5
	i	EZ			41.7
	i	N			41.9
	i	Z			43.0
	S	NEZ		57	44
	i	N			49
	i	EZ			51
	eL	N		59	02
	L	E	20	00	05
	L	N			12
	iP:N,E,compression				
	Mag. 6 (Matsushiro)				
	20 1/2 N.,120 1/2 E.				
	Batan Is. region.				
	H=19 48 43 USCGS				
18.	P	Z	20	16	28
	i	Z			31
	e	N		19	25
	S	N		22	40
	S	E			43
	L	N		26	09
	L	E			19
	Lr	Z		28	50
	Lr	N			59
	Mag.6 1/4 - 6 1/2 (Matsushiro)				
	About 150 miles southeast of Admiralty Is.				
	H=20 08 43 USCGS				
19.	e	N	02	19	32
	eL	N		27	28
19.	iP	Z,P	06	37	16.3
	i	Z			20.2

(cont.)

Date	Phase	Comp.	Time(GMT)		
continued			h	m	s
	eS	NZ	06	37	31
	eS	E			32
	P:N,E,dilatation				
19.	iP	Z	09	38	13.2
	i	E			17.7
	i	Z			25.3
	i	N			25.7
	iP:dilatation				
19.	iP	NEZ	10	41	52.7
	eL	NE	11	00	23
	iP:S,E,compression				
	Mag. 5½ (Matsushiro)				
	Kirghiz.				
	H=10 33 06 USCGS				
19.	P	Z	13	47	11
	e	Z			27
	e	Z			56
19.	iP	Z	15	45	50.2
	i	N			50.9
	i	E		46	43.3
	i	E		47	06.6
	i	Z		49	01.1
	e	N	16	06	21
	e	E		07	11
	iP:compression				
19.	iP	EZ	19	34	37.9
	iPcP	Z		35	50.0
	PP	Z		36	53.4
	e	Z		38	12
	i	Z		39	42.6
	S	N		42	27
	e	N		46	00
	eL	E			43
	eL	Z		47	57
	L	N	20	02	01
	iP:compression				
	Mag. 6 - 6½ (Matsushiro)				
	8 S., 108 E.				
	Near south coast of Java.				
	H=19 25 21 USCGS				
20.	P	NEZ	04	02	42.8
	i	E			44.7
	i	E		03	11.5
	i	Z			19.5
	S	N		06	30
	eL	E		08	45
	eL	N		10	36
	P:N,E,compression				
	Mag. 5½ - 5¾ (Matsushiro)				
	20½ N., 120½ E.				
	Batan Is. aftershock.				
	H=03 57 42 USCGS				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
20.	iP	Z	04	10	06.5
	i	E			17.9
	i	Z			20.0
	iP:dilatation				
	Batan Is. aftershock.				
	H=04 05 07 USCGS				
20.	iP	NZ	04	43	33.5
	i	Z			35.5
	i	NE			36.5
	eS	NE		47	35
	eL	E		49	52
	eL	E		54	22
	eL	N			31
	iP:N,dilatation				
	Mag. 5½ - 5½ (Matsushiro)				
	20½ N., 120½ E.				
	Batan Is. aftershock.				
	H=04 38 34 USCGS				
20.	iP	Z	09	09	41.7
	iP	N			43.4
	i	Z			45.4
	i	E			46.7
	i	Z		11	05.1
	i	Z			08.4
	S	N		13	40
	L	E		16	02
	L	N			35
	iP:compression				
	Mag. 5½ (Matsushiro)				
	21 N., 120 E.				
	Batan Is. aftershock.				
	H=09 04 44 USCGS				
20.	iP	Z	12	52	27.1
	i	E			37.5
	S	EZ			39
	iP:dilatation				
20.	iP	Z	14	36	14.8
	dilatation				
20.	iP	Z	16	04	19.8
	iP	E			20.0
	S?	Z			50.3
	iP:dilatation				
20.	iP	EZ	18	40	45.8
	S?	Z		41	35
	iP:E,dilatation				
20.	P	Z	18	54	05.3
	i	EZ			11.7
	e	N	19	03	08
	P:compression				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
20.	iP i iP:dilatation	Z E	19	44	27.5 45 13.5
20.	P i i	Z E E	20	29	42.1 45.3 52.3
20.	iP e i i i iP:W,dilatation	EZ Z Z Z Z	20	56	31.8 49.3 59.0 57 02.9 16.5
21.	ePKP i 16 S., 74 1/2 W. Off coast of Peru. H=03 18 25	Z Z	03	38	02 16.6
21.	iP i i S iP:S,E,dilatation Mag. 5.7 (Matsushiro) 36 1/2 N., 140 E. Honshu, Japan. H=11 52 50	NEZ N NEZ E	11	53	29.5 34.1 44.1 54.1
22.	iP i S? iP:dilatation	Z N N	03	33	59.0 34 24.6 37.0
22.	iP iP i	Z E E	06	14	29.8 30.1 43.1
22.	iP	EZ	07	52	19.1
22.	iP i PP? eS eL iP:E,compression Mag. 5 - 5 1/2 (Matsushiro)	EZ E Z N N	08	19	32.7 44.9 21 21 25 33 29 55
22.	iP i PP PP e S Lq	NEZ NEZ Z NE NE NE E	10	57	25.2 30.2 58 46.2 48.2 11 02 18 03 03 04 27 (cont.)

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued	Lq Lr iP:N,E,dilatation Mag. 6 1/4 - 6 1/2 (Matsushiro) 50 1/2 N., 175 W. Andreanof Is. H=10 50 23	N N	11	04	34 38
22.	iP PcP eS? eL 50 1/2 N., 175 W. Andreanof Is. H=13 21 48	EZ Z E N	13	28	50.2 31 16.7 34 21 37 23
22.	iP eS L iP:compression Mag. 5 1/2 (Matsushiro) 51 1/2 N., 174 1/2 W. Andreanof Is. H=17 05 00	EZ E N	17	12	06.7 17 47 20 13
22.	iP e	Z N	19	41	23.7 50 08
22.	P i i i S?	E E E E E	23	27	44 52.2 28 22.7 42.7 50.2
23.	P e e eS eL 6 S., 153 E. New Britain - Solomon Is. region. H=00 24 34	Z E E E E	00	32	45 35 08 37 01 39 38 43 46
23.	iP compression 52 N., 175 W. Andreanof Is. H=01 22 49	Z	01	29	55.3
23.	iP S iP:N,E,compression	Z NE	03	55	06.7 19.4
23.	iP compression	Z	05	43	25
23.	iPKP ipPKP	Z Z	08	34	27.6 36 34.3 (cont.)

Date	Phase	Comp.	Time(GMT)		
continued			h	m	s
	iPKP:dilatation				
	ipPKP:dilatation				
	27½ S., 63 W. Santiago del Estero Province, Argentina. h:600 km ca. H=08 14 48 USCGS				
23.	iP	EZ	08	41	54.1
	e	NE		44	03
	e	E		47	16
	e	E		50	54
	iP:E,compression				
23.	iP	NEZ	09	14	20.8
	i	E		15	48.3
	iS	NE			54.3
	iP:N,W,compression Mag.6½ (Matsushiro) 28½ N.,139½ E. Bonin Is. region. h:400 km ca. H=09 12 20 USCGS				
23.	iP	NEZ	10	11	21.8
	S	NE		15	33.3
	L	E		18	16
	iP:S,dilatation Mag. 5 - 5¼ (Matsushiro) 20½ N.,120½ E. Batan Is. aftershock. H=10 06 23 USCGS				
23.	iP	NEZ	10	50	49.8
	e	E		52	31
	S	N		53	12
	S	E			14
	iP:S,E,dilatation Mag.6½ (Matsushiro) 24 N.,141½ E. Volcano Is. H=10 47 40 USCGS				
23.	iP	NEZ	14	16	30.7
	iS	NE		17	07.3
	iP:N,E,compression Mag. 5.5 (Matsushiro) 34½ N.,137½ E. Near south coast of Honshu, Japan. H=14 15 10 USCGS				
23.	iP	NEZ	14	27	57.8
	N,W,dilatation				
24.	iP	NEZ	08	06	15.0
	e	E		08	07
	51½ N.,173 W. Andreanof Is. H=07 58 59 USCGS				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
24.	iP	NEZ	11	17	42.3
	i	NEZ		18	35.8
	iP:N,W,compression				
24.	iP	NEZ	12	33	18.3
	sP	E			29.2
	ePP	E		34	16
	ePP	N			18
	ePP	Z			20
	PPP?	Z			48.5
	PcP	Z		36	20.3
	eS	E		38	29
	e	E			49
	eLq	E		40	57
	eLr	NE		42	51
	iP:N,W Mag.6 - 6¼ (Matsushiro) 45 N.,99 E. Outer Mongolia. H=12 27 06 USCGS				
25.	iP	NEZ	02	03	14.9
	PcP	Z		05	58.9
	e	N		06	59
	eS	N		08	39
	eL	N		10	24
	eLr	N		11	05
	Mag.5½ - 5¾ (Matsushiro) 51½ N.,179½ E. Rat Is, Aleutian Is. H=01 56 40 USCGS				
25.	iP	EZ	07	34	47.5
	i	E			52.5
	PcPorPPP	Z		36	57.2
	eS	E		40	47
	eL	E		46	08
	iP:compression 52½ N.,170½ W. Fox Is. H=07 27 18 USCGS				
25.	iP	NZ	10	32	44.4
	e	NE		36	33
	iP:N,dilatation				
25.	iP	E	12	11	52.2
	i	E		12	02.6
	i	N			04.1
	e	N		45	39
25.	iP	Z	15	05	20.6
	compression Northern Sumatra. H=14 56 20 USCGS				
25.	P	Z	15	10	17.6
	PcPorPPZ			12	05.2
	eS	N		16	43
	(cont.)				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued					
	eL	E	15	19	51
Mag. 5 $\frac{1}{4}$ (Matsushiro)					
6 S., 151 $\frac{1}{2}$ E. New Britain.					
H=15 02 08 USCGS					
25.	iP	NEZ	17	41	56.1
	iS?	E			57.1
	iS?	Z			57.6
iP:N,compression					
25.	P	Z	22	00	09
	e	N	12	19	
26.	iP	NEZ	00	25	21.2
	PcPorPP	Z	27	11.1	
iP:N,compression					
3 $\frac{1}{2}$ S., 152 $\frac{1}{2}$ E.					
New Ireland. h:400 km ca.					
H=00 18 05 USCGS					
26.	iP	NEZ	01	57	59.3
	S?	N	58	58.1	
iP:S,W,compression					
26.	iP	NEZ	11	37	07.1
	i	Z			56.0
	S	NE	38	20.8	
	i	N			50.2
	i	E			53.2
iP:E,dilatation					
Mag.5.2 (Matsushiro)					
31 $\frac{1}{2}$ N., 141 $\frac{1}{2}$ E.					
South of Honshu, Japan.					
H=11 35 29 USCGS					
26.	iP	NEZ	16	55	01.2
	i	EZ			03.4
	S	E	58	25	
	L	E	17	00	28
	L	N	01	03	
iP:N,E,dilatation					
Mag.5 $\frac{1}{4}$ (Matsushiro)					
50 N., 155 $\frac{1}{2}$ E. Kurile Is.					
H=16 50 46 USCGS					
26.	iP	NEZ	17	20	26.2
	i	Z			29.4
	i	NEZ			33.6
	S	NE	21	29.2	
	i	E	22	01.2	
	i	N			03.2
iP:N,E,dilatation					
Mag. 5.8 (Matsushiro)					
41 N., 143 $\frac{1}{2}$ E. Off south coast of Hokkaido, Japan.					
H=17 18 56 USCGS					

Date	Phase	Comp.	Time(GMT)		
			h	m	s
27.	iP	N	08	04	45.4
27.	e	N	08	24	57
	e	N	30	07	
27.	iP	NEZ	21	30	25.8
	S	NE			30
iP:S,E,compression					
27.	iP	NEZ	22	09	26.3
	iS	NEZ			30.4
iP:N,E,compression					
27.	iP	NEZ	23	02	00.6
	iS	NE			23.8
iP:N,E,dilatation					
27.	iP 1	NEZ	23	32	46.8
	i	Z			48.3
	iP 2	NEZ			49.9
	i	NE			54.3
	PP	Z	33	49.3	
	i	E	34	44.3	
	iS	N	36	45.9	
	i	E			57.3
	i	EZ			58.3
	eLq	E	39	39	
	eLq	N	40	39	
	eLr	N	42	56	
	eLr	E	43	39	
iP 1:compression					
iP 2:N,E,compression					
Mag. 6 $\frac{3}{4}$ (Matsushiro)					
21 N., 120 E. Batan Is. region					
H=23 27 49 USCGS					
28.	iP	Z	01	58	48.3
dilatation					
28.	e	N	10	31	00
	e	N	39	56	
	eL	N	56	19	
28.	eP	Z	16	48	05
	eP	E			06
	eL	N	56	51	
11 N., 122 $\frac{1}{2}$ E.					
Panay I. Philippine Is.					
H=16 41 57 USCGS					
28.	iP	Z	19	16	15.9
	e	N	26	22	
iP:compression					

Date	Phase	Comp.	Time(GMT)		
			h	m	s
28.	iP	Z	21	11	46.8
/	e	N		18	46
	e	N		22	47

Takeshi Honda

Director.

1958

Natsusiro

March-April

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MATSUSHIRO SEISMOLOGICAL OBSERVATORY, JAPAN.

Seismological Bulletin

for March 1 to April 30, 1958

March 1958

Date	Phase	Comp.	Time(GMT)		
			h	m	s
1.	iPKP ePKP	Z NE	00	33	13.5 14
	PKP:dilatation 20 S., 12 W. Atlantic Ocean, southwest of St. Helena I. H=00 13 23 USCGS				
1.	e	Z	00	43	42
1.	eP eP	EZ N	02	24	57 59
1.	iP eP S	EZ N NE	02	35	16.8 17 25.6
	iP:E,compression				
1.	eP iP	NE Z	03	16	38 38.1
	iP:dilatation				
1.	P P	Z NE	06	35	19 21
	P:S 17 S., 172½ W. Tonga Is. region. H=06 23 58 USCGS				
1.	ePKP e	NZ E	09	25	06 09
	13½ S., 76½ W. Near coast of Peru. H=09 05 40 USCGS				
1.	P? i eL L	E Z N E	09	37	45 55.7 10 02 57 03 03
	Mag. 5½ (Matsushiro) 23 N., 54½ E. Southern Iran. H=09 26 46 USCGS				
1.	eP iP i	NZ E Z	11	28	34 34.3 42
	iP:E				
1.	iP eP	Z N	13	06	51.5 52
	iP:compression				
1.	iP	NEZ	13	08	52.6
	(cont.)				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued	iS	NEZ	13	09	02.8
	iP:N,E,compression				
1.	iP iS	NEZ NE	14	48	19.7 26.0
	iP:N,E,compression				
2.	eP iP iS	E NZ NEZ	01	45	54 54.1 15.5
	iP:N,compression				
2.	iP P i sP i eS eL	Z E N Z N N N	02	38	35.2 36.1 38.3 50.5 56.5 42 22 45 24 ca.
	iP:dilatation 21 N., 121 E. Batan Is. H=02 33 40 USCGS				
2.	eP iP i	NZ E NE	06	46	17 17.4 39.3
	iP:E				
3.	eP iP i i e i i	N EZ Z Z N Z E	03	07	28 28.2 37.3 55.0 08 34 42.4 46
	iP:W,compression				
3.	iP iP i	NZ E Z	04	16	13.3 13.7 01.3
	iP:N,compression iP E: E 14½ S., 168½ E. New Hebrides Is. H=04 06 16 USCGS				
3.	eP iP iP i i iS?	N Z E N Z NZ	04	40	24 24.2 24.6 27 36.7 43.9

Date continued Phase Comp. Time(GMT)
 h m s
 iP:W
 iP:dilatation

3. eP Z 07 27 12
 i Z 18.0
 ✓ iS E 30 57.6
 iS N 59.3
 L N 32 24
 Mag. $5\frac{1}{4}$ - $5\frac{1}{2}$ (Matsushiro)
 $23\frac{1}{2}$ N., 122 E.
 Near east coast of Formosa.
 H=07 22 42 USCGS

3. iP EZ 11 09 14.8
 eP N 15
 ✓ i Z 23.9
 e Z 10 28
 i Z 30.3
 iS N 32.8
 iS E 33.5
 i E 58.4
 iP:E,dilatation

3. iP NE 13 27 34.8
 ✓ iP Z 35.3
 iS Z 46.2
 iP:S,W
 iP:dilatation

3. iP EZ 16 24 01.9
 iP N 02.4
 i NEZ 10.2
 ✓ iP E 25 07.3
 iS E 28 49
 i Z 53.3
 i NE 59.3
 iL E, eL NZ 31 30
 iL NE 37 27
 iP:W,compression
 Mag. $6\frac{1}{4}$ (Matsushiro)
 $55\frac{1}{2}$ N., $166\frac{1}{2}$ E.
 Komandorski Is.
 H=16 18 17 USCGS

3. iP NEZ 17 16 40.0
 ✓ i Z 49.5
 PPP N 17 41.3
 iP:S,W,compression
 $55\frac{1}{2}$ N., $166\frac{1}{2}$ E.
 Komandorski Is.
 H=17 10 55 USCGS

3. iP NEZ 17 38 32.5
 i E 39 50.0
 i Z 41 52.6
 eS N 43 02
 e E 11
 i N 31
 eL E 45 56

(cont.) - 2 -

Date continued Phase Comp. Time(GMT)
 h m s
 iP:S,W,compression
 ✓ Mag. $5\frac{3}{4}$ - 6 (Matsushiro)
 $55\frac{1}{2}$ N., 166 E.
 Komandorski Is.
 H=17 32 47 USCGS

4. P EZ 01 32 59.1
 i Z 33 05.6
 ✓ i Z 14.9
 i EZ 16.1
 S E 35
 S N 36
 i Z 49.3
 P:dilatation

4. iP 1 Z 04 48 16.5
 ✓ iP 2 Z 17.3
 i E 18.5
 iP 1:compression
 iP 2:compression

4. eP? Z 05 34 23
 ✓ i Z 34.3
 eS? N 38 29

4. iP? Z 05 47 05.9
 ✓ compression

4. iP EZ 08 17 15.5
 ✓ iS N 50.5
 iS E 50.9
 i E 18 00.7
 i Z 18.9
 iP:dilatation

4. ✓ eP NZ 17 51 20
 e E 24
 eL NE 53.8
 27 N., 130 E. Ryukyu Is.
 H=17 43 35 USCGS

4. ✓ iP EZ 22 17 41.2
 iP:E,dilatation

5. iP Z 03 00 20.2
 ✓ iP E 20.5
 iS N 37.0
 S Z 38.1
 iS E 39.1
 iP:dilatation
 iP:E

5. iP NZ 03 38 12.2
 ✓ i E 39 11.6
 i N 12.5
 iP:N,dilatation

5. ✓ iP N 11 35 06.0
 i E 17.3

(cont.)

Date Phase Comp. Time(GMT)
continued
h m s
4. ✓ i Z 11 35 19.0
i E 27.6
iP:N

5. iP Z 20 00 58.7
eP E 59
i E 01 05.9
✓ i Z 08.7
i N 16.4
i N 34.9
i Z 55.4
eS? N 06 59
eL N 10 03
iP:compression
52 N., 170 $\frac{1}{2}$ W. Fox Is.
H=19 53 28 USCGS

5. ✓ iP NEZ 21 31 30.4
iP 2 N 30.9
iS NE 47.6
iP:N,E,compression
iP 2:S

6. ✓ e Z 05 23 15
i Z 27.6

6. ✓ P NE 06 22 50.5
eP Z 51
i N 23 36
i Z 53
i N 24 34
P:N,E

6. ✓ eP NEZ 10 21 13
i Z 19
iS NZ 43
i E 47.6

6. ✓ eP Z 12 02 32
eS? N 07 45
eL N 10 18
Mag. 5 $\frac{1}{2}$ - 5 $\frac{1}{2}$ (Matsushiro)
9 N., 126 E.
Near north coast of Mindanao,
Philippine I.
H=11 56 33 USCGS

6. iP Z 15 51 11.6
iP 2 NEZ 12.1
✓ e Z 42
eL N 56.7
iP:compression
iP 2:N,E,compression

6. ✓ iP EZ 17 56 13.2
iP N 14.2
iS N 58.7
iP:W,compression

Date Phase Comp. Time(GMT)
h m s
6. iP 1 NEZ 20 52 52.5
iP 2 NEZ 53.0
i Z 53 10.5
iS NEZ 35.6
iP 1:S,E,compression
iP 2:S,W

7. ✓ iP 1 Z 07 04 29.9
iP 2 NEZ 30.2
i Z 43.7
pP Z 05 22.7
pP N 23.0
PP N 06 33.4
iP 1:compression
iP 2:N,E,dilatation
37 N., 71 E. Hindu Kush.
h:200 km ca.
H=06 55 30 USCGS

7. ✓ iP 1 Z 08 27 28.3
iP NEZ 29.4
S Z 32 05.3
S NE 09.0
iP 1:dilatation
iP:N,E,compression
9 $\frac{1}{2}$ N., 126 E. Near east coast
of Mindanao, Philippine I.
H=08 21 23 USCGS

7. ✓ e N 09 58 49
i Z 59 41.8

7. iP NEZ 11 30 56.9
i E 59.7
i N 31 00.1
i EZ 00.3
i N 10.4
iS E 49.6
i NZ 32 03.2
e E 04
iL E 11.8
iL N 12.2

iP:N,E,compression
Mag. 5.3 (Matsushiro)
34 $\frac{1}{2}$ N., 134 E.
Shikoku, Japan.
H=11 29 56 USCGS

7. ✓ iP Z 17 41 55.8
iP NEZ 56.2
iP:dilatation
iP:N,W,compression
20 S., 176 W. Tonga Is.
H=17 30 38 USCGS

8. ✓ iP NZ 03 08 25.2
iP E 26.2
i Z 26.8

(cont.)

Date Phase Comp. Time(GMT)
continued h m s
i EZ 03 08 27.4
✓ eS NEZ 50
iP:N,compression
iP:E

8. ✓ iP Z 05 00 39.3

8. ✓ iP Z 09 25 02.9
i E 04.4
i N 33
iP:compression

8. eP NEZ 09 28 39
✓ i Z 40.6
e N 59
eS? N 29 12

8. iP Z 11 10 55.8
iP E 56.5
✓ i N 11 30.0
i Z 43.2
eS E 48
iS Z 49.8
iP:compression
iP:E

8. ✓ iP EZ 13 03 24.0
iP:E,dilatation

8. ✓ eP NEZ 17 48 46
iS N 49 51

8. eP EZ 18 14 46
✓ eS N 21 11
eL N 28.5

9. iP NZ 07 31 59.7
eP E 32 00
i NZ 12.2
pP E 16.7
✓ i Z 37.1
sP N 40.7
sP E 42.2
i Z 33 10.7
eS N 38 43
eL N 42 01
eL E 57

iP:N,compression
Mag.5 3/4 - 6 (Matsushiro)
6 1/2 S.,148 E. Near north
coast of New Guinea.
H=07 23 51 USCGS

9. ✓ iP Z 08 14 20.0
eP NE 20
iP:compression
51 1/2 N.,178 1/2 W. Andreanof Is.
H=08 07 30 USCGS

Date Phase Comp. Time(GMT)
h m s
9. iP NZ 10 34 35.9
eP E 55 00

✓ ePP N 37 50
eS N 44 29
SS N 49 40
eLq N 55 04
iLr N 59 50
iLr E 11 00 14

iP:N,dilatation
Mag.6 1/2 - 6 3/4 (Matsushiro)
34 S.,178 1/2 W.
Kermadec Is. region.
h:60 km ca.
H=10 22 25 USCGS

9. ✓ iP NEZ 11 18 02.7
iS NEZ 08.1
iP:N,W,dilatation

9. iP NEZ 11 30 45.2
e N 57
✓ i Z 57.7
i N 31 08.6
i Z 32 36.7

iP:N,E,compression
2 N.,129 E.
Halmahera Is. region.
H=11 23 19 USCGS

9. iP Z 14 38 55.9
iP NEZ 56.2
✓ e Z 39 49
iS N 51.3
iS E 51.6
iS Z 52.2
iP:dilatation

9. ✓ e N 17 39 05
e N 44 17

10. iP Z 06 07 29.2
iP NEZ 29.7
✓ S N 09 08
S E 10
e N 23
i Z 34.3
i E 47.7

iP:dilatation
iP:S,W,compression

10. iP NEZ 08 05 33.6
PcPorPPP Z 07 42.1
✓ iP:N,E,dilatation
52 1/2 N.,171 1/2 W. Fox Is.
H=07 58 04 USCGS

10. ✓ iP EZ 08 11 12.6
iP N 13.0
iP:S iP:E,dilatation

Date	Phase	Comp.	Time(GMT)		
			h	m	s
10. ✓	iP1	NEZ	12	55	17.8
	iP2	NEZ			18.1
	eS	N			46
	eS	Z			47
	iP:N,E,dilatation				
	iP2:N,W,compression				
10. ✓	eP	EZ	17	30	19
	i	Z			25.9
	i	N			31 05.3
	i	E			21.2
	eL	NE			33 16
	Central Ryukyu Is.				
	H=17 27 20 USCGS				
10. ✓	eP	NEZ	21	42	47
	20 S.,176 W. Tonga Is.				
	h:200 km ca.				
	H=21 31 48 USCGS				
11. ✓	P1	NEZ	00	29	48.2
	iP2	NEZ			51.2
	iP3	NEZ			52.2
	i	NE			55.0
	i	NZ			57.4
	i	NE			57.7
	i	NEZ			30 10.5
	i	NE			17
	iS	N			33 11
	iS	E			15
	i	NE			25.5
	iP1:N,E,compression				
	iP2:N,E,compression				
	iP3:N,E,compression				
	Mag.7.2(Matsushiro)				
	25½ N.,125 E. Ryukyu Is.				
	h:60 km ca.				
	H=00 25 56 USCGS				
11. ✓	P	NZ	00	54	03.7
	i	NEZ			10.9
11. ✓	P	Z	01	05	08
	i	Z			33.2
11. ✓	iP	EZ	04	13	21.7
	iS	NEZ			27.0
	iP:W,dilatation				
11. ✓	P	Z	04	37	49.7
	P	NE			49.9
	P:S				
11. ✓	P?	NZ	08	46	41.8
	i	E			42.6
11. ✓	P	NEZ	10	35	28.8
	iS	NEZ			31.3

Date	Phase	Comp.	Time(GMT)		
			h	mm	s
11. ✓	iP1	Z	14	08	44.3
	iP2	NE			44.8
	i	Z			51.1
	eS	NE			16 36
	L	N			22 56
	L	E			24 18
	L	Z			26 47
	iP1:compression				
	iP2:S,W				
	Mag.5 3/4 - 6 (Matsushiro)				
	13 S.,167 E. New Hebrides Is.				
	H=13 59 00 USCGS				
11. ✓	eP	Z	14	23	26
	iS	Z			43.2
	iS	NE			43.8
11. ✓	P	NEZ	19	30	21
	i	Z			29
	eS?	NE			33 47
	eL	E			35 26
	P:N,W,compression				
11. ✓	eP?	Z	23	06	04
	i	NZ			08
	i	N			07 03.1
12. ✓	iP	NEZ	01	00	53.8
	iS	NE			01 14.7
	iP:S,E,dilatation				
	Mag. 5 (Matsushiro)				
	35.6 N.,140.2 E.				
	Central Honshu,Japan.				
	h:80 km ca. J.M.A.				
12. ✓	iP	NEZ	11	00	10.7
	i	N			15.3
	iS	E			16.3
	iS	Z			16.9
	iP:E,compression				
12. ✓	iP	NEZ	14	40	43.7
	e	Z			52
	i	Z			41 01.4
	S	E			44 04
	e	N			20
	e	E			43
	iP:E,dilatation				
	20½ N.,146 E. Mariana Is.				
	H=14 36 33 USCGS				
12. ✓	iP	Z	18	16	45.5
	iS	EZ			51.9
	iS	N			52.1
	iP:dilatation				
12. ✓	P1	Z	18	19	01.0
	(cont.)				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
	continued				
✓	iP2	NZ	18	19	02.5
	iP3	E			03.2
	i	Z			05.5
	S	N	20		41.9
	i	N			46.0
	i	E			47.2

P:dilatation
 iP2:compression
 iP3:E
 Mag.5.5 (Matsushiro)
 27 N.,139 $\frac{1}{2}$ E.
 Bonin Is.region.
 h:500 km ca.
 H=18 16 50 USC GS

13.	iP	NZ	04	17	56.7
	iP	E			57.1
✓	i	E	18		03.4
	i	E			15.0
	iS	NZ			16.4
	iS	E			17.2
	iP:N,compression				
	iP:E				

13.	P	EZ	12	22	01.3
✓	i	N			51
	i	E			53

13.	iP	NEZ	13	28	49.1
✓	iS?	N	29		51
	iP:dilatation				

13.	e	N	23	15	21
✓	e	E			25

13.	eP	Z	23	55	12
✓	i	Z			56 09
	e	N			58 27
	eS	N			59 47
	iL	E	00	00	56
	iL	N			57
	L	Z			01 04
	Mag. 5 3/4 - 6 (Matsushiro)				
	12 $\frac{1}{2}$ N.,123 $\frac{1}{2}$ E.				
	Masbate I. Philippine Is.				
	H=23 49 23 USC GS				

14.	eP	EZ	00	16	59
✓	i	EZ			17 01.6
	25 $\frac{1}{2}$ N.,96 E.				
	Northern Burma.				
	H=00 09 41 USC GS				

14.	eP	N	13	52	08
✓	i	N			09.7

15.	eP	Z	00	28	34
✓	i	Z			49.6
	(cont.)				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
	continued				
	S	EZ	00	32	11
✓	e	E			19
	e	Z			26
	L	E			33 30
	L	Z			34 07

Mag. 5 3/4 - 6 (Matsushiro)
 23 $\frac{1}{2}$ N.,122 E. Near east
 coast of Formosa.
 H=00 24 04 USC GS

15.	iP	Z	03	21	33.1
	i	NEZ			33.6
✓	e	E	22		22
	iS?	N			27.6
	iP:compression				
	i:S,E,dilatation				

15.	eP?	Z	06	39	38
✓	i	Z			44

15.	e	NE	07	12	23
✓	40 N.,20 $\frac{1}{2}$ E.				
	Albania-Greece border.				
	H=06 27 00 USC GS				

15.	iP	NEZ	15	44	25.3
✓	i	N			37.0
	iP:S,dilatation				
	17 $\frac{1}{2}$ S.,169 E.				
	New Hebrides Is.				
	H=15 33 57 USC GS				

15.	iP	NEZ	17	35	28.1
✓	e	E			36 50
	S	N			37 03
	i	Z			07
	iP:N,E,compression				

15.	iP	Z	19	14	15.1
✓	i	Z			18
	i	Z			16 04.1
	eS	N			20 55
	e	N			23 59
	e	E			24 09
	eL	E			26 -
	eL	N			27 10
	eL	Z			51
	iP:compression				
	Mag.5 $\frac{1}{4}$ - 5 $\frac{1}{2}$ (Matsushiro)				
	5 S.,152 E. New Britain.				
	H=19 06 10 USC GS				

15.	iP	NEZ	22	15	26.0
✓	i	EZ			36.5
	i	E			49.5
	iP:W,dilatation				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
16.	iP1	EZ	02	03	24.5
	iP2	E			24.9
	i	Z			32.8
	eS?	N	04	40	
	i	E			57
iP:W,dilatation					
iP:E					
Near south coast of Hokkaido, Japan.					
H=02 01 54			USCGS		
16.	P	EZ	11	47	13.1
	i	NE			13.9
	iS	E			32.7
	S	Z			34
	iS	N			35
iP:dilatation					
16.	eP	NZ	13	58	24
	iP	E			25.6
	e	E			59 24
	e	N	14	00	56
16.	eL?	E	14	24	49
	eL?	N			25 44 ca.
16.	iP1	EZ	16	22	55.8
	iP2	NEZ			56.9
	iS	N	23	17.7	
	iS	E			18.8
	iP:E,dilatation				
iP2:S,E,dilatation					
Mag. 5.1 (Matsushiro)					
35.9 N.,140.3 E.					
Central Honshu,Japan.					
h:70 km ca.			J.M.A.		
17.	eP?	Z	00	00	12 ca.
	e	NE			06 04 ca.
	e	N			18
	e	N			08 02
17.	P	NE	10	12	58.4
	i	N			13 14.4
	iS	E			18.9
	i	E			27.1
17.	eP	Z	13	55	32
	i	Z			42.6
	iS?	Z			55.2
	i	Z			56 02.1
17.	iP	NEZ	19	18	50.9
	i	E			54.1
	i	Z			54.9
	iS?	Z	19	30	
	S?	E			33
iP:N,E,dilatation					

Date	Phase	Comp.	Time(GMT)		
			h	m	s
17.	iP Z,P E		21	16	18.4
	i	Z			17 38.2
	iP:compression				
Nicobar Is.region.					
H=21 07 14			USCGS		
17.	iP	NEZ	21	48	31.9
	L	N			59 44
iP:S,dilatation					
6 $\frac{1}{2}$ S.,147 $\frac{1}{2}$ E. Near northeast coast of New Guinea.					
H=21 40 23			USCGS		
17.	iP	EZ	23	05	45.9
	i	Z			06 09
	i	N			10
	iP:E,dilatation				
18.	iP	EZ	00	59	47.9
	eS?	Z	01	00	10
iP:E,compression					
18.	iP	Z	03	18	09
18.	iP	EZ	11	58	30.6
	i	Z			45.8
iP:E,dilatation					
18.	iP	Z	22	27	16.7
	iP	N			17.1
	i	Z			30
	i	Z			29 35.3
	e	N			36.1
	iP:dilatation				
iP:S					
50 $\frac{1}{2}$ N.,173 W. Fox Is.					
foreshock.					
H=22 20 02			USCGS		
19.	iP	NEZ	00	57	51.3
	i	E			56
	S?	E			58 12
	iS?	Z			15.4
	i	N			41.5
iP:S,E,dilatation					
19.	P	Z	01	14	04
	iS?	E			34.1
	iS?	N			34.8
19.	iP	EZ	02	46	25.9
	i	N			45.8
iP:E,dilatation.					
19.	iP	EZ	03	56	49.7
	i	N			57 22.2
iP:W,compression					

Date	Phase	Comp.	Time(GMT)		
			h	m	s
19.	✓ iP	EZ	10	19	23.1
	✓ iP	N			23.4
	i	E			26.4
	iP:E,dilatation				
19.	eP	EZ	12	07	31
	✓ e	NE			39
	✓ i	Z			41.3
	i	E			47.8
	i	Z	08	05	3
	i	E			06.2
19.	✓ iP	NEZ	14	56	12.3
	iP:S,W,compression				
20.	P	NEZ	01	45	16.9
	i	NZ			20.9
	✓ i	Z		47	37.5
	i	E			38.0
	eS?	E		50	59
	i	NE		51	10
	i	N		53	57
	iL	E		55	11
	iL	N			15
	L	Z		55	3
P:E,dilatation					
Mag. $6\frac{1}{4}$ - $6\frac{1}{2}$ (Matsushiro)					
51 N.,173 W.					
Fox Is,region.					
H=01 38 04 USCGS					
20.	✓ P E, eP N		03	00	18
	✓ i	E			19.8
	S?	E			34.0
	i	N			36.0
20.	P	N	03	12	22.7
	✓ P	E			23.1
	✓ i	E			24.3
	S	NE			45
P:W					
20.	✓ iP	NEZ	07	54	52.4
	✓ e	N		57	15
	e	E			27
iP:N,E,dilatation					
20.	P?	E	14	56	08.8
	P	Z			09.8
	✓ i	Z			15.3
	✓ i	N			21.0
	i	E			22.3
	i	N	57		33.0
	S	E	15	03	25
	S	N			28
	e	E		07	44
	eL	E			09.6
	eL	N		09	41
	(cont.)				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued					
Mag. $5\frac{1}{2}$ (Matsushiro)					
10 S.,161 E. Solomon Is.					
H=14 47 05 USCGS					
20.	✓ eP	Z	17	26	30
20.	P	Z	18	36	06.3
	✓ P	NE			06.7
	iS	N			32.4
	iS	EZ			33.1
20.	eP	Z	20	56	30 ca.
	✓ i	Z			38.6
	✓ i	N			40.7
	i	N			54
	S?	E		57	26
	S?	N			27.3
i	E			32	
21.	P	EZ	08	13	02.0
	✓ i	Z			08.1
	i	E			09.3
	i	N			44
P:compression					
21.	✓ e	N	09	25	12
	eL	N		26	44
21.	✓ P	Z	09	42	40.9
	dilatation				
21.	✓ P	Z	12	54	35.0
	✓ i	N			58.5
21.	✓ P	EZ	17	44	25
	iS	NEZ			44.7
	i	Z			46.3
21.	P	Z	18	41	36
	PcP	Z		43	04.2
	✓ eL?	N		59	55
	$13\frac{1}{2}$ N., $92\frac{1}{2}$ E. Andeanof Is.				
H=18 32 54 USCGS					
22.	P	NZ	01	07	13.1
	PP	Z		09	26.6
	eS	N		12	41
	✓ ScPorPcS	NZ		13	12.1
	e	N		16	31
	L	N		18	51
P:compression					
Mag. $5\frac{1}{4}$ - $5\frac{1}{2}$ (Matsushiro)					
22.	P	Z	08	30	47.6
	✓ i	NE			49.4
	i	Z			52.4
	P:dilatation				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
22.	iP	NEZ	10	19	04.5
	PP	E		20	43
	PPP	E			57
	PPPorPcPZ			21	09
	PcSorScP	Z		24	49.8
	PcSorScP	E			51.6
	PcSorScP	N			55.5
	iS	N		25	05.6
	iS	E			06.0
	Lq	N		28	06
	Lq	E			10
	ScS?	N		29	02.7
	L	N		32	54
	L	E		33	11

iP:N,E,compression
 Mag. $6\frac{1}{2}$ - $6\frac{3}{4}$ (Matsushiro)
 $23\frac{1}{2}$ N., $94\frac{1}{2}$ E.
 Burma-Pakistan border.
 H=10 11 27 USCGS

22.	P	EZ	11	17	27.0
	i	Z			29.0
	PcP	N	18	32.0	
	i	E	22	45.8	
	eS	N	25	11	
	L	N	37	02	
L	E			15	

P:W,compression
 Mag. $6\frac{1}{4}$ (Matsushiro)
 $35\frac{1}{2}$ N., 67 E. Afghanistan.
 H=11 07 47 USCGS

22.	P1	EZ	16	51	01.7
	P2	NE			02.2
	iS	NZ			40
	P1:compression				
P2:S,W					

22.	iP	NEZ	19	09	28.0
	i	N		10	42
iP:N,E,compression					

23.	iP	NEZ	04	06	14.9
	iP:S,E,dilatation				

23.	P	NEZ	09	56	44
	S	NEZ		58	16
	e	E			43
	e	E		59	11

23.	iP1	Z	10	19	59.2
	P2	EZ		20	00.4
	i	Z			13.9
	ePcP	Z		23	44
	S	N		24	11
	S	E			12
	i	NE			21
L	E				

(cont.)

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued	L	N	10	26	57
	L	E		27	33
	Mag. 6 (Matsushiro)				
18 N., 120 E. Near northwest coast of Luzon, Philippine Is.					
H=10 14 42 USCGS					

23.	iP	NEZ	13	28	56.3
	S	NZ		29	11.4
iP:N,E,dilatation					

23.	P	Z	15	33	58
	i	Z		34	03.9

23.	P	NEZ	19	00	48.8
	eS?	N		04	31.3
P:S,E,compression					

23.	P	NEZ	20	19	07.0
	P:E,dilatation				

23.	iP	NEZ	20	31	42.4
	i	NEZ		32	00.7
	S	N			15.6
	iP:N,E,dilatation				

24.	P	Z	01	06	48.4
	P2	Z			49.0
21 S., $170\frac{1}{2}$ E.					
Loyalty Is. region.					
H=00 55 55 USCGS					

24.	P	EZ	01	10	51.7
	iS	EZ		11	10.3

24.	P	Z	06	03	15.5
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24.	P	Z	08	16	38
	e	N		22	05
	e	E		24	54
	e	N		26	19

24.	iP	NEZ	10	05	35.3
	iP2	EZ			36.8
	iS	N		06	34.1
	iS	E			35.1
	iS	Z			37.8
	iP:N,E,compression				

24.	iP	NZ	11	53	02.0
	iP:N,dilatation				

24.	eP	Z	12	00	58
	Near north coast of Luzon, Philippine Is.				
H=11 55 40 USCGS					

Date	Phase	Comp.	Time(GMT)		
			h	m	s
24.	P/	N	13	23	02.9
	iP2	NE			04.3
	iP2:N,E				
24.	P	Z	14	55	58.4
	P	NE			58.6
	i	E		56	13.9
	S	N		57	41
	e	E		58	08
	e	N			24
	P:dilatation				
	P:N,E				
	43 N.,146 E. Near north coast of Hokkaido,Japan.				
24.	eP	Z	21	57	20
	eL	N	22	14	31 ca.
	21½ S.,170½ E.				
	Loyalty Is.region.				
	H=21 46 31 USCGS				
25.	iP	NZ	02	55	40.2
	i	Z		56	01.0
	i	N			55
	e	E		57	11
	iP:N,compression				
25.	P	Z	16	01	46.7
	P	E			49
	i	N			52.7
	S	N		05	57
	S	E		06	00
	eL	E		08	40
	eL	N		09	43
	21 N.,120 E.				
	Batan Is.region.				
	H=15 56 49 USCGS				
25.	P	NEZ	18	05	22.4
	S	N		06	05
25.	e	N	19	28	14 ca.
	17½ S.,167½ E.				
	New Hebrides Is.				
	H=19 01 52 USCGS				
26.	P	Z	00	00	08
	dilatation				
26.	P	NZ	00	31	39.3
	pP	Z		32	01
	i	Z			05.8
	ePcP?	Z		34	50.8
	eS	NE		36	26
	eL	E		37	52
	eL	N		38	00
	P:S,compression				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued					
11 N.,126 E.					
Samar I.,Philippine Is.					
h:100 km ca.					
H=00 25 49 USCGS					
26.	P	E	04	56	43.5
	S	N			55.2
26.	P	E	09	30	36
	S	E		31	00
26.	P	N	10	18	27
	i	N		19	06
26.	P	N	14	00	08
26.	P	Z	22	40	22
	i	Z		41	13
27.	P	EZ	06	40	11
	i	Z			12.8
	i	NE			13.3
	S	N		44	17
	S	E			25
	L	E		47	44
	53 N.,160 E. Near southeast coast of Kamchatka.				
	H=06 35 07 USCGS				
27.	P	NEZ	06	51	31.5
	S	N		52	08
	P:N,E,compression				
28.	P	NZ	00	04	14
	S	N			31
28.	iP	EZ	02	45	50.0
	iS	NE		46	34
	iP:S,dilatation				
28.	P	Z	04	18	29.2
	i	N			38.7
	S	Z		19	19
	P:compression				
28.	iP	Z	12	15	21.7
	pP	Z		16	07.2
	ScP	Z		20	06
	S	NE		22	34
	sS	N		23	52
	L	E			28.0
	iP:compression				
	Mag.6¼ - 6½ (Matsushiro)				
	37 N.,71 E. Hindu Kush.				
	h:200 km ca.				
	H=12 06 24 USCGS				

(cont.)

Date	Phase	Comp.	Time(GMT)		
			h	m	s
28.	P	Z	14	56	53
	✓	20 $\frac{1}{2}$ S., 174 W.	Tonga Is.		
		H=14 45 22	USCGS		
28.	iP	NEZ	18	47	11.8
	✓	S NE	34		
		iP:S,E,dilatation			
		35.7 N., 139.3 E.			
		Central Honshu, Japan.			
		h:80 km ca. J.M.A.			
28.	iP	NEZ	20	21	44.5
	✓	i N	22 17		
		S Z	55		
		L N	23 31		
		iP:S,W,compression			
		41.4 N., 142.2 E.			
		Off east coast of Aomori Prefecture. J.M.A.			
29.	P	E	13	54	08
	✓	41.5 N., 141.8 E.			
		Near east coast of Aomori Prefecture.			
		h:20 km ca. J.M.A.			
29.	✓	eP	NEZ	16	20 31
30.	P	Z	09	49	56.9
	✓	S NEZ	50 38		
		P:dilatation			
30.	✓	eL	E	16	12 21 ca.
		eL	N	13 21 ca.	
31.	P	NEZ	07	48	56.0
		S N	57.7		
		P:N,E,dilatation			
31.	P	NEZ	17	35	10.8
	✓	S N	37 01		
		S E	03		
		e E	27		
		e N	36		
		P:S,dilatation			
31.	P1	Z	17	51	35
	✓	P2	Z 36.1		
		e E	53 01		
		e N	41		
		44 $\frac{1}{2}$ N., 141 E. Near west coast of Hokkaido, Japan.			
		H=17 49 38 USCGS			
31.	✓	P	Z	18	17 55.1
		i	Z 18 17.0		
31.	✓	iP	NEZ	20	52 04.7
			E (cont.)		

Date	Phase	Comp.	Time(GMT)		
			h	m	s
	continued				
	✓	i	E	20	52 14
		S	E	47	
		i	Z	51	
		iP:N,W,compression			

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Date	Phase	Comp.	Time(GMT)		
			h	m	s
1.	iP	EZ	06	08	47.1
	i	Z			48.8
	i	E	09	08	08.8
	i	Z			12.6
	iP:E,compression				
1.	iP	NEZ	14	08	09.8
	i	NE			33.6
	iS	NE			48.1
	i	Z			49.1
	i	E			51.4
	iP:N,E,dilatation Mag.5.4 (Matsushiro) 39 $\frac{1}{2}$ N.,141 $\frac{1}{2}$ E. Northern Honshu,Japan. H=14 07 12 USCGS				
1.	iP	NEZ	16	55	09.7
	i	E			33.7
	e	N	56	51	
	eS?	N	58	58	
	iP:W,compression				
1.	eP	Z	19	47	40.3
	i	NE			42.4
	i	E	48	00	00.3
	i	N			06.7
	S	NZ			08.3
2.	eS?	N	00	06	21
	eL	N	08	32	
2.	iP	NEZ	02	57	20.3
	i	E			25.0
	S	NE			45.5
	iP:S,E,dilatation				
2.	iP	NEZ	04	54	31.0
	S	Z			59.4
	iP:N,E,dilatation				
2.	P	NEZ	10	58	42.2
	pP?	E		59	12
	e	E	11	09	28
	P:N,W,compression 5 $\frac{1}{2}$ S.,154 $\frac{1}{2}$ E. Solomon Is. H=10 50 42 USCGS				
2.	iPNZ,eP	E	11	18	01.2
	i	NEZ			01.9
	iP:S,compression				
2.	e	N	12	44	56
2.	e	E	17	19	01
	eL	N	21	00	

Date	Phase	Comp.	Time(GMT)		
			h	m	s
2.	iP	NEZ	23	00	33.3
	i	NZ			54
	i	N			58.1
	iP:S,E,dilatation				
3.	iP	Z	01	35	14.4
	iP	NE			15.4
	i	E			32.3
	i	N			37.3
	i	E			49.9
3.	iP	NEZ	02	36	16.9
	S	NE		46	41
	Lr	E	03	08	04
	L	N		10	02
	iP:S,E,compression Mag. 5 $\frac{3}{4}$ - 6 (Matsushiro) 41 N.,20 $\frac{1}{2}$ E. Albania. H=02 23 43 USCGS				
3.	iP	Z	03	04	42.5
	i	NE			44.1
	i	Z			51.4
	i	NEZ	05		28.2
	S	NEZ			34.6
	i	Z			42.2
	i	N			56.2
	iP:compression				
3.	P	NEZ	07	31	06.4
	i	NEZ			08.9
	i	N			22.4
	S	E		41	22
	e	N	08	00	51
	L	N		06	46
	L	N		13	22
	P:N,dilatation 35 N.,27 $\frac{1}{2}$ E. Near Crete. H=07 18 34 USCGS				
3.	PKP	Z	08	44	54
	eL?	E	09	27	20
	eL	N		37	36
	eL	N		47	49
	1 $\frac{1}{2}$ N.,79 W. Near coast of Ecuador. H=08 25 43 USCGS				
3.	iP	NEZ	18	35	53.9
	S,W,dilatation				
4.	P	Z	02	06	13.4
	dilatation				
4.	eP	Z	02	31	26
	e	N		40	25

(contd)

Date	Phase	Comp.	Time(GMT)		
continued			h	m	s
✓ L	N		02	44	34
✓ L	N			50	12
5½ S., 152 E. New Britain region. H=02 23 20 USCGS					
4. ✓ iP	NEZ		04	13	13.2
✓ iS	NE				15.6
i	Z			15	00.6
iP:S,W,compression. Felt. (Mat)					
4. ✓ iP	EZ		04	45	05.6
✓ iS	Z				08.0
iP:S,W,compression					
4. ✓ iP	Z		07	25	02.3
i	Z				05.2
✓ i	Z				09.1
i	Z				23.8
iPP	Z			26	51.1
i	Z			30	41
S	N			31	25
i	E			34	28
iL	N			38	03
L	E			39	08
iP:dilatation Mag. 5 3/4 (Matsushiro) 5½ S., 152 E. New Britain. H=07 16 55 USCGS					
4. ✓ P	Z		07	38	03.1
e NE, i Z					07.5
S	E			44	47
L	E			49	23
L	N			51	07
L	E			52	01
P:dilatation Mag. 6 (Matsushiro) 5½ S., 152 E. New Britain. H=07 29 55 USCGS					
4. ✓ P	Z		09	15	45.1
S	Z				47.7
P:S,W,compression					
4. ✓ e	E		15	01	38
L	E			06	15
4. ✓ iP	NEZ		15	22	44.4
S	NEZ			23	13
iP:S,E,compression					
4. ✓ iP	EZ		15	42	06.1
i	N				08.6
i	Z				14
i	N				21
S	N				35
iP:compression					

Date	Phase	Comp.	Time(GMT)		
			h	m	s
4. ✓ P	EZ, eP	N	15	46	15.8
iPP	Z				47 58
PcS?	Z				51 49
i	N				52 26
S	E				42
i	N				54
L	E				55 33
Lr	N				59 10
L	E		16	00	27
P:N,W,compression Mag. 6¼ - 6½ (Matsushiro) 5½ S., 152 E. New Britain. H=15 38 03 USCGS					
4. ✓ iP	NEZ		16	40	00.1
S	NZ				01.7
iP:S,E,					
4. ✓ P	NEZ		17	26	26.1
i	Z				42
S	N				27 38
5. ✓ P 1	E		01	04	18.3
iP2	NEZ				20.2
i	E				23.8
i	E				26.1
i	N				48.1
iS	N			05	12.8
iP 2:N,E,compression					
5. ✓ eP	Z		05	17	39
i	Z				51.6
iL	N				25 33
5½ N., 180. Aleutian Is. H=05 10 59 USCGS					
5. ✓ iP	NZ, P E		09	35	26.0
iS	NE				36 18.5
iP:N,compression					
5. ✓ iP	NEZ		21	23	21.8
S	E				24.2
i	N				33
iP:N,E,compression. Felt. (Mat)					
6. ✓ P	EZ		10	41	52.5
e	E				48 23
e	N				41
eL	E				49 26
P:W,compression Mariana.Is. H=10 36 30 USCGS					
6. ✓ iP	NEZ		13	24	48.8
e	NE				26 36
eL	N				52
iP:S,W,dilatation					

Date	Phase	Comp.	Time(GMT)		
			h	m	s
6.	iP	NEZ	16	23	01.0
	iS	NE			11.1
	iP:S,W,compression				
6.	iPKP	Z	17	17	11.8
	i	Z			23.1
	i	Z			53.1
	iPKP:compression 22 S.,67 W. Bolivia-Argentina border. h:200 km ca. H=16 57 31 USCGS				
6.	iP Z, eP	NE	19	02	35.1
	eS	N		08	51
	L	NE		11	24
	iP:compression				
6.	eP	Z	23	59	53
	S?	E	00	05	37
	L	N		09	50
7.	iP	NEZ	03	43	48.0
	i	N		44	04
	S	NE			12
	iP:N,W,compression				
7.	P	Z	07	19	08
	dilatation 17 $\frac{1}{2}$ S.,178 $\frac{1}{2}$ W. Fiji Is. h:650 km ca. H=07 09 08 USCGS				
7.	iP	NEZ	08	53	29.5
	i	Z			46.3
	S	NEZ			47.9
	iP:S,E,dilatation				
7.	iP	NEZ	12	09	59.5
	iS	NEZ		11	13.1
	iP:S,W,dilatation				
7.	iP	NEZ	15	39	15.3
	i	NE			16.8
	iPP	N		41	11.6
	i	N		43	59
	i	NE		44	49
	i	E		45	13
	i	E			33
	iS	E		46	11
	i	E			24
	iL	E		51	05
	iLr	E		52	34
	iLr	E		53	58
	iL	E		54	51
	iL	N		58	01
	i	E	16	01	08
	i	E		03	22

(cont.)

Date	Phase	Comp.	Time(GMT)		
			h	m	s
	continued				
	iP:S,W,compression Mag. 7 $\frac{1}{2}$ - 7 $\frac{3}{4}$ (Matsushiro) 66 $\frac{1}{2}$ N.,157 W. Alaska. H=15 30 38 USCGS				
7.	iP	NE	16	02	24.0
	iS?	N			36.3
	iP:S,E,				
7.	iP	NEZ	18	06	11.8
	iS	E		07	14.1
	i	E			39
	iP:S,W,compression Mag. 6.8 (Matsushiro)				
7.	P	NEZ	18	31	23.9
	i	E			46
	S	NE		32	28
	i	E			44
	P:S,W,compression Mag. 6.5 (Matsushiro)				
7.	P	NZ	18	37	50
	Aftershock.				
7.	P	E	18	39	40
	S	N		40	36
	Mag. 6.5 (Matsushiro) Aftershock.				
7.	P	NE	18	48	23.2
	Aftershock.				
7.	P	E	18	51	05 ca.
	Aftershock.				
7.	P	NE	19	19	40
	i	E			43
	i	NEZ		20	37
	i	N		24	30
	i	E		27	39
	iL	E		28	54
	iL	E		29	30
	Mag. 7 - 7 $\frac{1}{4}$ (Matsushiro) 45 N.,93 E. Outer Mongolia. H=19 13 20 USCGS				
7.	iP	NE	21	06	20.5
	i	E		07	23
	i	N			44
7.	iP	NEZ	23	18	56.8
	i	N		19	26.1
	iS	N		20	03.1
	iP:S,W,compression				
8.	iP	NEZ	00	22	53.5
	i	Z			59.0

(cont.)

Date Phase Comp. Time(GMT)
continued h m s
i Z 00 24 06.5
iPcP Z 23.0
iL N 35 06
iL E 37 28
eL E 47
iP:S,W,compression
Mag. $6\frac{1}{4}$ (Matsushiro)
 $66\frac{1}{2}$ N., $155\frac{1}{2}$ W. Alaska.
H=00 14 20 USCGS

8. ✓ e Z 01 10 29
e N 11 21
e E 15 43

8. ✓ P Z 02 58 46.8
S? N 59 46
P:dilatation

8. ✓ iP Z 04 13 00.2
e E 23 43
eL E 25 34
iP:dilatation

8. ✓ iP NEZ 07 11 49.5
i E 12 10.4
iS N 39.8
i Z 54
iP:S,W,compression
38 N., $142\frac{1}{2}$ E.
Off coast of Honshu, Japan.
h:60 km ca.
H=07 10 45 USCGS

8. ✓ P NEZ 07 24 22.2
i Z 32
P:E,dilatation

8. ✓ iP NEZ 10 02 27.3
i E 48
i EZ 03 14
S Z 30
i E 36
iP:S,W,compression

8. ✓ P EZ 10 09 01.3
eL? N 29 46
33 N., $67\frac{1}{2}$ E. Afghanistan.
H=09 59 15 USCGS

8. ✓ iP NEZ 13 32 24.5
S,E,dilatation
19 S., 176 W. Tonga Is.
h:250 km ca.
H=13 21 33 USCGS

8. ✓ P EZ 14 11 54.1
i Z 12 02.1
i Z 11
P:E,compression Fox Is.
H=14 05 28 USCGS

Date Phase Comp. Time(GMT)
h m s
8. ✓ iP NEZ 15 27 43.5
i Z 44.8
i N 28 34
S E 46
i N 55
iP:S,W,compression

8. ✓ P EZ 16 40 02.4
i N 49

8. ✓ iP NEZ 17 04 32.0
i N 05 39
iP:S,W,compression

8. ✓ iP NEZ 19 55 34.4
i N 56 26
S Z 34
iP:S,W,compression

9. ✓ iP NEZ 05 17 27.4
iS NEZ 44.9
iP:N,W,compression

9. ✓ iP NEZ 06 24 58.0
e N 29 54
iS N 32 52
iP:S,W,compression
 $56\frac{1}{2}$ N., 139 W.
Gulf of Alaska.
H=06 15 12 USCGS

9. ✓ P NZ 18 05 09.0
eL N 13 05
P:S,dilatation
2 N., $126\frac{1}{2}$ E.
Molucca Passage.
H=17 58 02 USCGS

10. P E 01 06 58
eS? E 09 32
eL N 10 11
17 $\frac{1}{2}$ N., $128\frac{1}{2}$ E. Ryukyu Is.
H=01 03 45 USCGS

10. ✓ iP EZ 01 49 35.7
eS? E 53 48
eL E 55 52
iP:W,compression
53 N., $160\frac{1}{2}$ E. Near east
coast of Kamchatka.
H=01 44 34 USCGS

10. ✓ iP NEZ 07 57 12.7
i N 14.1
i NZ 16.0
iS NEZ 47.4
iP:S,W,dilatation

Date	Phase	Comp.	Time(GMT)		
			h	m	s
10.	e	E	11	08	46
	i	N		09	06
	iL	E		10	26
	eL	E		11	22
10.	iP	NEZ	11	51	14.7
	i	E			32.6
	iS	N		52	03.9
	i	NZ			16.0
iP:S,W,compression Mag. 6.2 (Matsushiro) 38½ N.,143 E. Off east coast of Hoshu, Japan. H=11 50 05 USCGS					
10.	iPKP	Z	13	38	32.9
	i	NE			33.4
	i	Z		39	22.2
iPKP:compression Northern Chile.. h:150 km ca. H=13 18 47 USCGS					
10.	eP	Z	15	50	49.5
	eS	N		54	58
	L	E		56	56
10.	iP	NEZ	19	21	09.1
N,W,compression 18 S.,174½ W. Tonga Is. h: 200 km ca. H=19 10 13 USCGS					
10.	PS	E	23	42	01
	e	N			47.0
	eL	NE		00	04
Mag. 6¼ - 6½ (Matsushiro) 4½ S.,107 W. About 100 miles west of Galapagos Is. H=23 12 47 USCGS					
11.	iP 1	N	00	59	23.6
	iP 2	NEZ			24.2
	i	N			46
	iS	N	01	00	23
iP 1:S iP 2:S,W,compression Mag. 6.6 (Matsushiro) 38½ N.,142½ E. Off east coast of Honshu, Japan. H=00 58 13 USCGS					
11.	iP	EZ	08	56	46.3
	iP	N			46.8
	S	Z		57	11.8
iP:W,compression					

Date	Phase	Comp.	Time(GMT)		
			h	m	s
11.	iP	EZ	12	51	25.3
	i	N		52	04
	S	E			25
	S?	Z			41
iP:E,dilatation Mag. 4.8 (Matsushiro)					
11.	P	Z	17	34	08
	eS	NE		39	50
	L	NE		42	38
Mag. 5 - 5¼ (Matsushiro) Andreanof Is. H=17 27 00 USCGS					
11.	P	NEZ	18	01	52
Andreanof Is. H=17 54 43 USCGS					
11.	eP 1	Z	20	33	37
	iP 2	E			37.2
	iP 3	NZ			37.8
	i	Z		34	57
11.	iP 1	NE	23	15	03.7
	iP 2	Z			04.7
	iS	NEZ		18	02.1
	L	Z			23
	iScP	Z		23	22.5
	iScS	N		26	57.0
	ScS?	NE			58
iP 1:N,E, iP 2:compression Mag. 6¼ - 6½ (Matsushiro) 48 N.,152½ E. Kurile Is. H=23 11 19 USCGS					
11.	iP	NEZ	23	31	30.6
	ipPP	NZ		32	59
	S	N		37	12
	iS	E			12.6
iP:N,E,compression Mag. 5¼ - 5½ (Matsushiro) 0.,125 E. Molucca Passage. H=23 24 11 USCGS					
12.	iP 1	NE	08	52	21.6
	iP 2	NEZ			22.6
	i	N		53	18
	i	N			45
iP 1:S,W, iP 2:N,E,dilatation					
12.	eL?	N	11	02,4	
	L	E			10.4
Gulf of California. H=10 24 55 USCGS					

12. eP NE 12 00 07
 i NE 13
 SorSKS E 10 49
 iSoriSKS N 55
 SS? N 16 55
 SSS N 20 05
 iL N 23 41
 Mag. $6\frac{1}{4}$ (Matsushiro)
 $26\frac{1}{2}$ N., 111 W.
 Gulf of Baja, California.
 H=11 46 58 USCGS

12. iP NEZ 13 29 04.0
 i NEZ 13
 i Z 31 01.8
 iS NEZ 32 16.5
 iS Z 21
 L N 33 31
 L Z 39
 L E 34 03
 iP:N,E,compression
 Mag. 6.3 (Matsushiro)
 25 N., 126 E. Ryukyu Is.
 H=13 25 22 USCGS

12. iP NEZ 16 11 43.1
 iS EZ 57.1
 iP:S,E,dilatation

13. L NE 04 23 52
 Mag. $5\frac{1}{2}$ - $5\frac{3}{4}$ (Matsushiro)
 46 N., 98 E.
 Outer Mongolia.
 H=04 08 56 USCGS

13. iP NEZ 09 16 03.7
 PP Z 18 04
 S E 22 58
 iS N 23 04
 Lq NE 28 12
 Lr NE 30 31
 iP:N,E,dilatation
 Mag. $6\frac{1}{4}$ - $6\frac{1}{2}$ (Matsushiro)
 66 N., 156 W. Alaska.
 H=09 07 24 USCGS

13. iP Z, P NE 12 34 09.9
 i NE 10.1
 i N 36 35
 i N 37 39
 iS NZ 38 16.3
 iS E 18.3
 i NZ 24.6
 L E 40 45
 L Z 48
 L N 41 11
 iP:compression
 Mag. $6\frac{3}{4}$ - 7 (Matsushiro)
 (cont.)

Date Phase Comp. Time(GMT)
 continued h m s
 53 N., 161 E.
 Near east coast of Kamchatka.
 H=12 29 07 USCGS

13. P Z 13 05 26

14. P 1 Z 02 53 11.2
 iP2 NEZ 11.4
 i NE 17.4
 i E 55 28
 S NZ 56 24
 S E 32
 L N 37
 L E 54

P 1:compression
 iP2:N,E,dilatation
 Mag. 5.2 (Matsushiro)
 47 N., 152 E. Kurile Is.
 H=02 49 41 USCGS

14. eP? Z 03 50 24
 i NZ 36.0
 $26\frac{1}{2}$ N., 128 E. Ryukyu Is.
 H=03 47 16 USCGS

14. L NE 16 42.0
 45 N., 98 E. Outer Mongolia.
 H=16 26 55 USCGS

14. P 1 Z 18 13 43.1
 iP2 NEZ 44.4
 S E 17 55
 S N 18 01
 L NE 19 50

P 1:compression
 iP2:N,E,dilatation
 Mag. $5\frac{1}{2}$ - $5\frac{3}{4}$
 53 N., 161 E.
 Near east coast of Kamchatka.
 H=18 08 40 USCGS

14. iPKP NEZ 21 51 38.4
 PP Z 53 55.6
 i Z 54 22
 SKP NEZ 55 00
 i Z 22 05 34
 SS E 11 13
 SSS NE 16 06
 e N 30 39
 L EZ 33.3
 L N 37.3

iPKP:S,W,compression
 Mag. 7 (Matsushiro)
 1 N., $79\frac{1}{2}$ W.
 Near coast of Ecuador.
 H=21 32 28 USCGS

Date	Phase	Comp.	Time(GMT)		
			h	m	s
14. ✓	PKP? 1 N., 79½ W. Ecuador aftershock. H=22 48 33	Z	23	07	52
15.	ePKP 1 N., 79½ W. Ecuador aftershock. H=01 30 43	Z	01	49	52
15. ✓	P 1 iP2 i i i P 1:compression iP2:S,E,dilatation Mag. 5.1 (Matsushiro)	Z NEZ NEZ N EZ	02	27	37.8 38.1 42 58 00
15. ✓	iP 1 iP 2 i i i iP1:compression iP2:N,E,dilatation	Z NEZ Z N E	02	43	47.2 47.7 46 53 00
15. ✓	iP 1 iP 2 i iS? iS? i i iP 1:dilatation iP 2:N,E, Mag. 5.1 (Matsushiro)	Z NE Z N E Z Z	04	08	42.1 43.3 30 45.7 47.7 00 50
15. X	L E, eL NZ 15 N., 120 E. Near south coast of Luzon. h:100 km ca. H=09 59 55		05	02.3	
15. ✓	P NZ, eP i i eS? L L Mag. 5½ - 5¾ (Matsushiro) 15 N., 120 E. Near south coast of Luzon. h:100 km ca. H=09 59 55	E Z Z N E N	10	05	30 34 56 10 14 11 37 53
15. ✓	P iP i P:compression 53 N., 167½ W. Fox Is. H=10 59 59	Z E N	11	07	35.1 35.3 36.4
16. ✓	iP i (cont.)	EZ Z	07	16	58.5 17 10

Date	Phase	Comp.	Time(GMT)		
			h	m	s
	continued				
	i	Z	07	17	20
	i	E			42
	iP:W,compression				
16. ✓	P P i i eS S? eL L P:compression 18½ N., 119½ E. Off northwest coast of Luzon. H=12 36 31	Z E E Z E N N E	12	41	58.3 58.8 05.3 14 45 25 19 51
16. ✓	P 1 iP2 S? S? S? L Mag. 4.8 (Matsushiro)	EZ EZ N E Z NE	21	31	45.5 45.9 35 39 40 07
17. X	eL 6 S., 154 E. Solomon Is. region. H=02 01 54	N	02	39.0	
17. ✓	P iP i i i i S i 32 N., 139½ E. South of Honshu, Japan. H=02 46 03	Z N Z Z Z EZ NZ	02	47	28 29.3 32.8 37.0 57.1 25 43
17. ✓	iP iP i i iP:S,dilatation	NZ E N E	04	19	22.2 22.9 32 35
17. ✓	iP iP iS iP:S,dilatation	NZ E NEZ	05	29	55.8 56.0 42.2
17. ✓	eS L Mag. 5¼ - 5½ (Matsushiro) 6 S., 155 E. Solomon Is. H=06 21 43	N N	06	36	39 30
17. ✓	P iP (cont.)	Z E	08	27	20.5 20.6

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued	i	E	08	27	44.8
	i	N			46
✓	i	Z			48
	i	N	28	29	
	S?	N			33
	i	Z			46
	P:dilatation				
17.	eP	Z	10	12	54
	i	Z			14 42
	S	E			19 27
✓	iS	N			40
	eLq	E			23.1
	Lr	N			25 54
	Mag. 5 3/4 - 6 (Matsushiro)				
	5 1/2 S., 152 E. New Britain.				
	H=10 04 46 USCGS				
17.	iP EZ, P 1 N		11	33	32.6
	iP 2	N			33.0
	i	E			41.7
✓	i	N	14	02	
	i	N			12
	i	E			15
	P 1:N,E,dilatation				
	Mag. 6.0 (Matsushiro)				
	37 N., 145 1/2 E.				
	Near east coast of Honshu, Japan.				
	H=11 32 48 USCGS				
17.	iP Z,P N		11	48	31.6
✓	iP	E			31.9
	iP:dilatation				
18.	P	Z	03	15	56.0
✓	iP	NE			56.8
	L	N			20 36 ca.
	L	E			21 36 ca.
	P:compression				
	iP:N,E,				
	48 1/2 N., 154 1/2 E. Kurile Is.				
	H=03 11 55 USCGS				
18.	iP	EZ	05	11	47.0
	iP	N			47.5
	i	E			48.0
✓	i	E	12	30	
	S	N			38
	iS	N			41
	i	NE			50
	L	NE	13	08	
	iP:W,compression				
	Mag. 4.9 (Matsushiro)				
	39 N., 143 E.				
	Off east coast of Honshu, Japan.				
	H=05 10 16 USCGS				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
18.	eP	Z	06	40	02
✓	e	Z			15
	S?	NZ			45
	i	E			53
18.	iPZ, P N	Z	07	12	21.9
✓	P	E			23.3
	N,dilatation				
18.	eP	Z	14	26	06
✓	53 1/2 N., 162 E.				
	Off east coast of Kamchatka.				
	H=14 20 44 USCGS				
18.	P	Z	17	03	26.2
✓	iP	N			27.4
	iP	E			27.7
	i	Z			28.0
	iS	NEZ			54
18.	eP	Z	17	56	16
✓	i	Z			17.1
	49 1/2 N., 156 1/2 E.				
	Near south coast of Kamchatka.				
	H=17 51 44 USCGS				
18.	P	Z	19	11	04.3
✓	iP	NE			05.9
	N,E				
	47 1/2 N., 153 E. Kurile Is.				
	H=19 07 19 USCGS				
19.	iP	NEZ	00	12	32.1
✓	S	E			13 53
	S	NZ			55
	iP:S,E,dilatation				
	30 1/2 N., 141 1/2 E.				
	South of Honshu, Japan.				
	H=00 10 50 USCGS				
19.	L	N	04	41.0	
✓	L	E			46.0
	26 1/2 N., 110 1/2 W.				
	Gulf of California.				
	H=04 03 26 USCGS				
19.	iP	NZ	14	18	04.7
✓	i	Z			50.9
	S	EZ			20 51 ca.
	i	Z			21 10
	iP:N,compression				
	22 1/2 N., 143 E.				
	Volcano-Mariana Is. region.				
	h:200 km ca.				
	H=14 14 38 USCGS				

Date	Phase	Comp.	Time(GMT)			Date	Phase	Comp.	Time(GMT)		
			h	m	s				h	m	s
19.	iP	Z	22	26	10.7	22.	iP	NZ	00	05	08.7
	✓ S	N		27	10		iP	E			09.3
	S	Z			12.8		iS	E		11	28
19.	P 1	Z	22	47	25.0		L	E		14	42
	iP2	Z			26.2		ScS	E		15	34
	✓ eS?	N		51	50 ca.		eL	E		16	42
	eL	N		55	10 ca.		e	N		18	25
	iP2:compression						iP:S,W,dilatation				
	52½ N.,161 E.						Mag. 6 (Matsushiro)				
	Off east coast of Kamchatka.						6½ S.,131½ E. Banda Sea.				
	H=22 42 20 USCGS						H=23 57 05 USCGS				
20.	P	Z	13	01	35	22.	P Z,eP	NE	05	50	06.0
	✓ i	E			41		i	Z			35
	i	Z			47		eL	N	06	07	41
	19 N.,121½ E.						L	N		10	31
	Off north coast of Luzon.						15 S.,174½ W.				
	H=12 56 30 USCGS						Fiji Is. region.				
	H=12 56 30 USCGS						H=05 39 07 USCGS				
20.	iP	Z	21	34	51.9	22.	iP	Z	09	15	52.6
	✓ i	NEZ		35	01.3		i	E			58.3
	e	Z		38	51		i	Z		16	13.9
	iP:compression						✓ S	N		22	03
21.	eP	Z	05	36	23 ca.		L	N		25	04
	✓ eL	N		42	00 ca.		iP:compression				
	24½ N.,122 E.						Mag. 5¼ - 5½ (Matsushiro)				
	Near east coast of Formosa.						½ S.,120½ E. Celebes.				
	H=05 32 00 USCGS						H=09 08 13 USCGS				
21.	iP	Z	11	41	47 ca.	22.	iP	Z	17	37	42.4
	✓ e	Z		42	09 ca.		iP	E			42.7
	iP:dilatation						✓ i	N			43.0
21.	iP	Z	20	25	50 ca.		eS?	N		58	08
	i	Z			56 "		i	N			14
	✓ eS	NZ		34	51 "		iP:dilatation				
	e	E		35	00 "		iP:W				
	eL	N		43	00 "	22.	✓ eP	Z	21	21	51
	eL	Z		45	40 "		eL	N		34	37
	eL	E			55 "		Solomon Is. region.				
	Mag. 6½ - 6¾ (Matsushiro)						H=21 12 45 USCGS				
	15 S.,174½ W.					22.	iP	NEZ	21	39	02.9
	Samoa Is. region.						✓ iS	Z			41.3
	H=20 14 47 USCGS						iS	NE			42.3
	H=20 14 47 USCGS						iP:N,E,compression				
21.	iP	Z	22	46	28 ca.	23.	P	Z	01	28	14.0
	i	Z			30 "		✓ i	EZ			14.9
	i	Z		47	26 "		e	Z		30	55
	PPP	Z		49	27 "		i	N		31	02
	eS	E		53	49 "		e	Z			08
	e	E		54	50 "	23.	P	Z	03	00	55.3
	eL	E		58	28 "		✓ i	Z			56.3
	iP:compression						i	NEZ			57
	Mag. 6 - 6¼ (Matsushiro)						(cont.)				
	4½ S.,104 E. Sumatra.										
	H=22 37 18 USCGS										

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued					
✓	i	Z	03	01	15
	i	Z		02	52
	S	E		03	32
	S	N			37
	iL	NE		04	07
Mag. 5 $\frac{1}{2}$ (Matsushiro)					
45 N., 152 E. Kurile Is.					
H=02 57 40 USCGS					
23.	P	Z	04	55	48.9
	i	E			50.1
✓	i	Z		56	01.0
	i	Z			37
	e	N		58	53
	e	N	05	00	15
45 $\frac{1}{2}$ N., 152 E. Kurile Is.					
h:100 km ca.					
H=04 52 47 USCGS					
23.	iP	Z	05	55	27.1
	i	NE			27.7
✓	i	Z			36.1
	i	Z		57	53
	e	N			59
	e	E		58	06
	i	N			16
iP:compression					
30 $\frac{1}{2}$ N., 130 $\frac{1}{2}$ E. Ryukyu Is.					
H=05 53 06 USCGS					
23.	P	Z	11	06	37
✓	i	Z			46
5 $\frac{1}{2}$ S., 153 $\frac{1}{2}$ E.					
New Britain region.					
H=10 58 35 USCGS					
23.	S	E	15	31	30
	i	N			35
✓	e	N		37	02
	Lq N, eLq	E		39	06
	eLr	NE		42	16
Mag. 5 $\frac{1}{2}$ (Matsushiro)					
15 $\frac{1}{2}$ S., 176 W.					
Fiji Is. region.					
H=15 11 39 USCGS					
23.	P	NEZ	16	50	41.1
✓	i	Z			41.9
	eS	NZ		51	30
23.	P	E	19	20	29.7
	iP	Z			31.0
✓	i	Z		22	21.4
	i	N			28.7
	eS	N		27	06
	eL	N		33	17
P:E					
iP:compression (cont.)					

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued					
Mag. 5 $\frac{3}{4}$ - 6 (Matsushiro)					
4 $\frac{1}{2}$ S., 153 E.					
New Britain. h:100 km ca.					
H=19 12 36 USCGS					
24.	eP	NEZ	06	37	28
✓	i	NEZ			40.1
	e	Z			55
	eS	N		40	54
24.	eP	Z	09	51	18
✓	eS	N			55 27
	eL	N			59 08
24.	iP	NEZ	12	55	00
✓	S	NE			27
iP:S,E,dilatation					
Mag. 4.9 (Matsushiro)					
24.	P	NZ	13	20	28.9
	i	EZ			29.8
✓	S	N		29	11
	S	E			14
	Lq	NE		36	42
	eLr	N		41	24
Mag. 5 $\frac{3}{4}$ (Matsushiro)					
22 S., 170 $\frac{1}{2}$ E. Loyalty Is.					
H=13 09 41 USCGS					
24.	iP	NEZ	17	31	58.6
✓	e	N			41 37
	eL	N			49 10
	e	N			53 15
iP:S,E,dilatation					
22 S., 170 $\frac{1}{2}$ E.					
Loyalty Is. aftershock.					
H=17 21 10 USCGS					
24.	P	NZ	17	51	20
✓	P	E			21
compression					
25.	eP	Z	00	33	10
✓	iP	EZ	08	42	32.0
	i	Z			43.5
iP:E,compression					
25.	iP	Z	19	10	41.1
✓	i	Z			52.5
iP:dilatation					
52 N., 171 W. Fox Is.					
H=19 03 18 USCGS					
26.	iP	NZ	01	12	36.4
✓	i	E			37.9
	i	Z			49.9
(cont.)					

Date continued Phase Comp. Time(GMT)
 h m s
 e N 01 14 01 ca.
 eS N 58
 L N 16 00
 iP:N,dilatation
 44 $\frac{1}{2}$ N.,152 $\frac{1}{2}$ E.
 Kurile Is. region.
 h:100 km ca.
 H=01 09 30 USCGS

26. iP Z 01 24 21.9
 i N 22.7
 i E 23.0
 i E 43
 iP:compression
 22 S.,170 E.
 Loyalty Is. aftershock.
 H=01 13 34 USCGS

26. P Z 09 35 44.5
 i Z 45.2
 i NEZ 45.7
 e NZ 36 13
 S N 43 28
 eL N 49 51
 15 S.,167 $\frac{1}{2}$ E.
 New Hebrides Is.
 H=09 25 47 USCGS

26. iP NEZ 11 45 13.2
 e E 21
 e N 22
 S NE 56
 iP:S,E,dilatation

26. iP NEZ 13 18 27.6
 iS NE 51.6
 iP:S,W,compression

26. iP NZ 18 27 32.8
 i E 33.6
 S N 28 50.3
 i E 52.6
 i Z 29 13.6
 e N 30 15
 iP:N,dilatation

27. iP EZ 05 34 37.9
 P N 38.4
 i EZ 39.0
 S Z 35 19
 S N 20
 P:S,W,compression
 Mag. 5.1 (Matsushiro)

27. iP NZ 08 24 14.5
 iP E 14.8
 N,dilatation
 (cont.)

Date continued Phase Comp. Time(GMT)
 h m s
 22 S.,176 W.
 Tonga Is. region.
 h:100 km ca.
 H=08 12 58 USCGS

27. eP? E 15 03 55
 i E 04 10

27. iP NEZ 17 19 23.6
 S Z 20 44
 S N 45
 iP:S,W,compression
 Mag. 5.9 (Matsushiro)
 42 $\frac{1}{2}$ N.,143 $\frac{1}{2}$ E.
 Near east coast of Hokkaido,
 Japan.
 h:100 km ca.
 H=17 17 39 USCGS

27. PKP1 Z 18 57 54
 i E 56.5
 iPKP2 Z 58 09.8
 e Z 59 07
 23 S.,66 W.
 Jujuy Province Argentina.
 h:200 km ca.
 H=18 38 10 USCGS

27. P Z 19 11 22.4
 i Z 24.4
 i E 25.2
 i Z 41.2
 e Z 12 27
 eS E 17 42
 e Z 54
 L N 20 19
 Mag. 5 3/4 (Matsushiro)
 52 $\frac{1}{2}$ N.,169 W. Fox Is.
 H=19 03 50 USCGS

28. P E 11 36 21
 P Z 22
 5 S.,153 $\frac{1}{2}$ E.
 Solomon Is. - New Britain region.
 H=11 28 14 USCGS

28. iPKP1 Z 12 07 05.5
 iPKP2 N 16.5
 iPKP2 E 17.0
 i Z 10 28.0
 i E 55
 i E 28 44
 i N 53
 i E 34 14
 L N 43 46
 L E 54 02
 L N 08

Date Phase Comp. Time(GMT)
continued h m s

iPKP:dilatation
Mag. $6\frac{1}{2}$ (Matsushiro)
11 S., 74 W. Peru.
H=11 47 40 USCGS

28. eP Z 16 06 08
S N 10 30
L N 12 21
13 N., 141 $\frac{1}{2}$ E.
Mariana Is. region.
H=16 00 50 USCGS

28. e N 19 33 49
eL N 36 01

29. P EZ 05 01 33.3
i NZ 33.8
i EZ 35.3
i N 35.4
e E 03 00

29. eP? E 05 13 42
e N 23 11
45 N., 100 E.
Outer Mongolia.
H=05 07 35 USCGS

29. P? E 12 21 36
e NE 46
i Z 49.7
e E 57
i NZ 59
iS N 22 45.6
iS EZ 46.0

30. P Z 08 26 30.3
e Z 54
i E 59.5

30. iP 1 Z 14 00 28.6
iP 2 NE 29.6
i Z 40.1
e NE 05 34
eL N 07 29 ca.

iP 1:compression
iP 2:N,W,
38 N., 103 $\frac{1}{2}$ E.
Kansu Province, China.
H=13 54 44 USCGS

30. e E 14 55 41
eL E 15 00 04
37 $\frac{1}{2}$ N., 14 W.
Off coast of Portugal.
H=14 08 00 USCGS

Date Phase Comp. Time(GMT)
h m s

30. PKP Z 19 47 11.0
e E 14
i Z 16.9
i EZ 17.1
i N 17.7
i Z 26.9
i Z 48.4
i Z 57.9

PKP:compression
21 S., 67 $\frac{1}{2}$ W.
Southern Bolivia.
h:150 km ca.
H=19 27 32 USCGS

Takeshi Honda.

Director

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Date	Phase	Comp.	Time(GMT)		
			h	m	s
1.	iP	NEZ	00	38	44.0
	i	NEZ			47
	pP	Z	39	30	
	i	Z	40	40	
	i	NE			45
	pPP	Z	41	45	
	i	NZ	42	54	
	ScP	Z	43	18	
	S	E	46	16	
	S	NZ			19
	sSorScS	N	47	49	
	SS?	N	50	22	
	sSS	N	52	10	
	SSS	N	53	52	
	PKPPKP	Z	01	08	22.5

iP:N,E,compression
 Mag. 6 3/4 (Matsushiro)
 13 1/2 S., 167 1/2 E. New Hebrides Is.
 h:200 km ca.
 H=00 29 15 USCGS

1.	iP	NEZ	02	22	23.8
	i	Z			24.3

iP:N,E,compression

1.	e	N	04	19	59
	e	N			23 43

1.	iP	Z	05	45	18.5
	i	N			28.0
	i	Z			32

iP:compression

1.	iP	NZ	06	18	20.5
	P	E			20.7
	i	Z			28.0
	i	E			32.2
	i	E			52.9
	e	E	39	52	
	e	N	43	09	

iP:compression
 Banda Sea.
 H=06 10 15 USCGS

1.	iP	EZ	07	17	42.1
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dilatation
 18 1/2 N., 120 1/2 E.
 Near west coast of Luzon,
 Philippine Is.
 H=07 12 07 USCGS

Date	Phase	Comp.	Time(GMT)		
			h	m	s
1.	P	NZ	09	29	20.1
	i	NEZ			21.2
	i	Z	40	28.1	
	i	N			29.1
	e	N	41	29	
	S	N	45	33	
	eL	N	48	01	
	eL	E			48

Mag. 5 1/4 (Matsushiro)
 1/2 S., 120 E. Celebes.
 H=09 31 43 USCGS

1.	iP	Z	11	34	52.5
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dilatation

1.	P	E	12	35	58.8
	iP	NZ			59.3
	S	E			37 48
	S	N			53
	i	NE			55
	i	Z			38 01

iP:S,dilatation
 Mag. 6.1 (Matsushiro)
 25 1/2 N., 141 E. Volcano Is.
 h:400 km ca.
 H=12 33 38 USCGS

1.	iP	EZ	15	14	17.4
	P	N			17.7
	i	N			30.7

iP:W,compression

2.	iP	NZ	01	44	22.4
	P	E			22.9
	iS	NE			38.4
	iS	Z			38.9

iP:S,E,dilatation

2.	iP	Z	11	26	51.8
	iS	N			27 16.2
	i	Z			14

iP:compression

2.	P	NZ	11	31	19.6
	iP	E			19.9
	i	Z			20.6
	i	NEZ			21.1
	i	N			32 17

iP:E
 Mag. 4.6 (Matsushiro)

Date	Phase	Comp.	Time(GMT)			
			h	m	s	
continued						
36.7 N., 141.8 E. Off east coast of Ibaragi, Central Honshu, Japan. J.M.A.						
2.	iP	EZ	18	15	28.1	
	P	N			28.8	
✓	i	NEZ			53.6	
	i	N	16		14.1	
	i	Z			34.9	
	e	N			55	
	iP:dilatation					
2.	eSKS	E	20	54	10	
✓	ePS	N		56	52	
	eL?	N	21	28	19	
Mag. $6\frac{1}{4}$ - $6\frac{1}{2}$ (Pasadena)						
17 N., $99\frac{1}{2}$ W. Mexico.						
H=20 29 20 USCGS						
2.	iP	NEZ	23	32	34.7	
✓	iS	NE		33	20.2	
	i	Z			32.2	
	e	N			56	
	L	N	34		25	
	iP:E,dilatation					
3.	iP	NEZ	00	41	19.1	
✓	i	E			32.0	
	i	N			33.6	
	iP:N,W,compression					
3.	iP	Z	04	04	40.3	
✓	iP	NE			40.7	
	i	E	05		00	
	i	Z			11.3	
	iP:N,E,compression					
3.	iP	Z	06	44	38.8	
✓	i	Z			51.1	
	i	NZ			52.1	
	eL	E	52	14		
	eLr	N		50		
	iP:compression					
4 N., $128\frac{1}{2}$ E.						
Molucca Passage.						
H=06 37 55 USCGS						
3.	✓	iP	Z	07	26	48.5
	compression					
3.	✓	iP	NEZ	09	35	29.6
		i	E			32.6
		i	E	36		13.4
	iP:N,W,compression					

Date	Phase	Comp.	Time(GMT)				
			h	m	s		
3.	iP	Z	14	58	50.5		
✓	iP	NE			51.0		
	S	E		59	16		
	S	N			17		
	iP:N,E,compression						
3.	✓	iP	EZ	15	19	08.9	
		i	NEZ			09.8	
		S	NEZ			27	
	iP:dilatation						
3.	✓	P	EZ	17	55	53.1	
		i	E			57	41.3
	P:compression						
3.	✓	iP Z, P NE		20	31	03.1	
		i	EZ			14.1	
		eL	N	21	10	23	
	iP:dilatation						
Mag. 5 - $5\frac{1}{4}$ (Matsushiro)							
37 N., $21\frac{1}{2}$ E.							
Near west coast of Greece.							
H=20 18 20 USCGS							
3.	✓	iP	EZ	20	34	20.4	
		i	Z			26.6	
		i	N			35	06.6
	iP:compression						
3.	✓	iP	NEZ	23	14	27.3	
4.	iP	NEZ	10	44	14.4		
	i	N			25.8		
✓	iS	NEZ			37.8		
	iP:N,E,compression						
35.1 N., 137.5 E.							
Central Honshu, Japan.							
h:50 km ca.							
4.	iP	NEZ	15	48	19.4		
	i	N			28.1		
✓	i	N		49	22.4		
	e	E			35		
	e	N			48		
	e	N		50	17		
	iP:N,E,compression						
5.	✓	P	Z	05	32	54	
✓	e	N		06	03	20	
$36\frac{1}{2}$ N., $45\frac{1}{2}$ E.							
Iran-Iraq border.							
H=05 21 33 USCGS							
5.	✓	ePKP	Z	06	50	18	
	(cont.)						

Date	Phase	Comp.	Time(GMT)			Date	Phase	Comp.	Time(GMT)			
			h	m	s				h	m	s	
continued	eL	N	07	33	30	8.	e	N	03	36	48	
	eL	N		41	26	8.	P	Z	05	31	06	
	Mag. 5 3/4 (Matsushiro)					8.	iP	NE	06	07	48.3	
	9 1/2 S., 27 1/2 E. Belgian Congo.						iP	Z			48.6	
	H=06 31 39 USCGS						iS	NE	08	10.3		
5.	iP	EZ	13	39	58.9	8.	e	N	07	18	50	
	iP:E,dilatation					8.	iPKP 1	NEZ	13	00	21.6	
	52 N., 172 1/2 W. Andeanof Is.						i	EZ			30.6	
	h:60 km ca.						iPKP 2	EZ			46.1	
	H=13 32 53 USCGS						pPKP	Z	01	14.1		
6.	iP	Z	00	03	22.8		sPKP	Z			33.6	
	i	Z			25.5		e	N	04	08		
	iP:compression						PP	Z			25	
	57 1/2 N., 136 1/2 W.						e	N	07	00		
	Near coast of southeastern Alaska.						PSKS	Z	14	38		
	H=23 53 29 USCGS						pPS	Z	16	07		
6.	iP	EZ	01	21	32.7		sSPorsPS	Z	17	26		
	PcP	Z		23	52.7		i	Z	21	15		
	52 N., 173 1/2 W. Andeanof Is.						SS	N	23	35		
	H=01 14 20 USCGS						SSS	N	29	55		
6.	P	NE	11	47	11		i	N	40	09		
	S	NE			44.9		PKP2:compression					
							pPKP:compression					
6.	e	N	12	12	31		Mag. 7 (Matsushiro)					
	e	N		16	09		24 S., 67 W.					
							Salta Provinc, Argentina.					
							h:200 km ca.					
							H=12 40 46 USCGS					
6.	e	N	16	50	49	8.	iP	NEZ	13	18	43.1	
	e	N		52	10		i	N		19	44.1	
6.	P	NEZ	21	58	41		i	Z	21	15.1		
	iS	NEZ		59	17.5		iP:S,W,compression					
7.	e	N	13	59	51	8.	iP	NEZ	14	16	35.5	
7.	iP	EZ	14	57	00.5		e	E		17	29	
	eL	N	15	18	25		e	N		19	25	
	iP:dilatation						iP:S,W,dilatation					
	East-Central Afghanistan.											
	H=14 47 30 USCGS					8.	eP	Z	20	21	41	
7.	iP	NEZ	22	01	34.5		iP	NE			51.8	
	i	Z			35.3		iS	E	22	35.8		
	i	NE			42.0							
	i	E			44.5	9.	eL?	N	01	33	54	
	i	E			59.2		L	N		39	28	
	eS	NE	05	19			Mag. 5 3/4 (Matsushiro)					
	eL	N	08	11			1 1/2 N., 94 1/2 W.					
	iP:N,E,dilatation						Galapagos Is. region.					
	50 N., 158 1/2 E. Kamchatka region.						H=00 44 12 USCGS					
	H=21 57 03 USCGS					9.	iP	Z	02	53	12.6	
8.	P	EZ	03	26	11		iP	NE			13.1	
	i	E			17		i	E			42.6	

(cont.)

Date	Phase	Comp	Time(GMT)		
			h	m	s
continued	SSS?	N	03	13	10
	eL	N		29	18
	iP:dilatation				
	Mag. $5\frac{1}{4}$ - $5\frac{1}{2}$ (Matsushiro)				
	37 N., $27\frac{1}{2}$ E. Dodecanese Is.				
	H=02 40 49 USCGS				
9.	iPKP 1	Z	05	00	09.9
	iPKP 1	E			10.4
	i	N			12.4
	iPKP 2	NEZ			50.9
	PP	Z	04	32.4	
	eSKSP	N	14	21	
	esSS	N	24	29	
	Mag. $6\frac{3}{4}$ (Matsushiro)				
	31 S., $65\frac{1}{2}$ W.				
	Cordoba-La Roja Province, Argentina.				
	h:100 km ca.				
	H=04 40 20 USCGS				
9.	iP	Z	09	35	25.4
	P	NE			26
	i	E			46
	i	Z			49
	iP:compression				
9.	iP	Z	13	45	01.5
	i	NE			02
	iS	E			23.0
	iS	N			23.5
	iP:compression				
9.	iP	NEZ	17	36	27.1
	i	Z			43.1
	iP:S,W,dilatation				
9.	iP	NEZ	22	44	46.6
	iS	EZ	45	03.6	
	iP:N,W,compression				
10.	e	N	07	34	30
10.	e	N	10	58	10
10.	iP	NEZ	21	31	41.9
	iP	NZ			42.9
	iS	NE	32	02.9	
	iP:S,E,dilatation				
	35.6 N., 139.7 E. Tokyo Bay.				
	h:40 km ca.				
10.	iP	EZ	23	03	29.3
	S	NE		10	37
	eSS	E	14	41	
	Lq	N	15	44	
	Lr	N	18	25	
	iP:E,compression				
	65 N., $152\frac{1}{2}$ W. Central Alaska.				
	H=22 54 40 USCGS				

Date	Phase	Comp	Time(GMT)		
			h	m	s
11.	iP	NZ	00	43	41.3
	e	N		50	11
	L	N		52	58
	iP:S,dilatation				
	Celebes.				
	H=00 36 02 USCGS				
11.	iP	Z	05	32	46.0
	i	NE			46.6
	i	N	33	07.8	
	i	N			48
	iPcP	Z	34	11.6	
	i	Z			25.3
	iS	NE	39	53	
	e	E	42	37	
	e	N			45
	eL	E	43	55	
	L	N	45	30	
	iP:dilatation				
	PcP:compression				
	Mag. $6 - 6\frac{1}{4}$ (Matsushiro)				
	65 N., $152\frac{1}{2}$ W. Central Alaska.				
	H=05 23 54 USCGS				
11.	eP	NEZ	05	45	49
	65 N., $151\frac{1}{2}$ W.				
	Alaska aftershock.				
	H=05 37 01 USCGS				
11.	iP	EZ	08	49	53.2
	i	N			54.7
	i	E	50	00.5	
	iP:E,dilatation				
11.	eP	NEZ	11	55	13
	i	E			18.9
	i	N			20.5
	i	Z			20.9
	i	NZ	56	56.7	
	eL	N	12	11	27
	eL	E			35
11.	eP	NEZ	12	09	24
	i	E			27.9
	i	N			37.1
	i	Z			46.2
	i	N	12	16.7	
	e	Z			24
	i	Z			25
	i	N			28.6
	i	E			29.1
11.	eP	EZ	17	56	51.4
	eL	N	18	06	09
	Marshall Is. region.				
	H=17 50 00 USCGS				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
11.	iP i i i iP:S,E,dilatation	NEZ Z NEZ Z	18	46	04.0 18.1 32.7 33.6
11.	iP iS iP:E	EZ NEZ	21	22	43.8 05.3
11.	iP iP i iS i	EZ N Z NZ Z	22	17	46.4 46.7 50.7 52.4 27.9
11.	iP iS iP:S,W,dilatation	NEZ NZ	22	37	32.5 38.4
12.	iP i PcP iP:compression 52 N.,169 $\frac{1}{2}$ W. Fox Is. H=05 38 16 USCGS	Z N Z	05	45	49.7 04.2 52.4
12.	iP iP i e iP:dilatation	Z N NE Z	08	42	53.7 54.0 49.4 50
12.	iP iS iP:S,E,dilatation	NEZ NEZ	13	13	02.3 44.1
12.	eL	N	13	31	36 ca.
12.	iP iP i i i iS iS? i i e iP:S,dilatation Mag. 5.9 (Matsushiro) 31 N.,140 $\frac{1}{2}$ W. South of Honshu, Japan. h:150 km ca. H=16 50 05 USCGS	NZ E Z NEZ N NE Z Z E N	16	51	22.6 23.0 24.8 25.4 17.1 26.1 28.1 34.1 37.3 44
12.	iP eL	NEZ N	18	36	34.9 45 29 (cont.)

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued	iP:N,W,compression 12 N.,162 E. Marshall Is. region. H=18 29 58 USCGS				
12.	iP iP i iS iP:W,dilatation	EZ N E NZ	19	20	23.2 23.6 28.0 29.3
12.	iP iS iP:N,E	NEZ NEZ	20	17	28.0 36.2
13.	P eP e e iS iS	Z NE Z Z E NZ	02	29	19.1 20 30 09 11 20.3 20.6
13.	iP i i i i i eS? iS? e i iL iP:compression	Z N NEZ E NZ Z N N E E N	03	22	42.0 42.3 43.0 52.5 23 04.4 27.3 32 34.8 37.5 41.3 24 53.0
13.	iP iP iP:S,W,dilatation	Z NE	10	10	26.3 26.6
13.	iP i iS e iP:S,dilatation	NZ N Z Z	14	05	05.9 28.8 33.4 06 06
13.	iP i iS iS iS iP:N,dilatation	NZ NZ Z N	17	24	19.7 20.9 25 20.2 21.0
14.	eP P e i i PP PP	Z N E N N N Z	04	06	14 15.2 18 23.9 42.4 07 51 53.4 (cont.)

Date	Phase	Comp.	Time(GMT)			Date	Phase	Comp.	Time(GMT)			
			h	m	s				h	m	s	
continued												
✓	S	N	04	12	30	15.	iP	EZ	14	14	58.0	
✓	eL	E		16	30	✓	iP	N			58.4	
	eL	N		18	49	✓	eS	Z	15	11		
	Mag. 5 3/4 (Matsushiro)						eS	E			12	
	4 1/2 S., 153 E. New Ireland.						i	N			22.9	
	H=03 58 09 USCGS						iP:N,E,dilatation					
14.	✓	P	05	58	09.6	15.	✓	iP	NEZ	15	32	10.0
	✓	iP			10.2	✓	iS	Z				37.0
		i			27.7		iS	NE				37.5
		e	59	30			iP:S,E,compression					
		i			36.9	15.	P	NEZ	15	55	37	
14.	✓	iP	12	44	05.5	✓	P:S					
	✓	i			06.6		13 S., 166 1/2 E. New Hebrides Is.					
	✓	i			10.6		H=15 45 53 USCGS					
	✓	eL	54	22		15.	eP?	EZ	18	52	03	
	iP:compression					✓	i	E			16.4	
	12 1/2 N., 95 E.					✓	e	N			56 30	
	Andreanof Is. region.						L	NE			58 23	
	H=12 35 42 USCGS					16.	iP	Z	02	11	18.3	
14.	iP	EZ	20	33	37.6	✓	eL	N			20 14	
	iP	N			37.8		iP:dilatation					
	i	E	34	08.5			52 N., 173 1/2 W. Andreanof Is.					
✓	i	E			57.9		H=02 04 06 USCGS					
	i	N	35	05.6		16. ✓	eL	N	09	55	11	
	iS Z, eS N				19.2	16.	iP	NEZ	22	25	05.5	
	e	Z			23	✓	iS?	NE			26 14.7	
	e	Z			26		i	Z			23.2	
	i	E			47.0		iP:S,E,dilatation					
	iP:W,dilatation					17.	eP	NEZ	07	10	06	
14.	✓	iP	21	38	56.1		i	EZ			10.7	
	✓	iS			58.7		i	E			24.9	
		iP:S				✓	iPP	NZ	11	29.0		
15.	iP	Z	04	32	02.2		iPPP?	N			52 ✓	
✓	iP	E			02.5		iPPP?	Z			56 ✓	
	i	E			07.1		eS	N	15	54		
	iPcP	Z	34	22.3			e	E	16	14		
	eL	N	39	20			e	Z		18		
	iP:W,compression						eL	N	19	56		
	51 1/2 N., 173 1/2 W. Andreanof Is.						iL	E	20	09		
	H=04 24 50 USCGS						iL	N	24	52		
15.	✓	eP	07	11	21		Mag. 5 3/4 - 6 (Matsushiro)					
✓	11 1/2 S., 165 E.						3 S., 147 1/2 E. Bismark Sea.					
	H=07 01 56						H=07 02 25 USCGS					
15.	✓	iP	09	53	28.2	17.	✓	iP	NEZ	14	49	39.1
	✓	i			29.0	✓	iS	NEZ				58.5
	iP:compression						iP:dilatation					
	13 S., 166 1/2 E. New Hebrides Is.					17.	✓	iP	EZ	15	45	04.2 ✓
	H=09 43 46 USCGS					✓	iP	N				04.5
15.	✓	iP	12	52	44.3		eL	N			52 47	
	✓	iS			56.9		eL	Z			53.6	
	iS	E			57.6		iP:S,W,compression					
	iP:N,E,compression											

Date	Phase	Comp.	Time(GMT)		
			h	m	s
	51 N.,179 W. H=15 38 20		Andreanof Is. USCGS		
17.	X eL	N	17	03.9	
17.	✓ iP	Z	17	55	04.8
	iP	NE			05.2
	i	NZ			23.8
	iP:S,compression 18½ S.,174½ W. Tonga Is. H=17 43 45 USCGS				
18.	iP	NZ	02	42	35.4
	P	E			35.7
	✓ iPcP	Z	43	42.7	
	eS	E	50	19	
	iS	N			23
	i	Z	52	56	
	iSS	N	54	07	
	L	N	56	31	
	Lr	N	58	09	
	iP:N,W,compression Mag. 6¼ - 6½ (Matsushiro) 13 S.,167 E. New Hebrides Is. H=02 32 52 USCGS				
18.	✓ iP	Z	02	48	51.5
	dilatation				
18.	iP	NZ	03	41	00.7
	✓ iP	E			01.3
	i	Z			46.5
	i	E			52.4
	iP:N,compression 13 S.,167 E. New Hebrides Is. H=03 31 18 USCGS				
18.	iP	NEZ	05	36	22.7
	N,W,compression 13 S.,167 E. New Hebrides Is. h:60 km ca. H=05 26 44 USCGS				
18.	P	NE	09	16	43.3
	e	N			31 50 ca.
18.	iP	NEZ	12	31	00.4
	i	E			36.2
	i	Z			41.4
	✓ iPcP	N	32	06.2	
	e	Z			43
	i	Z			44
	i	Z	33	42.1	
	iPPP	Z	34	23	
	eS	N	35	45	
	eS	E			48
	e	Z			52
	i	N	39	15	
	iSS	N	42	32	

Date	Phase	Comp.	Time(GMT)		
			h	m	s
	iLq	N	12	44	50
	iL	N			50 44
	iP:N,W,compression Mag. 6¼ (Matsushiro) 13 S.,167 E. New Hebrides Is. aftershock. H=12 21 18 USCGS				
18.	✓ iP	Z	13	38	53.4
	compression				
18.	iP	NEZ	20	35	20.5
	✓ eS?	E			41
	eS?	Z			42
	e	EZ			46
	iP:S,E,dilatation				
19.	P	NEZ	00	15	44
	eS	N			23 33
	e	N			25 32
	✓ eSS	N			27 39
	eL	N			29 31 ca.
	eL	N			35 18
	Mag. 5½ (Matsushiro) 13 S.,167 E. New Hebrides Is. aftershock. H=00 06 00 USCGS				
19.	X eL	N	02	32	48
19.	✓ P	NEZ	04	46	43.2
	iS	NEZ			47 05.9
19.	✓ P	EZ	08	05	12.1
19.	eP	NEZ	09	36	41
	i	N			52.0
	✓ i	Z			53.0
	i	EZ			53.3
	iS	Z			37 42.0
	iS	N			43.0
	iS	E			43.5
	e	E			39 08
	e	N			29
19.	iP	Z	13	01	17.1
	✓ iP	N			17.6
	iP	E			17.9
	iP:S,W,compression				
19.	iP	Z	16	17	39.1
	i	NZ			43.4
	✓ i	Z			43.7
	e	E			18 37
	i	Z			19 49.5
	iP:dilatation				
20.	iP	Z	02	15	18.5
	✓ i	Z			27.9
	iP:compression				

Date	Phase	Comp.	Time(GMT)			Date	Phase	Comp.	Time(GMT)		
			h	m	s				h	m	s
20.	iP	NEZ	05	55	23.8	23. ✓	P	Z	05	14	48
	e	Z		57	06						
	pP	E			20	23. ✓	iP 1	NEZ	08	46	51.7
	S	N	06	04	07		iP 2	E			53.0
	e	E			51		S?	E	47	22.0	
	25 S., 180 E. South of Fiji Is. h:550 km ca. H=05 44 47 USCGS						iP 1:E,dilatation iP 2:E				
20.	iP	NZ	13	21	52.7	23. ✓	P	Z	10	30	09
	iP	E			52.9		eL?	N		38	38
	i	E		22	02.4	23.	iP	NEZ	16	09	30.3
	i	N			20.2	✓	iS	EZ			45.9
	i	E			35.7		iP:N,W,compression				
	iP:S,E,compression										
20.	iP	Z	19	25	54.9	24.	iP	NEZ	01	14	15.4
	eL	N		31	22 ca.	✓	eS	N			34.4
	iP:dilatation						i	N			41.6
							iP:S,E,dilatation				
21.	P	EZ	04	50	04	24.	iP	NEZ	09	11	07.0
	eS	E		53	50	✓	i	N			17.6
	eS	N			52		iP:S				
	eL	E		55	31						
	Mag. 5 1/2 (Matsushiro) 22 N., 121 E. Near south coast of Formosa. h:100 km ca. H=04 45 24 USCGS					24.	P	NZ	10	09	36
							i	E			40
							i	E			54
						✓	i	N			59
							eS	N	16	12	
							L	N	21	33	
							L	E	22	45	
							iP:N,compression				
22.	P	EZ	05	24	36.4	24.	iP	NEZ	16	41	09.8
	i	N		25	12	✓	iS	EZ			36.0
	i	E			19		iP:S,W,dilatation				
22.	P	EZ	07	56	45.3						
	i	E			57.2						
	S	NE		57	07.6	25.	iP	NZ	00	42	16.1
	i	E			21.1	✓	i	Z		43	24
	P:E,compression						L	E		49	52
							L	N		50	31
							iP:compression				
22.	eP	Z	11	39	55		Mag. 5 3/4 - 6 (Matsushiro)				
	e	N		40	05		51 N., 177 W. Andreanof Is.				
	eS	E		45	26		H=00 35 23 USCGS				
	L	N		48	17						
	L	E			38						
	50 1/2 N., 175 W. Andreanof Is. H=11 32 50 USCGS					25.	iP	NEZ	15	01	23.6
							PP?	E		02	25
						✓	PP	N			34
							PcP	NZ		03	56.5
							S	NE		06	55
							i	E		07	55
							L	N		09	45
							L	E			47
							iP:S,W,compression				
							Mag. 5 3/4 - 6 (Matsushiro)				
							51 1/2 N., 177 W. Andreanof Is.				
							H=14 54 30 USCGS				
22.	P	NEZ	15	15	41.5						
	i	E			44.7						
	i	N		21	29						
	S	NE			50						
	i	N		24	06						
	L	E			54						
	L	N		25	39						
	P:S,dilatation										
	Mag. 6 (Matsushiro)										
	3 S., 146 E. Bismark Sea.										
	H=15 08 00 USCGS										

Date	Phase	Comp.	Time(GMT)			Date	Phase	Comp.	Time(GMT)		
			h	m	s				h	m	s
25.	iP	Z	15	14	05.5	26.	P	NZ	11	04	03.3
25.	iP	EZ	17	42	59.2	26.	i	NEZ			05.3
25.	iP	N		43	00.2	26.	pP	Z			51
25.	i	N			09.4	26.	PP	NZ	05	48	48
25.	S	Z		44	53	26.	PPP	Z	06	42.0	42.0
25.	i	Z		45	04	26.	S	NZ	09	46	46
25.	i	Z			25.9	26.	i	N	13	07	07
25.	i	Z			28	26.	ScS?	E			26
25.	i	N			34	26.	L	E	15	18	18
25.	i	E			40	26.	L	N			22
25.	i	Z		46	20	P:compression Mag. $5\frac{1}{2}$ - $5\frac{3}{4}$ (Matsushiro) 53 N., 169 $\frac{1}{2}$ W. Fox Is. H=10 56 30 USCGS					
iP:dilatation Mag. 6 - $6\frac{1}{4}$ (Matsushiro) 31 N., 129 $\frac{1}{2}$ E. Near west coast of Kyushu, Japan. H=17 40 47 USCGS						26.	P	Z	11	17	01
25.	ePKP 1	Z	21	30	41	26.	S	Z			07
25.	i	Z			48.7	26.	iP	NEZ	13	01	18.9
25.	i	NEZ			57	26.	eS	Z			47.2
25.	PP?	N		33	21	iP:N,E,dilatation					
25.	pPP	E		34	24.7	26.	P	Z	19	38	41
25.	i	NZ			26	26.	S	Z			47
25.	SPP	Z			40	26.	P	Z	21	47	19
25.	PPP	Z		36	26	26.	S	Z			26
25.	SS	N		51	22	27.	P	Z	01	56	17
25.	e	N	22	02	42	27.	S	Z			31
25.	L	N		08	16 ca.	27.	iP1	Z	03	04	03.7
Mag. $6\frac{1}{2}$ - $6\frac{3}{4}$ (Matsushiro) 3 S., 77 W. Ecuador-Peru border region. h:100 km ca. H=21 11 45 USCGS						27.	iP 2	NEZ			04.9
26.	P	Z	02	00	03	27.	eS	NEZ		05	10
26.	S	Z			22	iP 1:compression iP 2:N,E,compression					
26.	iP	NEZ	04	38	46.4	27.	iP	Z	06	00	27.0
26.	e	N		47	11	27.	i	N			46
26.	L	N		51	04	iP:compression					
26.	L	E			36	27.	P	Z	06	43	47
iP:N,W,compression						27.	S	Z			53
26.	ePKP	Z	09	08	52	27.	P 2	Z	09	00	55
26.	i	Z			56.8	27.	i	Z			56.9
26.	L	N		55	57	27.	eS	N	01	54	54
26.	L	E		56	32	27.	eL	N	02	44	44
Mag. $5\frac{3}{4}$ - 6 (Matsushiro) 3 S., 77 W. Ecuador-Peru aftershock. h:100 km ca. H=08 49 47 USCGS						27.	iP	Z	11	32	03.5
26.	iP	NEZ	10	59	54.6	27.	iS	NEZ			10.8
26.	S	E	11	00	13	iP:dilatation					
iP:S,E						27.	iP	NEZ	16	44	38.0
26.	S	NEZ			13	27.	S	NEZ		45	05.

Date	Phase	Comp.	Time(GMT)			Date	Phase	Comp.	Time(GMT)		
			h	m	s				h	m	s
27.	✓ P i i P:dilatation	Z N Z	17	33	12.6 39 47.4	28.	✓ iP i e iS i iP:S,dilatation	NEZ Z E N Z	08	51	06.6 09.6 47 48.6 50.8
27.	✓ P i 36 ¹ / ₂ N., 27 ¹ / ₂ E. Dodecanese Is. H=18 27 23	NZ Z	18	39	55 39	28.	✓ eL eL	E N	13	45	45 01
27.	✓ iP i i i iP:W	EZ Z Z E Z	19	39	57.8 07.3 25.3 59.8 03	28.	✓ eL eL	N E	17	55	24 39
27.	✓ P S? i	Z Z Z	20	33	00.5 07 34	28.	✓ P iS P:dilatation	Z NEZ	20	22	55.1 19
27.	✓ iP i i iP:S,W,compression	NEZ Z Z	22	43	24.9 33.6 39.1	29.	✓ P i i 38 N., 72 ¹ / ₂ E. Tadzshik S.S.R. H=03 15 50	EZ Z Z	03	24	54.9 58.8 27.4
27.	✓ iP eS iP:W,dilatation	NEZ NEZ	22	46	33.6 59.6	29.	✓ iP 1 iP 2 S i ScS iP 1:compression iP 2:N,E,compression Mag. 6.2 (Matsushiro) 27 ¹ / ₂ N., 139 ¹ / ₂ E. Bonin Is. region. h:450 km ca. H=05 21 29	Z NEZ NE N N	05	23	36.3 36.6 09.8 17 39
27.	✓ P ePP S S S L L L Mag. 5 ¹ / ₂ (Matsushiro) 5 ¹ / ₂ S., 146 E. North coast of New Guinea. H=23 32 43	Z Z N Z E N E N	23	40	45 11 04 07 09 17 22 41	29.	✓ P i i i i i S? 38.6 N., 141.0 E. Honshu, Japan. h:10 km ca. J.M.A.	Z Z Z N Z E EZ	10	04	20 20.8 22 22.6 23.0 23.3 05 05
28.	✓ iP i S S	EZ E N E	00	00	47.8 57 29.8 30.7	29.	✓ iP iS iP:N,E,compression	NEZ NEZ	16	12	10.0 20.0
28.	✓ iP iP:E,dilatation	NEZ	00	44	48.7	29.	✓ P S	Z Z	18	47	09.8 15.1
28.	✓ iP S S S iP:N,W,compression	NEZ E N Z	01	08	45.0 00 01 02.2	30.	✓ eP pP i 41 ¹ / ₂ N., 44 E. Georgia S.S.R. H=05 16 15	N NEZ Z	05	27	31 21.6 37
28.	✓ L L	N E	03	10	07 13						

Date	Phase	Comp.	Time(GMT)		
			h	m	s
30.	iP S i iP:W,compression	NEZ N E	08	35 36	47.8 33.3 39
30.	iP iP i iP:N,compression	Z N Z	11	45 46	57.0 57.7 13.1
30.	iP iP i e S i eL iP:compression Mag. 5 3/4 - 6 (Matsushiro) 25 N., 122 E. Near north coast of Formosa. H=16 11 40	EZ N N N NE N	16	15 18 19 20	46.7 49.3 53.4 39 12 39 19
30.	iP i i PP PP PcP iS L ScS L iP:N,E,dilatation Mag. 6 1/2 (Matsushiro) 52 1/2 N., 169 W. Fox Is. H=18 04 50	NEZ NE N Z N Z NE NE NE NE	18	12 14	26.3 33.0 46.0 00.0 02.0 24.0 39 33 35 17
30.	iP compression 52 1/2 N., 168 1/2 W. Fox Is. H=19 09 09	Z	19	16	45.1
30.	P i	Z Z	19	37	10 24
30.	iP iP i iP:dilatation Fiji Is. region. H=21 20 05	EZ N Z	21	31 34	13.4 13.9 14
30.	iP iP:N,E,dilatation	NEZ	23	10	32.6
31.	iP i eL	Z N N	02	52 03	54.4 58.4 13

Date	Phase	Comp.	Time(GMT)		
			h	m	s
31.	iP S iP:S,E,dilatation	NEZ NE	03	45	00.2 37
31.	iP i i i L eL iP:compression	Z NEZ NE Z N E	04	18 19 19 23 24	40 10.0 10.2 19 31.7 32.7
31.	eP eL eL 41 1/2 N., 44 1/2 E. Georgia S.S.R. H=09 31 18	Z E N	09	42 10	25 00 35
31.	iP iS iP:E,dilatation	NEZ NE	17	33 34	59.1 16
31.	iP i PP PPP i iS S eL L L PKPPKP Mag. 7 1/4 - 7 1/2 (Matsushiro) iP:N,W,compression 15 S., 169 E. New Hebrides Is. H=19 32 30	NEZ E N N N NE Z E N E Z	19	42 44 46 47 50 50 56 57 20 12	32.2 46.4 40 07 01 46 50 14 14 19 14

June											
Date	Phase	Comp.	Time(GMT)			Date	Phase	Comp.	Time(GMT)		
			h	m	s				h	m	s
1.	✓ iP i iP:E,compression	NEZ Z	03	00	05.8 12.0	1.	✓ S i iP:N,compression	E N	13	02	20 05 05
1.	✓ P	EZ	03	43	25	1.	eP i S i i	Z NZ NE E E	14	28	39 42.2 29 03 05.7 07.0
1.	✓ iP eS ePcP eL eL iP:S,compression 52½ N.,160 E. Near east coast of Kamchatka. H=04 00 06	NEZ N Z E N	04	05	03.4 08 49 58 11 19 27	1.	✓ P i e eS eS eL 60½ N.,143½ W. H=18 21 17	EZ Z Z N E N	18	30	40 44 31 19 38 03 13 46 -
1.	✓ P P:E,dilatation	NEZ	04	27	09	1.	✓ P 1 iP 2 i i S S	NEZ NEZ Z EZ EZ N	19	42	03.1 04.4 13 18 50 52
1.	✓ iP iS i iP:S,dilatation	NEZ NE Z	04	49	03.7 49.1 54.3	1.	✓ iPKP i 19 S.,64½ W. Southern Bolivia. H=19 47 05	Z Z	20	07	04.7 16.1
1.	✓ iP i eS iP:W,compression	NEZ N NE	06	22	49.2 23 16	1.	✓ P P i	Z Z Z	22	51	26.9 16.9 18.3
1.	✓ iP i eS iP:W,compression	EZ N NE	07	41	18.7 29.4 44	2.	✓ P? eP	EZ Z	07	47	29 08 51 01
1.	✓ PKP 1 i iPKP 2? i pPKP? 18 S.,69 W. Bolivia-Chile border region. H=10 40 17	Z NEZ Z N N	10	59	49 53.4 28.6 30 51	2.	✓ P e	Z Z	22	28	29 36
1.	✓ iP i ScPorPcS eS S eL iP:dilatation 5½ S.,146 E. Near north coast of New Guinea. H=12 34 56	NZ Z EZ E N N	12	42	57.0 45 49.0 48 26.0 49 11 16 54 -	3.	✓ eP i P P P P P i P i dilatation	EZ Z NZ EZ EZ EZ EZ N Z	01	06	22 39 01 55 07.7 01 56 23.2 02 58 00.5 01.6 07 00 17.9
1.	✓ iP iS	NZ N	13	02	04.0 18.0	3.	✓ P i dilatation	Z	07	00	17.9

Date	Phase	Comp.	Time(GMT)			Date	Phase	Comp.	Time(GMT)		
			h	m	s				h	m	s
3.	iP	NEZ	19	41	54.3	5.	P Z eP N		02	22	24.4
	PPP	N		45	24		e	N		32	01
	i	NE			30		eL?	N		35	14
	i	E		46	13		P:compression				
	S	NE		49	58		5 1/2 S., 151 1/2 E. New Britain.				
	SS?	N		53	50		H=02 14 16 USCGS				
	Lq	N		56	42	5.	iP	NEZ	02	31	25.8
	Lq	E			48		i	E			34.0
	Lr	Z		59.2			i	NE		32	09.3
	Lr	N		59.5			iP:N,W,dilatation				
	iP:N,W,compression					5.	eP	NEZ	04	56	30
	Mag. 6 1/2 (Matsushiro)						eS?	NE	05	00	51
	15 S., 168 E. New Hebrides Is.						eL?	E		05	14
	H=19 31 52 USCGS						eL?	N		06	32 ca.
4.	P	Z	03	37	17	5.	eP	NEZ	06	14	54
4.	P	NZ	09	55	29		iS Z, S N			15	17.8
	i	NEZ			35.5	5.	P	E	08	30	30.3
	i	Z		57	20.6		P	Z			32
	eS?	N	10	01	49		i	NE			33.0
	e	N		05	01		eS	N		37	51
	7 S., 145 E. New Guinea.						eS	E		38	01
	H=09 47 39 USCGS						eSS	N		41	49 ca.
	h:150 km ca.						eL	N			46.7
4.	iP	NEZ	14	37	35.5		eL	E		47	57
	i	N			49.4		P:W				
	i	Z			58.6		Mag. 5 - 5 1/4 (Matsushiro)				
	iS	N		43	49.3		10 1/2 S., 166 E. Santa Cruz Is.				
	iS	E			51		H=08 21 07 USCGS				
	i	E		46	55	5.	iP	NEZ	09	42	20.6
	Lq	N		47	30 ca.		iS	NE			43.3
	iScS	NE			42		iP:N,E,compression				
	Lq	E		48	18	5.	P	EZ	09	43	35.9
	Lr	E		51.1			eL?	N		58	47
	Lr	Z		51.2			eL?	E		59	25
	L	E		52	56		5. P Z, eP N 13 42 28				
	iP:S,W,compression						5. e 14 17 41				
	Mag. 6 1/4 - 6 1/2 (Matsushiro)						e 18 04				
	52 1/2 N., 167 W. Fox Is.						e 24 54				
	H=14 29 50 USCGS						5. iP 17 33 30.0				
4.	P	NZ	17	03	20.2		i	Z			31.0
	i	N		04	29.6		iP:S,W,compression				
4.	iP	NZ, P E	18	39	42.2		5. iP 21 53 08.9				
	e	E		40	59		i Z 14.0				
	iP:S,compression						iP:S,W,dilatation				
4.	iP	Z, P N	18	56	42.8		5. iP Z, eP NE 22 06 42.8				
	iP:compression						iS NEZ 07 06.3				
4.	P	EZ, eP N	21	33	37						
	P:E,compression										
5.	iP	NZ	01	58	55.4						
	e	E	02	04	23						
	e	N			39						
	eL	N		05	51						
	iP:S,dilatation										

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued	e	E	18	45	06
	iP:N,compression				
7.	e	N	19	32	09
	e	NE		33	39
7.	iP	Z	19	36	40.5
	dilatation				
8.	iP	Z	00	46	38.0
	i	Z			57.1
	i	E			57.5
	i	Z	48		37.8
	iPcP	Z			44.2
	eS	N	52		44
	eS	E			55
	i	Z	55		22.3
	e	E	56		14 ca.
	Lq	N	57		15
	eLq	E			19
	Lr	Z	59		01
	Lr	E	01		00 02
	iP:compression				
	Mag. 6 - 6 $\frac{1}{4}$ (Matsushiro)				
	53 N.,167 W. Fox Is.				
	H=00 38 52 USCGS				
8.	eP?	Z	00	56	44
8.	iP	EZ	05	37	51.2
	iP	N			51.7
	i	NE	38		42
	iP:S,W,				
8.	iP	Z	07	49	10.0
	eL?	N	08		02.6
	iP:compression				
8.	iP Z, P E		08	49	41.6
8.	P	E	09	23	41
	i	Z			45.6
	e	N	25		18
	e	E			33
8.	iPKP	Z	16	12	01.8
	dilatation				
	16 S.,75 W.				
	Near coast of southern Peru.				
	H=15 52 23 USCGS				
8.	e	E	22		19.9
	7 N.,34 $\frac{1}{2}$ W.				
	Atlantic Ocean.				
	H=21 09 23 USCGS				
9.	eP	Z	00	24	20

Date	Phase	Comp.	Time(GMT)		
			h	m	s
9.	iP	Z	09	30	11.0
	i	E			31 10
	i	N			11.3
	iP:dilatation				
9.	iP	Z	10	08	54.7
	e	Z			11 37
	e	N	16		19
	iP:compression				
9.	iP	Z	16	06	52.5
	iP	E			53.0
	i	NZ			53.3
	i	Z	07		05
	iPcP	Z	08		53
	eS	N	13		05
	eS	E			07
	eL	N	16		03
	eL	E			11
	iP:compression				
	Mag. 5 - 5 $\frac{1}{4}$ (Matsushiro)				
	52 $\frac{1}{2}$ N.,168 W. Fox Is.				
	H=15 59 00 USCGS				
9.	iP Nz, eP	E	16	22	10.5
	iP:S,compression				
9.	P E, eP	Z	17	43	44.7
9.	P N, ePZ		19	07	47.1
	i	N	08		10.4
9.	iP	NZ	21	22	11.4
	iP:N,dilatation				
	54 $\frac{1}{2}$ N.,160 $\frac{1}{2}$ E.				
	Near east coast of Kamchatka.				
	H=21 16 58 USCGS				
9.	eP	Z	23	05	49
	i	NZ			06 06.5
	e	N	08		09
	e	Z			23
	e	E			34
	i	Z	09		10
10.	iP	Z	00	18	15
	eL	NE			23.9
	iP:compression				
	53 N.,167 W. Fox Is.				
	H=00 10 30 USCGS				
10.	iP	Z	00	33	58.4
	dilatation				
10.	iP	NEZ	01	31	01.8
	iP:N,W,dilatation				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
10.	eP ✓ e e	NZ E N	09	31	39 22 28
10.	iP ✓ S? i i	NEZ N NE Z	13	16	17.1 46.6 49 50
iP:N,W,compression					
10.	✓ P	NZ, eP E	17	31	22
11.	eP ✓ i i i i	NZ NZ E NE Z	03	55	16 55 56 39 45
11.	eP ✓ P i i	Z E N EZ	04	01	20 22 41 43
11.	✓ iP E, P iS	NZ EZ	08	39	05.8 13.3
11.	✓ eP iS	NEZ NEZ	09	05	03 08.3
11.	P ✓ P i S S	N Z Z NE Z	12	18	44.6 44.8 55 06 08
P:N,compression					
11.	✓ iP i iP:dilatation	Z Z	13	30	22.4 31 12
11.	✓ eP	NE	17	47	41
12.	P ✓ eP e i	NZ E Z N	01	24	52 53 03 26
12.	✓ iP dilatation	Z	02	47	20.6
12.	✓ P i	EZ NE	03	59	03 31 ca.
12.	✓ iP i i	NZ, P E Z N	04	20	53.1 15 42
12.	✓ PS PS	E N	12	24	21 31

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued					
	e ✓ eL L	NE E N	12	31	21 50 54 13 11 48
Mag. 5 $\frac{1}{2}$ - 5 $\frac{3}{4}$ (Matsushiro) 7 $\frac{1}{2}$ N., 84 $\frac{1}{2}$ W. Off south coast of Costa Rica. H=11 54 04 USCGR					
12.	✓ P i	NEZ Z	14	22	36 44.5
12.	eP ✓ e i i i	Z Z NEZ NEZ NE	15	10	39 11 21 35 12 47 15 33
12.	✓ iP e	Z E	18	19	20 47 09
12.	iP1 iP2 i ✓ i i PcP ScP i S ✓ S i iLq i L i Lr Lr	Z NEZ N Z Z NZ Z Z EZ NE N E N Z E Z	21	00	43.6 44.4 44.8 01 12 25 02 47 06 04 36.8 54 59 10 10 31 53 11 35 12 31 15 21 31
iP:S,W,compression Mag. 6 $\frac{1}{2}$ - 6 $\frac{3}{4}$ (Matsushiro) 53 N., 167 W. Fox Is. H=20 52 57 USCGR					
12.	✓ P	Z	21	08	14
12.	✓ P	Z	21	34	50
12.	iP Z, P i eS iP:compression	NE Z E	21	41	11.3 23.1 47 21
53 N., 167 W. Fox Is. H=21 33 25 USCGR					
12.	✓ iP i iS iP:E	E N E	22	05	47.7 06 00.8 05.6
12.	✓ P	Z	22	25	52

Date	Phase	Comp.	Time(GMT)		
			h	m	s
12.	iP ✓ i i iP:W	E EZ Z	23	38	22.3 57 15
13.	P ✓ i iS i	Z N N Z	07	49	55 14 25 40.9
13.	✓ eP	Z	10	15	45
13.	P i e ✓ SorSKS e SS e L L	NZ E Z NE Z E N N E	11	11	29 36.8 21 03 06 45 47 22 31
Mag. $5\frac{1}{4}$ - $5\frac{1}{2}$ (Matsushiro) 50 S., 126 E. South of Australia. H=10 58 44 USCGRS					
13.	✓ e i	Z Z	11	15	52 07
13.	✓ eP iS	NEZ NEZ	14	41	10 12.8
13.	eP ✓ i i i iS	Z N Z N NE	19	16	17 25 36 38 41
13.	✓ eP i	Z Z	21	21	12 29
14.	iP ✓ iP i i iP:N,W,dilatation	NZ E Z N	08	01	02.9 03.2 57 18
14.	✓ P i	Z Z	08	15	59.8 11
14.	✓ P P P:E	NZ E	10	25	42 42.4
14.	✓ eP iS	EZ NEZ	14	03	38 39.8
14.	✓ iP	Z	18	36	35.0 (cont.)

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued					
	i ✓ i e e iP:compression 12 N., 161 $\frac{1}{2}$ E. H=18 29 59	E N E N	18	37	38 47 49 09
Marshall Is. USCGRS					
14.	iP ✓ i i iP:N,E,compression	NEZ Z NEZ	18	39	07.5 19 34
14.	✓ P i S?	NEZ N N	20	15	57 57.4 15
14.	✓ e e	N E	20	26	13 26
14.	✓ eP iS	E NE	20	33	22 24.1
15.	✓ P i P:S,compression	NEZ N	01	53	45.2 24
15.	✓ iP i iP:S,E,dilatation 18 $\frac{1}{2}$ S., 177 $\frac{1}{2}$ W. H=02 40 20	NEZ Z	02	51	28.8 31
Fiji Is. USCGRS					
15.	P i i iS i i i i P:compression Central Honshu, Japan. Artificial explosion: J.M.A.	Z E N Z NE Z Z Z	03	00	23.3 23.4 23.8 38.3 41.8 42.5 49 50.5
15.	P i S iS L Mag. $5\frac{1}{4}$ - $5\frac{1}{2}$ (Matsushiro) 9 S., 150 E. Near coast of New Guinea. H=11 32 38	EZ Z Z N NE	11	41	13 34 55 01 53.0
USCGRS					
15.	✓ eP	Z	12	00	30
15.	✓ eP	Z	12	34	11

Date	Phase	Comp.	Time(GMT)			Date	Phase	Comp.	Time(GMT)		
			h	m	s				h	m	s
15.	iP	NEZ	15	04	42.4	16.	iP	NZ	07	23	40.7
	PcP	Z		05	02		eP	E			41
	sP	Z		06	38		i	Z		25	58
	sP	N			40		iP:compression				
	i	Z		07	07		15 S., 169 E.				
	PP	Z			15		New Hebrides Is.				
	iPPP	Z		08	59		H=07 13 39 USCGS				
	i	N		09	03						
	sPP	N			15	16.	P	Z	07	31	23
	iS	N		12	56		i	N			37
	iS	EZ			58						
	iScS	NZ		13	56	16.	P	Z	08	23	57
	i	NE		16	26		i	Z		25	01
	sSS	E		20	15		e	N		26	52
	PKPPKP	Z		32	56		e	N		27	05
	iP:N,W,compression						S	NE		32	43
	Mag. 6 2/3 (Matsushiro)						L	NE		40	16
	18 S., 178 1/2 W. Fiji Is.						Mag. 5 3/4 (Matsushiro)				
	h:600 km ca.						14 1/2 S., 177 1/2 W.				
	H=14 54 37 USCGS						Fiji Is. region.				
							H=08 13 07 USCGS				
15.	P	Z	16	14	31 ca.	16.	P	Z	09	18	34
15.	P	NEZ	17	29	33	16.	P	NZ	13	55	54
	i	E		30	01.6		iP	E			54.0
	i	N			04		i	N		56	07
	i	Z			12		iS	NE			11.1
	i	EZ			26		iP:W				
	S	E		36	13	16.	iP	EZ	18	01	53.7
	S	N			23		iS	NE			59.7
	L	E		41	08		iP:W				
	L	N			11	16.	P	NZ	19	03	01
	Mag. 5 3/4 (Matsushiro)						i	Z			08
	9 1/2 S., 150 E.						i	Z		05	05
	Near north coast of New Guinea.						i	N			10
	H=17 20 56 USCGS						e	N		08	23
15.	P	NEZ	17	45	03		e	N		16	15
15.	P	Z	20	29	32.4	16.	P	NEZ	19	21	21
15.	eP?	Z	21	40	40	16.	P	NEZ	19	24	46
	S	NZ		46	16		i	N		27	17
15.	eP	NZ	21	51	31		P:dilatation				
16.	P	E	01	20	00	16.	P	Z	20	05	27
	iP	NZ			00.1		S	E			55
	iP:S,dilatation						e	Z		06	02
	14 1/2 S., 167 1/2 E. New Hebrides Is.					16.	P	NEZ	22	00	09
	h:100 km ca.						S	NZ			27
	H=01 10 12 USCGS						iS	E			27.2
16.	P	Z	03	42	55	16.	e	Z	23	58	49
	P	NE			56	17.	iP	NEZ	00	28	45.0
	i	Z			59		(cont.)				
	i	Z		43	07						
	iS	NE			52						
	i	Z		44	13						

Date continued	Phase	Comp.	Time(GMT)		
			h	m	s
✓	i	Z	00	29	04
	iS	NE, S Z			58
	iP:	N, E, dilatation			
		42.6 N., 141.5 E.			
		Hokkaido, Japan.			
		h: 110 km ca.			
		J.M.A.			
17.	iP E, P Z		04	18	12.5
✓	iP	N			13.0
	iS	E			26
	iP:W				
17.	P	Z	04	27	01
✓	iP	NE			02.0
	iP:S				
17.	eP	EZ	07	21	08
	i	NZ			09.4
	i	E			16
✓	i	Z			19
	S	E			49
	eS?	N			53
	i	Z	22	27	
17.	iP EZ, P N		08	35	49.4
✓	iS	NZ		36	06
	iS	E			06.4
	iP:W,	compression			
17.	P	EZ	10	37	11
✓	i	NE			20
	S	E			52
	S	N			58
17.	eP?	Z	10	41	44
✓	S?	NE			58
17.	iP	EZ	10	50	17.0
✓	iP	N			17.2
	iS	N			34.9
	iS	E			37
	iP:S, E,	dilatation			
17.	P	Z	13	51	33.8
✓	P	N			34
	S	N			54
	S	E			56
17.	P	NZ	14	04	09
✓	S	NE			30 ca.
17.	P	NZ	15	03	28
✓	S	E			51
17.	P	EZ	15	10	04
✓	i	Z			18
	i	Z			32
	S	E	12	13	
	L	N			56

Date continued	Phase	Comp.	Time(GMT)		
			h	m	s
		27 N., 141 E.			
		Bonin Is. region.			
		H=15 07 30			
		USCGS			
17.	eP	NEZ	19	04	06.6
✓	S	NEZ			15
17.	iP	NEZ	19	09	39.3
✓	i	E		10	07
	i	EZ		11	56
	iS	E		12	07
	iS	N			09
	i	E			23
	L	E			41
	L	Z	13	18	
	L	N			39
	iP:	N, W, compression			
		Mag. 6.1 (Matsushiro)			
		25 N., 142 1/2 E. Volcano Is.			
		H=19 06 43			
		USCGS			
17.	eP?	Z	19	14	35
✓					
17.	eP?	Z	19	18	46
✓					
17.	eP	Z	21	47	32
✓					
18.	P	Z	01	26	36
✓	e	E			54 49
	L	E			58 53
		Mag. 5 1/4 - 5 1/2 (Matsushiro)			
		68 1/2 N., 16 W.			
		Off north coast of Iceland.			
		H=01 15 02			
		USCGS			
18.	P	NEZ	01	51	11.2
✓	i	NE			34
	i	N			38
	e	E			39
	P:W,	compression			
18.	P	NEZ	04	17	53.1
✓	iS	NE		18	16.6
	P:	compression			
18.	e	E	05	04	34
✓	eL	E		18	11 ca.
	eL	N			21 ca.
		69 N., 16 W.			
		Iceland aftershock.			
		H=04 34 04			
		USCGS			
18.	P	Z	05	45	20
✓					
18.	eP	Z	06	41	57
✓	P	NE			58
18.	eP	EZ	08	07	18
✓	i	N			44

Date	Phase	Comp.	Time(GMT)		
			h	m	s
19.	✓ P compression	Z	13	46	44
19.	✓ P i S? S P:E,dilatation	NEZ E NZ Z	13	51	39.8 53 26 41 42
19.	✓ eP i S S	NEZ NE E Z	15	00	58 01 08 53 56
19.	✓ P e e SorSKS SorSKS e L Mag. 5 3/4 - 6 (Matsushiro) 52 1/2 S., 140 E. South of Tasmania. H=18 02 15	NZ Z NE E N E NE	18	15	12.2 18 59 23 00 26 03 08 31 35 38 36
19.	✓ eP S	NEZ NE	20	02	14 33
20.	✓ eP	Z	00	28	56
20.	✓ eP eS eS eL L Mag. 5 1/2 (Matsushiro) 16 S., 173 W. Samoa Is. region. H=00 47 58	Z E N E N	00	59	13 01 08 20 28 16 36 17 02
20.	✓ iP S iP:E,compression Central Honshu,Japan. Artificial explosion J.M.A.	NEZ NE	03	00	11.5 18
20.	✓ iP S iP:N,E,dilatation	NEZ NEZ	08	03	54.8 04 16
20.	✓ eP S	Z NE	09	52	44 53 01
20.	✓ P iS P:N,compression	NZ NE	10	05	32.9 42

Date	Phase	Comp.	Time(GMT)		
			h	m	s
20.	✓ P i i S P:E	NEZ E E NE	10	15	55.1 16 06 13 21
20.	✓ iP S iP:N,dilatation	NZ NE	10	22	34.1 43
20.	✓ eP	E	10	26	59
20.	✓ P S	NZ NE	10	29	50 57.8
20.	✓ P S P:W	NE NE	10	52	55 53 43
20.	✓ P Z, eP S L	NE NE N	12	15	22 16 43 17 10
20.	✓ P P ePP e P:E,dilatation 20 1/2 S., 179 W. Fiji Is. h:600 km ca. H=17 32 36	NZ E E N	17	42	52.8 52.9 45 39 46 48
20.	✓ P e e e e	NEZ E N E N	17	49	32.9 50 51 52 15 53 59 54 07
20.	✓ P EZ, eP eS i i i L i Mag. 5.5 (Matsushiro) 31 1/2 N., 129 1/2 E. East China Sea. H=19 17 10	NZ E N Z EZ NE E	19	19	19 21 21 38 50 58 22 03 41
20.	✓ P iS	EZ E	19	32	26 28.3
21.	✓ P P i i P:N,compression	NZ E N E	01	29	26.8 27.2 30 20.7 22.4
21.	✓ e	N	08	38	32

Date	Phase	Comp.	Time(GMT)		
			h	m	s
21.	✓ P i	NEZ E	10	35	01 04.9
21.	✓ P S S	EZ NE Z	14	28	41.7 05.7 06.3
	P:dilatation				
21.	P ✓ P i i i i e	NZ E N Z E EZ N	15	53	04.2 04.6 54 06.1 17.6 55 19.1 21 56 03
	P:N,dilatation				
21.	✓ iP S i iP:E	NEZ N EZ	20	28	20.0 24.9 26.3
21.	✓ iP iS iP:E	EZ EZ	20	33	26.9 33
21.	✓ iP S iP:N,E	NEZ E	20	35	09.0 15
21.	✓ iP i S iP:N,E	NEZ N EZ	20	56	46.9 51.6 53
21.	P iP ✓ i S L L	NE Z NE NE E N	23	44	30.7 31.0 31.8 48 39 49 46 50 07
	iP:compression Kamchatka. H=23 39 30 USCGS				
21.	✓ iP iP iS iP:N,E	Z NE NEZ	23	58	36.2 36.7 44.1
22.	✓ iP e S	E N EZ	02	14	56.3 01 03
22.	✓ P i S N	NZ NE N	02	29	04.2 05.0 11
	P:dilatation				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
22.	eP ✓ iP i iS? i L?	E NE NEZ N E N	04	59	59 05 00 00.6 10 01 41 43.9 03 01
	44 N.,147 E. Southern Kurile Is. H=04 57 38 USCGS				
22.	✓ iP iS iP:N,W,dilatation Mag. 5.7 (Matsushiro) 37 N.,135 E. Sea of Japan. h:350 km ca. H=05 29 29	NEZ NEZ	05	30	30.6 31 17.1
	USCGS				
22.	✓ i i	E N	11	21	35.3 35.6
22.	P i ✓ iS i	N N NE N	11	45	29 33.3 34.5 35.3
22.	✓ iP iS iP:N,E	NE NE	12	10	13.3 19.8
22.	✓ P S i P:N,E	NE N E	12	12	47.9 56.8 58.3
22.	✓ iP iS iP:S,W	NE NE	12	17	05.0 11.4
22.	✓ iP iS iP:W	E E	12	33	10.6 16.8
22.	✓ iP i iS iP:W	NEZ E NE	12	45	03.7 04.7 09.8
22.	✓ iP i S i iP:N	NEZ N NEZ E	13	15	20.3 24.8 26.3 44.0
22.	✓ iP i S N	NEZ E NEZ	14	01	55.9 59.3 02 02.1
	iP:N,E				

Date	Phase	Comp.	Time(GMT)			Date	Phase	Comp.	Time(GMT)		
			h	m	s				h	m	s
22.	✓ iP S iP:E	E, eP N NE	14	13	03.2 09.8	22.	✓ iP iS iP:N	NEZ NE	18	12	00.4 06.8
22.	✓ P S i	E N E	14	13	35.3 41.5 52	22.	✓ iP iS iP:N,E,compression	NEZ NE	19	32	03.9 10.2
22.	✓ iP i iS iP:E	NEZ N NEZ	14	18	48.5 51.3 54.8	22.	✓ iP iS S	E N E	19	34	24.0 30.3 31
22.	iP i i ✓ e e L iP:compression	Z E N N N	14	26	05.5 06.0 12.9 33.0 36.2 41.5	22.	✓ iP iS iP:N,compression	NZ NE	21	58	42.9 49.5
22.	✓ iP iS iP:N,E	NEZ N	14	51	17.9 24.3	22.	✓ iP iS iP:N,E,compression	NEZ NE	22	04	38.7 44.9
22.	✓ iP i i iS iP:N,E	NEZ E E N	14	54	23.3 24.3 28.8 29.4	23.	iP i i i iLq iLr iL L Mag. 6½ (Matsushiro) 49 N., 102 E. Outer Mongolia. H=05 10 03	N N NE NE E NE E Z	01	13	21.7 22.7 30 33.1
22.	✓ iP i iS iP:N,E,compression	NEZ E NE	14	55	18.8 22.3 24.9	23.	✓ eP S i iLq iLr iL L	N NE N E NE E Z	05	16	05 20 44 22 05 25 24 11 20 25 19
22.	✓ iP iS iP:N,E	NEZ NE	15	04	21.9 28.3	23.	✓ iP iS i	NZ E E	05	39	17.1 20.1 35.2
22.	✓ iP iS iP:N,E,compression	NEZ N	15	42	01.0 05.8	23.	✓ iP P sP? i P:W	NZ E E E	07	29	05 05.3 49 30 06.3
22.	✓ iP iS iP:N,E	NEZ NE	15	44	20.8 27.2	23.	✓ iP P sP? i P:W	NZ E E E	07	29	05 05.3 49 30 06.3
22.	✓ iP iS iP:N,E	NEZ E	16	18	58.3 19 04.6	23.	✓ iP iS i iP:N,E	NE E N E	12	44	40.8 46.3 46.8 57.3
22.	✓ iP iS iP:N,E,compression	NEZ NE	16	20	19.8 26.2	23.	✓ iP i i iP:N,E	NEZ N N	12	50	41.3 51 14 21
22.	✓ iP iS iP:N,E	NEZ E	16	32	46.5 52.8	23.	✓ iP i i iP:E,dilatation	NEZ N N	12	50	41.3 51 14 21

Date	Phase	Comp.	Time(GMT)		
			h	m	s
23.	iP S iP:S,E,dilatation	NEZ Z	17	13	32.8
				14	14
23.	iP eS? iP:S,E,dilatation 18 S.,178 W. Fiji Is. h:650 km ca. H=18 53 23	NEZ E	19	03	25.8
				11	41
23.	iP eS? iP:S,E,dilatation 18 S.,178 W. Fiji Is. h:650 km ca. H=19 17 43	NEZ E	19	27	46
				36	00
23.	iP iS iP:N,E,compression	NEZ NE	19	51	08.7
					15.0
23.	iP i iS iP:N,E,compression	NEZ N NE	20	30	32.4
					36.6
					38.3
23.	iP S iP:N	NE NE	23	08	45.3
					51.6
23.	iP S	Z Z	23	43	02
					08.3
24.	P S SS L P:N,E,compression Mag. 5 3/4 - 6 (Matsushiro) 8 1/2 S.,112 E. Near south coast of Java. h:200 km ca. H=00 09 18	NEZ E N E	00	18	06.7
				25	15
				28	55
				30	59
24.	iP iS iP:N,E,compression	NEZ NE	01	08	54.3
				09	00.7
24.	iP iS iP:N,E	NEZ NE	01	11	38.1
					44.4
24.	iP E, P N iS	NE	01	12	20
					26
24.	iP S	NEZ NE	03	32	11.9
					18

Date	Phase	Comp.	Time(GMT)		
			h	m	s
24.	iP i iS	NE N NE	04	23	51
					54.8
					56.5
24.	iP i iS iP:N	NE E NE	04	31	29.2
					32.9
					35.5
24.	iP iS? iLq? L	NEZ N N N	04	56	42
			05	03	26
				06	39
				12	07
					30 1/2 N., 78 1/2 E. Western Sinkiang Province, China. H=04 48 15
24.	P S	EZ NEZ	06	11	12
					18
24.	eP e eL? L	Z N N N	06	55	02
					57 05
			07	02	19
					46.0
24.	iP iP i iP:N,E	EZ N NE	08	19	31.2
					31.7
					39.7
24.	iP e iS iP:N,E	NEZ N NE	08	59	51.7
					56
					57.7
24.	P eS? P:W,compression	EZ NE	10	33	11
					35 19
24.	iP iS iP:N,E	NEZ NE	13	02	45.9
					52.4
24.	iP iS iP:E	NEZ NE	13	30	39.2
					45.7
24.	iP iP iS iP:compression	Z E E	18	38	31.6
					32.0
					38.6
24.	e e	N E	18	39	55
					40 32
24.	iP iS iP:E	EZ NE	20	03	24.9
					31.0

25. iP NEZ 01 51 19.3
 i NE 20.3
 ✓ i Z 30.1
 i E 52 55
 i NE 53 01
 i N 48.4
 S NEZ 55.4
 iP:S,W,dilatation

25. iP EZ 02 59 40.5
 ✓ i E 46
 i E 54
 iP:E,compression

25. iP Z 04 28 13.1
 i NE 13.4
 ✓ i E 27
 i E 29 04
 e E 09
 iP:compression

25. ✓ iP EZ 05 10 09.7
 iS NE 15.9
 iP:E,compression

25. ✗ i N 09 39 13

25. iP NZ 09 44 07.7
 e E 10
 i E 12.2
 i NZ 13.1
 ✓ PcP Z 46 06
 PPP Z 33
 pPPP? Z 47 13
 PcS? Z 49 48.1
 iS E 50 10
 iLq E 53 16
 iL E 31
 iLr Z 56 02
 iL Z 58 40
 iL N 43
 Mag. 6 3/4 - 7 (Matsushiro)
 3 S., 144 1/2 E.
 Near north coast of New Guinea.
 H=09 36 30 USCGS

25. ✓ iP Z 10 12 03.2
 S N 06

25. ✓ iP Z 12 52 00.0
 i E 26.5
 PPP E 54 51.0
 PcS? N 57 41
 S Z 58 08
 iL N 13 04 57
 iP:compression
 Mag. 5 3/4 - 6 (Matsushiro)
 5 S., 152 E. New Britain.
 H=12 43 55 USCGS

25. iP Z 16 01 22.4
 i EZ 22.8
 ✓ i Z 51.5
 i E 02 33
 e N 03.0
 iP:compression

25. ✓ P Z 20 45 14
 e Z 55 43
 L? N 57 48

25. ✓ iP NZ 23 27 51.8
 iS N 31 02
 iP:N,dilatation
 52 N., 152 1/2 E.
 Sea of Okhotsk.
 h:450 km ca.
 H=23 24 03 USCGS

25. ✓ iP NEZ 23 54 03.7
 i E 16
 e E 59 37
 eL E 00 02 07
 N 04 16
 iP:S,W,compression

26. ✓ iP EZ 00 18 43.7
 iS N 50.1
 iP:E,compression

26. ✓ iP Z 00 28 04.2
 iP E 05
 iS NE 10.2
 iP:compression

26. ✓ iP NEZ 01 04 08.4
 iS N 15.2
 iP:N,E

26. ✓ iP NEZ 02 06 50.1
 i N 52.9
 iS E 55.9
 S N 56
 iP:E,dilatation

26. ✓ iP NEZ 03 50 52.4
 iP:N,W,compression

26. ✓ iP NEZ 04 43 19.1
 iS E 47 18.2
 sS EZ 48 09.2
 i E 49 44.2
 iPcS Z 50 31.2
 iScS N 54 15.2
 i E 55 16.7
 iP:N,E,dilatation
 Mag. 6 1/2 (Matsushiro)

(cont.)

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued					
54½ N., 159½ E. Kamchatka. H=04 38 12 USCGS					
26.	iP	N	06	28	48.1
✓	iS	N			54.3
	iP:N				
26.	iP	NZ	07	43	14.3
	i	Z			14.6
	i	E			18.6
	iS	E	46	28	
	i	Z			44
	iL	E	48	23	
	iL	E	49	53	
14 N., 125½ E. Ryukyu Is. H=07 39 21 USCGS					
26.	iP	NEZ	11	29	02.3
✓	iS	E			04.3
	i	E			21
	iP:S,W				
26.	X eL	N	13	49	13
26.	iP	NEZ	15	54	42.1
✓	i	E			55.1
	i	N	56	06	
	e	N			12
	iP:N,E,dilatation				
26.	✓ P	Z	20	05	06.3
	eL?	N	15	09	
	P:dilatation				
26.	iP	E	23	31	10.0
	iS	E			32 18.3
	i	N			44.3
	i	N	34	00	
	L	E	36	01	
	iP:E				
31 N., 141½ E. South of Honshu, Japan. H=23 29 32 USCGS					
27.	iP	N	01	28	27.2
✓	i	NZ			27.7
	S	E	29	37.7	
	i	E	30	02	
	L	N	32	39	
27.	✓ iP	NEZ	01	43	12.1
	S	E			35
	i	N			44
	i	E	44	39	
	iP:S,E,dilatation				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
27.	iP	Z	03	33	11.0
✓	i	N			11.6
	i	N			53
	iP:compression				
27.	✓ P	Z	04	05	56
	i	Z			06 05.7
	L?	N			14 52
	L	N			17 59
27.	✓ P	E	05	48	57
27.	eL	N	06	30	53
✓	L	N			33.5
	L	N			49.0
	L	N			57.3
Mag. 5 3/4 - 6 (Matsushiro) 13 N., 88½ W. Near coast of El Salvador. H=05 44 28 USCGS					
27.	P	EZ	07	42	06.3
✓	i	N			06.9
	i	E			23
	S?	NE			30
	P:E,dilatation				
27.	iP	NEZ	07	47	05.1
✓	S	E			24
	S	NE			25
	iP:S,E,compression				
27.	iP	NZ	09	03	56.0
✓	P	E			56.5
	i	Z			04 21
	i	E			05 43
	eS	E			56
	L	N			06 20
	iP:N,compression				
27.	✓ iP	Z	12	01	14.5
	iS	NE			20.9
	iP:compression				
27.	✓ iP	EZ	14	37	11.0
	iS	NE			17.0
	iP:E				
27.	✓ iP	NEZ	16	23	00.6
	i	N			19
	i	E			24 25
	S?	E			25 04
	iP:S,E,dilatation				
27.	✓ eP	Z	17	36	54
	eL	N			47 09

Date	Phase	Comp.	Time(GMT)		
			h	m	s
27.	✓ e	N	18	20	36
	e	Z			50
	eL	N		24	34
27.	✓ eP	Z	18	36	35
	L	N		45	07
27.	✓ eP	Z	19	31	45
27.	✓ P	NZ	20	19	00
	e	N		30	17
27.	✓ iP	NZ	22	04	56.4
	i	E			56.9
	iS	E		06	10.0
	iP:N,compression				
27.	✓ iP	E	22	40	21.5
	i	E			25.3
	iS	E			28
	iP:E				
28.	✓ iP	EZ	00	25	55.3
	i	E			58
	i	N		26	27
	i	Z			38
	iP:W,compression				
28.	✓ P	EZ	01	02	02
	i	E			05.3
	eS?	E		03	56
P:E,dilatation					
28.	✓ iP	NZ	01	58	52.8
	i	Z			56
	S	E		59	17
	iP:N,compression				
28.	✓ P	Z	02	25	43
	S	E		29	18
	eL	E		30	31
28.	✓ eP	Z	03	46	06
	eS	E		48	52
28.	✓ iP	NEZ	08	00	36.0
	i	E			53
	S	NE		01	03
	iP:S,E,dilatation				
28.	✓ P	NZ	08	44	00.6
	i	E			03.1
	SorSKS	E		54	44
	i	E		58	56
	SSS?	N	09	04	20
	iL	N		08	22
	L	E		09	06
	P:N,compression Mag. 5 3/4 (Matsushiro)				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
28.	✓ iP	Z	11	45	45.5
	i	E			47
	L	N	12	00	.8
	iP:compression				
28.	iP	NZ	19	36	34.4
	iPcP	Z		39	20.1
	✓ S	E		41	53
	L	N		44	31
iP:N,compression Mag. 5 - 5 1/4 (Matsushiro) 12 N., 162 E. Marshall Is. H=19 29 58 USC GS					
28.	✓ P	EZ	20	00	29.1
	iS	E			35.0
P:E					
28.	eP 1	Z	20	08	53
	P 2	Z			58
	✓ i	N		09	03.1
	i	Z			16.1
i	Z			56	
29.	✓ iP	NEZ	01	24	54.7
	iS	NE		25	12
	iP:S,E,compression				
29.	✓ PKP	Z	03	45	09
	i	NE			11
	pPKP 2	Z			55
	ePP	Z		48	48
	e	N			52.4
	PKP:dilatation 15 1/2 S., 70 1/2 W. Southern Peru. h:150 km ca. H=03 25 42 USC GS				
29.	✓ iP	NEZ	06	07	17.8
	S	N			59
	i	NE		08	06
	i	N			09
iP:N,E,dilatation					
29.	✓ P	EZ	06	13	36
	S	E			38
29.	✓ iP	Z	09	25	55.2
	S	N		35	12
	L	N		43	44
	iP:compression 16 1/2 S., 172 W. Tonga Is. H=09 14 37 USC GS				
29.	✓ iP	E	10	29	28.0
	iS	E			31

Date	Phase	Comp.	Time(GMT)		
			h	m	s
29.	✓ P	Z	11	35	27
	iP	E			28
	e	NE		36	34
29.	eP?	Z	12	51	56
	e	Z		52	09
	✓ 15½ S., 173 W. Samoa Is. region. H=12 40 48				USCGS
29.	P	EZ	14	03	40.8
	✓ i	N			41.7
	i	E		04	05
P:dilatation					
29.	✓ iP	NEZ	14	51	12.0
	iS	N			18
	iP:N,E,compression				
29.	✓ P	E	16	08	12
	S	E			17
29.	✓ iP	NE	17	27	17.1
	iS	N			23
	iP:E				
29.	P	EZ	17	45	34
	✓ S	E			40
	i	E			50
	P:E				
29.	✓ iP	E	21	30	10
	iS	E			16.2
29.	eP	Z	23	21	45
	✓ i	NE		24	51
	e	E		29	23
	L	N		31	01
	3½ N., 127 E. Molucca Passage. H=23 14 59				
USCGS					
30.	✓ iP	NE	01	37	03.8
	S	E			10
	iP:N,E				
30.	✓ P	E	02	33	25
	i	N			28
	S	NE			31
30.	✓ P	Z	06	16	42.1
	i	NZ			42.3
	i	E			42.8
	S?	E		17	55
	e	E			18.4
	P:dilatation				
30.	✓ P	NZ	08	54	59.0
	(cont.)				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued					
✓	i	Z	08	55	16
	i	Z			26
	iS	NE	09	05	09
	ScS?	N			52
	L	N		16	54
	P:N,compression 36½ N., 27½ E. Dodecanese Is. H=08 42 33				
USCGS					
30.	✓ P	E	09	21	58
	i	E		22	18
30.	✓ P	E	10	12	27
	S	E			32
30.	✓ iP	E			59
	i	E			
30.	✓ P	NEZ	10	50	15
	S	NEZ			21
30.	✓ P	EZ	11	22	37
	iS	NE			43.5
30.	✓ iP	EZ	13	46	05.4
	S	NEZ			12
	iP:E,compression				
30.	✓ P	Z	16	22	41
	P	N			42
	eL?	N		26	26
	P:dilatation				
30.	iP	NEZ	18	27	52.3
	i	NEZ			53
	i	E			55.0
	✓ iS	E		29	03.5
	i	E			24
	iPcP?	E		34	58
	i	N		36	47
	iP:N,W,compression Mag.6.1 (Matsushiro) 31 N., 141½ E. South of Honshu, Japan. H=18 26 20				
USCGS					
30.	✓ P	NEZ	18	45	46
	eS	E		46	56
30.	✓ P	NE	19	35	39
30.	✓ iP	Z	20	04	09.7
	P	E			09.9
	eS	E		05	18
	iP:W,dilatation				
30.	✓ iP	Z	20	52	31.9
	i	NEZ			32.3
	iS	E		53	40

Date	Phase	Comp.	Time(GMT)		
continued			h	m	s
	i	N	20	53	47
	iP:dilatation				
30.	eP	NEZ	21	54	11

Additional:

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10.	P	N	04	00	39
	P	Z			40
	iS	NE			58.8
	P:compression				

10.	P NZ, eP E		04	12	08.3
	eS?	N		22	03
	eSS	N		27	06
	eSSS	N		30	43
	eL	N		37	33 ca.
	P:dilatation				
	Mag. $5\frac{1}{2}$ - $5\frac{3}{4}$ (Matsushiro)				
	$30\frac{1}{2}$ S., 177 W.				
	Kermadec Is.				
	H=04 00 04				USCGS

10.	iP NZ, P E		04	55	44.1
	i	Z			48.8
	S	NE		57	17
	i	EZ			25
	i	N			27
	i	N		59	41
	iScS	NE	05	07	35.4
	i	E			42.9
	iP:N,W,compression				
	Mag. 6.4 (Matsushiro)				
	$27\frac{1}{2}$ N., 140 E. Bonin Is.				
	h:500 km ca.				
	H=04 53 35				USCGS

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10.	P	NZ	05	10	30
	S?	N		12	12
	i	NE			15

10.	P Z, eP E		07	15	19.2
	eL	E		39	39
	eL	N			40.2
	P:compression				
	$30\frac{1}{2}$ N., $51\frac{1}{2}$ E.				
	Western Iran.				
	H=07 04 02				USCGS

10.	eP	Z	08	01	56
	eS	Z		02	00

Date	Phase	Comp.	Time(GMT)			
			h	m	s	
2.	iP	NEZ	04	26	10.2	
	i	EZ			17.2	
	e	Z			18	
	e	EZ			24	
	iS	NZ			33.0	
	i	Z			43.2	
	i	N			45.0	
	i	E			47.0	
	iP:S,W,dilatation 35.4 N.,136.2 E. Central Honshu,Japan.					
	2.	iP	Z	04	58	36.0
iP		E			36.7	
i		Z			55.7	
S		E	05	07	13	
eL		E		17	39 ca.	
iP:dilatation 18 S.,177 W. Fiji Is. h:350 km ca. H=04 48 03 USCGS						
2.	iP	NEZ	06	50	07.4	
	i	N			56	
	iS	E			58.8	
	e	E			51.4	
iP:S,E,dilatation						
2.	eP	NEZ	16	45	43	
	i	NE		44	51.6	
2.	P	NEZ	18	58	09	
	iS	NEZ			15.2	
2.	iP	Z	19	58	51.0	
	e	E			56	
	iS	N			57.0	
2.	eP	Z	21	55	58	
	e	Z		56	58	
	iS	E			58.7	
	iS	N			54.2	
2.	iP	NEZ	25	31	19.3	
	iS	NEZ			55.5	
	iP:E,dilatation					
3.	iP	Z	05	57	54.9	
	e	E			59	
	e	N		58	00	
	i	Z			05.0	
	i	E			13	
	e	Z	06	02	58	
	eS	NE		08	55	
	eSS	N		14	09	
	eSSS?	N		17	45	
	eL	N		20	55	
	eL	E			21.3	
	(cont.)					

Date	Phase	Comp.	Time(GMT)			
			h	m	s	
continued						
3.	iP	iP:dilatation				
	Mag. 6 (Matsushiro)					
	18 S.,86 E. Mascarene Is.					
	Mascarene Is. region.					
	H=05 45 07 USCGS					
	P	Z	06	38	53.1	
	i	E			55.0	
	PoP	NEZ			56.9	
	i	NE			58	
	eS	N		47	39	
e	E			46		
iScS	E		48	11		
eSPoP	E		50	54		
eSS	N		52	47		
eSSS	N			56.6		
Mag. 6.6 (Matsushiro)						
23 1/2 S.,179 E.						
Kermadec Is. region.						
h:400 km ca.						
H=06 27 44 USCGS						
3.	iP	NZ	07	46	07.3	
	P	E			07.6	
	i	N			35.7	
	i	Z		48	27.2	
iP:N,W,dilatation						
3.	eL	N	12	14	50 ca.	
3.	iP	NEZ	12	50	59.2	
	iS	NZ		53	21.1	
	iS	E			22.1	
	iScP	Z		58	45	
	iP:N,E,dilatation Mag. 6.1 (Matsushiro) 48 N.,147 E. Sea of Okhotsk. h:400 km ca. H=12 48 00 USCGS					
3.	iP	NEZ	15	07	52.0	
	iS	NEZ		08	32.1	
	iP:N,E,compression					
3.	iP	Z	15	20	24.3	
	eP	NE			25	
	i	Z			58.7	
	iP:dilatation					
4.	iP	NZ	00	50	53.4	
	iP	E			53.9	
	S?	N		40	20	
	eL	NE		53	30 ca.	
	iP:N,E,compression 19 S.,175 1/2 W. Tonga Is. H=00 19 28 USCGS					
	4.	P	NEZ	00	54	09

Date	Phase	Comp.	Time (GMT)		
			h	m	s
4.	iP	Z	02	35	36.8
	i	N			53.3
	i	E			59.5
	i	Z			43
	eS	NE	46	09	
	eSS	N	51	50	
	eL	N	58	48	
4.	iP EZ, P N		08	05	44.1
	S	E	06		25.1
	iS	N			25.4
	iP:N,E,dilatation				
4.	iP	NEZ	09	03	23.9
	iS	EZ			25.7
	iP:S,W,compression				
4.	iP	EZ	09	17	09.9
	eP	N			11
	e	E	18		21
	iS	N			29.3
iP:dilatation					
4.	iP	N	13	26	52.3
	e	Z			58
	eL	N	38	26	
iP:S					
4.	eP	NEZ	13	34	22
	eL	N			52 24
	eL	N			57 37
4.	iP	NEZ	18	40	40.3
	i	Z			53.9
	i	Z			55.6
	i	E			56.2
	pP	N			59.8
	eP	N	41		24.3
	iPP	NE			51
	i	NZ	42		04.5
	iPP	E			23.4
	iPP	Z			30.9
	i	N			44.0
	e	N	45		42
	iS	E			52
	i	N			53
	iPcS	E	47		02.3
	iPcS	Z			03.4
	i	N			06.8
iL	NE			57	
iL	N	50		05	
iScS E, eScS N		51		02	
iP:N,E,compression					
Mag. 6 (Matsushiro)					
6 N., 125 E.					
Near south coast of Mindanao,					
Philippine Is.					
H=18 34 03					
USCGS					

Date	Phase	Comp.	Time (GMT)		
			h	m	s
5.	e	N	02	45	51 ca.
5.	iP	Z	06	32	46.2
	i	Z			59.5
iP:dilatation					
5.	iP	Z	07	56	30.0
	iP	NE			30.2
	iS	NEZ			36.2
iP:E,compression					
5.	iP	EZ	09	22	33.7
	iS	EZ			54.3
	e	N			59
iP:E,compression					
5.	iP	EZ	11	42	00.3
	e	N			56
iP:W,compression					
5.	iP	NEZ	12	49	10.5
	e	N			50 07
	iS	EZ			09.4
iP:S,E,dilatation					
5.	eP 1	Z	14	02	27
	iP 2	NEZ			28.0
	iS	E			49.8
	iS	NZ			51.5
	i	Z	03		20.5
iP 2:N,E,compression					
5.	iP?	Z	14	03	20.4
	eS	N			12 03
	e	N			22 51
5.	P	NEZ	16	24	08.0
	P:S,W,compression				
5.	P	NEZ	16	58	27
5.	iP	NEZ	23	23	14.5
	S	EZ			24 24
	i	E			28.3
	i	N			32
	iL	N			47
iP:N,W					
6.	iP	Z	03	09	02.9
	iP	NE			03.4
	i	Z			06
	i	N			21.2
	iS	N			34.1
iP:compression					
iP:E					
6.	iP	NZ	03	25	05.8
(cont.)					

Date	Phase	Comp.	Time(GMT)		
			h	m	s
	continued				
	i	E	03	25	06.2
	i	Z			26.3
	i	Z	26	18.2	
	i	Z			19.8
	i	N			20.4
	iP:N,dilatation				
6.	iP	NEZ	04	49	17.0
	i	Z			24.3
	i	Z			49.4
	eL	E	05	00	ca.
	iP:S,W,compression 55 N.,100 $\frac{1}{2}$ W. Alaska Peninsula. H=04 40 59 USCGS				
6.	iP	Z	06	35	59.9
	compression				
6.	e	E	07	51	ca.
6.	iP	NEZ	08	37	43.1
	iS	EZ			54.3
	iS	N			54.6
	iP:N,E,compression				
6.	iP	NEZ	09	16	38.7
	iS	NEZ			53
	iP:N,W,compression				
6.	iP	NEZ	13	49	13.7
	iS	EZ			20.4
	i	N			23.2
	iP:S,W,compression				
6.	P Z,eP	NE	16	11	55
	eS	E			18 41
	eLq	E			22 52
	eLr	E			25 29 ca.
	Mag. 5 - 5 $\frac{1}{2}$ (Matsushiro) 68 N.,155 W. Central Alaska. H=16 05 14 USCGS				
6.	iP	NEZ	17	27	45.0
	iS	NEZ			47.5
	iP:W				
6.	e	E	19	54	48
	eL	E			53.2
6.	iP	NEZ	23	13	26.9
	e	E			27 27
	i	N			28.4
	i	E			41.3
	iP:compression				
6.	iP	NEZ	25	35	53.1
	e	E			57 03
	(cont.)				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
	continued				
	iS	NE	23	37	03
	i	E			27
	i	Z			38 13.7
	iP:S,E,dilatation 31 N.,142 E. South of Honshu, Japan. H=23 34 17 USCGS				
7.	iP	NEZ	01	57	51.4
	iS	NEZ			53 10.7
	i	Z			11.7
	iP:N,compression				
7.	iP	N	05	22	38.2
	i	E			38.3
	e	EZ			23 24
	i	N			55.5
	iP:eP	Z			25 22.9
	eS	NE			27 57
	eL	N			29 25
	iP:N 50 $\frac{1}{2}$ N.,100 W. Andreanof Is. H=05 16 04 USCGS				
7.	P	NE	30	20	45.4
	i	Z			46.7
	i	Z			47.6
	i	N			52.5
	i	E			21 57.0
	e	NE			22 19
	P:dilatation				
7.	eP	NEZ	11	32	18
	e	N			58 02
7.	iP	NEZ	12	30	12.5
	i	Z			13.7
	i	W			31 17.1
	i	Z			20.6
	e	E			21
	e	Z			25
	eS?	NE			57
	iP:N,W,compression				
7.	iP	Z	13	44	32.2
	S	E			49 50
	e	N			53
	eL	N			52 27
	iP:dilatation 50 $\frac{1}{2}$ N.,179 $\frac{1}{2}$ E. Andreanof Is. H=15 38 00 USCGS				
7.	P	EZ	14	16	50
	iS	NEZ			52.9
7.	iP	NEZ	14	46	57.0
	i	E			47 03.9
	i	N			44.4
	iP:N,W,dilatation				

Date	Phase	Comp.	Time(GMT)			Date	Phase	Comp.	Time(GMT)			
			h	m	s				h	m	s	
7.	eL	E	16	03	40	8.	iP	Z	17	11	14.0	
	eL	N		06	23		iP	NE			14.4	
7.	e	N	18	09.9			i	Z			25.5	
	e	N		19	21		i	EZ			44	
8.	iP 1	EZ	02	07	38.9		i	N	12		25.1	
	iP 2	NEZ			39.5		e	E			46	
	i	Z			46.4		e	N			49	
	i	Z			52.8		i	Z	14		49	
	i	N	08		06.7		e	E	16		08	
	i	E			19.0		iP:compression					
	iS	N			27.7		iP:S,E					
	i	N			28.7	8.	iP	Z	18	05	36.4	
	i	Z			43.9		iP	N			36.7	
	iP 1:W,compression						i	N	06		45.5	
	iP 2:S,E,dilatation						i	E			57.2	
							e	E	07		21	
8.	iP	Z	05	10	52.1		iP:dilatation					
	i	Z			55.0		iP:N					
	i	N			54.4	8.	ePP?	Z	23	08	35	
	i	EZ			55.2		ePS	N			18 15	
	iS	NEZ			58.4		ePS	E			20	
8.	iP	NZ	06	18	01.7		e	N			21 26	
	i	E			02.5		e	N			23 54	
	eS	NE			27 33		eSS	E			24 44	
	eSSS	NE			35 40		eL	NE			43.7 ca.	
	eL	E			37 00		Mag. 5 3/4 - 6 (Matsushiro)					
	eL	N			38 08		43 S., 41 1/2 E. Indian Ocean,					
	eL	E			47 10 ca.		northeast of Prince Edward Is.					
	of	N	07	05	30		H=22 48 36 USCGS					
	iP:compression					9.	iP	EZ	01	52	49.6	
	Mag. 5 1/2 - 5 3/4 (Matsushiro)						i	N			53 25.5	
	21 1/2 S., 17 1/2 W. Tonga Is.						e	N			55 55	
	H=06 06 25 USCGS						iP:E,dilatation					
8.	eP	EZ	06	29	05	9.	iP	NZ	06	25	05.5	
	iS	NE			09.2		iP	E			05.8	
8.	iP	EZ	07	49	34.2		iS	NEZ			21.8	
	eP	N			35		iP:iS,compression					
	iS	Z			52.7		iP:E					
	iS	NZ			53.0	9.	iPNZ,	eP	E	14	04	44.2
	iP:E,dilatation						PcP	Z			05 02.3	
8.	iP	NZ	12	37	41.4		eS?	N			13 12	
	iP:N,W,dilatation						eS?	E			16	
8.	P E, eP	Z	13	11	24.2		SSS	NE			21 19	
	i	N			25.1		eL	E			36 46	
	i	N			28.1		eL	N			38 22	
	i	Z			28.4		iP:S,dilatation					
	i	E			29.7		20 1/2 S., 178 1/2 W. Fiji Is.					
							h:600 km ca.					
							H=13 54 27 USCGS					
8.	eP	NEZ	15	38	22	9.	eP	Z	15	36	54	
	iS	EZ			47.9		e	N			57 49	

(cont.)

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued	eL	E	16	27	17
	eL	N		32	13
9.	iP	Z	20	18	17.4
✓	i	NZ			26.7
	i	E			40.1
	eL	E	20		37 ca.
	eL	N	21		16
	iP:compression				
10.	iP	Z	06	12	16.2
✓	iP	NE			16.5
	i	NE			24.2
	iS	NEZ			53.2
	iP:compression				
10.	iP 1	Z	03	25	40.0
✓	iP 2	NEZ			41.0
	i	E			42.3
	i	Z			43.7
	i	NEZ			44.2
	i	E			49.0
	i	Z			50.0
	i	NE			51.3
	i	E	27		00.5
	ePP	NZ			53
	i	E	28		56
	e	N			45
	i	N	31		09
	i	N			12
	i	E			27
	iS	NE	33		53
	i	NE			37
	i	N			44
	i	EZ			43
	i	Z			52
	i	E			59
	i	N	34		31
	i	Z	36		17
	i	N			35
	iSS	E	37		15
	Lq	E	38		29
	iLr	EZ	41		21
	iLr	N	42		09
	eL	EZ	43		44
	iL	Z	47		50
	ePKPKP?	Z	56		41 ca.
	iP 1:compression				
	iP 2:N,E,dilatation				
	Mag. 8 $\frac{1}{2}$ - 8 $\frac{3}{4}$ (Matsushiro)				
	58 $\frac{1}{2}$ N., 156 W.				
	Southeastern Alaska.				
	H=06 15 54 USOC3				
10.	iP	EZ	06	47	20
✓	iP:E,dilatation				
10.	eP	Z	08	07	43

Date	Phase	Comp.	Time(GMT)		
			h	m	s
10.	iP	Z	08	45	37.4
✓	dilatation				
10.	P	Z	08	49	05.9
✓	i	Z			28.3
10.	iP	NEZ	09	12	48.7
✓	iS	NE			13 07
	iS	Z			03
	iP:S,W,compression				
10.	P	Z	12	56	15.3
✓	i	Z			57 13.3
	e	N			48 45
	c	E			49 58
10.	eP	NZ	13	26	11
✓	iP	Z	14	18	43.2
	iS	Z			19 05.1
	iS	NE			06.1
	iP:dilatation				
10.	eP	NZ	15	11	40
✓	e	N			24 31
	e	N			51 57
	e	E			40 17
	e	N			28
	e	N			45 57
	e	E			56.5
	e	N	16	01	49 ca.
	eL	E			14 38
	eL	N			16 13
10.	eP	NEZ	20	05	08
✓	i	NZ			12.5
	i	E			18.2
	i	Z			06 04.1
	iS	N			29.0
	e	E			36
11.	P	Z	00	26	57
✓	i	N			29 16
	ePP	N			30 40
	eS	N			34 44
	eLr	E			36 58
	eL	N			39 52
	eL	E			40 28
11.	iP	EZ	02	24	54.0
✓	iP	N			54.1
	iP:W,compression				
11.	P	Z	03	00	09
✓	i	Z			25
	S	NEZ			26
	F:dilatation				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
11.	iP	Z	06	22	50.6
	i	Z			45
	i	E			46
	i	N			47
	i	Z	28	05	05.6
	iP:compression				
11.	iP	NEZ	07	50	02.7
	PcP	Z		52	51.4
	e	N		54	51
	eL	NE		58	11
	iP:N,E,dilatation				
Mag. 5 - 5 1/4 (Matsushiro)					
51 N., 175 W. Andeanof Is.					
H=07 43 05 USCGS					
11.	iP	NEZ	09	37	43
	e	N		40	45
	e	N		42	03
	eL	NE		43	23
	iP:S,E,compression				
11.	e	E	13	16	09
	e	E		27	02
	L?	N		37	00
11.	P	NZ	13	26	11
dilatation					
11.	e	N	18	52	06
	e	E		53	18
	e	N	19	02	28
	e	E			38
	L	NE	09	19	
11.	L	NE		11	58
11.	iPKP 1	Z	19	30	11
	i	Z			16.7
	i	N			17.4
	PKP 2	Z			31.4
	ePP	Z	34	07	
	ePP	E			14
	e	N			24
	eSKKS	E	40	40	
	eSS?	N	53	16	
	eSSS	E	58	22	
	eSSS	N			44
	Lq	N	20	11	34
	Lq	E		12	24
	Lr	NEZ		20	29
	iPKP 1:dilatation				
PKP 2:compression					
Mag. 6 1/4 - 6 1/2 (Matsushiro)					
21 S., 69 W. Northern Chile.					
H=19 10 20 USCGS					
11.	P	Z	20	00	02.3
	P	NE			02.9
	P:compression				
P:N,E					
11.	iP	EZ	21	03	13.2
	iS	EZ			22.9
	S	Z			23
12.	ePS?	NE	01	17	53
	ePSPS?	E		24	02
	eL	N		34	42
	eLr	NE		40	42
	Mag. 6 1/4 - 6 1/2 (Matsushiro)				
5 S., 106 1/2 W. Pacific Ocean.					
H=00 43 30 USCGS					
12.	P	NEZ	03	30	15.1
	S	NEZ			16.6
P:S,dilatation					
12.	iP	NEZ	03	36	51.1
	PcP	Z		39	25.1
	eS	N		42	22
	eL	N		45	44
	iP:N,W,compression				
Mag. 5 - 5 1/4 (Matsushiro)					
12 N., 165 E. Marshall Is.					
H=03 29 58 USCGS					
12.	P 1	Z	10	52	57.6
	P 2	NEZ			59.6
12.	ePn	Z	13	23	15
	Pg	EZ			28.2
	iSg	NEZ		24	26.2
i	N			32	
12.	eP?	Z	18	15	22
	e	E		17	38
	e	N		18	40
12.	e	N	21	15	40
	e	N		20	45
	eL	E		21	16
12.	P E, eP Z		25	52	53
	i	NE			56.0
	i	NZ			56.8
	i	Z	53		05.3
	i	Z			18.6
	iS	NEZ			49
	iP:dilatation				
13.	iP	NEZ	01	03	37
	iS	NEZ			39.5
iP:dilatation					

Date	Phase	Comp.	Time(GMT)		
			h	m	s
13.	iP i i	NEZ Z EZ	08	09	10.2 27.5 47.5
	iP:N,E,compression				
13.	iP P i eS? eL	Z N Z E E	08	19	52.9 53.4 20 00.4 28 17 34 14
	iP:compression Mag. $5\frac{1}{2}$ - $5\frac{3}{4}$ (Matsushiro) 58 N., 137 W. Southeastern Alaska. H=08 10 01. USCGS				
13.	eP S	NEZ NEZ	10	02	59 03 24
13.	iP eS eL	NZ, P E E	12	12	47.1 19 53 25 09
	iP:N,compression Mag. $5\frac{1}{2}$ (Matsushiro) 10 S., 161 $\frac{1}{2}$ E. Solomon Is. h:100 km ca. H=12 03 50 USCGS				
13.	iP iS	NZ NEZ	17	59	53.0 59 00.0
13.	eP i i i i	Z Z NEZ N E	22	44	58 45 00.5 04.2 37.0 47 38.2
13.	iP iP e eL	Z NE N NE	23	10	14.6 15.4 13 44 14 59
	iP:dilatation iP:S,E				
14.	P i	Z E	05	03	50 04 50.6
	61 N., 145 W. Southeastern Alaska. H=02 54 19 USCGS				
14.	P i iS	NEZ Z NEZ	05	37	11.5 15 27.3
14.	P i iS iS	Z NEZ Z NE	07	21	54.5 55.6 22 14.1 24.8

Date	Phase	Comp.	Time(GMT)		
			h	m	s
14.	iP S i	NEZ NEZ NE	12	46	02.3 24 47.1
	iP:S,E,dilatation 36.1 N., 159.9 E. Central Honshu, Japan. h:70 km ca. J.M.A.				
14.	P i	NEZ NEZ	16	00	08 10
14.	P S	NEZ NEZ	16	20	27.3 36.5
	P:N,E,compression				
14.	iP S	NEZ NE	18	57	03.7 29.9
	iP:S,E,dilatation				
14.	iP i	EZ NEZ	20	15	41.4 42.4
	iP:compression				
14.	iP S	NEZ EZ	20	22	42.4 23 02.6
	iP:N,W,compression				
14.	iP iS	NEZ NE	22	28	20.1 36.3
	iP:S,W,compression				
14.	iP iS	NEZ NEZ	22	34	39.3 59.3
	iP:N,compression				
14.	iP S	NZ NEZ	22	35	40.8 59.3
	iP:dilatation				
15.	iP iS	NEZ NEZ	00	20	17.2 34.0
	iP:compression				
15.	iP iS	NEZ NE	00	48	38.7 55.2
	iP:S,W,compression				
15.	P iS	Z NE	00	53	16 35.0
	P:compression				
15.	iP S	NEZ NEZ	03	03	43.8 52.0
	iP:S,compression				
15.	iP iS iS	NE NE NE	03	07	34.3 51.6
	iP:S,W				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
15.	iP iS iP:S,W,compression	NEZ NE	03	13	17.1 33.9
15.	P S	Z Z	03	16	22.0 38.9
15.	iP iS iP:S,compression	NZ NEZ	04	06 07	45 02
15.	P iS	NZ EZ	04	07 08	44.0 01.0
15.	P Z, eP compression	NE	06	43	00
15.	iP iS iP:S,E,compression	NEZ NE	06	53 54	43.7 00.7
15.	P 35½ N., 23½ E. Near west coast of Crete. H=07 59 18 USCGS	Z	08	12	00
15.	iP i S	NEZ N N	10	15	32.5 44 48
15.	iP S iP:N	NEZ NE	11	33	36.1 52.8
15.	iP iS iP:S,W,compression	NEZ NE	12	54	22.7 39.2
15.	iP iS iP:S,compression	NEZ NE	13	08	10.0 27.0
15.	eP eP S	NE Z NE	13	56 58 57	57 58 01
15.	i	NEZ	15	08	43.2
15.	iP NE, P S iP:N,W	Z NEZ	16	08 09	54.0 24
15.	iP iS	EZ NEZ	16	12	40.0 42.8
15.	iP i iP:S,W,compression	NEZ NEZ	16	19	19.5 49.5

Date	Phase	Comp.	Time(GMT)		
			h	m	s
15.	iP iP:N,dilatation	NEZ	16	22	53.5
15.	iP iS iP:S,W	NEZ NE	19	14	21.4 28.2
15.	P iP i e P:compression iP:N,W	Z NE NE NE	22	24	59 59.5 19.0 54
16.	iP i i i	NEZ E E E	01	36	25 40.2 36.2 43.0
16.	iP i eL eL iP:S,W,compression Mag. 5 (Matsushiro) 51½ N., 176½ W. Andreanof Is. H=01 47 20 USCGS	NEZ Z E N	01	54 56 02	15.4 47.0 27 44
16.	iP N, P i eS eL iP:N Mag. 5¼ - 5½ (Matsushiro) 51½ N., 176½ W. Andreanof Is. H=03 52 39 USCGS	EZ Z N NE	03 04	59 02 05 07	36.1 07 23 40
16.	P iS	Z NE	07	41	10 16.8
16.	P iS P:E	NE NE	07	41	57.3 43.6
16.	iP iS NE,S Z iP:S,W	NEZ	08	46	08.3 10.8
16.	iP iP:N,W,compression	NEZ	10	17	02.8
16.	iP iS iS iP:S,W,compression	NEZ NE Z	13	26	18.4 20.8 21.6

16. PPSB NE 13 31 19
 eSSS NE 34 49
 eL NE 42 21
 e NE 44 05
 Mag. 5 3/4 - 6 (Matsushiro)
 29 1/2 S., 113 W.
 South Pacific Ocean.
 H=12 54 18 USCGS

16. 1P NEZ 13 42 18.1
 i N 19.6
 iS NE 37.6
 iP:E,dilatation

16. 1P NEZ 17 03 51.9
 ePP N 06 33
 eS N 11 28
 e E 53
 eSS? NE 15 21
 eL NE 18 37
 iP:N,compression
 Mag. 5 3/4 (Matsushiro)
 12 S., 166 1/2 E. Santa Cruz Is.
 H=16 54 17 USCGS

16. 1P NEZ 18 49 55.0
 eS N 57 33
 e E 53
 eSS? N 19 01 27
 eL NE 03 47
 iP:S,E,dilatation
 Mag. 5 1/4 - 5 1/2 (Matsushiro)
 12 S., 166 1/2 E. Santa Cruz Is.
 H=18 40 21 USCGS

16. eP? Z 20 49 54
 eP? N 56
 e N 21 04 47
 e N 11 31

17. 1P 1 Z 05 49 32.1
 1P 2 NEZ 34.6
 i Z 51 05
 eLP N 06 10.8
 eL NE 21 14
 iP 1:compression
 iP 2:N,dilatation
 Mag. 6 (Matsushiro)
 40 1/2 N., 23 E. Northern Greece.
 H=05 37 06 USCGS

17. eP EZ 06 14 54
 i N 16 39

17. P NEZ 07 37 12.0
 iS NEZ 18.2
 P:N,E

17. 1P NEZ 10 35 00.6
 iS NEZ 03.2
 iP:S,W,compression

17. 1P NE, P Z 11 44 32.7
 i NZ 45 02.2
 i N 50.0
 e NE 46 06
 iP:N,E

17. eP EZ 11 52 38
 iS NE 49.2
 S Z 50

17. 1P NZ 13 58 37.1
 eS NE 14 06 38
 eL N 12 25
 57 1/2 N., 137 W.
 Southeastern Alaska.
 H=13 48 45 USCGS

17. 1P NEZ 19 09 08.3
 ePP NE 10 20
 PcP Z 11 39
 eS NE 14 39
 eL NE 17 02
 eL N 29
 eScS NE 19 27
 iP:N,E,dilatation
 Mag. 5 3/4 - 6 (Matsushiro)
 51 N., 176 W. Andreanof Is.
 H=19 02 10 USCGS

17. P Z 19 33 31
 1P E 31.8
 i N 32.3
 PcP Z 39 02.8
 eL NE 44 31
 eScS NE 46 51
 Mag. 5 1/4 - 5 1/2 (Matsushiro)
 51 N., 177 W. Andreanof Is.
 H=19 27 36 USCGS

17. 1P EZ 20 35 00
 i Z 32.7
 eS N 40 59
 e E 41 41
 eL N 45 23
 iP:dilatation

17. 1P NEZ 21 06 17.5
 1PP NE 07 28
 iPcP Z 08 49.1
 S NE 11 50
 L NE 14 11
 ScS NE 16 33 37
 iP:S,W,compression
 Mag. 6 - 6 1/2 (Matsushiro)

Date continued
 51 N., 177½ W. Andeanof Is.
 H=20 59 17 USCGRS

17. ✓ iP NEZ 21 17 12.4
 i Z 19 43
 iP:W,compression

17. ✓ eP 1 EZ 23 27 30
 iP 2 NEZ 32
 S NEZ 28 17
 37.0 N., 142.0 E.
 Near east coast of Honshu,
 Japan.
 h:40 km ca. J.M.A.

18. ✓ iP NEZ 00 46 14.5
 i NZ 42.3
 eS E 51 48
 L E 54 19
 L N 36
 ScS NE 56 33
 i NE 57 02
 iP:S,W,compression
 Mag. 6 - 6½ (Matsushiro)
 51 N., 176½ W. Andeanof Is.
 H=00 39 18 USCGRS

18. ✓ PKP 1 Z 02 06 31
 PKP 2 Z 45
 4 S., 78 W.
 Ecuador-Peru border.
 h:100 km ca.
 H=01 47 21 USCGRS

18. ✓ P NE 02 35 46
 compression

18. ✓ P NZ 07 37 26
 i Z 39 34
 e N 43 31
 eL N 49 38

18. ✓ iP NEZ 12 47 04
 i Z 17
 e N 56 16
 iP:compression

18. ✓ iP Z 17 13 45
 i Z 14 12
 e N 39 -
 iP:Compression
 58½ N., 138½ W. Alaska.
 H=17 05 58 USCGRS

18. ✓ P 1 EZ 21 42 04
 P 2 EZ 08
 i NZ 30
 eS EZ 45 12
 (cont.)

Date continued
 h m s

✓ i NEZ 21 45 58
 ✓ i Z 50 09
 Mag. 5.9 (Matsushiro)
 25½ N., 124 E.
 Ryukyu Is. region.
 H=21 38 05 USCGRS

18. ✓ P NEZ 23 50 23
 e E 52 20

19. ✓ P Z 02 56 49
 i NE 49.3
 iS NZ 57 11.6

19. ✓ iP NEZ 03 21 42.0
 i E 22 27.8
 i Z 50
 iP:S,W,dilatation

19. ✓ iP NEZ 04 36 36.7
 iS NE 37 54.7
 iP:W,dilatation

19. ✓ iP Z 04 42 18.2
 iP NE 18.7
 e NE 44 33
 iP:dilatation
 iP:N

19. ✓ iP NZ 06 37 47.5
 iP E 48.0
 i E 49
 pP Z 38 43
 iPpPcP Z 39 48.0
 esPP N 51
 e N 40 41
 PcS NEZ 43 25.0
 eS NE 44 37
 e NE 46 55
 e N 47 24
 ScS NE 39
 e E 48 49
 esSS? N 49 13
 iP:S,dilatation
 iP:E

Mag. 6¼ - 6½ (Matsushiro)
 4 S., 138½ E. New Guinea.
 h:150 km ca.
 H=06 30 19 USCGRS

19. ✓ iP NEZ 06 44 55.8
 iS E 45 01.5
 iS N 02.0
 iP:E,compression

19. ✓ iP Z 06 45 23.0
 iS E 28.0
 iS N 28.5

Date	Phase	Comp.	Time(GMT)		
			h	m	s
19.	iP	NEZ	06	48	24.2
	iS	NEZ			30.2
19.	P	NEZ	12	59	51.6
	e	N	13	01	56
19.	P:E				
19.	iP	NEZ	14	58	57.2
	i	NEZ		59	16.0
	i	NE	15	00	29.0
	L	NE			52
	iP:S,W,compression Mag. 5.3 (Matsushiro) 41 N., 145 E. Near south coast of Hokkaido, Japan. H=14 57 24 USCGS				
19.	iP	NEZ	17	30	17.7
	i	NEZ		32	48
	eS	E		35	54
	dL	E		38	21
iP:S,W,compression Mag. 5 - 5 1/4 (Matsushiro) 51 1/2 N., 176 W. Andeanof Is. H=17 23 20 USCGS					
19.	P	NZ	17	45	16.9
	i	NZ			22.6
P:compression					
19.	iP	E	17	50	09.1
	i	Z			11
	i	N			11.1
	i	NZ			18.6
19.	iP	Z	18	24	07.6
	i	NE			08.1
	i	E			39.1
	i	N			41.1
	i	NE			57
	i	NEZ	25	48	
	S	NE	30	03	
	S?	Z			16
	L	NE	32	35	
	iP:dilatation Mag. 7 (Matsushiro) 0., 129 1/2 E. Spice Is. H=18 16 52 USCGS				
19.	eP	NEZ	20	01	48
	i	Z		04	06
19.	iP	NZ	22	21	20.2
	i	Z		22	43
	e	E		27	26
	c	E		30	06
	iP:dilatation				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued					
1/2 S., 129 E. Spice Is. aftershock. H=22 14 01 USCGS					
19.	i	NEZ	22	49	11.9
19.	iP	NEZ	23	05	25.4
	i	NEZ			34.1
iP:N,E,compression					
19.	iP	NEZ	23	03	59.3
	S	E		07	07.1
	S	N			08.1
iP:N,E					
19.	P	Z	23	49	45
	i	Z		50	12
20.	eP	NE	00	47	20.9
	i	E			22.9
20.	P	E	00	48	41
	i	NE			51
	i	NE			59
20.	eP	EZ	00	52	30
	P	N			33
	i	NEZ			39
20.	iP	EZ	01	02	20.7
	iS	NEZ			26.5
20.	iP	NEZ	01	56	35.9
	i	NE			43
	e	E		58	34
	iP:N,W,compression				
20.	iP	Z	03	46	32.8
	e	N		56	56
	e	E	04	01	32
iP:compression					
20.	iP	NEZ	10	51	01.5
	iS	NE			07.5
iP:S,W,dilatation					
20.	PKP 1	Z	12	03	47
	i	Z		04	04
	PKP 2	Z			21
31 1/2 S., 71 W. Central Chile. H=11 46 57 USCGS					
20.	iP	NEZ	14	15	39.4
	iS	NE			43.7
iP:S					
20.	iP	NEZ	14	27	07.7
	iS	NEZ			25.2
iP:N,dilatation					

Date	Phase	Comp.	Time(GMT)		
			h	m	s
20.	✓ P i	NEZ Z	15	07	53 08 03
20.	✗ iP iS	EZ NEZ	15	52	01.3 07.1
20.	✓ iP i	EZ NE	19	11	20.9 46.2
20.	✓ iP i i S	NEZ E N N	22	18	48.5 19 03.6 06.5 11.2
iP:N,dilatation					
21.	✗ eP e i	E NZ E	00	03	02 05 15
21.	✓ iP i i i i i i	EZ N N NE N Z N	03	37	10.8 11.6 12.7 17.7 18.1 18.6 41.5
iP:E,dilatation					
21.	✓ iP eP i S i iL iL	NZ E NE N E N E	07	27	31.9 32 33.3 29 12 28.3 34 50
iP:S,compression Mag. 6 (Matsushiro) 44½ N.,147½ E. Kurile Is. H=07 24 58 USCGS					
21.	✗ P S	EEZ NE	07	55	09.9 16.8
iP:S,compression					
21.	✗ P iS	Z NE	07	55	27.6 33.8
21.	✓ iP S	NEZ NE	11	05	51.9 06 08.8
iP:S,W,compression					
21.	✓ iP i i eP PP	NEZ N Z Z NEZ	14	44	04.3 12.8 16.1 45.1 45 14.3
(cont.)					

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued					
	✓ P S? i i Lq L Lr L S S	Z E Z N E N Z NE	14	43	40.3 49 07 50 22.8 51 35 41 52 19 55 33 54 27.0
iP:S,W,compression Mag. 6½ - 6¾ (Matsushiro) 51½ N.,178 W. Andreev Is. H=14 37 18 USCGS					
21.	✓ iP iS iP:S,E	NEZ NE	16	45	21.2 58.2
21.	✗ iP iS	NEZ NE	17	35	33.6 39.5
iP:S,W,dilatation					
21.	✓ iP i i i i	N EZ N Z Z	18	42	47.8 48.4 59.8 45 02.0 21.5
14 S.,167½ E. New Hebrides. H=18 32 59 USCGS					
22.	✓ iP i iP:E,dilatation	EZ EZ	05	15	37.0 54
51 N.,176 W. Andreev Is. H=05 08 40 USCGS					
22.	✓ iP i iS? i	NEZ Z E N	15	53	36.6 47.4 54 39 45
iP:S,W,compression					
23.	✓ iP i i S i i	NEZ E E E E E	10	28	54.8 56.6 59.3 30 03.6 03.0 31
iP:N,W,compression Mag. 6 - 6¾ (Matsushiro) 31 N.,142 E. South of Honshu, Japan. H=10 27 19 USCGS					
23.	✓ iP S	NEZ E	11	56	40.2 57 45
(cont.)					

Date continued	Phase	Comp.	Time(GMT)		
			h	m	s
	S	N	11	57	46
	i	E			48
	S	Z			52.7
	iP:S,E,dilatation				
23.	P	NEZ	12	25	18.5
	i	N			37
	S	E		26	27.7
	P:W,compression				
23.	P	EZ	12	59	43
	i	E	13	00	52.6
23.	P 1	NZ	17	58	36.4
	P 2	NE			37.1
	S	NEZ		59	10.7
23.	P	NZ	18	10	05.8
	i	NZ			39.6
	i	E			42
	i	Z	11		02
	P:dilatation				
23.	P	NZ	20	16	16
	iS?	NZ			51
	iS?	E			52.4
23.	iP	NEZ	20	38	56.9
	i	N		40	09
	i	E			12
	i	N			16
	i	N	43		10
	iP:W,compression				
23.	iP	NEZ	21	15	01.1
	iS	N		16	13.6
	i	E			19
	i	E			21
	i	N			25
23.	P 1	EZ	22	20	06.2
	P 2	N			07.2
	S	N			39.2
	i	E			42.3
24.	P	N	09	02	58.2
	i	Z			59.0
	i	E		03	00.2
	i	Z			05.2
	i	E			08.2
	i	N			10.0
	i	Z			18.5
	i	E			34
	i	NE			35.2
	i	Z			37.5
	S	NZ			40.7

Date	Phase	Comp.	Time(GMT)		
			h	m	s
24.	iP	NEZ	13	06	44.7
	iP:E				
24.	iP	NEZ	13	15	38
	i	Z			51.7
	i	Z			16 01
	S	NE			21 34
	L	N			24 44
	L	E			54
	Mag. 5 3/4 (Matsushiro)				
	52 1/2 N., 170 W. Fox Is.				
	H=13 08 05 USCGS				
24.	iP	NEZ	16	16	45
	iS	NZ		17	07.3
	iP:N,compression				
24.	iP	NEZ	16	27	59.8
	iS	NEZ		30	33
	iP:N,compression				
25.	iP	NEZ	00	02	10.9
	iS	NZ			47.2
	iP:S,W				
25.	iP	NEZ	06	16	22.5
	i	Z			39.0
	S	NZ			46.8
	iP:S,E				
25.	iP	EZ	08	53	36.4
	i	E			43.2
	S	N			54 33
	i	Z			38
	iP:E,compression				
25.	iP	EZ	09	39	04.3
	iS	NEZ			10.7
25.	P	Z	15	42	47
	i	NE			56.7
	S	E		43	15.1
	i	N			16.0
25.	iP	NEZ	16	49	08.5
	i	E			14.0
	S	NEZ		53	28.5
	iP:N,W,compression				
25.	iP	NZ	17	57	01.5
	i	E			02.4
	eS?	N		18	04 54
	e	N			06 30
	eL	N			10 03
	iP:N,compression				

Date	Phase	Comp.	Time(GMT)			
			h	m	s	
26.	e	N	06	37	48	
	SKS?	N		40	00	
	ePS	NE		42	49	
	e	N		48	41	
	SS	NE		49	23	
	eL?	E		59	38	
	L?	N			43	
	iL	E		07	02	
	iL	N			35	
	Mag. 6 - 6½ (Matsushiro)					
	40 S., 45½ E.					
	South Indian Ocean.					
	H=06 13 50 USCGS					

26.	iP	NZ	11	51	23.2
	iP	E			23.7
	i	E			33.7
	i	Z			39
	L	N	12	04	56
	L	E		05	37
iP:N,compression					
iP:E					

26.	iPKP 1	Z	17	55	44.1
	i	NE			46.0
	iPKP 2	E		56	01.8
	i	N			15.8
	i	E			33.8
	i	N		58	13.8
	pPP	N	18	01	37
	sPPorPPP	Z		02	52
	i	E		03	38
	pPPP	NE		05	08
	SKKP?	Z		06	13
	i	Z			25
	i	E		07	21
	SKP	Z		08	35
	PS?	Z		10	14
	sPS	EZ		12	13
	PSPorPPS	E			34
	PSPorPPS	N			38
	SS	N	17	29	
	SS	E			54
	i	Z		18	12
	eSS	E		20	56
	sSS	N		21	02
	eSSS	E		22	32
	G	N		37	13
	L	E		42	40
	iPKP 1:dilatation				
iPKP 2:E					
Mag. 7 - 7½ (Matsushiro)					
13½ S., 69 W.					
Peru-Bolivia border.					
h:650 km ca.					
H=17 37 09 USCGS					

26. x iP N 18 23 14.0 (cont.)

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued	iP	Z	18	23	14.4
	i	E			15.8
	i	N			17.6
26.	P	Z	18	32	14
26.	iP	EZ	18	52	13.2
	i	E			26.7
	i	Z			27.2
	i	N		53	09.2
	iP:E,dilatation				

27.	iP	Z	00	32	49.9
	iP	NE			50.3
iP:dilatation					
iP:S,E					
20½ S., 178½ W. Fiji Is. region.					
h:600 km ca.					
H=00 22 32 USCGS					

27.	iP	Z	02	23	30.4
	iP	E			30.9
	i	N			32.9
	iS	NE			56
	iP:compression				
iP:E					

27.	iP	NZ	03	08	37
	i	E		09	07
	iS	NEZ			17.2

27.	iP	NEZ	03	24	49.3	
	i	N			55.7	
	i	E		25	04.1	
	eS	N		27	24	
	eL	E			50	
	L	N		28	41	
	L	E			49	
	iP:S,W,compression					
	Mag. 5.9 (Matsushiro)					
	45½ N., 148 E. Kurile Is.					
H=03 21 56 USCGS						

27.	iP	EZ	07	20	05.2	
	iP	N			05.5	
	i	E			17	
	i	NZ			27.1	
	i	E			28.4	
	i	E			40.2	
	iP:W,compression					

27.	iP	EZ	10	41	22.4
	iP	N			22.7
	iS	E			44.2
	i	N			46
	iP:E,compression				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
27. ✓	iP	NEZ	19	04	10.9
	eS	E		05	22
	e	E			47
	e	N			50
	iP:N				
28. ✓	P	Z	01	30	48
	P	NE			49
	i	Z		31	03.1
	i	E			03.6
	5 S., 151½ E. New Britain. h:200 km ca. H=01 23 05 USCGS				
28. ✓	iP	Z	12	08	27.7
	i	E			28.9
	i	Z			29.5
	i	Z			40.0
	iP:compression				
28. ✓	iP	NZ	17	35	04.0
	iP	E			04.2
	i	Z		36	40.0
	eS	N		43	28
	eS	E			34
20 S., 177½ W. Fiji Is. region. h:500 km ca. H=17 24 40 USCGS					
28. X	eL	N	19	30	58
	eL	E		31	34
	eL	N		38	04
	Mag. 5½ (Matsushiro) 26½ S., 115½ W. South Pacific Ocean. West of Easter Is. H=18 33 45 USCGS				
28. ✓	iP	Z	21	33	34.2
	i	Z			35.8
	i	NE			36.0
	i	Z			54.1
	i	E		34	00.5
20 S., 178½ W. Fiji Is. h:650 km ca. H=21 23 25 USCGS					
28. ✓	iP	EZ	22	45	00.8
	i	N			17
	i	E			35
	i	N			44.8
	i	E			46
iP:E,compression					
29. ✓	iP	NEZ	04	54	03.5
	iS	NEZ			14.3
	iP:E,dilatation				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
29. X	P	Z	06	51	24.9
	i	E			25.9
	S	NE			27.0
	i	E			29.5
29. ✓	P	Z	11	00	59
	i	E		01	09.9
	eS	E		10	10
	e	N			40
	SS	NE		15	02
	L	N		18	21
	L	E			57
Mag. 5 3/4 - 6 (Matsushiro) 20½ S., 175½ W. Tonga Is. H=10 49 27 USCGS					
29. X	P	NEZ	14	19	22.9
	S	Z			25.1
	S	NE			25.7
29. ✓	iP	NEZ	15	05	49.1
	iS	N		06	13.9
iP:N,W,compression					
29. ✓	iP	Z	18	07	16.8
	iS	NEZ			42.6
	i	N			47.9
29. ✓	PKP	Z	21	56	36
	i	Z			38
	i	Z			59
	PPP	N	22	00	26
	PPP	N		02	44
	e	N		09	05
	sSPorsPS	N		11	51
	SS	N		17	43
	eL	N		42	23
	eL	E		46	56
	eL	N		49	00
Mag. 5 3/4 (Matsushiro) 4 N., 26½ W. Atlantic Ocean. H=21 37 25 USCGS					
30. ✓	iP	NEZ	02	49	59.4
	iS	E		52	02.5
	L	E			06.5
	L	N			14.5
	iP:S,W,compression Mag. 6 (Matsushiro) 44½ N., 148½ E. Kurile Is. H=02 47 17 USCGS				
30. ✓	iP	NZ	04	52	22.2
	i	EZ			24.4
	i	E			33
	PP	Z			46.7
	i	Z			51.2

Date continued	Phase	Comp.	Time(GMT)		
			h	m	s
	PP	Z	04	53	52
	PPP	Z		54	48
	S	N		58	22
	i	Z			50.7
	sS	N		59	20
	i	N	05	01	38
	i	E			45
	eL	N	03	04	
	eL	E			08
	i	N			32
	iP:N,compression				
	Mag. 6 - 6 $\frac{1}{4}$ (Matsushiro)				
	2 $\frac{1}{2}$ S.,140 E. New Guinea.				
	H=04 44 53			USCGS	

30.	iP	NZ	07	54	14.0
	i	Z			14.7
	i	Z			15.3
	i	N			16.7
	S?	E	35	29	
	S?	Z			30
	i	E			41
	i	E	36	32	
	iP:S				
	Mag. 5.4 (Matsushiro)				
	30 N.,141 E.				
	South of Honshu,Japan.				
	H=07 32 28			USCGS	

30.	P	Z	09	57	27.3
	i	NZ			28.3
	i	E			28.7
	eL	E	10	01	32

31.	P	NEZ	00	28	36
	i	E		29	49
	S	NEZ			54.3

31.	iP	EZ	02	10	51.8
	iP	N			52.2
	i	Z		11	02.8
	PoP	Z		13	15.5
	eS	E		16	35
	eL	N		19	23
	eL	E			25
	iP:W,compression				
	iP:N				
	Mag. 4 3/4 - 5 (Matsushiro)				
	51 $\frac{1}{2}$ N.,174 $\frac{1}{2}$ W. Andreanof Is.				
	H=02 03 45			USCGS	

31.	iP	NEZ	02	33	29.5
	i	E			43.0
	i	E			56.0
	PP	Z		34	53
	PoP	Z		35	53.0
	eS	E		39	13
	(cont.)				

Date continued	Phase	Comp.	Time(GMT)		
			h	m	s
	eL	E	02	42	01
	eL	N			05
	iP:N,compression				
	Mag. 4 3/4 - 5 (Matsushiro)				
	51 $\frac{1}{2}$ N.,174 $\frac{1}{2}$ W. Andreanof Is.				
	H=02 26 23			USCGS	

31.	P	E	12	43	50.7
	i	Z			52.1
	i	N		44	01.2
	i	Z			03.0
	i	E			09.0

31.	P	E	14	26	52.9
	i	Z		27	11.1
	i	N			56.4

31.	iP	NZ	19	28	25.8
	S	EZ			44.3
	S	N			46

iP:S,compression

31.	eP	N	21	37	16.1
	P	Z			17.6
	i	NZ			19.4
	eS	N		38	16
	i	E			26
	i	NE			32

August Date Phase Comp. Time(GMT)
 h m s
 1. P Z 05 48 03.8
 i Z 06.7
 i Z 13
 iPP? Z 50 19
 eScS E 56 51
 i NE 59 02
 eL N 06 04 34
 eL E 57
 Mag. 5 3/4 - 6 (Matsushiro)
 16 S., 176 1/2 W.
 Fiji Is. region.
 h: 450 km ca.
 H=05 37 50 USCGS

1. 1P NEZ 11 13 04.4
 eS Z 25
 e N 31
 1P:N,E,dilatation

1. eP EZ 11 29 22
 i EZ 24
 i E 34.0
 S N 45.5
 i EZ 51

1. X e N 11 42.0

1. P NZ 12 34 05
 P E 06
 e Z 55
 e NE 39 21
 eL N 42 18
 13 1/2 N., 120 1/2 E.
 Near south coast of Luzon,
 Philippine Is.
 h: 150 km ca.
 H=12 28 28 USCGS

1. 1P N 14 37 50.4
 1P EZ 50.8
 PcP N 38 15.9
 e Z 39 33
 e N 45 44
 e N 15 04 23
 1P:N,W,compression
 Mag. 5 3/4 - 6 (Matsushiro)
 19 S., 177 1/2 W.
 Fiji Is.
 h: 500 km ca.
 H=14 37 31 USCGS

1. P Z 16 00 03
 eP Z 04
 e Z 24
 e Z 44
 e E 08 29

Date Phase Comp. Time(GMT)
 h m s
 1. X e N 18 20.9

1. P N, eP Z 23 15 42
 P E 43
 i Z 45.1
 i Z 55.3
 i Z 16 04.2
 i Z 21
 i Z 17 02

2. 1P E 00 21 18.9
 1P Z 19.1
 P N 20
 S N 49
 S Z 50
 1P:W,compression

2. 1P Z, P E 00 24 38.6
 P N 39.2
 i N 39.8
 e N 25 41
 i Z 42
 1P:compression

2. X 1P NZ, P E 11 29 39.7
 S NEZ 40.7
 1P:N,compression

2. X 1P:NZ, P E NZ 14 50 02.9
 1S NEZ 10.1
 1P:N,compression

2. 1P NZ 16 16 38.8
 1P E 39.1
 1S E 17 49.6
 1P:S,E,compression

2. 1P EZ, P N 21 02 04.7
 1S NEZ 06.8
 1P:E

2. P N, eP Z 21 16 59.9
 1S NE 17 27.9

2. eP NZ 21 46 21

2. X 1P NEZ 23 53 15.7
 1S NEZ 21.9
 1P:S,W

3. 1P NEZ 01 16 48.8
 PP Z 18 45
 eP Z 19 33
 1S NE 25 23
 ScS E 26 06
 e E 28 40
 (cont.)

Date	Phase	Comp.	Time(GMT)
continued			h m s
	SSS	N	01 33 15
	SSS	E	17
	PHPPKP	Z	44 34
	iP:S,E,dilatation		
	Mag. $6\frac{1}{2}$ - $6\frac{3}{4}$ (Matsushiro)		
	$21\frac{1}{2}$ S., 179 W.		
	Fiji Is. region.		
	h:550 km ca.		
	H=01 03 24 USCGS		
3.	P	NZ	05 21 26
	e	N	31 53
3.	P	NZ	05 41 34
	ePPP	NZ	43 00
	eS	N	46 41
	eL	N	50 05
3.	iP	EZ	08 33 11.7
	iS	EZ	26.0
	iP:compression		
3.	e	N	11 35.1
3.	iP	N	11 38 44.1
	iP	Z	44.2
	iP	E	44.8
	iS	N	39 01.2
	iS	Z	01.4
	iS	E	01.7
	iP:N,E,compression		
3.	eP	Z	15 13 49
	ePP?	Z	14 52
	eS?	N	18 20
	eL	N	21 43
3.	iP NZ, P E		17 33 28
	i	E	34 28
	i	N	46
3.	P	NZ	18 04 27
	i	Z	42.6
	e	E	43
	e	N	05 47
4.	iP	NEZ	01 42 43.4
	S	EZ	52.8
	iP:N,W,dilatation		
4.	iP	NEZ	04 21 09.7
	PP	Z	43
	eP	N	22 03
	PPP	E	25 53
	ScP	Z	26 32
	PcS	E	56
	S	NE	27 21
	ScS	N	30 43
	(cont.)		

Date	Phase	Comp.	Time(GMT)
continued			h m s
	ScS	E	04 30 51.7
	ScS	N	52.5
	i	E	34 51
	iP:N,E,compression		
	Mag. $6\frac{1}{2}$ - $6\frac{3}{4}$ (Matsushiro)		
	6 S., 150 E. Banda Sea.		
	h:150 km ca.		
	H=04 13 19 USCGS		
4.	iP	Z	06 14 26.7
	P	NE	27
	S	E	15 38
	S	N	59
	iP:dilatation		
4.	iP Z, P NE		13 30 30.1
	S	N	46.1
	S	EZ	46.8
	iP:dilatation		
4.	P	Z	13 42 03
	PcPorPP	E	43 51
	eS	N	48 35
	eL	N	55.8
	$5\frac{1}{2}$ S., 152 $\frac{1}{2}$ E.		
	New Britain region.		
	H=13 33 55 USCGS		
4.	P	NZ	16 09 49
	P	E	50
	i N, e EZ		10 06
	i	E	12 23.1
	i	Z	41.4
	e	NE	15 11
	i	Z	16 03.1
	e	E	17 40
	e	N	47
	eL	E	19 33
	eL	N	39
	eL	E	42
4.	P	EZ	16 45 51.5
	P	N	52.1
	S	NE	43 10.9
4.	eP?	E	17 40 1.9
	eP?	N	26
4.	iP	NEZ	17 00 33.5
	eS	N	32 25
	eS	E	25
	i	N	39
	iP:S,W,compression		
	$45\frac{1}{2}$ N., 147 E. Kurile Is.		
	h:200 km ca.		
	H=17 48 20 USCGS		
4.	P	NE	19 42 16
	e	Z	43 13

Date	Phase	Comp.	Time(GMT)		
			h	m	s
4.	P	EZ	20	57	05
✓	i	EZ			27.0
	i	Z			35.5
4.	P Z, eP NE		21	24	52
	i	NEZ			52.5
✓	e	Z		25	37
	i	E		23	03.3
	e	NE			22
5.	eP	NEZ	01	42	30
✓	i	NZ			41
	i	E		43	11.3
5.	iP	EZ	17	33	34.3
	P	N			35
✓	i	NEZ		34	21.7
	i	N		35	56.4
	i	Z			56.3
	eS	NE		43	10
	eL	N		53	45
	eL	E		56	44
	iP:E,dilatation 24 $\frac{1}{2}$ S., 175 W. Tonga Is. region. H=17 21 47				
	USCGS				
5.	P	NE	21	54	53
	P	Z			53.0
✓	i	E		55	01.8
	i	Z			04.5
	i	N			05.6
	i	E			06.3
	iS	NZ			33.3
	iS	E			39.0
6.	iP	NEZ	03	00	23.4
✓	iS	N			40.6
	iS	E			41.9
	iP:N,E,dilatation				
6.	PKP	Z	03	09	02.6
✓	i	E			07.4
	e	E		11	29
	Near coast of Northern Chile. H=02 49 10				
	USCGS				
6.	eP	Z	03	57	59
✓	e	E		38	01
	e	N		04	44
	eL	N		06	27
6.	iP	NEZ	05	44	54.9
✓	i	N		45	06.9
	S	NE			14
	iP:S,E,dilatation				
6.	iP	NEZ	07	37	40.1
	iS	NEZ			41.3
	iP:N,W,compression				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
6.	PKP 1	Z	10	10	10
	i	Z			23.2
	PKP 2	NEZ			59.7
✓	pPKP 2	Z		13	06.1
	PP	Z		14	39
	eSKKS	E		19	46
	eSKKS	N			49
	e	N		23	3
	eSS?	N		33	3
	e	E			42.3
	24 $\frac{1}{2}$ S., 63 W. Salta Province, Argentina. h:550 km ca. H=09 51 24				
	USCGS				
6.	eP	NE	14	52	27
✓	eP	E			28
	eS?	N		59	22
	Solomon Is. H=14 23 25				
	USCGS				
6.	iP	E	21	20	25.6
	P	NE			26
	i	NEZ			27.1
✓	i	Z			50
	e	E		23	38
	i	NE		25	50
	S	E		29	37
	S	N			33
	SoS	NE		30	17
	eL	E		37	21
	SSS?	N			59
	Lr	E		41	15
	Lr	N			18
	PKPKP	Z		46	26
	iP:compression Mag. 6 $\frac{1}{2}$ (Matsushiro) 17 S., 173 W. Tonga Is. H=21 09 09				
	USCGS				
6.	iP	NE	22	00	24.7
✓	i	E			25.2
	e	Z			59
	iP:N,compression 12 S., 167 E. Santa Cruz Is. h:150 km ca. H=21 51 00				
	USCGS				
7.	iP	NEZ	00	27	51.1
✓	iS	EZ			56.9
	iS	N			37.0
	iP:N,E,dilatation				
7.	P	Z	04	17	48
✓	i	Z			56
	i	N			57
	i	E			59

Date	Phase	Comp.	Time(GMT)		
			h	m	s
7.	iP	EZ	05	43	46.5
	iP	N			47.2
	i	Z			58.0
	i	NE		44	50
	i	Z		44	04
	i	N			05
	i	Z	1		12.2
iP:S,E,dilatation					
7.	P	NZ	08	31	30.8
	P	E			31.3
	e	Z		32	38
	e	N		39	53
eL	N		42	23	
7.	eP	Z	11	35	17
	e	Z			45
	eS	E		41	22
	eL	E		44	45
7.	eP	Z	16	06	25
	eL	E		12	14
7.	e	E	18	03	08
	e	N			11
8.	iP	NEZ	00	41	52.0
	i	Z		42	00.6
	i	N			01.0
	e	Z			22
	e	Z			57
iP:N,E,dilatation 55 N.,166 E. Komandorskie Is. H=00 36 13					
USCGS					
8.	iP	E	12	59	08.6
	iP	Z			08.9
	iP:E,compression				
8.	iP	EZ	15	01	05.8
	i	Z			52.8
	i	E			57.3
	i	E		02	06.4
	i	N			55.7
	i	Z			59.0
	eL?	E		06	41
iP:W,dilatation					
8.	iP	Z	14	50	53.5
	P N., eP E 59 1/2 N.,139 W. Southeastern Alaska. H=14 40 55				
	USCGS				
8.	iP	NZ	21	57	21.4
	P	E			21.7
	i	N			25.2
(cont.)					

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued	iS	N	21	57	41.2
	iS	E			43.6
	iP:N,compression				
9.	iP Z, P E		04	03	17.4
	iP	N			17.7
	iS E, S Z				42.0
	iS	N			42.8
	iP:N,dilatation				
9.	iP	NEZ	05	50	48.6
	iS	NEZ			53.6
	iP:N,E,compression				
9.	iP	Z	07	17	50.8
	P	NE			51
	i	N		18	01.0
	i	N			16.9
	i	N			19.4
iP:dilatation					
9.	e	E	07	42	33
	eL	E		48	19
9.	P	NZ	08	57	35.8
	iS	NEZ			40.5
9.	P	Z	13	08	02
	i	Z			27.3
	e	Z		12	01
	e	E			53.4
	eL	E		14	02.6
9.	iP	NEZ	13	35	27.9
	S	E		36	54.8
	iP:S,W,compression				
9.	P	EZ	14	28	08
	i	N			09
	i	EZ			09.9
	S	N			52
i	N			57	
9.	iP	EZ	19	12	27.2
	iP	N			27.5
	i	N			46.3
	i	N		13	06
	e	E			55.2
	iP:N,E,dilatation				
9.	iP	Z	21	39	12.7
	P	NE			13
	eS	E		42	43
	eL	E		45	02
iP:compression					
10.	iP	NEZ	01	11	29 ca.
	S	N			48
(cont.)					

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued	S	E	01	11	49
	iP:N,E,dilatation				
10.	iP	NEZ	03	14	11
	i	E			39
	S	NE			53
	iP:S,W,compression				
10.	iP	NEZ	17	55	13
	iS	NEZ			29
	iP:S,E,dilatation				
10.	P	NEZ	18	13	46
	PoP	Z			15 49
	PPP	Z			56
	eS	E			19 52
	L	E			22 53
	L	E			24 52
	L	Z			26 00
	Mag. 5.8 (Matsushiro)				
	3 1/2 S., 150 1/2 E.				
	New Britain region.				
	H=18 05 53 USCGS				
10.	P	NEZ	23	45	19
	i	EZ			29
	i	Z			47
	i	Z			46 03
	eS	NE			48 04
	eS	Z			06
	c	E			19
	P:compression				
	Mag. 5.8 (Matsushiro)				
	21 1/2 N., 144 E.				
	Mariana Is. region.				
	h:150 km ca.				
	H=23 41 57 USCGS				
11.	iP	EZ, P N	00	45	41.0
	iS	Z			45.5
	iS	NE			45.6
	iP:E,compression				
11.	iP	NE, eP E	08	03	32.2
	iP:N,compression				
	18 S., 168 1/2 E.				
	New Hebrides Is.				
	H=07 53 12 USCGS				
11.	iP	NEZ	10	45	22.6
	iS	E			55.9
	iS	Z			56
	iP:S,E,dilatation				
11.	iP	E	11	35	29.5
	iP	Z			29.9
	i	N			30.4
	i	Z			42.4

(cont.)

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued	e	N	11	35	43
	eS? Z, e N				
	iP:S,W,dilatation				
11.	e	E	19	16	1
	e	E			18.5
11.	iP	NZ	20	13	11.5
	i	Z			12.0
	i	E			12.3
	S	N			45.3
	S	EZ			45.8
	iP:S,dilatation				
11.	eP	E	20	35	59.3
	iP Z, P N				
	e	Z			36 17.1
	e	E			57 06
	eS	E			43 23
	eL	E			55 45
	eL	Z			47
	iP:compression				
	3 S., 100 1/2 E.				
	Off coast of Sumatra.				
	H=20 26 22 USCGS				
12.	iP	EZ	08	23	03.8
	eP	N			04
	e	Z			25 30
	eS	E			28.6
	eL	E			33.1
	iP:W,compression				
	51 1/2 N., 175 W.				
	Andreanof Is.				
	H=08 15 59 USCGS				
12.	iP	Z	14	16	10.5
	iP	E			10.7
	eP	N			10.9
	i	Z			13.8
	i	N			14.2
	i	E			15.0
	i	Z			20.6
	iP:N,W,dilatation				
12.	iP	Z	17	00	31.4
	eP	NE			32
	i	Z			02 01
	e	Z			53.8
	e	Z			05.8
	eS?	E			03 13
	e	E			11 16
	e	E			13 20
	1 1/2 N., 126 1/2 W.				
	Molucca Passage foreshock.				
	H=16 53 13 USCGS				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
12.	P	Z	18	56	45.1
✓	P	N			45.2
	P	E			46.1
	S	NE	57		20.8
	eS	Z			21

12.	iP	Z	18	59	44.1
✓	iP	NE			44.4
	e	Z	19	01	06
	iP:N,E,compression				

12.	iP	NEZ	19	13	05.6
✓	S	E			19 58.1
	eL	E			24 24
	iP:S,W,dilatation				
	9½ S., 123½ E.				
	Timor I.				
	H=19 04 20				
	USCGS				

12.	eP	NEZ	19	32	22
✓	e N, i Z				23.5
	i	Z			23.7
	e	E			25
	ePP	N	33	52	
	eS	EZ	38	09	
	e	N			10
	e	E			11
	eScS	E	41	04	
	e	E	43	04	
	eL	E	45	04	
	e	NE	20	01	44.7
	Mag. 6½ (Matsushiro)				
	C., 126½ E.				
	Molucca Passage.				
	H=19 25 05				
	USCGS				

12.	iP	Z	20	36	17.7
✓	iP	NE			18.2
	iS	Z			24.2

12.	P	Z	21	21	26.1
✓	i	N			36.3
	e	N	25		35.8
	e	Z			39.9

12.	iP	NEZ	22	10	58.3
✓	iS E, S N				11 04.5
	iS	Z			04.6
	iP:E,compression				

12.	e	EZ	22	16	53
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12.	i N, e Z		22	17	30
✓	e	E			31.1
	e	E	18		16.8

12.	iP	N	22	22	47.3
✓	iP	Z			47.4
	(cont.)				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued	e	E	22	22	48.3
✓	S	E			23 23.3
	S	N			23.5
	S	Z			23.8
	iP:S,dilatation				

12.	eP	E	23	20	23
✓	e	N			24
	e	E			21.0
	eL?	E			31.6
	6 S., 152 E.				
	Near coast of New Britain.				
	h:100 km ca.				
	H=23 12 17				
	USCGS				

12.	P Z, iP E		23	39	47.3
✓	e	N			47.8
	i	Z			40 00.6
	e	N			00.8
	i	Z			03.8
	e	E			51

13.	iP	NZ	03	57	51.0
✓	i	Z			51.8
	i	Z			58 22
	e E, i Z				52
	ePP	Z	59	25	
	ePPP	Z			44
	eS	E	04	03	35
	e	Z			57.0
	e	Z			06 30
	e	E			32
	eL	E	07	22	
	e	NZ	10	50	
	iP:N,compression				
	Mag. 5 3/4 (Matsushiro)				
	½ N., 126 E.				
	Molucca Passage.				
	H=03 50 35				
	USCGS				

13.	eL	E	06	36	15
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13.	iP	NEZ	07	12	09.7
✓	iS	Z			37.7
	S	NE			38.2

13.	iP	Z	07	31	24.7
✓	i	E			25.2
	S	NE			48.4
	eS?	Z			50.2
	iP:compression				

13.	eP	EZ	07	43	11
✓	e	NEZ			14
	e	E			48
	e	E			44.1
	e	E			46.5
	e	E			51.3
	(cont.)				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
13. ✓	e	E	07	55	22
	e	E	08	01.5	
	e	E		03.1	
	eL	E		04	55
	eL	E		08	25
36½ N., 66½ E. Northern Afghanistan. H=07 33 29 USCGS					

13. X	iP	NEZ	09	47	32.8
	S	Z			53.3
iP:N,E,compression					

13. X	iP EZ, eP N		09	50	23.1
	S	NEZ			34.3
iP:E,compression					

13. ✓	iP	Z	09	51	26.6
	iP	E			26.8
	i	Z			30.8
	iS?	Z			45.8
	i	E			46
iP:E,dilatation					

13. ✓	e	N	10	21	15
	eL	N			24.6
6 S., 153 E. Off coast of New Britain. H=10 02 49 USCGS					

13. ✓	iP	NZ	10	53	33.9
	iP	E			34
	i	N			54 15
	ePP	Z			52
	iPcP	Z			56 10.4
	eS	E			58 45
	eL	E	11	01.4	
iP:S,W,compression Andreanof Is. H=10 46 47 USCGS					

13. X	iP	NZ	11	50	45.4
	P	E			45.6
	i	E			53.4

13. ✓	iP	NEZ	13	05	15.6
	i	Z			18.6
	iS	NZ			21.9
	iS	E			22.1

13. ✓	e	NEZ	14	32	33
	i	NE			42
	i	N			47.5
	iS	N			33 22.3

13. X	iP	EZ	14	47	00.5
	iS	NEZ			06.8

Date	Phase	Comp.	Time(GMT)		
			h	m	s
13. X	P	E	14	59	22.0
	i	NZ			24.5
17½ S., 176½ W. Fiji Is. region. H=14 48 24 USCGS					

13. X	eL	E	18	04	15
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13. ✓	eP	NZ	18	42	41
	e	E			42
	e	E			46
	e	N			48
	i	Z			48.7
	iS	EZ			43 16.9
	i	N			13.7

13. ✓	iP EZ, P N		20	19	43.2
	e	EZ			21 19.7
	i	Z			25.7
	i	E			22 55.7
	eS	NE			25.2
	i	E			26 10.2
	eL	NE			27.7
iP:N,E,dilatation Mag. 5 3/4 - 6 (Matsushiro) 51 N., 177½ W. Andreanof Is. H=20 13 00 USCGS					

13. ✓	iP	NEZ	22	04	16.6
	e	Z			05 03
	i	Z			06 04.8
	e	Z			09 36
	e	E			13.5
	e	E			15 47
4½ S., 154 E. Solomon Is. region. h:200 km ca. H=21 56 31 USCGS					

14. ✓	iP E, eP NZ		02	52	30.0
	i	E			34.8
	i	E			50.0
	eS	NE			35 43
	e	Z			51
	e	N			36 03
	eL	E			26
	eL	NE			37.7
19½ N., 146½ E. Mariana Is. H=02 28 25 USCGS					

14. X	i	E	05	06	36
	i	Z			36.2

14. ✓	iP	Z	05	34	05.2
	eP?	NE			06
	e	E			35 32
	i	Z			34
	eS?	N			30 03

Date	Phase	Comp.	Time(GMT)		
			h	m	s
14.	X e i	NE Z	07	17	25 26
14.	X i e	Z E	09	00	59.7 01 09
14.	eP e eS? eL eL	NEZ Z N NE E	09	56	54 57 48 10 06 31 16.3 20 01
			25½ S., 175½ W. Tonga Is. region. H=09 45 14 USCGS		
14.	eP e i E, e Z eS? e eL eL eL	NZ N N NE NE N N	11	38	19 20 23.0 47 36 52 11 55 26 12 00 16 05 36
			Mag. 5 3/4 - 6 (Matsushiro) 34½ N., 48 E. Iran. H=11 27 00 USCGS		
14.	X e e e e	NEZ N Z E	12	09	48 54 56 58
14.	X iP i i	Z N E	12	53	18.3 19 19.5
14.	iP ePP iPPP? iPcP iS N, eS E S e eL eL eL L eScS e l	NEZ NEZ N EZ Z E N E Z N E N E	15	02	12.5 03 26 59 04 39 07 47 48 52.5 10 02 10.1 10.4 10 44 12 29 30 31
			iP:S,W,compression Mag. 6½ - 6 3/4 (Matsushiro) 52 N., 175 W. Andreanof Is. H=14 55 10 USCGS		
14.	X iP NZ, eP E i	NZ EZ	15	25	12.0 22.0
			51½ N., 175 W. Andreanof Is. H=15 18 07 USCGS		

Date	Phase	Comp.	Time(GMT)		
			h	m	s
14.	X P	NEZ	15	37	38.5
			54 N., 47½ E. Iran. H=15 26 19 USCGS		
14.	X iP i i i iP:compression	NZ Z NE Z	17	09	21.6 23.5 08.0 09.5
15.	iP i i i i i eS? e e eL e eL iP:dilatation	Z E E Z E Z N E N E N E	02	35	02.2 03.9 12.5 13.2 20.6 40 56.2 41 28 31 44 42 43.6 43.6 49 26
			Mag. 5½ (Matsushiro) 6 S., 150½ E. New Britain H=02 26 51 USCGS		
15.	X iP iS iP:W,dilatation	NEZ NEZ	06	25	01.9 07.6
15.	X iPKP iPKP Z, ePKP E iPKP:N,dilatation 7 N., 73 W. Northern Colombia. h:200 km ca. H=06 20 53	N E N	06	39	40.1 41
			USCGS		
15.	iP i i i iS iP:S,E,dilatation	NEZ N Z E NE	09	50	03.8 16.1 18.6 31.9 33.6
15.	X iP iS	Z Z	12	09	05.7 15.4
15.	X iP S	NEZ E	12	29	41.2 58
			35.3 N., 138.9 E. Central Honshu, Japan. J.M.A.		
15.	X iP iS	Z Z	12	35	11.7 13.2

Date	Phase	Comp.	Time(GMT)		
			h	m	s
15.	eP iS	Z Z	15	24	31 41
15.	iP iZ, ePP eS i eL eL e e	NEZ E NE Z N Z N N	20	00	42.0 01 05 04 43 44 06.1 07.3 09.6 11 32
iP:S,W,compression Mag. 6 3/4 - 7 (Matsushiro) 53 N.,160 1/2 E. Near east coast of Kamchatka. h:60 km ca. H=19 55 39 USCGS					
15.	i dilatation	Z	22	31	29.8
15.	iP i iPP iPPP iS iS e e SoS i	NZ EZ NE NE Z N N E Z E	22	36	10.1 11.1 40 37 47 41 37 38 44.4 44.5 45 49.5 46 07
iP:N,compression Mag. 7 - 7 1/2 (Matsushiro) 1 1/2 N.,125 E. Celebes. h:200 km ca. H=22 29 17 USCGS					
16.	P i e eSS? eL eL	NEZ E N E N E	11	25	27 50 39.4 40 03 45 10 45.1
P:N,compression Mag. 5 3/4 - 6 (Matsushiro)					
16.	iP eP e e iPeP? i S e	Z NE Z NE Z Z NE N	13	24	51.6 52 03 05 27 21.6 28 40.1 30 23 32.6
iP:compression Mag. 6 1/2 - 6 3/4 (Matsushiro) 51 1/2 N.,176 W. Andeano's Is. H=13 17 52 USCGS					

Date	Phase	Comp.	Time(GMT)		
			h	m	s
16.	eL?	NE	17.	38	6
16.	P ePP S eSS eL e	NEZ E NE E E E	19	25	02 27 49 34 16 38 55 42.5 51 33
P:N,E,dilatation Mag. 6 3/4 - 7 (Matsushiro) 34 1/2 N.,48 E. Iran. H=19 13 45 USCGS					
16.	eP e	Z NE	22	31	53 37 38
17.	iP EZ, eP N eS? iS eS iP:W,compression	N Z E N	00	00	47.1 51 52.9 53.0
17.	iP eS	NZ E	01	15	17.4 37.4
iP:N,compression 35.9 N.,140.5 E. Honshu, Japan. h:40 km ca. J.M.A.					
17.	e e e	N N N	02	21	52 23 14 28.1
17.	iP i S	Z E Z	02	33	35.9 36.6 41.9
iP:compression					
17.	e e	Z E	03	58	59.2 59.0
17.	eP? S	N NEZ	04	38	47 39 39
17.	iP iP i e e	Z E N NZ E	07	33	33.6 33.8 34 35 16 17
iP:S,W,compression					
17.	eL	NE	08	10	6
17.	P i e ePP e	Z Z NEZ E NZ	09	15	31.9 33.6 36 16 47 51

Date	Phase	Comp.	Time (GMT)			
			h	m	s	
17.	e	EZ	09	18	02.0	
	e	N			04	
	S	N	20	53		
	e	E	21	10		
	e	N	23.3			
	eL	N	23	51		
	eL	N	25.7			
	e	N	25	54		
	P:compression					
	Mag. 5 3/4 - 6 (Matsushiro)					
51 1/2 N., 176 W. Andreevof Is.						
H=09 08 35 USCGS						

17.	P	Z	10	57	40.2
	e	E			41
	i	Z	11	00	03.2
	e	E			02 54
	e	N			04 12
	e	NE			06.1
	eL?	EZ			08.1
P:dilatation					

17.	eP	EZ	11	23	10
	e	Z			25 39.2
	e	N			41
	e	E			23 07
	e	N			12
	e	N			31.4
	eL?	N			31.5
Mag. 5 1/4 - 5 1/2 (Matsushiro)					
51 1/2 N., 176 W. Andreevof Is.					
H=11 16 13 USCGS					

17.	e	EZ	12	27	18.
	e	N			21
	e	E			22
	e	Z			29 28
	e	E			33 53
	eL?	N			35.5
	eL?	N			36 29

17.	e	Z	16	08	41
	e	N			42
	e	EZ			09 06

17.	iP	NEZ	16	32	54
	iS?	Z			59.4
iP:S,W,dilatation					

17.	iP	Z	16	35	46
	iS	Z			52.4

17.	iP	EZ	16	52	47.4
	iS	NEZ			53.4
iP:E,dilatation					

17.	iP	EZ	16	55	52.2
	iP	N			52.4
(cont.)					

Date	Phase	Comp.	Time (GMT)		
			h	m	s
17.	i	Z	16	53	56.9
	i	Z			54 28.4
	i	N			29.4
	i	Z			35
	iP:S,W,compression				

17.	iP	NEZ	16	59	04.2
	iS	EZ			09.4
	iS	N			10
iP:S,E,compression					

17.	iP	NZ	17	59	31.7
	iS N, S Z				38
iP:S					

17.	P	NEZ	18	08	47
	e	Z			09 07
	S	E			14 36
	S	N			41
	e	E			18 19
	eL	N			35
	eL	N			18.7
	eL	E			20.7
	eL	N			21.7
P:N,compression					
Mag. 6 1/4 - 6 1/2 (Matsushiro)					
3 S., 145 1/2 E. Bismarck Sea.					
H=18 01 05 USCGS					

17.	P	Z	18	09	40
	S	Z			45.4

17.	iP	NEZ	19	06	56.5
	i	Z			57.0
	i	Z			58.5
	i	Z			07 10
	i	Z			18
	S?	E			32
	i	Z			08 35.5
iP:N,E,dilatation					
38.5 N., 140.2 E.					
Near east coast of Honshu, Japan.					
h:20 km ca. J.N.I.A.					

17.	iP	NEZ	19	24	12.0
	i	Z			27
iP:N,W,compression					

17.	i	Z	19	43	48.5
	i	E			48.6

17.	iP	E	20	43	05.0
	e	N			06
	iS	NE			11.0

17.	eP	Z	21	23	25
	e	N			26
(cont.)					

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued	e	NE	21	23	43
	e	E		26	39
	e	E		27	19
	e	N			24
	e	NE	33	24	
	eS?	NE			45
	eL	N	36	14	
	eL	N	39	19	
	e	E	45	59	
	e	E	22	01	24
Mag. 5 $\frac{1}{2}$ - 5 $\frac{1}{2}$ (Matsushiro)					
35 $\frac{1}{2}$ S., 179 $\frac{1}{2}$ W.					
Kermadec Is. region.					
H=21 11 09 USCGS					
17.	1P	EZ	21	45	51.6
	1S	Z			57.3
	1S	N			58.1
17.	1P	E	23	54	11.7
	1P	NZ			11.8
	1S	NEZ			18.1
1P:N,W,compression					
17.	1P	EZ	23	55	28.6
	1S	Z			34.3
	1S	NE			34.4
18.	1P Z, eP	NE	00	42	46.2
	e	N		47	16
	e	E			24
	e	NE	48	34	
1P:compression					
18.	P	E	00	45	52.7
	1P	Z			53.2
	1S	EZ			59.0
	1S	N			59.2
18.	1P EZ, P N		03	14	33.8
	1S	NEZ			39.3
18.	1P	EZ	06	33	56.8
	e	N			59
	i	Z	34	06.0	
	i	E			06.3
1P:E,dilatation					
18.	1P	Z	03	34	49.0
	1P	N			49.5
	i	E			51.5
	1S	E	35	09.5	
18.	eP	NE	06	54	22
	i	Z			23.0
	e	N			48.0
	e	E	55	29.0	
	e	Z			48.5

Date	Phase	Comp.	Time(GMT)		
			h	m	s
18.	1P	EZ	07	18	07.5
	1S	Z			13.1
	1P:E				
18.	eL?	N	07	23	
18.	i Z, e E		10	23	32.7
	e	N			34
	i Z, e E				37.0
18.	i	NZ	10	25	31.7
	i	Z			36.0
18.	1P	EZ	10	36	10.9
	1S	NEZ			17.0
18.	1P	NEZ	13	11	10.7
	1S	NEZ			16.9
18.	1P	NEZ	13	32	03.2
	1S	NEZ			09.1
18.	1P E, eP	NZ	13	59	29.1
	1S	NE			35.2
	1P:E				
18.	eP?	Z	14	43	26
	eS	N			45 30
	e	NE			46 00
	e	N			48 19
18.	i EZ, e N		14	53	42.3
	i	NE		54	27.5
18.	e	Z	15	20	04
	e	NEZ			05
18.	eP?	NEZ	15	23	16
	e	N			23
	e	NE			24 50
	e	NE			25.8
48 N., 155 E. Kurile Is.					
H=15 19 20 USCGS					
18.	1P	Z	15	35	11
	1S	Z			17
18.	e	NZ	15	43	01
	e	E			02
	eL?	N			58.2
18.	1P	EZ	18	01	59.7
	1S	EZ		02	05.2
18.	1P	Z	18	25	28.8
	1P	E			29.2
	1S N, S NZ				35.0

Date	Phase	Comp.	Time(GMT)		
			h	m	s
18.	X iP EZ, eP N iS N, eS Z		18	29	58.7 30 04.7
18.	X e eL	Z N	18	33	31 38 18
18.	X iP iS NE, S Z iP:S,W	NEZ	19	50	21.1 26.8
18.	X iP iS	Z NEZ	20	24	27.4 33.9
18.	X iP iS S	Z Z E	20	25	27.5 33.4 33.7
18.	X iP S	EZ NEZ	21	00	45.4 52
18.	X iP iP i iP:N,W,dilatation	Z NE Z	21	37	29.1 29.4 38.9
18.	X eP eS iS	Z Z NE	22	46	14 19 19.5
18.	X iP iS	NEZ NEZ	23	09	32.0 38.0
18.	X iP iS iS	EZ E NZ	23	28	17.3 23.1 23.4
19.	X iP S iS	EZ E NZ	00	39	09.6 14 14.1
19.	X iP iP iS iP:S,dilatation	NZ E NEZ	00	44	14.6 14.8 21.1
19.	X iP i iS iP:S,W,dilatation	NEZ E N	04	55 56	58.4 04 04.5
19.	X iP i i iS?	Z E N E	04	57	31.1 31.6 32.0 37.6
19.	X S? SS SS	NE N E	05	05 09	11 09 19

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued	Lq e	NE N	05	13	39 16 36
	Mag. 5 $\frac{1}{2}$ - 5 $\frac{3}{4}$ (Matsushiro) 19 S., 175 E. Fiji Is. region. H=04 45 45 USCGS				
19.	X iP iS iP:dilatation	EZ NEZ	05	05	45.2 49.0
19.	X iP iS iP:S,W	NEZ NEZ	05	29	10.5 17
19.	X iP iS	Z Z	05	34	56 55 02.3
19.	X iP iS iP:S,W,dilatation	NEZ NEZ	05	48	03.8 10.0
19.	X i e	Z Z	06	30	14 20
19.	X iP iS	Z Z	06	30	33.3 39.8
19.	X iP iS	Z Z	06	33	05.5 11.8
19.	X iP iS iP:dilatation	Z Z	07	40	56.6 41 02.3
19.	X iP iS	Z Z	08	04	09.3 15.4
19.	X i i	Z Z	08	35	29.4 35.5
19.	X iP eS	Z Z	08	36	09.6 15
19.	X iP iS	Z Z	08	37	29.1 35.3
19.	X iP iS	Z Z	08	38	09.8 16.2
19.	X iP i i iP:dilatation	Z Z E	08	39	05.4 15 50.3
19.	X iP iS iP:dilatation	Z Z	09	45	22.0 23.7

(cont.)

Date	Phase	Comp.	Time(GMT)		
			h	m	s
19.	X eP eS	Z Z	09	55	59
19.	X eP iS	Z Z	10	12	24 29.4
19.	X eP iS	Z Z	12	14	23 29.9
19.	✓ P S	Z Z	12	24	00 21
19.	✓ S?	Z	12	30	46
19.	X P S	Z Z	13	56	59 05
19.	iP eS? e eL eL eL	Z N E E NE E	16	13	18.1 18.8 18.9 21.3 22.3 26.6
<p>iP:compression Mag. 5 - 5½ (Matsushiro) 51½ N., 175½ W. Andreanof Is. H=16 06 18 USCGS</p>					
19.	✓ iP eS eL eL?	Z NE NE NE	16	34	43.1 38 36 39.3 41.5
<p>iP:compression Mag. 5 - 5½ (Matsushiro) 53½ N., 161 E. Near east coast of Kamchatka. H=16 29 36 USCGS</p>					
19.	X iP iS	Z Z	17	56	28.5 35.0
19.	X P iS	Z Z	18	02	27.7 33.1
19.	iP e e e e	Z E N E N	18	12	25.2 14 58 15 06 15.4 16.6
19.	X P eS	Z Z	18	25	49 55
19.	✓ P iS	Z Z	18	50	25 29.9
19.	X iP S	Z Z	19	28	46 53

Date	Phase	Comp.	Time(GMT)		
			h	m	s
19.	X iP S	Z Z	20	38	50 56
19.	X iP S	Z Z	20	47	52 58
19.	X iP S	Z Z	21	22	25.8 31.8
19.	X iP S	Z Z	21	22	54.1 23 00.3
19.	X iP iS	Z Z	21	24	13 19
19.	X iP S	Z Z	21	30	59.6 31 05
19.	X iP S	Z Z	21	47	46 52.8
19.	P e ePP ePP iS eL e e e e	NZ Z E N N E E N N N	21	55	36 56 46 57 59 01 18 03 15 05 36 06 55 09.7 12.2
<p>Mag. 6 - 6½ (Matsushiro) 1 S., 149½ E. New Ireland I. H=21 48 07 USCGS</p>					
19.	✓ P i S	E E EZ	22	33	42 48.9 51.4
19.	X iP S	Z Z	22	54	40 46
<p>iP:dilatation</p>					
19.	eP iS., 149 E. New Ireland I. region. h:100 km ca. H=22 55 18	Z	23	02	41
<p>USCGS</p>					
20.	iP i i	Z Z Z	01	40	23 41 09 25
20.	eP eP ePPP eS eL	Z NE E NE E	03	49	56 57 53 18 57 50 04 04 07

(cont.)

Date	Phase	Comp.	Time(GMT)
continued			h m s
	eL	N	04 04 12
	eL	E	07.4
	e	N	11 27
Mag. $6\frac{1}{4}$ - $6\frac{1}{2}$ (Matsushiro)			
14 S., 167 E. New Hebrides Is.			
H=03 40 07 USCGS			
20.	iP	Z	08 15 11.9
	S	Z	18.2
20.	e	Z	08 29 44
	e	E	30 05
	i	Z	51.1
20.	eP	NE	08 50 22
	e	Z	24
	eS	N	53 54
	eS	E	58
	eL	NE	55 10
	e	N	55.6
	e	N	56 57
	e	N	57.7
	e	N	58 47
Mag. $5\frac{1}{4}$ - $5\frac{1}{2}$ (Matsushiro)			
24 N., 122 E.			
Near east coast of Formosa.			
H=08 46 04 USCGS			
20.	iP	Z	09 25 14
	e	Z	22.1
$53\frac{1}{2}$ N., $159\frac{1}{2}$ E. Kamchatka.			
H=09 20 10 USCGS			
20.	iP	Z	10 30 43
	S	Z	31 25
iP:dilatation			
20.	e	Z	14 48 09
	e	Z	35
20.	e	N	18 07.6
20.	P	Z	19 19 19.2
	i	Z	22.5
	i	Z	29.2
20.	iP	Z	21 47 11.3
	i	Z	15.3
	i	Z	29.8
iP:dilatation			
52 N., 158 E. Kamchatka.			
H=21 42 21 USCGS			
20.	eP	Z	22 15 40
	iS	Z	45
21.	ePKP	Z	00 32 14
	i	EZ	21
	i	NEZ	36

Date	Phase	Comp.	Time(GMT)
continued			h m s
	sPKP	Z	00 34 01
20 S., 65 W. Southern Bolivia.			
h:300 km ca.			
H=00 12 53 USCGS			
21.	eP	NZ	01 20 39
	e	Z	22 18
	S	NE	30 14
	ScS	N	31 55
	ScS	E	31 03
	SS	N	35 13
	SS	E	17
	SSS	N	58 43
	L	E	39 53
	L	N	40 02
Mag. $5\frac{1}{2}$ - $5\frac{3}{4}$ (Matsushiro)			
24 S., 176 W. Tonga Is. region.			
H=01 09 00 USCGS			
21.	e	NE	03 19 09
21.	eP	NEZ	03 29 56
	S?	N	30 44
	S?	E	46
21.	P Z, eP N		04 15 07
	eS	N	24 48
	e	E	25 31
	eSS	N	04 29 43
	L	N	35 18
	L	E	47 18
Tonga Is. region.			
H=04 03 26 USCGS			
21.	eP	NZ	05 40 44
	e	E	47
	e	Z	43 06
	L	N	49 25
	L	N	53 52
21.	ePKP	Z	06 47 19
$26\frac{1}{2}$ S., 62 W.			
Santiago del Estero Province,			
Argentina.			
h:550 km ca.			
H=08 27 55 USCGS			
21.	eP	Z	09 56 39
	S	NEZ	59
21.	P	NEZ	11 27 01
	c	N	28 10
P:N			
21.	iP EZ, P N		11 30 54.0
	iS E, S N		31 00
iP:E, compression			

Date	Phase	Comp.	Time(GMT)		
			h	m	s
21.	P	NZ	11	56	47
	i	E			49
	i	N		57	54
	iS N, eS E			58	23
	S	Z			27
28½ N., 139½ E. Bonin Is. region. H=11 53 55 USCGS					
21.	iP	NZ	12	26	36.2
	i	E			36.5
	eS	N		32	46
	e	N		35	29
	L	NE		37	11
iP:S,compression Mag. 5¼ - 5½ (Matsushiro) 53 N., 168½ W. Fox Is. H=12 19 00 USCGS					
21.	P	NEZ	15	37	44
	e	N		46	01
	e	E		57	07
21.	P EZ, eP N		17	07	58
	iS	NE		08	04.5
21.	iP	NEZ	17	30	20.0
	iS	NEZ			41.4
	iP:N,E,compression				
21.	iP	EZ	17	57	17.6
	i	N			20
	iS	E			23
	iS	N			24
	iP:E,compression				
21.	iP	NEZ	18	33	32.4
	iS	NEZ			38.6
21.	eP	Z	18	57	25
21.	P	Z	20	04	58
	S	EZ			44
21.	P	EZ	20	04	51
	iS	N			57.2
	S	EZ			58
21.	iP	NEZ	21	09	58.3
	iPP	Z		11	09
	i	Z			13
	iPP	Z		12	41
	S	NE		18	52
	i	N		19	44
	i	E			47
	iS	NE		20	20
	SS?	N		23	39
	L	N		26	42
	iP:S,E,dilatation				

(cont.)

Date	Phase	Comp.	Time(GMT)			
			h	m	s	
continued						
Mag. 5 3/4 - 6 (Matsushiro) 18 S., 176 W. Fiji Is. region. h:250 km ca. H=20 59 10 USCGS						
22.	eP	Z	00	14	13	
	S or SKS	N		24	45	
	S or SKS	E			54	
	PS?	N		25	55	
	eL	N		49	7	
22.	L	N		57	39	
	Mag. 5¼ (Matsushiro) 48½ S., 115 E. South Indian Ocean. H=00 01 14 USCGS					
	22.	eP 1	EZ	01	51	47
		P 2	NEZ			51.0
		iS	NE		52	20
22.	P	NEZ	02	15	21	
	S	NE			50	
22.	P	NZ	10	06	34.2	
	i	E			34.6	
	iPcP	Z		07	23	
	i	E			29	
15 S., 167 E. New Hebrides Is. h:100 km ca. H=09 56 40 USCGS						
22.	P	NEZ	13	08	28	
	i	Z			34	
	i	N			41	
	S?	N		09	17	
	S?	E			19	
22.	P	NEZ	14	43	28	
	iS	NEZ			35.7	
22.	P	NEZ	16	27	51	
	S?	NZ		28	51	
	S?	E			53	
22.	P	NE	17	03	42	
	P?	Z			44	
22.	e	N	17	55	57	
	eL	N		37	38	
	eL	E		40	18	
22.	P	Z	17	36	44	
22.	iP Z, P NE		20	40	27.1	
	e	Z			38	
	iPcP	Z		43	06	
	e	Z		47	01	
	eL	N		48	45	

(cont.)

Date continued	Phase	Comp.	Time(GMT)		
			h	m	s
iP:compression 51 N., 179 1/2 W. Andeanof Is. H=20 33 40 USCGR					
22.	iP	NEZ	22	24	40.2
	i	Z			55
	i	E	25	09	
	i	Z			11
	e	Z	27	20	
	e	N	29	26	
	eS	Z	30	12	
	L	E	31	19	
	L	N	37	21	
iP:S,E,dilatation Mag. 5 1/2 - 5 3/4 (Matsushiro) 6 S., 149 E. Western New Britain. h:250 km ca. H=22 16 56 USCGR					
23.	eL	N	00	15	07
Mag. 5 1/4 (Matsushiro)					
23.	P	NEZ	02	18	02
	i	NEZ			24
	i	E			36
23.	iP	EZ	02	46	11.6
	iP	N			12
	iS	NEZ			18.1
iP:E,dilatation					
23.	P	EZ	05	51	52.9
compression					
23.	P	NEZ	06	56	56
23.	P Z, eP	NE	08	08	41
	eS	N			16 17
	e	N			25 10
	eL	N			29 18
12 S., 167 E. Santa Cruz Is. H=07 59 09 USCGR					
23.	iP N, P	EZ	13	25	02.0
	iS	NEZ			20
23.	iP	EZ	15	08	02.9
	eP	N			03
	iS	NE			09
iP:W					
23.	eP	NEZ	17	52	19
23.	eP	NEZ	19	55	12
	S	NE			26
23.	eP	NEZ	20	59	48
(cont.)					

Date continued	Phase	Comp.	Time(GMT)		
			h	m	s
S iS EZ N 20 59 54 54.0					
23.	iP EZ, P	N	21	09	58.2
	iS	NE			44.6
iP:W,compression					
23.	P	NEZ	22	04	04
	i	N			08.6
	S	N			10 35
	L	N			13 19
	L	E			15 41
Mag. 5 - 5 1/4 (Matsushiro) 52 N., 173 W. Andeanof Is. H=21 56 53 USCGR					
24.	P	NEZ	00	47	38
24.	P	NEZ	01	00	43
	i	Z			54
	i	NE	01	14	
	i	N			26
24.	iP EZ, eP	N	04	40	53.2
	e E, i Z				44 17
	i	Z			35
	i	NE			46 27
iP:W,compression					
24.	P	Z	05	14	47
	iS	NE			52.8
	S	Z			53
24.	iP	NEZ	08	01	35.7
	iS	N			43.8
	iS	Z			44
iP:N,E,compression					
24.	iP	Z	09	26	47
	i	NE			49
	i	N			27 21
	i	NEZ			22.9
	i	NZ			30.9
	i	E			33
	L	N			28 45
	L	Z			29 02
iP:dilatation					
24.	P	NEZ	12	10	33
	iP	E			33.6
	iS	Z			39
	iS	NE			59.8
iP:E					
24.	P	Z	13	29	25
24.	eP	NEZ	14	01	14

Date	Phase	Comp.	Time(GMT)		
			h	m	s
	i	N	12	31	27
	i	E		33	22
	i	N			25
	e	Z		37	01
	eS	N		38	17
	i	N		39	41
	eSS	N		42	03
	L	N		44	30
	L	E		47	14

Mag. $5\frac{1}{2}$ - $5\frac{3}{4}$ (Matsushiro)
 14 S., 167 E.
 New Hebrides Is. foreshock.
 H=12 20 45 USCGS

26.	eP 1	Z	12	44	51
	P "2	NZ			53.2
	i	N			53.7
	iS	E	45	12.7	
	i	NZ			15
	i	E			16
	P 2:dilatation				

26.	P	Z	12	54	52
	i	NE			53
	14 S., 167 E. New Hebrides Is. foreshock. H=12 45 02 USCGS				

26.	P	NZ	13	05	03.2
	S	NZ			11.5

26.	eP	EZ	13	32	24
	S	NZ			29
	iS	E			29.3

26.	iP Z, P N		18	05	25.8
	i	Z		13	11
	S	NE			20
	SOS	N		15	15
	SS	N		17	03
	i	N		18	11
	L	N		19	30
	L	E		22	23
	iP:dilatation Mag. $5\frac{1}{2}$ - $5\frac{3}{4}$ (Matsushiro) 14 S., 167 E. New Hebrides Is. H=17 55 34 USCGS				

26.	iP	NZ	20	12	56.3
	iS	NZ		15	14.4
	iP:S				

26.	P	Z	21	09	23.0
	i	N			23.1
	S	N			55
	i	N	09	22	
	P:compression				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
26.	P	NZ	23	33	59
	e	N		44	15
	L	N		48	47

14 S., 167 E.
 New Hebrides Is. foreshock.
 H=23 23 20 USCGS

26.	P	NZ	23	41	23
	e	E		44	52

Mag. $5\frac{3}{4}$ (Matsushiro)
 14 S., 167 E. New Hebrides Is.
 H=23 31 38 USCGS

26.	P	Z	23	45	03
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26.	P	Z	23	50	31.7
	i	Z			53
	P:compression				

26.	iP	Z	23	54	53.4
	14 S., 167 $\frac{1}{2}$ E. New Hebrides Is. H=23 45 07 USCGS				

27.	eP	Z	00	59	33
-----	----	---	----	----	----

27.	iP	Z	01	33	35.6
	iS	Z			45
	iP:compression				

27.	L	NE	03	19	07
	Mag. $6\frac{1}{4}$ - $6\frac{1}{2}$ (Matsushiro) 4 $\frac{1}{2}$ S., 104 $\frac{1}{2}$ W. About 1,000 miles southwest of Galapagos Is. H=02 25 32 USCGS				

27.	eP	Z	10	12	11
	eS	Z			12

27.	eP	Z	12	47	28
	iS N, S Z				35

27.	P	Z	13	14	04.1
	i	N			04.4
	PoP	Z		17	57
	S	E		18	04
	L	E		20	01
	eL	Z		21	10
	P:compression Mag. 5 - $5\frac{1}{2}$ (Matsushiro) 53 $\frac{1}{2}$ N., 159 $\frac{1}{2}$ E. Kamchatka. H=13 09 03 USCGS				

27.	P	Z	13	15	48
	S	N			51

27.	P	Z	13	15	54
	S	N			57

Date	Phase	Comp.	Time(GMT)		
			h	m	s
27.	eP e	Z Z	14	30	25
27.	P SorBKS L eL iL? iL L L	NZ EZ E Z E Z Z	15	29	07
			16	02	23
			17	05	22
			17	08	47
			17	10	15
			17	02	28
			Mag. $6\frac{1}{2}$ - $6\frac{3}{4}$ (Matsushiro)		
			58 N., $20\frac{1}{2}$ E.		
			Near west coast of Greece.		
			H=15 16 35 USCGS		
27.	P i e	NZ Z N	18	46	21.2
					24.2
					56 25
			P:S,compression		
28.	iP iS	NEZ EZ	04	06	22.7
					42
			iP:S,E,dilatation		
28.	eP	Z	11	48	56
28.	eP S	NZ N	15	50	00
					17
28.	eP	N	16	49	32
28.	P S e eL	NZ NE Z NE	18	23	20
					29 06
					13
					32 34
			Mag. 5 - $5\frac{1}{2}$ (Matsushiro)		
			53 N., $170\frac{1}{2}$ W. Fox Is.		
			H=18 15 49 USCGS		
28.	eP S	NZ E	19	03	13
					04 38
28.	eP S	N N	19	05	43
					03 17
28.	P iS	NZ NZ	20	46	52
					54.1
28.	P	NZ	21	57	04
28.	iP i i	NZ Z N	23	18	21.1
					19 17
					20
			iP:S,dilatation		
29.	P iS	NZ NZ	00	23	37
					42.8

Date	Phase	Comp.	Time(GMT)		
			h	m	s
29.	eP e	NZ N	02	21	44 - 45
					23 50
29.	i	Z	02	46	49.5
29.	iP iP:N,dilatation	NZ	02	58	29.2
29.	eP	NZ	03	39	51
29.	iP S	NZ NE	07	03	35.5
					09 16
			iP:S,compression		
29.	eP S	Z NZ	08	08	56
					09 01
29.	eP? i	Z Z	08	09	08
					15
29.	eP i	NZ NZ	08	29	37
					30 29
29.	P i i	N N N	11	15	05
					16
					24
29.	eP	Z	11	58	47
29.	P i i S L L	NZ Z NZ NE E N	12	54	15.6
					35 22
					36 35
					42 12
					47 32
					58
			P:S,dilatation		
			Mag. $5\frac{3}{4}$ - 6 (Matsushiro)		
			$14\frac{1}{2}$ S., 167 E. New Hebrides Is.		
			H=12 24 23 USCGS		
29.	P i i	NZ N N	13	01	58
					05 53
					04 35
			14 S., 167 E.		
			New Hebrides Is. aftershock.		
			H=12 51 57 USCGS		
29.	P	Z	13	45	20
29.	P iS	NE NE	14	50	00.1
					17
29.	eP i i	Z N N	15	53	03 ca.
					15
					20
29.	eP i	NZ NE	16	40	37
					42 34

Date	Phase	Comp.	Time(GMT)			Date	Phase	Comp.	Time(GMT)		
			h	m	s				h	m	s
29.	✓ eP e	Z N	18	26	38 35 29	31.	P i i e eL eL	NZ N N N N E	03	23	46 24 09 25 11 28 02 29 37 30 30 44
29.	✓ P i	NZ NZ	20	36	52 37 10	31.	✓ eP	Z	03	32	34
29.	✓ P 1S?	NZ NZ	20	38	45 39 03	31.	✓ eP i	Z NZ	03	35	21 36 12
29.	✓ P i	NZ NZ	20	57	18 54	31.	✓ P S?	NZ N	04	54	09 55 24
29.	✓ eP	NZ	22	52	15	31.	✓ P	Z	06	42	32
30.	✓ e	N	14	00	20	Off southeast coast of Kamchatka. H=06 37 39 USCGS					
30.	✗ eL	N	14	52	32	31.	✓ P	Z	09	28	47
30.	✓ P e e	NZ N E	17	13	37 18 07 34	31.	✓ P	Z	10	32	05
30.	✓ eP 1S	N NZ	17	55	55 56 02.2	31.	✓ P	Z	15	33	46
30.	✓ iP S iP:S,dilatation	NZ NEZ	18	08	02.7 24	28 1/2 N., 62 E. Iran-Pakistan border. H=09 18 15 USCGS					
30.	✓ eP e e SorSKS SS L L	Z N E NE E N E	18	51	23 53 26 34 19 01 26 08 02 14 33 20 44	63 1/2 N., 148 W. Central Alaska. H=15 24 45 USCGS					
Mag. 5 3/4 (Matsushiro) 27 1/2 N., 112 W. Gulf of California. H=18 38 18 USCGS						31.	✓ P i i eS e	Z E N NE NE	18	01	04 59 02 01 10 23 12 33
30.	✓ P	NZ	21	50	17	31.	✓ P e L L	Z NE E N	20	14	29 18 35 20 59 21 33
30.	✓ e	N	23	08	20	31.	✓ P 1	Z NE	21	36	54 37 23
30.	✓ P Z, eP N L	NE	23	34	27 40.7	31.	✓ eP	Z	22	17	37
31.	✓ P o	Z Z	02	02	02 44	31.	✓ P i S SoS SS L L L L	Z EZ NE NE E N E N	23	09	30 32 17 01 19 25 20 31 22 26 24 30 27 15
31.	✓ P eS? eL	Z N N	02	05	40 08 24 09 27	(cont.)					
31.	✓ iP 1S iP:N,dilatation	NZ EZ	02	39	48.2 40 43						

Date Phase Comp. Time(GMT)
continued h m s
Mag. 5 3/4 (Matsushiro)
63 N., 144 1/2 W.
Central Alaska.
H=23 00 16 USCGS

Takeshi Honda
Director



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Seismological Bulletin

for September 1 to October 31, 1958

Sept.				for September 1 to October 31, 1958							
Date	Phase	Comp.	Time(GMT)	Date	Phase	Comp.	Time(GMT)	Date	Phase	Comp.	Time(GMT)
			h m s				h m s				h m s
1. ✓	iP	Z	01 08 50.7	2. ✓	iP	Z	02 03 09.0				
	24 S., 175 ¹ / ₂ W. Tonga Is. region.				dilatation						
	H=00 57 10		USCGS								
1. ✓	e	N	05 51 17	2. ✓	iP	Z	02 57 01.5				
					i	Z	27.0				
1. ✓	iP	Z	09 37 49.7		eS	N	44 28				
	i	Z	58.2		eSS	N	48.7				
	iS	NEZ	38 06.2		L	E	52 31				
	iP:compression				iP:dilatation						
					Mag. 5 ¹ / ₂ - 5 ³ / ₄ (Matsushiro)						
					10 ¹ / ₂ S., 164 ¹ / ₂ E.						
					Santa Cruz Is. region.						
					H=02 27 41		USCGS				
1. ✓	P	Z	12 11 19	2. ✓	iP	Z	05 04 50.8				
	e	Z	13 56		pP	Z	05 15				
	e	Z	14 06		eL?orSS?	E	15 07				
	P:compression				eL	N	18.7				
1. ✓	ePKP	Z	14 50 45		i	E	33 21				
	e	Z	56		iP:compression						
	18 S., 65 W. Bolivia.				Mag. 5 ¹ / ₄ - 5 ¹ / ₂ (Matsushiro)						
	H=14 30 46		USCGS		6 ¹ / ₂ S., 155 E. Solomon Is.						
					h:100 km ca.						
					H=02 56 34		USCGS				
1. ✓	P	Z	15 21 11.1	2. ✓	iP	Z	04 59 16				
	e	E	24		S	Z	26				
	i	Z	22 15	2. ✓	P	Z	09 20 03				
	S	E	32		i	E	10				
	i	E	23 18		i	Z	15				
	P:compression				S	NEZ	27				
	41.9 N., 144.7 E.			2. ✓	P	E	09 32 51				
	Near south coast of				eS	E	33 03				
	Hokkaido, Japan.				P:E						
	h:60 km ca.		J.M.A.	2. ✓	EP	NEZ	14 33 35.1				
1. ✓	iP 1	Z	15 30 38.9		EP	NEZ	35.1				
	iP 2	NEZ	39.7		i	E	35.6				
	iS	NEZ	31 33.0		PcS	Z	39 08				
	iP 1:dilatation				S	E	46				
	iP 2:N,W,dilatation				S	N	48				
	38.2 N., 134.0 E.				i	NE	42 54				
	Sea of Japan.				L	N	45 15				
	h:350 km ca.		J.M.A.		iP:S,dilatation						
1. ✓	iP	Z	19 00 56.8		5 ¹ / ₂ S., 145 ¹ / ₂ E. Near north						
	dilatation				coast of New Guinea.						
					H=14 25 37		USCGS				
2. ✓	eP?	Z	01 26 08								
	e	N	32.7								
	ePKPKP?	N	56.7								
	eL	N	02 00 43								
	L	N	03 11								
	L	N	03 43								
	Near west coast of Greece.										
	H=01 13 30		USCGS								

Date	Phase	Comp.	Time(GMT)		
			h	m	s
2.	iP iS iP:N,E,compression	NEZ E	17	59	57.6 04.0
2.	iP i S? iP:S,E,dilatation	NEZ E E	20	51	28.0 53 50
2.	eL 1.5 N., 22 1/2 W. Near coast of Oaxaca, Mexico. H=20 07 04	N	21	06	27 USCGS
3.	ePKP 1 PKP 2 e e SS SSS e eLr eL PKP 2:compression Mag. 2.4 (Cylindrical) 0., 13 W. Atlantic Ocean. H=05 44 24	Z Z Z E NE E E E	04	04	00 15.3 03 55 16.9 24.7 29.7 33.2 46.2 56.0 USCGS
3.	P i Lr P:S,dilatation	NEZ E N	04	51	53.3 52 52 05 04 26
3.	P i iS P:dilatation	Z E NE	06	09	02.8 04 12.2
3.	P i e	Z Z E	07	27	00 05 53
3.	eP i e i	Z N E N	08	10	59 01 12 22
3.	iP i iS i iP:S,W,compression Mag. 6.1 (Katsushiro) 43 1/2 N., 143 E. Off northeast coast of Honshu, Japan. h:60 km ca. H=03 10 26	NEZ Z E E	08	11	50.2 02 01 26 USCGS
3.	P	Z	09	21	22

Date	Phase	Comp.	Time(GMT)		
			h	m	s
3.	P i	Z Z	08	32	40 49
3.	P i eS? i P:S,compression	NEZ Z E E	09	23	37.2 37.7 43 31
3.	iP i i e iP:N,compression	NZ E Z N	20	52	50.9 51.9 11.4 23
3.	iP i e S iP:compression	EZ NE E NE	22	14	56.4 56.7 56 06
4.	P e 57 N., 26 1/2 E. Dodecanese Is. h:60 km ca. H=00 03 00	Z N	00	15	25 33 USCGS
4.	iP S iP:N,W,compression	NEZ NE	02	34	09.5 25
4.	P 51 1/2 N., 177 1/2 E. Rat Is., Svalbard Is. H=06 58 52	Z	07	05	20 USCGS
4.	iP i S e iP:N,E,compression	NEZ N Z W	16	04	20.9 30.7 55.0 12
4.	P i i iS	NZ E E NE	18	04	06 05 11 30.0
4.	iP S iP:W,compression	NEZ E	21	36	38.9 54
4.	ePKP 1 i PKP 2 i PPorppP i SKKS?	Z Z SZ Z Z Z	22	11	10 17 42 54 15 25 19 17 21 32

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued					
	PPS	N	22	29	13
	SS	N		35	21
	SSS	N		40	56
	Lq	N		51	59
	L	E	23	03	01
	Lr	E		04	47
	L	N		05	56
PKP 2:E,dilatation					
Mag. 7 - 7 $\frac{1}{4}$ (Matsushiro)					
55 $\frac{1}{2}$ S., 69 $\frac{1}{2}$ W.					
Chile-Argentina border.					
H=21 51 08 USCGS					
4.	P	Z	22	15	41
5.	iP	NEZ	11	01	49.4
	i	E			50.3
	i	E		03	14.5
	S	N		04	17
iP:S,compression					
Kurile Is.					
H=10 58 03 USCGS					
5.	iP	NEZ	13	11	16.0
	i	N			32.5
iP:N,E,compression					
5 S., 102 E.					
Near coast of Sumatra.					
H=13 01 55 USCGS					
5.	iP	NEZ	13	17	25.6
	i	N			26.3
	i	N		23	16
	L	N		32	41
	iLr	N		34	31
iP:N,E,compression					
5 S., 102 E.					
Near coast of Sumatra.					
H=13 08 04 USCGS					
5.	iP	NEZ	14	23	59.9
	i	N			43
	i	N			57
	i	N		24	20
	i	Z			26
	L	N		46	54
iP:N,E,compression					
5 S., 101 $\frac{1}{2}$ E.					
Near coast of Sumatra.					
H=14 14 17 USCGS					
6.	iP	Z	12	48	29.1
	i	NE			29.4
	iS	NE			43.8
iP:dilatation					
6.	iP	NEZ	17	45	20.0
	iS	NE			41.1
iP:N,E,dilatation					

Date	Phase	Comp.	Time(GMT)		
			h	m	s
6.	iP	NEZ	17	51	01.6
	i	E			14.6
	e	N			22
iP:S,E,dilatation					
7.	iP	NZ	00	12	36.9
iP:S,dilatation					
7.	P	Z	00	18	26
	eS?	N		19	08
	e	E			15
7.	iP	Z	04	07	53.9
	i	E			59.8
	e	N		03	11
	e	N			52
iP:compression					
7.	P	Z	04	52	20
	i	EZ			28
	i	N			36
	eS	N		58	54
	SS	N	05	03	02
	L	E		04	16 ca.
	Lr	N		06	35
9 $\frac{1}{2}$ S., 152 $\frac{1}{2}$ E. Solomon Sea.					
H=04 43 37 USCGS					
7.	iP	Z	05	05	13.8
	i	E			16.8
	i	E			58
	e	N		06	14
iP:dilatation					
7.	P	NEZ	09	20	09
	iS	NZ			53.1
P:W					
7.	P	E	09	51	48.1
	i	NZ			50
7.	iP	Z	10	10	27.5
	eS	N		13	11
	e	N		14	30
	e	N		18	18
iP:dilatation					
7.	iP	NEZ	17	51	42.7
	i	E			43.3
	i	N			46.7
	i	N			53
	S?	N		52	23
iP:S,E,dilatation					
7.	iP	EZ	19	56	34.6
	i	N			34.9
	e	E			54
	eS	N			58
iP:E,dilatation					

Date	Phase	Comp.	Time(GMT)		
			h	m	s
7. ✓	P S P:E,compression	EZ EZ	20	00	12.0 33
8. ✓	iP S iP:compression	Z E	02	42	35.9 43 53
8. ✓	iP Z, P NE iS iP:dilatation	NEZ NEZ	02	44	20.1 29.3
8. ✗	iP S iP:N,W,dilatation	NEZ N	04	42	50.5 54.5
8. ✓	iP iS i i L iP:S,W,compression Mag. 6 - 6½ (Matsushiro) 55½ N., 159 E. Near east coast of Kamchatka. H=05 25 37 USCGS	NEZ EZ E E NE	05	30	34.4 34 29.1 32 35 11 37 05
8. ✓	iP iS i iP:E,compression	EZ NEZ E	10	53	00.8 07.2 17.3
8. ✗	iP i iP:N,W,compression	NEZ N	12	17	37.3 41.
8. ✓	iP e iP:N,W,compression	NEZ N	13	44	40.0 45 06
8. ✓	iP i i i i iP:E,compression	EZ N Z N Z EZ	14	04	06.1 06.3 05 06.8 17.3 20.8 09 42.8
8. ✓	iP i i iP:N,W	NE Z EZ	14	09	17.3 22 43
8. ✓	iP iS iP:N,E,compression Mag. 5.8 (Matsushiro) 53½ N., 151½ E. Northern Kyushu, Japan. H=14 55 15 USCGS	NEZ NEZ	14	54	44.0 51

Date	Phase	Comp.	Time(GMT)		
			h	m	s
8. ✓	B. ✓ BEZ P:N,W,dilatation	BEZ	23	27	344.9
8. ✓	eP e i i eS? e	Z NEZ Z NEZ N N	15	31	33 48 47.2 51 34 07 36 01
8. ✗	eP i	Z NEZ	20	19	43 49
8. ✗	iP iS iP:N,W,dilatation	NEZ N	22	06	57.1 07 01.1
9. ✓	P e e	EZ E N	02	22	45.7 59 27
9. ✗	iP iS iP:N,W,dilatation	NEZ N	04	03	11.3 15.5
9. ✓	iP Z,PE i iP:dilatation	Z	04	18	31.0 57.0
9. ✓	iP iS iP:N,W,dilatation	NEZ N	07	29	08.6 52.3
9. ✓	iP i e L iP:S,W,compression 46 N., 151 E. Kurile Is. H=11 32 05 USCGS	NEZ NEZ E E	11	35	24.2 35.7 38 29 40 13
9. ✗	iP iS iP:N,E,compression	NEZ NEZ	15	11	46.0 51.2
9. ✗	iP iS iP:N,W,compression	NEZ NE	16	20	06.2 10.7
9. ✓	iP Z, P NE PoP eS L iP:compression 54 N., 171 E. Near Islands region, Aleutian Is. H=22 25 57 USCGS	P NE Z E N	22	29	35.7 32 43 34 07 36 23

Date	Phase	Comp.	Time(GMT)			Date	Phase	Comp.	Time(GMT)		
			h	m	s				h	m	s
9.	X iP iS iP:N,E,dilatation	NEZ NEZ	22	42	03.6 10.1	11.	P i P:W,dilatation	EZ N	00	47	15.4 15.3
10.	X iP i S iP:N,W,dilatation	NEZ N E	00	32	02.9 03.2 08	11.	X iP iS? eS?	NEZ Z N	02	53	52.8 59.9 41
10.	✓ P c L	NZ N E	03	10	55. 14 47 16 47	11.	X eP i i	NEZ Z Z	05	59	27 29.9 35.4
10.	X eL	N	03	34	29	11.	X eP e	E NZ	06	02	27 30
10.	✓ iP i i iS iP:N,E,dilatation	NEZ NZ E EZ	13	55	57.8 56 00.3 03.3 06.3	11.	✓ iP i i i i	NEZ E N Z	06	43	28.4 43.9 44.2 44.5
10.	✓ eP c	E N	16	44	29 50 15	11.	X e eL	N N	07	08	14 14 52
10.	✓ eP e L	Z N N	17	39	02 45 59 46 07	11.	eP e i i i i	Z E Z Z N N E	09	02	03 06 10.5 22.5 24.0 26.0 26.5
10.	✓ iP iP:E,compression	EZ	17	44	04.9	11.	X e	N	14	40	24 ca.
10.	✓ iP i i i	E NE NE Z	17	57	30.9 31.4 33.9 56	11.	✓ iP e e iP:dilatation	Z Z NEZ	15	53	02.3 28 33
10.	✓ iP i S iP:N,E,dilatation 37.5 N., 141.6 E. Near east coast of Honshu, Japan. h: 50 km ca. J.M.A.	NEZ N E	18	56	59.9 57 09.9 22.9	11.	✓ iP e i iP:dilatation	Z Z Z	16	26	50.4 29 13 26.8
10.	X e	N	19	07	17	11.	✓ eP 1 iP 2 i i ePP iPP iPPP ePcP iPcP e iS iL i iL	Z NEZ Z E NE Z Z N Z EZ N E Z N	18	09	03 04.0 29.5 31.5 09 05 09 35.5 10 59 11 01.5 12 42 54 14 41 54 15 19
10.	X eL e	E E	22	46	51 49 27						
10.	✓ iP iS iS iP:S,E,dilatation	NEZ N E	22	56	13.2 34.7 35.5						
10.	X eP i	NZ NEZ	23	55	27 28.5						
11.	X e i	N NZ	00	09	36 44.0						

(cont.)

Date	Phase	Comp.	Time(GMT)			Date	Phase	Comp.	Time(GMT)		
			h	m	s				h	m	s
continued	iL	Z	18	16	30	13.	eP	NEZ	03	39	36
	iP 2:N,E,compression						i	E			44.1
	Mag. 5 3/4 - 6 (Matsushiro)						i	Z			47.4
	7 N., 120 1/2 E. Near east coast						i	Z			48.0
	of Mindanao, Philippine Is.						eS	NE	45	25	
	H=1.8 01 45 USCGS						eL	E	48	06	ca.
11.	iP	Z	21	53	35.5	13.	eP	E	07	32	05
	i	E			35.3		i	Z			12.3
	iP:compression						i	N			14.7
11.	iP	NE	23	43	13		i	E			38.5
	e	E			43		i	N			39.7
	21 S., 170 1/2 E. Loyalty Is.					13.	iP	EZ	11	05	02.7
	H=3.3 37 35 USCGS						dilatation				
12.	iP	NEE	05	20	55.0	13.	eP	Z	11	40	36 ca.
	iS	NE		21	43.5		i	Z			42.3
	i	E			44.4		i	Z			45.3
	iP:N,E,compression						e	N			46.3
12.	iP	Z	05	51	22	13.	iP	NZ	16	09	23.2
	eP or SWS E		05	32	31		e	Z			55
	eSE	N		08	49		iP:N,dilatation				
	eSE	E			53	13.	eP	EZ	18	03	13
	eS	NE		17	51		e	N			20
	eS	N		25	08		e	N			12 21
	Mag. 5 1/2 - 6 3/4 (Matsushiro)						eL	N			14 47
	45 S., 20 E. Indian Ocean.						eL	E			15 35
	H=0.5 37 35 USCGS					13.	iP	NE	18	18	35.4
12.	iP	Z	13	54	57.3		i	E			25.0
	e	N		14	17 48		i	N			27.6
	e	N			37.7		i	NZ			33.1
	iP:compression						i	N			43.0
	6 S., 100 E. Java.						e	NZ	21	40	ca.
	H=1.3 45 45 USCGS						e	E			45
12.	iP	NE	19	37	15.8		e	Z			50
	iS	NE			29.5		iP:N,compression				
	iS	Z			29.7	14.	eP	EZ	02	31	56
	iP:S,dilatation						e	E			33 56
12.	iP 1	EZ	20	01	53.2		e	N			41 46
	iP 2	NEZ			53.7		eL	N			45 47
	i	E			42.8		eL	E			46.1
	e	Z		02	35	14.	eP	Z	04	26	41
	e	NE			38		eL	N			37 06
	iP 1:N,compression						eL	E			38 30 ca.
	iP 2:N,E,dilatation					14.	e	NE	05	27	57 ca.
12.	iP Z, & NE		22	16	15.2	14.	P	NEZ	05	37	59.8
	e	N			39		e	NE	08	29	45 ca.
	e	Z			43	14.	iP	NEZ	08	52	31.0
	e	E		18	52 ca.		(cont.)				
	L	N		21	21						
	iP:dilatation										
	6 1/2 S., 100 1/2 E. Banda Sea.										
	H=2.1 00 08 USCGS										

Date continued
 Phase
 Comp.
 Time(GMT)
 h m s
 03 53 03
 54 00
 03
 03
 IP:S,W,compression
 42.2 N.,144.3 E.
 Near southeast coast of
 Hokkaido, Japan.
 h:40 km ca. J.M.A.

14. cP NEZ 12 33 31.1
 i Z 32.1
 i NE 34 03.0
 i N 16.2
 i N 27.2
 i E 45.6
 e E 57
 e N 35 40 ca.

14. P NZ 14 26 46.2
 i NE 47.3
 i E 52.7
 iPP E 27 12.0
 i N 18.2
 iSP E 25.7
 i N 51
 i S 57.2
 i E 59.1
 i Z 29 57.4
 eSP N 30 21
 e E 29
 i E 58
 i N 31 00
 iS NEZ 02
 iL E 32 52
 iL NZ 33 09
 iL Z 34 24
 P:compression
 Mag. 6 3/4 - 6 5/4 (Matsushiro)
 56 1/2 N., 120 1/2 E.
 Stanovoi Mt. region, Siberia.
 H=14 21 37 USCGS

14. iP NEZ 16 49 51.7
 iS NE 47.3
 iS Z 47.5
 iP:N,W,compression

14. iP NEZ 19 43 58.8
 i N 44 08.0
 i E 22.3
 i E 43.0
 eL N 45 59
 eL E 46 00
 e E 04
 i Z 07.4
 iP:S,W

Date continued
 Phase
 Comp.
 Time(GMT)
 h m s
 31 N., 135 E. Off east coast
 of Kyushu, Japan.
 H=19 42 13 USCGS

14. eP Z 19 56 33
 cP NE 34
 i Z 41.3
 e E 45
 e Z 52
 i Z 57 02.8
 i E 20.1

14. iP EZ 21 43 59.1
 i N 44 00.3
 e N 53 20
 eL N 22 06 51
 iP:dilatation
 Mag. 5 3/4 - 6 (Matsushiro)
 8 1/2 S., 67 E.
 Chagos Archipelago region.
 H=21 31 43 USCGS

15. L N 03 25 02
 L E 28
 8 1/2 N., 105 1/2 W.
 Pacific Ocean.
 h:100 km ca.
 H=05 36 13 USCGS

15. iP Z 06 43 53.3
 i NE 53.6
 i N 44 54.1
 c Z 45 04
 i EZ 20.1
 iP:dilatation

15. eP NEZ 11 04 05
 i Z 44.9
 i E 47.5

15. iP NEZ 11 50 02.6
 iS NEZ 08.7
 iP:W,dilatation

15. iP NEZ 12 23 18.7
 eS? N 33
 e NE 40
 i Z 44
 iP:N,E

15. iP EZ 12 51 25.5
 i NZ 38
 i E 45.8
 i Z 32 00.2
 iP:W,compression

Date	Phase	Comp.	Time(GMT)		
			h	m	s
15.	P	NEZ	13	03	17
	i	Z			21.4
	i	NE			22.4
	is	EZ			54.6
	i	N			58

15.	eP	Z	17	00	19
	i	N			21.7
	i	EZ			22.1
	i	Z			40.7
53 S., 180 E., Kermadec Is. region.					
			H=13 48 10	USCGS	

15.	iP 1	Z	19	06	11.8
	iP 2	NEZ			12.4
	e	EZ	07	10	
iP 1: dilatation					
iP 2: S,W, compression					
52 N., 156 1/2 E. Near west coast of Kamchatka.					
			H=19 01 38	USCGS	

15.	iP	NEZ	19	52	08.9
	i	NEZ			09.4
	e	E	53	02	
	iPP	Z			48
	ePcP	E	54	10	
	isP	E	55	10	
	isP	Z			12
	isPP?	NE	56	51	
	i	Z			35
	is	NEZ	57	10	
	i	Z	58	11.9	
	isS	E	20	00	27
	isS	N			30
	i	N			44
	isS	E	01	07.2	
isS	N			07.5	
iP: N,E, compression					
Mag. 6 1/4 - 6 1/2 (Matsushiro)					
2 1/2 N., 120 1/2 E. Celebes Sea.					
h: 600 km ca.					
			H=19 48 40	USCGS	

15.	P	NEZ	19	56	55
	i	EZ			57 10

16.	P	NZ	03	58	15
	i	Z			27.9
	i	E			31.7
60 1/2 N., 136 1/2 E. Eastern Siberia.					
			H=03 52 50	USCGS	

16.	iP	Z	06	40	53.5
	i	EZ			41 01.9
	isP	N			22.4
	i	E			29.7
iP: compression					

Date	Phase	Comp.	Time(GMT)		
			h	m	s
16.	P	#Z	07	28	21
	i	E			22.8
	e	NEZ			29.1

11 1/2 N., 123 E.					
Negros, Philippines					
			H=07 22 20S	USCGS	

16.	P	#E	12	50	15.6
	i	E			17.7
	e	NEZ			40.4

16.	iP	Z	12	55	09.1
	P	NE			10
	i	Z			31.0
	e	Z			58 08
16.	i	E			26.2
	i	N			28.1
iP: compression					
22 S., 175 W. Tonga Is.					
			H=12 45 23	USCGS	

16.	iP	EZ	22	02	59.0
	i	EZ			40.4
	i	N			40.9
	isP?	E	05		12.4
	isP?	N			14.7
	e	Z			16
iP: W, compression					

16.	iP	Z	22	30	56.7
	i	N			58.5
iP: dilatation					

17.	iP	EZ	00	07	12.7
	i	N			13.1
	i	Z			44.3
	i	Z			48.2
	is	N			54.0
	is	EZ			54.3
iP: E, dilatation					

17.	iP	NEZ	06	33	55.3
	S	NEZ			34 11
iP: S,E					

17.	eP	NEZ	06	37	13
	i	NEZ			15.7
	is	Z			39.7
	is	N			40.2
	i	E			41.5

17.	e	E	07	59	45
	e	Z	08	00	13
	e	N			53
	i	Z			01 11.2

17.	iP	Z	11	42	13.3
	i	N			15.2

(cont.)

Date	Phase	Comp.	Time (GMT)		
			h	m	s
continued	i	N	11	42	21.5
	i	Z			22.6
	e	Z			29
	c	N			43
	iP:dilatation				
17.	iP	NZ	12	28	15.1
	i	NEZ			14.5
	S	N	31	27	
	e	Z			41
	e	NEZ			52
	iP:S,compression				
	49 1/2 N., 155 E. Kurile Is.				
	H=12 25 50 USCGS				
18.	iP	NEZ	03	32	59.2
	iP:S,W,dilatation				
18.	iP	EZ	04	47	00.5
	i	N			01.6
	i	N			22.5
	i	Z			26.6
	e	E			35
	i	Z			40.9
	iP:E,dilatation				
18.	e	NE	15	13	52
	e	N			23 02
	e	N			39 52
18.	eP	NZ	15	35	54
	e	E			40 10
	S?	N			43 30
	i	Z			45 59
	e	N			46 37 ca.
	eL	N			51 04 ca.
18.	iP	NZ	17	46	12.9
	i	E			13.1
	i	Z			29.6
	iP:N,dilatation				
18.	eP	NEZ	20	59	23
	i	Z			40.8
	i	E			41.2
18.	P	EZ	21	02	07
	e	N			08
	i	E			40.9
	c	EZ			47
	e	N			50
	e	Z			03 07
18.	ePKP	E	21	44	01
	i	Z			05.2
	9 1/2 S., 80 W.				
	Off coast of Peru.				
	H=21 24 42 USCGS				
18.	iP	NEZ	22	40	51.1
	i	E			41 03.4
	i	Z			04.1
	iS?	N			04.8
	iP:S,E,dilatation				
19.	iP	Z	01	47	33.1
	eS?	E			43 13
	e	Z			18
	iP:compression				
19.	eP	NEZ	06	19	33
	ePeP	Z			22 07
	S	NE			24 53
	iL	NZ			27 35
	Mag. 5 1/4 (Matsushiro)				
	2 1/2 N., 127 E. Molucca Passage.				
	H=03 12 35 USCGS				
19.	iP	Z	09	47	02.8
	iS	NEZ			18.3
	iP:compression				
19.	iP	Z	10	38	15.8
	iS	NEZ			31.6
	iP:dilatation				
19.	eP?	Z	11	29	15
	e	N			37 44
19.	iP	EZ	17	26	17.8
	eS?	N			31 50
	eL	N			35 01
	iP:W,compression				
	53 N., 138 1/2 W. Fox Is.				
	H=17 18 40 USCGS				
19.	iP	Z	21	15	21.8
	i	N			27.1
	i	Z			36.8
	iS?	NE			54.1
	iP:compression				
19.	iP	EZ	23	11	00.5
	i	N			02.9
	iP:W,dilatation				
20.	P	Z	05	24	02.5
	e	Z			25 53
	e	E			29 36
	eL	N			31 43
	eL	E			34.5
	Mag. 5 3/4 (Matsushiro)				
	20 1/2 N., 105 E.				
	North Vietnam.				
	H=05 17 23 USCGS				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
20.	eP	E	08	38	17
	e	NZ			19
	i	Z			23.4
	e	N	55	32	
20.	ePKP	Z	10	53	07
	i	N			08.2
	eL	N	11	35.1	
15 1/2 N., 46 W. Atlantic Ocean. H=10 34 00 USCGS					
20.	iP	NZ	17	17	47.2
	i	E			47.8
	i	E			51.1
	i	N			51.5
	i	E	18	19.8	
	i	Z			58.5
	PcP	Z	19	29.7	
	iS N, eS	E	24	23	
	iL	NE	28	01	
	iL	N	31	59	
	iP:N,compression Mag. 6 1/4 - 6 1/2 (Matsushiro) 6 1/2 S., 154 1/2 E. Solomon Is. H=17 09 24 USCGS				
20.	iP	NEZ	17	29	29.8
	i	N			35.8
	i	N			45.0
iP:S,dilatation About 400 miles south of Fiji Is. H=17 18 43 USCGS					
20.	e	N	19	49	36
	e	E			50 49 ca.
	eL	N	59	36	
20.	iP	NEZ	20	37	48.4
	i	Z			38 05.8
	iS	E			08.2
	iS	N			08.9
	i	Z			09.4
iP:N,E,compression					
21.	iP	NEZ	05	46	10.0
	i	NE			24.0
	i	E			36.2
	iS	NZ			51.0
	iS	E			52.2
	iP:N,E,dilatation Mag. 5.7 (Matsushiro) 36 N., 148 E. Honshu, Japan. H=05 45 10 USCGS				
21.	P	EZ	07	33	19
	i	NE			21.4
	eS?	E	46	22	
(cont.)					

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued	eS?	N	07	46	28
	e	N			48 51
21.	e	N	08	45	41
	e	N			50 53
21.	P	Z	13	39	54.4
	eScS?	NE			49 24
	e	NE			56 54
	L	NE	14	00	30 ca.
	15 S., 174 W. Samoa Is. region. h:150 km ca. H=13 29 03 USCGS				
21.	iP	NZ	14	37	20.1
	i	E			20.4
	iS	EZ			38.1
	i	E			50.1
	i	NE			53
iP:N,compression					
21.	eL	N	16	57	53
	Western Iran. H=16 18 20 USCGS				
21.	iP	EZ	17	53	15.4
	i	N			15.7
	iS	NEZ			27.9
iP:E,dilatation					
22.	iP	Z	04	31	21.3
	i	NE			22.6
	i	Z			38.1
	i	NZ			32 53.3
	iP:compression				
22.	P	Z	07	03	17
	PcP	EZ			09 31
	pP	Z			10 05
	6 S., 110 E. Off north coast of Java. h:600 km ca. H=07 00 14 USCGS				
22.	P	NZ	06	39	32.6
	i	EZ			33.4
	i	E			35.2
	i	N			40 45.9
	i	E			41 03.9
	i	NE			12
	S	E			13
	Mag. 6.0 (Matsushiro) 26 N., 144 E. Bonin Is. H=08 37 06 USCGS				
22.	P	NE	12	54	59
	i	NEZ			58 00.6
	i	N			10.7
	P:compression				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
22.	✓ iP	NEZ	17	13	03.5
					iP:W,compression
22.	✓ P	NZ	19	17	59
	✓ i	NE		18	00.2
	✓ S	NE		27	59
	✓ eSS	E		32	57
	✓ eSSSS	E		38	21
	✓ L	E		38	21
	✓ L	Z		39	00
	✓ L	S		43	03
	✓ L	E			51
	✓ ePKPKPK	Z		44	40
					P:compression
					Mag. $6\frac{1}{2}$ - $6\frac{3}{4}$ (Matsushiro)
					$33\frac{1}{2}$ S., $177\frac{1}{2}$ W.
					Kermadec Is. region.
					H=19 05 44 USGS
22.	✓ iP	NEZ	20	10	10.6
	✓ i	E			43
	✓ S	Z		11	33
					iP:S,W,compression
					42 N., 142 E. Hokkaido,
					Japan.
					H=20 08 40 USGS
22.	✓ iP	NEZ	22	07	58.4
	✓ i	N		08	05.2
	✓ iS	N			06.9
					iP:N,W,dilatation
22.	✓ P	Z	23	01	49
	✓ i	E			50
	✓ eS	E		10	00
	✓ eL	E		16	48
					$16\frac{1}{2}$ S., $168\frac{1}{2}$ E.
					New Hebrides Is.
					H=22 51 44 USGS
23.	✓ iP	Z	04	01	45
					compression
					$40\frac{1}{2}$ N., $125\frac{1}{2}$ W.
					Coast of northern
					California.
					H=03 50 06 USGS
23.	✓ P	Z	04	53	40.4
	✓ i	E			40.8
	✓ i	EZ			41.6
	✓ i	N			42.1
	✓ iS	EZ		54	01.1
	✓ iS	N			01.9
23.	✓ P	NEZ	07	42	08
	✓ i	Z			07
	✓ i	E			09
	✓ i	Z			13

Date	Phase	Comp.	Time(GMT)		
			h	m	s
23.	✓ P	Z	08	07	04.3
	✓ i	N			04.8
	✓ e	E		15	46
23.	✓ P	EZ	08	22	14.9
	✓ i	N			15
	✓ eS	N			33
	✓ S	EZ			33.9
					P:dilatation
23.	✓ iP	EZ	09	09	55.7
	✓ i	NEZ			56.4
	✓ iS	N		10	21.4
	✓ iS	E			21.9
					iP:compression
23.	✓ iP	EZ	10	19	05.5
	✓ iS	EZ			20.5
					iP:dilatation
23.	✓ iP	NEZ	14	18	51.4
	✓ i	NEZ		18	15.3
					iP:S,W,compression
23.	✓ P	NEZ	14	38	31
	✓ iS	Z,S NE			51
23.	✓ iP	NEZ	16	32	59.6
	✓ i	EZ		33	15
	✓ i	E			25
					iP:E
23.	✓ P	NEZ	20	06	29.0
	✓ P	N,E			dilatation
23.	✓ iP	NEZ	20	30	07.8
	✓ i	Z			08
	✓ S	NEZ			34
					iP:E,compression
23.	✓ P	Z	21	03	25.9
	✓ i	NE			26.9
	✓ S	NEZ			45.9
23.	✓ iP	NEZ	23	15	54.8
	✓ S	E			58
23.	✓ P	E	23	49	10
	✓ i	EZ			14
23.	✓ P	Z	23	53	55
	✓ S	Z			57 07
24.	✓ iP	Z	02	32	26.8
	✓ i	Z			47
	✓ S	NZ			51
					iP:compression

Date	Phase	Comp.	Time(GMT)		
			h	m	s
24.	iP	Z	03	08	33.4
	i	Z			57
	i	Z	09	15	

iP:compression

24.	eP	Z	03	53	36
	i	Z			48.2
	i	Z			53.4
	i	NZ		54	11.4
	e	N	04	00	54
	S	NE		01	35
	ScS	E		03	42
	e	NE		05	50
	eL	N		07	39
	eL	E			42

Mag. $6\frac{1}{4}$ - $6\frac{1}{2}$ (Matsushiro)
 $59\frac{1}{2}$ N., $143\frac{1}{2}$ W.
 Gulf of Alaska.
 H=03 44 14 USCGS

24.	iP	NZ	11	17	13.6
	i	N		18	09.8

iP:S,compression

24.	iP	Z	20	03	10.1
	i	Z			22.8
	i	Z			30.3

iP:compression

25.	e	E	01	18	55
	e	NE		20	27

25.	iP	NEZ	04	44	58.7
	iS	NEZ		45	06.2

iP:S,W,compression

25.	P	EZ	06	07	44.3
	i	N			44.6
	i	N			47.0
	i	N		08	20.6
	i	N			26.4

P:W

25.	iP	NZ	07	03	03.4
	i	E			03.7

iP:S,compression
 $36\frac{3}{4}$ N., 70 E. Hindu Kush.
 h:200 km ca.
 H=06 54 00 USCGS

25.	PKP	Z,ePKP	NE	07	39	20
	iPP	N			42	04
	iPP	Z				10
	e	N			47	54
	e	N		08	00	10
	e	N			02	04
	SSS	N			04	26
	e	N			03	00

(cont.)

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued	e	N	08	12	36
	eL	N		20	48
	L	N		24	6
	Lr	NE		29	58

Mag. $6\frac{3}{4}$ (Matsushiro)
 9 N., $39\frac{1}{2}$ W. Atlantic Ocean.
 H=07 20 02 USCGS

25.	iP	NEZ	10	05	58.9
	i	NE		06	48.4

iP:N,W,dilatation

25.	eP	Z	15	28	02

$32\frac{1}{2}$ S., 178 W.
 Kermadec Is. region.
 H=15 15 37 USCGS

25.	iP	Z	21	58	51.3
	i	E			54.8
	i	N		59	27.5
	i	N			33.6

iP:compression

26.	P	Z	03	43	06 ca.
	S?	Z		44	35 ca.

27.	iP	NEZ	03	00	56.5
	S	N		01	13.2
	S	E			14.2

27.	iP	Z, P E	07	45	32.0
	i	N			33

iP:compression
 9 S., 106 E.
 Off south coast of Java.
 H=07 36 07 USCGS

27.	iP	NEZ	12	37	48.6
	i	E			51
	i	E			55
	i	E		33	01
	S	E			24

iP:S,E,dilatation
 Mag. 5.5 (Matsushiro)
 35.9 N., 141.5 E.
 Near east coast of Honshu,
 Japan.
 h:50 km ca. J.M.A.

27.	iP	NE	14	05	52.6

15 S., 174 W. Samoa Is. region.
 h:150 km ca.
 H=13 55 02 USCGS

27.	iP	NEZ	16	57	19.7
	i	E			28

iP:W

Date	Phase	Comp.	Time(GMT)		
			h	m	s
27. ✓	iP iS i iP:S,E,dilatation	NEE N E	25	44	11.8 33 54
28. ✓	iP i S iP:S,dilatation	NEE E N	09	07	10.3 30.5 37
28. ✓	P 1 iP 2 S? i i iP 2:S,dilatation	NEE NEE N N E	16	10	57.9 58.9 11 12 13 20
28. ✓	P i i i	EE N N N	18	19	51.9 52.4 20 23.6 31.6
28. ✓	iP iS iP:dilatation Mag. 5.5 (Matsushiro) 36.3 N., 141.2 E. Near east coast of Honshu, Japan. h:40 km ca. J.M.A.	NEE EE	20	54	20.6 41.8
29. ✓	iP S i i iP:N,compression	NZ N Z E	08	32	49.7 34 10.4 11.4 15.2
29. ✓	iP i i eL iP:dilatation 4 1/2 S., 130 E. Banda Sea. H=09 55 20 USCGS	Z NE N E	10	01	18.0 19.0 24.2 10.8
29. ✓	iP iS iP:E,compression	NEZ NEZ	11	09	27.6 33.8
29. ✓	iP i iP:S,W,compression	NEZ N	14	07	03.9 22.2
29. ✓	iP iS iS iP:S,W,compression Mag. 5.4 (Matsushiro)	NEZ NE Z	14	18	31.5 34.5 36.1

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued					
					39 1/2 N., 143 1/2 E. Off northeast coast of Honshu, Japan. H=14 17 11 USCGS
29. ✓	iP i i iP:dilatation	Z NE NEZ	14	57	16.5 17.0 22.4
29. ✓	iP S iP:S,W,compression 39 N., 145 E. Near east coast of Honshu, Japan. H=15 15 44 USCGS	NEZ EZ	15	17	03.6 13 10.6
29. ✓	iP i i i iP:compression	Z NE Z NE	16	57	24.5 24.5 33.2 35.7
29. ✓	P i i i i	Z E E N N	21	41	08 08.3 20.6 29.4 37.8
30. ✓	iP S i	Z EZ N	03	52	55.5 51.5 58
30. ✓	eP	Z	05	09	57
30. ✓	iP i iS iS iP:compression	Z NE Z NE	05	50	14.9 15.7 42.7 45.2
30. ✓	eP i	Z Z	06	42	02 12
30. ✓	P i e 3 1/2 N., 128 E. Malacca Passage. H=07 08 37 USCGS	NEZ NEZ N	07	15	29 23 27 25 53
30. ✓	eP	Z	07	32	23
30. ✓	e eL	N N	08	10	01 22 22
30. ✓	P 1, Z, eP 1 iP 2 i	NE NEZ Z	08	45	31 34.4 45

(cont.)

(cont.)

Date continued	Phase	Comp.	Time(GMT)		
			h	m	s
	e	E	08	51	27
	iP 2:N,E,compression				
30.	P	Z	09	24	59
✓	i	E		25	00
	e	E			14.7
	e	E		32	05
	e	E			59
	e	E		33	11
	eL	NE		37	21
	eL	N		40	43
	3 N.,128 E. Molucca Passage.				
	H=09 18 10 USCGS				
30.	P	Z	09	35	49
✓	i	NEZ			50.1
	i	N			58.9
	i	N		36	12.1
	e	N			55
30.	P Z, eP	NE	10	03	28
X	i	NEZ			29
30.	e	N	10	25	02
✓	e	N		26	50
	eL?	NE		28	06
30.	P	NZ	14	15	50.1
X	i	E			50.6
	i	NE			51.4
	i	N			55.3
30.	iP	NZ	17	06	56.9
X	dilatation				
30.	iP Z, P	NE	19	56	49.2
✓	i	E			54.7
	i	N		57	23.0
	S	NE			25
	iP:dilatation				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
October					
1.	P 1	N	03	08	20
✓	P 2	NEZ			21.7
	iS	NEZ			40.9
1.	P 1	Z	05	26	06.3
✓	iP 2	NEZ			07.2
	S	NE		30	18
	L	N		34	58
	iP 2:S,W,dilatation				
	Mag. 4 3/4 - 5 (Matsushiro)				
	12 1/2 N., 121 E.				
	Off north coast of Luzon,				
	Philippine Is.				
	H=05 21 01 USCGS				
1.	P	Z	09	45	00
✓	PP	Z		48	42
	S	N		53	34
	ScS	E		54	15
	ScS	N			18
	SS?	E	10	00	24
	L	E		07	19
	G	N		10	03
	G	E			51
	L	N		16	21
	Mag. 6 1/4 - 6 1/2 (Matsushiro)				
	57 S., 147 E.				
	Antarctic Ocean, southwest of				
	Macquarie Is.				
	H=09 29 43 USCGS				
1.	iP	NEZ	11	52	54.7
✓	iS	NE			56.5
	iP:N,dilatation				
1.	iP	NZ	12	08	55.7
✓	P	E			56.2
	iP:S,dilatation				
	3 N.,125 E. Celebes Sea.				
	H=11 59 55 USCGS				
1.	iP	EZ	17	55	10.5
✓	i	NE			25.0
	PP	E		57	05
	PPP	Z			17
	S	N		18	01
	L	N		06	57
	iP:E,dilatation				
	Mag. 5 - 5 1/4 (Matsushiro)				
	53 N., 165 1/2 W. Fox Is.				
	H=17 47 15 USCGS				
1.	iP	NEZ	22	06	55.4
✓	iS	N		07	02.9
2.	P	EZ	01	01	47.5
✓	dilatation				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
2.	PKP	Z	04	45	14.7
	i	Z			22.5
	pPP	N	49	37	
	SS	N	05	09	01
	L	N	27	09	
	L	N	32	26	

PKP:dilatation
Mag. 5 3/4 - 6 (Matsushiro)
58 1/2 S., 10 W.
Sandwich Is. region.
H=04 25 30 USCGS

2.	P	EZ	10	57	33
	eS?	N		58	59.7

2.	iP	NZ	15	07	02.5
	e	N		11	09
	eS	E			58
	eL	E		15	26
	eL	N		15	21

iP:N,compression
Mag. 5 3/4 - 6 (Matsushiro)
7 1/2 N., 127 E.
Off east coast of Mindanao,
Philippine Is.
H=15 00 50 USCGS

2.	P	N	21	19	05
	i	Z			10
	i	N			55.7

2.	P	NEZ	21	40	49 ca.
	iS	N		41	53.2

3.	P	Z	01	38	58
	eL	N		43	40
	eL	E			53

3.	iP	NEZ	10	59	57.6
	S	Z	11	00	01.3

3.	iP	Z	15	06	56.5
	iP E, eP	N			56.5
	iS	N		04	24.8
	iP:dilatation				

4.	iP	Z	00	57	16.7
	eS	N	01	03	08
	eS	E			11
	L	N		06	17
	L	E		07	19

iP:dilatation
Mag. 4 3/4 - 5 (Matsushiro)
4 1/2 S., 143 1/2 E. New Guinea.
h:100 km ca.
H=00 49 36 USCGS

4.	P	NZ	04	14	00.5
					14 S., 157 E. New Hebrides Is.
					H=04 01 10 USCGS

Date	Phase	Comp.	Time(GMT)		
			h	m	s
4.	P	Z	09	55	01.0
	i	NE			03.7
	i	NZ			08.7
	S	NE		57	39
	i	E			55
	L	E		58	22

Mag. 5 1/2 (Matsushiro)
22 1/2 N., 144 1/2 E. Mariana Is.
H=09 51 26 USCGS

4.	P	NZ	11	35	42.2
	i	N			36 51
	eS	E			38 25
	L	N		40	01
	L	E			06
	L	N		42	12

Mag. 5 1/4 (Matsushiro)
23 N., 144 1/2 E.
North of Mariana Is.
H=11 33 09 USCGS

4.	iP	NZ	14	17	18.1
	iP	E			18.6
	iS	NE		18	01.0
	iP:N,E,compression				

4.	P	Z	15	12	03.2
	i	Z			07.5
	i	NE			09.2
	S	E		14	41
	e	E		15	09
	eL	N			21
	eL	E			24

21 1/2 N., 144 E. Mariana Is. region.
H=15 08 24 USCGS

4.	iP	NZ	18	19	18.7
	iP:N,compression				
	18 1/2 S., 168 E.				
	New Hebrides Is.				
					H=18 09 35 USCGS

4.	P	Z	18	42	37
	i	Z			45
	e	E			45 54
	eL	N		46	25

4.	eP	NE	19	52	46
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5.	iP	NEZ	02	59	56.8
	S	E			54.8

5.	P	NZ	06	11	34.8
	i	Z			38.3
	i	N			38.5
	i	N			41.3
	S	E		14	55
	S	N		15	00

(cont.)

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued					
18½ N., 145½ E. Mariana Is.					
h:200 km ca.					
H=06 07 19 USCGS					
5.	✓ P	Z	07	12	20.2
	i	N			21.0
	eS	E	13	06	
5.	✗ eL	NE	15	56	27
5.	✓ iP	NZ	19	27	55.2
	eS	NE	28	06	
	e	E			21
5.	✓ P	NEZ	20	04	13.7
	i	N			17.0
	eS	N			47.2
6.	✓ iP	Z	00	58	58.7
	iP	N			59.7
iP:S,dilatation					
32 S., 179 W. Kermadec Is.					
H=00 46 56 USCGS					
6.	✗ eL	N	06	06	49
	eL	E	07	25	
	eL	N	27	00	ca.
6.	✗ eL	N	10	03	39
	eL	E			42
37½ N., 54½ E.					
Iran-Turkmen, S.S.R. border.					
H=09 29 22 USCGS					
6.	✓ iP	Z	15	40	39.2
	iS?	Z			47.3
	i	N			51.0
iP:dilatation					
6.	✓ iP	NEZ	18	58	15.0
	S	NE	19	02	39
	L	E	04	19	
	L	N			35
iP:compression					
Mag. 5½ (Matsushiro)					
55½ N., 162½ E. Near east coast of Kamchatka.					
H=18 52 40 USCGS					
7.	✓ iP	EZ	11	00	16.5
	iP	N			17.0
iP:N					
7.	✓ iP	Z	12	40	47
	i	Z			48.2
	i	Z	41	02	
	PP	Z	42	37.1	
	i	Z	43	26.3	
(cont.)					

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued					
✓	iS	N	12	47	13
	i	N			39
	Lq	E	50	35	
	Lq	N			47
	L	Z			49
	Lr 1	E	52	23	
	Lr	Z	53	25	
	Lr 2	N	54	27	
	Lr 2	E			40
iP:dilatation					
Mag. 6¼ - 6½ (Matsushiro)					
5 S., 151½ E. New Britain.					
H=12 32 40 USCGS					
7.	✓ P	Z	15	01	11
	eS	Z			30
7.	✓ iP	Z	15	43	53.0
	i	Z			56.3
	i	E			57.0
	S	Z	44	56.3	
8.	✓ iP	NEZ	03	00	11.3
	S	NE			23.0
iP:S,E					
8.	✓ P	Z	06	32	57
	iS	N			33 17.6
	i	Z			18.6
8.	✓ P	Z	07	56	15.0
	i	Z			16.5
	i	N			17.0
	S	N			51
8.	✓ iP	Z	14	09	15.6
	iP	NE			16.4
	S	N	16	03	
	L	N	20	03	
	L	E			45
iP:S,E					
Mag. 5½ (Matsushiro)					
7 S., 155½ E. Solomon Is.					
H=14 00 47 USCGS					
8.	✓ eP	Z	15	50	09
	eL	N	16	13	46 ca.
	eL	E	14	43	ca.
9.	✓ P	Z	01	26	02.2
	P	NE			02.8
	i	EZ	50	49.3	
	i	Z			54.5
9.	✓ iP	NEZ	10	27	20.8
	i	Z			54.1
	i	Z			56.1
	eS	E	51	19	
(cont.)					

Date continued	Phase	Comp.	Time(GMT)		
			h	m	s
	eS	N	10	31	22
✓	i	E			30
	L	E		32	30
	L	E			53

Mag. 5 (Mitsushima)
 14° N., 145° E. Mariana Is.
 H-10 22 03 USCGS

9.	✓	IP	Z	10	31	04
		i	E			23
		i	E			53
		iP:dilatation				

9.		IPP 1	Z	11	40	11
		IPP 2	NEZ			46
		pPKP 2	Z	12	00	51.1
		i	N			51
		SS	E		04	36
		i	N		10	23
		i	E			43
		i	N		11	14
		i	N		13	01
		i	NE		19	36
		L	N		37	43
		L	E		56	21
		L	E		43	03
		L	N			51

Mag. 6 1/4 - 6 5/4 (Matsushiro)
 55° E., 27° W.
 Sandwich Is. region.
 H-11 20 17 USCGS

9.	✓	IP	Z	13	44	22.5
		SP	E			23
		i	Z			25.5
		iP:dilatation				

9.	✓	P	NE	17	32	49.1
		S	Z		33	14.1
		i	W			16.1

10.	✓	P	S	06	50	43.3
		S	Z		51	04.3
		S	NE			05

10.	✓	IP	NEZ	08	36	24.3
		IP	E		56	06.1
		i	E		23	01
		iS	NE		29	33.3
		eS	E			54
		Lq	W		41	03
		Lq	E			19
		Lr	N		42	14
		L	Z			15
		Lr	S			30

iP:S,W,compression
 Mag. 6 1/4 (Matsushiro)
 30° N., 160° E. Near east coast
 of Kamchatka.
 H-08 36 17 USCGS

Date	Phase	Comp.	Time(GMT)			
			h	m	s	
10.	✓	IP	NEZ	08	48	24.0
		i	E		49	30
		iP:E,dilatation				

10.	✓	IP 1	Z	09	24	05.6
		IP 2	NE			08.9
		i	Z			13.7
		i	Z		26	18.0
		iP 2:W,dilatation Tibet-India border. H-09 16 40 USCGS				

10.	✓	IP	Z	11	42	00.4
		i	NE			03.2
		i	E			14
		IP	N		43	16
		eS	N		47	14
		eL	E		49	06
		eL	E			07

iP:compression
 Mag. 5 1/4 - 5 1/4 (Matsushiro)
 5° N., 127° E.
 Off south coast of Mindanao,
 Philippine Is.
 H-11 35 24 USCGS

10.	✓	IP	NE	12	45	42.5
		i	E			54.0
		i	N			55.0
		i	E		44	10.0
		iP:E,dilatation				

10.	✓	P	NE	14	58	20
		iS	NE			32

10.	✓	IP	NEZ	19	49	35.3
		iP:S,E,compression				

10.	✓	e	N	21	13	31
		eL	E		13	35
		eL	N			36
		Near Islands. H-21 05 31 USCGS				

11.	✓	e	Z	00	01	21
		e	Z			22
		68° N., 132° W. Yukon Territory. H-00 41 35 USCGS				

11.	✓	IP 1	NEZ	02	05	41.0
		IP 2	NE			41.7
		i	NE			42.7
		iS E, eS N			00	45
		eL	E		11	01
		eL	Z			00

iP:S,W,compression
 53° N., 158° E. Near east coast
 of Kamchatka.
 H-02 02 10 USCGS

Date	Phase	Comp.	Time(GMT)		
			h	m	s
11.	e	N	06	22	37
11.	e	N	06	27	56
	e	E		28	24
	e	N		30	47
	i	N			48
11.	iP	NEZ	07	17	12.2
	i	EZ			33
	e	NE		18	04
	i	E			06
	e	Z			11
	iP:S,W,compression				
11.	iP	NEZ	09	08	46.8
	eS	EZ		10	12
	e	E			14
	eL	N		11	01
	eL	E			02
	iP:S,W,compression				
	42 $\frac{1}{2}$ N., 144 $\frac{1}{2}$ E.				
11.	Near east coast of Hokkaido, Japan.				
	H=09 06 53 USCGS				
11.	iP	NEZ	09	28	04
	iP:N,E,dilatation				
11.	iP	NZ, e E	11	56	17.8
	i	E			18.2
	i	Z			30
	eS	NEZ		57	14
	iS	Z			15
	iP:N,compression				
11.	e	Z	13	54	58.9
	e	E		55	00.9
	e	NZ			03.9
	e	Z			04
	e	E			05
	e?	N			32
	e	Z			39.9
	e	Z			40
	e	E			41.9
11.	ePKP	Z	14	57	19
	e	E			27.0
	i	Z			27.2
	i	N			27.7
	e	Z			28
	i	NZ			45.0
	i	E			47
	e	Z	15	01	18
	e	N		12	52
	e	NE			22.1
	e	N			52.6
	Mag. 5 $\frac{1}{2}$ (Matsushiro)				
	23 $\frac{1}{2}$ S., 65 W.				
	Jujuy Province, Argentina.				
	(cont.)				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued					
h:200 km ca.					
H=14 37 42 USCGS					
11.	iP	EZ	17	22	52.7
	iP	N			53.0
	iS NE, eS Z				
	iP:S,W,compression				
			23		10.7
11.	iP	Z	23	30	06.5
	eP	E			07.0
	i	N			08.5
	e	EZ			26.5
	i	N			26.5
	iP:dilatation				
12.	eP	N	02	36	43.7
	P?	E			43.9
	i	Z			55
	S?	E		37	55.4
	S?	N			58.2
	i	Z			58.2
12.	eP?	Z	04	54	45.4
	eP?	NE			46.4
	e	Z			52
	eS?	Z		55	54
	eS?	E			57.9
	eS?	N			59
12.	eP	NZ	07	57	22
	e	E			57.0
	e	Z			59.2
	e	N		58	08
12.	eL	N	08	24	3
12.	iP	Z	09	55	37.7
	iP	N			37.9
	iP	E			38.1
	iP:N,compression				
	17 S., 175 $\frac{1}{2}$ W. Tonga Is. region.				
	H=09 44 50 USCGS				
12.	iP	N	12	55	31.3
	iP	Z			31.4
	e	E			32
	e	Z			54.2
	e	NE		56	00.2
	e	Z			00.5
	eS	NE	13	01	38
	eL	E		05	35
	eL	N			48
	iP:S,dilatation				
	4 $\frac{1}{2}$ S., 144 E. Near north coast of New Guinea.				
	H=12 47 42 USCGS.				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
12.	iP	NE	15	21	45.7
	iP	N			46.0
	e	NE			22.7
	i	Z			22 52
	i	N			23 56
	S	N			24 16
	S	E			18
	i	NE			20
	i	Z			22
	i	N			27 50
	iScS	E			35 53
	e	N			34 01
i	E			05	
iP:N,E,compression Mag. 6 $\frac{1}{2}$ (Matsushiro) 27 $\frac{1}{2}$ N., 125 $\frac{1}{2}$ E. East China Sea. h:250 km ca. H=15 18 42 USCGS					
12.	iP EZ, P N	N	20	37	28.7
	S	Z			51
iP:E,dilatation					
13.	iP	NEZ	02	50	22.5
iP:N,E,dilatation					
13.	iP	NEZ	05	37	06.4
iP:S,E,dilatation 14 S., 175 $\frac{1}{2}$ E. Northwest of Fiji Is. H=05 26 58 USCGS					
13.	eP	NEZ	08	19	35
	S	N			20 02.0
13.	e	E	08	28	46
	i	Z			48.2
13.	e	Z	08	36	20
	i	Z			20.1
13.	iP	NE	09	06	55.7
iP:S,E,compression 41 $\frac{1}{2}$ N., 75 E. Kirghiz S.S.R. H=08 58 10 USCGS					
13.	iP	NEZ	09	15	04.5
	eL?	NE			23 23
iP:N,E,dilatation					
13.	iP	E	14	50	28.2
	iP	NE			28.5
	S	EE			33.5
	S	N			34
iP:W,compression					

Date	Phase	Comp.	Time(GMT)		
			h	m	s
13.	P?	Z	19	20	04
	i	Z			09.8
	e	N			25 10
	eL?	N			31 20
14.	iP EZ, eP N	N	00	07	00.4
	iS?	E			15.5
	iS?	Z			15.7
	e	N			16
iP:W,compression					
14.	iP	E	03	27	35.7
	S	Z			37.9
	S	E			38.1
14.	iP	Z	05	25	25.4
	e	E			26
	e	N			26.6
	e	NEZ			25 01
14.	e	Z	06	25	29.7
	e	E			30
	e	E			26 10
14.	iP	NEZ	09	10	27.6
iP:S,W,compression 52 $\frac{1}{2}$ N., 150 W. Near east coast of Kamchatka. H=C2 06 24 USCGS					
14.	iP	Z	14	05	04.1
	eP	NE			04.5
	i	Z			15.5
	e	NE			08 13
14.	iP	NEZ	21	06	16.5
	iS	NEZ			07 02
	i	EE			19
	i	N			22
iP:S,W,dilatation					
14.	eP	EE	21	44	09.6
	e	N			09.8
	c	EE			46.
	i	N			47.
15.	iP	NEZ	03	34	35.2
	i	E			40.
15.	eP E, e Z		08	00	22
	i	E			01 07.4
	e	E			08
15.	e	N	08	22	13
15.	P	NEZ	19	02	45.1

16. e Z 12 00 13
 e? E 15
 e? N 19
 23 N., 94 $\frac{1}{2}$ E. Burma.
 H=11 52 30 USCGS

16. iP NEZ 16 53 40.8
 iS E 51.8
 iS Z 52.0
 iS N 52.3
 iP:S,E,dilatation

16. iP EZ 18 11 22.5
 i N 23.0
 e EZ 56
 e N 56.7
 i Z 12 24.8
 e N 17 49
 e? N 19 05
 eL N 25.5
 iP:W,compression
 11 S., 167 E. Santa Cruz Is.
 h:100 km ca.
 H=18 02 01 USCGS

16. iP NEZ 20 17 38.5
 iS E, S Z 18 58
 e N 19 08

17. iP NZ 06 54 04.6
 iP E 05.1
 i N 06.1
 i EZ 17
 i E 48
 e E 49
 i? E 53
 i Z 54
 e NZ 55 22
 iP:S,compression

17. e Z 06 58 40.6
 e E 44
 eS? E 59 29.6

17. e NEZ 07 00 29
 e E 01 11.6

17. i E 07 07 34.9
 i Z 35.1

17. e Z 07 19 38
 e E 38.5
 e Z 20 23
 e NE 24
 e Z 21 07
 e E 14
 e N 16
 e N 34

17. e NZ 07 54 50.5
 e E 51
 i Z 54

17. e Z 08 52 22.5
 e N 23
 e E 23.5

17. iP NE 10 34 31
 19 $\frac{1}{2}$ S., 177 $\frac{1}{2}$ W. Fiji Is.
 h:400 km ca.
 H=10 23 56 USCGS

17. iP NEZ 13 45 28.4
 i Z 29
 eS NZ 49
 iP:S,E,dilatation

17. iP EZ 19 47 10.8
 i Z 11.3
 e N 12
 iS NEZ 40
 iP:W,dilatation

17. iP N 23 22 23.5
 iP EZ 24
 iS NEZ 39.2
 iP:N,E,dilatation

18. e N 02 00 35
 e Z 35.2
 e E 37
 e Z 01 14
 e NE 16

18. e Z 04 59 56.2
 e E 57
 i NEZ 05 00 28.0

18. i Z 05 29 45.7
 e E 46.2

18. e Z 06 58 15
 i Z 19
 i E 24
 e? E 52
 eL E 07 57 19
 eL E 22
 7 N., 66 $\frac{1}{2}$ W.
 Colombia-Venezuela border.
 H=08 34 17 USCGS

18. i E 07 00 37
 e Z 38

18. i EZ 07 47 47.1

Date	Phase	Comp.	Time(GMT)		
			h	m	s
18.	e?	Z	09	58	07
	i	E	10	01	43.3
	i?	Z	10	02	11.1
	eL	N	10	22	18
18.	iP	NEZ	10	13	59.3
	S	NEZ	14	01	01.1
iP:N,E,compression					
18.	iP	NZ	11	48	48.1
	i	E			49.1
	i	NZ			51.6
	i	E			51.9
	i	Z		49	32
	iS	E			34
	i	NZ			40
18.	iS	EZ	14	50	02
18.	iP Z, eP	N	14	29	24.5
	e	E			25.3
	iS	NEZ			44.5
18.	i	Z	16	37	47.5
	e	Z			49
18.	iP	Z	19	39	32.4
	iP	NE			32.5
	i	N			49.1
	iS	NE			51
	iP:S,E				
18.	iP	Z	21	01	41.1
	i	NE			42.3
	i	N			45.0
	i	E			47.8
	i	Z		02	03
19.	eP	N	00	23	38.7
	eP	E			39
	i	Z			39.5
	eS	E		24	12
	iS	N			12.7
19.	e	NZ	02	05	20
	i	Z			38.2
	e	N			38.5
	i	Z			38.7
19 S., 172 1/2 W. Tonga Is. H=01 53 54 USCGS					
19.	e	N	02	25	4
	e	N			26.5
19.	iP	Z	07	01	03
19.	iP Z, e	E	09	28	57.5
	eP	N			58
	iS	NE		29	03.5
	iS	E			08.7

Date	Phase	Comp.	Time(GMT)		
			h	m	s
19.	eP	N	11	54	59
	i	Z			55 00.9
	i	NE			01.6
	eS	N	12	05	01
	e	E			13
	eSS	N		10	16
	e	E		16	46
	e	N			56
	e	E	13	12	5
	e	E			13.0
34 1/2 S., 173 W. Kermadec Is. region. H=11 42 42 USCGS					
19.	iP	Z	14	58	08.4
	i	NZ			10.4
	i	E			10.9
	i?	E		59	41.4
	e	E	15	00	51
20.	iP	NEZ	01	02	57.7
	e	E		03	57
	i	Z		05	01
	eS	Z		08	12
	eS	NE			16
	eL?	N		11	01
	eL	E		12	15
iP:S,W,compression 52 N., 175 W. Andeanof Is. H=00 55 34 USCGS					
20.	iP	NEZ	01	21	58.2
	i	Z		26	44.2
	eS	NEZ		28	49
	e	N		29	45
	eScS	NE		31	23
	eL	NE			36.5
	e	N	03		37.5
iP:N,E,compression Mag. 6 1/2 (Matsushiro) 9 1/2 S., 112 1/2 E. Off south coast of Java. H=01 12 30 USCGS					
20.	iP	Z	03	06	28.4
	iP	NE			28.7
iP:S,W,compression					
20.	e	Z	04	27	18
20.	e	Z	07	37	49
20.	e	Z	07	42	05
20.	e	Z	07	57	10
20.	e	Z	06	17	43
	e	Z		18	15

Date	Phase	Comp.	Time(GMT)		
			h	m	s
20.	e	Z	08	38	57.6
	i	Z			58.6
20.	e	N	08	52	31
20.	e	Z	09	44	10.1
	e	Z		45	35
20.	iP EZ, eP N		16	04	57.3
	iS	Z		05	42.0
	iP:W,compression				
20.	iP	EZ	19	02	25.4
	iP	N			25.9
	eS?	Z	03	06	
	e?	Z			30
	iP:N,E				
20.	e	Z	21	56	38.9
	e	Z			49.9
20.	i	Z	22	38	10.3
20.	e	Z	22	44	24.8
	e	Z			48
21.	iP NZ, P E		04	08	03.7
	iS	EZ			19.2
	iS	N			19.4
	iP:S,dilatation				
21.	iP	NZ	06	22	52.5
	P	E			53.3
	pP	NZ		23	31
	PP	Z		24	40
	ScP	Z		28	12.9
	iS	NE		29	01
	isS	E		30	06
	e	E		32	14
	G	E		33	13
	iP:S,dilatation				
	Mag. 6½ (Matsushiro)				
	5½ S.,147 E. Near northeast coast of New Guinea.				
	H=06 14 50 USCGR				
21.	eP	EZ	07	20	42
	i	Z		21	04
	i	Z			36.7
	e	E			44
	e	E		24	10
21.	iP	Z	08	15	41.8
	P	E			42
	i	Z			54.6
iP:dilatation					
21.	iP Z, P E		08	59	58.2
	(cont.)				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued					
20.	e	N	09	00	08
	e	E			09
	e	Z			10
	e	N			13
	i	N			35
	i	Z			40
iP:compression					
21.	eP	Z	10	52	50
	i	Z		53	18.8
21.	iP NZ, P E		15	50	05.9
	i	EZ			15.4
	S	E		57	37
	S	N			40
	e	E	16	00	06
	eL	E		04	36
	e	E		06	07
	e	N			15
	iP:S,dilatation				
	11 S.,111 E. South of Java.				
H=15 40 40 USCGR					
21.	P	NZ	17	08	09
	e	E			15
	e	Z			22
	i	Z			44
	e	N		15	18
21.	P	Z	17	39	59
	P	E		40	00
	P	N			01
	e	E			08
	e	N			10
	i	Z			16.8
	e	E			56
21.	iP	EZ	17	44	38.5
	iP	N			38.6
	i	N		45	44
iP:S,E,dilatation					
29 S.,179 W. Kermadec Is.					
H=17 32 45 USCGR					
21.	P Z, eP NE		18	35	57
	i	Z		36	09.3
	i	E			12.7
21.	i	Z			16.3
	P	Z	07	00	04.0
	i	Z			05.0
22.	i	Z			15.0
	i	E			24.9
	e	Z			26
	i	N			27.5
22.	eP	E	07	16	53
	P	Z			53.4
	S?	E		17	18.0
	S?	N			18.4

Date	Phase	Comp.	Time(GMT)		
			h	m	s
22.	e	N	03	48.7	
	e	E		49.6	
22.	P	N	09	04	53.7
	iP Z, P E			54.0	
	e	Z	06	05	
	e	N	07	05	
	iP:N,W,compression				
22.	P	NEZ	10	53	19.1
	i E, e N			57	23
	i	N			52.8
22.	eP	NEZ	12	23	49
22.	P	NE	12	50	55
	i	E			56.2
	i	N			56.6
	e	Z	51	04	
	e	N			07
	e	E			08
22.	iP	NEZ	23	52	44.9
	eS	N	00	00	45
	eS	E			47
	e	N			03.6
	eL	N			08.9
	iP:N,W,compression				
	Mag. 5 1/2 - 5 3/4 (Matsushiro)				
	14 1/2 S., 168 E. New Hebrides Is.				
	H=23 42 47 USCGS				
23.	iP	N	02	00	38.3
	P	Z			38.4
	i	E			38.9
23.	P	Z	15	20	11.4
	P	NE			12
	iS	N			19.0
	iS	NEZ			19.2
23.	iP	Z	15	54	22.1
	P	NE			23
	eL	N	16	22	52
	eL	E			23 15
	iP:compression				
	24 1/2 N., 47 E. Iran.				
	H=15 43 00 USCGS				
23.	eP	Z	16	56	23
	1.5 S., 173 W. Samoa Is. region.				
	H=16 45 12 USCGS				
23.	iP	NE	21	11	22.4
	P	N			22.7
	iS	E			25.3
	S	NZ			26
	iP:W,compression				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
24.	eP	NE	07	59	03
	e	E			09
	S	E			11
24.	P	N	07	57	48.5
	P	Z			48.7
	P	E			49.5
24.	e	N	08		32.6
24.	iP	Z	09	07	33.9
	iP	N			34.2
	i	E			35.0
	iP:N,compression				
	15 1/2 S., 168 E. New Hebrides Is.				
	H=08 57 33 USCGS				
24.	iP	Z	21	20	31.6
	P	NE			32
	PP	NZ			22 01
	PPP or PcP	Z			47
	e	Z			23 05
	S	N			26 22
	L	E			29 17
	eL	N			31 50
	L	E			32 28
	iP:compression				
	0., 125 E. Melucca Passage.				
	H=21 13 06 USCGS				
25.	e	N	04	43	52
	e	E			47 13
	e	N			43 03
25.	P	NZ	04	44	33
	iP	E			33.3
	S	N			46 33
	i	E			42
	iP:E				
25.	eP	Z	06	45	00
	eL	N	07	51	1
	Mag. 5 3/4 (Matsushiro)				
	22 1/2 S., 11 W.				
	South Atlantic Ocean.				
	H=03 25 06 USCGS				
25.	iP	NE	08	05	11.3
	iP	E			11.4
	i	Z			52
	e	Z			06 17
	e	NEZ			20
	iP:S,E,dilatation				
25.	iP	Z	13	12	37.4
	P	E			37.7
	i	Z			40.3
	iP:compression				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
25.	P i i	EZ NZ E	18	21	38 38.7 39.8
25.	P i i i e	Z N Z Z Z	19	33	09 13 17 34.5 34 02
25.	e	N	22	12.4	
26.	iP iP i PP PP S eL eL e eL eL	Z N NE E N NE N E NE NZ E	02	24	42.3 42.4 58 26 04 05 30 38 33 08 15 51 35 47 57
iP:S,dilatation Mag. 5 3/4 (Matsushiro) 5 1/2 N., 117 E. Northern Borneo. H=02 17 32 USCGS					
26.	P? i e e i	NE E Z E Z	04	58	38 50.2 59 18 19 22
26.	iP P i i i	NZ E E Z	09	27	30.3 31 46 28 00
iP:S,compression					
26.	iP P S	NZ E NE	10	23	07.5 08.1 24 24
iP:S,compression					
26.	eP? e	Z N	12	51	57 21.2
26.	eP?	Z	15	34	09
65 1/2 N., 133 W. Yukon Territory. H=15 24 13 USCGS					
26.	P eL	NZ N	18	54	38 19 02 57
3 N., 127 E. Molucca Passage. H=18 47 35 USCGS					

Date	Phase	Comp.	Time(GMT)		
			h	m	s
26.	iP S iP:S,W	NE NE	22	37	32.2 53
27.	iP S iP:S,W,dilatation	NEZ NE	05	55	56.2 56 13
27.	iP iP e	EZ N NE	09	02	24.8 25.1 03 07
iP:N,W,dilatation					
27.	P i e	NEZ E N	17	13	22 33 28 43
27.	P P i	Z NE NE	18	07	13.6 14.2 10 02
27.	iP i i	NEZ E Z	18	19	29.7 21 22 35
iP:S,W,compression 44 1/2 N., 147 1/2 E. Kurile Is. H=18 16 53 USCGS					
27.	P? i i e eL eL	NEZ Z Z N E N	19	26	30 31.8 33.6 31 15 33 46 34 02
56 N., 162 E. Near east coast of Kamchatka. H=19 20 55 USCGS					
28.	P P Z, eP N i i S	E NEZ Z NEZ	02	10	00 01 09 16 11 09
28.	iP NZ, P E i i i e eL	E E Z N N	04	44	07.4 07.8 45 45.1 48.0 05 01 07 09 21
iP:N,dilatation					
28.	P? i i eL eL	Z E NEZ E N	05	30	00 04.9 06.3 35 25 41 10

Date	Phase	Comp.	Time(GMT)		
			h	m	s
28.	P	E	06	59	24.0
	i	NZ			26
	iS	Z			55.9
	S	N			56
	iS	E			56.0
28.	iP	NEZ	07	56	40.5
	iP:N,E,compression				
	Felt: Matsushiro				
28.	X iP	NEZ	08	18	34.8
	X S	NE			35.3
	iP:N,E,compression				
28.	X iP	Z	08	25	30.4
	X S	Z			31.3
	iP:compression				
28.	X P	Z	08	33	29.3
	X iS	Z			30.2
28.	X P	Z	08	34	38.8
	X S	Z			39.8
28.	X P	Z	08	41	37.2
	X iS	Z			07.8
28.	X iP	Z	09	19	09.1
	X iS	Z			10.1
	iP:compression				
28.	P	Z	10	33	40.8
	P	E			41
	i	N			43
	e	E	34	16	
	e	N			28
28.	iP	EZ	10	54	44.6
	i	NZ			55 45.3
	PP	Z			56 35
	i	E			44
	S	E	11	01	11
	eL	E			04 26
	ScS	N			45
	ScS	Z			59
	eL	N	06	17	
	i	E	08	37	
	i	N	09	04	
	iP:W,dilatation				
	Mag. 6 1/2 (Matsushiro)				
	30 1/2 N., 85 E., Southern Tibet.				
	H=10 46 27 USCGS				
28.	eP	Z	16	18	11
	i	Z			16.8
	i	N			18.2
	i	E			19

Date	Phase	Comp.	Time(GMT)		
			h	m	s
28.	iP	EZ	18	15	08.6
	P	N			09.0
	S	NE			47
	iP:W,compression				
28.	eP	Z	18	26	07
	e	Z			29
	PP	Z			27 56
	e	Z			28 17
	4 1/2 S., 153 1/2 E.				
	New Britain - Solomon Is.				
	region.				
	H=18 18 03 USCGS				
28.	X iP	Z, P N	19	17	29.0
	X i	NE			30.0
	iP:compression				
28.	X P	NZ	19	19	42.9
28.	iP	Z	23	56	42.1
	i	EZ			42.3
	i	Z			57 36.6
	PP?	E			41.2
	PPP	E			58 09
	PcP	Z			59 26.0
	e	N	00	00	39
	eS	N			02 11
	eL	N			03 49
	eL	Z			05 10
	i	N			06 33
	iP:compression				
	Mag. 5 3/4 (Matsushiro)				
	52 N., 179 1/2 E. Andreanof Is.				
	H=23 50 08 USCGS				
29.	eP	Z	01	36	10
	i	N			12
	i	E			21
29.	iP	EZ	05	33	08.9
	P	N			09
	S	NEZ			32
	iP:E,dilatation				
29.	P	Z	06	14	10
	i	Z			11.4
	i	E			11.9
	51 N., 179 E. Andreanof Is.				
	H=06 07 34 USCGS				
29.	iP	NEZ	07	07	25.6
	S	Z			35.2
	iP:compression				
29.	P	N	07	31	33
	iP	NE			35.7
	i	E			57

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued	i	N	07	32	03
	iP:W,compression				
29.	iP	NEZ	07	50	44.5
	PP	Z		51	47
	PP	E			50
	PcP?	Z		53	53
	i	Z			37
	S	E		55	51
	L	E		57	47
	L	Z			43
	L	Z		59	06
	iP:S,W,compression				
	Mag. $6\frac{1}{2}$ (Matsushiro)				
	51 $\frac{1}{2}$ N., 179 $\frac{1}{2}$ E. Andreanof Is.				
	H=07 44 10 USCGS				
29.	iP	Z	07	57	11.4
	e	Z			35
	iP:compression				
29.	iP	NZ	08	01	48.2
	iPcP	Z		04	34.0
	iP:S,compression				
	51 $\frac{1}{2}$ N., 179 E. Andreanof Is.				
	H=07 55 14 USCGS				
29.	e	Z	08	08	17
29.	iP Z, P NE		08	12	53.3
	iP:compression				
	51 N., 179 E. Andreanof Is.				
	H=08 06 15 USCGS				
29.	iP Z, P E		08	15	08.8
	iP:dilatation				
29.	eP?	NE	09	44	04
	i	E			12
	e	Z			14
	i	N			19
29.	iP	EZ	10	53	27.7
	iP	N			28.4
	e	NE			51
	e	Z			52
	iP:N,E,dilatation				
29.	iP	EZ	12	18	31.0
	iP	N			31.3
	i	E			39
	i	N			41
	i	E			50
	i	N			51
	S	Z		19	00
	i	N			05
	iP:N,W,compression				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
29.	iP	EZ	15	22	19.7
	iP	N			19.9
	i	Z			27.8
	i	Z			31.3
	iP:N,E,dilatation				
	55 N., 161 E.				
	Near east coast of Kamchatka.				
	H=15 17 00 USCGS				
29.	P	Z	19	32	08.0
	51 N., 179 $\frac{1}{2}$ E. Andreanof Is.				
	H=19 25 30 USCGS				
29.	iP	EZ	20	55	23.0
	iP	N			23.1
	S	E			45
	S	N			49
	iP:S,E,dilatation				
29.	eP?	Z	21	32	43
30.	eP?	Z	01	27	55
	i	Z			37.3
30.	eP	Z	03	51	04
	51 $\frac{1}{2}$ N., 179 E. Andreanof Is.				
	H=03 44 32 USCGS				
30.	iP	Z	04	53	41.9
	iP	E			42.1
	S	N		59	29
	S	E			31
	iP:W,compression				
30.	iP	NEZ	07	59	51.0
	i	NEZ	08	00	38.0
	iP:N,W,dilatation				
30.	P	NZ	09	38	00.4
	iP	E			00.5
	iP:E				
30.	P EZ, eP N		10	16	18
	e	Z			57
	i	Z			17 11
	20 $\frac{1}{2}$ S., 176 W. Tonga Is.				
	H=10 05 00 USCGS				
30.	iP	NEZ	10	46	15.7
	iP:N,E,dilatation				
30.	P	NZ	11	42	55
	e	N		50	44
30.	iP	Z	15	12	03.0
	P	N			03.1
	iP	E			03.4
	iP:compression				

Date	Phase	Comp.	Time(GMT)			
			h	m	s	
30.	e	N	19	21	14	
30.	iP	Z	21	01	24.2	
	iP	N			24.3	
	i	Z			52.7	
	iP:S,compression					
30.	iP	NE	22	00	58.0	
	iP	Z			58.2	
	iS	NEE			01	12.8
	iP:E,dilatation					
31.	P	NZ	03	05	39.8	
	i	Z			40.2	
31.	iP	Z	07	54	55.9	
	P	N			56.3	
	iP:compression					
31.	P	Z	11	53	49.2	
	P	N			49.3	
	iP	E			49.5	
	i	Z			50.7	
	S	N			54	41
	S	E			42	
	iP:W					
31.	iP	NZ	13	16	47.5	
	i	E			48.3	
	iP:N,compression					
31.	iP	Z	19	10	57.3	
	P	NE			57.9	
	i	Z			41.6	
	S	E			16	45
	iS	N			46	
	eL	E			18	57
	eL	N			19	57
	iP:compression					
	Mag. 5 3/4 - 6 (Matsushiro)					
	3° S., 145° E. New Guinea.					
H=19 02 54 USCGS						
31.	P	E	19	57	19.2	
	P	Z			19.6	
	i	Z			22.8	
	i	N			32.0	
31.	iP	Z	22	40	46.6	
	iP	NE			43.7	
	iS	E			49.5	
iP:S,E,compression						
31.	P	Z	23	43	51.2	
	i	E			52.7	
	i	Z			54.4	
	i	E			55.4	
	i	N			58.5	

Date continued
 Phase
 Comp.
 Time(GMT)
 h m s
 23 44 46.5
 i E 51.8
 eS N 46 45
 i N 59.2
 i E 47 03.7
 25 N., 122 1/2 E.
 Near north coast of Formosa.
 h:100 km ca.
 H=23 39 27 USCGS

Takeshi Honda

Director

(cont.)

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Nov. Date	Phase	Comp.	Time(GMT)		
			h	m	s
1. ✓	iP	EZ	03	46	22.5
	i	N			23.1
	i	Z			24
	i	Z			30
	i	N	47	50	
	PP	Z			54
	S	N	52	39	
	eL	E	55	54	
	L	N	58	17	
	i	Z	04	01	02
	iP:W,compression				
	Mag. 6 $\frac{3}{4}$ - 7 (Matsushiro)				
	3 S., 150 E. Bismarck Sea.				
	H=03 38 36 USCGB				
1. ✓	P	Z	04	12	45
	i	NEZ			45.9
	i	E	13	00	
1. X	iP	NEZ	04	24	50.2
	iS	NEZ			53.2
	iP:N,W,dilatation				
1. ✓	eP	Z	06	14	28
	i	NZ			29.2
	i	Z			32.2
	i	N			35.3
	3 $\frac{1}{2}$ S., 145 $\frac{1}{2}$ E. New Guinea, aftershock.				
	H=06 06 47 USCGB				
1. ✓	P Z, eP	NE	06	25	32
	i	NZ			33.9
	i	E	24	01	
	P:dilatation				
	Off north coast of New Guinea.				
	H=06 15 54 USCGB				
1. ✓	iP	NEZ	08	30	00.2
	i	N			17
	iP:N,E,compression				
1. X	eP	Z	12	18	38
	e	Z			45
1. ✓	P	Z	12	25	57
	i	EZ			57.2
	i	EZ	26	01	
	i	Z			06
	(cont.)				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
	continued				
	17 $\frac{1}{2}$ S., 160 E.				
	New Hebrides Is. foreshock.				
	H=12 15 45 USCGB				
1. ✓	iP	Z	12	23	50.9
	i	NE			51.2
	eS	E	35	07	
	eLq	E	41	30	ca.
	Lr	N	43	44	ca.
	iP:compression				
	Mag. 6 $\frac{1}{2}$ - 6 $\frac{1}{2}$ (Matsushiro)				
	17 $\frac{1}{2}$ S., 160 E. New Hebrides Is.				
	H=12 16 36 USCGB				
1. ✓	P	Z	12	39	26.2
	i	Z			35.2
	P:dilatation				
1. ✓	iP	NEZ	13	48	43.4
	i	Z			49
	iP:E,dilatation				
1. ✓	iP	Z	15	52	49.9
	i	Z			53
	iP:compression				
1. ✓	iP	NZ	15	39	23.7
	S	E			40
	S	N			56
1. X	iP	Z	15	48	41.2
1. ✓	iP	EZ, P N	16	00	28.1
	e	E			08
	eL	N			16.1
	eL	N			17.6
	17 $\frac{1}{2}$ S., 160 E.				
	New Hebrides Is. aftershock.				
	H=15 50 10 USCGB				
1. ✓	iP	Z, P E	17	35	50.3
	i	N			50.6
	i	Z			39
	iP:compression				
	15 $\frac{1}{2}$ S., 169 E. New Hebrides Is.				
	H=17 25 45 USCGB				
1. ✓	iP	NZ	21	42	46.7
	i	E			46.9
	iS	E			57.7
	iP:N,dilatation				

Date	Phase	Comp.	Time(GMT)			Date	Phase	Comp.	Time(GMT)		
			h	m	s				h	m	s
1. ✓	iP S iP:N,dilatation	NZ E	22	25	24.2 35	3.	iP iS i iP:E	EZ E E	07	50	00.3 15.8 28.3
2. ✓	iP dilatation	Z	05	22	52.3	3. ✓	iP L L iP:compression	Z N N	14	39	50.3 56 16 ca. 58 26 ca.
2. ✓	eP i i i i	Z E Z Z N Z	07	24	12 18 23 25 23 26 31	✓	30 N., 84 ¹ / ₂ E. Tibet. H=14 31 35				USCGS
2. ✓	iP iS iP:N,compression	NZ N	10	14	51.2 15 09.8	3. ✓	eP	Z	15	21	51
2. ✓	iP i i i i i PcP L L iP:compression	Z NEZ N Z N Z N E	10	51	50.1 50.7 52 09 22.2 37 54 17.22 11 00 30ca. 03 44ca.	3. ✓	P	Z	16	51	23
	Mag. 5 ³ / ₄ - 5 3/4 (Matsushiro) 51 ¹ / ₂ N., 175 W. Andreanof Is. H=10 44 47					4. ✓	P 1 iP 2 i eS eS iP 2: N,compression	N NZ E NE Z	00	10	53 53.9 54.3 12 07 09
						4. ✓	P i i i	Z NZ E E	00	32	30.3 31.2 32 47.8
							P:compression 6 S., 147 ¹ / ₂ E. Near north coast of New Guinea. H=00 24 24				USCGS
2. ✓	iP i i iP:dilatation	NEZ N Z	14	42	50.0 54 56.2	4. ✓	iP i i iS iP:compression	Z NE Z NZ	03	56	58.1 58.6 40 51.6
2. ✓	P i i	Z Z N	16	00	54 01 16 27	4. ✓	P i i P:compression	Z E N	04	54	15.8 18 17
2. ✓	eP	Z	20	29	53	4. ✓	iP i i i iP:compression	NEZ Z N EZ	07	56	41.9 42.5 52.3 53.9 59.7 57 00.5
2. ✓	iP i iP:W,dilatation	EZ N	23	41	38.2 38.5	4. ✓	iP i i i eS i	NEZ N E N E E	03	30	41.8 42.1 43.2 52 52 21 41
3. ✓	iP Z, P E i i S? iP:compression	E N E NE	03	28	14.9 23.7 26.0 36.0						
3. ✓	iP i i i iS iP:compression	Z N E E	04	28	27.9 28.6 36.6 57.9						
							iP:compression				

Date continued	Phase	Comp.	Time(GMT)		
			h	m	s
✓	i	E	08	33	09.
	iP:N,compression Mag. 5.7 (Matsushiro) 28 N.,140 $\frac{1}{2}$ E. Bonin Is. region. H=08 28 28 USCGR				
4. ✓	P	Z	08	33	15
	i	N			23
	i	N			29
	i	E		35	46
	i	NE		36	46
	i	E		38	09.
	Mag. 5.8 (Matsushiro) 28 N.,141 E. Bonin Is. region. H=08 31 00 USCGR				
4. ✓	iP	EZ	11	44	31.7
	i	Z			43
	iP:E,compression				
4. ✓	iP	Z	20	04	36.4
	i	E			37.7
	i	EZ			49.3
	i	N			49.6
	eS	N		12	08
	L	E		20	26
	iP:dilatation 11 S.,166 E. Santa Cruz Is. H=19 55 11 USCGR				
4. ✓	P	Z	22	43	17
4. ✓	e	N	23	29	57 ca.
	e	E		33	21 ca.
	Mag. 6 (Pasadena) 50 S., 115 W. South Pacific Ocean. H=22 54 46 USCGR				
4. ✓	iP	Z	23	45	04.2
	i	N			13.2
	ScS?	E		54	17
	iP:dilatation 17 $\frac{1}{2}$ S.,168 E. New Hebrides Is. H=23 34 50 USCGR				
5. ✓	iP	NEZ	01	37	30.9
	S	E		38	15.0
	iP:N,W,dilatation				
5. ✓	P	NEZ	04	38	03.0
	e	NE		53	03
	eL	N		55	09
	17 S.,168 E. New Hebrides Is. H=04 27 50 USCGR				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
5. ✓	iP	NZ	05	47	44.3
	i	E			44.3
	i	E			53.8
	S	E		48	40
	e	E		49	37
	iP:N,dilatation				
5. ✓	P	Z	06	41	53
	i	N			54.2
	i	Z			42 02
5. ✓	iPKP 1	Z	08	19	48.8
	i	E			50
	PKP? 2	Z		20	22
	iPKP 1:dilatation 19 $\frac{1}{2}$ S.,69 W. Northern Chile. h:150 km ca. H=08 00 11 USCGR				
5. ✓	P	EZ	09	49	33.1
	i	N			33.4
	S	NE			48
	P:W,compression				
5. ✓	iP	Z	12	58	28.9
	compression				
5. ✓	iP	NZ	13	10	33.4
	iP:S,compression 14 $\frac{1}{2}$ S.,175 $\frac{1}{2}$ W. Samoa Is. region. H=12 59 39 USCGR				
5. ✓	iP	NEZ	15	56	04.6
	iP:compression 58 N.,154 $\frac{1}{2}$ W. Kodiak Is. H=15 47 22 USCGR				
6. ✓	iP	E	00	00	14.1
	S	NEZ			25
	iP:E				
6. ✓	e	N	09	40	33 ca.
	e	NE			44.4
	e	N		49	53 ca.
6. ✓	iP	NEZ	10	04	06.6
	i	N			33
	iS	NEZ			54
	iP:S,W,dilatation				
6. ✓	iP	NEZ	12	17	28.6
	i	N			29.8
	S	N			42.1
	iS	EZ			43.1
	iP:dilatation				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
6. ✓	iP	NEZ	15	37	48.6
	i	E		38	21
	i	Z			23
	e	N		39	56
	S	N		43	41
	sS	N		45	48
	iP:S,W,dilatation 6 S., 128 E. Banda Sea. h:250 km ca. H=15 30 06 USCGS				
6. ✓	P	Z	20	10	08.9
	i	N			10.4
	i	Z			20.9
	S?	N			41
	P:compression				
6. ✓	iP	EZ	20	18	03.9
	iS	NE			15.1
	iP:E,dilatation				
6. ✓	P 1	Z	23	00	44.6 K
	iP 2	NEZ			45.0
	i	NEZ			45.9
	i	N	02		29
	eS	E			49
	i	N	03		13 ca.
	P 1:dilatation iP2:S,W,compression Mag. 7.8 (Matsushiro) 44½ N., 148½ E. Kurile Is. h:100 km ca. H=22 58 10 USCGS				
6. ✓	eP	NE	23	16	58
6. ✓	eP	E	23	18	41
6. ✓	eP	Z	23	30	23
6. ✓	eP	E	23	32	39
6. ✓	eP	Z	23	37	23
6. ✓	P	NEZ	23	56	07
7. ✓	P	NEZ	00	04	51
7. ✓	iP	E	00	15	15
7. ✓	P	E	00	23	33
7. ✓	P	E	00	35	51
7. ✓	eP	E	00	38	51
	44 N., 149 E. Kurile Is. H=00 36 12 USCGS				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
7. ✓	P	E	00	55	56
7. ✓	P	E	01	04	43
	44 N., 148½ E. Kurile Is. H=01 01 58 USCGS				
7. ✓	eP	E	01	07	55
7. ✓	P	E	01	16	33
	45 N., 149 E. Kurile Is. H=01 13 46 USCGS				
7. ✓	P	E	01	37	35
7. ✓	P	E	01	48	44
	Mag. 5.5 (Matsushiro) 44½ N., 149½ E. Kurile Is. H=01 42 56 USCGS				
7. ✓	eP	E	01	58	23
	44½ N., 149 E. Kurile Is. H=01 55 33				
7. ✓	P	E	02	09	34
7. ✓	P	E	02	12	05
7. ✓	eP	E	02	12	56
7. ✓	P	E	02	19	38
7. ✓	P	E	02	27	13
7. ✓	P	E	02	38	31
7. ✓	eP	E	02	40	40
7. ✓	P	E	02	46	00
7. ✓	P	E	02	53	37
	44½ N., 149½ E. Kurile Is. H=02 50 48 USCGS				
7. ✓	P	E	03	00	50
7. ✓	iP	E	03	21	19
7. ✓	iP	EZ	03	25	08
	S	NE			23
	iP:W				
7. ✓	iP	Z	03	29	36.3
	S	E			31 38
	iP:dilatation				
7. ✓	P	Z	03	48	45.8
	dilatation				

Date	Phase	Comp.	Time (GMT)		
			h	m	s
7.	P	E	04	21	57
7.	P S	E Z	04	36	29 46
7.	iP i S L	EZ E E E	05	02	38.3 51 43 55
iP:W, compression 44 $\frac{1}{2}$ N., 149 E. Kurile Is. H=04 59 50 USCGS					
7.	P i	E Z	05	49	57 08
7.	eP i	E E	05	56	30 47
7.	iP Z, P E i S i	E NE EZ E	06	28	08.3 08.6 09 19
iP:W, compression					
7.	P i i i S i L	EZ EZ NZ E NE NE N	07	43	20.7 21.3 26 28 45 18 49 38
P:E, dilatation Mag. 6 (Matsushiro) 44 $\frac{1}{2}$ N., 149 E. Kurile Is. H=07 40 36 USCGS					
7.	iP S eL	EZ Z N	08	31	58.2 59 23
iP:W, dilatation					
7.	P i	NEZ Z	09	52	07.6 10
P:N, E, dilatation					
7.	P i eS eL L	Z Z N N E	10	12	23.5 37.8 23 54 32
7.	P i eS? P:E	EZ NZ E	10	20	11.8 12.3 18
7.	iP i	Z E	10	30	12.0 12.3
iP: dilatation					

Date	Phase	Comp.	Time (GMT)		
			h	m	s
7.	iP i i i S	NZ Z N E N	10	31	48.3 55 57 01 40
iP:N, dilatation 44 N., 148 E. Kurile Is. H=10 29 17 USCGS					
7.	iP iP:E	E	10	48	54.8
7.	iP i iP:W	E Z	11	11	43.5 44
7.	P L S iL L	EZ Z E N E	11	27	04.6 05.2 09 39 44
P:W, compression 44 $\frac{1}{2}$ N., 149 $\frac{1}{2}$ E. Kurile Is. H=11 24 19 USCGS					
7.	P i i eS	NZ NZ N N	11	33	45.4 45.8 55 53
P:N, dilatation					
7.	iP i	NEZ E	12	47	51.4 16.2
iP:S, W, compression					
7.	P i	Z NEZ	13	39	06 09.0
P: compression					
7.	eP i S? L	NEZ NEZ E NE	13	53	25 25.8 28 04
7.	P i i e eL? L	EZ E E N N N	14	06	19.3 59 09 48 43
P: dilatation					
7.	P L	EZ N	14	18	15 09
7.	iP eS L	NEZ Z NE	14	27	16.8 21 53
iP:S, W, compression					

Date	Phase	Comp.	Time(GMT)		
			h	m	s
7.	P S e eL L	NZ E N N E	16	19	22.8 21 19.8 28 22 06 23 33
7.	iP S e iP:N,E,dilatation	NEZ E E	16	58	49.8 17 00 44 02 01
7.	iP e e S Lr iP:S,W,compression 44 N., 148 1/2 E. Kurile Is. H=17 32 42 USCGS	NEZ E E Z NE	17	35	17.0 36 03 42 37 09 58
7.	iP i iP:dilatation 44 1/2 N., 148 1/2 E. Kurile Is. H=19 14 31 USCGS	Z NE	19	16	47.5 48.2
7.	P i L P:compression	Z N NE	19	17	17.7 19 33 20 03
7.	iP e e eS L iP:N,E,dilatation	NEZ N E N E	20	33	47.8 35 43 46 53 36 38
7.	iP i L iP:S,W,compression	NEZ NEZ N	20	44	01.2 15 46 51
7.	iP i L iP:N,compression	NZ E N	22	12	02.7 16 14 39
7.	iP i iP:dilatation	Z E	23	13	18.4 21
7.	P L	Z NE	23	53	45 56 29
8.	iP iP:W,compression	EZ	00	14	52.3

Date	Phase	Comp.	Time(GMT)		
			h	m	s
8.	P i i i eL	Z NE Z Z N	00	15	41.9 42.2 16 03.2 49 18 17
8.	iP Z, P NE i i eS iP:N,E,dilatation	NE NE E N	01	35	02.1 02.5 36.1 37 09
8.	iP i S	Z E NE	03	09	02.0 02.4 16
8.	iP e iP:S,W,compression	NEZ E	05	21	40.9 22 53
8.	iP iP:N,E,dilatation	NEZ	06	54	41.9
8.	iP S e iP:compression	Z NE E	07	46	38.5 48 43 50 11
8.	P i S e P:dilatation	Z EZ E E	08	31	19.3 19.8 32 21 34 36
8.	iP iS i L iLr iP:S,W,compression Mag. 6 1/4 - 6 3/4 (Matsushiro) 52 N., 159 1/2 E. Off southeast coast of Kamchatka. H=09 22 53 USCGS	NEZ N E N Z	09	27	45.3 31 38.8 43.3 33 55 34 48
8.	iP i iP:N,dilatation	NZ E	09	37	50.8 59
8.	eP i i i i i	Z N E Z N E	10	22	43 50.3 58 23 06 25 07.3 09
8.	P	EZ	11	19	24.6 (cont.)

Date continued	Phase	Comp.	Time (GMT)		
			h	m	s
✓	i	E	11	19	25.9
	i	E			37
	L	N	22	09	
	eL	Z	23	38	
8.	P	Z	12	11	13.6
✓	i	E			13.9
	i	Z			15.0
	i	N			15.6
	S	E	13	13	
	iS	Z			15
	e	NE	14	49	
	P:dilatation				
8.	P	NZ	12	58	21.4
X	i	NEZ			22.2
	L	NE	13	00	57
	P:N,dilatation				
8.	P	Z	13	28	03.8
✓	i	NEZ			04.3
	iS	NE	30	04.3	
	P:dilatation				
8.	P	NZ	14	51	11.3
✓	i	Z			12.2
	eS	N	55	05	
	i	E			17
	L	E	57	33	
	P:S,compression				
8.	iP	NEZ	16	53	43.6
✓	i	Z			52.8
	e	E	40	03	
	eL	E			57
	iP:S,W,compression				
8.	iP	NZ	17	23	15.6
✓	e	NE			27 57
	e	E	28	26	
	iP:N,dilatation				
8.	P	Z	18	45	17
✓	e	N			51 33 04.
	L	E	55	16	
8.	eP	Z	19	45	32
✓	i	N			42
	i	EZ			47 01
	e	E			52 44
	e	N			56 30
	L	N	20	02	32
	L	E			04 33
	11 1/2 N., 93 E. Andreevof Is.				
	H=19 36 48 USCGS				
8.	P 1	E	21	43	17.0
✓	P 2	Z			17.6

(cont.)

Date continued	Phase	Comp.	Time (GMT)		
			h	m	s
✓	i	E	21	43	29
	i	Z			33
	S	N			35
	P 1:E P 2:compression				
8.	P	Z	22	46	58.3
✓	S	E			47 14
	P:dilatation				
8.	iP	NEZ	22	50	08.0
✓	i	NE			09.8
	S	E			52 19.6
	L?	N			47
	iP:N,E,dilatation				
9.	P	Z	00	05	29.3
✓	i	NE			37.3
	i	Z			41.8
	eS	N			07 47
	i	E			09 05
	L	E			35
P:dilatation					
9.	P	Z	00	30	41.8
X	compression				
9.	iP	NEZ	03	17	25.6
✓	i	N			18 19
	S	N			19 06
	i	Z			47.8
	eL	E			50
	L	N	20	09	
	iP:S,W,compression 44 N., 148 1/2 E. Kurile Is. H=03 14 47 USCGS				
9.	P	Z	05	45	14.4
X	i	E			19.3
	i	Z			21.8
	P:dilatation				
9.	P	E	07	41	20
✓	i	E			33.6
9.	P	NZ	08	10	22.7
✓	i	E			38
	e	E			14 28
	e	E			53
	L	E			13 42
	L	E			20 18
9.	iP	Z	10	20	23.2
✓	i	Z			36.7
	iS	E			21 43.7
	i	NE			22 01.2
	e	N			13
	e	E			31

(cont.)

Date continued	Phase	Comp.	Time(GMT)		
			h	m	s
	L	E	10	23	11
	iP:compression 44 1/2 N., 150 E. Kurile Is. H=10 17 30 USCGS				
9.	P	NZ	11	07	51.7
	i	N		08	05
	i	Z			07.7
	eL	N		10	54
	F:compression				
9.	P E, eP	Z	13	42	33
	i	EZ			35.2
	iS	E			38.7
	i	N			39.9
	P:E				
9.	eP	Z	14	05	53
	i	N			59
	i	Z		04	08
	e	N		05	00
	L	N		06	53
9.	iP	Z	14	17	17.3
	i	EZ			17.6
	iP:S,compression				
9.	P	Z	14	35	51.8
	i	NEZ			52.6
	eS	E		37	54
	i	Z			58
	L	N		38	19
	P:dilatation 44 N., 148 E. Kurile Is. H=14 33 17 USCGS				
9.	iP	EZ	14	53	26.9
	i	Z			30.2
	i	N			32.4
	i	E		54	49
	L?	N		53	17
	e	E		15	00
	iP:S,W				
9.	P	Z	15	43	00
9.	P	NZ	16	18	04.4
	i	Z			05.3
	i	N			07.5
	e	E		19	52
	S	N		20	11
	P:compression				
9.	P	Z	16	48	10.2
	i	E			12
	i	E			14
9.	P	E	16	51	19
	(cont.)				

Date continued	Phase	Comp.	Time(GMT)		
			h	m	s
	i	E	16	51	22
	i	N			27
9.	eP	Z	16	55	12
	i	N			17
9.	eP	Z	17	09	54
	i	N			59
9.	iP	NEZ	17	55	27.2
	i	Z			27.7
	S	N		57	37
	iS	Z			41
	L	N		58	08
	iP:S,W,dilatation 44 N., 148 E. Kurile Is. H=17 52 52 USCGS				
9.	P	Z	18	47	43
	i	E			45
	i	N			51
	i	Z			53
9.	P	Z	18	51	18.2
	i	E			19.2
	e	E			22
9.	P	Z	18	54	39.2
	i	N			40
	eS	N			44
9.	P	Z	18	58	25.4
	i	E			26
	eS?	E			32
9.	P	Z	19	02	06
	i	E			07.7
	S	N			13
9.	P	E	20	25	28
	i	Z			32
9.	iP	NEZ	21	07	19.1
	S	N		09	15
	S	E			17
	eL	E			36
	L	N		10	11
	iP:S,W,compression 44 N., 148 E. Kurile Is. H=21 04 43 USCGS				
9.	eP	Z	21	23	59
	e	N		24	04
9.	iP	Z	22	54	00.0
	i	E			00.2
	eS?	N			23 ca.
	iP:compression				

Date	Phase	Comp.	Time (GMT)		
			h	m	s
10.	X eP i i	Z E NEZ	00	08	38 41 43
10.	X P i i	E E N	01	01	22.6 25.2 27.2
10.	X eP i i	E Z N	01	03	17 22.2 27
10.	X eP i	E Z	01	05	07 14
10.	X i e i	E N Z	01	07	12.2 16 21.2
10.	✓ iP i i i iP:dilatation	Z NEZ E Z	01	11	06.9 07.5 15 55
10.	X e e i	E Z E	02	57	01 04 06
10.	X e i	Z Z	03	51	20 25
10.	X e	Z	04	00	56
10.	✓ P e	Z N	04	06	54 11 11
10.	X e	Z	04	07	15
10.	X e	N	04	13	12
10.	X e	N	04	19	11
10.	X e	N	05	25	27
10.	✓ iP i iS iP:S,E,dilatation 35.4 N., 140.2 E. Central Honshu, Japan. h:70 km ca. J.M.A.	NEZ NE NE	05	33	03.7 16 27
10.	✓ e eL	N E	07	49	05 52 37
Mag. 5 3/4 - 6 (Matsushiro) Pacific Ocean, foreshock. H=06 58 00 USCGS					

Date	Phase	Comp.	Time (GMT)		
			h	m	s
10.	✓ iP iP:S,W,dilatation 33.8 N., 134.6 E. Central Honshu, Japan. h:20 km ca. J.M.A.	NEZ	11	53	42.6
10.	✓ P i	Z Z	11	54	03 45
10.	X eL L	N E	12	03	33 04 40
9 S., 110 W. Pacific Ocean. H=11 13 05 USCGS					
10.	✓ iP Z, P NE i e iP:compression	E Z	12	13	59.0 14 00.0 26
10.	✓ iP i i i iP:N,W,compression	NEZ Z NZ N	13	08	27.5 28.5 31 37
10.	✓ P i i P:N	N NEZ E	13	50	30.6 31.4 33.6
10.	X P e P:dilatation	NEZ Z	20	00	06.4 13
10.	✓ iP e iP:N,W,compression	NEZ N	20	06	22.5 40
10.	✓ eP e e e	Z N E N	21	11	53 16 19 ca. 18 30 ca. 20 42
10.	X P iS	Z Z	21	34	43.1 53.5
11.	✓ eP i	Z Z	00	33	18 35 31
11.	✓ P e	NEZ Z	02	18	23 ca. 20 18
11.	✓ eP S	NEZ NEZ	03	06	43 07 16
11.	✓ P	NEZ	03	54	24 ca.
11.	✓ P	NEZ	05	11	59

Date	Phase	Comp.	Time(GMT)		
			h	m	s
11. X	eP iS	Z NEZ	06	01	06 08
11. ✓	eP	Z	06	36	53
11. X	i	Z	06	37	25
11. ✓	P e	Z Z	12	46 47	56 53
11. ✓	P	EZ	13	02	15
11. ✓	P S L L	NEZ NEZ N EZ	13	48 50 51 52	24 21 17 07
11. ✓	P 1 iP 2 e eL eL	NEZ NEZ N N N	17	55	11.7 12.1 15 49 51
	P 1:N,E,dilatation iP2:S,W,compression				
11. ✓	P i S	NEZ Z NEZ	18	15	05 09 25
11. ✓	Pn i Pg Sn	Z EZ Z NEZ	21	01	22 29 33 04
11. ✓	eP S? L?	Z NE NE	21	55 58 59	18 03 53
11. ✓	P S S L	NEZ E N NEZ	22	32 33 34 35	55 57 01 57
11. ✓	P e	NEZ NE	22	48 50	17.7 30
11. ✓	PKP 1 PKP 2	Z Z	22	57 58	43 20
	22 S., 69 W. Near coast of northern Chile. H=22 37 46 USCGS				
12. ✓	P	EZ	01	39	35
12. ✓	P e	EZ E	01	44 45	50.3 13
12. ✓	iP Z, P N i iS NZ, S E	Z Z Z	03	00	22.5 38 41

Date	Phase	Comp.	Time(GMT)		
			h	m	s
12. ✓	P e	Z NE	03	51	21 39
12. ✓	eP i S N, eS Lq Lr	Z Z EZ N NE	04	03 05 07 08 10	26 08 35 53 59
	19½ N., 122 E. Off north coast of Luzon, Philippine Is. H=03 58 21 USCGS				
12. ✓	P i	NZ Z	04	22	44 54
12. X	i	Z	04	24	07
12. ✓	iP i i S S	NZ Z EZ N EZ	07	14	45.8 46 06 10 12
	iP:N,compression				
12. X	L?	N	07	25.4	
12. ✓	eP	NEZ	08	01	10
12. ✓	eP	NZ	10	16	25
12. ✓	eP i i	Z NE Z	10	38 39	32 59 01
12. ✓	eP eP i PcP S N, eS eL? L L	Z NE Z Z N E N	10	43 49 54 58 59 11	04 05 53 42 43 09 17 04
	Mag. 5½ (Matsushiro) 7 S., 156 E. Solomon Is. h:100 km ca. H=10 39 47 USCGS				
12. ✓	eP	NEZ	12	40	38
12. ✓	P S E, eS L L	NEZ N E	17	46 48 49	45 35 18 31
	44 N., 148½ E. Kurile Is. H=17 44 11 USCGS				
12. ✓	P i	NE Z	18	59	31.9 32.1
	Kurile Is. H=18 36 51 USCGS				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
12. ✓	eP S?	NEZ NE	19	19	08
				21	55
12. ✓	P 1 iP2 S L? iL	Z NEZ NE NE NE	20	26	07.4 08.4 49 10
	P 1:compression iP2:S,W,compression Mag. 6.7 (Matsushiro) 44½ N., 149 E. Kurile Is. H=20 23 26 USCGS				
12. ✓	eP	E	20	31	48 ca.
12. ✓	iP dilatation Kurile Is. H=21 23 20	Z	21	25	58 ca.
					USCGS
12. ✗	P	Z	21	28	51
12. y	P	Z	21	37	48
12. ✗	P	Z	21	47	09
12. ✓	eP	Z	22	02	04
12. ✓	eP	Z	22	15	38
12. ✓	eP? eS	Z Z	22	16	23 ca. 50
12. ✓	P S? S	NEZ Z NE	23	02	30 04 43 48
	45 N., 149½ E. Kurile Is. H=22 59 36 USCGS				
12. ✗	eP	Z	23	31	05
12. ✓	P S?	NEZ Z	23	34	39 36 42
	44 N., 149 E. Kurile Is. H=23 32 00 USCGS				
13. ✗	P	NEZ	00	12	03
13. ✗	P	NEZ	00	30	51
13. ✓	eP	NZ	01	09	55
13. ✓	P i S? S? i L	EZ NEZ E Z N NE	02	59	02 04.3 03 00 56 01 01 06 47

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued ✓	Mag. 5.2(Matsushiro) 44 N., 148½ E. Kurile Is. H=02 53 26				
					USCGS
13. ✗	P S NE, eS Z	NEZ	03	19	52 57
13. ✓	iP i S L L	NEZ Z E NZ E	04	07	14.9 09 04 20 10 00 10.4
	iP:S,W,compression Mag. 5.8(Matsushiro) 44½ N., 148 E. Kurile Is. H=04 04 37 USCGS				
13. ✗	iP i iP:dilatation	Z NE	04	54	47.2 47.5
13. ✓	P S i L	NEZ E N N	05	12	23 14 31 15 04 19 14
	P:N,dilatation Kurile Is. H=05 09 35 USCGS				
13. ✓	eP i i i i S? L i	NZ NZ E N Z NE NEZ E	06	01	30 40 02 39 50 03 06 12 18 04 48
	43½ N., 139 E. Off west coast of Hokkaido, Japan. H=05 59 53 USCGS				
13. ✗	eP	NEZ	06	17	23
13. ✗	iP iP:S,E,dilatation	NEZ	08	03	41.4
13. ✓	eP 15 S., 167½ E. New Hebrides Is. H=08 31 40	Z	08	41	39
					USCGS
13. ✓	eP e e L	NEZ EE N N	10	58	41 44 51 01 16
	Kurile Is. H=10 55 56 USCGS				
13. ✓	P	Z	14	19	22.9

(cont.)

Date	Phase	Comp.	Time(GMT)		
			h	m	s
13.	P	E	16	25	16
	iP	Z			16.3
	PcP	NEZ	26	38	
	PP	Z	27	06	
	e	Z	30	24	ca.
	e	N	32	09	
	e	E	36	13	

iP:dilatation

Mag. 5 - 5 1/4 (Matsushiro)

9 N., 93 1/2 E. Nicobar Is.

H=16 16 25 USCGS

13.	eP	Z	17	29	03
	e	E		32	04
	L?	N			46

13.	P	NEZ	18	37	00.9
	S	NE		38	54
	L	N		39	21
	L	E		40	10

P:S,compression

44 N., 148 E. Kurile Is.

H=18 34 22 USCGS

13.	P	NEZ	21	39	54
	S?	NE		42	08

13.	eP	NZ	22	19	22
	S?	NE		21	20
	L	N		22	12
	L	E		23	41

13.	P	Z	23	11	31
	L	N		14	15
	L	E			37

Kurile Is.

H=23 08 50

USCGS

13.	iP	EZ	23	47	37.8
	i	E			51
	S	NZ			58

iP:E,dilatation

Mag. 4.7 (Matsushiro)

36.2 N., 140.2 E.

Central Honshu, Japan.

h:60 km ca.

J.M.A.

14.	P	Z	03	29	29.7
	e	N		36	33

14.	iP	NEZ	05	37	34.5
	S	E		39	32
	S	NZ			36
	iL	E		40	09
	iL	N			13
	L	E		41	13

iP:N,E,dilatation

(cont.)

Date	Phase	Comp.	Time(GMT)		
			h	m	s

continued
Mag. 5.8 (Matsushiro)
44 N., 149 E. Kurile Is.
H=05 34 53 USCGS

14.	P	NEZ	07	24	52
	eS?	Z		26	38

14.	P	NEZ	08	55	14
-----	---	-----	----	----	----

14.	P	NEZ	11	57	19
	eL	E		12	01 43
	eL	N			02 05

14.	P	NZ	13	56	23.1
	i	E			25.5
	PPP?	Z		58	15.0
	sPP?	Z			39
	PPP?	N			57
	i	Z	14	01	53
	i	E		02	08
	iS	NE			40
	iScS	N		05	51
	ScS?	Z		06	01
	L	N		07.4	
	L	E		08	19
	L	Z		09	23
	Lr	N			45

P:S,dilatation

Mag. 6 1/2 - 6 3/4 (Matsushiro)

6 S., 151 E. Banda Sea.

H=13 43 20

USCGS

14.	P	EZ	18	56	50
-----	---	----	----	----	----

15.	P	Z	00	18	31.4
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15.	iP	Z	03	26	30.0
	dilatation				

15.	eP	Z	04	34	10
	e	Z		35	02

15.	P	NEZ	05	55	20
	i	Z			31
	i	Z			53

38 N., 22 1/2 E. Southern Greece.

H=05 42 42

USCGS

15.	P	NZ	09	05	28.0
	i	NEZ			29.0
	S	NEZ		05	27
	L	E		08	09
	ScP?	Z		12	39

P:S,compression

Mag. 6.2 (Matsushiro)

44 N., 149 E. Kurile Is.

H=09 00 45

USCGS

15.	eP	EZ	09	13	04
-----	----	----	----	----	----

15. P NEZ 09 53 26
 e 1 N 57 51
 1 Z 59 49
 L E 10 00 07
 L NZ 01.4
 44 1/2 N., 148 1/2 E. Kurile Is.
 H=09 53 58 USCGS

15. P EZ 17 40 15
 eL N 42 50
 eL E 43 09

15. 1P NEZ 18 34 45.6
 1 NEZ 55
 e N 41 08
 1P:S,W,compression

15. eP? Z 19 26 06
 1 Z 27 08
 S NE 35 30
 Lq NE 43 19
 Lr NE 47 05
 Mag. 5 1/4 - 5 1/2 (Matsushiro)
 15 1/2 S., 174 W.
 Samoa Is. region.
 H=19 15 03 USCGS

15. P NEZ 23 22 52.5
 S N 24 58
 L N 25 15
 L E 22
 eL Z 26 06
 P:N,dilatation
 44 N., 148 E. Kurile Is.
 H=23 20 18 USCGS

15. 1P EZ 03 09 39.9
 1 Z 11 28
 1P:E,compression

15. 1P Z 04 50 11.5
 1 N 52 07
 S E 16
 L NE 47
 L Z 53 04
 44 1/2 N., 149 E. Kurile Is.
 H=04 47 51 USCGS

15. x eP Z 04 54 22

15. x 1P EZ 05 30 31.5
 S Z 36
 1P:dilatation

15. x 1 Z 05 30 48

15. P Z 05 43 28
 1 Z 46 15
 44 1/2 N., 149 E. Kurile Is.
 H=05 40 46 USCGS

16. 1P Z, P E 03 13 08.0
 S EZ 20 18
 1 Z 21 12
 L N 22 43
 L E 55
 L Z 23 51
 1P:dilatation
 44 N., 148 1/2 E. Kurile Is.
 H=03 15 30 USCGS

16. 1P EZ 07 20 45.2
 S NZ 21 05
 S? E 09
 1 Z 33
 1P:E,dilatation

16. P NZ 10 23 07
 1 N 07.5
 S? E 25 02
 eL N 26 15
 Kurile Is.
 H=10 20 21 USCGS

16. P NEZ 14 17 27 ca.
 e N 20 11
 eL E 51

16. P NEZ 15 35 14
 1 N 36 20
 e NE 45

16. P NZ 17 55 05
 e E 14
 1S N, S E 18 05 17
 S N 09 50
 e N 12 09
 1 E 13 17
 Lr NE 16 51
 Mag. 6 - 6 1/4 (Matsushiro)
 18 S., 172 W. Samoa Is. region.
 H=17 44 48 USCGS

16. eP Z 18 18 59
 1 Z 18 11
 eL NEZ 35.0
 Mag. 5 1/2 - 5 3/4 (Matsushiro)
 20 S., 169 E. Loyalty Is.
 H=18 02 25 USCGS

16. eS NE 20 36 37

16. 1P Z 21 14 59.0
 1 N 16 52
 1P:dilatation
 44 1/2 N., 147 1/2 E. Kurile Is.
 H=21 12 24 USCGS

16. 1P NEZ 21 48 08.5
 (cont.)

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Date continued	Phase	Comp.	Time(GMT)		
			h	m	s
✓	S	N	21	49	39
	S	Z			43
	S?	E			45
	iP:N,W,compression Mag. 5.6 (Matsushiro) 28 N., 159½ E. Bonin Is. h:500 km ca. H=21.46 00 USCGS				
17. ✓	P	NEZ	04	17	29 ca.
	S	NE		18	56
	L	N		19	04
17. ✓	eP	NE	08	13	39 ca.
	iP	Z			39.6
	e	N			47
	i	Z			58
	i	NEZ	14	44	
	i	NEZ			56
	iP:compression				
17. ✓	iP	NZ	09	55	40.3
	ePP	Z		57	48
	S N, eS E		10	03	06
	Lq	NE		08	34
	Lr	E		11	17
	iP:N,compression Mag. 6 - 6¼ (Matsushiro) 10½ S., 162½ E. Solomon Is. H=09 46 30 USCGS				
17. ✓	P	EZ	13	21	55
	iP	N			55.5
	i	Z		22	19
	i	NE			53
17. ✓	P	NZ	13	45	40
	i	Z			44
	i	N		46	25
17. ✓	iP N, P	EZ	15	37	04.2
	S	NEZ		39	10
	L	N			39
	L	E			54
	iP:S,W,compression 44½ N., 148½ E. Kurile Is. H=15 34 23 USCGS				
17. ✗	iP	NEZ	17	14	32.5
	iS	NEZ			36.6
	iP:S,W,compression				
17. ✓	P	Z	18	11	18.6
	i	NEZ			19.2
	i	NZ	13	38	
	e	E	15	10	
	e	N	16	06	
	P:dilatation				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
17. ✓	eP	NEZ	18	55	20
	i	NE			47
	PP	E		57	47
	S	N	19	03	58
	L	E		10	58
	L	N		11	58
	Mag. 5 - 5¼ (Matsushiro) 20½ S., 169 E. Loyalty Is. H=18 44 49 USCGS				
17. ✓	i	Z	20	54	53
17. ✗	eP	Z	22	28	49
	iS	NEZ			52.5
18. ✗	eP	Z	01	42	14
	e	N			20 ca.
18. ✓	P	EZ	03	14	22
	i	NE			54
	e	Z		15	09
18. ✓	P	NZ	03	17	47
18. ✓	P	Z	03	21	48
	i	E		22	53
	e	N		25	20
18. ✓	iP Z, P E		03	55	22.9
	S	EZ			33
18. ✓	P	Z	07	50	34.6
	PP?	Z		51	25
	PPP?	Z			56
	i	Z		52	45
	e	NE		57	11
	L	N		59	42
	L	E	08	01	59
	iP:compression Mag. 5 3/4 (Matsushiro) 50½ N., 179 E. Andreasof Is. H=07 45 20 USCGS				
18. ✓	P	Z	08	03	09
	51½ N., 178½ E. Aleutian Is. aftershock. H=07 56 31 USCGS				
18. ✓	P	Z	08	06	25
	Aleutian Is. aftershock H=07 59 48 USCGS				
18. ✓	P	Z	13	47	31
	eS	N		50	10
	L	N		51	49
	L	E		52	09

Date	Phase	Comp.	Time(GMT)			Date	Phase	Comp.	Time(GMT)		
			h	m	s				h	m	s
18.	P	NEZ	14	59	09	19.	eP 1	NEZ	09	26	27
	eS?	N	15	03	07		P 2	Z			27.9
	eS?	E			10		i	NE			29
	L	E		04	54		i	E	28	07	
18.	P	NZ	15	04	01.0		S	NZ			22
	S	NE			34		L	N			51
18.	P	EZ	18	11	31 ca.		iL	E	29	15	
18.	iP	NEZ	18	35	43.9		L	Z			45
	i	Z		57	02		e	Z	32	35	
	i	Z			44		P 2:compression				
	eS	E			50		Mag. 5 ca. (Matsushiro)				
	L	N		38	17		44 N., 149 E. Kurile Is.				
	iP:S,W,compression						H=09 23 45 USCGS				
	44 N., 149 E. Kurile Is.										
	H=18 33 00 USCGS										
19.	eP	NEZ	00	36	08	19.	eP	EZ	12	57	29
	S	NE			29	19.	iP	NZ	14	58	11.4
19.	P	NEZ	01	47	27		i	Z			14.2
	i	Z		49	13		i	N			14.4
	i	Z			42		i	EZ			39
	41.9 N., 142.4 E.						iP:N,compression				
	Near Hokkaido, Japan.										
	h:70 km ca. J.M.A.										
19.	PKP 1	Z	01	54	01.5	19.	P Z, eP	NE	15	11	06
	PKP 2	EZ			44.5		i	Z			15
	ePKP2	N			45		i	Z			21
	PKP 1:compression						PcP	EZ	12	24	
	27 1/2 S., 63 1/2 W. Santiago del						e	N	19	07	
	Estero Province, Argentina.						L	NE	22	41	
	h:600 km ca.						60 1/2 N., 150 1/2 W.				
	H=01 35 06 USCGS						Kenai Peninsula, Alaska.				
							h:60 km ca.				
							H=15 02 15 USCGS				
19.	eP	NEZ	03	11	39	19.	iP	Z	19	41	13.2
	eL	E		14	43		e	Z			45 47
	L	NE		16	11		eS	E			49 55
	44 N., 149 E. Kurile Is.						iP:dilatation				
	H=03 08 54 USCGS						Fiji Is.				
							H=19 30 18 USCGS				
19.	eP	Z	04	05	55	19.	iP NE, P E		22	59	03.3
	i	Z			57.4		S	NEZ			1.1
	i	Z		06	49		iP:N				
	PPP	E		10	23	20.	eP	EZ	01	11	21
	81 S., 179 W. Kermadec Is.					20.	iP NE, P Z		01	30	11.6
	H=03 53 56 USCGS						S	NEZ			18
							iP:N,E				
19.	P EZ, eP	N	05	21	23	20.	P	NZ	05	41	24.3
	eS?	N		23	15		i	E			25.0
	L	N			53		i	NEZ			45 06
	L	E			24.5		S	NEZ			45 28
							Lq	N			45 09
19.	iP EZ, P	N	05	30	43.9		i	Z			01
	e	E		40	04		i	Z			53
	e	E			25		Lr	NE			47 37
	iP:E,dilatation						L	Z			49 06

Date continued	Phase	Comp.	Time(GMT)		
			h	m	s
	P:S,compression Mag. 6 (Matsushiro) 52 N.,159 $\frac{1}{2}$ E. Off east coast of Kamchatka. H=05 36 33 USCGS				
20.	P	EZ	06	34	12
	44 N.,149 E. Kurile Is. H=06 31 20 USCGS				
20.	P	NZ	06	37	19
	e	E		39	32 ca.
	e	N			41
	eL	E		40	52
	i	E		42	44
20.	P	Z	06	48	25.9
	compression				
20.	P	EZ,eP	07	41	24
	i	E		43	07
	e	NE		45	27
20.	P	NEZ	10	45	27
	e	N		47	36
	S	NE		48	00
	eL	NE			12
20.	iP	NZ,P	14	20	51.5
	i	Z		21	04.0
	i	Z			27.5
	S?	N		22	49
	S?	E			56
	S?	Z		23	00
	L	E			12
	L	N			37
	L	Z		24	09
	iP:N,E,dilatation Mag.5 (Matsushiro) 45 N.,149 $\frac{1}{2}$ E. Kurile Is. h:60 km ca. H=14 18 04 USCGS				
20.	iP	EZ	17	44	00.7
	i	NZ			16
	i	E			24
	eS?	N		45	55
	L	N		47	02
	L	E			18
	eL	Z		48	32
	iP:W,compression				
20.	P	Z	21	10	26
	i	E			28
20.	eP	NEZ	21	25	30
	S	NZ,eS			54

Date	Phase	Comp.	Time(GMT)		
			h	m	s
20.	iP	Z	21	33	08.9
	i	NE			27
	i	Z			29
	iP:compression				
20.	P	NEZ	23	10	33 ca.
	eL	N		19	24
	52 N.,177 W. Andreanof Is. H=23 03 40 USCGS				
21.	iP	EZ	01	44	33.8
	i	E		46	55.8
	S	NEZ		47	02
	iP:dilatation 48 $\frac{1}{2}$ N.,146 $\frac{1}{2}$ E. Off coast of Sakhalin. h:400 km ca. H=01 41 43 USCGS				
21.	iP	EZ	04	22	07.3
	i	N			07.7
	S	N			30
	iP:E,dilatation				
21.	P	NEZ	05	23	58
	i	N		24	05
21.	P	EZ	05	24	29.5
	i	E			35
	i	Z		25	06.8
21.	P	NEZ	06	31	07.6
	i	NZ			11.4
	i	Z			21
	P:N,W				
21.	e	N	08	27	17
21.	eP	Z	13	36	51
	i	NZ			54
	i	E			55
	eS	E		39	11
21.	iP	EZ	13	39	19.1
	i	N			20.1
	S	Z		40	01
21.	iP	NEZ	14	02	02.6
	iS	NEZ			35
	iP:S,E,dilatation				
21.	e	N	14	48	49
21.	iP	NEZ	15	00	45.1
	eL	N		03	27
	iP:E,dilatation				

21. ✓ P N 17 16 39 ca.
 1P EZ 39.2
 i Z 55.7
 i NZ 17 01.1
 i E 07.3
 P:E,dilatation

21. ✓ 1P Z 19 30 28.1
 i Z 44.3
 i NEZ 46.1
 iP:dilatation

21. ✓ 1P N,P Z 19 58 21.7
 i Z 24
 iP:S,dilatation

22. ✓ 1P NEZ 00 13 38.5
 i Z 49.0
 i Z 14 50
 e N 20 57
 S E 21 15
 SS? NE 25 21
 L E 27 16
 iP:N,E
 10½ S., 112½ E.
 South of Java.
 H=00 04 20 USCGS

22. ✓ 1P Z 02 04 44.0
 i NEZ 52.6
 i N 57.4
 i E 05 03.7
 i Z 24.2
 i Z 06 43
 S N 10 43
 L NE 14 00
 i NE 30
 iP:dilatation
 4 S., 151½ E. Ceram Is.
 region.
 H=01 56 56 USCGS

22. X P NZ 02 48 58
 i Z 46

22. X P Z 06 53 50
 i NEZ 52
 e NEZ 56

22. X 1P NZ, P E 04 57 39.4
 i Z 50.9
 iP:compression

22. ✓ 1P Z 08 51 25.3
 i N 26.0
 i E 40.0
 e NE 07 08 02

22. X e NE 14 00-19

22. ✓ 1P NEZ 14 38 52.6
 iP:N,W,dilatation

22. ✓ eP Z 22 47 40
 e N 50.9

22. X eP Z 23 49 25
 S Z 27.1

23. ✓ 1P Z 05 28 31.0
 compression

23. P Z 06 54 59
 i E 55 00
 ✓ e E 40
 e N 56
 e N 58 28

23. ✓ 1P Z, P NE 09 46 09.8
 S NEZ 47 02
 iP:dilatation

23. ✓ 1P NEZ 11 58 25.9
 1S NEZ 59 11.7
 iP:S,W,dilatation

23. P Z, eP NE 13 45 09
 ✓ e N 47 27
 e E 55

23. ✓ 1P EZ, P N 18 01 26.6
 i NEZ 03 42.9
 i Z 45
 iP:E,compression

23. 1P1/2Z, P1/2N 18 22 25.8
 1P 2 NEZ 24.9
 ✓ i E 32
 i E 54
 S NEZ 23 27
 i NE 50
 i N 24 47
 iP 1:compression

23. X 1P NEZ 19 06 24.4
 1S NEZ 26.4
 iP:W,dilatation

23. ✓ 1P Z, P E 20 23 52.5
 e N 28 39
 eS N 30 18
 eL N 33 42
 eN N 37 02
 iP:compression
 29 N., 87 E. Southern Tibet.
 H=20 15 48 USCGS

Date	Phase	Comp.	Time(GMT)			Date	Phase	Comp.	Time(GMT)		
			h	m	s				h	m	s
23.	P i eL eL	EZ NZ E E	22	26	51 32.3 34 40 56	24.	P e	Z N	20	28	46 51 37
	51 N., 175 1/2 W. Andreanof Is. H=22 19 23 USCGS					24.	iP iS iP:N	NEZ NEZ	23	25	57.6 26 02.1
23.	iP S	NEZ E	23	22	32.6 35	25.	iP e e	NEZ N E	02	43	17.8 45 37 47 11
	iP:S,W,dilatation Felt:Matsushiro)					25.	e	N	04	25	14
23.	iP	NEZ	23	44	39.3	25.	iP i i i S	NEZ NE E E N	09	13	36.1 42.4 14 04 06.4 10
	iP:E,compression 51 N., 174 1/2 W. Andreanof Is. H=23 37 30 USCGS					25.	iP:S,E,dilatation 36 1/2 N., 141 1/2 E. Near east coast of Honshu, Japan. H=09 12 54 USCGS				
24.	iP iS	NEZ Z	00	11	26.1 28.6	25.	P 1 P 2 i e	Z NEZ Z N	13	23	56 56.9 58.4 37 16
	iP:S,W,dilatation					25.	P 2:E 10 1/2 S., 113 E. Off south coast of Java. H=13 14 40 USCGS				
24.	P S i	NZ Z Z	00	27	46 49 51	25.	iP Z, P i e eL	N NE E NE	16	03	11.6 11.9 09 54 12.0
	iP:compression					25.	iP iP:W,compression	EZ	21	54	44.6
24.	PKP 1 PKP 2 ePP e eSSS eL	Z NEZ N N N NE	07	08	48 09 15 12 36 18 10 38 16 59 14	25.	iP i i i i i	NEZ EZ Z E NE	23	14	32.5 53.5 15 04 21.1 23
	57 1/2 S., 65 1/2 W. Drake Passage. H=06 48 57 USCGS					25.	iP i i i i i	EZ Z N E N E	23	19	41.5 20 09 14 15 24 29 32
24.	P i i eS eL	Z N Z N NE	12	03	27 32 35.9 04 05 51		iP:N,W,compression				
	P:compression					25.	iP:W,compression				
24.	P	EZ	12	48	28.1		iP:N,W,compression				
	P:E,dilatation						iP:W,compression				
24.	P i eS eL eL	Z E N E N	17	48	30.2 32 53 25 55 17 56 27		iP:W,compression				
	P:compression 8 N., 127 E. Near east coast of Mindanao, Philippine Is. H=17 42 20 USCGS						iP:W,compression				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
25. ✓	iP Z, P E i Z i N iP:dilatation		23	37	22.9 23.5 33 00
25. ✓	iP i i iP:W	E E E	23	54	12.8 17.3 49.3
26. ✓	P 10 $\frac{1}{2}$ E., 112 $\frac{1}{2}$ E. South of Java. H=00 17 09 USCGS	NEZ	00	26	26
26. ✓	iP iP:W,dilatation	NEZ	01	45	54.9
26. ✓	P	NEZ	01	50	07
26. ✓	eP 1 iP 2 eS L iP 2:N,E,dilatation 45 N., 149 E. Kurile Is. H=09 13 37 USCGS	NEZ NEZ E NE	09	16	23 24.0 18 15 39
26. ✓	eL eL	N E	11	34	09 21
26. ✓	iP Z, P E i N e N iP:compression		15	25	36.1 38 26 43
26. ✓	PMP? i e e e e e	Z Z N N E NE N	21	44	49 45 05 52 46 56 16 22 04 02 18 26 50.1
27. ✓	iP EZ, P E S iP:W,compression	NEZ	07	48	12.0 34
27. ✓	P EZ, eP W i N i E P:W,dilatation		10	51	03 33 38
27. ✓	iP eS iP:W,W,dilatation	NEZ E	10	54	46.2 49.2

Date	Phase	Comp.	Time(GMT)		
			h	m	s
27. ✓	iP i i iP:W,compression	NEZ N E	11	13	54.0 14 24
27. ✓	e e e e	N N E E	13	59	8 14 14 49 25 26 31 21
27. ✓	P i i	Z NE E	15	18	53 54 54
27. ✓	P i e e P:dilatation	Z NE N N	15	53	54.1 54.3 16 01 03 02 15
27. ✓	P i i	Z Z E	18	21	50 52 11
27. ✓	iP NZ, P E i E iP:N,dilatation		19	17	59.9 13 01
27. ✓	P e	Z N	19	53	14 59 50
27. ✓	e	N	20	40	8
27. ✓	P Z, eP i i	NE Z E	23	15	50 53 53
28. ✓	e e	N E	02	32	50 35.2
28. ✓	iP iP:W	NEZ	03	00	22.9
28. ✓	iP dilatation	Z	03	33	43.4
28. ✓	iP i e eL? iP:W,dilatation	NEZ E N N	03	27	12.1 13.6 29 55 31 05
28. ✓	iP EZ, P E eL iP:W,compression	N NE	09	37	05.9 39 35

Date	Phase	Comp.	Time(GMT)		
			h	m	s
28. ✓	P e eL	Z E E	12	26	55
28. ✓	e e	N N	21	10.7	12.1
28. ✓	eL	N	23	35	32.
29. ✓	iP i S eL eL	NEZ NEZ N N E	05	37	32.3 43 42 40.1 40.5
iP:S,W,compression Kurile Is. H=05 34 47 USCGS					
29. ✓	iP	Z	04	58	29.4
28 S., 177 1/2 W. Kamadee Is. region. H=04 48 36 USCGS					
29. ✓	iP i	NEZ NEZ	15	13	46.9 05.0
iP:S,W,compression					
29. ✓	iP eL?	NEZ N	17	44	15.5 55
iP:S,W,compression					
29. ✓	iP iP S	Z NE NE	21	06	50.9 51.1 12
iP:E,dilatation					
29. ✓	e	N	21	38	53
30. ✓	iP iS i	NEZ E N	01	54	06.5 08 10
iP:S,E,dilatation Mag. 5.8 (Matsushiro) 33.0 N., 142.0 E. South of Honshu, Japan. h:40 km ca. J.M.A.					
30. ✓	iP S	NEZ NE	01	56	55.3 57
iP:S,E,dilatation South of Honshu, Japan. J.M.A.					
30. ✓	P eL	E N	08	04	03 58
30. ✓	P i	E E	09	45	16 ca. 03.5
(cont.)					

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued ✓	e eL	N NE	09	51	01 10
50. ✓	P NZ, e	eP E NE	16	23	23 38

December Date	Phase	Comp.	Time(GMT)		
			h	m	s
1.	iP i eS iP:E,compression	EZ N NZ	03	00	28.3 28.6 34
1.	eP? Mag.5.7 (Pasadena) 32.3 N.,115.8 W. H=03 21 17	Z	03	34	02 USCGS
1.	eP? eL	NZ N	03	49	02 ca. 55.6
1.	iP iS iP:S,E,dilatation	NEZ NEZ	05	03	14.1 30.0
1.	P iS P:compression	NEZ NEZ	10	58	35.6 59.6
1.	iP iP:S,W,compression	NEZ	11	47	24.7
1.	P i	Z E	11	57	08 10.6
1.	eP NE, iP Z i i i i eS i iP:compression 44 1/2 N.,150 E. Kurile Is. H=14 15 37	EZ EZ N Z Z E N	14	18	17.7 37.4 19 33.6 35.6 20 18.3 22 29.4
1.	eP N,iP EZ eS iP:W,compression	EZ NEZ	15	57	09.8 23
1.	iP i iS iS iP:E	EZ N EZ N	16	59	00.5 00.7 11.7 12.0
1.	eP e i	Z EZ N	23	18	19 19 06 07.7
2.	P eS L L	NEZ NEZ E N	01	15	04 17 06 47 49
	44 N.,149 E. Kurile Is. H=01 12 22				USCGS

Date	Phase	Comp.	Time(GMT)		
			h	m	s
2.	eP NE, P Z		04	20	21.4
2.	iP iS iP:S,W,dilatation	NEZ NEZ	05	02	04.4 45.4
2.	eL? eL?	E N	07	42	00 ca. 43 20 ca.
2.	eP NE,iP Z i e i eS? iP:dilatation	EZ Z E N	17	10	04.3 07.7 18 28.8 41
2.	eP N, P EZ i i eS P:compression	EZ NZ NEZ EZ	20	16	54.9 55.3 17 06.5 48
2.	iP iP:S,W,dilatation	NEZ	21	23	34.2
3.	iP i iP:E,compression 27 N.,86 E. Nepal. H=02 23 40	EZ E	02	31	53.0 32 41.1
3.	eP? iS E, eS Z	EZ Z	05	14	26 59.4
3.	iP iS iP:S,W,compression	NEZ NE	08	16	24.8 26.9
3.	iP i iS i i iP:N,compression	NZ E E N Z	09	32	06.1 07.1 33 16.4 19.4 21.6
3.	eP i i i iS i iL iL i i	EZ EZ Z E N EZ N E E Z E	09	53	31 32.0 57 23.3 39 41 46 58 30 34 43.3 45.7
	Mag. 5 3/4 (Matsushiro) 29 N.,121 1/2 E. near north coast				(cont.)

P.T.O for 1 day

Date continued	Phase	Comp.	Time(GMT)		
			h	m	s
Near north coast of Luzon, Philippine Is. H=09 48 26 USCGS					
3.	eP i	EZ Z	10	04	31 05 03.7
3.	iP iP iS	Z NE NE	16	02	53.7 54.2 04 23.0
iP:dilatation 29 N., 138 1/2 E. South of Honshu, Japan. h:550 km ca. H=16 00 58 USCGS					
3.	eP eP i i i i e	Z NE Z E Z N E	22	02	04 07 14.3 14.8 20.2 24.2 25
3.	eP i e i i	E E NZ Z E	22	05	25 30 36 37.2 37.7
4.	P N, iP iS N, S E iP:W, compression	EZ E	00	43	52.7 44 12.2
4.	eP e e	EZ NZ N	01	53	41 54 08 18
4.	eP NE, iP i i i iP:compression	Z E NZ Z	02	46	02.8 05.0 08.6 10.1
4.	eP	Z	03	44	59
4.	iP i eS i iL? iP:N,W,compression	NEZ E NZ N N	07	32	25.0 50.5 33 13 15 29
4.	P NE, iP i eS? i iP:dilatation	Z NZ N E	07	38	46.2 47.2 39 33 45

Date continued	Phase	Comp.	Time(GMT)		
			h	m	s
36.3 N., 142.0 E. Honshu, Japan. J.M.A.C.					
4.	P e P:E	NEZ Z	09	49	21 50 05
4.	eP? i eL eL	Z Z N E	12	34	56 35 05.8 44.9 45.5
4.	iP iS iP:W,compression	NEZ NEZ	16	27	04.7 22.3
4.	eP i i e e eL?	NEZ N E N Z N	17	53	07 13.9 27.4 35 17 29 36 18
4.	eSS e eL	N N N	19	55	21 20 05 35 23 03 ca.
Mag. 5 3/4 (Matsushiro) 11 1/2 N., 86 1/2 W. Near coast of Nicaragua. h:100 km ca. H=19 19 23 USCGS					
4.	eP i eS	NEZ NEZ NE	25	26	39 40.8 27 02
5.	P iS P:S,compression	NEZ NEZ	01	57	04.1 31.1
5.	eP	NEZ	06	06	31
5.	eP i i i e i	NEZ Z E NEZ N Z	04	08	29 34.4 34.8 35.6 40 12 17.2
5.	e	NE	05	27	36 ca.
5.	eP NE, iP e i i i i i i iP:dilatation	Z NEZ N N N E Z	07	09	45.1 55 10 04.8 22.3 34.8 42.2 43.0

Date	Phase	Comp.	Time(GMT)		
			h	m	s
5. ✓	i NZ, e E		08	09	10.8
5.	eP	Z	12	02	51
	i	E			43.5
	i	Z			43.9
	i	N			51.5
	e	E			54
	i	Z	03		16.0
	i	N	04		01.7
	i	Z			02.2
5.	iP	NZ	14	57	53.3
	i	E			54.6
	i	Z	58		05.7
	iS	N			46.4
	eS	E			47
	i	Z			51
	iP:N				
5.	iP	Z	15	16	46.9
	eP	NE			48
	iS	NZ	17		21.5
	S	E			21.8
	iP:dilatation				
5.	i	Z	22	04	52.6
	i	NE			53.1
	i	Z	05		30.7
6.	eP	NEZ	08	21	24
	i	NZ			28.0
	i	E			28.4
6.	PKP	Z	09	52	44
	eSKKS?	NE	10	01	31
	SS	N		10	35
	eSS	E			37
	e	E		19	21
	eL	N		23	06
	eL	E		29	25
	eL	N		30	53
	eL	N		35	07
	PKP:compression				
	Mag. 3 - 6 1/4 (Matsushiro)				
	6 1/2 N., 83 W.				
	South of Panama.				
	H=09 53 45				USCGS
6.	iP	NEZ	09	56	56.2
	i	Z		57	13.6
	e	N		58	12
	iP:dilatation				
6.	eP	NEZ	14	38	28
	iS	NEZ			39.5
6.	iP	NEZ	18	16	00.4
	i	NZ			02.9

(cont.)

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued	i	EZ	18	16	07.9
✓	iS?	N			12.5
	iP:S,compression				
6.	iP	Z	20	14	32.7
	i	NE			33.0
	i	Z		15	45.3
	iP:compression				
6.	iP	NEZ	22	56	46.3
	S	N		57	29
	S	EE			51
	i	N			35
	iP:N,W,compression				
	35 N., 141 E.				
	South of Honshu, Japan.				
	H=22 55 45				USCGS
7.	eP	NZ	00	11	55
	e	NE		12	06
	i	Z			08
	e	E		18	03
	e	Z			15
	e	Z			24.5
	54 N., 169 E.				
	Komandorskie Is. region.				
	H=00 06 07				USCGS
7.	iP	NEZ	00	45	52.3
	i	NEZ			53.2
	e	E		48	00
	i	N			03.7
	iP:S,W,compression				
7.	eP NE, iP Z		01	14	08.3
	i	Z			10.2
	i	N			17.8
	i	N			36.6
	iP:dilatation				
	21 1/2 N., 121 E.				
	Off south coast of Formosa.				
	H=01 08 18				USCGS
7.	eP NE, iP Z		01	48	41.6
	i	NE			42.6
	eS	E		52	47
	eL	E		54	34
	iP:compression				
	21 1/2 N., 121 1/2 E.				
	Off south coast of Formosa.				
	H=01 43 51				USCGS
7.	iP	NZ	02	52	39.6
	iPcP	Z		55	12.9
	iL	N	03	02	41
	eL	Z			49 ca.
	iP:W,compression				
	Mag. 5 3/4 - 6 (Matsushiro)				
	4 N., 127 E. Taiwan Is.				
	H=02 45 49				USCGS

Date	Phase	Comp.	Time (GMT)		
			h	m	s
7. ✓	eP NE, iP Z iP:compression		04	57	09.5
7. ✗	eP NE, P Z i Z		05	02	16.9 18.5
7. ✓	eP Z eS NE eL N eL E		06	29	29 35 40 38 34 39
	Mag. 5 1/4 - 5 1/2 (Matsushiro) Bismarck Sea. H=06 21 46 USCGS				
7. ✓	eP EZ eS? N e E eL N		08	56	05 09 00 07 20 02 50
7. ✓	eP Z iS N, eS EZ		10	16	15 56.8
	34.8 N., 134.9 E. Honshu, Japan. J.M.A.				
7. ✓	e N eSP E eSS NE L N eL E		18	21	52 24 45 30 10 39 14 41 40 ca.
	Mag. 5 3/4 - 6 (Matsushiro) 18 N., 105 W. off coast of Mexico. h:100 km ca. H=17 58 08 USCGS				
7. ✓	iP NEZ iP:dilatation		21	59	03.3
7. ✗	e N		22	40	27
8. ✓	P NE, iP Z iP:compression		03	19	42.0 20 37.1
	13 S., 167 E. New Hebrides Is. h:200 km ca. H=03 10 17 USCGS				
8. ✓	eP NEZ i Z		11	41	51 34.8
8. ✓	iP NEZ eS N e E		11	45	03.5 47 17 29
	iP:N,E,dilatation 44 N., 149 E. Kurile Is. H=11 42 10 USCGS				

Date	Phase	Comp.	Time (GMT)		
			h	m	s
8. ✓	iP NEZ i N eS NZ i E e E i N		12	11	11.4 40.3 13 18 28 30 41
	iP:S,W,compression Mag. 5 3/4 (Matsushiro) 44 N., 149 1/2 E. Kurile Is. H=12 08 23 USCGS				
8. ✓	eP EZ i N e E e N i Z		14	30	51 51.3 31 33 38 49.6
9. ✓	eP? EZ i N e N		00	59	51 01 00 16.1 09 29 ca.
9. ✓	eP? NZ		04	01	39
9. ✓	eP NE, iP Z eS NE i Z		07	37	14.2 36 38.4
9. ✓	eP N, iP Z i E i Z e N eS NE eL E eL N		08	09	14.2 16.1 18.0 10 10 16 23 ca. 21 10 34
	iP:compression Mag. 5 - 5 1/4 (Matsushiro) 8 S., 118 E. Flores Sea. H=08 00 30 USCGS				
9. ✓	iP NEZ i E i N ePPP N eS N e E		12	27	42.8 48.2 48.9 31 18 ca. 35 56 36.7
	iP:N,compression Mag. 5 1/4 - 5 1/2 (Matsushiro) 14 1/2 S., 167 E. New Hebrides Is. H=12 17 47 USCGS				
9. ✓	iP NEZ eS NE i Z e Z		18	02	55.1 03 48 51.6 04 23
	iP:S,E,dilatation				
9. ✓	P Z		19	32	25.5

11. e Z 10 04 07
 ✓ Mag. 4.6 (Pasadena)
 37½ N., 125 W.
 Near coast of California.
 H=09 52 16 USCGS

11. eP NZ 15 12 10
 i E 13.1
 i Z 14.8
 i N 15.9
 S Z 15 30
 e N 33
 e N 48
 e E 49

11. iP NZ 15 35 04.3
 iP E 04.7
 S E 36 18
 i N 37 20
 ✓ iP:N,W,compression
 30½ N., 140 E.
 South of Honshu, Japan.
 H=15 35 25 USCGS

11. iP EZ 16 59 49.5
 e Z 17 00 28
 ✓ iP:E,dilatation

11. eP NZ 17 08 46
 X i Z 50.0

11. eP NEZ 18 08 41
 e Z 57

11. iP NEZ 18 39 50.5
 iS E 41 03
 L E 27
 L N 29
 i N 42 02
 ✓ iP:N,W,compression
 Mag. 5.5 (Matsushiro)
 29½ N., 140 E.
 South of Honshu, Japan.
 H=18 38 08 USCGS

12. P Z 05 48 16
 i EZ 17.8
 i N 18.1
 i Z 49 02
 i N 13

12. iP EZ 16 40 16.8
 iP N 17.3
 S N 43
 ✓ iP:N,W,compression

12. iP NEZ 17 52 26.7
 i E 45
 (cont.)

Date continued Phase Comp. Time(GMT)
 h m s
 ✓ i Z 17 52 46
 i E 53 05
 S N 10
 S EZ 11
 i E 22
 i EZ 23
 iP:S,W,dilatation
 34.0 N., 154.9 E.
 Honshu, Japan. J.M.A.

13. X iP N 07 43 26.0
 iP EZ 26.1
 iP:S,E,dilatation

13. ~~W~~ eP? N 09 14 05
 eP Z 06
 e E 08
 e N 21 05
 eL E 24 40
 4½ S., 153½ E.
 Solomon Is. region.
 H= 09 05 55 USCGS

13. ePKP 1 Z 09 27 41
 i EZ 28 00.9
 e N 01
 eL N 10 34.4
 ✓ 55½ S., 22 W. Sandwich Is.
 region.
 H=09 07 30 USCGS

13. iP Z 14 31 18.9
 iP NE 19.0
 eS E 33 39
 L NE 34 00
 ✓ iP:N,E,dilatation
 44½ N., 149 E. Kurile Is.
 H=14 28 33 USCGS

14. X iP NEZ 02 55 31.2
 S Z 37
 S NE 38
 iP:N,W,compression
 Mt. Asama explosion.

14. eP Z 06 10 43
 e N 15 33.
 e E 36

14. ePKP 1 Z 07 30 31
 e N 42 45
 e E 46
 ePPS N 44 17
 e E 45 17
 e N 49 45
 e E 50
 ePPPS E 50 08
 eSSS? E 53 59
 (cont.)

Date	Phase	Comp.	Time (GMT)	h	m	s
continued	eL	N	08 03	27		
	eL	E		59		
	eLr	N	08	31	65	
	eLr	E		39		
	eLr	Z	09	54		
Mag. $6\frac{1}{2}$ - $6\frac{1}{2}$ (Matsushiro)						
35 S., 108 $\frac{1}{2}$ W.						
South Pacific Ocean.						
H=07 11 28 USCGB						
14.	iP	Z	08	18	15.6	
	iP	N			15.7	
	e	Z			51	
	e E, i Z				58	
	i	Z	19	15.1		
	i	E			16.3	
	e	Z			28	
iP:S,compression						
14.	eP	N	08	29	57	
	P	Z			57.4	
	e	Z		36	28	
	e	Z		37	38	
14.	eP?	Z	13	40	19	
	eL	N	14	05	43	
	e	N			14.9	
23 N., 108 W.						
Lower Gulf of California.						
H=13 26 51 USCGB						
14.	eP E, P Z		15	10	08.7	
	i	E			10.8	
	iS	N			44.2	
	i	E			49.3	
	i	N			49.4	
	i	Z			49.7	
14.	iP	NZ	15	23	30.0	
	P	E			30.2	
	iS	Z			33.1	
	iS	N			33.2	
iP:S,compression						
14.	iP	Z	15	50	02.7	
	iP	NE			02.9	
	S	NE			21	
iP:N,W,dilatation						
14.	iP	NEZ	17	53	55.6	
	S	NE		54	39	
iP:S,E,dilatation						
33.1 N., 140.6 E.						
Off south coast of Honshu, Japan.						
h:100 km ca. J.M.A.						
14.	iP NZ, P E		19	02	42.3	
	i	N			50	
(cont.)						

Date	Phase	Comp.	Time (GMT)	h	m	s
continued	i	N	19	03	28.9	
	e	N		05	31	
iP:S,compression						
15.	iP	NEZ	00	19	16.3	
	iS	NZ			42.9	
iP:N,E,compression						
15.	iP	E	02	41	10.4	
	iP	NZ			10.6	
	S	Z			23.8	
iP:N,E						
15.	eP	NZ	05	28	35	
	i	N			36.4	
	i	Z			37.3	
	i	E			37.9	
15.	P N, iP	EZ	11	49	01.5	
	e	Z			50 23	
	eS	Z			51 23	
	eL	E			52 06	
iP:E,dilatation						
44 $\frac{1}{2}$ N., 149 E. Kurile Is.						
H=11 46 20 USCGB						
15.	P	NZ	12	52	31	
31 S., 177 $\frac{1}{2}$ W. Kermadec Is.						
H=12 40 27 USCGB						
15.	iP Z, P E		13	21	37.4	
	i	E			37.7	
	i	N			22 15.8	
iP:compression						
15.	eP	NZ	15	15	56	
	e	E			17 23	
	e	NE			43	
15.	eP	Z	17	01	29	
	eP	NE			30	
15.	P?	Z	18	51	29.1	
	e	N			32	
	e	NE			39	
	e	N		52	19	
	e	N			24	
15.	P	NEZ	19	36	21	
	i	Z			31.7	
	i	Z			38 27	
	i	Z			42	
	eS?	N		40	02	
15.	iP	NZ	19	55	26.3	
	P	E			27	
	i	N			57 37.2	
	e	N	20	03	15	
iP:S,compression						
P:W						

Date	Phase	Comp.	Time(GMT)		
			h	m	s
15.	P?	N	20	04	19.3
✓	i	Z			20.5
	eS	N		06	03
	eL	N		07	10
	eL	E			29
15.	iP	Z	20	23	58.4
✓	iP	E			58.5
	P	N			59
	e	Z	24	33	
	iP:E,dilatation				
15.	iP	EZ	21	24	43.9
✓	iP	N			44.1
	S?	E	25	02	
	iP:S,E,dilatation				
15.	P E, iP Z		21	52	35.4
✓	e	N		53	15
	iP:compression				
16.	iP	NZ	00	19	48.3
X	S	Z			52.8
	S	NEZ			53
	iP:S,compression				
16.	iP	N	02	35	06.4
✓	iP	EZ			06.6
	S	Z		37	18
	iP:S,W,compression				
	44 $\frac{1}{2}$ N., 148 $\frac{1}{2}$ E. Kurile Is.				
	H=02 32 24 USCGS				
16.	eP	Z	03	29	41
✓	i	Z		30	10
	About 450 miles south of Fiji Is.				
	H=03 18 38 USCGS				
16.	iP	Z	03	55	08.4
X	iP	E			08.7
	i	N			09.6
	i	Z			10.1
	i	N			37
	iP:E,compression				
16.	iP	Z	05	20	43.6
✓	e	E		21	58
	e	N		29	51
	e	N		30	49
	iP:dilatation				
16.	iP	Z	07	01	50.8
✓	iP	NE			51.1
	S	NE	02	13	
	iP:S,E,dilatation				
16.	eP	NEZ	07	40	37
✓	i	N		42	44

Date	Phase	Comp.	Time(GMT)		
			h	m	s
16.	P	Z	12	10	52
✓					
16.	e	N	21	47	33
✓					
17.	P E, iP Z		02	34	07.2
	P	N			07.3
	i	N		35	18.6
✓	eS	N		40	42
	eL	N		44	30
	eL	N		46	55
	iP:compression				
	55 N., 162 W.				
	Off coast of Alaska Peninsula.				
	H=02 25 55 USCGS				
17.	iP	Z	03	58	26.0
	iP	NE			26.5
✓	i	N		59	16
	iS	Z			21.0
	iS	NE			21.5
	iP:N,E,compression				
	Mag. 6 (Matsushiro)				
	32.2 N., 158.4 E.				
	South of Honshu, Japan.				
	h:300 km ea. J.N.A.				
17.	P E, iP Z		11	58	19.3
✓	S	N			58.4
	i	E		59	00
	iP:compression				
17.	iP	NEZ	15	37	16.0
✓	e	N		39	27
	eS	NEZ		40	00
	L	N			44
	L	E			45
	iP:N,E,compression				
	27 $\frac{1}{2}$ N., 128 E. Ryukyu Is.				
	H=15 34 08 USCGS				
17.	P	EZ	13	35	16
✓	i	N			41
	e	Z			58
17.	P	NZ	20	41	52
✓	e	N		42	30
	ePP	Z		43	33
	eS	NE		48	09
	eL	E		51	41
	eL	N			44
	4 $\frac{1}{2}$ S., 153 $\frac{1}{2}$ E.				
	New Ireland region.				
	H=20 55 53 USCGS				
18.	iP	Z	00	02	50.2
✓	iP	N			30.3
	iS	NEZ			45.5
	iP:S,compression				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
18.	eP?	Z	05	18	06
	e	Z		20	23
	e	E		23	17
	e	N		24	28
	eL	E		25	28
	eL	N		26	38
18.	iP	Z	05	40	51.8
	iP	E			51.9
	i	E		41	25
	S	Z			29
	S	N			31
	iP:E,dilatation				
18.	eP	Z	07	27	13
	eP	E			14
	i	E			17.2
	i	N			18.6
	i	E			21.2
	i	E		28	29.1
	11 S., 117 $\frac{1}{2}$ E. South of Sumbawa I. H=07 18 05 USCGS				
18.	iP	Z	07	31	33.5
	eP	NE			34
	i	Z			45
	PP	E		32	33.7
	iPcP	Z		35	14.6
	S	E			56
	eL	E		38	20
	eL	N			35
	iP:compression 18 N., 120 $\frac{1}{2}$ E. Near north coast of Luzon, Philippine Is. H=07 28 16 USCGS				
18.	eP?	Z	07	44	40
18.	iP	Z	08	33	51.7
	i	N			53.6
	iP:dilatation				
18.	e	E	13	29	46
	e	E		32	40
	e	E		54	31
18.	iP	E	13	53	25.6
	P N, iP Z				25.8
	S	E			32.1
	iP:E,compression P:N				
18.	e	N	17	22	20
18.	P	Z	18	13	14
	iP	E			14.7
	(cont.)				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued	i	N	18	13	15.3
	S	NE			45.0
	iP:E P:compression				
18.	e	N	18	24	35
18.	e	NE	18	56	45
18.	P N, iP Z		19	35	07.9
	i	N			47.7
	e	N		36	12
	e	Z			43
	S	E		44	15
	S	N			17
	e	N		49	49
	e	E		52	12
	L	N			32
	L	E			34
	eLr	E		56	34
	eLr	Z		57	00
	eLr	N			04
	iP:dilatation Mag. 5 3/4 (Matsushiro) 16 S., 178 W. Tonga Is. region. H=19 23 53 USCGS				
19.	P	Z	00	04	01
	i	NEZ			04.3
	e	N		07	18
	i	E			35
	e	E		09	24
	e	N			29
	e	N		10	40
19.	iP	Z	01	08	05.6
	iP	E			05.7
	i	E			18.9
	iP:W				
19.	iP	EZ	04	31	27.0
	i	N			27.6
	i	Z			37.6
	i	E			38
	i	Z			40.1
	i	N			41
	i	Z			53.3
	S	Z			55.7
	S	NE			56
	iP:W,compression				
19.	iP	NEZ	04	59	51.8
	i	N			53.2
	i	E			53.7
	S	E	05	00	21.1
	i	Z			22.7
	iP:N,W,compression				

Date	Phase	Comp.	Time(GMT)		
			h	m	s
19.	iP	EZ	07	57	18.1
	i	N			14.0
	i	Z			20.8
	i	Z			30.4
	i	Z			46.1
	S	N			52
	i	Z			54.2
	i	Z	58	02	5
	iP:E,dilatation				

19.	P	Z	08	15	59.0
	P	NE			59.2
	S	N		16	32
	i	Z			40

19.	e	N	08	55	26
	e	N		56	36
	e	E			46

19.	ePKP1, ePP1E	Z	12	10	19
	i	Z			22
	e	N			28 46
	e	NE			43 47
	e	N			49 41
	eL	N			51 16
	eL	E			44

19.	eP	Z	11	01	17
	i	Z			29
	e	E			35
	i	Z		02	02.7

19.	iPKP 1	Z	11	34	14.5
	PKP 1	E			15
	i	N			15.3
	ipPKP	Z			50.7
	sPKP 2	E			53
	e	N		40	43
	e	E		56	17
	SS?	N			32
	e	N		59	27
	eL	E	12	22	19
	eL	N		23	27
	PKP:W				
	iPKP:compression				
	Mag. 5 3/4 (Matsushiro)				
	16 S., 72 W. Southern Peru.				
	h:100 km ca.				
	H=11 14 40 USCGS				

19.	P	Z	18	26	42.0
	P	N			42.3
	i	N			44.5
	S	N		27	23.2
	S	Z			24

19.	iP	Z	18	43	14.5
	P	N			15

(cont.)

Date	Phase	Comp.	Time(GMT)		
			h	m	s
continued	i	NEZ	18	43	15.0
	e	E			23
	i	Z			26.4
	PP	Z		44	24
	PP	N			26
	PcP	Z		46	01.4
	S	N		48	44
	eL	E		50	34
	eL	N		51	01
	i	N			33
	L	Z			34
	eL	Z		53	42

iP:compression
 Mag. 5 1/2 - 5 3/4 (Matsushiro)
 51 1/2 N., 177 1/2 W. Andreanof Is.
 H=18 36 23 USCGS

19.	P	Z	19	21	09.9
	iP	E			10.2
	S	NE		22	32
	i	N			33.2
	i	Z			33.7
	iP:W				

20.	iP	Z	00	32	06.0
	iP	N			06.5
	P	E			07
	i	Z			20.5
	S	Z			35.0
	iP:N,compression				

20.	eL	E	00	38	47
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20.	P	E	09	55	28
	iP	Z			28.4
	i	N			31.4
	e	N			58
	iP:dilatation				

20.	P N, iP Z		14	24	55.5
	P	E			56
	i	N			56.3
	iS	N		25	24.5
	S	Z			25
	P:N				
	iP:dilatation				

20.	iP	EZ	18	05	39.5
	P	N			39.9
	i	N			40.4
	e	E		06	16
	i	Z			25
	i	NE			37
	iP:W,compression				

20.	iP	Z	19	23	41.4
	i	E			42.1
	i	N			42.5

(cont.)

Date continued	Phase	Comp.	Time(GMT)		
			h	m	s
	i	Z	19	23	57.1
	i	Z		24	24.8
	eS	E		26	05
	eS	N			07
	L	N			39
	L	E			42
	iL	N	27	13	
	iL	E			14
	L	Z			24
	iP:dilatation 29 1/2 N., 127 1/2 E. Ryukyu Is. region. H=19 20 43 USCGS				
20.	iP N, P Z		20	32	47.8
	i	N			52.2
	i	Z			54
	i	N	33	15	
	iP:N				
20.	eP N, P Z		21	21	43
	eP	E			44
	Sumbawa I. H=21 12 50 USCGS				
20.	iP	Z	21	26	05.7
	P	NE			06
	e	N	29	24	
	e	E	31	33	
	iP:compression				
21.	iP	NEZ	02	39	19.3
	iS	Z			23.8
	iP:N,dilatation				
21.	eP	Z	05	54	30
	i	Z			32.9
	e	NE			33
	i	Z			33.1
	i	N			34.1
	iPP	Z	56	21	
	e	N			39
	i	N			40
	S	N	06	00	57
	S	E			59
	e	N	04	19	
	e	E			29
	eLr 1	NE			07.1
	eLq 2	N			09.7
	eLq 2	E			09.8
	e	NE			11.0
	Mag. 6 1/2 - 6 3/4 (Matsushiro) 41 1/2 N., 81 E. Western Sinkiang Province, China. H=C5 46 26 USCGS				
21.	iP	E	17	36	25.4
	iP	Z			25.6
	(cont.)				

Date continued	Phase	Comp.	Time(GMT)		
			h	m	s
	i	Z	17	36	59
	iP:W,compression				
21.	eP?	Z	18	25	09
	e	NE			34.1
22.	e?	Z	02	25	34
	eLq	E			35.8
	eLr	E			37.8
	Mag. 5 1/2 - 5 1/2 (Matsushiro) 6 S., 155 E. Solomon Is. H=02 17 14 USCGS				
22.	e?	Z	03	54	58.9
	eP	Z			55 05
	e	NE			04
	e	E			29
	e	N			30
	e	Z			31
22.	iP	Z	04	34	54.2
	iP	NE			54.4
	i	NE	35	13	
	iP:N,E,dilatation				
22.	eP	N	10	11	24
	e	Z			27
	e	E			29
	e?	N			37
	e E, i Z				38.3
	eL	E			18.3
22.	e	N	19	43	6
	eL	N	20	03	3
22.	iP	E	21	09	56.9
	iP	NZ			57.0
	i	NZ			58.5
	i	Z	10	51	
	iP:E,compression				
23.	iP	Z	04	55	47.0
	i	E			47.9
	e	N			48
	eS	E	56	07	
	eS	NZ			07.3
	iP:dilatation				
23.	iP	Z	05	34	35.8
	eP	E			36
	eP	N			38
	i	Z			45
	i	N			46
	i	N	35	21	
23.	iP	E	05	54	21.8
	iP	Z			22.0
	iP	N			22.1
	(cont.)				

Date	Phase	Comp.	Time (GMT)		
			h	m	s
continued	i?	Z	05	54	24.3
	i	Z		55	02.8
	e	N			03
	iP:N,W,dilatation				
23.	e	Z	06	46	22
	eSKKS	E		55.4	
	eSKKS	N		55.5	
	eSPSPS	E	07	06.6	
	2 N., 79 W. Near west coast of Colombia. H=06 27 15 USCGS				
23.	iP	NZ	07	12	41.9
	iP	E			42
	e	E		25	46
	e	N		26	56
	eL?	NE			29.6
	iP:E,compression				
23.	iP	NEZ	09	03	15.4
	i	NZ			15.8
	iP:S,E,dilatation				
23.	e	EZ	12	52	15
	e	N			19
23.	iP	NEZ	13	42	51.1
	iS	Z			50
	iP:S,dilatation				
23.	iP	Z	14	01	39.8
	iP	NE			40.1
	i	NE			42.6
	eS	N	02		28
	eS	E			29
	eS	Z			34
	iP:N,E,dilatation				
23.	iP NZ, e E		18	46	17.0
	i	E			18.0
	e?	E			23
	iP:N,dilatation				
23.	e	E	20	13.6	
	e	N			15.8
23.	iP?	NE	23	05	00
	i?	Z			00.2
	i	NEZ			00.7
	i	N			01.0
24.	P	Z	01	21	17.4
	P NE, i Z				19.4
	eL?	N	35	46	
	6 1/2 S., 150 1/2 E. Near south coast of New Britain. h:100 km ca. H=01 13 17 USCGS				

Date	Phase	Comp.	Time (GMT)		
			h	m	s
24.	eP	N	02	38	55
	eP	Z			56
	i	NE			57.2
24.	e	E	10	55	01
	e	N			06
	e	NEZ			20
24.	iP	NEZ	11	16	00.0
	iS	NZ			01.7
24.	eP	N	20	45	25
	eP	EZ			29
	eS	N			53.7
	e?	NE	21	02.1	
	18 S., 169 E. New Hebrides Is. H=20 35 20 USCGS				
25.	iP	NEZ	03	47	29.6
	eS NE, iS Z				43
	iP:S,dilatation				
25.	iP	NEZ	07	30	43.9
	S	NZ			53
	iP:N,compression				
25.	iP	NZ	08	13	40.4
	eP	E			41
	iPP	Z		15	21
	iPcP?	Z			30
	e?	NZ			40
	e?	Z		19	19
	eS N, eS Z				20.1
	i	NEZ			20.40
	e	NE			23.1
	i	Z			23.43
	L	NE			26.1
	iP:N,compression Mag. 6 3/4 (Matsushiro) 5 1/2 S., 151 1/2 E. New Britain. H=08 05 35 USCGS				
25.	eP	EZ	09	18	55.4
	e	N			57
	e	N		22	49
	e	E		23	05
	eL	N		28	23
	51 1/2 N., 175 W. Andreanof Is. H=09 11 46 USCGS				
25.	e?	N	10	38	45
	e	N			47.6
	e	N			51.4
25.	iP	NZ	21	27	25.0
	eP	E			25.5
	i	N			29.0
	i	E			29.2
	e	NEZ		23	49

Date	Phase	Comp.	Time(GMT)		
			h	m	s
26.	eP?	E	04	08	53.9
	i	NZ			54.9
	i	E			55
	e?	Z	09	05	
26.	eP	N	06	01	25
	eP	Z			26
	i	NEZ			27
South of Fiji Is. h:600 km ca. H=05 51 04 USCGS					
26.	eP	Z	09	40	31
	eP?	NE			32
	i	Z			55
	i	N			57
	e	N	41	11	
	e	E			12
	e?	Z			14
26.	iP	Z	10	02	39.5
	iP	NE			40.0
	e?	N			53
iP:N,dilatation					
26.	eP	E	14	16	50
	iP	Z			50.6
	e	N			51
	i	E	17	06.8	
	e	E	18	20.6	
	e	NZ			21
26.	iP	NZ	15	31	37
	iP	E			37.0
	iS	N			39.5
26.	iP	Z	17	01	55.9
	eP	NE	02	00	
	iS	NEZ			13.7
iP:dilatation					
26.	iP	E	21	36	15.5
	eP	NZ			15.7
	i	N			31
	i	Z			31.0
	iS N, i E				35
	iS	E			36
iP:E,dilatation					
26.	iP 1	NEZ	23	29	02.1
	iP 2	NEZ			03
	iS	E			06
iP:S,E Felt: Matsushiro.					
26.	iP	NEZ	23	55	20
iP:S,W,dilatation Felt: Matsushiro.					

Date	Phase	Comp.	Time(GMT)		
			h	m	s
27.	iP	NEZ	00	17	14.1
	iS?	Z			16.0
	iS	N			16.3
iP:S,W					
27.	iP	NEZ	02	29	31.9
	i?	N			34
27.	iP	NEZ	04	15	16.7
	i?	E			16
	i?	Z			18.9
	i	N			19.5
iP:S					
27.	iP	NEZ	05	03	31.4
	iS	NE			34.2
iP:W,dilatation					
27.	iP	NZ	11	52	49.3
	iS	N			51.8
iP:S					
27.	iP	NZ	17	47	23.5
	i	E			29.4
	i	N			42
	i	Z			43
	i	NZ			54
	i	N			56
iP:dilatation					
27.	e	NZ	19	31	44
	i	N			51
28.	iP	E	01	52	57.9
	iP	NZ			58.1
	iS	NE	53	01	
iP:S,W					
28.	iP	Z	02	37	50.2
	i	Z			52.5
	i	Z			53.4
iP:dilatation					
28.	eP	E	04	34	53
	eP	Z			54
	e	N			55
	i	EZ	35	04	
	e	N			05
28.	e E, i Z		05	43	23
	e	N			24
	i	Z			44
	eS?	NE			50
	eL?	N			54.2
	e?	E			55.7
	eL	NE			59.3
	e	NE	06	00.3	
Mag. 6 $\frac{1}{2}$ - 6 $\frac{1}{2}$ (Matsushiro)					

Date continued	Phase	Comp.	Time(GMT)			
			h	m	s	
		29 $\frac{1}{2}$ N., 80 E. Western Nepal-India border. H=05 34 36				USCGS
28.	i e e	Z E N	06	55	53 54 55	
		Fiji Is. region. H=06 44 08				USCGS
28.	iP 1 iP 2 i i i i i iP:S,E,dilatation	NEZ NEZ N NE E E N E	14	27	44.2 45 45.1 57 12 19 29 37	
28.	iP iS iP:S	NEZ N	14	59	49.1 52.0	
28.	iP iS iP:S,dilatation	NEZ N	15	05	31.5 33	
28.	iP iP iS iP:S,E,dilatation	Z NE Z	23	30	12.8 13.1 31	
29.	iP i S i iP:S,dilatation	NEZ Z NZ NZ	00	36	49.8 58 14 38	
29.	e e i e i? i? N, i Z i	Z E N Z N Z	02	07	43 44 44.2 45 08 21 26	
29.	iP iS iP: N	NEZ NEZ	04	15	53.1 55.6	
29.	iP iP iS iS	EZ N EZ N	08	05	22.5 22.7 25.0 25.2	
29.	iP NZ, i	eP E NZ	21	05	04.5 07.5	

Date continued	Phase	Comp.	Time(GMT)			
			h	m	s	
		21 05 58.0 58.5 iP:compression				
29.	eP e ePcP? i eS eLq eL	EZ Z Z Z NE NE NE	22	47	18 52 43 38 52 20 54.2 59.0 01.9	
		Mag. 5 $\frac{1}{2}$ (Matsushiro) 2 $\frac{1}{2}$ N., 99 E. Northern Sumatra. H=22 38 22				USCGS
30.	iP eP iS iS	EZ N EZ N	00	10	28.9 29 32 32.1	
30.	eP i e i i iS	Z N EZ E E Z	06	53	32 33.4 34 35.9 36.4 37	
30.	e e e	NEZ E N	07	33	22 27 30	
30.	e e ePSPS eLq e	Z Z NE NE N	08	57	11 14 09 16 40 30.8 40.9	
		Mag. 5 $\frac{3}{4}$ - 6 (Matsushiro) 55 $\frac{1}{2}$ S., 105 $\frac{1}{2}$ W. South Pacific Ocean. H=08 37 56				USCGS
30.	e E, i Z eS? e eL?	Z NE N E	10	38	10.0 33.3 36 38 09	
30.	iP iP e e	Z NE N Z	12	32	29.9 30.2 47 48	
		iP:N,dilatation				
30.	iP iS	NEZ E	12	54	28.7 29	
30.	e e	Z Z	16	17	59 13 44	

Date	Phase	Comp.	Time(GMT)			Date	Phase	Comp.	Time(GMT)		
continued			h	m	s	continued			h	m	s
	eL	N	15	25	44		eS?	E	10	37	23
	eL	E			49		i	Z			27
30.	i	Z	16	16	48.5		e	N			16
	i	N			48.9		eL	NE		38.5	
	i	E			49.0		iP:compression				
							46 $\frac{1}{2}$ N., 154 E.				Kurile Is.
							h:100 km ca.				
							H=10 30 49				USCGS
30.	e	NEZ	17	05	56.1	31.	iP	EZ	19	02	55
	i	E			57.8		iS	EZ			57.1
	i	N			58.0		iS	N			58
30.	iP	Z	17	06	58						
	iP	E			58.3						
	iP	N			58.6						
	iS	N		07	01.0						
30.	iP	NEZ	22	51	44.8						
	iS	N			47.3						
	iS	Z			47.5						
	iP:S,dilatation										
30.	iP	Z	23	29	50.0						
	iS	NZ			52.6						
	iP:dilatation										
31.	iP	EZ	01	56	38.1						
	iP	N			38.2						
	iP	Z		58	04.8						
	iP	E			05.4						
	iP	N			06.3						
	iP:S,E,dilatation										
	23 S., 178 $\frac{1}{2}$ W. Tonga Is. region.										
	h:400 km ca.										
	H=01 45 52										USCGS
31.	iP	NEZ	02	17	01.8						
	iS	N			04.1						
	iP:S										Takeshi Honda
31.	iP	EZ	02	31	28.2						
	iP	N			28.3						
	e?	N			52						
	iP:N,dilatation										Director
31.	iP	N	03	43	13						
	iP	Z			13.4						
	iS	N			21						
	i	Z			27						
	iP:compression										
31.	iP	NE	07	12	56.3						
	iP	Z			56.4						
	i	N			57.0						
	iP:S										
31.	iP	NE	10	34	23.8						
	iP	Z			24.0						
	i	Z			25						

(cont.)