ROYAL OBSERVATORY
29 JUL 1955
EDINBURGH

CALIFORNIA INSTITUTE OF TECHNOLOGY

PASADENA, CALIFORNIA

SEISMOLOGICAL LABORATORY

BULLETIN

1954

(Pasadena and Auxiliary Stations)

PERMANENT STATIONS, 1954

Station	Lat.N.	Long.W.	h	Symbol	Ground
Pasadena	34°08.9'	118°10.3'	295m	P, PX	Granitic rock
Mt. Wilson	34 13.4	118 03.5	1730	MW	Granitic rock
Riverside	33 59.6	117 22.5	260	R	Granitic rock
Palomar	33 21.2	116 51.7	1690	Pr	Granitic rock
Barrett	32 40.8	116 40.3	520	Bt	Granitic rock
Sta. Barbara	34 26.5	119 42.8	90	SB	Alluvial with boulders
Woody	35 42.0	118 50.8	490	W	Granitic rock
Isabella	35 38.6	118 28.6	760	Is	Granitic rock
China Lake	35 49.0	117 35.8	766	CL	Granitic with intrusions
Haiwee	36 08.2	117 56.8	1150	H	Tuff
Tinemaha	37 03.3	118 13.7	1195	T	Basalt
Big Bear	34 14.3	116 54.8	2060	BB	
Dalton	34 10.2	117 48.6	523	D	Granitic rock
Fort Tejon	34 52.4	118 53.6	990	FT	
King Ranch	35 19.6	119 44.7	680	Kg	

China Lake station was out of service after September 8.
Isabella station was installed on January 6, 1954.

All measurement and interpretation of seismograms is done at the central station, to which all communications should be addressed, as follows: Seismological Laboratory, 220 North San Rafael Avenue, Pasadena 2, California.

Components are indicated as N, E, Z; where no such letter appears the reading is for Z alone.

Instruments for 1954 were as follows:

Short-period Benioff Z	One at each station
Short-period Wood-Anderson N,E	P,R,SB,H,T
Short-period Wood-Anderson E	W
Long-period Wood-Anderson	P
Short-period Benioff N,E	P,Pr,Bt,CL
Long-period Benioff Z	P,R,Bt,CL,T
Long-period Benioff N,E	P,Bt,T
Other special and experimental instruments	P,Pr

PX = readings from long-period instruments at Pasadena. c = compression, d = dilatation. When surface waves are not reported for Pasadena they are not found or are small. Columns headed A and T refer to maximum amplitude (microns) of computed earth displacement, and period (seconds), of the indicated phase and component. H designates combined amplitude of N and E.

All times are G.C.T. Times are not reported for SB,Is,H,BB,D,FT or Kg unless of exceptional interest or when other records are defective. Times are normally given for P or MW, but not both.

Earthquakes in Southern California are reported only if of magnitude 5 or over, unless they are of special interest.

Date	Sta.	Phase	h m s	
January				
1	Bt	e	00 47 07	
	W	iP!	46 47	c
	CL	iP	50	c
	T	e(P)	45	
1	P	i(P)	02 33 07	
	R	e	09	
	Pr	iP	09	c
	Bt	eP	07	
	W	iP	09	
		e	34 01	
	CL	iP	33 14	c
	T	iP	16	c
1	P	iP"	13 23 00	
		ipP"	25	
		iSKPNZ!	26 28	
		i	37	
		eSKSNE	29 49	
		ePKKP	33 29	
	PX	eLEZ	14 00.1	
			A T	
		MH	1¼ 20	
	R	iP"	13 23 01	
		iSKP	26 29	
	Pr	iP"	23 32	
		iSKP	26 30	
		ePKKP	33 23	
	Bt	iP"	23 02	
		ipP"	27	
		iSKP	26 30	
		ePKKP	33 13	
		eSKKP	36 49	
	W	iP"	22 58	
		ipP"	23 16	
		iSKP	26 26	
	CL	iP"	22 59	
		ipP"	23 24	
		iSKP	26 28	
		i	27 05	
		ePKKP	32 41	
		e	33 23	
	T	iP"EZ	22 58	
		epP"NZ	23 23	
		eSKP	26 27	
		ePKKP	32 14	
		e	33 18	
	Magnitude 6½±			
	USCGS: 8½ S 124 E			
	13:04:17, 100 km			
1	Pr	eP	13 44 44	
	Bt	eP	48	
	W	iP	22	c
	CL	eP	30	
		e	40	
	T	eP	32	
1	P	e	17 18 23	
	Bt	e	40	
	CL	e	07	
1	Pr	iP	20 36 26	
		i	48	
		i	37 02	
	Bt	e	36 54	
	W	e	48	
	CL	e	43	
	Tacubaya: 15° 30' N			
	93° 40' W; 20:30:48			

Date	Sta.	Phase	h m s	
January				
2	Pr	iP	11 20 25	
	W	iP	24	c
	CL	iP	29	c
	T	iP	31	
2	MW	e(P)	14 03 59	
	Pr	e	06 30	
	Bt	e(P)	03 53	
	W	i(P)	38	
		i	04 08	
	CL	e(P)	03 44	
		e	53	
		e	06 28	
	T	e	03 36	
		e	06 29	
	USCGS: 43 N 147 E;			
	13:52:27			
	CMO: 42 N 146½E;			
	13:52 - , 40-50 km			
2	P	e	20 24 45	
		eNEZ	53	
	R	e	46	
	Pr	e(P)	59	
		i	25 05	
		i	29	
	Bt	e(P)	03	
		i	10	
		i	20	
	CL	e(P)	24 41	
		i	51	
	T	e(P)	31	
		i	41	
	USCGS: 54 N 165 W;			
	20:17:25			
2	MW	e	21 44 19	
	Pr	e	08	
		e	19	
	W	e	24	
	CL	e	23	
	T	e	31	
3	P	eP	17 41 56	
	Pr	eP	42 06	
	CL	iP	41 53	
	T	eP	47	
	CMO: 43.1 N 144.9 E;			
	17:30:45, 100 km			
4	P	e(P)	11 24 05	
		eN	13	
		eNZ	35	
	Pr	iP	23 53	
		i	24 01	
		e	26 14	
	Bt	iP	23 50	
	W	iP	24 13	
		i	26 11	
	CL	iP	24 10	
	T	eP	19	
		e	26	
	BCIS: 8¾ N 84 W;			
	11:16:30			
4	P	eP"	12 28 09	
		iP"	18	
	Pr	eP"	18	
		iP"	21	
		i	24	
	Bt	eP"	07	

(continued)

Date	Sta.	Phase	h	m	s
January (continued)					
4	W	iP"	12	28	12
		iP			23
	CL	iP"			11
		i			26
	T	e			18
		e			28
	BCIS: 52¼ S 8 E;				
	12:08:53				
5	R	i(P)	02	00	51
	Bt	i(P)			48
	CL	i(P)			53
	T	e(P)			56
5	MW	e	02	30	05
	R	e			09
	CL	e			00
	T	e		29	52
5	CL	e	03	09	43
	T	e			38
5	R	e	03	29	24
		e			35
	CL	e			16
	T	e			09
	CMO: 42¼ N 145½ E;				
	03:17 - , 40-60 km				
	USCGS: 43 N 147 E;				
	03:18:00				
5	P	eP	07	28	55
	CL	eP			45
	T	eP			32
	USCGS: 76 N 6 E;				
	07:18:10				
6	P	eP	16	04	39
		i			43
		e		07	05
	R	eP		04	37
	Pr	iP			42
		i			47
		eP'P'		33	36
	Bt	eP		04	46
		i			51
	CL	iP			27
		i			32
		iP'P'		33	37
	T	eP		04	20
		i			26
	USCGS: 76 N 7 E;				
	15:53:59				
7	P	iP	04	20	57 d
	R	iP			57 d
	Bt	iP			57 d
	W	iP			57 d
		i		22	04
	CL	iP		21	02 d
	T	eP			05
	USCGS: 25 S 179½ E;				
	04:05:24				
7	P	eP	07	01	15
	PX	eSE		10	57
		eLZ		22	.5
	R	eP		01	17
	Bt	e			33
	W	eP			15
		i			24
	CL	eP			23
	T	e			37
	USCGS: 06:48:50				
	Wellington: 16 S 175 W;				
	06:49.7				

Date	Sta.	Phase	h	m	s
January					
7	W	iP	18	28	16
	CL	iP			17
8	R	eP	04	25	37
	W	eP			27
	CL	iP			31
	T	eP			25
	CMO: 39.8 N 141.8 E;				
	04:13:57, 100 km				
8	MW	e(P)	13	18	41
	CL	e(P)			37
	T	e(P)			30
9	MW	i(P)	00	40	46
	R	i(P)			42
	CL	i(P)			50
	T	i(P)			58
	BCIS: 37 S 70 W; 00:28.2				
9	P	iPNEZ	01	51	23
	R	iP			18
	Pr	iP			12
	CL	iP			28
		i			43
	T	iP			36
	BCIS: 5¼ N 82½ W;				
	01:43:16				
9	CL	eP	08	18	31
	Off Japan				
10	CL	eP	07	41	47
		e		43	51
10	P	eP	20	20	06
	Pr	iP		19	59
	Bt	iP			55
	CL	iP		20	10
	South America				
11	MW	e	07	22	39
	R	e			41
	Pr	i			42
		i			57
	CL	e			51
11	MW	eP	09	40	30
	R	iP			30
	Pr	iP			30
		i			42
11	MW	e(P)	13	44	19
	Bt	e(P)			36
	CL	eP			02
		i			12
	BCIS: Kurile Is.				
	13:32.9				
12	PX	iPP	14	39	11
		iSKSNE		45	34
		ePSNE		48	37
		iPPSNE		49	33
		iSSNE		55	.0
		eGNE	15	04	.7
		eR		08	.6
				A	T
		PPZ		2½	8
		SKSH		9	10
		MH		25	18
		MZ		25	17
	CL	ePP	14	39	22
	Magnitude 6¾±				
	USCGS: 49 S 165 E;				
	14:20:26				
12	P	eP	23	28	49
	Tacubaya: 16°37' N				
	99°27' W; 23:23:14				

Date	Sta.	Phase	h	m	s
January					
12	P	iPNEZ:	23	34	08.4 c
		iSN			24.0
	MW	iP!			08.3
	R	iPNEZ			17.3
	SB	iPNEZ!			03.0
	CL	iP!			14.1 c
	H	iPNEZ			14.8 d
	T	iPNEZ			25.2 d
	FT	iP!		33	52.4
	KgR	iP!		34	00.8 c
	Is	iP			03.2
	Magnitude 5.9. 35° 00' N				
	119° 01' W; 23:33:48.6				
	Epicenter nearly identical				
	with that of the major earth-				
	quake of July 21, 1952. Felt				
	over a large area in Calif.,				
	from Sacramento to San Diego.				
	Intensity VIII M.M. near the				
	epicenter.				
13	PX	ePP	00	31	53
		eSKSNE		38	.3
		iPSNE		41	23
		iPPSNE		42	.3
		eSSNE		47	.2
		eGNE		57	.5
				A	T
		PPZ		5	14
		SKSH		8	12
		MH		60	18
	CL	ePP	00	32	07
	T	ePP			11
	Pasadena: Magnitude 7,				
	48½ S 165½ E; 00:13:10				
14	MW	eP	15	19	27
	Bt	eP			10
	W	iP			28
	CL	iP			32
	T	e			37
	BCIS: 7½ S 84 W;				
	15:09.7				
14	P	eP	19	45	05
		ipP			16
	Bt	eP			22
		ipP			32
	W	iP		44	53
		ipP		45	04
		i			10
	CL	iP		44	59
		ipP		45	10
	T	iP		44	49
		ipP		45	01
	USCGS: 19:37:38				
	Aleutian Islands				
15	P	ePNZ	03	36	39
	R	eP			40
	Bt	eP			39
	W	iP			42
	CL	iP			47
	T	iP			48
	BCIS: 30 S 178 W;				
	03:24:02				
	Wellington: 30 S 180				
	03:24.4				
15	W	iP	19	27	54 d
	CL	iP			58
	T	iP			55

Date	Sta.	Phase	h	m	s
January					
15	P	iPNEZ	23	42	18 c
		ePP		45	17
	PX	eLNZ	24	04	.0
	R	iP	23	42	22 c
	Bt	iP			20 c
		i			34
		ePP		44	21
	W	iP!		42	21 c
		i			36
	CL	iP			24 c
		i			40
		i		43	24
		ePP		45	11
	T	iP		42	29 c
		i			48
	USCGS: 19½ S 174 W;				
	23:30:32				
16	W	eP	05	45	21
	CL	eP			15
	T	e(P)			24
16	Bt	eP	14	25	10
	W	iP		24	54
	CL	eP			59
16	P	iPEZ	22	49	29
	PX	e(S)EZ		52	53
		iNE			59
		eL		54	.3
	R	eP		49	35
	Bt	iP			52
	W	eP			08
	CL	iP			15
		i(S)		52	11
	T	iPNZ		48	59
		e		51	53
	USCGS: 49 N 129½ W;				
	22:45:27				
17	P	eP	03	15	08
		e			17
	PX	eL		45	.3
	R	eP		15	10
	Bt	eP			13
	W	eP			07
	CL	iP			14
	T	eP			18
	USCGS: Tonga Is. 03:03:20				
	Apia: 24 S 177 W; 03:03.1				
17	P	eP	03	16	07
	R	eP			08
	Bt	eP			14
	W	iP		15	56
	CL	eP		16	02
	T	eP		15	54
	CMO: 33½ N 141¾ E;				
	03:04:08, 40 km				
17	P	iPEZ	11	58	13
	R	iP			16
	Bt	iP			23 c
	W	iP			05 c
	CL	iP			09
		i			36
	T	iP			04
	CMO: 36.1 N 140.1 E;				
	11:46:12, 70 km				

Date	Sta.	Phase	h	m	s	
January						
17	P	eP'	17	59	26	
		i			32	
		i			39	
	PX	eL	19	07	.8	
	R	eP'	17	59	25	
		i			32	
		i			38	
	Bt	i	17	59	31	
		i			39	
	W	eP'			26	
		i			30	
		i!			32	
		i			39	
	CL	iP'			24	
		i!			28	
		i			35	
	T	eP'			24	
		i			36	
	USCGS: 16½ S 36 E;					
	17:39:33					
17	P	iP	20	52	12	c
		ipP			36	
	R	iP	20	52	16	c
		ipP			40	
	Bt	iP			26	c
		ipP			49	
	W	iP!			01	c
		ipP!			24	
		iScP		58	15	
	CL	iP		52	07	c
		ipP			30	
	T	iP		51	57	c
		ipP		52	21	
	Depth 100± km.					
	USCGS: 52 N 178½ E;					
	20:43:43 150 km					
17	MW	e(P)	23	25	41	
	R	i(P)			43	
	Bt	i(P)			48	
17	P	iPNEZ	23	33	01	
		e			27	
	R	iP		32	57	d
		i		33	23	
	Bt	iP		32	49	
		e		33	02	
		i			15	
	W	iP			09	
	T	iP			13	
		i			39	
	BCIS: Bolivia, Peru;					
	23:22.3, 100 km					
18	MW	eP	08	21	50	
		e			54	
	W	iP			54	
	BCIS: 08:10.1					
	Tonga Region					
18	P	iP	09	52	41	
	R	iP			45	
	Bt	iP			45	c
	W	iP			43	c
	T	iP			49	c
	New Hebrides					
	USCGS: 09:39:58					

Date	Sta.	Phase	h	m	s	
January						
18	MW	eP"	11	05	45	
		ePP		06	24	
	Bt	iP"		05	48	
		ePP		06	32	
	W	iP"		05	43	
	T	iP"			43	
		ePP		06	26	
	BCIS: 6½ S 130 E;					
	10:47:08					
18	W	i(P)	11	16	51	
	PKKP of preceding?					
18	P	iP	14	55	17	
	R	iP			20	
	Bt	iP			31	
	W	iP!			07	c
	T	iP			04	c
	USCGS: 52½ N 159 E;					
	14:45:10					
18	R	i	14	57	38	
	W	iP			06	
		i			27	
	T	e			07	
		i			29	
	CMO: 33.9 N 141.4 E;					
	14:45:13, 40 km					
19	R	eP	09	16	34	
		i			38	
	W	iP			12	
	CL	e			15	
	T	eP			10	
	BCIS: 49¼ N 153½ E;					
	09:05:51					
19	R	eP	21	28	13	
		i			23	
	W	iP			11	
		i			20	
	CL	iP			18	
		i			26	
	T	eP			21	
	USCGS: 14 S 175½ W;					
	21:16:40					
20	P	iPNZ	04	22	34	
	PX	eLNE		27	03	
			A		T	
		MH	40		18	
	R	eP	04	22	28	
		i			44	
	Bt	iP			16	
	W	iP			47	
	CL	iP			43	
	T	iPNZ			53	
	Magnitude 6					
	USCGS: 8½ N 103½ W;					
	04:16:25					
20	CL	e(P)	08	57	38	
	T	e(P)			33	
	Near Apia					
20	P	iPNEZ	14	01	55	
		i		02	12	
		i			45	
	R	eP		01	57	
		i		02	49	

(continued)

Date	Sta.	Phase	h	m	s	
January (continued)						
20	CL	iP	14	02	02	
		i			49	
	T	iPNZ			05	
		i			21	
		i			55	
		eSN		11	54	
	USCGS: 21 S 176½ W;					
	13:50:14, 200 km					
20	P	iP	14	51	07	c
	R	iP			08	c
	CL	iP		50	57	c
	T	iP			48	c
21	R	e	09	24	01	
	CL	i			18	
	T	e			40	
21	MW	iP	23	35	22	
	Bt	eP			28	
	W	iP			25	
		ipP		37	24	
	CL	iP		35	23	
		ipP		37	22	
	T	iP		35	32	
	USCGS: 23:24:26, 600 km					
22	MW	e	06	00	58	
	R	e			54	
	W	i(P)			03	
		i		01	05	
	CL	e(P)		00	08	
	T	e(P)			05	
		e		01	09	
22	PX	eL	11	37	.5	
	MW	eP		23	15	
		e			24	
	R	eP			20	
	W	iP			01	c
		i			10	
	CL	iP			09	c
		i			31	
	T	eP		22	59	
	USCGS: 54 N 163 W;					
	11:16:07, 60 km					
22	P	eP	11	52	30	
		e			50	
	R	eP			33	
	W	i			24	
	CL	e			32	
		i			54	
	T	e			40	
	USCGS: 6 S 151½ E;					
	11:39:09					
22	P	iPNEZ	21	35	45	
		ipP		36	09	
		e		39	33	
	R	iP		35	48	
		ipP		36	13	
	W	iP		35	46	d
		ipP		36	11	
		i		39	13	
	CL	iP		35	50	d
		ipP		36	14	
		i		39	45	
	T	iPNZ		35	52	
		iNZ		36	17	
	USCGS: 20 S 169 E;					
	21:23:04					

Date	Sta.	Phase	h	m	s	
January						
23	P	eP	11	47	56	
		e		48	14	
	R	e		47	56	
	W	iP			57	
		i		48	18	
	CL	eP			02	
	T	eP			06	
25	R	eP	12	16	51	
	W	iP			45	
	CL	iP			51	
	T	iP			47	
25	MW	e	16	14	25	
	W	iP			13	
	CL	iP			09	
	T	eP			09	
	BCIS: 33 N 40¼ W;					
	16:03:42					
25	W	iP	19	31	08	
	CL	eP			03	
	T	eP			06	
	Aftershock BCIS: 19:20:35					
26	P	e(P)	08	14	12	
	R	e(P)			15	
	W	iP			01	
	CL	eP			05	
	T	e			05	
	Near Rabaul.					
	Foreshock of next.					
26	P	eP	09	12	17	
	R	iP			19	
	W	iP			15	
		i			22	
	CL	iP			20	
	T	eP			19	
	USCGS: 6½ S 152 E;					
	08:58:59					
26	P	e(P)	14	11	26	
	PX	eL		35	.4	
	R	eP		11	21	
		e			38	
	W	iP			26	
	CL	e			32	
	T	e			30	
	BCIS: 18½ S 173¾ W;					
	13:59:46					
27	MW	e	02	03	38	
		e			46	
	W	e			10	
	CL	e			25	
	T	e			31	
27	P	e	02	29	43	
	R	e			21	
	W	i(P)			21	
		i			32	
	CL	i(P)			25	
	T	i(P)			27	
	BCIS: Tonga Region					
	02:17.7					
27	P	iPNEZ	02	53	46	
	R	eP			49	
	Bt	eP			48	
		e	03	15	15	
	W	iP	02	53	50	
	CL	iP			53	
		e	03	15	05	

(continued)

Date	Sta.	Phase	h m s	
January (continued)				
27	T	iP	02 53 56	
		e	03 14 50	
	BCIS: 02:42.2 Tonga Region			
27	P	eP	10 36 52	
		e	37 03	
	R	iP	36 58	
	Bt	iP	37 10	d
	W	iP	36 40	d
		i	58	
	CL	iP	44	d
	T	iP	35	
	USCGS: 56½ N 157 W;			
	10:30:00			
27	P	iPNEZ!	14 20 06.8	d
		iSE	21.6	
	SB	iPNEZ!	09.4	
		iSNE	25.0	
	CL	iPNEZ!	07.2	
	H	iPEZ	09.4	d
		iSN	26.3	
	T	iPNEZ	22.3	d
	FT	iP!	19 54.7	
	W	iPEZ!	59.4	d
	Is	iP	57.6	
	Magnitude 5.0			
	35° 09' N 118° 38' W;			
	14:19:48.0			
	Felt sharply at Tehachapi;			
	Perceptible to distances of			
	about 120 km.			
27	P	iPNEZ	18 21 24	
		e	41	
	R	iPNEZ	18	d
		i	30	
	Bt	iP	03	d
		i	22	
	W	iP	38	d
		i	22 11	
	CL	iP	21 31	d
	T	iPNEZ	43	d
		i	22 05	
	Tacubaya: 16° 47' N			
	99° 53' W			
	USCGS: 18:16:07, 60 km			
28	P	iPNEZ	11 19 42	d
	R	iP	50	d
	Pr	iP	46	
	Bt	iP	58	
	CL	iP	48	d
	T	eP	49	
28	P	iPEZ	22 20 10	
		i	19	
		e	21 33	
		i	49	
	PX	eSNE	24 29	
	Weak surface waves recorded			
	R	iP	22 20 05	
	Pr	iP	19 58	
	Bt	iP	53	
		i	20 04	
	W	iP	25	
		i	38	

(continued)

Date	Sta.	Phase	h m s	
January (continued)				
28	CL	iP	22 20 20	
		i	28	
	T	iPNEZ	31	
	Tacubaya: 16° 32' N			
	99° 43' W			
	USCGS: 22:14:54, 60 km			
29	W	eP	01 48 01	
	CL	eP	04	
	T	eP	09	
29	P	iPNEZ	08 13 03	c
		i	38	
		i	56	
		eSNE	23 40	
	R	iP	13 05	
		i	43	
	Pr	iP	08	
		i	46	
	Bt	iP	12	
	W	iP	01	c
		i	38	
		i	54	
	CL	iP	06	c
		i	44	
	T	iP	06	
		i	36	
	USCGS: 8½ S 159 E;			
	08:00:14, 100 km			
29	R	e(P)	10 55 05	
	Pr	i(P)	03	
	W	e(P)	12	
		e	17	
	CL	e	16	
		e	32	
	T	e	11	
	BCIS: 13 N 45 W;			
	10:44:00			
29	P	iPNZ	21 12 21	d
	R	iP	16	d
	Pr	iP	14	
	Bt	iP	15	d
	W	iP	29	d
	CL	eP	25	
	T	iP	32	
30	P	e	18 35 00	
	Pr	eP	09	
		i	26	
		e	37 42	
	Bt	e	35 13	
	W	iP	34 46	
		i	35 04	
		i	37 52	
	CL	eP	34 51	
		i	35 05	
	T	e	34 44	
	USCGS: 54 N 163 W;			
	18:27:44			
30	P	e	23 36 09	
	R	e	05	
	Pr	eP	06	
	Bt	e	03	
	W	eP	02	
		i	08	

(continued)

Date	Sta.	Phase	h m s	
January (continued)				
30	CL	eP	23 36 08	
		i	12	
	T	eP	09	
	BCIS: Fiji Region;			
	23:23.3			
31	R	e	03 33 56	
	W	e	34 02	
31	P	ePEZ	11 53 32	
	PX	eLZ	12 26.6	
	R	eP	11 53 35	
	Bt	e	32	
	W	iP	20	
	CL	eP	25	
		i	29	
	T	eP	18	
	USCGS: 52 N 160 E;			
	11:43:47			
31	P	iPNEZ	14 14 26	
	R	iP	29	
	Pr	iP	27	
		i!	29	
	Bt	iP	27	
	W	iP	27	
		ipP	16 37	
	CL	iP	14 31	
		i!	33	
		epP	16 40	
	T	iP	14 35	
	USCGS: 52 N 160 E;			
	11:43:27			
February				
1	P	e(pP)EZ	00 44 16	
	Pr	eP	43 14	
		i(pP)	44 17	
	Bt	e(pP)	21	
	CL	eP	43 18	
		i(pP)	44 23	
	T	i(pP)	27	
	USCGS: 00:32:00, 300 km			
	Fiji Islands			
1	P	iPNEZ	01 19 21	d
		i	25	
		i	48	
	PX	ePPN	22 48	
		e(S)N	29 45	
		i(S)E	30 02	
		i(SP)N	08	
		eSSNE	35.1	
		eGN	41.0	
		iREZ	44.2	
	P	eP'P'	45 44	
		iSKPP'	49 02	
		eP'P'P'	02 06 12	
			A T	
		PZ	4½ 2	
		PH	3½ 4	
		PPH	1½ 5	
		MH	70 20	
		MZ	100 20	
	R	iP	01 19 24	d
		iPP	22 50	
		eP'P'	45 48±	
		iSKPP'	49 00	
		eP'P'P'	02 06 11	

(continued)

Date	Sta.	Phase	h m s	
February (continued)				
1	Pr	iP!	01 19 27	d
		iP'P'	45 51	
		iP'P'P'	02 06 14	
	Bt	iP	01 19 30	d
	W	iPEZ!	15	d
		i	50	
		eP'P'	45 40	
		i	55	
		iSKPP'	49 14	
		eP'P'P'	02 05 59	
		i	06 09	
	CL	iP!	01 19 20	d
		iP'P'	45 46	
		iP'P'P'	02 06 04	
	T	iPNEZ	01 19 15	d
		eSKPP'	49 05	
		eP'P'P'	02 06 06	
	Volcano Islands			
	Pasadena: 24¼ N 143¾ E;			
	01:06:54, 50 km±,			
	Magnitude 7.1			
1	P	iP	01 32 40	d
	R	iP	43	d
	Pr	iP	46	d
	Bt	iP	29	d
	W	iP!	34	d
	CL	iP!	39	d
	T	iP	33	d
	Aftershock of preceding			
	USCGS: 01:20:07			
1	P	iP	02 35 41	
	R	iP	48	
	Pr	iP	52	
	Bt	iP	55	
	W	iP	40	d
	CL	iP	44	d
	T	iP	41	
	Aftershock, USCGS: 02:23:13			
1	W	iP	03 20 47	
	CL	iP	52	
1	P	iP	04 15 44	
	R	iP	46	
	Bt	iP	53	
	W	iP	37	d
	CL	iP	42	d
	T	iP	39	
	Aftershock of 01 h			
	USCGS: 04:03:11			
1	P	eP	04 24 42	
		iS	25 26	
	R	iP	24 33	
		iSNE	25 08	
	Pr	iPNEZ!	24 23	
	Bt	iP	18	
		iS	34	
	Magnitude 5.2			
	32.3 N 115.3 W; 04:23:57			
	Felt in Imperial Valley			
1	P	iP	04 32 46	
		i	54	
		iSNE	33 31	
	R	iPNEZ	32 38	d
		iSNE	33 14	
	Pr	iP!	32 28	
	Bt	iP	23	

(continued)

February (continued)

Date	Sta.	Phase	h	m	s	
1	W	eP	04	33	07	
	T	eP			20	
	Magnitude 5.6					
	32.3 N 115.3 W; 04:32:02					
	Felt in Imperial Valley					
	and at San Diego					
1	MW	eP	06	33	31	
	R	eP			33	
	Pr	eP			38	
	Bt	iP			40	
	W	iP			24	
	CL	iP			28	
	T	iP			25	
	USCGS: Volcano Islands,					
	06:20:57					
1	R	eP	05	59	17	
	Bt	iP			23	
	W	iP			08	d
	CL	iP			13	
	T	eP			09	
	USCGS: Volcano Islands,					
	24 N 142½ E; 05:46:41					
1	P	iPNZ	08	28	18	
	R	eP			20	
	Pr	iP			20	d
	W	iP			21	d
	CL	iP			25	d
	T	eP			26	
	USCGS: 08:15:40					
	Wellington: 28 S 180					
	08:15.7					
1	P	eP	13	06	15	
	R	iP			07	
		iSNE			42	
	Pr	iP!			57	
	Bt	iP		05	50	
	Magnitude 5.1					
	32.3 N 115.3 W; 13:05:29					
	Felt in Imperial Valley					
1	MW	e	14	10	47	
	R	e			47	
	W	eP			35	
	CL	eP			35	
	T	eP			29	
	USCGS: Northeast of					
	Greenland, 14:00:44					
1	MW	e(P)	15	56	04	
	R	e(P)			02	
	Pr	e			04	
	Bt	eP			11	
	W	eP		55	50	
	CL	eP			51	
	T	eP			43	
	USCGS: Northeast of					
	Greenland, 15:46:00					
2	Pr	e	04	51	35	
	W	e			49	
	CL	e			50	
	USCGS: 6½ S 81 W;					
	04:42:12					
2	P	iP	17	55	47	c
		e		57	58	
	PX	eL	18	15	.7	
	R	eP	17	55	46	
		e		57	56	
	Pr	iP		55	51	c
		e		58	02	

(continued)

February (continued)

Date	Sta.	Phase	h	m	s	
2	Bt	iP	17	55	52	
	W	i(P)			34	
	CL	iP			35	c
		i			46	
	T	iP			27	
	USCGS: Northeast of Green-					
	land,					
	BCIS: 83½ N 3 W; 17:45:44					
3	P	e	00	36	06	
	Bt	e		35	54	
	W	e		36	16	
	CL	e			16	
	T	e			25	
3	R	iP	04	01	03	
		i(pP)			42	
	Bt	iP		00	55	
	W	iP		01	15	
		i(pP)			54	
	CL	eP			09	
		e(pP)			48	
	South America					
3	R	iP	08	16	19	
	Pr	iP			23	
	Bt	iP			25	
	W	iP			07	c
	CL	eP			12	
	T	iP			07	
	CMO: 34.2 N 141.6 E;					
	08:04:14, 40 km					
3	P	iPEZ	18	34	50	
		e(sP)		35	23	
	R	iP		34	52	
		e(sP)		35	26	
	Pr	iP		34	58	c
	Bt	iP		35	01	c
	W	iP		34	41	c
		i(pP)		35	07	
		i(sP)			13	
	CL	iP		34	45	c
		e(pP)		35	10	
		i(sP)			17	
	T	iPNZ		34	38	
	CMO: 44¼ N 149 E;					
	18:23:58, 100-120 km					
4	MW	eP	02	01	09	
	R	eP			05	
	Pr	eP			02	
	Bt	eP		00	58	
	W	iP		01	18	
	CL	eP			12	
	T	eP			21	
	South America					
4	MW	eP	03	55	31	
	R	eP			34	
	Pr	eP			38	
	Bt	eP			44	
	W	iP			23	
		i			37	
	CL	eP			27	
	T	eP			22	
	USCGS: Off Honshu; 03:43:21					
5	P	eP	09	32	54	
		i		33	03	
		i(pP)			18	
		i(sP)			30	
	PX	ePP		36	34	
		i		37	09	

(continued)

February (continued)

Date	Sta.	Phase	h	m	s	
5	PX	eNE	09	43	.3	
		eN		44	03	
		iE			52	
		i		45	05	
		iSSNE		49	.9	
		iGN		57	.6	
			A		T	
		PZ	½		1	
		PPZ	1¼		4	
		MH	35		20	
	R	eP	09	32	51	
		i		33	01	
		i			21	
	Pr	iP			02	
		i			09	
		i			19	
		i			24	
		i!			35	
	Bt	eP			01	
		i			24	
	W	iP		32	44	
		i			56	
		i		33	18	
	CL	eP		32	54	
		e			59	
		i		33	22	
		i			33	
		i		34	05	
		i		35	23	
		iPP		36	42	
	T	eP		32	51	
		i			58	
		i		33	21	
		i			29	
		iPP		36	40	
		i		45	07	
	Depth greater than normal					
	or a multiple shock?					
	Magnitude 6¾					
	USCGS: 4½ S 153 E;					
	09:19:42					
5	Pr	eP	13	17	34	
	Bt	eP			32	
		e			56	
	CL	eP			55	
		e		18	10	
	T	eP		17	53	
		e		18	18	
	USCGS: 7½ N 71½ W;					
	13:08:53, 100 km					
5	P	ePNZ	15	23	51	
		i			56	
		i		24	17	
		iPcP		27	07	
	PX	eSNE		28	51	
		eGN		30	.3	
			A		T	
		PZ	½		1½	
		MH	45		16	
	R	eP	15	23	44	
		i			49	
		iPcP		27	03	
	Pr	iP		23	39	
		i			45	
	Bt	eP			35	
		i			40	
		iPcP		27	02	

(continued)

February (continued)

Date	Sta.	Phase	h	m	s	
5	W	iP	15	24	01	
		i			07	
		iPcP		27	07	
		i			13	
	CL	iP		23	54	
		i			59	
		iPcP		27	10	
	T	ePNZ		24	05	
		i			44	
		ePcP		27	10	
		i			14	
	Much damage in Chiapas, Mexico					
	USCGS: 17½ N 92½ W;					
	15:17:59, 100 km					
5	Pr	eP	17	15	32	
	CL	eP			37	
	Aftershock					
5	MW	e	18	19	30	
	R	e			34	
	Pr	e			23	
		e			37	
	Bt	e			42	
		e			58	
	W	iP			06	
		i			18	
		i			20	
	CL	eP			11	
		i			22	
	T	eP			04	
		e			15	
5	MW	e	21	16	21	
	Pr	e			26	
	Bt	e			27	
	W	iP			13	
	CL	iP			18	
	T	eP			13	
6	Pr	iP	03	44	19	
	W	iP			19	
	CL	iP			23	
7	P	iPNEZ	06	27	56	c
		i		25	03	
		ipP			29	
		iPPNEZ		31	19	
	PX	eSNE		39	12	
		eGN		50	.9	
		eREZ		54	.5	
			A		T	
		PZ	1¼		1½	
		MH	½		20	
	R	iP	06	27	59	c
		ipP		28	32	
		iPP		31	23	
	Pr	iP!		28	00	c
		ipP			32	
		i			45	
		iPP		31	24	
	Bt	iP		28	00	c
		ipP			33	
		iPP		31	23	
	CL	iP!		28	02	c
		ipP			34	
		iPP		31	27	
		i		54	02	
	T	iPNZ		28	03	c
		ipP			35	
		i			44	
		iPP		31	23	

(continued)

Date	Sta.	Phase	h m s	
February (continued)				
7	T	i	06 54 02	
	Magnitude 6			
	USCGS: 15 S 167½ E;			
	06:15:21, 100 km			
7	PX	eL	11 00.5	
	R	eP	10 34 31	
	Pr	e	37	
	Bt	i	24	
	W	eP	36	
		e	46	
		i	54	
	T	eP	35	
		e	35 06	
	BCIS: Fiji Region,			
	10:22.2			
7	P	e	11 57 03	
	R	e(P)	06	
	CL	e(P)	08	
7	P	eP	15 16 19	
	R	eP	12	
	CL	eP	29	
	T	eP	44	
7	P	eP	21 51 08	
	Pr	i(P)	11	
	CL	iP	17	
	T	iP	18	
	Southwest Pacific			
	USCGS: 21:38:10			
7	CL	eP	22 41 34	
	T	eP	35	
8	P	iPNEZ	00 40 20	d
	R	iP	16	d
	Pr	iP	12	d
	Bt	iP	09	d
	CL	iP	24	d
	T	iP	33	d
	BCIS: 29 S 70½ W;			
	00:28:26			
8	Pr	e	10 05 45	
	CL	e	58	
	T	e	06 02	
8	R	e	10 16 12	
	Pr	e	08	
	CL	e	15	
		e	18	
	T	e	20	
8	P	ePEZ	10 17 31	
	R	eP	33	
	Pr	iP	33	d
	Bt	eP	32	
	CL	iP	39	d
	T	iP	40	
8	P	e(P)	12 36 58	
	Pr	i(P)	51	
	CL	e(P)	55	
		e	37 02	
	T	e(P)	36 51	
8	P	iPNEZ	14 30 32	d
		ipP	31 00	
		isPNZ	17	
	PX	iSE	39 56	
		iSPNE	40 46	

(continued)

Date	Sta.	Phase	h m s	
February (continued)				
8	R	iP	14 30 28	d
		ipP	56	
		isP	31 09	
	Pr	iP	30 24	d
		ipP	51	
	Bt	iP	21	d
		ipP	49	
	CL	iP	36	d
		ipP	31 04	
		isP	26	
		i	33 24	
	T	iPNEZ	30 43	d
		ipP	31 12	
		isP	28	
		iSNEZ	41 10	
	Depth 100 km			
	USCGS: 22½ S 68 W;			
	14:19:50, 150 km			
8	R	eP	15 10 17	
	Pr	eP	17	
	Bt	eP	17	
	CL	iP	22	
	T	eP	23	
	Southwest Pacific			
	BCIS: 14:58.1			
8	P	iPNEZ	18 55 33	
	R	eP	34	
		i	37	
	CL	eP	27	
		i	31	
	T	eP	23	
		i	27	
	CMO: 30 N 142½ E, 18:43:24			
8	MW	e	22 30 47	
	Pr	eP	49	
	CL	eP	54	
	T	eP	57	
9	P	e	04 15 33	
	R	e	31	
	CL	e	23	
	T	e	23	
	CMO: 41.6 N 144.6 E			
	04:03:58, 40 km			
9	P	e(P)	09 05 22	
	R	eP	17	
	Pr	iP	14	
	Bt	iP	11	
	CL	eP	18	
	T	iP	24	
	USCGS: 19 N 64 W;			
	08:56:25, 60 km			
9	P	e	13 58 22	
	R	e	24	
	Pr	i	31	
	Bt	i	50	
	CL	eP	00	
	T	e	57 44	
9	P	iP	17 47 00	
	R	iP	07	
		i	18	
	Pr	iP	12	
		i	21	
	Bt	iP	17	

(continued)

Date	Sta.	Phase	h m s	
February (continued)				
9	CL	iP	17 46 55	
	T	ePNZ	45	
		i	53	
	USCGS: 53 N 166½ W;			
	17:39:40, 100 km			
9	PX	eGN	23 58 --	
	Pr	e	38 38	
	Bt	e	31	
	CL	e	26	
		i	45	
	T	e	27	
	BCIS: 35 N 35½ W;			
	23:27:37			
10	MW	eP	11 46 44	
	R	eP	45	
	Pr	iP	48	
	Bt	eP	48	
	CL	iP	42	
	T	eP	37	
	USCGS: 14 N 143 E;			
	11:33:43			
10	P	eP	20 37 29	
	R	eP	31	
	Pr	eP	42	
	CL	eP	22	
	T	e	23	
10	P	eP	21 25 40	
	R	iP	36	
	Pr	iP	34	
	Bt	iP	30	
	CL	iP	45	
	T	iP	52	
	BCIS: 42 S 70 W;			
	21:13.5 100 km			
10	P	iP	23 58 57.6	
		iSE	59 12.2	
	MW	iP	58.1	
	SB	iPNEZ!	58 51.4	
		iSNE	59 00.8	
	FT	iP!	58 42.5	
	Kg	iP!	50.6	
	Magnitude 4.5			
	34° 56' N 119° 04' W;			
	23:58:38.5			
	Felt sharply at Frazier Park			
	and at Bakersfield.			
	Perceptible at Ventura and			
	Santa Barbara.			
11	P	iP	00 43 55	c
	PX	iPPNEZ	47 54	
		iPPP	49 58	
		eSKSNE	54 33	
		iSKKSNE	55 06	
		iSNEZ	30	
		ePSNE	56.8	
		i!	56 53	
	P	iPKKP	01 00 27	
	PX	eSSNZ	02.0	
	P	iP'P'	08 34	
			A T	
		PZ	6 7	
		PPZ	7 7	
		PPH	5 7	
		MH	60 20	
		MZ	60 20	

(continued)

Date	Sta.	Phase	h m s	
February (continued)				
11	R	eP	00 43 58	
		iPP	48 08	
		ePKKP	01 00 26	
		eP'P'	08 37	
	Pr	iP	00 44 01	
		iPP	48 08	
		ePKKP	01 00 20	
		eP'P'	08 24	
	Bt	eP	00 44 05	
		iPP	48 12	
	CL	iP	43 50	
		iPP	47 52	
		iPKKP	01 00 27	
		eP'P'	08 38	
	T	iP	00 43 45	
		iPPNZ	47 39	
		eSKSN	54 28	
		iN	55 16	
		ePKKP*	01 00 31	
		e	05 03	
	Pasadena: 39 N 101½ E,			
	00:30:15, Magnitude 7¼			
11	P	eP	14 42 58	
	R	eP	51	
	Pr	iP	50	d
	Bt	iP	48	d
	CL	eP	54	
		e	44 11	
	T	eP	43 00	
	BCIS: 19 N 63 W;			
	14:33:51			
11	P	iPNEZ	21 17 43	
		i	50	
	R	iP	46	
		i	54	
	Pr	iP	48	
	Bt	eP	50	
	CL	iP	42	
		i	48	
	T	iP	39	
	USCGS: 14½ N 144 E;			
	21:04:50			
12	P	eP	06 43 07	
	R	eP	09	
	Pr	iP	10	
	CL	iP	13	
	T	iP	16	
12	P	iP	10 19 39	d
		i	54	
		ipP	20 15	
		e	28	
		e	36	
	R	iP	19 35	d
		i	39	
		ipP	20 13	
		i	25	
	Pr	iP	19 31	d
		ipP	20 08	
	Bt	iP	19 27	d
		ipP	20 03	
	CL	iP	19 43	d
		ipP	20 18	
	T	iP	19 51	d
	USCGS: 17½ S 70 W;			
	10:08:46, 150 km			

Date	Sta.	Phase	h m s
February			
12	R	e	11 14 32
	Pr	e	32
	CL	e	35
12	P	eP	13 17 29
	R	iP	32
	Pr	e	22
	CL	e	33
	South America		
12	MW	eP	17 34 14
	Pr	iP	24
	Bt	iP	26
	CL	eP	06
	T	eP	33 58
12	P	iP"NZ	21 41 29
		ePP	43 28
		iSKPNEZ	44 17
	R	eP"	41 30
		ePP	43 31
		eSKP	44 17
	Pr	e(P)"	41 25
		ePP	43 37
	Bt	e	41 32
		i	44 01
	CL	iP"	41 28
		ePP	43 28
		iSKP	44 16
	BCIS: 6 S 110½ E;		
	21:22:31		
13	MW	eP	06 07 44
		e	51
	R	eP	40
		e	47
	Pr	iP	35
		i	40
	Bt	eP	26
		e	33
	CL	eP	50
		e	59
	Tacubaya: 15° 57' N		
	97° 49' W; 06:02:17		
13	MW	e(P)	08 07 33
	R	e(P)	35
	CL	eP	33
		e	35
	T	eP	30
14	R	e(P)	06 51 00
		e	11
		e	21
	Pr	iP	00
		i	10
	CL	iP	13
		i	22
	T	e	29
	USCGS: 6½ S 81 W;		
	06:41:44		
14	P	iP	10 54 19
	R	iP	21
		epP	56 20
	Pr	iP	54 23
	CL	iP	38
		ipP	56 36
	T	iP	54 27
	USCGS: 17 S 179½ W;		
	10:43:01, 600 km		

Date	Sta.	Phase	h m s
February			
15	P	iPNEZ	03 30 54
			A T
		PZ	0.2 1
	R	iP	03 30 48
		e	31 30
	Bt	iP	30 32
	CL	iP	58
		i	31 12
	T	iP	07
		i	32 57
	Magnitude 6¼-6½		
	USCGS: 5½ N 82½ W;		
	03:22:45		
15	MW	eP	12 08 25
	R	eP	19
		i	41
	Bt	iP	05
	CL	iP	32
	T	iP	44
	USCGS: 16½ N 100 W;		
	12:03:06		
15	MW	e	15 50 11
	R	e	49 55
		e	50 00
	CL	e(P)	13
	USCGS: 6½ S 81 W;		
	15:40:37		
15	P	eP	20 00 28
	PX	eLZ	21.4
	R	eP	00 12
		e	24
		e	43
	Pr	iP	13
	Bt	iP	07
	CL	eP	22
		i	28
	T	eP	34
		e	01 06
	USCGS: 6½ S 81 W		
	19:50:52		
16	P	ePNEZ	13 29 48
	R	iP	55
		i	30 18
	Pr	eP	00
	Bt	eP	16
	W	iP	29 27
	CL	eP	37
		e	56
	T	eP?	18
16	R	e	18 32 51
	Pr	i	45
		i	56
	CL	e	49
	BCIS: 14 N 45 W;		
	18:21:44		
17	P	eP	01 48 54
		i	49 09
	R	eP	48 58
	Pr	eP	49 05
		i	20
	Bt	i	23
	W	iP	48 43
	T	eP	41
	BCIS: 52½ N 160 E;		
	01:38:52		

Date	Sta.	Phase	h m s
February			
17	W	iP	02 28 19
	T	e	17
	Aftershock		
	BCIS: 02:18:26		
17	P	ePNZ	03 46 48
	R	eP	41
		e	47
	Pr	eP	32
		i	43
	Bt	iP	31
	W	iP	47 03
		i	12
	T	iP	09
		i	15
	Mexico		
17	R	iP	06 09 01
	Pr	iP	00
	W	iP	08 56
	T	e	09 01
17	P	ePEZ	09 08 01
		e	28
	R	eP	10
	Pr	eP	07
		i	20
		i	49
	Bt	e(P)	13
		i	37
	W	iP	07 50
		i	08 30
	T	e	07 43
		e	55
	USCGS: 51½ N 160 E;		
	08:57:54		
17	R	e	11 30 56
	Pr	e	44
	W	i	31 06
	BCIS: Off Ecuador, 11:21.8		
17	P	iP	11 47 01
	R	iP	04
	Pr	iP	09
	Bt	iP	12
	W	iP	46 51
		i	47 11
	T	iP	46 51
	USCGS: 46½ N 151 E;		
	11:36:18, 100 km		
17	MW	eP	11 52 38
	R	eP	32
	Pr	iP	28
	W	iP	46
	T	eP	53 01
	BCIS: Off Ecuador,		
	11:43:36		
19	P	iPEZ	00 47 40 c
		iPPNEZ	49 09
		iPcP	50 02
	PX	iSN	53 27
		iE	50
		eGNE	57.7
		iScSN	58 00
		eR	58.3
			A T
		PZ	1¾ 2
		PH	1½ 2½
		PPZ	2 4
		PPH	2 4
		SH	2½ 3
		MH	100 20
		(continued)	

Date	Sta.	Phase	h m s
February (continued)			
19	R	eP	00 47 30
		iEZ	38
		iPcP	50 00
		eScP	53 48
	Pr	iP	47 29
		i	33
		iPcP	49 59
	Bt	iP	47 24
		i	45
		iPcP	49 57
		iScP	53 47
	W	eP	00 47 48
		i	56
		iPcP!	50 04
		iScP	53 55
	CL	eP	47 40
		iPcP	50 05
		eScP	53 54
	T	eP	47 52
		iPcP	50 18
		iSN	54 02
		eScP	11
		eScSEZ	58 07
		iN	11
	Magnitude 6½-6¾		
	USCGS: 11½ N 87½ W,		
	00:40:25		
19	P	iP	14 07 27
	PX	eL	34.7
	R	eP	07 31
	Pr	iP	27
	Bt	iP	16
	W	iP	36
	CL	iP	37
	T	iP	43
	BCIS: 55½ S 134 W;		
	13:54:29		
19	P	iPNEZ	19 20 23
		i	30
	PX	iSNZ	30 55
		eSSNE	36.0
		eGE	41.5
		eRNEZ	45.4
			A T
		PZ	2¼ 4
		PH	0.3 1
		SH	40 15
		MH	50 17
	R	eP	19 20 26
		i	41
	Pr	iP	20
		i	33
	Bt	iP	25
	W	iP	27
	CL	iP	31
	T	ePNEZ	33
		iSN	31 16
	Pasadena: 30 S 177¾ W;		
	19:07:48, 40± km;		
	Magnitude 7		
19	P	iP	21 41 47
		i	42 13
		iPPNEZ	43 18
		iPcP	44 09
	PX	iScPE	47 09
		iSN	50
	P	i	48 05
	PX	iGN	51.0
		(continued)	

Date	Sta.	Phase	h	m	s
February (continued)					
19	PX	iR	21	53	.2
			A		T
		PZ	2¼		4
		PH	2		4
		PPZ	4½		5
		PPH	2		5
		SH	15		20
		MH	150		20±
	R	iP	21	41	42
		iPcP		44	11
	Pr	iP		41	36
	Bt	iP			34
		i			46
		iPP		43	04
		iPcP		44	09
		iScP		47	59
	W	iP		41	59
		iPcP		44	17
		iScP!		48	03
	CL	iP		41	50
		iPcP		44	14
		iScP		48	09
	T	iP		42	01
		i			12
		iPcP		44	18
		iScP		48	14
	Magnitude 6½-6¾				
	USCGS: 12½ N 87½ W,				
	21:34:41				
19	P	iP	23	40	58
		ipP		41	21
		ePP			39
			A		T
		PZ	0.1		1
	R	iP	23	40	54
		ipP		41	14
		i			21
		iPP			31
		i		42	17
		i(PcP)		45	16
	Pr	iP		40	44
		ipP		41	19
	Bt	iP		40	39
		ipP			59
		iPP		41	28
		i		42	15
		e		45	30
	W	iP		41	14
		ipP			39
		iPcP		45	03
		i		48	38
	CL	iP		41	08
		ipP			28
		i			32
		i			39
		i			48
		iPcP		45	17
	T	iPNEZ		41	21
		ipP			39
		iPcP		45	22
		eS		49	12
	USCGS: 19 N 101 W,				
	23:36:13, 100 km				

Date	Sta.	Phase	h	m	s
February					
20	MW	eP	02	02	42
	Bt	e		03	05
	W	iP		02	42
	CL	iP			47
	T	eP			31
	BCIS: Kurile Is., 01:52.2				
20	P	iPNEZ	02	07	54
		ePP		09	21
		iPcP		10	19
	PX	eLE		17	.5
		eRZ		19	.8
			A		T
		MH	3		20
	R	iP	02	07	50
		ePP		09	37
		iPcP		10	17
	Pr	iP		07	43
	Bt	eP			39
		iPP		08	03
		iPcP		10	14
	W	iP		08	04
		iPP		09	39
		iPcP	02	10	22
		i		14	10
	CL	iP		07	57
		iPP		09	40
		iPcP		10	19
		e		14	21
	T	iPNEZ		08	09
		iPP		09	45
		iPcP		10	24
		e		14	25
	Magnitude 5¾-6				
	USCGS: 11½ N 87½ W;				
	02:00:43				
20	P	iP	04	35	01
		i			11
		iPcP		37	22
	R	eP		34	55
		ePcP		37	21
	W	iP		35	13
		iPcP		37	27
	CL	eP		35	04
		iPcP		37	23
	T	eP		35	15
		ePcP		37	28
	Aftershock of February 19;				
	00h or 21h				
	USCGS: 04:27:47				
20	P	eP	18	49	13
		i			17
		iP"NEZ		52	48
		i!			55
	PX	iPPNEZ		53	59
		ipP"		55	01
		iEZ			40
		ipPPEZ		56	07
		i(SKP)		57	32
		iSKSEZ		58	28
		iE			51
		iSKKSNE		58	59
		iSE	19	00	03
		iNE!			13

(continued)

Date	Sta.	Phase	h	m	s
February (continued)					
20	PX	ipSKSN!	19	01	11
		eSKSPEZ		02	.8
	P	iPKKP		03	27
	PX	iE		05	21
	P	eSKKP		06	18
	PX	isSPEZ			22
		eSSN		09	.5
			A		T
		PZ	0.2		2
		P"Z	2		1½
		PPZ	¾		3
		PPH	2		3
	R	eP	18	49	19
		iP"		52	50
		iEZ			55
		iPP		54	08
		iPKKP	19	03	21
	Pr	eP	18	49	25
		iP"		52	50
		iPP		54	08
		iPKKP	19	03	20
	Bt	eP	18	49	30
		i			40
		iP"		52	52
		i!			56
		iPKKP	19	03	16
	W	eP	18	49	08
		i			16
		iP"		52	47
		i!			53
		iPP		54	05
		i		55	40
		eSKSP	19	02	56
		iPKKP		03	28
	CL	eP	18	49	20
		iP"		52	49
		i!			55
		iPP		54	03
		ipP"		55	0.1
		i		59	04
		eSKSP	19	03	.1
	T	eP	18	49	10
		iP"		52	49
		i!			54
		iPP		53	56
		ipP"		55	29
		iN	19	01	07
		iSKSP		02	47
	Pasadena: 6¾ S 124½ E,				
	18:35:05, 580 km				
	Magnitude 7				
20	P	eP	20	02	29
		epP			54
		ePcP		03	20
	R	eP		02	25
		epP			50
	Pr	iP			21
		ipP			47
		iPcP		03	22
		iPP		05	13
	Bt	iP		02	19
		ipP			45
		iPcP		03	10

(continued)

Date	Sta.	Phase	h	m	s
February (continued)					
20	W	iP	20	02	36
		ipP		03	02
		iPcP			31
		iPP		05	03
	CL	iP		02	28
		iPcP		03	27
	T	eP		02	36
	BCIS: 11 N 62¼ W;				
	19:53:00, 100 km				
20	P	ePNZ	21	41	00
		i			09
		i			39
	R	eP			03
	Pr	iP			02
		i			11
	Bt	iP			00
		i			10
	CL	iP			08
	T	eP			11
	USCGS: 28 S 177½ W;				
	21:28:28				
20	MW	eP	21	57	00
	R	eP		56	59
	Pr	eP		57	00
	Bt	e		56	57
	CL	iP		57	04
	T	eP			18
	Aftershock of preceding				
	BCIS: 21:44:36				
20	R	e	23	57	38
	Pr	i			38
	Bt	e			32
	CL	i			44
	T	i			46
	Aftershock.				
	BCIS: 23:45:06				
21	P	iP	01	36	15
		i			26
		iPcP		38	37
	R	iP		36	09
		iPcP		38	34
	Pr	iP		36	04
		iPcP		38	33
	Bt	iP		36	00
		iPcP		38	31
	CL	iP		36	18
		i			30
		i			41
		iPcP		38	39
		i			51
		e		39	28
	T	eP		36	28
		iPcP		38	42
	BCIS: 11¼ N 87 W;				
	01:29:12, 60 km				
21	P	e	04	32	28
	R	e			31
	Pr	eP			27
		e			38
	Bt	iP			25
	W	iP			04
		i			17
		i			34

(continued)

Date	Sta.	Phase	h m s	
February (continued)				
21	CL	iP	04 32 09	
		i	24	
	T	e?	01	
		e	16	
	BCIS: 51¼ N 155½ E;			
	04:21:55			
21	P	eP	05 03 04	
	R	eP	05	
	Pr	iP	05	
		i	16	
	Bt	iP	04	
		i	14	
	W	iP	06	
		i	17	
	CL	iP	10	
		i	22	
	T	e	14	
	Apia: 30 S 178 W;			
	04:50.5			
21	W	iP	16 06 33	
	USCGS: 15½ N 178 W;			
	15:54:42			
21	MW	eP	16 17 23	
		i	42	
	R	e	34	
	Pr	eP	33	
		i	41	
		i	46	
	W	iP	11	
		i	17	
		i	48	
	CL	eP	17	
		i	31	
	T	eP	16	
		i	29	
	USCGS: 52 N 175½ W;			
	16:09:11			
21	P	e	18 54 05	
	W	iP	53 48	
	T	eP	35	
	USCGS: Off Kamchatka;			
	18:43:35			
21	P	e(P)	20 23 22	
		e	25 33	
	R	eP	23 14	
		e(S)	25 26	
	Pr	iP	23 13	
		i(S)	25 13	
	W	eP?	23 03	
		i	25 21	
	CL	eP?	22 57	
		e	23 03	
		i(S)	24 48	
	T	e	23 20	
		i	24 49	
	USCGS: 40 N 109 W;			
	20:20:46			
21	MW	e	22 08 47	
	Pr	i	53	
	W	iP	31	
		i	35	
	CL	e	36	
	T	e	32	

Date	Sta.	Phase	h m s	
February				
21	P	iPNZ	23 01 48	c
	R	iP	51	c
	Pr	iP	52	c
	Bt	iP	51	c
	W	iP	50	c
	CL	iP	54	c
	T	iP	56	
	USCGS: 17½ S 169½ E;			
	22:49:04			
21	P	eP	23 46 26	
		ePcP	48 48	
	R	eP	46 22	
		ePcP	48 46	
	Pr	iP	46 17	
		i	38	
		iPP	47 44	
	Bt	eP	46 03	
		iPP	47 39	
	W	iP	46 38	
		iPcP	48 52	
	CL	iP	46 31	
		i	50	
		iPcP	48 50	
	T	iP	46 42	
		ePcP	48 55	
	USCGS: 12½ N 87 W;			
	23:39:25, 60 km			
22	P	iPEZ	06 23 33	d
	PX	eL	47.4	
	R	eP	23 35	
	Pr	iP	41	d
		i	24 12	
		iPP	26 43	
	Bt	iP	23 43	d
		i	59	
		ePP	26 48	
	W	iP	23 25	d
		e	26 21	
	CL	iP	23 31	d
		i	53	
		iPP	26 29	
	T	ePNEZ	23 25	
		ePP	26 21	
	CMO: 34.3 N 141.7 E;			
	06:11:28, 60 km			
22	P	e	08 58 17	
	R	e	24	
	Pr	e	27	
	CL	i	12	
	T	i	05	
	BCIS: Kamchatka 08:48:15			
22	P	eP	10 16 32	
	R	eP	36	
	Pr	iP	37	
	Bt	eP	38	
	CL	iP	37	
	T	eP	38	
	USCGS: 9½ S 161 E;			
	10:03:40			
22	P	ePNEZ	10 38 49	
	R	eP	53	
	Pr	iP	57	
	Bt	iP	58	

(continued)

Date	Sta.	Phase	h m s	
February (continued)				
22	Bt	i	10 39 18	
	CL	iP	38 46	
		e	41 42	
	T	eP	38 45	
	CMO: 34.1 N 141.7 E;			
	10:26:42, 60 km			
22	P	iP"NEZ	12 22 11	
		ePP	23 25	
		ipPPNEZ	45	
		iSKP	25 32	
	PX	iSKSE	28 53	
		iNE	30 09	
	P	iPKKP	32 28	
	PX	eSPP	34 05	
		eSSE	40.4	
		eL	13 00.4	
			A T	
		PPZ	1½ 7	
		PPH	2½ 7	
	R	iP"	12 22 10	c
		iSKP	25 32	
		iPKKP	32 30	
	Pr	iP"	22 09	c
		iPP	23 31	
		iPKKP	32 37	
	Bt	iP"	22 06	c
		ePP	23 46	
		iSKP	25 33	
		iPKKP	32 38	
	CL	iP"	22 12	c
		i	23 05	
		i	31 03	
		iPKKP	32 24	
		i	36 18	
	T	iP"	22 16	c
		i	33	
		iSKSN	29 04	
		iPKKP	32 21	
		e	36 22	
	Pasadena: 57 S 26½ W;			
	12:03:36, 140 km			
	Magnitude 7			
22	Bt	e	18 25 23	
	CL	e	24 43	
22	MW	i	18 45 17	
	Pr	e	27	
	CL	iP	11	
		e	39	
	T	eP	04	
23	P	eP"	06 59 42	
		i	59	
	R	e	51	
	W	eP"	05	
		e	28	
		i	43	
		ePKKP	07 10 04	
	CL	eP"	06 59 14	
		i	50	
		e	07 10 20	
	T	eP"	06 59 41	
		ePKKP	07 10 09	
		e	25	
	USCGS: 28½ N 91½ E;			
	06:40:35			

Date	Sta.	Phase	h m s	
February				
23	MW	eP	13 48 37	
		e(pP)	55	
	R	iP	33	
		i(pP)	50	
	Pr	e(pP)	47	
	Bt	iP	26	
		i(pP)	43	
	W	iP	46	
		i(pP)	49 03	
	CL	eP	48 41	
		i(pP)	58	
	T	eP	49	
		i(pP)	49 06	
	South America			
23	P	e(P)	18 16 22	
	R	iP	22	
	Pr	iP	24	
	Bt	eP	27	
	W	iP	16	
		i	23	
	CL	iP	18	
	T	e(P)	13	
	Readings may possibly refer to P'			
24	P	iP'EZ	12 26 04	
		iP$_2$'NZ	30	
	R	eP'	04	
		iP$_2$'	32	
	Pr	eP'	05	
		iP$_2$'	33	
	Bt	iP'	05	
		iP$_2$'	32	
	W	iP'	04	
		iP$_2$'	32	
	CL	iP'	06	
		iP$_2$'	36	
	T	eP'	08	
		eP$_2$'	35	
	Indian Ocean			
	BCIS: 12:06.1			
	Pasadena: roughly 40° S 90° E.			
24	P	iP'	17 39 06	
		iPPEZ	44 30	
		e	48 16	
	R	eP'	39 05	
		ePP	44 27	
	Pr	eP'	39 05	
		iPP	44 24	
	W	iP'	39 05	
		ePP	44 35	
	CL	iP'	39 06	
		ePP	44 30	
		e	48 37	
		e	49 34	
	T	eP'	39 07	
	BCIS: 34 S 55 E; 17:19.1			
24	P	iP	17 40 02	
	R	iP	05	
	Pr	iP	09	
	W	iP	39 53	
		i(pP)	40 05	
	CL	iP	39 59	
	T	eP	53	
		i	40 08	
	CMO: 36.0 N 139.9 E;			
	17:28:01, 40-50 km			

Date	Sta.	Phase	h	m	s
February					
24	P	iPNEZ	19	49	14 d
		i			25
		i			38
		i			58
	Small surface waves recorded				
	R	iP	19	49	16
		e		52	43
	Pr	iP		49	19 d
		i		52	48
	Bt	iP		49	21 d
	W	iP			08
	CL	iP			14
		i			58
		e		51	32
	T	iPNEZ		49	10 d
	BCIS: 13 N 145½ E;				
	19:36:22				
24	P	iPNEZ	20	57	01 c
		i			19
		epP		58	50
	R	iP		57	04 c
		epP		58	52
	Pr	iP		57	07 c
		ipP		59	02
	Bt	iP		57	10 c
		ipP		59	08
	W	iP!		56	55 c
		ipP		58	43
	CL	iP		56	59 c
		epP		58	39
	T	iP		56	55 c
		ipP		58	45
	CMO: 27½ N 140½ E;				
	20:45:22, 500 km				
24	P	iPNEZ	22	30	43.1 c
		iS			59.7
	R	iPEZ			51.8 c
		iSE		31	17.7
	SB	iP		30	37.3
	H	iP			47.9 d
		iS		31	05.9
	T	iP		30	58.4
		iS		31	28.7
	CL	iP		30	47.3 d
	KgR	iP			33.8
	Ft	iP			27.2
	W	iP!			34.7
	Magnitude 4.5				
	Pasadena: 35° 04' N				
	119° 04' W; 22:30:22.5				
	Felt in Kern County; highest reported intensity V, at Wheeler Ridge.				
25	P	eP	01	56	38
	R	eP			40
	Pr	iP			41
	W	iP			39
	CL	iP			44
	T	eP			45
25	MW	e	02	49	30
	Pr	e			54
	Bt	e			57
	W	iP			19
		i			36
	CL	iP			22
		i			40
	T	iP			16
		i			33

Date	Sta.	Phase	h	m	s
February					
25	P	ePNZ	11	21	42
	R	eP			40
	Pr	iP			36
	Bt	iP			31
	W	iP			51
		e		22	54
	CL	iP		21	50
	T	iP			58
		i		22	03
	BCIS: 39 S 92½ W;				
	11:09:50				
25	P	ePNZ	12	00	49
		e		01	02
	R	eP		00	52
		e		01	00
	Pr	iP			02
	Bt	iP		00	55
	W	iP			48
		i			58
	CL	iP			43
		i			53
	T	eP			40
		e			58
	BCIS: 52¼ N 34½ W;				
	11:50:40				
25	P	iPNEZ	22	23	24
	R	iP			18
	Pr	iP			12
	Bt	iP			09
	W	iP			34
		i			38
	T	iP			37
		i			43
	BCIS: 5¼ N 82½ W;				
	22:15:16				
26	P	iPEZ	00	03	49
	R	iP			53
	Pr	iP			56
	Bt	iP		04	00
	W	iP		03	42
	T	eP			40
	CMO: 34.2 N 141.1 E;				
	23:51:45 30 km				
26	P	eP	19	11	36
		i			38
	R	iP			34
	Bt	iP			32
	W	iP			38
	CL	iP			37
	T	iP			40
	Readings may refer to P' rather than P.				
27	P	iPNEZ	01	27	36 d
	R	iP			38 d
	Pr	iP			38 d
	W	iP			38 d
	CL	iP			44 d
	T	iP			46
	BCIS: Tonga Region 01:16.0				
27	P	iP	23	47	18
	PX.	eLEZ			13.8
	R	i		47	11
	Pr	iP			15
		i			26
	Bt	e			25
	W	iP			11

(continued)

Date	Sta.	Phase	h	m	s
February (continued)					
27	CL	iP	23	47	17
		i			28
	T	e			13
		e			27
	BCIS: 13 S 166½ E;				
	23:34:35				
28	P	iP	01	08	30
		e			49
	PX	eLN		31	--
			A		T
		PZ	¼		1½
		MH	2½		20
		MZ	2½		20
	R	eP	01	08	27
	Pr	iP			36
		e			51
		iPP		12	13
	Bt	iP		08	37
		i			58
		iPP		12	21
	W	iP		08	22
		i			38
		i			52
		e		09	54
		ePP		11	49
	CL	iP		08	27
		iPP		12	02
	T	eP		08	21
	Magnitude 6±				
	Depth 60 km?				
	USCGS: 27 N 131 E;				
	00:55:22				
28	P	iPNEZ	18	56	29 c
	R	iPEZ			32 c
		i			37
	Pr	iP			36 c
	Bt	iP			36 c
	W	iP			24 c
	CL	iP			32 c
	T	iPNEZ			29 c
		i			35
March					
2	P	i(P)	10	08	26
	Bt	i			36
	CL	i(P)			24
2	P	e	13	07	57
	Pr	e		08	01
	CL	e		07	58
3	P	iP	06	16	47
		i			52
		iPPEZ		20	52
	PX	iSKSE		27	28
		ePSNE			29.7
		iScSPE		30	07
		iPPSE			30.8
	P	e			33.1
		iPKKP		33	30
	PX	iSSE			35.2
		e(SSS)			38.9
		iGN			45.0
		iREZ			48.4

(continued)

Date	Sta.	Phase	h	m	s
March (continued)					
3			A		T
		PZ	2½		6
		PPZ	2½		4
		PPH	2		3
		SKSH	5		10
		MH	50		20
		MZ	50		20
		W2H	15		20
		W2Z	20		20
	R	eP	06	16	49
		i			55
		e		20	18
		i			59
		ePKKP		33	35
		e		41	27
	Pr	eP		16	52
		i		17	05
		i		20	11
		i			45
		iPP		21	04
		e		32	51
		iPKKP		33	23
	Bt	eP		16	52
		i			58
		i		17	22
		e		20	23
		e			54
		iPP		21	14
		iSKS		28	10
		iPKKP		33	25
	W	iP		16	43
		i			57
		i		17	21
		iPP		20	53
		ePKKP		33	32
		e		37	25
		e		41	03
	CL	eP		16	48
		i			54
		i		20	17
		ePP			52
		i		21	01
	T	eP		16	46
		i			51
		iPP		20	53
		eSKS		27	44
	Magnitude 7.0				
	USCGS: 5½ S 142½ E;				
	06:02:55				
3	P	iPNEZ	07	54	39
	R	eP			42
	Pr	iP			47
	Bt	iP			52
	W	iP			27
		i			42
	CL	iP			32
		i		55	04
	T	iP		54	25
	USCGS: 53 N 160 E;				
	07:44:36				
3	P	eP"	08	08	17
	R	eP"			17

(continued)

Date	Sta.	Phase	h	m	s	
March (continued)						
3	Pr	eP"	08	08	18	
		ePKKP		18	15	
	Bt	eP"		08	20	
		ePKKP		18	09	
	W	eP"		08	13	
		iPKKP		18	19	
	CL	eP"		08	16	
	T	eP"			19	
3	W	iP	08	40	15	
		i			31	
	CL	iP			21	
		i			35	
	CMO: 41.3 N 142.6 E;					
	08:28:51, 40 km					
3	P	e	10	51	11	
	W	eP		50	56	
		i		51	11	
	CL	e			05	
	USCGS: Central New Guinea,					
	10:37:10, 60 km					
3	P	iP	15	35	21	
	R	eP		35	23	
		ePP		39	36	
	Pr	eP		35	33	
		iPP		39	37	
	W	iP		35	18	
		ePP		39	23	
	CL	eP		35	23	
		ePP		39	35	
	T	eP		35	21	
	USCGS: 5½ S 142½ E;					
	15:21:27					
3	MW	eP	18	44	20	
	R	eP			20	
	Pr	eP			17	
	W	iP			30	
	CL	iP			22	
	T	eP			28	
	USCGS: West Indies;					
	18:35:53, 100 km					
3	P	iPNEZ	20	52	40	d
		ipP			58	
	PX	isPP		54	06	
		iSN		57	59	
		eL	21	02.2		
			A		T	
		PZ	½		1½	
	R	iP	20	52	43	d
		ipP			56	
		iPcP		55	23	
	Pr	iP		52	50	d
		ipP		53	05	
		isPP		54	18	
	Bt	iP		52	56	d
		ipP		53	13	
		i		54	38	
		iPcP		55	27	
	W	iP		52	24	d
		ipP			38	
		iPcP		55	16	
		i			31	
		e(S)		57	32	
	CL	iP		52	28	d
		ipP			40	
		isP			46	
		isPP		53	51	
		iPcP		55	18	

(continued)

Date	Sta.	Phase	h	m	s	
March (continued)						
3	CL	i(S)	20	57	46	
	T	iPNZ		52	18	d
		ipPNZ			36	
		iPcP		55	15	
		iSN		57	20	
	USCGS: 61½ N 146½ W;					
	20:46:07, 60 km					
4	P	eP	10	58	38	
	Pr	eP			42	
	Bt	eP			49	
	W	iP			41	
	CL	eP			44	
	T	e(P)			56	
	USCGS: Kermadec Region,					
	10:46:03					
4	P	iP	11	37	37	
		esP		38	19	
	R	iP		37	33	
		epP		38	02	
		esP			14	
	Pr	iP		37	29	
		e			50	
		esP		38	02	
	Bt	iP		37	25	
		ipP			53	
		isP		38	07	
	W	iP		37	45	
		i			51	
		ipP		38	14	
		isP			27	
		i			33	
	CL	iP		37	40	
		i			59	
		ipP		38	10	
		isP			22	
	T	iP		37	49	
		isP		38	18	
	BCIS: Coast of Southern Peru,					
	11:26.6, 100 km					
4	Pr	eP	22	43	37	
		i			44	
	Bt	e			32	
	W	eP		44	05	
	CL	eP		43	58	
	Mexico					
5	P	e(P)	02	42	39	
	R	eP			29	
	W	iP			30	
		i			43	
	CL	iP			35	
5	P	e	04	25	37	
	R	e			10	
	W	iP			00	
		i			06	
		i			14	
	CL	iP		24	59	
	CMO: 39.4 N 143.6 E;					
	04:13:26, 20 km					
5	MW	e	10	27	23	
	R	e			27	
	Pr	e			34	
	Bt	e			34	
	W	e			09	
	CL	e			08	
5	W	e	11	37	24	
	CL	e		36	47	
	USCGS: 3 S 130 E;					
	11:17:43					

Date	Sta.	Phase	h	m	s	
March						
6	P	iPNEZ	00	40	57	c
		i		41	20	
		epP		42	50	
		isP		44	16	
	PX	eSE		50	28	
		iSN			31	
	P	eSKPP'	01	10	06	
			A		T	
		PZ	¾		1¼	
		PH	¼		1¼	
		SH	3½		7	
	R	iP	00	40	59	c
		epP		42	56	
		isP		44	18	
		eSKPP'	01	10	07	
	Pr	iP	00	41	00	c
		i			16	
		ipP		42	54	
		isP		44	18	
	Bt	iP		40	59	c
		epP		42	56	
		i		43	14	
		isP		44	17	
		eSKPP'	01	10	07	
	W	iP!	00	41	01	c
		epP'		42	58	
		esP		44	15	
	CL	iP!		41	05	c
		ipP		43	02	
		ePKKP		59	20	
		iP'P'	01	07	31	
		iSKPP'		10	05	
	T	iPNEZ	00	41	06	
		iSN		50	52	
	Magnitude 6½±					
	USCGS: 24 S 180,					
	00:29:27, 550 km					
6	MW	e	19	25	48	
	R	e			35	
	W	i		26	06	
	CL	i		25	58	
	T	e		26	15	
7	W	e	02	03	23	
	BCIS: 12¼ S 14 W;					
	01:44:26					
7	MW	eP	18	17	24	
	Pr	iP			34	
	Bt	iP			37	
		i			54	
	W	iP			12	d
		i(pP)			29	
	CL	iP			17	
	T	iP			09	
7	P	iP	22	11	15	
	R	eP			19	
	Pr	iP			20	
	Bt	e			17	
	W	iP			17	c
	CL	iP			23	
	T	iP			24	
7	P	e	23	46	46	
		e			58	
	Bt	i		47	06	
	W	iP		46	38	
	CL	iP			42	
	CMO: 37.8 N 143.9 E;					
	23:34:56, 80 km					

Date	Sta.	Phase	h	m	s	
March						
8	MW	e(P)	05	12	50	
	W	i(P)			51	
	CL	e(P)			57	
8	MW	eP	10	19	00	
	R	eP			01	
	W	eP		18	57	
	CL	eP		19	03	
	T	eP			03	
8	P	ePEZ	13	49	25	
	R	eP			28	
	Pr	eP			32	
	Bt	iP			36	d
	W	iP			17	d
		i			28	
	CL	iP			22	d
	T	iP			16	
	CMO: 37.7 N 143.6 E;					
	13:37:38, 60 km					
8	W	iP	15	26	29	
	T	eP			32	
8	P	eP	18	12	18	
		e			57	
		ePcP		15	11	
		eScP		18	57	
	R	eP		12	20	
		e			36	
		i			49	
		iPcP		15	15	
		iScP		18	55	
	Pr	iP		12	21	
		i			27	
		i			44	
		iPcP		15	13	
		eScP		18	52	
	Bt	eP		12	18	
		iPcP		15	12	
		i			29	
		eScP		19	55	
	W	iP		12	20	
		iPcP		15	19	
		i			38	
		i			50	
		iScP		19	00	
		i			35	
	CL	iP		12	25	
		i			42	
		i		13	00	
		i			43	
		iPcP		15	18	
		i			36	
		iScP		18	59	
	T	iP		12	27	
		i			39	
		i		13	10	
		iPcP		15	22	
	Two earthquakes, P arriving					
	at about the same time.					
	USCGS: 15 S 175 W; 18:00:45					
	and 13 N 89 W; 18:05:55, 60 km					
	PcP and ScP refer to the					
	second shock.					
8	P	eP	20	39	18	
	R	eP			20	
	Pr	iP			19	
	Bt	eP			20	
	W	iP			17	

(continued)

Date	Sta.	Phase	h	m	s	
March (continued)						
8	CL	eP	20	39	24	
		e			39	
		i			59	
	T	eP			23	
	BCIS: 20 S 168½ E;					
	20:26:28					
9	P	ePEZ	02	34	35	
	PX	eLN		57.5		
			A		T	
		MH	10		20	
	R	eP	02	34	31	
	Pr	eP			29	
		i			39	
	Bt	eP			33	
		i			37	
	CL	iP			32	
	T	eP			37	
		i			41	
	Magnitude 6					
	BCIS: 0.3 N 29.8 W;					
	02:21:41					
9	P	iPNEZ	05	49	41	
		i			48	
	PX	iSNE		58	02	
		eGN	06	05	39	
		eR		07.8		
	P	eP'P'		19	17	
			A		T	
		PZ	¼		1½	
		SH	1½		5	
		MH	5		20	
	R	eP	05	49	44	
		i			50	
	Pr	iP			49	
		i			55	
	Bt	iP			53	
		i		50	00	
	CL	iP		49	35	
		i			43	
	T	iP			28	
		i			35	
	Magnitude 6¼-6½					
	USCGS: 50 N 157 E;					
	05:39:20					
9	P	iP	09	03	28	
		ipP			37	
9	P	iPNEZ	10	36	29	
		epP		37	52	
	R	iP		36	30	
		epP		37	55	
	Pr	iP		36	36	d
		epP		37	52	
	Bt	iP		36	30	
		epP		37	55	
	CL	iP		36	36	
		ipP		37	57	
	T	iP		36	38	
		ipP		38	02	
	USCGS: 19½ S 178 W;					
	10:25:02, 350 km					
9	P	iPNEZ	11	18	33	
	R	eP			35	
	Pr	iP			37	
	Bt	iP			35	
	CL	iP			41	d
	T	iP			43	
	USCGS: 16 S 173 W;					
	11:07:03					

Date	Sta.	Phase	h	m	s	
March						
10	P	iPNEZ	07	34	38	
	R	eP			40	
	Pr	iP			41	
	Bt	iP			40	
	W	iP			40	
		i		35	11	
	CL	iP		34	45	
	T	iP			46	
	BCIS: 14 S 178¼ W;					
	07:22:58					
10	MW	iP	11	07	50	
	R	iP			46	
	Bt	iP			39	
	W	iP			59	
	CL	iP			54	
	T	iP		08	03	
10	MW	eP	14	18	10	
		ipP			33	
	R	eP			05	
		ipP			28	
	Pr	i			26	
	Bt	iP			19	
	W	iP			21	
		ipP			44	
	CL	eP			14	
		epP			36	
	T	e(P)			25	
		ipP			48	
	USCGS: 2 S 78 W;					
	14:09:07, 100 km					
11	P	iPNEZ	10	36	31	
		ipP			45	
		ipPcP		39	36	
	PX	eLNE		47.3		
			A		T	
		PZ	0.2		2	
		MH	10		20	
	R	iP	10	36	25	
		ipP			40	
		iPcP		39	19	
		ipPcP			35	
	Pr	iP		36	19	
	Bt	iP			12	
		ipP			28	
		i		37	27	
	W	iP		36	42	
		iPcP		39	24	
		ipPcP			41	
	CL	iP		36	35	d
		ipP			49	
		i		37	03	
		iPcP		39	21	
		ipPcP			39	
	T	iPEZ		36	46	
		ipP		37	02	
		iPcP		39	26	
		ipPcP			43	
		iScSNE		47	10	
		isScSN			42	
	Magnitude 5¾±					
	USCGS: 14½ N 90½ W;					
	10:30:10, 100 km					
11	CL	eP	18	33	23	
	Mexico					
12	W	iP	07	18	08	
	CL	iP			14	

Date	Sta.	Phase	h	m	s	
March						
12	P	iP"NEZ	11	31	01	d
		e		32	29	
	R	iP"		31	00	d
		e		32	24	
	W	iP"		31	03	
	CL	iP"			02	
		e		33	20	
		e		34	26	
	T	iP"		31	06	d
		e		32	31	
	BCIS: 56¼ S 27 W;					
	11:12:17					
12	P	iPNEZ	11	35	22	d
		e		37	49	
	R	iP		35	24	
		e			59	
	Pr	iP			24	d
		i		36	09	
	Bt	iP		34	54	d
		i		35	18	
	W	iP			23	d
		i			59	
	CL	iP			29	d
		i		36	02	
	T	iP		35	32	
		e		38	23	
	USCGS: 17 S 174 W;					
	11:23:47					
12	P	iPNZ	14	37	13	
	W	iP		36	52	
	CL	iP		37	02	
	T	eP		36	44	
13	P	iP"	18	33	43	
		i			59	
	W	iP"			41	
	CL	iP"			44	
		i			57	
	Djakarta: 9 S 118 E;					
	18:14:30					
13	W	iP	18	57	44	
	CL	eP			38	
	T	eP			48	
14	P	iP	03	48	34	
	Pr	iP			36	
	W	iP			36	
	CL	iP			41	
	Near Apia					
14	P	eP	09	04	32	
		i			39	
		i			45	
		i		07	31	
	PX	eSNEZ		15.0		
		eGN		23.9		
		eREZ		27.5		
			A		T	
		MH	10		20	
	R	eP	09	04	34	
	Pr	iP			34	
		i			39	
	Bt	iP			40	
	W	iP			34	
		i			40	
	CL	iP			39	
	T	eP			32	
		i			45	
		eSNEZ		15	03	
	USCGS: 16 S 179 W;					
	08:52:26					

Date	Sta.	Phase	h	m	s	
March						
14	R	eP	09	30	18	
	Pr	eP			21	
	W	iP			18	
	CL	eP			24	
	T	eP			26	
14	P	iPNZ	13	07	08	
		i			17	
		iNEZ			24	
	R	eP			08	
		e			19	
		i			24	
	Pr	iP			10	
		i			20	
		i			26	
	Bt	eP			09	
		e			17	
	W	iP			11	
		i			21	
		i			27	
	CL	iP			15	c
		i			25	
		i			31	
	T	ePNZ			18	
		e			28	
		iNEZ			33	
	BCIS: 30 S 177¼ W;					
	12:54:38, 60 km					
14	P	e	16	35	32	
	W	iP			39	
		i			42	
	CL	iP			43	
14	P	iP	17	54	33	
		ipP			43	
	R	eP			36	
	Pr	eP			42	
	Bt	iP			47	
	W	iP			22	
		ipP			33	
	CL	iP			28	
		i			31	
		ipP			39	
	T	eP			20	
	BCIS: 52¾ N 160 E;					
	17:44:33					
14	Bt	e	21	48	25	
	W	iP			07	
		i			18	
	CL	iP			11	
		i			26	
	T	eP			05	
15	MW	iP	12	02	18	
	Pr	iP			20	
	W	iP			19	
	CL	iP			24	
	T	i(P)			25	
16	MW	eP	01	10	39	
	R	iP			53	
	Pr	eP			45	
	Bt	eP			43	
	W	iP		11	08	
		i			16	
		ePcP		13	02	
	CL	iP		11	01	
	T	iP			12	
	USCGS: 7½ N 82 W;					
	01:02:57					

Date	Sta.	Phase	h m s
March			
16	P	iP	05 37 23
		ipP	39
	R	iP	25
		ipP	42
	Pr	iP	31
		ipP	47
	Bt	iP	35
		ipP	51
	W	iP	13
		ipP	29
	CL	iP	18
		ipP	33
	T	iP	11
	USCGS: Kurile Islands, 05:27:04, 60 km		
16	P	iP	15 29 41
	R	eP	37
	Pr	iP	34
	Bt	iP	30
	W	iP	51
		i	30 19
	CL	iP	29 46
	T	iP	54
		i	30 21
	BCIS: 13½ S 71¼ W; 15:19:01		
17	P	iP	13 06 04
	R	iP	05 56
		i	06 10
	W	iP	16
	CL	iP	10 d
	T	iPNZ	23
	Tacubaya: 16° 53' N 100° 20' W; 13:00:52, strong at Acapulco		
18	CL	iP	05 14 41
	T	iP	44
18	MW	e	13 20 36
	CL	iP	32
	T	eP	24
18	Pr	i	17 28 32
	Bt	e	40
		e	29 01
	CL	eP	28 16
		i	33
	T	e	07
		e	28
19	P	iPNEZ	08 23 23
	R	iP	26
		e	24 01
	Pr	iP	23 25 c
		i	59
	Bt	eP	23
	CL	iP	30 c
		i	39
		i	24 04
	T	iP	23 32
	USCGS: 25 S 178 W; 08:11:02		
19	P	iPNEZ	09 54 59.7 c
		i	55 01.4
		iSN	28.9
	R	iP	54 50.6 c
		iNZ!	51.2
	Pr	iP!	40.3 c
	Bt	iPNEZ!	41.7

(continued)

Date	Sta.	Phase	h m s
March (continued)			
19	CL	iP	09 55 12.1 d
	H	ePNZ	19.2
	T	iP	32.3
		i!	46.4
		iSE	56 28.0
	Magnitude 6.2 33° 17' N 116° 11' W; 09:54:29 Epicenter in nearly uninhabited area (Santa Rosa Mountains) Intensity VI to distances of about 100 km. Felt generally in Southern California and as far north as China Lake and Death Valley.		
19	P	iPN	10 21 50.1
		iSN	22 15.4
	R	iP	21 35.2
		iSN	53.8
	Pr	iP	28.6
		iS	37.2
	Bt	iP	29.3
	FT	iP	22 03.7
		iS	42.8
	Aftershock. Magnitude 5.5 Pasadena: 33° 17' N 116° 11' W; 10:21:17		
20	P	iP	04 19 51.0
		iSE	20 17.8
	R	iPN	19 41.1
		iSN	58.8
	Pr	iPNZ	30.8
	Bt	iPNZ	32.1 c
		iSN	41.9
	BB	iP	40.4 d
	Aftershock. Magnitude 4.9 Pasadena: 33° 17' N 116° 11' W; 04:19:19		
20	CL	iP	14 14 32
		i	37
		i	45
	T	eP	24
	USCGS: 47 N 154 E; 14:04:07, 100 km		
21	CL	e	00 51 59
	T	e	52 00
		e	25
21	P	iPNEZ	06 19 28 c
		ipP	48
	R	iP	31 c
		ipP	46
	Pr	iP	34
		i	38
	Bt	iP	42 c
	CL	iP!	23 c
		ipP	41
	T	iP	15 c
		ipP	36
	BCIS: 53 N 158.5 E; 06:09:26, 60 km		
21	MW	e	12 16 45
	R	e	47
	CL	iP	51
	USCGS: 12:03:40 Kermadec Islands		
21	CL	eP	14 33 05
		e	15

Date	Sta.	Phase	h m s
March			
21	P	e	20 49 42
	R	e	37
	Pr	e?	10
		i	24
		i	28
	W	e	54
	CL	e	47
	T	i	58
		e	50 08
	Central America USCGS: 20:43:10		
21	P	eP	23 56 42
		e	57 02
		iP"	24 00 32
		iPP	01 23
		isPP	02 17
	PX	iPPP	03 44
		i	04 53
		iSP	10 46
	P	ePKKP	11 15
	PX	i(sSP)	49
	P	i!	12 03
		e	15 11
	PX	iSSE	17 02
	P	e	19 04
		e(P"P")	20 04
	PX	i	21 28
		eL	29.9
		iREZ	38 27
		A	T
		PPZ	3 5
		PPH	2 5
	R	eP	23 56 49
		iP"	24 00 33
		iPPNZ	01 34
		iPKKP	11 12
		i	12 00
	Pr	iP"	00 36
		iPP	01 36
		isPP	02 27
		iPKKP	11 10
		i!	14
		i	58
		i	15 13
	Bt	iP"	00 37
		iPP	01 38
		isPP	02 41
		iSP	11 00
		iPKKP	07
		i	54
	W	e(P)	23 56 48
		i	58
		iP"	24 00 29
		iPP	01 19
		i	02 00
		iPKKP	11 10
		i	19
		i	12 05
		i	14 48
	CL	iP"	00 16
		iPP	01 20
		i	02 22
		i	03 17
		i	09 47
		iPKKP	11 18

(continued)

Date	Sta.	Phase	h m s
March (continued)			
21	T	iP	23 56 30
		e	57 00
		iP"	24 00 30
		iPP	01 06
		iPPP	03 37
		iSPNZ	10 40
		iPKKP	11 22
		i	43
		i	12 12
	Pasadena: 24½ N 95¼ E; 23:42:11, 180 km		
	Magnitude 7.4		
22	R	e	06 13 04
	W	iP	12 39
	CL	e	44
	T	e	45
	USCGS: Tonga Region; 06:00:34		
22	P	eP	07 01 31
		i	34
	PX	eL	32.0
	R	e	01 31
	Pr	i	37
	Bt	e	35
	W	iP	33
		i	39
	CL	eP	38
		i	42
	T	eP	41
	USCGS: 27 S 176½ W; 06:49:05		
22	MW	iP	09 20 44
	R	iP	39
	W	iP	51
	T	iP	51
	South America		
22	P	eP	09 51 09
		e	54 20
	PX	eL	10 18.5
	R	eP	09 51 12
	Pr	i	15
	W	iP	12 d
	CL	iP	17 d
		i	21
		i	37
	T	eP	19
	USCGS: 27 S 176½ W; 09:38:43		
22	P	e	10 37 39
	R	e	41
	W	e	35
	CL	e(P)	42
	T	e(P)	41
	USCGS: 5 S 140 E; 10:23:39		
22	P	iPNEZ	17 16 25 d
		ipPNZ	37
		i	51
		iPcP	19 47
		i	20 02
	PX	eL	24.5
	R	iP	16 20 d
		ipPNZ	34
		iPcP	19 46
		i	20 03

(continued)

Date	Sta.	Phase	h m s
March (continued)			
22	Pr	iP	17 16 13 d
		ipP!	25
	Bt	iP	07
		ipP	22
	W	iP	37 d
		i	17 04
		iPcP	19 50 d
		eScP	23 27
	CL	iP	17 16 30 d
		ipP	44
		iPcP	19 49
	T	iP	16 42 d
		ipP	55
		i	17 37
		iPcP	19 32
		i	20 07
	USCGS: 17 N 95½ W;		
	17:10:50, 60 km		
22	P	iPNEZ	19 07 51
	R	eP	55
	Bt	iP	08 06
	W	iP	07 40
		ipP	57
	CL	iP	45
		ipP	59
	T	iP	37
		i	08 08
	BCIS: 55½ N 162½ E;		
	18:58:04		
22	MW	eP	19 25 16
	W	iP	05 c
	CL	iP	09
	T	eP	00
	BCIS: Same region as		
	preceding; 19:15:28		
22	W	i(P)	19 47 24
	CL	i(P)	27
	T	e(P)	31
22	W	eP	19 50 52
	CL	e	55
	T	e	51
23	P	iP	04 15 19.8
		iSNE	48.8
	R	iP	11.3
		iSN	29.8
	Pr	iP	01.6
	Bt	iP	03.3 d
		iSN	12.9
	BB	iP	10.7 d
	Magnitude 5.1		
	33° 17' N 116° 11' W;		
	04:14:49.9		
	Felt as far as Los Angeles		
23	P	e	05:38:20
	R	e	36
	W	iP	14 d
		ipP	27
	CL	iP	18
		ipP	30
	T	iP	13
		ipP	26
	CMO: 32.6 N 132.1 E;		
	05:25:40, 10-30 km		
23	MW	e	09 50 21
	R	e	25
	W	e(P)	22
	CL	e	26

Date	Sta.	Phase	h m s
March			
23	W	iP	18 19 03
	CL	iP	18 57
	T	eP	19 06
23	W	e	20 06 04
	CL	e	04
	T	e	12
24	P	iP	01 44 25
		ipPNZ	43
		iPP	45 00
	R	iP	44 28
	Pr	iP	31
		ipP	49
	Bt	iP	33 d
		ipP	51
	W	iP	21 d
		ipP	40
	CL	iP	26 d
		ipP	44
	T	iP	23
		ipP	41
	USCGS: Marianas, 01:31:39,		
	100 km		
24	W	e	06 06 47
	CL	e	53
	T	e	49
	BCIS: Marianas, 05:54:--		
24	MW	e	12 37 11
	Pr	e	38
	W	eP	36 57
		i	37 08
	CL	e	14
	T	e	07
	BCIS: 12:27.1; Kamchatka		
24	MW	e	17 31 40
	W	iP	31
		i	42
		i	32 01
	CL	e	31 39
	T	e	38
	BCIS: 53 N 160½ E;		
	17:21:43		
25	P	iPNEZ	03 45 20 c
	R	iP	24 c
	Bt	iP	23 c
	W	iP	23 c
	CL	iP	29 c
	T	iP	30 c
	USCGS: 15 S 176½ W;		
	03:33:04		
25	R	eP	09 43 34
	W	iP	34 c
	CL	iP	39
		i	49
	T	iP	41
	USCGS: 28½ S 178 W;		
	09:30:58		
26	MW	iP	00 40 21
	R	iP	17
	Bt	iP	09
	W	iP	29 d
	CL	iP	25
	Felt in Bolivia		
	BCIS: 00:28.9		
26	P	eP	04 47 01
		i	06
		i	19
	R	eP	04

(continued)

Date	Sta.	Phase	h m s
March (continued)			
26	R	e	04 47 10
		i	21
	Pr	i	26
	Bt	eP	12
		i	28
	W	iP	46 53 c
		i	58
		i!	47 10
		i	26
	CL	iP	46 57
		i!	47 13
	T	eP	46 52
		i	47 09
	CMO: 41.2 N 142.2 E;		
	04:35:25, 60 km		
26	P	iPNEZ	09 48 11 d
	R	iP	06 d
	Pr	iP	01
	Bt	iP	47 58 (d)
	W	iP	48 21 d
		i	33
	CL	iP	16 d
	T	iP	25 d
		e	49
	USCGS: 2 S 79½ W;		
	09:39:06		
26	P	eP	10 58 31
	R	eP	34
		e	51
	Pr	eP	40
	Bt	iP	43
	W	iP	22 c
		ipP	42
		i	52
	CL	iP	27 c
		ipP	46
		i	57
	T	iP	21 c
	CMO: 44 N 147 E;		
	10:47:22, 80 km		
26	P	iPNEZ	18 41 29 c
	Pr	iP	36 c
	Bt	iP	37 c
	W	iP	25 c
	CL	i	41
	T	iP	29 c
27	P	iPNZ	11 45 08
	R	iP	12
	Pr	iP	16
	Bt	iP	21
	CL	iP	04 c
	T	iP	44 57 c
	CMO: 44.3 N 141.9 E;		
	11:34:02, 230 km		
27	P	iPNZ	18 30 53 d
		ipP	31 22
		i	25
	R	iP	30 47
		i	49
		ipP	31 18
		i	21
	Pr	iP	30 42
		ipP	31 13
		i	41
	Bt	iP	30 41
		ipP	31 12

(continued)

Date	Sta.	Phase	h m s
March (continued)			
27	CL	iP	18 30 57 d
		e	31 15
		ipP	27
	T	i(P)	06
		ipP	36
	USCGS: 8 S 75½ W;		
	18:21:05, 150 km		
27	P	ePNZ	18 48 27
	R	eP	22
		e	30
		e	50 29
	Pr	iP	48 16 d
		i	25
	Bt	eP	13
		e	22
	CL	eP	31
		e	49 09
	T	eP	48 40
	USCGS: 9 N 84 W;		
	18:40:55, 100 km		
28	MW	iP	01 34 43
	R	iP	45
	W	iP	46
	CL	iP	50
	T	iP	54
	Near Apia.		
	USCGS: 01:23:33		
28	R	e	06 15 30
	W	iP	17
		i	32
	CL	eP	24
		e	37
	T	eP	26
		e	40
	USCGS: 12½ S 171 W;		
	06:04:08		
28	P	ePNZ	13 08 33
	PX	eLN	25.3
	R	eP	08 32
	Pr	eP	31
	Bt	eP	22
		i	27
	W	iP	47
	CL	iP	43
	USCGS: Northwest of Easter		
	Island, 12:58:35		
28	P	iP	17 18 17
	R	iP	23
	Pr	iP	30 c
	Bt	iP	33 c
	W	iP	05 c
		i	22
		iPcP	20 27
		iScP	23 59
	CL	iP	18 12 c
		iPcP	20 20
	T	iP	18 03 c
		iPcP	20 16
		iScP	24 00
	USCGS: 53 N 168 W;		
	17:10:40		
28	R	eP	19 30 46
		e	31 27
	Pr	iP	30 41
	W	iP	31 00 c
	CL	iP	30 55
	T	eP	31 04
	USCGS: 7½ S 73½ W; 19:20:58		
	100 km		

Date	Sta.	Phase	h	m	s	
March						
28	P	eP	20	42	42	
		i			54	
	R	eP			44	
	Pr	iP			47	
		i		43	05	
	Bt	eP		42	56	
		i		43	10	
	W	iP		42	30	
		i			44	
	CL	eP			36	
		i			48	
	T	eP			28	
		i			40	
28	P	eP	20	45	24	
		iNEZ			28	
	PX	eSNE		52	21	
		eLNEZ		56.	4	
			A		T	
		PZ	¾		1	
		SH	2		6	
		MH	25		20	
		MH	20		18	
	R	eP	20	45	21	
		i			24	
	Pr	eP			27	
		i			30	
	Bt	eP			31	
		eS		53	00	
	W	iP		45	05	
		i!			08	
	CL	iP			11	
		i			14	
	T	eP			02	
		i			06	
		eSN		52	04	

Magnitude 6-6¼
USCGS: 52 N 176 E;
20:36:22
This shock is the largest of a numerous swarm from approximately the same epicenter. Many smaller ones, with P at one or two stations, are omitted here.

28	P	iPNZ	21	06	58	
		i		07	12	
	R	iP			02	
		i			17	
	Pr	iP			07	
	Bt	iP			12	
	W	iP		06	46	
	CL	iP			52	
	T	iP			45	

USCGS: 52 N 175½ E;
20:58:09, 60 km

28	P	iP	21	08	10	
		i			27	
	R	iP			14	
		i			31	
	Pr	iP			19	
	Bt	iP			25	
	W	iP		07	58	
	CL	iP		08	04	
	T	iP		07	57	

Aleutian Is., same source as preceding.

Date	Sta.	Phase	h	m	s	
March						
28	MW	eP	23	36	02	
	R	eP			06	
	Pr	iP			13	
	W	iP		35	50	
	CL	eP			57	
	Aleutian Is.					
29	P	eP	04	15	09	
		e			19	
		ePP		19	12	
	R	eP		15	11	
		ePP		19	17	
	Pr	eP		15	27	
		ePP		19	26	
	Bt	eP		15	29	
		e		18	35	
		ePP		19	27	
	W	eP		15	01	
		e		18	07	
		iPP		19	19	
	CL	eP		15	06	
		e		18	13	
		ePP		19	13	
	T	eP		15	01	
		ePP		18	55	
		e		19	16	

USCGS: 19½ N 121½ E;
04:01:10

29	P	iPNZ!	06	28	46	c
		e		30	11	
		ipPNEZ!			59	c
		i(sP)		32	16	
		e		34	10	
	PX	iSKNEZ!		38	22	
		iSNEZ			33	
		iSP			35	
		eN		42.	4	
		eNE		43.	5	
		iPKKP		46	40	
		eP'P'		54	17	
		i			25	
		eSKPP'		57	03	
		eP'P'P'	07	15	19	
			A		T	
		PZ	5		5	
		PH	½		1½	
		pPZ	3		1½	
		pPH	4½		4	
		PPZ	12		8	
		PPH	5		4	
		SH	25		7	
	MW	iP	06	28	46	c
		ipP		30	59	
		i		32	16	
		iPKKP		46	40	
		eP'P'		54	17	
		eSKPP'		57	10	
		eP'P'P'	07	15	31	
	R	iPNZ	06	28	44	c
		ipPNZ		30	59	
		i		32	13	
		eSKSN		38	11	
		i			35	
		i		39	31	
		iPKKP		46	44	
		eP'P'		54	17	
		i			35	
		eSKPP'		57	03	
		eP'P'P'	07	15	18	

(continued)

Date	Sta.	Phase	h	m	s	
March (continued)						
29	Pr	iP!	06	28	45	c
		ipP		30	58	
		i		31	57	
		iSKS		38	27	
		iPKKP		46	43	
		iSKPP'		57	12	
	Bt	iPNZ!		28	47	c
		ipP		30	59	c
		isP		32	20	
		iSKSNEZ		38	17	
		i		39	25	
		iPKKP		46	43	
		e		54	43	
		eSKPP'		57	05	
	W	iP!		28	45	c
		ipP		30	58	
		i		31	57	
		iSKS		38	27	
		eP'P'		54	10	
		i			49	
		iSKPP'		57	04	
	CL	iP!		28	39	c
		i		29	13	
		ipP		30	51	
		i		31	09	
		iSP		39	19	
		iPKKP		46	43	
		e		53	14	
		i		54	00	
		iSKPP'		57	07	
		i			14	
		eP'P'P'	07	15	25	
		e		29	46	
	T	iPNEZ	06	28	39	c
		ipP		30	51	
		i		32	08	
		iSKSNEZ		38	17	
		iSP		39	20	
		ePKKP		46	12	
		i			19	
		eP'P'		54	18	
		e			53	
		eSKPP'		57	10	
		e	07	15	27	

Remarkable deep-focus earthquake under Southern Spain.
Pasadena: 37 N 3½ W;
06:17:05, 640 km
Magnitude 7.1

29	P	iP	14	07	35	
		isP		08	08	
	R	iP		07	30	
		e			53	
	Pr	iP			25	
		ipP			50	
		isP			58	
	Bt	eP			22	
		ipP			46	
		isP			54	
	W	iP		07	45	d
		epP		08	10	
		esP			17	
		iPcP			50	
		e		12	02	
		e		13	52	

(continued)

Date	Sta.	Phase	h	m	s	
March (continued)						
29	CL	iP	14	07	40	d
		ipP		08	05	
		isP			13	
	T	iP		07	49	
		ipP		08	12	

USCGS: 2½ S 78½ W;
13:58:30, 100 km

29	P	eP	14	18	36	
	R	eP			40	
	Pr	iP			47	
	Bt	eP			53	
	W	iP			24	
		i		19	27	
	CL	iP		18	31	d
	T	eP			22	
29	MW	eP	17	40	39	
	Pr	iP			49	
	Bt	iP			52	
	W	iP			26	
		i			37	
		i			47	
	CL	iP			34	
	T	eP			24	
30	MW	e	10	57	45	
	R	iP			37	
		i			48	
	Bt	eP			48	
		i			58	
	W	iP			48	
		i		58	00	
	CL	iP		57	28	
		i			39	

USCGS: 46½ N 153½ E;
10:46:48

30	MW	iP	14	08	10	
	W	iP			14	
		i			20	
	CL	iP			18	
	T	iP			21	

USCGS: 13 S 171 W;
13:57:02

30	P	iPNZ	16	28	52	c
	R	iP			56	c
	Pr	iP!		29	02	c
	Bt	iP			06	c
	W	iP		28	40	c
		i			50	
	CL	iP			46	c
	T	iP			28	c

USCGS: 52 N 175½ E;
16:19:57

30	P	iPNEZ	16	40	58	
		i		41	08	
	R	iP			02	c
		i			12	
	Pr	iP!			07	c
	Bt	iP			10	
	W	iP		40	46	c
		i			57	
	CL	iP			52	c
		i		41	02	
	T	iP		40	44	c

USCGS: 52 N 175½ E;
16:32:03

30	P	iPNZ	16	47	05	
	PX	eSN		52.	7	

(continued)

Date	Sta.	Phase	h	m	s	
March (continued)						
30	PX	eLN	16	55.0		
			A		T	
		PZ	0.2		2	
		MH	18		9	
	R	iP	16	47	10	
	Pr	iP			13	
	Bt	iP			17	
	CL	iP			13	
	T	iPNZ			13	
		iSN		52	59	
	Magnitude 6					
	Felt at Hilo, Hawaii					
	USCGS: 20 N 155 W;					
	16:40:03					
30	P	iP	18	48	57	
	PX	iSN		54	37	
		eLN		56.8		
			A		T	
		PZ	0.2		1	
		SH	7		8	
		MH	90		9	
		MZ	70		9	
	Pr	iP	18	49	04	
	Bt	eP			04	
	W	iP		48	56	
	CL	iP		49	03	
	T	ePNZ			04	
		iSN		54	51	
	Magnitude 6½					
	Minor damage at Hilo,					
	USCGS: 20 N 155 W;					
	18:41:54					
30	MW	iP	22	44	15	
	W	iP			19	
	CL	eP			23	
	T	eP			25	
	Near Apia					
	BCIS: 22:32.6					
30	P	iP	23	03	54	
	Pr	iP		04	03	
	Bt	iP			07	
	W	iP		03	42	
	CL	iP			47	
	T	eP			38	
	Roughly 52 N 176 E;					
	22:55.0					
31	MW	eP	08	41	14	
	Pr	iP			16	
	W	iP			15	d
	CL	eP			21	
	T	eP			23	
	USCGS: 12 S 171½ W;					
	08:30:04					
31	P	iP"	18	45	10	
	PX	iPP		47	34	
		iSKPNEZ		48	40	
		iPPP		50	32	
	P	iSKKP		57	38	
	PX	iSKSP			57	
		iPPSNZ		59	40	
		i	19	00	42	
			A		T	
		P"Z	¾		2	
		PPZ	4		3	
		PPH	2½		4	
		MZ	75		20	
		MH	60		20	
	R	eP"	18	45	07	

(continued)

Date	Sta.	Phase	h	m	s	
March (continued)						
31	R	iPP	18	47	30	
		iSKP		48	34	
		iSKKP		57	46	
	Pr	eP"		45	09	
		i			19	
		ePP		47	34	
		i			41	
		i		50	07	
		i			23	
		e		52	37	
		eSKKP		57	14	
	Bt	iP"		45	13	
		iPP		47	44	
		iSKP		48	44	
		iPPP		50	42	
		eSKKP		57	27	
		iPPS		59	54	
		i	19	01	00	
	W	iP"	18	45	03	
		i			13	
		iPP		47	17	
		iSKP		48	40	
		iPPP		50	19	
		iSKKP		57	39	
		i			51	
	CL	iP"		45	07	
		ePP		47	18	
		i			27	
		iSKP		48	31	
		e		50	09	
		iPPP			19	
	T	eP"	18	45	01	
		i			05	
		i			12	
		i			23	
		iPPNZ		47	19	
		iSKPN		48	33	
		iN		54	17	
		iSKSPN		57	29	
		iNZ	19	00	15	
	Pasadena: 12½ N 58 E;					
	18:25:47, Magnitude 7¼					
April						
1	R	e	02	31	10	
	W	e			07	
	T	e			03	
	USCGS: 19½ N 65½ W;					
	02:22:16					
1	P	eP	10	19	14	
		epP			31	
	R	eP			17	
		epP			35	
	Pr	eP			25	
		epP			41	
	Bt	eP			27	
	W	iP			04	c
		ipP			21	
	T	eP			01	
		ipP			18	
1	P	iPNEZ	14	17	33	c
	PX	eLN		34.6		
	R	iP		17	27	c
		ipP			46	
	Pr	iP			25	c
	Bt	iP			23	c
	W	iP			39	c
	T	iPNZ			36	

(continued)

Date	Sta.	Phase	h	m	s	
April (continued)						
1	T	ipP	14	17	52	
		eSN		24	35	
	USCGS: 19½ N 67 W;					
	14:08:59, 60 km					
1	P	iPEZ	18	29	24	
		ipP			36	
		i		30	13	
	PX	iSE		38	06	
		eLN		45.4		
			A		T	
		PZ	½		4	
		SH	1½		5	
		MH	11		18	
	Pr	iP	18	29	33	
		ipP			44	
		i		32	16	
	Bt	eP		29	39	
	W	iP			14	d
		ipP			29	
	CL	iP			19	
		ipP			32	
		i		30	47	
	T	eP		29	13	
	Magnitude 6¼					
	USCGS: 46½ N 153½ E;					
	18:18:47, 60 km					
1	P	iPNEZ	23	17	09	
		i			26	
		i			39	
		iPcP		20	19	
	PX	eLN		26.4		
	R	eP		17	02	
		ePcP		20	17	
	Pr	iP		16	57	c
		i		17	21	
		iPcP		20	16	
	Bt	iP		16	53	
		iPcP		20	14	
	W	iP		17	20	c
		iPcP		20	22	
	CL	iP		17	13	c
		iPcP		20	21	
	T	iP		17	23	
		iPcP		20	23	
	USCGS: 17½ N 92 W;					
	23:11:22, 150 km					
2	MW	e	00	31	30	
	Pr	e			31	
	W	iP			32	
	CL	eP			36	
	T	eP			39	
	BCIS: Samoa 00:20.1					
2	P	iPNEZ	10	35	18	d
	R	iP			21	
	Pr	iP			22	d
		e		36	11	
	Bt	iP		35	22	
	W	iP			21	d
	CL	iP			25	d
		e		37	00	
	T	iP		35	27	
	USCGS: 17 S 178 W					
	10:23:25					
2	MW	e	11	18	13	
	R	eP			09	
	Bt	eP			01	
	W	eP			21	

(continued)

Date	Sta.	Phase	h	m	s	
April (continued)						
2	CL	eP	11	18	17	
	T	eP			25	
	Near Copiapo', Chile					
2	CL	eP	11	23	32	
	T	eP			30	
2	P	iPNEZ	15	10	53	c
		isPNZ		11	11	
		ePP		14	06	
	PX	eLEZ		36.3		
			A		T	
		PZ	½		1½	
	R	iP	15	10	55	c
		ipP		11	07	
		isP			11	
	Pr	iP		10	55	c
		ipP		11	07	
		isP			12	
		iPP		14	25	
	Bt	iP		10	53	c
		ipP		11	06	
		isP			10	
		i			24	
	W	iP		10	56	c
	CL	iP		11	01	c
		ipP			11	
		isP			17	
		iPP		14	31	
	T	iPNZ		11	02	c
		iNZ			19	
		eSN		20	20	
	USCGS: 28½ S 177 W;					
	14:58:26, 60 km					
2	P	ePZ	20	36	08	
		i			33	
	R	iP			11	
	Pr	iP			17	
		i			42	
	Bt	iP			21	
	CL	iP			02	
		i			27	
	T	iP		35	54	
		i		36	18	
	Deep? USCGS: 50½ N 156 E;					
	20:25:45					
3	R	e	00	15	00	
	Pr	e		14	56	
		i		15	05	
	W	iP		14	39	
		i			51	
	CL	iP			41	
		i			52	
	USCGS: 52½ N 159½ E;					
	00:04:40					
3	P	iPEZ	01	30	45	
	R	eP			47	
		epP		31	00	
	Pr	iP		30	55	d
		ipP		31	05	
	Bt	iP		30	59	
	W	iP			35	d
		ipP			47	
	CL	iP			39	d
		ipP			50	
	T	eP			32	
		epP			43	
	BCIS: 53½ N 163 E;					
	01:20:57					

Date	Sta.	Phase	h m s	
April				
3	Pr	e	08 08 23	
	W	e	34	
	CL	e	30	
		e	41	
	T	e	29	
	BCIS: 2½ N 79¼ W;			
	07:59:47			
3	MW	e	21 10 40	
	W	e	35	
	CL	e	34	
3	R	e	21 46 23	
	Pr	iP	00	
	Bt	e	08	
	W	eP	23	
	CL	eP	15	
	T	eP	25	
	Tacubaya: 16° 18' N			
	91° 33' W; 21:40:06			
4	PX	eLZ	11 03.4	
	MW	eP	10 51 12	
	Pr	iP	01	c
	W	eP	25	
	CL	eP	17	
	Central America			
4	P	iPNEZ	13 31 23	
	R	eP	26	
	Pr	iP	26	d
		epP	32 11	
	Bt	eP	31 25	
	W	iP	26	d
		ipP	32 15	
	CL	iP	31 31	d
		epP	32 15	
	T	iP	31 33	
	USCGS: 16½ S 175 W;			
	13:20:04, 200 km			
4	MW	e	15 16 39	
	R	eP	34	
	Pr	iP	42	
	W	iP	40	
	CL	iP	45	
	T	eP	47	
4	P	eP"	15 54 56	
	R	eP"	54	
	Bt	e	52	
	W	iP"	59	d
	CL	eP"	56	
	T	eP"	55 01	
	South Atlantic?			
4	MW	eP"	22 32 37	
	R	eP"	37	
		e	52	
	W	iP"	31	
		i	57	
	CL	iP"	40	
		i	55	
	South Atlantic:			
	BCIS: 22:14.0			
4	P	ePEZ	23 25 35	
	PX	eSE	35 04	
		eLEZ	48.6	
	R	iP	25 39	
	Pr	iP	42	
		i	56	
	Bt	iP	53	
		i	26 07	
	W	iP	25 26	

(continued)

Date	Sta.	Phase	h m s	
April (continued)				
4	W	i	23 25 33	
	CL	iP	31	
		i	59	
	T	iP	24	
	CMO: 41.9 N 142.8 E;			
	23:14:01, 50 km			
5	W	iP	07 31 15	
	CL	iP	20	
	Near Apia			
5	R	iP	07 47 03	
	Pr	iP	03	d
	W	iP	04	d
	CL	iP	08	d
	North of New Zealand			
5	R	iP	12 58 49	
	Pr	iP	48	
	W	iP	49	
	CL	iP	53	
	T	iP	55	
5	P	iPNEZ	18 03 48	d
		ipP	04 16	
		isP	27	
	R	iP	03 44	d
		ipP	04 12	
	Pr	iP	03 40	d
	Bt	iP!	37	d
		ipP	04 04	
	W	iP!	03 56	d
		i	04 08	
		ipP	24	
	CL	iP!	03 52	d
		i	04 07	
		ipP	19	
	T	iPNZ!	04 00	d
		ipP	28	
		isP	40	
	BCIS: 23.0 S 68¼ W;			
	17:52:23, 120 km			
5	P	iPNEZ	19 29 48	
	R	iP	49	
	Pr	iP	59	
	Bt	iP	30 08	
	W	iP	29 20	
	CL	iP	27	
	T	ePNZ	12	
	USCGS: 48 N 129 W;			
	19:26:00			
5	P	iP	19 38 44	
	R	eP	46	
	Pr	iP	56	
	Bt	iP	39 11	
	W	iP	38 19	
	CL	iP	25	
	T	iP	08	
	USCGS: 48 N 128 W;			
	19:34:57			
5	P	eP	19 51 29	
	R	eP	32	
	W	iP	04	
	CL	iP	09	
6	MW	e	18 12 25	
	W	eP	16	
		i	22	
		i	29	
	CL	iP	20	
		i	31	

Date	Sta.	Phase	h m s	
April				
6	MW	eP	20 36 59	
	W	eP	57	
	CL	eP	59	
	BCIS: 17 S 168 E;			
	20:24:08			
7	P	iPEZ	06 39 44	
	R	iP	47	
	Pr	iP	48	
	W	iP	47	
	CL	iP	52	
	Near Apia			
	BCIS: 06:28:27			
7	P	iPNEZ	16 43 25	d
		i	32	
	R	iP	29	
	Pr	iP	35	d
	Bt	iP	39	
	W	iP	13	d
		i	21	
		i	29	
	CL	iP	19	d
		i	27	
	BCIS: 52¼ N 176 E;			
	16:34:31			
7	PX	eL	19 03.8	
	MW	eP	18 39 05	
	R	eP	08	
	Pr	eP	08	
	W	eP	02	
	CL	iP	10	
	BCIS: 14½ S 165¾ E;			
	18:26:20			
8	MW	e(P)	04 44 33	
	CL	eP	35	
		i	38	
	T	i	38	
	New Hebrides			
8	R	e	13 40 54	
	W	i	36	
		i	49	
	CL	e	49	
	T	e	53	
8	P	eP	16 49 45	
		iNEZ	50 01	
	PX	eSNE	57.1	
		eGE	17 03.6	
		eRNZ	06.4	
	Bt	iP	16 49 33	
		i	49	
	W	eP	56	
	CL	eP	56	
		i	50 15	
	T	eP	06	
		eNZ	27	
	USCGS: 23½ S 116 W;			
	16:39:52			
9	P	iPNEZ	06 28 10	c
		ipP	29 06	
	R	iP	28 05	c
		ipP	29 02	
	Pr	iP	28 02	c
		ipP	58	
	Bt	iP	27 57	c
	W	iP	28 18	c
		ipP	29 15	

(continued)

Date	Sta.	Phase	h m s	
April (continued)				
9	CL	iP	06 28 13	c
		ipP	29 09	
	T	iP	28 21	
		epP	29 19	
	BCIS: 15½ S 69¾ W;			
	06:17:30, 200 km			
9	MW	e	09 12 04	
	R	e	06	
	W	iP	06	d
	CL	iP	11	d
9	P	iP	14 07 55	
	R	iP	58	
	Bt	iP	08 05	
	W	iP	07 49	d
	CL	iP	53	d
	T	eP	48	
	CMO: 27 N 140½ E;			
	13:56:12, 400 km			
10	MW	e	03 17 34	
		e	41	
	R	e	53	
	W	iP	30	d
	CL	eP	36	
	T	e	34	
	BCIS: 54¼ N 161 E;			
	03:07:48			
10	MW	eP	08 17 51	
		e	18 28	
	R	eP	17 52	
	Pr	eP	52	
	W	eP	48	
		i	58	
	CL	eP	54	
	New Hebrides			
	USCGS: 08:05:06, 60 km			
10	P	iPNZ	10 23 55	
	R	iP	49	
	Pr	iP	45	d
		i	52	
	Bt	iP	42	
	W	iP	24 04	
		i	25 55	
	CL	iP	23 57	
	T	eP	24 06	
	USCGS: 10½ N 78 W;			
	10:15:46			
10	P	iPNEZ	13 26 38	
	R	iP	41	
		i	27 02	
	Pr	iP	26 41	d
		i	27 05	
		i	20	
	Bt	iP	26 41	d
	W	iP	38	d
		i	27 24	
	CL	iP	26 43	d
		i	27 39	
	BCIS: 14½ S 167¼ E;			
	13:14:21, 200 km			
10	P	ePNEZ	15 06 09	
		iSNEZ	07 45	
	PX	eLEZ	08.7	
	R	eP	06 19	
		e(S)	08 04	
	Pr	eP	06 28	

(continued)

April (continued)

Date	Sta.	Phase	h m s	
10	Pr	e(S)	15 08 21	
	Bt	eP	06 37	
		e(S)	08 34	
	W	iP	05 48	
		i	57	
		i	06 09	
	CL	eP	00	
	T	eP	05 48	
		e(S)	07 05	
	BCIS: 40 N 126 W;			
	15:04:02			
11	P	i	02 26 28	
	R	eP	25 56	
		e	26 25	
	Bt	i	25 32	
		i	59	
	W	i	26 37	c
	CL	eP	04	
		i	33	
11	P	iPEZ	03 16 12	
		i	21	
		i	29	
	PX	eLN	40.6	
	R	eP	16 13	
		i	22	
	Pr	eP	15	
		i	21	
	Bt	iP	17	
		i	21	
		i	24	
	W	iP	09	
		i	27	
		i	51	
	CL	eP	14	
	T	eP	14	
		e	22	
	USCGS: 7 S 155 E;			
	03:03:03			
11	P	iPNEZ	03 28 58	
		e	29 37	
	R	eP	01	
	Pr	eP	03	
	W	i(P)	28 57	
	CL	iP	29 02	
		i	32 44	
	USCGS: Solomon Islands,			
	03:15:51			
11	R	e	04 49 52	
	Pr	e	57	
	W	i(P)	50	
	CL	e(P)	58	
	BCIS: 15¾ S 172¼ W;			
	04:38:32			
11	P	iPNEZ	05 51 42	c
		ipP	52 14	
	R	iP	51 38	c
		ipP	52 12	
	Pr	iP	51 34	c
	Bt	iP	31	c
		ipP	52 04	
	W	iP	51 50	
		ipP	52 23	

(continued)

April (continued)

Date	Sta.	Phase	h m s	
11	CL	iP	05 51 47	c
		ipP	52 20	
		i	33	
	T	iP	51 55	
		ipP	52 28	
	USCGS: 26½ S 68½ W;			
	05:40:03, 150 km			
11	Pr	iP	06 19 57	
	Bt	iP	20 01	
	W	iP	19 35	
	CL	eP	41	
11	Bt	e	09 15 49	
	W	iP	28	c
	CL	eP	34	
11	P	ePP	10 47 22	
	PX	eLNZ	11 30.0	
			A T	
		PPZ	¾ 3	
	MW	e	10 47 11	
		ePP	24	
		eSKP	48 22	
	R	eP"	44 49	
		e	55	
		ePP	47 28	
	Pr	eP"	44 51	
		e	57	
		iPP	47 24	
	Bt	eP"	44 41	
		e	46 59	
		iPP	47 24	
		i	43	
	W	iP"	44 51	
		ePP	46 40	
		eSKP	48 05	
	CL	iP"	44 46	
		i	52	
		ePP	47 07	
		i	48 37	
	T	ePP	47 04	
		e	48 04	
	BCIS: 10½ N 57 E;			
	10:25:23			
11	P	eP"	11 11 40	
		ePP	12 11	
		i	18	
	R	eP"	11 40	
		e	57	
		ePP	12 15	
	Pr	i	11 59	
		iPP	12 20	
	Bt	iP"	11 34	
		iPP	12 10	
	W	eP"	11 34	
		ePP	52	
	CL	iP	07 31	
		eP"	11 21	
		iPP	56	
	T	e	45	
		eN	14 09	
		eN	23 12	
	USCGS: 37 N 70½ E;			
	10:53:20, 60 km			

April

Date	Sta.	Phase	h m s	
11	MW	e	15 17 17	
	R	e	19	
	Pr	e	25	
	Bt	i	30	
	W	iP	05	c
	CL	eP	11	
	BCIS: Kurile Islands			
	15:06.7			
11	P	eP	18 49 41	
	R	eP	43	
	Pr.	eP	46	
	W	eP	39	
	CL	eP	43	
	Solomon Islands			
	BCIS: 18:36:34			
11	Pr	e	19 31 56	
	W	e	56	
	CL	e	32 13	
12	P	e	00 51 22	
		e	52 16	
	PX	eLZ	01 24.8	
	R	eP	00 50 56	
		e	51 24	
		e	52 19	
	Pr	e	51 27	
		e	52 20	
	Bt	e	52 19	
	W	e	51 19	
		e	52 13	
	CL	e	51 24	
		e	52 18	
	Near Rabaul			
12	Pr	i	08 50 43	
	W	iP	42	d
	CL	iP	48	
	Mexico			
12	P	eP	10 56 14	
	R	iP	10	
	Pr	eP	05	
	Bt	iP	02	
	W	iP	22	d
	CL	eP	18	
	South America			
12	R	i	16 10 10	
	Pr	eP	09 53	
		i	10 12	
	W	eP	09 47	
		i	10 08	
	CL	eP	09 53	
		i	10 13	
12	P	i	19 47 20	
	R	e	23	
	Pr	iP	23	
	W	iP	22	c
	CL	eP	27	
	BCIS: 15¾ S 172 W;			
	19:35:59			
13	MW	eP	02 37 20	
	W	iP	09	
		e	23	
	CL	eP	15	
		e	29	
13	P	iPNEZ	07 48 08	d
		ipP	50	

(continued)

April (continued)

Date	Sta.	Phase	h m s	
13	R	iP	07 48 04	d
		ipP	49	
	Pr	iP	01	d
		ipP	45	
	Bt	iP	47 58	d
		ipP	48 41	
	W	iP	15	d
		ipP	49 01	
	CL	iP	48 12	d
		ipP	55	
	T	iP	19	d
		ipP	49 03	
	USCGS: 27½ S 66 W;			
	07:36:33, 200 km			
13	W	i	08 06 58	
		e	07 43	
	CL	e	00	
	BCIS: 10 N 72.5 W;			
	07:54:51			
13	P	ePNEZ	15 38 23	
	R	eP	25	
	Pr	iP	33	
	Bt	eP	33	
	W	iP	14	
	CL	iP	20	
		i	38	
	T	eP	15	
	CMO: 32.9 N 134.4 E;			
	15:25:36, 20 km			
14	P	iPNZ	04 06 54	c
	R	eP	51	
	Pr	iP	52	c
	Bt	iP	50	c
	W	eP	54	
		i	57	c
	CL	eP	56	
		i	58	c
	T	iP	07 02	
14	P	ePEZ	07 55 35	
	R	eP	38	
	Pr	iP	44	
		i	56 10	
	Bt	eP	55 48	
	W	iP	24	c
	CL	iP	29	
	USCGS: 52½ N 158½ E;			
	07:45:27			
14	P	iPNEZ	08 05 49	
		e	06 12	
	R	iP	05 45	
		e	06 09	
	Pr	iP	05 42	
		i	06 06	
		e	27	
	Bt	iP	05 39	
		i	06 02	
	W	iP	05 58	d
		i	06 10	
		i	21	
	CL	iP	05 54	d
		i	06 17	
		i	35	
	T	iP	02	
		i	07 24	
	BCIS: 24½ S 69 W; 07:54:26,			
	100 km			

Date	Sta.	Phase	h m s
April			
14	P	eP"	13 43 54
	R	eP"	54
	Pr	iP"	58
		i	44 07
	Bt	iP"	43 58
	W	iP"	50
	CL	eP"	52
	BCIS: 10 N 93¼ E;		
	13:24:46		
15	P	iP	04 10 37
	R	eP	32
	Pr	eP	26
	Bt	eP	20
	W	eP	42
		i	47
		iPcP	12 29
	Panama:		
	USCGS: 7½ N 81 W;		
	04:02:30		
15	P	eP	04 48 12
	R	eP	06
	Pr	iP	01
	W	iP	20
		iPcP	50 03
	Aftershock of preceding		
	USCGS: 04:40:05		
15	W	eP	05 14 09
	Aftershock:		
	USCGS: 05:05:58		
15	P	iP	05 25.52
	R	iP	48
	Pr	iP	44
	Bt	iP	41
	W	iP	26 00
	T	eP	04
	BCIS: 14¼ S 66½ W;		
	05:14:50		
15	MW	e	07 56 54
	R	e	49
	Pr	iP	44
		i	57 42
	Bt	eP	56 40
	W	iP	57 04
		iPcP	58 48
	USCGS: Panama aftershock,		
	07:48:46		
15	R	eP?	08 46 43
	Pr	iP	36
	W	iP	58
		i	47 12
	T	eP	02
	USCGS: Panama aftershock,		
	08:39:00		
15	P	e	13 52 54
	R	e	59
		e	53 27
	Pr	i	27
	W	i?	52 22
		e	52
		i	53 26
	Very distant		
15	Pr	iP	23 13 35
	W	iP	36
	CL	iP	41

Date	Sta.	Phase	h m s
April			
16	MW	eP	03 32 57
		e	33 22
	R	eP	02
		e	25
	Pr	iP	00
		i	26
	W	iP	32 56
		i	33 22
	CL	iP	01
		i	27
16	MW	e	08 30 01
		e	27
	R	e	06
	Pr	e	15
		e	23
	Bt	iP	22
		e	34
	W	eP	29 44
		i	53
	CL	eP	49
	T	i(P)	40
16	P	eP	10 41 54
		i	42 11
	R	iP	41 57
		i	42 13
	Pr	eP	01
		i	18
	Bt	eP	08
		e	27
	W	iP	41 45 c
		i	50
		i	42 01
	CL	iP	41 50 c
		i	42 06
	T	i	00
	USCGS: 43 N 142½ E;		
	10:30:25, 60 km		
	CMO: 42.6 N 143.0 E;		
	10:30:24, 100 km		
16	MW	e	18 47 48
	R	e	43
	Pr	e	36
	W	iP	48
	CL	iP	51
16	R	e?	19 46 42
		e	55
	Pr	e?	41
		e	49
	W	eP	47 01
	CL	eP	46 57
		i	47 11
	Mexico		
16	R	e	21 47 02
	Pr	i	01
	W	eP	46 57
		i	47 00
	CL	eP	02
17	Pr	e?	03 23 47
		e	24 02
	W	iP	23 58
		e	24 14
	CL	e	23 49
17	P	iPEZ	12 21 34
	R	iP	37

(continued)

Date	Sta.	Phase	h m s
April (continued)			
17	Pr	iP	12 21 43
		e	22 22
	Bt	iP	21 45
	W	iP!	26
		i	37
		ipP	56
	CL	iP	31
		ipP	22 01
	T	eP	21 26
		epP	54
	CMO: 41.8 N 141.0 E;		
	12:10:03, 120 km		
17	P	iPNEZ	20 19 09 d
	PX	ePP	21 07
	P	iScPNZ	24 34
	PX	iSNEZ!	25 59
		eLN	29.5
			A T
		PZ	3 4
		PH	1½ 3
		PPZ	¾ 3
		SH	10 6
		MH	100 20
	R	iP	20 19 13 d
		iScP	24 35
		iSNZ	26 07
	Pr	iP!	19 20 d
		iScP	24 39
		iS	26 21
	Bt	iP!	19 24 d
		iPP	21 30
		iScP	24 41
		iS	26 25
	W	iP!	18 57 d
		i	20 55
		i	22 27
		iScP	24 26
		eS	25 37
	CL	iP!	19 03 d
		iPP	21 03
		iScP	24 30
		i	39
		iS	25 45
	T	iPNEZ	18 55 d
		eScP	24 27
		iSNE	25 36
	Magnitude 6¾		
	USCGS: 51½ N 179 W;		
	20:10:37		
17	MW	iP	20 27 59
	R	iP	28 03
	Pr	iP	10
	Bt	iP	14
	T	eP	27 45
	Aftershock		
17	MW	e	20 32 53
	R	e	53
	Pr	e	33 05
	W	iP	32 43
	CL	e	52
	Aftershock		
17	Pr	e	20 36 39
	W	i	31
	Aftershock		

Date	Sta.	Phase	h m s
April			
17	Pr	eP	20 37 23
	Bt	eP	31
	W	iP	00
	Aftershock		
17	MW	eP	20 40 15
	R	e	29
	Pr	eP	24
	Bt	eP	30
	W	iP	02
	CL	e	08
	T	e	01
	Aftershock		
17	MW	eP	20 54 38
		i	46
	R	e	50
	Pr	eP	48
		i	57
	Bt	eP	52
		i	55 01
	W	iP	54 21 c
		i	27
		i	35
	CL	eP	27
		i	32
		i	40
	T	eP	25
		i	33
	Aftershock		
17	MW	eP	21 05 11
	Pr	iP	22 c
	Bt	iP	24
	W	iP	04 59
	CL	iP	05 05
	T	iP	04 57
	Aftershock		
17	P	eP	21 06 36
		e	54
	Pr	iP	47 d
	Bt	iP	50
	W	iP	24
		i	29
	CL	eP	25
		i	30
	T	iP	23
	Aleutian Aftershock.		
17	MW	eP	21 47 10
		i	15
	Pr	eP	22
		i	26
	Bt	eP	24
		i	28
	W	iP	46 58
		i	47 03
	CL	eP	04
		i	09
	T	i	01
	Aftershock		
17	MW	eP	22 33 44
	Pr	iP	55
	Bt	iP	34 01
	CL	iP	33 41
	Aftershock		
17	P	iP	23 03 31
		i	37

(continued)

Date	Sta.	Phase	h m s
April (continued)			
17	P	iP	23 03 31
		i	37
	R	eP	35
	Pr	iP	42
		i	49
	Bt	iP	46
	CL	iP	26
		i	31
	T	iP	18
	USCGS: 51½ N 180		
	22:54:58		
18	MW	iP	01 19 34
	Pr	i(P)	44
	Bt	iP	49
	CL	iP	27
	T	iP	20
	Aftershock.		
	USCGS: 01:11:01		
18	P	ePNEZ	03 16 12
		e	32
	R	eP	11
	Pr	iP	11
		i	46
	Bt	eP	09
	CL	iP	16
	T	eP	20
	USCGS: 31 S 178 W;		
	03:03:26		
18	Bt	e	05 54 03
	CL	e	53 42
	T	iP	34
18	MW	iP	19 45 00
		i	06
	Pr	iP	11
	W	iP	44 49
		i	55
	CL	iP	55
	Aleutian Islands?		
19	MW	iP	03 31 45
	Pr	iP	55
	W	iP	32
	CL	iP	39
	T	iP	31
	Aleutian?		
19	P	eP	16 26 37
	R	iP	37
		i	46
		i	53
	Pr	iP	38
		i	46
		i	54
	W	iP	36
		i	44
		i	52
	CL	iP	40
		i	49
		i	55
	T	iP	43
		i	56
	USCGS: 16:13:43, 60 km		
	BCIS: 22¼ S 170¼ E;		
	16:13:43		

Date	Sta.	Phase	h m s
April			
19	MW	eP	16 40 14
	R	eP	16
	W	iP	14
		i	38
	CL	iP	19
21	P	iPNEZ	20 33 15 c
		i	31
		i	43
		i	34 02
	R	iP	33 11 c
		i	27
	Pr	iP	05 c
		i	31
	Bt	iP	02 c
		e	17
	W	iP	24 c
		i	41
		eP'P'	21 02 28
		i	41
	CL	iP	20 33 20 c
		i	36
		eP'P'	21 02 19
		e	39
		e	45
	T	iP	20 33 29 c
		i	46
		i	34 03
	USCGS: 13 S 77 W;		
	20:23:05, 100 km		
21	MW	iP	22 20 09
	R	iP	04
		i	31
	Pr	iP	19 58
	W	iP	20 19
		i	46
	CL	iP	13
21	P	eP	22 41 58
	R	eP	42 02
	Pr	iP	08
	Bt	eP	12
	W	iP	41 47
		i	57
	CL	iP	52
22	MW	eP	14 39 42
	Pr	eP	47
	Bt	iP	49
	W	iP	36
	CL	eP	41
22	P	iPNEZ	15 05 58
		i	06 35
	R	iP	01
		i	27
	Pr	iP	03
		ipP	07 08
		iPP	09 31
		iS	16 13
	Bt	iP	06 06
		i	31
		ipP	07 21
		ePP	09 37
		iS	16 16

(continued)

Date	Sta.	Phase	h m s
April (continued)			
22	W	iP	15 05 52 c
		ipP	07 06
		eS	15 33
	CL	iP	05 56 c
		ipP	07 11
		isP	55
	T	iP	05 52
		eS	15 49
	Recorded S motion clear and short-period.		
	CMO: 22 N 143 E, 320 km		
	BCIS: 14:53:59		
22	P	iPNZ	18 51 14
	W	iP	50 54.6
	CL	eP	51 07.7
		i!	18.2
	T	iP	50 59.4
		iSN	51 35.0
	Magnitude 4.2		
	Intensity VI at Aptos and Gilroy, Santa Cruz County, Calif., according to USCGS.		
23	P	ePNZ	01 29 00
	R	eP	28 54
	Pr	iP	49 c
	W	iP	29 10 c
		i	31 03
	CL	iP	29 03
	T	eP	13
	BCIS: 7.5 N 83.5 W;		
	01:21:20, 100 km		
23	P	e(P)	08 46 06
	R	e(P)	09
	Pr	e(P)	09
	Bt	e(P)	45 57
	W	iP	46 11
	CL	iP	14
		e	47 10
23	P	e	11 55 17
	R	e	22
	CL	e	09
23	P	iP	21 15 41
	R	iP	38
		e	16 39
	Pr	iP	15 33
	W	iP	48
		i	16 51
	CL	iP	15 45
		i	16 46
	T	iP	15 52
		i	16 38
	BCIS: 13¼ S 63½ W;		
	21:04:30		
	This is an unusual epicenter. Perhaps nearer the coast with intermediate depth.		
24	P	iPEZ	08 39 45
		ipPEZ	40 11
	R	iP	39 48 d
		ipP	40 14
	Pr	iP	39 57 d
		ipP	40 21
	W	iP	31 d
		ipP	56
		iPcP	42 12
	CL	iP	39 35 d

(continued)

Date	Sta.	Phase	h m s
April (continued)			
24	CL	ipP	08 40 00
		ePcP	42 15
	T	iP	39 24
		ipP	49
	USCGS: 63 N 148 W;		
	08:33:04, 100 km		
24	P	ePNZ	10 06 50
		ipP	07 07
	R	eP	06 53
	Pr	iP	53
		ipP	07 10
	W	iP	06 53 c
		ipP	07 10
	CL	iP	06 58 c
		ipP	07 15
24	P	e(P)	17 45 59
	R	e(P)	46 02
	Pr	e(P)	07
	W	iP	45 51
	CL	eP	56
	T	e(P)	47
	CMO: 34 N 141 E;		
	17:33:45, 80-90 km		
24	P	iPEZ	18 44 30 c
	R	eP	32
	Pr	iP	38 c
	W	iP	21 c
		i	36
	CL	iP	26 c
	T	eP	20
	Compressions followed by sharp dilatations		
	CMO: 43.1 N 142.1 E;		
	18:33:12, 130-140 km		
25	MW	e	04 01 18
	R	e	15
	Pr	e	13
	CL	i	26
	BCIS: 28½ N 96¼ E;		
	03:42:25		
25	Pr	i	04 05 47
	CL	eP	52
		i	58
	T	eP	06 00
		i	06
	Bogota gives 8 N 72° 55' W		
	BCIS: 03:57.1		
25	MW	eP	10 04 51
	R	iP	47
	Pr	iP	42
	W	iP	58
	CL	eP	49
	T	iP	55
	BCIS: 19½ N 69 W;		
	09:56:30		
25	P	iP	18 21 29 c
	R	iP	32 c
	Pr	iP	36 c
	Bt	iP	37 c
	W	iP	25 c
	CL	iP	31 c
	T	iP	23 c
25	P	iPNEZ	20 34 28.1
		i	31
		iSNE	35 15
	SB	iP	34 14.5

(continued)

Date	Sta.	Phase	h m s	
April (continued)				
25	W	iP!	20 34 08.9	
	CL	iP	22.0	
	H	iP	18.5	
	T	iP	14.2	
		iS	48.3	
	Magnitude 5.2			
	USCGS: 36.8 N 121.8 W;			
	20:33:26.5			
	Minor damage at Watsonville and Gilroy.			
26	P	eP	02 22 43	
	R	eP	46	
	CL	iP	40	
		i	23 12	
	T	eP	22 33	
	CMO: 42.0 142.7 E;			
	02:11:12, 60 km			
26	P	iPNZ	09 25 18	
	R	iP	13	
	Pr	iP	07	
	Bt	iP	02	
	CL	iP	25	c
	T	iPNZ	36	
	USCGS: ½ S 91½ W;			
	09:17:20			
26	P	eP	13 11 30	
	R	eP	26	
	Pr	eP	20	
	Bt	eP	16	
	CL	iP	40	
26	P	eP	17 54 02	
	Pr	iP	53 56	
	CL	iP	54 06	
	T	iP	14	
	BCIS: Argentina, 17:41.6			
26	P	iP	20 34 52	c
		ipP	35 10	
		iPcP	31	
	PX	iSE	43 04	
		eGN	50.0	
		eR	52.6	
	P	eP'P'	21 04 01	
		e	21	
			A T	
		PZ	1 2	
		SH	4 8	
		MH	10 20	
	Magnitude 6½			
	R	iP	20 34 54	c
		i	35 11	
	Pr	iP	01	c
		i	16	
		eS	43 23	
		iP'P'	21 04 22	
	Bt	iP	20 35 04	c
		ipP	22	
		eS	43 31	
		eP'P'	21 04 08	
	CL	iP!	20 34 46	c
		ipP	35 01	
		iPcP	32	
		eS	42 47	
		eP'P'	21 03 58	
		e	04 21	
	T	iPNZ	20 34 38	c
		ipP	53	

(continued)

Date	Sta.	Phase	h m s	
April (continued)				
26	T	i	20 34 58	
		eSNZ	42 40	
		eN	44 22	
	Magnitude 6½			
	USCGS: 51 N 158½ E;			
	20:24:44, 60 km			
27	P	iPNEZ	10 14 30	c
		iNEZ	16 14	
	PX	iSNE	21 04	
		iE	22 29	
		iScSEZ	24 30	
		eR	27.9	
			A T	
		PZ	3 4	
		PH	3 4	
		SH	15 17	
		MH	25 20	
	R	iP	10 14 24	c
		e	16 09	
	Pr	iP	14 20	c
		i	16 01	
	Bt	iP	14 15	c
		i	34	
		i	15 56	
	W	iP	14 20	c
		i	16 26	
	CL	iP	14 34	c
		i	57	
		i	15 30	
	T	iPNZ	14 44	c
		iNZ	16 33	
		eSNZ	21 26	
	Magnitude 6½±			
	USCGS: 6 N 82½ W;			
	10:06:24			
27	P	eP"	21 40 24	
		e	31	
		ePP	41 35	
	PX	eL	22 17.0	
	R	e	21 40 31	
	Pr	e	32	
	Bt	e	41 56	
	W	eP"	40 26	
		i	32	
		iPP	41 57	
	CL	ePP	42 02	
	USCGS: 56 S 147 E;			
	21:21:35			
28	P	iP	04 59 47	
		i	57	
	R	eP	50	
	Pr	iP	58	
	Bt	iP	05 00 01	
	W	iP	04 59 35	c
	CL	iP	40	c
		i	44	
		i	57	
	T	iP	33	
	USCGS: 51½ N 175 E;			
	04:50:51			
28	P	eP	23 13 56	
		iSNZ	15 27	
	R	ePEZ	13 31	
		iS	15 14	
	Pr	iP	13 34	
	W	eP	59	

(continued)

Date	Sta.	Phase	h m s	
April (continued)				
28	T	eP	23 14 13	
	Gulf of California, foreshock.			
	BCIS: 23:11:54			
29	W	e(P)	02 44 12	
		i	30	
		i	37	
	T	e(P)	29	
		e	39	
	BCIS: 52¾ N 159½ E			
	02:34:31			
29	P	ePNEZ	10 51 08	
	PX	iLNE	52 46	
			A T	
		PZ	3 6	
		PH	3 5	
		MH	1000± 12	
	R	eP	10 51 02	
	Pr	iP	50 52	
	Bt	iP	41	
	T	iPNZ	51 44	
	Foreshock of next;			
	Magnitude 6½±			
	USCGS: 29½ N 112½ W;			
	10:49:27			
29	P	ePNZ	11 36 16	
		iLNE	37.8	
	R	eP	36 08	
	Pr	iP	35 58	
	Bt	iPNZ	48	
	T	eP	36 49	
	Magnitude 7			
	Pasadena 28½ N 113 W;			
	11:34:31			
29	P	i(P)	12 11 36	
	MW	e(P)	35	
	R	e(P)	31	
	T	eP	48	
29	P	ePNZ	13 14 28	
	MW	eP	27	
	R	eP	18	
	Pr	iP	09	
	Bt	iP	13 56	
	Gulf of California			
	USCGS: 13:12:32			
29	P	iP'	17 16 13	
		i	26	
	MW	iP'	12	
	Pr	iP'	12	
		i	25	
	Bt	iP'	13	
	CL	eP'	08	
		i	25	
	T	e	23	
	BCIS: Off Mozambique			
	16:56:16			
29	P	e	22 32 29	
	R	i	29	
	CL	e	33	
	T	e	35	
		e	43	
29	MW	e(P")	23 52 15	
		e	29	
	R	e(P")	16	
	CL	e(P")	20	
	South Atlantic			
	BCIS: 23:34.5			

Date	Sta.	Phase	h m s	
April				
30	P	iPNEZ	00 13 04	d
		ipPEZ	18	
	R	eP	07	
	Pr	iP	14	d
	Bt	iP	17	d
	W	iP	12 54	d
		ipP	13 06	
	CL	iP	12 59	d
		ipP	13 11	
	T	iP	12 51	d
		ipP	13 04	
	BCIS: 53 N 162 E;			
	00:03:10			
30	P	eP	06 38 08	
		e	26	
	R	eP	09	
		e	26	
	Pr	eP	10	
		e	25	
	W	iP	11	c
		i	20	
		i	28	
	CL	iP	16	c
		i	24	
		i	31	
	BCIS: 29¼ S 178¼ W;			
	06:25:32			
30	P	e	12 09 41	
	R	e	44	
	Pr	iP	52	c
	Bt	iP	56	
	W	iP	30	c
		i	39	
	CL	iP	36	
	T	iP	26	
		i	36	
	USCGS: 51½ N 179 W;			
	12:01:10			
30	P	eP	13 16 15	
		ePP	20 11	
	PX	iPPNZ	19	
		i	24 07	
		eSKSE	26.6	
		eSKSNZ	26.8	
		iPPSNZ	29 22	
		eSSN	34.4	
		eSSSN	38.5	
	P	eP'P'	41 03	
	PX	eGN	44.0	
			A T	
		PZ	2 7	
		PPZ	4 6	
		PPH	2 6	
		MH	40 18	
		MZ	40 17	
	R	eP	13 16 16	
		ePP	20 13	
	Pr	iP	16 20	
		iPP	20 19	
		eP'P'	41 04	
	Bt	iP	16 18	
		iPP	20 20	
		e	24 09	
		ePS	29 16	
		iP'P'	40 59	
	CL	iP	16 08	

(continued)

Date	Sta.	Phase	h	m	s	
April (continued)						
30	CL	ePP	13	19	58	
		i		20	02	
		iPS		29	03	
		e(PKKP)		32	57	
		eP'P'		41	13	
	W	iP		16	13	
		iPP		20	09	
		i		32	52	
	T	ePNZ		16	04	
		ePPNZ		19	58	
		eSKSN		26	33	
		ePS		28	47	
	Magnitude 7					
	BCIS: 39.5 N 22.2 E;					
	13:02:36					
	Pasadena: 39 N 22 E;					
	13:02:37					
30	PX	eL	23	59.3		
	T	eL		53.5		
	BCIS: 1/2 S 18¾ W					
	23:04:27					
May						
1	P	eP	00	32	25	
	PX	eL		57.8		
	R	iP		32	29	d
		i			51	
	Bt	iP			31	
	W	iP			28	d
	CL	iP			33	d
	T	e(P)			34	
	USCGS: 17 S 174 E;					
	00:20:03					
1	MW	e	01	08	56	
	R	e		09	00	
	CL	e			01	
		i			05	
	T	e		08	57	
	USCGS: 17 S 174 E;					
	00:56:32					
1	R	eP	18	01	01	
		e			11	
	Pr	iP			09	
	Bt	iP			12	
		i			25	
	W	iP		00	46	d
		i			55	
		i		01	11	
	CL	eP		00	51	
		i		01	02	
	T	eP		00	42	
2	MW	eP	00	10	53	
	Bt	eP		11	02	
	W	iP		10	47	
	CL	iP			52	
	T	eP			48	
2	MW	eP	00	24	39	
	W	iP			18	
	CL	eP			22	
	T	eP			19	
2	MW	eP	03	26	53	
	R	eP			55	
	Bt	iP		27	00	
	W	iP		26	47	c
	CL	iP			53	c
	T	eP			49	c
	USCGS: 14 N 141½ E;					
	03:13:50					

Date	Sta.	Phase	h	m	s	
May						
2	P	eP	10	28	53	
	Pr	iP			56	
	W	iP			56	d
	CL	iP		29	01	d
2	P	iP"	18	07	18	
		i			27	
		eSKP		10	42	
	R	eP"		07	19	
		ePP		09	38	
		eSKP		10	42	
	Pr	eP"		07	22	
		iPP		09	41	
		iSKP		10	46	
	Bt	iP"		07	22	
		i			30	
		ePP		09	47	
		iSKP		10	48	
	W	iP"		07	15	
		i			24	
		e		09	15	
	CL	iP"		07	17	
		i			25	
		ePP		09	27	
		iSKP		10	38	
		i			50	
	T	eP"		07	14	
	BCIS: 4.0 N 95¼ E;					
	17:48:03					
2	P	iNEZ	18	13	30	
	R	i			32	
	Pr	i			35	
	Bt	i			41	
	W	e			59	
	CL	e			56	
		i		14	03	
2	P	e	18	31	54	
	W	iP			50	
		i			59	
	CL	e			55	
	T	e			51	
2	P	eP	18	37	12	
		e			18	
	R	e			23	
	Pr	i			27	
	W	iP			02	
		i			07	
		i			13	
		i			18	
	CL	iP			07	
		i			13	
		i			19	
	T	eP			01	
		e			05	
		i			11	
		i			16	
	USCGS: 53½ N 160½ E;					
	18:27:29					

C. F. Richter
Violet M. Taylor
May 6, 1955

Date	Sta.	Phase	h	m	s
May					
3	P	e	08	02	13
		e			21
	R	e(P)		00	20
		e(S)		02	11
	Pr	e(P)		00	03
		i			18
		i(S)		01	52
	Bt	e(P)	07	59	46
		i(S)	08	01	23
	W	i(P)		00	37
		e(S)		03	16
	CL	e(P)		00	32
		e(S)		03	13
	T	e(P)		00	55
		e(S)		04	02
	Mexico				
3	P	e	11	13	42
	R	e			47
	Pr	e		14	03
	Bt	e			06
	W	i		13	32
		i			49
	CL	e			37
	T	e			22
	BCIS: 51¼ N 159 E;				
	11:03:32				
3	P	e	11	49	44
	W	iP			40
	CL	e			46
	T	e			44
3	P	ePNEZ	15	39	49
		i		40	12
	PX	iSE		47	55
		eSSN		51	44
		eLN		55	.4
			A		T
		PZ	0.3		1½
		SH	4		8
		MH	12		20
	R	eP	15	39	52
		i		40	17
		i			32
	Pr	eP		39	59
		i		40	22
	Bt	eP			02
		i			09
		i			27
	W	eP		39	37
		i			44
		i		40	03
	CL	eP		39	42
		i			50
		i		40	10
	T	eP		39	33
		e			38
		i			51
		eSN		47	33
	Initial motions complex.				
	Magnitude 6.6				
	Depth 60 km?				
	USCGS: 51½ N 159½ E;				
	15:29:40				

Date	Sta.	Phase	h	m	s
May					
3	P	e		09	08
		e			12
	Pr	iP			19 c
	Bt	iP			22
	W	iP		18	57 c
	CL	iP		19	02
		iP		18	54
3	P	iPNEZ	17	20	30
		iPNEZ		21	02
		i			18
		iPcP		22	49
	PX	iSNE		26	06
		iScSN		30	28
			A		T
		PZ	0.3		1½
	R	iP	17	20	25
		ipP			58
		iPcP		22	47
	Pr	iP		20	20
		ipP			53
		i		21	49
		iPcP		22	47
		iScP		26	21
	Bt	eP		20	15
		ePcP		22	35
	W	iP		20	41
		ipP		21	16
		iPcP!		22	53
		i		23	32
		iScP		26	29
	CL	iP		20	34
		ipP		21	07
		iPcP		22	52
		iScP		26	26
	T	iPNZ		20	44
		ipP		21	18
		iPcP		22	56
		iScP		26	31
		iScSN		30	39
	Magnitude 6				
	USCGS: 12 N 86 W;				
	17:13:32, 150 km				
4	P	e	01	40	00
	R	e		39	44
	Pr	e			44
	Bt	e			53
	CL	e			33
		e			41
	T	e			26
		e			40
	BCIS: 51¾ N 159¾ E;				
	01:29:31				
4	P	e	06	36	59
	R	e		37	05
	Bt	e			00
	W	iP		36	42
		i			54
	CL	eP			47
		i		37	00
	T	e		36	41
	CMO: 36.4 N 141.2 E;				
	06:24:53, 40 km				

EDINBURGH 30 AUG 1953 OBSERVATORY

Date	Sta.	Phase	h	m	s	
May						
4	MW	e	06	46	40	
	Pr	i			51	
	Bt	e			53	
	W	iP			26	c
	CL	e			32	
		e			35	
	T	eP			27	
	BCIS: Kamchatka 06:33:57					
4	P	e	16	28	11	
	R	e			26	
	Pr	e			21	
		e			26	
	Bt	e			20	
	W	eP			13	
		e			24	
	CL	eP			19	
		e			29	
	BCIS: Tonga Region 16:16:20					
4	CL	e	16	56	55	
	USCGS: 40 N 22 E; 16:43:25					
4	MW	e	16	58	57	
	R	e		59	07	
	Pr	e			11	
	Bt	e			09	
		i			13	
	W	e			04	
	CL	e		58	59	
		i		59	02	
	USCGS: 40 N 21 E; 16:45:33					
4	P	iP	17	45	17	
	R	eP			19	
	Pr	eP			25	
	Bt	eP			30	
	W	iP		44	58	
		i		45	06	
	CL	eP			04	
		i			11	
	BCIS: 52¼ N 159¾ E; 17:35:05					
4	P	iP	17	59	34	
		i			46	
	R	iP			33	
		e			45	
	Pr	iP			38	
		i			53	
	W	iP			23	c
		i			34	
	CL	eP			20	
		e			34	
	T	eP			12	
	USCGS: 74 N 81 W; 17:51:22					
4	P	iPNEZ	18	21	28	c
	R	iPNEZ			32	c
		i			38	
	Pr	iP			35	c
		i			40	
		i		22	49	
	Bt	iP		21	36	c
	W	iP			24	c
		i			33	
		i			39	
	CL	iP			31	c
	T	iP			28	c
		i			33	

Date	Sta.	Phase	h	m	s	
May						
4	P	eP	19	23	22	
	R	eP			14	
	Pr	eP			10	
	Bt	eP			07	
		i			11	
	W	iP			26	
	CL	eP			25	
	T	eP			33	
	BCIS: 35½ S 104 W; 19:12:03					
4	MW	e(P)	20	43	21	
	Pr	e(P)			29	
	W	iP			09	c
		i			23	
		i			34	
	CL	eP			14	
	T	eP			06	
	BCIS: Kamchatka 20:33:19					
5	P	iP	03	16	06	
	R	eP			08	
	Pr	iP			08	
	Bt	eP			07	
	W	iP			08	
	CL	iP			12	
	Southwest Pacific					
5	P	ePNEZ	11	03	23	
	PX	eLNE		05.1		
			A		T	
		MH	30		16	
	R	eP	11	03	15	
	Pr	iP			07	
	Bt	eP		02	53	
	W	iP		03	46	
	CL	iP			37	
	Magnitude 5¾					
	USCGS: 27½ N 112½ W; 11:01:14					
5	P	iPEZ	11	47	53	
		iNEZ			56	
	R	eP			54	
		iEZ			58	
	Pr	eP			58	
		i		48	03	
	Bt	eP		47	59	
		i		48	04	
	W	eP		47	47	
		i			49	
	CL	iP			52	
		i			57	
	USCGS: 15 N 147½ E; 11:35:13					
5	P	iPNEZ	13	11	50	
	PX	iGN		13.3		
			A		T	
		PZ	5		6	
		PH	5		6	
		PH	20		30	
		MH	350		16	
	R	iP	13	11	45	
	Pr	iP			35	
	Bt	iP			24	
	W	iP		12	13	
	CL	iP			07	
	Magnitude 6½-6¾					
	USCGS: 27½ N 112½ W; 13:09:46					
	A small foreshock precedes.					

Date	Sta.	Phase	h	m	s	
May						
5	P	iPNEZ	17	23	33	d
		ipP			44	
		eP'P'?		53	00	
			A		T	
		PZ	0.4		1½	
	R	iP	17	23	36	d
		ipP			47	
	Pr	iP			42	d
		ipP			56	
		i		26	00	
	Bt	iP		23	46	d
		ipP			59	
	W	iP			24	d
		ipP			37	
		e		25	34	
	CL	iP!			29	d
		ipP			43	
	Magnitude 6½± Depth 50 km±					
	USCGS: 50 N 156½ E; 17:13:12					
5	Pr	iP	18	12	54	
		i		13	01	
	W	i(P)		12	59	
	CL	i(P)			59	
5	MW	e	22	34	24	
	W	iP			12	
	CL	eP			18	
6	P	iPEZ	09	12	30	d
		i			37	
		i			43	
		ipP		13	03	
		isP			17	
	PX	iSNEZ		20	49	
		eP'P'		41	35	
			A		T	
		PZ	0.3		1½	
		PH	½		1½	
		SH	2		5	
	R	iP	09	12	34	d
		ipP		13	09	
		eP'P'		42	08	
	Pr	iP		12	29	
	Bt	iP			43	d
		ipP		13	17	
		esP			29	
	W	iP		12	19	
		ipP			53	
		eP'P'		41	43	
	CL	iP		12	26	d
		ipP			59	
		isP		13	13	
		eP'P'		41	29	
	USCGS: 50 N 155½ E; 09:02:14, 100 km					
7	P	iPNEZ	00	32	43	
	R	iP			39	d
		ipP		33	15	
		i			29	
	Pr	iP		32	34	d
		ipP		33	10	
		i			14	
	Bt	iP		32	30	d
		i		33	24	
	(continued)					

Date	Sta.	Phase	h	m	s	
May (continued)						
7	W	iP	00	32	52	d
		ipP		33	29	
		i			36	
	CL	iP		32	48	d
		ipP		33	25	
		i			35	
	BCIS: 8 S 74 W; 00:22:55, 150 km					
7	MW	eP	02	30	54	
		e		31	13	
	R	eP		30	57	
		e		31	16	
	Pr	eP			02	
		i			20	
	Bt	eP			05	
		i			24	
	W	iP		30	45	
		i		31	04	
	CL	iP		30	50	
		i		31	09	
	CMO: 43.1 N 146.1 E; 02:19:44, 70 km					
7	P	iP	05	48	05	
	R	eP			08	
	Pr	iP			07	
	Bt	iP			08	
	W	iP			07	
	CL	iP			14	
	BCIS: Tonga Islands 05:36.0					
7	MW	eP	17	54	59	
	R	eP		55	01	
	Pr	iP			02	
	W	iP		54	59	
	CL	iP		55	06	
	BCIS: Kermadec Island Region; 17:43.3					
7	P	eP	21	08	09	
	R	eP			12	
	Pr	eP			16	
	W	iP			03	
		i			08	
	CL	iP			10	
	USCGS: Marianas; 20:55:30					
8	MW	e	11	00	48	
		e			53	
	R	eP			33	
		e			40	
	Pr	eP			25	
		e			33	
	Bt	e			28	
	W	eP			47	
		i		01	03	
	CL	eP		00	46	
		i			54	
	Tacubaya: 16° 04' N 99° 33' W; 10:55:23					
8	P	eP	19	36	43	
	R	eP			46	
	Pr	eP			45	
		i			59	
	Bt	eP			50	
		e			56	
	W	iP			44	
	CL	eP			50	

Date	Sta.	Phase	h	m	s	
May						
9	P	eP	01	51	51	
	R	eP			54	
	Pr	iP			58	
	Bt	iP			57	
	W	iP			45	c
	CL	iP			50	c
	USCGS: Volcano Islands					
	01:39:20					
9	P	eP	14	25	01	
		i			05	
	R	eP			03	
		i			08	
	Bt	e			10	
	W	eP		24	51	
	CL	eP			49	
		i			54	
	BCIS: 71½ N 13 W;					
	14:14:29					
9	MW	iP	15	38	36	
	Pr	iP			25	
	Bt	iP			21	
	W	iP			44	
	CL	iP			39	
9	P	eP	20	57	46	
	Bt	eP			55	
	W	iP			39	
		i			53	
	CL	iP			43	
	USCGS: 24½ N 125 E;					
	20:44:15					
9	P	iP	22	34	07	
	R	iP			08	
	Pr	iP			09	
	Bt	iP			08	
	W	iP			08	c
	CL	iP			13	c
10	P	e	06	59	32	
	R	e	07	00	03	
	CL	e	06	59	41	
		i	07	00	30	
	Off Sumatra, according to Djakarta					
10	P	e	08	12	13	
	R	i			15	
	Bt	e			21	
		e			36	
	W	iP			05	
		i			19	
	CL	iP			10	
		i			25	
	USCGS: 26 N 125 E;					
	07:58:48					
10	P	iPNEZ	14	41	37	c
		epP		43	38	
		i		44	41	
	R	iPNEZ		41	40	c
		ipP		43	40	
		e		44	40	
		i			46	
	Pr	iP!		41	40	c
		epP		43	42	
		i		44	44	
	Bt	iP!		41	36	c
	W	iP!			40	c
		i			46	
		ipP		43	42	
		i		44	44	

(continued)

Date	Sta.	Phase	h	m	s	
May (continued)						
10	CL	iP!	14	41	44	c
		ipP		43	47	
	USCGS: 17½ S 179 W;					
	14:30:38, 600 km					
11	MW	e	04	36	58	
	W	iP			48	
	CL	eP			47	
	BCIS: 82½ N 0;					
	04:26:45					
11	MW	e	04	59	35	
	Pr	e			39	
	W	eP			27	
	CL	eP			32	
11	W	iP	10	41	33	
	CL	iP			37	
11	Pr	iP	19	58	23	
	CL	iP			27	
11	MW	eP	23	01	54	
	W	iP			43	
	CL	iP			48	
	CMO: 41.5 N 140.6 E;					
	22:50:05, 0-10 km					
12	P	eP	05	16	28	
	R	eP			19	
	Pr	eP			13	
	Bt	eP			04	
	W	eP			42	
	CL	iP			36	
		i			41	
	BCIS: 15½ N 106¼ W;					
	05:11:34					
12	P	eP	08	12	34	
	R	eP			26	
	Pr	eP			19	
		e			22	
	Bt	iP			11	
		i			15	
	W	iP			49	
	CL	iP			43	d
		i			47	
	BCIS: Aftershock of the preceding; 08:07:40					
12	P	e	09	19	25	
	W	iP			14	c
	CL	iP			19	
	Kamchatka					
	BCIS: 09:09:06					
12	P	i	17	52	17	
	R	e			20	
	Pr	i			28	
	W	e(P)		51	45	
		i		52	02	
	CL	e		51	57	
		i		52	07	
	BCIS: Alaska Peninsula;					
	17:44.7					
13	P	iPNEZ	14	52	11	d
		ipP			26	
		isP			36	
		iPP		53	14	
		iPcP		55	34	
	PX	iSNE		56	35	
		eLNE		58	1	
			A		T	
		PZ	1		1½	
		PZ	6		7	
		PPZ	10		10	
		MH	70		12	

(continued)

Date	Sta.	Phase	h	m	s	
May (continued)						
13	R	iPNEZ	14	52	04	d
		ipP			21	
		isP			30	
		iPP		53	25	
		iPcP		55	32	
		eSNE		56	48	
	Pr	iPNE		51	58	
		iSE		56	33	
	Bt	iP		51	54	d
		ipP		52	08	
	W	iP		52	22	d
		ipP			35	
		isP			43	
		i		53	10	
		iPcP!		55	38	
	CL	iP		52	15	d
		ipP			31	
		isP			44	
		i		53	02	
	Magnitude 6½					
	BCIS: 16.5 N 95.9 W;					
	14:46:36, 80 km					
13	MW	eP	15	18	12	
	R	i			27	
	W	eP			16	
	CL	eP			10	
	Mexico; aftershock					
13	P	eP	18	31	44	
	R	iP			48	
	Pr	iP			51	
	W	iP			40	
	CL	iP			47	
14	MW	e	16	27	43	
	Pr	iP			22	
	W	e			41	
	CL	e			39	
	Mexico?					
14	P	iPNEZ!	22	51	15	d
		i!			40	
		ipP		52	11	
		isP			39	
		iPP		54	19	
	PX	iSN	23	01	02	
		i		02	42	
		eGN		12		
		eRN		15.9		
	P	e(pP'P')		18	57	
		eSKPP'		20	56	
			A		T	
		PZ	10		5	
		PH	3		2	
		SH	3		5	
	R	iPNEZ!	22	51	18	d
		i		52	45	
		iPP		54	27	
		eSKPP'		20	54	
	Pr	iP!		51	22	d
		i			40	
		i			46	
		ipP		52	19	
		i			27	
		iPP		54	27	
		i!			33	
		i			53	

(continued)

Date	Sta.	Phase	h	m	s	
May (continued)						
14	Pr	e	23	01	28	
		iSKPP'		20	54	
	Bt	iP!	22	51	24	d
		i			58	
		ipP		52	28	
		isP			49	
		iPP		54	36	
		iSNE	23	01	12	
		iNE		02	47	
		iSKPP'		20	53	
	W	iP	22	51	03	d
		e	23	18	55	
		eSKPP'		21	00	
		e		25	31	
	CL	iP!	22	51	11	d
		i			40	
		i(pP)		52	10	
		isP			35	
		iPP		54	02	
		i(pP+P')	23	18	57	
		iSKPP'		20	57	
		eP'P'P'		38	03	
	Magnitude 6.9					
	CMO: 36.0 N 137.4 E;					
	22:39:27, 230-240 km					
15	Pr	e	00	58	21	
	W	e			50	
	CL	e			44	
	Mexico					
15	W	eP	06	08	17	
	CL	eP			20	
15	W	eP	11	30	34	
	CL	e			39	
	Southwest Pacific?					
15	W	e(P)	11	35	19	
	CL	e			25	
15	P	eP	13	05	39	
	R	eP			43	
	Pr	eP			51	
	Bt	eP			57	
	W	eP			13	
	CL	eP			13	
	USCGS: 48 N 122 W;					
	13:02:14					
	Felt over most of the State of Washington					
15	MW	e	15	59	09	
	Pr	e			14	
	W	e			05	
	CL	e			09	
	Djakarta: 7¼ S 106¾ E;					
	15:36:54, 100 km					
15	P	iPNZ	23	31	05	
	R	iP			02	
	Pr	iP		30	58	
	Bt	iP			56	
	W	iP		31	12	
		i			36	
	CL	iP			10	
	BCIS: 35¾ S 71¼ W;					
	23:18:42					
16	MW	e	13	07	41	
		e			46	
	R	e			52	

(continued)

Date	Sta.	Phase	h m s	
May	(continued)			
16	Bt	i	13 07 57	
	W	iP	28	
	CL	eP	34	
	USCGS: Pribilof Islands;			
	12:59:56			
17	P	eP	05 27 24	
	Pr	iP	26	
	W	iP	21	
	CL	eP	26	
	Kermadec Region			
17	P	eP	13 20 04	
	R	eP	03	
	Pr	eP	02	
	Bt	eP	19 54	
	W	eP	20 14	
	CL	eP	14	
17	MW	iP	21 02 04	
	Pr	iP	14	
	W	iP	01 51	
	CL	iP	56	
17	Pr	e	22 49 10	
	CL	e	46	
	W	e	50 06	
	Mexico			
18	P	eP	05 21 16	
	R	eP	14	
	Pr	iP	12	
	Bt	eP	07	
	W	iP	21	
	CL	eP	23	
	USCGS: 10½ S 75½ W;			
	05:11:05			
18	P	e	10 27 37	
	R	e	40	
	Pr	e	44	
	Bt	e	33	
		e	46	
	W	eP	16	
		i	31	
	CL	eP	21	
		i	36	
	USCGS: 25 N 125 E;			
	10:13:55			
	Slightly deeper than normal.			
19	Bt	iP	09 47 43	
	Switzerland			
19	MW	iP	18 43 45	
	R	iP	42	d
	Pr	iP	37	
	Bt	iP	34	
	W	iP	52	
	CL	eP	49	
	BCIS: Central Peru,			
	18:31.8			
19	P	iPNEZ	23 20 32	c
	PX	eGN	45.2	
		eREZ	50.4	
			A T	
		PZ	0.2 1	
		MH	6½ 20	
	R	iP	23 20 35	c
	Pr	iP	37	c
		ePP	24 18	

(continued)

Date	Sta.	Phase	h m s	
May	(continued)			
19	W	iP	23 20 30	
		ePP	24 09	
	CL	iP	20 34	c
		ePP	24 16	
	Magnitude 6¼-6½			
	USCGS: 5 S 151 E;			
	23:07:12			
20	Pr	iP	13 50 36	c
	Bt	iP	33	
	W	iP	35	c
	CL	iP	40	
21	P	iPNZ	05 25 42	
	R	eP	44	
	Pr	iP	46	
	Bt	eP	48	
		i	26 01	
		i	05	
	W	iP	25 39	
	CL	iP	44	
	~~Southwest Pacific~~			
21	P	iP	16 20 03	
	PX	eLEZ	29.4	
	R	iP	20 06	
	Pr	iP	13	
	Bt	iP	20	
	W	iP	19 49	
	CL	iP	54	
	USCGS: 56 N 157 W;			
	16:13:15			
21	MW	e	17 38 48	
	R	e	43	
	Pr	i(P)	58	
	Bt	i	39 07	
	W	eP	38 15	
		i	22	
	CL	e	23	
22	R	eP	23 02 08	
	W	iP	06	
	CL	eP	12	
23	P	iPEZ	04 21 11	d
	R	iP	15	
	Pr	iP	20	d
		e	22 08	
	Bt	iP	21 24	d
	W	iP	03	d
		i	33	
	CL	iP	08	d
	CMO: 45 N 150 E;			
	04:10:30, 160 km			
23	P	eP"	07 15 21	
		e	48	
	R	eP"	16 00	
	Pr	eP"	08	
	Bt	eP"	15 16	
	W	eP"	03	
	CL	eP"	13	
		i	16 08	
	USCGS: 3½ N 124 E;			
	06:56:45			
23	P	iPNEZ	23 53 02.1	
		iSNE	15.6	
	R	iP!	10.6	
		iSNE	31.7	
	Pr	iP!	21.1	
	SB	iP	52 57.7	

(continued)

Date	Sta.	Phase	h m s	
May	(continued)			
23	W	iP!	23 52 56.3	
	CL	iP!	53 07.7	
	H	iPNEZ	53 08.9	
		iS!NE	28.5	
	FT	iP!	52 46.6	
	Kg	iP!	55.9	
	Felt at Bakersfield and over a wide area including Los Angeles.			
	Magnitude 5.1			
	34° 59' N 118° 59' W;			
	23:52:43.2			
24	P	ePEZ	07 39 26	
		i	32	
		i	42	
	R	eP	31	
		e	36	
		e	44	
	Pr	eP	36	
		i	42	
		i	52	
	Bt	eP	40	
		i	46	
	W	iP	17	
		i	23	
		i	30	
	USCGS: 48½ N 156 E;			
	07:28:59			
24	P	ePNEZ	08 27 23	
	R	eP	26	
	Pr	eP	30	
	Bt	eP	31	
	W	iP	18	
	USCGS: 15 N 145 E;			
	08:14:40, 60 km			
24	Pr	eP	21 08 39	
	W	iP	52	d
	CL	e	09 10	
25	Pr	iP	00 39 38	
	CL	eP	06	
25	W	iP	07 28 25	
	CL	e	31	
26	P	iPEZ	01 53 10	
	R	eP	14	
	Pr	iP	20	
	Bt	iP	23	
	W	iP	52 57	
		i	53 02	
		i!	09	
	USCGS: 52½ N 159½ E;			
	01:43:03			
26	PX	eL	10 43.3	
	MW	eP	10 38	
	R	eP	37	
	Pr	iP	36	
	Bt	eP	35	
	W	iP	39	
		i	47	
	CL	iP	41	
	BCIS: 30¾ S 177½ W;			
	09:58:02			
26	P	eP	19 07 59	
	Pr	eP	08 08	
	W	iP	07 49	
		i	54	
		i	08 01	

(continued)

Date	Sta.	Phase	h m s	
May	(continued)			
26	CL	iP	19 07 54	
		i	08 06	
	USCGS: 48½ N 156 E;			
	18:57:30, Slightly deeper than normal.			
26	Pr	iP	19 52 48	
	W	iP	23	
	CL	iP	30	
27	W	iP	07 02 51	
		e	59	
	CL	iP	54	
	CMO: 31.7 N 131.7 E;			
	06:50:13, 20 km			
28	P	iPNEZ	08 06 25	
		ipP	45	
	R	iP	17	d
		ipP	37	
	Pr	eP	11	d
		i!	14	
		ipP	34	
	Bt	iP	04	d
		ipP	26	
	CL	iP	31	d
		ipP	49	
	Tacubaya: 18° 04' N			
	99° 55' W; 08:01:33,			
	100 km			
28	P	iP'	10 15 41	
	R	eP'	39	
		i	48	
	Pr	iP'	38	
		i	47	
	Bt	iP'	35	
		i	46	
	CL	iP'	42	
		i	52	
	BCIS: 50 S 15 E;			
	19:56.0			
28	P	iPNEZ	13 34 41	d
	R	iP	42	d
	Pr	iP	43	d
	Bt	iP	42	d
	CL	iP!	47	d
	T	eP	49	
	BCIS: 21¾ S 178 W;			
	13:22:33			
28	W	iP	23 54 35	
		e	56	
	CL	eP	40	
	BCIS: Samoa Island Region			
	23:43.2			
29	P	iPNEZ	05 48 24	c
		ipPEZ	50 25	d
		e	51 28	
			A T	
		PZ	1 1	
		PH	0.4 1	
	R	iP	05 48 28	c
		ipP	50 29	d
	Pr	iP	48 28	c
		i	38	
		i	49	
		ipP	50 30	d
	Bt	iP	48 26	c
		ipP	50 27	
	W	iP!	48 27	c

(continued)

Date	Sta.	Phase	h	m	s	
May (continued)						
29	W	ipP	05	50	29	d
	CL	iP		48	31	c
		ipP		50	34	d
		i		51	34	
	T	ePNE		48	33	
	USCGS: 18 S 178 W;					
	05:37:21, 550 km					
29	P	iPNEZ	12	22	29	
	R	iP			25	
	Pr	iP			20	
	Bt	iP			17	
	W	iP			37	c
	CL	iP			33	
	USCGS: 12 S 68 W;					
	12:11:37					
29	P	iPNZ	15	09	44	d
		e		10	24	
	R	iP		09	42	d
		e		10	37	
	Pr	iP		09	38	d
		e		10	14	
	Bt	iP		09	35	d
		e		10	14	
	W	iP		09	53	d
	CL	iP			50	d
		i		10	29	
	T	eNE		09	57	
	USCGS: 35 S 69 W;					
	14:57:18, 150 km					
29	P	eP	22	33	22	
	Pr	iP			34	
	Bt	e(P)			33	
	W	iP			25	
		i			39	
	CL	iP			30	
		i			41	
	BCIS: 27¼ S 175 W;					
	22:20:56					
30	MW	eP	04	51	07	
		e			16	
	R	eP			09	
	Pr	eP		50	58	
		i		51	16	
	Bt	eP		50	55	
	W	eP		51	24	
	CL	eP			13	
	USCGS: 11½ S 78 W;					
	04:41:00					
31	CL	eP	02	29	16	
31	P	iPNEZ	08	07	16	
		iSNEZ		08	02	
	R	iP		07	09	
	Pr	iPNEZ		06	59	
	Bt	iP!		06	49	
		iSN!		07	06	
	Magnitude 5.2					
	31.6 N 115.2 W;					
	08:06.4					
31	P	eP"EZ	16	07	33	
		ePPEZ		09	59	
		eSKP		11	08	
	PX	iSKSNE		14	35	
		eGN		39.1		
		eR		45.4		

(continued)

Date	Sta.	Phase	h	m	s	
May (continued)						
31			A		T	
		P"Z	0.4		1½	
		SKSNE	1¼		6	
		MH	2½		20	
	R	eP"	16	07	34	
	Pr	iP"			36	
	Bt	iP"			37	
	CL	eP"			33	
		e		13	36	
		e		15	14	
		e(PKKP)		20	53	
	Magnitude 6½?					
	USCGS: 8 S 118½ E;					
	15:48:48, 150 km					
June						
1	MW	eP	13	00	09	
	R	eP			10	
	Bt	eP			13	
	W	iP			06	
	CL	eP			12	
1	MW	eP	18	33	22	
	R	eP			23	
	Pr	iP			24	
	W	iP			24	
	BCIS: 17¾ S 172¾ W;					
	18:21:54					
1	P	iPNEZ	20	43	02	c
		i			07	
		ePcP			43	
	R	iP		42	56	c
		i		43	02	
		ePcP			38	
	Pr	iP		42	52	c
		i			58	
		iPcP		43	36	
	Bt	iP		42	48	
		i			54	
	W	iP		43	10	c
		i			15	
		i			20	
		i			26	
		e		46	57	
	USCGS: 12 S 74 W;					
	20:32:28					
3	R	eP	05	57	48	
		e		58	00	
	Pr	i		57	47	
	W	iP			50	
	CL	iP			54	
		e		58	05	
4	MW	eP	00	56	26	
		e			34	
	R	eP			29	
		e			45	
	Bt	eP			33	
		e			58	
	W	iP			16	
		i			23	
		i			38	
	CL	eP			21	
		i			41	
	CMO: 43½ N 149 E;					
	00:45:21, 80 km					

Date	Sta.	Phase	h	m	s	
June						
4	P	iPNEZ	06	58	41	c
		i			50	
		i		59	00	
		iPcP	07	00	32	
	PX	iSNE		05	11	
		eSSNE		08.3		
		eGNE		08.8		
		eR		11.5		
			A		T	
		PZ	5		6	
		PH	4		6	
		PcP	½		2	
		SH	14		14	
		MH	30		18	
	R	iP	06	58	36	
		iPcP	07	00	32	
	Pr	iP	06	58	29	
	Bt	eP			22	
		i			23	
		iPcP	07	00	24	
	W	iP	06	58	52	
		iPcP	07	00	37	
	CL	iP	06	58	48	
		i			56	
		i			59	
		iPcP	07	00	37	
	The impulse identified as PcP at these stations has the appearance of that phase, but is late.					
	Magnitude 6¾.					
	USCGS: ½ S 91½ W;					
	06:50:42					
4	R	eP	07	32	05	
		e			15	
	Pr	iP		31	57	
		i		32	11	
	Bt	iP		31	50	
	W	iP			20	
	CL	eP			17	
	Aftershock					
4	W	iP	09	00	29	
	CL	iP			27	
4	W	iP	09	20	50	
	CL	eP			28	
4	MW	e	11	00	48	
	CL	e			52	
	BCIS: 5 S 108 E;					
	10:41:37					
4	P	ePNEZ	16	04	07	
		i			20	
		eGNE		05.8		
		iLg		06	44	
			A		T	
		MH	100		15	
	R	eP	16	04	00	
	Pr	eP		03	49	
		i			45	
		iS		06	03	
	Bt	eP		03	40	
		iNZ			44	
	W	eP		04	27	
	CL	iP			22	
		i(S)		07	18	
	Magnitude 6					
	BCIS: 27.0 N 111.0 W;					
	16:01:52					

Date	Sta.	Phase	h	m	s	
June						
4	MW	eP	16	47	31	
		e			41	
	R	e			42	
	W	eP			20	
		i			31	
	CL	eP			28	
		i			37	
	BCIS: 47¼ N 153 E;					
	16:36:48					
4	P	iP	17	09	26	
	R	iP			29	
	Pr	iP			28	d
	W	iP			29	d
	CL	iP			34	d
	T	ePE			36	
	BCIS: 31¼ S 176½ W;					
	16:56:48					
4	P	eP	20	45	00	
	PX	eGE		46.6		
		eLg		47	29	
			A		T	
		MH	30	15		
	R	eP	20	44	52	
	Pr	eP			42	
	Bt	iP			37	
	W	iP		45	18	
	CL	eP			16	
	Magnitude 5½					
	BCIS: 27 N 111 W;					
	20:42:42					
5	P	ePNEZ	01	53	21	
		i			32	
	R	iP			15	
	Pr	iP			08	
	Bt	iP			01	
		i			15	
	W	eP			36	
	CL	iP			30	
	USCGS: 18 N 102½ W;					
	01:48:20					
5	MW	iP	04	42	40	d
	R	iP			38	d
	Bt	iP			29	
	CL	iP			45	d
	USCGS: 22 S 69 W;					
	04:31:26, 200 km					
5	MW	iP	04	57	42	
	R	iP			44	
	Bt	iP			50	
5	MW	eP	13	26	28	
	R	eP			31	
	Pr	iP			34	
	Bt	iP			37	c
	CL	iP			25	
	CMO: 36 N 139.9 E					
	13:14:26, 50-60 km					
5	MW	iP	21	05	45	
	R	iP			46	
	Pr	iP			46	
	Bt	iP			43	
	CL	iP			50	d
		e		06	23	
	Near New Zealand					
	BCIS: Northeast of the North Island, 20:53.0, 150 km					

Date	Sta.	Phase	h	m	s	
June						
6	P	ePEZ	17	04	48	
		i		08	36	
		ePP		09	14	
	PX	eSKSE		15	13	
		ePSN		17	.4	
		eSSNE		24	.1	
		eGN		33	.3	
		eREZ		37	.8	
			A		T	
		PZ	0.1		1	
		PPZ	¼		2	
		MH	32		20	
		MZ	35		20	
	R	ePP	17	09	12	
	Pr	i		05	15	
		iPP		09	17	
	Bt	iP		04	58	
	W	eP			45	
		i			49	
	CL	eP			49	
		e		07	57	
	Magnitude 6¾					
	USCGS: 3½ S 136½ E;					
	16:50:33					
6	P	iPEZ	22	10	55	c
		ipP		~~11~~	19	
		iNZ			37	
	R	iP		10	58	c
		ipP			23	
	Pr	iP		11	02	c
		ipP			26	
	W	iP		10	48	c
		ipP		11	10	
	CL	iP		10	52	c
		ipP		11	18	
	CMO: 32.3 N. 140.2 E;					
	21:58:50, 60-70 km					
7	P	iPNEZ	10	27	59	c
		ipP		29	41	
		i			53	
		i		30	03	
		isP			13	
	PX	eSKSE		37	37	
		iSN		38	17	
		eE		39	07	
		iSPEZ		31	31	
		isSN		41	25	
		iSSN		44	38	
		iN		50	47	
			A		T	
		PZ	¾		1½	
		PH	0.3		1	
		SH	9		9	
	R	iP	10	28	00	c
		e		29	43	
		i		30	17	
	Pr	iP		28	03	c
		i		29	12	
		ipP			47	
	W	iP		27	56	c
		ipP		29	38	
	CL	iP		28	00	c
		ipP		29	45	
		i		30	07	
	T	ePNE		28	00	

(continued)

Date	Sta.	Phase	h	m	s	
June (continued)						
7	T	eSN	10	38	.4	
	Initial compressions small at all these stations.					
	Pasadena: 3½ S 152½ E;					
	10:15:35, 460 km					
	Magnitude 6¾					
7	W	iP	21	08	07	
	CL	eP			12	
8	MW	eP	17	04	03	
	R	eP			08	
	Pr	iP			15	
	Bt	iP			21	
	W	iP		03	49	
	CL	iP			54	
	BCIS: Off Kodiak Island					
	16:57:23					
9	MW	eP	04	29	49	
	R	eP			51	
		e		30	11	
	W	iP		29	50	c
		i			57	
		i		30	00	
		i			10	
	CL	iP		29	54	
		i		30	04	
		i			15	
	BCIS: New Hebrides 04:17.0					
9	P	iP	11	05	12	
	R	iP			14	
	Pr	iP			14	
	Bt	iP			13	
	W	iP			13	
	CL	iP			18	d
	USCGS: 20½ S 178½ W;					
	10:54:03, 600 km					
9	PX	eLEZ	22	03	.2	
	MW	eP	21	33	23	
	R	eP			30	
	W	iP			24	
	CL	iP			30	c
	New Hebrides					
9	R	eP	22	49	13	
	Pr	iP			15	
	W	eP			01	
		i			16	
	CL	i			19	
	BCIS: 35 S 179½ E;					
	22:36:04					
10	P	iPNEZ	03	11	53	
	R	e			52	
	Pr	iP			55	c
	Bt	i			53	
	W	iP			52	c
	CL	iP			57	
	BCIS: 18 S 169¼ E;					
	02:59:10					
10	MW	e	04	50	18	
	W	e			19	
	CL	e			14	
	BCIS: 34 N 38¼ W;					
	04:39:38					

Date	Sta.	Phase	h	m	s	
June						
10	P	iPNEZ	18	47	44	c
		iNEZ		48	02	
		iNEZ		50	34	d
		i			49	
		i			55	
		iE		51	04	
	PX	eSN		56	54	
			A		T	
		PZ	½		1	
		PH	0.3		1	
		SH	1¼		1	
	MW	eP	18	47	45	
		i			48	
		i		50	35	d
		i			51	
		e			57	
	R	iP		47	57	c
		i		48	18	
		i			52	
		i		50	37	d
	Pr	iPNEZ		47	47	c
		iNEZ!		50	37	d
		i			52	
	Bt	iP		47	46	c
		e		48	17	
		i		50	35	d
	W	iP!		47	46	c
		i(pP)		50	08	
		i!			36	d
		i!			52	
	CL	iPNEZ		47	51	c
		i		48	22	
		e(pP)		50	16	
		iNEZ!			40	
		i!			56	
		i		51	06	
		e		52	41	
		e		53	00	
		e		54	26	
		eSNEZ		57	05	
	T	ePNE		47	55	
		eE		50	44	
	USCGS: 19 S 179 W;					
	18:36:49, 750 km					
	Unusually deep shock. If the large sharp phase following P after 2 m 50 s (Pasadena 18:50:34, Az 0.2, T 1 sec.), and recorded at many stations, is actually pP, the depth is over 750 km. More probably this is P of an aftershock, and pP is as suggested for W and CL, giving a depth near 710 km.					
10	P	iPEZ	22	49	42	c
		ipP		51	10	
	R	iP		49	45	c
		epP		51	13	
	Pr	iP		49	49	c
		epP		51	15	
	Bt	iP		49	52	c
	W	iP			36	c
		ipP		51	04	
	CL	iP		49	39	c
		i		50	15	

(continued)

Date	Sta.	Phase	h	m	s	
June (continued)						
10	CL	ipP	22	51	07	
		i		52	53	
		e		54	15	
		~~e~~		~~55~~	~~00~~	
		e		57	41	
	CMO: 29¼ N 139¾ E					
	22:37:58, 380 km					
10	W	e	23	36	57	
		e			32	
	CL	e			30	
	BCIS: 71.7 N 8 W;					
	23:33:57					
11	P	iP	13	36	57	
	Pr	iP			59	
	W	iP		37	00	
	CL	iP			04	
11	MW	e	14	09	35	
	R	e			26	
	Bt	e			43	
		e		10	00	
	W	iP		09	29	
	CL	eP			33	
11	P	iPEZ	17	04	53	
		ipPNEZ		05	03	
	R	eP		04	57	
	Pr	iP		05	02	
		ipP			13	
	Bt	iP			07	
		ipP			17	
	W	iP		04	42	
		ipP			52	
	CL	iP			46	
		ipP			56	
		i		05	05	
	USCGS: 52 N 177½ E;					
	16:55:45, 60 km					
12	MW	eP	04	42	24	
	Pr	iP			25	
	W	iP			25	
	CL	iP			29	
12	P	iPNEZ	05	46	17	c
		iNEZ			20	
		ipPEZ		48	19	
		iNEZ		49	21	
		i			26	
		e		50	18	
	PX	eSE		55	24	
			A		T	
		PZ	1		1	
	R	iP	05	46	19	c
		i			49	
		ipP		48	21	
		i		49	24	
		e		51	07	
	Pr	iP		46	20	c
		i			28	
		i			40	
		i		47	52	
		ipP		48	22	
		i		49	23	
	Bt	iP		46	18	c
		ipP		48	21	
		i		49	20	
	W	iP		46	18	c
		ipP		48	21	d
		i		49	22	
	CL	iP		46	23	c
		ipP		48	26	

Date	Sta.	Phase	h	m	s	
June(continued)						
12	CL	i	05	48	47	
		i		49	27	
		eS		55	33	
		iP'P'	06	13	22	
		e		15	46	
	T	iPNE	05	46	25	
	Magnitude $6\frac{1}{2}$					
	USCGS: 18 S 179 W;					
	05:35:13, 550 km					
12	P	e	21	49	58	
		i		51	58	
	R	eP		48	52	
		i(S)		49	57	
	Pr	iP		48	21	
13	R	eP	17	09	59	
		i		10	18	
	Pr	eP		09	57	
		i		10	17	
	W	iP		09	57	
		i		10	17	
		i			21	
	CL	eP			00	
		i			21	
	USCGS: 22 S 171 E;					
	16:57:14, 100 km					
14	MW	eP	06	57	25	
	Pr	iP			28	
	W	iP			26	
		e		58	04	
		i(pP)		59	24	
	Deep? USCGS: 17 S 174 W;					
	06:45:50					
14	MW	eP	10	16	48	
	R	eP			47	
	Pr	iP			46	
	Bt	iP			47	
	W	eP			53	
	BCIS: $8\frac{1}{2}$ N $33\frac{1}{2}$ W;					
	10:04:34					
14	R	iP	14	18	47	
	W	iP			39	
	CL	iP			43	
	USCGS: 19 N 145 E;					
	14:06:08					
14	P	iP"	16	37	39	
	R	iP"			37	
	Pr	iP"			36	
	W	iP"			41	
		iPKKP		47	42	
	CL	iP"		37	40	
		ePP		39	08	
		ePKKP		47	45	
	BCIS: $59\frac{1}{2}$ S 26 W;					
	16:18:47					
15	P	iP	02	37	26	
	Pr	iP			29	
	W	iP			28	
	CL	iP			32	
	Southwest Pacific					
15	W	iP	06	51	48	
	Mexico?					
15	P	iPNZ	13	39	26	d
		i			42	
		ipP			55	
		esP		40	07	
		e			21	

(continued)

Date	Sta.	Phase	h	m	s	
June(continued)						
15	PX	iSNE	13	47	01	
		esSNE			41	
		eScSNE		48	57	
		eSSNE		51	03	
		eSSS		53	6	
		eR		56	9	
	P	eP'P'	14	09	40	
			A		T	
		PZ	1		2	
		PH	$1\frac{1}{2}$		5	
		SH	10		10	
	R	iP	13	39	20	d
		ipP			51	
		i		40	08	
		e		46	20	
		eS			57	
	Pr	iP		39	16	d
		ipP			47	
		i			53	
		i		40	21	
		i			54	
		i		41	25	
		eS		46	51	
		eP'P'	14	09	43	
	Bt	iP	13	39	12	d
		e			35	
		ipP			41	
		i		40	17	
	CL	iP		39	30	
		i			36	
		ipP			58	
		e		44	06	
		iS		47	15	
	T	ePNE		39	39	
		eE		40	07	
		e			37	
		eSN		47	34	
	Magnitude $6\frac{1}{2}$-$6\frac{3}{4}$					
	USCGS: 5 S 77 W;					
	13:29:59, 100 km					
15	P	iPNEZ!	13	42	32	c
	R	iP			35	c
	Pr	iP			40	c
	Bt	iP!			43	c
	W	iP!			23	c
		ipP		44	07	
	CL	iP		42	27	c
		epP		44	12	
	CMO: $47\frac{1}{2}$ N $146\frac{1}{2}$ E;					
	13:32:18, 500 km					
16	P	e	16	04	42	
		i		07	01	
	PX	eL		26	9	
	Pr	iP		04	47	
	Bt	iP			42	
	W	iP			48	
	CL	eP			56	
	BCIS: $37\frac{1}{2}$ S 114 W;					
	15:53:24					
16	MW	eP	17	19	17	
	Pr	iP			18	
	W	iP			18	
	CL	iP			23	
17	P	iPNZ	01	49	01	d
		i			13	
	PX	eSN		54	17	

(continued)

Date	Sta.	Phase	h	m	s	
June(continued)						
17	PX	iSNE	01	54	37	
		eGN		56	8	
		eR		57	7	
			A		T	
		PZ	2		3	
		PH	$1\frac{1}{2}$		3	
		SH	3		7	
		MH	25		18	
		MZ	20		19	
	R	iP	01	49	06	d
		i			17	
		iPcP		51	45	
	Pr	iP		49	12	d
		i			21	
	Bt	iP			20	d
		ePcP		51	50	
	W	iP!		48	48	d
		i			57	
		i		49	06	
		i		50	45	
		i		51	12	
		iPcP			39	
	CL	iP		48	53	d
		i		49	02	
		iPcP		51	41	
	T	ePNE		48	46	
	Magnitude $6\frac{1}{2}$					
	USCGS: 56 N $154\frac{1}{2}$ W;					
	01:42:22					
17	P	e	09	56	31	
	W	e?			05	
		i			14	
	CL	e			19	
	Kamchatka?					
17	P	e	16	45	51	
	R	e			52	
		e		46	01	
	W	iP		45	53	
	CL	eP			52	
17	MW	eP	18	45	42	
	R	eP			45	
	W	iP			27	
	CL	eP			33	
	USCGS: 56 N 154 W;					
	18:39:03					
18	MW	e	02	08	38	
	R	e			33	
	Pr	e			35	
	W	iP			09	
	CL	eP			15	
	USCGS: 56 N 154 W;					
	02:01:46					
18	P	iP"	18	13	56	
		iSKPEZ		17	16	
	R	eP"		13	58	
		ePP		16	16	
		iSKP		17	18	
	Bt	iP"		14	00	
		iPP		16	23	
		iSKP		17	23	
	W	iP"		13	53	
		e		14	15	
		e		15	51	
		iPP		16	10	
		iSKP!		17	10	

(continued)

Date	Sta.	Phase	h	m	s	
June(continued)						
18	CL	iP"	18	13	55	
		e		14	20	
		i		16	09	
		iPP			18	
		iSKP!		17	13	
	BCIS: 6 S $105\frac{1}{2}$ E;					
	17:54:42					
19	P	eP	22	29	19	
	R	e			19	
	Bt	eP			06	
	CL	e			32	
	Off Mexico?					
19	P	eP?	02	09	25	
	Surface waves small					
	R	eP	02	09	27	
		e			38	
		e			43	
	Pr	i			42	
	Bt	e			37	
		i			44	
	W	iP			19	
		e			26	
		i			33	
	CL	eP			24	
		i			31	
		i			39	
	CMO: $29\frac{1}{4}$ N $131\frac{1}{4}$ E;					
	01:56:22, 0-10 km					
19	MW	e	03	35	45	
	R	eP'			36	
		e			44	
	Pr	i			44	
	Bt	i			46	
	W	iP'			43	
	CL	iP'			42	
	USCGS: $15\frac{1}{2}$ S 40 E;					
	03:15:40					
19	MW	eP	07	21	29	
	Pr	iP			37	
	W	iP			16	c
	CL	iP			21	
19	P	iP	19	41	32	
	R	iP			35	
	Pr	iP			35	
	W	iP			35	
	CL	iP			39	
	BCIS: Near 18 S 179 W;					
	19:30:29, 550 km					
19	P	iPNEZ	22	11	29	
	PX	eLNE		13	5	
	P	iLgNEZ		13	38	
	R	eP		11	16	
		i		13	25	
	Pr	iP			07	
		i(S)		13	01	
	Bt	iP		10	55	
		i(S)		12	43	
	W	iP		11	47	
		i		14	38	
	CL	iP		11	39	
		i		14	27	
	T	ePNE		12	00	
	USCGS: 27 N $112\frac{1}{2}$ W;					
	22:09:15					

Date	Sta.	Phase	h	m	s	
June						
20	P	epP	05	33	38	
	R	iP			05	
		ipP			34	
		e			57	
	Pr	epP			30	
	Bt	iP		32	56	
		ipP		33	25	
		e			39	
	CL	eP			12	
		ipP			42	
		e		34	05	
	T	epP		33	50	
	South America					
20	CL	e(P)	07	07	44	
		e(pP)		08	29	
	Southwest Pacific					
20	P	iPEZ	20	59	27	
	R	eP			29	
	CL	iP			29	
		e	21	00	17	
	USCGS: 5 S 146 E;					
	20:45:57, 60 km					
21	P	iPNEZ	02	00	08	d
		iPcP			23	
		ipPNEZ			38	c
		iNZ			49	
		i(sP)E			57	
		i		01	08	
		iEZ			25	
	PX	iSNE		09	33	
		iScSN		10	07	
		iSPNE			26	
			A		T	
		PZ	1½		3	
		PH	1½		2½	
		SH	2		6	
	R	iP	02	00	05	d
		ipP			34	c
	Pr	iP			01	d
		iPcP			19	
		ipP			30	c
		i			42	
	Bt	iP	01	59	57	d
		iPcP	02	00	16	
		ipP			26	c
		i			36	
		i!			39	
	CL	iP!			13	d
		ipP!			42	c
		i			52	
		i		01	18	
	Magnitude 6.6±					
	USCGS: 23 S 68½ W;					
	01:48:44, 150 km					
21	P	iNEZ	02	25	33	
		e		26	25	
		e		27	44	
	R	i		25	35	
	Pr	i			36	
	CL	i			34	
	USCGS: 6 S 129 E;					
	02:06:53					

Date	Sta.	Phase	h	m	s	
June						
21	P	iP	09	07	43	
	R	iP			38	
	Pr	iP			32	
	Bt	eP			28	
	CL	iP			47	
	USCGS: 1½ N 84 W;					
	08:59:20					
21	P	iP	14	34	28	
		ipP			41	
		i			47	
	R	eP			31	
		ipP			45	
	Pr	iP			38	d
		ipP			51	
		i			55	
	Bt	iP			42	
		i			48	
		ipP			54	
		i		35	00	
	CL	iP			22	
		ipP			35	
		i			41	
	T	iP			14	
	USCGS: 55 N 162½ E;					
	14:24:46, 60 km					
22	P	iPNEZ	06	26	52	
		iNZ		27	01	
	R	iP		26	59	
	Pr	iP		27	10	
	Bt	iP			19	
	CL	eP		26	42	
		i			49	
	T	eP			29	
	Off Northern California or Oregon.					
22	P	ePEZ	09	30	58	
		epP		31	14	
	R	eP		30	59	
		epP		31	15	
	Pr	iP		31	00	
		ipP			16	
	Bt	eP		30	58	
		epP		31	14	
	CL	iP		31	05	c
		ipP			21	
	BCIS: 29½ S 178¼ W;					
	09:18:29, 60 km					
22	P	eP	19	14	58	
	R	eP			01	
	Pr	eP			09	
	CL	eP			45	
	T	eP			31	
	BCIS: 54½ N 132½ W;					
	19:09:56					
23	R	e	15	33	09	
	Pr	e			09	
	Bt	e			17	
	CL	e			13	
	BCIS: South of the Kermadec Islands, 15:20.2					
24	P	eP	04	11	46	
	R	eP			36	
	Bt	eP			22	
	CL	eP			51	

Date	Sta.	Phase	h	m	s	
June						
24	P	iPNEZ	08	10	29	d
		ipP		11	16	
	R	iP		10	33	
		epP		11	19	
		ePP		13	52	
	Bt	iP		10	37	d
		ipP		11	23	
		iPP		14	01	
	CL	iP		10	29	d
		ipP		11	16	
		iPP		13	47	
	USCGS: 18½ N 145½ E;					
	07:58:12, 200 km					
25	P	iP	05	31	09	
	R	eP			05	
	Pr	iP			13	
	Bt	iP			15	
	CL	eP		30	54	
		i		31	00	
	USCGS: 73½ N 8 E;					
	05:20:11					
25	P	iP	23	35	02	c
	R	iP			04	c
	Pr	iP			08	c
	Bt	iP			11	c
	CL	iP			00	c
	CMO: 29 N 139 E;					
	23:23:19, 450-500 km					
26	R	eP	12	03	28	
		i			41	
	Pr	e			33	
	Bt	i			37	
	CL	eP			10	
		i			22	
	BCIS: 46¼ N 151¼ E;					
	11:52:20					
28	P	eP	05	11	16	
	PX	eLE		36.5		
			A		T	
		MH	10		20	
		MZ	7		20	
	R	eP	05	11	17	
	Bt	eP			11	
	CL	eP			22	
	USCGS: 59 S 142 W;					
	04:57:48					
28	P	eP	23	32	32	
	R	iP			26	c
	Pr	iP			21	c
	Bt	iP			16	c
	CL	iP			40	c
	USCGS: 0 91½ W; 23:24:34					
29	P	iPNEZ	01	22	10	c
	R	iP			05	c
	Pr	iP			01	c
	Bt	iP		21	59	c
	CL	iP		22	14	c
	USCGS: 17 S 67½ W;					
	01:10:50					
30	P	eP"	13	46	16	
		e		47	14	
		ePP		48	43	
	PX	eLEZ	14	36.7		
	R	eP"	13	46	15	
	Bt	eP"			16	
	CL	eP"			12	
	USCGS: 7 N 37 E;					
	13:26:50					

Date	Sta.	Phase	h	m	s	
June						
30	P	iP	15	15	38	
		epP		16	03	
	PX	eLNE		24	03	
	R	iP		15	41	
		epP		16	05	
	Pr	iP		15	46	
		epP		16	09	
	Bt	iP		15	40	
		epP		16	15	
	CL	iP		15	32	
		epP			57	
	Depth 100 km					
	USCGS: 51½ N 158 E;					
	15:05:26					
30	P	eP	15	21	33	
	R	i			40	
	Pr	eP			15	
	Bt	eP			04	
	CL	eP			45	
	USCGS: 24 N 109 W;					
	15:18:20					
July						
1	P	eP	03	25	22	
		i			34	
	R	eP			23	
	Pr	iP			29	
	Bt	e			39	
	CL	eP			15	
		i			20	
		i			28	
		i			35	
	USCGS: 52 N 159½ E;					
	03:15:16					
1	P	i	04	22	09	
	R	eP			00	
		e			11	
	CL	eP		21	59	
		i		22	11	
1	R	e	16	31	17	
	Bt	e			05	
	CL	e			16	
		e			42	
	Mexico					
2	R	e	02	04	45	
	Pr	i			46	
	CL	e			40	
	Near Apia					
2	P	eP	02	59	18	
		e	03	02	53	
		ePP		03	37	
	PX	iSKSNE		09	55	
		eSKKSNE		10	36	
		eSE		11	11	
		ePSEZ		12.6		
	P	ePKKP		15	03	
		i			31	
	PX	eRNEZ		32.7		
			A		T	
		PZ	0.3		3	
		PPZ	0.3		2	
		PPH	½		5	
		SKSH	2		10	
		MH	15		20	
		MZ	15		20	
	R	eP	02	59	24	

(continued)

Date	Sta.	Phase	h	m	s	
July (continued)						
2	R	ePP	03	03	42	
		ePKKP		15	20	
	Pr	e		03	00	
		iPP			42	
		ePKKP		15	17	
	Bt	eP	02	59	41	
		e	03	02	36	
		iPP		03	51	
		ePS		13	02	
		iPKKP		15	13	
	CL	eP	02	59	20	
		e			59	
		i	03	00	29	
		iPP		01	36	
		ePKKP		15	23	
	T	eP	02	59	14	
		ePP	03	03	28	
	Magnitude $6\frac{3}{4}$					
	USCGS: $13\frac{1}{2}$ N $123\frac{1}{2}$ E;					
	02:45:09					
2	P	ePNZ	09	16	00	
	R	eP		15	54	
	Pr	eP			50	
	Bt	eP			45	
		i		16	51	
	CL	eP			04	
	T	eP			16	
	BCIS: $5\frac{1}{4}$ S 76 W;					
	09:06:22					
2	P	ePNZ	10	44	19	
	R	iPNZ			18	
		iSEZ		45	29	
	H	eP		43	54	
	T	iP			44	
		iSNE		44	12	
	CL	iP		43	54	
	Is	eP		44	01	
	D	iP			17	
	Kg	eP			16	
	Magnitude 5.2					
	USCGS: 38.2 N 116.4 W;					
	10:43:13					
3	PX	eLN	01	40.2		
	CL	eP"	00	52	23	
	USCGS: $3\frac{1}{2}$ S 29 E;					
	00:32:53					
3	P	iP	16	03	40	
	R	iP			43	
	Pr	iP			44	c
		e		04	48	
	Bt	iP		03	43	
	CL	iP			46	c
	T	iP		04	05	
3	R	eP	16	09	27	
	Pr	iP			29	
	Bt	eP			28	
	CL	iP			30	
3	P	eP	21	59	38	
	Pr	eP			41	
		i			47	
	Bt	e			44	
	CL	e			37	
	T	e			45	
	USCGS: $20\frac{1}{2}$ N $155\frac{1}{2}$ W;					
	21:52:35					

Date	Sta.	Phase	h	m	s	
July						
3	P	iP"	22	50	32	c
		e(pP")			47	
		e(sP")			57	
	PX	ePP		52	48	
		iSKP		53	51	
		iPKSNE!		54	01	
		iNZ			18	
		i!			21	
		iSKSPN	23	03	01	
		eSSNE		11.1		
		eGE		26.1		
			A		T	
		P"Z	2		$1\frac{1}{2}$	
		P"H	$\frac{1}{2}$		2	
		PPZ	2		7	
		PPH	1		5	
		SKPZ	3		4	
		SKPH	7		5	
		MH	15		22	
	R	eP"	22	50	22	
		iP"			34	c
		ePP		52	53	
		iSKP		53	55	
		ePKSNE		54	05	
		e			16	
		i			21	
		eSKKP	23	03	25	
	Pr	eP"	22	50	29	
		iP"			35	c
		ePP		52	49	
		i		53	04	
		iSKP			58	
		i		54	23	
	Bt	eP"		50	25	
		iP"			36	c
		iPP		52	56	
		iSKP		53	59	
		iPKSEZ		54	09	
		i			22	
		iSKKP	23	03	28	
	CL	eP"	22	50	22	
		iP"			32	c
		i			45	
		iPP		52	49	
		iSKP		53	53	
		i		54	14	
	T	iP"		50	29	c
		i			44	
		iPP		52	35	
		iSKP		53	47	
		i		54	12	
		iSKKP	23	03	15	
	Pasadena: $6\frac{1}{2}$ S $105\frac{1}{2}$ E;					
	22:31:26, 80 km					
	Magnitude 7.					
4	P	eP	01	24	35	
	R	eP			37	
	Pr	iP			36	c
	CL	iP			42	c
4	P	ePNZ	16	35	54	
		e(Lg)		39	14	
	R	eP		35	44	
	Pr	e			50	
	Bt	e		36	08	
	CL	eP		35	24	

Date	Sta.	Phase	h	m	s	
July						
5	P	iP	14	02	32	c
		ipP			48	
		i		03	02	
	R	eP		02	36	
		ipP			51	
	Pr	iP			41	c
		ipP			57	
	Bt	iP			45	c
		ipP		03	00	
	CL	iP		02	28	c
		ipP			43	
	T	iP			18	
		ipP			33	
		i			49	
	USCGS: $50\frac{1}{2}$ N $156\frac{1}{2}$ E;					
	13:52:18, 60 km					
5	P	iPEZ	16	37	54	d
	R	iP			56	d
	Pr	iP			59	d
	Bt	eP		38	00	d
	CL	iP		37	56	d
	T	iP			55	d
	BCIS: 5 S $151\frac{1}{2}$ E;					
	16:24:37					
6	P	eP	04	13	39	
		e			56	
	PX	eLZ		53.5		
	R	eP		13	42	
	Pr	iP			44	
	CL	eP			41	
		e		17	25	
	T	e		13	44	
	USCGS: 3 S 148 E;					
	04:00:13					
6	P	eP	08	15	17	d
	PX	iSNEZ		24	00	
		eSKSNE		25	01	
		eGN		31	0	
			A		T	
		PZ	2		4	
		PH	$\frac{1}{2}$		2	
		SH	7		8	
		MH	25		17	
	R	eP	08	15	19	
	Pr	eP			33	
		eP'P'		43	53	
	CL	eP		15	12	
		i			14	
		eP'P'		43	59	
	T	eP		15	05	
		eP'P'		44	03	
	Magntiude $6\frac{3}{4}$					
	USCGS: $46\frac{1}{2}$ N $153\frac{1}{2}$ E;					
	08:04:42, 100 km					
6	P	e(P)	08	23	20	
	R	e(P)			23	
	Pr	e(P)			34	
	CL	iP			16	
	T	eP			08	
	BCIS: Kurile Islands					
	08:12:33					
6	P	e	08	32	16	
	R	eP			14	
	CL	eP			07	
	T	eP		31	59	
	USCGS: 46 N 153 E;					
	08:21:23					

Date	Sta.	Phase	h	m	s	
July						
6	R	e	09	05	28	
	CL	eP			18	
		i			30	
	T	e			26	
	USCGS: Kurile Islands					
	08:54:32					
6	P	eP	10	24	49	
	R	e			54	
	Pr	e		25	00	
	CL	eP		24	35	
	T	eP			37	
	USCGS: 46 N 153 E;					
	10:14:00					
6	R	e	10	57	41	
	Pr	e			51	
	CL	e			32	
	T	e			41	
	USCGS: 46 N 153 E;					
	10:46:46					
6	P	eP	11	14	40	
	R	iP			43	
	Pr	iP			51	
	SB	eP			39.0	
	CL	iP!			16.5	
	H	iP			12.4	
	T	iP		13	59.0	
	Is	iP		14	18.2	
	Kg	iP			24.5	
	D	iP			40.0	
	BB	iP			40.9	
	FT	iP			41.6	
	Magnitude 6.6					
	USCGS: $39\frac{1}{2}$ N $118\frac{1}{2}$ W;					
	11:13:19					
	Felt over a wide area in Nevada, Oregon and Calif., including San Francisco. Damage at Fallon and Stillwater, Nevada. Minor faulting in the Rainbow Mountains east of Fallon					
6	P	iPNZ	11	50	21	
	R	ePNZ			23	
	H	eP		49	57	
		iSNEZ		50	42	
	Is	eP		49	58	
	Kg	eP		50	04	
	BB	iP			29	
	Magnitude 5.5					
	USCGS: 39 N 118.5 W;					
	11:49:00					
6	P	iPNZ	13	16	34	
	R	eP			34	
	H	ePNEZ			09	
	T	iP		15	49	
	CL	iP		16	07	
	Is	iP			09	
	Kg	iP			15	
	BB	iP			34	
		i(S)			52	
	Magnitude 5.2					
	USCGS: 39.5 N 119 W;					
	13:15:11					
6	Pr	iP	16	02	23	
	CL	eP			41	
	T	e			52	
	BCIS: $13\frac{3}{4}$ N $91\frac{1}{2}$ W;					
	15:56:28, 150 km					

Date	Sta.	Phase	h m s
July			
6	P	iPN	22 09 02 d
	R	eP	04
	SB	ePNZ	00
	H	iP	08 34
	T	iP	19
	CL	iPNZ	38
	Is	iP	41
	FT	eP	56
	BB	eP	09 03
	Kg	iP	08 47
	Magnitude 6.4		
	USCGS: 39.5 N 118.5 W;		
	22:07:41		
8	P	iP	02 15 19
	R	eP	21
	H	eP	14 58
	T	eP	37
	CL	iP	55
	Is	iP	15 06
	Kg	iP	04
	Magnitude 5.0		
	USCGS: 39.5 N 118.5 W;		
	02:13:56		
8	P	eP	12 56 32
	H	ePN	06
	T	ePE	55 51
	CL	iP	56 09
	W	iP	10
	Is	eP	12
	Magnitude 4.8		
	USCGS: Fallon, Nevada		
	12:55:10		
8	P	eP	19 33 20
	R	eP	21
	W	iP	32 57
	CL	iP	55
	H	eP	53
	T	ePNE	37
		iSNE	33 10
	Magnitude 5.4		
	USCGS: 39 N 118.5 W;		
	19:31:57		
8	R	eP	21 02 00
	Pr	iP	01 58
		i	02 03
	W	eP	10
	CL	eP	08
		e	15
	Tacubaya: 15° 43' N		
	99° 50' W; 20:56:30		
9	P	eP	08 51 23
	H	iPNZ	02
	T	iPNEZ	50 40
		iSNE	51 17
	CL	eP	50 58
	W	iP	51 00
	Is	eP	02
	Kg	eP	08
	Magnitude 4.7		
	USCGS: 08:50:03		
9	P	iPNEZ	12 32 05 c
		ipP	28
	PX	eSE	41 25
		eLEZ	53.9
	R	eP	32 06 c
		epP	31
	Pr	iP	08 c
		ipP	33

(continued)

Date	Sta.	Phase	h m s
July (continued)			
9	W	iP	12 32 07 c
		ipP	31
	CL	iP	12 c
		ipP	36
	T	iP	14 c
		ipP	39
	USCGS: 16 S 174½ W;		
	12:20:38		
	Felt at Apia		
9	R	iP	15 49 39
		e	51
	Pr	iP	45
		i	50 06
	W	iP	49 27
		i	39
	CL	iP	32
		i	44
		i	55
	CMO: 43.9 N 147 E;		
	15:38:18, 40 km		
9	P	iP	18 40 20 c
	R	iP	22 c
		i	54
	Pr	iP!	28 c
		i	43 28
	W	iP	40 12 c
		i	19
		i	29
		i	43 03
	CL	iP	40 16
		i	46
		i	43 08
	BCIS: 41.0 N 138.5 E;		
	18:28:50, 250 km		
	CMO: 40.7 N 139.3 E;		
	18:28:51, 300 km		
10	P	eNZ	16 13 21
	PX	eLNZ	42.5
	R	e	13 17
	Pr	eP	04
		i	11
	W	eP	19
		i	26
	CL	eP	17
		i	24
	USCGS: 38 S 73½ W;		
	16:00:40		
11	P	iPEZ	04 59 44
	R	iP	48
	Pr	iP	56
	W	iP	25
	CL	eP	29
	T	iP	16
11	P	iPEZ	10 37 42 c
		i	52
		i	59
	R	eP	44
		e	54
	Pr	iP	47
	W	iP	36 c
		i	46
	CL	iP	42 c
		i	51
	T	iP	38
	BCIS: 13 N 144 E;		
	10:24:45		
11	W	iP	15 09 30
	CL	eP	37

Date	Sta.	Phase	h m s
July			
12	P	eP	16 06 42
	R	eP	48
	W	eP	20
	CL	iP	19
	H	iP	22
	Is	eP	22
	Magnitude 5.1		
	39.5 N 118.5 W;		
	16:05:25		
12	P	eP	17 42 58
	R	eP	43 00
	Pr	iP	05
	W	iP	42 46
	USCGS: 46 N 153 E;		
	17:32:10		
12	P	e(P)	17 58 02
	W	iP	57 46
	Kurile Islands		
12	R	i	22 06 04
	Pr	i	08
	W	iP	05 39
		i	44
		i!	06 01
	USCGS: 46 N 153 E;		
	21:55:02		
13	R	e	00 23 18
	W	e(P)	04
		i	15
13	W	eP	02 08 32
		i	44
	Kurile Islands		
13	R	iP	02 58 50
	W	iP	32
13	W	eP	04 05 04
		i	16
	Kurile Islands		
13	P	eP	08 18 06
	PX	eLEZ	47.0
	R	eP	18 05
	Pr	eP	07
	USCGS: 3 S 151 E;		
	08:04:44		
14	P	e	23 54 41
	W	iP	20
		i	33
	CL	iP	25
		i	38
	USCGS: Kurile Islands		
	Region; 23:43:48		
15	P	iPNEZ	00 15 18
	PX	eSNE	24 51
		eLNE	33.3
	R	eP	15 19
	Bt	iP	20
	W	eP	16
	CL	eP	22
	USCGS: 13 S 177 W;		
	00:03:44		
15	P	ePEZ	00 46 11
	R	eP	09
	Bt	eP	14
	W	eP	08
	CL	eP	13
	BCIS: 16½ S 174¼ W;		
	00:34:33		
15	CL	iP	06 31 51 c

Date	Sta.	Phase	h m s
July			
15	P	ePNEZ	13 29 32
	R	eP	36
	Bt	iP	51
	CL	eP	19
	BCIS: 53¾ N 133½ W;		
	13:24:36		
16	R	iP	02 41 05
	Pr	iP	00
	Bt	iP	40 56
	W	iP	41 16
	CL	iP	16
	T	iP	24
16	R	eP'	03 11 18
	Pr	iP'	26
	Bt	iP'	28
	CL	eP'	21
	Indian Ocean		
16	PX	eL	09 13.7
	R	eP	10 40
		e(S)	12 49
	Pr	iP	10 31
		i(S)	12 35
	Bt	iP	10 16
		i(S)	12 07
	W	eP	11 09
	CL	eP	00
		e(L)	14 01
	T	eP	11 20
	Mexico?		
16	P	iPEZ	12 53 15
		e	26
	R	eP	18
	Pr	iP	23
	Bt	iP	25
	W	iP	06 d
		i	16
	CL	iP	11
		e	21
	T	eP	06
		e	16
	CMO: 39.5 N 144.5 E;		
	12:41:43, 60 km		
18	P	ePNZ	01 00 44
	R	eP	33
	Pr	iP	23
	Bt	iP	15
	CL	iP	55
	T	eP	01 11
	BCIS: 20 N 108½ W;		
	00:56:52		
18	P	iPEZ	06 44 28
	PX	eL	07 04.3
		eP'P'	14 25
	R	eP	06 44 30
		eP'P'	07 14 16
	Pr	iP	06 44 36 c
		i	44
		i	48
	Bt	iP	40 c
	W	iP	16 c
		eP'P'	07 14 03
	CL	iP	06 44 21 c
		eP'P'	07 14 21
	T	iP	06 44 13 c
		eP'P'	07 14 23
	USCGS: 55 N 161½ E;		
	06:34:35		

Date	Sta.	Phase	h	m	s
July					
18	P	eP	09	19	43
		iEZ			47
		i		20	14
	PX	iSEZ		29	35
		eGN		39	.8
		eREZ		43	.5
			A		T
		PZ	½		2
		SH	1½		3
		MH	6		20
	R	eP	09	19	44
		i			50
	Pr	eP			48
		i			54
	Bt	iP			51
		i			56
	W	iP			33
	CL	eP			39
		i			44
	T	eP			33
		i			37
	Magnitude 6½				
	CMO: 35.5 N 141.1 E;				
	09:07:36, 40 km				
18	W	iP	10	50	07
	Japan				
18	P	iPNEZ	15	20	10
	R	iP			12
	Pr	iP			13
	Bt	iP			11
	W	iP			12
	CL	iP			17
	T	iP			18
	Southwest Pacific				
18	P	iP	20	05	27
			A		T
		PZ	0.2		1½
	R	iP	20	05	28
	Pr	iP			29
		i			32
	Bt	iP			27
	W	iP			29
		i			35
		i			47
		epP		06	51
	CL	iP		05	34
		epP		07	00
	T	eP		05	35
	USCGS: 30 S 180;				
	19:53:22, 400 km				
19	R	eP	02	26	34
	W	iP			46
		i			53
	CL	iP			42
	T	iP			50
	USCGS: Near Coast of				
	Northern Chile.				
	02:15:16, 60 km				
19	P	iP	17	33	45
	R	eP			48
	Pr	eP			50
	Bt	iP			52
	BCIS: Marianas, 17:21.2				

Date	Sta.	Phase	h	m	s
July					
19	P	eP	19	20	10
	R	eP			03
	Pr	iP		19	57
	Bt	iP			50
	CL	eP		20	19
	T	eP			35
20	P	ePNZ	00	12	45
	R	iPNZ			45
	CL	iP			19
	H	iP			22
		iSNEZ			55
	T	iP			10
		iSN			36
	Magnitude 5.2				
	Probably 38.2 N 116.4 W				
	(As on July 2, 10 h)				
	00:11:38				
20	P	iP	22	57	45
	R	eP			48
	Pr	iP			48
	Bt	eP			45
	W	iP			49
		i		58	00
	CL	iP		57	54
		e		58	05
	T	eP			09
		e			20
	Near Apia				
21	MW	ePP	04	57	40
	R	ePP			48
	Pr	ePP			55
	Bt	ePP		58	05
	W	ePP		57	32
	CL	e			24
	USCGS: 27½ N 101 E;				
	04:38:51				
21	MW	e	08	54	13
	R	eP			14
		i			20
	Pr	i			25
	Bt	eP			19
		e			27
	CL	eP			09
		i			15
	BCIS: 33¾ N 140 E;				
	08:41:00				
21	R	iP	14	02	36
		i			42
	Bt	iP			42
	T	iP			25
	CMO: 33.7 N 141.2 E;				
	13:50:28, 40 km				
22	R	eP	22	37	12
	W	iP			22
		i			27
23	P	iPNEZ	04	45	28
		iNEZ			39
	PX	iSNEZ		55	21
		eLEZ	05	11	.0
	Surface waves small				
			A		T
		PZ	1		2
		SH	2		6

(continued)

Date	Sta.	Phase	h	m	s	
July (continued)						
23	R	iP	04	45	24	
		iNEZ			35	
	Pr	iP			20	c
		i			30	
		i			48	
	Bt	iP			17	c
		iNZ			28	
	W	iP			36	c
		i			47	
	CL	iP			32	c
		i			42	
	T	iP			40	c
		i			52	
	USCGS: 30½ S 71½ W;					
	04:33:30, 60 km					
23	MW	iP	15	15	26	d
	R	eP			28	
	Pr	iP			29	d
	Bt	eP			28	
	W	iP			27	d
		e		16	52	
	CL	iP		15	33	d
	USCGS: 14 S 178 W;					
	15:03:48					
23	P	iP	20	40	57	
	R	iP		41	00	
	Pr	iP			01	c
	Bt	iP		40	59	
	W	iP		41	00	
	CL	iP			05	c
	Pacific					
23	P	e	20	48	08	
	R	eP		47	22	
		epP			50	
		isP		48	03	
	Pr	i			00	
	Bt	eP		47	16	
		ipP			44	
		isP			57	
	W	iP			34	
		ipP		48	03	
		isP			15	
	CL	eP		47	31	
		epP		48	00	
		isP			13	
	T	eP			38	
		epP		48	07	
		isP			20	
	BCIS: Northern Chile;					
	20:36.6, 100 km					
23	P	iP	21	05	11	
		e(pP)			27	
		e			37	
	R	iP			13	
	Pr	iP			15	
	Bt	iP			14	
	W	eP			10	
		i			12	
		i(pP)			25	
		i			34	
	CL	eP			15	
		i			19	
	T	iP			16	
	BCIS: 19¾ S 169½ E;					
	20:52:21					

Date	Sta.	Phase	h	m	s	
July						
24	P	iP	07	33	06	
	R	eP			09	
	Pr	e			16	
	Bt	e			13	
	W	iP			02	
	CL	eP			06	
	T	i(P)			04	
24	R	e	09	06	01	
	Bt	e		05	53	
		i		06	20	
	W	iP			13	
		e			26	
		e			43	
	CL	e			09	
	T	e			12	
		e			35	
	BCIS: 22½ S 67½ W;					
	08:54:30					
24	P	iPNEZ	09	54	03	c
	R	iP			05	c
	Pr	iP			06	c
	Bt	iP			05	c
	W	iP			04	c
	CL	iP			08	c
	T	iP			09	
	BCIS: 18 S 169¼ E;					
	09:41:17					
24	R	eP	21	56	44	
		i			56	
	Pr	i			57	
	W	iP			44	c
		i			55	
	CL	eP			48	
		i		57	00	
	BCIS: 19½ S 168½ E;					
	21:43:49					
25	P	iP	06	25	47	
	R	iP			50	
	Pr	iP			51	
	Bt	iP			49	
	W	iP			50	c
		i			59	
		i		26	08	
	CL	iP		25	55	c
	T	iP			55	
	Near Apia					
25	MW	e	11	09	07	
	Pr	e			06	
	W	e			04	
		i			15	
		i		10	08	
	CL	e		08	58	
	T	e			58	
	USCGS: 10 N 72½ W;					
	11:00:15					
25	W	e	13	44	18	
		e			29	
	CL	e			01	
25	W	iP	15	04	17	
	CL	iP			17	
26	P	e	08	57	38	
	R	e			43	
	Pr	e			38	
	CL	e			49	
	T	e			56	

Date	Sta.	Phase	h	m	s	
July						
26	R	eP	18	19	08	
	Pr	eP			08	
	CL	eP			10	
	BCIS: 12½ N 44 W;					
	18:07:57					
26	P	eP	19	18	09	
	R	eP			03	
	Pr	eP		17	59	
	Bt	eP			59	
	CL	eP		18	12	
	USCGS: 1½ S 79 W;					
	19:09:00					
26	P	iPNEZ	20	28	27	c
		i			49	
	PX	ePP		32	01	
		eSNEZ		38	46	
		i			59	
		eLNE		51.9		
		eR		56.7		
			A		T	
		PZ	½		5	
		SH	3		5	
		MH	12		20	
	R	iPNEZ	20	28	25	c
		i			43	
	Pr	iP			21	c
		i			41	
		i			47	
	Bt	iP			18	c
		i			36	
	CL	iP			32	c
		i			50	
	T	ePN			41	
	Magnitude 6½					
	USCGS: 41 S 73 W;					
	20:15:45					
26	R	i	20	46	28	
	Pr	i			32	
	Bt	e			33	
	CL	i			25	
	PKKP of preceding?					
26	MW	iP	20	52	06	
	R	iP			02	
	Pr	iP			00	
	Bt	iP		51	56	
	CL	iP		52	10	
26	P	eP	22	21	15	
	PX	eR		48.5		
			A		T	
		PZ	½		2	
		MH	1		20	
		MZ	1		20	
	Pr	iP	22	21	08	
	Bt	iP			08	
	CL	iP			12	
	Magnitude 6¼					
	BCIS: 11.5 N 43.9 W;					
	22:09:54					
27	MW	eP	06	58	00	
	R	eP		57	57	
	Pr	eP			55	
	Bt	eP			53	
	W	iP		58	04	
	CL	eP		57	58	
	T	eP		58	02	
	Atlantic.					
	BCIS: 11.5 N 43.9 W;					
	06:46:41					

Date	Sta.	Phase	h	m	s	
July						
27	PX	e	21	09	05	
		eLE		32.0		
	R	e		09	08	
	Bt	e			02	
	W	e			14	
	CL	eP			07	
	Aftershock, Atlantic					
	USCGS: 20:57:45					
29	R	iP	00	25	07	
		epP			33	
	Bt	ipP			26	
	W	eP			19	
		ipP			46	
	CL	eP			16	
		ipP			43	
	BCIS: Southern Peru,					
	00:14:19, 100 km					
	Foreshock of 03 h following.					
29	P	iP	02	34	49	
	R	eP			43	
	Bt	iP		35	02	
	W	iP		34	39	c
		i			59	
	CL	iP			44	c
		e		35	04	
	BCIS: Aleutians 02:26.1					
29	P	iPNEZ	03	34	38	d
		ipP		35	05	
	R	iP		34	34	d
		ipP		35	01	
	Bt	iP		34	26	d
		ipP			51	
	W	iP			47	d
		i			53	
		ipP		35	13	
	CL	iP		34	42	d
		ipP		35	08	
		i			20	
	T	iP		34	50	d
	BCIS: 18¾ S 68¾ W;					
	03:23:32, 100 km					
29	P	iPEZ	03	44	38	d
		i			53	
		T		45	13	
	PX	ePP		47	46	
		eSE		53	01	
	P	eP'P'	04	14	04	
			A		T	
		PZ	1¼		1½	
		SH	½		5	
	R	iP	03	44	41	
		i			57	
		eP'P'	04	13	58	
	Bt	iP	03	44	51	
		i		45	06	
	W	iP			28	d
		i			43	
		eP'P'	04	13	53	
	CL	iP	03	44	43	d
		i		45	00	
		i			10	
		eP'P'	04	13	58	
	T	iPNZ	03	44	26	
		i			40	
		i		45	02	
	Phases about 15 sec. following					
	P all very short period.					
	Magnitude 6¼					
	USCGS: 49½ N 158 E;					
	03:34:20					

Date	Sta.	Phase	h	m	s	
July						
29	MW	eP	04	16	44	
	W	eP			33	
		i			42	
	CL	eP			38	
		e			51	
	USCGS: Kurile Island					
	Region; 04:06:20					
29	R	eP	05	18	36	
	W	iP			37	
	CL	iP			41	
29	P	iPNEZ	06	40	37	d
	MW	iP			38	d
		e			58	
	R	iPNEZ			39	d
	Bt	iP			37	d
	W	iP			41	d
		i		42	02	
	CL	iP		40	44	d
		i			48	
		i			57	
	T	iP			45	d
	USCGS: 28 S 179 W;					
	06:27:59					
29	MW	eP	06	48	38	
	W	iP			27	
		i			41	
	CL	eP			32	
29	MW	e	09	34	53	
	R	e			54	
	Bt	e			58	
	W	iP		33	06	
		e			52	
		e		34	52	
	CL	iP		33	11	
		e			48	
		e		34	55	
29	MW	eP	14	04	06	
	W	iP		03	56	
	CL	eP		04	00	
	USCGS: Kurile Island					
	Region; 13:53:42					
29	P	ePNEZ	22	29	53	
	R	eP			49	
		ePcP		33	02	
	Pr	iP		29	42	
		i		30	10	
	Bt	iP		29	40	
	W	iP		30	01	
		iPcP		33	06	
	CL	iP		29	59	
		iPcP		33	05	
	USCGS: 17½ N 92½ W;					
	22:23:54					
	Tabasco, Mexico					
30	P	ePEZ	02	01	34	
		iSNE		02	57	
	R	eP		01	33	
	W	eP			09.6	
		iSE		02	07.1	
	CL	iPNZ		01	06.7	
		iSE		02	08.0	
	H	eP		01	05.5	
	T	iP		00	49.6	
		iSN		01	26.7	
	Kg	iP			16	
	Magnitude 5.2					
	USCGS: 39.5 N 118.5 W;					
	02:00:10					

Date	Sta.	Phase	h	m	s	
July						
30	P	eP	08	57	35	
	PX	iSNE	09	07	01	
		iGE		16.9		
		RNZ		21	--	
			A		T	
		PZ	0.3		3	
		PH	0.3		3	
		SH	4		10	
		MH	25		18	
	R	eP	08	57	33	
	Pr	iP			29	
	Bt	iP			25	
	W	iP			42	
	CL	eP			42	
	T	eP			50	
	Magnitude 6½					
	USCGS: 35½ S 97½ W;					
	08:46:11					
30	P	iP	15	45	37	
		e			49	
	Pr	iP			38	
		i			51	
	Bt	eP			38	
	W	iP			36	
	CL	eP			41	
	BCIS: Loyalty Islands;					
	15:32.6					
31	PX	e(P)	01	13	48	
	P	e		14	50	
		ePP		17	37	
	PX	iN		24	27	
		e		31.4		
		eNE		31.8		
		eLNE		43.5		
		eR		47.8		
			A		T	
		PPZ	½		5	
		MH	21		20	
	R	e(P)	01	13	57	
		ePP		17	40	
	Pr	iP		13	38	
		iPP		17	40	
	Bt	iP		13	42	
	W	eP			25	
		iPP		17	16	
	CL	eP		13	28	
		ePP		17	17	
	Magnitude 6¾					
	USCGS: 39 N 104 E;					
	00:59:57					
31	MW	eP	23	33	56	
	R	iP			53	
		e(pP)		34	23	
	Pr	eP		33	48	
		e?		34	08	
	Bt	iP		33	44	
	CL	eP		34	00	
	BCIS: 22¼ S 68¼ W;					
	23:22:31, 100 km					
August						
1	MW	eP	00	34	31	
	R	iP			33	
	Pr	iP			39	
	Bt	iP			40	
	BCIS: Kamchatka 00:24.2					

Date	Sta.	Phase	h	m	s
August					
1	P	eP	02	40	44
	R	eP			46
	Pr	iP			.48
	Bt	i			46
	W	iP			48
	CL	iP			50
1	PX	eL	04	10.3	
	MW	eP	03	36	34
		e		37	16
	R	eP		36	38
		ePP		40	49
	Bt	e			54
	W	eP		36	31
		ePP		40	36
		e			45
	CL	eP		36	35
		ePP		40	44
	USCGS: 3 S 140 E;				
	03:22:38				
1	P	eP	06	12	02
		ipP			29
		esP			41
	R	iP		11	57
		ipP		12	25
		isP			37
	Bt	iP		11	50
		ipP		12	17
		isP			29
	W	iP			10
		ipP			37
		isP			49
	CL	iP			06
		ipP			33
		isP			46
	T	iP			14
		ipP			41
		isP			54
	USCGS: 20 S 69½ W;				
	06:00:48, 100 km				
1	P	iPNEZ	21	45	05
	R	iP			08 c
	Pr	iP			09
	Bt	iP			08
	W	iP			06
		i			13
		i		46	07
	CL	iP		45	11
		i			19
	T	iP			12
	BCIS: 20 S 168 E;				
	21:32:14				
2	W	iP	00	59	59
		i	01	00	15
	CMO: 37.6° N 141.7° E;				
	00:48:18, 50-60 km				
2	P	iP	09	09	44
	MW	iP			44
	R	iP			41
	P	iP			37
		i			47
	Bt	iP			34
		e			43
	CL	iP			48
	BCIS: 08:58.3				
	Northern Chile				

Date	Sta.	Phase	h	m	s
August					
2	P	iPNZ	10	20	17
		iS		21	42
	CL	iP		19	51
	T	iP			32
		i(S)		20	08
	Is	eP		19	54
	Kg	e(P)			55
		eS		20	58
	Magnitude 5.3				
	USCGS: 39.5 N 118.5 W;				
	10:18:53				
2	P	eP	23	40	03
		e			08
	PX	eLN		59.5	
	R	eP		40	03
		e			08
	Pr	iP		39	56
		i		40	02
	Bt	iP		39	52
		i			59
	CL	eP		40	09
		i			11
		i			18
	T	eP			18
		i			27
	USCGS: 37 S 99½ W;				
	23:28:33				
3	P	iP	05	44	34
	R	eP			37
	Pr	iP			38
	W	iP			37
	CL	eP			41
	T	eP			42
3	MW	iP	08	27	20
		epP			35
	R	eP			22
	Pr	eP			24
	W	iP			16
		epP			33
	CL	eP			21
	T	eP			19
3	PX	eLE	19	12.8	
	Bt	e	18	36	04
	W	e		32	21
		e		36	25
	CL	eP		32	05
		e		35	46
	BCIS: 40.2 N 25.0 E;				
	18:18:10				
3	P	eP	21	26	19
	W	eP		25	57
	CL	eP			56
	H	eP			58
	T	iP			37
	Kg	eP		26	08
	Magnitude 4.9				
	Nevada, 21:24:57				
4	MW	e	13	59	38
		e			46
		e	14	00	04
	R	e	13	59	47
		e	14	00	06
	Bt	e(P)			01
		i			18

(continued)

Date	Sta.	Phase	h	m	s
August (continued)					
4	W	e(P)	13	59	30
		i			44
	CL	e			40
		e	14	00	54
	T	eP	13	59	22
		i			42
		e			52
	Poorly recorded. Interpretation doubtful.				
	USCGS: 54 N 169 W;				
	13:52:25, 200 km				
4	MW	iP	18	28	35
		epP			58
	R	iP			36
		epP			59
	Pr	iP			39
		epP		29	02
	W	iP		28	33
		ipP			58
	CL	iP			39
		ipP		29	03
	BCIS: 9½ S 161½ E;				
	18:15:54, 100 km				
4	Bt	iP	21	46	34
	W	iP			13
	CL	iP			18
	BCIS: 46 N 148¾ E;				
	21:35:20				
5	P	eP	05	04	30
	R	eP			30.2
	W	eP			06.2
	CL	eP			05
	H	iP		03	47
		iSN		04	25
	Kg	eP			14
	Magnitude 4.7				
	USCGS: 39½ N 118½ W;				
	05:03:08				
5	P	ePNEZ	08	58	41
		i			56
		i		59	01
	PX	eSNE	09	05	45
		eSSN		07.5	
		eGN		10.3	
		eR		13.0	
			A		T
		PZ	¼		1¼
		SH	1		5
		MH	7		20
	R	eP	08	58	43
		i		59	05
		i			16
	Pr	iP		58	51
		i		59	06
	Bt	iP		58	55
		i		59	16
	W	iP		58	29
		i			42
	CL	iP			35
		i			40
		i			53
	T	ePNZ			25
		i			39
	Magnitude 6				
	USCGS: 52 N 176 E;				
	08:49:52, 60 km				

Date	Sta.	Phase	h	m	s
August					
5	P	eP	12	13	04
	R	iP			08
	Pr	iP			12
	Bt	iP			14
	W	iP		12	57
	CL	iP		13	02
	T	eP		12	57
	CMO: 33.5 N 138.4 E;				
	12:00:45, 40 km				
5	MW	iP	15	18	48
	R	eP			52
	Pr	iP		19	00
		i			25
	Bt	iP			05
		i			19
	W	iP		18	38
		i			44
	Aleutian Islands				
5	R	e	17	58	07
	Pr	eP		57	58
		i		58	13
	Bt	i			18
	W	iP		57	53
		i		58	06
	CL	eP		57	57
	T	eP			48
		i		58	03
	BCIS: 51¼ N 175½ W;				
	17:49:36				
5	PX	eL	24	29.0	
	R	eP	23	58	09
		ePP	24	02	25
	CL	eP	23	58	23
		ePP	24	02	36
	USCGS: Near NE Coast of New Guinea; 23:43:45				
6	PX	eL	17	09.7	
	R	ePP	16	33	05
	Pr	ePP			07
	CL	ePP			08
	USCGS: 1 S 23½ W;				
	16:19:45				
7	P	iP	09	48	34 d
		ipP		49	10
	R	iP		48	31 d
		ipP		49	07
		e		50	07
	Pr	iP		48	28
		epP		49	04
	Bt	iP		48	23 d
		ipP			59
		i		49	16
	W	iP		48	43
		ipP		49	20
	CL	iP		48	39 d
		ipP		49	14
	T	iP		48	47 d
		ipP		49	24 d
	USCGS: 18½ S 69 W;				
	09:37:24, 100 km				
7	P	eP	18	06	59
	R	eP		07	03
	Pr	eP			09
	Bt	iP			18
	W	iP		06	48
	CL	iP			53
	T	eP			44
	BCIS: 55½ N 159¾ E;				
	17:57:01				

Date	Sta.	Phase	h	m	s	
August						
8	Pr	i	06	46	49	
	W	e		47	06	
	CL	e		46	56	
8	MW	iP	16	41	45	
	Pr	iP			46	
		epP		43	39	
	W	iP		41	45	c
		epP		43	38	
	CL	iP		41	50	c
		ipP		43	43	
	USCGS: 23½ S 179 E;					
	16:30:12, 550 km					
9	R	eP	05	51	56	
		e		52	33	
	Pr	iP			00	
	W	iP		51	58	
		i		52	04	
		e			23	
		i			35	
	CL	i			02	
	T	iP			03	
		e			29	
		e			42	
	BCIS: 22½ S 172 E;					
	05:39:23, 150 km					
9	R	eP	16	45	31	
	W	eP			57	
	CL	eP			46	
9	P	iPNEZ	19	26	43	d
		ipPNEZ			58	
		isPNEZ		27	04	
		iPcP			28	
	PX	iSN		34	47	
		eSSN		38.6		
		eR		43.7		
	P	eP'P'		56	35	
			A		T	
		PZ	2		3	
		PH	1		3	
		SH	1½		5	
		SH	10		26	
		MH	10		20	
		MZ	10		20	
	R	ePNEZ	19	26	46	d
		isP		27	05	
		i			22	
		iPcP			30	
		eP'P'		56	10	
	Pr	iP		26	53	d
		i			59	
		isP		27	06	
		i			17	
		iP'P'		56	35	
	Bt	iP		26	56	d
		isP		27	08	
		i			20	
		i			43	
		eS		35	20	
		iP'P'		56	40	
	W	iP!		26	33	d
		eP'P'		56	25	
		e			44	
	CL	iP		26	38	d
		i			45	
		i			51	
		i		27	00	
		iP'P'		56	34	

(continued)

Date	Sta.	Phase	h	m	s	
August (continued)						
9	T	iP	19	26	30	d
		i			57	
		eP'P'		56	39	
	Magnitude 6½					
	USCGS: 53 N 161 E;					
	19:16:48, 60 km					
9	P	eP	21	35	15	
	Pr	iP			24	c
	Bt	iP			26	c
		e(pP)		36	02	
	W	iP		35	06	c
		i(pP)			42	
	CL	iP			11	c
		i(pP)			48	
	T	iP			05	
		e			16	
		e			36	
	CMO: 44.3 N 146.2 E;					
	21:24:19, 140 km					
10	R	eP	01	06	12	
		i			23	
	Pr	iP			06	
		i			15	
	CL	eP			23	
		e			32	
	T	eP			35	
		i			47	
	Mexico					
10	MW	iP	05	46	08	
	R	iP			11	
	Pr	iP			16	d
	Bt	iP			16	d
	W	iP			01	
		epP		47	33	
	CL	iP		46	05	
		epP		47	39	
	T	iP		46	00	
		epP		47	34	
	CMO: 30.2 N 139.4 E;					
	05:34:24, 430 km					
10	P	ePNZ	13	57	40	
		e			48	
	PX	eL	14	28.0		
	R	eP	13	57	42	
	Pr	eP			42	
		i			47	
		i			55	
	Bt	eP			41	
	W	iP			44	
		i			57	
	CL	eP			48	
		e			59	
		i		58	06	
	T	eP		57	50	
	USCGS: 32½ N 178 W;					
	13:44:52					
11	R	eP	07	38	46	
	Bt	eP		39	00	
	W	iP		38	33	
		e			39	
	CL	eP			38	
		e			45	
	T	eP			29	
		e			40	
	CMO: 41.0 N 143.4 E;					
	07:27:05, 60 km					

Date	Sta.	Phase	h	m	s	
August						
11	P	iPNEZ	11	20	51	c
	R	iP			46	c
		epP		21	11	
		iPcP		22	24	
		ipPcP			52	
		eScP		24	45	
	Bt	iP		20	40	c
		i			55	
		i		21	19	
		iPcP		22	21	
	W	iP		20	58	c
		ipP		21	25	
		i			33	
		iPcP		22	28	
		ipPcP			57	
	CL	iP		20	49	c
		ipP		21	24	
		iPcP		22	25	
		ipPcP			53	
		e		23	09	
	T	iP		20	56	c
		ipP		21	21	
		i			32	
	USCGS: 19½ N 69½ W;					
	11:12:36, 100 km					
12	P	iPNEZ	11	00	44	
		epP		01	51	
	R	iP		00	47	
		epP		01	55	
	Pr	iP		00	48	d
		ipP		01	55	
	Bt	iP		00	46	
	W	iP			45	d
		ipP		01	53	
	CL	iP		00	50	
		ipP		01	58	
	T	eP		00	50	
		epP		01	58	
	Depth 300 km. USCGS: 16½ N 169½ E, 10:48:03					
12	MW	eP	11	45	35	
	R	eP			38	
	Bt	eP			23	
	W	eP			45	
		e			51	
	CL	eP			39	
		e			46	
	T	e			54	
	USCGS: Peru, 11:35:23					
12	MW	eP	14	24	30	
	R	eP			16	
	W	i			40	
	CL	eP			30	
		i			38	
	T	e			39	
	BCIS: 35½ S 72½ W;					
	14:12:05					
12	P	iPNEZ	23	28	20	c
		e			35	
		i			47	
	R	iP			23	c
		e			36	
	Pr	iP			30	c
		e			46	
		i			56	

(continued)

Date	Sta.	Phase	h	m	s	
August (continued)						
12	Pr	iPcP	23	29	16	
		i			46	
	Bt	iP		28	33	c
	W	iP!			10	c
		i			29	
		iPcP		29	01	
	CL	iP!		28	15	c
		i			28	
		iPcP		29	03	
	T	iP		28	07	c
		iPcP			55	
	Depth 60 km?					
	USCGS: 53 N 159 E;					
	23:18:14					
12	P	ePEZ	24	07	13	
	PX	eLN			30.8	
		eR			31.8	
	R	eP		07	15	
	Pr	eP			15	
	Bt	eP			15	
	W	eP			16	
		i			29	
	CL	iP			20	
		i			33	
	T	eP			26	
		i			40	
	BCIS: Kermadec region;					
	23:54:36					
13	Pr	iP	01	29	46	
	W	iP			46	
	CL	iP			51	
	T	iP			51	
14	P	iP	01	46	46	d
		e		47	04	
		i			07	
		i			17	
		e			27	
	R	iP		46	50	d
		e		47	06	
	Pr	iP		46	56	
		i		47	13	
		i			16	
	Bt	iP			00	
		i			21	
	W	iP		46	35	d
		i			48	
		i			58	
	CL	iP			42	d
		i			54	
		e			59	
	T	iPNEZ			34	d
	USCGS: 51 N 160½ E;					
	01:36:43					
14	MW	iP	07	41	25	
	R	eP			26	
		e		44	06	
		e			16	
	Pr	iP		41	28	
		e		44	17	
	Bt	eP		41	25	
	W	iP			27	c
		i		44	07	
		i			18	
	CL	iP		41	33	c
		e		44	13	

(continued)

Date	Sta.	Phase	h	m	s
August (continued)					
14	CL	e	07	44	23
	T	iP		41	24
		i		44	14
		i			24
	Tonga Region. Very deep?				
14	P	iP	14	12	05
		epP		14	08
	R	epP			07
	Pr	iP		12	09
		epP		14	11
	Bt	iP		12	07
		ipP		14	09
	W	iP!		12	07 d
		ipP		14	08
	CL	iP		12	12 d
		ipP		14	15
	T	eP		12	14
		ipP		14	15
	USCGS: 18 S 179 W;				
	14:01:01, 550 km				
14	P	eP	17	03	39
	R	eP			41
	Pr	eP			43
	W	iP			36
	CL	iP			43
	T	eP			42
14	P	e(P)	20	34	08
	PX	eL	21	05.8	
	R	eP	20	33	57
	Pr	eP		34	04
	W	eP		33	57
		e		34	12
	CL	eP			01
		i			16
14	PX	eLE	23	48.0	
	R	e		15	13
		ePP			55
	Pr	e		15	17
		ePP		16	02
	W	e		14	56
		e		15	10
	CL	e			24
		e		16	27
	BCIS: 3½ S 127¾ E;				
	22:56:08				
15	P	eP	05	50	14
		e			25
	R	e			18
		e			25
	W	iP			04
		i			14
	CL	iP			09
		i			21
	T	eP			01
		i			13
	BCIS: 54.0 N 160.0 E;				
	05:40:12				
15	P	iP	05	50	38 d
	R	iP			33 d
	Pr	iP			29 d
	Bt	iP			26 d
		i		51	22
	W	iP		50	45
	CL	iP			42
	T	iP			49 d
	BCIS: 25½ S 67 W;				
	05:38:41				

Date	Sta.	Phase	h	m	s
August					
15	P	iP	24	10	37
	R	eP			40
	Bt	eP			46
	W	iP			31
	CL	iP			25
	T	iP			32
		e		11	03
		e		11	09
	USCGS: 25 N 122½ E;				
	23:56:56				
16	R	eP	05	12	56
	Pr	eP			51
	Bt	eP			45
	CL	eP		13	11
16	P	eP	11	02	08
	R	eP			09
	Pr	eP			09
	CL	iP			15
		ipP			30
	T	iP			17
	Depth 60± km				
	BCIS: Kermadec Islands;				
	10:50.1				
16	MW	iP	14	38	01
		epP		39	54
	R	eP		38	02
	Pr	iP			03
	Bt	iP			02
	CL	iP			06
		ipP		40	03
	T	iP		38	09
	USCGS: 21 S 178½ W;				
	14:26:44, 550 km				
16	Pr	iP	23	47	14
		i			25
		i			31
	CL	eP			05
		e			18
	USCGS: Tonga Islands;				
	23:35:10				
17	Pr	iP	05	02	36
	CL	e			54
	Salvador				
17	PX	eLEZ	06	09.7	
	CL	eP	05	48	18
	T	eP			21
	Near Apia				
	USCGS: Tonga Region;				
	05:36:44				
17	W	iP	16	54	32
18	P	iPNEZ!	04	54	07 c
		ipP!			46
		isP		55	02
		iPP		56	59
	PX	iSNE	05	03	44
		iNEZ!			49
		iNE		04	12
		eGN		14.5	
		eRNZ		17.3	
	P	iP'P'		21	20
		iSKPP'		24	35
		i		44	33
			A		T
		PZ	3½		3
		PH	3		4
		PPZ	1½		4
		SH	15		7

(continued)

Date	Sta.	Phase	h	m	s
August (continued)					
18	R	iPNEZ	04	54	09 c
		ipP			46
		iPP		57	06
		eSNEZ	05	03	55
		eP'P'		21	12
		i			17
		i		24	35
		e		44	36
	Pr	iP!	04	54	10 c
		ipP!			45
		eS	05	03	51
		i		16	05
		iP'P'		21	18
		iSKPP'		24	35
		e		44.6	
	Bt	iP!	04	54	08 c
		ipP!			47
		iPP		57	03
		iS	05	03	50
		iP'P'		21	17
		eSKPP'		24	27
		i			36
		e		44	48
	W	iPEZ!	04	54	09 c
		ipP			47
		isP		55	04
		iPP		57	04 c
		iS	05	03	55
		i		04	18
		eP'P'		21	04
		e		44	33
	CL	iP!	04	54	14 c
		ipP			52
		i		55	02
		iS	05	03	59
		e		14	52
		iP'P'		21	17
		eP'P'P'		41	48
		i		44	38
	T	iPNEZ!	04	54	17
		i			43
		ipP			56
		iSEZ	05	04	07
		eP'P'		21	13
		eSKPP'		24	27
		e		44	40
	Magnitude 6.8 USCGS: 21½ S				
	176 W; 04:42:20, 150 km				
18	PX	eLNEZ	15	23.2	
	R	e		11	40
		e			55
	Pr	iP			48 c
		i			54
		i			58
	Bt	iP			43 c
		i			52
	W	eP		12	12
		i		14	25
	T	eP		12	19
	BCIS: 2 N 95 W;				
	15:04:39				

Date	Sta.	Phase	h	m	s
August					
18	P	eP	18	08	12
		epP			28
		e			39
	R	eP			15
		epP			30
	Pr	eP			26
		ipP			36
	Bt	e			31
	W	iP			01
		ipP			13
		i			18
	BCIS: 52 N 159½ E;				
	17:58:07				
18	R	iP	21	27	33
	Pr	iP			33
	W	iP			34
18	PX	eLNE	23	09.1	
	Pr	eP	22	59	29
		i			33
	W	e	23	00	03
	T	e	22	59	58
	Mexico				
19	MW	iP	15	15	48
		ipP		16	13
		isP			25
	R	eP		15	44
		epP		16	08
	Pr	iP		15	41
		ipP		16	05
	Bt	iP		15	34
		ipP			56
	W	iP			59
		ipP		16	24
		i(sP)			35
		iPcP			58
	CL	iP		15	53
		ipP		16	18
		isP			29
	T	iP		16	02
		ipP			27
		isP			39
	BCIS: 5 S 79 W;				
	15:06:30				
19	MW	eP	20	16	02
		e			25
	R	eP			05
		e			28
	Pr	iP			08
		e			29
	W	iP			00
		i			23
	T	eP			06
		e			24
20	P	eP	08	01	42
		iSE		02	34
	H	iPNEZ		01	14
		iSNEZ			35
	T	iP		00	57
	Is	iP		01	21
		iS			46
	Kg	iP			28
	37° 40' N 118° 40' W;				
	08:00:45, Magnitude 4.4				

Date	Sta.	Phase	h m s
August			
20	P	e	19 31 37
	MW	e	52
		e	59
		e	32 03
	Pr	e	05
		i	34 54
	USCGS: 70½ N 15 W;		
	19:21:33		
20	PX	eLNEZ	21 00 --
	USCGS: 20:24:15		
20	Bt	i	20 51 46
	BCIS: 20:42.3		
20	Is	e	23 09 33
		e	11 46
	USCGS: 71 N 14 W;		
	22:59:16		
21	PX	eL	00 59 --
	MW	e	35 54
	R	e	36 06
	Pr	e	02
	W	e	35 52
	Is	e	53
	T	e	51
	USCGS: 71 N 13½ W;		
	00:25:35		
21	MW	e	00 36 29
	Pr	e	33
	Bt	e	35
	W	e	19
	BCIS: 00:26:06		
21	MW	e	06 57 17
		e	29
	Pr	e	36
	W	e	25
	Is	e	22
	T	e	28
	USCGS: 7 N 126½ E;		
	06:38:33		
21	MW	eP	07 08 57
	W	i	55
21	PX	eL	07 50 --
	MW	iP	10 44
		epP	11 13
	R	eP	10 43
	Pr	iP	38
		ipP	11 07
		i	20
	Bt	iP	10 35
		ipP	11 04
	W	iP	10 53
		ipP	11 22
	Is	iP	10 52
		e	11 35
	T	eP	10 58
	Chile.		
21	MW	e	07 30 13
	Pr	e	22
	Bt	e	17
	W	e	04
	Is	e	04
	T	e	29 57
	USCGS: 70½ N 14 W;		
	07:19:46		

Date	Sta.	Phase	h m s
August			
21	PX	e	13 08 00
21	MW	eP?	13 15 31
	Is	eP	19
	T	eP	12
	USCGS: 70½ N 14 W;		
	13:05:05		
21	PX	eLE	18 15.0
	MW	e	17 50 32
	Bt	e	37
	W	e	19
		e	25
	Is	e	23
	T	e	15
	USCGS: 71 N 14 W;		
	17:40:05		
21	P	eP	23 01 23
		e	35
	R	e	14
	Pr	eP	24
		i	40
	Bt	i	37
	BCIS: 71½ N 14 W;		
	22:50:54		
22	P	e(P)	01 46 14
		e	25
	PX	eLEZ	02 18.4
	R	eP	01 46 10
	Pr	eP	12
		i	24
		e	44
	W	eP	05
	T	e	10
		e	29
	BCIS: 6 S 147¾ E;		
	01:32:51		
22	MW	e	03 01 54
		e	02 06
	Pr	e	09
		e	24
		e	03 05
	Bt	e	02 16
	W	e	01 57
		e	02 06
	Is	e	01 44
	T	e	51
	USCGS: 71½ N 13½ W;		
	02:51:42		
22	Pr	e	06 43 53
	Bt	e	57
	Is	eP	42 23
	T	e	44 12
22	PX	eL	10 30.9
	MW	e	18 31
	Pr	e	30
	Is	e	19
	T	e	11
	USCGS: 71 N 14½ W;		
	10:08:02		
22	PX	eLZ	13 16.9
	MW	e	12 50 04
	R	e	07
	Pr	e	07
	Bt	e	18

(continued)

Date	Sta.	Phase	h m s
August (continued)			
22	Is	e	12 49 57
	T	e	47
	USCGS: 71 N 14 W;		
	12:39:38		
22	MW	eP	14 20 29
	Pr	eP	30
	Is	eP	29
	T	eP	35
	USCGS: Samoa, 14:09:05		
22	P	eP	18 26 14
	R	e	25
	Pr	iP	25 43
		e	26 23
	Bt	e	26
	T	eP	09
	USCGS: 21 N 145 E;		
	18:13:43		
23	P	eP	08 41 57
	R	eP	42 00
	Pr	e(P)	02
	Bt	e	41 58
	W	i	51
	BCIS: Marianas?		
23	PX	eL	10 10.9
	Pr	e	09 39 16
	W	i	38 46
23	P	eP	11 31 43
	Pr	iP	37
	Bt	eP	32
	W	iP	56
	Is	eP	57
	T	eP	47
	BCIS: Panama 11:20.0		
23	P	ePNEZ	12 12 21
	R	eP	15
	Pr	iP	10
	Bt	eP	04
	W	iP	31
		e	14 22
	Is	eP	12 29
	T	eP	23
	Panama		
	BCIS: 8¼ N 82¼ W;		
	12:04:31		
23	P	eP	14 43 21
	R	eP	16
	Pr	iP	10
	Bt	eP	05
	W	iP	32
		e	45 22
	Is	eP	43 30
	T	eP	34
	USCGS: Panama 14:35:41		
23	P	e?	15 04 08
		e	27
	R	eP	12
		i	31
	Pr	eP	20
		i	38
	Bt	eP	25
		i	43
	W	iP	03 55
		i	04 06

(continued)

Date	Sta.	Phase	h m s
August (continued)			
23	W	i	15 04 13
	Is	eP	03 56
		i	04 14
	T	eP	03 47
		i	04 05
	USCGS: 61 N 148½ W;		
	14:57:34		
23	W	iP	20 49 12
		e	41
24	P	ePNEZ	05 52 52.5 d
		iSN	54 21.9
	R	ePE	55
	Pr	iP	53 05
	SB	eP	52 51.2
	W	iP	30.6
	H	ePNZ	24.1
	T	iPNEZ!	11.7 d
	Is	eP	30.9
	W	iP	30.6
	D	iP	52.7
	FT	eP	59.1
	Magnitude 6.8		
	USCGS: 39.5 N 118.5 W;		
	05:51:31.5		
	Felt over a wide area in Nevada, California, Oregon and Idaho. Slight damage at Fallon and Lovelock, Nevada. Epicenter near that of July 6, 11 h. Further faulting in the Rainbow Mountains east of Fallon. Aftershocks numerous, only those which appear to be of magnitude 5.0 or over are reported in this bulletin.		
24	H	eP	05 58 37.8
		iSNEZ	39 30.6
	Nevada; aftershock of preceding. Magnitude 5.2 Recording at other stations obscured by mainshock.		
24	P	eP	12 57 34
		e	40
		e	46
	Pr	eP	36
		e	48
	W	iP	37
		i	49
	Is	eP	39
		e	51
	T	eP	43
	Tonga region.		
	BCIS: 12:45.4		
25	P	ePNZ	02 18 36
	R	eP	38
	Pr	iP	47
	W	iP	18
	Is	iP	15
	Magnitude 5.0		
	USCGS: 39.5 N 118.5 W;		
	02:17.3		
26	MW	iP	18 53 34
		e	54 06

(continued)

Date	Sta.	Phase	h m s
August (continued)			
26	R	iP	18 53 37
		e	54 03
	Pr	iP	53 38
	Bt	eP	39
		e	54 08
	W	iP	53 31 c
	USCGS: 5 S 153 E;		
	18:40:20		
26	MW	iP	19 30 35
		i	31 07
	R	iP	30 38
		e	31 04
	Pr	iP	30 40
	Bt	eP	40
		e	31 06
	W	iP	30 32
		i	57
	USCGS: 5 S 153 E;		
	19:17:22		
26	W	iP	20 00 20
		e	46
27	P	iPNEZ	11 07 22 d
		ipPNEZ	50
	PX	i	58
		i	08 03
		iSNE	17 41
		eSSE	22.8
		eREZ	32.3
			A T
		PZ	0.4 1
		PH	0.1 1
		SH	2 4
		MH	30 20
		MZ	30 20
	R	eP	11 07 25
		ipP	52
	Pr	iP	29
		ipP	56
	Bt	iP	31
		ipP	08 02
	W	iP	07 16
	Is	eP	17
	Magnitude 6.7		
	USCGS: 24½ N 143 E;		
	10:55:02, 100 km		
27	MW	eP	12 31 55
	Pr	eP	56
	Bt	eP	59
	Is	eP	46
	USCGS: 70½ N 14½ W;		
	12:21:27		
27	R	iP	23 59 41
		ipP	24 00 10
	Bt	eP	23 59 32
		epP	24 00 01
	W	iP	23 59 52
		ipP	24 00 21
		e	34
	Is	e	21
	BCIS: North Chile,		
	23:47:08, 100 km		

Date	Sta.	Phase	h m s
August			
28	MW	eP	02 51 59
		e	52 45
	R	e	46
	Pr	iP	51 55
	Bt	eP	52 04
		e	56
	W	eP	51 47
		e	52 33
		i	43
	USCGS: 86 N 85 E;		
	02:41:52		
28	R	e	03 51 35
	Pr	iP	43
		i	57
	W	iP	17
		i(pP)	46
28	P	eP	04 00 25
	R	eP	30
	Pr	iP	34
	Bt	iP	34
	W	iP	19
	Is	iP	21
	USCGS: 24 N 142 E;		
	03:47:58, 60 km		
28	P	eP	10 13 20
		epP	34
	R	eP	24
		epP	38
		i	46
	Pr	eP	28
		ipP	42
	Bt	iP	31
		ipP	45
	W	iP	13 d
		ipP	26
	Is	eP	15
		ipP	28
	CMO: 36.7 N 141.1 E;		
	10:01:24		
28	MW	e	13 57 36
		e	47
	R	e	33
	Pr	e	39
	W	i	38
	Is	e	39
	Tonga Island region.		
29	P	ePNZ	03 59 34
		iSNEZ	04 01 00
	R	eP	03 59 32
		iS	04 01 09
	H	ePN	03 59 09
	W	eP	17
	Is	eP	09
	Magnitude 5.1		
	39.5 N 118.5 W;		
	03:58:05		
30	P	iPEZ	08 08 34
		e	42
		iNEZ	49
		i	54
	PX	eSNE	17 41

(continued)

Date	Sta.	Phase	h m s
August (continued)			
30	PX	eLN	08 26.0
		eR	29.4
	P	eP'P'	36 33
			A T
		PZ	½ 3
		SH	½ 3
		MH	3 20
	R	eP	08 08 38
		i	38
		i	51
		eP'P'	36 30
	Pr	iP	08 42
		i	52
		i	57
		i	09 04
	Bt	iP	08 45
		i	47
		i	55
	W	iP	23
		i	25
		i	39
		i	52
		eP'P'	36 36
	Is	iP	08 26
		i	42
		i	47
	Magnitude 6¼		
	CMO: 43.6 N 147.8 E;		
	07:57:23, 60 km		
31	P	e	11 14 41
	Pr	iP	45
	W	eP	42
		e	52
	Is	eP	44
		e	43
	BCIS: 15 S 168 E;		
	11:02:02		
31	P	eP	22 20 47
	W	iP	29
	Is	eP	31
	Magnitude 4.8		
	39.5 N 118.5 W; 22:19:29		
31	P	iP	22 21 57
	W	iPE	21 28
		iSE	22 34
	Is	i(P)	21 39
		eS	22 40
	Magnitude 6.3		
	39.5 N 118.5 W;		
	22:20:35		
	Confused by the preceding smaller shock.		
September			
1	P	eP	05 20 10
		i	21 37
	Pr	iP	20 22
	H	ePN	19 43
	W	iP	48
	Is	eP	48
	Magnitude 5.7		
	USCGS: 39.5 N 118.5 W;		
	05:18:46.5		

Date	Sta.	Phase	h m s
September			
1	P	ePNEZ	12 36 17
	Pr	iP	25
	Bt	eP	30
	W	iP	06
	Is	eP	09
	BCIS: 48¾ N 154 E;		
	12:25:41		
1	P	eP	24 08 14
	R	eP	15
	Pr	iP	16
	W	iP	17 c
		i	23
		i	31
	Is	iP	18
		e	34
	BCIS: Kermadec Island Region		
	23:55.5		
2	R	eP	04 59 30
	Pr	iP	30
	W	iP	30
	Kermadec region		
2	P	iPEZ	19 03 56 c
3	P	iP	03 07 20
	R	eP	22
	Pr	iP	23 d
	Bt	eP	21
	W	iP	22
	Is	eP	24
	Tonga Island region		
3	MW	e	03 20 11
	R	eP	25
	Pr	eP	23
	W	eP	30
	I	eP	31
4	P	eP	03 42 23
	PX	iPPEZ	46 34
		e	55 39
		eGN	04 10.4
		eR	13.0
			A T
		PZ	0.3 1
		PPH	0.4 3
		PPZ	0.4 3
		MH	10 20
	R	eP	03 42 27
	Pr	iP	31
	Bt	eP	29
	W	iP	20
	Is	iP	24
	Magnitude 6¼-6½		
	USCGS: 3 S 139½ E;		
	03:28:32, 60 km		
4	MW	e	07 03 22
		e	04 22
	R	e	19
		e	59
	Pr	e	03 36
		e(PKKP)	14 34
	W	e	04 00
		e	44
	Is	e	00 45
		e	03 55
	Nepal; two shocks		

Date	Sta.	Phase	h	m	s	
September						
4	P	ePNEZ	13	24	35	
		e		27	56	
	PX	eLEZ		51	.1	
	R	eP		24	30	
		e			42	
	Pr	eP			31	
		i			43	
	Bt	eP			33	
		i			48	
		e		26	25	
	W	iP		24	30	
		i			39	
		i			45	
		i		25	31	
	USCGS: 11½ S 166 E;					
	13:11:49					
4	P	iP	21	18	23	
		i			37	
	R	iP			27	
		i			40	
	Pr	iP			33	
		i			46	
	Bt	iP			36	
		i			49	
		i			57	
	W	iP			12	
	Is	iP			09	
	BCIS: 53 N 159¼ E;					
	21:08:16					
5	P	iPEZ	07	57	58	
		ePPNEZ	08	01	08	
	PX	iSNE		08	19	
		i			41	
		eNE		09	03	
		iGNE		19	.2	
		eREZ		23		
			A		T	
		PZ	1		5	
		SH	3		10	
		MH	15		20	
		MZ	15		20	
	R	iP	07	58	01	
	Pr	iP			02	
		iPP	08	01	06	
	Bt	iP	07	58	00	
	Is	eP		57	59	
	Magnitude 6½					
	USCGS: 19 S 176 E;					
	07:45:31					
5	MW	iP	14	23	11	
		epP			33	
	R	iP			07	
		epP			30	
	Pr	iP			04	
	Is	iP			18	
		epP			40	
	BCIS: Northern Chile					
	14:11.9, 100 km					
5	R	iP	17	51	04	
		e			15	
	Is	iP			16	
		e			26	
	BCIS: 26½ S 70½ W;					
	17:39:24					

Date	Sta.	Phase	h	m	s	
September						
6	R	eP	01	00	07	
	Pr	eP			02	
	Is	eP			02	
	USCGS: Wallis Islands;					
	00:48:23					
6	Is	e	17	04	51	
	Formosa					
6	P	eP	18	07	01	
	R	eP			03	
	Pr	eP			06	
	Is	eP			02	
6	P	eP	18	40	59	
		iNEZ		41	01	
		ipPEZ			15	
	PX	iSNE		49	13	
		eGN		56	.4	
	P	eP'P'	19	10	03	
		i			25	
			A		T	
		PZ	½		1½	
		SH	4		7	
		MH	13		20	
	R	eP	18	41	02	
		i			05	
		ipP			19	
		i			35	
		eP'P'	19	10	02	
		i			22	
	Pr	iP	18	41	06	
		i!			11	
		ipP			25	
		eP'P'	19	10	09	
	Is	eP	18	40	48	
		i			52	
		eP'P'	19	10	07	
		e			21	
		i			28	
	USCGS: 51 N 158 E;					
	18:30:48, 60 km					
7	Pr	e	00	26	33	
	W	e		25	33	
		e		29	13	
		e			34	
		e		37	21	
		e		38	01	
	Philippines					
7	P	iPNZ	07	26	04	
		epP		28	16	
	R	iP		26	07	
		epP		28	19	
	Pr	iP		26	07	d
		epP		28	16	
	W	iP		26	06	d
		epP		28	15	
	Is	iP		26	03	
		epP		28	16	
	USCGS: 17 S 179 E;					
	07:14:59, 600 km					
7	P	iP	12	45	01	
	Pr	iP			03	
	W	iP			02	
	Is	iP			03	

Date	Sta.	Phase	h	m	s	
September						
8	P	iP	17	41	40	
		ipP		42	08	
	R	iP		41	35	d
		ipP		42	04	
	Pr	iP		41	31	d
		ipP			59	
	W	iP			49	d
		ipP		42	16	
	Is	iP		41	47	d
		ipP		42	16	
	BCIS: 16¼ S 73 W;					
	17:30:59, 100-120 km					
9	P	iP	01	13	56	
		i		14	10	
		ipP			42	
	R	iP		13	59	c
		epP		14	44	
	Pr	iP		13	58	c
		i		14	12	
		ipP			43	
	W	iP		13	59	c
		ipP		14	46	
	Is	iP		14	00	
		ipP			44	
	T	iP			06	
		ipP			54	
	USCGS: 20½ S 177 W;					
	01:02:16, 200 km					
9	P	iPNEZ	01	17	42	
	PX	iPPNZ		21	17	
		e			57	
		eSKSN		28	05	
		e(S)NE			39	
		iN			45	
		ePSNE		29	42	
		iPPS		30	13	
		eRNZ		46	.8	
			A		T	
		PZ	¼		1¼	
		PZ	4½		10	
		PH	1		3	
		PPH	0.4		3	
		PPZ	0.5		3	
		MH	35		20	
		MZ	50		20	
	R	eP	01	17	39	c
		i			44	
		ePP		21	14	
	Pr	eP		17	40	d
		i			43	
		iPP		21	14	
	W	eP		17	41	
		eP'P'		43	23	
	Is	iP		17	37	
	T	iPNEZ			33	
	Magnitude 6¾					
	BCIS: 36° 17' N 1° 28' E;					
	01:04:37					
	Destructive in Algeria					
9	Is	eP	02	02	49	
9	Is	iP	03	05	23	
9	R	eP	03	51	04	
		ePcP		53	19	

(continued)

Date	Sta.	Phase	h	m	s	
September (continued)						
9	Pr	iP	03	50	59	
		ePcP		53	16	
	W	iP		51	20	
		iPcP		53	24	
	Is	eP		51	18	
		iPcP		53	25	
	T	eP		51	23	
		ePcP		53	25	
	USCGS: Central Nicaragua					
	03:43:55					
9	P	eP	09	22	34	
		iSNEZ		24	02	
	R	eP		22	36	
	W	iP			12	
		iSE		23	11	
	H	eP		22	12	
		iSE		23	00	
	T	iPNEZ		21	53	
		iEZ			58	
		iSNE		22	32	
	Magnitude 4.9					
	39.5 N 118.5 W;					
	09:21:10					
9	P	eP	09	41	45	
	R	eP			45	
	T	eP			37	
	Algeria					
9	P	iP	14	32	19	
	R	iP			22	
	Pr	iP			24	
	W	iP			15	
	T	iP			26	
9	MW	eP	15	12	16	
	W	iP			10	
	T	eP			13	
9	Pr	iP	18	06	36	
	W	iP			51	
	T	eP			51	
	BCIS: 10¾ N 62¼ W;					
	17:57:03					
9	P	eP	18	38	23	
	Pr	eP			19	
	W	eP			13	
	T	iP			07	
	BCIS: 74½ N 9 E;					
	18:27:23					
10	P	iPEZ	05	57	08	
	PX	eL	06	31	.0	
			A		T	
		PZ	¼		1	
	R	iP	05	57	06	
	Pr	iP			07	
	T	iP		56	59	
	BCIS: 36.6 N 1.3 E;					
	05:44:05					
10	MW	eP	23	52	58	
	Pr	eP		53	06	
	T	eP		52	42	
		i			50	
	BCIS: 52¼ N 170¾ W;					
	23:45:08					
11	P	iPEZ	24	10	21	
	R	iP			24	

(continued)

Date	Sta.	Phase	h m s	
September (continued)				
11	Pr	iP	24 10 29	
	W	iP	14	c
	T	iP	15	
	USCGS: Bonin Islands;			
	23:57:56, 60 km			
	CMO: 29½ N 139½ E;			
	23:57:40, 450 km			
12	P	iP	07 55 28	
		i	41	
	PX	eSNE	08 05 05	
		eGN	15.5	
			A T	
		PZ	0.2 1¼	
		SH	½ 5	
		MH	6 15	
	R	iP	07 55 31	
	Pr	iP	37	
	W	iP	20	c
		i	32	
	T	iP	18	c
		i	30	
	CMO: 40.9 N 143.6 E;			
	07:43:47, 20 km			
13	P	eP	02 12 27	
	R	eP	29	
	Pr	iP	31	
		i	44	
		ipP	13 08	
	W	iP	12 29	
		epP	13 03	
		i	05	
	T	iP	12 36	
		epP	13 11	
	USCGS: 23½ S 178 W;			
	02:00:26, 150 km			
13	P	ePNZ	02 21 41	d
		iNZ!	44	
		i	22 01	
		i	11	
		ipP	20	
	PX	i(sP)	48	
		iSNEZ!	31 21	
		eNE	44	
		i	52	
		e(G)N	42.0	
	P	eP'P'	48 56	
			A T	
		PZ	1 1½	
		PH	¾ 1½	
		SH	12 10	
	R	eP	02 21 44	
		ipP	22 30	
		i	42	
		eP'P'	48 58	
		e	49 43	
	Pr	iP	02 21 45	d
		i!	48	
		ipP	22 29	
		eP'P'	48 59	
	W	iPEZ	21 44	d
		i	22 25	
		i	23 02	
		eSEZ	31 25	
		eP'P'	48 55	

(continued)

Date	Sta.	Phase	h m s	
September (continued)				
13	W	e	02 49 41	
	T	eP	21 51	
		iNEZ	54	
		eSNEZ	31 40	
		eP'P'	48 53	
		e	49 40	
	Magnitude 6¾			
	USCGS: 21 S 175½ W;			
	02:09:55, 150 km			
13	P	eNZ	08 00 45	
	R	e	43	
	Pr	e(P)	32	
	T	e	01 16	
	USCGS: Gulf of California			
	07:57:25			
13	W	iP	18 55 14	
		epP	29	
	T	iP	16	
	Central America			
13	R	iP	21 33 26	
	Pr	eP	22	
	W	iP	43	
		i	36 15	
	T	eP	33 46	
	BCIS: 5¼ N 82¼ W;			
	21:25:25			
14	W	iP	01 02 05	
		e	05 28	
		e	07 02	
	Philippines			
14	P	e	07 33 45	
	Pr	e	49	
	W	eP?	17	
		e	22	
		i	38	
	T	e(P)	32 55	
		e	33 11	
	BCIS: 27 N 126½ E;			
	07:20:05			

C. F. Richter
Violet M. Taylor
June 20, 1955

Date	Sta.	Phase	h	m	s	
September						
14	P	eP	16	20	24	
		iNZ			38	
		iSNE		21	44	
	R	eP		20	23	
	W	iP		19	59	
		i!		20	06	
		iSE			52	
	H	iPNEZ			01	
		iSNEZ			43	
	T	iPEZ		19	38	
		i			41	
		iSNEZ		20	11	
	Magnitude 4.8					
	Nevada, 16:19:00					
14	P	eNEZ	16	27	35	
	R	eP			17	
	Pr	eP			10	
		i			23	
	W	iP			38	
		i			48	
	USCGS: Oaxaca, 16:21:59					
15	MW	eP	06	47	10	
		i			20	
	R	eP			06	
		i			16	
	Pr	eP		46	59	
		i		47	11	
	Bt	eP?		46	55	
		i		47	06	
	W	eP			20	
		i			31	
		i			42	
	T	eP			24	
		i			35	
	USCGS: 4½ S 82 W;					
	06:38:04, 60 km					
15	P	ePNEZ	13	23	03	
	PX	eLN			25.1	
	R	eP		22	52	
	Pr	eP			40	
	Bt	iP			34	
	W	iP		23	23	
		i			44	
	T	eP			27	
	USCGS: 26 N 110 W;					
	13:20:15					
15	P	eP	14	37	13	
	Pr	eP			17	
	W	eP			13	
		i			30	
	T	eP			30	
	BCIS: 15 S 172¾ W;					
	14:25:48					
15	P	iPNEZ!	18	07	09	c
		ipPNEZ		09	09	
		isP		10	07	
	PX	iSNEZ!		16	16	
	P	eSKPP'		36	48	
			A		T	
		PZ	1½		1	
		PH	¾		1	
		SH	8		7	
	R	iPNEZ	18	07	12	c
		i			42	
		ipP		09	13	

(continued)

Date	Sta.	Phase	h	m	s	
September (continued)						
15	R	isP	18	10	12	
		eSNEZ		16	23	
		eSKPP'		36	41	
	Pr	iP!		07	12	c
		i			21	
		ipP		09	13	
		iS		16	24	
		iSKPP'		36	53	
	Bt	iP!		07	11	c
		ipP		09	12	
		eS		16	21	
		eSKPP'		36	49	
	W	iPEZ!		07	11	c
		i!		08	03	
		ipP		09	12	
		esP		10	12	
		iSEZ		16	20	
		e		36	06	
		eSKPP'			35	
		i			53	
	T	iPNEZ!		07	17	c
		i			43	
		ipP		09	18	
		iSNEZ		16	12	
		eSKPP'		36	43	
	Magnitude 6.6					
	USCGS: 18 S 178½ W;					
	17:56:08, 600 km					
16	PX	eLNZ	04	50.4		
	Pr	iP		47	06	
	Bt	iP		46	51	
	W	eP		47	43	
		i			57	
	T	eP			49	
	Off Mexico?					
16	Pr	iP	17	08	21	c
	W	iP			22	c
	Southwest Pacific					
17	P	eP	01	26	17	
		i			34	
		i			44	
	PX	eLNZ		54.6		
	R	eP		26	19	
		i			40	
		i			46	
	Pr	e			26	
		i			50	
	Bt	e			42	
		i			50	
	W	eP			13	
		i			39	
		i			49	
	USCGS: 4½ S 153½ E;					
	01:13:08					
17	Bt	iP	04	39	06	
	W	iP			27	
	BCIS: Off Peru, 04:27.4					
17	P	eP	07	47	04	
	R	eP			06	
	Pr	eP			14	
		i		50	00	
		i		51	03	
		i			19	
	Bt	iP		47	14	
		e		50	10	

(continued)

Date	Sta.	Phase	h	m	s
eptember (continued)					
7	Bt	i	07	51	15
		i			36
	W	iP		46	56 c
		i		49	55
		i		50	47
	BCIS: 24¾ N 121¾ E;				
	07:33:23				
17	P	iPNEZ!	11	14	56 d
		ipP		15	58
		i		16	14
	PX	eS		24	32
		iSNEZ!			37
		iSP		25	22
		eNE			54
		e		26	22
		iNZ			55
		eSSNE			29.4
		eGNE			34.9
	P	eP'P'		41	54
		epP'P'		43	07
		eSKPP'		45	13
			A		T
		PZ	2		1
		PH	1		1
		SH	30		8
	R	iP	11	14	57 d
		iNEZ		15	03
		ipP			58
		eSNEZ		24	44
		eP'P'		41	51
		i			59
		epP'P'		43	05
		eSKPP'		45	02
	Pr	iP		14	59 d
		ipP		16	14
		eS		24	46
		iP'P'		42	14
		ipP'P'		43	06
		eSKPP'		45	04
	Bt	iP		14	56
		ipP		15	58
		eS		24	43
		eP'P'		41	55
		i		42	06
		ipP'P'		43	06
		iSKPP'		45	07
	W	iPEZ!		14	58 d
		ipP!		16	00
		iSEZ!		24	42
	T	ePNE		15	05
		eSNE		24	52
	FT	eP		14	55
		ipP		15	35
		i		16	38
		eS		24	35
		eP'P'		42	01
		epP'P'		43	01
		eSKPP'		45	15
	Pasadena: 21½ S 177 W;				
	11:03:18, 250 km				
	Magnitude 7				

Date	Sta.	Phase	h	m	s
September					
17	P	eP	14	57	29
	R	eP			33
	Pr	eP			43
	W	iP			23
	CMO: 29 N 141 E;				
	14:45:23				
17	R	eP	19	10	47
	Pr	iP			43
	W	iP		11	01
	T	iP			03
	Bogota: 6.8 N 72 W,				
	19:01:52				
18	MW	eP	05	04	52
	R	eP			45
	Pr	iP			46
	W	iP		05	00
	T	eP		04	55
	USCGS: 16 N 60 W;				
	04:55:20				
18	P	eP	15	44	00
		e			18
		i			26
	PX	iSNE		54	39
		eR	16	17	--
	R	eP	15	44	04
		e			21
	Pr	eP			04
	Bt	iP			09
		i			28
		i		48	28
	W	eP		43	52
		i			55
		i		44	09
		i			21
		e		46	42
		i!		48	13
	T	eP		43	56
		i		48	14
	Phases in 48 m very sharp,				
	possibly P of another shock.				
	USCGS: 14 N 145 E;				
	15:31:06				
18	P	iPEZ	18	35	23
	R	eP			26
	W	iP			12
	T	iP			10
	BCIS: 50 N 156 E;				
	18:24:57				
19	Pr	iP	19	00	07
	W	iP			08
	BCIS: 18:47.4, Kermadec Is.				
	region.				
19	W	iP	20	26	26
		i			34
	CMO: 38.2 N 138.7 E;				
	20:14:30				
19	W	eP	21	31	24
		iPcP!		33	49
		e		34	05
	(PcP unaccountably large)				
	T	ePcP		33	49
		e		34	09
	BCIS: 13 N 88 W; 21:24:27				

Date	Sta.	Phase	h	m	s
September					
20	MW	eP	00	20	14
	W	eP			08
	T	eP		19	59
	BCIS: 54.5 N 35.0 W;				
	00:10:06				
20	P	eP"	00	58	18
	PX	e(PP)		59	24
		e(PS)	01	08.8	
		eL		34.1	
			A		T
		MZ	2½		20
	R	eP"	00	58	22
		e		59	30
		e	01	00	03
	Pr	iP"	00	58	23
		e		59	30
	Bt	iP"		58	23
		e		59	38
	W	eP"		58	14
		i		59	32
		e(PS)	01	08	47
	T	eP"	00	58	18
		e		59	28
		e	01	00	40
	Magnitude 5¾-6				
	USCGS: 1½ S 120½ E;				
	00:39:28				
20	P	iPNEZ	08	17	11 c
	R	iP			13 c
	Pr	iP			13 c
	Bt	iP			12 c
	W	iP			13 c
	T	iP			19 c
	USCGS: 20½ S 179 W;				
	08:06:00, 600 km				
20	P	iPNEZ	17	16	54
	R	iP			55 c
	Pr	iP			56 c
	Bt	iP			54
	W	iP			57 c
	T	iP		16	02 c
	Initial small compressions				
	followed by large dilatations.				
	USCGS: 21 S 178 W;				
	17:05:40, 550 km				
20	P	eP	23	37	02
	R	eP			02
	Pr	iP		36	59
	Bt	iP			56
	W	eP		37	10
	T	eP			16
	Antartic Pacific?				
21	P	iP"NEZ	03	59	01
	R	iP"			03
		i			24
	Pr	iP"			04
	Bt	iP"			05
	W	iP"			00
	T	iP"			00
	BCIS: 8 S 119½ E;				
	03:40:23, 150-200 km				

Date	Sta.	Phase	h	m	s
September					
21	P	ePEZ	09	54	38
	PX	eL	10	24.1	
	R	eP	09	54	42
	Pr	iP			46
	Bt	iP			46
	W	iP			34
	T	eP			34
	BCIS: 14¼ N 145¾ E;				
	09:41:51				
21	MW	eP	12	18	40
21	P	iP	14	43	53
	R	iP			57
	Pr	iP			57
	R	eP			56
	W	iP			53
		i			59
	T	iP			59
		i		44	04
		e			29
	BCIS: 15 S 166½ E;				
	14:31:07				
21	P	iP	14	59	58
		i	15	00	02
	R	iP			01
		i			05
	Pr	iP			02
		i			07
	W	iP	14	59	58
		i	15	00	02
	T	iP			03
	BCIS: 15¾ S 168½ E;				
	14:47:21, 60 km				
22	MW	e	13	40	01
		e			13
	Pr	eP		39	59
		e		40	08
	T	eP			17
		i			23
23	P	eP	21	54	01
		iE			14
		iNEZ			20
	PX	eSN	22	02	30
		iGN		10	34
			A		T
		PZ	0.1		1
		SH	3		18
		MH	12		18
	R	eP	21	54	05
		i			23
		eP'P'	22	23	08
	Pr	eP	21	54	11
		i			29
	Bt	eP			14
		i			24
		i			34
		i			54
	W	eP		53	50
		i		54	03
		i			08
		eP'P'	22	23	16
	T	eP	21	53	48

(continued)

Date	Sta.	Phase	h	m	s	
September (continued)						
23	T	i	21	54	07	
	Magnitude 6¼					
	USCGS: 49 N 156 E;					
	21:43:36					
25	P	ePNZ	07	11	02	
	Pr	iP		10	48	
	Bt	iP			41	
	W	iP		11	15	
	T	eP			43	
	USCGS: 17 N 100 W;					
	07:05:48					
25	P	e	11	33	12	
	PX	eL	12	18	--	
	Pr	e	11	33	00	
	W	e		32	59	
	BCIS: Southwest of					
	Tasmania, 11:14.1					
25	P	eP	19	30	37	
	Pr	iP			29	
	Bt	eP			27	
	W	iP			44	
	T	iP			42	
	USCGS: 19 S 70 W;					
	19:22:17					
26	Pr	iP	23	01	53	
	W	iP			53	
27	P	iPEZ	04	19	51	
	Pr	iP			58	
	Bt	iP			55	
	W	iP			57	
		e		21	52	
	T	iP		20	04	
		e			30	
	USCGS: 04:07:40					
	Apia: 26 S 178½ W;					
	04:08.3, 450 km					
27	MW	eP	09	57	29	
		i			46	
	W	iP			21	
		i			36	
	T	e			21	
		i			32	
27	MW	eP	16	49	52	
	Pr	eP		50	10	
	W	iP		49	44	
		i			56	
		i		50	00	
		i			10	
	T	eP		49	43	
	CMO: 42.4 N 142.6 E;					
	16:38:20, 70-80 km					
27	W	iP	17	29	46	
	Aftershock of preceding.					
27	MW	eP	20	06	52	
	Pr	iP			54	
	W	iP			55	c
	T	eP		07	01	
28	MW	eP	00	35	04	
		e			12	
		i			23	
		e			31	
		e		36	00	

(continued)

Date	Sta.	Phase	h	m	s	
September (continued)						
28	Pr	eP	00	35	12	
		i			20	
		i			38	
	Bt	i			25	
		i			36	
	W	iP		34	53	
		i		35	00	
		i			11	
	T	eP		34	50	
		i			58	
	USCGS: 52 N 160 E;					
	00:25:00					
28	Pr	eP	11	10	22	
	Bt	iP			25	
	W	iP			08	
	T	eP			10	
28	P	ePNEZ	13	04	32	
		e			53	
	PX	eL		25.3		
	Pr	iP		04	36	
	Bt	eP			36	
	W	iP			35	
		i		05	03	
	T	eP		04	42	
	USCGS: 15½ S 173 W;					
	12:53:06					
28	MW	e	21	48	58	
	Pr	iP			40	
	W	eP		49	09	
	Mexico					
28	P	ePNZ	23	36	16	
	Pr	iP			09	
		i			15	
	Bt	eP			03	
	W	iP			25	
		i			30	
	T	iP			33	
	BCIS: 33¼ S 101¾ W;					
	23:25:08					
29	MW	eP	02	43	18	
	Pr	iP			22	
	W	iP			19	
	Is	iP			20	
	T	iP			25	
	Apia gives 25 S 176 E;					
	02:31.7					
29	P	iP	08	35	52	
	Pr	iP			54	
		e		36	14	
	W	iP		35	55	c
	T	iP		36	02	c
	Apia: 21½ S 173 W;					
	08:24:08					
29	P	iPNEZ	14	44	56	
	Pr	iP		45	06	
	W	iP		44	46	d
	Is	iP			47	
	T	iP			42	
	BCIS: 51 N 159½ E;					
	14:34:49					

Date	Sta.	Phase	h	m	s	
September						
29	MW	e?	21	53	15	
	Pr	e		52	57	
	W	iP		53	22	
		i(PcP)		54	49	
	T	iP		53	21	
	BCIS: 18¾ N 68½ W;					
	21:44:47					
October						
1	P	eP	03	07	52	
	Pr	iP			59	
	Bt	eP			58	
	W	iP			47	
	T	eP		08	02	
	Small. Tonga region?					
1	P	eP	03	08	08	
		i			12	
		i			19	
	PX	ePPEZ		11	26	
		iEZ			35	
		eSNEZ		18	34	
		eGNE		30.5		
		eR		33.5		
			A		T	
		PZ	2		4	
		PH	¾		3	
		PPZ	1		4	
		PPH	1		4	
		SH	1		5	
		MH	30		20	
	Pr	eP	03	08	14	
		i			24	
		iPP		11	41	
	Bt	eP		08	15	
		i			25	
		ePP		11	41	
		i		13	32	
	W	iP		08	09	d
		i			11	
		i			18	
		iPP		11	34	
	T	eP		08	13	
		iNEZ			15	
		i			22	
		ePPEZ		11	41	
		e(S)		18	40	
		eEZ			51	
	Magnitude 6¾					
	USCGS: 11 S 166 E;					
	02:55:31					
1	MW	eP	03	54	18	
	Pr	iP			23	
	W	iP			17	d
	T	eP			22	
	BCIS: 9¾ S 163¼ E;					
	03:41:32					
1	P	eP	07	01	49	
		i			59	
	PX	eR		23.0		
			A		T	
		MH	7		20	
	Pr	iP	07	01	47	
		i			52	
		i			57	

(continued)

Date	Sta.	Phase	h	m	s	
October (continued)						
1	Bt	iP	07	01	44	
	W	iP			44	
		i			51	
		i		02	02	
	T	eP		01	49	
		i		02	09	
	USCGS: 14½ S 173 W;					
	06:50:24, 60 km					
2	P	iP	10	12	32	
		epP		14	08	
	Pr	iP		12	38	
		epP		14	17	
	Bt	iP		12	41	
		epP		14	18	
	W	iP		12	25	
		ipP		14	02	
	T	iP		12	25	
		epP		14	03	
	USCGS: 29 N 140 E;					
	10:00:52, 450 km					
2	MW	eP	19	33	28	
	W	iP			28	
	T	eP			25	
2	MW	eP	19	59	04	
	W	iP			14	
	USCGS: 10½ S 76 W;					
	19:48:52					
3	P	iPNEZ	02	59	58	
		i	03	00	34	
	PX	eSNE		10	22	
		eGN		21.7		
		eREZ		25.6		
			A		T	
		PZ	2		6	
		PH	1		4	
		SH	7		8	
		MH	50		20	
		MH	40		20	
	Pr	iP	03	00	03	
		i			13	
		i			35	
	Bt	iP			03	
		i			33	
	W	iP	02	59	58	
	T	iPNEZ	03	00	04	
	Magnitude 6¾					
	USCGS: 10 S 165½ E;					
	02:47:17					
3	P	eP	09	00	06	
	Pr	iP			16	
	Bt	eP			26	
	W	iP	08	59	56	
	T	eP			53	
	USCGS: 54 N 168½ E;					
	08:50:45					
3	P	iPNEZ	11	25	25	
		ipP			40	
		i(sP)			49	
		i			57	
	PX	ePPNE		26.6		
		iNE		27	02	
	P	iPcP		28	00	

(continued)

Date	Sta.	Phase	h m s
October (continued)			
3	PX	iSNE	11 30 47
		iScP	31 12
		iGNE	33.4
		eR	35.1
	P	eScSN	35 43
			A T
		PZ	2 3
		PH	¼ 1
		PPH	10 6
		PPZ	10 6
		SH	20 10
		MH	100 30
		MH	50? 20
	Pr	iP	11 25 36
		i	49
		i!	26 09
		i	28 29
	Bt	iP	25 41
		ipP	52
		iPP	26 11
		iPcP	28 09
	T	iP	25 02
		ipP	16
		i	21
		i	26 08
		i	27
		i	48
		iSE	30 10
	Magnitude 6¾		
	USCGS: 60½ N 151 W;		
	11:18:46, 100 km		
3	T	e	11 56 41
		e	57 00
3	P	eP	13 46 33
	Pr	eP	40
	Bt	iP	43
	W	iP	28
		ipP	47 17
	T	iP	46 28
		epP	47 16
	USCGS: 17½ N 145 E;		
	13:34:14, 200 km		
3	P	e	23 40 48
		e	41 03
			A T
		MH	5 20
	Pr	e	23 40 58
		e	41 19
	Bt	e	16
	W	e	40 07
		e	40
	T	e	45
	BCIS: 1½ S 127½ E;		
	23:21:35		
4	W	eP	01 46 52
		i	47 00
	USCGS: 25 N 122 E;		
	01:33:21		
4	W	iP	05 24 56
		i	29 46

Date	Sta.	Phase	h m s
October			
4	P	ePNZ	08 25 26
	Pr	iP	34
	Bt	iP	35
		i(pP)	26 13
	W	iP	25 20
		i(pP)	58
	T	iP	20
	USCGS: 27½ N 125½ E;		
	08:12:18, 100 km		
4	P	eP	09 45 33
	PX	eLN	10 08.2
	R	iP	09 45 37
	Pr	iP	38
		i	45
	Bt	iP	37
	W	iP	33
	T	iP	39
	USCGS: 11 S 166 E;		
	09:32:56		
4	MW	eP	13 43 44
	Pr	iP	47
	Bt	iP	47
	W	iP	43
4	MW	eP	16 06 01
	R	eP	03
	Pr	iP	05
	W	iP	01
	T	eP	05
	New Hebrides		
4	P	iP	22 52 06
	R	iP	08
		e	52
	Pr	iP	09
	W	iP	07
	T	iP	13 c
	BCIS: 19¼ S 170 E;		
	22:39:24		
5	P	iPNZ	04 30 20
		e	26
	R	eP	27
		e(sP)	49
	Pr	eP	31
		i(sP)	53
	Bt	iP	35
	W	iP	17
	T	eP	18
	CMO: 33.7 N 141.3 E		
	04:18:18, 50 km		
5	P	eP	11 40 40
		e	45
	Pr	iP	49
	Bt	eP	50
	W	e(P)	30
	T	e(P)	26
	BCIS: 55.7 N 109.0 E		
	11:28:17		
5	W	iP	10 04 02
		i	10

Date	Sta.	Phase	h m s
October			
5	P	eP	18 52 32
		e	43
	R	e(P)	36
		e	49
	Pr	e(P)	38
	Bt	e	32
	W	iP	24
	Japan		
5	MW	eP	23 27 11
		epP	43
	R	eP	06
		epP	37
	Bt	iP	26 59
	W	iP	27 19
		ipP	51
	BCIS: Northern Chile		
	23:16.2, 100 km		
6	MW	eP	07 31 09
	Pr	iP	11
	W	iP	11
6	P	ePEZ	08 30 11
	R	eP	15
	Pr	eP	20
	Bt	eP	28
	W	iP	01
	T	eP	29 58
	BCIS: 52¾ N 159 E;		
	08:20:11		
6	MW	eP	08 37 51
	R	eP	53
		e	38 07
	Pr	eP	00
	Bt	e	33
	W	iP	37 38
	T	e	51
	USCGS: 52 N 160 E;		
	08:27:48		
6	Pr	i	11 18 42
	Bt	e	47
	W	iP	18
6	MW	eP	13 37 53
		e	38 03
	R	iP	37 50
		i	38 01
	Pr	iP	37 48
		i	58
	Bt	eP	47
		i	55
	W	iP	38 09
6	P	e	23 19 34
	MW	eP	30
	R	eP	36
	Pr	iP	36
	W	eP	33
		i	36
	BCIS: 15½ S 172¼ W;		
	23:08:09		
7	P	eP	03 00 21
	R	iP	25
		e	01 13

Date	Sta.	Phase	h m s
October			
7	P	eP'EZ	08 17 15
		e	30
		eNZ	41
	R	eP'	17
	Pr	eP'	20
	T	eP'	09
	BCIS: 5.4 S 68.5 E;		
	07:57:21		
7	MW	eP	19 31 38
		e	50
	R	eP	40
	BCIS: 10½ S 152 E;		
	19:18:10		
8	P	epPNZ	09 27 01
	MW	eP	26 52
		epP	27 02
	R	eP	26 59
	Pr	eP	43
		ipP	54
	Bt	eP	41
		ipP	50
	W	iP	27 00
		ipP	10
	T	eP	02
		epP	13
	USCGS: 31½ S 71½ W;		
	09:14:53, 100 km		
8	P	e(P)	10 57 12
		i	26
	R	eP	17
	Pr	eP	23
	Bt	iP	25
	W	iP	05
		i	16
	T	eP	03
	CMO: 43½ N 148½ E;		
	10:46:03, 60 km		
8	MW	iP	19 44 16
	R	eP	16
	Pr	iP	18
	W	iP	17
	T	eP	24
	Apia: Fiji Islands region;		
	19:32.2		
9	MW	iP	01 58 31
	R	eP	31
	Pr	iP	32
		i	59 06
	W	iP	58 32
		i	59 06
	T	eP	58 39
	BCIS: 16 S 173½ W;		
	01:47:15, 150 km		
9	MW	eP	17 29 16
	R	e	39
	W	eP	11
9	P	eP	19 24 24
	R	eP	25
	Pr	eP	27
	Bt	eP	31
	W	eP	24
		i	40
	Is	iP	29
		i	44
	USCGS: 15½ S 173½ W;		
	19:12:53		

Date	Sta.	Phase	h	m	s	
October						
10	R	eP	23	30	01	
		e			08	
	Pr	eP		29	57	
	W	eP		30	17	
		i			23	
	USCGS: 7 N 78 W					
	23:21:40					
11	P	e	06	58	21	
	R	e			26	
	Pr	i			26	
	Bt	e			26	
	W	i			20	
	T	e			26	
11	P	e	13	32	45	
		eNEZ		33	04	
	Pr	iP		31	25	
		i			41	
		e		32	53	
	Bt	e			54	
		i		33	13	
	W	i(P)		32	41	
		i			49	
	T	e			43	
	Tacubaya, 16°35' N					
	90° 53' W; 13:27:03					
11	P	ePEZ	16	21	39	
		e		22	09	
	R	eP		21	45	
	Pr	iP			49	
		i		22	14	
	Bt	iP		21	54	
	W	iP			29	d
		i			39	
		i			49	
	T	iP			27	
		e			46	
	USCGS: 52 N 162 E					
	16:11:45					
11	P	iPNEZ	17	23	50	
	R	iP			56	c
	Pr	iP			53	c
		i		24	00	
		i			45	
	Bt	iP		23	53	c
		i		24	24	
		i			36	
	W	iP		23	51	c
		i		24	06	
		i			10	
	T	iPNEZ		23	57	
		e		24	27	
	BCIS: 18½ S 169¾ E;					
	17:11:21, 150 km					
12	MW	eP	09	08	48	
	W	iP			47	
12	W	iP	09	26	26	
		i			38	
12	MW	e	21	45	27	
	R	e			22	
		e			27	
	Pr	e			28	
	W	e			18	
		e			23	

Date	Sta.	Phase	h	m	s	
October						
13	W	iP	01	51	08	
		i			22	
	CMO: 38.5 N 142.0 E					
	01:39:32, 40 km					
13	MW	eP	04	11	21	
	Pr	eP			22	
	Bt	eP			20	
	W	eP			23	
		i			35	
	BCIS: Northeast of New					
	Zealand, 03:58.5					
13	MW	e	05	06	54	
	Pr	eP			48	
		e		07	07	
	W	iP		06	46	
		i		07	06	
	BCIS: New Hebrides region,					
	04:54.1					
13	P	eP	06	10	25	
	R	iP			20	
	Pr	iP			14	
	USCGS: 4N 83 W,					
	06:02:10					
14	P	e	01	53	45	
	R	e			46	
		e		54	42	
	Pr	e		53	49	
		e		54	02	
		e			53	
	Bt	e		53	46	
		e		55	04	
	W	i		53	31	
		i			45	
	Magnitude 6¼ - 6½					
	USCGS: 7 S 128 E,					
	01:35:00					
16	MW	iP	00	38	36	
	W	iP			28	
	Is	iP			30	
	USCGS: 71 N 14 W;					
	00:28:11					
16	W	eP	01	12	36	
	Is				35	
	USCGS: 71 N 14 W;					
	01:02:19					
16	P	ePNEZ	16	29	57	
	Is	iP		30	01	
		epP		31	03	
	BCIS: 18½ S 174¾ W;					
	16:18:37, 250 km					
17	P	iPNZ	15	14	06	
	R	iP			02	
		e			32	
	Pr	iP		13	58	d
	Bt	iP			54	
		e		14	24	
	Is	iP			13	d
		i			42	
	T	iPNEZ			18	
	BCIS: 25 S 65.5 W;					
	15:02:30, 120 km					
17	P	eP	20	14	42	
	R	eP			45	
	Is	iP			45	

Date	Sta.	Phase	h	m	s
October					
17	P	iP	22	58	03
		iSNE			44
	R	iP		57	59
		iSN		58	40
	P	iP		57	50
	Bt	iP:NZ			40
	BB	iP		58	04
	T	iP			35
		iSEZ	23	00	28
	Magnitude 5.7				
	USCGS: 31½ N 116½ W;				
	22:57:18				
18	P	eP	10	58	31
	Bt	eP			34
	W	iP			33
	Is	iP			35
	T	eP			41
	Pacific?				
19	P	eP	17	58	24
	PX	eLZ	18	18.5	
	R	eP	17	58	19
	Pr	iP			23
	Bt	iP			25
	W	iP			16
		i			24
		i		59	16
	Is	i		58	47
	T	e		59	09
	BCIS: 58¾ N 33¼ W;				
	17:48:15				
19	MW	eP	19	02	43
	W	eP			36
	BCIS: North Atlantic,				
	18:52.6				
20	P	e(P)	19	55	14
		iSNEZ		56	44
	R	iP		55	14
	T	iP		54	30
		iS		55	09
	W	iP		54	50
	Is	eP			50
	Kg	eP			56
	Magnitude 4.4				
	USCGS: 39 N 119 W;				
	19:54:05				
20	P	iP	23	54	01
		i			03
		i			47
	PX	i(S)	24	04	06
		eL		20.6	
			A		T
		PZ	¼		1½
		MZ	5		20
	R	eP	23	54	04
	Pr	eP			07
		i			10
	Bt	eP			10
		i			15
	W	i(P)		53	53
		i		54	12
	Is	i		53	57
	CMO: 30.8 N 142.1 E;				
	23:41:44, 40 km				

Date	Sta.	Phase	h	m	s
October					
21	P	eP'	00	30	14
		iNZ			30
		eP2'		31	11
		e		33	38
	PX	e		55	52
		e		56	18
		e(SSS)		59.5	
		eR	01	26.6	
			A		T
		MH	30		20
		MZ	25		20
	R	eP'	00	30	20
		i			31
		iP2'		31	15
		ePP		35	06
	Pr	eP'		30	22
		e		31	22
		e		34	54
		i		35	11
	Bt	eP'		30	20
		e		34	37
		ePP			59
		i		35	12
		i			54
	W	eP'		30	15
		e			19
		i			30
		iP2'		31	14
		i			19
		e(PP)		34	38
		e			59
		e		35	09
		e			28
	Is	eP'		30	20
		i			31
		iP2'		31	15
		i			21
		e		33	25
	T	eP'		30	21
		e			31
		iP2'		31	23
		ePP		35	19
	Magnitude 6½ - 6¾				
	USCGS: 41 S 81 E;				
	00:10:10				
21	P	ePEZ	03	38	15
		e(sP)			31
	R	e			27
	Pr	e(P)			24
		i(sP)			41
	Bt	e			52
	W	iP			04
		i			13
		i(sP)			20
	Is	eP			06
		e			14
		e(sP)			21
	T	eP		37	58
		e		38	11
		e(sP)			17
	USCGS: 54½ N 162 E;				
	03:28:25				

Date	Sta.	Phase	h m s
October			
21	P	iPNEZ	06 58 14 d
		eN	26
		ipP	28
		iNZ	30
		iPcP	07 01 01
		ipPcP	20
	PX	iSNE	03 24
		iScP	04 42
		i	05 16
		iScSNE	08 40
		isScSNE	09 08
		A	T
		PZ	1½ 3
		PH	½ 3
		SH	6 6
	R	iP	06 58 08 d
		i	25
		e	43
		iPcP	07 00 59
		ipPcP	01 18
		iScP	04 40
	Pr	iP	06 58 02
		ipP	16
		iPcP	07 00 58
		iScP	04 37
		i	05 11
	Bt	iP	06 57 57
		ipPNZ	58 13
		i	59 12
		iPcP	07 00 56
		iScP	04 37
		i	05 10
	W	iP	06 58 24
		ipP	40
		iPcP	07 01 05
		ipPcP	22
		iScP	04 46
		i	05 19
	Is	iP	06 58 23 d
		ipP	40
		i	50
		i	55
		iPcP	07 01 05
		ipPcP	23
		iScP	04 47
		i	05 21
		i	44
	T	iPNEZ	06 58 29 d
		ipPNZ	46
		ePcPNZ	07 01 06
		ipPcP	25
		eSN	03 35
		iScP	04 48
		e	05 22
	Magnitude 6½		
	USCGS: 14 N 90½ W;		
	06:51:48, 60 km		
21	Is	eP	18 14 50
	Algeria		
21	P	iPNEZ	20 13 03
		ipP	33
		isP	47
		(continued)	

Date	Sta.	Phase	h m s
October (continued)			
21	R	iP	20 12 59
		ipP	13 29
		isP	43
	Pr	iP	12 54 d
		epP	13 09
		isP	41
	Bt	iP	12 51
		i	55
		ipP	13 19
		isP	38
	Is	iP	10 d
		ipP	39
		isP	50
	T	iP	16 d
		ipP	46
	USCGS: 10 S 75 W;		
	20:03:00, 100 km		
22	P	eP	00 03 50
	Pr	iP	55
	W	iP	55
		i	04 30
22	MW	eP	00 20 40
	Pr	eP	50
	W	i	29
	T	e	27
	Kamchatka		
22	P	eP	03 58 45
	R	eP	41
	Pr	eP	35
		e	49
	Bt	eP	29
	W	i	48
	Is	e	59
	BCIS: 10 N 105 W;		
	03:53:06		
22	P	eP	07 41 49
	R	eP	52
	Pr	eP	52
	Bt	eP	51
	W	iP	53
	Is	iP	54
	BCIS: Kermadec Islands region,		
	07:28.5		
22	MW	iP	16 41 36
	R	eP	38
	Pr	iP	43
	Bt	iP	45
	W	iP	29
	Is	iP	30
	T	iP	28
	CMO: 32 N 138 E;		
	16:29:51, 320 km		
22	P	eP	17 25 39
	R	eP	42
	Bt	iP	48 c
	W	iP	32 c
	Is	iP	35
	T	eP	41
	CMO: 31.9 N 138.9 E;		
	17:13 50, 320 km		

Date	Sta.	Phase	h m s
October			
23	P	iP	00 56 08
	R	iP	11
		e	49
	Pr	iP	17
		i	55
	Bt	iP	23 d
		i	35
		i	58
	T	iP	55 57
		e	56 25
		i	35
	CMO: 45½ N 147½ E;		
	00:45:17, 100 km		
23	P	iPNEZ	18 19 58 d
	R	eP	59
	Pr	iP	20 01 d
		i	21
	Bt	iP	00
	W	iP	00 d
	T	iP	07 d
	USCGS: 16 S 179 W;		
	18:08:14, 100 km		
24	P	iP!NZ	09 44 58.5 c
		iSN	45 42.9
	R	iP	44 52 d
		iSE	45 26
	Pr	iP!	44 42 d
	Bt	iP!NZ	30 d
		iSN	45
	BB	iP	54
	T	iPNEZ	45 37
		iS	47 09
	Magnitude 6.0		
	USCGS: 31½ N 116 W;		
	09:44:05. Felt at San Diego,		
	El Centro, Calexico		
24	P	iPNEZ	11 22 20
		iSN	23 05
	R	iP	22 16
		iSE	50
	Bt	iSN	08
	Aftershock of preceding;		
	Magnitude 5.4. 31½ N 116 W,		
	11:21.4. Preceded by a shock		
	from the same epicenter of		
	magnitude 4.0 (0 = 11:21:03)		
25	Is	iP	19 15 27
		epP	16 14
	T	iP	15 33
		epP	16 20
	USCGS: Fiji Islands region,		
	19:03:50, 200 km		
26	MW	eP	19 25 02
		e	13
	Pr	eP	24 59
		e	25 03
		e	26
	T	eP	24 53
		e	25 03
		e	26 04
	USCGS: Aleutians,		
	19:16:42		

Date	Sta.	Phase	h m s
October			
26	MW	eP	20 36 32
		e	42
	Pr	i	54
	T	eP	19
	USCGS: 51½ N 176 W;		
	20:28:13		
26	P	eP	22 30 17
	Pr	eP	06
		e	26
	Bt	eP	02
	T	eP	31
	USCGS: 6 N 82½ W;		
	22:22:14		
27	MW	eP	03 31 14
	R	eP	19
		e	29
	Pr	eP	23
		i	28
		i	36
	Bt	e	33
		i	40
	T	e	30 58
	USCGS: 51 N 176½ W;		
	03:22:55		
27	P	eP	10 02 15
	PX	eL	13.1
	R	eP	02 06
		e	28
	Pr	eP	01 59
		e	02 05
	Bt	eP	01 57
		e	02 00
		i	16
	Is	e	23
	T	e	39
	USCGS: 4 S 105 W;		
	09:54:30		
27	P	eP	10 39 23
		e	36
	Pr	iP	33
	Bt	iP	38
		i	52
		e	40 02
	T	eP	39 10
		i	40 35
	USCGS: 52 N 174 E;		
	10:30:19		
27	R	eP	23 58 54
	Pr	iP	59 01
	T	iP	58 34
	USCGS: Kodiak Island region,		
	23:52:06		
28	R	eP	01 18 46
		epP	19 12
	Pr	eP	18 42
		epP	19 06
		e	20
	Bt	eP	18 39
		e	48
		ipP	19 03
	Is	iP	18 57
		epP	19 20
	T	eP	02
		e	39
	USCGS: 22 S 69½ W;		
	01:07:27, 100 km		

Date	Sta.	Phase	h m s	
October				
28	P	iP	03 32 00	
	R	iP	01	
		e	39	
	Is	iP	05	
		ipP	19	
	T	eP	10	
		epP	24	
	BCIS: Tonga Islands region, 03:19.7			
28	Is	eP	19 44 49	
		epP	57	
29	P	iPNEZ	11 22 04	c
		i	28	
	PX	eL	56.7	
	R	eP	22 06	
		e	29	
		e	23 07	
	Pr	iP	22 08	c
		i	48	
	Is	iP	07	c
	T	eP	11	
		e	14	
		i	23	
	BCIS: 21¼ S 168¾ E; 11:09:13			
29	P	e	14 05 02	
	R	e	04 59	
	Pr	e	58	
	Is	eP	05 14	
		e	28	
	T	eP	31	
29	R	eP	20 13 06	
	Pr	iP	07	
	Is	eP	06	
		e	14	
	USCGS: New Hebrides, 20:00:17			
29	P	iP	21 48 04	c
		e	15	
	R	iP	07	
		e	22	
	Pr	iP	12	c
	Bt	iP	18	c
	W	iP	47 53	c
		i	58	
		i	48 13	
	Is	iP	47 55	c
	T	eP	50	
30	P	eP	07 05 47	
	R	eP	49	
	Pr	iP	49	
		e	06 50	
	Bt	eP	05 47	
	W	iP	50	d
		i(pP)	06 32	
	Is	iP	05 51	d
		i(pP)	06 32	
	T	eP	05 56	
	Depth 180 km? BCIS, Kermadec Islands region, 06:53.2, 60 km			

Date	Sta.	Phase	h m s	
October				
30	P	eP	14 15 26	
	Pr	iP	29	
	W	iP	28	d
	Is	iP	29	
	T	iP	36	
30	P	e	15 22 27	
	R	e	29	
		i	31	
	Pr	e	38	
	Bt	e	45	
	W	iP	07	
	Is	eP	07	
		e	10	
	T	e	21 58	
30	P	iP	16 15 22	
		e	16 02	
	R	iP	15 24	
	Pr	iP	30	d
	Bt	iP	34	d
	W	iP!	11	d
	Is	iP	14	
	T	eP	10	
	USCGS: 50 N 157 E; 16:05:02			
30	P	eP	18 39 36	
		e	40 18	
	R	eP	39 37	
	Pr	eP	41	
		e	45	
		e	40 09	
		e	20	
	Bt	eP	39 39	
	W	iP	35	
		i	56	
	Is	eP	37	
		e	40 06	
		e	20	
	T	eP	39 42	
		e	40 11	
	BCIS: 13.0 S 166¼ E; 18:26:56			
30	W	e	22 14 16	
	USCGS: 38 N 104 E; 21:56:50			
30	W	eP	23 57 47	
	BCIS: 40½ N 46¼ E; 23:43:29			
31	P	e	08 10 02	
	R	e(P)	06	
	Pr	e(P)	07	
		i	26	
	Bt	e	13	
	Is	eP	09 48	
	T	eP	49	
	USCGS: 51 N 176½ W; 08:01:39			
31	P	iP	09 22 09	
	R	iP	21 59	
	Pr	iP	56	
	Bt	iP	50	
	Is	iP	22 20	
		e	36	
	T	eP	28	
	BCIS: Mexico, 09:17.3			

Date	Sta.	Phase	h m s	
October				
31	P	ePEZ	20 56 49	
	R	eP	50	
		e	59 34	
	Pr	iP	56 51	
	Is	eP	58	
	T	eP	59	
	BCIS: 15 S 173¼ W 20:45:26			
31	P	iPNEZ	23 25 39	c
		e	28 40	
	PX	eL	52.1	
	R	iP	25 42	c
		e	29 01	
	Pr	iP	25 43	c
		e	27 41	
		e	30 49	
	Bt	iP	25 42	
	Is	iP	42	c
		i	51	
	T	eP	45	
	USCGS: 18½ S 170 E; 23:12:52			
31	P	eP	23 46 38	
		e	50	
	R	eP	41	
	Pr	iP	43	
		i	47 10	
		i	43	
	Bt	eP	46 43	
	Is	eP	41	
		e	47 09	
	T	eP	46 44	
		e	59	
	USCGS: 18½ S 170 E; 23:33:52			
November				
1	R	eP	06 12 02	
	Pr	iP	07	
	Bt	iP	10	
	W	iP	11 55	c
	Is	iP	56	
	T	eP	55	
	USCGS: Marianas Islands region; 05:59:25, 300 km			
1	P	iPNEZ	21 02 40	
		ePcP	05 34	
	PX	eL	15.7	
	R	iP	02 34	
		i	46	
		iPcP	05 32	
	Pr	iP	02 24	
		i	40	
		i	03 11	
	Bt	iP	02 24	
		i	28	
		i	35	
		ePcP	05 29	
	W	iP	02 52	
		i	03 03	
		iPcP	05 37	
		i	55	
		eScP	09 39	
	Is	i	02 53	
	T	iP	56	
		iPcP	05 38	
	BCIS: 13.8 N 91.9 W; 20:56:24, 60 km			

Date	Sta.	Phase	h m s	
November				
1	Pr	iP	23 51 47	
		i	52 13	
	Is	iP	15	c
	USCGS: Peru-Chile, 23:40:55			
2	R	eP	08 34 06	
	Pr	iP	12	
		e	20	
	Bt	i	17	
	W	iP	33 49	d
		i	34 09	
	Is	iP	33 52	
	T	eP	46	
	USCGS: Aleutians, 08:25:46			
2	P	eP"	08 43 08	
		i	17	
	PX	e(PP)	44.9	
		eSKSNE	49.8	
		ePSNEZ	54.2	
	P	e(SKKP)	57 15	
	PX	eSS	09 01.0	
		eGNE	12.7	
			A T	
		PPZ	¾ 4	
		MH	15 20	
	R	eP"	08 43 10	
		i	17	
		ePKKP	53 06	
		eSKKP	56 42	
	Pr	eP"	43 11	
		i	19	
		iPKKP	53 04	
		eSKKP	56 37	
	Bt	eP"	43 12	
		i	20	
		i	44 00	
		iPKKP	53 04	
	W	eP"	43 04	
		i	13	
		i	45 12	
		iSKP	46 26	
		iPKKP	53 11	
		i	54 52	
		i	57 10	
	Is	eP"	43 06	
		iPKKP	53 11	
	T	eP"	43 07	
		i	14	
		i	45 20	
		ePKKP	53 12	
		eSKKP	56 57	
	Magnitude 6½ - 6¾. Strong in eastern Sumbawa; damage at Bima etc. USCGS: 7½ S 119 E; 08:24:08			
2	R	eP"	10 58 46	
	Is	e	55 48	
		eP"	58 44	
	T	eP"	41	
	USCGS: Sumbawa aftershock, 10:39:47			
2	P	iP"	13 34 25	
		i	38	
	Bt	iP"	28	
	Is	eP"	23	
	BCIS: Sumbawa aftershock, 13:15:24			

Date	Sta.	Phase	h m s	
November				
2	Pr	iP	13 44 35	c
	Bt	i	18	
	W	iP	28	c
	Is	iP	29	
2	R	eP	15 26 18	
	Pr	iP	18	d
	Bt	eP	17	
	W	iP	17	d
	Is	iP	20	d
		e	29	
2	R	eP	17 39 17	
		e	28	
	Bt	iP	09	
		e	20	
	W	iP	29	
	Is	iP	29	
		e	40	
	T	eP	32	
	BCIS: 22¾ S 70¾ W;			
	17:27:53			
2	P	iP	20 23 18	
	R	iP	14	
	Pr	iP	12	
	Bt	iP	08	
	W	iP	25	
	BCIS: Region of northern			
	Chile; 20 11.9			
3	P	ePNZ	03 22 30	
		eEZ	38	
	R	eP	31	
	Pr	iP	36	
		i	53	
	Bt	eP	40	
	W	iP	14	d
	Is	iP	17	
	T	eP	11	
		e	35	
		e	50	
	USCGS: Aleutian Islands,			
	52 N 176 W; 03:14:20,			
	100 km			
3	P	eP	13 33 52	
	Pr	iP	34 04	
	Bt	iP	08	
	W	iP	33 42	d
	Is	iP	43	
	T	iP	38	
	BCIS: Aleutian Islands;			
	data insufficient			
3	P	iP	18 20 05	
	R	iP	08	
	Pr	iP	12	
		e	22	
	Bt	iP	14	
	W	iP	19 58	d
	Is	iP	20 00	
		e	23	

(continued)

Date	Sta.	Phase	h m s	
November (continued)				
3	T	eP	18 19 59	
	USCGS: Volcano Islands,			
	24½ N 142½ E;			
	18:07:35			
3	W	iP	22 26 47	
	Is	eP	48	
	BCIS: 13¾ S 74½ W;			
	22:16:13			
4	R	e	07 32 13	
	Pr	e	30	
	W	iP	00	
		i	13	
	Is	eP	02	
	T	eP	31 56	
4	P	eP	16 34 28	
	PX	eL	36.8	
	R	eP	34 19	
		e	27	
		e	37 21	
	Pr	eP	34 08	
		e	17	
		i	20	
		e	36 45	
	Bt	eP	38 00	
		e	07	
	Is	eP	44	
	BCIS: Gulf of California,			
	16:30.7			
4	P	eP	19 23 30	
	R	eP	33	
	Pr	eP	36	
		e	27 16	
	W	iP	23 32	
	Is	iP	33	
		e	53	
4	P	e	23 28 51	
	W	iP	29 16	
		i	28	
	Is	e	31	
	T	e	24	
5	P	eP	09 22 08	
	R	eP	10	
	Pr	eP	15	
	Bt	iP	19	d
	W	iP	00	d
	T	eP	00	
	CMO: 38.7 N 143.6 E;			
	09:10:20, 40 km			
5	P	eP	13 17 37	
	R	eP	39	
		e	54	
	Bt	i	57	
	W	iP	26	
	T	eP	23	
	BCIS: 49½ N 155.0 E;			
	13:07:05			

Date	Sta.	Phase	h m s	
November				
5	P	iPNEZ	18 28 39	
	PX	eLNEZ	33.9	
	R	eP	28 30	
		e	29 08	
	Pr	iP	28 23	
		i	31	
	Bt	iPNZ	15	
		e	24	
	W	eP	52	
	Is	eP	51	
	T	e	29 05	
	USCGS: Mexico; 18:24:20			
5	P	iPEZ	22 56 45	
		i	56	
	R	eP	48	
		i	57 05	
	Pr	iP	56 55	
		i	57 06	
		i	18	
	Bt	eP	56 59	
		i	57 08	
	W	iP	56 33	
		i	42	
		i	49	
		i	57 01	
	Is	eP	56 36	
		e	48	
		e	57 15	
	T	iP	56 31	
	USCGS: 52½ N 160½ E;			
	22:46:44			
6	Bt	i	11 58 38	
	W	i	13	
		i	19	
	T	eP	13	
		e	24	
		e	38	
	BCIS: Kamchatka;			
	11:48:25			
6	T	eP	13 20 46	
		e	21 01	
	USCGS: 23½ N 124 E;			
	13:07:14			
7	P	iPNEZ	05 31 05	c
		eNZ	11	
	PX	eLEZ	55.8	
	R	iP	31 07	c
		i	26	
		i	47	
	Pr	iP	07	c
		i	21	
	Bt	iP	05	c
	W	iP	07	c
		i	23	
	Is	iP	08	c
	T	iP	14	
		i	29	
	USCGS: 24½ S, 176 W;			
	05:18:57			
7	Pr	i	06 14 33	
		i	47	
	W	i	33	
	Is	e	35	
		e	51	

Date	Sta.	Phase	h m s	
November				
7	P	iP	07 16 05	
	R	eP	07	
	Pr	eP	13	
	Bt	eP	18	
	W	iP	15 49	
		i	55	
		i	16 00	
	Is	e	15 55	
	T	eP	46	
		e	50	
	USCGS: 52½ N 160½ E;			
	07:06:00			
7	P	ePEZ	08 49 30	
	R	eP	30	
	Pr	e	35	
	Bt	e	35	
	W	iP	15	
		i	19	
		i	31	
	T	e(P)	16	
	USCGS: 52½ N 160½ W;			
	08:39:26			
7	P	iP	10 52 37	
	R	eP	39	
	Pr	iP	40	
	Bt	e(P)	39	
	W	iP	39	
	Is	iP	41	
	T	eP	44	
7	R	eP	15 51 00	
		e	26	
	Pr	iP	05	
	W	iP	50 48	
	Is	iP	50	
	CMO: 43 N 147 E;			
	15:40			
7	P	iP	19 03 00	
	R	eP	02	
	Pr	iP	03	
	W	iP	04	
		e	04 25	
	Is	iP	03 05	
7	W	i	20 00 58	
		i	01 11	
	BCIS: 46 N 150 E;			
	19:50:12			
8	P	e	00 54 59	
		e	55 08	
		e	23	
	R	e	54 58	
		e	55 21	
	Pr	e	05	
	Bt	i	15	
	W	e	01	
		i	30	
	Is	e	01	
	BCIS: off South Africa			
8	P	eP	02 23 34	
	R	eP	28	
	W	eP	41	
		e	50	
	T	e	37	
	USCGS: 20 N 71 W;			
	02:15:28			

Date	Sta.	Phase	h m s	
November				
8	P	e	02 53 38	
	R	e	41	
	Pr	e	41	
	W	iP	39	
	Is	iP	40	
		e	48	
	T	e	43	
	BCIS: New Hebrides, 12:40.5			
8	R	eP	05 04 30	
	Pr	iP	26	
	Bt	eP	19	
	W	eP	51	
	Is	eP	50	
		e	05 02	
	T	eP	04 56	
	Mexico			
8	R	eP	14 45 37	
	Pr	eP	40	
	W	eP	35	
	Is	eP	35	
9	PX	eL	00 38.9	
	MW	eP	00 29	
	R	eP	26	
	Pr	eP	28	
		i	31	
		i	51	
	Bt	eP	27	
	W	iP	29	
		i	32	
	Is	eP	30	
		i	33	
	Pacific			
9	MW	eP	01 23 57	
	R	eP	57	
	Pr	iP	58	
		i	24 16	
	W	iP	23 58	
		i	24 25	
	Is	iP	23 59	
		i	24 17	
	Apia: 21 S 175 W 01:11:57, 400 km			
9	P	i	11 47 08	
	MW	e	46 58	
		i	47 15	
	R	e	46 22	
	Pr	e	26	
	Bt	e	22	
	W	iP	49	
		i	47 06	
	CMO: 42.1 N 142.4 E; 11:35:25, 80 km			
9	R	e	17 21 47	
	W	i	50	
	Is	e	52	
	Apia: Samoa Islands region, 17:10.3			
9	MW	e	21 36 19	
	R	e	24	
	Pr	e	15	
	W	e	11	
	Is	e	21	
	BCIS: 15¼ S 173¼ W; 21:24:47			

Date	Sta.	Phase	h m s	
November				
10	P	iPNEZ	07 34 35	c
		ipPNEZ	35 03	
		isPNZ	13	
		eP'P'	08 04 23	
	R	iP	07 34 39	c
		ipP	35 06	
		eP'P'	08 04 14	
	Pr	iP	07 34 44	c
		ipP	35 12	
		i	36 02	
		i	52	
	Bt	iP	34 48	c
		ipP	35 15	
		i	36 03	
	W	iP	34 23	c
		ipP	51	
		isP	35 02	
	Is	iP	34 26	c
		ipP	54	
		isP	35 04	
		eP'P'	08 04 23	
	T	iP	07 34 26	c
		ipP	53	
		i	35 53	
	USCGS: 56½ N 160 E; 07:24:52, 100 km			
10	P	iP	08 16 47	
	R	iP	51	
	Pr	iP	51	
	Bt	iP	49	
	W	iP	49	
	Is	iP	51	
	T	eP	17 02	
	BCIS: South Pacific			
10	P	eP	15 50 49	
	W	eP	38	
	BCIS: Marianas Islands region 15:38.1			
10	P	eP	18 08 54	
	R	iP	09 01	
	W	iP	08 32	
	Is	iP	37	
	Kg	iP	31	
	Felt in Lake and Mendocino counties; maximum intensity VI. Berkeley gives 39°04' N 123°02' W, 18:07:21, magnitude 4.4			
11	P	eP	02 02 20	
	R	eP	22	
	Bt	iP	32	
	W	iP	10	c
	T	eP	01 44	
	BCIS: Aleutians, 01:53:57			
12	W	eP	03 20 53	
		e	21 08	
	Is	eP	20 55	
		e	21 11	
12	P	eP	12 27 37	
		eS	28 10	
	R	iP!NEZ	27 30.6	
	Pr	iPNEZ	20.1	
	Bt	iPNEZ	08.5	
	BB	iP	32.5	
	Magnitude 6.3			
	(Continued)			

Date	Sta.	Phase	h m s	
November (continued)				
12	USCGS: 31½ N 116 W; 13:26:47			
12	P	iPNEZ	22 00 11	
	PX	eL	21.5	
	R	iP	00 14	
	Pr	iP	14	d
		i	38	
	Bt	iP	12	d
	W	iP	12	
	Is	iP	14	
	T	iP	18	
	USCGS: 15 S 173½ W; 21:48:44			
13	P	eP	12 50 38	
	R	eP	40	
	Pr	iP	40	
	W	iP	40	
	Is	eP	42	
	Apia: 17 S 172½ W; 12:39.2			
13	R	eP	14 59 20	
	W	iP	20	
		i	37	
		i	49	
	Is	eP	22	
	CMO: 30 N 131.8 E; 14:46:40, 80 km			
13	P	eP	18 36 11	
	R	eP	08	
	Pr	eP	04	
	Bt	iP	01	
		i	19	
	W	eP	17	
	Is	eP	11	
	T	eP	22	
	USCGS: 45 S 79 W; 18:23:22			
13	R	e	20 23 34	
	Pr	e	24 02	
	W	iP	23 58	
		i	25 17	
	Is	eP	24 02	
		i	25 23	
14	P	iPNEZ	05 37 10.2	
		i(S)N	47.9	
	R	iPNZ	03.9	
		iSNE	40.5	
	Pr	iP!	36 53.5	d
	Bt	iPNEZ	42.3	d
		iSNE	58.5	
	W	eP	37 31.9	
		i!	33.7	
		iSE	38 46.6	
	Magnitude 5.4			
	USCGS: 31½ N 116 W; 05:36:19			
14	MW	iP	09 38 37	
	W	iP	38	
	Is	iP	40	
14	MW	iP	11 00 24	
		ipP	55	
	R	eP	21	
	W	iP	33	
		ipP	59	
	(continued)			

Date	Sta.	Phase	h m s	
November (continued)				
14	Is	iP	11 00 32	
		ipP	01 01	
	BCIS: northern Chile, 10:49:03, 150 km			
14	P	iPNEZ	18 36 57	c
		e	38 20	
		epPNZ	51	
	R	iP	36 59	
		epP	38 51	
	Pr	iP	37 01	c
		epP	38 53	
	W	iP	36 58	c
		epP	38 47	
	T	eP	37 03	
	Apia: 17 S 179 W; 18:25:53, 500 km			
15	MW	eP	01 43 29	
		e	42	
	R	iP	22	
		i	35	
	Pr	iP	17	
		i	29	
	Bt	iP	11	
		i	24	
	W	eP	42	
		e	44 00	
	T	e	43 46	
		e	58	
	Tacubaya: 16°58' N 98°55' W; 01:38:18, 100 km			
15	P	iPNEZ	05 05 04	
		e	53	
	R	iP	00	d
	Pr	iP	04 56	d
	Bt	iP	53	d
	W	iP	05 11	d
		e	57	
	T	eP	13	
	USCGS: 20 S 68½ W; 04:53:39			
15	P	i	11 42 47	
	R	e	43	
	Pr	e	42	
	Bt	e	51	
	W	e	26	
	CMO: 33¾ N 141¼ E; 11:30:18, 40 km			
15	P	iP	16 38 57	d
		epP	39	k8
		ePP	42 13	
	PX	iSNE	49 00	
		iNE	50 00	
		eLNE	17 02.3	
			A T	
		PZ	1¼ 2	
		PH	¾ 2	
		PPZ	1 3	
		SH	1½ 5	
	R	iP	16 39 00	d
		ipP	41	
	Pr	iP	03	d
		ipP	50	
		iPP	42 23	
	(continued)			

Date	Sta.	Phase	h m s	
November (continued)				
15	Bt	iP	16 39 05	d
		ipP	52	
	W	iP!	38 51	d
		ipP	39 31	
		i	41 07	
		iPP	42 04	
		i	41	
		iSEZ	48 56	
		i	49 11	
	Magnitude $6\frac{1}{2}$ - $6\frac{3}{4}$			
	USCGS: $19\frac{1}{2}$ N $145\frac{1}{2}$ E;			
	16:26:44, 200 km			
16	W	iP	22 55 17	
		i!	26	
17	P	iP	04 10 25	
	R	iP	23	
	Pr	iP	20	
	W	iP	33	
	USCGS: western Bolivia,			
	03:59:14			
17	P	iPEZ	11 56 06	d
		iSNZ	48	
	R	iP	56 00	
		iS	35	
	Pr	iP!	55 50	
	Bt	iP!NZ	37	
		iSN	53	
	W	iP	56 28	
	BB	iP	02	
		iS	36	
	Magnitude 4.9			
	Pasadena 31.5 N 116 W			
	11:55:17			
17	P	iPNEZ	17 29 53	d
		i	30 05	
	R	iP	29 55	d
	Bt	iP	32	d
	W	iP!	47	d
		i	30 01	
		iS	39 19	
	USCGS: 19 N 145 E;			
	17:18:15, 600 km			
18	P	iNZ	05 23 18	
	W	i	16	
	Very distant			
18	P	iP	05 30 24	
		ipPNEZ	38	
	PX	eL	48.4	
	R	iP	30 27	
		ipP	43	
	Pr	i	33	
	W	iP	13	
		ipP	28	
	CMO: 49 N 155 E;			
	05:20:00, 100 km			
18	P	eP	20 56 45	
	R	eP	47	
	Bt	eP	56	
	W	iP	35	
		i	57 06	
	Is	eP	56 38	
	CMO: 38.9 N 142.3 E;			
	20:44:57, 60 km			

Date	Sta.	Phase	h m s	
November				
19	P	iPEZ	06 07 22	c
		ipP	09 25	
		i(sP)EZ	10 44	
	PX	iSNEZ	16 50	
	P	eP'P'	36 25	
		i	33	
			A T	
		PZ	2 2	
		PH	$\frac{1}{2}$ $1\frac{1}{2}$	
		SH	$\frac{1}{2}$ $1\frac{1}{2}$	
	R	iP	06 07 25	c
		epP	09 21	
		i	10 48	
		eP'P'	36 27	
	Pr	iP	07 30	c
		epP	09 25	
		e	10 26	
		i	56	
		eP'P'	36 28	
	Bt	iP	07 32	c
		ipP	09 25	
		i	10 58	
		eP'P'	36 14	
	W	iPEZ!	07 15	c
		ipP	09 11	
		iEZ	10 25	
		eP'P'	36 32	
	Is	iP	07 16	c
		epP	09 10	
		i	10 28	
		eP'P'	36 32	
	Magnitude $6\frac{1}{2}$			
	USCGS: 41 N $131\frac{1}{2}$ E;			
	05:56:03, 600 km			
19	MW	e	08 42 52	
	R	e	50	
		e	43 06	
	Pr	e	42 44	
	Is	e	54	
19	P	iPNZ	14 59 00	
	R	iP	58 57	
	Pr	iP	54	
	Bt	iP	49	c
	W	iP	59 08	
	Is	iP	07	
		i	24	
	BCIS: Chile, 14:47:12			
20	P	iP	07 13 09	
		ipP	55	
	R	iP	06	
		ipP	52	
	Pr	eP	14 02	
	Bt	iP	12 59	
		ipP	13 46	
	W	iP	13 18	
	USCGS: 22 S 69 W;			
	07:01:52, 150 km			
21	P	ePNZ	07 46 42	
	R	iP	44	
	Pr	iP	46	
	Bt	iP	50	
	W	iP	37	

Date	Sta.	Phase	h m s	
November				
21	P	ePNEZ	07 50 06	
		e	15	
		i	27	
	PX	eL	08 20.0	
	R	iP	07 50 08	
	Pr	iP	09	
		i	26	
	Bt	iP	09	
	W	iP	09	
		i	18	
		i	30	
	USCGS: 29 S 178 W;			
	07:37:27			
21	MW	eP?	16 25 35	
		e	51	
	Is	eP?	36	
		e	52	
	USCGS: 51 N $159\frac{1}{2}$ E;			
	16:15:26			
21	P	eP"	21 03 29	
	R	iP"	27	
	Pr	eP	27	
	Bt	eP"	26	
	W	iP"	31	
		e	05 02	
		i	06 55	
	Is	iP"	03 35	
		e	05 01	
		i	06 52	
	South Atlantic			
	BCIS: 20:44.7			
21	P	eP	23 09 23	
	R	eP	29	
	Pr	eP	27	
	W	eP	27	
		i	40	
	Is	eP	30	
	BCIS: South of Fiji;			
	22:54.3, 600 km			
22	MW	iP	01 48 44	
	Pr	iP	46	
	W	iP	45	
	Is	iP	46	
	Southwest Pacific			
22	MW	e	17 56 44	
	R	e	41	
	Pr	e	37	
	Is	e	47	
	South Atlantic?			
22	P	iPNEZ	18 51 33	c
	R	iP	34	c
		epP	53 47	
	Pr	iP	51 36	c
		i	54	
		i	52 07	
		ipP	53 49	
		esP	54 48	
	W	eP	51 35	
	Is	iP	36	c
		epP	53 45	
	Apia: 20 S 180;			
	18:40:30, 600 km			

Date	Sta.	Phase	h m s	
November				
22	MW	iP	23 33 10	
		i	33	
	W	iP	11	d
		i	32	
	Is	iP	14	d
		i	37	
	Pacific			
23	P	iP	02 29 06	c
	R	iP	09	c
	Pr	iP	12	c
		i	19	
	Bt	iP	13	c
		i	30	
	W	iP	02	c
		i	21	
	Is	iP	28 53	c
	BCIS: $14\frac{1}{2}$ N $144\frac{1}{2}$ E;			
	02:16:15			
23	MW	e	04 36 20	
	Is	e	09	
	USCGS: 72 N $1\frac{1}{2}$ W;			
	04:25:33			
23	MW	eP	06 34 44	
	R	eP	45	
	W	iP	33	
	Kurile Islands			
	USCGS: 06:24:10			
23	W	iP	06 42 09	
	Is	eP	10	
	Samoa; felt near Apia			
	USCGS: 06:30:45			
23	P	ePNZ	10 09 41	
		e	52	
	R	eP	45	
	Pr	eP	52	
	Bt	i	10 05	
		i	19	
	W	iP	30	
		i	41	
	Is	eP	32	
		e	41	
	Magnitude $5\frac{1}{2}\pm$			
	USCGS: 53 N $159\frac{1}{2}$ E;			
	09:59:45, 60 km			
23	P	eP	10 27 33	
		iNEZ	49	
			A T	
		PZ	0.1 $1\frac{1}{2}$	
	R	eP	10 27 37	
	Pr	eP	45	
	Bt	eP	46	
		i	28 02	
	W	iP	27 23	
		i	37	
	Is	eP	25	
		i	40	
	Magnitude $5\frac{3}{4}$			
	USCGS: $52\frac{1}{2}$ N 160 E;			
	10:17:35, 60 km			
23	Is	eP	13 04 50	
		i	05 00	
	South America			

Date	Sta.	Phase	h m s	
November				
23	Is	eP	13 13 00	
	BCIS: 38.6 N 14.8 E;			
	13:00:04, 250 km			
23	P	iPNEZ	16 03 51	d
		e(pP)	04 39	
	R	iP	03 47	d
		iPcP	04 03	
		i(pP)	36	
	Pr	iP	03 44	
		iPcP	04 02	
	Bt	iP	03 39	d
		iPcP	59	
		i(pP)	04 28	
	Is	iP	03 58	d
		iPcP	04 14	
		i(pP)	47	
	Depth 200 km?			
	USCGS: 19½ S 69 W;			
	15:52:29			
23	MW	eP	16 59 30	
	R	eP	33	
	Pr	iP	41	
		i	52	
	Bt	iP	46	
		i	55	
	Is	iP	19	
		e	30	
23	P	eP	21 22 58	
		i	23 13	
		i	21	
			A T	
		PZ	¼ 1½	
	R	eP	23 04	
	Pr	eP	11	
		i	25	
	Bt	eP	10	
		i	26	
	W	iP	22 44	
		i	58	
	Is	eP	48	
		i	23 03	
		i	10	
	Magnitude 6 - 6¼			
	USCGS: 52 N 160½ E;			
	21:12:55, 60 km			
24	MW	eP	00 46 36	
	R	iP	38	
	Pr	iP	39	
	Bt	iP	53	
	W	iP	37	
		i	48	
	Is	iP	38	
	USCGS: 20 S 169 E;			
	00:33:42			
24	MW	eP	03 44 46	
	Pr	iP	49	
	W	iP	48	
	Is	iP	49	
24	P	iPNEZ	09 57 01	c
	R	iP	03	
	Pr	iP	03	
	Bt	iP	02	
	W	iP	03	c

Date	Sta.	Phase	h m s	
November				
24	MW	e	14 18 45	
	R	e	44	
	Pr	e	45	
	New Hebrides			
25	P	iP	09 11 25	d
		ipP	47	
		isP	59	
	R	iP	22	d
		ipP	43	
	Pr	iP	18	d
		ipP	39	
		isP	49	
	Bt	iP	14	d
		ipP	35	
	W	iP	34	
	T	iP	38	d
		epP	57	
	BCIS: 21½ S 69¼ W;			
	09:00:06, 100 km			
25	P	iPNEZ	11 18 42	d
		iSN	20 23	
		iLE	36	
		iLE!	49	
			A T	
		PZ	15 5	
		PH	9 5	
		MH	500 15	
	R	eP	11 18 47	
	Pr	eP	19 00	
	Bt	iP	07	d
	SB	eP	18 25	
		iS	19 59	
	W	ePEZ	18 20	
	T	eP	18	
	Kg	eP	11	
	Magnitude 6.8±			
	USCGS: 40½ N 126 W;			
	11:16:36			
	Berkeley: 40°16' N 125°38' W,			
	11:16:35. Felt chiefly in			
	Humboldt and Mendocino Counties			
	(maximum reported intensity V)			
	Felt as far as San Francisco,			
	and at Junction City (Oregon).			
25	MW	iP	12 16 29	
		i	46	
	R	iP	31	
		i	47	
		i	50	
	Pr	eP	37	
		i	53	
		i	57	
	Bt	iP	40	
		i	55	
	CMO: 43.2 N 146.6 E;			
	12:05:14, 50 km			
25	Pr	iP	13 05 22	
	Mexico			
25	P	iP	20 54 51	
		e	55 25	
	PX	eLEZ	21 04.2	
	R	eP	20 54 40	
	Pr	eP	39	

(continued)

Date	Sta.	Phase	h m s	
November (continued)				
25	Bt	iP	20 54 35	
		e	55 26	
	Is	iP	01	
		i	42	
	USCGS: 15 N 94½ W;			
	20:48:50			
25	P	iPNEZ	21 44 56	d
		ipPNEZ	47 10	
		iSNEZ	54 18	
			A T	
		PZ	0.4 1	
		PH	0.2 1	
		SH	½ 5	
	R	iP	21 44 58	d
		ipP	47 13	
		e	48 13	
		iSNEZ	54 24	
	Pr	iP	44 58	d
		i	45 17	
		ipP	47 12	
		i	21	
		iS	54 26	
	Bt	iP	44 57	d
		ipP	47 11	
		iSNEZ	54 22	
		eNE	58 23	
	W	ePE	44 58	
		eSE	54 23	
	Is	iP	44 59	d
		i	46 15	
		iS	54 29	
		e	22 11 33	
	At Pasadena a small			
	compression possibly			
	preceding the large			
	dilatation.			
	Magnitude 6½			
	USCGS: 21½ S 179 E;			
	21:33:38, 650 km			
26	P	eP	08 23 14	
	R	eP	15	
	Pr	eP	16	
	Apia: 21 S 179 E;			
	08:11:27, 200 km			
27	MW	eP	05 17 37	
		e	44	
		e	50	
	R	eP	42	
		e	56	
	Pr	eP	53	
		e	18 03	
	USCGS: 53 N 161½ E;			
	05:07:40			
27	P	iP	08 14 39	d
	R	iP	35	d
	Pr	iP	31	d
	Bt	iP	27	
	T	iP	20	d
	USCGS: 21 S 68 W;			
	08:03:09			
27	R	eP	12 04 53	
	Pr	eP	52	
	Southwest Pacific			

Date	Sta.	Phase	h m s	
November				
27	P	iP	16 09 28	
		i	34	
		i	52	
		ePcP	11 52	
	R	eP	09 21	
		i	25	
		iPcP	11 50	
	Pr	iP	09 17	
		i	24	
		iPcP	11 47	
	Bt	iP	09 13	
		iPcP	11 46	
	USCGS: 12 N 87 W;			
	16:02:22			
28	Pr	e	09 26 30	
		e	40	
	Central America			
29	P	iPNEZ	01 49 04	c
		i	15	
		ipPEZ	19	
		iNZ	26	
		eP'P'	02 18 50	
	R	iP	01 49 07	c
		ipP	23	
		eP'P'	02 18 49	
	Pr	iP	01 49 14	c
		ipP	28	
		eP'P'	02 18 47	
	Bt	iP	01 49 18	c
	T	iP	48 50	c
		epP	49 03	
	USCGS: 53½ N 160 E;			
	01:39:02			
30	MW	e?	20 38 17	
		i	22	
	W	e	05	
		i	08	
	Is	e	06	
		i	09	
		i	11	
	USCGS: South of Honshu;			
	20:25:54			
30	Pr	eP	23 35 46	
		i	36 00	
	W	eP	35 42	
		i	47	
		i	53	
		i	36 00	
	Is	eP	35 43	
		i	48	
	T	eP	50	
	BCIS: Tonga region;			
	23:24.0			
December				
1	R	eP	05 18 38	
		e	47	
	W	iP	53	
		i	19 04	
	T	eP	16	
		e	26	
	USCGS: Peru; 05:08:26			

Date	Sta.	Phase	h	m	s
December					
2	P	e	04	50	41
		eNE		51	00
	Pr	e(P)		48	57
		i		50	24
	Bt	eP		48	25
	BCIS: Gulf of California; 04:46.7				
2	Pr	iP	08	12	03
	Mexico				
2	P	iPNEZ	09	07	34
		i			43
	R	eP			40
		i			48
	Bt	eP			59
	W	iP			13
	Is	iP			15
	T	eP		06	58
	USCGS: 43½ N 125 W; 09:05:00				
2	MW	eP	17	25	00
	Pr	eP			08
	W	iP		24	47
	Is	i			51
	BCIS: 53½ N 159½ E; 17:15:04				
2	P	iPNEZ	23	20	31
		ePcPNZ		22	54
	R	eP		20	24
		iPcP		22	52
	Pr	iP		20	19
		i			28
		iPcP		22	50
	Bt	eP		20	14
		iPcP		22	48
	W	eP		20	29
		iPcP!		22	57
	Is	eP		20	40
		iPcP		22	57
	T	eP		20	43
		iPcP		22	59
	PcP very sharp, and at several of these stations recorded larger than P. USCGS: 12 N 86½ W; 23:13:29, 100 km				
3	W	iP	01	44	56
	Is	iP			58
3	P	iPNZ	02	18	01
		ePcP		20	25
	R	eP		17	54
		iPcP		20	21
	Pr	iP		17	50
		i			58
		iPcP		20	14
		i			21
	Bt	eP		17	45
		iPcP		20	18
	W	iP		18	10
		i		19	36
		iPcP!		20	27
	Is	eP		18	10
		i		19	40
		iPcP		20	26

(continued)

Date	Sta.	Phase	h	m	s
December (continued)					
3	T	eP	02	18	15
		iPcP		20	29
	Aftershock of Dec. 2, 23h USCGS: off Nicaragua 02:10:45				
3	W	iP	02	57	50
		i		58	05
	CMO: 42.4 N 142.6 E; 02:46:29, 40 km				
3	P	iPNEZ	08	48	52
		i		49	11
	PX	eLNE		51.2	
	R	iP		48	58
		i		49	08
	Pr	iP			09
	Bt	iP			19
	Is	iP		48	34
	T	eP			23
		i			38
	USCGS: 44 N 127 W; 08:46:02				
3	P	iP	22	41	03
		i		43	00
	R	iP		41	05
		e		42	59
	Pr	iP		41	08
		i		43	06
	Bt	i			07
	Is	iP		40	57
		i		42	57
	USCGS: 3½ S 148 E; 22:27:38				
4	R	eP	02	07	46
	Pr	iP			43
	Bt	eP			41
	Is	iP			49
		i			56
4	P	iPNZ	07	13	43
		iNZ		14	10
		i			18
		iNZ			34
		ePP		17	40
	PX	e(S)H		24	31
		eREZ		42.2	
			A		T
		PZ	¼		1
		SH	1¼		6
		MH	15		20
		MZ	15		20
	R	iP	07	13	44
		i		14	12
		i			19
	Pr	iP		13	48
	Bt	iP			49
		i		14	16
		i			23
	Is	iP		13	42
		i		14	09
		e			26
	T	eP		13	42
		i		14	10
		i			20

(continued)

Date	Sta.	Phase	h	m	s
December					
4	Magnitude 6½ USCGS: 5 S 152½ E; 07:00:29				
4	P	ePNZ	18	18	46
	R	iP		41	d
	Pr	iP		38	d
	Bt	eP		35	
	Is	iP		50	d
	T	iPNEZ		49	
	USCGS: 20 N 69 W; 18:10:23				
4	P	iP	18	40	51
		ipP		41	04
		i			14
		iPcP			57
		eN		43	23
	PX	i		44	35
		iSN		48	36
	P	iP'P'	19	10	57
		i		11	10
			A		T
		PZ	¼		1
		SH	2½		6
	R	iP	18	40	45
		ipP		41	00
		iPcP			59
		i		45	40
		e	19	10	59
		e		11	13
	Pr	iP	18	40	43
		i		41	38
		i	19	11	01
	Bt	iPNEZ	18	40	39
		iNE			54
		i		43	06
		iSNE		48	21
		eP'P'	19	10	49
	Is	iP	18	40	54
		i		41	09
		i			52
		i		42	06
		iScP		45	46
		eP'P'	19	10	57
		e		11	11
	T	iPNEZ	18	40	54
		i		41	10
		i		44	29
		iSNEZ		48	48
		eP'P'	19	10	57
	Magnitude 6½± USCGS: 11 N 61 W; 18:31:07, 60 km				
4	Is	eP	19	18	11
		e			26
5	MW	eP	00	41	16
	W	iP			08
		i			21
	BCIS: Volcano Island region; 00:27.8				
5	MW	e	01	47	32
	W	e			21
	Is	e			33
	Apia Fiji-Tonga region; 01:35.7				

Date	Sta.	Phase	h	m	s
December					
5	MW	eP	07	37	39
	R	eP			33
	Pr	iP			31
	Bt	iP			27
	W	iP			48 c
		i		38	02
	Is	iP		37	47
	BCIS: Bolivia; 07:27.3, 60 km				
5	MW	eP	21	54	49
	R	eP			46
	Pr	eP			40
	Bt	eP			33
	W	e		55	11
	T	e			27
	BCIS: 10 S 108 W; 12:46.5				
6	MW	e(P)	01	46	03
	Pr	i(P)			04
	W	iP			04
6	P	ePNZ	03	04	59
	R	eP		05	00
	Pr	eP			03
	Bt	iP			05
	W	eP		04	54
	T	eP			57
	USCGS: 3½ S 151 E; 02:51:40				
6	Pr	iP	03	52	02
	W	iP			16
		i			32
		i			38
	Near 11 N 61 W (as on Dec.11 BCIS: 03:42.5				
6	P	iP	04	26	26
	R	iP			29
	Pr	iP			30
	Bt	iP			23
	W	iP			28 c
	T	iP			32
	USCGS: New Hebrides; 04:13:40				
6	R	e	11	35	33
	Pr	e			34
	W	iP		34	45
		i		35	35
	BCIS: 31¾ S 177 W; 11:22:00				
6	P	iPNZ	12	06	17
		i			26
	R	iP			20
		i			30
	Pr	iP			27
		i			36
	Bt	iP			30
		i			40
	W	iP!			06 c
		i			15
	T	iP			02
	USCGS: 54½ N 161 E; 11:56:24				

Date	Sta.	Phase	h m s	
December				
6	MW	e	22 26 04	
	R	e	07	
	Pr	e	04	
	Bt	e	05	
	W	eP	02	
		i	13	
	Is	i	14	
	Southwest Pacific			
6	P	iP	23 58 24	
	PX	eL	24 27.4	
	R	iP	23 58 31	
		i	39	
	Pr	iP	32	
	Bt	iP	32	
	W	iP	28	
		i	36	
		i	45	
	Is	iP	31	
	T	iP	33	
		i	42	
	USCGS: 11S 166E; 23:45:51			
7	P	eP	04 24 42	
		eSNE	26 22	
	W	iP	24 21	
		i	25	
		eS	25 45	
	Is	iP	24 27	
		iS	25 54	
	T	iP	24 20	
		iS	26 03	
	Kg	iP	24 15	
		iS	25 38	
	Magnitude 5			
	40.5 N 126 W; 04:22.6			
7	MW	eP	06 28 51	
		e	29 03	
	R	eP	28 57	
	Pr	eP	29 04	
		i	11	
	Bt	eP	08	
	W	iP	28 41	d
		i	47	
		i	53	
		i	57	
		e	31 30	
	Is	eP	28 42	
		i	52	
		i	31 30	
	T	eP	28 36	
	USCGS: 54 N 164½ W;			
	06:21:33			
7	MW	e	15 07 18	
	W	e	06 57	
		e	07 19	
		e	28	
	T	e	21	
	Celebes Sea			
8	MW	iP	08 51 12	
	R	iP	14	
	Pr	iP	18	
	Bt	iP	21	
	W	iP	03	c
	Is	iP	04	

(continued)

Date	Sta.	Phase	h m s	
December (continued)				
8	T	iP	08 51 14	
	CMO: 32.3 N 138.1 E;			
	08:39:24, 320 km			
8	MW	iP	12 37 12	
	Pr	iP	20	
	W	iP	15	
	Is	iP	15	
	T	eP	22	
8	P	ePN	20 49 34	
	PX	eL	21 00.2	
	R	eP	20 49 28	
	Pr	iP	24	
	W	eP	43	
		e	55	
	Is	iP	44	
9	R	e	08 37 25	
	Pr	eP	12	
		i	26	
	W	eP	14	
		i	25	
	Is	eP	15	
		i	26	
9	P	e	12 25 30	
	R	e	28	
	Pr	e	28	
	Bt	e	26	
	W	iP	32	
		i	41	
	Is	iP	33	
9	P	ePEZ	14 24 04	
	R	iP	23 59	
	Pr	eP	55	
		i	24 03	
	Bt	eP	23 52	
	W	eP	24 12	
		i	20	
	Is	iP	11	
	T	iP	19	
	USCGS: 15½ S 76 W;			
	14:13:27			
9	P	eP	14 43 29	
	R	eP	31	
	Pr	eP	37	
	Bt	eP	40	
	W	iP	24	
	Is	eP	27	
	USCGS: 12 N 144 E;			
	14:30:26			
10	P	iP	00 42 52	c
	R	iP	54	
	Pr	iP	55	c
	Bt	iP	53	c
	W	iP	54	c
	Is	iP	55	c
	T	iP	43 04	
	USCGS: 12 S 172½ W;			
	00:31:40			
10	W	iP	07 57 20	
	T	iP	22	
10	W	iP	10 04 55	
		i	05 05	
		i	21	
	T	i	03	
	USCGS: 13 S 171 W;			
	09:53:43			

Date	Sta.	Phase	h m s	
December				
10	P	iPNEZ	13 07 32	
	PX	iPP	08 38	
		eSE	13.1	
		eREZ	18.0	
			A T	
		PZ	1 4	
		PPZ	1¼ 5	
		PPH	1 4	
		MH	15 20	
	R	iP	13 07 27	c
		iPP	08 42	
	Pr	iP	07 22	
		iPP	08 41	
	Bt	iP	07 18	c
		iPP	08 35	
	W	iP	07 41	
		i	49	
		i	56	
		iPP	10 12	
	Is	iP	07 39	
		i	50	
	T	iP	44	
		i	08 25	
		i!	09 12	
	Magnitude 6¼±			
	USCGS: 18½ N 81½ W;			
	13:00:27			
11	P	eP	09 11 01	
		i	12	
		iNZ	52	
		i(S)NZ	12 26	
	R	eP	10 52	
	Pr	eP	35	
		i	41	
	Bt	iP	19	
		iNZ	29	
		iS?	11 17	
11	MW	eP	12 29 22	
	R	eP	24	
	W	iP	22	
		i	29	
	Is	iP	24	
	T	eP	32	
	BCIS: 16 S 172¾ W;			
	12:17:54			
11	P	iPNZ	13 07 30	c
		iNEZ	39	
		iNEZ	55	
	PX	eSNE	15 47	
		iLNE	21.7	
			A T	
		PZ	0.3 1	
		PH	0.3 3	
		SH	2½ 6	
		MH	55 18	
	R	iP	13 07 27	c
	Pr	iP	29	
	Bt	iP	30	
		i	38	
	W	iP	23	
		i	32	

(continued)

Date	Sta.	Phase	h m s	
December (continued)				
11	Is	eP	13 07 22	
		i!	25	c
		i	29	
	T	eP	16	
		i	26	
	Magnitude 6½±			
	USCGS: 52½ N 32 W;			
	12:57:07			
11	W	iP	18 09 07	
	Is	iP	18	
11	W	eP	23 15 57	
12	MW	e	10 52 30	
	R	e	26	
	Pr	e	27	
		i	41	
	W	iP	29	
		i	42	
	Is	eP	31	
		i	50	
	Kermadec region;			
	USCGS: 10 39 32			
12	MW	iP	17 22 12	
	R	iP	14	
	Pr	iP	15	
	W	iP	11	
	Is	iP	13	
	USCGS: 10 S 166 E;			
	17:09:38			
13	W	eP	00 01 50	
		i	02 09	
	Is	eP	01 54	
		e	02 11	
13	MW	eP	01 31 41	
	Pr	eP	52	
		i	32 03	
	Bt	iP	31 56	
	W	iP	28	
		i	40	
	Is	iP	31	
		e	44	
13	MW	eP	01 40 56	
	W	iP	48	c
	Is	iP	49	
	T	eP	46	
	USCGS: Southern Kurile			
	Islands, 01:29:50			
13	P	iPNEZ	01 43 04	c
		i	23	
	R	iP	07	
	Pr	iP	10	c
		i	29	
	Bt	iP	11	c
	W	iP	42 59	c
	Is	iP	43 02	c
	Southwest Pacific			
13	MW	e	04 13 23	
		e	29	
	R	e	34	
	Pr	iP	35	
		i	42	
	Bt	i	46	

(continued)

Date	Sta.	Phase	h m s
December (continued)			
13	W	iP	04 13 09
		i	15
	Is	eP	11
		i	17
	BCIS: 56¼ N 154.0 W; 04:06:49		
13	MW	eP	04 27 45
	Pr	iP	59
	Bt	iP	28 02
	W	iP	27 35
		i	45
	Is	iP	38
		e	48
	T	eP	33
13	W	e?	09 42 11
		e	45
	Philippines		
13	P	ePEZ	12 56 21 d
	R	eP	24
	Pr	iP	25
	W	iP	24 d
	Is	iP	24 d
	T	iP	31
	USCGS: 13½ S 173½ W; 12:45:02		
13	P	iP	16 15 01
	R	iP	14 54
	Pr	iP	51
	Bt	iP	43
	W	iP	15 16
	Is	iP	13
	T	iP	23
	BCIS: 18½ N 101 W; 16:10:13		
13	R	e	22 57 53
	W	e	41
		e	52
		iPKKP	23 08 39
	USCGS: 2 N 126 E; 22:38:43		
14	R	eP	01 29 14
	Pr	iP	10
	W	iP	32
	BCIS: 3½ N 83 W; 01:21:09		
14	R	e	02 04 00
	W	iP	03 54
		i	04 03
		i	09
	Is	eP	03 54
	T	eP	04 01
		e	31
	BCIS: 20 S 178 W; 01:51.0		
14	R	e	17 19 19
	Pr	e	27
	Bt	e	44
	W	iP	18 48
		eS	20 20
	Is	iP	18 54
		i	19 00
	T	eP	18 49
		i	55

Date	Sta.	Phase	h m s
December			
15	P	iP	02 47 47 d
	R	iP	50
	Pr	iP	51 d
	Bt	iP	49
	W	iP	51 d
	Is	iP	51 d
	T	iP	57
16	P	iPNEZ	07 10 07
	PX	eL	34.T
	R	iP	10 08
		i	19
	Pr	iP	08
	Bt	iP	07
	W	iP	08
		i!	10
	Is	eP	08
		i	11
	T	eP	16
	USCGS: 24 S 175 W; 06:57:57		
16	P	iPNZ	11 08 30.7 d
		iSNE	09 54.0
	MW	iP	08 30.2 d
	R	iP	33.1 d
	Pr	iPNEZ	42.7 d
	Bt	iP	52.2 d
	SB	eP	29.3
	W	iP!	10.0 d
	Is	iP!	09.9 d
	H	iPN	02.9
		iSE	51
	T	iPNEZ!	07 49.4
	Kg	iP	08 17.2 d
	FT	eP	22.3 d
	BB	eP	30.5
	D	iP	30.5
	Magnitude 7.1 USCGS: 39½ N 118 W; 11:07:10. Epicenter as determined at Berkeley by Mr. C. Romney (investigation still in process): 39°17.9'N 118°08.0'W Major earthquake, felt over an area extending north and east into Oregon, Idaho and Utah, and southwest across California to San Francisco and Los Angeles. Faulting with vertical displacement up to 20 feet near Fairview Peak, Clan Alpine Range. Two zones of faulting with combined extent about 55 miles; displacements principally vertical with some right lateral strike slip. Aftershocks numerous: those of magnitude 5 or over are reported here.		
16	P	iSE	11 14 43
	H	iPN	12 34.9
	Magnitude 6.8 Aftershock of preceding, largely obscured. USCGS: 11:11:29		

Date	Sta.	Phase	h m s
December			
16	P	ePN	11 51 45
		iSN	53 01
	W	iSE	52 06.5
	Magnitude 5.0	Aftershock	
16	P	ePE	11 59 55.0
		eSN	12 01 34.8
	W	iSE	11 59 11.0
	Magnitude 5.0	Aftershock	
16	P	iP	13 16 28.9
		iSNE	17 50.9
	W	iSE	17 02.1
	H	ePN	16 06.3
	T	iPN	15 48.5
	Magnitude 5.0 USCGS: 39½ N 118 W; 13:15:03		
16	P	eP	14 18 22.1
		iNEZ	24.4
		i(S)NE	19 47.1
	W	iPE	18 08.2
	Is	iP	17 59.6
	H	e(P)N	52.2
		iSE	18 43.8
	T	ePNE	17 38.8
	Magnitude 5.8 USCGS: 39½ N 118 W; 14:16:57		
16	P	iPNZ	14 24 23.7
		i(S)E	25 36.7
	W	iSE	24 52.2
	Is	iP	02.0
	H	ePNE	23 57.5
		iSN	24 37.9
	T	iPE	23 41.5
		iSE	24 10.6
	Magnitude 5.3	Aftershock	
16	P	eP	15 11 07.4
		i(S)E	12 35.7
	W	e(P)E	10 53.3
		iSE	11 41.7
	Is	iP	10 46.0
	H	ePN	38.7
		iSE	11 28.8
	T	ePNE	10 25.8
		iSE	11 00.4
	Magnitude 5.1 USCGS: 39½ N 118 W; 15:09:42		
17	MW	eP	05 36 40
		i	46
	R	eP	25
	W	eP	56
		i	37 03
	Is	eP	36 48
		i	54
		i	37 00
	T	iP	06
	Tucson (from original seismograms, courtesy USCGS:		
		eP	05 35 25
		e(S)	37 44
17	P	iPNEZ	07 10 09
	W	iP	09 48
	(continued)		

Date	Sta.	Phase	h m s
December (continued)			
17	Is	iP	07 09 52
	H	eP	55
	T	ePEZ	48
		iSN	10 39
	Kg	eP	09 44
	Magnitude 4.6 Central California. Maximum intensity VI, east of San Francisco Bay. erkeley gives 37°33' N 122°08' W; 23:08:58		
17	P	eP	20 28 22
		iSNZ	29 40
	W	eP	27 58.1
		iSE	28 51.9
	Is	iP	28 00
	H	iP	27 57.6
		iS	28 40.5
	T	iPNEZ	27 38.9
		iSE	28 11.2
	Magnitude 5.0 Nevada aftershock		
18	P	eP	01 47 06
	W	eP	46 41.6
		iSEZ	47 41.3
	H	iP	46 43
	T	iP	21.4
	Magnitude 4.7 Nevada: USCGS: 0 = 01:45:36		
18	P	ePNZ	15 43 15
	R	eP	18
	Pr	iP	19
	Bt	iP	19
	Southwest Pacific		
19	P	eP	05 23 24
	R	eP	27
	Pr	eP	26
	Bt	eP	33
	W	iP	19
	Is	eP	20
	BCIS: Marianas, 05:10.9		
19	P	iPNEZ	10 35 00 d
		ipP	36 00
	PX	e(PP)	37 50
		e	38 40
		iSNE	44 20
		iSCSE	48
		isSNE	46 02
		e(sSS)NE	50.8
		eGN	54.4
	P	eSKPP'	11 05 42
			A T
		PZ	2 1½
		PH	2 4
		PPZ	½ 4
		SH	4 5
		MH	30 80
	R	iPNEZ	10 34 56 d
		ipP	35 56
	Pr	iP	34 53 d
		i	59
		i	35 22
		ipP	52
	(continued)		

Date	Sta.	Phase	h	m	s	
December (continued)						
19	Bt	iPNEZ	10	34	49	d
		ipP		35	49	
		iSNZ		44	03	
		iSKPP'	11	05	50	
	W	iP	10	35	09	d
		i		36	08	
	Is	iP		35	08	d
		ipP		36	08	
		eS		44	37	
	T	iPNEZ		35	12	d
		iSNEZ		44	44	
		eSKPP'	11	05	40	
	Magnitude 6½ - 6¾					
	USCGS: 23 S 66½ W;					
	10:23:40, 250 km					
20	P	iPNEZ	01	50	05	d
		epP			22	
		esP			30	
	R	iP			02	d
		epP			21	
		esP			28	
	Pr	iP		49	58	
		epP		50	17	
		esP			23	
	Bt	iP		49	55	
		isP		50	20	
	W	iP			12	d
		i			18	
		ipP			30	
		isP			35	
	Is	iP			12	d
		i			18	
		i			33	
	T	iP			18	d
		epP			37	
	BCIS: 32 S 70½ W;					
	01:38:06, 100 km					
20	P	eP	09	47	37	
	R	eP			38	
	Pr	iP			40	c
	Bt	iP			40	
	W	iP			38	
	Is	iP			40	c
	T	eP			43	
	New Hebrides region					
20	P	e	12	03	46	
	R	e			44	
		e			48	
	Pr	eP			41	
		i			46	
	Bt	eP			39	
		e			44	
	Is	e			47	
20	P	iPNEZ	12	42	56	c
	R	iP			56	
	Pr	iP			59	c
	Bt	iP			58	
	W	iP			57	c
	T	iP		43	05	
	USCGS: 17 S 178½ W;					
	12:31:58, 600 km					
20	R	eP	15	06	10	
	Pr	iP			17	
	Is	eP			11	
	BCIS: off East Cape, New Zealand, 14:52.7					

Date	Sta.	Phase	h	m	s	
December						
20	P	ePNEZ	17	38	19	
		iSNZ		39	50	
	W	eP		37	51.4	
		i			54.8	
		iSE		38	57.1	
	Is	iP		37	55	
	H	eP			49.1	
	T	iPNEZ			33.3	
		iSNE		38	14.8	
	Magnitude 5.0					
	USCGS: 40 N 118 W; 17:36:47					
20	P	eP	17	48	02	
		i			05	
	R	iP			05	
	Pr	iP			05	
		i			07	
		i			22	
	Bt	iP			06	
		e			20	
	W	iP			07	d
		i			11	
		i			18	
	Is	iP			08	d
		i			11	
	T	eP			13	
		e			16	
	USCGS: 24 S 175 W; 17:35:54					
21	MW	e(P)	10	12	15	
		e			25	
		e			40	
	Pr	i(P)			15	
		i			29	
	Bt	e			10	
		e			24	
	Is	eP			35	
		e			50	
		i		15	20	
		i			37	
	T	eP		12	40	
		e		15	37	
	USCGS: near coast of Guatemala,					
	10:06:10, 150 km					
21	P	ePNEZ	12	10	57	
	PX	eL		41.7		
	R	eP		10	56	
	Pr	eP		11	04	
	Bt	eP			03	
	Obscured at the other stations					
	by a small Nevada aftershock.					
	USCGS: 3½ S 145½ E; 11:57:19					
21	P	iPNEZ	19	58	26.3	
		eSNE		59	52	
	R	iPEZ		58	33.3	
	Bt	eP			53.1	
		iNZ			55.4	
	SB	iPNEZ			15.5	
	W	iPEZ			03.4	c
		iSE		59	51.7	
	Is	iP		58	08.5	c
	H	ePNZ			08.8	
	T	ePNE		57	50.0	c
		iSE		59	32.1	
	Kg	iP		58	03.2	
	FT	iP			13.9	

(continued)

Date	Sta.	Phase	h	m	s	
December (continued)						
21	D	iP	19	58	28.2	
		i!			30.6	
	BB	eP			35.4	
	Magnitude 6.6					
	Moderate damage (VII) at					
	Eureka, Arcata, etc. Felt					
	in northwestern California,					
	southwestern Oregon.					
	Epicenter and origin time as					
	determined at Berkeley:					
	40°47' N 123°52' W,					
	11:56:29					
21	R	eP	22	16	26	
	Bt	iP			32	
		e			51	
	W	iP			17	d
		i			28	
		i			39	
	Is	eP			19	
		e			30	
	T	iP			18	
	USCGS: 22½ N 146 E;					
	22:04:05					
22	P	iPNZ	04	31	25	
		eEZ			49	
	R	eP			26	
	Pr	iP			30	c
		i			55	
	Bt	iP			31	c
		i			37	
		e			54	
	W	iP			21	
	Is	eP			23	
	T	eP			26	
	USCGS: 5½ S 154½ E;					
	04:18:16					
22	P	ePNZ	10	40	34	
		iSEZ		41	53	
	R	iP		40	36	
	W	iP			11.7	
		iSE		41	01.6	
	H	eP		40	04.7	
		iSN			48.7	
	T	iPEZ		39	52.2	
		iSE		40	20.1	
	Magnitude 4.9					
	Nevada (aftershock of Dec.16)					
23	MW	eP	12	06	54	
	R	iP			44	
	T	eP			12	
24	MW	eP	00	34	20	
	R	eP			14	
	Pr	iP			08	d
	Bt	eP			04	
	T	iP			36	
24	P	iPNEZ	01	08	36	c
		i			50	
	R	iP			38	c
		i			49	
		i(pP)	09		11	
	Pr	iP	08		40	c
		i(pP)	09		14	
	Bt	iP	08		40	c

(continued)

Date	Sta.	Phase	h	m	s	
December (continued)						
24	W	iP	01	08	34	c
		i(pP)		09	09	
	T	iP		08	41	
	BCIS: 10½ S 165¾ E;					
	00:56:17, 150 km					
24	R	eP	02	47	20	
		e			34	
	Pr	eP			25	
	Bt	eP			28	
	W	eP			09	
		i			29	
	T	eP			12	
	BCIS: 29 N 141½ E;					
	02:34:55					
24	Pr	iP	04	10	38	
24	MW	eP	12	31	50	
		e			58	
	R	iP			44	
	Pr	iP			38	
		i			47	
	Bt	iP			33	
		i			41	
	T	e		32	09	
	USCGS: 16½ N 96 W;					
	12:26:11					
25	P	iP	01	35	33	
	R	eP			38	
	Pr	eP			47	
	Bt	iP			57	
	W	iP			10	c
	T	eP			03	
	BCIS: 49¼ N 127 W;					
	01:31:17					
26	P	eP	03	52	59	
		e		53	14	
	Bt	eP			09	
	Is	eP		52	57	
	T	eP			52	
	CMO: 30½ N 142 1/3 E;					
	03:40:47, 40 km					
26	P	iP	03	53	55	
		i		54	07	
	PX	eL	04	23.7		
	R	iP	03	53	54	
		i		54	09	
	Bt	eP			01	
	Is	iP			02	
	T	iP		53	45	
	CMO: 30½ N 142 1/3 E;					
	03:40:47, 40 km					
26	MW	e	09	58	44	
	T	e		59	06	
26	P	iP	18	16	59	
		iEZ		17	13	
	R	eP		16	53	
	Is	iP		17	06	
		i			23	
	USCGS: El Salvador;					
	18:10:35, 200 km					
26	Is	iP	19	41	41	
		i		43	38	

Larger shocks of 1954

Epicenters, origin times, depths h in km, magnitudes, and energies E in ergs, determined by B. Gutenberg. M is the magnitude as given on earlier pages and in preceding issues of this bulletin, m is the unified magnitude, from which log E is calculated by the tentative equation

$$\log E = 5.8 + 2.8\ m$$

Date	Time	Lat.	Long.	h	M	m	log E
Jan. 12	14:20:26	48½ S	165½ E	normal	6¾	6.9±	22.4±
Jan. 13	00:13:10	48½ S	165½ E	normal	7	6.9	22.4
Feb. 1	01:06:54	24½ N	143¾ E	50±	7.1	7.1	22.8
Feb. 11	00:30:15	39 N	101½ E	normal	7¼	7.2	23.1
Feb. 19	19:07:48	30 S	177¾ W	40±	7	7.0	22.6
Feb. 20	18:35:05	6¾ S	124½ E	580	7	7.0	22.6
Feb. 22	12:03:36	57 S	26½ W	140	7	7.0	22.6
Mar. 3	06:02:57	5¾ S	142½ E	normal	7.0	7.0	22.6
Mar. 21	23:42:11	24½ N	95¼ E	180	7.4	7.4	23.6
Mar. 29	06:17:05	37.0 N	3.6 W	640	7.1	7.0	22.6
Mar. 31	18:25:47	12½ N	58 E	normal	7¼	7.2	23.1
Apr. 29	11:34:34	28½ N	113 W	normal	7	6.9	22.4
Apr. 30	13:02:37	39 N	22 E	normal	7	7.0	22.6
May 14	22:39:26	36 N	137 E	240	6.9	6.8	22.1
July 3	22:31:26	6½ S	105¼ E	80	7	6.9	22.4
Sept. 17	11:03:18	21½ S	177 W	250	7	6.9	22.4
Dec. 16	11:07:10	39.3 N	118.1 W	normal	7.1	7.0	22.6