ROYAL OBSERVATORY
10 FEB 1950
EDINBURGH

CALIFORNIA INSTITUTE OF TECHNOLOGY

PASADENA, CALIFORNIA

SEISMOLOGICAL LABORATORY BULLETIN

1949

(Pasadena and Auxiliary Stations)

Seismological Laboratory
220 North San Rafael Ave.
Pasadena 2, California

Pasadena Preliminary Bulletin No. 65

Unless otherwise noted, readings refer to first motion at Pasadena or Mt. Wilson

1949

Mar. 14	00 46 33, 03 14 10, 19 05 30
Mar. 16	15 15 40, 22 28 25 (S 22 39 32)
Mar. 17	03 15 56, 05 59 49 (pP 06 00 36), 21 18 23 (SKS 21 29 11, S 21 29 54), 23 07 32 (pP 23 07 47)
Mar. 18	03 35 40
Mar. 19	13 36 41, 15 01 49, 18 32 01 (pP 18 32 37)
Mar. 21	11 25 02, 15 29 03
Mar. 22	19 05 50, 20 05 08 (pP 20 05 43)
Mar. 23	06 50 15, 09 38 45
Mar. 24	20 59 15 (S 21 01 07), 23 47 18
Mar. 25	00 37 40, 02 09 04
Mar. 26	02 30 55, 19 53 01
Mar. 27	06 48 35 (P" 06 52 27, SKS 06 59 18, S 07 00 43), 11 58 44
Mar. 30	09 12 55, 14 59 33, 20 32 20
Mar. 31	21 53 19
Apr. 1	07 13 17
Apr. 2	19 14 25
Apr. 3	17 06 01
Apr. 4	13 22 24
Apr. 5	09 38 25 (pP 09 40 27, sP 09 41 25, S 09 47 51)
Apr. 6	06 16 40 (pP 06 17 12), 15 53 29, 23 58 52
Apr. 7	07 33 57
Apr. 8	08 30 25
Apr. 9	04 28 16
Apr. 10	04 59 09 (pP 04 59 26), 06 03 33, 17 57 30
Apr. 11	00 00 30, 01 43 37, 18 38 25
Apr. 12	02 07 54, 05 12 32, 07 30 06, 10 03 33
Apr. 13	14 13 17, 15 24 29, 19 58 52 (S 20 01 30)
Apr. 14	00 25 17, 07 46 05, 15 57 41, 17 14 15, 19 48 51
Apr. 15	00 46 46, 14 26 09
Apr. 17	00 54 00 (pP 00 54 29), 02 36 16, 17 44 25
Apr. 18	00 52 17, 21 30 33 (pP 21 30 58), 21 46 08
Apr. 19	00 38 46, 14 47 51 (pP 14 48 20), 15 29 47 (pP 15 30 00, S 15 38 19), 18 13 01 (pP 18 13 12)
Apr. 20	03 41 28 (pP 03 41 44, S 03 51 45)
Apr. 22	01 13 51, 17 28 18
Apr. 23	11 34 23
Apr. 24	04 41 37
Apr. 25	05 23 20, 11 27 36, 14 06 12 (pP 14 06 40, S 14 15 24) 15 57 01, 19 39 01
Apr. 26	10 24 10
Apr. 30	01 37 45 (pP 01 38 40, P" 01 41 45, SKS 01 48 14)
May 2	07 53 35, 11 26 24 (S 11 26 50)
May 3	06 07 08 (pP 06 07 41, S 06 15 35), 11 04 19, 15 04 34
May 4	01 35 59
May 5	06 30 54, 14 07 10
May 6	12 58 27 (pP 12 58 40), 14 42 42, 21 41 53
May 7	01 11 48 (pP 01 11 25), 12 42 24, 13 13 20
May 8	21 35 43 (pP 21 36 13, S 21 44 55)
May 9	13 55 32
May 10	00 28 56, 03 16 48, 14 23 13
May 11	14 16 17
May 12	07 24 02, 10 37 50

(continued)

No. 65 (continued)

May 14	23 43 23
May 15	06 40 27, 11 27 27
May 16	04 51 16
May 17	02 40 22, 04 14 35, 22 50 32, 23 25 39
May 20	08 24 06 (pP 08 25 00)
May 21	05 54 20, 07 55 05 (pP 07 55 20), 21 52 01 (S 22 01 46)
May 22	19 08 32
May 23	04 30 06 (pP 04 30 21), 05 37 20 (pP 05 37 35)
May 24	02 40 37 (pP 02 40 50), 12 01 51, 12 29 26, 13 54 03, 14 57 12, 15 51 18, 16 24 39 (pP 16 24 59, S 16 28 53), 19 11 09
May 25	07 24 41, 08 37 43, 23 44 46
May 26	05 21 45, 06 34 14
May 27	11 10 42, 17 30 58, 18 41 23, 20 00 37
May 28	16 13 56
May 30	01 44 07 (pP 01 44 31, S 01 53 23), 21 52 20 (S 22 02 00)
June 1	07 46 56
June 4	04 04 15, 07 11 06 (pP 07 11 17)
June 6	14 05 11, 22 59 12
June 7	05 33 57, 12 08 02
June 8	05 07 57
June 9	10 55 35, 21 30 03
June 10	06 23 56
June 11	07 41 43, 15 53 47
June 12	04 40 03, 18 03 38 (pP 18 05 42, S 18 12 57)
June 13	02 10 12, 06 53 22
June 14	05 56 48
June 15	01 55 53
June 16	02 50 29
June 17	04 39 24
June 19	12 34 50 (pP 12 35 20), 22 11 09 (pP 22 11 27)
June 23	22 39 37 (pP 22 40 22)
June 24	22 57 47
June 25	19 29 02
June 26	08 56 10, 14 16 56, 21 09 13, 21 31 12
June 27	23 25 53
June 28	20 19 03
June 29	17 15 31
June 30	01 35 42, 17 30 15, 20 04 24
July 1	03 38 19, 04 28 11
July 2	03 58 46, 11 46 31, 20 09 45 (S 20 20 08)
July 3	07 28 21, 07 49 00, 21 56 22
July 4	01 59 18, 10 53 03
July 5	03 49 37
July 6	19 57 55 (pP 19 58 09)
July 7	04 43 06
July 8	12 47 03, 18 28 53
July 9	15 11 11, 18 52 18
July 10	04 07 58 (PP 04 12 07, SKS 04 18 28, S 04 19 55. Distance 108°. Magnitude 7 3/4 to 8, 04 46 08 (small local shock felt in Los Angeles) 15 37 37, 16 07 14
July 11	09 42 19, 16 23 23 (pP 16 23 38, S 16 33 34)
July 12	08 13 14 (pP 08 13 40)

Data incomplete from this point

July 14	19 52 53, 23 32 54 (pP 23 34 32)	July 20	22 39 19
July 15	09 29 08	July 21	eP 08 12 09, (pP 08 12 36, sP 12 48)
July 16	10 03 43		
July 18	05 00 22, 05 11 49, 07 46 42, 08 39 36, 10 04 52		

Charles F. Richter July 22, 1949

Permanent Stations

	Lat. N. ° '	Long. W. ° '	h meters	Symbol	Auspices and date established
Pasadena	34 08.9	118 10.3	295	P, PX	California Institute (central station)
Mt. Wilson	34 13.5	118 03.4	1742	MW	Mt. Wilson Observatory; 1928
Riverside	33 59.6	117 22.5	250	R	City of Riverside; 1926
Palomar	33 21.3	116 51.6	1700	Pr	Palomar Observatory; 1939
La Jolla	32 51.8	117 15.2	8	LJ	Scripps Inst. (Univ. of Calif.); 1927
Sta. Barbara	34 26.5	119 42.9	100	SB	Santa Barbara Museum; 1927
Haiwee	36 08.2	117 57.9	1100	H	City of Los Angeles; 1929
Tinemaha	37 05.7	118 15.5	1180	T	City of Los Angeles; 1929

Temporary Stations
(In operation, October 1949)

Perris	33 46.8	117 14.0	440	Pe	Perris Grammar School; April 28, 1949
Pomona	34 05.9	117 42.6	350	Po	Pomona College; February 2, 1949
Crestline	34 14.6	117 15.7	1400	Cr	Club San Moritz; May 19, 1949
China Lake	35 49.0	117 35.8	766	CL	California Institute; July 8, 1949
(Discontinued)					
Desert H. S.	33 57.7	116 30.0	330	DHS	Desert Hot Springs Chamber of Commerce Dec. 10, 1948 - March 24, 1949
El Cajon	32 47.6	116 57.3	135	EC	Southern Calif. Telephone Company July 26 - Aug. 16 1949

All work of measurement and interpretation of seismograms is carried out at the central station, to which all communications should be addressed, as follows:

Seismological Laboratory
220 North San Rafael Avenue
Pasadena 2, California

In the colums headed "Sta." P denotes readings for short-period instruments, and PX for long-period instruments, all at Pasadena.
Henceforth times will not be reported for La Jolla, Santa Barbara, Haiwee or the temporary stations, unless of exceptional interest, as for local shocks.
Times will normally be given either for Pasadena or for Mt. Wilson, but not for both.
Occasionally some readings of later phases at Mt. Wilson may be inserted among those of the same shock at Pasadena, without special designation.
The three components are indicated by N, E, Z. When no such letter appears the phase is read from the vertical-component seismogram only.
c = compression; d = dilatation
All times are G. C. T.
When surface waves are not reported for Pasadena they are either not found or are very small.
Data under headings A and T refer to the maximum amplitude of computed earth displacement, and the period in seconds, of the indicated phase. H designates combined amplitude of N and E components.

All permanent stations except Palomar are equipped with a pair of horizontal-component Wood-Anderson torsion seismometers and a short-period vertical-component Benioff seismometer. Pasadena also has long-period seismometers; and other instruments of several types. Palomar has a three-component short-period Benioff seismometer unit. The temporary stations have Benioff vertical-component instruments.

Earthquakes in the local Southern California region are regularly reported in this Bulletin only if of magnitude 5 at least. Smaller shocks are included when of special interest.

Date	Sta.	Phase	h m s
		January	
1	P	iPEZ	01 18 54
		eSNE	19 41
	SB	iPNZ	18 41
	H	ePE	46
		iSE	19 27
	T	iP	18 39
		iSE	19 14
	Magnitude 4.5. Near Santa Cruz		
	0 = 01:17.9		
1	P	iP	03 11 37
		i	43
	R	iP	41
	Pr	iP	47
	T	iP	21
1	P	iP	19 56 22
	Pr	eP	27
2	P	iP	00 22 56
	Pr	iP	59 d
		ipP	23 17
	T	iP	06
		epP	22
	Near Apia		
2	P	i	05 03 07
		e	05 22
		e	06 26
	Pr	e	03 22
		i	05 48
	T	e	03 04
		e	06 22
	East Indies		
2	P	iPNEZ	09 01 55 c
		ipP	02 43
		i	50
	PX	eSNE	11 58
		iNEZ	12 02
		iEZ	58
		eLN	24
			A T
		PZ	1/2 1 1/2
		SH	4 6
	Pr	eP	02 00
		ipP	47
	T	iPNE	01 50
	USCGS: 23 N 143½ E, 0 = 08:49.4		
	BCIS: 21½ N 143¼ E, 0 = 08:49:47, h = 250 km.		
	CMO: 23.2 N 146.0 E, h = 150 km.		
2	P	iP	22 05 18
	T	iPEZ	04 25
		iSE	06 20
	Magnitude 4.5		
	Felt in Nevada		
3	P	iPNEZ	13 44 07
		iSN	27
	R	iPNEZ	02
		iSNE	17
	Pr	iPNZ	08
	T	iP	19
	Magnitude 4.8		
	34° 57' N 116° 30' W		
	0 = 13:43:59		
	Felt at Pisgah, California		
		January	
4	P	iP	07 40 39
		i	43
		ipP	58
	Pr	iP	43
		ipP	41 02
	T	iP	40 45
		ipP	41 05
5	P	iP	09 09 15
	Pr	iP	19
6	P	iP	00 39 22
	Pr	iP	26
7	P	iP	09 59 27
	Pr	iP	29
7	P	eP	15 23 35
		e	55
	Pr	eP	24
7	MW	eP	17 34 03
7	P	eP	18 06 21
7	Pr	iP	20 11 57
8	MW	eP	19 40 48
		i	41 04
		iS	42 06
	T	ePNE	40 16
		eSE	41 07
8	MW	iP	23 40 53
	Pr	iP	43
8	P	iP	07 56 16
	Pr	iP	05
	USCGS: 5 N 82½ W, 0 = 07:48.1		
9	P	iP	10 46 05
		i!NEZ	07
		i(pP)	19
	PX	iSE	55 27
			A T
		PZ	1 1/2 1 1/2
	R	iPNE	46 04
	Pr	iPNZ	00
	T	iPNE	20
	JSA: 22 S 66 W, 0 = 10:34:54, h = 250 km.		
10	P	iP	14 45 12
13	P	iPNEZ	08 59 04
		ipP	09 01 21
	PX	iSNE	08 44
		iNE	12 44
			A T
		PZ	0.4 1
		SH	6 7
	R	iP	08 59 05 d
		ipP	09 01 27
	T	ePNE	08 59 13
		iSN	09 09 02
	USCGS: 25 S 179 E, 0 = 08:47.5, h = 600 km.		
13	P	iP	09 11 51
	R	iP	53
	Aftershock		

Date	Sta.	Phase	h m s
		January	
14	P	iPNEZ	01 16 32 d
		i(PcP)	48
		e(pP)	18 00
		i	15
			A T
		PZ	1 1/2 1 1/2
	R	iPEZ	16 35 d
		e(pP)	18 05
		i	12
	T	ePNE	16 35
14	MW	eP	12 25 16
		i	23
	R	e	21
14	P	e	21 08 57
	MW	e(P)	38
	R	e(P)	47
	T	e(P)E	28
14	P	iP	23 09 53
	R	iP	48
15	P	iP	02 03 19
	R	eP	21
	T	ePE	28
	Near Apia		
18	P	iP	04 55 42 c
	T	ePE	58
	USCGS: 41 S 92 W, 0 = 04:43.7		
18	P	eP	12 43 11
	H	eP	06
19	P	eP	15 13 45
	PX	eLN	40.7
	T	ePE	13 37
	BCIS: near Formosa? 0 = 15:00.3		
20	P	eP	08 00 54
		iSE	02 13
	H	iPEZ	00 37
		iSEZ	01 29
	T	iPN	00 21
		iSE	01 01
	Felt at Reno, Nevada		
20	P	iP	13 37 23
	CMO: 35.6 N 134.6 E		
	BCIS: 0 = 13:25.0		
21	P	eP	15 33 51
22	P	iP	01 59 46
	H	iP	54
	Near Apia		
22	P	eP	05 46 20
		e	47 34
	PX	eLEZ	06 23
	BCIS: New Hebrides, 0 = 05:34.4		
22	P	eP	12 02 26
		i	39
23	P	iP'EZ	06 50 37 c
		i	51 17
		i	52 46
	PX	iPPEZ	53 56
		eSSNE	07 12.8
		eGNE	30.8
		(continued)	

Date	Sta.	Phase	h m s
		January (continued)	
23			A T
		P'Z	4 1
		PP4	2 3
		MH	10 20
	R	eP'NE	06 50 40
	H	iP'	35 c
	Magnitude 7-7½, distance 140°		
	USCGS: 9S 94 E, 0 = 06:31.2, h = 100 km.		
23	P	iP	16 52 51
24	P	iP	01 37 48
		e(pP)	38 05
	H	iP	37 43
24	MW	eP	05 15 36
		i	47
24	P	iPNEZ	09 27 39 d
		e	28 04
		iNEZ	11
	PX	i(S)NE	37 30
		iNE	38 02
		eSSNE	42 29
		eGNE	48.1
	P	iP'P'	54 45
			A T
		PZ	2 1
		PH	2 3½
		(S)H	8 10
	R	ePNE	09 27 42
	H	iPEZ	47
		iP'P'	54 44
	Magnitude 6 3/4±		
	Felt at Nukualofa		
	USCGS: 22 S 176 W, 0 = 09:15.7, h = 100 km.		
	BCIS: 23.5 S 176 W, 0 = 09:15:39, h = 100 km.		
25	P	iPNEZ	08 00 21 d
	LJ	iP	10
	T	iP	35 d
	JSA: 11.5 N 85 W, 0 = 07:53:06		
27	MW	eP	02 54 20
		i	29
	T	eP	23
27	MW	e?	03 44 18
		i	29
	T	e	24
27	P	eP	07 31 21
		i	30
		iPPEZ	35 02
	PX	eE	41 58
		eSSE	48.3
		eGN	56.1
			A T
		PZ	1/2 1
		MH	16 20
	T	eP	07 31 35
	Magnitude 6½		
	USCGS: 3 S 152 E, 0 = 07:18.2		

Date	Sta.	Phase	h m s
		January	
27	P	iPEZ	11 09 45 d
	PX	eSE	17 39
	T	iP	09 32
	USCGS: 55 N 164 E, 0 = 11:00.0		
27	P	eP	15 11 46
	PX	ePP	15 20
		ePSE	23 56
		eLN	36.8
	T	eP	11 48
	Magnitude 6		
	USCGS: 3 S 152 E, 0 = 14:58.6		
27	P	iP	22 49 13
28	P	e	07 49 47
	T	e	49 43
28	P	iP	08 28 32 c
		i	38
		eP'P'	57 44
			A T
		PZ	1/4 1 1/2
		MH	5 20
	R	ePE	28 28
	T	iP	27 c
	Magnitude 6		
	USCGS: 27.3 N 47.4 W, 0 = 08:18.4		
	BCIS: 28 N 43 3/4 W, 0 = 08:18:04		
28	P	iP	23 39 26
		i	44
	T	iP	18
31	P	iPNZ	15 04 40 d
	T	iP	52
	Andes? Deep?		
31	MW	ePZ	23 42 35
		i(pP)	43 00
	H	eP	42 42
		i	43 07
	T	i	09
	Felt at Apia		
		February	
1	MW	eP	14 26 51
	H	eP	32
1	P	eP	18 30 07
		e	33 35
	PX	iPPNE	34 34
		iSKSNE	40 50
		iNE	42 08
		eGN	59.1
			A T
		MH	12 20
	USCGS: 2 1/2 S 138 E, 0 = 18:15.9		
	BCIS: 4 S 135 E, 0 = 18:15.9		
2	P	iP	10 52 00
	R	eP	00
	T	iP	08
2	P	iPNEZ!	17 49 12 c
		i	21
		i	29
		ipPEZ!	50 03 c
		isP	22
		iPcP	52
		iScPNEZ!	54 29
		(continued)	

Date	Sta.	Phase	h m s
		February (continued)	
27	PX	iSNEZ	17 55 23
		iScSNEZ	58 49
			A T
		PZ	5 1
		PH	3 3
		SH	5 4
	R	iPNEZ!	49 16 c
		i	28
		ipP	50 09
		iScPNEZ	54 31
		iScSNEZ	58 53
	T	iPNEZ!	48 58 c
		ipP	49 52
		i ScPNEZ	54 23
		iSNE	59
		iScSNEZ	58 41
	Magnitude 7 1/2		
	USCGS: 53 N 172½ W, 0 = 17:41.5 h = 200 km.		
3	MW	eP	16 40 56
	R	iP	59
	T	iP	41 07
	BCIS: 15 S 180		
5	P	iPNEZ	00 57 39 c
	R	iP	38 c
	T	iPNEZ	47 c
	Near Apia		
5	P	iP	08 01 11
	T	iP	00 56
5	P	eP	20 26 39
	R	eP	35
	T	iP	43
	USCGS: 19 N 70 W, 0 = 20:18.4		
6	MW	iP	04 06 39
	T	iP	51
6	P	iPNEZ	09 28 43 d
		ipPEZ	29 27
	PX	iSN	38 52
		eLN	50
			A T
		PZ	2 2
		SH	1/2 3
	R	iP	28 46 d
		ipP	29 29
	T	iPNEZ	28 41 d
		ipP	29 22
		iPP	31 55
	Marianas, h = 170 km.		
7	MW	e	02 59 14
8	T	iP	04 40 05
		i	24
	West Indies		
	BCIS: 0 = 04:31.7		
10	P	iPEZ	22 08 04 d
		iNEZ!	07 d
		i	52
	PX	iSNEZ	17 27
		eGNE	26.7
			A T
		PZ	3/4 3
		SH	2 3
		MH	40 20
		(continued)	

Date	Sta.	Phase	h m s
		February (continued)	
10	R	ePNE	22 08 08
	T	ePNE	16
		Magnitude about 6 3/4	
		USCGS: 16 S 173 W, 0 = 21:56.6	
		BCIS: 15 S 173 W, 0 = 21:56.6	
11	P	eP	04 02 06
11	P	iPNZ	07 34 58
		i	35 17
	PX	eLN	56
	T	ePNE	35 18
		JSA: 35 S 108.5 W, 0 = 07:23:50	
11	P	iP	07 48 40
11	P	iPNEZ!	21 06 09 d
		iSN	54
	R	iPNEZ	11 d
		iSE	59
	H	iPNZ	05 39 d
	T	iPNEZ!.	29 d
		Magnitude 5.6	
		USCGS: 37.0 N 117.8 W,	
		0 = 21:05:22	
		Felt in Nevada and central	
		California	
13	P	eP	12 20 02
	T	iP	14
13	P	iPNEZ!	18 37 07 c
		ipP	19
	PX	iPPE	40 39
		eSKSE	47 30
		eSSN	52.8
		eGN	19 00.4
	P	eP'P'	02 41
		A	T
		PZ 2	1
		PH 1 1/2	3
		MH 40	20
	R	ePNE	18 37 09
	T	iPNEZ	15
		ipP	30
		i	42
		Magnitude 7, h = 50 km.	
		USCGS: 33½ S 177½ W,	
		0 = 18:24.3	
13	P	iPNEZ	20 54 32 d
		i(pP)	49
		i	55 00
		i	14
	T	iPNEZ	54 43 d
		i(pP)	58
		i	55 12
		i	27
		BCIS: 20 S 68 W, 0 = 20:43.1	
14	P	iPNEZ	16 37 04 c
		i(PcP)	11
		ipP	34
		iPP	40 26
		A	T
		PZ 0.4	1
		(continued)	

Date	Sta.	Phase	h m s
		February (continued)	
14	T	iPNEZ	16 37 10 c
		i(PcP)	17
		i(pP)	48
		iPP	40 35
		BCIS: 14 S 166 E, 0 = 16:24.3	
14	P	iPNEZ	18 12 03
	PX	iSE	15 54
		A	T
		PZ 1/2	1
		PZ 3	5
		PH 3	4
		SH 16	11
		MH 60	15
	R	ePNE	12 04
	T	iPNEZ	29
		Magnitude 6 1/2	
		USCGS: 18½ N 105 W, 0 = 18:07.5	
14	MW	e	19 01 00
	T	e?	00 36
		BCIS: 16 N 123 E, 0 = 18:42.1	
14	P	eP	19 28 59
	T	e	29 28
		USCGS: 18½ N 105 W, 0 = 19:24.6	
14	MW	e	20 46 15
	T	eP	46
14	P	eP	22 39 53
	T	eP	42
		BCIS: 51¼ N 28½ W, 0 = 22:29:16	
15	P	ePNEZ	03 56 51
	PX	iNZ	58 35
		eLNE	04 02.8
	T	ePNEZ	57 18
		e	58 45
		JSA: 17.9 N 104.5 W, 0 = 03:52:20	
15	P	eP	06 48 38
	PX	eL	56
	T	eP	48 58
15	P	eP	07 43 52
	T	eP	44 06
15	P	iPNEZ	12 00 15 c
	T	iPNEZ	03 c
15	P	iPNEZ	14 17 19 C
		ipP	27
	T	iPNEZ	24 c
		ipP	31
		USCGS: 19 N 70 W, 0 = 14:09.0	
16	P	iPNEZ	11 49 56 c
		A	T
		PZ 3/4	1
		L small	
	R	ePE	59
	T	iPNEZ	50 01 c
		BCIS: near 14 S 166 E,	
		0 = 11:37.2	
16	MW	eP	12 53 13
		i	54 08 c
	T	iP	53 10
		i	54 02

Date	Sta.	Phase	h m s
		February	
16	P	iP	17 48 08 d
	T	iPNEZ	20
17	MW	eP?	03 47 52
	T	eP	48 02
		Near Apia	
17	P	eP	05 28 51
	T	eP	56
17	P	iP	08 55 53
	T	iP	59
17	P	eP	09 56 53
	T	iP	59
17	P	eP	20 36 26
		e(pP)	40
	T	eP	34
		i(pP)	48
		Near Apia	
18	P	iPNEZ	05 16 13 d
	PX	eLNE	21.4
	T	iPNEZ	16 37
		Off Mexico	
18	P	iPEZ	09 09 55
	PX	eLE	33.1
	R	ePE	09 49
	T	iPEZ	58
		USCGS: 19 N 69½ W, 0 = 09:01.6	
18	P	iP	13 05 22
	T	iP	24
19	P	iPNZ	01 08 15 c
		ipP	28
		ePP	11 44
	PX	eLN	31.2
		A	T
		PZ 0.4	1
	R	ePE	08 18
		epPE	32
	T	iPNEZ	19 c
		ipP	35
		h = 50 km.	
		BCIS: 14 S 169 E, 0 = 00:55.6	
19	P	iPNZ	02 37 55 c
	T	iPNEZ	38 04 c
		Near Apia	
19	T	iP	20 31 16
		i	33
20	P	iPNEZ	10 21 30 c
		ipP	51
	T	iPNEZ	16
		ipP	34
21	P	ePNZ	11 51 23
	T	eP	16
		BCIS: 5.8 N 39.5 W, 0 = 11:39:21	
22	P	e	10 33 08
	MW	eP	27 00
		e	33 08
	T	iP	27 09
		e	33 09
		Two shocks?	

Date	Sta.	Phase	h m s
		February	
23	P	iPNEZ	04 34 28
		iSE	35 19
	R	eP	34 09
		i	22
	Pr	iP	33 56
		Gulf of California	
		Magnitude 4½	
		Aftershock at 08^h15^m following	
23	MW	iP	05 04 41
	Pr	iP	40
	T	iP	49
23	R	eP	09 12 51
	T	iP	27
23	P	iP	16 22 04
		i	58
		e	25 36
		iPP	26 15
	PX	eSKSN	32 50
		iPSNE	35 20
	P	ePKKP	38 08
	PX	eSSNEZ	40.4
		eLNEZ	45
		A	T
		PZ 0.1	2
		PZ 1	14
		PPZ ¼	2
		PPZ 1½	15
		MH 35	20
	R	eP	22 04
		ePKKP	38 13
	Pr	eP	22 05
	T	iP	21 52
		Magnitude 7	
		USCGS: 39½ N 85 E, 0 = 16:07.9	
		BCIS: 42.5 N 84 E, 0 = 16:08.2	
23	P	iPEZ	20 12 20 d
		i(pP)	39
	R	iP	24 d
		i(pP)	41
	Pr	iP	29 d
	T	iPNEZ	11 59 d
		i	12 24
23	P	eP	21 08 48
	R	eP	52
	Pr	e(P)	49
	T	eP	50
		i	57
24	MW	eP	02 58 10
	R	eP	13
	Pr	iP	18
	T	iP	57 55
24	T	e	09 06 54

Date	Sta.	Phase	h m s
		February	
24	MW	iP	10 35 21
		ipP	38
	R	iP	18
		ipP	35
	Pr	eP	12
		ipP	29
	T	iPNEZ	38
		ipP	55
	South America		
24	MW	eP	11 45 21
	R	eP	15
	T	eP	32
24	P	iP	11 51 44
		iSNEZ	53 21
	R	eP	51 51
	T	iP	22
		iSNEZ	52 52
25	P	iPEZ	02 28 52
		iEZ!	29 01
		iSN	31
	R	ePEZ	59
		i	29 09
	SB	iP	28 41
		iSN	29 17
	H	iP	28 40
	T	iPNEZ!	37 c
		iSNE!	29 03
	Coast Range. Magnitude 4½		
26	MW	eP	04 13 53
	Pr	e(P)	56
	T	eP	43
26	P	iP	18 13 28
	R	eP	29
	Pr	eP	34
	T	iP	04
27	P	iPNEZ	13 37 59 d
		iNEZ	38 06
		iSE	39 39
	R	iPNEZ	38 06 d
		iNEZ	13
	Pr	i(P)	16
		iN	20
	SB	eP	37 50
	T	i(P)	41
		eNE	44
		eSNE	39 02
	Magnitude 5.0		
	Berkeley (Romney) 41.2 N. 125.2 W, 0 = 13:35:47		
27	P	iP	21 52 28
	R	iP	30
	Pr	iP	30
27	R	iP	22 02 01
		i	03 19
	Pr	i(P)	02 06

Date	Sta.	Phase	h m s
		February	
28	P	iP"	00 31 54
		i	33 01
	PX	iSSNE	49.5
		eLN	01 03
	R	iP"	00 31 54
		e	33 05
	Pr	eP"	31 48
		e	32 53
	T	iP"	01
		e	33 29
	USCGS: 58 S 27 W, 0 = 00:12.8		
	BCIS: 56¼ S 29½ W, 0 = 00:13.1		
28	P	iP	04 11 13
		i	12 14
	R	eP	11 16
	Pr	iP	16
	T	iP	23
	Near Apia		
		March	
2	T	e	00 14 49
2	MW	iP	02 30 17
	R	iP	13
	T	iP	30
2	P	iP	07 05 16
		i	25
	R	eP	17
		e	29
	T	iP	00
	USCGS: 72 N 3 W, 0 = 06:54.6		
2	P	iP?	19 14 31
	T	iP	45
3	P	iP	04 51 06
	R	iP	08
	Pr	ePNZ	12
	T	iP	50 59
3	P	i(P)	06 00 55
		i(S)	01 53
	R	eP	00 46
		iS	01 47
	Pr	ePN	00 41
		i(S)N	01 23
	Gulf of California?		
	Magnitude 4.5		
4	P	iP"	01 36 12
		i(pP")	29
		iSKP	39 34
	PX	eLNE	56
		A	T
		P"Z	1½ 2
		pP"Z	2 2
	R	eP"	36 13
		i	30
		iSKP	39 37
	Pr	eNZ	36 26
	T	iP"	01
		i	31
		iSKP	39 30
		i	55
	BCIS: 3½ S 102½ E, 0 = 01:17.1 h = 100 km.		

Date	Sta.	Phase	h m s
		March	
4	P	iP	08 31 52 d
	R	iP	55 d
	Pr	iPNZ	57
	T	iP	59
	BCIS: 18 S 168½ E, 0 = 08:19.1		
4	P	iP	10 33 32 c
	PX	ipP	34 32
		esP	47
		e	36 41
		iP"	37 31
		e	51
		iPPNEZ!	38 13
		isPP	39 08
	P	i	25
		e(PPP)	40 24
		i	41 21
		i	43 33
	PX	iSKSNZ	48
		i(SKKS)NE	44 46
		e(SPP)	48 00
		iNZ	21
	P	iPKKPNEZ!	40
	PX	iE	56
	P	i	57
		e	49 47
		i	53 44
		i	56 33
		iP"P"	57 04
		iSKPP!	11 00 20
	PX	eGE	03.9
		A	T
		PZ	1 2½
		pPZ	1 4
		PPZ	15 6
		PPZ	15 2½
		PPH	7 6
	R	eP	10 33 34
		iP"	37 36
		iPP	38 10
		iPKKP	48 40
		iP"P"	57 03
		iSKPP!	11 00 20
	Pr	ePNZ	10 33 38
		iPKKP	48 38
		e	53 37
		iP"P"	57 02
		eSKPP!	11 00 15
	T	iPNZ	10 33 20 c
		iP"	37 31
		i	43 49
		iPKKP	48 50
		i	50 05
		i	52 10
		i	53 59
		eP"P"	57 08
		e	59 26
	Magnitude 7½		
	USCGS: 37 N 70 E, 0 = 10:19.4 h = 200 km.		
	BCIS: 36.5 N 70.5 E, 0 = 10:19:26 h = 220 km.		

Date	Sta.	Phase	h m s
		March	
4	P	iP	18 59 50
	R	iP	52
	Pr	iP	52
	T	iP	59
5	P	iP	01 51 35
		i	41
	R	eP	36
		i	43
	Pr	eP	41
		e	48
	T	iP	35
6	P	iP	05 29 14
		i	28
	R	eP	18
		i	32
	T	eP	03
7	MW	eP	03 49 20
	R	eP	23
		i	32
		i	50 37
	T	eP	48 57
		i	49 04
		i	50 13
7	P	iP	14 49 26
		i	34
		i	50 01
	R	iP	49 27
		i	38
	Pr	iP	32 d
	T	iP	31 d
		i	39
		e	50 09
7	R	eP	10 00 09
	T	eP	12
8	P	eP	06 49 35
	R	eP	35
	Pr	ePNZ	42
	T	iP	56
9	P	iP	12 29 39
		iSNE	30 23
	SB	iPNEZ	29 26
		iSN	30 04
	H	iP	29 27
		iSNE	30 15
	T	iPNEZ	29 23
		iSNE	57
	Magnitude 5.3		
	USCGS: 37.1 N 121.3 W, 0 = 12:28:39		
	VII at Hollister, California		
9	MW	eP?	15 02 26
	R	eP	25
	T	eP	29
		e	52

Date	Sta.	Phase	h m s
		March	
9	P	iP	15 06 46 d
		ipP	07 25
	R	iP	06 49
		ipP	07 27
	Pr	ePNZ?	06 47
		iNZ	49 d
		ipPNZ	07 27
	T	iP	06 56 d
		ipP	07 35
	Felt at Apia		
	USCGS: 14 S 176 W, 0 = 14:55.3		
	BCIS: 16½ S 174½ W, 0 = 14:55.3		
			h = 150 km.
10	R	eP?	04 17 53
	Pr	eP	45
	T	eP	18
12	P	iPEZ	19 34 32 c
		i(pP)	39
		i	49
	R	iP	36 c
		i(pP)	41
	Pr	iPNZ	42 c
	T	iPNEZ	11 c
		i(pP)	19
		ePcP	37 01
		eScP	40 45
	BCIS: 61 N 148 W, 0 = 19:27.9		
13	P	eP	09 40 17
		e	59
	R	eP	13
		e	55
	T	iP	30
13	P	eP	12 24 22
	R	eP	26
	T	iP	17 c
13	P	eP"	12 54 09
		i	21
		e	45
		eSKP	57 36
	R	eP"	54 19
	T	eP"	09
		e	22
		eSKP	57 24
	Felt in East Java, Bali, and Lombok (Batavia)		
13	P	iPNEZ	18 54 25 d
		i	41
		ipPNEZ!	54
		i	55 09
	PX	iSE	19 03 45
		isSNE	04 36
		A	T
		PZ	1 1½
		pPZ	3/4 1
		SH	1 2
	R	iPNEZ	18 54 22 d
		i	43
		ipP	53
		i	55 07

(continued)

Date	Sta.	Phase	h m s
		March (continued)	
13	Pr	iPN	18 54 20
		ipPN	51
	T	iPNEZ	36
		i	48
		ipPNEZ!	56
		i	55 07
	USCGS: 21½ S 68 W, 0 = 18:43.0		
			h = 100 km.
	BCIS: 20.0 S 68.5 W, 0 = 18:43:00,		
			h = 100 km.
14	MW	eP	00 46 33
	R	eP	39
	T	eP	15
14	P	eP	03 14 10
		i(pP)	25
	R	eP	14
		i(pP)	29
	Pr	eN	28
		iN	39
	T	iP	13 54
		i(pP)	14 10
14	P	ePNEZ	06 11 14
		iSNZ	12 01
	R	ePNZ	11 22
		i(S)	12 10
	SB	iP	11 00
		eSE	32
	T	iPNEZ	10 58
		iSNE	11 30
	Magnitude 4.7		
14	MW	eP?	19 05 30
	T	eP	39
	Near Apia		
16	P	eP	15 15 40
	T	eP	23
16	P	iPNEZ	22 28 25 c
		ePP	32 05
		eSE	39 32
		iPSNE	40 49
		eLN	53.4
		A	T
		PZ	3 2
		PH	1½ 2
		MH	30 20
	R	iP	28 29
	Pr	iPN	31
		eN	49
		e(S)N	38 58
	T	iPNEZ	28 26 c
		i	42
	Magnitude 7-7¼		
	USCGS: 6 S 151½ E, 0 = 22:15.1		
17	P	e	03 15 56
	R	e	58 c
	T	i	57
17	MW	iP	05 52 02
	T	iP	10

Date	Sta.	Phase	h m s
		March	
17	MW	eP	05 59 49
		e	06 00 36
	R	eP	05 59 45
		e	06 00 34
	T	eP	00
17	MW	e	07 31 52
		e	32 24
	R	e	25
	T	e	31 50
		e	32 23
17	MW	eP	08 47 09
	R	eP	11
	T	iP	10
17	MW	eP	10 28 37
	R	eP	40
	T	iP	37
17	P	iPNEZ	21 18 23 c
		i(pP)	38
		iPP	22 04
		e(SKS)	29 11
		iS	54
		iPS	30 37
		eSS	35.3
		eG	43.6
		A	T
		PZ	1½ 1
		PH	3/4 1
		PPZ	1½ 6
		Max	30 20
	R	iPEZ	18 26 c
		i(pP)	45
	Pr	iPN	31
		iN	56
	T	iPNEZ	25 c
		i	41
	Magnitude about 7		
	USCGS: 6 S 151.5 E, 0 = 21:05.1		
17	P	eP	23 07 32
		i	47
	R	eP	35
		e	50
	T	eP	34
		i	38 02
18	P	eP	03 35 40
	R	eP	43
	T	eP	30
19	P	eP	13 36 41
19	P	eP	15 01 48
	T	iP	59
19	P	iP	18 32 01
		epP	37
	R	eP	05
		epP	44
	T	iP	31 53
		ipP	32 32
	CMO: 30.8 N 131.7 E, h = 60 km.		
	BCIS: 31.4 N 129.8 E, 0 = 18:19:24,		
			h = 150 km.
20	T	eP	10 00 32

Date	Sta.	Phase	h m s
		March	
20	P	iPNEZ	19 35 14 d
		iSNE	31
	R	iPNEZ	11 d
		iSNE	25
	H	iPNZ	12 c
		iSN	28
	T	iPNEZ	25 d
		iSNE	55
	Magnitude 4.4		
	Felt at Hinkley, California		
	35°08' N 117°15' W, 0 = 19:34:50		
21	P	eP	11 25 01
	R	eP	07
	T	e(P)	24 23
		e	29
21	MW	eP	15 29 03
	R	eP	28 46
	T	eP	29 09
21	P	e	17 26 58
		e	27 07
	T	e	26 00
22	P	iP	12 49 01 c
	T	iP	09 c
	Near Apia		
22	P	iP	19 05 50
	R	iP	48
	T	eP	06 09
22	P	iP	20 05 08
		ipP	33
		isP	43
	R	iP	05 d
		ipP	30
		isP	41
	T	iP	21 d
		ipP	48
		isP	57
23	T	iP	04 16 54
		e	17 28
23	P	eP	06 50 15
	R	eP	18
	T	eP	30
	BCIS: 3 S 142½ E, 0 = 06:36.6		
23	P	iP	09 38 45
		i(pP)	39 00
	R	iP	38 39
	T	iP	47
		i(pP)	59
	JSA: 19 N 70 W, 0 = 09:30:18		
24	P	iPNEZ	20 59 15
		iSNEZ	21 01 08
		A	T
		PZ	1 1
		SH	¼ 3/4
		MH	150 12
	R	iP	20 59 22
	Pr	iPN	33
	SB	eP	07
	H	eP	00
	T	ePEZ	58 50
		iSEZ	21 00 32
	Felt in northwestern California and southeastern Oregon		
	Magnitude 6-6¼		
	USCGS: 42 N 126½ W, 0 = 20:56.8		

Date	Sta.	Phase	h	m	s
		March			
24	MW	iP	21	43	14
	R	iP			22
	H	eP		42	55
	T	iP			52
		iS		44	30
	Aftershock				
24	MW	eP	23	47	18
	R	iP			14
	T	iP			30
		i(pP)			58
25	P	iPNEZ	00	37	40
		iSE		39	29
	R	iP		37	46
	SB	eP			30
	T	iP			16
		iS		38	55
	Aftershock of 24d 20h				
25	P	iP	02	09	04
	R	iP			11
	T	eP		08	44
		eS		10	14
	Aftershock				
26	P	eP	02	30	55
	PX	eLNE		33	.7
			A		T
		MH	10		11
	Pr	ePN		30	38
	T	ePNEZ		31	29 d
		i			50
	JSA: 25.5 N 109.6 W, 0 = 02:28:09				
26	T	eP	05	07	51 d
		Aftershock			
26	T	eP	16	30	55
		e		31	04
26	T	iP	16	38	52
		i		39	43
26	MW	iP	19	53	01
		i			13
	R	iP			05
		i			17
27	P	iP	02	20	42
	R	iP			46
	Pr	iP			44
	T	iP			49
27	P	eP	06	48	35
		iP			41
		eP"		52	27
		i(PP)			44
		ePPP		55	09
	PX	eSKSE		59	18
		iSN	07	00	43
		iPS		02	03
		iPPSE		03	18
	P	ePKKP			52
	PX	eSSE		07	.6
	P	eP'P'		11	50
	PX	eSSSN		12	.4
		iLN		18	.7
			A		T
		PPZ	1		1
		Max	50		20

(continued)

Date	Sta.	Phase	h	m	s
		March (continued)			
27	R	e	06	48	44
		ePKKP	07	03	56
	T	eP	06	48	20
		eP"		52	43
		iPP		53	03
		ePKKP	07	03	59
	Magnitude about 7¼				
	USCGS: 4 N 127½ E, 0 = 06:34.1				
	BCIS: 3.0 N 127.6 E, 0 = 06:34:01				
27	Pr	eP	08	27	50
		e		28	06
27	P	iPEZ	11	58	44
		i		59	00
	R	iP		58	47 c
		i		59	02
	Pr	eP		58	47
	T	iPEZ			46 c
	Off New Britain?				
	BCIS: 0 = 11:45.4				
28	R	e	19	45	50
30	P	iP	03	15	13
	R	eP			17
	Pr	iP			18
	T	iP			25
	Near Apia				
30	Pr	iP	05	36	14
30	Pr	iP?	08	59	59
	T	eP	09	00	07
30	MW	iP	09	12	55
	R	eP			57
	Pr	iP			59
	T	eP		13	00
30	P	eP	14	59	33
	PX	eLNE	15	18	.7
	R	eP	14	59	36
	Pr	iP			36
	T	eP			40
	USCGS: 16 S 176½ W, 0 = 14:47.2				
	BCIS: 17 S 178½ W, 0 = 14:47.8				
	Magnitude 6¼				
30	P	i(P)	20	32	23
		i			33
	MW	i(P)			23
		i			30
	R	i(P)			27
		i			35
	Pr	i(P)			35
	T	iP			47
		i!			55
		i		33	01
31	P	iPNZ	21	53	19
		ipP			40
	R	iP			22 c
		ipP			43
	Pr	iPNZ			26
	T	iPNEZ			20

C. F. Richter
Marion Reid
December 15, 1949

ROYAL OBSERVATORY EDINBURGH

Date	Sta.	Phase	h m s
		April	
1	P	iPNZ	07 13 17 c
	R	iP	13 19
		epP	15 28
	Pr	iPNZ	13 20 c
		epP	15 13
	T	iPNEZ	13 25 c
		ipP	15 35
	Tonga region, h = 600 km.		
1	P	eP	08 42 29
		i	49
		eSN	44 13
	R	eP	42 21
		iSNE	44 03
	Pr	ePNZ	42 16
		iNZ	27
		iSN	43 34
	T	eP	02
2	P	eP	09 19 30
		i	36
	R	eP	37
		i	43
	Pr	eN	56
		eN	20 11
	T	eP	19 03
		e	09
2	P	iP	15 50 01
	R	eP	02
	T	iP	10
2	P	iP	19 14 25
		i	15 01
	R	eP	14 28
	T	iP	35 d
		i	14 11
	Felt at Apia		
2	R	e(P)	23 57 20
	T	eP	37
3	P	iP	17 06 01
		i	08
	R	eP	05 54
		i	06 03
4	T	eP	00 40 17
4	P	eP	13 22 24
	R	eP	21
	Pr	ePN	18
	T	eP	36
5	R	e	03 31 21
	T	eP	00
5	P	iPNEZ	09 38 26 c
		i	45
		ipP	40 26
		i	57
		esP	41 25
		e	36
		iPP	47
	PX	iSNE	47 51
		isSE	51 24
		eSKPP'	10 07 30
		(continued)	

Date	Sta.	Phase	h m s
		April (continued)	
5		A	T
		PZ	3 1
		PH	1 1
		pPZ	2½ 2
		PPZ	2 2
		SH	3/4 2
	R	iPNEZ	09 38 28 c
		i	47
		ipP	40 25
		eSE	47 56
	Pr	iPN	38 34
		iSN	48 05
	T	iPNEZ	38 15 c
		ipP	40 15
		isP	41 31
		eSEZ	47 41
		eSKPP'	10 07 33
	Magnitude about 7¼		
	USCGS: 43 N 131 E, 0 = 09:27.1 h = 550 km.		
	BCIS: 42 N 131 E, 0 = 09:27:04 h = 550 km.		
6	MW	e	03 39 31
	R	e	24
	T	eP	34
6	MW	iP	06 16 40
		epP	17 02
		isP	12
	R	iP	16 34
		ipP	57
		esP	17 07
	T	iP	16 55
		epP	17 16
		esP	26
6	P	eP	15 53 29
	R	e	26
	H	e	35
6	P	i	23 58 52
	R	e?	48
		i	52
	Pr	eN	58
	Wellington: 35 S 179½ E, 0 = 23:46:01		
	Magnitude 5½		
7	T	iP	22 21 24
7	P	e	07 33 57
		i	34 06
		i	21
		i	56
	R	e	00
		i	07
		i	18
		e	53
	Pr	iN	13
	T	eP	02
		i	10
		e	22
	Indian Ocean?		

Date	Sta.	Phase	h m s
		April	
7	MW	eP	14 24 16
	R	eP	20
	T	iP	24
7	T	eP	21 35 34
8	MW	eP	08 30 25
	R	eP	20
	Pr	iPNE	23
	T	eP	25
9	P	iP	04 28 16 c
		i	45
	R	eP	11
	Pr	iPNE	05
	T	eP	30
	JSA: 7.0 N, 82.1 W, 0 = 04:20:15		
9	MW	e	08 25 14
	R	e	23
9	R	eP	21 48 59
	Wellington: 36½ S, 178 W, 0 = 21:41:08		
	Magnitude 5 3/4		
10	R	e	02 50 10
	T	e	46
10	P	iP	04 59 09
		i(pP)	26
	R	eP	13
		i(pP)	30
		i	05 01 22
	Pr	eP	04 59 19
		e(pP)	38
	T	iP	58 52
		i(pP)!	59 08
		i	30
		i	05 01 15
		i	05 53
10	MW	iP	06 03 33
	R	eP	35
	T	eP	20
		i	24
		e(PcP)	04 59
10	P	iPNEZ	17 57 30 c
		i	59 04
		i	21
	R	iP	57 27 c
		e	59 22
	Pr	iPNEZ	57 39 c
		e	18 00 30
	T	iP	17 57 23 c
11	P	iPNEZ	00 00 30 d
		i(pP)	43
	PX	e(SKS)NE	11.3
		eGNE	25.3
			A T
		PZ	3/4 4
		MH	6 20
	R	iP	00 33 d
		i(pP)	44
		(continued)	

Date	Sta.	Phase	h m s
		April (continued)	
11	Pr	iPNEZ	00 00 34 d
		i(pP)	45
	T	iPNEZ	00 41 d
		i(pP)	53
	Magnitude 6¼ to 6½		
	BCIS: 28 S 174 W, 0 = 23:48.2		
11	P	iP	00 03 03
	R	iP	06
	Pr	iP	07
	T	iP	14
	Aftershock		
11	R	eP	01 43 38
	Pr	iP	40
	T	iP	47
11	P	iP	18 38 25
		e(pP)	39
	R	eP	26
		e(pP)	40
	Pr	ePNZ	28
	T	iP	36
12	P	iP	02 07 54
	R	eP	54
	Pr	eP	56
	T	iP	57
12	MW	iP	02 46 08
	R	eP	09
	T	eP?	45 53
12	MW	iP	03 07 22
	R	eP	25
	Pr	iP	19
12	P	iP	05 12 32
	R	iP	36 c
		i	15 04
	Pr	iP	12 43
	T	iP	11 c
		i	14 58
12	MW	iP	07 30 06
		i(pP)	32 37
	R	iP	30 09
		i(pP)	32 40
	Pr	iP	30 16
	T	eP	29 44
		i(pP)	32 14
12	R	iP	07 53 58
	T	eP	34
12	P	iP	10 03 33
		e?	44
	R	iP	35
		i(pP)	48
	Pr	iP	29
	T	iP	43
		i(pP)	56
12	Pr	iP	15 23 19
12	PX	eLNE	17 39.8

Date	Sta.	Phase	h m s
		April	
13	MW	iP'	01 26 00
		e	10
	R	eP'	01
		e	09
13	MW	iP	14 13 17
		ipP	29
	R	iP	15
		ipP	28
	Pr	e	23
13	P	iP	15 24 29
	R	iP	26
	Pr	iPNEZ	26
	USCGS: 11 N 41 W, 0 = 15:12.9		
13	P	iPNEZ	19 58 52 c
	PX	iSN!	20 01 30
			A T
		PZ	14 10
		PH	45 20
		PH	12 10
		SH	30 6
	R	iPNEZ	19 58 57 c
		iS	20 01 48
		i!	03 16
	Pr	iPNEZ	19 59 08
		i(S)	20 03 58
	T	iPNEZ	19 58 16 c
		iS	20 01 32
	Magnitude 6.8		
	USCGS: 47.1 N 122.7 W, 0 = 19:55:41		
	Damage at Seattle, Tacoma, Olympia, etc.		
13	MW	e(P)	20 34 51
	R	e(P)	51
	T	e(P)	57
14	P	eP	07 46 05
	R	eP	08
	Pr	eP	09
	T	eP	16
	Near Apia		
14	P	eP	15 57 41
		e	53
	R	eP	43
		e	55
	Pr	eP	43
	H	eP	47
	Near Apia		
14	P	iP	17 14 15
		i	32
	R	eP	17
	Pr	e(P)	18
		e	25
	H	e(P)	32
	Near Apia		
14	P	iP	19 48 51
	R	iP	55
	Pr	iP	55
	T	iP	49 03
	Near Apia		

Date	Sta.	Phase	h m s
		April	
14	Pr	eP	23 39 31
		e	54
15	P	iP	00 46 46 c
	R	iP	49 c
	Pr	iPNEZ	50 c
	T	iP	53
15	P	e	02 14 59
	MW	e	48
		e	58
	T	e	15 30
15	R	eP	11 57 48
		e	58 03
	Pr	eP	57 46
		e	58 02
15	P	iP"	14 26 09
		e	27 49
	R	eP"	26 09
	Felt at Buton (Celebes), according to Batavia		
16	P	eP	06 43 36
	R	eP	38
	T	eP	46
16	P	iP	18 35 19
		i	24
	R	eP	22
	Pr	iPEZ	23
17	P	iP	00 54 00
		ipP	29
	PX	iSE	01 03 53
		eE	04 44
	R	iP	53 59
		ipP	54 25
	Pr	i	39
		iPNZ	53 53
		ipPNEZ	54 22
		i	37
	T	iP	11
		ipP	42
		i	56
	JSA: 31 S 67 W, 0 = 00:42.1, h = 150 km.		
17	P	iP	02 36 16
		e	37 07
	R	iP	36 12
		e	37 05
	T	iP	36 27
17	P	iP	17 44 25 c
	R	iP	28 c
	T	iP	33 c
	Near Apia		
18	P	iP"	00 52 17
		e	55 40
	R	iP"	52 16
		e	55 36
	T	iP"	52 21
	South Atlantic		
18	T	iP	01 02 31

Date	Sta.	Phase	h m s
		April	
18	MW	iP	21 30 33
		e(pP)	58
	R	iP	27
		e(pP)	51
	T	iP	45
		e(pP)	31 10
	South America?		
18	P	iPNEZ!	21 46 07 d
		i	18
		i(pP)	21
		i	34
		iPP	48 39
	PX	eLNEZ	22 07.2
			A T
		PZ	1½ ½
		PH	1 3/4 1
		MH	12 20
	MW	iPNEZ!	22 46 09 d
		i(pP)	25
	R	iP	09 d
		i(pP)	26
	Pr	iPNEZ	12 d
		i(pP)	27
	T	iPNEZ	18
		i	25
	Magnitude about 7		
	IV at Apia		
	USCGS: 14 S 173½ W, 0 = 21:34.8		
	JSA: 15.3 S 174.1 W, 0 = 21:34:54		
			h = 100 km.
	BCIS: 18 S 172 W, 0 = 21:34.7		
			h = 100 km.
19	MW	iP	00 38 46
		ipP	39 03
	R	iP	38 49
		epP	39 05
	Pr	iPNZ	38 58
		ipP	39 15
	T	iP	38 32
		ipP	51
	Kurile Islands?		
19	MW	iP	14 47 51
		epP	48 20
	R	iP	47 46 d
		epP	48 14
19	P	ipNEZ	15 29 47 c
		ipPNEZ!	30 00
		i	43
	PX	iSE	38 19
		eLN	45.5
	P	e	58 40
		i	58
			A T
		PZ	1 1½
		PH	½ 1½
		pPZ	1 1¼
		SH	3/4 3
	R	iP	29 50 c
		ipP!	30 03

(continued)

Date	Sta.	Phase	h m s
		April (continued)	
19	Pr	iPNEZ	15 29 56 c
		ipPNEZ	30 09
	T	iPEZ	29 35 c
		iNZ!	47
	Magnitude about 6½		
	USCGS: 48 N 154 E, 0 = 15:19.2,		
	slightly deeper than normal.		
	CMO: 42 N 157 E, h = 100 km.		
19	P	iP	18 13 01
		ipP	12
	R	iP	03
		ipP	14
	Pr	iP	05 c
		ipP	16
	T	iP	04
		ipP	13
20	P	iPNEZ	03 41 28 d
		ipP	44
		iPP	44 58
	PX	iSE	51 45
		iSPNE	52 14
		iLN	04 04.8
	P	eP'P'P'	28 14
		i	30
			A T
		PZ	15 8
		PH	3½ 2½
		SH	50 14
		PSH	35 10
		MH	30 20
		MH	50 16
	R	iPEZ	03 41 25 d
		ipP	42
		iPP	44 55
		e	04 27 53
	Pr	iPN	03 41 22
		e(S)N	51 25
		iE	35
		iE	52 01
	T	iP	41 41 d
		ipP	59
	Magnitude 7½		
	USCGS: 38 S 72½ W,		
		0 = 03:29.0, h = 70 km.	
	Destructive in Chile		
22	P	i	01 13 51
	PX	eLN	35.6
	R	i	13 52
	Pr	eN	47
	T	i	14 10
22	P	eP	06 06 22
	R	eP	19

Date	Sta.	Phase	h m s
		April	
22	P	eP	17 28 18
		iNEZ	23
	PX	eSN	37.5
		iGE	46.7
		A T	
	PZ	¼ 1	
	R	eP	28 17
		i	21
	Pr	ePNE	16
		eNE	26
	T	iP	40
	La Paz: 0 = 17:16:58		
	JSA: 36.2 S 112.5 W,		
		0 = 17:17:20, h = 100 km.	
23	P	iP"NEZ	11 34 23
		i	37
		i	35 38
		iPP	45
		iPKKP	44 33
		epPKKP	46
	PX	iSPE	45 39
		eSKKP	48 19
		A T	
	P"Z	½ 1½	
	PPZ	3/4 1½	
	PPH	1 4	
	MH	10 20	
	R	iP"EZ	34 24
		i	39
		iPP	35 46
		i	36 27
		ePKKP	44 30
		eSKKP	48 16
	Pr	eP"NE	34 28
	T	iP"NEZ	34 20
		i	36
		iPP	35 41
		ePKKP	44 35
	Magnitude 7		
	USCGS: 8 S 120 E,		
		0 = 11:15.5	
	JSA: 8 S 120.5 E,		
		0 = 11:15:35, h = 50 km.	
24	P	eP"	04 40 55
		e	41 45
		i	42 18
		i	43 22
	PX	e	52 03
		eLE	05 17 25
	R	eP"	04 41 01
		e	42 14
	T	e	41 55
	Magnitude 6½ (Praha)		
	USCGS: 27 N 56 E, 0 = 04:22.1		
24	P	e	16 43 41
	MW	eP	36
25	R	eP	04 09 20
	T	eP	12

Date	Sta.	Phase	h m s
		April	
25	P	eP'	05 23 20
		i	24 12
		e	35
	R	eP'	23 24
		e	24 09
	Pr	eN	07
	T	i	20
	Indian Ocean		
25	P	iP	11 27 36 c
	R	iP	33 c
	T	iP	46
25	P	iP	14 06 12 d
		ipP	40
		i	53
		iPP	08 50
	PX	iSE	15 24
		i(SP)	59
	P	eP'P'	34 06
		A T	
	PZ	12 3	
	PH	4 3	
	SH	15 5	
	(SP) H	40 9	
	R	iP	06 09 d
		ipP	36
		i(?)	14 39
		iSE	15 17
		eE	16 02
		eP'P'	34 05
	Pr	iPNE	06 05
		iSNE	15 41
		iNE	53
	T	iPNEZ	06 25
		i	52
		iSNE	15 4
	Magnitude 7.5. Destruct. e		
	in northern Chile.		
	USCGS: 20 S 69½ W,		
		0 = 13:55.0, h = 100 km.	
25	MW	eP	15 57 01
25	P	e	19 39 01
		e	43 48
	PX	eLE	20 09.6
	R	e	39 15
26	P	iP	10 24 10
		ipP	23
		i	35
	PX	eLE	50.6
	R	iP	24 13
		ipP	26
	Pr	eNE	18
	T	iP	15
		ipP	34
	Wellington: near 10 S, 166 E,		
		h = 150 km. ± mag. 6 3/4	
28	MW	eP	00 04 22

Date	Sta.	Phase	h m s
		April	
28	P	e	01 49 24
		i	35
		i	53 17
	T	i	49 21
		e	52 45
		e	53 04
	Very distant?		
30	P	iP	01 37 45
		i(sP)	38 40
		eP"	41 45
		i	53
	PX	iEZ	42 46
		iSKSNEZ!	48 14
		iNE!	49 05
		i	51 15
	P	iPKKP	53 07
	PX	eP'P'	02 01 00
		eGN	07.0
		A T	
	PZ	0.2 1	
	SKSH	12 6	
	R	iP	01 37 47
		e	38 18
		iSKSNE	48 18
		ePKKP	53 18
		eP'P'	02 00 56
	H	eP	01 37 44
		iSKSE	48 15
	T	i	42 00
		iSKSNE	48 13
	Depth 150 km?		
	Magnitude 7 ±		
	USCGS: 6 N 126 E,		
	0 = 01:23.4, h = 100 km.		
	JSA: 6.8 N 125.0 E,		
	0 = 01:23:37, h = 150 km.		
30	R	e	03 18 28
30	P	iP	03 24 51
	R	iP	53
		May	
2	P	iP	00 27 05
		iSN	45
	LJ	iP	26 41
		iSNEZ	27 02
	Near 31.8 N 115.0 W,		
	0 = 16:26.2		
2	P	i	05 53 35
		i	56 03
	R	i	53 37
		i	56 04
	T	i	53 49
		i	56 00
	Deep. East Indies		
2	P	iPNZ	11 25 35
	PX	iSNEZ	26 02
	R	iPEZ	25 23
		iSNE	41
	Pr	iPNE	19
	LJ	iPEZ	27
		iSNEZ	51
	T	ePEZ	57
	Magnitude 4.6		
	Foreshock of next		

Date	Sta.	Phase	h m s
		May	
2	P	iPNZ!	11 26 24
	PX	iSNE!	50
	MW	iPNEZ!	23
	R	iPNEZ!	12
		iSNE!	30
	LJ	iP!	16
	T	iPNEZ	45
	Magnitude 5.9		
	34°01' N. 115°41' W.,		
	0 = 03:25:47		
	Felt to and beyond Los Angeles, and far out into the desert area. Aftershocks numerous; only the larger included here.		
2	P	iP	12 57 11
	T	iP	21
3	P	iP	06 07 08 c
		iPcP	25
		ipP	41
		isP	55
	PX	iS	15 35
		eScS	16 20
		isS	48
		eSSS	23.3
	P	eP'P'	35 47
		A T	
	PZ	2 2	
	PH	2 2	
	SH	6 6	
	R	iPNEZ	07 11 c
		iPcP	27
		ipP	42
		isP	58
		iP'P'	35 49
	Pr	iPNE	07 17
		iSN	15 51
		eE	16 57
	T	iPNEZ	06 55
		ipP	07 32
		e(S)E	15 13
		eP'P'	36 02
	Depth about 130 km.		
	Magnitude 7.		
	USCGS: 49 N 153½ E,		
	0 = 05:56.7, h = 100 km.		
	CMO: 49.0 N 155.0 E,		
	h = 160 km.		
3	P	iP	11 04 18
		i	27
	R	iP	21
		i	31
	T	iP	03
		i!	13
	JSA: 51.9 N 160.2 E,		
	0 = 10:54:18, depth?		

Date	Sta.	Phase	h m s
		May	
3	P	e(P)	15 04 34
	R	e(P)	33
	Pr	eE	33
	Bay of Plenty, N. Z.,;		
	magnitude 6 (Wellington)		
4	P	iPNEZ	01 35 59
	R	iP	36 07
		i	17
	H	iP	35 47
		e(S)E	37 48
	T	iP	35 37
		iSEZ	36 56
	Berkeley: 40.4 N 124.3 W,		
	0 = 01:34:03		
4	P	e	20 32 09
	R	e	06
	T	e	16
5	P	iP	06 30 54
	R	iP	52
	T	iP	31 12 d
5	P	iP	14 07 10
	Pr	iP	13
5	P	e	14 54 32
		e	49
6	P	iP	12 58 27
		ipP	40
	R	iP	29
		ipP	43
		i	59 05
	Pr	iP	58 31
		ipPNZ	44
	T	iP	31
		ipP	44
		i	59 11
	BCIS: 10 S,166 E,		
	0 = 12:45.9		
6	P	iP	14 42 42
	R	eP	43
	Pr	eP	47
	T	e	28
	BCIS: 56 N, 109 E,		
	0 = 14:30:21		
6	P	iPEZ	21 41 53
	R	iP	48
	T	iP	42 01
7	P	iPEZ	01 11 48 d
		ipPEZ	12 25
	R	i(P)	11 53
		ipP	12 29
	Pr	iP	11 55 d
		ipP	12 32
	T	iP	11 44
		ipP	12 16
		i	22
	South of Japan		
7	P	iP	12 42 24 c
	R	iP	26
	Pr	iPNEZ	28 c
	T	iP	33 c
	Near Apia		

Date	Sta.	Phase	h m s
		May	
7	P	iPNEZ	13 13 20 d
		ipP	33
		i	57
		A T	
	PZ	1½ 1½	
	R	iPNEZ	18 d
	Pr	iPNEZ	13 d
		ipP	27
	T	iP	31 d
	BCIS: 20 S 70 W, 0 = 13:02.0		
8	T	eP	06 41 48
		e	55
8	P	iPNEZ	21 35 43 d
		ipP	36 13
		isP	27
	PX	ePP	38 43
	P	epPP	39 03
	PX	iSNE	44 55
		iScSN	45 31
		isSN	45
		A T	
	PZ	1 1½	
	PH	½ 2	
	pPZ	1½ 2	
	pPH	½ 3	
	SH	3 5	
	R	iPNEZ	35 41 d
		ipP	36 13
		isP	24
	Pr	iP	35 36 d
		ipPE	36 06
	T	iPNEZ	35 55 d
		ipP	36 24
		isP	30
	Magnitude 6 3/4		
	USCGS: 20 S 71 W,		
	0 = 21:24.6, h = 120 km.		
	BCIS: 20 3/4 S 68.5 W,		
	0 = 21:24:27, h = 120 km.		
9	PX	iP"	13 55 32
		i	53
		ePP	57 56
		eSKPEZ	58 52
		e(G)	14 31
		A T	
	P"Z	¼ 1	
	SKPH	3 6	
	MH	10 20	
	R	iP"	13 55 32
		iSKP	58 53
	Pr	iP"	55 35
		i	57
		iSKPNZ!	58 56
	T	iSKP	58 51
	Magnitude 6 3/4		
	USCGS: 5 N 95 E,		
	0 = 13:36.3		

Date	Sta.	Phase	h	m	s
		May			
10	P	iPNEZ	00	28	56
		i		29	12
	PX	iNE			34
	P	e		31	53
	PX	iN		32	31
		eLNE		33.4	
		A	T		
	PZ	1¼	3		
	PH	2	5		
	MH	40	20		
	R	eP		28	49
		i		29	02
		i			25
	Pr	eP		28	41
		i			47
		i		29	08
	T	eP		29	23
	Magnitude 6¼				
	USCGS: 19 N 106½ W,				
		0 = 00:24.7			
10	PX	eP	03	16	48
		eLN		18	50
	R	eP		16	42
	USCGS: 17 N 109 W,				
		0 = 03:12.2			
10	P	iPNEZ	04	07	13
		iSNEZ			42
	R	iPNEZ!			01
		iSN			19
	Pr	iP!		06	57
	LJ	iPNEZ		07	07
	T	iPNZ			35
	Magnitude 4.7				
	Aftershock of May 2, 03^h				
10	P	iP	14	23	13
	R	iP			14 d
	Pr	iPNEZ			15
	T	iP			22
	Near Apia				
11	R	iP	14	16	17
	Pr	iP			20
	T	iP			22
12	MW	iP	07	24	02
	R	eP			07
	Pr	iP			13
	T	iP		23	46
12	P	iP"	10	37	50
	R	eP"			52
	Pr	iP"			53
	Aftershock of May 9				
	(5 N 95 E)				
	BCIS: 0 = 10 :18.7				
13	Pr	iP	04	54	15
	T	iP			23
13	P	iPNEZ!	10	18	35 d
		iSNE!			37
	MW	iPNEZ!			36 d
		iSNE!			40

(continued)

Date	Sta.	Phase	h	m	s
		May (continued)			
13	R	iPEZ!	10	18	43 c
		iSNE			53
	Pr	iPEZ!			53 c
	Magnitude 3.7.				
	Felt generally in the Los				
	Angeles area.				
	IV at Pasadena;				
	V at Huntington Park.				
	34°00' N. 118° 16' W.,				
	0 = 10:18:31				
14	P	iP	23	43	23
	R	iP			29
	T	iP		42	57
15	PX	eLNE	05	35.2	
	R	e		35	01
	Pr	i			06
	T	eP		33	12
15	MW	eP	06	40	20
		i			30
	R	eP			22
		i			32
	Pr	i			32
	T	eP			24
	JSA: 7.5 S 159.2 E.,				
		0 = 06:27:36			
15	P	iP	11	27	27
	R	eP			29
	T	eP			28
16	PX	eLE	04	58.2	
		A	T		
	MH	10	20		
	MW	eP	04	51	16
		e		52	55
	R	eP		51	18
		e		52	50
	T	iP		51	15
	BCIS: 6 S 122 E,				
		0 = 04:32:28			
	JSA: 10.0 S 120.8 E,				
		0 = 04:32:22			
17	P	iPNEZ	02	40	22 c
		ipP			36
	R	iP			26
		ipP			40 c
	Pr	iPNEZ			31
		iEZ			42
	T	iP			10 c
		i			26
	USCGS: 48 N 155 E,				
		0 = 02:29.8			
17	P	iP	04	14	35
		i			44
	R	iP			31
		i			43
	Pr	iP			27
		e			37
	T	iP			46
		e			55
	Chile				

Date	Sta.	Phase	h	m	s
		May			
17	MW	e	06	33	48
	R	eP			33
17	R	e	15	10	49
	T	eP			16
		i			23
17	P	iP	22	50	32
	R	iP			33 c
	Pr	iPNEZ!			33 c
		i			48
	Kermadec Islands				
17	P	iP	23	25	39
	R	iP			37
	Pr	iP			33
	South America (?)				
17	P	iPNEZ	23	58	40 d
		iSNE		59	14
	SB	eP		58	27
		iS			57
	H	iP			39
		iS		59	18
	T	iP		58	40 c
		iSNEZ		59	17
	Magnitude 4.1				
	35.6 N 121.2 W,				
	0 = 23:57.9				
	Felt at San Simeon				
20	P	iP	08	24	06
		iPcP			12
		ipP		25	00
	R	iP		24	08
		ipP		25	02
	Pr	iP		24	09
		ipP			57
	T	iP			17
		ipP		25	11
	BCIS: 0 = 08:12.6, h = 200 km.				
	JSA: 19.4 S, 174.8 W,				
		0 = 08:12.7, h = 200 km.			
20	P	iPNEZ	22	37	06
	PX	iSNE		38	21
	MW	iPNEZ		37	09
		iSNEZ		38	26
	Pr	iPNEZ!		37	19
		iNEZ!			21
		iSNZ!		38	45
	SB	iPNEZ		36	50
		iSNEZ		37	51
	H	iPNEZ			18
		iSNEZ		38	46
	T	iPNZ		37	21
		iSNEZ		38	44
	Magnitude 4.8				
	33 N 126 W, 0 = 22:35:31				
21	MW	iP	05	54	20
	Pr	iP			11
		i			36
	T	iP			33 d
		e		55	01

Date	Sta.	Phase	h	m	s
		May			
21	P	iP	07	55	05
		ipP			20
	MW	iP			06
		ipP			24
	Pr	iP			08 c
		ipP			24
	T	iP			17 c
21	P	iP	21	52	01 c
		ipP			09
		ePP		55	02
	PX	iSNE	22	01	46
	P	e		02	22
	PX	eSSSNEZ		10.4	
		eLNE		11.9	
		A	T		
	PZ	2	6		
	SH	2	5		
	MH	20	20		
	R	iP	21	52	05
		ipP			13
		e		54	48
	Pr	iP		52	08
		ipPNEZ!			19
		iNZ			34
		i		54	48
		i		55	15
		eE	22	01	16
		iSE		02	03
		eN		02	26
	T	eP	21	51	51
		ipP		52	02
		iPP		55	17
	Magnitude 6½				
	USCGS: 37 N 142 E,				
		0 = 21:40.0			
	JSA: 37.3 N 141.5 E,				
		0 = 21:40:11, h = 50 km.			
22	Pr	iP	15	12	20
	T	eP			24
22	MW	eP	15	35	00
	R	eP		34	56
	Pr	eP			52
		i		35	10
	T	iP			15
22	MW	eP	19	08	32
	R	eP			26
	Pr	iP			20
		i			39
	T	eP			39
		e			49
23	P	iPNEZ	04	30	06 c
		ipP			21
		isP			30
		ePP		33	44
	PX	e(L)E		54	
		A	T		
	PZ	1	3		
	PH	¼	1		
	MH	2	20		

(continued)

Date	Sta.	Phase	h m s
		May (continued)	
23	R	iPNEZ	04 30 08 c
*		ipP	21
	Pr	isP	29
	T	iPNEZ	16 c
		Magnitude 6½	
		USCGS: 31 S 178 W,	
		0 = 04:17.4	
23	P	iP	05 37 20 c
		ipP	35
	R	iP	22 c
		ipP	37
	Pr	iPNEZ	24 c
		ipP	40
		i	50
	T	iP	22
		ipP	37
		Aftershock?	
23	MW	e	11 38 32
	R	e(P)	20
	Pr	iP	14
		i	24
	T	eP	42
		i	50
23	T	eP	12 03 14
24	P	iP	02 40 37
		i	50
	PX	eLN	03 02
		A T	
	MH	5 20	
	R	iP	02 40 38
		i	53
	Pr	iP	37
	T	iP	47
		i	59
		Southwest Pacific	
		Magnitude 6?	
24	P	eP	12 01 51
	R	eP	54
	Pr	iPNZ	47
		i	52
		i	02 47
	T	eP	13
		Southeast Pacific	
24	P	eP	12 29 26
	R	eP	27
	Pr	iP	13
	T	eP	47
		Southeast Pacific?	
24	Pr	iP	12 39 01
		i	20
	T	eP	08
		e	20
24	P	iP	13 54 03
	R	eP	00
	Pr	iP	53 47
	T	eP	54 28
		Foreshock of 16^h	
		USCGS: 17 N 106 W,	
		0 = 13:49.4	
*23	Pr	iPNEZ!	04 03 09 c
		ipP	23

Date	Sta.	Phase	h m s
		May	
24	MW	eP	14 57 12
	Pr	iP	04
	T	eP	37
		Foreshock	
24	MW	iP	15 51 18
	Pr	iP	21
	T	iP	27
		Pacific	
24	P	iP	16 24 39
		i	25 13
		e	38
	PX	iSNE	28 23
		A T	
	PZ	1 1½	
	SH	3 8	
	MH	15 20	
	R	iPNEZ	24 34
	Pr	iPNEZ	24
	T	iPNEZ	59
		Deep?	
		Magnitude 6½	
		USCGS: 17 N 106 W,	
		0 = 16:20.0	
24	P	e?	19 11 09
		e	24
	R	eP	18
		e	30
	Pr	iP	22
		i	33
	T	iP	07
		i	17
		BCIS: 0 = 18:59.2	
		CMO: 37.3 N 141.8 E,	
		0 = 18:59, shallow	
25	MW	iP	00 45 09
25	MW	eP	07 24 41
	Pr	eP?	52
		i	25 00
	T	iP	24 39
25	P	eP	08 37 43
		ePP	41 48
		A T	
	MH	5 20	
	R	iP?	37 44
		ePP	41 40
	Pr	iP	37 47
		iPP	41 50
	T	eP	37 32
		iPP	41 26
		USCGS: 42 N 83 E,	
		0 = 08:23.8	
25	P	iPEZ	09 32 23
		iSNE	51
	R	iPNEZ!	12
		iSNZ	29
	Pr	iPNEZ!	08
		iSN	22

(continued)

Date	Sta.	Phase	h m s
		May (continued)	
25	LJ	iPNEZ	09 32 17
	H	iP	34
	T	iP	45
		Magnitude 4.5	
		Aftershock of May 2, 11^h	
25	P	iPNEZ	23 44 46 d
	R	iPEZ	41 d
	Pr	iPNZ!	39 d
	T	iPNEZ	57 d
		epP	45 15
		Andes?	
26	P	eP	05 21 45
	R	iP	37
		i	42
	Pr	iP	36
	T	iP	52
		i	58
		South America	
26	MW	eP	06 34 14
	R	eP	15
	Pr	eP	11
	T	eP	03
		Azores region	
26	Pr	iP	09 49 00
	T	iP	08
		i	20
		Near Apia	
27	R	iP	03 16 33
	Pr	iP	32
	T	iP	48
27	P	iP	11 10 42
		i(pP)	58
	R	iP	43
		i(pP)	11 00
	Pr	iPNEZ	10 44 d
	T	iP	52 d
		e	58
		i	11 03
		III at Apia	
		JSA: 15.5 S 173.3 W,	
		0 = 10:59:20	
27	MW	iP	17 30 58
	R	eP	59
	Pr	iP	31 00 d
	T	iP	07
27	P	iP	18 41 23
	R	iP	26 d
	Pr	iPEZ	26 d
	T	iP	33 d
27	MW	eP	19 07 22
	R	eP	17
	Pr	iP	19
	T	iP	55
27	P	eP	20 00 37
	R	eP	33
	T	eP	01 08
28	MW	eP	05 41 46
	R	eP	41
	T	eP	42 13

Date	Sta.	Phase	h m s
		May	
28	MW	eP	16 13 56
		i	14 04
	R	eP	01
		i	08
	Pr	i	09
	T	i	05
		Southwest Pacific	
30	P	iPNEZ	01 44 06 d
		ipP	32
		isP	44
		e	45 00
	PX	ePP	46 48
		esPP	47 19
		iSNE	53 23
		iNE	54 05
		A T	
	PZ	3 3	
	PH	1½ 3	
	PPZ	1½ 5	
	SH	4 3	
	R	iP!	01 44 03 d
		ipP	30
	Pr	iPNEZ!	43 58
		iSNE	53 08
		eP'P'	02 11 46
	T	iPNEZ!	01 44 17 d
		ipP!	46
		eSNE	53 46
		Magnitude 7	
		USCGS: 20 S 69½ W,	
		0 = 01:32.9, h = 100 km.	
30	T	e	03 01 04
30	MW	iP	07 22 31
	T	iP	39
30	P	iP	21 52 20 d
		i	42
		e	54 14
	PX	iSNE	22 02 00
		A T	
	PZ	½ 1	
	PH	½ 2	
	SH	1 3	
	R	iP	21 52 24 d
		e	54 20
	Pr	iP!	52 27 d
		i	50
		e	54 23
	T	iP	52 17 d
		Magnitude 6½?	
		Deep?	
		June	
1	P	iP	05 48 12
	Pr	iP	16
	T	iP	20
1	P	iP	07 46 56
	R	eP	57
	Pr	iP	59
	T	eP	47 00

Date	Sta.	Phase	h m s
		June	
1	R	eP	08 26 43
	T	eP	04
1	P	iP	10 20 31
	R	iP	32
	T	iP	39
3	MW	eP	02 20 49
	Pr	iP	56
4	P	iPNZ	01 06 19 c
	Pr	iP	21 c
	T	iP	28
	Tonga region		
4	P	iP	04 04 15
	R	iP	18 d
	Pr	iP	21
	T	iP	10 d
6	P	iP	07 11 06
		i(pP)	17
	R	iP	07
		i(pP)	19
	Pr	iP	08
		i(pP)	20
	T	iP	16
		i(pP)	27
	Near Apia		
6	P	iP	14 05 11
	R	iP	14
	Pr	iP	14
	T	iP	15
6	P	iPNZ	22 59 12 c
	R	iP	15
	Pr	iP	19 c
	T	iPEZ	10 c
7	P	eP	04 42 30
	R	iP	34
	Pr	iP	40
	T	iP	09
7	P	iPEZ	05 33 57 d
		i	34 07
		i(pP)	16
		i(sP)	30
	R	iP	01 d
		e(pP)	19
	Pr	iPNEZ	06 d
		i	17
	T	iPNEZ	33 43 d
		i(pP)	34 01
	JSA: 57 N 164 E, 0 = 05:24.5		
	BCIS: 56 N 163 E, 0 = 05:24.2		
7	R	e(P)	08 58 41
	T	e(P)	59 12
7	P	iP	12 08 02
	R	iP	06
	Pr	iP	07
	T	iP	07 55
8	R	e(P)	00 55 15
		i	56 39
	T	e(P)	54 45
		i	55 49
		i	56 12

Date	Sta.	Phase	h m s
		June	
8	P	iP	05 07 57
		i	08 14
		i	10 29
	R	iP	08 01 c
		i	10 25
		i	31
	Pr	iP	08 06
	T	iP	07 35 c
		i	10 17
		i	23
		e	14 01
	JSA: 49 N 149 E, 0 = 04:57.1		
	BCIS: 0 = 04:57.0		
9	MW	iP	03 59 57
	R	iP	55
	T	iP	04 00 10
	South America		
9	MW	iP	07 57 33
		i	44
	R	iP	27
		i	43
	T	iP	48
		i	58 02
9	P	iPcP	10 58 20
	MW	e?	55 35
		i	57 54
		iPcP	58 18
	R	iPcP	17
	Pr	iP	55 13
		i	35
		iPcP	58 16
	T	iP	55 43
		iPcPEZ	58 23
		i	37
	Possibly two shocks		
9	P	iPNEZ	21 30 03 d
		i	11
		e	44
		i(pP)	49
		e	31 02
		i(PP)	32 48
		A T	
	PZ	2 1	
	PH	½ 1	
	R	iPN	30 07
	Pr	iPNEZ	30 05 d
		i(pP)	51
	T	iPNEZ!	12 d
		i(pP)	58
	Depth probably 190 km.		
	III at Apia		
	USCGS: 14 S 176 W,		
	0 = 21:18.3		
	BCIS: 16 S 175 W.		
10	P	iP	03 07 43
		iNEZ	45
	PX	iSNEZ	08 33
		A T	
	PZ	2 1	
	PH	½ 1	

(continued)

Date	Sta.	Phase	h m s
		June (continued)	
10	R	ePN	03 07 52
	SB	iP	29
		iSN	08 10
	H	iPNEZ	07 30
		iSE	08 11
	T	iPEZ	07 25
		iSE	56
	Magnitude 4.9		
	VI at San Jose		
	Berkeley: 37°21'N,121°37'W,		
	0 = 19:06:39		
	Aftershock of magnitude 4.1		
	at 05^h 05^m following		
10	MW	eP	06 23 56
	T	iP	45
11	P	iP	07 41 43
		iPcP	44 12
		iScP	47 59
	PX	eLN	52.0
		A T	
	PZ	0.2 1	
	MH	6 20	
	R	eP	07 41 37
		iPcP	44 12
		eScP	47 59
	Pr	iPEZ	41 32
		e	42 44
		iPcP!	44 10
		iScP	47 59
	T	iP	41 59
		iPcP!	44 18
		eScP	47 05
	USCGS: 12½ N 87½ W,		
	0 = 07:34.8,		
	possibly deep.		
	JSA: h = 100 km.		
11	MW	eP	15 53 41
	R	eP	41
	Pr	iP	31
	T	eP	54 01
11	MW	e	18 18 09
	T	e	48
12	P	eP	04 40 03
	R	iP	39 59
	T	iP	40 07
	USCGS: 19 N 69 W		
	0 = 04:31:36		
12	P	iPNEZ	18 03 38 c
		epP	05 42
	PX	iSNE	12 57
	P	iSKPP'	32 53
		A T	
	PZ	1 1	
	pPZ	½ 2	
	SH	7 5	
	R	iP!	18 03 36 c
		ipP	05 41
		eSNZ	12 52
		eSKPP'	31 53

(continued)

Date	Sta.	Phase	h m s
		June (continued)	
12	Pr	iPE	03 35
		epPE	05 36
		eSE	12 44
	T	iP	03 48
		ipP	05 56
		eSNE	13 18
	Magnitude 7±		
	USCGS: 27 S 64 W,		
	0 = 17:52.4,		
	h = 600 km.		
12	P	iPNEZ!	18 07 05 d
	PX	eSN	16 25
		A T	
	PZ	1½ 1	
	SH	4 4	
	No clear pP.		
	R	iP!	18 07 03 d
	Pr	iPE	06 59
	T	iPNEZ!	07 16 d
	USCGS: 27 S 64 W,		
	0 = 17:55.8, h = 600 km.		
13	MW	iP	02 10 12
	R	iP	09
	T	iP	21
	Small Aftershock:		
	USCGS: 27 S 64 W,		
	0 = 01:58:55, h = 600 km.		
13	P	eP	06 53 22
	R	iP	25
	T	iP	10
	Japan?		
	USCGS: 0 = 06:42:16		
13	P	iP	13 28 46
	R	iP	49
	T	iP	55
14	P	e	00 40 30
	R	i	27
	T	i	26
	Poona: 10.5 N 96.5 E,		
	0 = 00:21:05		
14	MW	eP	05 56 48
		i	57 00
	R	eP	56 54
		i	57 02
14	R	e	08 06 27
15	MW	eP	01 55 47
		i	54
		i	56 04
	R	e	55 53
	Pr	iP	55 58
		i	56 05
		i	14
	T	iP	55 33
		i	39
		i	46
	USCGS: 52 N 178 W,		
	0 = 01:47.3		

Date	Sta.	Phase	h m s
		June	
16	P	i(P)	02 50 29
		e	53 43
		i	54 12
	R	i(P)	50 30
		i	53 51
		i	54 14
	Pr	i	53 54
		i	54 01
		i	14
	T	i(P)	50 25
		i	53 54
		i	54 14
	East Indies?		
	Two shocks?		
17	MW	ePP	04 39 24
	R	ePP	22
	BCIS: 34.4 N 28.5 E,		
	0 = 04:21.0		
19	P	iP	12 34 50
		i	35 20
	R	iP	34 47
		i	55
		i	35 17
	T	iP	34 48
		i	55
	USCGS: 25 N 45 W,		
	0 = 12:24.3		
	BCIS: 24 N 44 3/4 W,		
	0 = 12:24:18		
19	R	iP	19 06 56
		i	07 10
19	P	iP	22 11 09
		i(pP)	27
	R	iP	13
		e(pP)	32
		i	35
		e	13 46
	Pr	iP	11 18
		i(pP)	35
	T	iP	10 47
		iPcP	13 40
	USCGS: 61 N 150 W,		
	0 = 22:04:24		
	JSA: 61.2 N 148.1 W,		
	0 = 22:04:31, h = 50 km.		
20	MW	iP	09 29 04
	R	iP	09
	T	iP	11
20	R	e	18 53 50
	Southwest Pacific		
22	MW	e	13 12 12
	R	e	07
	T	e	16
	USCGS: 19 N 69 W,		
	0 = 13:04:45		
	JSA: 19.3 N 68.8 W,		
	0 = 13:04.9		
23	PX	eLE	14 35.4
	Pr	iP	32 37
	T	eP	33 22
	Mexico?		

Date	Sta.	Phase	h m s
		June	
23	P	iP	22 39 37 c
		ipP	40 21
		esP	40
		ePP	43 34
	PX	eSKSN	49 55
		eN	51 07
		eN	23 02.4
		e(G)N	06.2
		eM	08
		A T	
	PZ	¼ 1	
	pPZ	3/4 1	
	pPH	½ 1	
	SKSH	1 6	
	MH	4 20	
	R	iP	22 39 41 c
		ipP	40 25
	Pr	iPNEZ	39 42 c
		ipP	40 28
	T	iPNEZ	39 45 c
		ipP	40 26
	Magnitude 6½ - 6 3/4		
	USCGS: 16 S 168 E,		
	0 = 22:27.2, h = 180 km.		
	BCSF: 14½ S 165½ E,		
	0 = 22:27.1		
24	P	iP	10 30 17
	R	eP	19
	Pr	iP	20
	T	iP	27
24	MW	iP	21 19 44
	R	iP	46
24	P	eP"	22 57 47
		iP"	56
		e	58 11
		e	34
		ePP	23 00 09
		iX	01 16
	PX	iXNE	25
		i	35
		eN	12.2
		eLN	41.5
		A T	
	P"Z	1 4	
	XZ	3/4 1	
	XH	3½ 5	
	MH	5 20	
	PP very small		
	R	iP"	22 57 57
		i	58 17
		iX	23 01 19
	SB	eP"	22 57 55
		iX	23 01 12
	T	iP"	22 57 55
		i	58 19
		iX	23 01 13
	Magnitude 6 3/4?		
	USCGS: 7 S 105 E,		
	0 = 22:38.6		
	(continued)		

Date	Sta.	Phase	h m s
		June (continued)	
24	JSA: 7.6 S 104.4 E,		
	0 = 22:39:02, h = 200 km.		
	Poona: 5.8 S 105.8 E,		
	0 = 22:38:47,		
	h = 100 km.		
	The strong phases designated iX do not fit the travel times for SKP or any other established phase. The seismogram at Tucson is more nearly normal.		
25	P	iP	19 29 02
	PX	eL	57 26
	R	iP	29 05
		i	18
	T	iP	14
		i	27
	USCGS: 0 = 19:17:05		
	JSA: 20 S 175.5 W,		
	0 = 19:17:10		
26	MW	eP	01 36 34
		i	36
		iS	37 34
	R	eP	36 25
	Pr	iPNZ	13
		iS	49
	Magnitude 4.3		
	32.1 N 113.9 W,		
	0 = 01:35.4		
26	P	eP	08 56 16
		eP"	59 46
		ePKKP	09 10 48
	PX	eGN	27.4
		A T	
	MH	10 20	
	R	eP	08 56 15
		e	09 00 03
		e	52
		ePKKP	10 44
	Pr	e	00 18
		e	51
		ePKKP	10 52
		e	13 44
	Magnitude 6½		
	USCGS: 0 = 08:41:16		
	BCIS: 2½ N 127 E,		
	0 = 08:41:25		
26	P	eP	14 16 56
	Pr	iP	17 06
26	P	eP	21 09 13
		e	41
	R	eP	18
	Pr	iP	24
		i	10 09
	T	eP	08 57
		e	10 10
	USCGS: 0 = 20:59:28		
	JSA: 55 N 167 E,		
	0 = 20:59:50		

Date	Sta.	Phase	h m s
		June	
26	P	iP	21 31 12
	R	iP	13
	Pr	i(P)	15
	T	eP	12
26	MW	eP	23 00 11
	T	eP	22 59 55
27	P	iPNEZ	10 36 16 c
		iSNE	52
	MW	iPNEZ!	17 c
		ISNE	54
	R	iP	24
		iNEZ	38 31
	Pr	iPNZ!	36 36 c
	SB	iPNE	01
		iSNEZ	35
	T	iPNEZ	14
		iSN	46
	Magnitude 5.3		
	San Benito County		
27	P	e	23 26 06
		e	41
	R	e	26 46
	Pr	e	27 08
		e	17
28	P	iP	20 19 03
	R	iP	00
		i	07
	Pr	iP	18 58
		i	19 05
	T	iP	02
		i	08
	USCGS: 24 N 45 W,		
	0 = 20:08:29		
29	Pr	iP	13 44 31 c
29	P	iP	17 15 31
	R	iP	29
		i	35
30	P	eP	01 35 42
		i	50
	R	i	49
	Pr	i	54
	T	eP	57
		i	36 04
	USCGS: 0 = 01:22:35;		
	Solomon Islands		
30	T	eP	02 49 07
	Near Apia		
30	P	iP	17 30 15
		i	37
	R	iP	21
	Pr	iP	18
		i	46
	T	eP?	26
		i	30
		i	36
	USCGS: 14½ S 172 W,		
	0 = 17:18:57		

Date	Sta.	Phase	h m s
		June	
30	P	iP	20 04 24
	R	iP	22
	Pr	iP	29
	T	iP	08
		July	
1	P	iPNEZ	03 38 19 d
		i	34
		ipP	48
	R	iP	16 d
		i	34
		ipP	43
	Pr	iPNEZ	12 d
		i	32
		ipP	39
	T	iPNEZ	32 d
		ipP	39 00
	USCGS: 0 = 03:27:00, h = 100 km.		
	BCIS: 21½ S 69½ W.		
1	P	iP	04 28 11 c
		i	15
		e	27
	R	iP	13 c
		i	16
	Pr	iP	16 c
		i	33
	T	iP	22
	wellington: 25½ S 176 W		
1	R	iP	07 09 07
1	MW	e	23 02 25
	R	e	30
	T	i?	03 10
2	MW	iP	00 56 12
	R	eP	14
	Pr	iP	15 d
	T	iP	16
2	P	iP	03 58 46
	R	iP	42 d
	Pr	iP	39 d
	T	iP	58
	South America		
2	P	e(PP)	11 46 31
		e	47 01
	PX	eLNE	12 31.1
	R	e(PP)	11 46 43
		e	47 10
	Pr	e?	46 14
		i(PP)	23
	USCGS: 52 S 162 E, 0 = 11:27:35		
2	Pr	iP	13 51 43
2	P	iPNZ	20 09 45 d
		ipP	10 02
		iPP	12 51
	PX	iSN	20 08
		iPPSE	21.5
		eSSE	25.0
		eGNE	31.5
	P	iSKPP'	39 28

Date	Sta.	Phase	h m s
		July (continued)	
2		A T	
	PZ	4 1	
	PH	2 1½	
	PPZ	1 4	
	SH	5 5	
	PPSH	20 30	
	MH	20 20	
	R	iPNEZ!	20 09 48 d
		ipP	10 08
		eSNZ	20 15
		iSKPP'	39 28
	Pr	iPNEZ!	09 52 d
		ipP	10 10
		iPP	13 13
		e	36 35
		iSKPP'	39 54
		i	40 24
	T	iPNEZ	09 43
		ipP	59
		eSNE	20 04
		eSKPP'	39 25
	h = 60 km., magnitude 7¼		
	USCGS: 16 N 148 E, 0 = 19:57:10		
	JSA: 16.1 N 145.8 E, 0 = 19:57:21, h = 100 km.		
2	Pr	iP	22 09 47
3	MW	eP	05 52 27
	R	eP	30
	Pr	iP	32
	T	eP	42
3	P	iP	07 28 21
	MW	iP	22
	T	iP	30
3	P	eP	07 49 00
	R	iP	04
	Pr	iP?	09
	T	iP	04
3	P	iP	21 56 22
	R	iP	18
	Pr	iP	14
	T	iP	35
	USCGS: 12 S 76 W, 0 = 21:46:04		
4	P	eP	01 59 18
		e	33
	R	iP	21
		i	37
	Pr	iP	26
	T	iP	13
		i	26
4	R	e	03 59 31
	Pr	e	40
	T	e	24
	USCGS: 27½ N 56 E, 0 = 03:40:40		
	Poona: 27.5 N 55.5 E, 0 = 03:40:50		

C. F. Richter Marion Reid
March 1, 1950

Date	Sta.	Phase	h	m	s
		July			
4	P	iP	10	53	03
	R	iP		52	58 c
	T	iP		53	14 c
4	MW	eP	14	00	29
		e			37
	R	eP			30
	Pr	iP			38
	Tu	eP			34
	USCGS: 21 S 174 E.,				
	0 = 13:47:48				
5	P	iP	03	49	37
	R	iP			39
	Pr	iP			40 d
	T	iP			46 d
6	Pr	eZ?	10	52	45
		i(P)		53	13
	T	eP		52	54
6	P	iP	19	57	55
		i		58	09
	R	iP		57	57
	Pr	iP			59 c
		i		58	13
	T	eP		57	57
	USCGS: Solomon Islands,				
	0 = 19:45:03				
7	P	eP	04	43	06
	R	eP		42	56
	Pr	iP			58
	T	iP			53
	USCGS: 36½ N 36 W,				
	0 = 04:32:17				
7	R	eP	11	45	32
	Pr	eP			34
	T	eP			22
7	R	eP	13	51	16
	Pr	iP			11
	T	eP			19
8	P	eP	12	47	03
		e			19
	PX	iSE		52	20
		eGE		55	.7
		A T			
	PZ	½ 3			
	SH	2 8			
	MH	10 20			
	MH	15 15			
	R	eP	12	46	58
	Pr	ePNE			52
	T	eP			20
	Magnitude 6				
	USCGS: 13 N 91 W,				
	0 = 12:40:30				
8	P	eP	18	28	53
	Pr	ePN			59
	T	eP			35
		i!		29	56
	USCGS: 72 N,0				
	0 = 18:18:06				
	BCIS: 73½ N 4 E				
	0 = 18:18:00				

Date	Sta.	Phase	h	m	s
		July			
9	R	i	00	55	46
	T	i			53
	South Atlantic				
9	P	iP	15	11	11
	R	iP			15
	CL	eP			19
	T	eP			19
	Pacific; first shock				
	recorded at China Lake (CL)				
9	P	iPNEZ	18	52	18 c
		A T			
	PZ	½ 1½			
	MH	20 10			
	R	iP	18	52	14 c
		e			31
		e		53	42
		iPcP		54	23
	CL	iP		52	12 c
	T	iPNEZ			15 c
		i			34
	Unusual epicenter.				
	USCGS: 33 N 71 W,				
	0 = 18:44:50				
10	P	iP	04	07	58
	PX	ePP		12	09
		iPPNZ			23
		ePPP		14	34
		eSKSN		18	28
		iSKSN			35
		eSE		19	55
		iPSN!			21.5
		ePPSN			22.5
		iSSN!			27.4
		eSSS			32.0
		iR!			43.7
		eW2	05	55	
		A T			
	PZ	1¼ 5			
	PPZ	3 3			
	PPH	3 5			
	SKSH	10 10			
	SH	4 8			
	SSH	150 60			
	MH	400 20			
	W2H	20 20			
	R	eP	04	07	59
	Pr	eP		08	05
	CL	eP		07	49
		i			56
		ePKKP		23	50
	T	eP		07	44
	Magnitude 7 3/4				
	USCGS: 39 N 71 E,				
	0 = 03:53:36				
	Poona: 40 N 72.5 E,				
	0 = 03:53.4				
10	PX	e	15	37	37
	R	e			27
	Pr	i			35
	T	e		36	57
	Aftershock				
	BCIS: 0 = 15:18:59				

ROYAL OBSERVATORY EDINBURGH 30 JUN 1950

Date	Sta.	Phase	h	m	s
	July				
10	P	e	16	07	14
	Pr	i			07
	CL	eP		03	25
		e		07	54
	T	i			32
	Aftershock				
	USCGS: 0 = 15:49:14				
10	MW	e	16	19	01
	R	e			00
	Pr	e		18	54
	T	e		19	19
	PKKP of preceding?				
10	MW	eP	16	38	22
	R	e		41	57
	Pr	eP		38	25
		e		41	29
	CL	eP		38	11
	Aftershock				
	USCGS: 0 = 16:24:00				
11	MW	eP	00	22	50
	R	eP			45
	Pr	iP			40
	CL	eP			55
	T	iP		23	06
	Near Panama				
11	Pr	iP	06	17	08
	T	iP		16	41
11	P	eP	09	42	19
	R	eP			22
	Pr	iP			22
	T	iP			29
	Near Apia				
	USCGS: 0 = 09:30:18				
11	P	iPNEZ	16	23	23 d
		ipP			38
		isP			44
	PX	iSN		33	34
		iE		34	06
		eLN			50.5
		A T			
	PZ	3/4 1½			
	SH	3/4 3			
	R	iP	16	23	25 d
		ipP			40
		isP			50
	Pr	iPNEZ!			30 d
		ipP			45
		isP			52
	CL	iP			19 d
		ipP			33
		isP			39
	T	iP	16	23	13 d
		ipP			30
		isP			39
	Felt at Kure.				
	USCGS: 34 N 132 E,				
	0 = 16:10:44				
	CMO: 34 N 132.5 E,				
	h = 40 km.				

Date	Sta.	Phase	h	m	s
	July				
11	P	eP	16	47	12
	R	eP			17
		i			28
	Pr	iP			18
	CL	eP			13
	T	eP			03
	Aftershock?				
12	P	iPNEZ	08	13	14
		ipP			40
		i			51
	R	iP			10
		ipP			37
		i			48
	Pr	iPNEZ			07 d
		ipP			32
		e			44
	CL	eP			18
		epP			43
	T	iP			28
		ipP			52
		i		14	05
	BCIS: 0 = 08:01.4,				
	h = 100 km.				
	Chile				
13	MW	iP	10	08	25
	R	iP			23
	Pr	iP			16
		i			33
	CL	iP			31
		i			50
	T	iP			40
		i			58
	USCGS: 0 = 09:59:40				
	JSA: 2.5 S 79.3 W,				
	0 = 09:59:18				
13	MW	eP	10	39	23
	R	eP			23
	CL	eP			20
	T	eP			19
14	P	e	03	11	03
	MW	iP		08	16
		iPcP		10	49
	R	iP		08	10
		iPcP		10	47
		i		11	02
	Pr	i(P)		08	17
		iPcP		10	46
	CL	iP		08	20
		iPcP		10	51
		e		11	06
	T	iP		08	30
		iPcP		10	54
		i		11	09
	USCGS: 0 = 03:02:00,				
	near Guatemala				

Date	Sta.	Phase	h	m	s
	July				
14	MW	iP	10	24	28
	R	iP			30
	T	iP			21
14	P	eP	19	28	25
		i			37
		i			56
	R	e			41
		e			59
	Pr	eP			35
		i			44
	CL	eP			20
		i			32
	T	eP			10
		i			21
	Kurile Islands?				
14	P	iP	19	52	53
	R	eP			55
	Pr	iP			56
	CL	iP		53	01
	Kermadec Islands				
	Magnitude 6 (Wellington)				
14	P	e	20	55	10
		e		58	32
	CL	e		55	10
		i		58	32
	East Indies. Deep?				
14	P	iP	23	32	54
		ipP		34	32
	R	iP		32	56
		ipP		34	32
	Pr	iP		33	01
		ipP		34	36
		i		35	50
	CL	iP		32	53
		epP		34	28
	T	iP		32	46
		i			52
		e		34	18
		i			22
	BCIS: 29.5 N 138¼ E,				
	0 = 23:21:06,				
	h = 400-450 km.				
	JSA: 29.0 N 137.9 E,				
	0 = 23:21:10,				
	h = 450 km.				
	CMO: 29.9 N 140.0 E,				
	h = 300 km.				
15	MW	eP	09	28	43
		i		29	04
		i			08
		i			13
	R	eP		28	50
		i		29	12
	Pr	i			00
		i			08
	CL	e			05
	T	eP		28	48
		i		29	04
		i			09
	USCGS: 0 = 09:15:30,				
	New Britain				

Date	Sta.	Phase	h	m	s
	July				
15	MW	e	23	34	26
		e			41
	R	e			27
		e			38
	Pr	e			28
		e			41
	Pacific				
15	Pr	iP	23	53	24
	USCGS: 0 = 23:45:25,				
	region of Panama				
16	Pr	iP	05	43	44
	T	iP		44	12
	USCGS: 16 N 93 W,				
	0 = 05:38:00				
16	P	eP	10	03	43
	PX	eLNE		14.9	
	R	eP		03	36
	Pr	iP			31
	CL	eP			56
	T	eP		04	01
	JSA: 13.9 N 92.5 W,				
	0 = 09:57:21				
17	MW	iP	15	09	05
	Pr	iPNEZ		08	47
		e		09	01
		i			08
		i			22
	T	iP			15
		i			24
18	MW	e	00	52	42
	T	e			26
	Small surface waves recorded				
	at Pasadena				
	JSA: 1.2 N 125.2 E,				
	0 = 00:32:58				
18	P	iNEZ	05	00	22 c
		e			45
		e		01	20
		iPKKP		11	49
	R	i		00	22
		iPKKP		11	44
	Pr	e		00	23
		e			38
		i			48
		iPKKP		11	48 c
	T	iEZ		00	19
		iPKKP		11	54 c
	USCGS: 5½ N 126½ E,				
	0 = 04:41:56				
	BCIS: 5½ N 126½ E,				
	0 = 04:41:59				
	h = 100 km.				
18	MW	iP	07	46	41 d
		i			58
		i(pP)		47	56
	R	iP		46	43 d
		i			47
		e(pP)		47	58
	Pr	iPNEZ!		46	44 d
		i(pP)		47	58
	T	iPEZ		46	50
		e(pP)		48	04
	h = 320 km?				
	USCGS: 0 = 07:34:05,				
	Kermadec Is.				

Date	Sta.	Phase	h m s
		July	
18	P	iP	08 39 36
		e(pP)	41 45
		i	42 01
	R	iP	39 39
		e(pP)	41 48
	Pr	iP	39 40
		e	41 17
		i(pP)	48
	T	iPEZ	39 41
		e(pP)	41 50
	h = 600 km?		
	USCGS: 15½ S 166 E,		
	0 = 08:26:48		
	Apia and Riverview readings		
	imply 0 = 08:28:20		
18	P	iPEZ	10 04 42
		ipP	58
		i	05 09
	R	iP	04 44
		ipP	05 00
	Pr	iP	04 49
		ipP	05 04
		i	15
	T	eP	04 31
		ipP	46
		i	05 00
	USCGS: 42½ N 142½ E,		
	0 = 09:53:05		
	CMO: 41.5 N 143.0 E,		
	h = 20 km.		
18	R	eP	12 05 43
	Pr	iP	44
	T	eP	52
19	P	e?	08 33 53
		e	35 23
	R	e	35 26
	Pr	i	28
	T	i	19
19	P	eP	09 48 11
		e(pP)	31
	R	eP	04
		e(pP)	23
	Pr	eP	47 57
		i	48 00
		i(pP)	18
	T	iP	30
		e	44
	JSA: 17 N 100 W,		
	0 = 09:42:58		
19	P	e	18 00 57
	MW	e	53
	Pr	e	58
	Magnitude 6½ (Strasbourg)		
	USCGS: 36 N 70 E,		
	0 = 17:41:57		
	Poona: 39.5 N 71.0 E,		
	0 = 17:42.2		

Date	Sta.	Phase	h m s
		July	
20	P	eP"	22 39 19
		i	31
		i	41
	R	eP"	21
		i	38
	Pr	i	39 41
		i	52
	T	eP"	16
		i	24
		i	42 00
	All these phases small.		
	Large iP' at Tucson at		
	22:39:37		
	BCIS: 11 S 102 E,		
	0 = 22:20:24		
21	P	iPNEZ	08 12 10 d
		e	21
		epP	36
		isPNEZ!	48
	PX	e	13 00
		ePP	14 33
		i	15 05
		e(S)NE	21.5
	P	eP'P'	40 54
		A T	
	PZ	1½ 3	
	PH	1½ 3	
	sPZ	2 2	
	R	iPNEZ	12 06 d
		ipP	36
		isP	46
	Pr	iPNEZ!	12 02 d
		ipP	30
		isP!	40
		i	13 05
		i(PP)	14 55
		iP'P'	40 59
		e	41 24
	T	iPNEZ	12 23 d
		ipP	50
		isP	13 05
		eP'P'	40 46
	Magnitude 6½; h = 110 km.		
	USCGS: 16 S 74 W,		
	0 = 08:01:34,		
	h = 100 km.		
	BCIS: 15.0 S 72.0 W,		
	0 = 08:01:37,		
	h = 100 km.		
21	P	e	17 17 47
	R	e?	16 49
		e	17 27
	Pr	e	58
		i	18 05
	T	e	17 46
	Part of next?		

Date	Sta.	Phase	h m s
		July	
21	P	iPNEZ	17 19 55 c
	R	iP	59 c
	Pr	iP!	20 01 c
	T	iPEZ!	19 56
23	R	eP	07 00 11
	Pr	iP	15
23	R	e	07 11 14
	Pr	i	11
	T	e	17
23	PX	eLE	09 16.0
23	P	iPNEZ!	10 39 16 c
		ipP	51
		e	40 10
		iPPNEZ!	42 39
		e	43 16
	PX	iSKSNE	49 24
		eSNEZ	42
		eNE	50.6
		eGN	11 01.9
	P	iP'P'	05 18
		e	50
		i	06 07
		iSKPP'	08 20
		eP'P'P'	25 43
	A	T A	T
	PZ 10	3 PPZ 3	3
	PH 4½	3 PPH 4	4
	pPZ 2	2 SKSH 3	4
	pPH 8	4 SH 3	4
	R	iPNEZ!	10 39 17 c
		ipP	51
		i	40 05
		iPP	42 44
		i	49 19
		e	50 06
		eSKPP'	11 08 39
		eP'P'P'	25 52
	Pr	iPNEZ!	10 39 19 c
		iPPNEZ	42 45
		iSKSNE	49 30
		i(S)E	53
		iP'P'NEZ	11 05 18
		eSKPP	08 11
		iP'P'P'	25 54
	T	iPNEZ!	10 39 11 c
		i	40 02
		iPP	42 49
		e(S)E	49 02
		iP'P'	11 05 14
		eP'P'P'	25 56
	Magnitude 7.3		
	USCGS: 18½ S 169 E		
	0 = 10:26:47,		
	h = 200 km.		
	JSA: 18.9 S 169.4 E,		
	0 = 10:26:47,		
	h = 150 km.		
23	PX	eP	15 17 20
		ePP	21 15
		i	32
		ePS	30 23
	P	ePKKP	34 22
	PX	eGNE	45.3
		(continued)	

Date	Sta.	Phase	h m s
		July (continued)	
23		A T	
	PZ	0.1 1	
	PPZ	1½ 4	
	MH	35 20	
	R	eP	15 17 22
		iPP	21 28
		ePKKP	33 39
		i	34 00
	Pr	ePNZ	17 24
		iPP	21 30
		ePS	30 26
		iPKKP	33 39
	T	iP	17 06
		i	17
		ePP	21 13
	Magnitude 6 3/4		
	USCGS: 38½ N 26½ E,		
	0 = 15:03:30		
23	MW	eP	16 20 34
	R	eP	32
	Pr	iP	33
	T	eP	52
23	MW	iP	19 50 02
	R	iP	03
	Pr	iP	05
	T	iP	04
24	Pr	iP	14 57 42
	T	eP	58 08
25	P	iPEZ	04 02 53 d
		epP	03 47
		e	04 18
	PX	iSN	13 03
		A T	
	PZ	0.2 1	
	SH	1 2	
	R	iP	04 02 57 d
		i(pP)	04 03
		iPP	06 20
	Pr	iP	02 52
		i(pP)	03 56
		iSE	13 17
	T	iPNEZ	02 50 d
		ipP	03 47
		iPP	06 09
	Mag. 6 3/4, h = 250 km?		
	JSA: 17.4 N 145.5 E,		
	0 = 03:50:20,		
	Probably deep		
25	P	iPNEZ	11 35 29 c
		iPPNZ	37 58
	PX	iSNE	44 32
		eSSN	48.8
		eGE	52.5
		A T	
	PZ	1 ½	
	PH	1½ 3	
	SH	1 4	
	MH	15 20	
	R	iPNZ	11 35 28 c
	Pr	iPNEZ!	24 c
	T	iPNEZ	46 c
	Magnitude 6 3/4		
	USCGS: 32 S 111 W,		
	0 = 11:24:40		

Date	Sta.	Phase	h m s
		July	
27	P	iPNEZ	15 24 03 c
		iNEZ	22
		iPP	27 14
	PX	iPPPNE	28 51
		iSNE	34 21
		iN	35 26
		eSSN	39 55
		eGN	44.7
	P	iP'P'	50 30
		A T	
	PZ	2 1½	
	PH	3/4 2	
	PPZ	1½ 2	
	PPH	1 3	
	SH	5 8	
	MH	25 20	
	R	iPNEZ	15 24 05 c
		ipP	25
		i	44
		eP'P'	50 30
	Pr	iPNZ	24 06 c
		iPP	27 06
		eSN	34 33
	T	iPNEZ	24 15 c
		ipP	32
		eSN	34 49
		eP'P'	50 31
	Magnitude 7, h = 80 km.		
	USCGS: 29 S 177 W,		
	0 = 15:11:35		
28	P	eP	03 47 06
		i	13
		i	28
	R	eP	02
		e	09
	Pr	iP	46 56
		i	47 02
	T	iP	19
		i	26
	USCGS: 16 S 76 W,		
	0 = 03:36:28		
28	P	iP	04 40 52
	Pr	iP	55 c
	T	iP	41 00
28	P	iP	13 30 05
	R	eP	09
	T	iP	29 53
28	P	ePNEZ	20 19 10
	R	eP	19 13
	T	eP	18 42
29	P	eP	11 12 27
	R	eP	32
	CL	eP	15
	T	eP	00
29	PX	eLNE	20 52
	USCGS: 0 = 20:48:05		
	Gulf of California		
29	PX	eLNE	20 58
	USCGS: 0 = 20:53:13		
	Gulf of California		

Date	Sta.	Phase	h m s
		July	
29	PX	eLNE	21 52
	USCGS: 0 = 21:47:06		
	Gulf of California		
29	PX	eLNE	22 04
	USCGS: 0 = 21:59:21,		
	Gulf of California		
30	P	iPNEZ	06 40 38 c
	R	iPNZ	42 c
		i(pP)	59
	Pr	iPNZ	47 c
	CL	iP	34 c
		i(pP)	51
	T	iPNEZ	26 c
		i(pP)	44
		i	56
	h = 70 km?		
	USCGS: 45½ N 149E		
	0 = 06:29:34		
	BCIS: 47 N 150 E,		
	0 = 06:29:43		
	CMO: 44.1 N 150.1 E,		
	h = 180 km.		
30	P	eP	15 33 07
		e	13
	R	eP	06
	Pr	iP	32 58
	CL	eP	33 10
	T	eP	19
31	P	eP	00 01 02
		e	19
	PX	eLE	10.2
	R	eP	00 52
	T	e	01 00
31	P	iPNEZ	04 26 08
		i	15
		i	25
	R	iP	05
	Pr	iPNZ	02
		i	09
	CL	iP	15
	T	iP	20
		i	28
	USCGS: 0 = 04:14:04; Chile		
31	P	iPNEZ	07 08 25 c
	R	iP	28 c
	Pr	iP	31 c
	CL	eP	28
	T	iP	25
		August	
1	MW	eP	04 58 27
	R	eP	29
	CL	eP	33
	T	eP	36
	Near Apia.		
	USCGS: 0 = 04:47:00		
1	MW	e	08 07 52
	R	e	54
	T	e	08

Date	Sta.	Phase	h m s
		August	
1	P	iP	08 09 09
		i	22
	PX	eLN	15.2
	R	iP	09 04
	Pr	iPNZ	08 58
		i	09 15
	CL	eP	13
	T	iPNEZ	24
		i	39
	USCGS: 19 N 96 W,		
	0 = 08:03:47		
2	P	ePNZ	23 13 21
	R	iP	20
	Pr	iP	17
	CL	eP	32
	T	eP	41
3	P	eP'	20 43 17
	R	eP'	16
	CL	eP'	19
	T	iP'	22
	BCIS: 55 S 25 E,		
	0 = 20:23.6		
4	MW	e	05 45 00
	Pr	i	09
	CL	e	44 54
	T	e	37
		i	45
4	P	eP	08 04 43
		i	05 04
	PX	eLN	34.2
	R	eP	04 45
	Pr	eP	41
		i	05 10
		i	44
	CL	eP	04 44
	T	eP	41
4	P	iP	10 59 00
	R	iP	01
	Pr	iPNEZ	04 c
		i	24
	CL	iP	07 c
	T	iPNEZ	09 c
5	MW	iP	07 04 04
		ipP	21
	R	eP	06
		ipP	23
	Pr	iP	05
		ipP	23
	CL	iP	11
		ipP	28
	T	iP	13
		ipP	30
5	MW	iP	07 59 04
		epP	34
		i	59
	R	iP	58 59
		epP	59 29
		e	56
		(continued)	

Date	Sta.	Phase	h m s
		August (continued)	
5	Pr	iP	07 58 54
		ipP	59 24
		i	53
	CL	epP	38
		i	08 00 01
	T	eP	07 59 17
		epP	48
		e	08 00 07
	Andes; h = 120 km.		
5	P	iPNEZ	19 12 03 c
	R	iP	11 59 c
	Pr	iPNEZ	55 c
	CL	eP	12 09
	T	iPNEZ	19
	Foreshock		
	USCGS: 1 S 78 W,		
	0 = 19:02:56		
5	P	iPNEZ!	19 17 54 c
		iPP	19 54
	PX	eS	25 08
		eSNE	12
		eGN	29.9
		A T	
	PZ	2 1½	
	PZ	5 4	
	PH	5 3	
	SH	3 6	
	MH	30 20	
	R	iPNEZ!	19 17 49 c
		eSN	25.3
	Pr	iPNEZ	17 45 c
		iSNE	25 05
	CL	iP	17 58 c
	T	iPNEZ	18 07 c
		eSNE	25 52
	Magnitude 6 3/4		
	Destructive in Ecuador		
	USCGS: 1 S 78 W,		
	0 = 19:08:47		
6	P	iPNEZ!	00 47 13 c
	PX	ipPNEZ	30
		i(sP)	41
		i	52
		i	49 12
		ePP	51
		iSN	56 51
		iNE	57 14
		iE	54
		eLZ	01 09.1
		A T	
	PZ	4 1	
	PZ	12 5	
	PH	6 4	
	R	iPNEZ!	00 47 16 c
		i	27
		ipP	33
		eSNE	56.8
		(continued)	

Date	Sta.	Phase	h m s
		August (continued)	
6	Pr	iPNEZ	00 47 16 c
		i	49 17
		iSNE	56 55
		iN	57 15
		iN	58 07
	CL	iP	47 21 c
	T	iPNEZ	23 c
		i	30
		ipP	40
		i	47
		iSN	57 07
	Magnitude 7½, h = 80 km.		
	USCGS: 19 S 174½ W, 0 = 00:35:27		
	JSA: 19.3 S 174.8 W, 0 = 00:35:39, h = 100 km.		
6	P	iP	12 08 38
		ipP	58
	R	iP	40
		ipP	09 02
	Pr	iP	08 40
		ipP	59
	CL	eP	08 46
		epP	09 04
	T	eP	08 47
		i	53
		epP	09 07
	USCGS: 19 S 174½ W, 0 = 11:56:53		
6	P	iP	16 02 48
		epP	03 05
		i	10
	R	iP	02 50
		e	03 04
		ipP	08
	Pr	iP	02 51
		ipP	03 08
	T	iP	02 58
		epP	03 17
	USCGS: 19 S 174½ W, 0 = 15:51:03		
6	P	iP	16 43 29
	R	iP	31
	Pr	iP	31
	CL	iP	37
	T	iP	39
6	P	iPNEZ	18 58 58
	R	iP	53
	Pr	iP	46
	CL	eP	59 03
	USCGS: 0 = 18:53:36, near east coast of Mexico		
7	P	iPEZ	08 19 37
	R	iP	42
	Pr	iPNEZ	52
	CL	eP	20
	T	iPNEZ	09
	USCGS: 50½ N 130 W, 0 = 08:15:20		

Date	Sta.	Phase	h m s
		August	
7	P	iP	10 48 59
	R	iP	49 04
	Pr	iP	14
	CL	eP	48 45
	T	iP	31
	USCGS: 50½ N 130 W, 0 = 10:44:42		
7	MW	eP	17 38 15
	R	eP	16
	CL	eP	12
	T	eP	08
	possibly all pP		
8	MW	iP	00 04 43
	R	iP	39
	Pr	iP	35
	T	iP	56
8	P	e	07 29 13
	MW	e	25
	Pr	e	59
		i	30 13
		i	38
	CL	e	29 19
	T	e	23
	BCIS: 19½ S 65½ E, 0 = 07:09:08		
	Poona: 17 S 66 E, 0 = 07:09.3		
8	P	eP	13 23 38
	R	eP	40
	Pr	iP	41
		iEZ	58
		i	24 35
	CL	eP	23 43
	T	iP	48
	USCGS: 0 = 03:11:42		
	Tonga region		
8	P	iPEZ	14 16 36
	PX	eLNE	24.4
	R	eP	16 30
		i	42
		iPcP	19 37
	Pr	iPNEZ	16 24
		i	38
		i	17 35
	CL	eP	16 39
	T	eP	53
		i	17 00
		iPcP	19 44
	USCGS: 15 N 93 W, 0 = 14:10:29		
8	P	iP	17 25 13
	R	eP	14
	Pr	iP	14 c
	CL	iP	19
	T	iP	23 c
	Near Apia		

Date	Sta.	Phase	h m s
		August	
8	P	eP	19 17 57
		i(pP)	18 05
	R	eP	17 51
		i(pP)	58
	Pr	iP	46
		i(pP)	55
	CL	eP	17 59
	T	iP	18 10
		i(pP)	17
	USCGS: 16 S 75½ W, 0 = 19:07:18		
9	MW	iP	03 29 17
	R	iP	14
	T	iP	28
		i	38
9	MW	e	05 39 36
	R	e	37
	CL	e	24
		e	41
	T	e	43
9	P	iP	11 09 04
	R	eP	06
	Pr	iP	06
	CL	eP	11
	T	iP	13
10	Pr	iP	04 50 03
	T	iP	09
10	MW	e	13 48 45
	CL	e	35
		e	43
	T	i	35
10	P	eP	13 55 19
		i	26
	R	eP	19
	CL	eP	08
		e	16
	T	eP	01
		e	08
	USCGS: 87 N 60 E, 0 = 13:45:15		
10	P	eP	16 55 45
	R	eP	39
	CL	eP	34
	T	eP	27
10	P	eP	20 43 50
	R	eP	51
		e	57
	Pr	iP	57
	CL	eP	40
	T	eP	32
		e	43
	USCGS: 87 N 60 E, 0 = 20:33:47		
11	P	iP	03 22 24
	R	iP	20
	Pr	iP	15
		i	32
	CL	iP	28
	T	iP	38
	USCGS: 1 S 78 W, 0 = 03:13:17		

Date	Sta.	Phase	h m s
		August	
11	P	iP	12 36 13
	R	iP	14
	Pr	iP	19
	CL	iP	09
	T	iP	04
11	P	eP	13 55 59
	PX	eLN	14 04.4
	R	eP	13 55 53
	Pr	iP	48
	CL	eP	56 06
	T	eP	17
	USCGS: 15 N 93 W, 0 = 13:49:53		
11	MW	e	14 51 36
	Pr	iP	24
	T	eP	16
	USCGS: 45 N 29 W, 0 = 14:40:36		
	BCIS: 43 N 28 W, 0 = 14:40:30		
11	P	iPNEZ	15 12 09 d
		epP	27
	PX	eLE	17
	R	iP	12 11 d
	Pr	iPNEZ	11 d
		i	42
	CL	iP	16 d
	T	iP	18 d
		ipP	35
	III at Apia		
	USCGS: 0 = 15:00:43		
12	R	e?	07 07 44
	CL	eP	33
	T	eP	35
12	MW	e(P)	19 54 27
		e	33
	R	eP	23
	Pr	iP	21
12	P	iP	23 28 15
		ePP	31 38
	R	iP	28 18 c
	Pr	iPNEZ	20 c
		i	46
		iPP	31 46
	CL	iP	28 21
	T	iPNEZ	23
	USCGS: 14 S 167½ E, 0 = 23:15:36		
13	P	iP	17 38 32
		ipP	45
	MW	iP	31
		ipP	45
	Pr	iP	20
		ipP	33
	CL	iP	35
		ipP	49
	T	iP	46
		ipP	39 00

Date	Sta.	Phase	h m s
		August	
13	P	eP	18 38 13
		iPP	42 04
	PX	iSKS	48 47
		iE	52
		eSPNZ	50 43
		eSSN	55.8
		eGN	19 03.1
		A T	
	PZ	1/2 2	
	SKSH	1 5	
	MH	10 20	
	R	eP	18 38 16
	Pr	eP	19
		i	34
	CL	eP	38 14
		e	38
	T	ePNEZ	38 14
		i	30
		eN	48.5
	Magnitude about 6½		
	USCGS: 0 146 E,		
	0 = 18:24:49		
	BCIS: 1½ S 144 E,		
	0 = 18:24.8		
15	PX	eL	20 37
	T	i?	26 59
16	MW	iP	21 01 13
	R	iP	09
17	MW	iP	03 27 05
	R	iP	07
	CL	iP	04
		i	40
		i	46
	T	iP	26 59
		i	35
		i	43
	Larger at CL and T than at MW and R.		
17	P	iP	18 45 25 c
		ipP	45
		isP	54
		ePP	47 52
		e	48 02
		i	29
	PX	iSN	54 41
		iN	55 22
		A T	
	PZ	0.4 1	
	SH	1 3	
	R	iPNEZ	18 45 28 c
		ipP	50
		isP	46 01
	Pr	iP	45 33 c
		ipP	55
		isP	46 05
		iSN	54 26
	T	iPNEZ	45 14 c
		ipP	38
		isP	50
		eSN	54 22

(continued)

Date	Sta.	Phase	h m s
		August (continued)	
17	Magnitude about 6½		
	USCGS: 43 N 146 E,		
	0 = 18:34:07,		
	h = 100 km.		
	CMO: 42.7 N 145.5 E,		
	h = 80 km.		
17	P	eP	18 58 47
		eP"	19 02 23
	PX	iPP	39
		eSKS	09 01
		eSKKS	52
		ePS	11 44
		ePPS	13.0
		eSS	17.3
		eG	26.9
		A T	
	PPZ	0.3 2	
	MH	25 20	
	Pr	e?	18 58 15
		i	27
		i	42
		e	19 01 24
		iPPN	02 43
	T	eNZ	18 58 13
	Magnitude 6 3/4		
	USCGS: 39 N 40 E,		
	0 = 18:44:15		
	BCIS: 39.4 N 40.9 E,		
	0 = 18:44:13		
18	MW	eP	02 34 50
		epP	58
	R	iP	55
		ipP	35 04
		i	10
	Pr	iP	02
		ipP	10
	CL	eP	34 44
		epP	53
	T	iP	33
		ipP	43
18	P	iPNEZ	10 09 58 c
		e(pP)	11 34
		A T	
	PZ	0.4 1	
	PH	0.3 1	
	R	iPNZ	10 10 01 c
	Pr	iPNEZ	06 c
		i	13
		iNZ	20
		i	29
		e(pP)	11 35
	CL	iP	09 56 c
		e(pP)	11 34
	T	iPNEZ	09 51 c
		e(pP)	11 29
	BCIS: 29.5 N 138¼ E,		
	0 = 09:58:10		
	h = 400-450 km.		
	CMO: 30.0 N 139.2 E,		
	h = 300 km.		

Date	Sta.	Phase	h m s
		August	
18	CL	eP	12 29 53
	T	iP	45
18	P	iPNEZ	13 41 13 c
		i	23
	PX	ePcSE	47 01
		eSNE	29
		iE	44
		eGN	51.8
		A T	
	PZ	2 4	
	PH	1½ 4	
	SH	5 10	
	MH	12 20	
	R	iPNEZ	13 41 08
		i	16
		i	20
		i	43 09
	Pr	iPNEZ	13 41 02 c
	CL	iP	15
		i	27
		i	43 12
	T	iPNEZ	41 27
		i	34
		i	41
		i	43 17
	Magnitude 6½		
	USCGS: 8½ N 82½ W,		
	0 = 13:33:25		
19	P	iPNZ	08 37 12 c
		i	33
	R	iP	14 c
		e	27
	Pr	iPNEZ	15 c
		i	29
		i	38
	CL	iP	20 c
	T	iPNEZ	22
		i	34
		e	54
	Near Apia		
	USCGS: 0 = 08:25:16		
20	P	iP	02 06 50
	R	iP	53
	Pr	iP	59
	CL	iP	46
	USCGS: Kurile Islands		
	0 = 01:56:15		
20	MW	eP	04 10 21
	R	eP	18
	Pr	iP	11
21	P	eP	03 57 01
	R	eP	03
	Pr	iP	03
	CL	eP	56 55
	T	iP	48
	USCGS: Kurile Islands,		
	0 = 03:46:25		

Date	Sta.	Phase	h m s
		August	
21	P	eP	08 45 17
	R	eP	20
	Pr	iP	19
	T	eP	28
		e	40
	USCGS: Tonga Islands region,		
	0 = 08:33:34		
21	P	eP	08 57 54
		e	58 11
	R	eP	57 55
	Pr	iP	39
		i	57
	T	eP	46
	Near Apia		
	USCGS: 0 = 08:45:52		
21	MW	eP	15 15 08
	R	e	20
	T	eP	15
21	MW	e	20 43 16
	R	eP	42 56
		e(pP)	43 19
	Pr	iP	42 53
		i(pP)	43 18
	T	iP	43 06
	USCGS: 10½ N 62½ W,		
	0 = 20:33:20		
21	P	eP	20 49 57
		i	50 06
		iSNE	51 29
	R	eP	50 07
		iS	51 51
	Pr	iP	50 27
	CL	e	49 55
		eS	51 01
	H	i	49 44
		iSEZ	50 46
	T	eP	49 21
		i	30
		eSNE	50 19
	Magnitude 4.8		
	Felt at Caribou and Chester (Plumas County, northeastern California).		
22	P	iPNEZ	03 29 39 c
		ipP	54
	R	iP	42 c
		ipP	57
	Pr	iPNEZ	44 c
		ipP	30 00
	CL	iP	29 42 c
		ipP	58
	T	iP	41
	USCGS: near New Britain,		
	0 = 03:16:33		

Date	Sta.	Phase	h m s
		August	
22	P	iPNEZ!	04 06 12 d
	PX	iLNE	10 21
		eW2E	06 19.1
		eW3E	39.6
		A T	
	PH	60 4	
	MH	6000 20	
	R	iPNEZ!	04 06 16 d
	Pr	iPNEZ!	23 d
	LJ	iPNEZ	27 d
	SB	iPNEZ	05 d
	CL	iP	05 58 d
	H	iPNEZ	56 d
		e(S)E	09 53
	T	iPNEZ	05 40 d
		i(S)NE	09 44
	Off Queen Charlotte Islands, British Columbia.		
	Magnitude 8		
	USCGS: 54 N 133 W, 0 = 04:01:12		
	The next six are aftershocks		
22	MW	eP	04 33 36
	T	eP	10
22	MW	eP	04 39 07
	T	iP	38 39
22	MW	eP	05 58 51
	T	eP	20
22	T	eP	06 11 44
22	MW	eP	06 22 03
	R	iP	06
	Pr	eP	12
	CL	eP	21 49
	T	iP	36
22	P	iP	06 22 37
	R	iP	40
	Pr	iP	46
	CL	iP	25
	T	iPNEZ	11
	Or, pP of the preceding??		
22	P	iPNEZ!	06 39 37 c
	R	iP	41 c
	Pr	iPNEZ	46 c
	CL	iP	31 c
		iPcP	41 02
	T	iP	39 22 c
		iPcP	40 59
		iScP	44 28
	USCGS: 0 = 06:31:00		
	BCIS: 52½ N 180°		
22	P	iPNEZ	07 22 38 c
		ipP	23 06
		isP	21
	R	iP	22 33
		ipP	23 02
	Pr	iP	22 28
	CL	iP	42
		epP	23 10
		esP	24
	T	iP	22 50
		epP	23 19
	USCGS: 07:11:35		
	BCIS: 18 S 70 W		

Date	Sta.	Phase	h m s
		August	
22	MW	eP	07 55 39
	R	eP	42
	CL	eP	26
	T	eP	10
22	MW	e?	08 23 42
	CL	eP	31
	T	eP	18
22	MW	ePP	09 11 11
		ePKKP	20 32
		eP'P'	30 11
	R	ePP?	11 19
		eSKP	13 43
		ePKKP	20 37
		eP'P'	30 16
	Pr	ePP	11 08
	CL	ePP	18
		ePKKP	20 25
	T	ePP	11 31
		iSKP	13 12
	USCGS: 0 = 08:51:15		
	BCIS: 37 S 18 W		
22	MW	iP	09 13 40
	R	eP	43
	T	iP	12
	Aftershock of 04h?		
22	P	iP	11 53 57 c
	R	iP	59 c
	Pr	iP	54 03
	CL	iP	53 55 c
	T	iP	50
	USCGS: 0 = 11:41:23		
	Bonin Islands region		
22	P	ePNZ	12 27 11
	R	eP	15
	Pr	iP	22
	CL	eP	26 59
	T	iP	45
	Aftershock of 04h		
22	P	iP	12 27 40
	R	iP	44
	Pr	iP	51
	CL	iP	28
	T	iP	14
	Aftershock; or pP??		
22	P	eP	13 45 31
	R	eP	35
	CL	eP	18
	T	iP	05
		i	48 51
	Aftershock of 04h		
22	P	i	15 05 13
	R	i	11 d
	Pr	i	11
	CL	i	14
	T	i	18
22	R	e	19 50 43
	T	e	14
		e	21
		i	38
23	PX	eLE	03 12
	MW	eP	03 04 19
	R	eP	24
	Pr	eP	40
	T	eP	03 51
	Aftershock of Aug. 22, 04h		

Date	Sta.	Phase	h m s
		August	
23	P	ePNEZ	15 24 14
		epP	26
	PX	eSNE	33 05
		eLNE	44.7
	R	eP	24 11
		epP	23
	Pr	iP	07
		epP	19
	T	iPNEZ	29
	USCGS: 0 = 15:13:20		
	BCIS: 17½ S 74 W		
23	P	eP	19 42 16
	R	eP	21
	T	iP	41 49
	Foreshock of next		
23	P	iPNEZ	19 48 21 c
	PX	eLNE	52 21
		A T	
	PZ	½ 1	
	PH	½ 2	
	MH	5 10	
	R	iPNEZ	19 48 25 c
	Pr	iPNEZ	34 c
	H	iPNEZ	04
	T	iPNEZ	47 54 c
		i	48 23
	USCGS: 53 N 132 W, 0 = 19:43:35		
23	P	iPNEZ	20 29 18 c
		i	34
	PX	eN	32 52
		iLNE	33 18
		A T	
	PZ	6 3	
	PH	6 3	
	MH	60 10	
	R	iPNEZ	20 29 22 d
	Pr	iPNEZ!	32 d
	H	ePNEZ	01
	T	iPNEZ	28 51 d
		e(S)E	32 31
	Magnitude 6¼		
	USCGS: 53 N 132 W, 0 = 20:24:32		
23	P	iP	20 43 32
	R	iP	37
	T	iPNZ	06
23	P	i	20 45 33
	R	i	38
24	P	eP	02 42 18
	R	eP	22
	CL	eP	06
	T	iP	41 52
		e	42 20
	Aftershock of August 23, 20h		
24	P	iPNEZ	06 10 04
	PX	eLN	12.2
		A T	
	PZ	3/4 2	
	PH	1/2 2	
	MH	10 20	
		(continued)	

Date	Sta.	Phase	h m s
		August (continued)	
24	R	iPNEZ	06 10 11
	Pr	iPNEZ	23
	CL	iP	09 54
	T	iPNEZ	37
	USCGS: 43½ N 127 W, 0 = 06:07:14		
24	P	iPNEZ	06 37 39 c
		ipPNEZ	38 06
		isP	19
		A T	
	PZ	1/2 2	
	pPZ	1/2 2	
	R	iPNEZ	41 c
		ipP	38 09
	Pr	iPNEZ!	37 43 c
		ipPNEZ!	38 11
	CL	iP	37 48 c
		ipP	38 15
	T	iPNEZ	37 49 c
		ipPNEZ	38 17
24	P	iP	07 28 02
	R	iP	05
	Pr	iP	04 c
	CL	iP	11
	T	iP	13
24	P	eP	09 24 52
	R	eP	56
	Pr	iP	25 05
	CL	eP	24 43
	T	eP	28
	Aftershock of August 23, 20h		
24	P	eP	09 30 12
		ePcP	32 04
	PX	eSE	36.7
		eLE	40.2
		A T	
	PZ	1/4 1½	
	PH	1/2 2	
	LH	10 20	
	MH	4 7	
	R	eP	09 30 11
		ePcP	31 52
	Pr	iP	30 05
	CL	eP	27
	T	eP	39
		ePcP	32 14
	USCGS: 9 S 109 W, 0 = 09:22:02		
24	MW	eP	12 47 25
	T	iP	06
24	P	iP	13 04 15
	R	iP	19
	Pr	iP	19 d
	T	iP	25 d
	Near Apia		
24	MW	eP	21 56 50
	R	eP	59
	T	eP	24

Date	Sta.	Phase	h m s
		August	
24	P	iPNEZ	22 42 01 c
	R	eP	05
	Pr	iP	13
	T	e	41 41
25	R	eP	02 32 12
	T	eP	38
25	P	iP	04 22 52 c
		iEZ!	56
		iNEZ	23 05
	PX	iSNEZ	29 39
		eSSNE	32 41
		eLN	34.3
		A T	
	PZ	1 1	
	PH	0.4 1	
	SH	1.2 3	
	MH	10 20	
	R	iPEZ	04 22 57 c
		i	23 14
		ePcP	24 27
	Pr	iPNEZ!	23 03 c
		iNE	08
		iScP	28 17
		iSNE	29 58
	CL	iP	22 48 c
		i	52
		iPcP	24 24
		iScP	28 09
	T	iPNEZ	22 37 c
		i	52
		iPcP	23 55
		iScP	28 11
		eSNE	29 16
	Magnitude 6 3/4		
	h = 60 km?		
	USCGS: 52½ N 178 W,		
	0 = 04:14:25		
	BCIS: 53½ N 178 W,		
	0 = 04:14:28		
25	Pr	iP	09 35 22
25	P	iP	11 54 50
	R	eP	54
	Pr	iP	54
	T	i(P)	55 04
25	P	iPNZ	18 44 25
		ipP	51
	R	iP	21 d
		ipP	48
	Pr	iP	18
		i	35
		ipP	46
	T	iPNEZ	38 d
		ipP	45 06
	USCGS: 0 = 18:33:07		
	JSA: 18.8 S 70.6 W,		
	0 = 18:33:25, h = 125 km.		

Date	Sta.	Phase	h m s
		August	
25	P	iP"	23 44 17
		iPPEZ	45 01
		iSKP	47 42
	PX	iSKSNE	50 51
		iE	51 47
		eE	54 05
		iSPEZ	21
	P	ePKKP	55 17
		A T	
	P"Z	0.2 1	
	PPZ	1/4 2	
	PPH	1/4 2	
	SKSH	1 1½	
	R	eP"	23 44 19
		ePP	45 07
		eSKSNEZ	50 53
		iPKKP	55 13
	T	eP"	44 18
		iPP	45 01
		iSKP	47 42
		eSKSNEZ	50 50
		iPKKP	55 11
	Depth about 150 km.		
	Magnitude 6½		
	BCIS: 7 S 129½ E,		
	0 = 23:25:39		
	JSA: 6.8 S 130.5 E,		
	0 = 23:25:57, h = 200 km.		
	Poona: 7 S 128 E, 0 = 23:25:49,		
	h = 100 km ±		
26	P	iP	00 35 01
	R	iP	03
	Pr	iP	04
	T	iP	10
26	P	eP	05 31 24
		i	32
	PX	eLE	40.5
	R	eP	26
		e	34
	Pr	iP	36
	CL	eP	12
		i	20
	T	iPNZ	00
		i	08
	JSA: 56.1 N 133.2 W,		
	0 = 05:26:09		
26	P	iPNEZ	16 53 05 c
		iSNE	32
	SB	iPNEZ!	52 46 c
		iSNE!	57
	H	iP	53 16
		iSNEZ	54 04
	T	iP	53 23
		iSN	59
	Magnitude 4.2		
	34.5 N 120.5 W		
	0 = 16:52.5		
	Felt from San Luis Obispo to Pt. Arguello		

Date	Sta.	Phase	h m s
		August	
26	P	iP	22 44 47
	R	eP	50
	Pr	iP	57
	T	iPNEZ	20
	JSA: 54.3 N 134.7 W,		
	0 = 22:39:40		
27	P	iPNEZ!	14 52 20 c
		iSN	43
	R	iPEZ	28 c
		iSE	53 02
	SB	iPNEZ!	52 01 c
		iSNE!	13
	H	iPNEZ	30 c
		iS	53 09
	T	iPEZ	52 38
		iSNE	53 19
	Magnitude 4.9		
	Felt from San Luis Obispo to Santa Barbara		
	Slight damage near Point Arguello.		
	34.5 N 120.4 W,		
	0 = 14:51.8		
27	P	eP	21 35 28
	R	eP	31
	T	eP	35 04
	Aftershock Aug. 22, 04 h.		
28	MW	eP	19 38 58
		e	39 08
	R	eP	00
		i	08
	Pr	iP	01
		i	07
	T	eP	38 46
	USCGS: 54 N 34 W,		
	0 = 19:28:54		
	BCIS: 52½ N 35 W,		
	0 = 19:28:46		
29	P	eP	09 13 24
	R	eP	33
	Pr	iP	34
	CL	eP	41
	T	eP	40
29	P	iP	11 34 32
	Pr	iP	36
	CL	e	51
	T	iP	43
30	R	eP	02 46 43
	CL	eP	47 08
	T	iP	22
30	P	iP	08 37 53
	Pr	iP	56
	CL	eP	38 12
	T	eP?	02
30	MW	iP	15 38 24
	Pr	iP	39 00
	T	iP	38 49
30	R	eP	19 06 00
	Pr	iP	03
	T	iP	08

Date	Sta.	Phase	h m s
		August	
31	P	eP	00 20 53
		e	21 06
	PX	eLN	53.7
	R	eP	20 57
		e	21 10
	Pr	iP	20 49
		i	21 03
	CL	eP	20 56
	T	eP	50
	USCGS: 0 = 00:08:15		
	Marianas Islands		
31	P	eP	13 53 56
		i	54 10
		i	22
		iScP	59 55
	R	eP	53 58
		e	54 12
		i	22
		iPcP	56 24
		iScP	59 56
	Pr	iP	54 05
		iNEZ	33
		i	48
		iScP	14 00 00
	CL	eP	13 53 46
		e	54 14
		iPcP	56 19
		iScP	59 53
	T	ePNZ	53 29
		i	54 00
		i	27
		iPcP	56 14
		iScP	59 46
	USCGS: 0 = 13:47:09,		
	S. Alaska		
	JSA: 61.0 N 150.6 W,		
	0 = 13:47:06		
		September	
1	P	iP	14 09 45
	PX	eLE	29.1
	R	iP	09 43
	Pr	iPNEZ	40
	CL	iP	56 c
	T	iPNEZ	10 02 c
	USCGS: 36 S 97 W,		
	0 = 13:58:44		
1	P	eP	17 11 56
	R	eP	58
	Pr	iP	12 03
	CL	eP	11 58
	T	eP	54
	USCGS: 0 = 16:59:15,		
	Marianas Islands		
1	P	eP	18 34 34
	PX	iSNE	40 54
		eLNE	47.2
	R	eP	34 33
	Pr	iPNZ	24
	CL	eP	44
		(continued)	

Date	Sta.	Phase	h m s
		September (continued)	
1	T	eP	18 35 01
	JSA: 2.2 N 90.3 W,		
	0 = 18:26:52		
	BCIS: 1¼ N 91.5 W,		
	0 = 18:26:45		
2	MW	iP	00 45 16
	R	iP	20
	CL	iP?	44 25
2	P	iP	01 36 22
	R	eP	24
	Pr	iP	32
	T	iP	35 55
2	P	iP	07 00 19
	R	eP	18
	T	iP	25
3	P	iPNEZ	03 13 28 d
		ipP	54
		i	15 30
		A T	
	PZ	0.2 1	
	R	iPNZ	13 32 d
		ipP	54
		e	16 01
	Pr	iPNEZ!	13 40 d
		ipPEZ	14 04
		i	15 27
	CL	iP	13 19 d
		ipP	44
		e	15 58
	T	iPEZ	13 06 d
		ipP	31
	USCGS: 62 N 148 W,		
	0 = 03:06:47, h = 100 km.		
3	P	iP	07 41 03
	R	eP	01
	T	iP	40 54
	Not far distant		
4	P	eP	05 06 53
	Pr	eP	57
	CL	eP	07 01
	T	iP	04
	Small surface waves recorded at Pasadena		
	Near Apia		
4	P	eP	18 34 12
	R	eP	07
	Pr	iP	33 58
	CL	eP	34 25
	T	eP	40
5	P	i(PKKP)	03 24 50
	Pr	iPP	12 22
	CL	ePP	14
		e(PKKP	24 38
	BCIS: 17½ N 121¼ E,		
	0 = 02:54:02		
5	MW	eP	03 32 57
		ePP	36 40
	Pr	ePP	32
	CL	ePP	32
	T	eP	32 40
	USCGS: 17 N 121 E,		
	0 = 03:18:09		

Date	Sta.	Phase	h m s
		September	
5	P	iP	06 59 07
		epP	20
	R	eP	11
	Pr	eP	19
	CL	eP	58 53
	T	iPNEZ	40
		i	59 00
	USCGS: 0 = 06:54:15		
	Aftershock Aug. 22, 4 hrs.		
6	P	iPNEZ	11 22 32
		eSN	24 10
	Pr	iPNEZ	22 48
	H	iP	15
	T	iPEZ	07
		eSN	52
	Magnitude 4.6		
	Felt at Eureka, California		
6	MW	eP	15 36 19
	R	eP	17
	Pr	iPNZ	07
	CL	eP	24
6	MW	eP	22 44 03
	R	eP	05
	Pr	iP	06
	CL	eP	09
	T	iP	13
	Near Apia		
7	MW	eP	07 35 03
	Pr	iP	34 53
	BCIS: 0 = 07:27		
	Galapagos Islands		
7	P	iPNZ	12 48 01
	R	iP	47 57
	Pr	iPNEZ	48 c
	CL	eP	48 15
		i	34
	T	iPNEZ	32
7	MW	iP	13 46 47
	R	iP	50
	Pr	iP	51
	CL	iP	54
	T	eP	54
	Southwest Pacific		
7	Pr	iP	23 07 01
8	P	iP	02 57 31
		ipP	48
	R	iP	34
		ipP	53
	Pr	iP	40
		ipP	57
		i	58 00
	CL	iP	57 29
	T	iP	19
	USCGS: 48 N 154 E,		
	0 = 02:46:52		
8	R	eP	07 31 27
	Pr	iP	10
	CL	eP	23
	T	eP	22

Date	Sta.	Phase	h m s
		September	
8	P	eP	16 12 25
	MW	eP	24
	Pr	iP	18
	CL	eP	30
	T	eP	39
	USCGS: 15½ S 76 W,		
	0 = 16:01:50		
9	P	iP	20 37 49
		i	59
	R	iP	51
	CL	iP	56
	T	iPEZ	38 00
		i	09
	USCGS: 17 S 172 W,		
	0 = 20:26:20		
11	P	eP	13 48 25
	R	e(P)	32
	Pr	e(P)	27
	CL	eP	11
	T	iP	10
		i	19
12	R	e	14 27 30
	Pr	e	26
	CL	e	07
	T	e	14
12	P	eP	08 41 11
	R	eP	13
	CL	eP	00
	T	iP	40 43
	USCGS: 0 = 08:36:07		
	Aftershock Aug. 22, 4 hrs.		
12	P	iP	09 29 56
	PX	i(S)E	40 20
		eLNE	57.8
		A T	
	MH	15 20	
	R	iP	09 29 58 c
	Pr	iPNEZ	58 c
		e(S)NE	40 31
	CL	iP	30 02 c
	T	iPNEZ	03
	Magnitude 6½ - 7		
	(Wellington)		
	USCGS: 22 S 170 E,		
	0 = 09:17:04		
12	P	eP	10 56 38
		e	57 07
	R	iP	56 40
	Pr	iP	43
	CL	eP	42
	T	iP	40
	USCGS: 5 S 151 E,		
	0 = 10:43:20		
12	P	iPNZ	11 05 39 c
	R	iP	41
	Pr	iPNZ!	41 c
	CL	iP	46 c
	T	iPEZ	48
	USCGS: 0 = 10:53:18		
	South of Fiji Islands		

Date	Sta.	Phase	h m s
		September	
12	P	eP	14 43 01
	R	eP	05
	Pr	eP	11
	CL	eP	42 46
	T	iPNEZ	30
	USCGS: 0 = 14:37:52		
	Aftershock Aug. 22, 4 hrs.		
12	R	e	22 32 57
	T	e	44
13	P	iP	00 45 07
	R	iP	10
	Pr	iP	16
	T	iP	44 55
	USCGS: 0 = 00:34:30		
	Kurile Islands		
13	MW	eP	07 05 41
	T	eP	46
	Shock near Apia (?)		
	BCIS: Moluccas?		
13	P	iP	13 33 13 c
	R	iP	16
	Pr	iP	21 c
	CL	eP	11
	T	iP	06
13	MW	iP	16 18 58
	R	iP	54
	Pr	iP	49 d
	CL	iP	19 01
	T	iP	09
	USCGS: 8 N 78 W,		
	0 = 16:10:42		
13	P	iP	23 32 10
	R	iP	12
	CL	eP	16
	T	iP	19
14	P	iP	05 29 56
		i	30 06
		iSE	31 30
	MW	iP	29 52
		i	30 03
		iS	31 33
	SB	eSNE	31 10
	H	iP	29 43
		eSN	31 18
	T	iP	29 31
		i	43
		iSNEZ	31 05
	Magnitude about 4½		
	USCGS: 40½ N 126 W,		
	0 = 05:27:40		
14	CL	eP	16 09 34
14	MW	e	16 57 26
		e	57
	T	e	37
	Part of next??		

Date	Sta.	Phase	h m s
		September	
14	P	i	17 03 19
	PX	eLE	19.3
	MW	eP	03 20
		i	24
	Pr	i	23
		i	35
		i	43
	CL	e	14
		i	19
	T	e	11
		iNEZ	15
	Poona: 3.5 S 71.0 E,		
	0 = 16:43:40		
14	P	iPNEZ	20 04 51
		eP"	08 52
	PX	iPPE	09 35
		iPPPNE	12 09
		iSKSE	15 30
		eSN	17 00
		ePSNE	18 43
	P	iPKKP	20 03
		iSKKP	24 02
	PX	eSS	25.8
		iGNE	35.5
		A T	
	PZ	0.2 1½	
	PPZ	4 6	
	PPH	1½ 3	
	G	200 50	
	MH	30 20	
	Pr	iP	20 04 57
		i	05 04
		e	08 22
		iP"	47
		iPPNEZ	09 37
		iSKSE	15 15
		e	19 09
		iPKKP	59
	CL	eP	04 51
		e	08 56
		iPP	09 25
		iPKKP	20 04
	T	e	08 28
		iNZ	53
		iPPNZ	09 24
		iPKKP	20 08
	Magnitude 7¼		
	Slightly deeper than normal		
	USCGS: 1 N 126 E,		
	0 = 19:50:15		
	JSA: 1.3 N 127.0 E,		
	0 = 19:50:29, h = 100 km.		
15	MW	eP	14 52 20
		e	33
	CL	eP	08
	T	iP	51 49
		e	52 00
15	MW	iP	16 07 10
		i	14
	Pr	iP	17
		i	21

(continued)

Date	Sta.	Phase	h m s
		September (continued)	
15	CL	eP	16 07 04
		i	10
	T	iP	06 56
		i	07 01
15	P	i	18 48 44
	Pr	i	38
		i	50 03
	CL	e	49 27
		e	43
	T	i	06
		e	30
16	P	eP	15 46 00
		iSNE	44
	Pr	iPNEZ	45 41
	LJ	iP	33
		iSNE	46 03
	Magnitude 4.8		
	Near 31 N 115 W		
	Swarm of similar shocks		
	follows.		
16	PX	eLEZ	20 09.9
	USCGS: 1 N 126 E,		
	0 = 19:11:07		
16	P	iP	20 45 31
	PX	iSE	46 20
	R	ePN	45 21
	Pr	iPNEZ	10
	LJ	iP	04
		iSNE	41
	Largest of swarm		
	Magnitude 5.1		
	Mexico		
17	P	iPNEZ	02 35 45
		i	51
	Pr	iP	36 00
	CL	eP	35 31
	T	iPNEZ	18
		i	24
17	P	iP	05 00 13
	Pr	iPEZ	04 59 58
	CL	eP	05 00 33
	T	iP	52
17	P	iPNEZ	10 47 06
		i	49 49
	MW	iPNZ	47 07
		i	49 49
	Pr	iP	47 10
		i	49 02
	CL	eP	47 06
	T	iP	05
		i	49 48
	Peculiar		
17	P	iPNEZ	15 35 21
		i	45
	Pr	iP	27
		i	36 07
	CL	eP	35 24
	T	i(P)	23
	USCGS: 6 S 154 E,		
	0 = 15:22:11		

Date	Sta.	Phase	h m s
		September	
17	PX	eLN	23 33.1
	South Pacific		
18	MW	iP	12 04 03
	CL	eP	03 51
	T	iP	37
18	P	iPNEZ	12 56 50 d
		i(pP)	57 19
	Pr	iPNEZ	56 42 d
	CL	iP	54
		e(pP)	57 23
	T	iPNEZ	02 d
	USCGS: 14 S 68½ W,		
	0 = 12:45:58,		
	h = 100 km.		
19	MW	iP	13 17 17
	Pr	iP	07
	CL	eP	17
	T	iP	22
20	P	iP	02 38 46
	Pr	iP	53
	CL	eP	43
	T	eP	36
	USCGS: 0 = 02:26:44		
	CMO: 38.2 N 137.9 E,		
	h = 40 km.		
20	P	iPNEZ	04 14 38
		iSNE	57
	R	iPNE	32
		iSNE	47
	Pr	iPNEZ	39
		iSNE	58
	H	iP	42
		iSN	15 04
	Felt at Yermo, California		
	Magnitude 4.1		
	34°53' N 116°40' W,		
	0 = 04:14:11		
20	P	iPNEZ	12 07 57 c
		ipP	08 11
		ePP	11 14
		i	30
	PX	iSN	18 18
	P	iPKKP	26 05
	PX	eLN	30.3
	P	eP'P'	34 29
		A T	
	PZ	3 4	
	PH	1 4	
	pPZ	1 1	
	pPH	1 3	
	PPZ	1 3	
	SH	10 20	
	MH	10 20	
	R	ePNE	12 07 59
	Pr	iPNEZ	08 00 c
		ipP	12
		eSNE	18 24
		eP'P'	34 12
	CL	iP	08 03 c
		ipP	17
		ePKKP	26 00
		eP'P'	34 07

Date	Sta.	Phase	h m s
		September (continued)	
20	T	iPNEZ	12 08 07 c
		eSE	18 50
		ePKKP	26 00
		eP'P'	34 08
	Magnitude 6 3/4 - 7		
	USCGS: 30 S 178 W,		
	0 = 11:55:20		
	JSA: 30.5 S 177.8 W,		
	0 = 11:55:26, h = 75 km.		
20	P	eP	12 22 52
	R	eN	57
	Pr	iPNEZ	23 05
	CL	eP	22 37
	T	iPNEZ	24
	Aleutian Islands?		
	Overlapped by preceding		
21	MW	iP	12 11 08
		e	25
	Pr	i	20
	T	iP	10 56
		e	11 12
21	P	eP	13 00 51
		i(pP)	01 21
		iNZ	28
		iPP	02 18
		i	03 08
	PX	eGN	05.6
		A T	
	PZ	.05 1	
	G	140 48	
	MH	40 20	
	R	ePNEZ	13 00 46
		i(pP)	01 19
		i	02 15
		i	39
	Pr	iP	00 41
		iEZ!	48
		i(pP)N	01 13
	CL	eP	00 57
		i(pP)	01 28
		i	03 18
	T	ePNEZ	01 08
		i	19
		i(pP)	40
		i	02 01
		i	53
		i	04 51
	USCGS: 17 N 94½ W,		
	0 = 12:55:05		
	JSA: 16.8 N 94.7 W,		
	0 = 12:55:15, h = 100 km.		
21	P	iPNZ	18 31 07
		eLNE	49.8
	R	iP	31 12
	Pr	iP	12
	CL	iP	17
	T	iPNEZ	16
	USCGS: 16 S 173 W,		
	0 = 18:19:40		

Date	Sta.	Phase	h	m	s	
		September				
22	P	eP	00	46	02	
	R	eP			07	
	CL	eP		45	56	
	T	iPEZ			48	c
22	P	iP	09	36	22	
	R	iP			24	
	Pr	iP			25	d
	CL	iP			29	
	T	iP			32	
22	P	eP	12	11	23	
	R	eP			20	
	Pr	iP			17	
	CL	eP			27	
	T	iP			35	
22	P	eP	15	49	55	
		ipPNEZ		50	12	
	R	eP		49	59	
		ipP		50	15	
	Pr	eP			02	
		ipPNEZ			20	
	CL	eP		49	49	
		epP		50	07	
	T	eP		49	44	
		ipPNEZ		50	02	
	USCGS: 42 N 142 E,					
	0 = 15:38:15					
	CMO: 41.3 N 142.1 E,					
	h = 40 km.					
23	MW	iP	06	00	11	
		i(pP)		01	13	
	Pr	iP		00	13	
		i(pP)		01	14	
	CL	iP		00	19	
		e(pP)		01	20	
	T	iP		00	21	
		i(pP)		01	23	
23	P	iPEZ	08	23	23	
	R	iPNZ			25	c
	Pr	iP			30	c
	CL	iP			19	c
		e(pP)		24	57	
	T	iP		23	13	
	USCGS: 0 = 08:11:19					
	CMO: 44 N 134.5 E,					
	h = about 300 km.					
24	P	eP	04	30	49	
		iPNEZ			51	
		i		31	01	
		i			06	
	PX	eSKSE		41	19	
		iSN			50	
		e(G)E		55.1		
		eRE		59.0		
		A T				
	PZ	2½ 1½				
	PH	3/4 1½				
	SH	4 8				
	MH	10 20				
	R	ePNE	04	30	53	
	Pr	iPNEZ			55	
	CL	iP			54	

(continued)

Date	Sta.	Phase	h	m	s	
		September (continued)				
24	T	ePNEZ	04	30	50	
		i			54	
	Magnitude ?					
	USCGS: 6 S 154 E,					
	0 = 04:17:38					
25	P	iPNEZ	15	28	11	d
		i			21	
	PX	eSKSN		38	41	
		iSNE		39	13	
		eLNE		56.7		
		A T				
	PZ	¼ 1				
	SH	1½ 5				
	MH	7 20				
	R	iPNEZ	15	28	13	
		i			25	
		i			35	
	Pr	iPNEZ			15	
		i			25	
		i			36	
	CL	eP			14	
	T	iP			14	
	Magnitude 6¼					
	USCGS: 6 S 154 E,					
	0 = 15:15:00					
25	P	iPNEZ	16	10	42	
		i			53	
	R	iP			44	
		i			55	
	Pr	iPNEZ			47	
		i			57	
	CL	eP			45	
	T	iPEZ			42	
		i			54	
	USCGS: 6 S 154 E,					
	0 = 15:57:32					
26	P	iPNZ	03	18	20	
	PX	eLE		50.2		
	Pr	iP		18	27	
	CL	eP			23	
	T	iP			23	
	USCGS: 6 S 154 E,					
	0 = 03:05:11					
26	P	iPNEZ	08	17	23	
		ipP			35	
	PX	eLE		46.0		
	Pr	iP			29	
		ipP			40	
	CL	iP			26	
	T	iP			25	
	USCGS: 6 S 154 E,					
	0 = 08:04:13					
26	MW	i(PKKP)	10	29	39	
	T	iP		13	20	
		i(PKKP)		29	37	

C. F. Richter
Marion Reid
May 5, 1950

Date	Sta.	Phase	h	m	s
	September				
26	P	ePNZ	22	45	13
		i			18
	R	eP			16
		i			21
	T	iP			18
	USCGS: 6 S 154 E,				
	0 = 22:32:00				
27	P	iP	09	16	59
		e		17	10
	R	iP			02
		e			13
	T	iP			01
27	P	i(P)	11	40	07
	MW	i(P)			09
27	P	iP	12	13	06
	T	iP			04
		e			19
27	P	i(PKiP)	12	34	07
27	P	iPNEZ	15	37	18 d
		i(pP)			30
		iPPNZ		38	44
	PX	iSNEZ		42	37
		iGNE		45.2	
		A T			
	PZ	5 2			
	PH	3 2			
	PPZ	4 4			
	PPH	4 4			
	SH	45 15			
	MH	400 20			
	R	iPNEZ	15	37	21 d
		i(pP)			34
		iPP		38	42
		eSN		42	44
	Pr	iPNE		37	30
		i(pP)E			41
		iPPE		38	48
		iSE		42	58
		iScSE		47	35
	T	iPNEZ		36	56 d
		i(pP)		37	10
		iPP		38	21
		iSE		42	09
	Magnitude 7.0				
	USCGS: 60 N 149 W,				
	0 = 15:30:43				
	Felt at Anchorage, Alaska				
27	P	eP	17	21	23
	R	eP			27
	T	eP			25
	Wellington: 42.05 S, 172.6 E,				
	0 = 17:13.45				
	Magnitude 5½				
27	P	iP	18	05	16
		epP		07	14
	R	eP		05	18
		epP		07	16
	T	iP		05	24
		epP		07	21
	Tonga region, h = 550 km.				

Date	Sta.	Phase	h	m	s
	September				
27	P	eP	18	28	28
	R	eP			30
	USCGS: 60 N 149 W,				
	0 = 18:21:54				
27	P	eP	19	35	07
	R	eP			09
	USCGS: 0 = 19:23:10				
	Fiji Island region				
28	P	iPNEZ	15	20	00 c
		ipP			10
		i			16
	R	iP			03 c
		ipP			13
		i			17
	T	iPNEZ			10
		i			25
	Pr	iPNE			03
		iNE			19
	USCGS: 31 S 177 W,				
	0 = 15:07:21				
30	P	eP	04	10	58
	PX	eSNE		21	07
		eSSNE		26	20
		eLNE		32.0	
		A T			
	PZ	1/4 1			
	SH	4 10			
	MH	20 20			
	CL	iP	04	11	08
	T	ePNEZ			08
	Magnitude 6½				
	USCGS: 23 S 176 W,				
	0 = 03:58:52				
30	P	iP	04	21	50
	CL	eP			59
	T	iPEZ		22	01
		i			15
	USCGS: 23 S 176 W,				
	0 = 04:09:44				
	Aftershock				
30	MW	iP	07	43	37
	CL	eP			33
30	P	iPNZ	09	02	53
		iNEZ!		03	06
		i			14
		i			31
	PX	eL		40	
	CL	eP		02	59
		e		03	09
	USCGS: 11 S 163 E,				
	0 = 08:50:06				
30	P	eP	14	15	41
		e			51
	T	eP			42
		e			51
30	PX	eLNE	15	58.2	
	MW	iP		28	52
	R	eP			54
	T	eP			57
	USCGS: 21 S 170 E,				
	0 = 15:16:00				

ROYAL OBSERVATORY
12 AUG 1950
EDINBURGH

Date	Sta.	Phase	h m s
		September	
30	P	eP	16 51 55
	T	eP?	44
30	P	eP	18 31 41
	PX	eLE	53.6
	R	eP	31 44
	T	iPEZ	53
	USCGS: 23 S 176 W.		
		0 = 18:19:35	
30	MW	iP	18 34 34
		i	45
	R	eP	33
		e	44
30	P	iP	22 19 01
		ePP?	22 08
	PX	eLE	45.6
	CL	eP	19 07
		ePP	22 18
	T	iP	19 10
		i	22
		iPP	22 21
	USCGS: 23 S 176 W,		
		0 = 22:06:45	
		October	
1	MW	e?	03 42 46
		i?	58
	Pr	iP	52
		i	43 00
	CL	e	42 53
	T	e?	53
1	MW	iP	07 15 18
		epP	16 02
	Pr	iP	15 22
		ipP	16 10
		i	23
	CL	iP	15 17
		ipP	16 03
	T	iPEZ	15 12
		ipP	59
	USCGS: 0 = 07:03:04,		
		h = 200 km.	
	CMO: 23 N 142 E.		
1	MW	eP	07 37 38
		e	49
	Pr	eP	41
		i	51
	CL	eP	46
	T	iP	48
		e	38 01
1	P	iP	17 38 42
	Pr	iP	44 c
	CL	iP	48
1	P	eP'	18 20 17
	R	eP'	19
	CL	eP'	17
	BCIS: 8 S 30 E,		
		0 = 18:00.8	
2	MW	eP	02 40 03
	Pr	iP	39 58
		i	40 05
	T	iP	05
	USCGS: 18 N 49 W,		
		0 = 02:29:35	

Date	Sta.	Phase	h m s
		October	
2	MW	iP	11 54 57
		e	55 07
	Pr	iP	09
		e	18
	CL	iP	54 51
		i	55 01
	T	iP	54 44
		i	54
	USCGS: 0 = 11:46:50		
	Aleutian Islands		
3	MW	iP	02 31 52
		e	32 17
	CL	eP	31 48
	T	iP	40
		e	32 04
3	P	e	07 41 31
	MW	e	42
	Pr	e	28
	T	e	42 15
3	P	iP"NZ	09 34 21
		ePP	35 50
		e	37 31
		iPKKP	44 41
	Pr	i(P")	33 19
		e	34 33
		i	45
		ePPEZ	35 15
	CL	eP"	34 24
		ePKKP	44 38
	T	iP"	34 37
		ePP	36 06
		iPKKP	44 34
	BCIS: 59 S 28 W,		
		0 = 09:15.4	
3	P	eP	12 57 58
		i	58 07
	R	i	07
	Pr	i	08
	CL	e(P)	03
	T	i(P)	08
	USCGS: 0 = 12:44:17		
	BCIS: 4 S 144 E,		
		0 = 12:44:17	
3	P	e	13 42 10
3	P	i	13 51 11
		e	54 10
	Pr	e	51 18
		i	54 16
	CL	e	51 11
		e	53 23
		i	54 08
3	MW	e	16 06 09
	Pr	iP	05 57
		i	06 17
	CL	eP	05 54
3	MW	iP	23 58 39
	R	iP	44
	Pr	iP	51 d
	CL	eP	31
	T	iP	20
	USCGS: 0 = 23:51:52		
	Alaska Peninsula		

Date	Sta.	Phase	h m s
		October	
4	P	iP	04 39 56
	Pr	iP	40 00
	CL	eP	04
	T	iP	07 c
	Near Apia		
	USCGS: 0 = 04:28:30		
4	MW	iP	07 04 03
	CL	eP	11
	T	eP	13
4	MW	iP	07 11 33
	Pr	iP	39
		e	12 01
	CL	eP	11 41
	T	eP	43
4	P	iP	10 10 28
	Pr	iP	19
	CL	eP	32
	T	iP	40
	USCGS: 30 S 70 W,		
		0 = 09:58:24	
4	P	eP	10 33 54
	PX	ePP	37.8
		eSKSE	44 28
		iSPE	46 34
		eLN	11 00.8
		A T	
	MH	7 20	
	Pr	iPNZ	10 33 52 d
		iPPN	37 40
	CL	eP	33 54
	T	eP	34 20
		iPP	37 46
	Magnitude $6\frac{1}{4}$		
	USCGS: 1 S 21 W,		
		0 = 10:20:23	
	BCIS: 1.0 S 21.5 W,		
		0 = 10:20:24	
5	P	iP	02 38 59
		ipP	39 11
	Pr	iP	38 53
	CL	iP	39 05
		e	17
	T	iPNZ	12
		i	24
5	MW	eP	06 20 11
	Pr	iP?	03
	T	eP	23
5	P	eP	10 27 52
	R	eP	50
	Pr	iP	46
	T	eP	28 06
5	P	iPNZ	19 20 09
		i(sP)	34
		i	22 12
	PX	i(S)E	30 59
		eLE	48.2
	R	i(sP)	20 37
	Pr	iP	14
		i(sP)	39
		(continued)	

Date	Sta.	Phase	h m s
		October (continued)	
5	T	eP	19 20 10
		e(pP)	28
		e(sP)	34
	USCGS: 0 = 19:07:00		
	BCSF: 5 S $153\frac{1}{2}$ E,		
		0 = 19:07:00	
6	T	iP	22 08 22
	USCGS: 0 = 21:55:47,		
	Bonin Islands		
6	P	i(pP)	04 34 56
	MW	iP?	35
		i	57
	R	e(P)	59
6	P	e(P)	09 11 55
	MW	e(P)	58
	Pr	i(P)	52
	CL	e(P)	51
7	P	iP	02 30 10
		e	30
	R	eP	12
		e	26
7	MW	eP	09 39 09
	R	eP	15
	T	iP	38
7	P	iP'	12 22 34 d
		iP2'	24 15
	PX	iPPEZ	28 06
		e(SKS)	30 10
		iPcPP'	31 18
		iPPP	32 34
		iSKKSE	34 56
		e(SKSP)E	38.2
		e(SS)E	49.2
		eSSSE	57.0
		e(G)NE	13 16.8
		A T	
	P'Z	2 3	
	P'H	1 4	
	PPZ	5 6	
	PPH	3 5	
	MH	30 20	
	R	iP'NZ	12 22 34 d
		iP2'	24 13
		iPP	28 06
		iPcPP'	31 16
		i	35
	Pr	iPNEZ!	22 34 d
		iP2'NZ	24 11
		iPPNZ	28 03
		i	32
		iPcPP'NEZ	31 15
		i	32
		iSKKSE	35 04
	T	iPNEZ!	22 34 d
		iPP	28 05
		iPcPP'	31 05
	Magnitude $6\frac{3}{4}$, h = 60 km.		
	USCGS: 33 S $56\frac{1}{2}$ E,		
		0 = 12:02:19	
		(continued)	

Date	Sta.	Phase	h	m	s	
		October (continued)				
7		JSA: 33.7 S 56.4 E,				
		0 = 12:02:30				
		h = 100 km.				
		BCIS: 33 S 58 E,				
		0 = 12:02:23				
7	P	iP'	22	56	14	
	R	eP'			13	
	T	iP'			15	
		Aftershock				
		BCIS: 0 = 22:36:00				
10	P	iP	21	33	58	
	T	iP			44	
		USCGS: 0 = 21:24:00				
		Kamchatka				
11	MW	e	03	43	13	
	H	iP		42	54	
	T	eP			48	
11	P	iPNZ	09	16	39	
		e		17	12	
	R	iPEZ		16	42	
		e		17	01	
	Pr	iP		16	47	
	T	iPEZ			29	c
		i			36	
		i		17	04	
		USCGS: 43½ N 144 E,				
		0 = 09:05:18,				
		h = 100 km.				
11	P	iP	11	49	46	
		i			59	
		i		50	05	
	R	iPEZ		49	48	
		i		50	00	
	Pr	iP		49	47	
	T	iP			56	
		e		50	15	
		Magnitude 6 (Wellington)				
		USCGS: 33 S 179 W,				
		0 = 11:36:51				
11	P	e(P)	16	18	07	
		e			31	
11	P	iP	20	11	19	
		e			37	
	R	eP			21	
12	R	eP	00	52	53	
	T	eP		53	08	
12	P	eP	03	02	43	
	R	eP			41	
	Pr	iP			43	
	H	eP			38	
	T	iP			37	
13	P	eP	03	47	04	
		e			29	
	Px	eLE	04	11		
	R	eP	03	47	07	
	Pr	iP			09	
	CL	eP			19	
	T	eP			15	
		USCGS: 0 = 03:35:25				
		BCIS: 19½ S 173 W,				
		0 = 03:35:24				
13	P	iPNEZ	04	21	16	
		iSNEZ			42	
	R	iPNEZ			05	
		iSNE			22	
	Pr	iP!			00	
	LJ	eP			09	
	CL	eP			24	
	H	eP			25	
	T	eP			39	
		Felt at Indio.				
		Magnitude 4.0				
		33°51'N, 115°51'W,				
		0 = 04:20:40				
13	P	eP	12	52	31	
	R	iP			23	
		i			42	
	Pr	iP			15	
		i!			18	
		i			38	
	CL	eP			41	
	T	eP			50	
		USCGS: 17½ N 100 W,				
		0 = 12:47:20				
14	P	iPNEZ	00	29	57	
		iSNE		30	20	
	R	iPNEZ!		29	47	c
		iSE		30	02	
	Pr	iPNEZ!		29	35	
	LJ	iPNEZ			41	
	CL	eP		30	10	
		Felt in eastern San Diego				
		County, magnitude 4.1				
		33°11'N, 116°23' W,				
		0 = 00:29:25				
16	R	iP	04	02	05	
	CL	eP		01	51	
16	MW	e	16	28	47	
	R	eP			38	
	Pr	iP			59	
	CL	eP			28	
	T	eP			11	
		USCGS: 0 = 16:22:00,				
		South Alaska				
17	MW	eP	03	55	34	
		e			48	
	R	eP			35	
		e			48	
	Pr	iP			32	
		i			49	
	CL	eP			41	
	T	eP			42	
		Near Apia				
17	MW	eP	06	14	24	
		e			35	
	R	eP			20	
		e			33	
	Pr	iP			16	
	CL	eP			30	
	T	eP			37	
		USCGS: 28 S 70 W,				
		0 = 06:02:30				

Date	Sta.	Phase	h	m	s	
		October				
17	MW	eP	12	01	14	
	Pr	iP			25	
	CL	eP			09	
	T	iP			00	
		USCGS: 0 = 11:53:02,				
		Aleutian Islands				
17	P	i	19	42	22	
	R	i			23	
18	MW	iP	05	34	09	
	R	iP			05	
	Pr	iP			00	
	T	iP			23	
		i			30	
19	CL	eP	07	01	12	
	T	iP			03	
		USCGS: 54 N 169 W,				
		0 = 06:53:37				
19	P	eP	21	13	18	
		i			45	
		i		14	01	
		ePP		17	33	
	PX	eSKSN		24	11	
		eE			20	
		eGN		37	.3	
		Multiple shock				
		A T				
	PZ	4 6				
	PZ	12 20				
	mPZ	1½ 1				
	PPZ	1 1½				
	MH	50 20				
	R	ePEZ	21	13	18	
		i			49	
		iNEZ		14	06	
	Pr	iP		13	25	
		i			53	
		i		14	01	
		i			08	
	CL	eP		13	19	
		iPP		17	41	
	T	iPNEZ		13	19	
		i			49	
		i		14	04	
		Depth 60 km?				
		Magnitude 7.2±				
		USCGS: 5½ S 154 E,				
		0 = 21:00:11				
20	MW	eP	10	26	49	
		i			58	
	R	iP			44	
	Pr	iP?			33	
		i			43	
	T	eP		27	01	
20	T	eP	11	55	12	
		e			36	
		USCGS: 5 S 151 E,				
		0 = 11:41:58				
20	P	eP	12	58	01	
		i			28	
		i	13	01	04	
	PX	iSNE		08	34	
		eLNE		22	.2	
		A T				
	PZ	½ 2				
	R	ePEZ	12	58	06	
		i			31	
	Pr	iP			07	
		i			21	
		iEZ			31	
	T	eP			04	
		i			28	
		Magnitude 6½?				
		USCGS: 5½ S 154 E,				
		0 = 12:44:54				
		Aftershock Oct. 19, 21h				
20	P	iP	18	23	59	
	R	iP		24	02	
	Pr	iP			03	
	T	iP			09	
		USCGS: 19 S 178 W,				
		0 = 18:12:00				
21	P	iPNEZ	03	39	55	d
		i		40	04	
	R	iP		39	59	
	Pr	iPNEZ!		40	06	d
		i			18	
	CL	iP		39	48	d
	T	iPNEZ			39	d
		i			49	
		USCGS: 54 N 169 W,				
		0 = 03:32:13				
21	P	eP	21	47	25	
		i			44	
	PX	eE		58	.5	
		eLN	22	12	31	
	R	ePEZ	21	47	28	
		i			48	
	Pr	iP			31	
		i			46	
	T	iPNZ			28	
		USCGS: 5½ S 154 E				
		0 = 21:34:16				
22	MW	iP	01	30	12	
	CL	eP			02	
	T	iP			04	
22	MW	e	03	44	44	
	R	i			53	
	CL	e			36	
	T	iP			23	
22	P	iPNEZ	21	46	12	
	PX	iSE		47	08	
	R	iP		46	25	
		i(S)		47	24	
	Pr	iP		46	37	
	SB	iPNZ			04	
		iE			18	
		i(S)E			37	

(continued)

Date	Sta.	Phase	h m s	
		October (continued)		
22	H	iP	21 46 08	
		iE	18	
		iSNE	48	
	CL	eP	10	
		i	19	
		iS	57	
	T	iPNEZ	04	
		iSNE	39	
		Magnitude 4.7		
		36.5 N 121.3 W,		
		0 = 21:45.3		
23	P	iPNEZ	05 25 45	c
		ipP	26 20	
		ePP	29 53	
		A T		
	PZ	¼ 1		
	R	iP	25 49	c
		epP	26 23	
		ePP	29 59	
	Pr	iP	25 51	
		iPP	29 54	
	CL	eP	25 48	
		epP	26 24	
		ePP	29 58	
	T	iPEZ	25 47	
		USCGS: 4 S 144 E,		
		0 = 05:12:14,		
		h = 150 km.		
23	MW	iP	15 31 24	
	R	eP	25	
	Pr	iP	26	
	CL	eP	29	
	T	iP	29	
25	MW	e	04 04 08	
	R	e	12	
	T	i	03 43	
25	P	iP	13 19 35	
		i	57	
		ipP	20 01	
	R	iP	19 38	
		epP	20 07	
	T	iP	19 26	d
		ipP	52	
		USCGS: 36 N 140 E,		
		0 = 13:07:38, h = 100 km.		
26	P	iP	00 14 10	
		e	16	
	R	ePEZ	05	
		i	12	
	Pr	iP	04	
		iNZ	11	
	CL	eP	06	
	T	eP	10	
		USCGS: 11 N 41 W,		
		0 = 00:02:35		
26	MW	e(P)	09 26 20	
		e	47	
		e	56	
	R	e	42	
	CL	e?	42	
		e	27 10	
		USCGS: Solomon Is. region		
		0 = 09:13:10		

Date	Sta.	Phase	h m s	
27	MW	eSNEZ	04 41 01	
	R	eP	39 16	
		eS	40 45	
	Pr	ePNZ	39 04	
		iSNZ	40 24	
	LJ	eP	39 02	
		iSNEZ	40 16	
		First of group.		
		Smaller similar shocks		
		at 05:46, 05:53		
27	P	ePN?	08 25 49	
		eSN	27 27	
	PX	eLNE	27.2	
		A T		
	MH	30 15		
	R	eP	08 25 55	
		iSNEZ	27 28	
	Pr	iP	25 29	
		iSNZ	26 27	
		iNEZ	32	
		i!	44	
	LJ	iP	25 37	
		iSNEZ	26 21	
	CL	e(P)	25 56	
		Magnitude 5		
		Largest of group.		
		USCGS: 08:24:15		
		Gulf of California		
		Smaller shock at 09:04		
		following.		
27	MW	eP	10 07 11	
		iSNEZ	09 04	
	R	eP	07 14	
		iS	08 37	
	Pr	e(P)	06 49	
		iNEZ	07 02	
		iSNEZ!	08 28	
	LJ	iP	06 57	
		iSNEZ	08 16	
	CL	e(P)	07 23	
		Similar to 08h		
27	P	iPNEZ	10 14 28	
	R	iPEZ	31	d
	Pr	iPNE!	32	d
	CL	iP	35	d
	T	iPNE	37	d
		USCGS: 23½ S 180		
		0 = 10:02:05		
27	P	iPEZ	18 46 30	c
		i	46	
	R	iP	34	
	Pr	iP	40	
	CL	iP	25	c
	T	iPNEZ	17	
		USCGS: 49 N 155 E,		
		0 = 18:35:58		
27	MW	iP	20 27 05	
	CL	eP	09	
	T	iP	18	
		Central America? Shock		
		in Italy at same hour not		
		recorded.		

Date	Sta.	Phase	h m s	
		October		
27	R	i?	21 25 43	
	CL	e	34	
28	P	iP	00 24 12	
	R	iP	14	
	Pr	iP	19	
	CL	iP	09	d
	T	iPEZ	04	d
		USCGS: 34 N 142 E,		
		0 = 00:12:08		
28	P	iP	02 31 17	
		e(S)	33 17	
	CL	e(P)	31 06	
	T	eP	30 49	
		i(S)	32 07	
28	MW	iP	15 04 21	
		i	34	
	Pr	eP	28	
		i	40	
	CL	eP	17	
		e	29	
	T	eP	12	
		i	25	
28	P	iPEZ	16 39 26	
	R	iP	27	
	Pr	iP	30	c
	CL	iP	26	
	T	iP	26	
		USCGS: 6 S 153 E,		
		0 = 12:26:13		
28	P	iPNEZ	18 59 16	d
		ipP	19 00 56	
		A T		
	PZ	0.2 1		
	R	iPEZ	18 59 18	d
		epP	19 01 00	
	Pr	iPNEZ	18 59 20	d
		ipP	19 01 01	
		esN	08 18	
	CL	iP	18 59 23	d
		ipP	19 01 05	
	T	iPNEZ	18 59 25	d
		ipP	19 01 09	
		USCGS: 20 S 179 W,		
		0 = 18:49:01,		
		h = 450 km.		
28	P	iP	22 36 48	
	CL	eP	50	
	T	iP	49	
29	MW	eP	00 33 15	
	T	eP	26	
29	MW	eP	00 40 57	
	CL	eP	41 04	
	T	eP	06	
29	P	eP	06 44 46	
	PX	eLE	49.4	
	R	eP	44 48	
	Pr	iP	50	
	CL	iP	50	
	T	iPEZ	48	
		USCGS: 10 S 160 E,		
		0 = 06:31:51		

Date	Sta.	Phase	h m s	
		October		
29	P	iP	14 24 28	
	R	eP	31	
	Pr	iP	33	
	CL	iP	35	
	T	iP	37	d
		Near Apia		
30	MW	iP	00 27 53	
	Pr	iP	28 05	
	CL	eP	27 46	
	T	iP	37	
30	P	eP	05 41.8	
		e	42 02	
	R	eP	00	
		e	10	
	Pr	iP	02	
		i	12	
	CL	eP	41 44	
	T	eP	35	
		USCGS: Aleutian Islands,		
		0 = 05:33:24		
30	P	iP	05 46 06	
	R	iP	11	
		i	28	
	Pr	iP	11	
		i	33	
	CL	iP	16	
	T	e(P)	12	
		USCGS: 0 = 05:33:20		
		BCIS: 19 S 169 E,		
		0 = 05:33.3		
30	MW	iP	07 51 37	
	Pr	iP	39	
	CL	iP	43	
	T	iP	45	
30	MW	iP	12 25 44	
	Pr	iP	45	
30	MW	eP	17 56 56	
		e	57 11	
	CL	eP	02	
		e	16	
31	P	iP	00 06 53	
		i	07 11	
		ePP	10 19	
	PX	eGNE	33.8	
	R	iP	06 55	
	Pr	iPNE	54	
	CL	iP	07 01	
	T	eP	04	
		i	20	
		USCGS: 34 S 179 W,		
		0 = 23:54:02		
		Wellington: 34 S 178 W,		
		0 = 23:55.1		
		magnitude 6-6¼		
31	P	eP	00 14 22	
		i	29	
	R	iPNZ	26	
	Pr	iPNE	33	
	CL	iP	30	
	T	eP	34	
		i	40	
		Larger than preceding		
		USCGS: Samoa Is. region,		
		0 = 00:02:44		

Date	Sta.	Phase	h	m	s
		October			
31	P	ePNEZ	01	44	57 c
	PX	eNE		47	14
		e(S)NE		49	22
		i			45
		eLN		50.1	
		A T			
	PZ	2 1½			
	PH	5 5			
	(SH)	16 8			
	MH	50 16			
	R	iPNZ	01	45	00
		e		47	14
	Pr	iPNE		45	09
		iN			36
	CL	eP		44	44
		i			51
		e		48	51
	T	eP		44	30
		i			39
	Magnitude 6¾				
	USCGS: 56 N 135 W,				
	0 = 01:39:32				
	Felt at Sitka				
31	P	iPNZ	02	37	38
	R	iP			40
	Pr	iPNEZ			47
	CL	iP			24
	T	iP			12
	USCGS: 56 N 135 W,				
	0 = 02:32:13				
31	R	eP	03	03	28
	CL	eP			33
	T	eP			34
	USCGS: New Hebrides region,				
	0 = 02:50:37				
31	CL	e	03	40	23
		e			33
31	P	iP	07	54	30
		ipP			43
	R	iP			34
		ipP			46
	Pr	eNE		55	00
	CL	iP		54	25
	T	iP			18
		epP			31
	USCGS: 49 N 156 E,				
	0 = 07:44:00				
31	P	iP	18	08	39
		ipP		09	01
	PX	eSKSE		18	55
		iSE		19	29
		esSE			56
		iSSNE		25.8	
		eGN		34.1	
		A T			
	PZ	1 4			
	pPZ	0.6 1½			
	SH	4 9			
	MH	30 40			
	MH	4 20			

(continued)

Date	Sta.	Phase	h	m	s
		October (continued)			
31	R	iPEZ	18	08	44
		ipP		09	06
	Pr	eN?		08	38
		eE			46
		iNE		09	13
	CL	eP		08	44
		ipP		09	04
	T	eP		08	40
		ipP		09	03
		i			26
	Magnitude 6¾				
	USCGS: 5 S 152½ E,				
	0 = 17:55:35, h = 100 km.				
		November			
1	P	eP	07	45	48
		i(pP)		46	13
		i			26
	R	iP		45	51
		e(pP)		46	15
		e			30
	Pr	ePE		45	57
		eNE		46	22
	CL	eP		45	52
		e(pP)		46	17
	T	iP		45	49
		i(pP)		46	17
		i		40	
	USCGS: 0 = 07:32:43				
	BCIS: 5 S 154½ E.				
1	P	iP	11	58	05
		iSEZ		59	48
	R	iP		58	12
		iS	12	00	04
	CL	eP	11	57	56
	H	iPNEZ			52
	T	ePNEZ			44
		i			53
		i(S)		59	16
	USCGS: 40½ N 127 W,				
	0 = 11:55:50				
1	P	iP	13	17	44
	CL	eP			38
	T	eP			37
	USCGS: 0 = 13:04:25				
	BCIS: 48 N 93 E				
	Poona: 43 N 96 E,				
	0 = 13:04:30				
1	P	iP	15	37	19
	CL	eP			25
	T	eP			26
1	P	eP	19	11	24
		i(S) NEZ		13	04
	R	iP		11	23
		iSNEZ		12	58
	Pr	iPNE		11	09
		eSE		12	58
	LJ	iPNEZ		11	06
		iSNEZ!		12	23
	CL	eP		11	36
	Gulf of California?				

Date	Sta.	Phase	h	m	s
		November			
2	P	eP	02	15	37
	R	eP			32
	CL	eP			35
	T	iP			42
	West Indies				
2	P	iPEZ	02	30	51
		iSNEZ		32	12
	R	iP		30	44
		iS		32	00
	Pr	iP		30	46
		iSNE		32	00
	CL	iP		30	35
		iS		31	38
	T	iP		30	42
		iSNE		31	49
	Magnitude 4.7				
	VI at St. George, Utah				
2	P	e?	02	48	12
		eLE	o3	15.5	
	CL	e		46	47
		e		50	44
	T	e		46	45
	USCGS: 3 S 134 E,				
	0 = 02:32:29				
2	MW	e	03	41	06
	T	e			11
	USCGS: New Britain region,				
	0 = 03:27:43				
3	P	iPNEZ	01	22	55 d
		iPcPNEZ		23	14
		ipPEZ		23	35
		i			51
		e		24	13
		iPP		25	15
	PX	iSNE		31	21
		iScSNE		32	26
		isSNE			31
		eSSSN		38	38
	P	eP'P'		51	48
		A T			
	PZ	5 2			
	PH	1½ 3			
	pPZ	3 1½			
	SH	4 4			
	R	iPNEZ	01	22	59 d
		iPcP		23	18
		ipP			41
		eP'P'		51	39
	Pr	iPNEZ		23	05 d
		ipP			45
		i		24	20
		iN		26	42
		iSNE		31	37
		isSNE		32	45
		iP'P'		51	47
	CL	iP		22	51 d
		ipP		23	31
		eP'P'		51	36
	T	iPNEZ		22	44 d
		i		23	14
		ipP			22
		iPP		25	56
		eP'P'		51	52

(Continued)

Date	Sta.	Phase	h	m	s
		November (continued)			
3		h = 160 km,			
		magnitude 6.9			
		USCGS: 48½ N 154 E,			
		0 = 01:12:37			
		h = 200± km.			
3	P	iP	11	39	00
	CL	iP		38	54
	T	iP			47
		e(pP)		39	22
	Aftershock?				
4	P	eP	12	14	30
		i			43
	R	eP			32
	Pr	iP			28
		i			38
	CL	eP			39
	T	eP			46
	Southern Chile?				
4	P	iPNZ!	20	43	17 d
		iNE			22
		iSNE			45
	R	iPNZ!			11 d
		iSE			35
	Pr	iPNEZ!			00 d
	LJ	iPNEZ!		42	55 d
	CL	iP		43	37 d
	T	iP			57 d
		iSNEZ		45	21
	Magnitude 5.7				
	32°12' N 116°33' W,				
	0 = 20:42:38				
	Near Guadalupe, Baja California (Mexico). VI at that locality, V at San Diego and in southern Imperial Valley. Felt as far as Los Angeles. Aftershocks numerous.				
5	MW	iP	02	26	38
	Pr	iP			40
	CL	iP			44
	T	iP			46
5	P	iPNEZ	04	36	03
		iNEZ			08
		iSE			30
	R	iPNEZ		35	58 d
		iN		36	01
		iSNE			23
	Pr	iPNEZ!		35	48 d
	LJ	iPNEZ			41 d
		iSNE			49
	CL	iP		36	23
	T	iP			43
		iSNE		38	05
	Aftershock of Nov. 4, 20h				
	32°12' N 116°33' W,				
	0 = 04:35:24,				
	magnitude 5.1				

Date	Sta.	Phase	h	m	s	
	November					
5	MW	eP	13	09	53	
	Pr	iP		10	06	
	CL	eP		09	48	
		e			58	
	T	eP			39	
		e			49	
5	T	i	19	56	49	
6	MW	eP	01	17	59	
	R	eP			54	
	Pr	iP			48	c
	CL	eP		18	04	
	T	iP			15	
	USCGS: West coast of Guatemala, 0 = 01:11:33					
6	MW	eP	12	17	29	
		e			41	
	R	eP			23	
		e			44	
	Pr	iP			17	
		i			38	
	CL	eP			36	
		e			57	
	T	iP			47	
	Mexico					
6	P	iP	22	34	49	
	R	iP			44	
		e		37	29	
	Pr	iP		34	38	
		i		37	46	
	CL	eP		34	53	
		e		37	32	
7	P	iP	04	36	48	
	R	iP			42	
	Pr	iPNEZ			36	
	CL	eP			53	
	T	iP		37	04	
	USCGS: 18½ N 95 W, 0 = 04:31:17					
7	P	iP	06	12	20	
		ipP			33	
		ePP		15	40	
	PX	e(pPP)			52	
		eSKSN			22.6	
		ePSNE			23.7	
		ePPSNE			24 00	
		eSS			28.7	
		eGNE			34.8	
		A T				
	PZ	½ 2				
	PZ	3 8				
	MH	20 60				
	MH	15 20				
	R	iPNEZ	06	12	21	
		ipP			36	
		i			43	
	Pr	eP			22	
		iNEZ			24	

Date	Sta.	Phase	h	m	s	
	November					
7	CL	iP	06	12	25	
		i			56	
	T	iPNEZ			25	
		i		13	40	
		iPP		15	38	
	Magnitude 6¾, h = 50 km. USCGS: 14 S 166½ E, 0 = 05:59:35					
9	MW	iP	09	19	22	
		e(pP)			54	
	R	iP			20	
		e(pP)			52	
	Pr	iP			15	
		i(pP)			48	
	CL	eP			26	
	T	iP			34	
		i(pP)		20	07	
	South America					
9	P	eP	20	27	09	
	R	eP			06	
	Pr	iP			01	
	CL	eP			11	
	T	eP			22	
	South Atlantic?					
9	P	iPNZ	23	11	39	
		i			51	
		i		12	09	
	PX	eSN		18	25	
		eLN		21.7		
	R	iPNZ		11	37	
	Pr	iP			30	
	CL	eP			50	
	T	eP		12	04	
	USCGS: 0 = 23:03:29					
	BCI S: 8½ S 108½ W.					
11	P	iPNZ	11	05	42	
	R	iP			40	
	Pr	iP			38	
	CL	eP			55	
	T	eP		06	07	
	West Indies?					
11	P	iPNEZ	13	54	39	
		iSNEZ		55	10	
	R	iP		54	33	
		iSNE		55	00	
	Pr	iPNEZ!		54	23	
		iSNE			36	
	LJ	iPNEZ			17	
		iSNEZ			29	
	CL	iP			59	
		i(S)		55	47	
	Magnitude 4.2 32°12' N 116°33' W, 0 = 13:54:00 Aftershock of Nov. 4					

Date	Sta.	Phase	h	m	s	
	November					
11	P	iP	17	05	34	
	R	eP			39	
		ePcP		08	36	
		e?		10	46	
	Pr	eP		05	23	
		i			45	
	CL	iP			40	
		iPcP		08	39	
	T	eP		05	51	
		iPcP		08	43	
	USCGS: 15½ N 93 W, 0 = 16:59:28					
11	MW	iP	18	08	40	
	CL	iP			46	
	T	iP			48	
13	P	iPNEZ	04	49	51	c
		i		50	00	
		iPcP		52	09	
	PX	eLNE	05	00.4		
		A T				
	PZ	5 1				
	PZ	1½ 1				
	MH	3 15				
	R	iPNEZ	04	49	45	c
		iPcP		52	07	
	Pr	iPNEZ		49	41	
		iPcP		52	06	
	CL	iP		49	52	
		iPcP		52	11	
	T	iPNEZ		50	05	
		iPcP		52	13	
	USCGS: 11 N 86 W, 0 = 04:42:35					
13	P	iPNZ	20	55	57	
	R	iPEZ		56	01	c
	Pr	iP			02	c
	CL	iP			04	c
	T	iPNEZ			03	
		i			15	
	USCGS: New Hebrides regton, 0 = 20:43:10					
14	MW	e	18	19	03	
		e			17	
	R	e		18	58	
	Pr	i		19	17	
	CL	e			20	
	T	e			27	
	USCGS: 0 = 02:10:02					
	BCIS: 2 S 80 W					
14	P	iP	02	59	44	
	T	iP			54	
	Near Apia					
	USCGS: 0 = 02:48:24					
14	P	iP	03	58	45	
	CL	iP			51	
	T	iP			53	
14	P	eP	05	05	16	
	T	iP			29	
	South America?					

Date	Sta.	Phase	h	m	s	
	November					
14	P	iP	13	43	02	
	R	iP			06	
	CL	eP		42	59	
	T	iP			53	
	CMO: 38.8 N 144.3 E, h = 80 km.					
14	P	eP	20	45	08	
	Pr	iP			22	
	CL	eP		44	53	
	T	eP			40	
15	P	iP	13	31	01	d
	R	iP			04	
	Pr	iPNEZ!			o4	d
	CL	iP			08	d
	T	iP			10	d
	Near Apia					
	USCGS: 0 = 13:19:13,					
16	P	eP	05	27	14	
		ipP			27	
	R	eP			18	
		ipP			31	
	Pr	iP			25	
		i			48	
	CL	epP			19	
	T	eP		26	58	
		ipP		27	11	
16	P	eP	08	46	01	
	R	eP			02	
	Pr	iP			03	
	CL	iP			08	
	T	iP			10	
18	P	i(P)	01	19	51	
		iNEZ!		20	01	
		i			11	
		i			37	
	R	ePE		20	06	
		iN			32	
	Pr	i		20	07	
		iNZ			12	
		iN			16	
	CL	eP?			28	
		i			32	
		i			38	
	T	ePNZ			55	
	Magnitude 3.7? 33°45' N 118°15' W. Felt at Long Beach, San Pedro (CGS). Damage to many oil wells in area of Terminal Island. Origin at depth of 500-600 meters. (B.S.S.A. vol. 40, 1950, pp. 69-70).					
18	CL	eP	07	37	07	
18	P	iP	08	10	49	
	Pr	iP			53	
		i		11	43	
	CL	eP		10	55	
	T	iP			55	
		i		11	27	
	USCGS: 14 S 167 E, 0 = 07:58:09					

Date	Sta.	Phase	h m s	
	November			
18	MW	iP	13 20 08	
	CL	eP	13	
19	P	iP	07 37 23	
		ipP	43	
	R	iP	26	
	Pr	iP	26	c
		ipP	46	
	CL	iP	31	
		ipP	51	
	T	iP	33	
		ipP	56	
	Near Apia			
	USCGS: 0 = 07:25:28			
19	MW	iP	13 25 01	
	Pr	iP?	04	
	CL	eP	09	
20	MW	iP	01 05 09	
	R	eP	10	
	Pr	iP	12	
	CL	eP	16	
	T	iP	17	
	Near Apia			
20	P	iP	04 54 13	
	R	iP	09	
		i	53	
	Pr	iP	05	
		i	51	
	CL	eP	17	
	T	iP	26	
	USCGS: 11 S 75 W, 0 = 04:43:56			
20	P	ePEZ	07 11 37	d
		iPN!	40	
	PX	iGNE!	13 12	
	P	iNEZ	45	
		A T		
	Pz	8 6		
	MH	850 12		
	R	iPNZ	07 11 34	
		iNZ!	13 50	
	Pr	iPNEZ	11 20	
	LJ	ePNZ	21	
	CL	eP	53	
		i	58	
		i	14 34	
	T	iP	12 14	
		i	21	
		i	15 17	
	Magnitude $6\frac{3}{4}$-7			
	USCGS: $28\frac{1}{2}$ N 112 W, 0 = 07:09:45			
	Felt Sonora, Mexico			
20	P	eP	11 32 32	
	Pr	iP	35	
	CL	eP	39	
	T	iP	40	
	Pacific			
20	Pr	e	11 36 06	
	Aftershock of 07h			
	November			
20	P	e	12 33 23	
	Pr	i	32 37	
	Aftershock of 07h			
20	P	iP	19 50 07	
	R	eP	10	
	Pr	iP	10	
		i	52 12	
	CL	eP	50 14	
	T	eP	17	
	Aftershock			
21	R	eP	00 03 55	
	CL	eP	58	
	T	eP	59	
21	CL	eP	18 38 04	
22	P	iPNEz	01 04 07	d
		iPP	07 28	
	PX	iSE	14 17	
		iPS	15 22	
		iPPS	44	
		eSSNE	19.9	
		eSSS	23 27	
		iGNE	26.4	
	P	eP'P'	30 27	
		e	31 48	
		A T		
	PZ	$2\frac{1}{2}$ 1		
	PH	4 5		
	PPZ	1 $1\frac{1}{4}$		
	PPH	2 4		
	SH	15 10		
	G	100 36		
	MH	25 20		
	R	iPNEZ	01 04 09	d
		iSNE	14 21	
		iPKKP	22 19	
		eP'P'	30 09	
	Pr	iPNEZ!	04 10	d
		i	31	
		iEZ	05 01	
		iPP	07 39	
		eSN	14 12	
		iP'P'	30 22	
		e	31 02	
	CL	iP!	04 15	d
		i	05 08	
		iPP	07 40	
		ePKKP	22 13	
		eP'P'	30 11	
	T	iPNEZ	04 17	
		iPP	07 32	
		iS	14 27	
		ePKKP	22 09	
		eP'P'	30 12	
	USCGS: 29 S 178 W, 0 = 00:51:32			
	Pasadena: $28\frac{1}{2}$ S $178\frac{1}{2}$ W, 0 = 00:51:49, h = 160±			
	Magnitude 7.4			

Date	Sta.	Phase	h m s	
	November			
22	MW	e	03 43 26	
	CL	e	42 04	
		i	43 31	
	T	e	41 55	
		e	43 40	
	USCGS: $11\frac{1}{2}$ S 79 W, 0 = 03:33:28			
22	P	iP	04 37 01	
	CL	eP	02	
	T	eP	01	
22	P	eP	06 42 47	
		iSEZ	43 45	
	R	eP	42 36	
		iS	43 28	
	Pr	eP	42 20	
		i	27	
		iSEZ	43 07	
	LJ	eP	42 16	
		iSNE	43 04	
	Magnitude 4.5±			
	Gulf of California?			
22	P	e	09 33 18	
	R	e	02	
	Pr	i	32 39	
	USCGS: Gulf of California, 0 = 09:29:11			
23	P	eP	06 22 00	
		e	23 21	
	PX	eLNE	38.7	
	R	iP	21 56	
	Pr	iP	52	
	CL	iP	22 01	
	T	iPNEZ	07	
	USCGS: 19 N $78\frac{1}{2}$ W, 0 = 06:14:39			
	BCIS: $19\frac{3}{4}$ N 78W, 0 = 06:14:42			
23	CL	eP	10 18 39	
	T	iP	48	
23	MW	eP	17 04 46	
	CL	iP	38	
	T	iP	35	
	USCGS: 39 N 26 E, 0 = 16:51:00			
	BCIS: $38\frac{3}{4}$ N $26\frac{1}{4}$ E, 0 = 16:50:56			
24	P	i(P)	21 32 50	
	CL	e(P)	50	
25	P	iP	05 55 38	
		e(pP)	57 13	
	R	iP	55 41	
	CL	iP	46	
		e(pP)	57 23	
	T	iP	55 48	
		e(pP)	57 29	
	USCGS: $18\frac{1}{2}$ S 177W, 0 = 05:43:43			
25	P	eP	09 12 28	
	R	iP	24	
	CL	eP	41	
	T	eP	57	
	November			
25	CL	iP	09 25 31	
25	P	iP	17 47 10	
	R	eP	13	
	CL	eP	02	
		i	07	
	* T	iP	01	
26	P	iPNEZ!	01 21 46	c
		ipP	23 47	
		e(sP,PP)	24 42	
	R	iPNEZ!	48	c
		epP	23 52	
	Pr	iPNEZ!	49	c
		ipP	23 53	
	CL	iP	21 54	c
		epP	23 55	
	T	iPEZ	21 56	
	Near Apia, h = 570 km.			
	USCGS: 0 = 01:09:54			
26	P	eP	04 30 29	
	R	iP	24	
	Pr	iPNEZ	16	c
		e	47	
		i	53	
	CL	iP	33	
	USCGS: 16 N 95 W, 0 = 04:24:35			
26	P	e	04 51 25	
	R	e	03	
	Pr	eP	49 16	
		iSEZ	50 42	
	CL	e	52 05	
26	P	eP	05 44 23	
	R	eP	20	
	Pr	iP	14	
		i	19	
	CL	eP	35	
	T	eP	48	
26	P	iP	06 32 02	
	R	eP	31 58	
		ePcP	33 55	
	Pr	iPNEZ	31 52	c
	CL	eP	32 06	
		ePcP	33 50	
	T	eP	32 17	
		ePcP	34 04	
	Near Panama			
26	MW	eP	06 50 05	
	R	eP	49 44	
	CL	eP	57	
	T	eP	50 14	
26	P	iP	07 51 54	
	R	eP	47	
	Pr	iPEZ	43	
	CL	eP	57	
	T	eP	52 07	
26	Pr	iP?	15 25 34	
	CL	iP	24	
		i	40	
	T	iP	26	
		i	42	

*USCGS: Nov. 25, 0 = 17:35:20, 40 N 143 E. BCIS: 0 = 17:35.4, $41\frac{1}{2}$ N 142 E.

Date	Sta.	Phase	h m s	
		November		
26	MW	e?	16 15 45	
	CL	iP	36	
26	CL	iP	18 08 53	
26	P	iP	22 03 13	
		ipP	46	
	R	iP	16	
		epP	48	
		i	04 00	
	Pr	iP	03 21	
	CL	iP	08	
		i	26	
		ipP	42	
		i	53	
	T	iP	00	
		epP	34	
		h = 140 km.		
		USCGS: Kurile Islands region, 0 = 21:52:35		
27	P	iPNEZ!	08 53 51	d
		iPcP	59	
		i	54 09	
		i	22	
		e	56 16	
		iPP	31	
	PX	eSN	09 03.3	
		iSN	03 23	
		eSSN	08.0	
		eGN	13.0	
		A T		
	PZ	5 2		
	PH	1½ 2		
	pPZ	3 3		
	PPH	4 7		
	SH	4 7		
	MH	40 20		
	R	iPNEZ	08 53 53	d
		i	54 16	
		eSN	09 03.6	
		eP'P'	21 17	
	Pr	iPNEZ!	08 53 53	d
		ipPN	54 10	
		eN	09 02 25	
		iSN	03 28	
		iP'P'	21 34	
	CL	iP	08 53 58	d
		iS	09 02 29	
		e	21 09	
		iP'P'	32	
	T	iPNEZ	08 54 02	d
		e	09 01 16	
		eSNE	03 43	
		eP'P'	21 30	
		Magnitude 7.2		
		h = 60 km.		
		USCGS: 18 S 173 W, 0 = 08:42:16		
28	MW	iP	16 38 23	
	Cr	iP	27	
		USCGS: 51 N 180, 0 = 16:29:43		

Date	Sta.	Phase	h m s	
		November		
28	P	iP	17 01 14	
	Pr	iP	02	
	T	iP	27	
		ePcP	03 13	
		USCGS: 8 N 83 W, 0 = 16:53:22		
28	Pr	iP	20 02 52	d
	T	iP	03 20	
		USCGS: 15½ N 93 W 0 = 19:57:00		
29	CL	eP	09 30 50	
	T	eP	59	
		Near Apia		
29	P	eP	10 09 00	
	Pr	iP	06	
	CL	iP	07	
		i	27	
	T	iP	10	
		Near Apia		
29	CL	iP	17 45 05	
30	P	iPNZ	00 33 17	
		iSNE	34 18	
	R	iP	33 24	
	CL	eP	05	
		i(S)	34 13	
	T	eP	32 53	
		i	56	
		iSN	33 43	
		Magnitude 4.4		
		USCGS: Off coast of northern California, 0 = 08:31:45		
		December		
1	MW	eP	23 19 49	
		e	20 06	
	CL	iP	19 46	
	T	e	58	
2	P	eP	02 56 17	
	R	iP	21	
	CL	iP	25	
	T	iP	25	
		i	31	
		Magnitude 6¼ (Wellington)		
		USCGS: 22 S 172 E, 0 = 02:43:32		
		BCIS: 0 = 02:43:41, h = 100 km±		
2	MW	eP	07 23 10	
	CL	eP	18	
	T	eP	29	
2	MW	e	10 01 00	
	CL	e	00	
	T	e	16	
2	MW	eP	14 45 57	
	R	iP	50	
	CL	iP	46 05	
	T	iP	18	
		i	26	
		Mexico		

Date	Sta.	Phase	h m s	
		December		
2	P	iP	19 53 59	
		i	54 14	
	CL	eP	54 05	
	T	eP	09	
		Near Apia		
		USCGS: 0 = 19:42:07		
2	P	iP	22 34 50	
	Pr	iP	35 05	
		i	13	
	CL	iP	34 36	
	T	iPNEZ	22	
		USCGS: 50½ N 130 W, 0 = 22:30:34		
3	P	iP	02 59 39	
	R	iP	39	
	Pr	iP	37	
	CL	iP	42	
	T	iP	44	
		Possibly these are P'		
3	P	iPNZ	12 12 46	d
		e	13 24	
		i	34	
	R	iP	12 45	d
		e(pP)	13 18	
	Pr	iPNZ	12 40	d
		i(pP)	13 15	
	CL	iP	12 52	d
		i(pP)	13 25	
		i	40	
	T	iP	12 59	d
		i	13 18	
		South America?		
3	Pr	iP	20 30 46	
	CL	eP	31	
	T	iP	20	
4	P	iP	00 54 03	
	Pr	iP	53 59	
	CL	eP	54 14	
	T	eP	24	
4	Pr	iP	18 58 56	
	CL	iP	39	
	T	iP	30	
5	P	iPNEZ	11 29 28	
	Pr	iPNEZ	20	c
		i	27	
	CL	iP	33	
		i	42	
		ePcP	31 49	
	T	iPNEZ	29 45	
		i	52	
		ePcP	31 53	
		USCGS: 6 N 84½ W, 0 = 11:21:34		
5	P	iPNZ	12 50 08	
		i	15	
		i	33	
	PX	eLNE	12 03.6	
	R	ePNE	12 50 06	
	Pr	iP	49 58	
		iNEZ!	50 00	
		i	07	
		(continued)		

Date	Sta.	Phase	h m s	
		December (continued)		
5	CL	iP	12 50 13	
		iPcP	52 35	
	T	iP	50 24	
		i	31	
		iPcP	52 34	
		USCGS: 6 N 84½ W, 0 = 12:42:13		
5	P	iP	15 03 27	
	CL	iP	23	
		USCGS: 0 = 14:51:50		
		CMO: 40.3 N 142.3 E, h = 60 km.		
5	MW	iP	17 47 40	
	CL	iP	35	
	T	iP	29	
		USCGS: Kurile Islands region, 0 = 17:36:47		
5	P	iPNZ	24 00 10	
	Pr	iP	23 59 51	
		i	24 00 02	
	CL	iP	14	
	T	iP	22	
6	P	eP	13 45 46	
		i	46 01	
	Pr	iP	45 50	c
	CL	iP	51	c
	T	iP	52	
		USCGS: 17½ S 167½ E, 0 = 13:32:58		
6	P	iP	14 39 13	
		i	17	
	Pr	iP	15	
		i	20	
	CL	eP	19	
		i	24	
	T	eP	22	
		Surface waves recorded at Pasadena.		
		USCGS: 0 = 14:27:40		
		BCIS: 17 S 174 W.		
6	MW	iP	16 24 44	
	CL	iP	48	
	T	iP	56	
6	Pr	iP	16 30 54	c
	CL	iP	31 00	
6	T	e	20 25 20	
6	MW	iP	22 36 37	
		e	37 51	
	R	eP	42	
	Pr	iP	45	
	CL	iP	36	
		i	37 45	
	T	iP	36 31	
		i	37 43	
7	P	e	16 52 38	
	Pr	e	23	
		i	49	
	CL	e	37	
	T	e	51	
		USCGS: off Panama, 0 = 16:44:36		

Date	Sta.	Phase	h m s
	December		
8	MW	iP	00 05 25
		epP	53
	R	iP	21
		ipP	49
		e	06 03
	CL	iP	05 30
		epP	57
	T	iP	37
		ipP	06 04
8	CL	eP	19 30 46
	T	eP	46
8	CL	eP	21 47 17
	T	eP	19
9	P	iP	08 42 16
		i	19
		iSE	43 01
	R	iP	42 18
		iS	43 08
	Pr	iP	42 27
		iS	43 28
	CL	eP	41 50
		i!	52
		iS	42 16
	H	iPNEZ	41 44
		iSNE	42 07
	T	iPEZ!	41 28
		iSE!	34
	Magnitude 4.1		
	Foreshock of 12h following		
	Felt Bishop, Laws,		
	Yosemite.		
9	Pr	iP	11 16 43
		i	17 02
	CL	iP	16 48
		i	17 04
	T	iP	16 50
	USCGS: 20 S 173 W,		
	0 = 11:04:57		
9	P	iP	12 39 56
		iNEZ	40 00
		iSNZ	43
	R	eP	40 00
		iSN	50
	Pr	iP	10
		i!	21
		i!	25
		iSNE	41 17
	CL	iP	39 34 d
		i!	35
	H	iPNEZ!	28 d
		iE	29
	e	iSNE	46
	T	iPEZ!	12 d
		iSE!	19
	Magnitude 4.6		
	37°28' N 118°22' W.		
	0 = 04:39:02		
	Felt at Bishop, etc.		
	(CGS).		

Date	Sta.	Phase	h m s
	December		
9	R	eP	13 51 50
		epP	52 06
	Pr	iP	51 52
		ipP	52 08
	CL	iP	51 56
		ipP	52 13
	T	eP	51 58
		ipP	52 15
9	P	eP	19 01 56
		i(pP)	02 13
	R	eP	01 59
		i(pP)	02 15
	Pr	i?	01 58
		i	02 06
		i(pP)	16
	CL	iP	04
		i(pP)	21
		e	41
10	P	iP	17 31 05
	R	iP	07
	CL	iP	12 d
		i	23
	T	iP	14 d
	IV at Apia		
	USCGS:13 S 173 W,		
	0 = 17:19:49		
10	P	iP	19 22 10
		i	25 01
	PX	eLN	30
	R	iP	22 13
		i	23 06
	CL	iP	22 26
		i	23 42
		i	25 08
	T	iPEZ	22 34
		i	25 10
	Unusual epicenter		
	BCIS: 3 S 129 W,		
	0 = 19:15:42±		
	M = 6±		
11	P	iP	11 46 41
	R	iP	44
	CL	iP!	47
	T	iP	48
	Magnitude 6¼ (Wellington)		
	USCGS: 0 = 11:33:49		
	BCIS: 20 S 168½ E.		
11	CL	i?	17 56 12
		i	59 15
11	CL	iP	18 21 00
	USCGS: Off northeast		
	Honshu, Japan		
	0 = 18:09 25		
12	MW	i	08 09 16
	R	iP	03
		i	14
	CL	iP	05

Date	Sta.	Phase	h m s
	December		
12	P	eP	20 56 11
	CL	iP	18
		e	55
	T	eP	20
		e	53
13	MW	eP	04 06 22
	T	iP	02
14	P	iP	14 44 48
	Pr	iP	38
	CL	iP	58
		i	45 06
		e	51 52
	T	iP	45 11
	USCGS: Off Colima,Mexico		
	0 = 14:40:00		
15	P	iP	03 37 18
	Pr	iP	06
	CL	iP	28
		i	38
	T	iP	41
		i	50
	USCGS: Off Colima,Mexico		
	0 = 03:32:30		
15	P	iP	10 39 56
	Pr	iP	40 00
	CL	iP	04
	T	eP	06
15	P	e	11 04 34
	Pr	e	20
		i	37
	CL	e	41
	T	e	44
15	MW	eP	14 42 01
	Pr	iP	41 54
	CL	eP	42 06
	T	eP	12
16	Pr	i	02 06 10
	CL	e	05 35
		e	42
	T	e	18
		e	23
16	PX	eLE	14 47
	MW	eP	19 01
	R	eP	05
	CL	eP	09
		i	13
	T	eP	10
		i	14
	Magnitude 5¾-6 (Wellington)		
	USCGS: Kermadec Islands		
	region.		
	0 = 14:06:25		
17	MW	iP	03 30 21
	R	iP	24
	CL	iP	21 c
	T	iP	16 c
17	P	eP	07 07 03
		ePP	11 00
		iPP	27
	PX	iSKSN!	17 43
		e(S)N	18.7
		ePSN	20.0

(continued)

Date	Sta.	Phase	h m s
	December (continued)		
17	PX	iPPS	07 21.1
		e(SS)N	26.5
		eGN	35.0
		eG2N	08 45.5
		A T	
	PZ	½ 2	
	PPZ	4 3	
	MH	100 15	
	G2H	30 100	
	R	eP	07 06 56
		i	08 22
		i	10 31
		iPP	11 04
	Pr	iP	06 58
		i	08 23
	CL	eP	07 04
		i	08 18
		e	10 49
		i	12 02
	T	eP	07 15
		Magnitude 7¾	
		USCGS: 54 S 71 W,	
		0 = 06:53:29	
17	P	iP	15 21 27
		ePP	25 26
		iPP!	37
		ePPP	27 15
		i	31 44
	PX	iSKSE	32 00
		iPPSNZ	34 28
		iSSN	38.8
		eGN	48
		A T	
	PZ	1 2	
	PPZ	6 5	
	PPH	5 5	
	MH	200 20	
	R	i	15 21 31
		ePP	25 10
		iPP	33
	Pr	iP	21 21
	CL	eP	21 29
		ePP	25 25
		i	45
		e	38 05
	T	eP	21 37
		i	22 13
		e	25 57
	Magnitude 7¾		
	USCGS: 54 S 71 W,		
	0 = 15:07:53		
18	MW	iP	02 41 05
	Pr	iP	09
	T	iP	15
18	P	iPNEZ	05 51 45 c
		ipP	52 33
		e	54 59
	PX	i(S)NE	06 01 58
		iSNE!	02 26

(continued)

Date	Sta.	Phase	h m s	
	December (continued)			
18		A	T	
	PZ	¼	1	
	PZ	½	1¼	
	(S)H	1½	4	
	SH!	4	7	
	R	iPNEZ	05 51 47	c
		ipP	52 34	
	Pr	iPNEZ	51 47	c
		ipP	52 33	
		eSNE	06 01 59	
		eNE	02 30	
	CL	iP	05 51 51	c
		ipP	52 39	
		i	55 37	
	T	iP	51 54	c
	Magnitude 6¾			
	USCGS: 34 S 179½ E,			
	0 = 05:38:59, h = 150 km.			
	Felt Opotiki to Wellington			
18	MW	i	11 54 47	
	R	e	42	
	Pr	i	30	
	CL	i	42	
	T	e(P)	14	
		i	33	
18	P	eP	19 04 31	
		i	42	
	R	iP	27	
		i	35	
	Pr	iP	24	
		i	29	
	CL	iP	49	
		i	05 01	
	T	i	06	
19	CL	iP	07 35 10	
	T	iP	12	
19	P	iP	09 53 13	
	R	iP	18	
	Pr	iP	20	
	USCGS: New Guinea region,			
	0 = 09:39:32			
19	P	iP	12 08 40	
		i	49	
	R	iP	43	
		i	52	
	CL	iP	42	
		i	52	
	T	iP	41	
		i	50	
	USCGS: Solomon Islands			
	region, 0 = 11:55:30			
20	P	iPNZ	04 27 47	
		iNEZ	52	
		ipP	29 59	
	PX	i(S)N	37 15	
	R	iPEZ	04 27 55	
		ipP	30 01	
		i	14	
	Pr	iPEZ	27 55	c
		i?	29 52	
		ipP	30 01	

(continued)

Date	Sta.	Phase	h m s	
	December (continued)			
20	CL	iP	04 27 59	c
		ipP	30 04	
	T	i(P)	27 58	
		i	28 00	
	USCGS: 0 = 04:16:40,			
	h = 600 km.			
	BCIS: 20 S 177½ W,			
	0 = 04:16:28, h = 600 km.			
21	P	iP	04 43 22	
	R	iP	24	
	CL	iP	27	
	T	iP	28	
	Magnitude 6± (Wellington)			
	USCGS: New Hebrides,			
	0 = 04:30:37			
21	P	iPNZ	12 39 54	
		i(pP)	40 19	
	PX	eLN	56	
	R	iPEZ	39 49	
		i(pP)	40 13	
	Pr	iPNEZ	39 45	
		i(pP)	40 12	
	CL	iP	39 51	
	T	iPNEZ	51	
	USCGS: 18½ N 67 W,			
	0 = 12:31:19, h = 100 km.			
21	P	iPNEZ	13 30 56	c
	R	iPEZ	31 00	c
	Pr	iPNEZ!	00	c
	CL	iP	03	c
		e	32 12	
	T	iPNEZ	31 03	c
	Magnitude 6± (Wellington)			
	USCGS: 18½ S 168 E,			
	0 = 13:18:50			
21	CL	iP	17 57 45	
	T	iP	42	
	Near Apia			
21	P	eP	19 43 46	
		iPNEZ!	48	d
		ePcP	58	
		epP	45 50	
		i(sP)	46 53	
	PX	eSNE	52 31	
		isSE	56 04	
		iSSN	57.8	
		eSSSNE	20 01.4	
	P	eSKPP'	13 34	
		A	T	
	PZ	3	1½	
	PH	2	1	
	SH	6	5	
	R	eP	19 43 42	
		iPNEZ!	43	d
		ipP	45 50	
		i	46 49	
		i	47 38	
		iSNE	52 27	
		eSKPP'	20 13 27	

(continued)

Date	Sta.	Phase	h m s	
	December (continued)			
21	Pr	iPNEZ!	19 43 39	d
		ipP	45 46	
		iSNE	52 20	
		i	20 11 10	
		iSKPP'	13 25	
	CL	iP	19 43 49	
		i!	51	d
		ipP	45 52	
		i	47 56	
		iS	52 41	
		e	20 11 01	
		iSKPP'	13 28	
	T	iP	19 43 55	
		iNEZ!	57	d
		ipP	45 55	
		iSNE	52 56	
		eSKPP'	20 13 29	
	Magnitude 6¾-7			
	USCGS: 20 S 64 W,			
	0 = 19:33:00, h = 600 km.			
22	P	iP	09 22 42	
	R	eP	44	
	Pr	iP	42	
		i	48	
	CL	iP	35	
	T	iP	39	
22	P	iPNEZ	09 36 44	d
		ipPNZ	37 01	
		iPP	38 03	
		ePcP	39 48	
		ipPcP	40 10	
	PX	eSE	41 30	
		iGN	43.0	
	P	iScSN	47 18	
		A	T	A T
	PZ	1	2	PH 1½ 3
	pPZ	2	3	
	SH	8	10	
	MH	40	35	
	MH	20	20	
	R	iPNEZ	09 36 37	d
		ipP	58	
		iPcP	39 47	
		ipPcP	40 10	
	Pr	iPNEZ!	36 32	d
		ipPNEZ	50	
		iE	37 23	
		iN	38 22	
		iSN	41 15	
		iScSN	47 14	
	CL	iP	36 48	d
		ipP	37 04	
		iPcP	39 49	
		ipPcP	40 15	
		iScS	47 42	
	T	iPNEZ	36 59	
		ipP	37 20	
		iPcP	39 53	
		ipPcP	40 17	
		i	43 35	
		eScSNE	47 30	
	Magnitude 6½			
	USCGS: 16 N 93 W,			
	0 = 09:30:47, h = 100km.			

Date	Sta.	Phase	h m s	
	December (continued)			
22	MW	eP	11 33 02	
	R	eP	07	
	Pr	eP	16	
	CL	iP	32 46	
	T	iP	34	
22	MW	epP	12 56 03	
	Pr	iP	55 37	
		ipP	52	
	CL	ipP	56 09	
	T	eP	05	
		ipP	19	
22	MW	eP	18 37 10	
	R	eP	04	
	Pr	eP	36 54	
	CL	eP	37 15	
	T	iP	23	
	South America			
22	P	eP	21 41 23	
		ipPNEZ	54	
	R	eP	20	
		ipPEZ	51	
	Pr	iP	17	
		ipPEZ	48	
	CL	eP	27	
		ipP	58	
	T	eP	35	
		ipP	42 06	
	Andes, h = 130 km.			
24	P	eP	00 18 43	
	PX	eLNE	24.3	
	R	eP	18 34	
	Pr	eP	31	
	CL	eP	49	
	T	eP	51	
24	CL	iP	22 14 44	
	T	iP	45	
	R	eP	56	
24	CL	eP	22 43 45	
	Near Apia			
25	CL	e	01 26 58	
25	MW	eP	06 19 20	
	R	eP	22	
	Pr	eP	22	
	CL	eP	35	
	T	eP	29	
25	MW	e	14 00 06	
	Pr	i	05	
	CL	i	09	
25	P	iPNEZ	22 45 09	c
		i	46 14	
	PX	eLE	49.4	
		A	T	
	PZ	1½	2	
	PH	1	2	
	MH	15	20	
	R	iPNEZ	22 45 04	c
		i	46 08	
	Pr	iPNEZ	44 56	
		i	45 48	
		i	46 00	
	CL	iP!	45 19	c
		i	46 22	

(continued)

Date	Sta.	Phase	h	m	s	
		December (continued)				
25	T	iPNEZ	22	45	36	
		i		46	34	
		Magnitude 6±, deep?				
		USCGS: 19½ N 104 W,				
		0 = 22:40:45				
25	P	iPNEZ	23	29	35	
		A T				
	PZ	1 2				
	PH	1 3				
	R	iP	23	29	39	c
	Pr	iPEZ!			44	c
		i		30	14	
	CL	iP		29	31	c
6	T	iP			26	
		USCGS: 37 N 139 E,				
		0 = 23:17:31				
		CMO: 36.7 N 139.7 E,				
		0 = 23:17:30.0, h = 10 km.				
		Damage on Honshu; several				
		killed.				
25	P	iP	23	36	58	c
	PX	e		39	35	
		e			59	
		e(S)		46.9		
		eL		57.6		
		A T				
	PZ	1 2				
	PH	1 3				
	(S)H	2 10				
	MH	12 20				
	R	iPNEZ	23	37	01	c
	Pr	iPNEZ			07	c
		i			36	
		iPP		41	09	
	CL	iP!		36	56	c
	T	iPNEZ			50	c
		Magnitude 6¾				
		USCGS: 37 N 139 E,				
		0 = 23:24:53				
		CMO: 36.73 N 139.70 E,				
		0 = 23:24:53.5, h = 10 km.				
		Damage on Honshu				
26	MW	eP	02	03	17	
	CL	eP			12	
	T	eP			07	
26	P	iPNEZ	06	35	43	
		ePP		38	34	
	PX	iSNE		45	35	
		eSP		46	18	
		iGN		55.6		
		A T				
	PZ	1 3				
	PH	1 3				
	SH	20 20				
	GH	150 40				
	MH	50 20				
	R	iPNEZ	06	35	47	
		i		36	03	
	Pr	iPNEZ!		35	49	
	CL	iP		35	51	
		i		36	08	
		i		37	23	
		iPP		38	49	
		e	07	03		

(continued)

Date	Sta.	Phase	h	m	s	
		December (continued)				
26	T	iP	06	35	53	
		Magnitude 6.9				
		USCGS: 14½ S 180,				
		0 = 06:23:54				
26	P	e	07	22	47	
	R	e			37	
	Pr	e			49	
	CL	e			51	
	T	e			53	
26	CL	eP	10	27	49	
	T	eP			42	
26	Pr	iP	16	01	02	
	CL	iP			04	
27	P	eP	02	55	06	
	CL	iP			03	
	T	iP		54	57	
		USCGS: Honshu, Japan,				
		0 = 02:33:01				
27	P	iPNEZ	08	49	22	
	R	eP			26	
	Pr	iP			29	
	CL	iP			22	
	T	iP			19	
27	P	iP	08	52	42	
	R	iP			46	
	Pr	iP			50	
	CL	iP			45	
	T	iP			40	
27	P	iP	09	08	10	
	R	eP			13	
	Pr	iP			19	
	CL	iP			08	
	T	iP			01	
		USCGS: 37 N 139 E,				
		0 = 08:56:06				
27	MW	eP	10	30	05	
	CL	eP			00	
	T	iP		29	53	
		USCGS: Honshu, Japan				
		0 = 10:17:44				
27	P	iPNEZ	11	00	28	c
	R	iP			33	
	Pr	iP			40	
	CL	iP			23	c
		iPcP		02	08	
	T	iPEZ		00	14	c
		iPcP		02	04	
		USCGS: Aleutian Is.				
		0 = 10:52:28				
27	CL	eP	16	53	55	
	T	iP			49	
		USCGS: Honshu, Japan,				
		0 = 16:41:55				
27	MW	eP	20	45	23	
	R	eP			24	
	CL	iP			18	
	T	iP			12	

Date	Sta.	Phase	h	m	s	
		December				
27	P	iPNEZ	21	15	10	d
		i			30	
		e			43	
		A T				
	PZ	½ 1				
	R	iP	21	15	12	d
	Pr	iPNEZ			13	d
	CL	iP			18	d
		i			40	
	T	iPNEZ			20	d
		Near Apia.				
		USCGS: 0 = 21:03:20				
28	P	eP"	00	16	06	
		ePPNEZ		17	39	
		iPP			54	
	PX	iSKSNE		23	13	
		ePSN		27	38	
		ePPSNE		28	59	
		iSSNE		34	33	
		eSSSNE		38.7		
		eGN		46.2		
		A T				
	PPZ	2½ 4				
	PPH	2 4				
	MH	25 20				
	R	eP"	00	16	05	
		iPP		17	46	
	Pr	iP"		16	00	
		iPP		17	35	
	CL	iP"		16	10	
		iPP		17	44	
		e		22	38	
		e		25	59	
		i		30	08	
	T	eP"		16	12	
		i			24	
		ePP		18	10	
		e		29	51	
		Magnitude 7.2				
		USCGS: 60 S 22 W,				
		0 = 23:57:13 (DEC. 27)				
28	MW	eP	04	01	54	
	Pr	eP			55	
	CL	eP			51	
	T	eP			47	
		Foreshock of next;				
		USCGS: 0 = 03:50:59				
		BCIS: 0 = 03:50:54				
28	P	eP	06	36	27	
	PX	eLNE	07	01		
	R	eP	06	36	23	
	Pr	iP			23	
	CL	iP			17	
	T	eP			15	
		USCGS: 0 = 06:25:33				
		BCIS: 41 N 29½ W,				
		0 = 06:25:24				
28	MW	e	07	04	50	
	R	e			46	
	CL	e			51	
	T	e			46	
		P'P' of preceding?				

Date	Sta.	Phase	h	m	s	
		December				
28	MW	eP	10	44	20	
	CL	eP			14	
28	P	eP	13	49	42	
		ipP			55	
		i		51	40	
	R	ipP		50	01	
	Pr	iP		49	54	
		ipP		50	08	
		i			19	
		i		51	49	
	CL	eP		49	37	
		i			44	
		ipP			51	
		i		51	23	
		USCGS: Aleutian Is.				
		0 = 13:41:31				
29	P	eP	03	17	56	d
		i		18	03	
		iP"NEZ		21	25	
		iPP		22	19	
	PX	ePPP		24	20	
		iSKSNE		28	36	
		iSNE		29	45	
		iPSN		31	28	
	P	ePKKP		33	55	
	PX	eSSNE		36.5		
		eSSS		41.8		
		eGN		46.0		
		iGN		47.2		
		A T				
	PZ	1½ 2				
	P"Z	1½ 4				
	P"H	1 4				
	PPZ	2 2				
	PPH	3 4				
	MH	50 20				
	R	eP	03	18	02	
		eP"		21	27	
		iPPNEZ		22	17	
		ePKKP		33	50	
	Pr	iP		18	04	
		i		21	30	
		iPPNEZ!		22	29	
		iPKKP		34	03	
	CL	iP		17	53	
		iPP		22	17	
		iPKKP		34	12	
	T	ePNEZ		17	50	
		i		18	13	
		iPKKP		34	17	
		Magnitude 7.2				
		USCGS: 18½ N 121 E,				
		0 = 03:03:55				
		Damage on Luzon				
29	P	iP	06	27	04	
	Pr	iP			06	
	CL	eP			11	
	T	eP			12	

Date	Sta.	Phase	h m s
	December		
29	MW	e	06 36 59
		e	41 11
	Pr	i	41 27
	CL	e	37 02
		e	41 44
	T	e	36 56
		e	40 59
	Part of preceding?		
29	P	iP	15 41 16
	Pr	iP	19
	CL	iP	22
	T	iP	23
29	P	eP	16 55 00
		ipP	41
	PX	ePP	58 47
		iPP	59 16
		eSKSNE	17 05 18
		eSNE	06 02
		e(G)NE	19.9
		A T	
	PZ	1 4	
	PH	$\frac{3}{4}$ 3	
	PPZ	$\frac{3}{4}$ 4	
	PPH	$\frac{3}{4}$ 4	
	SH	3 7	
	MH	15 20	
	R	eP	16 55 02
		ipP	43
	Pr	iP	02
		ipP	44
	CL	iP	16 55 08
		ipP	49
	T	iP	10
		i	56 03
	Magnitude $6\frac{1}{2}$		
	USCGS: 27 S $176\frac{1}{2}$ W,		
	0 = 16:42:56, h = 200 km.		
29	CL	iP	17 07 13
	T	iP	12
29	R	eP?	19 22 15
	CL	iP	16
	T	iP	18
29	P	iP"NEZ	22 24 35 d
		iPP	26 50
		iSKP	27 14
		iPKKP	34 11
		eSKKP	38 02
	R	iP"	24 35
		ePP	26 21
		eSKP	34
		ePKKP	34 07
	Pr	iP"	24 38 d
		iPP	26 38
		iSKPNZ	27 00
		iPKKP	34 07
		iSKKP	37 59
	CL	iP"	24 35
		iPP	26 27
		ePKKP	34 10
		eSKKP	38 07
	T	iP	24 33
		iPP	26 50
		iPKKP	34 16
	BCIS: 6 S 111 E,		
	0 = 22:05.7		

Date	Sta.	Phase	h m s
	December		
30	P	iP	01 53 26
		e(pP)	55 29
	R	iP	53 28
	Pr	iP	30
	CL	iP	31
		i(pP)	55 36
		e	57 10
		i	02 03 25
	T	iP	01 53 31
		e(pP)	55 38
	USCGS: Fiji Islands		
	region, 0 = 01:41:06		
30	R	eP	02 13 22
	Pr	iP	22
	CL	iP	25
		i	16 53
		i	18 39
	T	iP	13 27
		e	16 55
30	CL	eP	02 33 02
	T	eP	05
30	MW	e	04 29 51
	Pr	e	23
	CL	e	27
	T	e	33
30	P	eP	06 36 43
		ipP	37 22
	R	eP	36 49
		epP	37 25
	Pr	eP	36 52
		epP	37 28
	CL	eP	36 45
		ipP	37 22
	T	eP?	36 38
		i	45
		epP	37 20
30	CL	eP	07 15 00
30	CL	eP	09 13 44
30	MW	e	09 29 51
	Pr	e	54
	CL	e	55
30	P	iP	10 53 26
	R	eP	29
	Pr	iP	27
	CL	iP	32
	T	iP	36
	USCGS: Kermadec Islands		
	region, 0 = 10:41:01		
30	CL	iP	23 50 10
31	CL	eP	01 28 40
	T	eP	43
31	R	eP	04 05 20
	CL	eP	14
	T	eP	10
31	P	eP	04 20 42
	R	eP	44
	Pr	eP	44
	CL	iP	49
		i	59
	T	iP	51
		i	21 01
	USCGS: Kermadec Islands		
	region, 0 = 04:08:10		

Date	Sta.	Phase	h m s
	December		
31	CL	iP	04 40 26
		e	48
	T	eP	27
31	P	eP	08 54 05
	R	eP	06
	Pr	iP	09
	CL	iP	09
	T	iP	12
	Near Suva		
	USCGS: 0 = 08:41:46		
31	Pr	iP	09 14 44
	CL	iP	47
31	CL	iP	09 25 28
	T	eP	28
31	Pr	iP	09 45 54
		i	46 09
	CL	eP	45 58
	T	eP	46 00
31	P	eP	09 57 40
	R	iP	43
	CL	iP	37
	T	iP	31

Additional notes and corrections:

Page 4; shock of Jan. 23,06h
Magnitude less than 7
No evidence of intermediate depth (depth not over 60 km)

Page 5, top of right half, under "Date"
for 27 read 2

Page 7: shock of Feb. 23,16h should read

	A	T
PZ	$\frac{1}{2}$	2
PPZ	1	2

Page 8; shock of Feb. 28,00h

	A	T
PPZ	$\frac{1}{2}$	2

Page 28, top of right half, for June read July

Page 39, heading, for 1950 read 1949

C. F. Richter
Marion Reid
July 10, 1950

Larger shocks of 1949

Epicenters, origin times, depths and magnitudes revised by B. Gutenberg

	O	Lat	Long	Depth	Magnitude
Jan. 24	09 15 48	22 S	176 W	110 km.	7.1
Feb. 2	17 41 29	53 N	173 W	22o Km.	7±
Feb. 13	18 24 24	33½ S	178 W	60 km.	7.4
Feb. 23	16 08 08	41 N	83½ E	Normal	7.3
Feb. 28	00 13 04	57 S 29 W		60 km.?	7±
Mar. 4	10 19 25	36 N	70½ E	230 km.	7.5
Mar. 16	22 15 13	5½ S	151 E	60± km.	7.1
Mar. 17	21 05 03	5½ S	151 E	60 ± km.	7.0
Mar. 27	06 34 05	3½ N	127½ E	Normal	7.0
Apr. 5	09 27 06	41 N	131 E	580 km.	6¾-7
Apr. 13	19 55 43	47¼ N	122½ W	60 km.?	7.1
Apr. 20	03 29 08	37 S	74 W	70 km.	7.4
Apr. 23	11 15 35	7½ S	120½ E	50 km.	7.1
Apr. 25	13 54 59	19¾ S	69 W	110 km.	7.5
Apr. 30	01 23 32	6½ N	125 E	130 km.	7.3
June 12	17 52 26	26½ S	62½ W	620 km.	6.9
June 12	17 55 54	26½ S	62½ W	620 km.	6.9
July 2	19 57 13	16 N	148 E	50 km.	7.2
July 10	03 53 36	39 N	70½ E	Normal	7.7
July 23	10 26 45	18½ S	170 E	150 km.±	7.2
July 27	15 11 42	29 S	177 W	70 km.	7.1
Aug. 6	00 35 37	18½ S	174½ W	70 km.	7.6
Aug. 22	04 01 11	53¾ N	133¼ W	Normal	8.1
Sept. 14	19 50 20	¾ N	126 E	50 km?	7.2
Sept. 20	11 55 27	29½ S	177½ W	80 km.	6.9
Sept. 27	15 30 45	59¾ N	149 W	50 km.	7.0
Oct. 19	21 00 19	5½ S	154 E	60 km?	7¼
			complicated shock		
Nov. 3	01 12 36	48½ N	154 E	160 km.	6.9
Nov. 22	00 51 49	28½ S	178½ W	160 km.±	7.4
Nov. 27	08 42 17	18 S	173 W	60 km.	7.2
Dec. 17	06 53 30	54 S	71 W	Normal	7¾
Dec. 17	15 07 55	54 S	71 W	Normal	7¾
Dec. 21	19 33 08	19½ S	64 W	620 km.	6¾-7
Dec. 26	06 23 52	15½ S	180	Normal	6.9
Dec. 27	23 57 16	60 S	22 W	50 km.	7.2
Dec. 29	03 03 54	18 N	121 E	Normal	7.2

Correction to list of large shocks at end of 1948 Bulletin (page 129)

For April 21 22 22 02 read 20 22 02