New Zealand Department of Scientific and Industrial Research
GEOPHYSICS DIVISION

NEW ZEALAND

SEISMOLOGICAL REPORT 1955

SEISMOLOGICAL OBSERVATORY BULLETIN
E – 136

R. E. OWEN, GOVERNMENT PRINTER, WELLINGTON, NEW ZEALAND
1961

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SEISMOLOGICAL OBSERVATORY, WELLINGTON, NEW ZEALAND

ALL measurement and interpretation of records is carried out at the central station in Wellington. Communications should therefore be addressed to:

The Superintendent,
Seismological Observatory,
P.O. Box 8005,
Wellington, New Zealand.

NEW ZEALAND SEISMOLOGICAL REPORT 1955

CONTENTS

INTRODUCTION

In the New Zealand Seismological Report for 1956, which has already been published (Seismological Observatory Bulletin E-137), a number of changes in the manner of presenting earthquake data recorded in New Zealand were introduced, and the reasons for them explained. The present volume has a form intermediate between that of the 1956 Report and the older bulletins of the E-series. Bulletins for the subsequent years are in an advanced state of preparation, and it is probable that publication of standard seismic measurements from the New Zealand network will be brought up to date within the next twelve months.

The aim of these bulletins is to provide an annual summary of all seismological work of a routine kind carried out by the Observatory; and they are intended to contain sufficient descriptive matter to make them of some use and interest to people other than professional seismologists. However, the year 1955 was seismically a quiet one and there has been little that calls for special comment. Reprints of research papers by members of the staff and material that is not of a routine nature are issued as a series of S - bulletins. A list of such publications is included in this bulletin, and the Observatory is prepared to consider agreements to exchange such material with other institutions.

The plan of the bulletin should be apparent from the table of contents, and further explanations will be found at the head of each separate section.

STATIONS OF THE NEW ZEALAND NETWORK

The network of stations under the control of the Seismological Observatory, Wellington, may be considered to consist of two sections: first, a set of short-period instruments distributed over the whole country, and intended to yield records of earthquakes originating within New Zealand, and secondly, teleseismic instruments intended to provide information about distant earthquakes and the physical condition of the earth. These functions interlock, and every seismograph gives some useful information in both fields. Details of the instruments at the various stations are listed below, in order of increasing southern latitude.

During 1955 there were a number of interruptions to the recording at some stations. Suva, which normally forms part of the New Zealand network, did not operate at all during the year. No records from Onerahi are available for the period Feb. 4 to Feb. 15, and from New Plymouth between Apr. 1 and Apr. 27. Operation at Tongariro had to be suspended on Apr. 15, when the electric mains in the district were converted from d.c. to a.c.. Intermittent recording began again in December. Karapiro and Tuai were subject to minor interruptions during December. Brief interruptions to recording at Onerahi persisted throughout the year.

In spite of these interruptions, there were few earthquakes reported felt that could not be at least approximately located. However, the distribution of stations is such that in certain districts, particularly the far south of the country, the origins cannot be placed with the highest accuracy.

Instrumental constants are given below, together with the standard contractions of the station names (used in the tabular sections of this report), geographical positions, lithological foundations and other relevant information.

ONERAHI (ON)

Latitude:	35°46'.5 S
Longitude:	174°21'.7 E
Height above m.s.l.:	33 metres (110 ft.)
Lithological Foundation:	Basalt.
Instrument:	Wood-Anderson. (E-W)
Constants:	Period 1.1 sec.
(1954 Aug.)	Damping 174:1
	Magnification 2800

AUCKLAND (AK)

Latitude:	36°51'.7 S
Longitude:	174°46'.7 E
Height above m.s.l.:	76 metres (250 ft.)
Lithological Foundation:	Volcanic beds on Tertiary sandstone and mudstone
Instrument:	Milne - Shaw (N-S)
Constants:	Period 10 sec.
	Damping 20:1
	Magnification 150

KARAPIRO (KP)

Latitude:	37°55'.6 S
Longitude:	175°32'.3 E
Height above m.s.l.:	61 metres (200 ft.)
Lithological Foundation:	Greywacke
Instrument:	Wood-Anderson (N-S)
Constants:	Period 1.2 sec.
(1954 Sep.)	Damping 125:1
	Magnification 2,800

TUAI (TU)

Latitude:	38°48'.4 S
Longitude:	177°09'.1 E
Height above m.s.l.:	293 metres (960 ft.)
Lithological Foundation:	Tertiary sandstone and mudstone
Instrument:	Wood-Anderson (N-S)
Constants:	Period: 0.78 sec.
(1953 July)	Damping: 15:1
	Magnification: 1400

NEW PLYMOUTH (NP)

Latitude:	39°04'.0 S
Longitude:	174°04'.4 E
Height above m.s.l.:	34 metres (112 ft.)
Lithological Foundation:	Volcanic ash on thick Tertiary sandstone and mudstone
Instrument:	Wood-Anderson
Constants:	Period: 0.8 sec.
(1955 Apr.)	Damping: 50:1
	Magnification: 1400

TONGARIRO (TO)

Latitude:	39°12'.2 S
Longitude:	175°32'.3 E
Height above m.s.l.:	1131 metres (3710 ft.)
Lithological Foundation:	Volcanic ash and lava on Tertiary sandstone and mudstone
Instrument:	Jones (Z)
Constants:	Period: 0.5 sec.
(1954 Sep.)	Damping: 10:1
	Magnification: 11,000

BUNNYTHORPE (BT)

Latitude:	40°17'.0 S
Longitude:	175°38'.1 E
Height above m.s.l.:	60 metres (197 ft.)
Lithological Foundation:	Gravels, silts, and sands.
Instrument:	Imamura (3 compt.)
Constants:	Period H 8 sec.
(1955 Apr.)	Z 2 sec.
	Magnification: 2

COBB RIVER (CB)

Latitude:	41°05'.2 S
Longitude:	172°44'.0 E
Height above m.s.l.:	213 metres (700 ft.)
Lithological Foundation:	Schist
Instrument:	Wood-Anderson (E-W)
Constants:	Period: 0.8 sec.
(1953 May)	Damping: critical
	Magnification: 2,800

WELLINGTON (WN)

Latitude:	41°17'.2 S
Longitude:	174°46'.0 E
Height above m.s.l.	122 metres (401 ft.)
Lithological Foundation:	Greywacke
Instrument:	(1) Milne-Shaw (N-S)
Constants:	Period: 12 sec.
(1953 Mar.)	Damping: 30:1
	Magnification: 250
	(2) Galitzin Wilip (Z)
	Seismometer Period 10.6 sec.
	Galvanometer Period 10.0 sec.
	Damping: critical
	Magnification: 615
(1953 Aug.)	(3) Wood-Anderson (N-S)
	Period: 0.8 sec.
	Damping: critical
	Magnification: 2,800

This station also operates Wenner and Imamura strong-motion instruments. Throughout 1955, a Benioff short period vertical instrument (galvanometer period 0.25 sec.) was intermittently operated under test conditions. This instrument has now been moved to Afiamalu, Western Samoa.

KAIMATA (KM)

Latitude:	42°31'.4 S
Longitude:	171°24'.6 E
Height above m.s.l.:	70.1 metres (230 ft)
Lithological Foundation:	Moraine and alluvium over Tertiary sandstone and mudstone.
Instrument:	Wood-Anderson. (NE-SW)
Constants:	Period: 0.8 sec.
(1954 Oct.)	Damping: critical
	Magnification: 2,800

CHRISTCHURCH (CH)

Latitude:	43°31'.9 S
Longitude:	172°37'.3 E
Height above m.s.l.:	7.6 metres (25 ft.)
Lithological Foundation:	Alluvial sands, silts, and gravels.
Instruments:	(1) Galitzin (3-compt.)
	Period: Z. 13 sec.
	N-S, E-W. 24 sec.
	Damping: critical
	Magnification:
	Z 465; N-S 265; E-W 275.
	(2) Wood-Anderson (NW-SE)
	Period: 0.8 sec.
	Damping: critical
	Magnification: 1,400

MONOWAI (MN)

Latitude:	45°47' S
Longitude:	167°37' E
Height above m.s.l.:	160 metres (538 ft.)
Lithological Foundation:	Tertiary Sandstone.
Instrument:	Jaggar shock recorder.

TIMING ARRANGEMENTS

Radio time signals originating in the Seismological Observatory, Wellington are broadcast 15 times daily by station 2YA of the New Zealand Broadcasting Service. During 1955, a start was made in equipping the stations of the network with an arrangement for automatically impressing these signals on the records. This is described by B.H. OLSSEN in the New Zealand Journal of Science and Technology (Vol. 37B, No. 2, pp 115-118, 1955 Sept.). A prototype was in operation at Kaimata for the whole year, and the station at Onerahi was equipped in March, New Plymouth in April, and Karapiro in November. At other stations, except Wellington, several signals a day are recorded by the operator, who depresses a hand key on hearing the signal. At Wellington, the time marks on the record are directly derived from the national time service. The minute or half-minute marks at the outstations are provided either by an electric pendulum clock of the Synchronome type, or by a marine chronometer fitted with electric contacts.

TECHNICAL STAFF 1955

Superintendent:	R.C. Hayes.
Geophysicists:	R.R. Dibble, M.Sc.; G.A. Eiby, M.Sc.; A.A. Thomson, M.Sc..
Technicians:	B.R. Gibson; J. Rappange.

STATION READINGS

This section contains the standard instrumental readings from the stations of the New Zealand network. Only shocks with an instrumental magnitude of 5 or more are included, but the epicentres of many smaller shocks, including all those known to have been felt will be found in the section 'Principal New Zealand Earthquakes'. Epicentres followed by the letters USCGS are taken from data published by the United States Coast and Geodetic Survey.

All times are given in U.T.; that is, the civil time of the Greenwich meridian, beginning at midnight. New Zealand Standard Time is 12 hours ahead of U.T., and may be found by adding 12 hours to the reading given. Care should be taken to allow for any consequent change in date.

Instrumental constants and other station data, including the standard two-letter abbreviations used are explained in the section 'Stations of the New Zealand Network'.

Magnitudes for local earthquakes are a mean of the indications of the Wood-Anderson seismographs of the network. For deep earthquakes, the slant distance from the station to the epicentre is employed when using the nomogram.

The accuracy of local earthquake epicentres is indicated by a letter in brackets following the attribution 'NZ'.

(A) Epicentres are not in error by more than 5 miles, or 8 km.
(B) " " " " " " " " 10 " "16 "
(C) " " " " " " " " 15 " "24 "
(D) " " more uncertain.

In indicating focal depth, a distinction is made between shallow earthquakes (S), whose records show clear crustal pulses, and normal earthquakes (N) which probably originate near the base of the crust.

Date	Stn	Phase	h	m	s	Magnitude
JAN 1	WN	eP	16	54	34	
		eS		57	14	
		e	17	00	30	
	AK	e	16	55	00	
		e		56	37	
		e(L)		57½		
	TU	eS	16	56	08	
	CB	eP	16	55	00	
		eS		57	31	
	CH	eS	16	58	25	
		eL	17	00		

Date	Stn	Phase	h	m	s			Magnitude
JAN 5	WN	iP	00	53	16			
		eS		56	19			
	KP	eP	00	53	44			
		e			59			
		e		55	09			
		e		56	55			
		eL		57	01			
	TU	eP	00	53	45			
		eS		56	27			
		eL		57¾				
	NP	eP	00	53	39			
		eL		58.0				
	CB	eP	00	52	46			
		e			59			
		eS		54	58			
		eL		55½				
	KM	P	00	52	27			
		iS		54	26			
	CH	iP	00	52	36			
		e			56			
		iS		54	24			
		e			58			
	Epicentre:		00	50	12	50S	162½E	USCGS
5	WN	iP	17	54	09			
		iS		58	34			
		eL	18	01½				
	AK	iP	17	53	30			
		S		57	34			
		eL		58½				
	KP	iP	17	53	41s			
		i			52			
		S		57	54			
		L	18	00	46			
	TU	e	17	53	55			
		eS		58	01			
	NP	P	17	53	57			
		eL	18	00.0				
	CB	eP	17	54	06			
		eS		58	28			
	KM	P	17	54	18			
		e		56	56			
		eS		58	46			
		eL	18	01	18			
	Epicentre:		17	48	35	16S	167½E	USCGS
5	WN	eL	21	20				
	CH	eL	21	18				
5	WN	eP	23	47	46			
		pP		48	58			
		eS		52	14			
	KP	P	23	47	11			
		e			19			
		S		51	40			
	TU	eP	23	47	30			
		eS		51	52			
	NP	eP	23	47	22			
	CB	eP	23	47	37			
		eS		52	02			
	KM	P	23	47	48			
		e			18			
		eS		52	40			
		eL		53	32			
	CH	eP	23	47	54			
		e		48	02			
		iS		52	46			
		e			57			
		e		53	56			
		eL		56				
	Epicentre:		23	42	03	16S	167½E	USCGS

Date	Stn	Phase	h	m	s				Magnitude
JAN 6	KP	eP	02	04	52				
6	WN	eP	02	28	12				
		eS			33.08				
		eL			36±				
	AK	P	02	27	36				
		e(S)			30 56				
		eL			33¼				
	KP	P	02	27	45				
		S			33 09				
		L			35 00				
	TU	eP	02	27	59				
		e(S)			32 19				
	NP	e	02	28	01½				
	CB	eP	02	28	10				
		eS			32 37				
	KM	eP	02	28	25				
		e			30 36				
		eS			34 05				
	CH	e	02	33					
	Epicentre:		02	22	35	16S	167½E	USCGS	
6	WN	e	04	29					
	CH	e	04	30					
6	WN	eP	09	54	08				
		eS			58.50				
		eL	10	04	±				
	AK	eP	09	53	19				
		eS			57 10				
		eL			58¾				
	KP	eP	09	53	31				
		e(S)			57 47				
	TU	eP	09	53	43				
		e(S)			58 56				
	CB	eP	09	53	56				
		eS			58 21				
	KM	eP	09	54	03				
	Epicentre:		09	48	19	16S	167½E	USCGS	
6	WN	eL	14	03	±				
7	WN	eL	19	01	±				
	CH	e?	18	58	47				
		e			59 03				
		eL			58½				
8	WN	eP	07	39	47				
		PP			40 32				
		e			41 05				
		e			41 28				
		eS			43 58				
		e			44 48				
		eL			48½				
	AK	eP	07	38	54				
		(PP)			39 27				
		e			42 10				
		eL			44				
	ON	eP	07	39	00				
		eS			43 48				
	KP	eP	07	39	20				
		e(S)			44 37				
	TU	e(P)	07	39	30				
		P			35				
		eS			44 18				
		eL			48				

Date	Stn	Phase	h	m	s					Magnitude
JAN 8	CB	eP	07	39	43					
		eS		44	54					
	KM	P	07	39	56					
		eS		44	42					
	CH	e	07	39	57					
		eS		45	26					
		eL		49						
	Epicentre:		07	33	36	11½S	166½E		USCGS	
8	WN	e	09	49	±					
13	WN	eL	01	03	±					
	CH	eL	00	52						
13	WN	eSKS	02	27	10					
		eLr		48						
	AK	eSKS	02	26	57					
		eL		46¼						
	KP	eP	02	16	54					
	CH	eSKS	02	27	55					
		e		35	18					
		e		39						
		eL		44						
	Epicentre:		02	03	43	53N	167½W		USCGS	M6.9 PAS
13	WN	eLr	03	21	±					
13	WN	eL	04	28						
	CH	eL	04	16						
17	AK	eP	02	44	30					
		eS		47	26					
	ON	eP	02	44	08					
		eS		47	18					
	KP	P	02	44	21n?					
		S		47	41					
	TU	eP	02	44	19					
		eS		47	40					
	CB	eP	02	45	02					
		eS		48	53					
	KM	eP	02	45	19					
		eS		49	23					
18	WN	eP	14	40	46					
		eS		44	15					
	AK	e(P)	14	39	55					
		e		40	47					
		e(S)		42	50					
	ON	eP	14	40	00					
		eS		42	47					
	KP	eP	14	40	15					
		S		48	29					
	TU	eP	14	40	18					
		eS		43	26					
	NP	eP	14	40	34					
	CB	eP	14	40	50					
		eS		44	23					
	KM	P	14	41	08					
		eS		44	57½					
	Epicentre:		14	36	32	19S	179W	400km	USCGS	
19	WN	eS	17	10	46					
		eL		18	±					
	CH	eS	17	11	10					
		eL		21						
	Epicentre:		16	51	26	36½S	98½W		USCGS	

Date	Stn	Phase	h m s				Magnitude
JAN 18	WN	eL	20 10±				
	CH	eL	20 03				
	Epicentre:		19 48 36	Santa Cruz Is.		USCGS	
20	WN	eP?	04 15 43				
		e(P)	46				
		eS	17 44				
	ON	eP	04 14 59				
		eS	16 27				
	KP	e(S)	04 16 42				
	TU	eS	04 16 42				
	TO	e	04(17)				
	NP	eP	04 15 34				
	CB	eP	04 15 59				
		eS	17 58				
	KM	eS	04 18 35				
	CH	eS	04 18 49				
20	WN	eL	04 36				
20	WN	eL	08 51				
	AK	e(L)	08 52½				
	CH	eL	08 47				
22	WN	iP	21 15 28	compression			
		eL	27½				
	ON	eP	21 14 51				
		e?	15 04				
	CB	eP	21 15 33				
	CH	eL	21 27				
	Epicentre:		21 11 00	Fiji	650±km	USCGS	
23	WN	eL	21 30±				
27	WN	eP	18 43 08				
		e?	47 10				
		iScS	53 28				
	AK	e	18 44½				
	KP	eP	18 42 08				
		eS	46 03				
	Epicentre:		18 38 20	17½S 177W	400±km	USCGS	
28	KP	eP	01 22 45½				
		e(S)	24 00½				
	TU	eP	01 22 45				
		eS	24 01				
	TO	P	01 22 54				
	NP	eP	01 23 06				
		eS?	24 40½				
	WN	eP	01 23 18				
		e(S)	25 01½				
	CB	eP?	01 23 25				
		S	25 17				
	KM	eP	01 23 51				
		eS	25 51½				
	CH	e(S)	01 26 02				
	Epicentre:		01 21 06	32¾S 178¾W	7N?	NZ(D)	M5.9 NZ
28	WN	eL	17 52				
	Epicentre:		17 02 33	33N 82½E		USCGS	
31	WN	eSKS	16 25 29				
		eL	44±				
	AK	e	16 47±				
	Epicentre:		16 02 07	46½N 153E		USCGS	

Date	Stn	Phase	h	m	s				Magnitude
FEB 2	WN	iP?	07	26	53				
		eS		30	26				
		e(PcP)			$^{+}_{-}$32				
		eL		33					M5½ - 6
	ON	eP	07	26	12				
		eS		29	10				
	KP	eP	07	26	41				
		eS		29	34				
	TU	eS	07	29	23				
		e			36				
	TO	eS	07	(30)	44				
	CB	e(P)	07	27	02				
		eS		30	41				
	KM	eS	07	31	17				
	CH	eLq	07	33					
		eLr		35					
	Epicentre		07	22	32	Tonga Felt Nukualofa		100$^{+}_{-}$km MM3	USCGS
4	WN	eL	07	59					
	Epicentre		07	21	49	17S	67E		
5	WN	eP	19	52	32				
		eS		55	27				
	Kp	eP?	19	51	59				
		S		54	38				
	TU	eS	19	54	38				
	TO	eP	19	52	16				
		eS		55	08				
	NP	eP	19	52	19				
		eS		55	08				
	CB	eP	19	52	35				
		eS		55	33				
	KM	eP	19	52	57				
		S		56	00				
	CH	eS?	19	56	15				
		e(S)			22				
5	WN	eL	21	25					
	CH	eL	21	25					
	Epicentre		20	41	51	46½N	153E		USCGS
6	WN	eP	00	19	29				
		e(S)		23	09				
	ON	eP	00	18	50				
	KP	P	00	19	01				
	TU	eP	00	19	05				
		eS		22	05				
	TO	eP	00	19	12				
	NP	eP	00	19	39				
	KM	eP	00	19	52				
		eS		23	30				
6	WN	ePKP	02	47	43				
	TU	ePKP	02	47	50				
	TO	ePKP	02	47	38				
	Epicentre		02	27	53	71N	13½W		USCGS
7	KP	eP	03	39	32				
		S		40	04				
	TU	eP	03	39	27				
		S			57½				
	NP	eP	03	39	53				
		(S)		40	41½				
	WN	eP	03	40	06				
		iS		41	04½				
	CB	(S)	03	41	25				
	KM	e(P)	03	40	58½				
		e(S)		42	03				
	CH	(S)	03	42	02				
	Epicentre		03	39	50	36.9S	178.5E	160km	NZ(D) M5.2 NZ

Date	Stn	Phase	h	m	s		Magnitude
FEB 8	ON	eP	10	40	00½		
		(S)			59		
	KP	P	10	39	27½		
		S			52		
	TU	eP	10	39	22		
					44		
	TO	iP	10	39	10½u		
	NP	eP	10	39	22½		
		(S)			40		
	WN	iP	10	39	22½		
		(S)			42		
	CB	P	10	39	35½		
		(S)			40	09½	
	KM	eP	10	40	02½		
		i(S)			41	03½	
	CH	iS	10	40	45½		
	Epicentre:		10	38	57	39.9S 175.7E N NZ(D)	M5.0 NZ
						Felt: Central and western parts of the North Island from Taumarunui to Wellington.	
10	WN	eP	09	41	38		
		eS		44	02		
		eL		48			
	AK	e(S)	09	43	55		
		eL		47			
	ON	eP	09	40	54		
		eS		43	17		
	KP	e	09	41	33		
	TU	eP	09	41	24		
		e		44	04		
		e(S)			46		
	NP	eS	09	44	09		
	CB	eP	09	41	49		
		eS		44	15		
	KM	eP	09	42	14½		
		eS		44	49		
	Epicentre:		09	36	41	Tonga USCGS	
11	WN	eP	04	33	30		
		e		35	18		
		e(S)			24		
	AK	e(P)	04	32	50		
		eS		34	13		
	KP	P	04	32	59		
		S		34	27		
	TU	iP	04	33	02		
		iS		34	22		
	TO	P	04	33	08		
		(S)		34	48		
	NP	eP	04	33	18		
		e(S)		35	05		
	CB	eP	04	33	36		
		eS		35	32		
	KM	eP	04	33	59½		
		S		36	08		
	CH	eS	04	36	21		
	Epicentre:		04	30	30	Kermadec Is. region USCGS	
12	WN	e(P)	04	33	50		
		e			56		
	KP	eP	04	33	04		
	TU	e	04	33	04		
	NP	e	04	34	11		
	CB	eP	04	33	57		
	Epicentre:		04	27	22	About 350 miles S of Fiji 600± km USCGS	

Date	Stn	Phase	h	m	s					Magnitude
FEB 12	WN	i	19	07	25					
		e			33					
		e			41					
		e?		10	52					
		e		11	05	No L-waves				
	AK	i	19	06	39					
	KP	eP	19	06	49					
	TU	eP	19	07	05					
		eS		10	38					
	TO	e	19	07	05					
	CB	eP	19	07	23					
	KM	P	19	07	38					
	CH	e	19	07	50					
		e		08	01					
		e		12	05					
		eL		13						
	Epicentre:		19	03	08	21S	171E	100±km	USCGS	
14	WN	e(P)	17	03	43					
		e(S)		12	±25					
		eLq		23	±					
		eLr		28	±					
	AK	(S)	17	11	41					
		e(L)		21	¾					
	KP	eP	17	18	33					
		eS?		23	34					
	TU	eP	17	03	44					
	CH	e(S)	17	12	04					
	Epicentre:		16	53	09	2N	126½E		USCGS	M6¼ PAS
15	WN	e?	06	27	28					
		e		28	18					
		eL		32						
		eL		37						
	AK	eP	06	25	26					
		e(S)		29	14					
		eSS		30	09					
		iSSS		31	02					
		eL		32	¼					
	TU	eP?	06	26	44					
		e(P)		27	01					
		eS		31	30					
		e			48					
	CB	eP	06	27	11					
		eL		32	.6					
	CH	eP?	06	27	28					
		eL		32						
	Epicentre:		06	21	22	14S	166½E	60±km	USCGS	
15	WN	e	18	48	30					
		e		52	26					
		e			±35					
		e(L)		53	±					
		eL		58	±					
	AK	e(P)	18	46	25					
		S		49	08					
		eL		51	½					
	KP	eP	18	47	17					
				51	54					
	TU	eP	18	47	30					
		eS		52	06					
	CH	eL	18	54						
	Epicentre:		18	41	43	New Hebrides			USCGS	
			18	41	47	New Hebrides			USCGS	

Date	Stn	Phase	h	m	s					Magnitude
FEB 16	WN	iP	11	38	55					
		e			06					
		e?		39	27					
		e			±35					
		e(L)		55		L-waves poorly developed.				
	KP	e?	11	39	48					
	TU	eP	11	38	50					
		eS		46	16					
	CB	eP	11	38	47					
	Epicentre:		11	29	54	7S	130E	150±km.	USCGS	
17	WN	e	00	49	35					
		e		54	25					
		eL		55						
	CH	eL	00	54						
23	WN	eP	05	01	58					
		e(S)		05	52					
		e			59					
	AK	e(P)	05	01	15					
		iS		04	47					
	ON	eP	05	01	12					
		eS		04	36					
		e			44					
	KP	P	05	01	26					
		S		04	58					
	NP	eP	05	01	42					
	CB	eP	05	02	01					
		e			09					
		eS		06	05					
	Epicentre:		04	57	11	20S	175W	250±km.	USCGS	
						Felt Nukualofa MM2				
23	WN	iP	08	40	08					
		eS		43	08					
	ON	eP	08	39	23					
		eS		41	48					
	KP	eP	08	39	38					
		eS		43	17					
	NP	eP	08	39	54					
	CB	eP	08	40	10					
		eS		43	10					
	KM	eP	08	40	27½					
		eS		43	36					
	Epicentre:		08	36	22	23S	179E	600±km.	USCGS	
23	WN	iP	11	45	35	rarefaction				
		eS		49	14					
	ON	eP	11	44	52					
		eS		47	57					
	KP	P	11	45	06					
		eS		47	38					
	NP	eP	11	45	34					
	CB	eP	11	45	37					
		eS		49	13					
	KM	eP	11	45	(57)					
		S		49	42					
	Epicentre:		11	41	02	18S	178W	600±km.	USCGS	
23	WN	eL	19	12	±					
	CH	eL	19	11						
	Epicentre:		18	31	45	34S	54½E		USCGS	
27	WN	eP	20	46	55					
		e(PP)		47	11					
		e			23					
		e		49	37					
		eS			39					M7.9WN
	KP	eP	20	46	20					

Date	Stn	Phase	h	m	s			Magnitude
FEB 27	KP	e			40			
		e		47	05			
		e			38			
		e		48	43			
		Max		51	30			
	TU	eP	20	46	18			
		e			22			
		iS		48	30			
	NP	eP	20	46	50½			
		i			55			
		e(S)		49	32			
	CB	e(P)	20	47	08			
		e			17			
		e			30			
		e			38			
		iS		49	58			
	KM	eP	20	47	35			
		eS		50	36			
	CH	eP	20	47	40			
		e			46			
		e		48	04			
		e(S)		50	42			
		eS			53			
		eL		53				
	Epicentre:		20	43	24	27½S 176W	USCGS	M 8 PAS
28	WN	e	03	06	06			
		e		08	41			
		eS			43	No L-waves.		
	AK	e	03	05	22			
		e		05	50			
	KP	e	03	05	26			
	TU	eS	03	07	35			
	Epicentre:		03	02	11	Kermadec Is. region	USCGS	
MAR 1	AK	eL	06	03¾		Traces also at ON, KP, TU, CB, KM		
	CH	eLq	05	32				
2	WN	eP	01	31	20			
	ON	e	01	45		Traces		
	KP	e(P)	01	44	21			
	TU	e(S)	01	44	44			
	CB	eS	01	44	32			
	KM	eS	01	44	37			
	WN	e	01	44	39			
	CH	eP	01	44	57	Apparently two shocks.		
		eL		58				
	Epicentres:		01	18	53	4½S 151½E	USCGS	
			01	35	45	4 S 152½E	USCGS	
2	WN	e(S)	01	54	36			
		eL		55±		Very weak.		
3	ON	iP	16	03	02w			
		S		03	51½			
	KP	eP	16	03	03			
		S		03	53			
	TU	eP	16	03	01			
		(S)		03	47			
	NP	eP	16	03	27			
		e(S)		04	44			
	WN	eP?	16	03	28			
		eP?		03	32½			
		(P)		03	38			
		iS		04	54½			
	CB	eP	16	03	47			
		S		05	10½			

Date	Stn	Phase	h	m	s				Magnitude
MAR 3	KM	eP	16	04	18				
		S		05	49½				
	CH	eP?	16	04	16				
		e(P)		04	25½				
		S		05	56½				
	Epicentre:		16	01	58	34.7S	179.5E	N	NZ(D)	M5.7 NZ
4	WN	eP?	02	07	18				
		eS		09	+32				
		eL		13	−	L-waves weak.			
	AK	eL	02	09	½				
	ON	eL	02	10	+				
	TU	e	02	06	41				
		eS		08	25				
	CB	S	02	09	50				
5	KP	eP	12	21	41				
		eS		22	37½				
	TU	e(P)	12	21	37½				
		S		22	32				
	NP	eP	12	22	05				
		(S)		23	25½				
	WN	eP	12	22	15½				
		eS		23	37				
	CB	e(P)	12	22	25				
		eS		23	57				
	KM	eP	12	22	52½				
		e(S)		24	38				
	CH	e(P)	12	22	53				
				24	44				
	Epicentre:		12	20	27	35.0S	178.6W	N	NZ(D)	M5.5 NZ
6	WN	e(P)	04	26	+03				
		eL		30	−				
	AK	eL	04	26	½				
	TU	e	04	25	00				
		e(S)			38				
	CB	e	04	26	+	traces			
	CH	eL	04	30	−				
6	WN	e?	13	58	+				
		eL	14	12	−				
	AK	eL	13	53	¼				
	CH	e(P)	13	45	56				
		e(S)		55	07				
		e		56	+00				
		e(SS)		59	−				
	Epicentre:		13	33	31	9½N	122½E		USCGS
7	WN	eP	04	49	49				
		e			54				
		eL		53					
	AK	e	04	49	00				
		e(L)		50	¾				
	ON	e(S)	04	48	55				
	KP	eP	04	49	20				
	TU	e?	04	49	35				
		eS		53	24				
	CB	eP	04	49	48				
		eS		53	49				
	KM	e	04	50	00½				
	CH	eLq	04	55					
		eLr		57					
	Epicentre:		04	44	44	18S	169E		USCGS

Date	Stn	Phase	h	m	s				Magnitude
MAR 7	WN	eP?	14	50	48				
		eP?			55				
		e		51	00				
		e			09				
		eS		53	$\pm$26				
		eL		56	$\pm$				
	AK	e	14	51	10				
		eL		54	¼				
	ON	e	14	50	09				
		eS			57				
	KP	e(P)	14	50	34				
	TU	eS	14	52	22				
	CB	eS	14	53	47				
	KM	eS	14	54	34				
	CH	eLq	14	57					
		eLr		59					
	Epicentre:		14	47	10	27½S	176W	USCGS	
9	WN	eL	03	50	$\pm$				
	TU	eP	03	47	44				
	CB	e	03	49	04				
	KM	e	03	50		traces			
	Epicentre:		03	42	30	Kermadec Is. region		USCGS	
10	WN	eP	21	16	05				
		eL		24	$\pm$				
	ON	eP	21	15	30				
	KP	eP?	21	15	39	in artificial disturbance			
	TU	eP	21	15	42				
	TO	eP	21	15	46				
	CB	eP	21	16	11				
	KM	S	21	16	25½				
	CH	eL	21	25					
	Epicentre:		21	10	20	13½S	173½W	USCGS	
						Felt Apia, Western Samoa.			
11	WN	eP	21	41	14				
		eS		43	03				
	TU	eP	21	40	41				
		iS		42	01				
	CB	eP	21	41	22				
		eS		43	16				
	KM	eS	21	43	51				
12	WN	eP	13	31	28				
		eS		36	04				
	TO	eP	13	31	(20)				
		e(S)		35	(48)				
	CB	eP	13	31	24				
		eS		36	03				
	KM	eP	13	31	38½				
	CH	e(P)	13	31	45				
	Epicentre:		13	25	15	11½S	167½E	USCGS	
14	WN	e	13	35	30				
		e		36	05				
		eL		51					
	CH	e	13	37	$\pm$34				
		eLq		57	$\pm$				
		eLr	14	00					
	Epicentre:		13	12	04	52½N	173½W	100$\pm$ USCGS	M 7 PAS
16	WN	e	22	13	$\pm$	traces only			
	CH	eL	22	12					
	Epicentre:		21	45	14	26½S	115W	USCGS	

Date	Stn	Phase	h	m	s			Magnitude
MAR 17	WN	eL	17	58	±			
	CH	eL	18	00	±			
	Epicentre:		17	34	24	New Britain	USCGS	
18	NN	eSKS	00	30	35			
		eS		31	25			
		eSS		38				
		eSSS		41				
		eL		51				
	ON	eP	00	19	+49			
		eL		44	-			
	KP	(PKP)	00	20	09			
		e		30	24			
		SKS			57			
		e		31	31			
		e		32	17			
	TU	e	00	31	03			
		eL		50				
	CB	eS	00	31	25			
		eL		51				
	KM	eL	00	51	±			
	CH	eP	00	29	29			
		e(S)		31	43			
		ePS		33	.3			
		eSS		38				
		eLq		47	+			
		eLr		50	-			
	Epicentre:		00	06	42	54½N 161E	USCGS	
19	WN	eP?	11	28	32			
		e(S)		31	10			
		e(L)		35				
	AK	eL	11	31				
	TU	e	11	30				
	CH	eL	11	36				
	Epicentre:		11	25	10	Kermadec Is.region	USCGS	
22	WN	eP	14	17	14			
		e			19			
		e			56			
		e(PP)		20	24			
		eS		27	08			
		e			+26			
		eLq		37	±			
		eLr		42	-			
	AK	e(P)	14	17	32			
		PP		20	11			
		eS		27	00			
		e(L)		40½				
	ON	eP	14	17	18			
		eS		27	18			
		e(P)	14	17	26			
		e(S)		27	+13			
		L		45	-			
	TU	eP	14	17	24			
		eS		27	+23			
		eL		44	-			
	TO	e(P)	14	17	12			
		e			19			
	CB	eP	14	17	07			
		eS		26	+57			
		eL		42	-			
	KM	e	14	17	09			
	CH	P	14	17	10			
		e			15			
		e		26	25			
		e		27	04			
		eSS		32				
		eL		41				
	Epicentre:		14	05	04	8½°S 92°E	USCGS	M 7 PAS

Date	Stn	Phase	h	m	s			Magnitude
MAR 23	WN	eP	05	09	49			
		eS		14	04			
		eL		15±				
	AK	P	05	13	10			
		S		17	30			
		eL		20¾				
	KP	P	05	09	18			
		eS		10	53			
	TU	eP	05	10	18			
	TO	e	05	06				
		e		10				
	CB	eP	05	09	28			
		eS		13	51			
	KM	eP	05	09	24			
		e(S)		15	00			
		e		18	16			
	CH	e	05	13	10			
		e(S)						
		eL		14±	24			
	Epicentre:		05	04	36	Macquarie Is. region		
23	WN	iP	17	21	28			
		eS		25±	46			
		eL		27±				M6½ WN
	AK	e	17	24	(45)			
		e		27	(33)			
		e(L)		31¼				
	ON	eP	17	22	07			
		eS		26	38			
	KP	e	17	22±	25			
		e		28±				
	TU	eP	17	21	58			
		eS		26	30			
	TO	e(P)	17	21	41			
	CB	eP	17	21	19			
		eS		25±	34			
		L		27±				
	KM	eP	17	21	01			
		i			16			
		e		25	15			
		e(S)		26	52			
	CH	eP	17	21	07			
		e		24	53			
		e(S)		25±	04			
		eL		26±				
	Epicentre:		17	16	17	56½S 147E	USCGS	
25	WN	eP?	18	45	00			
		eS?		49	50			
		e(S)		50	25	No L-waves		
28	WN	eP?	09	23	12			
		e(S)		34	37			
		e		35	30			
		e(SS)		40½	0			
		eL		52±				
	CH	eP	09	24	14			
		eL		40				
	Epicentre:		09	12	09	29N 130E	USCGS	
29	WN	eP	11	36	48			
	TU	eP	11	35	40			
	CB	e	11	37	02			
	KM	e	11	37	39			
						Felt Raoul Island MM2		

Date	Stn	Phase	h	m	s				Magnitude
MAR 31	WN	eP	18	28	09				
		e?			12				
		e			18				
		e		29	20				
		e		30	27				
		e(PP)			43				
		eS		37	08				
		eScS		38	10				
		eSS		42					
		eLq		46	$\pm$				
		eLr		54	$-$				M7¼ WN
	ON	eP	18	27	56				
		e		28	02				
		eS		36	15				
		eL		41					
	KP	eP	18	28	00				
		e			06				
		e(PP)		29	01				
		e			19				
		e		30	34				
		e		36	46				
	TU	eP	18	28	09				
		eS		37	12				
	TO	eP	18	28	00				
		e			06				
		e(S)		37	02				
	CB	eP	18	27	59				
		e		29	07				
		e(PP)		30	38				
		eS		36	51				
		eL		45					
	KM	eP	18	28	16½				
		eS		37	06½				
	CH	iP	18	28	16				
		i			22				
		e(S)		37	06				
		e(S)			13				
		eSS		42					
	Epicentre:		18	17	00	8°N	124°E	USCGS	M7½ PAS
31	WN	eP	21	03	40				
		e		06	10				
	ON	e	21	06	29				
	TU	e(P)	21	03	42				
	CB	e(P)	21	03	22				
	KM	e	21	03	42½				
	Epicentre:		20	52	39	8°N	124½E	USCGS	
APR 1	WN	eL	08	58					
	CH	eL	08	58					
4	AK	eL	02	47½					
	TU	e	02	46					
	KM	e	02	47					
4	WN	eS	11	33	40				
		eL		45					
	AK	e(S)	11	33	06				
		eL		50½					
	CH	eS	11	33	8				
		eSS		39	1				
		eLq		48	$\pm$				
		eLr		55	$-$				
	Epicentre:		11	11	21	22N	121E	USCGS	M6 PAS
4	WN	eL	20	08					
	CH	eL	20	13	$-$				
	Epicentre:		19	24	04	13N	87W	USCGS	M6¼ PAS

Date	Stn	Phase	h	m	s					Magnitude
APR 5	WN	eL	11	54	±					
	CH	eL	11	53						
	Epicentre:		11	23	17	13N	142½E		USCGS	
5	WN	e?	15	33	24					
		eSKS			37					
		eS		34	19					
		eSS		40	±35					
		eLq		48	±					
		eLr		55	±					
	AK	e	15	33	55					
		e		37	22					
		eL		49	¼					
	CH	eSKS	15	33	50					
		eS		34	48					
		eSS		41	±					
		eLq		50	±					
		eLr		54	±					
	Epicentre:		15	09	15	25N	110W		USCGS	M7± PAS
5	WN	e	16	55	10					
		e			34					
		e		59	±47					
		eL	17	02	±					
	CH	e	16	55	06					
		e		59	±00					
		eL	17	01	±					
	Epicentre:		16	50	18	800 miles S. of Tasmania			USCGS	
6	WN	eL	13	36	±					
	CH	eS	13	15	.9					
		e(SS)			20					
		eLq			58					
		eLr	14	04						
	Epicentre:		12	50	50	17½S	66½E		USCGS	
8	WN	eL	16	23						
	AK	eL	16	19						
10	WN	iP	17	49	11	Compression				
		e			18					
		e			32					
		ePP		51	41					
		e			±56					
		eSS	18	03	±					
		eLq		07	±					M6± WN
	KP	eP	17	49	04					
	TU	eP	17	49	18					
	KM	eP	17	49	22					
	CH	eP	17	49	12					
	Epicentre:		17	38	12	8N	125E		USCGS	
11	WN	eP	00	05	52					
	ON	eP	00	05	03					
	KP	eP	00	05	15					
	CB	eP	00	05	46					
		eS		09	28					
	KM	eP	00	06	01½					
	Epicentre:		00	01	04	17S	179W	550±km	USCGS	
11	WN	eP	00	58	22					
	CB	eP	00	58	15					
	KM	eP	00	58	19					
	CH	e(P)	00	58	47					
	Epicentre:		00	50	21	6S	147½E		USCGS	

Date	Stn	Phase	h	m	s				Magnitude
APR 13	WN	e(P)	03	45	46				
		e		47	57				
	ON	e	03	44	40				
	KP	eP	03	45	08				
	CB	e	03	45	47				
	KM	e	03	46	05½				
	Epicentre:		03	40	50	Fiji region		USCGS	
14	WN	eS	01	54	02				
		eSS		59	.8				
		eLq	02	09					
		eLr		21					
	AK	PS	01	55	17				
		i			42				
		SS	02	01	12				
		eL		10½					
	CB	e	01	53	04				
		eS			53				
		eL	02	10±					
	CH	e	01	53	16				
		e		54	06				
		e		55	30				
		e		59½					
		eLq	02	12±					
		eLr		18±					
	Epicentre:		01	28	58	30N	101½E	USCGS	M7¼ PAS
15	WN	PKP	03	59	47	Two superimposed shocks			
		ePP?	04	01	08				
		e		09	.2				
		e		11	.4				
		eSS		17	.0				
		e		31					
		ePKP		32	20	Shock II			
		eL		34±					
		M		38					
		eL	05	07		Shock II			
	AK	e(PP)	04	01	05				
		eSS		17	30				
		e(L)		36					
	CH	ePP	04	01	10				
		ePPP		03	48				
		eSKKS		08	20				
		ePS		11	14				
		eSS		18	06				
		eLq		34±					
	Epicentre:		03	40	52	40N	74½E	USCGS	M7 PAS
			04	13	23	40N	75 E	USCGS	
17	WN	e(SKS)	18	58	45				
		i(SKKS)		59	52				
		eSS	19	06	.5				
		eLq		19±					
		eLr		25±					
	CH	e(SKS)	18	59	.4				
		e(PS)	19	01	.5				
		eSS		06					
		eLq		16					
		eLr		20±					
	Epicentre:		18	35	27	52N	159½E	60±km USCGS	M6¾ PAS
19	WN	eP	14	30	44				
		eS		33	16				M6± WN
	ON	eP	14	29	50	In time mark			
	KP	eP	14	30	22				
	TU	eS	14	32	08				
	CB	eP	14	30	50				
		eS		33	30				
	KM	eP	14	31	12½				
		eS		34	11				

Date	Stn	Phase	h	m	s			Magnitude
APR 19	CH	e(P)	14	31	31			
		e(S)		34	19			
	Epicentre:		14	27	10	28S 176½W 100±km Felt Raoul Is. MM2.	USCGS	
19	WN	iP	20	36	50	Compression		
		e		37	40			
		e		38	02			
		ePP		40	30			
		e(S)		46	57			
		e(S)		47	20±			
		eLq		59	∓			
		eLr	21	06	−			M7.3 WN
	AK	P	20	37	00			
		e		38	15			
		e(S)		47	37			
		eL	21	02	½			
	ON	e(P)	20	37	16			
		eS		47	45			
	KP	e(S)	20	46	32			
		e			58			
	TU	e(P)	20	37	07			
		eS		47	27			
	CB	eP	20	36	54			
		eS		47	29			
		e			43			
		eL	21	07				
	KM	P	20	37	25			
		S		47	38½			
	CH	eP	20	36	50			
		e		47	20			
		e			34			
		ePKKP		54	35			
		eL		57				
	Epicentre:		20	24	05	30S 72W	USCGS	M7 PAS
20	WN	eP	02	25	21	Rarefaction?		
		e			55			
		e(S)		35	42			
		ePS		36	±40			
		eL		53	−			M6½ WN
	CH	e(S)	02	35	44			
		e			59			
		eL		52				
	Epicentre:		02	12	26	30½S 72½W	USCGS	M6½ PAS
20	WN	iP	06	01	32	Compression		
		e		02	15			
		e		11	24			
		e(S)			40			
		e		12	32			
		eL		28				M6¾ WN
	AK	e	06	11	56			
	CH	e	06	11	40			
		e			52			
		eL		24				
	Epicentre:		05	48	27	30½S 72½W	USCGS	M6½ PAS
20	WN	eL	10	11	±			
	CH	eL	10	10	−			
20	WN	e(L)	19	00	∓			
	CH	e(L)	19	00	−			
22	WN	eL	01	42				
	CH	eL	01	48				
23	WN	eP	04	30	08			
		e		32	37			
		eS			42			
		e		34	54	Possibly a separate shock		M6½± WN

Date	Stn	Phase	h	m	s			Magnitude
APR 23	ON	eP	04	29	20			
	KP	e	04	31	56			
	CB	eP	04	30	16			
		eS		32	53			
	KM	eP	04	30	38½			
		S		33	29			
	Epicentre:		04	27	00	Kermadec Is. 300±km region Felt Raoul Is. MM2	USCGS	
23	WN	eL	18	48				
	KM	e	18	39	30			
	CH	e(L)	18	48				
		eL		58				
	Epicentre:		18	28	47	24½S 113W	USCGS	M6¾ PAS
25	WN	e(P)	03	38	19			
	TU	e(P)	03	37	52			
	CB	e(P)	03	38	22			
25	KP	eP	17	51	25			
		eS		52	16			
	TU	eP	17	51	20			
		S		52	09			
	WN	eP	17	51	58			
		iS		53	15			
	CB	eS	17	53	27½			
	KM	S	17	54	09			
	CH	eS	17	54	20			
	Epicentre:		17	50	18	35.6S 179.4W N	NZ(D)	M5.3 NZ
28	WN	e(SKS)	19	28	15			
		eS			45			
		e		30	29			
		e(SS)		37±				
		eL		42±				
	CH	eSS	19	36				
		eLq		41±				
		eLr		50±				
	Epicentre:		19	04	59	51N 178½W	USCGS	M6½ PAS
28	WN	eL	21	20±				
28	WN	e	21	51				
	Epicentre:		21	46	30	20°S 169½°E	USCGS	
30	ON	eP	14	25	12½			
		eS		26	29½			
	KP	ePn	14	24	48½			
		eP*		25	00			
		eSn		25	49½			
		eS*		26	08½			
	TU	ePn	14	25	02			
		e		25	54			
		eS*		26	14			
	WN	ePn	14	24	08			
		ePg		24	17			
		eSg		24	49			
	CB	ePn	14	23	54½			
		iPg		23	56½			
		eSg		24	20½			
	KM	iPg	14	23	32			
	Epicentre:		14	23	28	42.4S 171.7E S Felt Greymouth MM5	NZ(D)	M5.0 NZ
MAY 1	WN	e	10	18	25±			
		eL		39±				
	CH	e	10	20				
		eL		32				
	Epicentre:		09	55	16	39½N 143½E	USCGS	M6¾ PAS

Date	Stn	Phase	h	m	s					Magnitude
MAY 1	WN	eL	14	42	±					
	CH	e	14	38	±					
		eL		42						
3	WN	eL	15	32						
	CH	eL	15	28						
	Epicentre:		15	15	07	12½S	166½E		USCGS	
4	TU	e(S)	16	40	39					
	WN	eP	16	39	52					
		eS		41	41½					
	CB	eP	16	39	59					
		e(S)		41	54					
	KM	e(P)	16	40	20					
		eS		42	28½					
	CH	e(S)	16	42	40					
	Epicentre:		16	37	32	31.0S	178.0E	N	NZ(D)	M5.6 NZ
5	ON	eP	05	50	00					
		e(S)		51	04					
	KP	eP	05	50	05½					
		eS		51	24½					
	TU	eP	05	50	03					
		eS		51	12					
	WN	e(P)	05	50	41					
		eS		52	20					
	CB	eP	05	50	55					
		(S)		52	39					
	KM	eP	05	51	19					
		e(S)		53	19					
	CH	eS	05	53	25½					
	Epicentre:		05	48	35	33.0S	179.5W	N	NZ(D)	M5.8 NZ
			05	48	30	33S	179½W		USCGS	
10	ON	ePn	20	15	43					
		Sn		16	50					
	KP	ePn	20	15	17½					
		eSn		16	08					
	TU	e(P)	20	15	33					
		e(S)		16	12					
	NP	ePn	20	14	52½					
		ePg		15	08					
		eSn			31½					
		eS*			42					
	WN	ePn	20	14	42½					
		iP*			44					
		Sn		15	09					
		eS*			15					
	CB	ePg	20	14	20½					
		(Sg)			29½					
	KM	iPg	20	14	29					
		(Sg)			43					
	CH	iP*	20	14	45½					
		iSn		15	06					
	Epicentre:		20	14	07	41.5S	172.0E	S	NZ(C)	M5.0 NZ
						Felt West Coast of the South Island, north of Greymouth. Max. MM5 at Murchison				
14	KP	ePn	21	52	56					
		ePg		53	09					
		eSg			40½					
	TU	ePn	21	52	33					
		Sn			50					
	NP	Pn	21	53	07±	Time mark interferes				
		i			28					
		iSn			44					

Date	Stn	Phase	h	m	s				Magnitude
MAY 14	WN	ePn	21	53	01				
		ePg*			05				
		Sn			40				
	CB	ePn	21	53	18				
		ePg*			44½				
		eS		54	13				
	KM	eP*	21	53	49				
		Sn		54	48				
	CH	eSn	21	54	44				
	Epicentre:		21	52	09	39.7S	178.3E	S NZ(D)	M5.0 NZ
17	WN	eP	15	02	39				M7 WN
		ePP		06	00				
		e			03				
		e		12	54				
		eS		13	00				
		eLq		27					
		eLr		33±					
	AK	eS	15	12	55				
		e(SS)		18	55				
		eL		28½					
	ON	eP	15	02	38				
		eS		13	00				
	KP	eP	15	02	41				
		eS		13	04				
	NP	eP?	15	02	37				
		PP		05	55				
		eS		12	58				
	CB	eP	15	02	32				
		PP		05	58				
		eS		12	51				
	KM	eP	15	02	40				
		eS		12	44				
	CH	eP	15	02	34				
		i			44				
		e		06	.0				
		e		13	04				
		i			14				
		e		18	40				
		eL		32±					
	Epicentre:		14	49	47	7N	94½E	USCGS	M7 PAS
21	WN	eP	15	45	12				
	ON	eP	15	44	27				
		e(S)		48	33				
	KP	eP	15	44	42				
	TU	P	15	44	48				
	CB	eP	15	45	17				
		eS		49	56				
	Epicentre:		15	39	24	15½S	173W	100±km USCGS	
						Felt Apia, Western Samoa. Minor damage reported.			
21	WN	eP	22	48	55				
		eS		52	15				
	ON	e	22	49	13				
	TU	e(S)	22	51	14				
	CB	e(P)	22	48	57				
		eS		52	28				
23	WN	eP	17	46	54				
		i		47	00				
		iS		51	14				
		i		52	10				
		Lq		53±					
		Lr		54½±					
	AK	eP	17	46	07				
		eS		49	50				
		eL		51¾					

Date	Stn	Phase	h	m	s					Magnitude
MAY 23	ON	eP	17	46	(00)	Clock correction uncertain				
		e(S)		49	(34)					
	KP	eP	17	46	24					
		eS		50	±21					
		L		54	±					
	TU	eP	17	46	36					
		eS		50	48					
	CB	eP	17	47	06					
		eS		51	±40					
		L		56	±					
	KM	eP	17	47	11½					
		e(S)		51	44					
	CH	eS	17	51	52					
	Epicentre:		17	41	40	18S	169E		USCGS	
24	WN	eL	09	46	±					
26	WN	iP	16	29	57					
		i(PP)		31	26					
		eS		35	±14					
		eL		37	±					
	AK	eL	16	34	½					
	ON	eP	16	29	16					
	KP	P	16	29	35					
		e(PP)		30	±47					
		L		38	±					
	CB	eP	16	29	50					
		e(S)		35	06					
	KM	eP?	16	30	02½					
	CH	eP	16	30	10					
		eS		35	36					
		eL		38						
	Epicentre:		16	23	10	10S	161E		USCGS	M7 PAS
26	WN	eL	21	40	±					
	Epicentre:		21	20	57	10S	160½E		USCGS	
28	WN	iP	06	33	18					
		e(PP)		34	04					
		e(S)		44	40					
	ON	eP	06	33	37					
		e		34	23					
	KP	eP	06	33	26					
		e(PP)		34	11					
	CB	eP	06	33	23					
		e			27					
		e		34	10					
	CH	eL	06	45						
	Epicentre:		06	20	40	30½S	65W	200±km	USCGS	M6¾ PAS
29	WN	iP	01	18	26					
		eS		21	04					
	KP	eP	01	17	55					
		e		19	27					
		eS		20	14					
	TU	e(S)	01	20	22					
	CB	eP	01	18	28					
		eS		21	10					
	KM	P	01	18	44					
		S		21	44					
	CH	e	01	18	55					
	Epicentre:		01	15	07	24S	177½E	600±km	USCGS	
29	WN	e(S)	15	52	±53					
		eL	16	00	±					
	AK	S	15	53	10					
		eL	16	00	¼					
	KP	e	16	00	±6					
		L		09	±					

Date	Stn	Phase	h	m	s				Magnitude
MAY 29	CB	e(S)	15	52	45				
	CH	e	15	44	34				
		e		50	46				
		eS		52	57				
		i		53	09				
		e		57					
		eLq	16	00	$\pm$				
		eLr		06	$\pm$				
	Epicentre:		15	34	00	10½S	110½E	USCGS	M6¾ PAS
30	WN	iP	12	42	07	Rarefaction from the north.			
		e(PPP)		46	06				
		e		50	31				
		iS			41				
		e			45				
		e(SS)		55	34				
		e	13	09	53				
		e		12	38				
		e			45				M7¾ WN
	AK	eP	12	41	41				
		eS		49	40				
	ON	eP	12	41	44				
		e		42	14				
		eS		49	54				
	KP	P	12	41	55				
		eS		50	20				
		eL		54	.8				
	TU	eP	12	42	02				
	CB	eP	12	42	03				
		i			07				
		eS		50	32				
		e		51	$\pm$17				
		eL		54	$\pm$				
	KM	P	12	42	08				
		e			16				
		eS?		50	40				
		i			44½				
	CH	iP	12	42	15				
		e		44	12				
		e		45	08				
		iS		50	$\pm$56				
		eL		55	$\pm$				
	Epicentre:		12	31	41	24½N	142½E	600$\pm$km USCGS	M7¼ PAS
30	WN	eP	16	59	27				
		e	17	02	54				
		eS?		03	09				
	ON	eP	16	58	47				
		eS	17	01	44				
	TU	eP	16	59	16				
		e(S)	17	02	51				
	CB	eP	16	59	30				
		eS		03	08				
	KM	eP	16	30	02½				
	Epicentre:		16	54	57	17S	178½W	550$\pm$km USCGS	
30	WN	iP	23	35	54	Compression			
		e		36	18				
		eS		43	06				
		e			$\pm$18				
		eL		49	$\pm$				M6½ WN
	ON	eP	23	35	36				
	KP	P	23	35	46				
	TU	eP	23	35	56				
		eS		43	09				

Date	Stn	Phase	h	m	s				Magnitude
MAY 30	CB	eP	23	35	46				
		e(S)		42	44				
	KM	P	23	35	(57)				
		eS		42	59				
	CH	P	23	35	58				
		eLq		50					
		eLr		54					
	Epicentre:		23	26	50	3S	137E	USCGS	M6½ PAS
31	WN	eP	09	34	19				
		i			26				
		e		35	01				
		eS		37	00				
		eScS		46	17				
		e?		47	47				M6½ WN
	ON	eP	09	33	33				
		e			43				
		e(S)		35	43				
	KP	e(P)	09	34	02				
		e		35	16				
		S		36	00				
	TU	eP	09	33	50				
		eS		35	55				
		e(ScS)		45	46				
	CB	eP	09	34	26				
		e		37	06				
		eS			15				
	KM	P	09	34	54				
		S		37	54½				
	CH	eS?	09	38	01				
		eS			03				
		i			06				
	Epicentre:		09	30	44	27S	177½W	100±km USCGS	M6¾ PAS
						Felt Raoul Is.			
JUN 2	AK	e(S)	00	42	02				
		eSS		47	52				
		eL	01	00¼					
	KP	e(S)	00	42	±30				
		eL	01	05	–				
	CH	eL	00	43					
		e		59					
	Epicentre:		00	18	56	51½N	180	USCGS	M6¾ PAS
2	AK	eP?	11	16	47				
		e(S)		18	11				
		eL		19					
8	WN	i	19	00	43	Artificial?			
10	WN	eL	00	50	±				
	CH	eL	00	50					
10	WN	eP?	04	20	20				
		e(P)			26				
		eS		22	03				
	TU	eP	04	19	20				
		eS		20	40				
	CB	e(P)	04	20	22				
		eS		22	11				
11	ON	ePn	03	22	36				
		eSn		24	17½				
	KP	ePn	03	22	16				
		Sn		23	44				
	WN	ePn	03	21	41½				
		iSn		22	41½				
	CB	ePn	03	21	24				
		iSn		22	12½				

Date	Stn	Phase	h	m	s				Magnitude
JUN 11	KM	eP*	03	21	01				
		ePg			07				
		Sg			38				
	CH	ePn	03	21	06				
		eP*		21	14				
	Epicentre:		03	20	22	43.4S	168.7E	S NZ(D)	M5.5 NZ
						Felt South Westland and Central Otago, Max.			MM3-4
12	ON	eP	16	17	00				
		eS		18	31				
	KP	eP	16	16	31½				
		e			48½				
		S		17	32½				
	TU	e?	16	16	32				
		eS		17	24				
	WN	eP	16	15	47½				
		e			52½				
		e			58				
		e(S)		16	09				
	CB	eP	16	15	46				
		e			55				
		eS		16	10				
	KM	P	16	15	39				
		S			56				
	CH	P	16	15	31				
		(S)			43				
	Epicentre:		16	15	17	42.8S	173.3E	S NZ(A-B)	M5.1 NZ
						Felt North Canterbury and Westland. Max. MM6 at Cheviot.			
13	WN	eP	02	31	00				
	CB	eP	02	27	29				
		eS		29	46				
	Epicentre:		21	36	06	21½S	170½E	100±km USCGS	
13	WN	eP	21	40	38				
		e(S)		44	41				
14	WN	e(S)	06	36	00				
		eL		49					
	AK	eL	06	53¾					
	CB	e	06	54					
	CH	e	06	35½					
		e		37.3					
		eLq		52-					
		eLr		54±					
	Epicentre:		06	11	18	20N	107W	USCGS	M7 PAS
15	WN	eP?	03	05	52				
		e(P)			55				
		eS		09	48				
		eL		14					
	AK	eP	03	05	03				
		e(S)		07	25				
		eL		09¾					
	KP	eP	03	05	+12				
		eL		13-					
	CB	eP	03	05	45				
		e(S)		09	48				
		eL		14¾					
	CH	eP	03	06	10				
		eLq		10+					
		eLr		13-					
	Epicentre:		03	01	05	21S	169E	USCGS	

Date	Stn	Phase	h	m	s				Magnitude
JUN 15	WN	eP?	15	44	08				
		eL		59					
	KP	eP	15	43	40				
	CH	eP	15	44	$\pm$28				
		eLq		54	$\pm$				
		eLr	16	02	$-$				
	Epicentre:		15	36	27	3S	153E	100$\pm$km USCGS	
17	WN	eP	18	04	39				
		eS		08	35				
		e			44				
	ON	eP	18	03	54				
		eS		07	13				
	KP	P	18	04	08				
		eS		07	23				
	TU	eP	18	04	12				
		eS		07	38				
	CB	eP	18	04	45				
		eS		08	44				
	KM	P	18	05	01				
		e(S)		09	05½				
		eS			17				
		i			23½				
	CH	eS	18	09	31				
	Epicentre:		17	59	48	20½S	175W	200$\pm$km USCGS	
18	WN	eL	05	56					
	AK	eL	05	52¾					
	CH	eL	05	56					
20	WN	eP?	12	20	38				
		e(S)		30	54				
		eL		47	$\pm$				
	AK	eS	12	30	45				
		eL		47½					
	ON	eP	12	20	16				
		e(S)		30	16				
	KP	P	12	20	25				
		e(S)		31	14				
	CB	eP	12	20	36				
		e(PP)		24	15				
	CH	e	12	31½					
		e		37					
		eLq		46					
		eLr		51					
	Epicentre:		12	07	25	51½N	180	USCGS	M6¾ PAS
20	WN	eL	14	22					
	CH	eL	14	40					
22	WN	iP	22	09	32	Compression			
		S		11	06				
		ePcP		15	52				
	CB	e	22	09	54				
		eS		11	29				
28	WN	eP	07	37	14				
		e		38	12				
		eS		40	52				
	CB	eP	07	37	16				
		eS		40	58				
	KM	eP	07	37	41½				
30	WN	e	18	38	$\pm$				
	AK	eL	18	34	$-$				
	CH	eL	18	38					

Date	Stn	Phase	h	m	s					Magnitude
JUL 3	WN	eL	15	09	±					
	CH	eL	15	10						
4	WN	eL	15	06						
	TU	e	15	05						
	NP	e	15	06						
	CB	e	15	06						
	KM	e	15	07						
	CH	eL	15	06						
	Epicentre:		14	19	44	5½N	177E		USCGS	
6	WN	eP?	02	07	48					
		eSKS		17	57					
		eS		18	37					
		e(SS)		25	±					
		eSSS		28	–					
		eLr		37						M7 WN
	AK	e(S)	02	17	40					
		i		18	05					
		e			51					
		e(SSS)		28	55					
		eLr		36						
	KP	eP	02	07	17					
		e			34					
	NP	eP?	02	07	38					
		e			47					
	CH	e	02	20	16					
		eLq		34						
		eLr		37						
	Epicentre:		01	54	17	51N	158E		USCGS	M6¾ PAS
6	WN	eP	15	03	30					
		e			38					
		i		04	14					
		e		06	27					
		e(S)			33					
		e			35					
		i			44					
		eL		08						
	AK	eP	15	02	41					
		i		03	06					
		e(S)		05	20					
		i		06	05					
		i			27					
	ON	eP	15	02	43					
		e			58					
	KP	eP?	15	03	10					
		e(P)			15					
	TU	eS	15	05	30					
	NP	e(P)	15	02	28					
	KM	eP	15	04	03					
		eS		07	29½					
	CH	e?	15	07	37					
		eL		09						
	Epicentre:		14	59	21	24½S	177W	100±km	USCGS	
7	ON	eP	16	36	32					
	KP	e(S)	16	37	24½					
	TU	eP	16	36	20					
		eS		37	14					
	WN	e(P)	16	37	06					
		eS		38	23					
	KM	eS	16	39	26					
	CH	eS	16	39	37					
	Epicentre:		16	35	10	34.8S	178.9W	N	NZ(C)	M5.2 NZ

Date	Stn	Phase	h	m	s				Magnitude
JUL 8	WN	eP	18	24	08				
		e			19				
		eS		27	19				
	ON	eP	18	23	27				
		eS		26	07				
	KP	e	18	26.0					
	NP	e	18	27±					
	KM	eP	18	24	39				
		e			48				
		eS		27	51				
	Epicentre:		18	20	11	21S	179½W	600±km USCGS	
8	WN	iP	18	43	09	Rarefaction			
		esP		45	57				
		eS		46	18				
		e			28				
		e(ScP)		49	40				
		ScS		53	23				
		epScS		55	40				
		esScS		57	20				
	ON	eP	18	42	26				
		eS		45					
		e(ScS)		52	12				
	KP	iP	18	42	41				
		eS		45	32				
	TU	eP	18	42	42				
		eS		45	34				
	KM	P	18	43	29				
		S		46	50				
	CH	eP	18	43	51				
		eS		47	05				
		eScS		53	35				
	Epicentre:		18	39	11	20½S	179½W	600±km USCGS	
						Felt Nukualofa (Tonga) MM3			
8	WN	eP	19	13	10				
	ON	eP	19	13	06				
	KM	eP	19	13	04½				
	CH	e?	19	15	09				
		e		21	±10				
		eL		40-					
	Epicentre:		19	03	09	5S	110E	600±km USCGS	
10	WN	P	14	25	45				
		e			52				
		eS		29	±32				
		eL		32-					M6± WN
	ON	eP	14	24	58				
		eS		27	±46				
		eL		30-					
	KP	eP?	14	25	17				
		eS		28	41				
		L		29.7					
	TU	eP	14	25	12				
		e		28	30				
		eS			44				
		eL		30½					
	KM	eP	14	26	10½				
		i			23				
		eS			27½				
	CH	eL	14	32					
	Epicentre:		14	20	52	20S	175½W	USCGS	M6¼ PAS
12	WN	eP?	00	42	47	Heavy microseisms			
		e			57				
		eS?		44	19				
	AK	P	00	41	(00)				
		i			(36)				

Date	Stn	Phase	h	m	s				Magnitude
JUL 12	ON	eP	00	41	45				
		iS		42	35				
		eL		43	½				
	KP	eP	00	41	57				
		(S)		43	01				
		L			10±				
	TU	eP	00	41	18				
		e			58				
		eS		42	56				
	CB	eP	00	42	52				
		e		44	25				
		eL		44	½				
	KM	e	00	43	20½				
13	WN	eP	09	59	48				
		eS	10	03	25				
	ON	eP	09	59	02				
	KP	eS	10	02	22				
	TU	eS	10	02	22				
	CB	eP	09	59	53				
		eS	10	03	26				
	KM	eP	10	00	11½				
		eS		03	57				
14	WN	e(P)	17	05	06				
	ON	e	17	05					
	TU	e	17	04	08				
	CB	e	17	05					
15	WN	e	03	06	40				
	AK	e?	03	04	40				
		i		06	22				
	KP	e	03	03	21				
	CH	eL	03	06.3					
16	WN	ePKP?	07	27	07				
		ePKP			15				
		ePP		31	02				
	CB	ePKP	07	27	14				
	KM	ePKP	07	27	19½				
	Epicentre:		07	07	08	37½N	27E	USCGS	M6¾-7 PAS
16	WN	eP	07	52	55				
		e		54	49				
		eS			53				
	KP	eP?	07	52	25				
		S		54	53				
	TU	eP	07	52	22				
		iS		53	48				
	CB	eP	07	53	02				
		eS		55	02½				
	KM	P	07	53	27				
		S		55	37				
	CH	eS	07	55	48				
16	WN	e	08	34.2					
		e		43.0					
	AK	e	08	49.8					
	CH	e	08	31					
		eL		40±					
16	WN	e(S)	12	28	10				
	AK	(P)	12	25	(11)				
		(S)		26	(56)				
	CH	eL	12	33–					
	Epicentre:		12	17	04	Tonga		USCGS	

Date	Stn	Phase	h	m	s				Magnitude
JUL 18	WN	eP	00	59	49				
		eS	01	03	45				
	TU	eP	00	59	34				
		eS	01	03	11				
	Epicentre:		00	54	37	18S	170E	USCGS	
18	KP	eP	02	09	34½				
		iS			51½				
	TU	eP	02	09	36				
		S		10	00				
	NP	iP	02	09	(41)				
	WN	iP	02	09	54				
		S		10	29				
	CB	eP	02	10	01				
		iS		10	42				
	KM	eP	02	10	23½				
		iS		11	19				
	CH	iP	02	10	28				
		iS		11	28½				
	Epicentre:		02	09	08	38.6S	175.6E	170km NZ(C)	M5.7 NZ
						Felt Central North Island to Banks Peninsula. Maximum report intensity MM3			
18	WN	iP	11	35	32	Rarefaction			
		e		36	31				
		i		38	47				
		e		40	05				
		e(S)		42	12				
		e(ScS)		46	00				
		e			23				
	KP	eP	11	35	08				
		e		36	05				
	TU	eP	11	35	19				
		e		45	54				
	CB	eP	11	35	34				
		eS		42	12				
	KM	eP	11	35	41½				
		e		38	55½	Short periods. Separate shock?			
		e		40	16				
		e(S)		42	16½				
		e		46	06½				
	CH	iP?	11	35	54				
		e		43	.7				
	Epicentre:		11	29	58	13½S	167E	150±km USCGS	
18	WN	P	13	38	56				
		eS		43	56				
	KP	P	13	38	30				
	TU	eP	13	38	32				
		eS		43	06				
	NP	eP	13	38	47				
	CB	eP	13	39	04				
	KM	P	13	39	18				
	Epicentre:		13	33	08	16S	173W	USCGS	
20	KP	Pn	02	34	11				
	TU	iP*	02	33	49				
		Sg		34	08				
	NP	eP	02	34	21				
		eSn			56				
		iSg		35	18				
	WN	ePn	02	34	07				
		eP*			19				
		iSn			38				
		eS*			52½				
	CB	ePn	02	34	27				
		iSn		35	14				

Date	Stn	Phase	h	m	s					Magnitude
JUL 20	KM	ePn	02	34	46					
		iSn		35	46					
	CH	ePn?	02	34	39					
		Sn		35	37½					
	Epicentre:		02	33	25	39.9S	178.0E	S	NZ(C)	M5.4 NZ
23	WN	eP	12	57	58					
		e?	13	13	28					
		eL		17						
	Epicentre:		12	48	28	7S	128½E		USCGS	
24	WN	eP	04	26	42					
		e		27	01					
		eS			55					
		e(S*)		28	45					
	AK	e	04	30						
	KP	P?	04	26	05					
		eS		27	03					
	TU	eP	04	25	52					
				26	46					
	NP	eP	04	26	37					
		eS		27	42					
	CB	eP	04	27	06					
		eS		28	23					
	KM	eS	04	28	57½					
24	WN	eP	11	14	±31					
	KP	e	11	14	−					
	NP	eP?	11	14	17					
	CB	eP	11	14	30					
	CH	eL?	11	43						
	Epicentre:		11	02	14	36N	140E	100±km	USCGS	
24	WN	eP	16	32	19					
	TU	eP	16	32	20					
	NP	eP	16	32	05					
	CB	eP	16	32	±17					
	CH	eL	17	05	±					
	Epicentre:		16	20	03	24N	122E		USCGS	
24	NP	eSn	23	47	30					
	WN	eSn	23	46	44½					
	CB	ePn	23	45	17					
		eP*			35					
		eSn		46	24					
	KM	ePn	23	44	55					
		ePg		45	11					
		eSn			46					
		eSg		46	16					
	CH	ePn	23	44	58					
		e		45	13					
		iSn			48					
		iSg		46	17					
	Epicentre:		23	43	52	45.7S	168E	S	NZ(D)	M5.0 NZ
						Felt Gore and Tuatapere MM3				
25	WN	iP	11	35	52					
		eL	12	05						
	KP	eP	11	35	58					
	TU	eP	11	35	54					
	CB	eP	11	35	58					
	KM	eP	11	36	05½					
	CH	eLq	11	54						
		eLr		57						
	Epicentre:		11	22	52	22½S	69½W	200±km	USCGS	
26	WN	eL	00	32						

Date	Stn	Phase	h	m	s				Magnitude
JUL 26	WN	eL	05	03	$\pm$				
	CH	eL	05	05	$\pm$				
26	WN	P	05	21	52				
		S		25	08				
		eL		33					
	ON	e	05	21					
	CB	eP	05	21	51				
	KM	eP	05	21	59				
	CH	eP	05	22	14				
		eL		34					
	Epicentre:		05	15	50	13S	166½E	USCGS	
26	KP	eP	09	32	44				
	TU	eP	09	32	55				
	WN	eP	09	32	12½				
		e(S)		34	03½				
	CB	eP	09	31	58				
				33	40				
	KM	eP	09	31	37				
		iS		33	01				
	CH	eP	09	31	37				
		e		32	02				
		eS		33	01				
		i			35½				
	AK	e	09	37					
	Epicentre:		09	29	47	46.5S	162E N	NZ(D)	M5.9 NZ
						Felt Campbell Is.			
27	WN	e(P)	05	03	34				
		e		05	$\pm$25				
		eL		13	$\pm$				
	AK	e	95	18					
	CH	eL	05	15					
27	WN	eSKS	18	43	$\pm$34				
		eLr	19	07	$\pm$				
	CH	e	18	43	52				
		eLq	19	02					
		eLr		09					
	Epicentre:		18	19	08	56½N	153W	USCGS	M6¼ PAS
28	WN	eP?	02	13	02				
		eL		36					
	TU	e(P)	02	13	50				
	CB	eP?	02	13	54				
	CH	eL	02	36					
	Epicentre:		01	59	30	40½S	71½W	USCGS	
AUG 4	WN	eP	11	00	$\pm$48				
		eL		15	$\pm$				
	CH	eL	11	14	$\pm$				
	Epicentre:		10	53	01	5S	152½E	USCGS	
5	WN	e(L)	16	56					
	CH	eL	16	58					
	Epicentre:		16	46	01	16S	174E	USCGS	
6	WN	iP	08	35	45	Compression to south			
		e		37	20				
		esP			44				
		eS		39	18				
		e			58				
		e		40	50				
		iScP		42	44				
		e		43	20				
		iScS		46	26				
		e		47	38				
		e		51	.0				

Date	Stn	Phase	h	m	s		Magnitude
AUG 6	AK	iP	08	35	(11)		
		iS		38	(14)		
		i		40	(55)		
		i(ScS)		46	(15)		
	KP	P	08	35	17		
		i			25		
		i			39		
		e		37	02		
		S		28	25		
		i			35		
		e		41	33		
		e(ScS)		46	12		
	TU	eP	08	35	18		
		i			22		
		e		38	26		
		iS			36		
		iScS		46	14		
	NP	eP	08	35	18		
		eS		38	36		
		e(ScS)		46	27		
	CB	eP	08	35	51		
		eS		39	25		
		eScS		46	24½		
	KM	iP	08	36	09		
		eS		39	44		
		ScS		46	31½		
	CH	iP	08	36	12		
		e			22		
		e		37	.8		
		eS		40	07		
		e			19		
		e?		43	28		
	Epicentre:		08	31	25	21½S 177½W 350±km USCGS	M6¾ PAS
						Felt Raoul Is. MM2	
6	WN	e	18	18	26		
	TU	eP	18	15	40		
		eS		17	20		
	CB	eS	18	18	43		
	KM	e	18	19	23		
						Felt Raoul Is. MM2	
7	WN	eP	10	57	12		
		eS	11	00	04		
	TU	e(S)	10	59	16		
	CB	eP	10	57	15		
		eS	11	00	10		
	KM	eP	10	57	30½		
		eS	11	00	34½		
7	WN	eL	13	06			
	CH	eL	13	00			
	Epicentre:		12	34	41	3½S 145E	USCGS
13	WN	e(P)	12	59	33		
		eS	13	01	43		
	ON	eP	12	58	47		
		eS?	13	00	45		
	TU	eS	13	00	34		
	CB	eP	12	59	41		
		eS	13	02	58		
	KM	eP	13	00	09		
		eS		02	36		
14	WN	eP	16	45	44		
		e(P)		46	02		
		e			15		

Date	Stn	Phase	h	m	s				Magnitude
AUG 14	WN	e			25				
		e(S)		48	05				
		e(S)			14				M6$\frac{+}{-}$ WN
		i		49	35				
	AK	eiP	16	45	15				
		S		46	50				
		i		49	00				
	ON	eP	16	45	05				
		eS		46	21				
		eL		46$\frac{1}{2}$					
	KP	P	16	45	20				
		e			26				
		e		46	11				
		e(S)			51				
		L		47.7					
	TU	e(P)	16	45	20				
		e			27				
		eS		46	17				
	NP	eP	16	45	48				
		eS		47	17				
		eL		48$\frac{1}{2}$					
	CB	eP	16	46	16				
		eS		48	20				
		L		52$\frac{1}{2}$					
	KM	P	16	47	59				
		e(L)		50	29				
	CH	e?	16	47	44				
		eLq		49					
		eLr		51					
	Epicentre:		16	43	20	33S	179W	USCGS	
16	WN	iP	11	54	13	Compression			
		e			15				
		eS		59	58				
		e	12	00	24				
		e(ScS)		03	11				
		e			22				
		eLq		08					M7$\frac{1}{2}$ WN
		eLr		10					
	AK	P	11	53	(50)				
		i(pP)		54	44				
		i(S)		59	15				
		i			33				
		i(SS)	12	01	45				
		i		02	05				
	ON	eP	11	53	32				
		e			37				
		eS		58	57				
		e(ScS)	12	03	42				
	KP	eP	11	53	53				
		i			55				
		i		54	00				
		i			11				
		e			27				
		eS		59	26				
		(ScS)	12	03	54				
	TU	eP	11	54	05				
		e			08				
		iS		59	42				
	NP	eP	11	53	57				
		i		54	00				
		eS		59	29				
	CB	eP	11	54	05				
		i			08				
		i			12				
		eiS		59$\frac{+}{-}$48					
		eL	12	03$\frac{+}{-}$					
	KM	P	11	54	13				
		S		59	58				
		ScS	12	04	02				
		eL		06.2					

Date	Stn	Phase	h	m	s				Magnitude
AUG 16	CH	P	11	54	23				
		S	12	00	18				
		e(L)		03	.6				
	Epicentre:		11	46	58	6S	155E	200±km USCGS	M7¼ PAS
20	WN	eP	19	02	10				
		eS		05	50				
	ON	eP	19	01	19				
		eS		04	26				
	KP	eP	19	01	33				
		S		05	10				
	TU	eP	19	01	34				
		eS		04	48				
	CB	eP	19	02	14				
		eS		06	01				
	CH	eP?	19	02	38				
		eS		06	44				
	Epicentre:		18	57	28	20½S	176½W	200±km USCGS	
21	WN	eL	09	08					
	Epicentre:		08	52	44	Tonga		USCGS	
21	WN	iP	17	43	01	Compression			
		e			03				
		e(PPP)		46	.5				
		e		46	52				
		eS		50	11				
		e(S)			30				
		eL		57					M6¾ WN
	AK	eP	17	42	49				
		i(PP)		45	00				
		i		49	41				
		iS		50	04				
		e(SS)		53	30				
		(Lq)		56					
		eLr		59					
	ON	eP	17	42	36				
		e(S)		49	.18				
		eL		55±					
	KP	eP	17	42	52				
		eS		49	.57				
		(L)		58±					
	TU	eP	17	43	02				
		eS		50	.12				
		eL		55±					
	CB	eP	17	42	55				
		eS		49	59				
	KM	eP	17	43	05½				
	CH	eP	17	43	09				
		e(S)		51	.02				
		eL		54±					
	Epicentre:		17	33	58	3S	137½E	USCGS	M6¾–7 PAS
23	WN	eL	16	21					
	CH	eL	16	20					
26	WN	eP?	09	03	40				
		e(P)		04	42				
		e		05	26				
		eL		10	45				
	AK	eL	09	13					
	KP	e	09	05	.2				
	CB	e(P)	09	04	25				
		eL		12½±					
	CH	eP	09	04	13				
		eLq		08	.08				
		eLr		09±					

Date	Stn	Phase	h	m	s					Magnitude
AUG 28	WN	e	20	38	08	Artificial movements also present				
		e		46						
		1		50	30					
		eL	21	01						
	CH	e(SS)	20	41						
	Epicentre:		20	13	30	14N	91W	60±km	USCGS	M6¾ PAS
28	WN	e?	21	11	48					
		e?			54					
		e(P)			57					
	ON	eP	21	08	19					
		eS		10	24					
	KP	e	21	12	.3					
	CB	eS	21	11	58					
	KM	P	21	12	31½					
	Epicentre:		21	05	59	24½S	179E	600±km	USCGS	
30	ON	eP	03	32	42½					
		S		33	55½					
	KP	eP	03	32	49½					
		eS		34	18½					
	TU	eP	03	32	48					
		eS		34	10					
	NP	e(S)	03	34	53					
	WN	eP	03	33	28					
		S		35	17					
	CB	eP	03	33	40½					
		eS		35	34½					
	KM	eP	03	34	03½					
		eS		36	15½					
	Epicentre:		03	31	08	31.8S	179.3W	N	NZ(D)	M5.8 NZ
31	WN	eS?	10	45	31					
		eS			35					
		eL		47						
	CH	e	10	44	44					
		eL		46±						
SEP 2	WN	iP?	21	39	28					
		e		40	28					
		e		42	42					
	Epicentre:		21	11	56	Western New Guinea			USCGS	
3	WN	eL	13	09						
		e		19						
		e		24						
	CH	eSKS	13	01	02					
		ePS		03	47					
		eSS		09	55					
		eSSS		13±						
		eL		24						
	Epicentre:		12	36	20	14N	91W	100±km	USCGS	M6½ PAS
3	WN	iP	16	33	20	Rarefaction to north				
		iS		41	24					
		eL		48½						M7¼ WN
	ON	eP	16	33	04					
	KP	P	16	33	17					
		eS		41	22					
	TU	eP	16	33	24					
		eS		41	31					
	CB	eP	16	33	11					
		eS		41	09					
		e		42	34					
	KM	P	16	33	10½					
		S		41	08					

Date	Stn	Phase	h	m	s					Magnitude
SEP 3	CH	iP	16	33	20					
		i		34	23					
		e		38	42					
		iS		41	±25					
		eL		49	±					
	Epicentre:		16	22	52	1N	123E		USCGS	
5	WN	P	07	04	19					
		e		07	15					
		eS			18					M6± WN
	AK	iS	07	06	11					
	ON	eP	07	03	32					
		eS		05	54					
	TU	e(P)	07	04	14					
		eS		06	52					
	CB	eP	07	04	21					
		iS		07	21					
	KM	eP	07	04	39					
		eS		07	45½					
	CH	eL	07	08						
	Epicentre:		07	00	35	24S	180	550km	USCGS	
5	ON	eP	14	25	40					
		S		28	03½					
	KP	eP	14	25	16					
		eS		27	26					
	WN	eP	14	24	38					
		eS		26	13					
	CB	eP	14	24	24					
		eS		25	53					
	KM	ePn	14	24	02					
		ePg			31					
		eSn		25	11					
		e			50					
	CH	eP?	14	24	29½					
		e			48					
		eS		25	23					
		e			45½					
	Epicentre:		14	22	28	46.7S	165E	S	NZ(D)	M5.5 NZ
8	WN	eP?	02	15	36					
		e(S)		25	22					
		e		30	.5					
		e		38	±					
		eL		46						
	AK	eL	02	46						
	CH	eP?	02	15	12					
		e			±25					
		e		20	±					
		e(S)		24	16					
		e		30						
		eL		36						
	Epicentre:		02	03	15	Sandwich Is.region			USCGS	M6¾-7 PAS
8	WN	eP?	03	34	30					
		e			35					
		e		35	30					
		e		36	15					
		eS		40	25					
		e		43	26					
		eL		47	±					M6¾ WN
	ON	eL	03	45	±					
	KP	eP	03	34	±18					
		L		46	±					
	TU	e(P)	03	34	34					
		eS		40	±12					
		eL		46	±					

Date	Stn	Phase	h	m	s				Magnitude
SEP 8	CB	eP	03	34	35				
		eS		40	+17				
		eL		45	−				
	KM	eP	03	35	50				
	CH	eP?	03	34	46				
		e			56				
		i		35	00				
		e			09				
		eS		40	46				
		eL		43					
	Epicentre:		03	27	14	7S	155½E	USCGS	
9	WN	eP?	09	53	55				
		e(P)		54	08				
		eS	10	03	+37				
		eL		22	−				
	ON	e(P)	09	53	55				
	KP	e	09	54	.4				
	CB	eP	09	53	47				
		eS	10	03	23				
	KM	eP	09	53	45½				
	CH	e	10	30	30				
		eL		20					
		eL		24					
	Epicentre:		09	41	57	2S	100E	USCGS	M6¼-6½ PAS
9	WN	e?	16	28	58				
		e		29	40				
		e		34	+25				
		eL		40	−				
	KP	e	16	28	.3				
	CH	e	16	28	54				
		e(S)		34	42				
		eL		38					
	Epicentre:		16	12	21	7S	155E	USCGS	
10	WN	eP	07	41	31				
	ON	e	07	40	56				
	CB	e(P)	07	41	23				
11	WN	e?	12	27	02				
		e			+06				
		eL		30	−				
	ON	eP	12	24	30				
		e			52				
	KP	eP	12	24	55				
	TU	e(P)	12	24	36				
		e		25	58				
	CB	e	12	27					
	KM	e	12	28	04½				
	CH	e	12	28	12				
		e		31	04				
	Epicentre:		12	15	58	31½N	140E	USCGS	
11	WN	eP	18	01	44	Subsequent shock superimposed.			
		e			54				
		iS		07	40				
		e		10	40				
		eL		15					
	AK	eS	18	06	54				
		(SS)		09	10				
		eL		14					
	KP	eP	18	01	+34				
		L		15	−				
	TU	iP	18	01	00				
		eS		07	+28				
		eL		14	−				

Date	Stn	Phase	h	m	s					Magnitude
SEP 11	NP	eP	18	01	43					
		eS		07	14					
		e		10	08					
		L		14						
	CB	eP	18	01	49					
		eS		07	33					
	KM	eP	18	01	59					
	CH	(P)	18	02	02					
		(P)			07					
		S		08	$\pm$02					
		eL		11	$\pm$					
	Epicentre:		17	54	28	7S	155E		USCGS	
	11 WN	eP	18	11	40	Superimposed on preceding shock				
		e			51					
		eS		17	$\pm$31					
	ON	eL	18	23	$\pm$					
	AK	eP	18	10	15					
		e			22					
		PP			47					
		iS		15	50					
		iSS		18	25					
		eL		20						
	KP	e(P)	18	11	20					
	TU	eP	18	11	40					
		eS		17	18					
	NP	e(P)	18	11	22					
	CB	eP	18	11	36					
		eS		17	19					
	KM	eP	18	11	46½					
	CH	(P)	18	11	48					
		(P)			54					
	Epicentre:		18	04	16	7S	155E		USCGS	
	12 WN	ePKP$_1$	06	29	11					
		i			14					
		ePKP$_2$			34					
	AK	e	06	30						
	ON	iPKP	06	29	16					
	KP	ePKP	06	29	17					
	TU	ePKP	06	29	20					
		e		32	38					
	NP	ePKP	06	29	14					
	CB	ePKP	06	29	10					
	KM	ePKP	06	29	09					
	CH	ePKP	06	29	10					
		e		30	12					
	Epicentre:		06	09	20	32½N	30E		USCGS	M6¾ PAS
	12 WN	eL	07	42						
	13 WN	eL	02	47						
	Epicentre:		02	00	43	52N	176W	60$\pm$km	USCGS	M5¾–6 PAS
	13 WN	e	17	27	$\pm$					
	CH	e	17	22	$\pm$50					
		eL		25	$\pm$					
	Epicentre:		16	59	52	45S	96½W		USCGS	
	15 WN	eP	12	39	35					
		epP			50					
		ePPP		42	42					
		eS?		46	40					
		eS			49					
		e		51	$\pm$30					
		eLq		52	$\pm$					
		eLr		58	$\pm$					
	AK	iP	12	39	47	To north				
		iS		46	30					
		eLr		54						

Date	Stn	Phase	h	m	s				Magnitude
SEP 15	ON	eP	12	39	10				
		e			$^{+}_{-}$17				
		eL			54				
	KP	eP	12	39	39				
		eS			$^{+}_{-}$40				
		L			56				
	TU	eP	12	39	38				
		eS			46 50				
		eL			$50\frac{3}{4}^{+}_{-}$				
	NP	eL	12	56	$\pm$				
	CB	eP	12	39	28				
		eS			46 37				
	KM	eP	12	39	$37\frac{1}{2}$				
		eS			$46\ 36\frac{1}{2}$				
	CH	iP	12	39	29				
		i(pP)			53				
		iS			$^{+}_{-}$57				
		L			51				
	Epicentre:		12	30	27	5S	$134\frac{1}{2}$E	USCGS	M$6\frac{3}{4}$ PAS
16	WN	e(P)	04	46	55				
		e			58				
		e(S)			48 21				
		eL			$49\frac{1}{2}$				
		e			54 00				
	ON	eP	04	44	20				
		e(P)			51 36				
	KP	eP?	04	44	26				
		e(S)			45 06				
		e(L)			47.6^{+}_{-}				
	TU	eP	04	44	20				
		eS			45 46				
	CB	e	04	47					
	KM	eP	04	47	55				
	CH	e(P)	04	47	$^{+}_{-}$03				
		L			49				
	Epicentre:		04	42	30	30S	$178\frac{1}{2}$W	USCGS	
17	WN	iP	12	00	52				
		eS			05				
	ON	eP	11	59	58				
		e	12	02	38				
	KP	e(P)	12	00	20				
	TU	e(P)	12	00	35				
	Epicentre:		11	55	26	$17\frac{1}{2}$S	$168\frac{1}{2}$E	USCGS	
17	WN	eL	15	02	$^{+}_{-}$				
	KP	e	14	54	32				
	TU	e	14	54	$^{+}_{-}$54				
	CH	L	15	05	$^{+}_{-}$				
	Epicentre:		14	49	40	$17\frac{1}{2}$S	168E	USCGS	
17	WN	eS	20	01	$^{+}_{-}$14				
		eL			03				
	ON	e(P)	19	58	41				
		i			50				
		eL	20	01					
	KP	e(P)	19	58	57				
		eS	20	00	12				
		e(L)			01.8				
	TU	eP	19	58	42				
		eS	20	00	06				
	KM	eP?	20	00	14				
		eS			02 14				
	Epicentre:		19	56	46	32S	178W	USCGS	

Date	Stn	Phase	h	m	s				Magnitude
SEP 18	WN	eL	01	28	$\pm$				
	CH	eLq	01	29	$\pm$				
		eLr		32	-				
		Epicentre:	01	15	46	17½S	167½E	USCGS	
20	WN	P	13	23	01				
		e			07				
		e			11				
		e			26				
		e			40				
		i(S)		24	53				
		eS			55				
		e		25	42				M6½ WN
	AK	iP	13	22	20	To north			
		i			30				
		i		23	10				
		iS		24	05				
	ON	eiP	13	22	16				
		i			23				
		iS		23	$\pm$07½				
		eL		24	-				
	KP	eP	13	22	24				
		e			42				
		S		23	51				
		eL		24	.6				
	TU	eP	13	22	19				
		e			21				
		iS		23	46				
		eL		24					
	NP	eS	13	24					
	CB	eP	13	23	17				
		eS		25	$\pm$15				
		eL		27	-				
	KM	eP	13	23	40				
		S		25	54				
		L		28	33				
	CH	e(P)	13	23	55				
		e(P)			58				
		e(PP)		24	06				
		eS		26	01				
		i(SS)			16				
		iLr			$\pm$40				
		L		28	-				
		Epicentre:	13	20	19	32S	178W	USCGS	M6½ PAS
21	WN	eP	06	44	58				
		e		45	12				
		eS		49	13				
		e			$\pm$35				
		eL		52	-				M6-6½ WN
	AK	e(P)	06	44	15				
		e			36				
		eS		48	05				
		eL		50					
	ON	eP	06	44	11				
		eS		47	$\pm$52				
		eL		50	-				
	KP	eP	06	44	28				
		eS		48	30				
	TU	eP	06	44	43				
		e(S)		48	46				
	NP	eP	06	44	48				
		e		50	36				
	CB	eP	06	44	56				
		eS		49	08				
	KM	P	06	45	17				

Date	Stn	Phase	h	m	s				Magnitude
SEP 21	CH	eP	06	45	27				
		eS		49	57±				
		eLq		50	20±				
		eLr		52.0					
	Epicentre:		06	39	38	17½S	169E	USCGS	
21	WN	e(S)	13	33	07				
		e(S)			10				
	AK	iP	13	30	38	To south? Minute mark interferes			
		i		31	37				
		e(S)		32	10				
		e			55				
	KP	e(P)	13	30	47				
		eS		32	01				
	TU	iS	13	32	01				
	NP	eS	13	32	55				
	CB	e	13	31	51				
		e(S)		33	21				
		e(S)			29				
	KM	eP	13	34	10				
		eS?		35	16				
	CH	e(S)	13	34	23				
		Lq		36½					
		Lr		38±					
	Epicentre:		13	28	25	32S	178½W	USCGS	
21	WN	eL	23	09±					
	CH	eL	23	02±					
	Epicentre:		22	42	55	6S	148E	USCGS	
22	WN	eP	03	37	30				
		e(S)		47.5					
		eL		59±					
	AK	eL	03	58					
	CH	eP	03	37	30				
		e		39	20				
		e(SKS)		47.7					
		e		48.8					
		Lq	04	02±					
		Lr		07±					
	Epicentre:		03	25	03	24N	123E	USCGS	
22	WN	P	05	42	27				
		e(S)		49	13				
		e(SS)		52	16±				
		L		57±					
	AK	eL	05	53					
		Lq	05	53½					
		Lr		59±					
	Epicentre:		05	34	26	New Britain		USCGS	
23	WN	eL	15	51±					
	AK	P?	15	19	38	May be microseisms			
		eL		48					
	CH	e?	15	45±					
		L		55±					
24	WN	iP	02	05	19	Compression			
		e			23±				
		eL		07±					
	KP	eP	02	02	54				
		S		04	20±				
		L		05±					
	TU	eP	02	02	40				
		iS		04	12				
	NP	e(P)	02	03	08				
		eS		05	05±				
		eL		07±					

Date	Stn	Phase	h	m	s					Magnitude
SEP 24	CB	eP	02	03	37					
		eS		05	42					
		eL		07	±					
	KM	eP	02	04	15					
		eS		06	20					
	CH	e(P)	02	03	50					
		S		06	58					
		(Lq)		08	±					
		(Lr)		09	±					
	Epicentre:		02	00	45	32S	178W		USCGS	M6¾-7 PAS
25	WN	iP	19	10	00					
		IpP			44					
		S		18	25					
		isS		19	45					
		iSS		22	54					
		L		27	±					
	CB	eP	19	09	50					
		e			54					
	Epicentre:		18	59	22	6N	127½E	100±km	USCGS	M6½ PAS
26	WN	i	08	46	28					
		PPP		47	42					
		i		49	43					
		e		51	18					
		iSKS		52	29					
		i		55	10					
		SSS	09	01	.9					
		eLr		11	±					
	AK	e	08	54						
	CH	ePP	08	45	50					
		ePPP		47	42					
		iSKS		52	40					
		i		55	32					
		eSS		57	.1					
		eSSS	09	01	.8					
	Epicentre:		08	28	20	15½N	92½W	200±km	USCGS	M6¾ PAS
27	WN	e?	07	05	00					
		(S)			08					
		i			47					
		i		12	55					
	ON	eP	07	02	33					
		eL		05	±					
	KP	e?	07	03	02					
		(S)		04	05					
	CB	eS	07	05	25					
	KM	eP	07	06	10					
	CH	e(S)	07	06	.4					
		e(S)		06	.6					
		eL		08	½					
27	WN	e	20	41	35					
		iS		42	22					M5½± WN
	ON	eP	20	39	23					
	CB	e	20	42	34					
		eS			40					
	KM	e(S)	20	43	19					
	CH	e	20	41	50					
	Epicentre:		20	37	12	Kermadec Is. region Felt Raoul Is. MM3			USCGS	
30	WN	e	07	58	07					
	AK	e	07	57	30					
	KP	eP	07	56	54					
		eS		57	20½					
	TU	e(S)	07	57	18					
	NP	e(S)	07	57	44					
	CB	eS	07	58	09					

Date	Stn	Phase	h m s				Magnitude
OCT 1	KP	e(P)	08 27 13				
	TU	eP	08 27 14½				
		S	28 21½				
	WN	eS	08 29 33½				
	CB	eS	08 29 50				
	Epicentre:		08 25 47	32.9S	179.9W N	NZ(D)	M5.5 NZ
1	WN	e	12 29±				
		e(L)	34±				
	Epicentre:		12 24 49	25S	177W	USCGS	
1	WN	iP	18 53 55	Compression			
		i	55 05				
		iS	57 44				
		e(L)	19 01½				
	KP	eP	18 53 21				
	TU	eP	18 53 34				
		eS	57 16				
	CB	eP	18 63 51				
		eS	57 35				
	KM	eP	18 54 02½				
	CH	eP	18 54 29				
		eS	58 57				
		eL	19 04±				
	Epicentre:		18 49 10	19S	169E	USCGS	
2	WN	e(P)	19 42 40				
		i(S)	44 15				
		eL	45.0				
	ON	eP	19 38 55				
		eS	41 43				
		eL	42.3				
	KP	eL	19 43¾				
	CB	eP	19 39 57				
		eL	45½				
	CH	e	19 56±				
		e(Lq)	20 00±				
		e(Lr)	06±				
	Epicentre:		19 35 43	Tonga region		USCGS	
3	WN	L	10 10.0				
	AK	eL	10 10				
	CH	eL	10 13±				
		e	10 17±				
	Epicentre:		10 02 16	Fiji region	600±km	USCGS	
4	WN	i(S)	07 35 28				
		eL	36.4				
	AK	S	07 34(30)				
	ON	eP	07 30 10				
		eS	32 53				
		eL	33½				
	KP	P	07 30 26				
		eL	34±				
	TU	eP	07 30 30				
		e	33 04				
		eS	10				
		L	34¾				
	CB	eP	07 31 12				
		eL	35½				
	CH	eL	07 37±				
	Epicentre:		07 26 57	Tonga region		USCGS	
6	WN	e(P)	11 15 15	Rarefaction?			
		i(P)	18	Compression			
		iS	25 18				
		i(sS)	26 20				
		eLr	38±				M6± WN
	KP	(P)	11 15 26				

Date	Stn	Phase	h	m	s					Magnitude
OCT 6	TU	eP	11	15	18					
		e		16	26					
		eS		25	29					
	CB	eP	11	15	18					
		i			22					
		eS		25	23					
	KM	eP?	11	15	11					
		e			24½					
	CH	e(P)	11	15	15					
		i(P)		16	18					
		eS		25	10					
		i(sS)		26	30					
	Epicentre:		11	03	16	36S	70W	150±km	USCGS	M6½ PAS
6	WN	e	11	55±						
	Epicentre:		10	55	38	North Atlantic Ocean				
6	WN	e(S)	14	23	30					
		eL		24.5						
	AK	e	14	23						
7	WN	e(S)?	07	11.1						
		eL		31±						
	ON	eP	07	25	19					
	TU	e(P)	07	25	56					
	CB	eP	07	25	54					
		eS		30	16					
	KM	eP	07	26	±26					
	CH	eL	07	35±						
8	WN	e(L)	00	51±						
		e	01	18						
8	WN	eP	09	26	41	No L-waves				
		eS		29	40					
	ON	eP?	09	25	57					
	TU	e(P)	09	26	36					
		eS		29	26					
	CB	eP	09	26	44					
		eS		25	45					
	KM	eP	09	27	06					
8	WN	e(S)	21	09	41					
		eL		13	50±					
	ON	eS	21	08	35					
	KP	eS	21	08	51					
	CB	eP	21	04	38					
		eS		09	±47					
	CH	eL	21	17±						
	Epicentre:		21	05	32	Fiji region			USCGS	
9	WN	iP	17	47	56	Rarefaction				
		iS		54	06					
		i(SS)		57	±42					
		eLr	18	00±						M6½± WN
	AK	e	18	01						
	ON	eP	17	47	29					
		eS		53	07					
	KP	e(P)	17	47	39					
	TU	eP	17	47	45					
		eS		53	50					
	CB	eP	17	47	49					
		e(S)		53	55					
	KM	eP	17	48	00					
		eS		54	05					
	CH	eP	17	48.1						
		iS		54	23					
		iSS		57	±56					
		eL	18	01±						
	Epicentre:		17	40	09	5S	153E		USCGS	

Date	Stn	Phase	h	m	s				Magnitude
OCT 10	WN	eP	09	05	34	Compression			
		i			44	Compression			
		i		06	06				
		i			17				
		i(PcP)		07	35				
		iS		11	35				
		i		15	10				
		i(ScS)			52				
		i(Lq)		17	32				
		eLr		18	±				
		eW	11	38	±				M7½± WN
	AK	eP	09	05	20				
		iPPP		07	19				
		iS		11	00				
		i			40				
		iSS		14	10				
		Lq		15	.2				
		Lr		17	.5				
	ON	eP	09	05	00				
		i			17				
		e		06	52				
		e		08	05				
		eS		10	37				
		eL		13½	±				
	KP	eP	09	05	16				
		eS		11	09				
		e(ScS)		15	52				
		eL		17	±				
	TU	eP	09	05	26				
		eS		11	30				
	NP	eP	09	05	10				
		e			33½				
		e(PcP)		06	49				
		eS		11	15				
		eL		14	±				
	CB	eP	09	05	27				
		eS		11	30				
	KM	P	09	05	34½				
		S		11	43				
	CH	iP	09	05	49				
		e		06	42				
		e		07	.0				
		i		08	16				
		iS		12	05				
		e		13	.0				
		e		15	.5				
		i(ScS)		16	13				
		Lr		18	.8				
	Epicentre:		08	57	44	5S 153E	50±km	USCGS	M7¼ PAS
						Felt Kokopo, New Britain MM6-7			
10	WN	e(L)	21	04	±				
	KM	e(P)	20	57	21½				
	Epicentre:		20	51	42	17½S 174W	60±km	USCGS	
12	WN	i(S)	07	58	40				
12	ON	iP	23	06	12	To west			
	KP	iP	23	06	15½	To north			
	TU	eP	23	06	12				
		S		07	04				
	NP	P	23	06	36				
	WN	iP	23	06	48½	To south			
		iS		08	06	To north			
	CB	eP?	23	06	54				
		eP			57½				
		eS		08	22				
	KM	eP	23	06	22				
		eS		09	00½				
	Epicentre:		23	05	08	35.1S 179.1E	285±km	NZ(D)	M5.3 NZ

Date	Stn	Phase	h	m	s			Magnitude
OCT 13	WN	eL	01	09	0			
	AK	eL	01	08				
	ON	eP	01	03	49			
		e(S)		07	09			
		eL		07	½			
	TU	eL	01	08	±			
	CB	e	01	10	±			
	CH	eL	01	11	½±			
13	WN	iP	09	33	27	Compression		
		ipP			44	Rarefaction		
		iPP		34	50			
		i(PPP)		35	10			
		i(PcP)			32			
		i		36	15			
		i(S)		38	22			
		i(S)			42			
		e		39	15			
		SS		41	12			
		Lq		42	20±			
		Lr		44±				
	AK	iP	09	32	56	To south		
		i		38	40			
		eLr		40	7			
	ON	eiP	09	32	44			
		e		38	51			
		eL		40	½			
	KP	P	09	33	04			
		epP			21			
		eS		34	08			
		eL		42±				
	TU	eP	09	33	16			
		e(S)		28	28			
		eL		41	¾			
	NP	eP	09	33	09			
		e		38	03			
		eL		42±				
	CB	eP	09	33	21			
		eS		38	34			
	KM	P	09	33	29			
	CH	iP	09	33	29			
		i(PPP)		35	18			
		ePcP		36	05			
		e(S)		39	13			
		i(S)			26			
		i		40	25			
		e		41	42			
		e(SS)		42	0			
		L		44±				
	Epicentre:		09	26	44	9½S 161E	USCGS	M7 PAS
13	WN	iP	16	21	16	Compression		
		i(PP)			28	Compression		
		i		22	40			
		i(S)		23	26			
		L		24±				M6± WN
	AK	iP	16	20	50	To North		
		i		21	00			
		i			14			
		iS			30			
	ON	eP	16	20	34			
		i			46½			
		i(S)		21	13			
		i		22	01			
	KP	P	16	20	36			
		i		21	04			
		L		21	5			

Date	Stn	Phase	h	m	s				Magnitude
OCT 13	TU	iP	16	20	38				
		i(S)		21	24				
	NP	eP	16	21	03				
		i			14½				
		i		22	11½				
		eL			22½				
	CB	eP	16	21	31				
		e		23	24				
	KM	eP	16	21	58½				
	CH	eP	16	22	.0				
		e		23	45				
		eS		24	.4				
		e		24	45				
		eL			25±				
	Epicentre:		16	19	51	36S	177½E	200±km	USCGS
14	WN	eP	01	01	25±				
		e			30±				
		eL			09±				
	ON	eP	01	00	48				
	KP	eP	01	01	10				
	TU	e(P)	01	00	49				
	CB	eP	01	01	46				
	CH	e(S)	01	05	.7				
		Lq		10					
		Lr			11½±				
	Epicentre:		00	55	55	16½S	172W		USCGS
14	WN	eL	09	21	±				
	CH	eLg	09	21	±				
		eLr			23±				
14	WN	eL	14	52	±				
	AK	eL	14	51	.6				
	CH	eL	14	54	±				
	Epicentre:		14	43	41	24½S	176½W		USCGS
16	WN	eL	12	05	±				
	CH	e	12	04	±				
17	WN	e	04	31	±				
19	WN	eSKS	10	18	27				
		i(S)		19	05				
		eSS		25	.4				
		eL			38±				
	CB	eSKS	10	18	37				
	CH	e?	10	16	45				
		iSKS		18	35				
		i(PPS)		20	33				
		eL			39±				
	Epicentre:		09	54	43	49½N	155E		USCGS
20	WN	eL	04	26	±				
	CH	e	04	25	±				
		e			37±				
21	WN	eL	04	08					
	CH	e(S)	04	06	.6±				
21	WN	i(S)	04	55	00				
	CH	i(S)	04	54	48				
	Epicentre:		04	32	03	4N	95E		USCGS
21	WN	eP?	09	40	50±	Possibly artificial			
		i(S)		45	08				
		eL			51½				
	CH	e	09	52	±				
		eL			57½±				

Date	Stn	Phase	h	m	s					Magnitude
OCT 21	WN	e(L)	13	53	±					
	AK	e	13	51						
	ON	e	13	49						
	CH	eL	13	56	±					
21	WN	iP	19	06	45					
		iS		09	21					
		i			43					
		i		10	25	No L-waves				M5½± WN
	AK	iP	19	05	(10)					
		i		07	(15)					
		iS			(35)					
		i		09	(40)					
	ON	iP	19	06	02					
		iS		08	44					
	KP	iP	19	06	16					
		e		07	52					
		eS		08	45					
		iSS		09	18					
		iSSS			29					
		i			36					
		i			54					
	TU	iP	19	06	18					
		e(S)		09	02					
		i			08					
		i			20					
	NP	eiP	19	06	32½					
		e(S)		09	09					
		i			32					
	CB	eS	19	09	26					
		i			57					
		e		10	01					
	KM	iP	19	07	02½					
		iS		10	28½					
	CH	iP	19	07	07					
		e			11					
		i(pP)			25					
		iS		09	55					
		i(sS)		10	26					
		i(SS)			43					
		i		13	02					
		i			25					
	Epicentre:		19	02	40	21S	179W	650±km	USCGS	M6¼ PAS
21	WN	eL	21	37	±					
	CH	eL	21	38	±					
21	WN	eP	23	20	00					
		iS		28	25					
		eLq		35+						M6-6½ WN
	ON	eP	23	19	46					
		e		28	45					
		e(S)			50					
	KP	P	23	20	00					
		eS		28	08					
	TU	eP	23	20	05					
		eS		28	36					
	CB	eP	23	19	49					
		eS		28	07					
		e		29	48					
	KM	eP	23	20	00½					
	CH	eP	23	20	03					
		iPcP			18					
		e(PPP)		24	.0					
		eS		28	20					
		eSS		32	.5					
		eSSS		35	±					
		eLq		38	.3					
		eLr		42	±					
	Epicentre:		23	09	38	½S	123½E		USCGS	

Date	Stn	Phase	h	m	s					Magnitude
OCT 22	WN	e?	06	17	±	Possibly wind disturbance				
	CH	eL	06	14	±					
22	WN	eP	22	14	50	Rarefaction?				
		i			57	Rarefaction.				
		e(SS)		24	.1					
		i(ScS)		24	40					
		eL		25	+					
	KP	e(P)	22	14	35					
	TU	e	22	16	05					
	CH	e?	22	21	+					
		eL		25	±					
	Epicentre:		22	06	56	6S	149E		USCGS	
23	WN	eL	17	20	±					
	CH	eLq	17	18	.5±					
		eLr		21	±					
	Epicentre:		17	04	09	11½S	163E		USCGS	
24	ON	iP	05	05	49					
		iS		07	10					
	TU	e(P)	05	06	00					
		eS		07	24					
	NP	eP	05	06	20					
		iS		08	02					
	WN	eP	05	06	31					
		eS		08	26					
	CB	eP	05	06	37½					
		eS		08	37					
	KM	eP	05	06	59					
		eS		09	12					
	Epicentre:		05	04	04	31.4S	179.2W	N	NZ(D)	M6.3 NZ
30	ON	iP	02	04	05					
		e(S)		05	39					
	KP	eP	02	04	16					
		iS		05	57					
	TU	eP	02	04	14					
		e(S)		05	52					
	NP	P	02	04	37					
		S		06	28					
	WN	eP	02	04	47					
		(S)		06	52½					
	CB	eP	02	04	57					
		eS		07	05½					
	KM	eP	02	05	20½					
		eS		07	41					
	CH	eP	02	05	24					
		e(S)		07	53½					
	Epicentre:		02	02	04	30S	179W	N	NZ(D)	M6.3 NZ
30	WN	iP	19	24	48					
		eS		28	00	No L-waves				M6± NZ
	ON	eiP	19	24	06					
		iS		26	50					
	KP	iP	19	24	20					
		eS		27	21					
	TU	eP	19	24	21					
		eS		27	12					
	NP	eP	19	24	35½					
	CB	eP	19	24	52					
		eS		28	06					
	KM	P	19	25	06½					
		S		28	31					
	CH	e	19	25	±					
	Epicentre:		19	20	50	19S	180	650±km	USCGS	

Date	Stn	Phase	h	m	s				Magnitude
OCT 31	WN	eL	01	53	±				
	CH	eL	01	54	−				
	Epicentre:		01	05	53	52N	175½W	USCGS	M5½-6 PAS
31	WN	e(P)	08	28	42				
		i(S)		32	34				
		iL		33	30	Rather prominent waves for about 8 minutes, and coda.			
	ON	eP	08	27	20				
		e(S)		29	50				
		eL		30½	±				
	KP	eP	08	27	40				
		eS		31	04				
	TU	eL	08	32	±				
	NP	eL	08	34	−				
	CH	e?	08	25	27				
		eL		33	−				
	Epicentre:		08	25	05	Tonga Region	650±km	USCGS	
NOV 1	WN	e(S)	06	35	36				
	ON	e	06	32½	±				
	TU	eS	06	34	27				
	CB	e(P)	06	33	01				
		eS		35	53				
						Felt Raoul Is. MM3			
1	WN	eL	10	34	±				
	CH	eL	10	35	−				
	Epicentre:		10	12	09	5S	153E	USCGS	
1	WN	eP?	15	19	±	Very small and doubtful			
		i(S)		23	22				
		eL		27½					
	AK	e	15	25					
	KP	e(P)	15	18	52				
	CH	e	15	24	±				
		eLq		26	±				
		eLr		29	±				
	Epicentre:		15	14	18	Loyalty Is.		USCGS	
2	ON	P	04	54	02				
	TU	P	04	54	07				
		S		55	30				
		e			33				
	KP	P	04	54	14				
		S		55	40				
		e			51				
	WN	S	04	56	39				
	CB	e(P)	04	55	11				
		S		56	59				
	KM	S	04	57	30				
	Epicentre:		04	52	20	33S	177W	150±km NZ(D)	M5.9 NZ
4	WN	P	22	56	21	Rarefaction?			
		e(PcP)			52				
		iS	23	06	35				
		i(PS)		07	15	No L-waves			
	ON	eP	22	56	34				
		eS	23	06	40				
	KP	P	22	56	29				
		eS	23	06	55				
	TU	eP	22	56	34				
		eS	23	06	42				
	CB	eP	22	56	36½				
		eS	23	06	47				
	KM	eP	22	56	29½				
	CH	iP	22	56	23	Compression.			
		iS	23	06	38	No L-waves.			
	Epicentre:		22	43	50	39½S	69½W	100±km USCGS	M6¾ PAS

Date	Stn	Phase	h	m	s			Magnitude
NOV 5	WN	iP	03	58	18	Rarefaction		
		i			21			
		i(pP)			40			
		i(PP)		59	05			
		iS	04	02	08			
		e		04	50			
		i(ScS)		09	25	No L-waves		
	ON	eP	03	57	19			
		e(S)	04	00	14			
		e			40			
	KP	P	03	57	45½			
		(PP)		58	50			
	TU	eP	03	57	58			
		eS	04	01	38			
	CB	eP	03	58	14			
		eS	04	02	03			
	KM	eP	03	58	24½			
	CH	i(S)	04	03	+04			
		e		04	−			
		eL		10	±			
	Epicentre:		03	53	38	19½S 169E	150±km USCGS	
5	ON	P	12	16	37			
		S		17	28			
	KP	P	12	16	13			
		S			45			
	TU	P	12	16	18			
		S			54			
	NP	P	12	15	58			
		iS		16	19			
	CB	iP	12	15	55	To east		
		S		16	14			
	WN	iP	12	15	59	To south		
		iS		16	20	To south?		
	KM	iP	12	16	14	To southwest		
		S			46			
	CH	P	12	16	22			
		S			59			
	Epicentre:		12	15	30	40.3S 173.7E	145km NZ(C)	M5.5 NZ
7	WN	e(S)	06	34	48			
		e			51			
		eL		37	.3			
	ON	eP	06	32	25			
	KP	eP	06	32	37			
		(S)		34	18			
	TU	eP	06	32	25			
		eS		33	44			
	NP	e	06	35	00			
	CB	eS	06	35	10			
		e			12			
	KM	e(S)	06	35	+54			
	CH	eL	06	38	−			
7	WN	e(S)	07	41	54			
	Epicentre:		07	33	52	5S 152E	600±km USCGS	
10	WN	iP	01	49	44	Compression		
		e		50	19			
		e		52	01			
		iS		54	13			
		e		55	05			
		e		56	16			
		i(SSS)			35			
		i		58	27			
		ScS	02	00	23	No L-waves		
	AK	iP	01	49	10			
		iS		53	20			
		iSS		54	13			
		i		58	30			
		iScS	02	00	09			

Date	Stn	Phase	h	m	s					Magnitude
NOV 10	ON	eP	01	49	03					
		eS		53	06					
		e		55	35					
		eScS	02	00	07					
	KP	e(P)	01	49	18					
		i(P)			20					
		e		50	28					
		eS		53	27					
		ScS	02	00	09					
	TU	eP	01	49	22					
		eS		53	38					
		eScS	02	00	08					
	NP	eP?	01	49	38					
		e		50	37					
		eS		53	55					
		eScS	02	00	02					
	CB	eP	01	49	49					
		eS		54	24					
		eScS	02	00	21					
	KM	eP	01	50	08½					
		e			28					
	CH	eP?	01	50	.0					
		e		51	.3					
		iPP		55	00					
		iPPP		56	45					
		e		58	.6					
		iSKS	02	00	40					
	Epicentre:		01	44	04	15S	174W	100±km	USCGS	M7¼-7½ PAS
10	WN	iP	05	13	42					
		i		15	20					
		iS			52					M6¾ WN
	AK	iS	05	14	45					
	ON	P	05	12	56					
		eS		14	35					
	KP	eP	05	13	08					
		S		14	55					
	TU	eP	05	13	08					
		eiS		14	50					
	NP	eP	05	13	31					
		eiS		15	29					
	CB	iP	05	13	48					
		eS		16	04					
	CH	eS	05	16	51					
	Epicentre:		05	10	20	28½S	178½W		USCGS	
11	WN	eL	10	45	.5					
	AK	eL	10	44						
	ON	eP	10	40	09					
		eS		42	39+					
		eL		43	10±					
	KP	eL	10	44	.1					
	TU	eL	10	46	±					
	CB	eL	10	46	¾					
	CH	eLq	10	47	±					
		eLr		48	+					
	Epicentre:		10	37	03	Tonga region			USCGS	
12	WN	eL	02	37	±					
	CH	e	02	39	±					
12	WN	eP	10	15	25					
		i			49					
		e		16	10					
		ePP		17	30					
		e(S)		21	25					
		i(S)		22	00					
		eSS		24	35					
		eLr		27	+					
	ON	eP	10	14	49					
		e(S)		20	55					

Date	Stn	Phase	h	m	s				Magnitude
NOV 12	KP	eP	10	15	06				
	NP	eP	10	15	10				
		e		16	56				
		eS?		21	20				
	CB	eP	10	15	18				
		eS		21	50				
	KM	e(P)	10	15	29				
	CH	iP	10	15	33	Compression			
		i		16	08	Compression			
		iPPP		18	00	Compression			
		e		21.6±					
		iS		22	21				
		eSS		25	15±				
		e(Lq)		27±					
		eLr		29±		L-waves poorly developed			
	Epicentre:		10	07	47	5N	152½E	60± km	USCGS
12	WN	iP	12	23	19	Compression			
		e(S)		26	14				
		i(S)			20				
	ON	eP	12	22	31				
		eS		24	52				
	KP	eP	12	22	51				
		eS		25	24				
	TU	eS	12	25	26				
	NP	eP	12	23	07				
		eS		25	46				
	CB	eP	12	23	22				
		eS		26	21				
	KM	P	12	23	40				
		S		26	49				
	Epicentre:		12	19	44	22½S	179E	600±	USCGS
12	WN	iP	13	50	40	Compression			
		e		51	12				
		iS		57	17±				
		e(SS)	14	00±		L-waves very small			
	KP	eP	13	50	22				
	TU	eP	13	50	36				
		eS		57	08				
	NP	eS?	13	57	00±				
		eL		58±					
	CB	eP	13	50	34				
		eS		57	02				
	Epicentre:					New Britain			USCGS
12	WN	eP	15	51	00				
		ePP			55				
		eS		55	30				
		eL		59.0					
	AK	i(P)	15	50	35	To north			
		i		51	04				
		S		54	07				
		i			50				
		i		55	27				
		eL		57					
	ON	eP	15	50	13				
		eS		54	02±				
		eL		55.3±					
	KP	eP	15	50	30				
		eS		54±	43				
		eL		58±					
	TU	eP	15	51	13				
		eS?		55	52				
	CB	eP	15	51	00				
		eS		55	17				
		eL		58.3					

Date	Stn	Phase	h	m	s				Magnitude
NOV 12	CH	eP?	15	51	27±				
		eS			55.8				
		Lq			59±				
		eLr	16	02	±				
	Epicentre:		15	45	34	17½S	167½E	USCGS	
13	WN	e(S)	22	54	21				
		i(SS)			56 00				
		e(SSS)			±35±				
		eLr			58±				
	AK	eP?	22	49	21				
		e			52 45				
		e(S)			53 24				
		eL			55.6				
	ON	eP	22	48	34				
		eS			52±44				
		eL			55±				
	KP	eP	22	48	48				
		eS			53 05				
	CB	eL	22	58½	±				
	CH	eS?	22	54	±55				
		e			56±				
		eLq			57±				
		eLr	23	00	±				
	Epicentre:		22	43	40	Fiji region		USCGS	
13	ON	P	23	08	41				
		S			09 45				
	KP	P	23	08	50				
		S			10 00				
	TU	P	23	08	50				
		S			09 52				
	NP	P	23	09	11				
		S			10 45				
	WN	P	23	09	24				
		S			10 58				
	CB	P	23	09	33½				
		S			11 17				
	KM	P	23	10	00				
		S			11 56				
	CH	S	23	12	05				
	Epicentre:		23	07	22	33½S	180	285km NZ(D)	M5.8 NZ
14	WN	i	03	16	±53				
		e(L)			20±				
	AK	e	03	14					
	ON	eP	03	13	53				
		eS			14±49				
	KP	e	03	15	±				
	Epicentre:		03	09	10	14S	167E	200±km USCGS	
14	WN	e	13	29	12±	Possibly two earthquakes			
		e(P)	13	33	32				
	ON	e	13	33					
	KP	P	13	33	18				
		e(S)			43 03				
	TU	e(P)	13	33	26				
	NP	e	13	29	46				
		e			59				
	CB	e(P)	13	33	28				
	KM	e(P)	13	33	±38½				
	CH	e?	13	31	±				
		eL			32±				
	Epicentre:		13	23	09	17½N	145½E	150±km USCGS	
15	WN	e(P)	07	07	22±				
		e(S)			11 00±				
		L			13.0				
	AK	eL	07	15	5				
	ON	eP	07	08	21				

Date	Stn	Phase	h	m	s				Magnitude
NOV 15	KP	eP?	07	08	06				
		(P)			13				
	TU	eP	07	08	06				
	NP	eL	07	13½					
	CB	eP	07	07	18				
		e(S)		10	29				
	KM	e(P)	07	07	06½				
		e(S)		09	45				
		eL		11	46				
	CH	eP	07	06	±46	Rarefaction?			
		eL		10	±				
17	WN	eP?	07	06	.7	Doubtful			
		eS		16	47				
		e(ScS)		17	.2				
		eSS		22	±15				
		eL		30	±				
	KM	eP	07	06	34				
	CH	eP	07	06	27	Rarefaction?			
		eS		16	50				
		iScS		17	14				
		i		19	50				
		eSSS		26	13				
		eL		34	.5				
	Epicentre:		06	53	27	26½S	69W	60±km	USCGS
19	WN	eP?	05	45	.1				
		e(S)		49	30±				
		(SS)		50	50				
		eL		52					
	AK	eL	05	52					
	ON	eP	05	44	29				
		eS		48	18				
	KP	P	05	44	26				
		e		51	21				
		e		58	21				
	TU	e	05	56	±				
	CB	e	05	55	±				
	CH	eLq	05	51	±				
		eLr		55	±				
	Epicentre:		05	39	08	14S	179W		USCGS
19	WN	P	08	30	40	Rarefaction?			
		iS		34	33				
	ON	eP	08	29	46				
		eS		33	14				
	KP	iP	08	30	08½				
	TU	eP	08	30	20				
		eS		34	10				
	CB	eP	08	30	36				
		eS		34	20				
	KM	eP	08	30	50				
	Epicentre:		08	25	32	17½S	168E		USCGS
20	WN	eP	02	12	46				
		eS		15	35				
		Lr		17	.3				
	CH	eP?	02	12	±2				
		eLq		15	±				
		eLr		16	±				
20	WN	eL	21	26	±				
	KM	e	21	17	±				
	CH	e	21	28	±				

Date	Stn	Phase	h	m	s				Magnitude
NOV 21	ON	iP	21	05	20½	To east			
		S			58				
	KP	iP	21	05	11	To south			
		S			40½				
	TU	iP	21	05	12	To south			
		iS			41				
	NP	P	21	05	25½				
		S		06	06				
	WN	iP	21	05	38	To south			
		S		06	30				
	CB	P	21	05	45				
		S		06	43				
	KM	P	21	06	05				
		S		07	16½				
	CH	P	21	06	14				
		S		07	28				
	Epicentre:		21	04	31	37.4S 176.8E	260km	NZ(C)	M5¾ NZ
22	ON	P	02	26	29				
		e		29	45				
	KP	P	02	26	35				
	TU	P	02	26	32				
		S		27	38				
	WN	P	02	27	09				
		S		28	46				
	CB	P	02	27	21				
		S		29	02				
	KM	S		29	45				
	Epicentre:		02	25	05	33.8S 179.1W	285km	NZ(C)	M5.3 NZ
22	WN	iP	03	33	32	Rarefaction			
		e(PPP)		36	34				
		eS							
		eLq		47	17				
		eLr		50	±12				
	ON	e	03	40	±				
	KP	e	03	36	33				
	TU	eP	03	33	22				
	NP	e(P)	03	32	16				
	CB	eP	03	33	43				
	KM	eP	03	34	04				
	CH	eP	03	33	40	Rarefaction?			
		e(PPP)		37	.0				
		eS		41	55				
		eSS		45	.6				
		eLq		49	±				
		eLr		50	±				
	Epicentre:		03	24	00	24½S 123W		USCGS	M6¾-7 PAS
23	WN	iP	06	42	45	Compression			
		e(S)		52	35				
		iScS		53	05				
		iPPS			40				
		i		55	00	±			
		eSSS	07	00	05	±			
		eLr		03	.0				
		eLr		06	.0				
		eW28	08	38	±				
	AK	e(P)	06	42	45				
		S		52	50				
		i		53	21				
		eLr	07	10	.5				
	KP	P	06	42	28				
		eS		52	55				
		e(ScS)		53	29				
	TU	eP	06	42	30				
		e		53	00				
		e			18				

Date	Stn	Phase	h	m	s				Magnitude
NOV 23	NP	eP	06	42	25				
		e(S)		53	21				
		e		54	06				
	CB	e	06	53	35				
		e		54	16				
	CH	eP	06	42	54	Rarefaction?			
		ePP		45.9					
		eS		53	20				
		i		55	±27				
		Lq	07	09	±				
		Lr		13	±				
		eW2	08	44	±				
	Epicentre:		06	29	29	50½N	157E	60±km USCGS	M7-7¼ PAS
24	WN	e(S)	18	43.9					
		L		45.7					
	CH	eL	18	44±					
25	WN	eS	13	48	45				
	ON	eP	13	45	14				
		eS		47	20				
	KP	eS	13	47	48				
	TU	eS	13	47	51				
	CB	eS	13	48	54				
27	WN	eP	07	09	18				
		eS		13	±28				
		Lq		14	±				
		e(SS)		14	42				
	AK	iP	07	08	26	To north			
		i		10	31				
		eL		12					
	ON	eP	07	08	11				
		i			16				
		S		11	27				
		eL			38				
	TU	eP	07	08	59				
		eS?		12	52				
		e		13	11				
	CB	eP	07	09	25				
		eS		13	46				
	KM	eP	07	10	06				
	CH	e(S)	07	14.6					
		eL		16.0					
	Epicentre:		07	05	07	24½S	177½W	100±km USCGS	
28	WN	ePP?	18	23½					
		e(S)		28	10				
		i(SSS)		32	46				
		eLr		36½	±				
	AK	eP	18	28	28				
		i		32	15				
		(S)		33	00				
		(SSS)			35				
	ON	eP	18	26	±35				
		eL		31	±				
	CB	eS	18	32	±17				
	CH	e?	18	23	±				
		L		35	±				
	Epicentre:		18	21	39	Samoa region		USCGS	
30	WN	iP	00	14	25				
		e(S)		18	15±				
		(L)		21	17				
	ON	eP	00	13	18				
		eL		16½	±				
	KP	e	00	14±		Possibly artificial			
	CB	eP	00	14	23				
		eS		18	12				

Date	Stn	Phase	h m s				Magnitude
NOV 30	KM	eP	00 14 45½				
	CH	eP	00 14 21				
		e(S)	18 30				
		L	21½				
	Epicentre:		00 09 51	21S 174½E		USCGS	
30	WN	eP	06 30 22				
		i(P)	27	Rarefaction			
		i(L)	37 05				
	ON	eP	06 29 21				
		eS	32 54				
		eL	33.3				
	KP	eP	06 29 48				
	CB	eP	06 30 27				
	CH	e	06 35 ± 35				
		eL	37 −				
	Epicentre:		06 25 50	Fiji region		USCGS	
DEC 1	ON	P	02 45 11				
		S	46 05				
	KP	P	02 45 08				
		S	57				
	TU	P	02 45 07				
		S	56				
	WN	e	02 45 57				
		e	47 00				
	CB	eP	02 46 01				
		eS	47 28				
	KM	S	02 48 16				
	Epicentre:		02 44 02	35¼S 180	N	NZ(D)	M5.0 NZ
4	ON	iP	02 01 37	To east			
	KP	P	02 02 47				
		S	03 38				
	TU	P	02 02 42				
		S	03 32				
	NP	eP	02 03 12				
	TO	P	02 02 55				
	WN	P	02 03 22				
		S	04 40				
	CB	eP	02 03 30				
		S	05 00				
	KM	eP	02 03 57				
		eS	05 36				
	CH	e	02 04 21				
		e	05 52				
	Epicentre:		02 01 37	35¼S 179¾W	N	NZ(D)	M6.1 NZ
4	ON	P	20 49 41				
		(S)	50 20				
	KP	iP	20 49 18½	To north			
		S	35½				
	TU	P	20 49 22				
		S	42				
	NP	iP	20 49 25½	To west			
		S					
	TO	iP	20 49 19	Up			
	WN	iP	20 49 39	To south			
		S	50 13				
	CB	eP	20 49 46				
		S	50 27				
	KM	eP	20 50 09				
		S	51 03½				
	CH	eP	20 50 14				
		S	51 12				
	Epicentre:		20 48 55	38.6S 175.6E	160km	NZ(C)	M5.4 NZ
5	WN	e	05 23 ±				
	CH	eL	05 20 −				

Date	Stn	Phase	h m s				Magnitude
DEC 6	WN	eL	05 15$^{\pm}_{\mp}$				
	CH	e?	05 02$^{\pm}_{\mp}$				
		eL	15^{-}				
	Epicentre:		04 31 00	20S	70W	USCGS	M6½ PAS
7	WN	eP	15 14 50				
		iS	24 10				
		(PS)	25$^{\pm}$00				
	AK	eL	15 41^{-}				
	ON	eP	15 14 45				
	KP	P	15 14 37				
		eS	23 50				
		eL	40.7				
	TU	eP	15 15 00				
		e	15				
		eS	24 36				
		e	25 16				
	CB	eP	15 14 45				
		e(S)	23 49				
	KM	eP	15 14 58½				
	CH	e(S)	15 24½	In strong microseisms			
		e	37$^{\pm}_{\mp}$				
		e(Lq)	39$^{\pm}_{\mp}$				
		eLr	43^{-}				
	Epicentre:		15 03 11	26½N	142½E	USCGS	M6½-7 PAS
8	WN	iP	17 43 16	Rarefaction			
		ePP	44 43				
		eS	49 06	No L-waves			M6½ WN
	ON	iP	17 42 41				
	TU	eiP	17 43 09				
		e(PP)	44 41				
		eS	48 52				
	NP	eP	17 43 02				
		e	43 29				
		e?	49 22				
	CB	eP	17 43 09				
		eS	49 01				
	KM	P	17 43 15				
		eS	49 09				
	CH	eP	17 43 27				
		e(PP)	45$^{\pm}$53				
		eL	55^{-}				
	Epicentre:		17 36 00	4S	152E	500$^{\pm}$km USCGS	
9	WN	eP	09 01 09				
		eS	03$^{\pm}$19				M5¾ WN
	AK	e	09 00^{-}				
	ON	eP	09 00 18				
		e(S)	01 17				
	KP	eP	09 00 41				
	TU	e(P)	09 00 26				
		eS	02 12				
		e	48				
	NP	eS?	09 03 09				
	CB	eP	09 01 17				
		eS	03 41				
	KM	eP	09 01 51				
		eS	04$^{\pm}$25½				
	CH	e	09 02^{-}				
	Epicentre:		08 58 08	Kermadec Is.		USCGS	
11	WN	eP?	03 29 50$^{\pm}$				
		e(P)	30 04				
		e	32 44				
		i(S)	47				
	ON	eP	03 29 04				
		eS	31 42				
	TU	e(P)	03 29 04				
		eS	30 40				

Date	Stn	Phase	h m s			Magnitude
DEC 11	NP	e(S)	03 31 56			
	KM	eP	03 29 49			
	CH	eS	03 32 52±			
	Epicentre:		03 28 08	Kermadec Is.	USCGS	
11	WN	eP	11 16 10	Rarefaction?		
		e(S)	18 42			
		i(S)	46			M6-6½ WN
	ON	eP	11 15 23			
		eS	17 19			
	TU	eS	11 17 50			
	NP	eP?	11 15 58			
		eS	18 23			
	CH	eS	11 19 35			
	Epicentre:		11 12 11	Kermadec Is. region	USCGS	
11	WN	eP	12 29 59			
		eS	31 57			
	CH	e(L)	12 39±			
	Epicentre:		12 23 49	Fiji region	USCGS	
13	ON	P	08 28 03½			
		S	29 16			
	TU	P	08 28 15			
		S	29 30			
	NP	P	08 28 34			
		S	30 08½			
	WN	P	08 28 44			
		S	30 29			
	CB	P	08 28 51			
		S	30 44			
	KM	P	08 29 12			
		S	31 16			
	CH	eS	08 31 29			
	Epicentre:		08 26 29	32½S 179¼W 350±km NZ(D) Brisbane readings also used in determining epicentre:		M6.3 NZ
15	WN	iP	19 10 56	Rarefaction		
		iS	18 28			
		i(SS)	43			
		eLg	24±			
	TU	e(P)	19 10 56			
		eS	18 10			
	CB	eP	19 10 51			
	CH	e(P)	19 11±			
		eS	17 50			
		eL	24±			
	Epicentre:		19 02 43	3½S 149E	USCGS	
18	WN	iP	07 29 47	Rarefaction		
		e(S)	40 30			
		e(PS)	41 43			
		e(PPS)	42 33			
	KP	P	07 28 54			
	TU	eP	07 28 50			
		eS	39 38			
	NP	e	07 42 26			
	CB	eP	07 29 49			
		eS	40 22			
	CH	e	07 30±			
19	WN	iSKS	03 33 23			
		iPS	34 33			
		i	37 23			
		i	40 57			
		eL	50±			
	CH	eP	03 24.8			
		e	33 31			
		eS	34 43			

Date	Stn	Phase	h	m	s			Magnitude
DEC 19	CH	e(SSS)			42.0			
		eLr			49±			
	Epicentre:		03	13	46	8½N 127E	USCGS	
22	WN	eP	06	25	05	Rarefaction?		
		e		28	03			
		e			58			
	NP	e	06	52				
22	WN	e(S)	07	51	53			
22	ON	eP	23	56	55			
		eS		57	46			
	KP	eP	23	56	55			
		eS		57	44			
	TU	eP	23	56	48			
		eS		57	36			
	WN	e	23	57	45			
		S		58	45			
	CB	eP	23	57	35			
		eS		58	57			
	KM	eS	23	59	43			
	Epicentre:		23	55	47	35.7S 179.4E 285km	NZ(C)	M5.3 NZ
23	WN	e	18	30±				
24	WN	e	15	56±				
	AK	e	16	03±				
	CH	e(L)	15	56±				
24	WN	e	18	57±				
	AK	e	19	02±				
	CH	e(L)	18	57±				
27	WN	eP	02	31	40			
		iS		34	35			
	AK	eP	02	30	59			
		S		32	25	In time mark.		
		e		36	20			
		(ScS)		43	13			
	ON	eP	02	30	51			
		i			57			
		eS		33	14			
	KP	eP	02	31	09			
		S		33	31			
	TU	S	02	33	(30)			
	NP	eP	02	31	30			
		iS		34	15			
	CB	eP	02	31	48			
		iS		34	48			
	KM	eP?	02	22	07			
		(P)			20			
		eS		35	26			
	CH	eP	02	32	(00)	Time marking failed		
		eS		35	(15)			
		(L)		36±				
	Epicentre:		02	27	54	26S 177W 200±	USCGS	
						Felt Raoul Is. MM3		
27	WN	eP	17	23	04			
		iS		24	56			M6½ WN
	AK	P	17	22	27	May begin in time mark		
		iS		23	48			
	ON	iP	17	22	20			
		iS		23	37			
	KP	iP	17	22	32			
		S		23	54			

Date	Stn	Phase	h	m	s				Magnitude
DEC 27	TU	P	17	22	33				
		S		23	54				
	NP	eP	17	22	51				
		eS		24	33				
	CB	eP	17	23	11				
		eS		25	08				
	KM	eP	17	23	31½				
		S		25	42				
	CH	eP	17	23	(50)	Time marking failed			
		iS		26	(04)				
	Epicentre:		17	20	42	32S	180	400±km	USCGS
29	WN	iP	06	25	40				
		iS		28	30				
	KP	eP	06	25	07				
		eS		27	42				
	NP	eP	06	25	22				
	CB	eP	06	25	41				
		eS		28	38				
	KM	eP	06	25	59½				
		eS		29	03½				
30	WN	iP	09	30	15				
		eS		33	27				
	ON	eP	09	29	29				
		eS		31	31				
	KP	P	09	29	46				
		e(S)		32	44				
	CB	eP	09	30	19				
		eS		33	35				
	KM	P	09	30	42				
		S		34	02				
	Epicentre:		09	26	13	Fiji region		600±km	USCGS
31	WN	iS	18	39	23				
	CB	e	18	35	+56				
	CH	eL	18	39	-				

PRINCIPAL NEW ZEALAND EARTHQUAKES IN 1955

During 1955, only 84 felt shocks were reported to the Observatory. This is a continuation of the quiet conditions that prevailed in 1954. On June 12, however, a magnitude 5.1 shock in the Cheviot region (Epicentre 55/82) was responsible for some minor damage, and over 52 insurance claims were lodged. These included broken chimneys, and indicate a felt intensity of about MM7 over a limited region near the epicentre.

More than twenty earthquakes equalled or exceeded the shock at Cheviot in instrumental magnitude, but the epicentres of all but a few of them were too far from the coast to attract great public attention. Most of these shocks lie to the north-east of the Bay of Plenty, but there were others to the south-west of the South Island. The largest of the latter group (Epicentre 55/99), on July 26, had an instrumental magnitude of 5.9, and the magnitude 5.5 shock of September 5 (Epicentre 55/121) was also in this region. The lack of seismograph stations in the south of the country and on outlying islands makes the east-west location of these shocks uncertain.

On June 11, a shock of magnitude 5.5 (Epicentre 55/79) centred off the west coast of the South Island, to the north of Jacksons Bay, was felt between Greymouth and Queenstown, but no intensities higher than MM4 were reported. About half an hour later another shock (Epicentre 55/80) of magnitude 4.8 took place 100 miles to the west of the previous one. This was felt in the same districts, with intensities of about MM2.

Several other shocks within the land area of New Zealand reached magnitude 5 or close to it. That on April 19 (Epicentre 55/55) was centred in the ranges on the Marlborough-Nelson boundary; on April 30 (Epicentre 55/59) in Westland, near Lake Hochstetter; on May 10 (Epicentre 55/66) near the mouth of the Mokihinui River, in west Nelson; and that on July 10 (Epicentre 55/89) between Waikaremoana and Gisborne. The lack of felt reports is clearly to be ascribed to the sparse population of the areas affected.

Of the deep shocks, that on November 5 (Epicentre 55/151) with a focal depth of 90 miles (145 km) and a magnitude of 5.5 attracted most attention. It was centred to the north of Durville Island, and intensities of MM4 were reached in both the North and South Islands. The felt area extended from Stratford to Greymouth. On July 18, a shock with a depth of 105 miles (170km) occurred a few miles to the west of Lake Taupo (Epicentre 55/93). No reports were received from

places close to the epicentre, but intensities of MM4 were reported as far south as Wellington, and the boundary of the felt area extended to Christchurch. The earthquake of December 4 (Epicentre 55/169) was almost a replica, the focal depth being 100 miles (160 km) and the magnitude 5.4. Felt reports, however, were limited to Dannevirke and Wellington, where the intensities were MM3 and MM2 respectively.

An interesting case of an abnormally large felt area is afforded by the shock in the Kermadec Islands region on February 27 (Epicentre 55/38). This was centred about 100-150 miles north-west of Raoul Island, and had an instrumental magnitude between 7¾ and 8. Reliable felt reports were received from Tolaga Bay and Wellington.

Instrumentally Determined Epicentres

The following list gives the epicentres of all instrumentally recorded earthquakes of magnitude 4 and above, together with any smaller or unrecorded earthquakes that were reported felt. An explanation of the notation will be found at the beginning of the Section 'Station Readings'. These epicentres have been plotted on the folding maps in the pocket at the back of this Bulletin.

No.	Date	Time (UT)	Epicentre	Depth	Mag.	Class
55/1	JAN 2	02 49 08	38.9S 175.0E	220 km	3.6	C
2	2	14 00 40	37.2S 177.1E	250 km	4.6	D
3	3	03 51 56½	38.6S 175.5E	185 km	3.5	D
4	7	02 02 00	39.4S 174.9E	185 km	4.5	C
5	11	17 53 28	38.7S 178.0E	N	4.7	D
6	14	12 37 17	39.1S 175.1E	170 km	3.7	C
7	14	21 58 57	37.1S 179.1E	160 km	4.9	C
8	15	19 17 39	38.1S 176.2E	220 km	4.5	D
9	16	01 02 10	38.4S 176.8E	90 km	4.1	D
10	19	07 15	Felt Rotorua.			
11	19	08 18 19½	38.4S 178.3E	N	3.9	D
12	19	10 20	Felt Rotorua			
13	19	10 30	" "			
14	19	12 02	" "			
15	19	12 55	" "			
16	19	13 20	" "			
17	19	15 20	" "			
18	23	01 59 17	38.7S 175.7E	135 km	4.4	D
19	26	03 30 47	41.4S 173.1E	70 km	4.3	C
20	27	01 06 37	38.6S 175.9E	200 km	4.0	D
21	28	01 21 06	32¾ S 178¾ E	> N?	5.9	D
22	28	12 13 39	38.3S 175.7E	170 km	3.9	D
23	FEB 3	15 32 44	38.3S 174.0E	N	4.0	B
24	5	11 03 02	40.2S 177.0E	N	3.9	D
25	5	18 51 12½	38.5S 176.0E	160 km	4.4	D
26	6	16 49 21	37.9S 176.8E	S	4.5	C
27	7	03 39 50	36.9S 178.5E	160 km	5.2	D
28	8	10 38 57	39.9S 175.7E	N	5.0	D
29	10	14 51 05½	40.8S 174.1E	45 km	3.7	C
30	13	15 07	Felt Queenstown			
31	13	16 00 17	39.1S 174.9E	250 km	4.0	C
32	16	01 10 46	40.1S 174.8E	N	3.9	D
33	18	10 10 22	38.5S 176.0E	145 km	3.7	C
34	20	18 27	Felt Queenstown			
35	24	12 28 37	38.4S 175.9E	170 km	3.8	C
36	25	21 36 21	41.3S 172.5E	S	4.0	C
37	27	08 10	Felt Dannevirke			

No.	Date	Time (UT)	Epicentre	Depth	Mag.	Class
55/38	FEB 27	20 43 23	28¼S 175.0W	(BCIS epicentre)		
39	28	11 30	Felt Te Teko			
40	MAR 1	22 55 55	38.3S 176.2E	160 km	4.1	D
41	2	12 19 05	40.9S 175.9E	S	3.9	D
42	3	03 14 07½	39.2S 174.8E	210 km	4.7	C
43	3	16 01 58	34.7S 179.5E	N	5.7	D
44	5	12 20 27	35.0S 178.6E	N	5.5	D
45	6	14 36 30	40.8S 173.1E	210 km	4.0	D
46	13	15 15 54½	38.8S 176.2E	90 km	3.6	C
47	14	13 12 00	38.6S 175.3E	200 km	4.0	B
48	17	17 12 56	41.1S 175.5E	N	4.1	C
49	19	01 11 36	40.8S 174.3E	70 km	4.5	B
50	21	06 03	Felt Te Teko			
51	22	01 07 22	38.8S 173.2E	N	4.1	D
52	APR 7	13 29 54	37.2S 177.8E	200 km	4.4	C
53	9	13 44 26	37.8S 176.2E	300 km	4.1	D
54	10	04 50 15	40.8S 173.7E	90 km	4.1	C
55	19	01 52 54	41.7S 173.2E	S	4.9	C
56	20	07 55 12½	38.5S 175.5E	280 km	4.5	B
57	25	17 50 18	35.6S 179.4W	N	5.3	D
58	30	09 05 04	42.7S 171.5E	N	3.3	C
59	30	14 23 28	42.4S 171.7E	S	5.0	D
60	30	16 04 22	42.7S 171.4E	N	3.2	D
61	30	21 13 40	37.7S 177.2E	160 km	4.6	C
62	MAY 2	21 30 58	41.0S 174.7E	N	4.2	B
63	4	16 37 32	31.0S 178.0E	N	5.6	D
64	5	05 48 35	33.0S 179.5W	N	5.8	D
65	5	11 16.5	41½S 172.3E		3½	D
66	10	20 14 07	41.5S 172.0E	S	5.0	C
67	13	16 09 47½	40.1S 175.1E	S	4.4	D
68	14	04 52 11	37.5S 176.8E	300 km	4.7	D
69	14	21 52 09	39.7S 178.3E	S	5.0	D
70	17	14 13 20	41.4S 173.2E	80 km	3.6	B
71	20	04 05 18	37.6S 176.2E	>N?	4.2	D
72	24	17 52.7	40 S 175 E		3±	D
73	25	01 07 55	38.8S 174.5E	160 km	4.3	D
74	25	07 26 02	38.0S 178.1E	120 km	4.8	D
75	JUN 4	08 18 49	38.7S 175.7E	170 km	3.8	D
76	8	00 19 47	41.4S 172.5E	180 km	3.6	C
77	8	04 31	Felt Cheviot			
78	10	12 27.2	44½S 168 E		4.2	D
79	11	03 20 22	43.4S 168.7E	S	5.5	D
80	11	03 49 33	43.0S 166.5E	N	4.8	D
81	12	02 01.6	40 S 174½ E	>N?	3½	D
82	12	16 15 17	42.8S 173.3E	S	5.1	A
83	26	20 42 15	37.9S 177.1E	S	4.1	D
84	JUL 4	03 36 13	38.7S 175.3E	230 km	3.8	D
85	5	06 59 55	37.7S 176.5E	300 km	4.8	C
86	7	16 35 10	34.8S 178.9W	N	5.2	C
87	8	19 16	39S 174 E			D
88	8	23 15	39S 174 E			D
89	10	06 32 45	38.7S 177.6E	S	4.9	D
90	10	16 46 38	38.4S 176.3E	145 km	4.0	C
91	12	14 05	39S 174 E		3½	D
92	12	16 36 47	40.4S 175.3E	90 km	3.7	C
93	18	02 09 08	38.6S 175.6E	170 km	5.7	C
94	19	13 21 30½	38.5S 175.9E	200 km	3.8	D
95	20	02 33 25	39.9S 178.0E	S	5.4	C
96	21	05 35 42	38.7S 175.8E	160 km	3.8	D
97	22	19 24 08	38.2S 176.1E	200 km	4.1	D
98	24	23 43 52	45.7S 168 E	S	5.0	D
99	26	09 29 47	46.5S 162 E	N?	5.9	D
100	26	14 08 14	39.5S 174.2E	160 km	4.6	C
101	27	19 34 30	37.7S 176.3E	300 km	4.4	C
102	29	07 17 39	38.1S 176.1E	190 km	3.9	D
103	29	14 49 50	38.1S 176.3E	185 km	4.6	C
104	30	14 40 34	38.4S 176.1E	160 km	4.5	C
105	30	23 49 28	39.2S 173.7E	N	4.2	D

No.	Date	Time (UT)	Epicentre	Depth	Mag.	Class
55/106	JUL 31	23 48 17	38.8S 175.9E	110 km	3.9	C
107	AUG 1	00 51 11	37.5S 177.1E	185 km	4.2	C
108	1	02 49 17	37.0S 177.4E	220 km	4.4	C
109	4	16 59 12	38.9S 175.2E	210 km	3.9	C
110	7	10 01 04	38.7S 176.0E	160 km	4.2	D
111	7	11 44 00	38.6S 176.1E	160 km	3.7	C
112	13	20 41½	39 S 174 E		3½	D
113	14	20 16	39 S 174 E		3	D
114	17	17 47 17	39.3S 174.9E	220 km	3.8	D
115	27	21 19 03½	38.9S 175.6E	S	4.3	D
116	30	02 54 28	41.6S 174.2E	S	4.1	C
117	30	03 31 08	31.8S 179.3W	N	5.8	D
118	30	07 01 49	41.5S 174.2E	S	3.9	C
119	30	17 01 56	38.0S 176.3E	200 km	4.2	C
120	SEP 4	04 08 54	37.9S 177.1E	160 km	4.5	D
121	5	14 22 28	46.7S 165 E	S	5.5	D
122	6	09 16 52	39.2S 174.9E	220 km	3.9	D
123	8	15 21 43	40.1S 175.5E	N	4.4	D
124	11	06 36 08	37.7S 177.5E	160 km	4.8	C
125	13	09 51 00	38.5S 178.0E	N	4.6	D
126	21	21 27 00	39 S 174 E	N	3.7	D
127	22	10 38 37	37.6S 177.3E	N	4.2	D
128	26	12 27	Felt Gisborne			
129	29	08 04	Felt Centre Is. and Tuatapere			
130	30	06 39 14	36.6S 177.6E	S	4.3	D
131	30	06 46 54	36½ S 177½ E	S	4.5	D
132	30	06 51.1	36½ S 177½ E	S	4.3	D
133	30	07 56.3	36½ S 177½ E	S	4.2	D
134	30	09 17 14	37.5S 177.5E	S	4.2	D
135	OCT 1	05 27 32	38.1S 176.6E	145 km	4.7	C
136	1	08 25 47	32.9S 179.9W	N	5.5	D
137	2	12 45 27	42.1S 171.5E	S	3.6	C
138	7	17 37 26	39.0S 175.2E	220 km	3.7	C
139	12	23 05 08	35.1S 179.1E	285 km	5.3	D
140	13	11 23 05	38.3S 176.4E	210 km	4.0	D
141	14	16 13 54½	42.4S 173.0E	S	4.7	C
142	18	15 33 24	35.9S 179.9E	N	4.9	D
143	21	06 29 28	39.7S 174.5E	170 km	4.1	D
144	21	08 57 02	36.2S 177.5E	S	4.5	D
145	24	05 04 04	31.4S 179.2W	N	6.3	D
146	28	22 12 50	41.4S 173.0E	115 km	4.9	C
147	30	02 02 04	30 S 179 W	>N?	6.3	D
148	30	03 05 25½	38.8S 176.2E	160 km	3.6	C
149	NOV 2	04 52 20	33 S 177 W	150 km	5.9	D
150	5	10 29 38	41.6S 174.6W	S	4.4	B
151	5	12 15 30	40.3S 173.7E	145 km	5.5	C
152	7	08 15 40	37.6S 176.5E	220 km	4¾	C
153	7	22 32 22	40½ S 176½ E	S	3½	D
154	7	22 40 26	40½ S 176½ E	S	3¾	D
155	12	01 43 05	42.8S 173.6E	60 km	4.5	A
156	12	19 58	Felt Queenstown.			
157	13	23 07 22	33½ S 180	285 km	5.8	D
158	16	15 55 42	42.3S 174.9E	N	4.0	C
159	20	23 58	Felt New Plymouth.			
160	21	21 04 31	37.4S 176.8E	260 km	5¾	C
161	22	02 25 05	33.8S 179.1W	285 km	5.3	C
162	23	06 15 30	40.4S 175.3E	N	4.3	C
163	23	19 52 35	40.0S 175.4E	N	4.1	C
164	25	01 37 14	39.2S 176.4E	N	4.1	C
165	25	18 13 42	40.2S 175.1E	N	3¾	C
166	30	23 54 54	39¼ S 176¼ E	N	3¾	D
167	DEC 1	02 44 02	35¼ S 180	N	5.0	D
168	4	02 01 37	35¼ S 179¾ E	N	6.1	D
169	4	20 48 55	38.6S 175.6E	160 km	5.4	C
170	5	10 29 56	40.3S 174.0E	N	4.6	C

No.	Date	Time (UT)	Epicentre	Depth	Mag.	Class
55/171	DEC 10	14 16 36	40.1S 173.8E	220 km	4.3	C
172	13	08 26 29	32½ S 179¼ W	350 km	6.3	D
173	16	22 39 08	39.1S 177.4E	N	4.5	D
174	20	04 03 20	39.7S 174.1E	160 km	4.4	D
175	21	04 03 20	40.5S 174.2E	100 km	4.9	C
176	21	13 52 19	41.5S 176.2E	N	3.8	D
177	21	23 28 06	37.6S 177.6E	110 km	4.7	C
178	22	23 55 47	35.7S 179.4E	285 km	5.3	C
179	25	08 32 15	36¾ S 177½ E	N?	4¾	D
180	25	13 16 55	39.8S 179.0E	N	4.9	C

PLACES REPORTING FELT EARTHQUAKES

The Observatory issues standard forms setting out the Modified Mercalli scale to postmasters, lighthouse keepers, and other officials and private citizens in all parts of the country. The following table summarises the information obtained from this network of reporters to whom the Observatory is indebted for this part of the record. In the case of large shocks, further questionnaires are issued and isoseismal maps compiled, but there were no shocks of sufficient importance for this to be done in 1955.

55/5	Jan	11d	17h 53m	
			MM4	Tuai
			MM3	Opotiki, Tolaga Bay,
			MM2	Wairoa
			?	Gisborne
55/10	Jan	19d	07h 15m	
			MM3	Rotorua
55/11	Jan	19d	08h 18m	
			MM1	Motu
55/12	Jan	19d	10h 20m	
			MM2	Rotorua
55/13	Jan	19d	10h 30m	
			MM2	Rotorua
55/14	Jan	19d	12h 02m	
			MM2	Rotorua
55/15	Jan	19d	13h 20m	
			MM2	Rotorua
55/17	Jan	19d	15h 20m	
			MM2	Rotorua
55/23	Feb	3d	15h 32m	
			MM4	New Plymouth
55/26	Feb	6d	16h 49m	
			MM5	Whakatane
			MM4	Te Teko, Rotorua
			MM3	Tauranga
55/28	Feb	8d	10h 39m	
			MM4	Chateau Tongariro, Ohakune, Wanganui, Hunterville, Dannevirke.
			MM3	Taumarunui, Foxton, Palmerston North.
			MM2	New Plymouth, Taihape
			MM1	Whangamomona, Wellington
			NOT FELT	Otahi, Tokaanu, Awakino.

55/30	Feb	13d	15h 07m	
			MM4	Queenstown
55/32	Feb	16d	01h 10m	
			MM3-4	Wanganui
55/34	Feb	20d	18h 27m	
			MM2	Queenstown
55/37	Feb	27d	08h 10m	
			MM2	Dannevirke
55/38	Feb	27d	20h 43m	
			MM1	Tolaga Bay, Wellington.
55/39	Feb	28d	11h 30m	
			MM3	Te Teko
55/41	Mar	2d	12h 19m	
			MM1	Masterton
55/48	Mar	17d	17h 12m	
			MM1-2	Paraparaumu
55/49	Mar	19d	01h 11m	
			MM3	Karori (Wellington)
55/50	Mar	21d	06h 05m	
			MM5	Te Teko
55/51	Mar	22d	01h 07m	
			MM4	New Plymouth
55/55	Apr	19d	01h 52m	
			MM5	Greymouth
			MM4	Nelson
			MM3	Wellington, Murchison,
			MM2-3	Greymouth
			?	Hokitika, Farewell Spit.
55/58	Apr	30d	09h 05m	
			?	Greymouth
55/59	Apr	30d	14h 23m	
			MM5	Greymouth
55/60	Apr	30d	16h 04m	
			MM4	Westport
55/62	May	2d	21h 30m	
			MM2	Karori
55/65	May	5d	11h 16m	
			MM3	Murchison
55/66	May	10d	20h 14m	
			MM5	Murchison
			MM3	Greymouth
			MM2-3	Farewell Spit, Westport
55/67	May	13d	16h 09m	
			MM5	Wanganui
			MM3	Foxton
			MM2	Wellington
55/72	May	24d	17h 52m	
			MM3	Wanganui
55/77	Hyb	8d	04h 31m	
			MM1	Cheviot

55/78	Jun	10d	12h 27m	
			MM4	Queenstown
55/79	Jun	11d	03h 20m	
			MM3-4	Queenstown, Haast
			MM1	Greymouth
55/80	Jun	11d	03h 49m	
			MM2	Queenstown
			MM1	Greymouth
55/81	Jun	12d	02h 01m	
			MM3	Wanganui
55/82	Jun	12d	16h 15m	
			MM6	Cheviot
			MM4	Culverden
			MM2	Greymouth
55/87	Jul	8d	19h 26m	
			MM3	New Plymouth
55/88	Jul	8d	23h 15m	
			MM3	New Plymouth
55/89	Jul	10d	06h 32m	
			MM4	Wairoa
			MM3	Tuai
			MM2	Te Teko
55/91	Jul	12d	14h 05m	
			MM4	New Plymouth
55/92	Jul	12d	16h 36m	
			MM2	Ohakea, Foxton
55/93	Jul	18d	02h 09m	
			MM3-4	Karori (Wellington)
			MM3	Kelburn (Wellington), Nelson, Dannevirke
			MM2	Palmerston North
			MM1	Taihape, Christchurch
55/98	Jul	24d	23h 43m	
			MM3	Gore, Tuatapere
55/100	Jul	26d	14h 08m	
			MM3	Karori and Wellington City
55/110	Aug	7d	10h 01m	
			MM3	Chateau Tongariro
55/112	Aug	13d	20h 41m	
			MM3-4	New Plymouth
55/113	Aug	14d	20h 16m	
			MM3	New Plymouth
55/123	Sep	8d	15h 21m	
			MM2	Ohakune, Fielding, Bunnythorpe
55/125	Sep	13d	09h 51m	
			MM2	Tolaga Bay
55/126	Sep	21d	21h 27m	
			MM4	New Plymouth
55/128	Sep	26d	12h 27m	
			MM2	Gisborne

55/129	Sep	29d	08h 04m	
			MM3	Centre Island
			MM1	Tuatapere
55/137	Oct	2d	12h 45m	
			MM4	Greymouth
			MM2	Westport
55/144	Oct	21d	08h 57m	
			MM3	Whitianga
55/151		5d	12h 15m	
			MM4	Wellington, Collingwood, Nelson
			MM3	Stratford, Dannevirke
			MM2	Tadmor, Greymouth
55/153	Nov	7d	22h 32m	
			MM1	Dannevirke
55/154	Nov	7d	22h 40m	
			MM3	Dannevirke
55/155	Nov	12d	01h 43m	
			MM4	Cheviot
55/156	Nov	12d	19h 58m	
			MM2	Queenstown
55/159	Nov	20d	23h 58m	
			MM3	New Plymouth
55/160	Nov	21d	21h 04m	
			MM3	East Cape, Opotiki, Tolaga Bay, Wairoa, Napier
			MM2	Dannevirke, Bunnythorpe, Wellington
			?	Gisborne
55/162	Nov	23d	06h 15m	
			MM4	Wanganui
			MM3	Hunterville, Bunnythorpe, Paraparaumu
			MM2	Levin
55/163	Nov	23d	19h 52m	
			MM4	Hunterville
			MM2	Wanganui
			MM1?	Bunnythorpe
55/165	Nov	25d	18h 13m	
			MM2	Wanganui
55/169	Dec	4d	20h 48m	
			MM3	Dannevirke
			MM2	Wellington
55/173	Dec	16d	22h 39m	
			MM2	Wairoa
55/176	Dec	21d	13h 52m	
			MM2	Palmerston North

LIST OF MAPS

This bulletin contains the following maps:

1. Epicentres of Normal Focus Earthquakes in 1955.
2. Epicentres of Deep Focus Earthquakes in 1955.

PUBLICATIONS

During the year 1955, the following papers by members of the Seismological Observatory staff were published:

E-126	Quarterly Seismic Bulletin	1951	Oct - Dec
E-127	Quarterly Seismic Bulletin	1952	Jan - Mar
E-128	Quarterly Seismic Bulletin	1952	Apr - Jun
E-129	Quarterly Seismic Bulletin	1952	Jul - Sep
E-130	Quarterly Seismic Bulletin	1952	Oct - Dec
E-131	Quarterly Seismic Bulletin	1953	Jan - Mar

S-99 R.C. HAYES: Earthquakes in New Zealand during the year 1953.

S-100 G.A. EIBY: The Seismicity of Auckland City and Northland.
N.Z.J. Sci. Tech. 36B, No.5, pp 488 - 494.
All reports of earthquakes felt in Northland have been critically examined. There is no established case of an epicentre lying within the region. Attention is drawn to some regional anomalies in the isoseismal pattern of earthquakes originating outside the area. The possibility of a damaging shock affecting Auckland city is discussed; and also the possibility of "collapse earthquakes" being recorded as a consequence of observed ground slumping.

S-101 G.A. EIBY: The Direction of Fault Movement in New Zealand.
N.Z.J. Sci. Tech. 36B, No. 6, pp 552 - 556.
Most of the active faults in New Zealand strike north-east. The observed pattern in the geographic distribution of epicentres giving rise to a displacement in a given direction at Karapiro, Wellington, Cobb River, and Kaimata is regarded as evidence that the western side of the fault moves north-eastwards with respect to the eastern side.

S-102 B.H. OLSSON: Note on the Automatic Recording of Time-Signals on Seismograph Records.
N.Z.J. Sci. Tech. 37B, No. 2, pp 115 - 118.
This paper describes the automatic device for selecting time signals from the broadcast programmes and impressing them on the records at the stations of the New Zealand network. They are received with a fixed delay of one twentieth of a second, and with an accuracy of one fiftieth of a second.

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NORMAL EARTHQUAKES

1955

This map shows the instrumentally determined epicentres of all earthquakes whose focal depths are classified as 'shallow' or 'normal'. Open circles indicate an uncertainty of 15 miles (24 km) or more in position. The size of the circle is an indication of instrumental magnitude. Where several shocks have the same epicentre, the magnitude of the largest is shown.

REFERENCE

Magnitude 6·0 — 6·9
5·0 — 5·9
4·0 — 4·9
< 4·0

Onerahi
Auckland
Karapiro
Tuai
New Plymouth
Tongaro
Bunnythorpe
Cobb
Wellington
Kaimata
Gebbies Pass
Roxburgh
Monowai

SCALE

20 0 20 40 60 80 100 Statute Miles
20 0 20 40 60 80 100 Kilometres

SEISMOLOGICAL OBSERVATORY BULLETIN E-136, MAP I

DEEP FOCUS EARTHQUAKES

1955

This map shows the instrumentally determined epicentres of all earthquakes whose focal depths are greater than 'normal'. Open circles indicate an uncertainty of 15 miles (24 km) or more in position. The size of the circle is an indication of instrumental magnitude. Where several shocks have the same epicentre, the magnitude of the largest is shown.

REFERENCE

Magnitude 6·0 — 6·9
5·0 — 5·9
4·0 — 4·9
< 4·0

Onerahi
Auckland
Karapiro
Tuai
New Plymouth
Tongariro
Bunnythorpe
Cobb
Wellington
Kaimata
Gebbies Pass
Roxburgh
Monowai

SEISMOLOGICAL OBSERVATORY BULLETIN E-136, MAP II

SCALE

20 0 20 40 60 80 100 Statute Miles

20 0 20 40 60 80 100 Kilometres

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