New Zealand Department of Scientific and Industrial Research
GEOPHYSICS DIVISION

NEW ZEALAND SEISMOLOGICAL REPORT 1945 - 47

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G.A. EIBY

SEISMOLOGICAL OBSERVATORY BULLETIN
E - 166

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INTRODUCTION

This is the second volume in this series to concern itself with observations from a much earlier time. The first (Bulletin E-164) was published in 1982, and covered the years 1948, 1949 and 1950. Both published and unpublished data were brought together, new analyses were made using an improved model of the New Zealand crust, and the reasons for the project were explained. A brief account of the history and condition of New Zealand seismology up to that time was also included.

The Seismological Observatory's earliest determinations of epicentres to be based upon instrumental recordings appeared in the early 1930s, but by the end of the decade the recording network had developed sufficiently to provide good coverage of shocks of magnitude 4 between about latitudes 38 and 42 degrees South, provided all stations were working. This is an important proviso. Records were changed and developed by power-station, lighthouse, and prison staff, often inadequately trained by a departing predecessor. As a result, stained and fogged records and incorrectly recorded time-signals too often frustrated the efforts of the Observatory seismologists to locate the earthquakes. Large shocks beyond the limits quoted were detected, but the spread of stations in azimuth was limited by the narrowness of the country, and gave insufficient control for placing the shocks in the far north and south.

During the period considered in this Report, the Observatory attempted to find the epicentre of every earthquake for which the necessary minimum of phases had been recorded. The tables most commonly used were those of Wadati and Masuda (1933), which covered deep-focus shocks at short distances. Early crustal structure work by Hayes and Bullen also had suggested that Japanese tables might provide a better approximation to New Zealand conditions than those being produced in Europe and America. At this time, New Zealand seismologists were becoming increasingly interested in crustal structure, and a surprising variety of "private" tables were in use, until discussion and experience established that it was wiser to

adopt a standard and to make a systematic study of residuals. The Jeffreys-Bullen tables were found satisfactory for sub-crustal earthquakes, but it was not until a later period that consistent interpretations of crustal phases were being made.

Before 1964, when a computer was first introduced, graphical methods were in use. The computer greatly reduced the labour, and has enabled a systematic treatment of the errors to be included in the routine. Except in the case of shocks at the extremities of the country, however, the origins found in the decade before the computer was introduced are little inferior in accuracy. For an account of current methods, the reader should consult a recent Report, such as that for 1978 (Bulletin E-160).

This Report treats New Zealand earthquakes during the years 1945, 1946, and 1947 in a similar manner to that used in preparing Bulletin E-164. Other published data are scattered in at least three places. Readings of shocks originating at distances of more than 10 degrees from Wellington, and of a selection of local earthquakes believed to have had magnitudes of 5 or more, are to be found in Dominion Observatory Bulletins E-108 to E-110. Instrumental constants were not given, and there are some inaccuracies in other station data. Lists of local epicentres and some felt information appeared in the cyclostyled Provisional Bulletins P-155 to P-190. These contain errors and mis-prints that were corrected in the annual summaries published by Hayes (1946, 1947, 1948); but these omit the magnitudes, and give the maximum felt intensities in an unsatisfactory form. As before no teleseismic data have been included, as they are adequately treated in the earlier Bulletins, and for the most part appear in the International Seismological Summary.

Apart from the smaller number of data in this period, some difficulties were encountered that did not affect Bulletin E-164. The most serious of these was that the Wellington station register could not be found, and data had to be taken from the notebook containing the original epicentre calculations. This yielded the arrival times of the phases that had been identified as P or S, and deduced magnitudes and adopted epicentral distances, from which amplitudes could be recovered. While the final proofs of this volume were being checked the missing register was found, containing the measured amplitudes and the times of arrival of additional phases. It was

decided not to include these phase readings in this volume. They could not be correctly identified without repeating the epicentre calculations, the revised positions would be unlikely to differ significantly from those already obtained, and much of the book would have to be re-paged. On the other hand, the measured amplitudes have been substituted for the calculated ones, with some reduction in the scatter of the magnitudes and consequent improvement in the adopted means.

The results are again presented in a form as close as possible to that of the current New Zealand Seismological Reports. Some historical matter relevant to the period, which is either unpublished, or has appeared in some place not normally accessible to seismologists has also been included. The programmes used for epicentre calculations do not allow stations at distances greater than 25° to be used, but it has been possible to gather some useful readings from the nearer Australian stations from the International Seismological Summary, and these have been used in appropriate cases. They are particularly valuable in providing better control of the longitude of epicentres in the south of the country. Further details will be found at the beginning of the separate sections of the Report.

THE INSTRUMENTAL NETWORK 1945 – 47

During most of the period covered by this Report, the New Zealand seismograph network consisted of 11 stations within the North and South Islands, (4 of them without absolute timing), and stations at Suva (Fiji) and Apia (Western Samoa). The data from these stations were on occasion supplemented by using readings from the Australian stations at Sydney, Riverview, and Brisbane, and from a private station at Dunedin operated by Mr.L.G. Penfold.

The principal changes during the period were the movement of the Jaggar instrument at Hastings to a new site at Havelock North on 1946 Dec. 22, consequent upon the retirement of the operator, Mr H. de Denne, from his legal practice; and the experimental transfer of the Galitzin instruments usually at Christchurch to what it was hoped would prove a better site at Wairiri, for a period beginning in 1947 March. The experiment proved unsuccessful, and the Wood-Anderson instrument was returned to Christchurch in early September. The Galitzins remained at Wairiri until 1948 March, but the records do not seem to have been read for local events. When the instruments were returned to Christchurch the old vault within the Magnetic Survey grounds was abandoned, and they were installed in the basement of the band rotunda on the opposite bank of the Avon River, about 150 metres due south of the previous site. No Wood-Anderson records were made at either CHR or WAI between 1947 Mar. 17 and Apr. 17, or between 1947 Sept. 4 and 22. In the early part of the period, until some time in 1946, a vertical component Jones geophone was in operation at Wellington, and the station at Tuai seems to have been out of action from 1945 Mar. 15 until May 3.

It was not possible to provide Jaggar instruments with absolute timing, but at other stations the timing was good by the standards then prevailing elsewhere. Every photographic record (with the exception of that of the Milne instrument at Arapuni) and also the smoked paper records of the Imamura instruments carry minute or half-minute marks derived either from a pendulum clock of the

"Synchronome" type, or from a marine chronometer fitted with electrical contacts. Clock corrections were derived from radio time-signals originating in the Observatory, which is also responsible for the national time-service. Station operators impressed these upon the records by depressing a hand-key. In most cases several signals a day were taken. The speed of the drums used at Wood-Anderson stations was 30mm/minute, and except when there was gross error, or during periods of abnormally poor radio reception, the absolute times of phase arrivals are reliable to about half a second or better.

INDEX OF STATION CODES

The codes used to identify stations in the tabular sections of this Report are the international three-letter abbreviations allotted by the United States Earthquake Information Service, and used also by the International Seismological Centre, Newbury, Berkshire, England. Data from the following stations have been used in determining origins:

NEW ZEALAND NETWORK

Apia	API	Hastings	HAS	Suva	SUV
Arapuni	ARA	Havelock North	HNZ	Takaka	TAK
Auckland	AUC	Kaimata	KAI	Tuai	TUA
Bunnythorpe	BUN	Monowai	MNW	Wairiri	WAI
Christchurch	CHR	New Plymouth	NPZ	Wellington	WEL

OTHER STATIONS

Brisbane	BRS	Dunedin	DND	Sydney	SYD
		Riverview	RIV		

□ □ □ □ □ □

GEOGRAPHICAL POSITIONS

STA	LATITUDE	LONGITUDE	ALT	GEOCENTRIC DIRECTION COSINES		
	d m s	d m s	m	A	B	C
API	13 48 26 S	171 46 30 W	2	-0.961 482	-0.138 981	-0.237 142
ARA	38 04 24 S	175 38 36 E	65	-0.786 955	0.059 955	-0.614 090
AUC	36 51 36 S	174 46 41 E	79	-0.798 711	0.072 997	-0.597 271
BRS	27 23 30 S	152 46 30 E	525	-0.790 642	0.406 771	-0.457 627
BUN	40 17 12 S	175 37 48 E	60	-0.762 741	0.058 288	-0.644 072
CHR	43 31 58 S	172 37 36 E	8	-0.721 282	0.093 337	-0.686 324
COB	41 05 16 S	172 44 02 E	213	-0.749 824	0.095 604	-0.654 693
DND	45 53 00 S	170 31 54 E	100	-0.689 022	0.114 912	-0.715 573
HAS	39 38 24 S	176 50 18 E	10	-0.771 001	0.042 589	-0.635 408
HNZ	39 40 18 S	176 53 06 E	18	-0.770 685	0.041 942	-0.635 834
KAI	42 31 33 S	171 24 31 E	82	-0.730 944	0.110 433	-0.673 443
MNW	45 46 49 S	167 37 07 E	155	-0.683 548	0.150 055	-0.714 315
NPZ	39 03 57 S	174 04 24 E	34	-0.774 336	0.080 384	-0.627 648
RIV	33 49 46 S	151 09 30 E	25	-0.729 171	0.401 557	-0.554 132
SUV	18 08 56 S	178 27 26 E	6	-0.950 524	0.025 601	-0.309 595
SYD	33 52 00 S	151 12 00 E	100	-0.729 148	0.400 853	-0.554 671
TAK	40 51 06 S	172 48 15 E	8	-0.752 609	0.095 021	-0.651 576
TUA	38 48 29 S	177 09 02 E	274	-0.780 343	0.038 841	-0.624 145
WAI	43 29 48 S	171 52 06 E	400	-0.720 411	0.102 936	-0.685 866
WEL	41 17 10 S	174 46 06 E	122	-0.750 486	0.068 718	-0.657 304

INSTRUMENTATION AND LITHOLOGY

Stations appear in alphabetical order. Values of instrumental constants are in most cases typical operating values only. The regularity with which constants could be determined at the various stations differed greatly, and reference to the original station registers is necessary when it is important to establish the constants at a particular date. Pendulum and galvanometer periods, T_o and T_g, are given in seconds. When no value of damping is given, it may be assumed to be critical, except in the case of Jaggar instruments in which the main sources of damping were stylus friction, and the air resistance of the boom.

	Instrument	Compt	T_o	T_g	Damping	Magnification
API	APIA					
	Foundation: Coral sand on Recent and Pleistocene basalt.					
	Wiechert (1000kg)	NE	8		15:1	150
	Wiechert (180kg)	Z	2.5		15:1	65
ARA	ARAPUNI					
	Foundation: Rhyolite tuffs.					
	Milne	E	10		Undamped	5
AUC	AUCKLAND					
	Foundation: Volcanic tuffs on Tertiary sandstone and mudstone.					
	Milne-Shaw	N	10		20:1	150

BUN BUNNYTHORPE
Foundation: Gravels, silts, and sands.

Imamura	Z	2		5:1	1
	X	8		5:1	1
	Y	8		5:1	1

The instrument was orientated so that the X component lay north-east.

CHR CHRISTCHURCH
Foundation: Alluvial sands, silts, and gravels.
Galitzin (until 1947 Mar.)

Z	13	13	Crit.	465
N	24	24	Crit.	275
E	24	24	Crit.	275

Wood-Anderson (except from 1947 Mar. 17 to Sept. 22)

N	0.8	Crit.	1400

DND DUNEDIN
Foundation: Basaltic flows.
Horizontal pendulums.

N	5	~50
E	5	~50

A private station constructed and operated by Mr L.G. Penfold. The movements of twin horizontal pendulums with masses of approximately 100 kg. are amplified by pivoted levers and recorded on smoked paper. The drum speed is 10 mm/min, and time-marks are derived from a synchronous electric clock, which lifts the stylus each minute. Damping is not known precisely, but is less than critical.

HAS HASTINGS
Foundation: Alluvial sands, silts, and gravels.
Jaggar X
(until 1946 Dec.)
The instrument was oriented so that the X component lay north-east.

HNZ HAVELOCK NORTH
Foundation: Gravels and sandstones.
Jaggar (from 1947 Mar.)
X
The instrument was oriented so that the X component lay north-east.

KAI KAIMATA
Foundation: Moraine and river gravels over mudstone and sandstone.

Wood-Anderson	X	0.8	Crit.	1400

The instrument is oriented so that the X component lies north-east.

MNW MONOWAI
Foundation: Tertiary sandstone.
Jaggar Z

NPZ NEW PLYMOUTH
Foundation: Ash, conglomerate, and lava.

Wood-Anderson	X	0.8	Crit.	1400

The instrument was oriented so that the X component lay N80°E.

SUV SUVA
Foundation: Hard fine-grained calcareous marl.

Milne-Shaw	N	12	20:1	250

TAK TAKAKA
Foundation: Alluvial gravels.
Jaggar X
The instrument was oriented so that the X component lay north-west.

TUA TUAI
Foundation: Thick Tertiary sandstone and mudstone.

Wood-Anderson	N	0.8		Crit.	1400

WAI WAIRIRI
Foundation: Consolidated clay and sand.
Galitzin (from 1947 Mar.) For constants, see CHR.
Wood-Anderson (from 1947 Apr. 17 until Sep. 4). For constants, see CHR.

WEL WELLINGTON
Foundation: Jurassic-Permian greywacke.

Milne-Shaw	N	12		30:1	250?
Galitzin-Wilip	Z	10.6	10	Crit.	606
Jones	Z	0.5		10:1	11000
Wood-Anderson	N	0.8		Crit.	1400
Imamura	Z	1		5:1	1
	N	4		5:1	1
	E	4		5:1	1

Wenner (from 1946 Sep.). A triggered three-component short-period strong-motion instrument. Constants not available.

ORGANISATION AND STAFFING

The organisation now called the Seismological Observatory, Wellington was known, during the period covered by this Report, as the Dominion Observatory. Then, as now, it formed a Branch of the Department of Scientific and Industrial Research established in 1926, but the administrative grouping now forming the Geophysics Division had not yet been organised. The Observatory was originally founded by the Wellington Provincial Government in 1863 in order to provide a time-service. In 1868 it was taken over by the central government and became the Colonial Observatory.

After a brief period in the early years of this century when it was known as the Hector Observatory, it adopted the name Dominion Observatory in 1923. By 1945, seismology had become its principal activity, but maintenance of the national time-service still claimed a major part of the staff's time. The Observatory directly controlled all New Zealand government seismograph stations except those at Christchurch and Kaimata, which were the responsibility of the Magnetic Survey, a separate branch of the D.S.I.R. The Apia Observatory was also controlled by the Magnetic Survey, professional staff from New Zealand being seconded to Samoa, usually for a two-year term. Final analysis, revision, and publication of all New Zealand data was carried out by the Observatory. The work was directed by Mr R.C. Hayes, whose official title had been

Acting Director since 1936. Dr F. Bondy who, because of his nationality, had been seconded from the Meteorological Office for the duration of the war, was occupied with climatological analysis for about half his time; and Mr W.M. Jones was principally engaged upon work for other branches of the Department.

During the period covered by this Report, the following were officially members of the Dominion Observatory staff:

Acting Director:
R.C. Hayes

Professional staff:
F. Bondy, Ph.D. (Innsbruck) (until 1946 Nov.)
R.A. Garrick, B.Sc.
W.M. Jones, M.Sc. (N.Z.), B.A. (Oxon.)
N.S. Mountier, M.Sc. (from 1947 Apr.)

Seismologist's Assistant:
G.A. Eiby (returned from war service, 1945 Sep.)

Technical Trainee:
R.R. Dibble (from 1947 Jan.)

Office Assistant:
N. Burt

INSTRUMENTAL DATA

INTRODUCTION

The criteria used for selecting the earthquakes in this section of the Report differ slightly from those used in current routine. All instrumentally recorded shocks for which origins have already been published are listed, together with about 40 shocks for which no solution was found in the original analysis. The origins are arranged chronologically, and allocated definitive serial numbers. The usual reason why solutions have now become possible is that previously unidentifiable crustal phases can now be identified. For a description of the crustal model and the method of calculation, the reader is referred to current Reports.

At the time of the original analysis, it was usual to attempt an epicentre solution whenever an earthquake was recorded on three stations, or when there was information that could be used to resolve the ambiguity in the case of a shock recorded on only two. In this report, the resolution is considered acceptable only in the following cases:

1. When one solution is clearly inconsistent with the felt information.
2. When when one solution lies well beyond the limits of known seismicity.
3. When the distance between the ambiguous solutions is of the same order as the uncertainties in either.

The following provisional origins have been rejected for the reasons given:

PRO: 45/9	Jan. 16 15h 30m	Unresolved ambiguity.
PRO: 45/41	Apr. 24 04h 44m	Unresolved ambiguity and inconsistent readings.
PRO: 45/49	May 17 23h 56m	Unresolved ambiguity.
PRO: 45/96	Aug. 11 03h 52m	Unresolved ambiguity.
PRO: 46/41	Mar. 24 16h 29m	Readings at KAI and CHR are much too late to be compatible with those at NPZ and WEL, and appear to belong to an unrelated teleseism. There is no felt information. A small movement recorded at HAS is inadequate to resolve the ambiguity in a solution based on NPZ and WEL alone.

PRO: 46/111 Jun. 28 07h 00m A felt report from Hokitika had been associated with a movement on the WEL record 7 minutes later, and described by the reader as "vague". This is inadequate to constitute instrumental confirmation of the supposed event.

Lists of shocks previously published also contain origins based solely upon felt information. These are no longer shown in the instrumental list, but are identified in the listing of unconfirmed reports. The provisionally allotted serial numbers are given, identified by the prefix PRO:

The following list of definitive serial numbers identifies earthquakes for which no origins have previously been published:

45/ 29				
46/ 2	46/ 44	46/106	46/145	46/203
4	45	111	149	205
8	58	121	151	209
27	72	136	181	218
33	88	137	182	222
46/ 43	46/ 96	46/143	46/187	46/224
47/ 18	47/ 34	47/ 52	47/ 58	47/117
25	49	53	97	249
32				

Many of these earthquakes have magnitudes of 4 and above, and their inclusion should be helpful to a large range of statistical studies. The accuracy of the origins concerned differs widely. The best of them compare well with the generality of those listed, but others must be considered as little more than an indication of the part of the country in which the shock occurred. It should be possible to appraise the quality of a particular solution by examining the listed data.

The methods used to carry out the calculations are explained in current Reports, which also describe the velocity-model used. Because of the lesser number of data available, provision has been made to include readings from Australian and South Pacific stations within 25 degrees of the epicentre, and the magnitude programme has been extended to produce approximate values (identified with a ~ sign) in cases where the strict application of the present rules would exclude most of the available data.

The magnitudes assigned in this Report are intended to be values of M_L as originally defined by C.F. Richter (Bull. Seismol. Soc. Amer. *25:* 1-32, 1935), but have been obtained using the amended procedures devised by Haines and described in current Reports. These take account of the observed characteristics of energy propagation in the New Zealand region, for both deep and shallow earthquakes.

In the original interpretations, many amplitudes are given only as 1/2mm, <1/2mm, or ≪1/2mm. These have been conventionally assigned values of 0.5, 0.3, and 0.1mm respectively. Magnitudes derived from them are indicated by a suffixed letter s (small). They are not included in the values averaged to obtain the value of the magnitude finally adopted, except at the operator's discretion. If this has been exercised, both the station value and the average value are prefixed by the sign ~. Other values not included in the average are those from stations that were clearly overloaded (identified by a + following both the amplitude and the station magnitude entries), stations recording waves that have followed paths along which propagation is known to be anomalous (identified by a following *), and anomalous readings believed to be in serious error by reason of their large discrepancy from the rest of the data (followed by A). A reading may be excluded on more than one of these grounds, but only the first reason for disqualification is shown in the text. As with small amplitudes, these values can be reinstated at the operator's discretion. This is exercised only in cases when the data are otherwise insufficient (as for example when all the amplitudes are small), or the result is clearly wrong (as, for example, when several overloaded stations all indicate a higher value, or the magnitude is much too small to be reconciled with the felt information). In all cases when the operator has intervened, the prefixed ~ appears. It is also used to identify adopted magnitudes that depend upon the reading of a single station.

Some of the stations operating in 1945-47 no longer exist, and at most of those that do there have been important changes in instrumentation. This has made it necessary to derive appropriate station factors by methods that are explained in Bulletin E-164. The WAI value depends upon a comparison of the magnitudes derived from WAI and WEL records in all cases when the recorded trace amplitudes reached 0.5mm or more.

The values of the site corrections obtained were:

ARA	+0.15	TUA	+0.17	NPZ	−0.06	WEL	0.00
COB	+0.11	KAI	+0.28	CHR	+0.11	WAI	+0.12

Having regard to the uncertainties involved, these values have been rounded to the nearest 0.05 magnitude for regular use in the computer programmes.

SUMMARY OF ORIGINS AND MAGNITUDES

The following chronological list summarises the determinations, details of which are given in the following section.

The Reference Number appearing in the first column is used as a definitive identification of the earthquake, and is used throughout this Report and in current Observatory publications. Provisional numbers allocated in earlier P- and E-series Bulletins and annual summaries are superseded, but are included in the information that follows the separate origin determinations and in the list of unconfirmed felt reports, to enable cross reference.

The sign ~ preceding a magnitude may indicate either that the normal restrictions upon the inclusion of stations in the average have been relaxed, or that the value given depends upon a single station. An F following a magnitude indicates that the shock is known to have been felt.

NUM OBS is the number of separate phase readings used, and NUM STN the number of stations at which the shock was read, whether or not the readings were used in determining the origin.

REF NUM		ORIGIN TIME				LATITUDE	LONGITUDE	DEPTH	MAG	S.E.	NUM OBS	NUM STN
			h	m	s	deg	deg	km				
001	JAN	01	01	08	13.8	37.54 S	177.36 E	12 R	4.8 F	1.4	7	5
002		02	04	56	43.8	39.91 S	177.06 E	12 R	5.6 F	1.5	18	10
003		03	14	35	51.4	41.28 S	172.47 E	12 R	4.0 F	0.8	6	3
004		04	23	41	12.3	40.05 S	176.82 E	12 R	4.2	1.4	4	3
005		10	01	00	36.8	40.51 S	173.88 E	12 R	~3.8	0.6	4	3
006		13	13	27	52.5	39.94 S	175.31 E	12 R	~3.6	1.2	4	3
007		14	21	07	59.6	40.37 S	174.12 E	12 R	4.9 F	1.0	10	7
008		18	18	01	17.3	40.44 S	173.38 E	205	5.0	1.5	7	5
009		27	22	38	25.0	46.22 S	166.77 E	12 R	~4.9	3.7	4	4
010	FEB	01	12	20	32.9	39.24 S	175.76 E	12 R	4.1	1.5	5	3
011		14	16	20	10.3	36.65 S	175.91 E	12 R	~3.9 F	0.8	4	2
012		18	13	31	00.0	41.16 S	172.90 E	12 R	4.5 F	0.9	12	5
013		24	04	21	29.4	38.52 S	175.91 E	12 R	4.7	1.7	10	6
014		24	07	32	04.6	40.06 S	174.41 E	129	~4.1	1.3	6	4
015		25	02	07	10.9	43.64 S	171.46 E	12 R	4.1	3.2	4	3
016		25	17	11	54.9	39.87 S	174.07 E	214	~4.3	0.9	6	4
017	MAR	09	15	21	37.9	40.90 S	174.60 E	12 R	3.9 F	1.8	6	2
018		09	19	11	48.8	41.10 S	174.70 E	12 R	~3.5 F	1.7	4	2
019		11	19	22	10.3	39.00 S	174.00 E	12 R	~ F	0.1	2	1
020		12	18	51	48.5	39.00 S	174.00 E	12 R	~ F	0.3	2	1
021		12	22	02	02.0	41.15 S	172.52 E	12 R	~3.7 F	0.3	5	4
022		12	23	49	30.6	41.56 S	173.46 E	12 R	5.4 F	1.2	13	7
023		15	20	26	40.6	40.14 S	174.20 E	12 R	5.1 F	1.1	12	6
024		18	09	02	16.0	40.32 S	173.58 E	184	~4.2	2.4	5	4
025		18	18	22	32.1	41.00 S	175.80 E	12 R	~3.5 F	0.8	2	1
026		19	16	34	34.6	39.30 S	177.10 E	12 R	~4.1 F	0.8	3	2
027		19	17	45	17.2	41.00 S	175.70 E	12 R	~3.8 F	0.9	2	1
028		24	12	04	57.2	39.89 S	176.04 E	12 R	3.9	2.1	5	4
029		29	08	52	43.7	24.07 S	179.57 E	667	~5.9	1.6	10	7
030		31	10	29	43.5	41.00 S	175.80 E	12 R	~3.2 F	ND	1	1
031	APR	01	00	44	24.4	34.60 S	178.64 W	33 R	6.0	1.5	7	5
032		08	21	11	20.0	38.85 S	177.67 E	12 R	4.7	1.1	4	3
033		17	09	13	18.2	41.28 S	175.75 E	12 R	~4.2 F	0.0	4	2
034		23	11	04	12.6	41.00 S	175.70 E	12 R	~2.6 F	ND	1	1
035	MAY	05	10	05	44.5	41.78 S	178.43 E	12 R	4.7	ND	3	3
036		05	10	37	05.2	39.69 S	176.22 E	12 R	4.1	0.3	5	3
037		07	09	18	42.6	38.55 S	178.94 E	12 R	4.5	1.8	6	4
038		09	16	50	34.0	39.00 S	174.00 E	12 R	~ F	0.3	2	1
039		10	13	17	40.6	41.03 S	174.00 E	12 R	4.5 F	1.1	7	4
040		15	17	58	55.3	40.90 S	172.70 E	12 R	~ F	ND	1	1
041		17	16	28	54.0	42.80 S	171.80 E	12 R	~4.5	1.3	3	2
042		18	09	27	49.6	42.09 S	174.13 E	12 R	4.9 F	1.5	11	5
043		19	02	41	34.1	41.60 S	175.00 E	12 R	4.0 F	0.7	5	2
044		21	18	00	24.5	41.80 S	173.90 E	33 R	~4.1 F	0.9	4	2
045		26	16	50	51.4	41.00 S	174.70 E	12 R	~4.3 F	2.0	4	2
046		28	03	10	30.8	40.20 S	174.50 E	12 R	4.1	1.5	5	2
047	JUN	03	17	20	07.7	39.52 S	176.03 E	12 R	4.3	0.9	4	4
048		06	03	18	50.8	40.64 S	172.89 E	12 R	4.3	0.7	4	3
049		06	23	52	57.6	41.80 S	172.02 E	12 R	4.8	1.0	7	5
050		07	03	42	17.8	41.13 S	175.87 E	12 R	4.8 F	0.9	8	7

REF NUM		ORIGIN TIME h	m	s	LATITUDE deg	LONGITUDE deg	DEPTH km	MAG	S.E.	NUM OBS	NUM STN
051	JUN	07	03	59 15.8	41.05 S	175.67 E	12 R	4.1 F	0.4	4	2
052		08	09	06 22.5	41.61 S	173.41 E	12 R	4.7 F	1.1	8	4
053		09	07	48 12.2	39.02 S	175.37 E	242	4.9	1.0	8	4
054		14	17	53 35.6	42.66 S	172.38 E	12 R	~3.6 F	ND	3	2
055		14	22	43 14.7	41.60 S	175.00 E	12 R	~4.2 F	0.1	2	1
056		19	18	27 40.3	40.57 S	173.38 E	12 R	3.9	ND	3	3
057		22	12	07 18.1	41.34 S	175.77 E	12 R	4.2 F	0.9	6	2
058		25	18	08 36.9	43.30 S	171.50 E	12 R	~3.3 F	1.6	2	1
059		29	11	19 18.9	40.16 S	173.62 E	12 R	3.7	0.8	4	3
060	JUL	02	00	07 01.6	39.32 S	174.98 E	205	4.7	1.3	7	4
061		05	21	18 32.3	39.17 S	176.08 E	12 R	4.3	0.2	4	3
062		06	15	52 44.7	42.68 S	173.28 E	12 R	4.8 F	1.1	8	5
063		08	18	02 20.9	40.39 S	175.05 E	12 R	3.7 F	0.4	4	2
064		09	02	53 05.6	42.85 S	172.62 E	12 R	4.1	1.6	8	4
065		12	00	45 21.3	39.28 S	175.10 E	12 R	~4.2 F	0.9	4	2
066		20	23	56 57.6	39.12 S	175.91 E	12 R	4.1	1.9	4	3
067		24	02	18 09.3	41.73 S	172.82 E	12 R	~3.7	1.6	5	4
068		24	10	55 27.6	41.70 S	174.70 E	12 R	~4.0 F	2.3	3	2
069		27	13	55 43.0	38.29 S	176.95 E	12 R	~4.6 F	1.1	9	4
070		28	14	03 36.4	39.12 S	176.90 E	12 R	4.4 F	0.9	7	4
071		30	12	30 05.8	37.18 S	176.09 E	12 R	~4.5 F	1.8	5	3
072	AUG	10	15	07 54.2	38.47 S	176.03 E	12 R	~4.4 F	ND	3	3
073		13	02	20 43.0	39.47 S	175.45 E	12 R	5.2 F	1.2	18	8
074		15	14	12 44.4	40.20 S	175.00 E	12 R	3.8 F	1.4	2	2
075		16	21	55 42.9	42.60 S	171.87 E	12 R	3.9	1.4	6	3
076		17	19	32 38.9	41.14 S	174.02 E	12 R	3.9 F	ND	3	2
077		17	23	38 19.5	43.80 S	172.50 E	12 R	~3.5	1.2	3	2
078		23	12	51 36.4	42.53 S	172.91 E	12 R	4.0	0.8	4	4
079		25	10	12 27.0	42.50 S	172.80 E	12 R	~3.5 F	0.2	3	2
080		25	10	29 44.6	42.64 S	172.79 E	12 R	~3.8 F	1.4	6	4
081		29	15	57 53.8	42.63 S	172.73 E	12 R	4.7 F	0.6	10	4
082		29	16	27 14.3	42.66 S	172.75 E	12 R	4.1 F	0.7	7	4
083		29	16	46 28.9	42.60 S	172.70 E	12 R	~3.1 F	0.7	2	1
084		29	19	59 39.9	42.90 S	172.80 E	12 R	~2.6 F	1.3	2	1
085		29	21	42 21.3	42.63 S	172.57 E	12 R	~3.6 F	1.1	5	3
086		30	04	55 40.9	42.62 S	172.75 E	12 R	~5.1 F	0.7	13	8
087		30	05	04 59.1	42.60 S	172.80 E	12 R	~3.1 F	ND	1	1
088		30	07	15 59.1	42.69 S	172.75 E	12 R	~3.5 F	0.8	5	4
089		30	08	48 40.1	42.60 S	172.70 E	12 R	~3.1 F	0.3	2	1
090		30	10	25 45.4	42.65 S	172.67 E	12 R	5.4 F	1.6	12	9
091		30	10	27 00.0	42.70 S	172.70 E	12 R	~ F	ND	0	1
092		30	10	33 13.3	42.60 S	172.60 E	12 R	~3.4 F	0.5	2	2
093		30	12	45 07.2	42.64 S	172.78 E	12 R	3.9 F	1.3	8	4
094		30	15	49 30.7	42.64 S	172.70 E	12 R	3.8 F	1.1	5	4
095		30	19	04 35.6	42.60 S	172.70 E	12 R	~3.1 F	1.0	2	1
096	SEP	01	22	44 08.1	47.47 S	166.12 E	12 R	6.5 F	1.4	13	11
097		04	17	14 09.4	47.15 S	165.93 E	12 R	5.9 F	1.4	9	9
098		10	12	20 59.0	41.16 S	172.60 E	12 R	4.2 F	1.2	6	4
099		14	04	04 14.3	41.20 S	172.60 E	12 R	~3.5 F	ND	1	1
100		15	18	49 54.8	41.14 S	172.96 E	12 R	4.4 F	1.1	7	4

REF NUM		ORIGIN	TIME h	m	s	LATITUDE deg	LONGITUDE deg	DEPTH km		MAG	S.E.	NUM OBS	NUM STN
101	SEP	15	19	01	47.1	41.38 S	172.97 E	12	R	5.0 F	0.6	8	5
102		17	03	39	16.9	38.88 S	178.57 E	12	R	5.0 F	1.2	6	3
103		19	09	34	15.1	40.10 S	176.44 E	12	R	4.0	1.6	4	3
104		22	16	20	39.7	45.23 S	168.44 E	12	R	4.7	0.3	4	3
105		26	09	38	04.3	46.29 S	168.31 E	12	R	5.3 F	1.8	10	5
106		26	18	46	12.6	40.92 S	172.92 E	12	R	4.2 F	1.6	6	3
107		27	01	50	39.1	38.23 S	176.51 E	12	R	4.5	1.5	5	3
108	OCT	05	14	56	15.8	38.75 S	176.16 E	180		5.6 F	0.7	9	7
109		08	10	48	53.5	39.99 S	171.93 E	33	R	4.3	1.4	4	3
110		12	04	18	38.9	39.00 S	175.70 E	12	R	~4.2 F	0.5	3	1
111		12	11	22	41.8	38.35 S	175.67 E	33	R	4.4 F	0.7	5	3
112		12	11	59	53.6	40.10 S	175.00 E	12	R	~3.2 F	1.6	2	2
113		12	22	28	20.4	38.80 S	176.20 E	12	R	~4.9 F	0.1	2	2
114		13	14	44	58.1	38.84 S	176.41 E	100		~4.6	0.5	6	3
115		14	12	06	33.6	40.49 S	173.99 E	75		~4.2 F	0.4	5	3
116		14	12	59	21.9	39.85 S	177.19 E	12	R	~4.3	0.9	6	4
117		16	04	19	22.8	39.44 S	177.14 E	12	R	~3.4	0.8	8	4
118		18	01	33	37.0	39.69 S	176.77 E	12	R	4.2	0.8	8	4
119		18	06	06	14.0	40.00 S	175.00 E	12	R	4.1 F	2.1	3	2
120		23	12	58	31.7	37.74 S	178.47 E	151		5.0	1.8	7	4
121		30	18	42	57.3	38.66 S	175.84 E	12	R	4.7 F	0.4	6	3
122	NOV	05	11	18	52.8	40.48 S	173.28 E	12	R	4.2	1.1	6	3
123		09	13	40	07.1	42.52 S	174.03 E	12	R	3.7	0.2	5	4
124		09	20	55	35.6	40.88 S	173.79 E	12	R	4.8 F	1.2	5	4
125		10	20	57	12.7	39.80 S	177.29 E	12	R	3.9	0.7	7	3
126		12	12	52	29.7	41.26 S	172.86 E	12	R	4.2	0.9	5	4
127		15	20	22	44.3	39.89 S	176.19 E	12	R	4.4	1.4	4	3
128		15	22	37	44.8	39.52 S	175.94 E	12	R	4.2	1.1	8	3
129		16	06	47	31.0	39.50 S	177.41 E	12	R	4.5 F	0.6	6	4
130		17	11	14	04.4	41.95 S	172.48 E	12	R	4.0	1.3	8	4
131		27	00	08	43.5	40.10 S	174.40 E	12	R	4.1	0.8	4	2
132	DEC	08	00	07	31.7	39.04 S	176.21 E	12	R	4.1	1.3	6	4
133		17	21	41	13.4	39.24 S	178.49 E	12	R	4.8 F	1.4	7	3
134		19	17	43	56.5	41.00 S	175.50 E	12	R	~3.7 F	0.3	2	1
135		22	16	55	17.2	41.48 S	172.04 E	12	R	4.3 F	0.8	9	4
136		26	13	55	55.8	40.31 S	175.58 E	12	R	3.8 F	0.9	5	2
137		28	06	31	49.3	40.94 S	173.17 E	107		~3.8 F	0.8	5	3
138		28	09	15	00.0	41.00 S	173.20 E	100	R	~ F	ND	1	1
139		30	07	07	22.3	37.87 S	177.12 E	265		5.7 F	0.6	8	6

1946

001	JAN	01	13	24	54.5	41.00 S	175.30 E	33	R	~3.4 F	0.4	2	1
002		05	07	48	00.9	39.89 S	177.27 E	12	R	4.0	0.5	4	3
003		06	02	01	29.7	39.84 S	174.87 E	12	R	4.6 F	0.9	8	6
004		09	15	02	50.9	33.81 S	175.88 E	12	R	6.0	2.6	5	5
005		10	16	40	02.9	41.20 S	175.70 E	33	R	~ F	0.2	2	1

REF NUM	ORIGIN TIME				LATITUDE deg	LONGITUDE deg	DEPTH km	MAG	S.E.	NUM OBS	NUM STN
		h	m	s							
006 JAN	14	02	29	12.7	38.04 S	178.38 E	12 R	~4.5	1.0	5	3
007	14	07	32	43.0	41.33 S	174.02 E	12 R	4.2 F	1.7	4	2
008	14	20	27	38.8	39.44 S	175.64 E	12 R	4.4	1.9	4	4
009	15	14	24	53.9	34.01 S	179.38 W	33 R	~5.7	3.5	7	5
010	28	16	50	06.1	40.10 S	175.00 E	33 R	3.8 F	1.8	3	2
011 FEB	01	21	38	03.7	45.08 S	166.84 E	12 R	5.0 F	1.9	6	4
012	02	18	43	18.9	40.00 S	175.00 E	33 R	~3.1 F	ND	1	2
013	04	21	47	58.1	36.32 S	177.19 E	12 R	5.7 F	0.9	14	8
014	07	00	25	55.8	39.12 S	178.25 E	12 R	~4.3	1.6	6	3
015	10	11	12	26.7	38.31 S	178.43 E	12 R	4.1	0.5	7	3
016	12	00	40	10.8	37.22 S	175.65 E	12 R	4.5 F	1.7	8	5
017	12	05	53	12.2	38.14 S	179.58 E	33 R	~4.8	0.3	4	3
018	12	06	16	42.7	39.79 S	174.50 E	12 R	~6.4 F	1.7	15	11
019	15	15	32	40.8	40.00 S	175.00 E	33 R	~3.2 F	ND	1	1
020	16	03	44	31.4	42.50 S	173.00 E	33 R	~3.2 F	ND	1	1
021	16	22	53	09.3	41.33 S	174.26 E	33 R	3.8 F	3.3	4	2
022	19	09	55	53.7	40.85 S	173.07 E	12 R	4.0 F	1.1	6	4
023	21	07	32	51.6	39.34 S	177.37 E	12 R	5.1 F	1.6	10	7
024	21	23	45	56.2	41.88 S	173.16 E	12 R	4.6 F	1.5	11	4
025	24	23	12	28.4	39.53 S	176.21 E	12 R	4.2	1.3	5	3
026	26	05	30	51.5	38.63 S	176.35 E	12 R	5.6 F	1.3	13	8
027	26	12	26	11.1	39.94 S	177.13 E	12 R	4.5	3.5	4	3
028	28	23	37	31.8	40.88 S	173.07 E	12 R	4.5 F	0.8	13	4
029 MAR	01	12	37	22.8	40.84 S	173.00 E	12 R	4.3 F	0.7	12	4
030	04	00	47	00.8	38.29 S	178.60 E	12 R	5.4 F	0.8	12	8
031	04	16	01	45.6	40.20 S	174.80 E	12 R	3.7 F	0.3	2	2
032	06	13	52	22.6	39.93 S	176.96 E	12 R	~4.0	2.1	6	3
033	06	15	34	19.7	39.39 S	176.82 E	12 R	~3.7	0.6	6	4
034	07	13	50	18.2	41.07 S	173.17 E	12 R	4.1 F	1.8	8	4
035	08	23	26	48.7	41.45 S	171.91 E	12 R	~4.3 F	1.5	9	4
036	09	04	44	49.2	42.14 S	173.24 E	12 R	4.3	1.4	8	4
037	09	17	15	45.4	41.10 S	175.70 E	12 R	4.1 F	0.1	3	2
038	10	06	26	41.6	38.34 S	176.28 E	209	5.0	1.2	7	5
039	11	10	35	46.2	39.40 S	174.78 E	33 R	3.9 F	1.7	5	2
040	12	17	04	23.2	40.90 S	173.13 E	12 R	4.3 F	0.8	10	4
041	15	22	56	00.0	46.50 S	168.00 E	33 R	~ F	ND	1	1
042	17	03	28	54.9	41.36 S	175.87 E	12 R	4.5 F	0.8	6	2
043	19	12	20	39.5	40.99 S	176.79 E	12 R	~3.6	1.3	4	4
044	21	06	15	27.8	35.13 S	179.97 E	12 R	~5.1	1.7	7	4
045	21	11	57	18.9	35.95 S	177.97 E	12 R	~4.8	2.7	6	5
046	25	15	29	14.9	40.85 S	174.03 E	12 R	4.8 F	0.3	6	4
047	31	06	10	20.0	41.40 S	174.90 E	12 R	~ F	1.1	2	1
048 APR	03	10	01	43.6	40.33 S	174.21 E	12 R	4.7 F	0.7	6	5
049	07	21	49	08.6	42.47 S	172.65 E	12 R	~3.9	0.4	6	3
050	08	14	10	37.6	40.20 S	174.80 E	12 R	~3.9 F	0.3	2	2
051	09	02	38	14.6	41.17 S	174.20 E	12 R	~2.9	0.6	4	3
052	09	07	46	21.0	39.44 S	178.37 E	12 R	~4.1 F	ND	3	2
053	13	10	55	58.5	41.35 S	176.21 E	12 R	4.2 F	0.6	4	2
054	16	21	17	56.3	38.62 S	178.85 E	12 R	5.0 F	1.9	13	8
055	19	19	33	24.4	40.49 S	173.39 E	33 R	4.4	1.8	5	4

REF NUM	ORIGIN TIME				LATITUDE deg	LONGITUDE deg	DEPTH km	MAG	S.E.	NUM OBS	NUM STN
056	APR 22	18	19	43.1	38.83 S	176.15 E	124	5.3 F	0.9	8	6
057	24	02	43	59.3	41.82 S	172.68 E	33 R	4.1	0.9	6	4
058	27	10	36	57.7	41.60 S	173.26 E	12 R	~3.6	1.0	6	4
059	28	19	54	50.3	41.22 S	175.74 E	12 R	4.6 F	0.1	5	2
060	30	15	33	09.4	41.16 S	172.66 E	33 R	4.2 F	0.5	7	4
061	MAY 02	10	58	20.3	40.50 S	175.54 E	12 R	4.0 F	1.8	5	2
062	07	07	04	15.2	41.06 S	177.84 E	33 R	5.4 F	1.0	8	6
063	07	14	12	55.2	40.79 S	177.77 E	33 R	4.8	1.6	7	6
064	08	01	23	54.9	39.95 S	176.67 E	12 R	4.2 F	1.5	5	2
065	08	03	22	34.9	41.17 S	178.75 E	33 R	5.1 F	0.7	8	5
066	08	19	12	34.2	40.45 S	177.75 E	12 R	~4.2	1.1	7	3
067	09	00	05	54.9	40.42 S	177.27 E	12 R	~3.8	0.4	5	3
068	09	04	10	34.3	40.68 S	176.94 E	12 R	5.5 F	0.9	16	10
069	09	04	44	35.6	40.58 S	176.76 E	12 R	4.6 F	0.6	8	7
070	12	10	57	52.0	40.30 S	176.00 E	12 R	~3.4 F	ND	1	2
071	13	16	35	45.7	40.43 S	173.74 E	167	~5.0	1.9	6	5
072	15	10	51	08.8	40.49 S	176.53 E	12 R	3.9	0.6	6	3
073	17	17	51	42.4	46.00 S	167.00 E	33 R	~ F	ND	1	1
074	19	18	45	28.0	35.22 S	176.34 W	12 R	6.3	1.1	7	6
075	22	18	05	24.2	38.96 S	175.70 E	12 R	~4.1	ND	3	3
076	23	11	48	15.0	39.55 S	176.43 E	12 R	~3.7	0.1	4	3
077	JUN 03	15	30	11.7	38.43 S	176.12 E	12 R	~4.2	0.3	6	3
078	07	14	15	21.8	39.75 S	172.61 E	12 R	4.9 F	1.4	6	4
079	09	15	49	11.2	41.86 S	171.92 E	12 R	4.1	1.1	8	4
080	10	03	37	32.2	41.30 S	174.80 E	12 R	~3.5 F	1.3	3	2
081	10	18	21	50.2	43.00 S	173.50 E	12 R	~3.5 F	0.4	2	2
082	10	18	22	28.5	42.60 S	173.50 E	12 R	~3.9 F	0.0	2	2
083	11	07	30	33.1	41.20 S	176.10 E	12 R	~3.6 F	0.7	3	2
084	13	20	02	24.9	41.85 S	172.94 E	12 R	~4.2	ND	3	3
085	14	13	05	12.2	40.12 S	174.95 E	12 R	4.3 F	1.1	8	5
086	15	05	32	10.4	41.22 S	172.29 E	12 R	4.1 F	1.4	7	4
087	16	09	46	16.9	40.80 S	176.00 E	12 R	~3.1 F	1.4	2	1
088	16	11	44	42.7	34.89 S	178.40 W	33 R	5.4	1.1	5	4
089	19	15	42	13.1	41.06 S	174.89 E	12 R	~3.5 F	3.1	4	2
090	26	12	13	12.5	43.44 S	171.44 E	12 R	4.3 F	1.8	7	4
091	26	12	34	39.7	43.18 S	171.68 E	12 R	6.2 F	1.5	12	12
092	26	12	53	51.6	43.32 S	171.31 E	12 R	4.7 F	1.9	8	4
093	26	13	06	48.3	42.12 S	171.09 E	12 R	4.3 F	1.1	7	3
094	26	13	16	54.0	43.24 S	171.55 E	12 R	~4.1 F	1.1	4	2
095	26	13	17	43.1	43.19 S	171.61 E	12 R	5.1 F	1.6	8	5
096	26	13	28	12.6	42.06 S	171.62 E	12 R	~3.5	1.5	7	3
097	26	13	29	54.0	43.11 S	171.41 E	12 R	~3.9 F	0.6	7	3
098	26	13	41	18.9	43.17 S	171.52 E	12 R	~3.7 F	0.4	4	2
099	26	14	15	43.5	42.85 S	170.65 E	12 R	4.4 F	0.8	6	3
100	26	14	45	09.6	43.26 S	171.57 E	12 R	~4.0 F	1.9	6	3
101	26	15	42	29.2	43.15 S	171.37 E	12 R	4.4	0.9	6	4
102	26	16	30	29.3	42.04 S	171.22 E	12 R	~3.8	1.6	7	3
103	26	22	18	33.3	43.32 S	171.56 E	12 R	4.3 F	1.0	7	4
104	27	02	00	21.2	43.11 S	171.66 E	12 R	~3.7	0.5	6	3
105	27	03	07	28.6	43.18 S	171.59 E	12 R	3.8	1.8	7	4

REF NUM		ORIGIN TIME h	m	s	LATITUDE deg	LONGITUDE deg	DEPTH km	MAG	S.E.	NUM OBS	NUM STN
106	JUN 27	03	49	46.8	43.18 S	171.72 E	12 R	4.0	1.3	7	4
107	27	04	05	06.9	43.21 S	171.33 E	12 R	4.5	1.2	8	4
108	27	04	08	02.3	43.24 S	171.32 E	12 R	4.5	1.2	9	4
109	27	08	19	57.0	43.53 S	171.51 E	12 R	4.0F	0.8	7	4
110	27	18	36	02.6	43.15 S	171.56 E	12 R	4.4F	1.3	10	4
111	27	22	49	12.0	43.32 S	171.30 E	12 R	3.8	1.6	6	3
112	28	00	35	29.5	43.15 S	171.88 E	12 R	3.8F	1.0	6	3
113	28	06	28	40.3	43.25 S	171.68 E	12 R	3.6F	1.2	5	3
114	28	07	04	28.2	43.19 S	171.73 E	12 R	4.0F	1.4	6	3
115	28	07	12	41.6	43.34 S	171.21 E	12 R	5.8F	1.3	16	12
116	28	07	15	21.9	42.80 S	171.20 E	12 R	~3.8F	ND	1	1
117	28	07	22	37.2	43.46 S	171.39 E	12 R	4.4F	0.3	5	3
118	28	07	59	02.8	43.02 S	171.29 E	12 R	4.7F	0.8	8	4
119	28	08	52	36.9	43.24 S	171.26 E	12 R	4.9F	0.7	8	5
120	28	09	03	42.5	43.17 S	171.40 E	12 R	4.0F	0.3	6	3
121	28	11	50	20.0	38.98 S	175.78 E	12 R	4.3	1.6	4	3
122	28	18	56	38.6	42.68 S	170.74 E	12 R	4.3F	1.0	6	3
123	29	19	48	02.8	43.00 S	171.30 E	12 R	~3.4F	1.2	2	1
124	30	21	04	29.8	43.10 S	171.32 E	12 R	3.8	1.0	6	3
125	30	21	07	37.6	43.19 S	171.31 E	12 R	5.1F	1.5	9	9
126	JUL 01	06	54	26.8	43.18 S	171.65 E	12 R	3.4F	0.8	4	2
127	01	15	36	58.6	43.15 S	171.23 E	12 R	4.0F	1.5	7	4
128	02	08	27	13.0	43.27 S	171.40 E	12 R	4.4F	1.6	8	4
129	04	10	16	48.3	43.15 S	171.62 E	12 R	3.8F	0.9	4	2
130	04	18	00	06.2	40.46 S	172.83 E	12 R	5.0F	1.5	9	5
131	04	18	00	54.0	43.20 S	171.30 E	12 R	~4.7	1.2	3	2
132	06	08	29	24.0	43.29 S	171.23 E	12 R	~3.5F	ND	3	2
133	06	18	20	05.4	41.30 S	172.16 E	12 R	~4.0F	ND	3	2
134	07	07	55	22.6	43.18 S	171.50 E	12 R	3.6F	ND	3	2
135	08	14	36	15.6	38.09 S	175.89 E	175	5.3F	1.0	6	4
136	08	17	51	39.3	40.97 S	179.79 E	12 R	~4.5	1.1	5	3
137	09	01	12	11.7	40.92 S	172.30 E	12 R	4.8	1.8	6	4
138	09	01	53	00.4	43.21 S	171.81 E	12 R	3.3F	1.6	4	2
139	09	07	55	16.3	43.10 S	171.50 E	12 R	~3.0F	1.1	2	2
140	09	10	12	52.9	43.15 S	171.64 E	12 R	3.4F	ND	3	2
141	10	05	12	55.1	38.17 S	176.97 E	234	5.2	0.8	7	5
142	12	23	05	30.6	42.39 S	173.05 E	12 R	4.1	1.4	7	4
143	16	06	36	15.6	43.32 S	173.42 E	12 R	~3.8	1.5	6	3
144	16	22	41	43.9	42.54 S	173.10 E	12 R	3.8F	1.3	7	4
145	20	10	04	17.6	38.46 S	175.17 E	12 R	~5.4	1.7	5	3
146	22	15	59	53.0	42.50 S	172.70 E	12 R	~3.3F	2.3	4	2
147	24	05	09	27.5	42.94 S	171.61 E	12 R	3.6F	0.9	5	2
148	24	19	03	58.5	42.35 S	173.09 E	12 R	4.7F	0.6	10	4
149	25	01	39	28.9	41.29 S	171.61 E	12 R	~3.8	0.3	4	3
150	25	16	44	55.0	41.07 S	175.86 E	12 R	~3.4F	1.0	4	2
151	30	01	42	44.9	43.31 S	171.36 E	12 R	~4.0	0.5	5	3
152	31	10	12	31.7	43.20 S	171.30 E	12 R	~3.0F	ND	1	1
153	31	10	17	13.8	43.10 S	171.30 E	12 R	~3.5F	ND	2	2
154	AUG 07	00	01	42.6	43.19 S	171.52 E	12 R	~3.7F	1.2	4	2
155	09	01	37	05.6	43.25 S	171.50 E	12 R	~2.9F	ND	2	1

REF NUM		ORIGIN TIME			LATITUDE	LONGITUDE	DEPTH	MAG	S.E.	NUM OBS	NUM STN
			h	m s	deg	deg	km				
156	AUG	12	05	08 43.1	40.21 S	174.27 E	12 R	4.3 F	1.0	6	3
157		12	13	41 17.5	40.15 S	179.62 W	12 R	5.0	0.3	5	4
158		12	18	54 31.3	43.33 S	171.33 E	12 R	3.5 F	ND	3	2
159		14	05	23 36.8	38.50 S	178.80 E	12 R	~4.3 F	1.4	3	1
160		14	15	53 20.2	38.30 S	176.44 E	238	5.2	0.2	6	5
161		16	12	38 30.6	42.10 S	172.09 E	12 R	~3.5 F	ND	3	3
162		17	04	39 01.6	37.06 S	177.37 E	12 R	5.3 F	0.7	9	5
163		17	15	27 33.4	40.89 S	171.49 E	12 R	~4.5 F	0.8	8	4
164		18	17	40 23.6	37.85 S	177.12 E	279	5.1	0.9	6	4
165		21	21	38 20.9	39.57 S	175.78 E	12 R	4.9 F	0.7	9	6
166		24	08	42 35.3	40.30 S	176.10 E	12 R	~3.4 F	ND	2	2
167		25	20	24 47.0	40.59 S	174.20 E	12 R	3.9	0.2	5	3
168		26	04	28 43.3	43.24 S	171.72 E	12 R	3.3 F	1.2	4	2
169	SEP	02	13	06 42.1	38.70 S	178.50 E	12 R	~4.3 F	0.8	2	1
170		06	11	48 37.0	40.84 S	174.74 E	83	4.1 F	1.3	5	4
171		07	05	01 56.0	32.67 S	179.70 E	33 R	5.9	1.4	5	4
172		12	13	31 42.8	41.02 S	172.80 E	166	~5.0	0.2	5	4
173		12	14	31 56.5	40.20 S	175.80 E	12 R	~4.2 F	ND	2	2
174		14	10	51 28.8	39.05 S	178.14 E	12 R	5.2 F	1.3	10	8
175		16	10	05 05.8	41.20 S	175.00 E	12 R	~3.7 F	2.5	4	2
176		18	07	20 53.3	41.54 S	173.23 E	12 R	4.0	1.1	9	4
177		22	00	26 53.4	39.43 S	176.77 E	12 R	4.6	0.9	9	4
178		22	16	59 44.3	38.54 S	178.65 E	12 R	~4.3 F	ND	3	2
179		24	06	40 37.6	37.31 S	178.99 E	12 R	5.5 F	1.0	9	7
180		26	19	29 00.2	42.21 S	168.58 E	12 R	~4.2 F	0.8	6	4
181		29	08	35 47.4	34.65 S	177.81 E	12 R	6.1	1.2	4	3
182		29	22	39 44.2	39.40 S	176.44 E	12 R	4.0	1.0	4	3
183	OCT	08	01	57 04.8	40.29 S	174.61 E	12 R	4.3	1.0	6	3
184		09	04	34 13.3	36.50 S	175.00 E	12 R	~ F	ND	1	1
185		10	04	00 10.3	40.59 S	173.28 E	12 R	4.8	1.0	6	5
186		11	04	07 18.9	38.74 S	175.96 E	185	4.8	0.5	7	4
187		12	11	04 12.5	41.07 S	173.16 E	12 R	4.0	0.9	4	3
188		12	19	55 31.4	40.20 S	174.14 E	92	4.7	1.3	6	4
189		14	08	05 51.2	42.12 S	172.39 E	12 R	4.2 F	1.5	7	4
190		14	16	50 57.8	38.80 S	178.50 E	12 R	~4.2 F	1.5	2	1
191		15	02	39 31.9	41.00 S	172.40 E	12 R	~4.2 F	0.2	3	3
192		15	22	11 28.8	38.17 S	178.60 E	33 R	4.6	0.6	4	3
193		16	20	40 45.2	40.92 S	173.89 E	12 R	4.8 F	1.5	9	5
194		20	15	15 29.5	41.00 S	175.80 E	12 R	~3.6 F	ND	1	1
195		21	05	00 46.3	39.73 S	175.59 E	12 R	4.0 F	1.7	5	4
196		23	13	49 08.7	41.04 S	178.52 E	12 R	4.7	1.5	4	3
197		26	03	29 02.8	39.64 S	178.52 E	12 R	4.9 F	1.1	4	2
198		26	23	14 21.9	41.12 S	173.52 E	12 R	4.7 F	0.8	7	5
199	NOV	04	16	53 58.1	43.00 S	171.80 E	12 R	~2.8 F	0.3	3	2
200		08	06	25 26.2	37.26 S	178.23 E	12 R	5.5 F	0.6	10	7
201		11	22	53 43.2	39.95 S	179.91 E	12 R	4.5	0.6	5	3
202		13	00	59 27.7	38.93 S	175.55 E	224	5.0	0.5	6	4
203		17	09	07 29.4	38.85 S	178.19 E	12 R	~4.7	2.2	4	3
204		21	16	09 54.8	39.77 S	176.66 E	12 R	4.2 F	1.6	6	4
205		24	03	16 49.0	33.90 S	178.48 E	33 R	6.3	3.4	5	5

REF NUM		ORIGIN TIME				LATITUDE deg	LONGITUDE deg	DEPTH km	MAG	S.E.	NUM OBS	NUM STN
206	NOV	25	11	49	08.6	41.03 S	172.93 E	12 R	4.7	1.0	6	4
207		29	15	53	53.7	39.85 S	177.67 E	12 R	4.4	1.3	7	4
208	DEC	02	08	26	04.3	41.37 S	175.72 E	33 R	4.4 F	1.7	6	4
209		03	07	17	29.6	43.33 S	173.98 E	12 R	4.1	1.8	6	4
210		05	22	46	27.7	40.55 S	172.67 E	12 R	4.1	2.6	4	3
211		09	17	45	17.8	40.34 S	173.34 E	147	5.1 F	0.5	7	5
212		12	10	55	37.1	40.20 S	174.80 E	12 R	~3.5 F	1.0	2	2
213		12	14	40	02.1	39.52 S	174.87 E	12 R	5.5 F	1.3	9	6
214		12	23	45	24.6	39.48 S	179.53 E	12 R	4.8	0.7	5	4
215		14	22	17	07.7	39.09 S	175.82 E	12 R	4.5	1.4	9	5
216		16	19	32	04.9	39.83 S	179.08 E	12 R	4.6	0.7	5	3
217		17	05	05	05.6	42.50 S	173.00 E	12 R	~3.4 F	ND	1	1
218		18	21	52	33.5	37.48 S	179.49 E	12 R	4.9	1.5	8	5
219		19	15	11	36.4	41.50 S	174.40 E	12 R	4.0 F	1.3	4	2
220		20	06	40	03.6	41.86 S	173.58 E	12 R	4.7 F	1.5	13	5
221		25	03	11	39.4	41.00 S	172.80 E	12 R	~3.7 F	ND	2	3
222		26	14	47	19.2	39.09 S	165.00 E	12 R	5.4	1.6	5	3
223		28	15	32	09.7	41.14 S	173.55 E	12 R	~4.4 F	0.6	5	4
224		30	22	25	41.0	33.76 S	178.39 E	12 R	6.5	2.8	6	4

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001	JAN	03	02	25	07.3	41.82 S	173.14 E	33 R	4.0	0.8	4	4
002		05	03	58	23.0	40.55 S	172.43 E	12 R	4.5	0.2	4	5
003		10	05	05	05.5	38.00 S	176.61 E	239	5.2	0.2	6	6
004		10	16	09	23.6	46.35 S	167.27 E	33 R	~5.0 F	7.7	6	4
005		15	10	34	57.6	40.40 S	173.19 E	12 R	4.1	0.5	4	3
006		17	22	11	47.9	43.31 S	171.30 E	33 R	4.4 F	0.8	6	4
007		19	19	22	30.9	41.23 S	173.08 E	12 R	4.0 F	0.9	6	5
008		19	19	35	36.5	44.50 S	167.40 E	33 R	~4.3 F	0.1	2	3
009		20	07	04	43.3	37.73 S	176.76 E	238	~4.9	ND	4	3
010		20	22	08	59.2	38.33 S	177.68 E	137	4.8	0.3	6	4
011		22	20	23	13.6	41.51 S	173.15 E	12 R	5.1 F	0.8	6	5
012		24	23	54	42.1	38.29 S	176.80 E	173	4.8	1.0	6	4
013		27	13	03	08.7	39.49 S	175.46 E	12 R	~3.5 F	0.4	5	3
014		27	21	40	21.4	38.62 S	176.67 E	186	~4.7	0.5	5	3
015		28	23	13	33.2	42.52 S	173.17 E	12 R	~4.0	1.1	4	4
016		30	08	44	08.2	39.32 S	175.54 E	12 R	~4.3	1.5	4	3
017	FEB	02	08	44	41.5	41.87 S	179.15 E	12 R	4.6	1.5	5	3
018		03	13	26	12.2	42.65 S	177.70 E	12 R	~4.5	1.6	7	3
019		04	21	06	24.0	43.28 S	171.30 E	33 R	3.9 F	0.2	4	2
020		04	21	14	37.1	43.20 S	171.40 E	33 R	~2.9 F	ND	1	1
021		05	20	58	06.1	38.90 S	175.84 E	12 R	4.1	0.9	4	3
022		08	18	45	01.3	43.18 S	171.64 E	12 R	3.8 F	0.2	4	2
023		09	04	19	02.9	43.14 S	171.75 E	12 R	3.5 F	0.9	6	3
024		10	19	25	23.1	41.45 S	171.64 E	12 R	4.4 F	0.7	8	5
025		10	19	26	41.4	34.91 S	177.92 W	279	5.9	0.4	5	6

REF NUM	ORIGIN TIME				LATITUDE deg	LONGITUDE deg	DEPTH km	MAG	S.E.	NUM OBS	NUM STN
			h	m s							
026	FEB 11	07	04	15.9	39.07 S	175.91 E	33 R	4.0	0.9	5	3
027	15	03	09	31.1	40.71 S	176.06 E	33 R	~3.4	1.2	6	3
028	16	15	30	20.9	40.96 S	173.69 E	33 R	4.2 F	0.5	7	5
029	16	22	03	15.5	41.12 S	174.70 E	84	~4.8 F	1.1	6	5
030	17	09	48	53.1	38.12 S	176.39 E	296	6.2 F	0.2	7	7
031	23	10	42	38.1	40.10 S	174.53 E	12 R	4.3 F	0.8	5	3
032	25	11	14	23.8	32.46 S	178.41 E	33 R	6.8	0.2	4	4
033	MAR 03	20	51	23.9	39.82 S	174.75 E	33 R	~4.7	0.3	5	3
034	04	06	07	20.3	39.04 S	175.99 E	33 R	4.0	1.6	4	3
035	06	13	08	51.0	38.44 S	176.84 E	169	4.8	ND	4	3
036	06	15	48	41.5	39.06 S	175.92 E	33 R	~4.2	0.5	4	4
037	13	22	03	11.6	40.90 S	175.90 E	33 R	~3.7 F	0.1	2	1
038	14	10	48	10.3	40.67 S	174.96 E	12 R	4.3 F	0.4	6	5
039	15	01	23	53.8	40.67 S	174.96 E	12 R	~3.5 F	ND	1	1
040	16	14	51	56.3	40.04 S	174.16 E	12 R	4.6 F	0.7	5	4
041	22	19	00	38.4	39.68 S	176.65 E	12 R	4.1 F	0.4	5	4
042	25	20	32	14.9	38.92 S	178.24 E	12 R	6.0 F	0.8	11	9
043	25	22	14	47.9	38.00 S	177.30 E	12 R	~3.7 F	2.7	3	1
044	26	07	18	06.0	40.10 S	174.75 E	12 R	3.5 F	ND	2	2
045	26	09	08	01.2	42.70 S	172.60 E	12 R	~4.4 F	3.8	3	2
046	27	18	25	20.6	38.86 S	177.80 E	12 R	5.3 F	2.0	9	7
047	29	23	48	19.6	38.98 S	178.85 E	33 R	4.7 F	0.1	4	2
048	30	02	53	38.6	39.24 S	178.01 E	33 R	4.9 F	1.0	4	3
049	APR 01	10	05	29.8	42.30 S	175.85 E	33 R	~3.8	ND	3	3
050	02	03	03	26.8	39.85 S	176.67 E	12 R	4.4	1.5	5	3
051	02	14	44	15.1	37.19 S	176.55 E	33 R	5.1	0.6	4	3
052	02	16	25	51.4	39.32 S	178.55 E	12 R	4.4	2.5	6	4
053	02	17	23	39.0	39.11 S	177.87 E	33 R	4.2	1.1	6	4
054	02	21	45	36.9	39.24 S	178.85 E	33 R	5.0 F	1.3	6	4
055	03	21	10	45.1	39.37 S	179.01 E	33 R	5.3 F	1.4	8	8
056	04	01	38	41.6	39.25 S	178.24 E	33 R	~4.9 F	1.4	5	4
057	04	12	28	42.4	39.15 S	178.19 E	33 R	4.8 F	1.5	4	2
058	04	16	26	16.3	39.47 S	177.48 E	12 R	4.0	1.6	6	3
059	07	09	44	54.3	39.51 S	177.94 E	12 R	4.6 F	0.4	6	5
060	08	09	30	36.9	37.50 S	177.20 E	33 R	~4.1 F	1.3	3	1
061	10	17	40	37.2	38.69 S	178.69 E	12 R	~4.5 F	0.1	4	3
062	16	07	10	49.1	38.37 S	175.87 E	12 R	~4.1 F	1.7	4	2
063	16	07	31	48.0	38.40 S	175.90 E	12 R	~3.5 F	ND	2	1
064	16	08	04	56.3	38.51 S	176.14 E	12 R	~3.4 F	0.4	4	2
065	16	12	41	53.2	38.25 S	175.75 E	33 R	4.9 F	2.3	4	4
066	16	14	47	07.9	38.35 S	175.82 E	12 R	5.0 F	1.4	5	4
067	16	20	59	52.5	38.41 S	179.92 E	33 R	5.2	0.5	5	3
068	17	01	27	48.7	38.94 S	176.24 E	33 R	~4.5 F	1.2	5	3
069	17	04	16	23.9	39.78 S	174.83 E	33 R	~3.3	ND	3	3
070	19	20	08	22.8	37.62 S	175.35 E	12 R	~3.8 F	0.8	6	3
071	20	04	43	29.3	39.98 S	174.93 E	12 R	4.3 F	0.8	6	3
072	21	23	11	09.7	39.65 S	177.04 E	12 R	5.4 F	0.8	9	5
073	23	09	45	32.8	41.36 S	175.79 E	12 R	4.8 F	0.9	6	4
074	23	11	38	18.1	40.13 S	176.45 E	12 R	4.0 F	2.2	5	3
075	23	11	41	17.8	41.01 S	172.98 E	5 R	3.9 F	0.9	6	4

REF NUM		ORIGIN TIME				LATITUDE	LONGITUDE	DEPTH	MAG	S.E.	NUM OBS	NUM STN
			h	m	s	deg	deg	km				
076	APR	23	23	51	23.1	46.49 S	169.05 E	33 R	5.3 F	1.8	8	6
077		24	09	26	21.7	46.50 S	169.00 E	33 R	~4.8 F	6.7	4	2
078		25	03	47	30.3	41.04 S	173.05 E	33 R	4.4 F	1.4	10	5
079		25	04	11	43.1	41.02 S	172.93 E	12 R	~3.7 F	0.8	5	4
080		26	03	34	43.5	41.50 S	175.00 E	33 R	~ F	0.2	2	1
081		28	14	48	11.2	40.10 S	175.30 E	33 R	~4.6 F	0.3	2	1
082		28	17	28	00.2	40.10 S	175.50 E	33 R	3.8	0.8	2	2
083		28	17	35	59.8	40.20 S	175.04 E	33 R	4.4 F	0.9	4	2
084		30	19	39	04.7	40.74 S	176.53 E	12 R	5.1 F	0.8	9	6
085		30	22	52	53.1	41.62 S	172.15 E	12 R	4.3 F	0.9	6	3
086	MAY	01	06	27	04.6	40.13 S	176.94 E	12 R	~3.7	0.3	6	3
087		03	05	11	20.2	40.68 S	175.81 E	12 R	4.6 F	1.5	8	6
088		03	11	29	37.1	40.90 S	175.80 E	33 R	~3.4 F	ND	1	1
089		04	02	11	54.2	40.70 S	174.70 E	33 R	~3.9 F	0.4	2	1
090		04	17	30	10.3	37.80 S	177.00 E	12 R	~4.2 F	1.0	2	1
091		05	02	05	32.6	39.36 S	175.35 E	33 R	5.9 F	0.8	9	10
092		10	11	56	50.2	39.14 S	176.62 E	12 R	4.0	0.4	6	3
093		11	07	50	42.8	34.24 S	179.30 E	316	6.1 F	1.5	9	6
094		12	03	17	46.6	39.64 S	176.13 E	12 R	4.4	1.1	8	4
095		15	01	27	29.7	32.22 S	179.96 E	576	5.6	0.1	5	3
096		17	07	06	24.4	38.28 S	178.67 E	12 R	5.6 F	1.0	11	7
097		17	11	07	58.8	39.21 S	177.67 E	12 R	4.1	2.3	5	3
098		17	15	45	38.2	38.70 S	178.74 E	12 R	4.7 F	0.8	4	2
099		17	18	32	25.6	38.66 S	179.56 E	33 R	4.9	1.0	5	3
100		17	21	26	38.6	38.71 S	178.77 E	12 R	~4.4 F	1.5	4	3
101		17	21	35	12.7	38.76 S	178.59 E	12 R	4.6 F	ND	3	2
102		18	08	15	10.2	38.50 S	178.50 E	12 R	~3.8 F	1.6	2	1
103		19	12	12	26.8	39.05 S	178.29 E	12 R	~3.9 F	0.9	4	2
104		21	19	02	06.8	42.65 S	172.65 E	12 R	4.5 F	1.2	8	5
105		22	15	01	06.1	38.61 S	178.23 E	33 R	4.6 F	0.9	5	3
106		22	15	02	24.8	38.66 S	178.41 E	33 R	4.6 F	ND	3	2
107		22	15	04	33.7	38.56 S	178.30 E	33 R	4.5	ND	3	2
108		22	15	24	51.6	39.08 S	178.21 E	33 R	~4.0 F	ND	3	2
109		22	15	51	35.4	39.00 S	178.20 E	33 R	~3.7 F	0.8	2	1
110		22	17	24	59.4	38.75 S	178.68 E	12 R	4.7 F	0.9	6	4
111		24	09	33	20.4	38.29 S	177.99 E	12 R	~3.9 F	1.3	4	3
112		27	09	54	54.9	39.48 S	177.93 E	12 R	4.1	1.4	5	4
113		29	06	25	32.6	37.60 S	177.78 E	12 R	4.8 F	1.2	6	3
114		29	19	05	15.9	37.60 S	177.80 E	12 R	~4.2 F	1.0	2	1
115		31	15	36	38.0	41.17 S	172.20 E	12 R	~3.7 F	ND	3	2
116		31	18	31	13.7	41.41 S	174.20 E	12 R	~4.1 F	1.1	4	2
117	JUN	06	17	32	08.5	39.15 S	175.94 E	12 R	~4.0	1.0	5	3
118		16	10	55	40.1	38.41 S	178.74 E	33 R	5.4 F	1.6	9	6
119		16	11	00	22.6	38.40 S	178.70 E	33 R	~4.3 F	ND	1	1
120		16	11	21	18.4	38.40 S	178.70 E	33 R	~4.1 F	ND	1	1
121		27	14	43	09.6	40.70 S	173.00 E	12 R	~3.3 F	0.1	2	2
122		30	16	14	58.0	38.90 S	179.00 E	33 R	~4.6 F	0.4	2	1
123	JUL	05	11	46	60.0	39.32 S	178.32 E	12 R	~4.1 F	ND	3	3
124		07	04	18	47.7	33.61 S	179.25 E	33 R	5.3	2.1	4	4
125		09	18	11	06.8	40.82 S	172.94 E	12 R	3.9 F	0.2	4	3

REF NUM		ORIGIN	TIME h	m	s	LATITUDE deg	LONGITUDE deg	DEPTH km		MAG	S.E.	NUM OBS	NUM STN
126	JUL	11	05	08	59.6	39.65 S	174.40 E	210		5.6 F	1.8	7	5
127		11	20	05	00.2	41.08 S	173.36 E	159		~4.1	0.5	5	4
128		13	19	58	29.7	43.28 S	171.28 E	12	R	3.3 F	0.3	4	2
129		19	08	41	31.5	39.30 S	177.63 E	12	R	4.6 F	0.4	7	5
130		23	07	31	27.9	37.89 S	178.83 E	12	R	4.4	0.5	4	3
131		23	16	51	04.7	40.92 S	176.17 E	12	R	~3.8 F	ND	3	2
132		24	11	38	53.0	39.12 S	176.86 E	12	R	4.2	1.2	6	3
133		30	23	37	33.2	39.81 S	173.53 E	108		~4.0	ND	4	3
134	AUG	02	13	46	35.1	38.00 S	178.50 E	12	R	~5.0 F	0.3	3	2
135		02	22	12	58.4	39.19 S	176.38 E	12	R	3.8 F	0.9	4	3
136		02	22	40	04.3	39.19 S	176.21 E	12	R	4.5 F	0.6	4	6
137		03	01	04	41.4	41.13 S	173.10 E	132		~4.5	0.8	7	5
138		06	19	29	34.7	39.50 S	174.00 E	12	R	~3.8 F	0.6	3	2
139		07	09	32	06.6	39.79 S	177.66 E	12	R	4.9	ND	3	3
140		08	05	32	52.5	46.43 S	166.66 E	12	R	5.4 F	2.5	5	4
141		08	06	50	28.3	46.50 S	166.50 E	12	R	~4.6 F	ND	1	1
142		08	20	18	56.0	46.50 S	168.37 E	12	R	5.4 F	1.5	5	6
143		09	03	46	46.3	46.50 S	166.50 E	12	R	~4.6 F	ND	1	1
144		09	05	33	17.4	45.38 S	166.78 E	12	R	5.6 F	2.6	5	6
145		09	06	23	58.3	46.50 S	166.50 E	12	R	~4.6 F	ND	1	1
146		10	11	59	51.0	40.39 S	175.03 E	12	R	4.4 F	1.8	5	5
147		14	13	58	19.1	46.50 S	166.50 E	12	R	~3.9 F	ND	1	1
148		14	17	39	36.1	46.50 S	166.50 E	12	R	~3.9 F	ND	1	1
149		14	17	51	40.5	38.84 S	177.28 E	33	R	4.3 F	2.1	6	4
150		15	22	34	29.8	45.41 S	166.70 E	12	R	~4.7 F	0.5	4	3
151		17	06	47	59.4	40.46 S	174.60 E	12	R	4.6 F	0.7	6	6
152		17	08	36	04.7	41.29 S	173.88 E	12	R	4.0 F	0.9	5	3
153		18	11	46	33.3	39.41 S	175.87 E	33	R	4.7 F	0.6	6	4
154		22	05	42	38.6	43.20 S	173.37 E	12	R	~3.8 F	1.8	5	3
155		22	13	47	02.7	38.59 S	177.39 E	12	R	5.0F	2.2	6	6
156		22	23	59	12.7	38.40 S	177.55 E	12	R	4.8 F	2.3	5	4
157		23	19	10	25.1	41.52 S	173.48 E	20		4.4 F	1.0	7	4
158		24	20	35	06.5	38.80 S	178.30 E	12	R	~3.8 F	1.5	2	1
159		26	03	38	25.0	38.58 S	177.03 E	12	R	4.8F	2.9	6	3
160		26	12	12	28.7	40.20 S	174.51 E	12	R	3.9F	1.0	4	2
161		27	13	37	47.9	39.56 S	179.38 E	12	R	6.2 F	2.0	11	8
162		27	16	20	46.5	39.24 S	179.62 E	12	R	6.2 F	1.5	7	4
163		27	16	35	24.5	39.02 S	179.91 E	12	R	5.1	2.2	6	5
164		27	16	37	52.0	39.26 S	179.17 E	12	R	4.8	0.9	6	4
165		27	16	41	17.5	39.32 S	179.81 E	12	R	5.1	1.7	5	3
166		27	17	32	50.3	39.41 S	179.47 E	33	R	5.3 F	2.1	7	5
167		27	23	46	55.5	39.20 S	179.78 E	12	R	5.1	1.1	6	5
168		27	23	59	58.3	39.38 S	179.26 E	33	R	5.4 F	0.7	7	5
169		28	00	56	17.2	39.29 S	179.60 E	33	R	4.6 F	0.7	5	3
170		28	03	00	39.6	39.35 S	179.31 E	33	R	5.2	0.9	7	5
171		28	08	12	42.6	38.53 S	178.79 E	33	R	4.5 F	ND	3	2
172		28	15	07	01.0	39.33 S	179.44 E	33	R	6.0 F	1.3	8	5
173		28	17	10	24.7	39.23 S	175.96 E	12	R	4.1 F	1.0	5	3
174		28	18	17	10.3	40.08 S	175.67 E	12	R	4.0	0.3	4	3
175		29	00	25	53.5	38.83 S	175.83 E	162		4.7	0.4	5	4

REF NUM	ORIGIN TIME				LATITUDE deg	LONGITUDE deg	DEPTH km	MAG	S.E.	NUM OBS	NUM STN
			h	m s							
176	AUG 30	01	59	10.3	38.46 S	178.62 E	12 R	~4.4 F	ND	3	2
177	SEP 01	08	02	32.7	39.59 S	179.33 E	12 R	5.1 F	0.9	6	4
178	03	08	19	24.5	39.51 S	176.12 E	12 R	4.0 F	1.0	5	3
179	03	16	41	06.3	43.53 S	179.18 W	12 R	~4.7	ND	3	3
180	04	14	05	24.1	39.66 S	179.46 E	12 R	5.6 F	2.2	7	6
181	08	22	00	39.9	39.38 S	179.46 E	12 R	5.6	2.0	6	3
182	10	09	30	03.0	41.00 S	175.50 E	12 R	~2.9 F	0.4	2	1
183	11	11	12	21.9	40.20 S	175.00 E	12 R	3.5 F	0.7	2	2
184	14	14	34	01.2	43.20 S	171.50 E	12 R	~3.3 F	0.2	2	1
185	15	09	14	06.9	41.15 S	176.27 E	12 R	5.6 F	1.2	9	8
186	16	14	47	07.5	40.98 S	172.34 E	12 R	~3.9	0.4	4	3
187	20	13	12	53.1	40.44 S	173.02 E	12 R	4.4	0.5	5	4
188	22	10	43	31.9	40.11 S	174.48 E	12 R	4.7 F	1.6	7	4
189	23	14	53	22.1	43.20 S	171.50 E	12 R	~3.0 F	ND	1	1
190	23	17	54	30.0	39.50 S	177.50 E	12 R	~4.1 F	ND	2	2
191	30	02	56	03.8	40.22 S	174.43 E	12 R	4.3 F	0.4	4	3
192	30	05	38	19.8	43.20 S	171.50 E	12 R	~2.9 F	ND	1	1
193	OCT 01	13	29	25.1	41.59 S	174.67 E	33 R	~4.3 F	0.5	6	4
194	03	17	59	11.4	39.26 S	179.80 W	12 R	5.3	2.8	5	4
195	09	01	09	47.9	38.54 S	178.67 E	12 R	4.3 F	1.4	4	3
196	09	23	19	34.3	40.64 S	173.57 E	113	5.0 F	1.2	8	5
197	10	04	15	20.3	38.86 S	178.74 E	12 R	~4.3	1.2	4	3
198	12	10	11	41.9	37.00 S	177.50 E	33 R	~5.1 F	0.6	2	1
199	13	07	31	16.7	44.42 S	168.48 E	12 R	6.2 F	1.5	10	10
200	13	08	18	11.0	44.40 S	168.50 E	33 R	~4.4 F	2.6	2	1
201	13	08	39	10.4	44.09 S	168.37 E	12 R	~4.9 F	0.1	4	2
202	13	08	47	24.4	43.88 S	168.08 E	12 R	~4.6 F	1.8	4	2
203	13	08	53	55.8	44.40 S	168.50 E	12 R	~4.8 F	1.6	2	1
204	13	09	21	26.1	43.43 S	168.60 E	12 R	4.4 F	1.0	4	2
205	13	16	11	30.3	43.34 S	171.43 E	12 R	~3.4 F	1.0	4	2
206	16	09	02	07.7	40.00 S	174.80 E	12 R	~3.2 F	ND	1	1
207	16	11	07	39.1	40.50 S	174.50 E	12 R	4.4 F	1.1	4	2
208	17	20	28	38.1	38.53 S	175.81 E	12 R	4.1 F	0.6	5	3
209	18	13	00	10.7	42.68 S	174.34 E	33 R	4.8	0.7	6	4
210	20	17	24	16.5	41.70 S	171.50 E	12 R	~3.2 F	ND	1	1
211	22	15	25	25.9	38.65 S	178.75 E	33 R	5.1 F	1.0	8	5
212	23	13	54	05.5	38.51 S	176.67 E	52	5.0 F	0.3	7	7
213	25	03	33	04.8	37.88 S	176.83 E	260	5.0 F	0.3	5	4
214	26	09	27	43.7	40.22 S	175.23 E	12 R	3.9 F	ND	3	2
215	26	11	57	56.0	39.50 S	174.86 E	144	5.4 F	1.4	8	6
216	27	07	12	30.0	38.00 S	178.00 E	12 R	~4.7 F	1.4	2	2
217	27	07	30	17.0	38.00 S	178.00 E	12 R	~4.3 F	1.4	2	1
218	29	09	40	35.3	46.50 S	166.50 E	12 R	~4.9 F	1.4	2	2
219	31	00	50	20.1	38.43 S	176.68 E	12 R	4.5 F	0.7	6	3
220	NOV 01	03	17	26.6	38.01 S	177.91 E	12 R	4.6 F	0.7	7	3
221	01	13	25	18.7	40.65 S	173.27 E	12 R	4.3	1.0	6	4
222	04	09	07	47.3	37.92 S	178.20 E	12 R	~4.3 F	0.4	5	3
223	04	09	11	50.1	38.50 S	179.00 E	12 R	~4.4 F	ND	1	1
224	05	19	53	45.4	40.48 S	173.02 E	12 R	3.9 F	ND	3	3
225	06	03	39	35.6	43.98 S	169.17 E	33 R	~4.5 F	ND	3	2

REF NUM	ORIGIN TIME				LATITUDE deg	LONGITUDE deg	DEPTH km	MAG	S.E.	NUM OBS	NUM STN
		h	m	s							
226 NOV	08	22	41	10.1	39.47 S	179.46 E	12 R	5.9F	1.7	13	7
227	08	22	43	48.7	39.32 S	179.57 E	12 R	5.5	1.4	5	4
228	09	02	04	59.0	39.69 S	177.70 E	12 R	4.2	ND	3	3
229	09	16	02	59.4	41.07 S	174.61 E	12 R	~4.0 F	1.0	4	3
230	15	08	28	07.3	39.14 S	176.01 E	110	4.6	0.5	6	4
231	18	22	25	36.0	44.50 S	169.00 E	12 R	~4.1 F	ND	1	2
232	22	04	55	57.7	40.90 S	172.80 E	12 R	~3.2 F	1.6	3	3
233	22	18	58	28.8	40.16 S	174.65 E	12 R	3.8 F	0.6	4	2
234	23	03	41	36.3	40.16 S	174.84 E	12 R	3.8 F	0.4	4	2
235	23	07	41	03.3	40.10 S	174.90 E	12 R	~3.2 F	0.9	2	2
236	23	21	40	37.2	41.45 S	172.44 E	12 R	3.9	1.6	4	3
237	25	18	43	20.4	41.66 S	172.45 E	12 R	~3.6 F	1.2	6	3
238	25	23	59	00.7	38.47 S	176.01 E	12 R	4.8 F	0.3	7	7
239	27	05	25	47.4	41.21 S	175.61 E	12 R	4.1 F	1.0	4	2
240 DEC	03	16	37	31.0	38.00 S	177.50 E	12 R	~3.7 F	0.3	2	1
241	04	20	46	39.6	36.63 S	177.65 E	249	5.4	2.2	6	5
242	05	23	21	09.9	35.70 S	177.52 W	184	6.1	0.5	6	5
243	06	01	05	53.9	43.03 S	173.07 E	12 R	4.5	1.5	8	3
244	06	19	35	35.7	41.11 S	173.57 E	96	~4.6 F	1.6	6	4
245	10	07	13	24.9	41.61 S	174.42 E	12 R	4.1	1.1	5	3
246	11	10	59	14.7	42.10 S	174.91 E	12 R	4.1 F	0.9	4	2
247	11	14	20	34.4	41.13 S	172.62 E	12 R	4.6 F	0.4	4	3
248	12	14	38	23.4	40.70 S	174.70 E	12 R	~3.7 F	0.6	3	2
249	13	07	09	27.3	40.17 S	175.07 E	12 R	3.9	0.2	4	3
250	15	13	17	22.7	40.09 S	175.10 E	12 R	3.7 F	0.4	5	3
251	15	14	21	10.8	38.78 S	176.04 E	164	5.1	0.9	6	4
252	18	07	10	16.8	39.42 S	175.90 E	33 R	4.8 F	0.7	7	5
253	19	16	04	05.1	38.22 S	176.23 E	294	5.6	1.1	7	4
254	22	14	53	30.7	39.33 S	176.93 E	12 R	~3.5 F	0.6	8	4
255	26	02	40	11.7	38.09 S	176.69 E	149	5.1 F	2.2	8	6
256	28	17	30	22.0	40.71 S	172.65 E	12 R	~3.5 F	0.8	4	3
257	29	14	54	29.5	41.50 S	174.80 E	12 R	~ F	0.5	2	1
258	31	17	08	16.8	39.09 S	177.77 E	12 R	4.8 F	1.4	9	5
259	31	22	26	21.0	38.29 S	175.87 E	33 R	4.6	0.5	6	3

STATION READINGS

The following section sets out for each shock the arrival times of the various phases at the individual stations, the maximum amplitudes recorded, and the results of the associated calculations of origins and magnitudes. When appropriate, provisional reference numbers, a summary of the felt information, and references to other published data are also given.

The data are presented as follows: After the reference number of each shock the parameters of its origin, the standard error of the residuals, and the adopted magnitude are given. Details of the magnitude calculation have been described above in the section preceding the summarised results, and in current Reports, which also contain details of the epicentre calculations and the crustal model on which they depend. The standard error is derived from the equation

$$\text{S.E.} = \sqrt{\frac{\sum_{i=1}^{n} (w_i \, r_i / 100)^2}{n - m}}$$

where r_i is the i th residual, w_i is its weight, n the number of readings, and m the number of parameters determined. Below each parameter of the origin, its standard error is printed, or if the parameter was restricted to a particular value, the letter R. When the number of readings and the number of parameters to be determined is the same, the standard error is not defined. This is indicated by printing ND.

The information listed for each station includes the arrival times of the various phases, the directions of ground motion, the residuals, the epicentral distance in degrees (1° = 111km), the azimuth of the station from the epicentre, in degrees east of north, and magnitudes computed as already described.

Residuals are listed for all readings used in calculating the origin and in certain other cases. A weight, in the range 0 to 100, is assigned to each residual by Jeffreys' method (Jeffreys, H., 1939: *Probability Theory*, Cambridge University Press), which severely diminishes the weight given to residuals greater than three standard errors. The absence of a weight indicates that that reading was suppressed by the seismologist who processed the earthquake, and was not used in determining the origin.

45/ 001

JAN 01 $01^h08^m13^s.8$ 37°.54S 177°.36E 12 km M = 4.8
± 1.7 0.06 0.09 R S.E. of RES. 1.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	Pg	01	08	40		0.3	100	1.28	187	4.7
	e			45						
	S*			52		−1.7	99			
	e		09	05						
	e			13						
	e			19						
AUC	Pn	01	08	45		−3.9		2.17	287	
	Sn		09	15		−0.3	100			
	i			37						
NPZ	iP*	01	09	05		−1.1	100	3.00	238	3.8s
	Pg			12		−2.4				
	eSg			55		0.1	100			
WEL	Pn	01	09	18		0.8	100	4.25	207	4.9
	Sn		10	07		1.8	99			
CHR	Sn	01	11	14		3.0		6.98	210	4.9s

AMPLITUDES: TUA 10 NPZ 0.3 WEL 2.0
CHR 0.5

PRO: 45/1

FELT: Wairoa (53), MM IV.

45/ 002

JAN 02 $04^h56^m43^s.8$ 39°.91S 177°.06E 12 km M = 5.6
± 0.7 0.03 0.05 R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	P*	04	57	04		0.2	100	1.10	4	5.4
	iPg			09		2.8	98			
	S*			17		−1.5	100			
BUN	Pg	04	57	09		1.7	100	1.16	251	
	S*			21		0.8	100			
ARA	Sn	04	57	48		3.4		2.14	329	
WEL	P*	04	57	23		0.1	100	2.22	231	5.5
	Sn			48		1.5	100			
NPZ	Pn	04	57	23		0.1	100	2.46	289	5.5
	P*			30		3.0				
	ePg			33		−0.5	100			
	e			40						
	Sn			52		−0.3	100			
	S*			57		−2.2	99			
	eSg		58	08		1.3	100			
	e			15						
AUC	Pn	04	57	35		−2.5	99	3.54	329	
	iPg			57		1.8	100			
	i		58	10						
	Sn			21		2.9				
	S*			40		8.6				
	i		59	00						
	i			35						
CHR	P*	04	58	08		−0.7	100	4.91	221	5.6
	iPg			23		0.0	100			
	Sn			50		−1.1	100			
	S*		59	06		−6.6				

	e		39					
KAI	e	04 58	18			4.99	237	5.8
	i		36					
	Sn		52	−1.3	100			
	i	59	18					
	e		50					
SYD	eP	05 00	48	−46.4		21.51	278	
RIV	eP	05 01	38	3.1		21.55	278	
	eS	06	02	33.3				

AMPLITUDES: TUA 60 WEL 25 NPZ 24
CHR 6.0 KAI 5.0

PRO: 45/2

FELT: Throughout the southern half of the North Island. Maximum reported intensity MM V at Wairoa (53), Hastings, and Waipawa (60). For isoseismal map, see Hayes, 1946. Listed in ISS, which adopts the N.Z. provisional origin, and gives additional data from 3 Australian stations.

45/ 003

JAN 03 $14^h35^m51^s.4$ 41°.28S 172°.47E 12 km M = 4.0
± 1.4 0.03 0.10 R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TAK	S*	14	36	00		−7.9		0.49	31	
WEL	Pn	14	36	21		0.5	100	1.73	91	3.9
	Sn			42		−0.4	100			
NPZ	P*	14	36	35		−0.7	100	2.53	30	4.1
	Sn		37	02		0.4	100			
	S*			08		−0.9	99			
	Sg			17		0.3	100			

AMPLITUDES: WEL 1.0 NPZ 1.0

No timing at TAK.

PRO: 45/3

FELT: Takaka (72), MM III.

45/ 004

JAN 04 $23^h41^m12^s.3$ 40°.05S 176°.82E 12 km M = 4.2
± 1.4 0.07 0.11 R S.E. of RES. 1.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	P*	23	41	36		0.9	100	1.27	12	4.2
	S*			51		−0.9	100			
WEL	Sn	23	42	09		−0.5	100	1.99	231	4.2
NPZ	ePg	23	42	02		2.4		2.34	294	4.1
	Sn			18		0.1	100			

AMPLITUDES: TUA 3.0 WEL 1.5 NPZ 1.0

PRO: 45/4

45/ 005

JAN 10 $01^h00^m36^s.8$ 40°.51S 173°.88E 12 km M ~ 3.8
± 0.3 0.01 0.04 R S.E. of RES. 0.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	01	00	56		0.5	99	1.03	139	3.8
	S*		01	09		−0.3	100			
NPZ	Sn	01	01	21		−0.1	100	1.45	6	

CHR	Sn	01	02	02		−0.1	100	3.16	197	4.2s

AMPLITUDES: WEL 2.5 CHR 0.5

PRO: 45/5

45/ 006

JAN 13 $13^h27^m52^s.5$ 39°.94S 175°.31E 12 km M ~ 3.6

± 0.7 0.03 0.04 R S.E. of RES. 1.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	Sn	13	28	32		−1.0	99	1.30	312	3.6
	eSg			37		0.7	100			
WEL	Sg	13	28	40		0.0	100	1.40	197	3.2s
TUA	Sg	13	28	54		0.1	100	1.82	52	3.8s

AMPLITUDES: NPZ 1.0 WEL 0.3 TUA 0.5

PRO: 45/6

45/ 007

JAN 14 $21^h07^m59^s.6$ 40°.37S 174°.12E 12 km M = 4.9

± 0.4 0.02 0.03 R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	Pg	21	08	20		−0.7	100	1.03	152	4.4
	Sg			35		0.2	100			
TAK	S*	21	08	00		−34.6		1.11	244	
NPZ	Pg	21	08	27		1.0	100	1.30	358	5.0
	Sg			44		0.4	100			
TUA	P*	21	08	49		0.2	100	2.82	57	4.9
	Sn		09	16		−0.6	100			
	S*			26		0.4	100			
KAI	Sn	21	09	19		−1.2	99	2.96	223	5.0
CHR	Pg	21	09	04		−3.3		3.35	199	5.3
	e			25						
	e			27						
	eSn			31		1.5	99			
AUC	iP*	21	09	00		−1.2	99	3.55	9	
	Sn			30		−4.1				

AMPLITUDES: WEL 9.0 NPZ 26 TUA 2.5
KAI 2.5 CHR 6.0

No timing at TAK.

PRO: 45/7

FELT: Kahurangi Point (72), MM IV, Collingwood, and Takaka.

45/ 008

JAN 18 $18^h01^m17^s.3$ 40°.44S 173°.38E 205 km M = 5.0

± 1.7 0.06 0.12 14 S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P	18	01	52		1.6	99	1.35	129	5.0
	S		02	16		0.0	100			
NPZ	Pn	18	01	52		0.6	100	1.48	22	3.9*
	Sn		02	17		−0.8	100			
KAI	Sn	18	02	38		0.6	100	2.56	215	3.8s
CHR	Sn	18	02	48		−1.6	99	3.14	190	4.6*
TUA	iP	18	02	11		−0.7	100	3.34	62	5.0
	S			50		−3.8				

AMPLITUDES: WEL 10 NPZ 2.0 KAI 0.5

CHR 4.0 TUA 1.5

PRO: 45/10

45/ 009

JAN 27 $22^h38^m25^s.0$ 46°.22S 166°.77E 12 km M ~ 4.9

± 7.2 0.66 0.74 R S.E. of RES. 3.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
MNW	S*-P*			10		0.0	100	0.73	54	
CHR	Sn	22	40	35		1.7	100	4.95	59	4.9
	e			48						
KAI	Sn	22	40	35		1.3	100	4.97	44	4.8s
	e			45						
WEL	Sn	22	41	34		−3.0	99	7.60	52	4.6s

AMPLITUDES: CHR 1.0 KAI 0.5 WEL 0.3

PRO: 45/12

45/ 010

FEB 01 $12^h20^m32^s.9$ 39°.24S 175°.76E 12 km M = 4.1

± 0.7 0.05 0.04 R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP*	12	20	55		1.0	100	1.17	69	4.2
	S*		21	09		−0.5	100			
	Sg			14		1.7				
NPZ	P*	12	20	55		−1.5	99	1.32	277	3.8
	S*		21	15		0.9	100			
WEL	S*	12	21	40		0.0	100	2.19	200	4.3

AMPLITUDES: TUA 2.0 NPZ 1.0 WEL 1.5

PRO: 45/13

45/ 011

FEB 14 $16^h20^m10^s.3$ 36°.65S 175°.91E 12 km M ~ 3.9

± 1.6 0.06 0.07 R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
AUC	S*	16	20	40		0.0	100	0.94	257	
NPZ	ePn	16	20	54		−0.2	100	2.82	211	~3.9s
	Sn		21	28		0.6	99			
	iS*			36		−0.4	100			
	i			44						

AMPLITUDES: NPZ 0.5

PRO: 45/14

FELT: Thames (21), MM III.

45/ 012

FEB 18 $13^h31^m00^s.0$ 41°.16S 172°.90E 12 km M = 4.5

± 0.3 0.02 0.04 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TAK	S*	13	31	00		−11.1		0.31	347	
WEL	Pn	13	31	24		−0.8	100	1.41	96	4.3
	Sn			43		−0.3	100			
KAI	ePn	13	31	30		0.4	100	1.76	219	4.6
	Sn			50		−1.7	98			
NPZ	ePn	13	31	37		0.4	100	2.28	24	4.5
	eP*			39		−1.0	100			

	ePg			47		0.9	100			
	Sn		32	04		−0.1	100			
	e			06						
	eS*			13		3.1				
	eSg			17		0.2	100			
	e			19						
CHR	ePn	13	31	38		0.0	100	2.38	185	4.6
	iP*			43		1.2	99			
	e		32	01						
	iSn			07		0.4	100			
	iS*			10		−3.0				

AMPLITUDES: WEL 4.5 KAI 2.5 NPZ 2.5
CHR 2.5

No timing at TAK.

PRO: 45/15

FELT: North-West Nelson (72, 74, 75), MM IV.

45/ 013

FEB 24 $04^h21^m29^s.4$ 38°.52S 175°.91E 12 km M = 4.7
± 0.8 0.06 0.04 R S.E. of RES. 1.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	P*	04	21	47		−0.8	100	1.02	107	4.8
	iPg			50		0.0	100			
	Sg		22	05		1.3	100			
	i			09						
NPZ	Pn	04	21	58		2.1	99	1.54	249	4.2
	iPg		22	02		1.5	100			
	Sg			26		4.8				
	i			35						
AUC	Pn	04	22	00		−0.6	100	1.88	331	
	Sn			22		−2.0				
WEL	Pn	04	22	12		−2.5	99	2.90	197	5.2
	Sn			50		1.6	100			
KAI	Sn	04	23	44		−1.4	100	5.27	219	5.3s
CHR	ePn	04	22	50		−1.2	100	5.59	205	
	Sn		23	50		−3.0				
	i		24	02						
	i			05						

AMPLITUDES: TUA 10 NPZ 1.5 WEL 3.0
KAI 0.5

PRO: 45/17

45/ 014

FEB 24 $07^h32^m04^s.6$ 40°.06S 174°.41E 129 km M ~ 4.1
± 1.6 0.04 0.08 15 S.E. of RES. 1.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	P	07	32	29		1.1	99	1.03	345	4.2*
	S			45		−0.7	100			
WEL	P	07	32	31		0.8	100	1.25	167	4.1
	S			50		0.3	100			
TUA	eS	07	33	15		−0.5	100	2.47	60	4.0s
CHR	S	07	33	44		−0.9	100	3.71	200	4.0*

AMPLITUDES: NPZ 6.5 WEL 2.0 TUA 0.3
CHR 1.0

PRO: 45/18

45/ 015

FEB 25 $02^h07^m10^s.9$ 43°.64S 171°.46E 12 km M = 4.1
± 6.1 0.20 0.29 R S.E. of RES. 3.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	P*	02	07	28		1.4	100	0.85	83	4.4
	S*			36		−2.1	100			
	e			48						
KAI	S*	02	07	45		−1.0	100	1.12	358	3.8
WEL	S*	02	08	56		1.7	100	3.39	47	4.1s

AMPLITUDES: CHR 11 KAI 1.0 WEL 0.5

PRO: 45/19

45/ 016

FEB 25 $17^h11^m54^s.9$ 39°.87S 174°.07E 214 km M ~ 4.3
± 1.3 0.04 0.07 9 S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	P	17	12	26		0.9	99	0.80	0	3.3s
	S			48		−0.5	100			
WEL	P	17	12	30		−0.2	100	1.51	160	4.3
	S			58		0.5	100			
TUA	eS	17	13	17		−0.2	100	2.61	67	4.4s
CHR	S	17	13	42		−0.4	100	3.82	196	4.4*

AMPLITUDES: NPZ 0.5 WEL 1.5 TUA 0.5
CHR 2.0

PRO: 45/20

45/ 017

MAR 09 $15^h21^m37^s.9$ 40°.90S 174°.60E 12 km M = 3.9
± R R R R S.E. of RES. 1.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	15	21	46		0.0	100	0.40	162	3.5
	S*			55		3.3	99			
NPZ	Pn	15	22	08		−1.0	100	1.87	347	4.2
	Sn			32		−0.3	100			
	eS*			36		0.2	100			
	eSg			39		−2.2	100			
	e			47						

AMPLITUDES: WEL 8.5 NPZ 2.0

PRO: 45/22

FELT: Karori (68), MM IV.

45/ 018

MAR 09 $19^h11^m48^s.8$ 41°.10S 174°.70E 12 km M ~ 3.5
± R R R R S.E. of RES. 1.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	19	11	53		−0.2	100	0.19	165	
	Sg			58		1.8	100			
NPZ	iSn	19	12	46		−2.3	99	2.09	346	~3.5s
	Sg		13	00		0.8	100			

AMPLITUDES: WEL 10 NPZ 0.3

PRO: 45/23

FELT: Paraparaumu (65), MM II.

45/ 019

MAR 11 $19^h22^m10^s.3$ $39°.00$S $174°.00$E 12 km

± R R R R S.E. of RES. 0.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	Pg	19	22	13		−0.1	100	0.09	139	0.0+
	Sg			15		0.0	100			

AMPLITUDES: NPZ 22+

PRO: 45/24

FELT: New Plymouth (47), MM IV.

45/ 020

MAR 12 $18^h51^m48^s.5$ $39°.00$S $174°.00$E 12 km

± R R R R S.E. of RES. 0.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	Pg	18	51	51.5		0.2	100	0.09	139	
	Sg			53		−0.1	100			

AMPLITUDES: NPZ 8.0

PRO: 45/25

FELT: New Plymouth (47), MM III.

45/ 021

MAR 12 $22^h02^m02^s.0$ $41°.15$S $172°.52$E 12 km M ~ 3.7

± 0.2 0.01 0.02 R S.E. of RES. 0.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TAK	S*	22	02	00		−14.6		0.36	36	
KAI	Sn	22	02	50		−0.0	100	1.61	211	3.6s
WEL	Pn	22	02	31		0.3	99	1.70	95	~3.5s
	Sn			52		−0.2	100			
NPZ	ePn	22	02	40		−0.2	100	2.39	30	~3.8s
	i		03	04						
	iSn			09		0.1	100			

AMPLITUDES: KAI 0.3 WEL 0.5 NPZ 0.5

No timing at TAK.

PRO: 45/26

FELT: Takaka (72), MM III.

45/ 022

MAR 12 $23^h49^m30^s.6$ $41°.56$S $173°.46$E 12 km M = 5.4

± 0.4 0.03 0.04 R S.E. of RES. 1.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TAK	S*-P*			11		−0.6	100	0.86	325	
WEL	P*	23	49	50		0.8	100	1.03	75	5.0
	S*		50	04		1.1	100			
KAI	Pn	23	50	02		1.2	100	1.81	237	5.2
	Sn			25		1.6	99			
CHR	ePn	23	50	03		−1.3	100	2.07	197	5.8
	Sn			28		−1.6	99			
NPZ	Pn	23	50	12		1.3	100	2.54	11	5.4+

	iPg		24	2.1					
	Sn		40	−0.9	100				
	S*		51	2.8					
TUA	ePn	23 50	30	0.1	100	3.94	47		5.4
	iP*		38	−1.0	100				
	Sn	51	11	−3.7					
AUC	Pn	23 50	41	−0.6	100	4.81	13		
	Sn	51	35	−0.4	100				
	iS*		52	−4.2					
	i	52	12						
	i		26						

AMPLITUDES: WEL 39 KAI 11 CHR 44
NPZ 18+ TUA 4.5

PRO: 45/27

FELT: Mainly at places near Cook Strait. Maximum reported intensity, MM IV. Listed in ISS, which adopts N.Z. provisional origin. No additional data are given.

45/ 023

MAR 15 $20^h26^m40^s.6$ 40°.14S 174°.20E 12 km M = 5.1
± 0.4 0.02 0.03 R S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	P*	20	27	01		0.8	100	1.08	355	4.9+
	S*			14		−0.6	100			
WEL	P*	20	27	03		0.4	100	1.22	160	5.3
	S*			19		0.1	100			
TUA	Pn	20	27	23		0.8	100	2.65	61	4.9
	eP*			27		0.1	100			
	e			30						
	Sn			57		3.5				
	S*		28	00		−1.5	99			
	e			06						
	eSg			10		0.3	100			
KAI	Pn	20	27	34		4.5		3.18	221	5.2
	eP*			38		2.0	98			
	ePg			49		4.2				
	S*		28	16		−1.5	99			
AUC	Pn	20	27	40		8.8		3.30	8	
	Sn		28	20		10.6				
	S*			32		10.6				
CHR	eP*	20	27	43		0.0	100	3.59	199	5.1
	Sn		28	15		−1.1	100			

AMPLITUDES: NPZ 35+ WEL 55 TUA 2.5
KAI 3.5 CHR 3.0

Error of 10 seconds in reading times at AUC suspected.

PRO: 45/28

FELT: Scattered places in central and southern parts of the North Island (39, 58, 61, 65, 68), MM III.

45/ 024

MAR 18 $09^h02^m16^s.0$ 40°.32S 173°.58E 184 km M ~ 4.2
± 5.8 0.12 0.22 44 S.E. of RES. 2.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	S	09	03	10		−0.6	100	1.30	17	3.3s

WEL	P	09	02	48	1.1	100	1.32	137		4.2
	S		03	11	0.2	100				
KAI	S	09	03	39	1.1	100	2.74	216		3.6s
CHR	S	09	03	48	−1.8	99	3.28	192		4.2*

AMPLITUDES: NPZ 0.5 WEL 2.0 KAI 0.3
CHR 1.5

PRO: 45/29

45/ 025

MAR 18 $18^h22^m32^s.1$ 41°.00S 175°.80E 12 km M ~ 3.5
± R R R R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	18	22	48		0.6	100	0.83	250	3.5
	S*			58		−0.6	100			

AMPLITUDES: WEL 2.0

PRO: 45/30

FELT: Masterton (66), MM III.

45/ 026

MAR 19 $16^h34^m34^s.6$ 39°.30S 177°.10E 12 km M ~ 4.1
± R R R R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	Pn	16	35	12		−0.4	100	2.37	275	4.1
WEL	Pn	16	35	16		−0.5	100	2.66	221	3.9s
	Sn			49		0.9	99			

AMPLITUDES: NPZ 1.0 WEL 0.5

An early movement reported from TUA cannot be related.

PRO: 45/31

FELT: Wairoa (53), MM IV.

45/ 027

MAR 19 $17^h45^m17^s.2$ 41°.00S 175°.70E 12 km M ~ 3.8
± R R R R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	17	45	32		0.6	100	0.76	248	3.8
	S*			41		−0.6	100			

AMPLITUDES: WEL 4.5

PRO: 45/32

FELT: Masterton (66), MM III.

45/ 028

MAR 24 $12^h04^m57^s.2$ 39°.89S 176°.04E 12 km M = 3.9
± 1.3 0.06 0.11 R S.E. of RES. 2.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	Sn	12	05	40		0.2	100	1.39	39	4.0
WEL	Sn	12	05	45		−2.3	99	1.69	214	3.8
NPZ	eP*	12	05	28		0.1	100	1.73	298	3.5s
	Sn			48		−0.1	100			
CHR	S*	12	07	14		2.0	99	4.45	214	4.5s

AMPLITUDES: TUA 1.5 WEL 1.0 NPZ 0.5

		CHR		0.5						

PRO: 45/33

45/ 029

MAR 29 $08^h52^m43^s.7$ 24°.07S 179°.57E 667 km M ~ 5.9

± 1.4 0.22 0.44 45 S.E. of RES. 1.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
API	iP	08	55	31		−1.5	100	13.08	40	
	iS		57	49		1.0	100			
AUC	P	08	55	35		−0.6	100	13.40	197	
	S		58	00		6.4				
TUA	eP	08	55	49		−0.3	100	14.84	187	5.8s
	S		58	19		1.0	100			
NPZ	iP	08	55	59		2.0	99	15.67	196	4.0s
	e		58	45						
WEL	P	08	56	15		−0.1	100	17.64	192	5.9
	iS		59	02		−2.6	98			
KAI	eP	08	56	37		3.9		19.61	198	4.4s
	i			45						
	i			54						
	S		59	44		7.1				
CHR	P	08	56	39		0.3	100	20.24	195	4.5s
	S		59	48		1.0	100			

AMPLITUDES: TUA 0.5 NPZ 0.3 WEL 1.0
KAI 0.3 CHR 0.5

No provisional solution.

Listed in ISS as an 'undetermined shock', with 11 additional readings, and the note 'Pacific Ocean, probably about 30°S. The readings of Apia, Riverview, and New Zealand are not sufficiently in agreement to determine the position.'

45/ 030

MAR 31 $10^h29^m43^s.5$ 41°.00S 175°.80E 12 km M ~ 3.2

± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	S*	10	30	10		0.0	100	0.83	250	3.2

AMPLITUDES: WEL 1.0

PRO: 45/35

FELT: Te Parae (66), MM II.

45/ 031

APR 01 $00^h44^m24^s.4$ 34°.60S 178°.64W 33 km M = 6.0

± 2.3 0.11 0.17 R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
AUC	Pn	00	45	46		−1.2	100	5.80	245	
	Sn		46	50		0.1	100			
	e		47	03						
	iS*			28		8.1				
	i			55						
NPZ	Pn	00	46	10		1.8	99	7.34	231	4.8s
	Sn		47	36		9.1				
WEL	Pn	00	46	23		−0.4	100	8.46	216	5.9
	Sn		47	55		1.3	100			

KAI	Sn	00	48	57	0.0	100	11.10	222	5.8
CHR	ePn	00	47	07	6.2		11.20	215	6.4
	i			55					
	Sn		48	58	−1.5	100			
	e		49	03					

AMPLITUDES: NPZ 0.5 WEL 5.0 KAI 1.0
CHR 6.0

PRO: 45/36

45/ 032

APR 08 $21^h11^m20^s.0$ 38°.85S 177°.67E 12 km M = 4.7
± 2.1 0.08 0.22 R S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	Pn	21	12	04		0.1	100	2.82	264	3.7s
WEL	Pn	21	12	10		−0.5	100	3.29	222	4.4
	S*		13	00		−0.5	100			
CHR	Sn	21	13	55		0.8	99	6.03	218	5.0

AMPLITUDES: NPZ 0.3 WEL 1.0 CHR 1.0

PRO: 45/38

45/ 033

APR 17 $09^h13^m18^s.2$ 41°.28S 175°.75E 12 km M ~ 4.2
± R R R R S.E. of RES. 0.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	09	13	32		0.0	100	0.74	269	4.2
	S*			42		−0.0	100			
NPZ	eP*	09	14	03		0.0	100	2.56	329	3.9s
	Sn			29		0.0	100			

AMPLITUDES: WEL 11 NPZ 0.5

PRO: 45/39

FELT: Wellington (68), MM IV; Masterton (66), MM III.

45/ 034

APR 23 $11^h04^m12^s.6$ 41°.00S 175°.70E 12 km M ~ 2.6
± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	S*	11	04	37		0.0	100	0.76	248	~2.6s

AMPLITUDES: WEL 0.3

PRO: 45/40

FELT: Masterton (66), MM IV.

45/ 035

MAY 05 $10^h05^m44^s.5$ 41°.78S 178°.43E 12 km M = 4.7
± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	Sn	10	07	01		0.0	100	2.79	279	4.5
TUA	Sn	10	07	09		0.0	100	3.12	341	4.5
CHR	Sn	10	07	45		0.0	100	4.63	246	5.0

AMPLITUDES: WEL 1.5 TUA 1.0 CHR 1.5

PRO: 45/42

45/ 036

MAY 05 $10^h37^m05^s.2$ 39°.69S 176°.22E 12 km M = 4.1
± 0.2 0.01 0.01 R S.E. of RES. 0.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	P*	10	37	26		0.1	100	1.14	40	4.3
	S*			41		−0.1	100			
NPZ	P*	10	37	37		0.3	99	1.77	290	3.8
	Sn			57		−0.2	100			
WEL	Sn	10	38	01		−0.1	100	1.93	214	4.1

AMPLITUDES: TUA 4.0 NPZ 1.0 WEL 1.5

PRO: 45/43

45/ 037

MAY 07 $09^h18^m42^s.6$ 38°.55S 178°.94E 12 km M = 4.5
± 3.4 0.11 0.22 R S.E. of RES. 1.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	Pn	09	19	07		−0.5	100	1.42	259	4.4
	Sn			24		−2.1	99			
	e			32						
NPZ	ePn	09	19	41		0.5	100	3.83	261	4.5
	eSn		20	26		1.9	99			
WEL	Sn	09	20	34		0.8	100	4.21	228	4.6
CHR	eSn	09	21	37		−0.6	100	6.89	222	4.6s
	i			56						

AMPLITUDES: TUA 4.0 NPZ 1.0 WEL 1.0
CHR 0.3

PRO: 45/44

45/ 038

MAY 09 $16^h50^m34^s.0$ 39°.00S 174°.00E 12 km
± R R R R S.E. of RES. 0.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	Pg	16	50	37		0.2	100	0.09	139	
	Sg			38.5		−0.2	100			

AMPLITUDES: NPZ 17

PRO: 45/45

FELT: New Plymouth (47), MM III.

45/ 039

MAY 10 $13^h17^m40^s.6$ 41°.03S 174°.00E 12 km M = 4.5
± 0.4 0.02 0.04 R S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	13	17	53		0.4	100	0.63	114	4.5
	S*		18	01		−0.2	100			
NPZ	eP*	13	18	17		1.6	99	1.97	2	4.5
	Sn			36		−1.2	99			
	iS*			41		−0.2	100			
KAI	e	13	18	45				2.45	232	4.2s
	S*			56		0.4	100			
CHR	Sn	13	18	54		−0.8	100	2.70	202	4.5

AMPLITUDES: WEL 31 NPZ 3.5 KAI 0.5
CHR 1.5

PRO: 45/46

FELT: About Cook Strait (65, 68, 77). Maximum reported intensity, MM III.

45/ 040

MAY 15 $17^h58^m55^s.3$ 40°.90S 172°.70E 12 km

± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TAK	Sg	17	59	00		0.0	100	0.09	59	

No absolute timing at TAK.

PRO: 45/47

FELT: Takaka, MM I.

45/ 041

MAY 17 $16^h28^m54^s.0$ 42°.80S 171°.80E 12 km M ~ 4.5

± R R R R S.E. of RES. 1.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	S*	16	29	09		1.4	99	0.40	313	
CHR	P*	16	29	11		−0.3	100	0.95	141	4.5
	S*			23		−1.1	100			

AMPLITUDES: CHR 11

PRO: 45/48

45/ 042

MAY 18 $09^h27^m49^s.6$ 42°.09S 174°.13E 12 km M = 4.9

± 0.6 0.05 0.08 R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	09	28	06		−0.8	100	0.94	31	4.7
	S*			21		1.6	100			
CHR	iPn	09	28	17		−2.9	98	1.82	217	4.9
	iP*			22		0.2	100			
	iS*			46		0.3	100			
	Sg			54		3.1				
KAI	ePn	09	28	24		0.7	100	2.06	257	5.1
	iP*			26		−0.0	100			
	Sn			50		1.4	100			
NPZ	ePn	09	28	37		0.6	100	3.02	359	4.9
	S*		29	20		−2.0	99			
TUA	eP*	09	29	00		0.8	100	4.01	36	4.4s
	eS*			58		6.5				

AMPLITUDES: WEL 24 CHR 8.0 KAI 5.5
NPZ 4.0 TUA 0.5

PRO: 45/50

FELT: Parikawa Creek (90), MM VI - VII.

45/ 043

MAY 19 $02^h41^m34^s.1$ 41°.60S 175°.00E 12 km M = 4.0

± R R R R S.E. of RES. 0.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	02	41	41		−0.4	100	0.36	331	3.8
	S*			46		−0.5	100			
NPZ	eP*	02	42	21		0.9	99	2.63	344	4.2

	iSn	46	−0.6	100	
	S*	55	0.4	100	

AMPLITUDES: WEL 22 NPZ 1.0

PRO: 45/51

FELT: Karori (68), MM III.

45/ 044

MAY 21 $18^h00^m24^s.5$ 41°.80S 173°.90E 33 km M ~ 4.1

± R R R R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	Pn	18	00	40		0.6	100	0.83	52	4.1
	Sn			50		−0.4	100			
NPZ	iSn	18	01	35		−1.1	99	2.74	3	3.9S
	iS*			49		0.8	100			

AMPLITUDES: WEL 8.0 NPZ 0.5

PRO: 45/54

FELT: Khandallah (68), Picton (78), MM III.

45/ 045

MAY 26 $16^h50^m51^s.4$ 41°.00S 174°.70E 12 km M ~ 4.3

± R R R R S.E. of RES. 2.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	16	50	55		−2.5	99	0.29	170	
	S*		51	04		2.3	100			
NPZ	ePn	16	51	24		−0.1	100	1.99	346	4.3
	iSn			49		0.4	100			
	Sg		52	03		4.5				

AMPLITUDES: WEL 25 NPZ 2.5

PRO: 45/55

FELT: Manawatu to Wellington. Maximum reported intensity MM V at Foxton (61).

45/ 046

MAY 28 $03^h10^m30^s.8$ 40°.20S 174°.50E 12 km M = 4.1

± R R R R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	03	10	51		0.2	100	1.11	169	4.1
	S*		11	03		−2.5	99			
NPZ	eP*	03	10	52		−0.1	100	1.18	344	4.0
	ePg			56		1.3	100			
	S*		11	09		1.2	100			

AMPLITUDES: WEL 4.5 NPZ 3.5

PRO: 45/56

45/ 047

JUN 03 $17^h20^m07^s.7$ 39°.52S 176°.03E 12 km M = 4.3

± 0.5 0.03 0.04 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	S*	17	20	43		−0.1	100	1.13	51	4.0
NPZ	eSn	17	20	55		−0.1	100	1.58	286	3.2S
WEL	Sg	17	21	15		−0.5	100	2.01	208	4.2

CHR	Sn	17	22	12		0.7	99	4.75	211	4.8

AMPLITUDES: TUA 2.5 NPZ 0.3 WEL 1.5
CHR 1.0

PRO: 45/57

45/ 048

JUN 06 $03^h18^m50^s.8$ $40°.64$S $172°.89$E 12 km M = 4.3
± 0.7 0.02 0.06 R S.E. of RES. 0.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	Pn	03	19	17		−0.6	99	1.57	115	4.1
	Sn			38		0.3	100			
NPZ	Sn	03	19	44		0.2	100	1.82	30	4.2
CHR	Sn	03	20	10		0.2	100	2.90	184	4.7

AMPLITUDES: WEL 2.0 NPZ 2.0 CHR 2.0

PRO: 45/58

45/ 049

JUN 06 $23^h52^m57^s.6$ $41°.80$S $172°.02$E 12 km M = 4.8
± 0.5 0.02 0.05 R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	23	53	12		−1.4	99	0.85	212	4.3
	Sg			28		1.4	99			
CHR	ePg	23	53	34		0.2	100	1.79	166	4.6
	iSg			58		0.1	100			
WEL	Pg	23	53	45		4.4		2.12	77	5.0
	Sn			58		−0.0	100			
NPZ	Pg	23	54	01		−0.2	100	3.15	31	5.0
	Sn			27		4.4				
	Sg			44		0.3	100			
TUA	eSn	23	55	02		−3.4		4.93	54	5.1

AMPLITUDES: KAI 6.0 CHR 4.0 WEL 9.0
NPZ 5.0 TUA 1.5

Readings at CHR assumed 30 sec. late, and reduced accordingly.

PRO: 45/59

45/ 050

JUN 07 $03^h42^m17^s.8$ $41°.13$S $175°.87$E 12 km M = 4.8
± 0.7 0.03 0.05 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	Pg	03	42	35		−0.0	100	0.85	259	4.8
	S*			44		−0.8	100			
BUN	eP*	03	42	22		−11.7		0.86	348	
	S*			40		−5.3				
NPZ	ePn	03	42	58		0.8	100	2.48	326	5.3
	iSn		43	27		0.2	100			
TUA	eP*	03	43	05		3.0		2.52	23	4.5
	Sn			27		−0.7	100			
CHR	eP*	03	43	16		−0.9	100	3.40	224	4.7
	Sn			50		1.2	99			
KAI	e	03	43	47				3.62	246	4.8
	Sn			54		0.0	100			
AUC	Sn	03	44	20		8.4		4.35	348	
	iSg			55		10.8				

	i	45 20					
AMPLITUDES:	WEL	37	NPZ	13	TUA	1.5	
	CHR	1.5	KAI	1.0			

PRO: 45/60

FELT: Southern parts of the North Island. Maximum reported intensity MM V at Masterton (66).

45/ 051

JUN 07 $03^h59^m15^s.8$ 41°.05S 175°.67E 12 km M = 4.1
± 0.9 0.03 0.06 R S.E. of RES. 0.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	03	59	29		−0.2	100	0.72	251	3.7
	S*			39		−0.0	100			
NPZ	eP*	03	59	57		0.3	99	2.33	328	4.5
	Sn	04	00	21		−0.1	100			

AMPLITUDES:	WEL	4.0	NPZ	2.5			

PRO: 45/61

FELT: Masterton (66), MM II.

45/ 052

JUN 08 $09^h06^m22^s.5$ 41°.61S 173°.41E 12 km M = 4.7
± 0.4 0.03 0.04 R S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	09	06	43		1.0	100	1.07	73	4.6
	S*			55		−1.2	99			
KAI	P*	09	06	54		0.5	100	1.75	238	4.6
	Sn		07	13		−0.9	100			
	S*			16		−0.6	100			
	Sg			25		3.5				
CHR	ePg	09	07	05		1.9		2.01	196	5.1
	Sn			21		0.9	100			
NPZ	ePn	09	07	03		−0.4	100	2.59	11	4.6
	iPg			13		−1.9				
	Sn			35		0.9	100			
	Sg			53		3.2				

AMPLITUDES:	WEL	15	KAI	2.5	CHR	11	
	NPZ	3.0					

PRO: 45/62

FELT: Paraparaumu (65), Wellington (68), MM II.

45/ 053

JUN 09 $07^h48^m12^s.2$ 39°.02S 175°.37E 242 km M = 4.9
± 1.1 0.06 0.07 7 S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	P	07	48	47		0.4	100	1.01	267	3.8*
	S		49	13		−0.3	100			
TUA	P	07	48	50		0.8	100	1.40	82	5.1
	S		49	17		−0.9	100			
WEL	P	07	48	58		0.7	100	2.31	191	4.7
	S		49	33		0.8	100			
CHR	eP	07	49	27		−0.8	100	4.96	204	4.6*
	eS		50	26		−0.7	100			

AMPLITUDES: NPZ 1.5 TUA 4.5 WEL 2.5
CHR 3.0

PRO: 45/63

45/ 054

JUN 14 $17^h53^m35^s.6$ 42°.66S 172°.38E 12 km M ~ 3.6
± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	P*	17	53	52		0.0	100	0.89	168	3.6
	S*		54	04		0.0	100			
WEL	Sn	17	54	39		0.0	100	2.25	53	3.8s

AMPLITUDES: CHR 1.5 WEL 0.5

PRO: 45/65

FELT: Hanmer Springs (88), MM IV.

45/ 055

JUN 14 $22^h43^m14^s.7$ 41°.60S 175°.00E 12 km M ~ 4.2
± R R R R S.E. of RES. 0.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	22	43	22		0.0	100	0.36	331	4.2
	S*			27		−0.1	100			

AMPLITUDES: WEL 52

PRO: 45/67

FELT: Wellington (68), MM IV.

45/ 056

JUN 19 $18^h27^m40^s.3$ 40°.57S 173°.38E 12 km M = 3.9
± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	S*	18	28	20		−0.1	100	1.27	125	3.6
NPZ	Sn	18	28	28		0.0	100	1.59	20	3.7
CHR	Sn	18	29	02		−0.1	100	3.01	190	4.4

AMPLITUDES: WEL 1.0 NPZ 1.0 CHR 1.0

PRO: 45/69

45/ 057

JUN 22 $12^h07^m18^s.1$ 41°.34S 175°.77E 12 km M = 4.2
± 1.7 0.05 0.09 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	12	07	33		0.8	100	0.76	274	4.0
	S*			42		−0.4	100			
NPZ	eP*	12	08	04		0.1	100	2.61	330	4.3
	ePg			10		−1.0	99			
	Sn			30		−0.3	100			
	S*			39		0.8	100			

AMPLITUDES: WEL 8.0 NPZ 1.5

PRO: 45/70

FELT: Wellington (68), MM II.

45/ 058

JUN 25 $18^h08^m36^s.9$ 43°.30S 171°.50E 12 km M ~ 3.3
± R R R R S.E. of RES. 1.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	S*	18	09	03		−1.1	100	0.85	106	3.3
	Sg			07		1.1	100			

AMPLITUDES: CHR 1.0

PRO: 45/71

FELT: Lake Coleridge (100), MM IV.

45/ 059

JUN 29 $11^h19^m18^s.9$ 40°.16S 173°.62E 12 km M = 3.7
± 0.6 0.02 0.07 R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	S*	11	19	55		−0.1	100	1.15	18	3.6
WEL	P*	11	19	45		0.6	99	1.42	142	3.7
	Sn		20	02		−0.4	100			
CHR	eSn	11	20	51		−0.1	100	3.45	192	4.3s

AMPLITUDES: NPZ 1.5 WEL 1.0 CHR 0.5

PRO: 45/73

45/ 060

JUL 02 $00^h07^m01^s.6$ 39°.32S 174°.98E 205 km M = 4.7
± 1.8 0.07 0.09 13 S.E. of RES. 1.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	P	00	07	30		−0.5	100	0.75	289	3.2s
	S			53		0.1	100			
TUA	P	00	07	39		0.5	100	1.76	74	4.8
	S		08	06		−0.9	100			
WEL	P	00	07	42		1.5	99	1.97	185	4.5
	S		08	11		0.4	100			
CHR	S	00	09	04		−1.3	99	4.57	202	4.5*

AMPLITUDES: NPZ 0.5 TUA 2.5 WEL 2.0
CHR 2.5

PRO: 45/74

45/ 061

JUL 05 $21^h18^m32^s.3$ 39°.17S 176°.08E 12 km M = 4.3
± 0.1 0.01 0.01 R S.E. of RES. 0.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	P*	21	18	49		0.0	100	0.91	67	4.3
	Sg		19	09		5.9				
NPZ	P*	21	19	00		−0.2	100	1.57	273	3.5s
	S*			21		0.1	100			
WEL	S*	21	19	44		0.0	100	2.34	205	4.2

AMPLITUDES: TUA 5.5 NPZ 0.5 WEL 1.0

PRO: 45/75

45/ 062

JUL 06 $15^h52^m44^s.7$ 42°.68S 173°.28E 12 km M = 4.8
± 0.5 0.03 0.05 R S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	P*	15	53	03		0.4	100	0.98	209	4.9
	S*			15		−0.6	100			
KAI	ePg	15	53	12		−0.9	100	1.39	276	4.8
	Sn			28		0.5	100			
WEL	P*	15	53	17		0.7	100	1.78	39	4.4
	Sg			44		−0.8	100			
NPZ	ePn	15	53	45		4.8		3.66	10	4.8
	iPg		54	00		1.3	99			
	Sn			21		−1.0	100			
TUA	Sn	15	54	47		−3.8		4.86	39	4.9

AMPLITUDES: CHR 30 KAI 6.0 WEL 3.5
NPZ 2.0 TUA 1.0

PRO: 45/76

FELT: Cheviot (96), MM IV, and about Banks Peninsula.

45/ 063

JUL 08 $18^h02^m20^s.9$ 40°.39S 175°.05E 12 km M = 3.7
± 0.7 0.01 0.11 R S.E. of RES. 0.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	18	02	38		0.2	100	0.92	193	3.3
	S*			50		−0.1	100			
NPZ	Pn	18	02	47		−0.2	100	1.52	330	4.1
	Sn		03	07		0.1	100			

AMPLITUDES: WEL 1.0 NPZ 2.5

PRO: 45/77

FELT: Palmerston North (62), MM III.

45/ 064

JUL 09 $02^h53^m05^s.6$ 42°.85S 172°.62E 12 km M = 4.1
± 0.6 0.03 0.04 R S.E. of RES. 1.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	P*	02	53	17		−1.4	100	0.68	179	4.3
	S*			29		1.2	100			
KAI	ePg	02	53	26		1.1	100	0.94	289	3.9
	iS*			34		−1.6	100			
	Sg			38		0.3	100			
WEL	Pn	02	53	39		−2.6		2.23	46	3.8s
	Sn		54	07		−1.6	100			
NPZ	iP*	02	54	15		1.1	100	3.93	17	4.2s
	iSg		55	19		0.9	100			

AMPLITUDES: CHR 14 KAI 2.0 WEL 0.5
NPZ 0.5

PRO: 45/78

45/ 065

JUL 12 $00^h45^m21^s.3$ 39°.28S 175°.10E 12 km M ~ 4.2
± 1.7 0.08 0.12 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	P*	00	45	36		−0.6	100	0.83	284	4.2
	S*			48		0.3	100			
WEL	Pn	00	45	55		0.6	100	2.02	187	3.7s
	Sn		46	19		−0.3	100			

AMPLITUDES: NPZ 9.5 WEL 0.5

PRO: 45/79

FELT: Taumarunui (39), MM IV.

45/ 066

JUL 20 $23^h56^m57^s.6$ 39°.12S 175°.91E 12 km M = 4.1

± 1.0 0.09 0.06 R S.E. of RES. 1.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	Sg	23	57	32		0.0	100	1.02	73	4.2
NPZ	ePg	23	57	28		1.4	99	1.43	272	3.9
	Sn			40		−1.3	99			
WEL	Pg	23	57	49		4.2		2.33	202	4.0s
	Sn		58	03		−0.0	100			

AMPLITUDES: TUA 3.0 NPZ 1.0 WEL 0.5

PRO: 45/88

45/ 067

JUL 24 $02^h18^m09^s.3$ 41°.73S 172°.82E 12 km M ~ 3.7

± 0.8 0.05 0.07 R S.E. of RES. 1.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	S*	02	18	51		0.6	100	1.31	233	~3.6s
WEL	Pg	02	18	42		1.7	99	1.53	74	~3.5s
	Sn			55		−0.4	100			
CHR	S*	02	19	04		−1.0	100	1.80	184	~3.7s
NPZ	S*	02	19	35		−0.9	100	2.83	20	~3.9s

AMPLITUDES: KAI 0.5 WEL 0.5 CHR 0.5
NPZ 0.5

PRO: 45/89

45/ 068

JUL 24 $10^h55^m27^s.6$ 41°.70S 174°.70E 12 km M ~ 4.0

± R R R R S.E. of RES. 2.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	10	55	35		−0.9	100	0.41	7	4.0
	S*			40		−1.7	100			
NPZ	S*	10	56	52		2.6	99	2.67	349	3.9s

AMPLITUDES: WEL 22 NPZ 0.5

PRO: 45/90

FELT: Wellington (68), MM IV.

45/ 069

JUL 27 $13^h55^m43^s.0$ 38°.29S 176°.95E 12 km M ~ 4.6

± 1.2 0.06 0.05 R S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	P*	13	55	53		−0.4	100	0.54	163	~4.8+
	S*		56	01		0.1	100			
HAS	Sn-Pn			18		0.1	100	1.35	184	
	ePn		56	07		0.1				
	e			17						
	eSn			25		0.2				
	eSg			28		−0.6				
	e			34						

NPZ	ePn	13	56	22		1.0	100	2.38	250	4.3
	eP*			25		0.2	100			
	e			32						
	Sn			50		0.4	100			
	e			53						
	S*			55		−1.0	100			
	e			57						
WEL	P*	13	56	41		−1.7	99	3.43	209	4.2s
	Sn		57	16		1.2	99			

AMPLITUDES: TUA 60+ NPZ 1.5 WEL 0.5

No absolute timing at HAS.

PRO: 45/91

FELT: Wairoa (53), MM IV.

45/ 070

JUL 28 $14^h03^m36^s.4$ 39°.12S 176°.90E 12 km M = 4.4

± 0.6 0.03 0.03 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	S*	14	03	49		−0.1	100	0.37	32	4.4+
HAS	S*-P*			08		0.8	100	0.52	185	
	P*		03	46		−0.5				
	S*			54		0.3				
	e		04	06						
	e			12						
	e			20						
NPZ	ePn	14	04	13		1.1	99	2.20	271	4.3
	eP*			18		2.9				
	ePg			28		7.1				
	iSn			39		0.4	100			
	e			42						
	S*			44		0.0	100			
	e			48						
	eSg			50		−0.6	100			
	e			57						
WEL	Sn	14	04	50		−0.9	100	2.71	216	4.4

AMPLITUDES: TUA 60+ NPZ 2.0 WEL 1.5

No absolute timing at HAS. TUA S* begins in timing gap.

PRO: 45/92

FELT: Wairoa (53), MM IV.

45/ 071

JUL 30 $12^h30^m05^s.8$ 37°.18S 176°.09E 12 km M ~ 4.5

± 2.6 0.09 0.14 R S.E. of RES. 1.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
AUC	Pg	12	30	31		3.0		1.09	286	
	S*			40		−0.2	100			
	e			55						
NPZ	P*	12	30	50		1.0	100	2.47	219	~4.0s
	e		31	07						
	Sn			16		1.6	99			
	S*			20		−1.3	100			
	e			42						
	e			45						
	e			51						

	i		32	06					
WEL	Pn	12	31	08		−1.0	100	4.23 194	~5.0s

AMPLITUDES: NPZ 0.5 WEL 0.3

PRO: 45/93

FELT: Auckland City (16), according to reports which the Auckland postmaster was unable to confirm.

45/ 072

AUG 10 $15^h07^m54^s.2$ 38°.47S 176°.03E 12 km M ~ 4.4

± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	e?	15	08	00				0.94	111	4.4
	S*			24		−0.0	100			
NPZ	Sn	15	08	43		0.0	100	1.64	248	
WEL	Sn	15	09	15		−0.1	100	2.98	199	4.5s

AMPLITUDES: TUA 5.0 WEL 0.5

Record at NPZ fogged.

PRO: 45/95

FELT: Taupo (41), MM IV.

45/ 073

AUG 13 $02^h20^m43^s.0$ 39°.47S 175°.45E 12 km M = 5.2

± 0.3 0.02 0.03 R S.E. of RES. 1.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
BUN	S*	02	21	10		0.5	100	0.83	170	
	e			24						
HAS	S*-P*			16		1.5	99	1.09	99	
	P*		21	00		−2.7				
	e			05						
	S*			16		−1.2				
	e			24						
	e			31						
	e			42						
NPZ	P*	02	21	04		0.3	100	1.14	290	4.6
	ePg			07		0.8	100			
	e			15						
	S*			20		1.1	100			
	eSg			24		2.4				
	e			30						
	e			37						
TUA	Pn	02	21	09		0.3	100	1.48	64	5.6
	eP*			10		0.6	100			
	ePg			13		0.1	100			
	e			15						
	e			18						
	e			23						
	Sn			27		−0.9	100			
	S*			33		4.0				
	Sg			41		8.1				
WEL	Pn	02	21	15		0.7	100	1.89	196	5.0
	Sn			39		1.3	100			
AUC	Pn	02	21	25		0.2	100	2.65	348	
	e			45						
	Sn			53		−3.2				

	S*		22	03	−1.4	100				
KAI	Pn	02	21	49	1.5	99	4.32	224		5.3
	Sn		22	34	−2.2	98				
CHR	Pn	02	21	48	−3.0		4.58	207		5.6
	P*		22	01	−1.3	100				
	Pg			14	−1.5	99				
	e			38						
	eSn			42	−0.4	100				
	e			45						
	e			49						

AMPLITUDES: NPZ 13 TUA 33 WEL 10
KAI 2.0 CHR 6.0

No absolute timing at HAS. Reported times at AUC have been increased by 60 sec., and those for S* and Sg at TUA reduced by the same amount.

PRO: 47/97

FELT: Wanganui (57), MM IV; Portland Island (54) and Hunterville (58), MM III.

45/ 074

AUG 15 $14^h12^m44^s.4$ 40°.20S 175°.00E 12 km M = 3.8
± R R R R S.E. of RES. 1.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	S*	14	13	20		1.0	100	1.10	189	3.6
NPZ	Sn	14	13	25		−0.9	100	1.34	327	3.9

AMPLITUDES: WEL 1.5 NPZ 2.0

PRO: 45/98

FELT: Wanganui (57), MM IV.

45/ 075

AUG 16 $21^h55^m42^s.9$ 42°.60S 171°.87E 12 km M = 3.9
± 0.7 0.04 0.05 R S.E. of RES. 1.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	P*	21	55	50		0.0	100	0.35	282	3.3
	S*			55		0.0	100			
CHR	P*	21	56	03		0.5	100	1.08	150	4.4
	Pg			08		3.1				
	S*			15		−2.0	99			
	Sg			21		1.5	99			
	e			27						
WEL	Sn	21	56	53		0.0	100	2.53	60	3.9s

AMPLITUDES: KAI 3.5 CHR 7.0 WEL 0.5

PRO: 45/99

45/ 076

AUG 17 $19^h32^m38^s.9$ 41°.14S 174°.02E 12 km M = 3.9
± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	19	32	50		−0.0	100	0.58	105	3.6
	S*			58		−0.0	100			
NPZ	Sn	19	33	38		−0.0	100	2.07	1	4.1

AMPLITUDES: WEL 5.0 NPZ 1.5

Record at NPZ made with face to drum.

PRO: 45/100

FELT: Wellington (68), MM II.

45/ 077

AUG 17 $23^h38^m19^s.5$ $43°.80$S $172°.50$E 12 km M ~ 3.5

± R R R R S.E. of RES. 1.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	P*	23	38	25		−0.5	100	0.28	19	
	S*			31		1.4	99			
KAI	Sn	23	39	04		−0.9	100	1.50	328	~3.5s

AMPLITUDES: CHR 23 KAI 0.3

PRO: 45/101

45/ 078

AUG 23 $12^h51^m36^s.4$ $42°.53$S $172°.91$E 12 km M = 4.0

± 0.4 0.02 0.03 R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	iS*	12	52	09		0.2	100	1.03	191	3.5
	e			25						
KAI	S*	12	52	11		−0.2	100	1.11	269	4.1
WEL	Sn	12	52	30		−0.5	100	1.86	49	3.9
NPZ	i	12	52	55				3.56	15	4.4
	Sn		53	12		0.5	99			

AMPLITUDES: CHR 1.0 KAI 2.0 WEL 1.0
NPZ 1.0

PRO: 45/102

45/ 079

AUG 25 $10^h12^m27^s.0$ $42°.50$S $172°.80$E 12 km M ~ 3.5

± R R R R S.E. of RES. 0.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	P*	10	12	46		0.0	100	1.04	187	3.5
	S*		13	00		0.1	100			
WEL	Sn	10	13	22		−0.2	100	1.91	51	3.4s

AMPLITUDES: CHR 1.0 WEL 0.3

PRO: 45/103

FELT: Hanmer Springs (88), MM III.

45/ 080

AUG 25 $10^h29^m44^s.6$ $42°.64$S $172°.79$E 12 km M ~ 3.8

± 0.7 0.03 0.06 R S.E. of RES. 1.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	P*	10	30	00		−1.1	100	0.90	188	3.8
	S*			14		0.7	100			
KAI	eS*	10	30	16		−1.0	100	1.03	276	3.4s
	iSn			20		1.4	100			
WEL	Sn	10	30	35		−7.0		2.00	48	3.7s
NPZ	e	10	31	19				3.70	16	4.0s
	Sn			22		−0.9	100			
	eS*			38		0.8	100			

AMPLITUDES: CHR 2.5 KAI 0.5 WEL 0.5
NPZ 0.3

Clock correction at KAI uncertain.

PRO: 45/104

FELT: Hanmer Springs (88), MM III.

45/ 081

AUG 29 $15^h57^m53^s.8$ 42°.63S 172°.73E 12 km M = 4.7
± 0.2 0.01 0.02 R S.E. of RES. 0.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	iP*	15	58	09		−1.4	91	0.91	185	4.8+
	S*			23		0.4	100			
	eSg			25		0.5	100			
	e			30						
KAI	iPg	15	58	14		0.2	100	0.98	276	4.4
	iS*			25		0.1	100			
	Sg			27		−0.0	100			
WEL	e?	15	58	09				2.02	49	4.7
	Pn			27		0.0	100			
NPZ	ePn	15	58	53		3.2		3.70	16	5.0
	iP*			58		−0.1	100			
	i		59	19						
	Sn			32		−0.1	100			
	S*			47		0.5	100			
	e			53						

AMPLITUDES: CHR 25+ KAI 5.5 WEL 5.5
NPZ 3.0

PRO: 45/105

FELT: Hanmer Springs (88), MM V.

45/ 082

AUG 29 $16^h27^m14^s.3$ 42°.66S 172°.75E 12 km M = 4.1
± 0.3 0.01 0.03 R S.E. of RES. 0.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	iP*	16	27	30		−0.4	100	0.88	186	4.0
	iPg			32		−0.2	100			
	iS*			43		0.7	100			
KAI	eP*	16	27	32		−0.5	100	1.00	277	3.9
	iS*			46		0.1	100			
WEL	Sn	16	28	12		−0.5	100	2.03	48	4.0
NPZ	iP*	16	28	23		4.0		3.73	16	4.5
	iSn			54		0.8	99			

AMPLITUDES: CHR 4.5 KAI 1.5 WEL 1.0
NPZ 1.0

PRO: 45/106

FELT: Hanmer Springs (88), Molesworth (89), MM III.

45/ 083

AUG 29 $16^h46^m28^s.9$ 42°.60S 172°.70E 12 km M ~ 3.1
± R R R R S.E. of RES. 0.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	P*	16	46	39		−6.9		0.94	183	~3.1s
	S*			58		−0.5	100			

	iSg	47 01		0.5	100		

AMPLITUDES: CHR 0.5

PRO: 45/107

FELT: Hanmer Springs (88), MM III.

45/ 084

AUG 29 $19^h59^m39^s.9$ 42°.90S 172°.80E 12 km M ~ 2.6

± R R R R S.E. of RES. 1.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	iP*	19	59	53		0.9	100	0.65	191	~2.6s
	iS*	20	00	00		−0.9	100			

AMPLITUDES: CHR 0.3

PRO: 45/108

FELT: Hanmer Springs (88), MM III.

45/ 085

AUG 29 $21^h42^m21^s.3$ 42°.63S 172°.57E 12 km M ~ 3.6

± 0.6 0.03 0.04 R S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	iS*	21	42	49		0.2	100	0.86	277	3.3s
CHR	iP*	21	42	37		−0.8	100	0.90	177	3.6
	iPg			39		−0.6	100			
	S*			51		1.1	99			
WEL	Sn	21	43	22		0.2	100	2.12	51	3.7s

AMPLITUDES: KAI 0.5 CHR 1.5 WEL 0.5

PRO: 45/109

FELT: Hanmer Springs (88), MM IV.

45/ 086

AUG 30 $04^h55^m40^s.9$ 42°.62S 172°.75E 12 km M ~ 5.1

± 0.2 0.02 0.02 R S.E. of RES. 0.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	iPg	04	55	59		−0.5	100	0.92	186	5.3+
	Sg		56	12		0.1	100			
KAI	Pg	04	56	01		−0.2	100	1.00	275	4.9+
	iSg			15		0.3	100			
TAK	eSn-Pn			21		−1.2	99	1.77	1	
	Pn		56	15		4.4				
	eSn			36		3.2				
	e			39						
	S*			46		10.4				
WEL	ePn	04	56	13		−0.8	100	2.01	49	5.1
	iP*			17		0.6	100			
	iPg			22.5		0.9	99			
	i			30.0						
	S*			43		0.2	100			
	Sg			49		0.3	100			
	e			52						
BUN	eP*	04	56	36		−0.3	100	3.18	44	
	S*		57	14		−3.9				
	eSg			27		−1.1	99			
	e		58	30						
	e			54						

	e		59	27						
ARA	Sg	04	58	42		11.0		5.05	27	
TUA	iP*	04	57	16		7.5		5.07	43	4.6s
	eS*		58	15		0.6	100			
	i			22						
AUC	Sn	04	58	21		7.5		5.96	16	
	eSg		59	05		3.3				
	e			36						
	e	05	00	16						
	e			40						

AMPLITUDES: CHR 70+ KAI 18+ WEL 14
TUA 0.5

No absolute timing at TAK. WEL record re-read. P movement at KAI begins in timing gap.

PRO: 45/111

FELT: North Canterbury and Hokitika. Maximum reported intensity MM VI at Hanmer Springs (88).

45/ 087

AUG 30 $05^h04^m59^s.1$ 42°.60S 172°.80E 12 km M ~ 3.1
± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	S*	05	05	29		0.0	100	0.94	188	~3.1s

AMPLITUDES: CHR 0.5

PRO: 45/112

FELT: Hanmer Springs (88), MM III.

45/ 088

AUG 30 $07^h15^m59^s.1$ 42°.69S 172°.75E 12 km M ~ 3.5
± 0.4 0.02 0.03 R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	iP*	07	16	14		−0.7	99	0.85	186	3.5
	iPg			16		−0.4	100			
	iS*			27		0.8	99			
KAI	eS*	07	16	31		0.1	100	1.01	279	3.2s
WEL	Sn	07	16	58		0.2	100	2.05	48	3.5s
NPZ	e	07	16	08				3.75	16	4.2s

AMPLITUDES: CHR 1.5 KAI 0.3 WEL 0.3
NPZ 0.5

PRO: 45/114

FELT: Hanmer Springs (88), MM III.

45/ 089

AUG 30 $08^h48^m40^s.1$ 42°.60S 172°.70E 12 km M ~ 3.1
± R R R R S.E. of RES. 0.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	eP*	08	48	57		−0.2	100	0.94	183	~3.1s
	S*		49	10		0.2	100			

AMPLITUDES: CHR 0.5

PRO: 45/116

FELT: Hanmer Springs (88), MM IV.

45/ 090

AUG 30 $10^h25^m45^s.4$ 42°.65S 172°.67E 12 km M = 5.4
± 0.7 0.05 0.05 R S.E. of RES. 1.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	iP*	10	26	02		0.4	100	0.88	182	5.2+
KAI	iP*	10	26	01		−1.7	100	0.94	277	4.9+
	iS*			16		0.7	100			
TAK	Sn-Pn			24		1.4	100	1.80	3	
	Pn		26	15		−0.5				
	e			36						
	Sn			39		1.0				
	e			43						
	eSg			49		2.9				
	e			53						
WEL	Pn	10	26	17		−2.2	99	2.07	50	5.3
	Sn			46		1.4	100			
BUN	eP*	10	26	43		1.1	100	3.24	44	
	S*		27	22		−2.2	99			
	e			53						
	e		28	35						
	e		29	33						
NPZ	Pn	10	26	42		0.1	100	3.73	17	5.5
	iP*			51		0.7	100			
	iSn		27	24		−0.5	100			
	S*			44		5.0				
ARA	S*	10	28	24		4.0		5.10	27	
TUA	ePn	10	27	03		2.1	99	5.13	43	4.7s
	i			19						
	eSn			54		−4.0				
	iS*		28	25		4.3				
AUC	e	10	28	35				6.00	16	
	eSg		29	12		4.3				
	e			26						
	e			45						
	e			58						
	e		30	20						

AMPLITUDES: CHR 70+ KAI 18+ WEL 17
NPZ 11 TUA 0.5

No absolute timing at TAK.

PRO: 45/117

FELT: North Canterbury and Hokitika. Maximum reported intensity MM VI at Hanmer Springs (88). For isoseismal map, see Hayes, 1946.

45/ 091

AUG 30 $10^h27^m00^s.0$ 42°.70S 172°.70E 12 km
± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	e	10	27	01				0.97	280	

No formal origin solution is possible. At all stations the phase onsets are indecipherable as a result of superimposition on the coda of the preceding shock.

PRO: 45/118

FELT: Hanmer Springs (88), MM III.

45/ 092

AUG 30 $10^h33^m13^s.3$ 42°.60S 172°.60E 12 km M ~ 3.4
± R R R R S.E. of RES. 0.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	iP*	10	33	30		−0.3	100	0.94	179	3.4
	Sg			49		4.1				
WEL	Sn	10	34	13		0.3	100	2.08	52	3.5s

AMPLITUDES: CHR 1.0 WEL 0.3

PRO: 45/119

FELT: Hanmer Springs (88), MM III.

45/ 093

AUG 30 $12^h45^m07^s.2$ 42°.64S 172°.78E 12 km M = 3.9
± 0.5 0.03 0.05 R S.E. of RES. 1.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	iP*	12	45	23		−0.7	100	0.90	187	4.1
	iS*			37		1.2	100			
	e			48						
KAI	ePg	12	45	28		0.1	100	1.02	276	3.7
	iS*			39		−0.4	100			
	e			46						
WEL	Pn	12	45	38		−2.1	98	2.01	48	4.0
	Sn		46	05		0.1	100			
NPZ	iP*	12	46	12		0.4	100	3.70	16	4.2s
	iSn			47		1.4	99			
	i			52						
	iS*		47	03		3.1				

AMPLITUDES: CHR 5.5 KAI 1.0 WEL 1.0
NPZ 0.5

PRO: 45/120

FELT: Hanmer Springs (88), MM IV.

45/ 094

AUG 30 $15^h49^m30^s.7$ 42°.64S 172°.70E 12 km M = 3.8
± 0.5 0.03 0.05 R S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	iP*	15	49	46		−1.2	99	0.90	183	3.9
	Sg		50	02		0.9	100			
	e			07						
KAI	S*	15	50	01		−0.1	100	0.95	276	3.7
WEL	Sn	15	50	29		−0.3	100	2.05	50	3.7s
NPZ	eP*	15	50	40		4.7		3.72	17	4.0s
	Sn		51	10		0.6	100			
	iS*			28		4.3				

AMPLITUDES: CHR 3.5 KAI 1.0 WEL 0.5
NPZ 0.3

Onset at KAI begins in timing gap.

PRO: 45/121

FELT: Hanmer Springs (88), MM IV.

45/ 095

AUG 30 $19^h04^m35^s.6$ $42°.60S$ $172°.70E$ 12 km M ~ 3.1
± R R R R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	P*	19	04	52		−0.7	100	0.94	183	~3.1s
	S*		05	06		0.7	100			

AMPLITUDES: CHR 0.5

PRO: 45/122

FELT: Hanmer Springs (88), MM IV.

45/ 096

SEP 01 $22^h44^m08^s.1$ $47°.47S$ $166°.12E$ 12 km M = 6.5
± 1.3 0.08 0.07 R S.E. of RES. 1.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
MNW	Sn-Pn			24		−0.4	100	1.98	32	
	Pn		44	45		4.4				
	iP*			47		3.9				
	i			57						
	Sn			59		−6.0				
	S*		45	09		−0.1				
CHR	ePn	22	45	40		4.0		6.03	52	6.7
	i		46	07						
	i			17						
	i			28						
	Sg		47	30		−1.3	100			
KAI	iPn	22	45	38		−0.2	100	6.20	39	6.4
	i		46	22						
	i			33						
	iSn			46		−0.5	100			
	i			52						
	e		47	31						
WEL	Pn	22	46	15		2.0	99	8.75	48	6.5
	Sn		47	47		−0.6	100			
BUN	eP*	22	47	00		1.3	100	9.93	47	
	e		48	27						
	e			39						
	e		49	18						
NPZ	ePn	22	46	33		0.2	100	10.20	37	6.3
	i			39						
	iSn		48	24		1.4	100			
	S*		49	17		1.5	100			
ARA	e	22	47	00				11.70	40	
	e		49	42						
	Sg		50	42		−0.1				
TUA	e	22	47	11				11.82	47	
	i			22						
	iP*			28		−2.9	98			
	i		49	16						
	e			45						
AUC	Pn	22	47	02		−0.6	100	12.38	34	
	e			30						
	e		48	00						
	e		49	35						
	e			51						
	e		50	50						

RIV	iPn	22	48	10	−5.0	17.68	315	
	Sn		51	22	−0.5 100			
BRS	iP	22	49	03	−6.7	22.61	328	
	S		53	24	11.6			

AMPLITUDES: CHR 47 KAI 13 WEL 18
NPZ 8.5

Very large amplitudes at MNW. Stylus thrown beyond edge of disk. Clock correction at ARA uncertain, and unknown at MNW.

PRO: 45/123

FELT: Most places from South Canterbury to Stewart Island. Maximum reported intensity MM V at Tuatapere (145). ISS gives an epicentre at 46.8S 165.8E, and lists data from 101 additional stations. PAS gives Ms 7.2. Hayes used felt information to obtain a focal depth of 50 km.

45/ 097

SEP 04 $17^h14^m09^s.4$ 47°.15S 165°.93E 12 km M = 5.9
± 1.6 0.12 0.07 R S.E. of RES. 1.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
MNW	Sn-Pn			23		0.5	100	1.79	41	
	Pn		15	00		20.6				
	e			04						
	e			10						
	e			20						
	Sn			23		21.1				
	e			29						
	e			38						
	e			44						
CHR	ePn	17	15	34		−2.0	99	5.94	55	6.3
	iPg		16	10		0.5	100			
	i			50						
	e		17	18						
	e			38						
	i			55						
KAI	iPn	17	15	39		1.6	99	6.04	42	5.9
	iPg		16	08		−3.4				
	i			40						
	i		17	17						
WEL	Pn	17	16	14		1.3	100	8.63	50	5.7
	Sn		17	45		−1.2	100			
NPZ	iPn	17	16	31		−0.7	100	10.03	39	5.6
	i		17	54						
	e		18	37						
ARA	e	17	16	00				11.54	42	
	Sn		19	00		3.9				
	e			42						
AUC	e?	17	16	56				12.19	36	
	ePn		17	02		0.7	100			
	e		19	42						
	e		20	30						
RIV	iPn	17	18	06		−6.0		17.37	315	
	iSn		21	16		−0.2	100			
BRS	iP	17	19	00		−7.7		22.27	328	
	i			23						

AMPLITUDES: CHR 19 KAI 4.5 WEL 2.5

NPZ 2.0

Clock correction at ARA uncertain, and unknown at MNW.

PRO: 45/124

FELT: Places on the northern coast of Foveaux Strait. Maximum reported intensity MM V at Puysegur Point (146). ISS gives epicentre at 46.8S 165.8E, and lists data from 10 additional stations.

45/ 098

SEP 10 $12^h20^m59^s.0$ 41°.16S 172°.60E 12 km M = 4.2

± 0.6 0.03 0.05 R S.E. of RES. 1.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	iSn	12	21	47		−0.5	100	1.63	213	3.8s
WEL	Pn	12	21	28		1.1	99	1.64	95	4.0
	Sg			54		−0.3	100			
CHR	eSn	12	22	05		−0.3	100	2.38	180	3.7s
NPZ	i?	12	21	16				2.38	29	4.3
	iPn			38		1.1	100			
	iSg		22	18		−1.0	100			

AMPLITUDES: KAI 0.5 WEL 1.5 CHR 0.3
NPZ 1.5

PRO: 45/125

FELT: Karamea (74), MM III.

45/ 099

SEP 14 $04^h04^m14^s.3$ 41°.20S 172°.60E 12 km M ~ 3.5

± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	Sn	04	05	03		0.0	100	1.64	94	~3.5s

AMPLITUDES: WEL 0.5

PRO: 45/126

FELT: Upper Takaka (72), MM III.

45/ 100

SEP 15 $18^h49^m54^s.8$ 41°.14S 172°.96E 12 km M = 4.4

± 0.5 0.03 0.06 R S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TAK	i	18	50	00				0.31	338	
WEL	Pn	18	50	18		−1.1	100	1.38	97	4.1
	Sn			38		0.8	100			
KAI	iSn	18	50	48		0.5	100	1.80	219	4.4
	Sg			59		3.4				
NPZ	i?	18	50	27				2.24	23	4.6
	iPn			31		0.0	100			
	iP*			33		−1.3	99			
	i			52						
	iSn			58		−0.1	100			
	iS*		51	05		1.2	99			

AMPLITUDES: WEL 2.5 KAI 1.5 NPZ 3.5

Very large amplitudes at TAK. Clock correction unknown. KAI record badly processed.

PRO: 45/127

FELT: North-west Nelson. Maximum reported intensity MM IV at Kahurangi Point (72).

45/ 101

SEP 15 $19^h01^m47^s.1$ 41°.38S 172°.97E 12 km M = 5.0
± 0.3 0.02 0.03 R S.E. of RES. 0.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TAK	S*-P*			07		−0.5	100	0.54	347	
WEL	P*	19	02	12		0.5	100	1.36	87	5.3
	Sn			29		−0.2	100			
KAI	Sn	19	02	36		0.3	100	1.63	225	4.4
CHR	eP*	19	02	25		−0.2	100	2.17	187	5.3
	iSn			48		−0.5	100			
NPZ	iPn	19	02	27		0.8	99	2.47	20	4.9
	iSn			55		−0.6	100			
	Sg		03	12		1.9				

AMPLITUDES: WEL 47 KAI 2.0 CHR 14
NPZ 6.0

KAI record badly processed. TAK register notes "small and doubtful".

PRO: 45/128

FELT: North-west Nelson (72,74) and Wellington (68).

45/ 102

SEP 17 $03^h39^m16^s.9$ 38°.88S 178°.57E 12 km M = 5.0
± 2.0 0.08 0.12 R S.E. of RES. 1.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	P*	03	39	36		−0.9	100	1.11	273	4.9
	S*			51		−0.7	100			
NPZ	ePn	03	40	11		0.7	100	3.51	266	5.2
	Sn			52		1.5	99			
WEL	P*	03	40	22		−0.5	100	3.78	229	4.8
	Sn			57		−0.0	100			

AMPLITUDES: TUA 19 NPZ 6.0 WEL 2.0

PRO: 45/129

FELT: Tolaga Bay (37), MM IV.

45/ 103

SEP 19 $09^h34^m15^s.1$ 40°.10S 176°.44E 12 km M = 4.0
± 1.2 0.06 0.11 R S.E. of RES. 1.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	Sn	09	34	58		−0.2	100	1.40	23	4.1
WEL	P*	09	34	47		1.2	99	1.74	227	3.9
	Sn		35	05		−1.1	100			
NPZ	Sn	09	35	15		0.1	100	2.11	299	3.7s

AMPLITUDES: TUA 2.0 WEL 1.0 NPZ 0.5

PRO: 45/130

45/ 104

SEP 22 $16^h20^m39^s.7$ 45°.23S 168°.44E 12 km M = 4.7
± 0.5 0.04 0.06 R S.E. of RES. 0.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
MNW	S*-P*			11		0.2	100	0.80	226	
KAI	Sn	16	22	12		0.1	100	3.45	39	4.8
CHR	Pn	16	21	32		−0.2	100	3.45	62	4.6
	Sn		22	12		0.1	100			

AMPLITUDES: KAI 1.0 CHR 1.0

PRO: 45/133

45/ 105

SEP 26 $09^h38^m04^s.3$ 46°.29S 168°.31E 12 km M = 5.3

± 2.2 0.12 0.15 R S.E. of RES. 1.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
MNW	S*-P*			11		1.4	100	0.70	316	
CHR	iPn	09	39	08		2.0	100	4.12	50	5.2
	Pg			29		1.4	100			
	e			39						
	iSn			55		2.3	99			
	e		40	03						
	eS*			09		−0.4	100			
	e			33						
	e			39						
KAI	ePn	09	39	09		−0.4	100	4.36	32	5.4
	i			15						
	eP*			23		3.0				
	iSn			57		−1.6	100			
	e		40	23						
WEL	Pn	09	39	41		−2.1	99	6.84	45	4.8s
	Sn		40	57		−1.0	100			
NPZ	P*	09	40	28		−0.3	100	8.37	32	5.2

AMPLITUDES: CHR 3.0 KAI 2.5 WEL 0.5
NPZ 1.0

Record at NPZ made face to drum.

PRO: 45/135

FELT: Queenstown (132), and Nightcaps (140).

45/ 106

SEP 26 $18^h46^m12^s.6$ 40°.92S 172°.92E 12 km M = 4.2

± 0.8 0.04 0.07 R S.E. of RES. 1.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	Pn	18	46	37		−0.8	100	1.45	105	4.1
	S*			58		0.4	100			
KAI	ePg	18	46	54		1.6	99	1.96	215	4.0s
	iSn		47	08		−1.1	100			
NPZ	e	18	46	59				2.05	26	4.3
	Sn		47	10		−1.3	100			
	S*			17		1.2	100			

AMPLITUDES: WEL 2.5 KAI 0.5 NPZ 2.0

Record at NPZ made face to drum.

PRO: 45/136

FELT: Nelson Province (72, 74, 76), MM III.

45/ 107

SEP 27 $01^h50^m39^s.1$ 38°.23S 176°.51E 12 km M = 4.5
± 1.8 0.10 0.05 R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	P*	01	50	52		−1.3	99	0.76	139	4.1
	S*		51	05		1.3	99			
NPZ	P*	01	51	16		0.1	100	2.09	246	3.9s
	eS*			44		0.7	100			
	e			47						
WEL	S*	01	52	20		−0.8	100	3.34	203	4.8

AMPLITUDES: TUA 5.0 NPZ 0.5 WEL 1.5

PRO: 45/137

45/ 108

OCT 05 $14^h56^m15^s.8$ 38°.75S 176°.16E 180 km M = 5.6
± 0.7 0.04 0.04 4 S.E. of RES. 0.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	P	14	56	42		−0.1	100	0.78	95	5.7
	S		57	02		−0.3	100			
HAS	S-P			22		0.2	100	1.03	150	
	P		56	45		1.2				
	e			55						
	e		57	03						
	S			07		1.4				
	e			15						
NPZ	P	14	56	49		−0.5	100	1.66	258	4.8*
	i			53						
	S		57	16		0.5	100			
AUC	S-P			35		4.6		2.18	329	
WEL	P	14	57	03		1.1	98	2.75	202	5.5
	S			42		4.6				
KAI	P	14	57	36		2.5		5.22	222	4.8*
	e			39						
	S		58	33		−0.6	100			
CHR	P	14	57	37		0.3	100	5.47	208	5.2*
	S		58	39		−0.4	100			

AMPLITUDES: TUA 43 NPZ 16 WEL 14
KAI 2.5 CHR 10

Timing circuit at AUC failed. No absolute timing at HAS.

PRO: 45/139

FELT: Scattered places in southern parts of the North Island (57, 60, 62, 68). Maximum reported intensity MM III. Listed in ISS, which adopts N.Z. provisional epicentre. No additional data are given.

45/ 109

OCT 08 $10^h48^m53^s.5$ 39°.99S 171°.93E 33 km M = 4.3
± 2.9 0.06 0.15 R S.E. of RES. 1.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	S*	10	49	52		−0.2	100	1.90	62	3.9
WEL	Sn	10	50	01		1.1	99	2.52	122	4.4
	S*			10		−0.7	100			

CHR	S*	10 50 42		−0.3	100	3.57	172	4.6

AMPLITUDES: NPZ 1.0 WEL 1.5 CHR 1.0

PRO: 45/140

45/ 110

OCT 12 $04^h18^m38^s.9$ 39°.00S 175°.70E 12 km M ~ 4.2

± R R R R S.E. of RES. 0.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	Pn	04	19	02		0.2	100	1.27	267	4.2
	iPg			05		0.3	100			
	S*			18		−0.6	99			

AMPLITUDES: NPZ 2.5

S onset at NPZ in timing mark.

PRO: 45/141

FELT: Tokaanu (40), MM IV.

45/ 111

OCT 12 $11^h22^m41^s.8$ 38°.35S 175°.67E 33 km M = 4.4

± 0.7 0.05 0.03 R S.E. of RES. 0.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	Sn	11	23	18		0.2	100	1.25	112	4.1
NPZ	ePn	11	23	05		0.0	100	1.44	240	4.7
	iP*			07		−0.7	99			
	Sn			23		0.7	99			
WEL	Sn	11	24	00		−0.2	100	3.01	193	4.5s

AMPLITUDES: TUA 1.0 NPZ 8.0 WEL 0.5

PRO: 45/143

FELT: Tokaanu (40), MM III.

45/ 112

OCT 12 $11^h59^m53^s.6$ 40°.10S 175°.00E 12 km M ~ 3.2

± R R R R S.E. of RES. 1.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	S*	12	00	30		−1.1	100	1.20	188	~3.2s
NPZ	S*	12	00	34		1.1	100	1.26	325	~3.2s

AMPLITUDES: WEL 0.5 NPZ 0.5

PRO: 45/144

FELT: Wanganui (57), MM IV.

45/ 113

OCT 12 $22^h28^m20^s.4$ 38°.80S 176°.20E 12 km M ~ 4.9

± R R R R S.E. of RES. 0.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	Sn	22	29	10		−0.1	100	1.68	260	4.3+
WEL	Pn	22	29	03		0.1	100	2.72	203	4.9

AMPLITUDES: NPZ 2.0+ WEL 3.0

S onset and maximum at NPZ in timing gap.

PRO: 45/146

FELT: Tokaanu (40), Wanganui (57), MM IV.

45/ 114

OCT 13 $14^h44^m58^s.1$ 38°.84S 176°.41E 100 km M ~ 4.6
± 0.7 0.03 0.03 6 S.E. of RES. 0.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	P	14	45	15		0.4	99	0.58	87	4.6
	S			27		−0.3	100			
NPZ	P	14	45	29		0.0	100	1.84	262	3.6*
	i			50						
	S			52		−0.1	100			
WEL	P	14	45	41		−0.4	99	2.74	207	4.0s
	S		46	14		0.2	100			

AMPLITUDES: TUA 12 NPZ 1.0 WEL 0.5

PRO: 45/147

45/ 115

OCT 14 $12^h06^m33^s.6$ 40°.49S 173°.99E 75 km M ~ 4.2
± 0.7 0.02 0.04 9 S.E. of RES. 0.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P	12	06	53		0.2	100	0.99	144	4.2
	S		07	07		−0.1	100			
NPZ	P	12	06	58		−0.2	100	1.42	3	4.3*
	S		07	17		0.1	100			
TUA	S	12	07	54		0.1	100	2.96	57	4.1s

AMPLITUDES: WEL 6.0 NPZ 6.5 TUA 0.3

PRO: 45/148

FELT: Wanganui (57), MM IV.

45/ 116

OCT 14 $12^h59^m21^s.9$ 39°.85S 177°.19E 12 km M ~ 4.3
± 0.8 0.03 0.05 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
HAS	S*-P*			05		0.1	100	0.34	308	
TUA	P*	12	59	42		1.1	99	1.04	358	4.3
	S*			54		−0.8	100			
WEL	Sn	13	00	27		−0.4	100	2.34	231	3.8s
NPZ	P*	13	00	08		1.6		2.54	287	3.8s
	Sn			32		−0.2	100			
	iS*			40		0.4	100			

AMPLITUDES: TUA 5.0 WEL 0.5 NPZ 0.5

No absolute timing at HAS.

PRO: 45/149

45/ 117

OCT 16 $04^h19^m22^s.8$ 39°.44S 177°.14E 12 km M ~ 3.4
± 0.5 0.02 0.04 R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
HAS	S*-P*			05		0.5	100	0.31	230	
TUA	eP*	04	19	34		−0.7	100	0.63	1	3.4
	Sn			48		0.7	100			
NPZ	ePn	04	20	01		−0.2	100	2.41	278	3.8s
	eSn			31		0.9	99			
	S*			36		−0.7	100			

	e			51					
WEL	Pn	04	20	04	0.4	100	2.58	224	3.9s
	Sn			34	−0.3	100			

AMPLITUDES: TUA 2.0 NPZ 0.5 WEL 0.5

TUA record badly fogged. No absolute timing at HAS.

PRO: 45/150

45/ 118

OCT 18 $01^h33^m37^s.0$ 39°.69S 176°.77E 12 km M = 4.2

± 0.5 0.02 0.05 R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	P*	01	33	54		0.0	100	0.93	19	4.0
	S*		34	06		−0.4	100			
NPZ	ePn	01	34	13		0.7	100	2.18	286	4.3
	iP*			16		0.6	100			
	Sn			38		−0.8	100			
WEL	Pn	01	34	13		0.3	100	2.20	223	4.3
	Sn			40		0.6	100			
CHR	Sn	01	35	44		−1.0	99	4.94	218	4.6s

AMPLITUDES: TUA 3.5 NPZ 2.0 WEL 1.5
CHR 0.5

TUA record badly fogged. No absolute timing at HAS.

PRO: 45/151

45/ 119

OCT 18 $06^h06^m14^s.0$ 40°.00S 175°.00E 12 km M = 4.1

± R R R R S.E. of RES. 2.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	ePn	06	06	38		2.4	99	1.18	322	4.3
	S*			50		−0.9	100			
WEL	Sn	06	06	53		−1.5	100	1.30	188	3.8

AMPLITUDES: NPZ 6.5 WEL 1.5

PRO: 45/152

FELT: Wanganui (57), MM III.

45/ 120

OCT 23 $12^h58^m31^s.7$ 37°.74S 178°.47E 151 km M = 5.0

± 2.6 0.13 0.20 15 S.E. of RES. 1.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP	12	59	01		−0.4	100	1.48	224	4.9
	e			04						
	S			25		0.8	100			
NPZ	iP	12	59	30		1.2	100	3.70	248	3.6s
	i			35						
	i			56						
	iS	13	00	12		−0.6	100			
	i			25						
	e			27						
	e			30						
	i			42						
WEL	P	12	59	39		−1.1	100	4.54	218	5.1
	S	13	00	31		−1.7	99			
CHR	S	13	01	40		1.7	99	7.29	216	4.3*

AMPLITUDES: TUA 5.0 NPZ 0.5 WEL 2.5
CHR 1.0

PRO: 45/153

45/ 121

OCT 30 $18^h42^m57^s.3$ 38°.66S 175°.84E 12 km M = 4.7
± 0.3 0.03 0.01 R S.E. of RES. 0.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP*	18	43	16		−0.1	100	1.03	99	4.3
	S*			30		0.1	100			
NPZ	Pn	18	43	23		0.5	99	1.44	253	5.2
	Sn			41		−0.3	100			
WEL	Pn	18	43	40		−0.4	100	2.75	197	4.6
	Sn		44	13		0.2	100			

AMPLITUDES: TUA 3.0 NPZ 17 WEL 1.0

S onset at TUA in timing mark.

PRO: 45/154

FELT: Taumarunui (39), MM IV.

45/ 122

NOV 05 $11^h18^m52^s.8$ 40°.48S 173°.28E 12 km M = 4.2
± 0.7 0.02 0.06 R S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	Pg	11	19	22		1.1	99	1.39	126	3.4s
	Sg			39		−0.6	100			
NPZ	eP*	11	19	21		0.8	100	1.54	24	3.7
	Pg			24		0.1	100			
	Sn			38		−1.0	100			
CHR	Sn	11	20	16		−0.4	100	3.09	189	4.6

AMPLITUDES: WEL 0.5 NPZ 1.0 CHR 1.5

PRO: 45/155

45/ 123

NOV 09 $13^h40^m07^s.1$ 42°.52S 174°.03E 12 km M = 3.7
± 0.2 0.01 0.02 R S.E. of RES. 0.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	Sn	13	40	49		0.1	100	1.35	24	3.6
CHR	Sn	13	40	51		−0.1	100	1.44	225	3.8
KAI	i	13	40	58				1.94	269	3.7s
	iS*		41	07		0.1	100			
NPZ	Pg	13	41	17		0.1	100	3.46	0	4.1s
	S*			52		−0.2	100			

AMPLITUDES: WEL 1.0 CHR 1.0 KAI 0.3
NPZ 0.5

PRO: 45/157

45/ 124

NOV 09 $20^h55^m35^s.6$ 40°.88S 173°.79E 12 km M = 4.8
± 0.6 0.03 0.05 R S.E. of RES. 1.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	20	55	52		0.8	100	0.85	119	4.7
	S*		56	02		−0.6	100			

NPZ	Pn	20 56 07	0.9	100	1.83	7		4.8
	Sn	28	−0.8	100				
KAI	Sn	20 56 43	−0.3	100	2.43	227		4.8
TUA	Sg	20 57 31	3.7		3.31	52		4.8

AMPLITUDES: WEL 29 NPZ 8.5 KAI 2.0
TUA 1.5

PRO: 45/158

FELT: Wanganui (57), Wellington (68), MM IV.

45/ 125

NOV 10 $20^h57^m12^s.7$ 39°.80S 177°.29E 12 km M = 3.9
± 0.6 0.02 0.04 R S.E. of RES. 0.7

STN	PHASE	H M S	DIR	RES	WT	DIST	AZ	MAG
TUA	P*	20 57 30		−0.9	99	1.00	354	3.5
	S*	45		0.8	99			
	Sg	50		3.6				
WEL	Pn	20 57 51		−0.3	100	2.43	231	3.9s
	Sn	58 21		0.6	100			
NPZ	ePn	20 57 54		0.4	100	2.59	285	4.2
	Sn	58 24		−0.4	100			
	S*	32		−0.1	100			

AMPLITUDES: TUA 1.0 WEL 0.5 NPZ 1.0

PRO: 45/160

45/ 126

NOV 12 $12^h52^m29^s.7$ 41°.26S 172°.86E 12 km M = 4.2
± 0.5 0.03 0.04 R S.E. of RES. 0.9

STN	PHASE	H M S	DIR	RES	WT	DIST	AZ	MAG
WEL	Pn	12 52 55		0.1	100	1.44	92	3.9
	S*	53 15		0.4	100			
KAI	S*	12 53 22		0.6	100	1.66	220	3.8s
CHR	Sn	12 53 33		−0.9	99	2.28	184	4.5
NPZ	iSn	12 53 36		−0.3	100	2.38	23	3.6s
	i	55						

AMPLITUDES: WEL 1.5 KAI 0.5 CHR 2.0
NPZ 0.3

PRO: 45/161

45/ 127

NOV 15 $20^h22^m44^s.3$ 39°.89S 176°.19E 12 km M = 4.4
± 1.0 0.06 0.08 R S.E. of RES. 1.4

STN	PHASE	H M S	DIR	RES	WT	DIST	AZ	MAG
TUA	e?	20 23 16				1.31	35	4.3
	Sn	25		−0.2	100			
WEL	Sn	20 23 36		−0.2	100	1.76	217	3.6s
NPZ	P*	20 23 18		1.2	99	1.84	296	4.4
	Sn	37		−0.8	100			

AMPLITUDES: TUA 3.5 WEL 0.5 NPZ 3.5

PRO: 45/162

45/ 128

NOV 15 $22^h37^m44^s.8$ 39°.52S 175°.94E 12 km M = 4.2
± 0.5 0.03 0.03 R S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	ePg	22	38	09		0.3	100	1.18	53	4.5
	S*			22		0.3	100			
NPZ	e?	22	38	05				1.52	287	3.9
	i?			07						
	iPn			10		−1.0	100			
	Sn			29		−1.7	99			
	iS*			33		1.0	100			
	iSg			37		0.9	100			
	i			41						
WEL	Pn	22	38	17		−0.3	100	1.98	207	4.3
	Sg			52		0.5	100			

AMPLITUDES: TUA 7.0 NPZ 1.5 WEL 2.0

PRO: 45/163

45/ 129

NOV 16 $06^h47^m31^s.0$ 39°.50S 177°.41E 12 km M = 4.5

± 0.7 0.02 0.04 R S.E. of RES. 0.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
HAS	Sg-P*			09		2.0		0.47	253	
	P*?		47	40		−0.1				
	i(Sg)			49		1.9				
TUA	P*	06	47	45		0.5	100	0.72	343	4.8
	S*			54		−0.3	100			
NPZ	P*	06	48	17		−0.0	100	2.63	278	4.2
	Sn			43		−0.5	100			
	e			45						
	e			48						
	S*			52		0.5	100			
WEL	Sn	06	48	45		−0.1	100	2.69	228	3.9s

AMPLITUDES: TUA 34 NPZ 1.0 WEL 0.5

No absolute timing at HAS; phase identification doubtful.

PRO: 45/164

FELT: Wairoa (53), MM III.

45/ 130

NOV 17 $11^h14^m04^s.4$ 41°.95S 172°.48E 12 km M = 4.0

± 0.5 0.03 0.05 R S.E. of RES. 1.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	Pg	11	14	26		1.6	99	0.98	234	3.7
	S*			34		−1.5	99			
CHR	e?	11	14	45				1.58	176	3.9
	eSn			52		0.2	100			
	S*			54		0.5	100			
WEL	Pn	11	14	35		0.0	100	1.84	70	3.9
	Sn			57		−0.9	100			
NPZ	eP*	11	14	58		−0.9	100	3.12	23	4.5
	i		15	03						
	iPg			10		2.3				
	e(Sn)			36		7.1				
	S*			41		1.2	100			
	iSg			57		7.2				

AMPLITUDES: KAI 1.0 CHR 1.0 WEL 1.0

NPZ 1.5

PRO: 45/165

45/ 131

NOV 27 $00^h08^m43^s.5$ 40°.10S 174°.40E 12 km M = 4.1
± R R R R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	eP*	00	09	04		1.2	99	1.06	346	4.3
	S*			17		−0.0	100			
WEL	P*	00	09	05		−0.5	100	1.21	167	3.9
	S*			21		−0.7	100			

AMPLITUDES: NPZ 8.0 WEL 2.0

PRO: 45/166

45/ 132

DEC 08 $00^h07^m31^s.7$ 39°.04S 176°.21E 12 km M = 4.1
± 0.7 0.06 0.05 R S.E. of RES. 1.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	P*	00	07	46		0.0	100	0.76	73	4.2
	Sg		08	01		3.2				
HAS	S*-Pg			07		−2.1		0.77	141	
NPZ	e?	00	07	56				1.66	268	3.8
	iPn		08	01		1.1	100			
	iPg			06		0.6	100			
	i			11						
	Sn			20		−1.1	100			
WEL	Pn	00	08	10		−1.4	99	2.50	206	4.2
	Sn			42		0.8	100			

AMPLITUDES: TUA 7.0 NPZ 1.0 WEL 1.0

No absolute timing at HAS; phase identification doubtful.

PRO: 45/167

45/ 133

DEC 17 $21^h41^m13^s.4$ 39°.24S 178°.49E 12 km M = 4.8
± 2.5 0.08 0.15 R S.E. of RES. 1.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	P*	21	41	33		−0.8	100	1.13	292	5.2
	Pg			37		0.7	100			
	e			39						
	e			41						
NPZ	eP*	21	42	15		1.7	99	3.44	271	4.4
	iPg			22		−0.9	100			
	eSn			44		−1.4	100			
	iS*			59		0.8	100			
WEL	Sn	21	42	47		−0.0	100	3.51	233	4.2S

AMPLITUDES: TUA 38 NPZ 1.0 WEL 0.5

PRO: 45/170

FELT: Wairoa (53), MM IV.

45/ 134

DEC 19 $17^h43^m56^s.5$ 41°.00S 175°.50E 12 km M ~ 3.7
± R R R R S.E. of RES. 0.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	17	44	08		−0.2	100	0.62	242	3.7
	S*			17		0.2	100			

AMPLITUDES: WEL 5.5

PRO: 45/171

FELT: Paraparaumu (65) and Wairarapa district (66, 70). Maximum reported intensity MM III.

45/ 135

DEC 22 $16^h55^m17^s.2$ 41°.48S 172°.04E 12 km M = 4.3

± 0.4 0.02 0.04 R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	P*	16	55	38		0.1	100	1.15	204	4.1
	S*			53		−0.3	100			
WEL	Pn	16	55	51		0.1	100	2.06	86	4.3
	Sn		56	16		−0.1	100			
CHR	eP*	16	55	55		0.8	100	2.11	168	4.1
	Sn		56	18		1.0	99			
	Sg			27		−1.0	99			
NPZ	Pn	16	56	01		−0.8	100	2.87	34	4.6
	P*			12		4.7				
	Sn			39		3.6				
	S*			45		0.2	100			

AMPLITUDES: KAI 2.0 WEL 2.0 CHR 1.0
NPZ 2.0

PRO: 45/172

FELT: Kahurangi Point (72), MM III.

45/ 136

DEC 26 $13^h55^m55^s.8$ 40°.31S 175°.58E 12 km M = 3.8

± 1.4 0.02 0.12 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	13	56	17		0.3	100	1.16	212	3.5
	S*			32		−0.1	100			
NPZ	Pn	13	56	24		−0.5	100	1.70	316	4.1
	Sn			47		0.9	99			
	S*			48		−0.5	100			

AMPLITUDES: WEL 1.0 NPZ 2.0

PRO: 45/173

FELT: Hunterville (58), MM II.

45/ 137

DEC 28 $06^h31^m49^s.3$ 40°.94S 173°.17E 107 km M ~ 3.8

± 1.5 0.06 0.14 7 S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TAK	S-P			12		0.2	100	0.29	287	
WEL	P	06	32	13		−0.4	100	1.25	107	3.7
	S			32		0.3	100			
NPZ	P	06	32	23		0.5	99	2.00	21	~3.9*
	e			28						
	S			47		−0.3	100			
	e			55						

AMPLITUDES: WEL 1.0 NPZ 2.0

No absolute timing at TAK.

PRO: 45/174

FELT: Takaka (72), MM III.

45/ 138

DEC 28 $09^h15^m00^s.0$ 41°.00S 173°.20E 100 km

± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TAK	S-P			12		0.6	100	0.33	296	

No absolute timing at TAK.

PRO: 45/175

FELT: Takaka (72), MM III.

45/ 139

DEC 30 $07^h07^m22^s.3$ 37°.87S 177°.12E 265 km M = 5.7

± 0.8 0.04 0.05 4 S.E. of RES. 0.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	P	07	07	59		0.3	100	0.94	179	5.8
	S		08	27		−0.2	100			
HAS	S	07	08	30		−7.1		1.78	187	
NPZ	iP	07	08	12		−0.7	99	2.67	243	4.1*
	i			17						
	eS			52		0.1	100			
	i		09	00						
	i			08						
	i			12						
WEL	P	07	08	26		0.3	100	3.86	207	5.5
	S		09	15		−0.1	100			
KAI	e	07	10	03				6.38	221	4.2s
	S			10		0.5	100			
CHR	S	07	10	14		−0.5	100	6.61	210	4.8*

AMPLITUDES: TUA 27 NPZ 2.0 WEL 6.0
KAI 0.5 CHR 3.0

No absolute timing at HAS.

PRO: 45/176

FELT: Hastings (60), MM II.

1946

46/ 001

JAN 01 $13^h24^m54^s.5$ 41°.00S 175°.30E 33 km M ~ 3.4

± R R R R S.E. of RES. 0.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	Pn	13	25	05		0.2	100	0.49	234	3.4
	Sn			12		−0.3	100			

AMPLITUDES: WEL 4.0

PRO: 46/1

FELT: Upper Hutt (68), MM III

46/ 002

JAN 05 $07^h48^m00^s.9$ 39°.89S 177°.27E 12 km M = 4.0
± 0.6 0.02 0.05 R S.E. of RES. 0.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	S*	07	48	35		−0.0	100	1.08	355	3.8
WEL	ePn	07	48	39		0.4	99	2.37	233	4.1
	P*			42		−0.4	99			
	Sg		49	38		17.5				
NPZ	Sn	07	49	13		0.1	100	2.61	287	3.9s

AMPLITUDES: TUA 1.5 WEL 1.0 NPZ 0.5

No provisional solution.

46/ 003

JAN 06 $02^h01^m29^s.7$ 39°.84S 174°.87E 12 km M = 4.6
± 0.3 0.02 0.03 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TON	P*	02	01	44		−0.8	100	0.82	39	
	ePg			50		3.6				
	S*			56		0.1	100			
	eSg		02	03		5.5				
NPZ	Pg	02	01	49		−0.8	100	0.99	321	4.5
	S*		02	02		1.0	99			
WEL	Pn	02	01	56		1.1	99	1.45	183	4.3
	S*		02	15		0.3	100			
	Sg			24		5.5				
TUA	Sn	02	02	21		−7.2		2.04	60	4.6
KAI	S*	02	03	23		−0.6	100	3.74	223	4.5s
CHR	Sn	02	03	16		−0.4	100	4.05	204	4.9

AMPLITUDES: NPZ 14 WEL 4.0 TUA 2.0
KAI 0.5 CHR 1.5

PRO: 46/3

FELT: Wanganui (57), MM IV

46/ 004

JAN 09 $15^h02^m50^s.9$ 33°.81S 175°.88E 12 km M = 6.0
± 5.2 0.22 0.39 R S.E. of RES. 2.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iSn	15	05	02		−0.6	100	5.09	169	6.4
	i			05						
NPZ	e	15	03	58				5.44	195	4.5s
	Pn		04	12		1.4	100			
WEL	e	15	04	07				7.51	186	5.8
	Sn		06	00		−0.8	100			
	iS*			40		2.3	99			
KAI	iSn	15	06	56		10.3		9.38	201	5.1s
	i		07	08						
	i			24						
CHR	Sn	15	06	59		−2.3	99	10.03	194	5.7

AMPLITUDES: TUA 3.0 NPZ 0.5 WEL 2.5
KAI 0.3 CHR 1.5

No provisional solution.

46/ 005

JAN 10 $16^h40^m02^s.9$ 41°.20S 175°.70E 33 km

± R R R R S.E. of RES. 0.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	Pn	16	40	16		−0.1	100	0.71	263	
	Sn			26		0.1	100			

PRO: 46/4

FELT: Martinborough (70)

46/ 006

JAN 14 $02^h29^m12^s.7$ 38°.04S 178°.38E 12 km M ~ 4.5

± 1.6 0.08 0.12 R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	P*	02	29	35		0.1	100	1.23	231	4.5
	e			44						
	Sg			55		0.7	100			
NPZ	Pn	02	30	07		0.7	100	3.53	252	4.1s
	eSn			46		−0.8	100			
WEL	Sn	02	31	04		−0.7	100	4.27	220	4.3s

AMPLITUDES: TUA 5.5 NPZ 0.5 WEL 0.5

PRO: 46/5

46/ 007

JAN 14 $07^h32^m43^s.0$ 41°.33S 174°.02E 12 km M = 4.2

± 3.8 0.19 0.19 R S.E. of RES. 1.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	07	32	53		−0.8	100	0.57	85	4.1
	S*		33	02		0.4	100			
NPZ	P*	07	33	24		1.1	99	2.27	1	4.3
	Sn			46		−0.8	100			

AMPLITUDES: WEL 16 NPZ 2.0

PRO: 46/6

FELT: Wellington (68), MM III

46/ 008

JAN 14 $20^h27^m38^s.8$ 39°.44S 175°.64E 12 km M = 4.4

± 0.9 0.05 0.06 R S.E. of RES. 1.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	e	20	27	39				1.27	287	3.2s
	eSg		28	22		0.3	100			
TUA	Pn	20	28	01		−1.5	99	1.34	62	4.7
	Sg			25		1.0	100			
	e			31						
WEL	Sg	20	28	45		0.3	100	1.95	200	4.1
KAI	e	20	31	42				4.44	225	4.5s

AMPLITUDES: NPZ 0.5 TUA 5.0 WEL 1.5
KAI 0.3

No provisional solution.

46/ 009

JAN 15 $14^h24^m53^s.9$ 34°.01S 179°.38W 33 km M ~ 5.7
± 5.4 0.34 0.30 R S.E. of RES. 3.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
AUC	S*	14	27	40		−1.8	100	5.55	237	
NPZ	Pn	14	26	40		3.0	100	7.30	224	4.8s
	e		28	07						
	iS*			37		3.0	100			
WEL	Pn	14	26	53		−2.1	100	8.62	211	5.7
	Sn		28	30		3.0	100			
	e			48						
KAI	Sn	14	29	26		−2.1	100	11.16	218	5.5s
CHR	Sn	14	29	30		−3.0	100	11.37	211	

AMPLITUDES: NPZ 0.5 WEL 2.5 KAI 0.5

PRO: 46/9

46/ 010

JAN 28 $16^h50^m06^s.1$ 40°.10S 175°.00E 33 km M = 3.8
± R R R R S.E. of RES. 1.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P	16	50	21		−5.0		1.20	188	3.7
	S			39		−1.9	100			
	S*			43		−1.2				
NPZ	P	16	50	27		0.1	100	1.26	325	3.8
	S			44		1.7	100			

AMPLITUDES: WEL 1.5 NPZ 2.0

PRO: 46/11

FELT: Wanganui (57), MM IV

46/ 011

FEB 01 $21^h38^m03^s.7$ 45°.08S 166°.84E 12 km M = 5.0
± 4.8 0.17 0.27 R S.E. of RES. 1.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
MNW	S*-P*			13		1.0	100	0.89	142	
KAI	ePn	21	39	07		0.8	100	4.18	54	4.9
	iPg			26		−2.1	99			
	Sn			53		−0.4	100			
CHR	Sn	21	39	59		−0.5	100	4.43	72	5.1
NPZ	ePn	21	40	05		5.8		8.06	44	4.8s
	Sn		41	29		2.2	99			

AMPLITUDES: KAI 1.0 CHR 2.0 NPZ 0.5

PRO: 46/12

FELT: South-western parts of the South Island. Maximum reported intensity MM III.

46/ 012

FEB 02 $18^h43^m18^s.9$ 40°.00S 175°.00E 33 km M ~ 3.1
± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	e	18	45	16				1.18	322	~3.0s
WEL	iSn	18	43	56		−0.0	100	1.30	188	~3.1s

AMPLITUDES: NPZ 0.3 WEL 0.3

PRO: 46/13

FELT: Wanganui (57), MM IV.

46/ 013

FEB 04 $21^h47^m58^s.1$ 36°.32S 177°.19E 12 km M = 5.7

± 0.9 0.04 0.04 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
AUC	Pn	21	48	31		−0.1	100	2.02	254	
	Sn			50		−5.9				
	iS*		49	00		−0.2	100			
ARA	Pg	21	48	42		0.5		2.14	215	
	Sg		49	12		1.5				
TUA	ePn	21	48	38		0.4	100	2.48	181	5.3
	iPg			49		0.6	100			
	Sn		49	07		−0.2	100			
	iS*			14		−0.3	100			
NPZ	ePn	21	48	54		−0.0	100	3.70	221	5.5
	Pg		49	14		1.2	99			
	e			17						
	Sn			36		−0.2	100			
WEL	Pn	21	49	15		−1.1	99	5.31	200	5.6
	i			19						
	iP*			29		−0.9	100			
	e			33						
	iSn		50	17		1.9	96			
	S*			38		−0.9	100			
	e			47						
KAI	eP*	21	49	56		−13.7		7.65	214	5.7s
	i		50	13						
	i			18						
	i			28						
	i			45						
	eSn		51	17		5.8				
	e			39						
CHR	e	21	49	13				8.01	205	6.2
	e		50	01						
	e			14						
	i			30						
	iSn		51	20		−0.0	100			
	e			50						
	e		52	05						
RIV	iP	21	52	55		7.0		21.43	269	
	eS		56	55		14.3				

AMPLITUDES: TUA 2.5 NPZ 3.0 WEL 1.5
KAI 0.5 CHR 2.0

PRO: 46/14

FELT: Western Bay of Plenty, Auckland, and Great Barrier Island, MM IV. Listed in ISS, which adopts N.Z. provisional epicentre and gives data from 3 additional stations.

46/ 014

FEB 07 $00^h25^m55^s.8$ 39°.12S 178°.25E 12 km M ~ 4.3

± 2.9 0.09 0.18 R S.E. of RES. 1.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP*	00	26	12		−0.5	100	0.91	290	4.3
	S*			24		−0.7	100			
NPZ	ePn	00	26	47		1.4	100	3.25	270	4.1s
	eP*			51		−1.4	100			
	Sn		27	25		1.8	99			
WEL	Sn	00	27	27		−0.6	100	3.43	230	4.2s

AMPLITUDES: TUA 6.5 NPZ 0.5 WEL 0.5

PRO: 46/15

46/ 015

FEB 10 $11^h12^m26^s.7$ 38°.31S 178°.43E 12 km M = 4.1

± 1.0 0.04 0.06 R S.E. of RES. 0.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP*	11	12	47		0.0	100	1.13	243	3.6
	iPg			50		0.5	99			
	i			55						
	S*		13	02		0.0	100			
	e			10						
NPZ	P*	11	13	27		−0.5	100	3.49	256	4.1s
	Sn		14	00		0.0	100			
WEL	ePg	11	13	50		0.4	100	4.10	222	4.6
	e			54						
	eSn		14	14		−0.6	99			

AMPLITUDES: TUA 0.9 NPZ 0.5 WEL 1.0

PRO: 46/16

46/ 016

FEB 12 $00^h40^m10^s.8$ 37°.22S 175°.65E 12 km M = 4.5

± 1.4 0.06 0.09 R S.E. of RES. 1.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
AUC	P*	00	40	27		1.6	100	0.78	297	
	e		41	00						
	i			50						
TUA	e	00	40	31				1.98	144	4.9
	S*		41	13		1.2	100			
NPZ	Pn	00	40	45		−1.6	100	2.22	214	4.0
	Sn		41	14		0.4	100			
	i		42	35						
WEL	iPn	00	41	10		−2.5	99	4.11	189	4.9s
	iPg			34		−0.0	100			
CHR	Sn	00	43	01		−0.5	100	6.71	199	
	S*			35		1.3	100			

AMPLITUDES: TUA 1.5 NPZ 1.0 WEL 0.5

PRO: 46/17

FELT: Paeroa (21)

46/ 017

FEB 12 $05^h53^m12^s.2$ 38°.14S 179°.58E 33 km M ~ 4.8

± 0.8 0.03 0.05 R S.E. of RES. 0.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	Sn	05	54	07		0.2	100	2.02	250	4.8
NPZ	Pn	05	54	16		0.0	100	4.41	256	4.3s

	Sn		55	04		−0.2	100			
WEL	Sn	05	55	15		−0.1	100	4.87	228	4.5s

AMPLITUDES: TUA 4.0 NPZ 0.5 WEL 0.5

PRO: 46/18

46/ 018

FEB 12 $06^h16^m42^s.7$ 39°.79S 174°.50E 12 km M ~ 6.4

± 0.5 0.03 0.05 R S.E. of RES. 1.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	P*	06	16	55		−2.4	99	0.79	335	4.9+
	Sn		17	12		0.8	100			
BUN	P*	06	17	00		−0.9	100	1.00	120	
	Sg			16		−0.5	100			
WEL	Pn	06	17	07		−1.7	100	1.50	172	5.7+
	S*			31		1.5	100			
TAK	Sn-Pn			27		5.8		1.67	230	
ARA	Sn-Pn			24		0.1	100	1.93	28	
	Pn		17	06		−8.6				
	Sn			30		−8.5				
TUA	Pn	06	17	05		−14.3		2.28	65	~6.2+
	Pg			30		1.2	100			
AUC	i	06	17	00				2.93	4	
	iPn			26		−2.2	99			
	eP*			37		3.1	98			
KAI	e	06	17	32				3.59	219	5.8+
	iPn			37		−0.2	100			
	iP*			47		1.9	100			
	iPg			56		0.7	100			
	e		18	08						
	eSn			17		−1.3	100			
	e			20						
CHR	Pn	06	17	37		−5.7		4.00	200	~6.6+
	Sn		18	28		0.0	100			
RIV	iP	06	20	54		−19.2		19.58	280	
	iSn		24	37		−5.7				
BRS	iP	06	21	12		−24.8		21.86	298	
	iS		25	06		−27.2				

AMPLITUDES: NPZ 52+ WEL 90+ TUA 55+
KAI 11+ CHR 80+

ARA Time correction uncertain.

PRO: 46/19

FELT: From Tolaga Bay (37) and Awakino (33) to Greymouth (85) and Banks Peninsula (111). Maximum reported intensity MM VI at Wanganui (57). For isoseismal map, see Hayes, 1947. Listed in ISS, which adopts N.Z. provisional epicentre, and gives data from 5 additional stations.

46/ 019

FEB 15 $15^h32^m40^s.8$ 40°.00S 175°.00E 33 km M ~ 3.2

± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	Sn	15	33	15		0.0	100	1.18	322	~3.2s

AMPLITUDES: NPZ 0.5

PRO: 46/20

FELT: Wanganui (57), MM IV

46/ 020

FEB 16 $03^h44^m31^s.4$ 42°.50S 173°.00E 33 km M ~ 3.2
± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	Sn	03	45	03		0.0	100	1.07	195	~3.2s

AMPLITUDES: CHR 0.5

PRO: 46/21

FELT: Hanmer (88), MM III

46/ 021

FEB 16 $22^h53^m09^s.3$ 41°.33S 174°.26E 33 km M = 3.8
± 8.0 0.33 0.50 R S.E. of RES. 3.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	Pn	22	53	17		−1.0	100	0.39	84	3.5
	S*			25		0.6	100			
NPZ	eP*	22	53	54		4.8		2.27	356	4.0
	Sn		54	12		2.4	99			
	S*			17		−1.9	100			

AMPLITUDES: WEL 8.0 NPZ 1.0

PRO: 46/22

FELT: Picton (78), MM IV; and Wellington (68), MM III

46/ 022

FEB 19 $09^h55^m53^s.7$ 40°.85S 173°.07E 12 km M = 4.0
± 0.6 0.03 0.06 R S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	Pn	09	56	17		−0.7	100	1.36	109	4.1
	Sn			36		0.4	100			
NPZ	Pn	09	56	26		0.3	100	1.94	24	3.9
	Sn			51		1.3	99			
	Sg			58		−1.2	99			
	i		57	06						
KAI	Sn	09	56	53		−0.1	100	2.09	216	4.0s
CHR	S*	09	57	20		3.7		2.70	187	3.8s

AMPLITUDES: WEL 3.0 NPZ 1.0 KAI 0.5
CHR 0.3

PRO: 46/23

FELT: Takaka (72), MM III

46/ 023

FEB 21 $07^h32^m51^s.6$ 39°.34S 177°.37E 12 km M = 5.1
± 1.5 0.03 0.13 R S.E. of RES. 1.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP*	07	33	02		−0.3	100	0.56	342	4.7+
	S*			09		−1.0	100			
BUN	i	07	35	37				1.64	234	
	e		37	45						
	e			50						
NPZ	P*	07	33	35		−1.8	99	2.57	275	4.6
	Sn		34	04		1.1	100			

WEL	ePn	07 33 35	−0.1	100	2.78	225		5.0
	iP*	42	1.7	100				
	Sn	34 07	−0.8	100				
AUC	Sn	07 34 20	1.8	99	3.21	320		
	Sg	47	7.2					
CHR	ePg	07 34 44	1.2	100	5.50	219		5.4
	i	35 08						
	e	10						
	iSn	17	3.8					
	i	23						
KAI	Sn	07 35 12	−1.7	100	5.53	233		5.2
	e	36 26						

AMPLITUDES: TUA 50+ NPZ 2.5 WEL 5.5
CHR 3.0 KAI 1.0

PRO: 46/24

FELT: Wairoa (53) and Napier (52), MM IV

46/ 024

FEB 21 $23^h45^m56^s.2$ 41°.88S 173°.16E 12 km M = 4.6
± 0.6 0.04 0.06 R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	Pg	23	46	31		7.5		1.35	64	4.2
	Sn			36		−1.9	99			
KAI	Pg	23	46	24		−1.5	100	1.45	243	4.7
	Pg			27		1.5	100			
	Sn			39		−1.3	100			
	S*			42		0.7	100			
	eSg			44		−1.1	100			
CHR	e	23	46	37				1.69	193	4.6
	i			40						
	i			45						
	eSn			48		1.8	100			
	Sg		47	02		8.7				
	i			05						
	i			14						
	i			24						
	i			27						
	i			47						
	e		48	29						
NPZ	ePn	23	46	42		0.7	100	2.90	14	4.9
	Pg			54		−0.8	100			
	e		47	15						
	Sn			17		1.8	100			
	iS*			25		0.2	100			

AMPLITUDES: WEL 4.0 KAI 5.5 CHR 4.5
NPZ 4.5

PRO: 46/25

FELT: West Nelson district (72, 74)

46/ 025

FEB 24 $23^h12^m28^s.4$ 39°.53S 176°.21E 12 km M = 4.2
± 0.7 0.05 0.05 R S.E. of RES. 1.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	P*	23	12	48		0.9	100	1.03	45	4.5
	S*		13	00		−0.9	100			

NPZ	P*	23	13	00	1.0	100	1.73	285	3.8
	S*			21	−0.7	100			
	e			37					
WEL	e	23	13	22			2.07	212	3.7s
	Sn			27	−0.4	100			
	e			51					
	e		14	03					

AMPLITUDES: TUA 8.0 NPZ 1.0 WEL 0.5

PRO: 46/26

46/ 026

FEB 26 $05^h30^m51^s.5$ 38°.63S 176°.35E 12 km M = 5.6

± 0.5 0.04 0.03 R S.E. of RES. 1.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP*	05	31	03		−0.9	100	0.66	106	5.0+
	S*			12		−0.8	100			
	Sg			15		1.1	100			
ARA	e	05	31	48				0.78	315	
BUN	ePn	05	31	23		2.1	99	1.75	198	
	S*			45		−0.6	100			
	e			59						
NPZ	P*	05	31	25		1.1	100	1.83	255	5.4
	Pg			28		−0.5	100			
	Sg			53		−0.2	100			
AUC	e	05	31	19				2.16	324	
	Pn			26		−0.5	100			
	e		32	20						
WEL	ePn	05	31	35		−1.9	99	2.92	204	5.6
	e			43						
	Pg			50		−0.6	100			
	iSn		32	11		−0.1	100			
	e			15						
	iS*			25		4.3				
	i			29						
KAI	e	05	32	19				5.41	222	5.5
	iP*			29		3.9				
	i			41						
	i			55						
	i		33	09						
	Sn			14		3.0				
	e			32						
CHR	e	05	32	11				5.65	209	5.9
	iPn			16		1.8	99			
	Sn		33	13		−3.7				
	e			23						

AMPLITUDES: TUA 57+ NPZ 22 WEL 13
KAI 1.5 CHR 6.0

PRO: 46/27

FELT: North-eastern and central parts of the North Island. Maximum reported intensity MM V at Opotiki (35) and Motu (36). Listed in ISS, which adopts N.Z. provisional epicentre, and gives data from 4 additional stations.

46/ 027

FEB 26 $12^h26^m11^s.1$ 39°.94S 177°.13E 12 km M = 4.5

± 8.7 0.35 1.05 R S.E. of RES. 3.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	Pg	12	26	36		1.9	100	1.13	1	4.6
	S*			45		−1.6	100			
WEL	eSn	12	27	16		1.5	100	2.25	232	4.3
CHR	Sn	12	28	17		−1.8	100	4.92	222	4.3s

AMPLITUDES: TUA 9.0 WEL 1.5 CHR 0.3

No provisional solution.

46/ 028

FEB 28 $23^h37^m31^s.8$ 40°.88S 173°.07E 12 km M = 4.5
± 0.3 0.01 0.02 R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	Pn	23	37	55		−0.7	100	1.34	108	4.2
	eP*			57		1.1	99			
	Pg			59		−0.1	100			
	e		38	00						
	e			03						
	Sn			14		0.5	100			
	eSg			17		−0.2	100			
	e			22						
NPZ	Pn	23	38	04		−0.1	100	1.96	23	4.6
	eP*			07		0.5	100			
	e			10						
	ePg			14		2.4				
	Sn			28		−0.4	100			
	S*			35		2.6				
	eSg			43		4.9				
	e			48						
	e			52						
KAI	ePn	23	38	05		−0.5	100	2.07	217	4.7
	e			26						
	Sn			32		1.1	99			
	Sg			38		−3.5				
	i		39	46						
CHR	ePn	23	38	16		2.2		2.67	187	4.6
	iPg			24		−1.9				
	Sn			44		−1.5	98			
	e			47						
	i			49						
	i			51						
	iS*			54		0.3	100			
	eSg		39	02		0.0	100			

AMPLITUDES: WEL 4.0 NPZ 4.5 KAI 2.5
CHR 2.0

PRO: 46/28

FELT: North-west Nelson, maximum reported intensity MM IV.

46/ 029

MAR 01 $12^h37^m22^s.8$ 40°.84S 173°.00E 12 km M = 4.3
± 0.3 0.01 0.03 R S.E. of RES. 0.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	Pn	12	37	47		−0.5	100	1.41	109	4.2
	P*			49		1.0	99			
	Pg			51		−0.3	100			
	e			57						

	Sn		38	06	−0.0	100			
	eSg			13	2.6				
	e			17					
NPZ	Pn	12	37	54	−1.0	99	1.96	25	4.3
	eP*			57	−0.4	100			
	e		38	00					
	e			06					
	Sn			20	0.8	100			
	S*			25	1.8				
	eSg			29	0.1	100			
KAI	Sn	12	38	22	0.4	100	2.06	215	4.0s
	iSg			32	−0.2	100			
	i			37					
	e			37					
CHR	iSn	12	38	38	1.0	99	2.70	186	4.0s
	iSg			53	−0.8	100			
	i		39	13					

AMPLITUDES: WEL 3.0 NPZ 2.5 KAI 0.5
CHR 0.5

PRO: 46/29

FELT: Takaka (72), MM III.

46/ 030

MAR 04 $00^h47^m00^s.8$ 38°.29S 178°.60E 12 km M = 5.4
± 0.8 0.04 0.05 R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP*	00	47	24		0.7	100	1.25	245	
	iPg			26		−0.1	100			
	Sg			43		0.0	100			
HAS	Sn-Pn			24		0.2	100	1.93	225	
AUC	e	00	47	45				3.36	294	
	Pg		48	14		5.4				
	e			51						
NPZ	Pn	00	47	55		−0.8	100	3.63	256	4.5A
	Sn		48	37		−0.3	100			
WEL	Pn	00	48	04		0.3	100	4.20	223	5.4
	P*			16		2.3				
	Sn			52		0.8	100			
	S*		49	06		−2.4				
	Sg			21		−1.4	98			
	e			25						
CHR	eP*	00	49	09		9.0		6.92	219	5.5
	e			54						
	iSn			56		−0.4	100			
	i			59						
	i		50	04						
	i			26						
	i			45						
	i		51	23						
KAI	ePg	00	49	25		4.2		6.93	230	5.4
	Sn			56		−0.6	100			
	i		50	12						
	i			46						
	iSg			55		0.9	99			
	e		51	08						
	i			16						
RIV	eP	00	51	56		−6.2		22.59	273	

AMPLITUDES: NPZ 1.0 WEL 5.5 CHR 2.0
KAI 1.0

PRO: 46/30

FELT: Tolaga Bay (37), MM V; East Cape (29), Motu (36), MM IV. Listed in ISS, which adopts the N.Z. provisional epicentre and gives data from RIV.

46/ 031

MAR 04 $16^h01^m45^s.6$ 40°.20S 174°.80E 12 km M = 3.7
± R R R R S.E. of RES. 0.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	S*	16	02	20		0.2	100	1.09	181	3.6
NPZ	S*	16	02	25		−0.1	100	1.26	333	3.7

AMPLITUDES: WEL 1.5 NPZ 1.5

PRO: 46/31

FELT: Wanganui (57), MM III.

46/ 032

MAR 06 $13^h52^m22^s.6$ 39°.93S 176°.96E 12 km M ~ 4.0
± 2.8 0.13 0.29 R S.E. of RES. 2.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	Pg	13	52	48		2.5	99	1.13	8	4.0
	S*			56		−2.0	99			
WEL	ePg	13	53	05		−1.1	100	2.15	230	3.8s
	e			20						
	eSn			23		−0.7	100			
	iSg			36		0.8	100			
NPZ	iP*	13	53	05		0.4	100	2.39	290	3.6s
	i			20						
	i			24						

AMPLITUDES: TUA 2.5 WEL 0.5 NPZ 0.3

No provisional solution.

46/ 033

MAR 06 $15^h34^m19^s.7$ 39°.39S 176°.82E 12 km M ~ 3.7
± 0.3 0.02 0.04 R S.E. of RES. 0.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
HAS	S*-P*			04		0.3	100	0.24	177	
TUA	P*	15	34	31		−0.7	99	0.64	24	
	Sn			45		0.6	99			
NPZ	eSn	15	35	21		0.1	100	2.16	278	~3.5s
WEL	e	15	35	05				2.46	219	~3.9s
	e			13						
	e			21						
	Sn			28		−0.1	100			
	S*			35		0.0	100			

AMPLITUDES: NPZ 0.3 WEL 0.5

No provisional solution.

46/ 034

MAR 07 $13^h50^m18^s.2$ 41°.07S 173°.17E 12 km M = 4.1
± 0.7 0.04 0.06 R S.E. of RES. 1.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	Pg	13	50	42		−1.1	100	1.23	101	3.9
	Sg		51	01		1.3	100			
KAI	iSn	13	51	07		−7.7		1.96	221	4.0s
	eS*			20		1.4	100			
	i			26						
	i			35						
NPZ	Pn	13	50	50		−2.6	99	2.12	19	4.3
	iP*			57		1.5	100			
	Sn		51	22		3.5				
	eS*			24		0.7	100			
	i			28						
CHR	iSn	13	51	26		−1.5	100	2.49	189	4.0s
	iS*			35		0.4	100			
	e			51						

AMPLITUDES: WEL 2.0 KAI 0.5 NPZ 2.0
CHR 0.5

TAK No measurable S-P.

PRO: 46/32

FELT: Takaka (72), MM IV; Farewell Spit (72), MM III.

46/ 035

MAR 08 $23^h26^m48^s.7$ 41°.45S 171°.91E 12 km M ~ 4.3
± 0.8 0.03 0.07 R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	iP*	23	27	08		−1.3	100	1.13	199	3.5s
	iS*			23		−1.4	100			
	eSg			28		0.8	100			
CHR	Sn	23	27	46		−3.6		2.15	166	3.9s
	iS*			57		2.3	99			
	e		28	09						
WEL	iPg	23	27	37		4.6		2.16	87	3.8s
	Sn			49		−0.9	100			
	S*			54		−1.0	100			
NPZ	ePg	23	27	47		−0.3	100	2.90	36	4.3
	i		28	05						
	iSn			09		1.2	100			
	S*			18		0.7	100			

AMPLITUDES: KAI 0.5 CHR 0.5 WEL 0.5
NPZ 1.0

PRO: 46/33

FELT: Karamea (74), MM III.

46/ 036

MAR 09 $04^h44^m49^s.2$ 42°.14S 173°.24E 12 km M = 4.3
± 0.5 0.04 0.06 R S.E. of RES. 1.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	P*	04	45	13		−1.5	100	1.41	254	3.7s
	Sn			28		−4.5				
	iSg			37		0.1	100			
WEL	Pn	04	45	13		−1.1	100	1.42	54	4.2
	Sn			30		−2.8				
	Sg			37		−0.3	100			
CHR	Pn	04	45	16		1.4	100	1.46	198	4.5

	iPg			26		7.2			
	Sn			34		0.3	100		
NPZ	e	04	45	37				3.14	12	4.3
	iP*			43		−0.9	100		
	e		46	07					
	Sn			16		2.1	99		

AMPLITUDES: KAI 0.5 WEL 3.5 CHR 4.5
NPZ 1.0

PRO: 46/34

46/ 037

MAR 09 $17^h15^m45^s.4$ 41°.10S 175°.70E 12 km M = 4.1
± R R R R S.E. of RES. 0.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	17	15	59		−0.0	100	0.73	255	4.0
	S*		16	09		0.1	100			
NPZ	e	17	16	29				2.38	328	4.1
	Sn			52		−0.1	100			
	e		17	19						

AMPLITUDES: WEL 7.0 NPZ 1.0

PRO: 46/35

FELT: Masterton (66), MM IV.

46/ 038

MAR 10 $06^h26^m41^s.6$ 38°.34S 176°.28E 209 km M = 5.0
± 2.1 0.09 0.16 16 S.E. of RES. 1.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	P	06	27	12		0.7	100	0.83	124	5.0
	S			34		−0.4	100			
NPZ	P	06	27	19		−0.7	100	1.87	247	3.4s
WEL	P	06	27	34		0.0	100	3.16	201	4.9
	S		28	15		0.4	100			
	i			42						
KAI	eS	06	29	10		1.1	99	5.59	220	3.4s
CHR	S	06	29	14		−1.3	99	5.88	207	4.2*

AMPLITUDES: TUA 6.5 NPZ 0.5 WEL 2.5
KAI 0.1 CHR 1.0

PRO: 46/36

46/ 039

MAR 11 $10^h35^m46^s.2$ 39°.40S 174°.78E 33 km M = 3.9
± 2.5 0.11 0.26 R S.E. of RES. 1.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	Pn	10	35	57		−1.5	99	0.64	301	3.9
	S*		36	09		0.7	100			
WEL	iPn	10	36	17		1.6	99	1.88	180	3.9
	e			35						
	eSn			37		−0.3	100			
	iS*			44		−0.4	100			
	i			53						

AMPLITUDES: NPZ 9.0 WEL 1.0

PRO: 46/37

FELT: Ohakune (49), MM V; Wanganui (57), MM IV.

46/ 040

MAR 12 $17^h04^m23^s.2$ 40°.90S 173°.13E 12 km M = 4.3

± 0.3 0.02 0.03 R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	Pn	17	04	45		−1.4	99	1.30	108	4.1
	iP*			47		0.5	100			
	i			49						
	iPg			50		0.5	100			
	Sn		05	04		0.3	100			
	Sg			07		0.0	100			
NPZ	Pn	17	04	53		−2.7		1.97	22	4.5
	Sn		05	19		−1.0	99			
	iS*			25		0.9	100			
KAI	ePg	17	05	05		−0.1	100	2.07	218	4.0s
	e			18						
	Sn			23		0.6	100			
	eSg			31		−2.0				
CHR	eSn	17	05	36		−0.3	100	2.65	188	4.0s

AMPLITUDES: WEL 3.0 NPZ 3.5 KAI 0.5
CHR 0.5

PRO: 46/38

FELT: North-West Nelson (72, 76), MM III.

46/ 041

MAR 15 $22^h56^m00^s.0$ 46°.50S 168°.00E 33 km

± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
MNW	Sn-Pn			11		0.6	100	0.76	340	

PRO: 46/39

FELT: Centre Island (148), MM IV.

46/ 042

MAR 17 $03^h28^m54^s.9$ 41°.36S 175°.87E 12 km M = 4.5

± 1.2 0.04 0.07 R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	03	29	11		0.8	99	0.83	275	4.5
	S*			21		−0.4	100			
NPZ	ePn	03	29	36		−0.8	99	2.67	328	4.4
	iP*			42		0.4	100			
	Sn		30	08		−0.4	100			
	iS*			17		0.4	100			

AMPLITUDES: WEL 21 NPZ 1.5

PRO: 46/40

FELT: Wellington (68) MM II.

46/ 043

MAR 19 $12^h20^m39^s.5$ 40°.99S 176°.79E 12 km M ~ 3.6

± 1.3 0.04 0.08 R S.E. of RES. 1.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	e	12	25	21				1.56	258	~3.5s

TUA	iSn	12	21	42	0.2	100	2.20	7	
	i		24	02					
NPZ	eSg	12	22	15	−0.1	100	2.83	312	~3.7s
CHR	iSn	12	22	24	−0.9	99	4.00	229	
	i			31					
	iSg			55	0.8	100			

AMPLITUDES: WEL 0.5 NPZ 0.3

No provisional solution.

46/ 044

MAR 21 $06^h15^m27^s.8$ 35°.13S 179°.97E 12 km M ~ 5.1

± 2.1 0.10 0.21 R S.E. of RES. 1.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	ePn	06	16	30		−2.1	99	4.31	211	5.1
	Sn		17	31		10.3				
	iS*			39		0.4	100			
	eSg			54		1.1	100			
AUC	Pn	06	16	36		0.6	100	4.55	246	
	e		18	36						
NPZ	ePn	06	16	59		1.9	99	6.13	229	4.6s
	eP*		17	08		−5.7				
	Pg			38		6.2				
	eS*		18	32		−1.3	100			
	e			58						
WEL	eP*	06	17	39		4.0		7.38	212	4.8s
	eSn		18	34		−0.6	100			
	iS*		19	06		−4.7				
	e			18						

AMPLITUDES: TUA 2.0 NPZ 0.5 WEL 0.5

Timing at TUA uncertain.

No provisional solution.

46/ 045

MAR 21 $11^h57^m18^s.9$ 35°.95S 177°.97E 12 km M ~ 4.8

± 4.8 0.16 0.38 R S.E. of RES. 2.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
AUC	e	11	59	51				2.73	250	
TUA	Pn	11	57	53		−11.2		2.92	193	4.8
	S*		58	48		−0.1	100			
NPZ	ePn	11	58	26		1.8	100	4.39	224	4.3s
	iSn		59	12		−1.6	100			
	e	12	00	13						
WEL	eP*	11	58	59		−1.4	100	5.89	204	4.8s
	eSn		59	56		6.4				
	e			58						
	i	12	00	09						
	iS*			15		−1.9	100			
	i			41						
CHR	i	12	01	10				8.61	207	5.0s
	iS*			42		3.3	99			

AMPLITUDES: TUA 1.5 NPZ 0.3 WEL 0.5
CHR 0.3

Timing at TUA uncertain.

No provisional solution.

46/ 046

MAR 25 $15^h29^m14^s.9$ 40°.85S 174°.03E 12 km M = 4.8
± 0.1 0.01 0.01 R S.E. of RES. 0.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	15	29	28		−0.2	100	0.71	128	
	S*			38		0.1	100			
NPZ	ePn	15	29	45		0.2	100	1.78	1	5.0
	Sn		30	07		−0.1	100			
KAI	e	15	30	21				2.57	229	4.5
	iSn			26		−0.2	100			
	eS*			34		0.2	100			
CHR	e	15	30	25				2.87	201	
	Sn			30		−3.3				

AMPLITUDES: NPZ 13 KAI 1.0

PRO: 46/42

FELT: Southern Taranaki and about Cook Strait.

46/ 047

MAR 31 $06^h10^m20^s.0$ 41°.40S 174°.90E 12 km
± R R R R S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	Pg	06	10	23		−0.7	100	0.15	319	
	Sg			27		0.7	100			

AMPLITUDES: WEL 6.5

PRO: 46/43

FELT: Wellington (68), MM III.

46/ 048

APR 03 $10^h01^m43^s.6$ 40°.33S 174°.21E 12 km M = 4.7
± 0.4 0.02 0.08 R S.E. of RES. 0.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	10	02	02		−0.5	100	1.04	156	4.6
	S*			17		0.6	100			
NPZ	Pn	10	02	06		−0.4	100	1.27	355	4.9
	iPg			09		−0.3	100			
	S*			24		0.7	99			
TUA	Sn-Pn			32		−0.3	100	2.74	57	4.6
KAI	e	10	03	45				3.04	223	4.4s
CHR	i	10	04	03				3.41	200	4.3s

AMPLITUDES: WEL 16 NPZ 24 TUA 1.5
KAI 0.5 CHR 0.5

Time correction at TUA unknown.

PRO: 46/44

FELT: Central North Island, Taranaki and Manawatu. Maximum reported intensity MM V at Wanganui (57) and Foxton (61).

46/ 049

APR 07 $21^h49^m08^s.6$ 42°.47S 172°.65E 12 km M ~ 3.9
± 0.3 0.01 0.04 R S.E. of RES. 0.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	P*	21	49	28		0.1	100	1.06	181	3.9

	S*			42		−0.1	100			
WEL	ePn	21	49	41		0.0	100	1.97	54	3.7s
	ePg			49		0.5	99			
	iSn		50	05		−0.4	99			
	Sg			17		1.8				
NPZ	iSn	21	50	49		5.4		3.56	18	3.9s
	iS*			57		−0.1	100			

AMPLITUDES: CHR 2.5 WEL 0.5 NPZ 0.3

PRO: 46/45

46/ 050

APR 08 $14^h10^m37^s.6$ 40°.20S 174°.80E 12 km M ~ 3.9

± R R R R S.E. of RES. 0.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	S*	14	11	12		0.2	100	1.09	181	
NPZ	S*	14	11	17		−0.2	100	1.26	333	3.9

AMPLITUDES: NPZ 2.5

PRO: 46/47

FELT: Wanganui (57), MM III.

46/ 051

APR 09 $02^h38^m14^s.6$ 41°.17S 174°.20E 12 km M ~ 2.9

± 0.8 0.05 0.03 R S.E. of RES. 0.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iP*	02	38	23		−0.4	100	0.45	105	2.9
	eS*			30		0.3	100			
KAI	eSn	02	39	26		2.3		2.48	236	4.0s
	S*			31		0.2	100			
CHR	eS*	02	39	35		−0.2	100	2.63	206	

AMPLITUDES: WEL 1.5 KAI 0.3

No provisional solution.

46/ 052

APR 09 $07^h46^m21^s.0$ 39°.44S 178°.37E 12 km M ~ 4.1

± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iSn	07	47	50		0.0	100	3.31	235	~4.1s
	iS*		48	02		0.0	100			
	iSg			15		2.3				
NPZ	eSn	07	47	51		0.0	100	3.36	275	~4.1s

AMPLITUDES: WEL 0.5 NPZ 0.5

PRO: 46/48

FELT: Wairoa (53), MM IV.

46/ 053

APR 13 $10^h55^m58^s.5$ 41°.35S 176°.21E 12 km M = 4.2

± 1.4 0.05 0.07 R S.E. of RES. 0.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	10	56	18		−0.3	100	1.09	273	4.2
	S*			33		0.2	100			
NPZ	eP*	10	56	48		0.4	99	2.81	324	4.2
	Sn		57	15		−0.3	100			

AMPLITUDES: WEL 5.5 NPZ 1.0

PRO: 46/49

FELT: Masterton (66), MM III.

46/ 054

APR 16 $21^h17^m56^s.3$ 38°.62S 178°.85E 12 km M = 5.0
± 1.7 0.05 0.10 R S.E. of RES. 1.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP*	21	18	20		−0.4	100	1.34	261	5.0
	i			32						
	iSn			37		−0.9	100			
	iSg			42		0.3	100			
HAS	Sn-Pn			23		−0.2	100	1.87	236	
ARA	i	21	19	42				2.58	281	
	i			54						
	i		20	54						
AUC	Pg	21	19	09		−1.6	100	3.67	297	
	iSg		20	00		−0.1	100			
	i			11						
	i			39						
	e		21	00						
	e			45						
NPZ	Pn	21	18	55		1.9	100	3.75	262	4.8
	Sn		19	38		2.0	100			
	iS*			46		−4.6				
	e		20	16						
	i			28						
WEL	ePn	21	19	01		3.0	99	4.11	228	4.8
	iP*			05		−2.7	99			
	i			32						
	Sn			42		−2.6	99			
	e		20	48						
CHR	e	21	20	47				6.79	222	5.5
	iSn			49		0.0	100			
	i		22	46						
KAI	e	21	21	31				6.88	233	
	iSg			49		1.0	100			
	i		22	09						
	i		23	07						

AMPLITUDES: TUA 18 NPZ 2.0 WEL 1.5
CHR 2.0

PRO: 46/50

FELT: Tolaga Bay (37), MM V.

46/ 055

APR 19 $19^h33^m24^s.4$ 40°.49S 173°.39E 33 km M = 4.4
± 1.0 0.05 0.08 R S.E. of RES. 1.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	Pn	19	33	44		−1.8	99	1.31	128	4.0
	S*		34	07		1.2	100			
NPZ	e	19	33	38				1.51	20	3.4s
	Sn		34	07		0.4	100			
KAI	Sn	19	34	32		1.0	100	2.53	216	4.2s
CHR	Sn	19	34	44		−0.7	100	3.10	190	4.8

AMPLITUDES: WEL 2.5 NPZ 0.5 KAI 0.5

CHR 2.0

PRO: 46/51

46/ 056

APR 22 $18^h19^m43^s.1$ 38°.83S 176°.15E 124 km M = 5.3
± 0.9 0.04 0.05 7 S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	P	18	20	03		−0.6	100	0.78	88	5.1
	S			20		0.7	100			
HAS	S-P			16		−0.9	99	0.96	147	
NPZ	P	18	20	13		0.3	100	1.64	261	4.5*
	S			35		−0.3	100			
WEL	P	18	20	25		−0.9	100	2.67	203	5.4
	S			59		0.6	100			
KAI	S	18	21	51		−7.2		5.16	223	4.1s
CHR	eP	18	21	06		3.5		5.39	208	4.6*
	iS		22	04		0.1	100			

AMPLITUDES: TUA 21 NPZ 9.5 WEL 12
KAI 0.5 CHR 2.5

PRO: 46/52

FELT: Central and southern parts of the North Island. Maximum reported intensity Taihape (58), MM IV.

46/ 057

APR 24 $02^h43^m59^s.3$ 41°.82S 172°.68E 33 km M = 4.1
± 0.4 0.03 0.04 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	Sn	02	44	33		−0.5	100	1.18	233	4.2
WEL	eP*	02	44	28		−0.9	99	1.66	72	3.8
	iSn			45		−0.1	100			
	S*			53		2.1				
CHR	Sn	02	44	47		0.7	100	1.71	181	4.0
NPZ	ePn	02	44	43		−0.1	100	2.95	22	4.3
	iP*			45		−5.9				
	Sn		45	17		0.8	100			
	S*			20		−9.5				

AMPLITUDES: KAI 2.5 WEL 1.0 CHR 1.0
NPZ 1.0

PRO: 46/53

46/ 058

APR 27 $10^h36^m57^s.7$ 41°.60S 173°.26E 12 km M ~ 3.6
± 0.5 0.03 0.04 R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	ePg	10	37	22		0.5	100	1.17	75	~3.2s
	eS*			34		−0.5	100			
	Sg			38		0.6	100			
KAI	Sn	10	37	48		0.9	100	1.66	235	3.6s
CHR	Sn	10	37	54		−0.9	100	1.99	193	~3.8s
NPZ	Sn	10	38	09		−0.6	100	2.60	14	~3.9s

AMPLITUDES: WEL 0.5 KAI 0.3 CHR 0.5
NPZ 0.5

No provisional solution.

46/ 059

APR 28 $19^h54^m50^s.3$ 41°.22S 175°.74E 12 km M = 4.6
± 0.2 0.00 0.01 R S.E. of RES. 0.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	19	55	04		−0.0	100	0.74	265	4.4
	S*			14		0.0	100			
NPZ	ePn	19	55	30		−0.0	100	2.50	329	4.8
	iP*			37		2.8				
	iPg			45		4.0				
	Sn		56	00		0.1	100			
	S*			07		−0.1	100			

AMPLITUDES: WEL 21 NPZ 5.0

PRO: 46/54

FELT: Wellington and Wairarapa. Maximum reported intensity MM IV.

46/ 060

APR 30 $15^h33^m09^s.4$ 41°.16S 172°.66E 33 km M = 4.2
± 0.3 0.02 0.03 R S.E. of RES. 0.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	Pn	15	33	34		−0.7	99	1.59	95	4.1
	Sn			54		0.3	100			
KAI	iSn	15	33	55		−0.1	100	1.66	214	3.6s
	eS*		34	01		0.0	100			
NPZ	iP*	15	33	51		0.2	100	2.36	28	4.3
	Sn		34	13		1.1				
	S*			19		−2.7				
CHR	Sn	15	34	13		0.6	99	2.38	181	3.9s
	S*			22		−0.3	100			
	e			26						

AMPLITUDES: WEL 2.0 KAI 0.3 NPZ 1.5
CHR 0.5

PRO: 46/55

FELT: Upper Takaka (72), MM IV, and Karamea (74).

46/ 061

MAY 02 $10^h58^m20^s.3$ 40°.50S 175°.54E 12 km M = 4.0
± 4.1 0.05 0.39 R S.E. of RES. 1.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	10	58	37		−1.2	100	0.98	217	4.1
	S*			52		0.7	100			
NPZ	eP*	10	58	54		1.4	100	1.83	321	3.9
	iPg			58		0.7	100			
	Sn		59	12		−1.6	100			

AMPLITUDES: WEL 5.0 NPZ 1.0

PRO: 46/57

FELT: Southern Hawkes Bay. Maximum reported intensity MM IV at Dannevirke (63).

46/ 062

MAY 07 $07^h04^m15^s.2$ 41°.06S 177°.84E 33 km M = 5.4
± 1.1 0.03 0.08 R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
HAS	Sn-Pn			14		−5.1		1.61	331	
	S*-Pn			25		0.3	100			
TUA	P*	07	04	55		−0.9	100	2.31	347	5.4
	Sn		05	17		0.3	100			
WEL	Pn	07	04	54		3.4		2.33	263	5.6
	Sn		05	17		−0.1	100			
NPZ	eP*	07	05	18		1.8	98	3.51	303	5.6
	Sn			45		−0.5	100			
CHR	P*	07	05	30		−4.6		4.59	236	5.3
	Sn		06	12		0.6	100			
KAI	Sn	07	06	21		−0.9	100	5.02	251	5.1

AMPLITUDES: TUA 13 WEL 31 NPZ 14
CHR 3.0 KAI 1.0

PRO: 46/58

FELT: Dannevirke (63), MM IV, and Wellington (68), MM III.

46/ 063

MAY 07 $14^h12^m55^s.2$ 40°.79S 177°.77E 33 km M = 4.8
± 2.4 0.05 0.14 R S.E. of RES. 1.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
HAS	iSn-Pn			14		−2.4	98	1.35	328	
WEL	iP*	14	13	36		−0.1	100	2.32	257	4.7
	i			48						
	i			50						
	iSn			56		−0.9	100			
	eS*		14	08		1.4	100			
	e			20						
	i			35						
NPZ	e	14	14	06				3.32	300	4.6
	iSn			27		6.0				
	eS*			37		0.5	100			
	e			39						
	e			46						
AUC	eSn	14	14	51		0.1	100	4.56	328	
CHR	Sn	14	14	53		−1.1	100	4.70	233	5.0
KAI	i	14	14	47				5.07	248	4.8s
	i			56						
	Sn		15	05		2.1				

AMPLITUDES: WEL 4.0 NPZ 1.5 CHR 1.5
KAI 0.5

PRO: 46/59

46/ 064

MAY 08 $01^h23^m54^s.9$ 39°.95S 176°.67E 12 km M = 4.2
± 2.4 0.06 0.16 R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	ePn	01	24	27		−0.3	100	1.97	227	4.2
	iP*			31		1.3	100			
	iPg			38		3.2				
	iSn			50		−1.6	99			
	eSg		25	02		0.6	100			
	e			05						
	e			20						
NPZ	e	01	24	50				2.20	293	4.2

	iSn			57		0.0	100			
	e		25	31						
	i			38						
	i			46						

AMPLITUDES: WEL 1.5 NPZ 1.5

PRO: 46/60

FELT: Dannevirke (63), MM III.

46/ 065

MAY 08 $03^h22^m34^s.9$ 41°.17S 178°.75E 33 km M = 5.1
± 1.1 0.03 0.08 R S.E. of RES. 0.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
HAS	Sn-P*			16		−3.4		2.11	316	
TUA	eP*	03	23	22		0.5	100	2.65	332	5.2
	Sn			44		−0.7	100			
	iS*			56		−0.3	100			
WEL	ePn	03	23	19		−0.5	100	3.01	266	4.9
	i			26						
	iP*			27		−0.4	100			
	i			31						
	i			36						
	i			41						
	i			47						
	eSn			53		−0.1	100			
	e			59						
	e		24	15						
	e			33						
NPZ	e	03	23	45				4.15	299	
	iP*			48		1.1	99			
	i		24	12						
	iSn			21		0.3	100			
	i			22						
	e			29						
AUC	eS*	03	25	49		33.8		5.29	323	

AMPLITUDES: TUA 7.0 WEL 4.0

PRO: 46/61

FELT: Dannevirke (63), MM III.

46/ 066

MAY 08 $19^h12^m34^s.2$ 40°.45S 177°.75E 12 km M ~ 4.2
± 1.3 0.03 0.09 R S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iSn	19	13	25		0.5	100	1.70	344	3.7s
	iSg			32		0.3	100			
	i			45						
WEL	ePn	19	13	12		−0.6	100	2.41	249	4.2
	iPg			23		−0.0	100			
	i			36						
	Sn			43		1.4	99			
	i			55						
NPZ	ePn	19	13	25		2.2		3.16	295	4.0s
	iP*			28		−1.2	99			
	Sn		14	04		4.6				
	iS*			10		−0.4	100			

AMPLITUDES: TUA 0.5 WEL 1.0 NPZ 0.5

PRO: 46/62

46/ 067

MAY 09 $00^h05^m54^s.9$ 40°.42S 177°.27E 12 km M ~ 3.8

± 0.4 0.01 0.03 R S.E. of RES. 0.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	Sn	00	06	43		−0.1	100	1.62	357	~3.7s
WEL	eP*	00	06	32		0.4	99	2.09	245	3.5s
	iPg			40		2.9				
	Sn			54		−0.3	99			
	iS*			59		−0.0	100			
NPZ	S*	00	07	21		0.1	100	2.82	298	~3.9s

AMPLITUDES: TUA 0.5 WEL 0.3 NPZ 0.5

PRO: 46/63

46/ 068

MAY 09 $04^h10^m34^s.3$ 40°.68S 176°.94E 12 km M = 5.5

± 0.5 0.02 0.04 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
HAS	S*-P*			12		−1.9	97	1.04	356	
	Sn-P*			19		3.5				
BUN	ePn	04	10	54		−0.4	100	1.07	291	
	i		11	00						
	i			08						
	iSn			10		0.5	100			
	iSg			14		3.4				
	e			17						
	e			24						
WEL	ePn	04	11	04		0.3	100	1.75	249	5.5
	iP*			05		−0.4	100			
	Sn			27		1.2	99			
	e			39						
	i			44						
TUA	Pn	04	11	06		0.6	100	1.88	5	5.2
	iPg			17		4.7				
	Sn			28		−0.7	100			
NPZ	e	04	11	26				2.74	305	5.5
	ePg			30		0.5	100			
	e			32						
	e			43						
	eSn			50		0.7	100			
	eSg		12	06		−0.4	100			
ARA	Pn	04	12	06		48.1		2.79	338	
	Sn			24		33.3				
AUC	e	04	11	18				4.18	335	
CHR	ePn	04	11	39		0.6	100	4.29	227	5.5
	iPg			56		−5.0				
	Sn		12	25		−1.8	98			
	e		13	32						
KAI	ePg	04	12	08		2.0		4.54	244	5.6
	Sn			32		−0.7	100			
	iSg		13	07		−0.2	100			
	e			27						
RIV	eP	04	15	26		0.3	100	21.58	280	
	eS		19	31		11.2				

AMPLITUDES: WEL 38 TUA 14 NPZ 21
CHR 6.0 KAI 4.0

Clock correction at ARA uncertain

PRO: 46/64

FELT: Southern Hawkes Bay and Wairarapa, MM IV. ISS adopts N.Z. provisional epicentre, and lists readings from BRS and RIV.

46/ 069

MAY 09 $04^h44^m35^s.6$ 40°.58S 176°.76E 12 km M = 4.6
± 0.5 0.03 0.05 R S.E. of RES. 0.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
BUN	eP*	04	44	52		−0.3	100	0.91	289	
	Pg		45	00		5.9				
	S*			08		3.5				
	i			12						
	i			16						
	e			24						
HAS	S*-P*			12		−0.7	99	0.94	4	
WEL	ePn	04	45	04		0.2	100	1.66	244	4.4
	Sn			25		0.1	100			
	iSg			32		0.3	100			
	e			40						
TUA	ePn	04	45	05		−0.7	99	1.80	10	4.6
	Sn			29		0.8	99			
NPZ	Pg	04	45	31		3.6		2.56	305	4.8
	e			42						
	Sg		46	06		4.0				
	i			17						
CHR	ePg	04	45	57		−4.7		4.26	225	4.7
	Sn		46	27		−0.3	100			
	iSg		47	22		22.9				
	e			33						
KAI	eS*	04	47	03		12.1		4.45	242	4.7s
	e			25						

AMPLITUDES: WEL 4.0 TUA 4.0 NPZ 4.0
CHR 1.0 KAI 0.5

PRO: 46/65

FELT: Hastings (60), MM II.

46/ 070

MAY 12 $10^h57^m52^s.0$ 40°.30S 176°.00E 12 km M ~ 3.4
± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iPn	10	58	16		0.0	100	1.36	223	
NPZ	e	10	59	42				1.93	309	~3.4s

AMPLITUDES: NPZ 0.3

No Wood-Anderson record at WEL. Position very uncertain.

PRO: 46/66

FELT: Dannevirke (63), MM III.

46/ 071

MAY 13 $16^h35^m45^s.7$ 40°.43S 173°.74E 167 km M ~ 5.0
± 1.8 0.06 0.14 17 S.E. of RES. 1.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	S	16	36	36		0.9	100	1.16	138	
NPZ	P	16	36	17		1.3	100	1.39	11	3.6*
	S			38		−0.8	100			
KAI	eS	16	37	02		−3.8		2.73	219	3.6S
TUA	eS	16	37	13		−0.8	100	3.09	60	5.0
CHR	iP	16	36	38		1.0	100	3.21	195	4.7*
	S		37	15		−1.5	99			
	e			17						

AMPLITUDES: NPZ 1.0 KAI 0.3 TUA 2.0
CHR 5.0

No Wood-Anderson record at WEL.

PRO: 46/67

46/ 072

MAY 15 $10^h51^m08^s.8$ 40°.49S 176°.53E 12 km M = 3.9
± 0.5 0.02 0.03 R S.E. of RES. 0.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	ePn	10	51	36		0.5	100	1.56	238	3.8
	ePg			51		10.7				
	Sg		52	01		−0.2	100			
TUA	Sn	10	52	00		−0.0	100	1.75	16	4.0
NPZ	ePg	10	51	56		−0.6	99	2.36	306	3.8s
	eS*		52	21		−0.2	100			
	iSg			29		0.6	99			

AMPLITUDES: WEL 1.0 TUA 1.0 NPZ 0.5

No provisional solution.

46/ 073

MAY 17 $17^h51^m42^s.4$ 46°.00S 167°.00E 33 km
± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
MNW	Sn	17	52	00		0.0	100	0.49	63	

Clock correction at MNW unknown. Position very uncertain.

PRO: 46/68

FELT: Puysegur Point (146), MM V.

46/ 074

MAY 19 $18^h45^m28^s.0$ 35°.22S 176°.34W 12 km M = 6.3
± 1.5 0.10 0.08 R S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP*	18	47	12		−5.0		6.32	234	6.1
	ePg			36		0.3	100			
	eS*		48	32		−7.1				
AUC	iPg	18	47	51		−6.1		7.38	255	
	iS*		49	11		0.1	100			
NPZ	Pn	18	47	30		−0.3	100	8.57	241	5.4A
	Sn		49	07		3.8				

WEL	Pn	18	47	44	4.3		9.25	226	6.2
	e			48					
	Sn		49	31	11.4				
	e			37					
	e			43					
	S*		50	06	−0.9	100			
CHR	iPn	18	48	17	1.1	100	11.90	222	6.6
	iP*			57	4.8				
	iSn		50	27	3.7				
	e			30					
	i			42					
	i		51	12					
KAI	ePn	18	48	16	−1.4	99	12.01	229	5.5s
	e		50	19					
	iSn			27	1.1	100			

AMPLITUDES: TUA 10 NPZ 1.5 WEL 7.0
CHR 10 KAI 0.5

PRO: 46/70

ISS adopts N.Z. provisional epicentre, and lists data from 10 additional stations.

46/ 075

MAY 22 $18^h05^m24^s.2$ 38°.96S 175°.70E 12 km M ~ 4.1
± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	S*	18	06	00		0.0	100	1.14	83	4.1
NPZ	S*	18	06	04		0.0	100	1.27	265	3.5s
WEL	eSn	18	06	32		0.0	100	2.43	197	3.8s

AMPLITUDES: TUA 1.5 NPZ 0.5 WEL 0.3

PRO: 46/71

46/ 076

MAY 23 $11^h48^m15^s.0$ 39°.55S 176°.43E 12 km M ~ 3.7
± 0.1 0.07 0.13 R S.E. of RES. 0.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	ePn	11	48	27		−6.2		0.93	37	~3.2s
	iP*			32		0.0	100			
WEL	eSn	11	49	16		0.0	100	2.15	216	~3.5s
	iS*			21		−0.0	100			
CHR	eSn	11	50	22		0.0	100	4.90	214	~4.3s

AMPLITUDES: TUA 0.5 WEL 0.3 CHR 0.3

PRO: 46/72

46/ 077

JUN 03 $15^h30^m11^s.7$ 38°.43S 176°.12E 12 km M ~ 4.2
± 0.3 0.02 0.01 R S.E. of RES. 0.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	P*	15	30	28		−0.1	100	0.89	115	4.2
	eS*			40		−0.1	100			
	iSg			42		0.1	100			
NPZ	iPn	15	30	41		0.3	99	1.72	248	3.9s
	Sn		31	02		−0.3	99			
WEL	e	15	31	24				3.03	200	4.4s
	eSn			34		0.1	100			
	S*			39		−5.2				

AMPLITUDES: TUA 4.0 NPZ 0.5 WEL 0.5

PRO: 46/74

46/ 078

JUN 07 $14^h15^m21^s.8$ 39°.75S 172°.61E 12 km M = 4.9

± 1.3 0.04 0.10 R S.E. of RES. 1.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	ePn	14	15	44		−1.3	99	1.32	59	5.0
	P*			47		1.5	99			
WEL	ePn	14	15	58		0.1	100	2.25	134	4.8
	iSn		16	24		−1.1	100			
	Sg			38		0.5	100			
KAI	e	14	17	48				2.92	198	4.1s
	i		18	18						
CHR	eSn	14	16	58		−3.9		3.78	180	4.3s
	iS*		17	17		0.3	100			
	i		18	02						

AMPLITUDES: NPZ 25 WEL 5.0 KAI 0.3
CHR 0.5

PRO: 46/75

FELT: Taranaki and central parts of the North Island. Maximum reported intensity MM VI at Ohakune (49).

46/ 079

JUN 09 $15^h49^m11^s.2$ 41°.86S 171°.92E 12 km M = 4.1

± 0.6 0.02 0.06 R S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	S*	15	49	36		0.3	100	0.76	210	3.8
CHR	i	15	49	57				1.75	163	4.1
	iSn		50	01		−1.6	99			
	iS*			05		−0.3	100			
	iSg			11		0.8	100			
WEL	ePn	15	49	48		1.1	100	2.21	76	4.1
	eSn		50	14		0.2	100			
NPZ	iSn	15	50	39		0.5	100	3.24	31	4.4
	iS*			49		−1.0	100			

AMPLITUDES: KAI 2.0 CHR 1.5 WEL 1.0
NPZ 1.0

PRO: 46/76

46/ 080

JUN 10 $03^h37^m32^s.2$ 41°.30S 174°.80E 12 km M ~ 3.5

± R R R R S.E. of RES. 1.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	Pg	03	37	33		−1.4	100	0.02	300	
	Sg			36		0.1	100			
NPZ	eS*	03	38	44		1.2	100	2.30	346	~3.5s

AMPLITUDES: WEL 1.5 NPZ 0.3

PRO: 46/77

FELT: Wellington (68), MM III.

46/ 081

JUN 10 $18^h21^m50^s.2$ 43°.00S 173°.50E 12 km M ~ 3.5
± R R R R S.E. of RES. 0.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	iS*	18	22	17		0.2	100	0.83	230	3.5
KAI	eSn	18	22	38		−0.2	100	1.61	286	3.6s

AMPLITUDES: CHR 1.5 KAI 0.3

PRO: 46/78

FELT: Cheviot (96), MM III.

46/ 082

JUN 10 $18^h22^m28^s.5$ 42°.60S 173°.50E 12 km M ~ 3.9
± R R R R S.E. of RES. 0.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	iS*	18	23	04		0.0	100	1.13	214	3.9
KAI	eSn	18	23	15		0.0	100	1.55	272	3.5s

AMPLITUDES: CHR 2.0 KAI 0.3

PRO: 46/79

FELT: Cheviot (96), MM IV.

46/ 083

JUN 11 $07^h30^m33^s.1$ 41°.20S 176°.10E 12 km M ~ 3.6
± R R R R S.E. of RES. 0.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	Pn	07	30	53		0.7	100	1.01	265	3.6
	S*		31	05		0.1	100			
NPZ	eS*	07	31	53		−0.8	100	2.64	323	3.9s

AMPLITUDES: WEL 1.5 NPZ 0.5

PRO: 46/80

FELT: Masterton (66), MM III.

46/ 084

JUN 13 $20^h02^m24^s.9$ 41°.85S 172°.94E 12 km M ~ 4.2
± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	Sn	20	03	06		0.0	100	1.32	239	3.4s
WEL	Sn	20	03	10		0.0	100	1.48	68	3.2s
CHR	Sn	20	03	15		0.0	100	1.69	188	4.2

AMPLITUDES: KAI 0.3 WEL 0.3 CHR 2.0

PRO: 46/81

46/ 085

JUN 14 $13^h05^m12^s.2$ 40°.12S 174°.95E 12 km M = 4.3
± 0.4 0.02 0.04 R S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	13	05	33		−0.4	100	1.18	187	4.2
	Sg			52		0.1	100			
NPZ	eP*	13	05	36		1.4	99	1.25	327	4.0
	ePg			38		0.5	100			

	S*		50	−1.2	99				
	i		06 00						
TUA	iPn	13	05 46	−1.0	100	2.15	53		3.9s
	Sn		06 14	0.8	100				
	eS*		18	−0.3	100				
	iSg		28	3.3					
KAI	i	13	06 34			3.59	227		4.5s
CHR	e	13	06 47			3.82	206		4.7

AMPLITUDES: WEL 4.5 NPZ 3.0 TUA 0.5
KAI 0.5 CHR 1.0

PRO: 46/82

FELT: Wanganui (57), Hunterville (58), and Foxton (61), MM IV.

46/ 086

JUN 15 $05^h32^m10^s.4$ 41°.22S 172°.29E 12 km M = 4.1
± 1.0 0.04 0.07 R S.E. of RES. 1.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	iSn	05	32	53		−1.7	99	1.46	206	3.7s
WEL	Pn	05	32	41		−0.4	100	1.87	93	3.9
	Sn		33	05		0.2	100			
	S*			07		−1.2	100			
CHR	iP*	05	32	52		0.8	100	2.32	174	3.9s
	eS*		33	23		1.4	100			
	iSg			33		4.4				
NPZ	Sn	05	33	22		0.8	100	2.56	33	4.3
	eS*			32		3.4				

AMPLITUDES: KAI 0.5 WEL 1.0 CHR 0.5
NPZ 1.5

PRO: 46/83

FELT: Upper Takaka (72), MM III.

46/ 087

JUN 16 $09^h46^m16^s.9$ 40°.80S 176°.00E 12 km M ~ 3.1
± R R R R S.E. of RES. 1.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	eP*	09	46	37		1.0	100	1.05	242	~3.1s
	S*			49		−1.0	100			

AMPLITUDES: WEL 0.5

PRO: 46/84

FELT: Masterton (66), MM III.

46/ 088

JUN 16 $11^h44^m42^s.7$ 34°.89S 178°.40W 33 km M = 5.4
± 2.2 0.15 0.20 R S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	ePn	11	45	58		−0.5	100	5.29	221	5.3
	eSn		47	04		8.2				
	i			07						
	e			09						
	iS*			22		−0.8	100			
NPZ	Sn	11	47	45		0.4	100	7.32	233	4.5s
WEL	ePn	11	46	33		−7.2		8.35	218	5.4

	eSn		48 09		−0.3	100				
CHR	e	11	48 35				11.08	216		5.3s
	iSn		49 16		1.1	99				

AMPLITUDES: TUA 2.0 NPZ 0.3 WEL 1.5
CHR 0.5

No provisional solution.

46/ 089

JUN 19 $15^h42^m13^s.1$ 41°.06S 174°.89E 12 km M ~ 3.5
± 7.1 0.10 1.22 R S.E. of RES. 3.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	15	42	17		−1.5	100	0.25	202	
	S*			23		0.8	100			
NPZ	P*	15	42	52		2.2	99	2.09	342	~3.5s
	Sn		43	11		−1.5	100			

AMPLITUDES: WEL 9.0 NPZ 0.3

PRO: 46/85

FELT: Paraparaumu (65), MM III.

46/ 090

JUN 26 $12^h13^m12^s.5$ 43°.44S 171°.44E 12 km M = 4.3
± 2.1 0.09 0.12 R S.E. of RES. 1.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	eP*	12	13	27		−1.4	100	0.86	96	4.3
	iS*			42		1.9	99			
	e			52						
KAI	eP*	12	13	28		−1.3	100	0.92	358	4.2
	iS*			43		1.4	100			
WEL	ePn	12	14	06		3.3		3.28	50	4.1s
	iPg			18		−0.7	100			
	iS*			51		−1.3	100			
	e		15	08						
NPZ	ePn	12	14	25		1.5	100	4.80	25	4.2s
	iP*			31		−4.6				
	eSn		15	13		−4.2				

AMPLITUDES: CHR 8.5 KAI 4.0 WEL 0.5
NPZ 0.3

PRO: 46/87

FELT: Lake Coleridge (100), MM II.

46/ 091

JUN 26 $12^h34^m39^s.7$ 43°.18S 171°.68E 12 km M = 6.2
± 0.9 0.04 0.06 R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	iP*	12	34	52		−0.5	100	0.68	343	4.5+
	eS*		35	03		1.1	100			
CHR	iP*	12	34	52		−2.1	99	0.77	117	5.3+
	S*		35	07		2.4	99			
WEL	ePn	12	35	24		−1.8	99	2.97	52	6.0
	eP*			31		−0.6	100			
	ePg			45		5.2				
	iSn		36	02		1.5	100			
	Sg			19		−0.9	100			

	e			38						
MNW	Sn-Pn			45	0.6	100	3.90	227		
BUN	eP*	12	35	51	−0.4	100	4.13	47		
	iS*		36	45	−0.3	100				
	iSg			54	−4.9					
NPZ	ePn	12	35	47	0.5	100	4.49	25		6.4
	iP*			52	−5.5					
	Sn		36	40	3.0					
HAS	Sn-Pn			54	−4.3		5.25	49		
ARA	Sn	12	37	18	6.6		5.92	32		
	eS*		38	00	21.0					
	e			48						
	e		39	18						
	e			30						
TUA	ePn	12	36	14	6.7		6.01	45		6.1
	iSn		37	24	10.4					
	i			26						
	eS*			53	11.3					
AUC	iPn	12	36	05	−12.2		6.74	22		
	i			42						
	i		37	02						
	Sn			24	−7.1					
	i			46						
	iS*		38	00	−3.5					
	i			20						
RIV	iP	12	38	53	−4.9		18.54	293		
	iSn		42	17	2.5					
BRS	iP	12	39	26	−9.0		21.98	310		

AMPLITUDES: KAI 15+ CHR 100+ WEL 45
NPZ 53 TUA 9.5

Time corrections at ARA and AUC uncertain.

PRO: 46/89

FELT: Over the greater part of the South Island. Maximum reported intensity MM VII at Mount Algidus (99) and Lake Coleridge (100). For isoseismal map, see Hayes, 1947. ISS gives epicentre at 43.3S 171.5E, and gives readings from 53 additional stations. Numerous aftershocks.

46/ 092

JUN 26 $12^h53^m51^s.6$ 43°.32S 171°.31E 12 km M = 4.7
± 2.3 0.08 0.12 R S.E. of RES. 1.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	iP*	12	54	07		0.6	100	0.80	5	4.6
	S*			15		−2.1	99			
	iSg			19		0.3	100			
	i			45						
	e			58						
WEL	ePn	12	54	43		1.2	100	3.28	53	4.6
	iP*			47		−1.6	100			
	Sn		55	14		−5.6				
	Sg			41		−0.8	100			
NPZ	iPg	12	55	27		−0.2	100	4.73	27	4.9
	iS*		56	18		2.8	99			
TUA	eS*	12	57	10		7.7		6.31	46	4.8S

AMPLITUDES: KAI 14 WEL 1.5 NPZ 1.5
TUA 0.5

PRO: 46/90

FELT: Greymouth (85), Hokitika (91).

46/ 093

JUN 26 $13^h06^m48^s.3$ 42°.12S 171°.09E 12 km M = 4.3
± 1.3 0.03 0.09 R S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	iP*	13	06	56		−1.5	99	0.47	150	4.0
	S*		07	05		0.9	100			
WEL	ePn	13	07	34		0.9	100	2.88	74	4.3
	Pg			47		0.5	100			
	Sn		08	06		−0.8	100			
	Sg			25		−0.2	100			
NPZ	S*	13	08	44		0.1	100	3.80	38	4.5

AMPLITUDES: KAI 10 WEL 1.0 NPZ 1.0

PRO: 46/91

FELT: Greymouth (85), Hokitika (91).

46/ 094

JUN 26 $13^h16^m54^s.0$ 43°.24S 171°.55E 12 km M ~ 4.1
± 2.5 0.11 0.11 R S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	13	17	08		0.5	100	0.72	352	4.1
	e			13						
	iS*			17		−0.3	100			
WEL	eP*	13	17	47		−0.8	99	3.09	52	3.8s
	iSn		18	18		0.5	100			

AMPLITUDES: KAI 5.0 WEL 0.3

PRO: 46/92

FELT: Hokitika (91).

46/ 095

JUN 26 $13^h17^m43^s.1$ 43°.19S 171°.61E 12 km M = 5.1
± 1.7 0.07 0.09 R S.E. of RES. 1.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	iP*	13	17	55		−0.9	100	0.68	347	4.5+
	i			59						
	eS*		18	06		0.9	100			
WEL	iPn	13	18	29		−0.8	100	3.02	52	4.9
	Sn		19	06		1.0	100			
NPZ	iPn	13	18	51		0.7	100	4.52	25	5.3
	iP*		19	09		7.6				
	iSn			42		0.9	100			
	i		20	12						
	eSg			16		0.6	100			
TUA	ePn	13	19	18		6.7		6.06	46	5.1
	i		20	32						
AUC	S*	13	21	05		−2.8	98	6.78	22	

AMPLITUDES: KAI 15+ WEL 3.5 NPZ 4.0
TUA 1.0

PRO: 46/93

FELT: Hokitika (91).

46/ 096

JUN 26 $13^h28^m12^s.6$ $42°.06S$ $171°.62E$ 12 km $M \sim 3.5$

± 1.1 0.07 0.13 R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	iPg	13	28	25		2.2	99	0.49	199	3.5
	eSg			28		−1.6	99			
	iS*			29		−0.0	100			
WEL	ePn	13	28	51		−0.9	100	2.47	73	3.7s
	iPg		29	03		0.3	100			
	iSn			22		0.5	100			
	iSg			40		3.8				
NPZ	eS*	13	30	06		6.1		3.53	33	4.1s
	iSg			11		−0.3	100			
	i			18						

AMPLITUDES: KAI 2.5 WEL 0.3 NPZ 0.5

No provisional solution.

46/ 097

JUN 26 $13^h29^m54^s.0$ $43°.11S$ $171°.41E$ 12 km $M \sim 3.9$

± 0.8 0.03 0.04 R S.E. of RES. 0.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	13	30	05		−0.1	100	0.58	360	3.9
	iS*			13		−0.1	100			
	e			19						
WEL	ePn	13	30	42		0.3	100	3.09	55	4.1s
	iP*			47		−0.8	99			
	iPg			57		0.6	100			
	iSn		31	14		−3.5				
	iS*			28		−0.2	100			
NPZ	iP*	13	31	08		−4.1		4.51	27	4.3s
	iSn			52		0.2	100			

AMPLITUDES: KAI 5.0 WEL 0.5 NPZ 0.5

PRO: 46/94

FELT: Hokitika (91).

46/ 098

JUN 26 $13^h41^m18^s.9$ $43°.17S$ $171°.52E$ 12 km $M \sim 3.7$

± 0.9 0.04 0.02 R S.E. of RES. 0.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	13	41	31		−0.1	100	0.65	353	3.7
	iS*			40		0.1	100			
WEL	iPg	13	42	24		3.3		3.06	53	3.8s
	iSn			42		0.2	100			
	iS*			52		−0.2	100			
	iSg			57		−4.9				

AMPLITUDES: KAI 2.5 WEL 0.3

PRO: 46/95

FELT: Hokitika (91).

46/ 099

JUN 26 $14^h15^m43^s.5$ $42°.85S$ $170°.65E$ 12 km $M = 4.4$

± 1.3 0.07 0.09 R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	14	15	56		0.3	100	0.65	61	4.0
	iS*		16	04		−0.5	100			
WEL	iPn	14	16	35		−0.9	99	3.44	64	4.5
	iP*			44		0.6	100			
	i		17	07						
	iSn			16		0.4	100			
	S*			25		−3.3				
NPZ	ePn	14	16	55		3.5		4.58	36	4.7
	iSn		17	43		0.1	100			
	i		18	10						

AMPLITUDES: KAI 5.0 WEL 1.0 NPZ 1.0

PRO: 46/96

FELT: Hokitika (91).

46/ 100

JUN 26 $14^h45^m09^s.6$ 43°.26S 171°.57E 12 km M ~ 4.0

± 3.9 0.17 0.17 R S.E. of RES. 1.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	14	45	25		1.6	100	0.75	351	4.0
	iS*			32		−1.5	100			
	e			38						
WEL	eP*	14	46	02		−1.4	100	3.09	51	4.1s
	iPg			11		−1.0	100			
	iSn			34		0.8	100			
	iS*			41		−2.8				
NPZ	iSn	14	47	11		1.6	100	4.60	25	4.4s

AMPLITUDES: KAI 4.0 WEL 0.5 NPZ 0.5

PRO: 46/97

FELT: Lake Coleridge (100), MM IV.

46/ 101

JUN 26 $15^h42^m29^s.2$ 43°.15S 171°.37E 12 km M = 4.4

± 1.3 0.06 0.05 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	15	42	41		−0.1	100	0.63	3	4.0
	iS*			50		0.2	100			
	e			57						
WEL	ePn	15	43	18		0.4	100	3.14	55	4.4
	iP*			21		−3.0				
	iSn			49		−5.1				
	S*		44	04		−1.0	99			
	eSg			16		0.9	99			
NPZ	ePn	15	43	39		1.9		4.57	27	4.7
	iSn		44	28		−0.3	100			
	e			30						
AUC	Sn	15	45	40		17.8		6.81	24	

AMPLITUDES: KAI 5.5 WEL 1.0 NPZ 1.0

PRO: 46/98

46/ 102

JUN 26 $16^h30^m29^s.3$ 42°.04S 171°.22E 12 km M ~ 3.8

± 1.4 0.04 0.11 R S.E. of RES. 1.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	16	30	39		−0.2	100	0.51	164	3.8
	iS*			47		0.7	100			
WEL	iPn	16	31	13		0.5	100	2.76	75	4.0s
	iSn			43		−2.1	99			
	eSg			32	03	0.6	100			
NPZ	iP*	16	31	32		−1.2	100	3.68	37	4.2s
	iS*			32	23	1.8	99			

AMPLITUDES: KAI 4.5 WEL 0.5 NPZ 0.5

PRO: 46/99

46/ 103

JUN 26 $22^h18^m33^s.3$ 43°.32S 171°.56E 12 km M = 4.3

± 1.0 0.04 0.05 R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	22	18	49		0.9	100	0.80	352	4.0
	iS*			59		0.0	100			
CHR	iP*	22	18	47		−1.1	99	0.80	106	4.5
	iS*			19	00	1.0	100			
WEL	iPn	22	19	24		2.5		3.12	51	4.1s
	i			55						
	Sn			57		−0.8	100			
	eSg			20	19	0.4	100			
NPZ	ePn	22	19	47		4.7		4.65	25	4.4s
	iSn			20	34	−0.4	100			

AMPLITUDES: KAI 3.5 CHR 16 WEL 0.5 NPZ 0.5

PRO: 46/100

FELT: Lake Coleridge (100), MM 111.

46/ 104

JUN 27 $02^h00^m21^s.2$ 43°.11S 171°.66E 12 km M ~ 3.7

± 0.4 0.02 0.03 R S.E. of RES. 0.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	02	00	33		0.2	100	0.60	342	3.7
	iS*			41		−0.1	100			
	e			47						
CHR	iP*	02	00	36		−0.5	99	0.83	121	
	iS*			48		0.3	100			
WEL	eP*	02	01	13		0.4	100	2.94	53	
	eSn			41		−0.3	100			
	eS*			53		1.9				

AMPLITUDES: KAI 3.0

PRO: 46/101

46/ 105

JUN 27 $03^h07^m28^s.6$ 43°.18S 171°.59E 12 km M = 3.8

± 1.8 0.07 0.13 R S.E. of RES. 1.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	03	07	43		1.9	99	0.67	348	3.5
	iS*			48		−2.2	99			
	e			58						
CHR	iP*	03	07	43		−1.0	100	0.84	116	4.1

	iS*		55	−0.3	100				
WEL	iP*	03 08	23	1.6	100	3.02	52		4.0s
	iSn		50	−0.6	100				
	e	09	15						
NPZ	iSn	03 09	27	0.6	100	4.51	25		4.1s

AMPLITUDES: KAI 1.5 CHR 6.0 WEL 0.5
NPZ 0.3

PRO: 46/102

46/ 106

JUN 27 $03^h49^m46^s.8$ 43°.18S 171°.72E 12 km M = 4.0
± 0.8 0.04 0.06 R S.E. of RES. 1.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	03	50	00		0.2	100	0.69	340	4.1
	iPn			03		1.2	100			
	iS*			06		−3.2				
	eSn			12		−0.8	100			
CHR	iP*	03	49	59		−1.8	99	0.75	118	3.8
	iS*		50	12		1.1	100			
WEL	ePn	03	50	35		2.4		2.95	51	3.8s
	e			42						
	Sg		51	26		−0.2	100			
NPZ	iSn	03	51	44		0.2	100	4.47	24	4.1s
	iS*		52	07		4.3				

AMPLITUDES: KAI 5.0 CHR 3.5 WEL 0.3
NPZ 0.3

No provisional solution.

46/ 107

JUN 27 $04^h05^m06^s.9$ 43°.21S 171°.33E 12 km M = 4.5
± 1.1 0.04 0.07 R S.E. of RES. 1.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	04	05	20		0.2	100	0.68	5	4.4
	iS*			28		−1.1	100			
	e			34						
CHR	iP*	04	05	24		−1.0	100	1.00	109	4.5
	iS*			38		−0.4	100			
WEL	iPn	04	05	58		2.0	98	3.19	54	4.4
	i		06	26						
	eSg			55		0.5	100			
NPZ	ePn	04	06	16		0.4	100	4.63	27	4.7
	i			18						
	iSn		07	07		−0.5	100			
	iS*			36		8.7				

AMPLITUDES: KAI 11 CHR 10 WEL 1.0
NPZ 1.0

PRO: 46/103

46/ 108

JUN 27 $04^h08^m02^s.3$ 43°.24S 171°.32E 12 km M = 4.5
± 1.2 0.04 0.07 R S.E. of RES. 1.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	04	08	17		1.3	100	0.72	5	4.4
	iS*			25		−0.5	100			

CHR	iP*	04 08 20	−0.4	100	1.00	107		4.5
	iS*	34	0.2	100				
WEL	ePn	04 08 53	1.3	100	3.22	54		4.1s
	iP*	57	−1.4	99				
	iSn	09 28	−1.0	100				
	iS*	36	−4.5					
	eSg	52	1.2	100				
NPZ	iSn	04 10 03	−0.6	100	4.66	27		4.7

AMPLITUDES: KAI 10 CHR 9.5 WEL 0.5
NPZ 1.0

PRO: 46/104

46/ 109

JUN 27 $08^h19^m57^s.0$ 43°.53S 171°.51E 12 km M = 4.0
± 0.8 0.03 0.04 R S.E. of RES. 0.8

STN	PHASE	H M S	DIR	RES	WT	DIST	AZ	MAG
CHR	iP*	08 20 11		−0.9	99	0.81	91	4.0
	iS*	23		0.1	100			
KAI	eP*	08 20 16		0.7	100	1.01	356	4.0
	i	23						
	eS*	28		−0.7	100			
WEL	ePn	08 20 48		0.6	100	3.29	48	3.9s
	ePg	21 06		2.5				
	eSg	48		0.2	100			
NPZ	iP*	08 21 21		0.0	100	4.86	24	4.2s
	iSn	59		−4.0				

AMPLITUDES: CHR 5.0 KAI 2.0 WEL 0.3
NPZ 0.3

PRO: 46/105

FELT: Lake Coleridge (100), MM IV.

46/ 110

JUN 27 $18^h36^m02^s.6$ 43°.15S 171°.56E 12 km M = 4.4
± 1.0 0.04 0.06 R S.E. of RES. 1.3

STN	PHASE	H M S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	18 36 14		−0.6	100	0.64	350	4.4
	S*	22		−1.4	100			
	eSn	28		0.7	100			
CHR	iP*	18 36 17		−1.5	99	0.86	116	4.4
	iS*	31		0.8	100			
WEL	ePn	18 36 52		2.6		3.02	53	4.3
	iSn	37 25		0.3	100			
	iS*	34		−1.0	100			
	eSg	44		−0.6	100			
NPZ	ePn	18 37 11		1.4	100	4.50	26	4.6
	iSn	38 02		1.8	99			

AMPLITUDES: KAI 12 CHR 11 WEL 1.0
NPZ 1.0

PRO: 46/106

FELT: Lake Coleridge (100), MM IV.

46/ 111

JUN 27 $22^h49^m12^s.0$ 43°.32S 171°.30E 12 km M = 3.8
± 2.1 0.07 0.12 R S.E. of RES. 1.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	22	49	28		1.2	100	0.80	6	3.7
	iS*			36		−1.6	99			
CHR	iP*	22	49	29		−1.0	100	0.99	103	3.8
	iS*			43		−0.3	100			
WEL	ePg	22	50	20		1.7	99	3.28	53	3.9s
	eS*			52		0.1	100			

AMPLITUDES: KAI 1.5 CHR 2.0 WEL 0.3

No provisional solution.

46/ 112

JUN 28 $00^h35^m29^s.5$ 43°.15S 171°.88E 12 km M = 3.8
± 0.7 0.04 0.06 R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	iP*	00	35	41		−1.1	99	0.67	125	3.8
	iSg			53		0.7	100			
KAI	Pg	00	35	45		0.9	100	0.71	331	3.7
	iS*			52		−0.5	100			
	eSg			58		4.2				
WEL	ePn	00	36	14		0.2	100	2.84	50	3.8s
	iSn			47		−0.2	100			

AMPLITUDES: CHR 4.5 KAI 2.0 WEL 0.3

PRO: 46/107

FELT: Lake Coleridge (100), MM IV.

46/ 113

JUN 28 $06^h28^m40^s.3$ 43°.25S 171°.68E 12 km M = 3.6
± 1.3 0.05 0.08 R S.E. of RES. 1.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	eP*	06	28	54		−0.2	100	0.75	112	3.5
	iS*		29	05		0.6	100			
KAI	iS*	06	29	05		0.5	100	0.76	345	3.6
	e			11						
WEL	ePg	06	29	40		−1.4	99	3.02	50	3.8s
	eS*		30	13		0.5	100			

AMPLITUDES: CHR 2.0 KAI 1.5 WEL 0.3

PRO: 46/108

FELT: Lake Coleridge (100), MM III.

46/ 114

JUN 28 $07^h04^m28^s.2$ 43°.19S 171°.73E 12 km M = 4.0
± 1.2 0.06 0.09 R S.E. of RES. 1.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	07	04	42		0.6	100	0.70	340	3.9
	iS*			51		0.0	100			
	e			58						
CHR	iP*	07	04	41		−1.0	100	0.74	118	4.0
	iS*			53		1.0	100			
WEL	eP*	07	05	18		−1.7	99	2.95	51	4.0s
	iSn			49		0.5	100			
	i			52						
	eSg		06	14		6.4				

AMPLITUDES: KAI 3.0 CHR 5.5 WEL 0.5

PRO: 46/112

FELT: Lake Coleridge (100), MM III.

46/ 115

JUN 28 $07^h12^m41^s.6$ 43°.34S 171°.21E 12 km M = 5.8
± 0.8 0.04 0.05 R S.E. of RES. 1.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	iP*	07	12	57		0.1	100	0.83	10	4.8+
	S*		13	07		−1.1	100			
CHR	iP*	07	13	01		0.4	100	1.04	101	4.8+
	iS*			13		−1.6	100			
DND	Sn-Pn			34		3.3		2.58	191	
WEL	ePn	07	13	31		−1.7	99	3.34	53	5.7
	i			36						
	iP*			41		1.2	100			
	Sn		14	10		−1.2	100			
	eSg			35		0.8	100			
MNW	Sn-Pn			45		4.4		3.54	225	
BUN	eP*	07	14	00		0.5	100	4.50	49	
	iSn			41		2.0	99			
	Sg		15	10		−3.0				
NPZ	iPn	07	13	52		−0.4	100	4.79	28	6.0
	iSn		14	44		−1.9	99			
ARA	ePn	07	14	00		−12.3		6.25	34	
	P*			24		−5.3				
	eS*		16	00		9.5				
	eSg			24		12.1				
TUA	ePn	07	14	16		1.9	99	6.37	47	5.7
	eP*			22		−9.5				
	eSn		15	24		−0.1	100			
	eS*			55		0.7	100			
AUC	Pn	07	14	12		−11.0		7.03	24	
	e			25						
	e			45						
	e		15	10						
	e			26						
	Sn			28		−11.8				
	e		16	08						
	e			30						
RIV	iP	07	16	57		0.3	100	18.30	295	
	iSn		20	21		10.5				
BRS	iP	07	17	31		−4.4		21.82	311	
	iS		21	37		5.5				

AMPLITUDES: KAI 17+ CHR 21+ WEL 19
NPZ 21 TUA 4.0

Timing at AUC uncertain.

PRO: 46/113

FELT: Most parts of the South Island except the far south. Maximum reported intensity MM VI at Lake Coleridge (100). ISS gives an epicentre at 43.3S 171.3E, and lists readings from 14 additional stations.

46/ 116

JUN 28 $07^h15^m21^s.9$ 42°.80S 171°.20E 12 km M ~ 3.8
± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	S*	07	15	33		0.0	100	0.31	29	3.8

AMPLITUDES: KAI 12

PRO: 46/114

FELT: Hokitika (91), MM III.

46/ 117

JUN 28 $07^h22^m37^s.2$ 43°.46S 171°.39E 12 km M = 4.4
± 0.4 0.02 0.02 R S.E. of RES. 0.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	iS*	07	23	06		0.1	100	0.90	95	4.4
KAI	P*	07	22	54		−0.3	99	0.94	1	4.3
	eS*		23	07		0.1	100			
WEL	ePn	07	23	28		0.1	100	3.31	50	3.9s
	iSn			57		−9.2				
	eS*		24	18		−0.2	100			

AMPLITUDES: CHR 9.0 KAI 4.5 WEL 0.3

PRO: 46/115

FELT: Lake Coleridge (100), MM III.

46/ 118

JUN 28 $07^h59^m02^s.8$ 43°.02S 171°.29E 12 km M = 4.7
± 0.7 0.02 0.04 R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	07	59	13		0.5	100	0.50	11	3.3+
	iS*			19		−0.4	100			
	i			23						
CHR	iP*	07	59	22		−0.8	99	1.11	118	4.7
	iS*			38		0.4	100			
WEL	eP*	07	59	57		−0.1	100	3.11	57	4.4
	iPg	08	00	03		−2.8				
	iSn			28		1.0	99			
	iS*			38		0.2	100			
	eSg			47		−0.7	100			
NPZ	Pn	08	00	14		4.6		4.47	29	4.9
	Sn		01	04		4.3				

AMPLITUDES: KAI 1.5+ CHR 12 WEL 1.0
NPZ 2.0

PRO: 46/116

FELT: Hokitika (91), Lake Coleridge (100) MM IV, and Greymouth (85).

46/ 119

JUN 28 $08^h52^m36^s.9$ 43°.24S 171°.26E 12 km M = 4.9
± 0.7 0.02 0.04 R S.E. of RES. 0.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	iP*	08	52	51		0.5	100	0.73	9	4.6+
	S*		53	00		−0.3	100			

	e		07					
CHR	iP*	08	52 55	−0.8	99	1.04	107	4.9
	iS*		53 10	0.2	100			
WEL	iPn	08	53 30	3.1		3.26	54	4.6
	iP*		34	0.3	100			
	i		37					
	iPg		49	6.2				
	iS*		54 12	−4.3				
	eSg		27	0.3	100			
NPZ	iPn	08	53 47	0.6	100	4.68	28	5.1
	iSn		54 38	−0.8	99			
TUA	ePn	08	54 13	4.8		6.28	47	4.6s
	eSn		55 26	8.7				

AMPLITUDES: KAI 15+ CHR 21 WEL 1.5
NPZ 2.5 TUA 0.3

KAI S* in time gap.

PRO: 46/117

FELT: Lake Coleridge (100) MM IV, Greymouth (85) and Hokitika (91).

46/ 120

JUN 28 $09^h03^m42^s.5$ 43°.17S 171°.40E 12 km M = 4.0
± 0.4 0.01 0.02 R S.E. of RES. 0.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	09	03	55		0.4	99	0.64	0	3.9
	iS*		04	03		−0.3	99			
CHR	iP*	09	04	00		−0.1	100	0.96	113	4.1
	iS*			13		−0.1	100			
WEL	eP*	09	04	37		−0.0	100	3.12	54	3.9s
	eS*		05	18		0.1	100			
	eSg			32		4.2				

AMPLITUDES: KAI 4.0 CHR 4.5 WEL 0.3

PRO: 46/118

FELT: Hokitika (91), MM III.

46/ 121

JUN 28 $11^h50^m20^s.0$ 38°.98S 175°.78E 12 km M = 4.3
± 1.0 0.08 0.06 R S.E. of RES. 1.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eS*	11	50	54		−0.2	100	1.09	81	4.4
NPZ	iSn	11	51	01		−0.3	100	1.33	266	3.8
WEL	e	11	50	50				2.43	198	4.8
	iPn		51	00		1.3	99			
	iSn			27		−0.8	100			

AMPLITUDES: TUA 3.5 NPZ 1.0 WEL 3.0

No provisional solution.

46/ 122

JUN 28 $18^h56^m38^s.6$ 42°.68S 170°.74E 12 km M = 4.3
± 1.7 0.09 0.08 R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	18	56	49		0.4	100	0.51	73	3.7
	iS*			56		0.2	100			

	e		57 02						
CHR							1.62	122	4.9
WEL	eP*	18	57 36	−0.2	100	3.31	66		4.1s
	iSn		58 05	−2.5					
	i		15						
	iS*		18	−1.5	99				
	eSg		31	0.9	100				
NPZ	iSn	18	58 34	0.1	100	4.41	36		4.1s

AMPLITUDES: KAI 4.0 CHR 9.0 WEL 0.5
NPZ 0.3

PRO: 46/119

FELT: Lake Coleridge (100), MM III.

46/ 123

JUN 29 $19^h48^m02^s.8$ 43°.00S 171°.30E 12 km M ~ 3.4
± R R R R S.E. of RES. 1.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	19	48	13		0.8	100	0.48	10	3.4
	iS*			18		−0.8	100			
	e			24						

AMPLITUDES: KAI 2.0

PRO: 46/121

FELT: Lake Coleridge (100), MM III.

46/ 124

JUN 30 $21^h04^m29^s.8$ 43°.10S 171°.32E 12 km M = 3.8
± 1.6 0.05 0.12 R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	iP*	21	04	41		0.2	100	0.58	7	3.9
	iS*			49		0.2	100			
	e			55						
CHR	iP*	21	04	49		0.2	100	1.04	115	3.7
	iS*		05	03		0.2	100			
WEL	eP*	21	05	23		−1.5	98	3.14	56	3.9s
	ePg			34		0.7	100			
	iSn		06	00		5.4				

AMPLITUDES: KAI 5.0 CHR 1.5 WEL 0.3

PRO: 46/127

46/ 125

JUN 30 $21^h07^m37^s.6$ 43°.19S 171°.31E 12 km M = 5.1
± 1.3 0.05 0.08 R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	iP*	21	07	51		0.8	100	0.67	6	4.5+
	iS*			58		−1.4	100			
CHR	iP*	21	07	56		−0.1	100	1.02	110	4.9+
	iS*		08	09		−0.7	100			
WEL	ePn	21	08	27		0.3	100	3.19	55	5.0
	iP*			32		−1.3	100			
	iPg			39		−3.2				
	i			44						
	iSn		09	08		4.3				
	iS*			17		1.9	99			

	i			20					
	iSg			24	−1.3	100			
MNW	Sn-Pn			45	2.8		3.70	224	
BUN	iPg	21	09	07	1.6	99	4.35	49	
	eS*		10	00	10.6				
NPZ	ePn	21	08	40	−6.1		4.63	28	5.1
	iSn		09	32	−6.0				
TUA	eP*	21	09	17	−7.9		6.22	47	5.1
	eS*		10	24	−21.7				
	eSg			59	−8.0				
AUC	iSn	21	10	20	−11.8		6.86	24	
	iS*		11	20	15.1				
	i		12	50					
RIV	iP	21	12	00	7.3		18.30	294	
	iSn		15	32	25.4				

AMPLITUDES: KAI 15+ CHR 28+ WEL 4.0
NPZ 2.5 TUA 1.0

AUC record confused by overlapping traces. Error of 5s in reading NPZ suspected.

PRO: 46/128

FELT: Westland and Christchurch. Maximum reported intensity MM V at Hokitika (91) and Lake Coleridge (100). ISS gives epicentre at 43.3S 171.6E, and lists additional readings from RIV.

46/ 126

JUL 01 $06^h54^m26^s.8$ 43°.18S 171°.65E 12 km M = 3.4
± 1.5 0.10 0.16 R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	06	54	39		−0.5	100	0.67	345	3.3
	Pg			42		1.4				
	eS*			49		0.3	100			
CHR	eP*	06	54	42		0.5	100	0.79	117	3.5
	iS*			52		−0.3	100			

AMPLITUDES: KAI 1.0 CHR 1.5

PRO: 46/129

FELT: Lake Coleridge (100), MM MM IV.

46/ 127

JUL 01 $15^h36^m58^s.6$ 43°.15S 171°.23E 12 km M = 4.0
± 1.9 0.06 0.12 R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	iP*	15	37	11		0.4	100	0.63	12	3.6
	iS*			17		−2.2	99			
	eSg			25		4.8				
CHR	iP*	15	37	18		−0.3	100	1.09	111	4.3
	iS*			32		−0.9	100			
WEL	eP*	15	37	56		1.3	100	3.22	56	4.1s
	iS*		38	37		0.3	100			
	eSg			52		5.0				
NPZ	Sn	15	39	00		1.3	100	4.61	29	4.1s

AMPLITUDES: KAI 2.0 CHR 5.0 WEL 0.5
NPZ 0.3

PRO: 46/132

FELT: Lake Coleridge (100), MM III.

46/ 128

JUL 02 $08^h27^m13^s.0$ 43°.27S 171°.40E 12 km M = 4.4

± 1.9 0.06 0.12 R S.E. of RES. 1.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	08	27	27		0.1	100	0.75	1	4.0
	S*			37		−0.0	100			
CHR	iP*	08	27	29		−1.1	100	0.94	107	4.7
	iS*			42		−0.6	100			
WEL	eP*	08	28	11		2.3	99	3.19	53	
	iPg			15		−2.6				
	iSn			41		1.9	99			
	eSg		29	07		6.4				
NPZ	eSn	08	29	13		−1.4	100	4.66	27	4.2s
	i			19						
	eSg			49		−1.0	100			

AMPLITUDES: KAI 4.0 CHR 17 NPZ 0.3

PRO: 46/133

FELT: Lake Coleridge (100), MM IV.

46/ 129

JUL 04 $10^h16^m48^s.3$ 43°.15S 171°.62E 12 km M = 3.8

± 1.6 0.10 0.18 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	10	17	01		0.5	100	0.65	346	3.6
	iS*			09		−0.3	100			
	e			15						
CHR	iP*	10	17	03		−0.5	100	0.83	118	4.0
	iS*			15		0.3	100			

AMPLITUDES: KAI 2.0 CHR 4.5

PRO: 46/141

FELT: Lake Coleridge (100), MM IV.

46/ 130

JUL 04 $18^h00^m06^s.2$ 40°.46S 172°.83E 12 km M = 5.0

± 0.7 0.04 0.07 R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iPn	18	00	33.5		−1.2	100	1.68	120	5.1
	iSn			57		0.9	100			
NPZ	iPn	18	00	33		−1.8	99	1.69	35	4.8
	iSn			57		0.8	100			
KAI	ePn	18	00	44		0.6	100	2.32	207	
	iP*			49		2.0	99			
	iS*		01	17		−0.5	100			
CHR	eP*	18	00	56		−3.8		3.08	183	4.5
	iPg		01	07		−1.3	100			
TUA	i	18	00	53				3.73	65	5.4
	iPg		01	22		0.5	100			
	i			33						
	iS*			53		−6.4				

AMPLITUDES: WEL 20 NPZ 10 CHR 1.0

TUA 3.5

PRO: 46/142

FELT: Wellington (69), MM IV, Wanganui (57), and Paraparaumu (65).

46/ 131

JUL 04 $18^h00^m54^s.0$ 43°.20S 171°.30E 12 km M ~ 4.7
± R R R R S.E. of RES. 1.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	iS*	18	01	15		−1.0	100	0.67	7	
CHR	iS*	18	01	26		−0.3	100	1.03	109	4.7
	iSg			30		1.3	99			

AMPLITUDES: CHR 16

PRO: 46/143

FELT: Lake Coleridge (100), MM IV. On coda of preceding shock. The large amplitude at CHR is not easily reconciled with the value of 4 mm at KAI assigned to the combined event.

46/ 132

JUL 06 $08^h29^m24^s.0$ 43°.29S 171°.23E 12 km M ~ 3.5
± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eS*	08	29	49		0.0	100	0.78	10	3.2s
	e			56						
CHR	eP*	08	29	43		0.0	100	1.04	104	3.5
	iS*			57		0.0	100			

AMPLITUDES: KAI 0.5 CHR 1.0

PRO: 46/148

FELT: Lake Coleridge (100), MM III.

46/ 133

JUL 06 $18^h20^m05^s.4$ 41°.30S 172°.16E 12 km M ~ 4.0
± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	eSn	18	21	02		0.0	100	1.97	91	4.0
	eS*			06		0.0	100			
NPZ	eS*	18	21	27		0.0	100	2.67	34	3.9s

AMPLITUDES: WEL 1.0 NPZ 0.5

PRO: 46/149

FELT: Upper Takaka (72), MM III.

46/ 134

JUL 07 $07^h55^m22^s.6$ 43°.18S 171°.50E 12 km M = 3.6
± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	iS*	07	55	44		0.0	100	0.66	354	3.5
	e			50						
CHR	iP*	07	55	39		0.0	100	0.89	114	3.7
	iS*			51		0.0	100			

AMPLITUDES: KAI 1.5 CHR 2.0

PRO: 46/151

FELT: Lake Coleridge (100), MM III.

46/ 135

JUL 08 $14^h36^m15^s.6$ 38°.09S 175°.89E 175 km M = 5.3
± 1.7 0.05 0.08 13 S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP	14	36	45		0.2	100	1.22	126	5.5
	iS		37	07		−0.3	100			
AUC	S	14	37	12		−0.0	100	1.51	324	
WEL	iP	14	37	09		0.4	100	3.31	195	5.1
	iS			50		0.7	100			
CHR	iS	14	38	50		−0.9	99	5.98	203	4.2*

AMPLITUDES: TUA 23 WEL 4.0 CHR 1.0

PRO: 46/153

FELT: Wairoa (53), MM IV.

46/ 136

JUL 08 $17^h51^m39^s.3$ 40°.97S 179°.79E 12 km M ~ 4.5
± 2.1 0.05 0.11 R S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iPn	17	52	25		−0.2	100	2.97	316	4.5
	eS*		53	10		0.1	100			
WEL	eSn	17	53	25		4.9		3.81	264	4.2s
	iS*			35		−0.1	100			
CHR	iS*	17	54	39		1.2	99	5.90	242	4.5s
	iSg			57		−1.0	99			

AMPLITUDES: TUA 1.0 WEL 0.5 CHR 0.3

No provisional solution.

46/ 137

JUL 09 $01^h12^m11^s.7$ 40°.92S 172°.30E 12 km M = 4.8
± 1.2 0.06 0.11 R S.E. of RES. 1.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	e	01	12	56				1.74	202	3.9s
	iSn		13	04		1.2	100			
WEL	ePg	01	12	52		1.8	99	1.90	102	5.0
	iSn		13	06		−0.7	100			
NPZ	iPg	01	12	57		−1.2	100	2.29	37	4.8
	iSn		13	17		0.7	100			
CHR	e	01	12	50				2.63	175	4.6
	iPg		13	03		−1.7	100			

AMPLITUDES: KAI 0.5 WEL 10 NPZ 5.0
CHR 2.0

No provisional solution.

46/ 138

JUL 09 $01^h53^m00^s.4$ 43°.21S 171°.81E 12 km M = 3.3
± 2.6 0.23 0.35 R S.E. of RES. 1.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	iP*	01	53	12		−1.1	99	0.67	119	3.1
	iS*			23		0.6	100			
KAI	ePn	01	53	17		0.9	100	0.75	336	3.4
	iS*			24		−0.4	100			

AMPLITUDES: CHR 1.0 KAI 1.0

PRO: 46/156

FELT: Lake Coleridge (100), MM III.

46/ 139

JUL 09 $07^h55^m16^s.3$ 43°.10S 171°.50E 12 km M ~ 3.0
± R R R R S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	iS*	07	55	36		0.8	100	0.58	353	~2.9s
CHR	iS*	07	55	45		−0.8	100	0.93	118	~3.1s

AMPLITUDES: KAI 0.5 CHR 0.5

PRO: 46/157

FELT: Lake Coleridge (100), MM IV.

46/ 140

JUL 09 $10^h12^m52^s.9$ 43°.15S 171°.64E 12 km M = 3.4
± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	iS*	10	13	14		0.0	100	0.65	345	3.3
	i			20						
CHR	eP*	10	13	08		0.0	100	0.81	118	3.5
	iS*			19		0.0	100			

AMPLITUDES: KAI 1.0 CHR 1.5

PRO: 46/158

FELT: Lake Coleridge (100), MM III.

46/ 141

JUL 10 $05^h12^m55^s.1$ 38°.17S 176°.97E 234 km M = 5.2
± 1.3 0.07 0.07 7 S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP	05	13	27		0.2	100	0.65	168	5.3
	iS			51		−0.4	100			
NPZ	iP	05	13	40		−0.9	99	2.44	248	
	iS		14	17		0.6	100			
	i			35						
WEL	eP	05	13	54		0.8	99	3.55	208	5.0
	i		14	23						
	iS			42		3.7				
	i		15	14						
	i			43						
KAI	iS	05	15	34		−0.3	100	6.07	223	4.4*
	i			38						
CHR	eS	05	15	39		−0.1	100	6.28	210	4.4*

AMPLITUDES: TUA 10 WEL 2.5 KAI 1.0
CHR 1.5

PRO: 46/160

46/ 142

JUL 12 $23^h05^m30^s.6$ 42°.39S 173°.05E 12 km M = 4.1
± 0.5 0.04 0.05 R S.E. of RES. 1.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	iP*	23	05	53		0.9	100	1.19	195	3.8
	iS*		06	08		0.1	100			
KAI	eP*	23	05	52		−0.7	100	1.22	263	4.3
	iS*		06	09		0.0	100			
WEL	ePn	23	05	57		−2.1	98	1.68	50	4.0
	iSn		06	21		0.5	100			
	iS*			29		6.2				
NPZ	iSn	23	07	03		1.2	100	3.40	13	4.4
	iS*			21		6.7				

AMPLITUDES: CHR 1.5 KAI 2.5 WEL 1.5
NPZ 1.0

PRO: 46/168

46/ 143

JUL 16 $06^h36^m15^s.6$ 43°.32S 173°.42E 12 km M ~ 3.8
± 2.5 0.15 0.10 R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eSn	06	37	05		−0.3	100	1.67	297	~3.8s
WEL	ePn	06	36	51		−1.0	100	2.26	27	~3.8s
	iP*			57		1.6	99			
	iSn		37	18		−1.3	100			
	iS*			25		−0.0	100			
NPZ	ePg	06	37	43		1.0	100	4.27	7	4.1s

AMPLITUDES: KAI 0.5 WEL 0.5 NPZ 0.3

No provisional solution.

46/ 144

JUL 16 $22^h41^m43^s.9$ 42°.54S 173°.10E 12 km M = 3.8
± 0.6 0.04 0.05 R S.E. of RES. 1.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	eP*	22	42	04		0.9	100	1.05	199	3.5
	iPg			08		2.7				
	i			12						
KAI	eP*	22	42	07		0.6	100	1.25	270	4.1
	iS*			22		−1.0	100			
WEL	ePn	22	42	12		−1.5	99	1.76	46	3.6s
	iPg			20		0.4	100			
	iSn			35		−0.7	100			
	iS*			42		3.5				
NPZ	e	22	43	09				3.55	12	4.1s
	eSn			22		3.6				
	iS*			33		1.2	100			

AMPLITUDES: CHR 1.0 KAI 1.5 WEL 0.5
NPZ 0.5

PRO: 46/174

FELT: Molesworth (89), MM III.

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JUL 20 $10^h04^m17^s.6$ 38°.46S 175°.17E 12 km M ~ 5.4
± 1.7 0.10 0.08 R S.E. of RES. 1.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	eS*	10	04	50		−0.7	100	1.05	234	2.9s

TUA	ePn	10 04 44	−0.8	100	1.59	103		5.4
	iSn	05 05	−0.2	100				
WEL	iPn	10 05 04	2.1	99	2.84	186		4.2s
	iS*	44	−0.4	100				

AMPLITUDES: NPZ 0.3 TUA 10 WEL 0.5

No provisional solution.

46/ 146

JUL 22 $15^h59^m53^s.0$ 42°.50S 172°.70E 12 km M ~ 3.3

± 5.7 0.22 0.28 R S.E. of RES. 2.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eS*	16	00	22		−1.3	100	0.95	268	~3.3s
	iSn			27		1.6	99			
CHR	iP*	16	00	11		−0.7	100	1.03	183	~3.2s
	iS*			26		0.4	100			

AMPLITUDES: KAI 0.5 CHR 0.5

PRO: 46/179

FELT: Hanmer Springs (88), MM IV; Lewis Pass (87), MM III.

46/ 147

JUL 24 $05^h09^m27^s.5$ 42°.94S 171°.61E 12 km M = 3.6

± 1.3 0.13 0.25 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	05	09	37		0.8	100	0.44	340	3.3
	eS*			42		−0.4	100			
	eSg			50		7.1				
CHR	eP*	05	09	44		−0.8	99	0.94	129	3.8
	iPn			46		0.1	100			
	iS*			58		0.4	100			

AMPLITUDES: KAI 2.0 CHR 2.5

PRO: 46/183

FELT: Lake Coleridge (100), MM III.

46/ 148

JUL 24 $19^h03^m58^s.5$ 42°.35S 173°.09E 12 km M = 4.7

± 0.2 0.01 0.02 R S.E. of RES. 0.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	iP*	19	04	21		0.3	100	1.23	196	4.5
	iPg			23		−0.5	100			
KAI	iP*	19	04	21		−0.2	100	1.26	261	4.8
	iS*			38		0.0	100			
WEL	ePn	19	04	25		−1.4		1.64	50	4.5
	iP*			28		0.3	100			
	iPg			32		0.2	100			
	eS*			49		−0.4	100			
	e			59						
NPZ	ePn	19	04	53		3.0		3.37	13	5.0
	iPg		05	09		2.4				
	eSn			30		1.2	97			
	e			32						
	i			37						
	iS*			41		−0.1	100			
	eSg			51		−0.9	99			

AMPLITUDES: CHR 7.5 KAI 8.0 WEL 4.5
NPZ 4.0

PRO: 46/184

FELT: Marlborough and North-west Nelson (72, 88, 89); maximum reported intensity MM IV.

46/ 149

JUL 25 $01^h39^m28^s.9$ 41°.29S 171°.61E 12 km M ~ 3.8
± 0.3 0.01 0.02 R S.E. of RES. 0.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	iSn	01	40	35		−0.0	100	2.37	162	
WEL	eSg	01	40	49		0.0	100	2.38	91	~3.6s
NPZ	iPg	01	40	28		0.2	100	2.92	41	~4.0s
	iSn			48		−0.2	100			

AMPLITUDES: WEL 0.3 NPZ 0.5

No provisional solution.

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JUL 25 $16^h44^m55^s.0$ 41°.07S 175°.86E 12 km M ~ 3.4
± 2.4 0.04 0.14 R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	eP*	16	45	11		0.3	100	0.85	255	3.4
	iS*			22		−0.2	100			
NPZ	i	16	45	52				2.43	325	3.6s
	iSn		46	02		−0.7	99			
	S*			10		0.6	100			

AMPLITUDES: WEL 1.5 NPZ 0.3

PRO: 46/185

FELT: Masterton (66), MM III.

46/ 151

JUL 30 $01^h42^m44^s.9$ 43°.31S 171°.36E 12 km M ~ 4.0
± 0.7 0.02 0.04 R S.E. of RES. 0.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eS*	01	43	10		−0.2	100	0.79	3	
CHR	eP*	01	43	02		−0.3	100	0.94	104	4.0
	iS*			15		−0.0	100			
	eSg			21		3.9				
WEL	eP*	01	43	42		0.6	99	3.24	52	4.1s
	iSg		44	34		−0.1	100			

AMPLITUDES: CHR 4.0 WEL 0.5

No provisional solution.

46/ 152

JUL 31 $10^h12^m31^s.7$ 43°.20S 171°.30E 12 km M ~ 3.0
± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	eS*	10	13	04		−0.0	100	1.03	109	~3.0s

AMPLITUDES: CHR 0.3

PRO: 46/193

FELT: Lake Coleridge (100), MM IV.

46/ 153

JUL 31 $10^h17^m13^s.8$ 43°.10S 171°.30E 12 km M ~ 3.5
± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	iS*	10	17	34		1.2	99	0.58	8	2.9s
CHR	S*	10	17	47		−0.2	100	1.06	115	3.5

AMPLITUDES: KAI 0.5 CHR 1.0

PRO: 46/194

FELT: Lake Coleridge (100), MM III.

46/ 154

AUG 07 $00^h01^m42^s.6$ 43°.19S 171°.52E 12 km M ~ 3.7
± 2.3 0.12 0.21 R S.E. of RES. 1.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	P*	00	01	56		0.7	100	0.67	353	3.0s
	S*		02	04		−0.4	100			
CHR	iP*	00	01	58		−0.7	100	0.88	113	3.7
	iS*		02	11		0.4	100			

AMPLITUDES: KAI 0.5 CHR 2.0

PRO: 46/198

FELT: Lake Coleridge (100), MM III.

46/ 155

AUG 09 $01^h37^m05^s.6$ 43°.25S 171°.50E 12 km M ~ 2.9
± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	01	37	22		2.8	100	0.73	355	~2.9s
	eS*			28		−1.0	100			

AMPLITUDES: KAI 0.3

PRO: 46/200

FELT: Lake Coleridge (100), MM IV.

46/ 156

AUG 12 $05^h08^m43^s.1$ 40°.21S 174°.27E 12 km M = 4.3
± 0.6 0.02 0.07 R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	eP*	05	09	05		1.3	99	1.14	161	4.0
	eS*			18		−0.9	100			
NPZ	P*	05	09	04		0.1	100	1.15	352	4.3
	iS*			19		−0.3	100			
TUA	Pn	05	09	24		−0.5	100	2.63	59	4.5
	iSn			56		0.3	100			
	eS*			58		−5.6				

AMPLITUDES: WEL 3.0 NPZ 6.5 TUA 1.0

PRO: 46/203

FELT: Wanganui (570, MM IV.

46/ 157

AUG 12 $13^h41^m17^s.5$ $40°.15$S $179°.62$W 12 km M = 5.0
± 0.5 0.01 0.03 R S.E. of RES. 0.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iPn	13	42	02		0.2	100	2.83	297	5.0
	iSn			35		−0.1	100			
WEL	ePn	13	42	23		−0.2	100	4.41	253	4.9
	iP*			29		−5.0				
	eSn		43	13		0.1	100			
	i			15						
NPZ	iPn	13	42	07		−24.1		4.99	281	4.2s
	i			09						
CHR	eSn	13	44	08		0.1	100	6.70	237	5.1

AMPLITUDES: TUA 4.0 WEL 1.5 NPZ 0.3
CHR 1.0

PRO: 46/205

46/ 158

AUG 12 $18^h54^m31^s.3$ $43°.33$S $171°.33$E 12 km M = 3.5
± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	Sn	18	55	00		0.0	100	0.80	4	3.5
CHR	eP*	18	54	49		0.0	100	0.97	103	3.5
	iS*		55	02		0.0	100			

AMPLITUDES: KAI 1.0 CHR 1.0

KAI record out of focus.

PRO: 46/206

FELT: Lake Coleridge (100), MM IV.

46/ 159

AUG 14 $05^h23^m36^s.8$ $38°.50$S $178°.80$E 12 km M ~ 4.3
± R R R R S.E. of RES. 1.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	Pn	05	24	02		1.6	99	1.33	256	4.3
	Sn			17		−1.0	100			
	iSg			21		−0.6	100			

AMPLITUDES: TUA 3.0

PRO: 46/207

FELT: Tolaga Bay (37), MM III.

46/ 160

AUG 14 $15^h53^m20^s.2$ $38°.30$S $176°.44$E 238 km M = 5.2
± 0.4 0.02 0.04 3 S.E. of RES. 0.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP	15	53	53		0.2	100	0.76	132	5.4
	iS		54	18		−0.1	100			
	i			25						
NPZ	P	15	54	02		−0.0	100	2.00	247	3.9*
	i			05.5						
WEL	iP	15	54	15		−0.1	100	3.25	203	5.0
	iS			58		0.2	100			

KAI	S	15	55	49	−2.1		5.71	221	4.1s
CHR	iS	15	55	57	−0.1	100	5.97	208	4.2*

AMPLITUDES: TUA 13 NPZ 1.5 WEL 3.0
KAI 0.5 CHR 1.0

PRO: 46/208

46/ 161

AUG 16 $12^h38^m30^s.6$ 42°.10S 172°.09E 12 km M ~ 3.5
± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	P*	12	38	43		0.0	100	0.66	229	3.5
	iS*			52		0.0	100			
CHR	e	12	43	47				1.48	165	
WEL	eSn	12	39	32		0.0	100	2.17	69	3.5s

AMPLITUDES: KAI 1.5 WEL 0.3

PRO: 46/209

FELT: Westport (79), MM IV.

46/ 162

AUG 17 $04^h39^m01^s.6$ 37°.06S 177°.37E 12 km M = 5.3
± 1.0 0.06 0.05 R S.E. of RES. 0.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
ARA	eSn	04	40	00		8.1		1.70	233	
TUA	ePn	04	39	31		0.0	100	1.75	186	5.6
	iP*			33		0.4	100			
	iSn			52		−1.0	99			
	iS*			59		3.3				
NPZ	ePn	04	39	52		0.1	100	3.28	231	4.8
	iSn		40	33		3.2				
	iS*			41		−0.6	100			
WEL	ePn	04	40	14		3.1		4.67	205	5.5
	iP*			22		−0.5	100			
	iSn		41	04		0.7	100			
	i			15						
	iS*			20		−3.4				
CHR	eP*	04	41	09		−0.1	100	7.41	208	5.1s
	iPg			28		−3.3				
	Sn		42	10		1.0	99			

AMPLITUDES: TUA 26 NPZ 2.0 WEL 4.5
CHR 0.5

No time marks at ARA.

PRO: 46/210

FELT: Opotiki (35), MM IV.

46/ 163

AUG 17 $15^h27^m33^s.4$ 40°.89S 171°.49E 12 km M ~ 4.5
± 0.7 0.03 0.05 R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	15	28	02		−0.5	100	1.64	182	~4.7+
	iSn			19		−3.1				
WEL	P*	15	28	17		−0.5	100	2.51	100	4.4
	Sn			44		0.8	100			
	S*			50		−0.4	100			

NPZ	eSn	15	28	48	0.4	100	2.70	48	4.5
	iSg		29	04	−0.3	100			
	i			11					
CHR	iP*	15	28	23	1.1	99	2.77	163	4.4
	iPg			29	−0.5	100			
	i			40					

AMPLITUDES: KAI 4.0+ WEL 1.5 NPZ 2.0
CHR 1.0

KAI record out of focus.

PRO: 46/212

FELT: Kahurangi Point (72), MM IV; Karamea (74), MM III.

46/ 164

AUG 18 $17^h40^m23^s.6$ 37°.85S 177°.12E 279 km M = 5.1
± 1.6 0.08 0.19 10 S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP	17	41	02		0.3	100	0.95	179	5.2
	i			07						
	i			12						
	iS			31		−0.4	100			
	i			41						
	i			59						
NPZ	iPn	17	41	15		−0.1	100	2.68	242	3.3s
WEL	eP	17	41	28		0.1	100	3.89	207	4.9
	eS		42	19		0.9	99			
	i			21						
CHR	eS	17	43	16		−0.7	99	6.62	210	

AMPLITUDES: TUA 5.0 NPZ 0.3 WEL 1.5

PRO: 46/213

46/ 165

AUG 21 $21^h38^m20^s.9$ 39°.57S 175°.78E 12 km M = 4.9
± 0.3 0.02 0.03 R S.E. of RES. 0.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
BUN	S*	21	38	47		2.7		0.72	189	
	i			57						
	i		39	05						
TUA	Pn	21	38	44		−0.2	100	1.30	55	4.8
	Sn		39	02		0.3	100			
	i			11						
NPZ	Pn	21	38	46		0.3	100	1.41	290	4.9
	Sn		39	04		−0.3	100			
WEL	ePn	21	38	49		−3.0		1.88	204	5.0
	iP*			55		0.9	99			
	iPg			58		−0.9	99			
	iSn		39	12		−3.4				
	iS*			19		0.1	100			
KAI	i	21	40	04				4.43	227	5.0
	iSn			24		7.3				
	iS*			36		0.6	100			
CHR	eP*	21	39	40		−0.7	100	4.61	210	4.5s
	iPg			58		3.9				
	iS*		40	35		−5.8				
	iSg		41	09		12.8				

AMPLITUDES: TUA 10 NPZ 17 WEL 12
KAI 1.0 CHR 0.5

PRO: 46/214

FELT: Central parts of the North Island. Maximum reported intensity MM V at Taihape (58).

46/ 166

AUG 24 $08^h42^m35^s.3$ 40°.30S 176°.10E 12 km M ~ 3.4
± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	eSn	08	43	19		0.4	100	1.41	225	
NPZ	eSn	08	43	32		−0.5	100	1.99	308	~3.4s

AMPLITUDES: NPZ 0.3

PRO: 46/215

FELT: Dannevirke (63), MMIV.

46/ 167

AUG 25 $20^h24^m47^s.0$ 40°.59S 174°.20E 12 km M = 3.9
± 0.2 0.01 0.02 R S.E. of RES. 0.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	20	25	02		−0.0	100	0.81	148	4.1
	iS*			13		−0.0	100			
	i			21						
NPZ	Sn	20	25	33		−0.0	100	1.53	356	3.7
TUA	eSn	20	26	06		0.3	100	2.89	53	4.2s
	S*			15		−0.2	100			

AMPLITUDES: WEL 7.0 NPZ 1.0 TUA 0.5

PRO: 46/216

46/ 168

AUG 26 $04^h28^m43^s.3$ 43°.24S 171°.72E 12 km M = 3.3
± 2.3 0.16 0.24 R S.E. of RES. 1.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	eP*	04	28	56		−0.7	100	0.72	114	3.2
	iS*		29	07		0.4	100			
KAI	P*	04	28	58		0.7	100	0.75	342	3.4
	S*		29	07		−0.4	100			

AMPLITUDES: CHR 1.0 KAI 1.0

PRO: 46/217

FELT: Lake Coleridge (100), MM III.

46/ 169

SEP 02 $13^h06^m42^s.1$ 38°.70S 178°.50E 12 km M ~ 4.3
± R R R R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP*	13	07	02		0.6	100	1.06	264	4.3
	iS*			15		−0.5	100			

AMPLITUDES: TUA 5.5

PRO: 46/218

FELT: Gisborne (45), MM III.

46/ 170

SEP 06 $11^h48^m37^s.0$ 40°.84S 174°.74E 83 km M = 4.1
± 1.0 0.04 0.09 11 S.E. of RES. 1.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P	11	48	52		1.1	99	0.44	178	3.6
	S		49	01		−0.5	100			
NPZ	eS	11	49	30		−0.1	100	1.84	344	3.9*
TUA	eS	11	49	52		−0.3	100	2.75	43	4.6
CHR	e	11	49	49				3.11	210	3.4s
	e			57						
	iS		50	01		−0.3	100			

AMPLITUDES: WEL 4.0 NPZ 2.0 TUA 1.0
CHR 0.3

PRO: 46/219

FELT: Hunterville (58), MM III.

46/ 171

SEP 07 $05^h01^m56^s.0$ 32°.67S 179°.70E 33 km M = 5.9
± 3.6 0.24 0.28 R S.E. of RES. 1.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iPn	05	03	28		0.3	100	6.46	198	6.0
	i			36						
	Sn		04	38		0.8	100			
NPZ	e	05	05	38				7.84	214	5.1s
	iS*			53		0.6	100			
WEL	iSn	05	05	49		−0.1	100	9.46	203	5.8
CHR	Sn	05	06	53		−1.6	99	12.18	205	5.4s

AMPLITUDES: TUA 3.5 NPZ 0.5 WEL 1.5
CHR 0.3

PRO: 46/220

46/ 172

SEP 12 $13^h31^m42^s.8$ 41°.02S 172°.80E 166 km M ~ 5.0
± 0.4 0.01 0.01 3 S.E. of RES. 0.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iP	13	32	14		0.0	100	1.51	101	5.0
	iS			38		0.0	100			
KAI	iS	13	32	44		0.0	100	1.83	214	4.0*
NPZ	iS	13	32	51		−0.1	100	2.19	27	4.1*
CHR	eS	13	32	58		−0.1	100	2.51	183	3.9*

AMPLITUDES: WEL 11 KAI 1.0 NPZ 2.5
CHR 1.0

PRO: 46/221

46/ 173

SEP 12 $14^h31^m56^s.5$ 40°.20S 175°.80E 12 km M ~ 4.2
± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	eSn	14	32	37		−1.0	100	1.34	216	3.3s
	iS*			42		3.7				
	e		33	05						
NPZ	iSn	14	32	49		1.1	100	1.75	310	4.2

AMPLITUDES: WEL 0.5 NPZ 2.5

PRO: 46/222

FELT: Hunterville (58), MM III.

46/ 174

SEP 14 $10^h51^m28^s.8$ 39°.05S 178°.14E 12 km M = 5.2
± 1.6 0.04 0.11 R S.E. of RES. 1.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	P*	10	51	43		−0.8	100	0.81	287	5.2
	S*			55		0.3	100			
HAS	iS*	10	52	00		−5.5		1.17	239	
ARA	S*	10	52	54		18.0		2.19	296	
NPZ	iPn	10	52	20		2.5	97	3.17	268	5.0
	iSn			55		0.7	100			
	iS*			57.5		−7.9				
	iSg		53	21		5.5				
WEL	iP*	10	52	29		0.7	100	3.41	228	5.3
	iSn			59		−1.2	100			
AUC	eP*	10	52	28		−0.7	100	3.44	308	
	eSn		53	00		−0.8	100			
CHR	eSn	10	54	04		−0.9	100	6.11	221	5.1
KAI	Sn	10	54	07		0.4	100	6.17	234	5.0s

AMPLITUDES: TUA 68 NPZ 4.5 WEL 6.5
CHR 1.0 KAI 0.5

PRO: 46/223

FELT: Tolaga Bay (37), Gisborne (45), MM V; Wairoa (53), MM IV. Listed in ISS, without additional readings.

46/ 175

SEP 16 $10^h05^m05^s.8$ 41°.20S 175°.00E 12 km M ~ 3.7
± R R R R S.E. of RES. 2.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iP*	10	05	07		−3.3	99	0.20	244	
	iSg			16		2.7	100			
NPZ	ePg	10	05	52		0.7	100	2.25	341	~3.7s
	eSn		06	09		−0.2	100			

AMPLITUDES: WEL 10 NPZ 0.5

PRO: 46/225

FELT: Karori (68), MM III; Paraparaumu (65), MM II.

46/ 176

SEP 18 $07^h20^m53^s.3$ 41°.54S 173°.23E 12 km M = 4.0
± 0.4 0.02 0.03 R S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	eP*	07	21	15		0.3	100	1.19	78	3.7
	iPg			18		0.6	100			
	eS*			30		−0.5	100			
	i			32						
	iSg			34		0.6	100			
KAI	iSn	07	21	44		1.2	100	1.67	233	
CHR	eSn	07	21	50		−1.6	99	2.03	192	3.8s
NPZ	eP*	07	21	39		0.9	100	2.56	15	4.3
	iSn		22	03		−1.1	100			

	eS*		14		2.4				
	iSg		19		−0.4	100			

AMPLITUDES: WEL 1.5 CHR 0.5 NPZ 1.5

PRO: 46/226

46/ 177

SEP 22 $00^h26^m53^s.4$ 39°.43S 176°.77E 12 km M = 4.6

± 0.4 0.02 0.04 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
HAS	S*-Pg			13		9.7		0.22	166	
TUA	iP*	00	27	05		−1.2	99	0.68	26	4.1+
	iSn			20		0.8	100			
	i			27						
NPZ	ePn	00	27	29		1.1	99	2.12	279	4.6
	iSn			54		0.2	100			
	eS*			58		−0.7	100			
WEL	ePn	00	27	32		0.3	100	2.40	219	4.6
	iP*			35		−0.6	100			
	iPg			40		−2.0				
	i			46						
	i			57						
	iSn		28	00		−0.5	100			
	iS*			11		3.8				
	eSg			15		0.5	100			
	e			24						

AMPLITUDES: TUA 7.0+ NPZ 4.5 WEL 3.0

PRO: 46/227

46/ 178

SEP 22 $16^h59^m44^s.3$ 38°.54S 178°.65E 12 km M ~ 4.3

± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP*	17	00	06		0.0	100	1.20	257	~4.3+
	iS*			22		0.0	100			
WEL	eSn	17	01	31		0.0	100	4.05	226	~4.3s
	i		02	22						

AMPLITUDES: TUA 4.0+ WEL 0.5

PRO: 46/228

FELT: Tolaga Bay (37), MM IV.

46/ 179

SEP 24 $06^h40^m37^s.6$ 37°.31S 178°.99E 12 km M = 5.5

± 1.1 0.06 0.10 R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iPg	06	41	20		0.3	100	2.08	224	5.8
	iSg			49		1.2	99			
	i		42	24						
HAS	Sg-Pn			17		−35.1		2.87	215	
	Sg-Pn			22		−30.1				
AUC	Sg-Pn			38		−24.6		3.39	276	
NPZ	iPn	06	41	41		−0.1	100	4.25	244	5.0
	iP*			51		−0.3	100			
	Sn		42	29		−0.1	100			
WEL	iPn	06	41	53		−0.3	100	5.15	218	5.6

	iP*	42 11	4.4					
	iSn	49	−1.6	99				
	iS*	43 13	−0.5	100				
KAI	Sn	06 43 43	−11.7		7.81	226		5.2s
CHR	iPn	06 42 32	1.3	99	7.88	216		5.7
	iSn	43 53	−3.4					
	i	44 01						

AMPLITUDES: TUA 40 NPZ 2.5 WEL 6.5
KAI 0.5 CHR 2.5

Defective timing at AUC.

PRO: 46/229

FELT: Wairoa (53), Dannevirke (63), MM III. ISS adopts NZ provisional origin. No additional readings are listed.

46/ 180

SEP 26 $19^h29^m00^s.2$ 42°.21S 168°.58E 12 km M ~ 4.2
± 1.5 0.03 0.09 R S.E. of RES. 0.8

STN	PHASE	H M S	DIR	RES	WT	DIST	AZ	MAG
KAI	eSn	19 30 01		0.4	100	2.12	100	~4.0s
	i	08						
CHR	ePn	19 29 50		−0.2	100	3.26	115	~4.2s
	iSn	30 28		0.1	100			
	iS*	39		−0.6	100			
WEL	eSn	19 31 04		0.9	99	4.72	81	~4.2s
NPZ	eS*	19 31 38		−0.6	100	5.23	55	~4.5s
	i	43						

AMPLITUDES: KAI 0.5 CHR 0.5 WEL 0.3
NPZ 0.5

PRO: 46/231

FELT: Milford Sound (120), MM IV.

46/ 181

SEP 29 $08^h35^m47^s.4$ 34°.65S 177°.81E 12 km M = 6.1
± 3.3 0.18 0.28 R S.E. of RES. 1.2

STN	PHASE	H M S	DIR	RES	WT	DIST	AZ	MAG
TUA	iPn	08 36 50		0.0	100	4.18	187	6.0
	iSn	37 37		−0.2	100			
WEL	iSn	08 38 47		1.0	99	7.05	199	6.1
CHR	eSn	08 39 50		−0.7	100	9.74	203	5.8s

AMPLITUDES: TUA 2.5 WEL 1.5 CHR 0.3

No provisional solution.

46/ 182

SEP 29 $22^h39^m44^s.2$ 39°.40S 176°.44E 12 km M = 4.0
± 0.6 0.04 0.05 R S.E. of RES. 1.0

STN	PHASE	H M S	DIR	RES	WT	DIST	AZ	MAG
TUA	eS*	22 40 10		−0.1	100	0.81	43	4.0
NPZ	iPn	22 40 16		0.8	99	1.87	280	3.9
	iSn	38		−0.5	100			
WEL	iSn	22 40 48		−0.2	100	2.28	214	4.1

AMPLITUDES: TUA 4.0 NPZ 1.0 WEL 1.0

No provisional solution.

46/ 183

OCT 08 $01^h57^m04^s.8$ 40°.29S 174°.61E 12 km M = 4.3
± 0.5 0.02 0.06 R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	eP*	01	57	23		−0.1	100	1.00	173	4.0
	iS*			37		0.4	100			
NPZ	iPn	01	57	27		−1.0	100	1.29	341	4.5
	S*			46		0.8	100			
TUA	iP*	01	57	47		−0.9	100	2.46	54	4.0s
	iSn		58	14		0.8	100			

AMPLITUDES: WEL 4.5 NPZ 8.5 TUA 0.5

PRO: 46/234

46/ 184

OCT 09 $04^h34^m13^s.3$ 36°.50S 175°.00E 12 km
± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
AUC	iS*	04	34	27		0.0	100	0.40	206	

PRO: 34/235

FELT: Auckland (16), MM II.

46/ 185

OCT 10 $04^h00^m10^s.3$ 40°.59S 173°.28E 12 km M = 4.8
± 0.5 0.03 0.05 R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iPn	04	00	34		0.1	100	1.32	122	4.5
	iSn			52		0.5	100			
NPZ	iSn	04	00	59		−0.1	100	1.64	22	4.7
KAI	iSn	04	01	18		0.9	99	2.38	215	
CHR	iSn	04	01	30		−1.2	99	2.98	189	5.1
TUA	ePn	04	01	03		−0.2	100	3.47	60	4.7
	iSn			37		−6.2				

AMPLITUDES: WEL 8.0 NPZ 9.0 CHR 5.0
TUA 1.0

PRO: 46/236

46/ 186

OCT 11 $04^h07^m18^s.9$ 38°.74S 175°.96E 185 km M = 4.8
± 0.7 0.03 0.03 4 S.E. of RES. 0.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP	04	07	47		0.3	100	0.94	95	4.9
	iS		08	08		−0.2	100			
	i			16						
NPZ	eP	04	07	51		−0.6	99	1.50	257	3.3s
	iS		08	17		0.2	100			
WEL	iP	04	08	05		0.2	100	2.71	199	4.7
	S			40		−0.1	100			
CHR	iS	04	09	41		−0.1	100	5.41	207	3.9s

AMPLITUDES: TUA 5.5 NPZ 0.5 WEL 2.0
CHR 0.5

PRO: 46/237

46/ 187

OCT 12 $11^h04^m12^s.5$ 41°.07S 173°.16E 12 km M = 4.0
± 0.5 0.03 0.04 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iP*	11	04	34		−0.7	99	1.23	100	3.7
	Sn			52		0.5	100			
KAI	eSn	11	05	09		0.1	100	1.95	222	3.7s
	eS*			16		3.2				
NPZ	Sn	11	05	13		0.1	100	2.12	20	4.3

AMPLITUDES: WEL 1.5 KAI 0.3 NPZ 2.0

No provisional solution.

46/ 188

OCT 12 $19^h55^m31^s.4$ 40°.20S 174°.14E 92 km M = 4.7
± 1.1 0.03 0.08 16 S.E. of RES. 1.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	eP	19	55	54		0.9	100	1.13	358	4.7*
	iS		56	09		−0.4	100			
WEL	P	19	55	55		1.2		1.19	156	4.4
	iS		56	11		0.3	100			
TUA	iP	19	56	15		0.9	100	2.72	60	4.9
	S			45		−0.9	100			
CHR	S	19	57	05		−0.6	100	3.51	198	3.7s

AMPLITUDES: NPZ 18 WEL 5.5 TUA 2.0
CHR 0.5

PRO: 46/238

46/ 189

OCT 14 $08^h05^m51^s.2$ 42°.12S 172°.39E 12 km M = 4.2
± 0.6 0.05 0.06 R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eS*	08	06	17		−0.7	100	0.83	241	4.0
	iSg			27		7.7				
CHR	iSn	08	06	36		1.4	100	1.42	173	3.8
	iSg			47		7.9				
WEL	ePn	08	06	22		−1.6	99	1.97	66	4.2
	iP*			26		0.0	100			
	iSn			47		−0.9	100			
NPZ	ePn	08	06	42		0.1	100	3.31	23	4.6
	iSn		07	22		1.8	99			

AMPLITUDES: KAI 3.0 CHR 1.0 WEL 1.5
NPZ 1.5

PRO: 46/239

FELT: Westport (79), Greymouth (85) and Christchurch (110).

46/ 190

OCT 14 $16^h50^m57^s.8$ 38°.80S 178°.50E 12 km M ~ 4.2
± R R R R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP*	16	51	18		1.0	100	1.05	269	4.2
	iS*			30		−1.0	100			

AMPLITUDES: TUA 4.5

PRO: 46/240

FELT: Gisborne (45), MM III.

46/ 191

OCT 15 $02^h39^m31^s.9$ $41°.00$S $172°.40$E 12 km M ~ 4.2
± R R R R S.E. of RES. 0.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TAK	iS*	02	40	00		16.2		0.34	64	
WEL	ePn	02	40	02		−0.1	100	1.81	100	3.6s
	eSn			25		0.2	100			
NPZ	iSn	02	40	37		−0.0	100	2.32	34	4.2

AMPLITUDES: WEL 0.5 NPZ 1.5

No timing at TAK.

PRO: 46/241

FELT: Takaka (72), MM III.

46/ 192

OCT 15 $22^h11^m28^s.8$ $38°.17$S $178°.60$E 33 km M = 4.6
± 1.3 0.06 0.08 R S.E. of RES. 0.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iS*	22	12	09.5		−0.4	100	1.30	240	4.7
NPZ	ePn	22	12	22		−0.2	100	3.65	254	4.5
	iSn		13	03		0.4	100			
WEL	iSn	22	13	18		0.2	100	4.28	222	4.4s

AMPLITUDES: TUA 8.0 NPZ 1.0 WEL 0.5

PRO: 46/242

46/ 193

OCT 16 $20^h40^m45^s.2$ $40°.92$S $173°.89$E 12 km M = 4.8
± 0.5 0.03 0.05 R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iP*	20	40	59		−0.3	100	0.76	119	4.6
	iS*		41	09		−0.6	100			
NPZ	e	20	41	31				1.85	4	4.7
	iSn			38		−1.1	100			
	iS*			44		1.5	100			
	i		42	08						
KAI	Pn	20	41	23		−1.3	100	2.46	228	4.9
	Sn			52		−1.6	99			
CHR	e	20	41	24				2.78	199	4.9
	iP*			35		1.2	100			
	iPg			42		0.6	100			
	iSn		42	03		1.6	99			
	iSg			15		−3.8				
TUA	Pg	20	41	55		3.6		3.28	51	4.7
	e		43	02						

AMPLITUDES: WEL 29 NPZ 7.5 KAI 3.0
CHR 3.5 TUA 1.5

PRO: 46/243

FELT: Northern parts of the South Island and Wellington city. Maximum reported intensity MM III.

46/ 194

OCT 20 $15^h15^m29^s.5$ 41°.00S 175°.80E 12 km M ~ 3.6
± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iS*	15	15	56		0.0	100	0.83	250	3.6

AMPLITUDES: WEL 2.5

PRO: 46/244

FELT: Masterton (66), MM III.

46/ 195

OCT 21 $05^h00^m46^s.3$ 39°.73S 175°.59E 12 km M = 4.0
± 0.9 0.05 0.07 R S.E. of RES. 1.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	eP*	05	01	12		1.5	99	1.35	299	3.9
	i			20						
	iSn			27		−1.1	100			
	i			38						
TUA	e	05	01	22				1.52	53	3.9
	Sn			32		−0.2	100			
WEL	e	05	01	08				1.67	202	4.2
	iPg			19		−1.2	100			
	iSn			37		1.1	100			
CHR	ePg	05	02	19		3.8		4.40	209	

AMPLITUDES: NPZ 2.0 TUA 1.0 WEL 2.5

PRO: 46/245

FELT: Hunterville (56), Dannevirke (63), MM IV.

46/ 196

OCT 23 $13^h49^m08^s.7$ 41°.04S 178°.52E 12 km M = 4.7
± 3.8 0.09 0.28 R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	Sn	13	50	17		−0.4	100	2.47	334	4.6
WEL	iPn	13	49	54		0.9	100	2.84	264	4.5
	iSn		50	27		0.5	100			
CHR	e	13	51	15				5.03	238	4.9
	iSn			18		−1.0	100			

AMPLITUDES: TUA 2.0 WEL 1.5 CHR 1.0

PRO: 46/246

46/ 197

OCT 26 $03^h29^m02^s.8$ 39°.64S 178°.52E 12 km M = 4.9
± 2.2 0.05 0.17 R S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	Pn	03	29	26		−0.7	100	1.35	308	4.5
	Sn			45		0.4	100			
WEL	iPn	03	29	54		0.7	100	3.30	239	5.3
	iSn		30	31		−0.4	100			

AMPLITUDES: TUA 5.0 WEL 8.0

PRO: 46/247

FELT: Hastings (60).

46/ 198

OCT 26 $23^h14^m21^s.9$ 41°.12S 173°.52E 12 km M = 4.7
± 0.3 0.02 0.03 R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iP*	23	14	40		0.6	100	0.95	101	4.7
	iS*			52		−0.2	100			
NPZ	eP*	23	14	58		−0.8	100	2.10	12	4.7
	Sn		15	22		0.4	100			
KAI	ePg	23	15	04		−0.7	100	2.12	228	4.0s
	iSn			23		0.9	99			
CHR	e	23	15	20				2.50	195	4.6
	Sn			31		−0.4	100			
TUA	eP*	23	15	22		−2.8		3.62	52	4.7
	Sn			50		−8.2				

AMPLITUDES: WEL 21 NPZ 5.0 KAI 0.5
CHR 2.0 TUA 1.0

PRO: 46/248

FELT: Wellington (68), MM IV.

46/ 199

NOV 04 $16^h53^m58^s.1$ 43°.00S 171°.80E 12 km M = 2.8
± R R R R S.E. of RES. 0.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	16	54	09		0.3	100	0.56	329	2.7
	eS*			16		−0.3	100			
CHR	iP*	16	54	13		0.0	100	0.80	132	3.0

AMPLITUDES: KAI 0.3 CHR 0.5

PRO: 46/249

FELT: Lake Coleridge (100), MM IV.

46/ 200

NOV 08 $06^h25^m26^s.2$ 37°.26S 178°.23E 12 km M = 5.5
± 0.6 0.02 0.04 R S.E. of RES. 0.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP*	06	25	57		−0.4	100	1.76	209	5.6
	iS*		26	21		0.3	100			
HAS	iS*-Pn			38		−0.8	99	2.61	204	
AUC	e	06	26	00				2.79	277	
	iP*			14		−1.0	99			
	iS*			52		0.5	100			
NPZ	iP*	06	26	31		−0.1	100	3.73	240	5.3
	iS*		27	17		−2.9				
WEL	ePn	06	26	38		0.3	100	4.83	213	5.5
	i			40						
	iP*			45		−4.8				
	iSn		27	32		0.3	100			
	eSg		28	09		0.0	100			
KAI	e	06	28	13				7.42	223	5.4
	Sn			34		0.1	100			
CHR	ePg	06	28	05		5.6		7.58	213	5.5
	iSn			36		−1.7				
	i			42						

AMPLITUDES: TUA 34 NPZ 6.0 WEL 5.0

KAI 1.0 CHR 2.0

PRO: 46/252

FELT: Opotiki (35), MM III.

46/ 201

NOV 11 $22^h53^m43^s.2$ 39°.95S 179°.91E 12 km M = 4.5

± 1.0 0.02 0.06 R S.E. of RES. 0.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	ePn	22	54	22		0.3	100	2.42	297	4.3
	Sn			50		−0.6	99			
	iSg		55	05		0.3	100			
	i			20						
WEL	ePg	22	55	20		13.3		4.13	249	4.6
	i			29						
	iSn			32		0.1	100			
CHR	eSn	22	56	29		−0.1	100	6.52	234	4.6s

AMPLITUDES: TUA 1.0 WEL 1.0 CHR 0.3

PRO: 46/253

Early readings at AUC cannot refer to this event.

46/ 202

NOV 13 $00^h59^m27^s.7$ 38°.93S 175°.55E 224 km M = 5.0

± 0.9 0.04 0.04 5 S.E. of RES. 0.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	i	01	00	07				1.16	263	3.9*
	iS			27		−0.1	100			
TUA	iP	01	00	02		0.2	100	1.25	85	5.1
	iS			28		−0.3	100			
WEL	iP	01	00	13		0.3	100	2.43	194	4.9
	iS			48		0.4	100			
CHR	iS	01	01	44		−0.4	99	5.10	205	3.9s

AMPLITUDES: NPZ 2.0 TUA 5.5 WEL 3.5
CHR 0.5

PRO: 46/254

46/ 203

NOV 17 $09^h07^m29^s.4$ 38°.85S 178°.19E 12 km M ~ 4.7

± 5.7 0.17 0.30 R S.E. of RES. 2.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	P*	09	07	45		0.6	100	0.81	273	4.7
	S*			55		−0.3	100			
HAS	iSn	09	07	00		−70.2		1.30	233	
WEL	iPg	09	08	40		−1.6	99	3.57	226	4.2s
	i		09	00						
	iSn			06		1.4	100			

AMPLITUDES: TUA 24 WEL 0.5

No timing at HAS.

No provisional solution.

46/ 204

NOV 21 $16^h09^m54^s.8$ 39°.77S 176°.66E 12 km M = 4.2

± 1.0 0.06 0.09 R S.E. of RES. 1.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
HAS	Sg-P*			22		19.1		0.19	47	
	e		11	00						
TUA	Pg	16	10	15		−0.8	100	1.03	22	4.2
	i			19						
	iSn			30		1.0	100			
WEL	ePg	16	10	36		−1.2	100	2.10	223	4.0
	iSn			56		1.5	100			
	i		11	18						
	i			23						
	i			38						
NPZ	iP*	16	10	31		−1.3	100	2.12	288	4.3
	iSn			56		0.7	100			

AMPLITUDES: TUA 4.5 WEL 1.0 NPZ 2.0

PRO: 46/256

FELT: Napier (52), MM IV; Dannevirke (63), MM III.

46/ 205

NOV 24 $03^h16^m49^s.0$ 33°.90S 178°.48E 33 km M = 6.3

± 4.7 0.23 0.45 R S.E. of RES. 3.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iPn	03	18	00		−0.9	100	5.01	192	6.3
	iS*		19	19		−1.8	100			
NPZ	Pn	03	18	19		1.1	100	6.26	213	5.6
	S*		19	56		−2.0	100			
WEL	iPn	03	18	33		−7.9		7.94	201	6.4
	eSn		20	18		12.3				
	i			23						
	iS*			52		3.7	99			
KAI	eSn	03	21	10		8.8		10.25	211	6.4
CHR	eSn	03	21	18		7.3		10.65	204	6.7

AMPLITUDES: TUA 5.0 NPZ 1.0 WEL 3.5

KAI 1.0 CHR 3.0

No provisional solution.

46/ 206

NOV 25 $11^h49^m08^s.6$ 41°.03S 172°.93E 12 km M = 4.7

± 0.7 0.05 0.04 R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iPg	11	49	37		−0.2	100	1.41	101	4.4
	iSg			57		0.8	100			
KAI	iPn	11	49	40		0.2	100	1.88	217	4.7
	iSn		50	04		0.9	100			
CHR	iSn	11	50	17		−1.3	99	2.51	185	5.0
TUA	iSn	11	50	52		−0.5	100	3.93	57	4.7

AMPLITUDES: WEL 5.5 KAI 3.0 CHR 5.0

TUA 1.0

PRO: 46/257

46/ 207

NOV 29 $15^h53^m53^s.7$ 39°.85S 177°.67E 12 km M = 4.4

± 1.2 0.05 0.09 R S.E. of RES. 1.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
HAS	S*-P*			10		0.8	100	0.67	287	
TUA	iP*	15	54	14		0.1	100	1.12	338	4.8
	i			15						
WEL	ePn	15	54	37		1.8	99	2.64	236	4.2
	iP*			40		0.1	100			
	i			59						
	iSg		55	22		−0.7	100			
NPZ	ePn	15	54	37		−1.7	99	2.89	284	4.3
	e		55	09						
	iSn			13		0.4	100			

AMPLITUDES: TUA 16 WEL 1.0 NPZ 1.0

PRO: 46/258

46/ 208

DEC 02 $08^h26^m04^s.3$ 41°.37S 175°.72E 33 km M = 4.4

± 1.6 0.07 0.12 R S.E. of RES. 1.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	08	26	20		1.7	99	0.72	276	4.2
	Sn			27		−0.6	100			
NPZ	eP*	08	26	52		1.7	99	2.63	331	4.5
	i		27	09						
	iSn			12		−1.4	100			
TUA	iS*	08	27	29		−0.5	100	2.78	24	4.1s
CHR	iSn	08	27	25		−0.9	100	3.15	226	4.2s

AMPLITUDES: WEL 12 NPZ 2.0 TUA 0.5
CHR 0.5

PRO: 46/259

FELT: Wellington (68), MM III.

46/ 209

DEC 03 $07^h17^m29^s.6$ 43°.33S 173°.98E 12 km M = 4.1

± 2.6 0.15 0.19 R S.E. of RES. 1.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	P*	07	17	49		1.1	100	1.00	258	3.5
	iS*		18	01		−0.4	100			
WEL	ePn	07	18	03		−1.2	100	2.13	16	3.5s
	Sn			32		1.8	99			
NPZ	ePg	07	18	54		−1.8	99	4.27	1	4.6
	iSn		19	22		0.5	100			
	i			25						
TUA	i	07	17	58				5.12	29	

AMPLITUDES: CHR 1.0 WEL 0.3 NPZ 1.0

No provisional solution.

Movement at TUA probably unrelated.

46/ 210

DEC 05 $22^h46^m27^s.7$ 40°.55S 172°.67E 12 km M = 4.1

± 3.4 0.09 0.27 R S.E. of RES. 2.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	eP*	22	47	01		2.2	99	1.75	115	3.9
	iSn			18		−1.1	100			
NPZ	iS*	22	47	24		−0.5	100	1.84	37	4.2

CHR	iS*	22 47 58		−0.6	100	2.98	181	3.9s

AMPLITUDES: WEL 1.0 NPZ 2.0 CHR 0.3

No provisional solution.

46/ 211

DEC 09 $17^h45^m17^s.8$ 40°.34S 173°.34E 147 km M = 5.1

± 0.6 0.02 0.04 6 S.E. of RES. 0.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	iP	17	45	46		−0.2	100	1.39	24	3.0s
	iS		46	08		−0.0	100			
WEL	iP	17	45	47		0.2	100	1.44	131	5.1
	iS		46	09		0.0	100			
KAI	iS	17	46	34		0.3	100	2.62	213	4.3*
CHR	eP	17	46	09		0.2	100	3.23	189	4.8*
	iS			47		−0.7	98			
TUA	S	17	46	00		−49.8		3.32	64	5.1

AMPLITUDES: NPZ 0.3 WEL 17 KAI 1.5
CHR 7.5 TUA 2.0

Clock correction at TUA unknown.

PRO: 46/260

FELT: Wanganui (57), Paraparaumu (65), Karori (68), MM IV.

46/ 212

DEC 12 $10^h55^m37^s.1$ 40°.20S 174°.80E 12 km M ~ 3.5

± R R R R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iS*	10	56	12		0.7	100	1.09	181	3.5
NPZ	iS*	10	56	16		−0.6	100	1.26	333	3.2s

AMPLITUDES: WEL 1.0 NPZ 0.5

PRO: 46/261

FELT: Wanganui (57), MM III.

46/ 213

DEC 12 $14^h40^m02^s.1$ 39°.52S 174°.87E 12 km M = 5.5

± 0.8 0.05 0.07 R S.E. of RES. 1.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	iS*	14	40	23		−3.7		0.76	306	3.8A
	i			45						
HAS	S*-Pn			23		1.9		1.53	95	
WEL	iPn	14	40	33		1.2	100	1.77	182	5.1
	iSg		41	02		0.2	100			
TUA	Pn	14	40	31		−2.7		1.91	69	5.7
	P*			35		−0.9	100			
	Pg			42		1.2	100			
	Sn			57		−0.4	100			
KAI	P*	14	41	12		0.7	100	3.99	220	5.2
	e			44						
	Sn			48		0.8	100			
CHR	ePn	14	41	05		−2.0	99	4.35	202	5.8
	i			12						
	iSn			55		−1.0	100			

AMPLITUDES: NPZ 5.0 WEL 18 TUA 17

KAI 2.0 CHR 11

PRO: 46/262

FELT: Karori (68), MM V; Wanganui (57), Paraparaumu (65).

46/ 214

DEC 12 $23^h45^m24^s.6$ 39°.48S 179°.53E 12 km M = 4.8
± 1.3 0.03 0.08 R S.E. of RES. 0.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	P*	23	46	00		0.6	100	1.97	289	4.8
	S*			25		−0.3	100			
WEL	Pn	23	46	25		−0.6	100	4.06	242	4.8
	iSn			47	12	0.4	100			
NPZ	iPn	23	46	12		−16.2		4.26	274	4.1s
	iSn			47	08	−8.3				
CHR	Sn	23	48	12		−0.1	100	6.58	230	4.8s

AMPLITUDES: TUA 5.0 WEL 1.5 NPZ 0.3
CHR 0.5

PRO: 46/263

46/ 215

DEC 14 $22^h17^m07^s.7$ 39°.09S 175°.82E 12 km M = 4.5
± 0.5 0.04 0.04 R S.E. of RES. 1.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	P*	22	17	26		−1.1	100	1.07	75	4.7
	Pg			30		0.6	100			
	Sg			45		1.0	100			
	e			48						
NPZ	Pn	22	17	30		−1.8	99	1.36	270	4.2
	Sg			55		1.3	100			
	i		18	07						
WEL	iPn	22	17	44		−1.1	100	2.34	200	4.7
	iS*		18	19		−0.4	100			
KAI	Sn	22	19	12		−0.2	100	4.80	223	4.7s
CHR	Sn	22	19	20		1.7	99	5.05	207	4.7s

AMPLITUDES: TUA 8.0 NPZ 2.0 WEL 2.5
KAI 0.3 CHR 0.5

PRO: 46/264

46/ 216

DEC 16 $19^h32^m04^s.9$ 39°.83S 179°.08E 12 km M = 4.6
± 3.0 0.03 0.18 R S.E. of RES. 0.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	Sn	19	32	58		0.4	100	1.81	304	4.4
	S*		33	00		−0.6	99			
	Sg			06		0.2	100			
WEL	iSn	19	33	41		0.5	100	3.59	245	4.7
CHR	Sn	19	34	40		−0.4	100	6.08	230	4.8s

AMPLITUDES: TUA 2.0 WEL 1.5 CHR 0.5

PRO: 46/265

46/ 217

DEC 17 $05^h05^m05^s.6$ 42°.50S 173°.00E 12 km M ~ 3.4
± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	Sn	05	05	58		0.0	100	1.79	48	~3.4s

AMPLITUDES: WEL 0.3

PRO: 46/266

FELT: Hanmer Springs (88), MM IV.

46/ 218

DEC 18 $21^h52^m33^s.5$ 37°.48S 179°.49E 12 km M = 4.9

± 2.0 0.12 0.10 R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	e?	21	53	02				2.28	234	4.9
	Pn			11		1.0	100			
	Sn			41		3.5				
	S*			44		0.6	100			
	Sg			52		1.8	99			
NPZ	Sn	21	54	31		−1.2	100	4.55	248	5.0
	S*			51		−0.5	100			
WEL	Pn	21	53	52		1.0	100	5.28	222	4.8
	Sn		54	48		−1.7	99			
KAI	e	21	56	15				7.99	228	
CHR	Sn	21	55	54		−1.0	100	7.99	219	5.0s
	e		56	05						

AMPLITUDES: TUA 4.5 NPZ 2.0 WEL 1.0
CHR 0.5

No provisional solution.

46/ 219

DEC 19 $15^h11^m36^s.4$ 41°.50S 174°.40E 12 km M = 4.0

± R R R R S.E. of RES. 1.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	Pg	15	11	42		−1.8	99	0.35	52	3.8
	Sg			50		1.2	100			
NPZ	Pg	15	12	26		0.1	100	2.45	354	4.1
	Sn			45		0.5	100			

AMPLITUDES: WEL 20 NPZ 1.0

PRO: 46/267

FELT: Paraparaumu (65), Wellington (68), MM II.

46/ 220

DEC 20 $06^h40^m03^s.6$ 41°.86S 173°.58E 12 km M = 4.7

± 0.5 0.03 0.05 R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	06	40	23		0.1	100	1.06	58	4.4
	ePg			25		−0.1	100			
	e			28						
	S*			37		−0.0	100			
	eSg			40		0.5	100			
	e			43						
	e			47						
KAI	P*	06	40	35		0.4	100	1.75	247	4.6
	S*			56		−1.6	100			
	eSg		41	07		4.5				
CHR	ePg	06	40	45		4.7		1.81	202	4.6

	S*	41 01	1.4	100			
NPZ	Pn	06 40 46	−1.5	100	2.82	8	
	e	41 16					
	eSn	23	2.4	99			
	eS*	28	−1.7	100			
	e	35					
	Sg	41	2.5	99			
TUA	P*	06 41 14	−0.6	100	4.09	43	5.1
	e	20					
	Pg	29	2.7				
	eSn	50	−1.3	100			
	e	42 05					
	S*	14	6.1				

AMPLITUDES: WEL 9.0 KAI 3.0 CHR 4.0
TUA 2.0

Timing at WEL uncertain by about a second.

PRO: 46/268

FELT: Takaka (72), MM IV.

46/ 221

DEC 25 $03^h11^m39^s.4$ 41°.00S 172°.80E 12 km M ~ 3.7
± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TAK	Sg	03	12	00		14.4		0.14	1	
WEL	Sn	03	12	23		−2.1	100	1.51	102	3.7
NPZ	Sn	03	12	43		2.2	100	2.17	27	3.5s

AMPLITUDES: WEL 1.0 NPZ 0.3

No timing at TAK.

PRO: 46/269

FELT: Takaka (72), MM III.

46/ 222

DEC 26 $14^h47^m19^s.2$ 39°.09S 165°.00E 12 km M = 5.4
± 3.7 0.25 0.22 R S.E. of RES. 1.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	14	49	00		−1.9	99	5.95	127	4.9s
	i			40						
	iSn			52		0.4	100			
	iS*		50	28		8.7				
CHR	Pn	14	49	05		1.3	100	7.25	130	5.5
	iPg			49		3.2				
	Sn		50	23		0.1	100			
	e			33						
WEL	Sn	14	50	36		0.1	100	7.79	109	5.2
	Sg		51	55		13.3				
	e		52	20						

AMPLITUDES: KAI 0.5 CHR 2.0 WEL 1.0

No provisional solution.

46/ 223

DEC 28 $15^h32^m09^s.7$ 41°.14S 173°.55E 12 km M ~ 4.4
± 0.4 0.03 0.08 R S.E. of RES. 0.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TAK	e	15	32	00				0.63	296	
NPZ	P*	15	32	47		0.2	100	2.11	11	4.4
	eSn		33	09		−0.7	99			
	S*			15		0.5	100			
KAI	eSn	15	33	10		0.0	100	2.12	228	4.0s
	i			26						
CHR	eP*	15	32	57		3.6		2.49	196	3.8s
	iSn		33	19		0.0	100			
	i			43						

AMPLITUDES: NPZ 2.5 KAI 0.5 CHR 0.3

No timing at TAK.

PRO: 46/273

FELT: Kahurangi Point, Takaka (72), MM III.

46/ 224

DEC 30 $22^h25^m41^s.0$ 33°.76S 178°.39E 12 km M = 6.5

± 6.7 0.39 0.49 R S.E. of RES. 2.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	ePn	22	26	55		−1.6	100	5.14	191	6.5
	iP*		27	12		2.2	100			
	iSn			55		1.2	100			
WEL	iSn	22	29	02		−1.6	100	8.05	200	6.5
	e			04						
	e			06						
KAI	eSn	22	30	01		2.4	100	10.33	210	6.0s
	e			09						
CHR	e	22	29	57				10.75	203	6.0s
	iSn		30	06		−2.5	100			
	i			12						

AMPLITUDES: TUA 6.0 WEL 3.5 KAI 0.3
CHR 0.5

No provisional solution.

1947

47/ 001

JAN 03 $02^h25^m07^s.3$ 41°.82S 173°.14E 33 km M = 4.0

± 0.4 0.02 0.04 R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	Sn	02	25	45		−0.3	100	1.33	67	3.9
KAI	iSn	02	25	48		−0.5	100	1.47	241	4.0
CHR	S*	02	26	02		0.2	100	1.75	192	3.7s
NPZ	iSn	02	26	22		0.5	100	2.84	15	4.2

AMPLITUDES: WEL 2.0 KAI 1.0 CHR 0.5
NPZ 1.0

PRO: 47/1

47/ 002

JAN 05 $03^h58^m23^s.0$ 40°.55S 172°.43E 12 km M = 4.5

± 0.3 0.01 0.02 R S.E. of RES. 0.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	03	58	57		0.1	100	1.92	113	4.4
	S*		59	22		−0.2	100			
NPZ	S*	03	59	23		−0.1	100	1.95	41	3.4s
KAI	Sg	03	59	40		5.6		2.12	201	3.8s
CHR	S*	03	59	54		−0.1	100	2.99	177	4.6
TUA	Pg	03	59	56		11.4		4.03	66	4.4s

AMPLITUDES: WEL 3.0 NPZ 0.3 KAI 0.3
CHR 1.5 TUA 0.3

PRO: 47/2

47/ 003

JAN 10 $05^h05^m05^s.5$ 38°.00S 176°.61E 239 km M = 5.2
± 0.3 0.02 0.02 2 S.E. of RES. 0.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	P	05	05	39		0.0	100	0.91	152	5.4
	iS		06	05		0.0	100			
AUC	iS	05	06	00		−17.3		1.85	307	
NPZ	eP	05	05	50		0.2	100	2.26	241	3.8*
	S		06	24		−0.1	100			
WEL	P	05	06	04		−0.2	100	3.57	203	5.0
	iS			50		0.1	100			
KAI	iS	05	07	40		−3.6		6.02	220	3.9s
CHR	iS	05	07	51		1.0		6.30	207	4.0s

AMPLITUDES: TUA 11 NPZ 1.0 WEL 2.5
KAI 0.3 CHR 0.5

Timing at AUC uncertain.

PRO: 47/4

47/ 004

JAN 10 $16^h09^m23^s.6$ 46°.35S 167°.27E 33 km M ~ 5.0
±11.2 1.07 1.22 R S.E. of RES. 7.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	ePn	16	10	30		−1.7	100	4.73	55	5.0
	eP*			41		−4.4	100			
	iS*		11	45		−2.0	100			
KAI	ePn	16	10	37		3.8	100	4.83	39	4.8s
	iSn		11	20		−5.8	100			
	i			57						
WEL	e	16	12	13				7.42	50	4.5s
	iSn			38		10.3	99			
TUA	eSn	16	13	30		−11.3		10.48	48	5.1s

AMPLITUDES: CHR 1.5 KAI 0.5 WEL 0.5
TUA 0.3

PRO: 47/5

FELT: Puysegur Point (146), MM IV. No consistent interpretation of phases seems possible.

47/ 005

JAN 15 $10^h34^m57^s.6$ 40°.40S 173°.19E 12 km M = 4.1
± 0.4 0.01 0.03 R S.E. of RES. 0.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	ePn	10	35	23		−0.4	99	1.48	127	3.9
	iS*			44		0.1	100			

NPZ	iSn	10	35	43	0.1	100	1.49	27	3.9
CHR	iSn	10	36	23	0.1	100	3.16	187	4.5

AMPLITUDES: WEL 1.5 NPZ 1.5 CHR 1.0

PRO: 47/6

47/ 006

JAN 17 $22^h11^m47^s.9$ 43°.31S 171°.30E 33 km M = 4.4

± 0.9 0.04 0.06 R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	22	12	03		0.1	100	0.78	6	4.2
	iSn			12		−0.6	100			
CHR	iP*	22	12	07		0.7	100	0.99	104	4.6
	iS*			19		−0.9	99			
WEL	e	22	12	43				3.27	53	4.4
	iP*			45		0.2	100			
	iS*		13	28		0.5	100			
NPZ	ePn	22	13	04		8.1		4.72	27	4.4s
	iSn			57		9.7				

AMPLITUDES: KAI 5.5 CHR 12 WEL 1.0
NPZ 0.5

PRO: 47/8

FELT: Lake Coleridge (100), MM IV.

47/ 007

JAN 19 $19^h22^m30^s.9$ 41°.23S 173°.08E 12 km M = 4.0

± 0.4 0.02 0.03 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TAK	iS*	19	23	00		14.6		0.42	331	
WEL	eP*	19	22	53		−0.9	99	1.28	93	3.8
	eS*		23	11		0.1	100			
KAI	iS*	19	23	26		−0.5	100	1.80	223	3.9s
NPZ	eP*	19	23	12		0.8	99	2.29	20	4.1
	iSn			35		−0.3	100			
CHR	eS*	19	23	43		0.6	100	2.33	188	3.7s

AMPLITUDES: WEL 1.5 KAI 0.5 NPZ 1.0
CHR 0.3

PRO: 47/9

FELT: Takaka (72), MM V.

47/ 008

JAN 19 $19^h35^m36^s.5$ 44°.50S 167°.40E 33 km M ~ 4.3

± R R R R S.E. of RES. 0.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
MNW	iSn	19	37	00		46.6		1.29	173	
KAI	iSn	19	37	07		−0.0	100	3.52	57	~4.5s
CHR	Sn	19	37	16		0.0	100	3.89	77	~4.1s

AMPLITUDES: KAI 0.5 CHR 0.3

No absolute timing at MNW.

PRO: 47/10

FELT: Milford Sound (120), Queenstown (132), MM III.

47/ 009

JAN 20 $07^h04^m43^s.3$ 37°.73S 176°.76E 238 km M ~ 4.9
± ND ND ND ND S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP	07	05	18		0.0	100	1.13	164	4.9
	iS			45		0.0	100			
NPZ	P	07	05	30		0.0	100	2.50	237	3.3s
WEL	eS	07	06	34		0.0	100	3.87	203	4.1s

AMPLITUDES: TUA 3.5 NPZ 0.3 WEL 0.3

PRO: 47/11

47/ 010

JAN 20 $22^h08^m59^s.2$ 38°.33S 177°.68E 137 km M = 4.8
± 0.4 0.02 0.03 2 S.E. of RES. 0.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP	22	09	20		−0.0	100	0.64	220	4.9
	iS			36		0.1	100			
NPZ	iP	22	09	46		0.3	99	2.92	254	3.5s
	iS		10	21		−0.1	100			
WEL	P	22	09	56		−0.2	100	3.71	216	4.7
	iS		10	40		0.1	100			
KAI	iS	22	11	42		−1.4		6.36	227	3.9s

AMPLITUDES: TUA 12 NPZ 0.5 WEL 1.5
KAI 0.3

PRO: 47/13

47/ 011

JAN 22 $20^h23^m13^s.6$ 41°.51S 173°.15E 12 km M = 5.1
± 0.3 0.03 0.03 R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TAK	S*-P*			08		−1.6		0.71	338	
WEL	P*	20	23	35		−0.9	99	1.24	80	4.8
	iS*			53		0.6	100			
KAI	ePn	20	23	41		−0.6	100	1.65	231	5.1
	iSn		24	03		0.5	100			
NPZ	iPn	20	23	54		0.2	100	2.54	16	5.1
	iSn		24	24		−0.0	100			
TUA	iPn	20	24	21		6.2		4.09	50	5.2
	iSn		25	10		8.9				

AMPLITUDES: WEL 17 KAI 9.0 NPZ 9.5
TUA 2.5

PRO: 47/14

FELT: Northern parts of the South Island (72, 74, 76, 86). Maximum reported intensity MM IV.

47/ 012

JAN 24 $23^h54^m42^s.1$ 38°.29S 176°.80E 173 km M = 4.8
± 1.8 0.07 0.08 10 S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP	23	55	07		0.4	100	0.58	152	4.7
	iS			25		−0.5	100			
NPZ	iP	23	55	22		−0.1	100	2.28	249	3.9*

	iS			53		0.0	100			
WEL	iS	23	56	18		0.9	99	3.38	207	4.9
CHR	iS	23	57	20		−0.9	99	6.12	210	3.9s

AMPLITUDES: TUA 5.5 NPZ 1.5 WEL 2.5
CHR 0.5

PRO: 47/15

47/ 013

JAN 27 $13^h03^m08^s.7$ 39°.49S 175°.46E 12 km M ~ 3.5
± 0.2 0.01 0.01 R S.E. of RES. 0.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	eS*	13	03	45		0.0	100	1.15	291	3.5
TUA	iPn	13	03	34		−0.5	99	1.48	63	3.8s
	iSn			54		0.3	100			
WEL	ePn	13	03	40		0.2	100	1.87	196	3.4s
	eSn		04	03		−0.1	100			

AMPLITUDES: NPZ 1.0 TUA 0.5 WEL 0.3

PRO: 47/16

FELT: Wanganui (57), MM IV.

47/ 014

JAN 27 $21^h40^m21^s.4$ 38°.62S 176°.67E 186 km M ~ 4.7
± 0.9 0.04 0.08 6 S.E. of RES. 0.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP	21	40	47		0.3	99	0.42	117	4.7
	iS		41	06		−0.2	100			
NPZ	iP	21	41	00		0.0	100	2.08	257	3.2s
WEL	iP	21	41	11		−0.3	99	3.03	208	4.1s
	iS			50		0.1	100			

AMPLITUDES: TUA 4.5 NPZ 0.3 WEL 0.5

PRO: 47/17

47/ 015

JAN 28 $23^h13^m33^s.2$ 42°.52S 173°.17E 12 km M ~ 4.0
± 0.6 0.04 0.05 R S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	eP*	23	13	52		−0.9	99	1.09	201	4.0
	iS*		14	08		0.6	100			
KAI	iS*	23	14	14		0.1	100	1.30	269	3.6s
WEL	iSn	23	14	24		0.2	100	1.72	44	3.6s
NPZ	iSg	23	15	33		1.2		3.52	11	3.9s

AMPLITUDES: CHR 2.5 KAI 0.5 WEL 0.5
NPZ 0.3

PRO: 47/18

47/ 016

JAN 30 $08^h44^m08^s.2$ 39°.32S 175°.54E 12 km M ~ 4.3
± 0.8 0.06 0.05 R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	iS*	08	44	45		0.1	100	1.17	282	3.4s
TUA	ePn	08	44	31		−1.2	99	1.35	68	4.3
	iSn			51		0.9	100			

WEL	eSn	08 45 07		0.1	100	2.05	196	3.7s

AMPLITUDES: NPZ 0.5 TUA 1.5 WEL 0.5

PRO: 47/19

47/ 017

FEB 02 $08^h44^m41^s.5$ 41°.87S 179°.15E 12 km M = 4.6

± 4.4 0.17 0.23 R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iSn	08	46	10		−1.1	100	3.34	279	4.4
	iSg			37		3.0				
TUA	iP*	08	45	41		0.0	100	3.42	333	4.8
	iSn		46	12		−1.0	100			
NPZ	eP*	08	46	05		0.8	100	4.78	304	4.2s
	eSn			47		1.3	99			

AMPLITUDES: WEL 1.0 TUA 1.5 NPZ 0.3

Timing at WEL uncertain.

PRO: 47/20

47/ 018

FEB 03 $13^h26^m12^s.2$ 42°.65S 177°.70E 12 km M ~ 4.5

± 2.5 0.06 0.13 R S.E. of RES. 1.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	ePn	13	26	54		1.2	100	2.57	301	4.5
	iPg		27	04		−0.2	100			
	iS*			30		−1.0	100			
	iSg			40		1.1	100			
CHR	iPg	13	27	37		7.7		3.82	255	4.1s
	iS*		28	08		−0.2	100			
	iSg			22		1.3	100			
KAI	iSn	13	28	11		−2.1	99	4.64	269	4.5s

AMPLITUDES: WEL 2.0 CHR 0.3 KAI 0.3

No provisional solution.

47/ 019

FEB 04 $21^h06^m24^s.0$ 43°.28S 171°.30E 33 km M = 3.9

± 0.5 0.02 0.04 R S.E. of RES. 0.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	ePn	21	06	38		0.1	100	0.76	6	3.7
	iSn			48		−0.1	100			
CHR	iPn	21	06	41		−0.1	100	1.00	105	4.1
	iSn			54		0.1	100			

AMPLITUDES: KAI 2.0 CHR 4.5

PRO: 47/21

FELT: Lake Coleridge (100), MM IV.

47/ 020

FEB 04 $21^h14^m37^s.1$ 43°.20S 171°.40E 33 km M ~ 2.9

± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	iSn	21	15	06		0.0	100	0.95	111	~2.9s

AMPLITUDES: CHR 0.3

PRO: 47/23

FELT: Lake Coleridge (100), MM III.

47/ 021

FEB 05 $20^h58^m06^s.1$ 38°.90S 175°.84E 12 km M = 4.1

± 0.6 0.05 0.03 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP*	20	58	24		−0.8	99	1.03	85	4.1
	iS*			39		0.4	100			
NPZ	iSn	20	58	49		0.2	100	1.39	263	4.1
WEL	iPg	20	58	55		−2.1		2.52	199	4.1s
	i		59	06						
	iSn			16		−0.0	100			

AMPLITUDES: TUA 2.0 NPZ 1.5 WEL 0.5

PRO: 47/24

47/ 022

FEB 08 $18^h45^m01^s.3$ 43°.18S 171°.64E 12 km M = 3.8

± 0.3 0.02 0.03 R S.E. of RES. 0.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	18	45	14		0.1	100	0.67	345	3.8
	iS*			23		−0.1	100			
CHR	iP*	18	45	16		−0.1	100	0.80	117	3.8
	iS*			27		0.1	100			

AMPLITUDES: KAI 3.0 CHR 3.0

PRO: 47/26

FELT: Lake Coleridge (100), MM V.

47/ 023

FEB 09 $04^h19^m02^s.9$ 43°.14S 171°.75E 12 km M = 3.5

± 0.7 0.04 0.06 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	04	19	15		−0.3	100	0.66	337	3.5
	iS*			25		0.7	100			
CHR	iP*	04	19	16		−0.8	100	0.75	122	3.5
	iS*			28		1.0	99			
WEL	eP*	04	19	53		−0.6	100	2.91	51	3.8s
	iSn		20	22		0.0	100			

AMPLITUDES: KAI 1.5 CHR 2.0 WEL 0.3

PRO: 47/27

FELT: Lake Coleridge (100), MM IV.

47/ 024

FEB 10 $19^h25^m23^s.1$ 41°.45S 171°.64E 12 km M = 4.4

± 0.6 0.02 0.06 R S.E. of RES. 0.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	iP*	19	25	43		0.1	100	1.09	189	4.3
	iS*			57		−0.4	100			
CHR	iP*	19	26	03		1.0	99	2.20	161	4.2
	i			22						
	iS*			31		0.1	100			
WEL	ePn	19	26	00		−0.9	99	2.36	87	4.4

	iSn			25	−4.2					
NPZ	iPg	19	26	24	−0.2	100	3.02	39		4.6
	i			34						
	iS*			56	0.6	100				
TUA	iSn	19	27	32	−0.2	100	4.98	60		4.5s
	iS*			48	−6.1					

AMPLITUDES: KAI 3.5 CHR 1.0 WEL 2.0
NPZ 2.0 TUA 0.3

PRO: 47/30

FELT: Western Nelson (74,75), MM IV.

47/ 025

FEB 10 $19^h26^m41^s.4$ 34°.91S 177°.92W 279 km M = 5.9
± 0.7 0.07 0.07 9 S.E. of RES. 0.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP	19	28	05		−0.2	100	5.54	224	6.0
	S		29	11		0.1	100			
AUC	e	19	30	00				6.24	250	
NPZ	iP	19	28	36		5.0		7.63	235	3.9s
	iS		29	57		0.1	100			
WEL	eP	19	28	43		0.1	100	8.58	220	5.8
	iS		30	18		−0.1	100			
KAI	eS	19	31	21		2.3		11.27	224	4.2s
CHR	iS	19	31	27		7.8		11.29	218	4.2s

AMPLITUDES: TUA 6.0 NPZ 0.5 WEL 3.0
KAI 0.3 CHR 0.5

No provisional solution.

47/ 026

FEB 11 $07^h04^m15^s.9$ 39°.07S 175°.91E 33 km M = 4.0
± 0.5 0.04 0.03 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP*	07	04	37		2.6		1.00	75	3.9
	iSn			46		0.2	100			
NPZ	iPn	07	04	38		−1.0	99	1.43	270	4.1
	iSn			57		0.7	100			
WEL	iP*	07	04	58		0.2	100	2.38	201	4.0s
	iSn		05	19		−0.1	100			

AMPLITUDES: TUA 1.5 NPZ 1.5 WEL 0.5

PRO: 47/31

47/ 027

FEB 15 $03^h09^m31^s.1$ 40°.71S 176°.06E 33 km M ~ 3.4
± 0.9 0.05 0.07 R S.E. of RES. 1.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iPn	03	09	51		0.8	100	1.13	239	~3.2s
	iSn		10	04		−0.4	100			
TUA	ePn	03	10	03		0.0	100	2.07	24	~3.6s
	iSn			27		0.1	100			
NPZ	eP*	03	10	09		−1.6	99	2.24	316	~3.5s
	iSn			32		1.1	100			

AMPLITUDES: WEL 0.5 TUA 0.3 NPZ 0.3

PRO: 47/32

47/ 028

FEB 16 $15^h30^m20^s.9$ 40°.96S 173°.69E 33 km M = 4.2
± 0.2 0.01 0.02 R S.E. of RES. 0.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iPn	15	30	37		0.5	100	0.88	112	4.0
	iSn			48		−0.0	100			
NPZ	Pn	15	30	50		−0.5	100	1.91	9	4.4
	iSn		31	13		0.2	100			
KAI	iSn	15	31	23		0.5	100	2.31	227	4.1s
CHR	iSn	15	31	31		−0.6	99	2.69	197	4.0s
TUA	iPn	15	31	11		−0.1	100	3.42	52	4.1s
	iSn			47		−2.0				

AMPLITUDES: WEL 5.0 NPZ 3.0 KAI 0.5
CHR 0.5 TUA 0.3

Times reported from TUA have been reduced by 30 sec.

PRO: 47/33

FELT: Nelson and Mapua (76), MM IV.

47/ 029

FEB 16 $22^h03^m15^s.5$ 41°.12S 174°.70E 84 km M ~ 4.8
± 0.8 0.04 0.07 8 S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iP	22	03	29		1.0	99	0.18	162	
	iS			37		−0.5	100			
NPZ	i	22	04	02				2.11	347	3.9*
	iS			15		0.4	100			
	i			17						
KAI	iS	22	04	32		−0.8	100	2.83	239	3.8s
CHR	iS	22	04	34		0.5	100	2.86	212	3.6s
TUA	iS	22	04	36		−0.5	100	2.98	40	4.8

AMPLITUDES: WEL 18 NPZ 2.0 KAI 0.5
CHR 0.5 TUA 1.5

PRO: 47/34

FELT: Wellington (68), MM III.

47/ 030

FEB 17 $09^h48^m53^s.1$ 38°.12S 176°.39E 296 km M = 6.2
± 0.2 0.01 0.01 1 S.E. of RES. 0.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP	09	49	33		0.1	100	0.91	139	6.1
	iS		50	04		−0.0	100			
AUC	S-P			35		−0.2	100	1.79	314	
	iP		49	35		−3.2				
	iS		50	10		−3.4				
NPZ	e	09	49	40				2.05	242	4.6*
	iS		50	17		0.1	100			
BUN	eS	09	50	20		0.1	100	2.25	195	0.0s
	i			22						
WEL	iP	09	49	53		−0.1	100	3.40	201	6.2
	iS		50	40		−0.0	100			
KAI	eP	09	50	18		−2.8		5.82	219	4.8*
	iS		51	23		−6.4				
CHR	eP	09	50	24		−0.3		6.12	207	5.2*

	iS	51 36	0.1				
AMPLITUDES:	TUA	36	NPZ	7.0	BUN	0.3	
	WEL	38	KAI	2.5	CHR	9.0	

Timing at AUC uncertain.

PRO: 47/35

FELT: Throughout the southern part of the North Island, and on The Brothers (78). Maximum reported intensity MM IV. The ISS assigns an epicentre at 38.4S 176.5E, and a focal depth of 0.04r (185km). No additional station readings are listed.

NOTE: A shock supposedly having the same date and time, but in 1948, and listed both in the ISS and Bulletin E – 111 of this series is a mistaken duplication of this shock, and does not exist. The correct data appear above, and were inadvertently omitted from Bulletin E – 110, which covers the year 1947.

47/ 031

FEB 23 $10^h42^m38^s.1$ 40°.10S 174°.53E 12 km M = 4.3

± 0.4 0.02 0.03 R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	iP*	10	42	57		−0.8	99	1.09	341	4.3
	iS*		43	13		0.6	100			
WEL	iS*	10	43	16		0.2	100	1.21	171	4.2
TUA	iSn	10	43	45		−0.2	100	2.40	58	3.9s
	iS*			52		0.2	100			

AMPLITUDES:	NPZ	8.0	WEL	4.0	TUA	0.3	

PRO: 47/36

FELT: Wanganui (57), MM IV.

47/ 032

FEB 25 $11^h14^m23^s.8$ 32°.46S 178°.41E 33 km M = 6.8

± 0.6 0.03 0.07 R S.E. of RES. 0.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	Pn	11	15	55		0.0	100	6.42	189	7.0
	iP*		16	05		−9.4				
	eSn		17	04		−0.1	100			
NPZ	iS*	11	18	27		17 7		7.48	207	5.9s
WEL	iSn	11	18	13		0.2	100	9.28	197	6.6
	i			15						
	i			48						
CHR	eSn	11	19	17		−0.1	100	11.96	201	6.4s

AMPLITUDES:	TUA	3.5	NPZ	0.3	WEL	1.0	
	CHR	0.3					

No provisional solution.

47/ 033

MAR 03 $20^h51^m23^s.9$ 39°.82S 174°.75E 33 km M ~ 4.7

± 0.1 0.01 0.01 R S.E. of RES. 0.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	iPn	20	51	40		0.0	100	0.92	325	4.7
	iSn			52		0.1	100			
WEL	iSn	20	52	05		0.0	100	1.47	179	3.4s
	i			26						

	i			35						
	i			41						
TUA	ePn	20	51	56		−0.4	99	2.12	62	3.8s
	eSn		52	21		0.2	100			

AMPLITUDES: NPZ 28 WEL 0.5 TUA 0.3

PRO: 47/37

47/ 034

MAR 04 $06^h07^m20^s.3$ 39°.04S 175°.99E 33 km M = 4.0

± 0.9 0.06 0.05 R S.E. of RES. 1.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iS*	06	07	51		0.3	100	0.94	76	3.6
NPZ	iPn	06	07	43		−1.3	99	1.49	269	3.4s
	iS*		08	08		0.9	100			
WEL	iS*	06	08	35		0.1	100	2.43	202	4.3

AMPLITUDES: TUA 1.0 NPZ 0.3 WEL 1.0

No provisional solution.

47/ 035

MAR 06 $13^h08^m51^s.0$ 38°.44S 176°.84E 169 km M = 4.8

± ND ND ND ND S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	S-P			18		0.0	100	0.44	146	4.7
	P		09	22		7.5				
	iS			40		7.5				
NPZ	iS	13	10	01		0.0	100	2.25	253	3.4s
WEL	iP	13	09	43		0.0	100	3.26	209	4.8
	iS		10	23		0.0	100			

AMPLITUDES: TUA 5.5 NPZ 0.5 WEL 2.0

Clock correction at TUA uncertain.

PRO: 47/38

47/ 036

MAR 06 $15^h48^m41^s.5$ 39°.06S 175°.92E 33 km M ~ 4.2

± 0.3 0.02 0.02 R S.E. of RES. 0.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	ePn	15	48	59		0.4	99	0.99	76	4.2
	eP*		49	01		1.0				
	iSn			11		−0.3	100			
NPZ	iSn	15	49	22		−0.1	100	1.44	269	3.4s
WEL	eSn	15	49	45		−0.0	100	2.39	201	4.0s
CHR	e	15	50	45				5.11	208	4.6s

AMPLITUDES: TUA 3.0 NPZ 0.3 WEL 0.5
CHR 0.3

PRO: 47/39

47/ 037

MAR 13 $22^h03^m11^s.6$ 40°.90S 175°.90E 33 km M ~ 3.7

± R R R R S.E. of RES. 0.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iPn	22	03	28		0.1	100	0.94	245	3.7
	iSn			40		−0.1	100			

AMPLITUDES: WEL 2.5

PRO: 47/40

FELT: Masterton (66), MM III.

47/ 038

MAR 14 $10^h48^m10^s.3$ 40°.67S 174°.96E 12 km M = 4.3

± 0.2 0.01 0.02 R S.E. of RES. 0.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iP*	10	48	22		−0.3	100	0.64	193	4.2
	iS*			31		−0.0	100			
NPZ	ePn	10	48	40		0.4	99	1.74	336	4.4
	iSn		49	01		−0.4	99			
TUA	eP*	10	48	59		4.8		2.51	43	4.0s
	iSn		49	20		0.1	100			
	iS*			37		9.9				
KAI	eSn	10	49	38		0.2	100	3.25	234	4.2s
CHR	e	10	49	28				3.35	211	4.0s

AMPLITUDES: WEL 17 NPZ 4.0 TUA 0.5
KAI 0.3 CHR 0.3

PRO: 47/41

FELT: Wanganui (57), MM IV.

47/ 039

MAR 15 $01^h23^m53^s.8$ 40°.67S 174°.96E 12 km M ~ 3.5

± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	iSn	01	24	45		0.0	100	1.74	337	~3.5s

AMPLITUDES: NPZ 0.5

PRO: 47/42

FELT: Wanganui (57), MM IV. Epicentre of 47/38 adopted.

47/ 040

MAR 16 $14^h51^m56^s.3$ 40°.04S 174°.16E 12 km M = 4.6

± 0.3 0.02 0.08 R S.E. of RES. 0.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	P*	14	52	14		−0.0	100	0.97	356	4.3+
	S*			27		−0.1	100			
WEL	P*	14	52	21		0.8	99	1.33	160	4.3
	iSn			37		−0.6	99			
KAI	iSn	14	53	28		4.5		3.24	219	4.2s
	iS*			34		−1.1				
CHR	iSn	14	53	34		−0.1	100	3.68	198	4.9

AMPLITUDES: NPZ 10+ WEL 4.5 KAI 0.3
CHR 2.0

PRO: 47/43

FELT: Wanganui (57), MM IV.

47/ 041

MAR 22 $19^h00^m38^s.4$ 39°.68S 176°.65E 12 km M = 4.1

± 0.5 0.02 0.03 R S.E. of RES. 0.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
HNZ	iSg-P*			03		0.2	100	0.18	89	
TUA	iS*-P*			13		0.3	100	0.94	24	4.1
	P*		01	00		4.3				
	iS*			13		4.5				
NPZ	iP*	19	01	19		3.8		2.09	286	4.0
	eSn			38		0.0	100			
WEL	ePn	19	01	13		−0.3	100	2.16	221	4.1
	iS*			45		0.3	100			

AMPLITUDES: TUA 4.5 NPZ 1.0 WEL 1.0

Clock correction at TUA uncertain.

PRO: 47/44

FELT: Napier (52) and Hastings (60), MM IV.

47/ 042

MAR 25 $20^h32^m14^s.9$ 38°.92S 178°.24E 12 km M = 6.0

± 0.8 0.03 0.05 R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP*	20	32	30		−0.7	100	0.85	277	5.2+
	iPg			40		7.6				
	i			41						
	iS*			42		−0.3	100			
ARA	iPg	20	33	00		0.5	100	2.20	292	
	iS*			24		1.3	99			
BUN	eS*-Pn			35		−0.9	100	2.44	235	
NPZ	iPn	20	33	04		−0.7	100	3.25	266	6.1
	Sn			42		−0.3	100			
AUC	iP*	20	33	14		−0.5	100	3.43	306	
	iSn			50		3.4				
	iS*			59		−0.2	100			
WEL	iPn	20	33	09		0.0	100	3.56	227	6.0
	iSn			51		1.2	99			
KAI	eP*	20	33	59		−4.8		6.32	233	5.8
	iS*		35	06		−19.9				
	eSg		36	00		12.4				
DND	Sn-Pn			48		−49.2		8.99	217	
RIV	iP	20	37	18		4.0		22.35	275	
	i			45						
	iS		41	31		16.4				

AMPLITUDES: TUA 58+ NPZ 56 WEL 30
KAI 3.0

Times at TUA reduced by 30 sec.

PRO: 47/45

FELT: From eastern Bay of Plenty to northern Hawke's Bay. Maximum reported intensity MM IV. See Hayes, 1948 for isoseismal map. A tsunami caused damage to coastal structures north of Gisborne (45). These included a beach hotel at Tatapouri and a road bridge at Pouawa. A height of 11 metres was reported at Turihaua Point, midway between these places. Heights of 2 to 5 metres are confirmed.

This shock is listed in the ISS, which assigns an epicentre at 38.4S 176.5E and a focal depth of 0.02r (159 km.), based on data from 96 additional stations. A shock with the same date and time, but in the year 1948 appears both in the ISS and in Bulletin E – 111 of this series. This is a mistaken duplication of the New Zealand readings for this shock, and not a real event. The correct data appear above, and were inadvertently omitted from Bulletin E – 110.

47/ 043

MAR 25 $22^h14^m47^s.9$ 38°.00S 177°.30E 12 km M ~ 3.7
± R R R R S.E. of RES. 2.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP*	22	15	00		−3.0	100	0.82	188	3.7
	iPg			05		0.5	100			
	iSg			18		2.4	100			

AMPLITUDES: TUA 2.0

Clock correction at TUA uncertain.

PRO: 47/46

FELT: Opotiki (35), MM IV.

47/ 044

MAR 26 $07^h18^m06^s.0$ 40°.10S 174°.75E 12 km M = 3.5
± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	iS*	07	18	42		−0.3	100	1.16	333	3.5
WEL	iS*	07	18	42		−1.2	99	1.19	179	3.5

AMPLITUDES: NPZ 1.0 WEL 1.0

PRO: 47/47

FELT: Wanganui (57), MM III.

47/ 045

MAR 26 $09^h08^m01^s.2$ 42°.70S 172°.60E 12 km M ~ 4.4
± R R R R S.E. of RES. 3.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	iP*	09	08	22		4.3	99	0.90	281	4.4
	iS*			27		−2.7	100			
WEL	eSg	09	09	12		−1.6	100	2.15	50	3.8s
	i			51						

AMPLITUDES: KAI 6.5 WEL 0.5

PRO: 47/48

FELT: Otira (93) and about Lake Brunner (92), MM III.

47/ 046

MAR 27 $18^h25^m20^s.6$ $38°.86S$ $177°.80E$ 12 km M = 5.3

± 2.0 0.07 0.13 R S.E. of RES. 2.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
HNZ	S*-P*			14		−0.4	100	1.08	221	
BUN	ePg	18	26	11		5.9		2.20	229	
	eSg			45		10.2				
	e		34	00						
NPZ	iP*	18	26	09		−2.5	99	2.92	265	5.1
	iSn			41		1.0	100			
	iS*			48		−1.5	100			
AUC	e	18	26	00				3.11	309	
	iPn			04		−4.6				
	iSn			46		1.2	100			
WEL	ePn	18	26	10		−1.9	100	3.36	223	5.4
	i			41						
	iSn			51		0.3	100			
KAI	eP*	18	27	18		12.4		6.08	231	5.3
	ePg			28		4.5				
	iSn			59		2.9	99			
RIV	iP	18	30	17		0.8	100	22.00	275	
	eS		34	41		27.1				

AMPLITUDES: NPZ 7.0 WEL 9.5 KAI 1.0

PRO: 47/50

FELT: Gisborne district, maximum intensity MM V at Gisborne (45) and Wairoa (53). Reports of a small tsunami affecting the same places as that on Mar. 25 are incorrect.

Listed in ISS with data from 4 additional stations. An earthquake with the same date and time, but in 1948 is listed both in the ISS and in Bulletin E – 111 of this series. This is a mistaken duplication of the New Zealand readings of the above shock, and not a real event. The correct data appear above. They were inadvertently omitted from Bulletin E – 110.

47/ 047

MAR 29 $23^h48^m19^s.6$ $38°.98S$ $178°.85E$ 33 km M = 4.7

± 0.2 0.01 0.01 R S.E. of RES. 0.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	ePn	23	49	14		0.0	100	3.73	267	4.7
	iSn			55		−0.0	100			
WEL	eP*	23	49	27		−0.1	100	3.89	232	4.6
	iSn			59		0.0	100			

AMPLITUDES: NPZ 1.5 WEL 1.0

PRO: 47/51

FELT: Tolaga Bay (37), MM IV.

47/ 048

MAR 30 $02^h53^m38^s.6$ $39°.24S$ $178°.01E$ 33 km M = 4.9

± 2.8 0.07 0.18 R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	iPn	02	54	24		0.1	100	3.06	272	4.6
	iSn			58		−0.1	100			

	iS*	55 07	−5.1					
WEL	e	02 54 21			3.21	229		4.9
	iSn	55 01	−0.7	100				
KAI	iSn	02 56 09	0.8	99	5.98	235		5.2

AMPLITUDES: NPZ 2.0 WEL 3.5 KAI 1.0

PRO: 47/52

FELT: Tolaga Bay (37), MM IV.

47/ 049

APR 01 $10^h05^m29^s.8$ 42°.30S 175°.85E 33 km M ~ 3.8

± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iSn	10	06	07		0.1	100	1.30	321	~3.3s
KAI	eSn	10	06	55		0.0	100	3.29	265	~4.2s
NPZ	iSn	10	07	00		0.1	100	3.50	337	~3.9s

AMPLITUDES: WEL 0.5 KAI 0.3 NPZ 0.3

No provisional solution.

47/ 050

APR 02 $03^h03^m26^s.8$ 39°.85S 176°.67E 12 km M = 4.4

± 1.7 0.04 0.12 R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	eP*	03	04	03		0.2	100	2.04	225	4.2
	iS*			29		−0.7	100			
NPZ	i	03	03	54				2.16	290	4.5
	iS*		04	34		0.8	100			
AUC	i	03	04	02				3.33	333	
	iP*			26		1.1	100			
	iS*		05	07		−1.4	99			

AMPLITUDES: WEL 1.5 NPZ 3.0 AUC 2.0

No provisional solution.

47/ 051

APR 02 $14^h44^m15^s.1$ 37°.19S 176°.55E 33 km M = 5.1

± 0.9 0.05 0.06 R S.E. of RES. 0.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
AUC	iSn	14	44	56		−0.1	100	1.46	283	
TUA	ePn	14	44	42		0.4	100	1.68	164	4.6
	iSn		45	01		−0.4	99			
WEL	iSn	14	46	05		0.2	100	4.31	198	5.6

AMPLITUDES: AUC 2.0 TUA 1.5 WEL 2.0

PRO: 47/53

47/ 052

APR 02 $16^h25^m51^s.4$ 39°.32S 178°.55E 12 km M = 4.4

± 4.7 0.12 0.30 R S.E. of RES. 2.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP*	16	26	11		−2.1	100	1.20	295	4.2
	iS*			28		−1.0	100			
NPZ	ePn	16	26	47		2.5	99	3.48	273	4.4
	iSn		27	27		2.5	99			
WEL	ePg	16	27	01		−1.1	100	3.49	235	4.5

	iSn			24		−0.8	100			
AUC	ePg	16	27	14		4.7		3.85	308	

AMPLITUDES: TUA 3.0 NPZ 1.0 WEL 1.0
AUC 1.0

No provisional solution.

47/ 053

APR 02 $17^h23^m39^s.0$ 39°.11S 177°.87E 33 km M = 4.2
± 1.6 0.05 0.11 R S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP*	17	23	52		0.4	100	0.64	298	3.6
	iSn		24	01		0.7	100			
NPZ	eP*	17	24	29		−1.6	99	2.95	270	4.3
	iS*		25	09		−0.2	100			
WEL	eP*	17	24	35		−0.1	100	3.21	227	4.6
	iSn		25	03		0.7	100			
AUC	eS*	17	26	28		67.8		3.32	312	

AMPLITUDES: TUA 3.0 NPZ 1.0 WEL 1.5
AUC 1.0

Clock correction at AUC probably 1 min. in error.

No provisional solution.

47/ 054

APR 02 $21^h45^m36^s.9$ 39°.24S 178°.85E 33 km M = 5.0
± 2.2 0.05 0.15 R S.E. of RES. 1.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iPn	21	46	00		0.5	100	1.39	287	4.8
	iSn			15		−1.4	99			
WEL	iPn	21	46	31		−0.5	100	3.73	235	5.1
	iSn		47	12		−0.6	100			
AUC	iP*	21	46	59		12.7		4.00	305	
	iS*		47	39		0.7	100			
KAI	iSn	21	48	21		1.3	99	6.52	237	5.0s

AMPLITUDES: TUA 9.5 WEL 3.5 KAI 0.5

PRO: 47/54

FELT: Tolaga Bay (37), MM IV.

47/ 055

APR 03 $21^h10^m45^s.1$ 39°.37S 179°.01E 33 km M = 5.3
± 1.7 0.06 0.14 R S.E. of RES. 1.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iPn	21	11	11		1.1	100	1.56	291	5.2
	iSn			28		−0.4	100			
HNZ	Sn-Pn			16		−3.7		1.67	259	
BUN	eSn	21	11	52		−5.3		2.75	250	
	i		12	53						
WEL	ePn	21	11	39		−1.0	100	3.76	238	5.3
	iSn		12	22		0.5	100			
NPZ	iPn	21	11	43		1.8	99	3.84	273	5.3
	iSn		12	17		−6.5				
AUC	iPn	21	11	44		−1.6	99	4.18	306	
	iP*		12	08		10.5				
KAI	iSn	21	13	28		−0.7	100	6.56	239	5.3

RIV	eP	21	15	48		0.2	100	22.99	275	
	eS		20	15		23.3				

AMPLITUDES: TUA 18 WEL 6.0 NPZ 6.5
AUC 11 KAI 1.0

PRO: 47/55

FELT: Tolaga Bay (37) and Gisborne (45), MM IV. Listed in ISS, with readings of PKP from HLW and IST, and P and S from BRS.

47/ 056

APR 04 $01^h38^m41^s.6$ 39°.25S 178°.24E 33 km M ~ 4.9
± 3.0 0.07 0.23 R S.E. of RES. 1.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iPn	01	38	57		−1.2	100	0.95	297	4.9
	iSn		39	11		0.5	100			
NPZ	iPn	01	39	30		0.6	100	3.24	272	4.1s
WEL	eP*	01	39	41		1.1	100	3.35	231	4.1s
	iSn		40	07		−0.9	100			
AUC	iS*	01	41	38		66.0		3.63	310	

AMPLITUDES: TUA 24 NPZ 0.5 WEL 0.5

Clock correction at AUC probably 1 min. in error.

PRO: 47/56

FELT: Gisborne (45), MM IV, and Wairoa (53), MM III.

47/ 057

APR 04 $12^h28^m42^s.4$ 39°.15S 178°.19E 33 km M = 4.8
± 2.9 0.08 0.22 R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iPn	12	28	57		−0.9	100	0.88	292	4.8
	iSn		29	10		0.5	100			
WEL	ePn	12	29	33		0.9	100	3.37	230	4.8
	Sn		30	09		−0.5	100			

AMPLITUDES: TUA 24 WEL 2.5

PRO: 47/57

FELT: Tolaga Bay (37) and Gisborne (45), MM IV.

47/ 058

APR 04 $16^h26^m16^s.3$ 39°.47S 177°.48E 12 km M = 4.0
± 1.7 0.05 0.12 R S.E. of RES. 1.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP*	16	26	28		−1.5	100	0.71	339	3.4
	iS*			40		0.8	100			
NPZ	iP*	16	27	05		1.9	99	2.67	278	4.2
	iS*			37		−1.0	100			
WEL	eP*	16	27	04		−0.4	100	2.75	228	4.3
	iSn			32		0.2	100			

AMPLITUDES: TUA 1.5 NPZ 1.0 WEL 1.0

No provisional solution.

47/ 059

APR 07 $09^h44^m54^s.3$ 39°.51S 177°.94E 12 km M = 4.6
± 0.5 0.01 0.03 R S.E. of RES. 0.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
HNZ	S*-P*			11		−0.2	100	0.84	259	
TUA	S*-P*			13		0.4	99	0.94	318	5.1
WEL	iP*	09	45	47		0.2	100	3.01	233	4.3
	iSn		46	16		0.1	100			
NPZ	iP*	09	45	47		−0.3	100	3.03	277	4.3
	iSn		46	15		−1.7				
AUC	iS*	09	46	45		−0.0	100	3.64	316	

AMPLITUDES: TUA 47 WEL 1.0 NPZ 1.0

Clock correction at TUA not known.

PRO: 47/58

FELT: Tolaga Bay (37) and Wairoa (53), MM IV.

47/ 060

APR 08 $09^h30^m36^s.9$ 37°.50S 177°.20E 33 km M ~ 4.1
± R R R R S.E. of RES. 1.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP*	09	31	02		1.4	100	1.30	182	4.1
	iSn			14		−0.2	100			
	iS*			17		−1.1	100			

AMPLITUDES: TUA 2.0

PRO: 47/59

FELT: Opotiki (35), MM III.

47/ 061

APR 10 $17^h40^m37^s.2$ 38°.69S 178°.69E 12 km M ~ 4.5
± 0.3 0.01 0.01 R S.E. of RES. 0.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP*	17	40	59		0.1	100	1.21	264	4.5
	iS*		41	15		−0.0	100			
NPZ	iP*	17	42	00		19.9		3.62	263	3.9s
WEL	eP*	17	41	46		−0.1	100	3.97	228	4.1s
	eSn		42	22		0.1	100			

AMPLITUDES: TUA 6.0 NPZ 0.3 WEL 0.3

PRO: 47/60

FELT: Tolaga Bay (37), MM IV.

47/ 062

APR 16 $07^h10^m49^s.1$ 38°.37S 175°.87E 12 km M ~ 4.1
± 3.2 0.19 0.10 R S.E. of RES. 1.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	P*	07	11	10		1.0	100	1.10	114	4.1
	iS*			23		−0.6	100			
WEL	ePn	07	11	35		−1.0	100	3.03	196	4.3s
	iSn		12	12		0.6	100			

AMPLITUDES: TUA 1.5 WEL 0.3

PRO: 47/61

FELT: Tokaanu (40), MM IV.

47/ 063

APR 16 $07^h31^m48^s.0$ 38°.40S 175°.90E 12 km M ~ 3.5
± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP*	07	32	07		−0.3	100	1.06	113	~3.5s
	iS*			20		−1.5	99			

AMPLITUDES: TUA 0.5

PRO: 47/62

FELT: Tokaanu (40), MM IV

47/ 064

APR 16 $08^h04^m56^s.3$ 38°.51S 176°.14E 12 km M ~ 3.4
± 0.8 0.05 0.03 R S.E. of RES. 0.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP*	08	05	12		0.1	100	0.85	111	~3.0s
	iS*			23		−0.3	99			
WEL	ePn	08	05	42		−0.3	100	2.97	200	~3.7s
	iSn		06	17		0.1	100			

AMPLITUDES: TUA 0.3 WEL 0.1

PRO: 47/63

FELT: Taumarunui (39), MM IV.

47/ 065

APR 16 $12^h41^m53^s.2$ 38°.25S 175°.75E 33 km M = 4.9
± 4.3 0.25 0.18 R S.E. of RES. 2.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
ARA	e	12	43	00				0.20	334	
TUA	iPn	12	42	15		1.4	100	1.23	117	4.8
	iSn			28		−0.7	100			
AUC	iSn	12	43	05		27.7		1.58	331	
	i			16						
WEL	ePn	12	42	38		−1.4	100	3.12	194	4.9
	eSn		43	15		0.7	100			

AMPLITUDES: TUA 5.5 WEL 1.0

PRO: 47/65

FELT: Taumarunui (39), MM IV.

47/ 066

APR 16 $14^h47^m07^s.9$ 38°.35S 175°.82E 12 km M = 5.0
± 0.7 0.04 0.06 R S.E. of RES. 1.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
ARA	e	14	48	00				0.31	333	
TUA	iP*	14	47	30		1.4	99	1.14	114	5.0
	iS*			43		−0.8	100			
AUC	iSn	14	47	58		−0.1	100	1.70	331	
	i		48	38						
WEL	ePn	14	47	54		−1.0	100	3.04	195	5.0
	eSn		48	31		0.5	100			

AMPLITUDES: TUA 10 WEL 1.5

PRO: 47/68

FELT: Taumarunui (39) and Tokaanu (40), MM IV.

47/ 067

APR 16 $20^h59^m52^s.5$ 38°.41S 179°.92E 33 km M = 5.2

± 0.9 0.05 0.06 R S.E. of RES. 0.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iPn	21	00	26		−0.1	100	2.20	259	5.2
	iSn			52		0.5	99			
NPZ	eSn	21	01	49		−0.4	100	4.62	260	4.1s
WEL	ePn	21	01	03		0.1	100	4.90	232	5.1
	iSn			56		−0.1	100			

AMPLITUDES: TUA 9.5 NPZ 0.3 WEL 2.0

PRO: 47/69

47/ 068

APR 17 $01^h27^m48^s.7$ 38°.94S 176°.24E 33 km M ~ 4.5

± 0.7 0.07 0.06 R S.E. of RES. 1.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP*	01	28	04		1.3	99	0.72	80	4.5
	iS*			12		−0.9	100			
NPZ	iPn	01	28	15		−0.4	100	1.69	265	3.4s
WEL	iPn	01	28	28		0.2	100	2.60	205	3.8s
	iSn			57		−0.1	100			

AMPLITUDES: TUA 16 NPZ 0.3 WEL 0.3

Clock error at TUA uncertain. 60 sec. added to reported times.

PRO: 47/70

FELT: Wairoa (53), MM IV.

47/ 069

APR 17 $04^h16^m23^s.9$ 39°.78S 174°.83E 33 km M ~ 3.3

± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	iSn	04	16	52		−0.0	100	0.93	320	3.3
WEL	eSn	04	17	06		−0.0	100	1.50	182	3.4s
TUA	eSn	04	17	19		0.0	100	2.04	62	4.0s

AMPLITUDES: NPZ 1.0 WEL 0.5 TUA 0.5

PRO: 47/71

47/ 070

APR 19 $20^h08^m22^s.8$ 37°.62S 175°.35E 12 km M ~ 3.8

± 1.4 0.07 0.04 R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	ePg	20	08	58		−0.3	100	1.75	215	3.8
	eSn		09	14		−0.4	100			
	iS*			17		−0.1	100			
TUA	eSn	20	09	16		−0.4	100	1.84	130	3.6s
WEL	eP*	20	09	28		1.2	99	3.68	187	3.8s
	iS*		10	15		0.1	100			

AMPLITUDES: NPZ 1.0 TUA 0.1 WEL 0.1

PRO: 47/72

FELT: Morrinsville (25), MM III.

47/ 071

APR 20 $04^h43^m29^s.3$ 39°.98S 174°.93E 12 km M = 4.3

± 0.3 0.02 0.03 R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	iP*	04	43	49		−0.6	100	1.13	324	4.5
	iS*		44	05		0.3	100			
WEL	iPn	04	43	53		0.3	100	1.31	185	4.0
	iSn		44	10		−0.2	100			
TUA	ePn	04	44	04		0.9	99	2.08	57	3.9s
	ePg			21		9.7				
	iSn			28		−0.5	100			

AMPLITUDES: NPZ 12 WEL 2.5 TUA 0.5

PRO: 47/73

FELT: Hunterville (58), MM IV.

47/ 072

APR 21 $23^h11^m09^s.7$ 39°.65S 177°.04E 12 km M = 5.4

± 0.9 0.03 0.05 R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
HNZ	iSg-Pg			03		0.8	100	0.12	260	
BUN	iSg	23	11	52		−0.1	100	1.26	239	
NPZ	ePn	23	11	48		0.4	100	2.38	283	5.3
	eP*			55		3.6				
	iSn		12	16		−0.1	100			
	iS*			22		−0.5	100			
WEL	iP*	23	11	51		−0.5	100	2.38	226	5.4
	iSn		12	16		−0.3	100			
KAI	ePg	23	12	55		1.6	97	5.13	234	5.4
	iSn		13	22		−0.4	100			

AMPLITUDES: NPZ 18 WEL 20 KAI 2.0

PRO: 47/74

FELT: Throughout Hawke's Bay and neighbouring districts. Maximum reported intensity MM V at Hastings (60).

47/ 073

APR 23 $09^h45^m32^s.8$ 41°.36S 175°.79E 12 km M = 4.8

± 1.6 0.04 0.09 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iP*	09	45	48		0.8	100	0.77	275	4.8
	iS*			57.5		−0.1	100			
NPZ	eP*	09	46	18		−1.0	99	2.65	330	4.7
	iS*			54		0.4	100			
KAI	iSn	09	47	06		0.5	100	3.47	249	4.2s
	eSg			29		−0.7	100			
WAI	eSg	09	47	52		17.8		3.60	232	3.6s
	e		48	00						

AMPLITUDES: WEL 44 NPZ 3.5 KAI 0.3
WAI 0.1

PRO: 47/75

FELT: Throughout Wellington province. Maximum reported intensity MM IV.

47/ 074

APR 23 $11^h38^m18^s.1$ 40°.13S 176°.45E 12 km M = 4.0
± 4.1 0.08 0.24 R S.E. of RES. 2.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
HNZ	S*-P*			06		−1.7	100	0.56	36	
WEL	ePg	11	38	55		1.9		1.73	227	4.0
	iSn		39	08		−1.0	100			
NPZ	ePg	11	39	02		1.0	100	2.12	299	4.0
	iSn			20		1.6	100			
	iSg			28		−1.6	100			

AMPLITUDES: WEL 1.5 NPZ 1.0

PRO: 47/76

FELT: Waipawa (60), MM III, and Waipukurau (60).

47/ 075

APR 23 $11^h41^m17^s.8$ 41°.01S 172°.98E 5 km M = 3.9
± 0.5 0.02 0.04 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TAK	Sg-Pg			02		−0.8	99	0.21	320	
WEL	ePn	11	41	42		−1.1	99	1.38	102	3.8
	S*		42	02		0.2	100			
KAI	iSn	11	42	15		0.3	100	1.92	217	4.0s
NPZ	eSn	11	42	20		0.4	100	2.12	24	4.0
	iS*			24		0.1	100			
	iSg			32		2.9				

AMPLITUDES: WEL 1.5 KAI 0.5 NPZ 1.0

PRO: 47/77

FELT: Western Nelson (72, 75). Maximum reported intensity, MM IV.

47/ 076

APR 23 $23^h51^m23^s.1$ 46°.49S 169°.05E 33 km M = 5.3
± 3.1 0.13 0.22 R S.E. of RES. 1.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
MNW	Sn-Pn			14		−1.0	100	1.21	305	
WAI	iPn	23	52	17		1.2	100	3.60	35	5.5
	iSn			56		0.5	100			
KAI	eP*	23	52	36		−1.7	100	4.30	24	5.3
	iSn		53	14		1.5	100			
WEL	eP*	23	53	09		−8.4		6.64	41	5.0
	iSn		54	06		−2.6	99			
NPZ	iSn	23	54	49		0.9	100	8.28	28	5.2
AUC	iSn	23	56	28		46.0		10.53	26	
	iS*			40		0.2	100			

AMPLITUDES: WAI 8.0 KAI 2.0 WEL 1.0
NPZ 1.0

Times at AUC reduced by 60 sec.

PRO: 47/78

FELT: Throughout Otago and Southland.

47/ 077

APR 24 $09^h26^m21^s.7$ 46°.50S 169°.00E 33 km M ~ 4.8
± R R R R S.E. of RES. 6.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WAI	ePn	09	27	09		−5.8	100	3.63	35	4.8
	iSn			49		−5.8	100			
KAI	eP*	09	27	43		6.3	100	4.33	24	4.4s
	i			52						
	eSn		28	17		5.3	100			

AMPLITUDES: WAI 1.5 KAI 0.3

PRO: 47/79

FELT: Throughout Otago and Southland. Maximum reported intensity MM IV. Assumed to be an aftershock of 47/76. No consistent identification of phase arrivals seems possible.

47/ 078

APR 25 $03^h47^m30^s.3$ 41°.04S 173°.05E 33 km M = 4.4
± 0.5 0.03 0.06 R S.E. of RES. 1.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TAK	S*-P*			07		1.8	99	0.26	315	
WEL	iPn	03	47	50		−1.8	99	1.32	101	4.2
	iSn		48	10		2.0	99			
KAI	ePn	03	48	01		0.9	100	1.93	219	4.4
	iSn			23		0.5	100			
NPZ	ePn	03	48	03		0.2	100	2.12	22	4.7
	iP*			08		0.2	100			
	iSn			27		−0.2	100			
	iS*			35		−0.7	100			
WAI	eSn	03	48	44		5.2		2.61	199	4.0s
	iS*			49		−1.1	100			

AMPLITUDES: WEL 3.5 KAI 1.5 NPZ 5.0
WAI 0.5

PRO: 47/80

FELT: Takaka district (72), MM IV.

47/ 079

APR 25 $04^h11^m43^s.1$ 41°.02S 172°.93E 12 km M ~ 3.7
± 0.4 0.02 0.04 R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TAK	Sg-P*			07		4.0		0.19	330	
WEL	ePn	04	12	07		−0.9	99	1.41	101	3.7
	eSn			27		0.6	100			
KAI	eSn	04	12	38		0.2	100	1.89	217	3.9s
	iS*			44		2.7				
NPZ	eSn	04	12	44		0.1	100	2.14	25	3.7s
	iS*			49		0.1	100			

AMPLITUDES: WEL 1.0 KAI 0.5 NPZ 0.5

PRO: 47/81

FELT: Upper Takaka (72), MM IV.

47/ 080

APR 26 $03^h34^m43^s.5$ 41°.50S 175°.00E 33 km

± R R R R S.E. of RES. 0.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iP*	03	34	51		0.1	100	0.28	321	
	iS*			56		−0.1	100			

AMPLITUDES: WEL 9.0

PRO: 47/82

FELT: Te Aro (68), MM II.

47/ 081

APR 28 $14^h48^m11^s.2$ 40°.10S 175°.30E 33 km M ~ 4.6

± R R R R S.E. of RES. 0.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	Pn	14	48	32		0.2	100	1.25	199	4.6
	iSn			47		−0.2	100			

AMPLITUDES: WEL 11

PRO: 47/84

FELT: Northern and western parts of Wellington province.

47/ 082

APR 28 $17^h28^m00^s.2$ 40°.10S 175°.50E 33 km M = 3.8

± R R R R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iSn	17	28	37		−0.6	100	1.30	205	3.8
NPZ	iSn	17	28	43		0.6	100	1.51	313	3.7

AMPLITUDES: WEL 1.5 NPZ 1.0

PRO: 47/85

Record similar in appearance to that of preceding shock.

47/ 083

APR 28 $17^h35^m59^s.8$ 40°.20S 175°.04E 33 km M = 4.4

± 2.0 0.06 0.33 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iPn	17	36	18		−0.4	100	1.10	191	4.5
	iSn			32.5		0.2	100			
NPZ	eP*	17	36	25		0.6	100	1.36	326	4.3
	iSn			38		−0.4	100			

AMPLITUDES: WEL 10 NPZ 5.5

PRO: 47/86

FELT: Northern and western parts of Wellington province.

47/ 084

APR 30 $19^h39^m04^s.7$ 40°.74S 176°.53E 12 km M = 5.1

± 0.9 0.02 0.06 R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
BUN	ePg	19	39	22		0.6	100	0.82	303	
	iS*			32		1.0	99			
HNZ	iS*-P*			08		−6.8		1.11	15	

WEL	Pn	19	39	30	0.2	100	1.44	247	4.8
	iSn			48	−0.6	100			
	iSg		40	04	10.8				
NPZ	iPn	19	39	45	0.4	100	2.52	311	5.4
	iP*			48	−0.9	99			
	iS*		40	21	−1.0	99			
AUC	i	19	39	48			4.11	340	
	iP*		40	13	−3.0				
	i			19					
	iSg		41	33	9.9				
	i		42	11					
KAI	iPg	19	40	36	5.8		4.23	243	5.1
	iSn			56	0.3	100			
	iSg		41	27	−0.1	100			
	i			42					

AMPLITUDES: WEL 11 NPZ 18 KAI 1.5

PRO: 47/87

FELT: Southern Hawke's Bay and northern Wairarapa.

47/ 085

APR 30 $22^h52^m53^s.1$ 41°.62S 172°.15E 12 km M = 4.3

± 0.5 0.04 0.06 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	iP*	22	53	13		0.7	100	1.05	211	4.1
	iS*			26		−0.3	100			
WEL	iPn	22	53	25		−0.9	100	2.00	81	4.2
	iSn			51		0.5	100			
NPZ	ePg	22	53	52		−0.7	100	2.95	31	4.5
	iSn		54	14		0.7	100			

AMPLITUDES: KAI 2.5 WEL 1.5 NPZ 1.5

PRO: 47/88

FELT: Karamea (74), MM IV.

47/ 086

MAY 01 $06^h27^m04^s.6$ 40°.13S 176°.94E 12 km M ~ 3.7

± 0.2 0.01 0.02 R S.E. of RES. 0.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iPn	06	27	28		−0.1	100	1.32	7	~3.5s
	iSn			46		0.2	100			
	iSg			53		3.7				
WEL	eP*	06	27	40		−0.2	100	2.02	234	~3.7s
	iS*		28	07		0.2	100			
NPZ	e	06	27	27				2.46	295	~3.8s
	iPg			54		−0.2	100			
	iSn		28	13		0.1	100			
	iSg			38		10.6				

AMPLITUDES: TUA 0.5 WEL 0.5 NPZ 0.5

No provisional solution.

47/ 087

MAY 03 $05^h11^m20^s.2$ 40°.68S 175°.81E 12 km M = 4.6

± 0.8 0.05 0.09 R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
BUN	eP*	05	11	25		−3.4		0.41	341	
	iS*			34		−0.2	100			
WEL	P*	05	11	39		0.7	100	1.00	232	4.6
	iS*			52		0.3	100			
NPZ	Sn-Pn			30		4.4		2.09	320	4.9
	Pn		12	05		10.8				
	iSn			35		15.2				
TUA	Pn	05	11	54		−0.8	100	2.13	29	4.4
	iS*		12	26		0.2	100			
KAI	ePg	05	12	41		4.4		3.78	239	4.5s
	iSn		13	01		0.6	100			
	iSg			35		7.5				
WAI	ePg	05	12	44		1.7	99	4.07	225	4.2s
	e			53						
	iS*		13	21		−2.7	98			
	iSg			47		9.9				

AMPLITUDES: WEL 15 NPZ 8.0 TUA 1.5
KAI 0.5 WAI 0.3

Clock correction at NPZ uncertain.

PRO: 47/89

FELT: Wairarapa and Manawatu districts. Maximum reported intensity MM V at Castlepoint (67).

47/ 088

MAY 03 $11^h29^m37^s.1$ 40°.90S 175°.80E 33 km M ~ 3.4
± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iSn	11	30	04		0.0	100	0.87	243	3.4

AMPLITUDES: WEL 1.5

PRO: 47/90

FELT: Masterton (66), MM III.

47/ 089

MAY 04 $02^h11^m54^s.2$ 40°.70S 174°.70E 33 km M ~ 3.9
± R R R R S.E. of RES. 0.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iPn	02	12	06		0.2	100	0.58	175	3.9
	iSn			14		−0.2	100			

AMPLITUDES: WEL 10

PRO: 47/91

FELT: Plimmerton (68), MM III.

47/ 090

MAY 04 $17^h30^m10^s.3$ 37°.80S 177°.00E 12 km M ~ 4.2
± R R R R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP*	17	30	28		−0.7	100	1.02	173	4.2
	iS*			43		0.7	100			

AMPLITUDES: TUA 3.5

PRO: 47/92

FELT: Whakatane (27), MM IV.

47/ 091

MAY 05 $02^h05^m32^s.6$ 39°.36S 175°.35E 33 km M = 5.9

± 0.4 0.02 0.04 R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
BUN	iP*	02	05	51		0.7	100	0.95	167	
	iS*		06	04		0.6	100			
NPZ	Pn	02	05	51		0.8	100	1.03	286	5.1 +
	iS*		06	06		0.2	100			
HNZ	iSn-Pn			15		−0.1	100	1.22	105	
ARA	iS*	02	06	24		10.2		1.30	10	
TUA	iSn-Pn			18		−0.0	100	1.50	69	
WEL	iPn	02	06	02		−1.0	99	1.97	193	5.8 +
	Sn			25		−0.9	99			
TAK	iSn-Pn			20		−7.9		2.46	232	
AUC	i	02	06	25				2.54	350	
	iSn			36		−3.5				
	iS*			50		−0.3	100			
	i		07	29						
	i		08	09						
KAI	ePn	02	06	33		−2.4		4.35	222	5.8
	i			37						
	iP*			51		3.1				
	i		07	15						
WAI	iPn	02	06	37		−5.8		4.89	211	6.0
	i		07	06						
	i			22						
	iSn			26		−10.0				

AMPLITUDES: NPZ 47 + WEL 62 + KAI 7.0
WAI 15

Clock correction at TUA uncertain.

PRO: 47/93

FELT: Throughout the southern half of the North Island, and in Nelson province. Maximum reported intensity, MM V. Listed in ISS. No additional readings given.

47/ 092

MAY 10 $11^h56^m50^s.2$ 39°.14S 176°.62E 12 km M = 4.0

± 0.2 0.01 0.02 R S.E. of RES. 0.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP*	11	57	00		−0.4	99	0.53	52	4.1
	iS*			08		0.3	100			
NPZ	iPn	11	57	23		0.3	100	1.98	271	3.9
	Sn			47		−0.1	100			
WEL	iSn	11	58	01		−0.3	100	2.57	213	3.9s
	iSg			17		0.2	100			

AMPLITUDES: TUA 12 NPZ 1.0 WEL 0.5

PRO: 47/94

47/ 093

MAY 11 $07^h50^m42^s.8$ 34°.24S 179°.30E 316 km M = 6.1

± 2.0 0.11 0.18 16 S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
AUC	iP	07	51	54		−2.0	99	4.52	233	
	iS		52	54		0.5	100			
	i		53	10						
TUA	iP	07	52	00		−0.1	100	4.88	200	6.1
	iS		53	01		0.3	100			
NPZ	eP	07	52	20		2.2	99	6.39	220	4.1*
	i		53	46						
	i			52						
WEL	eP	07	52	36		0.0	100	7.90	206	6.1
	iS		54	04		−1.0	100			
KAI	eS	07	54	58		−0.7	100	10.33	214	4.7*
WAI	iS	07	55	12		0.7	100	10.91	210	6.1*

AMPLITUDES: TUA 9.5 NPZ 1.0 WEL 7.0
KAI 1.0 WAI 3.0

PRO: 47/95

FELT: Karori, Khandallah (68), MM I. Listed in ISS. No additional readings given.

47/ 094

MAY 12 $03^h17^m46^s.6$ $39°.64$S $176°.13$E 12 km M = 4.4
± 0.4 0.03 0.04 R S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
HNZ	iS*-P*			07		−1.0	100	0.58	93	
TUA	P*	03	18	07		−0.4	100	1.15	44	4.5
	iS*			23		0.3	100			
NPZ	Pg	03	18	20		−0.9	100	1.69	289	4.3
	iSn			37		0.3	100			
WEL	eP*	03	18	22		1.0	100	1.94	212	4.4
	iPg			27		1.0	100			
	iSn			40		−2.7				
	iSg			51		−1.2	99			

AMPLITUDES: TUA 7.5 NPZ 3.0 WEL 3.0

PRO: 47/96

47/ 095

MAY 15 $01^h27^m29^s.7$ $32°.22$S $179°.96$E 576 km M = 5.6
± 0.2 0.01 0.02 1 S.E. of RES. 0.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
AUC	e	01	29	27				6.30	221	
	iS		30	35		−0.0	100			
TUA	iP	01	29	19		−0.0	100	6.97	198	5.7
	iS		30	46		−0.0	100			
WEL	iP	01	29	48		−0.0	100	9.96	203	5.5
	iS		31	39		−0.0	100			

AMPLITUDES: AUC 1.5 TUA 1.5 WEL 1.0

PRO: 47/97

47/ 096

MAY 17 $07^h06^m24^s.4$ $38°.28$S $178°.67$E 12 km M = 5.6
± 1.4 0.03 0.09 R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP*	07	06	48		0.2	100	1.30	246	5.5

	S*	07 06	0.8	100			
ARA	iP*	07 07 06	−0.4	100	2.39	274	
	iSn	30	−1.3	99			
BUN	ePg	07 07 29	2.0		3.10	229	
	eSn	47	−1.2	99			
	iSg	08 10	1.2	99			
AUC	iPn	07 07 17	0.7	100	3.40	293	
	iP*	25	1.4	99			
	i	38					
	iSn	55	−0.5	100			
WEL	Pn	07 07 33	5.1		4.25	224	5.8
	iSn	08 15.5	−0.4	100			
KAI	iPg	07 08 41	−4.4		6.97	230	5.7
	iSn	09 21	−0.5	100			
	i	37					
WAI	eP*	07 08 38	7.4		7.33	223	5.5
	eSn	09 26	−3.9				
	i	47					

AMPLITUDES: TUA 53 WEL 15 KAI 2.0
WAI 2.0

PRO: 47/98

FELT: Gisborne district. Maximum reported intensity MM V at Gisborne (46) and Wairoa (53). A tsunami similar to that on March 25 was reported from places between Tatapouri and Tolaga Bay.

47/ 097

MAY 17 $11^h07^m58^s.8$ 39°.21S 177°.67E 12 km M = 4.1
± 3.2 0.07 0.20 R S.E. of RES. 2.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP*	11	08	08		−1.6	100	0.57	314	3.8
	iS*			18		0.5	100			
	i			24						
NPZ	iS*	11	09	25		0.6	100	2.80	272	4.2
WEL	eP*	11	08	54		2.2	99	3.04	226	4.4
	iS*		09	30		−1.6	100			

AMPLITUDES: TUA 6.0 NPZ 1.0 WEL 1.0

No provisional solution.

47/ 098

MAY 17 $15^h45^m38^s.2$ 38°.70S 178°.74E 12 km M = 4.7
± 1.8 0.08 0.09 R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP*	15	46	01		0.4	100	1.25	264	4.7
	iS*			17		−0.2	100			
WEL	eP*	15	46	47		−0.6	99	4.00	228	4.6
	e		47	19						
	iSn			24		0.4	100			

AMPLITUDES: TUA 8.5 WEL 1.0

PRO: 47/99

FELT: Gisborne (45), MM V; and Tolaga Bay (37), MM IV.

47/ 099

MAY 17 $18^h32^m25^s.6$ 38°.66S 179°.56E 33 km M = 4.9
± 2.9 0.10 0.16 R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP*	18	32	59		−0.1	100	1.89	265	5.0
	iSn		33	16		−0.9	99			
NPZ	iSn	18	34	16		1.1	99	4.30	263	4.9
WEL	eP*	18	33	44		0.2	100	4.53	233	4.9
	iSn		34	20		−0.2	100			

AMPLITUDES: TUA 8.5 NPZ 2.0 WEL 1.5

PRO: 47/100

47/ 100

MAY 17 $21^h26^m38^s.6$ 38°.71S 178°.77E 12 km M ~ 4.4
± 2.8 0.13 0.15 R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	Pn	21	27	02		0.6	100	1.27	265	4.4
	iS*			18		−0.3	100			
NPZ	e	21	30	00				3.68	263	
WEL	eP*	21	27	47		−1.1	99	4.00	229	4.3s
	Sn		28	25		0.8	100			

AMPLITUDES: TUA 5.0 WEL 0.5

PRO: 47/101

FELT: Tolaga Bay (37), MM IV.

47/ 101

MAY 17 $21^h35^m12^s.7$ 38°.76S 178°.59E 12 km M = 4.6
± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP*	21	35	33		0.0	100	1.13	267	4.5
	iS*			48		0.0	100			
WEL	iSn	21	36	55		0.0	100	3.87	228	4.6

AMPLITUDES: TUA 7.0 WEL 1.0

PRO: 47/102

FELT: Tolaga Bay (37), MM IV.

47/ 102

MAY 18 $08^h15^m10^s.2$ 38°.50S 178°.50E 12 km M ~ 3.8
± R R R R S.E. of RES. 1.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP*	08	15	29		−1.1	100	1.10	253	3.8
	iS*			46		1.1	100			

AMPLITUDES: TUA 1.5

PRO: 47/103

FELT: Tolaga Bay (37), MM IV.

47/ 103

MAY 19 $12^h12^m26^s.8$ 39°.05S 178°.29E 12 km M ~ 3.9
± 2.4 0.06 0.14 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP*	12	12	44		0.3	100	0.93	285	3.9
	iS*			56		−0.1	100			
WEL	ePg	12	13	37		−0.7	99	3.51	229	4.2s
	iSn		14	01		0.6	100			

AMPLITUDES: TUA 3.0 WEL 0.5

PRO: 47/104

FELT: Tolaga Bay (37), MM IV.

47/ 104

MAY 21 $19^h02^m06^s.8$ 42°.65S 172°.65E 12 km M = 4.5

± 0.5 0.04 0.04 R S.E. of RES. 1.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	iP*	19	02	22		−1.8	99	0.93	277	4.4
	S*			37		0.8	100			
WAI	iP*	19	02	25		−0.3	100	1.02	214	4.4
	iS*			40		1.0	100			
WEL	ePn	19	02	40		−0.7	100	2.09	50	4.5
	iSn		03	07		0.7	100			
NPZ	iP*	19	03	08		−3.8		3.74	17	4.8
	iSn			47		1.0	100			
TUA	eP*	19	03	35		−0.6	100	5.14	43	4.4s
	i			42						
	iSn		04	23		3.4				
	i			35						

AMPLITUDES: KAI 6.3 WAI 8.0 WEL 3.0
NPZ 2.0 TUA 0.3

PRO: 47/105

FELT: North Canterbury and Westland.

47/ 105

MAY 22 $15^h01^m06^s.1$ 38°.61S 178°.23E 33 km M = 4.6

± 1.3 0.04 0.08 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iPn	15	01	21		−0.5	100	0.87	257	4.4
	iS*			35		0.4	100			
AUC	iSn	15	02	30		−0.1	100	3.25	301	
WEL	ePn	15	02	02		0.9	99	3.77	224	4.7
	iSn			42		−0.7	100			

AMPLITUDES: TUA 9.0 WEL 1.5

PRO: 47/106

FELT: Tolaga Bay (37), MM IV.

47/ 106

MAY 22 $15^h02^m24^s.8$ 38°.66S 178°.41E 33 km M = 4.6

± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	Pn	15	02	42		0.0	100	1.00	261	4.5
	iS*			57		0.0	100			
WEL	iSn	15	04	03		0.0	100	3.83	226	4.7

AMPLITUDES: TUA 8.5 WEL 1.5

PRO: 47/107

FELT: Tolaga Bay (37), MM III.

47/ 107

MAY 22 $15^h04^m33^s.7$ 38°.56S 178°.30E 33 km M = 4.5

± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	ePn	15	04	50		0.0	100	0.93	254	4.3
	iS*		05	04		0.0	100			
WEL	iSn	15	06	12		0.0	100	3.84	224	4.6

AMPLITUDES: TUA 6.0 WEL 1.0

PRO: 47/108

47/ 108

MAY 22 $15^h24^m51^s.6$ 39°.08S 178°.21E 33 km M ~ 4.0

± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	ePn	15	25	07		0.0	100	0.86	288	4.0
	iS*			20		0.0	100			
WEL	iSn	15	26	20		0.0	100	3.43	229	4.2s

AMPLITUDES: TUA 3.5 WEL 0.5

PRO: 47/109

FELT: Tolaga Bay (37), MM III.

47/ 109

MAY 22 $15^h51^m35^s.4$ 39°.00S 178°.20E 33 km M ~ 3.7

± R R R R S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	ePn	15	51	51		0.6	100	0.84	283	3.7
	eSn		52	01		−0.6	100			

AMPLITUDES: TUA 2.0

PRO: 47/110

FELT: Tolaga Bay (37), MM III.

47/ 110

MAY 22 $17^h24^m59^s.4$ 38°.75S 178°.68E 12 km M = 4.7

± 1.4 0.07 0.09 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP*	17	25	22		1.0	99	1.20	267	4.8
	iS*			37		0.1	100			
NPZ	iPn	17	25	54		−0.1	100	3.61	264	4.5
	iP*		26	01		−1.1	99			
	Sn			42		6.5				
AUC	eS*	17	26	55		5.4		3.62	300	
WEL	iP*	17	26	08		0.4	100	3.92	229	4.8
	iSn			43		−0.2	100			

AMPLITUDES: TUA 14 NPZ 1.0 WEL 1.5

PRO: 47/111

FELT: Tolaga Bay (37) and Gisborne (45), MM V.

47/ 111

MAY 24 $09^h33^m20^s.4$ 38°.29S 177°.99E 12 km M ~ 3.9
± 2.5 0.12 0.09 R S.E. of RES. 1.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	S*-P*			11		−0.3	100	0.84	232	3.9
	eP*		33	26		−9.8				
	S*			37		−10.1				
NPZ	eSg	09	35	07		0.0	100	3.17	255	3.8s
WEL	ePg	09	34	38		−0.9	99	3.89	219	4.0s
	eSn		35	04		0.9	100			

AMPLITUDES: TUA 3.0 NPZ 0.3 WEL 0.3

Clock correction at TUA uncertain.

PRO: 47/115

FELT: Tolaga Bay (37), MM IV. Unconfirmed.

47/ 112

MAY 27 $09^h54^m54^s.9$ 39°.48S 177°.93E 12 km M = 4.1
± 2.2 0.05 0.13 R S.E. of RES. 1.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP*	09	55	11		−0.5	100	0.91	318	3.8
	iS*			23		−0.7	100			
	iSg			28		2.4				
WEL	iS*	09	56	26		−0.9	100	3.01	232	4.3
NPZ	iPn	09	55	43		1.4	99	3.02	277	4.0s
	iS*		56	28		0.8	100			
AUC	eSn	09	56	23		−8.0		3.61	315	
	eSg		57	25		28.5				

AMPLITUDES: TUA 2.5 WEL 1.0 NPZ 0.5

Times at AUC decreased by 60 sec.

PRO: 47/117

47/ 113

MAY 29 $06^h25^m32^s.6$ 37°.60S 177°.78E 12 km M = 4.8
± 1.8 0.07 0.08 R S.E. of RES. 1.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	ePg	06	26	00		0.9	100	1.30	202	4.8
	Sg			17		0.2	100			
NPZ	iPg	06	26	38		−0.5	100	3.26	242	4.1s
	iSg		27	23		0.6	100			
WEL	ePn	06	26	38		0.4	100	4.36	211	4.8
	iSn		27	25		−1.7	99			

AMPLITUDES: TUA 11 NPZ 0.5 WEL 1.5

PRO: 47/118

FELT: East Cape district. Maximum reported intensity MM IV.

47/ 114

MAY 29 $19^h05^m15^s.9$ 37°.60S 177°.80E 12 km M ~ 4.2
± R R R R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	ePn	19	05	40		0.7	100	1.31	203	4.2
	iSn			56		−0.7	100			

AMPLITUDES: TUA 2.5

PRO: 47/119

FELT: Tolaga Bay (37), MM IV.

47/ 115

MAY 31 $15^h36^m38^s.0$ 41°.17S 172°.20E 12 km M ~ 3.7

± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	iSn	15	37	23		0.0	100	1.48	203	~3.7s
WEL	iPn	15	37	10		0.0	100	1.94	94	~3.7s
	iSn			34		0.0	100			

AMPLITUDES: KAI 0.5 WEL 0.5

PRO: 47/120

FELT: Kahurangi Point (72), MM III.

47/ 116

MAY 31 $18^h31^m13^s.7$ 41°.41S 174°.20E 12 km M ~ 4.1

± 2.4 0.09 0.11 R S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iP*	18	31	22		−0.5	100	0.44	75	4.1
	iS*			29		0.3	100			
NPZ	eSn	18	32	20		0.7	99	2.34	358	3.8s
	iSg			32		−0.5	100			

AMPLITUDES: WEL 25 NPZ 0.5

PRO: 47/121

FELT: Both sides of Cook Strait, MM IV.

47/ 117

JUN 06 $17^h32^m08^s.5$ 39°.15S 175°.94E 12 km M ~ 4.0

± 0.5 0.04 0.03 R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP*	17	32	26		−0.8	100	1.00	71	4.0
	iS*			41		0.8	100			
NPZ	S*	17	32	54		0.2	100	1.46	273	3.6s
WEL	iPn	17	32	45		−0.6	100	2.31	202	3.9s
	eS*		33	20		0.4	100			

AMPLITUDES: TUA 2.0 NPZ 0.5 WEL 0.5

No provisional solution.

47/ 118

JUN 16 $10^h55^m40^s.1$ 38°.41S 178°.74E 33 km M = 5.4

± 2.0 0.06 0.15 R S.E. of RES. 1.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
ARA	iP*	10	56	24		0.7	100	2.46	277	
BUN	Sn-Pn			34		−0.1	100	3.05	231	
AUC	ePn	10	56	30		−1.5	100	3.50	295	
	iSn		57	10		−0.2	100			
NPZ	iPn	10	56	37		2.8	98	3.71	258	5.3
	Sn		57	22		6.9				
WEL	ePn	10	56	40		−0.8	100	4.19	226	5.4
	iSn		57	28		1.2	100			
KAI	eP*	10	57	39		−0.4	100	6.93	231	5.4

	i		54						
	i		58 21						
	iSn		31		−1.7	100			

AMPLITUDES: NPZ 6.0 WEL 5.5 KAI 1.0

PRO: 47/124

FELT: Opotiki (35) to Wairoa (53). Maximum intensities reported, MM VII at Tolaga Bay (37), and MM V at Gisborne (45). For isoseismal map, see Hayes, 1948. Listed in ISS, with readings from 9 additional stations.

47/ 119

JUN 16 $11^h00^m22^s.6$ 38°.40S 178°.70E 33 km M ~ 4.3
± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iSn	11	02	09		0.0	100	4.18	225	~4.3s

AMPLITUDES: WEL 0.5

PRO: 47/125

FELT: Tolaga Bay (37), MM IV.

47/ 120

JUN 16 $11^h21^m18^s.4$ 38°.40S 178°.70E 33 km M ~ 4.1
± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	ePn	11	22	19		0.0	100	4.18	225	~4.1s

AMPLITUDES: WEL 0.3

PRO: 47/126

FELT: Tolaga Bay (37), MM III.

47/ 121

JUN 27 $14^h43^m09^s.6$ 40°.70S 173°.00E 12 km M ~ 3.3
± R R R R S.E. of RES. 0.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	eSn	14	43	54		−0.1	100	1.46	114	~3.2s
NPZ	eSn	14	44	03		0.1	100	1.83	27	~3.3s

AMPLITUDES: WEL 0.3 NPZ 0.3

PRO: 47/129

FELT: Takaka (72), MM III.

47/ 122

JUN 30 $16^h14^m58^s.0$ 38°.90S 179°.00E 33 km M ~ 4.6
± R R R R S.E. of RES. 0.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	ePn	16	15	21		−0.3	100	1.45	273	4.6
	iSn			39		0.3	100			

AMPLITUDES: TUA 5.0

PRO: 47/130

FELT: Tolaga Bay (37), MM III.

47/ 123

JUL 05 $11^h46^m60^s.0$ 39°.32S 178°.32E 12 km M ~ 4.1
± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP*	11	47	19		0.0	100	1.04	299	4.1
	iS*			33		0.0	100			
NPZ	ePg	11	48	16		9.1		3.31	273	
WEL	eS*	11	48	42		0.0	100	3.35	233	4.1s

AMPLITUDES: TUA 3.0 WEL 0.5

PRO: 47/131

FELT: Tolaga Bay (37), MM IV.

47/ 124

JUL 07 $04^h18^m47^s.7$ 33°.61S 179°.25E 33 km M = 5.3
± 4.2 0.19 0.22 R S.E. of RES. 2.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
AUC	Pn	04	19	58		0.1	100	4.89	227	
	S*		21	16		0.2	100			
TUA	Sn	04	21	06		1.3	100	5.45	198	5.3
NPZ	Sn	04	21	27		−11.5		6.86	216	4.7s
WEL	Sn	04	22	15		−1.6	99	8.44	204	5.3

AMPLITUDES: TUA 1.0 NPZ 0.3 WEL 0.6

PRO: 47/132

Listed in ISS additional readings. No further data given.

47/ 125

JUL 09 $18^h11^m06^s.8$ 40°.82S 172°.94E 12 km M = 3.9
± 0.1 0.01 0.01 R S.E. of RES. 0.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	18	11	33		0.2	100	1.46	109	3.7
	iS*			52		−0.1	100			
NPZ	S*	18	12	07		−0.0	100	1.95	27	4.1
KAI	S*	18	12	10		−0.0	100	2.05	213	3.8s

AMPLITUDES: WEL 1.0 NPZ 1.5 KAI 0.3

PRO: 47/133

FELT: Kahurangi Point (72) and Takaka (73), MM III.

47/ 126

JUL 11 $05^h08^m59^s.6$ 39°.65S 174°.40E 210 km M = 5.6
± 1.9 0.09 0.13 14 S.E. of RES. 1.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	iP	05	09	30		1.5	100	0.64	336	4.2*
	iS			50		−0.9	100			
WEL	iP	05	09	37		1.2	100	1.66	170	5.5
	iS		10	04		0.2	100			
TUA	eP	05	09	43		0.7	100	2.29	69	5.6
	iS		10	14		−1.2	100			
KAI	S	05	10	38		−5.3		3.65	217	5.1*
WAI	P	05	10	04		−1.9	99	4.28	206	5.7*
	iS			50		−7.2				

AMPLITUDES: NPZ 5.0 WEL 25 TUA 10

KAI 7.0 WAI 8.0

PRO: 47/134

FELT: Western parts of Wellington province. Maximum reported intensity MM IV, at Bunnythorpe (62).

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JUL 11 $20^h05^m00^s.2$ 41°.08S 173°.36E 159 km M ~ 4.1
± 0.9 0.02 0.04 7 S.E. of RES. 0.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iP	20	05	27		0.3	99	1.08	101	4.1
	iS			47		−0.1	100			
KAI	S	20	06	05		0.1	100	2.05	225	3.7s
NPZ	eP	20	05	37		−0.2	100	2.09	15	4.1*
	eS		06	06		0.2	100			
WAI	e	20	05	04				2.65	204	4.1s
	eP			50		5.8				

AMPLITUDES: WEL 2.0 KAI 0.5 NPZ 2.5
WAI 0.5

PRO: 47/136

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JUL 13 $19^h58^m29^s.7$ 43°.28S 171°.28E 12 km M = 3.3
± 0.5 0.02 0.04 R S.E. of RES. 0.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WAI	iP*	19	58	39		−0.2	100	0.49	117	3.2
	S*			46		0.1	100			
KAI	eP*	19	58	44		0.2	100	0.76	7	3.4
	iS*			54		−0.1	100			

AMPLITUDES: WAI 2.0 KAI 1.0

PRO: 47/137

FELT: Lake Coleridge (100), MM III.

47/ 129

JUL 19 $08^h41^m31^s.5$ 39°.30S 177°.63E 12 km M = 4.6
± 0.5 0.01 0.04 R S.E. of RES. 0.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP*	08	41	43		−0.2	100	0.62	323	4.5
	iS*			52		0.3	100			
NPZ	iPn	08	42	15		0.2	100	2.77	274	4.4
	iSn			47		−0.4	99			
WEL	iPn	08	42	17		−0.2	100	2.95	227	5.0
	iSn			52		0.3	100			
KAI	eSn	08	43	58		0.1	100	5.71	234	4.7s
WAI	eSn	08	44	04		−1.6		6.02	224	4.5s

AMPLITUDES: TUA 25 NPZ 1.5 WEL 5.0
KAI 0.3 WAI 0.3

PRO: 47/139

FELT: Wairoa (53), MM IV, and Napier (52).

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JUL 23 $07^h31^m27^s.9$ 37°.89S 178°.83E 12 km M = 4.4
± 1.1 0.05 0.07 R S.E. of RES. 0.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iS*	07	32	18		0.3	100	1.60	235	4.3
NPZ	ePn	07	32	27		0.2	100	3.91	251	4.3
	eSn		33	11		−0.3	100			
WEL	iSn	07	33	28		−0.2	100	4.62	222	4.5

AMPLITUDES: TUA 2.0 NPZ 0.6 WEL 0.6

PRO: 47/140

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JUL 23 $16^h51^m04^s.7$ 40°.92S 176°.17E 12 km M ~ 3.8

± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	16	51	25		0.0	100	1.13	250	3.8
	iS*			40		0.0	100			
NPZ	iSn	16	52	13		0.0	100	2.46	318	3.8s

AMPLITUDES: WEL 2.0 NPZ 0.5

PRO: 47/141

FELT: Masterton (66) MM III.

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JUL 24 $11^h38^m53^s.0$ 39°.12S 176°.86E 12 km M = 4.2

± 0.6 0.05 0.07 R S.E. of RES. 1.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP*	11	39	00		−0.8	100	0.39	36	3.9
	iS*			07		0.7	100			
NPZ	Pn	11	39	29		0.9	100	2.17	271	4.6
	Sn			54		−0.5	100			
WEL	ePn	11	39	34		−1.2	99	2.69	216	4.2
	iSn		40	08		1.0	100			

AMPLITUDES: TUA 16 NPZ 3.5 WEL 1.0

PRO: 47/142

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JUL 30 $23^h37^m33^s.2$ 39°.81S 173°.53E 108 km M ~ 4.0

± ND ND ND ND S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	eP	23	37	53		−0.0	100	0.85	29	~3.8*
	iS		38	08		−0.0	100			
WEL	S	23	38	26		−0.0	100	1.75	148	3.4s
TUA	eS	23	38	55		−0.0	100	2.98	71	~4.1s

AMPLITUDES: NPZ 3.0 WEL 0.3 TUA 0.3

PRO: 47/143

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AUG 02 $13^h46^m35^s.1$ 38°.00S 178°.50E 12 km M ~ 5.0

± R R R R S.E. of RES. 0.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	Pn	13	47	30		−0.1	100	3.63	252	3.9s
WEL	iPn	13	47	40		−0.2	100	4.36	220	5.0
	iS*		48	48		0.4	99			

AMPLITUDES: NPZ 0.3 WEL 2.0

PRO: 47/144

FELT: Motu (36), MM IV. Interpretation very doubtful.

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AUG 02 $22^h12^m58^s.4$ 39°.19S 176°.38E 12 km M = 3.8

± 0.5 0.04 0.03 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP*	22	13	11		−0.7	99	0.71	58	3.8
	iS*			22		0.6	100			
NPZ	eS*	22	13	54		0.1	100	1.80	273	3.7
WEL	eS*	22	14	13		0.1	100	2.43	210	3.6s

AMPLITUDES: TUA 3.5 NPZ 0.7 WEL 0.3

PRO: 47/145

FELT: Motu (36), MM IV.

47/ 136

AUG 02 $22^h40^m04^s.3$ 39°.19S 176°.21E 12 km M = 4.5

± 0.3 0.02 0.02 R S.E. of RES. 0.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP*	22	40	19		−0.5	99	0.83	63	4.8
	iS*			31		0.3	100			
NPZ	iS*	22	40	56		0.1	100	1.66	274	4.3
WEL	iS*	22	41	17		0.1	100	2.37	207	4.3
AUC	i	22	42	24				2.58	334	
KAI	e	22	43	38				4.93	226	4.4s
WAI	e	22	43	38				5.40	216	4.3s

AMPLITUDES: TUA 25 NPZ 3.0 WEL 1.5
KAI 0.2 WAI 0.2

PRO: 47/146

FELT: Motu (36), MM IV.

NOTE: PRO: 47/147. This event is poorly recorded on two stations only. The provisional solution depends upon a felt report to resolve ambiguity. The report in question was incorrectly associated with this event, and in consequence no solution is possible.

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AUG 03 $01^h04^m41^s.4$ 41°.13S 173°.10E 132 km M ~ 4.5

± 0.9 0.03 0.05 10 S.E. of RES. 0.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG	
WEL	iP	01	05	08		0.6	100	1.27	98	4.5	
	iS			27		−0.2	100				
KAI	eP	01	05	17		2.6		1.88	222	4.4*	
	iS			40				0.6	100		
NPZ	P	01	05	18				−0.3	100	2.20 20	4.4*
	eS			46				−0.2	100		
WAI	P	01	05	23				0.2	100	2.54 201	4.5*
	iS			53				−1.1	99		
TUA	S	01	06	24				−1.9		3.88 55	

AMPLITUDES: WEL 5.0 KAI 3.0 NPZ 5.0
WAI 1.5

PRO: 47/148

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AUG 06 $19^h29^m34^s.7$ $39°.50S$ $174°.00E$ 12 km $M \sim 3.8$

± R R R R S.E. of RES. 0.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	eP*	19	29	44		0.7	99	0.44	8	3.8
	iS*			49		−0.4	100			
WEL	eSn	19	30	29		−0.2	100	1.88	162	3.4s

AMPLITUDES: NPZ 15 WEL 0.3

PRO: 47/149

FELT: Taumarunui (39), MM II.

47/ 139

AUG 07 $09^h32^m06^s.6$ $39°.79S$ $177°.66E$ 12 km $M = 4.9$

± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eS*	09	32	40		0.0	100	1.06	338	3.5A
WEL	iSn	09	33	20		0.0	100	2.66	235	4.9
NPZ	iSn	09	33	25		0.0	100	2.87	283	4.8

AMPLITUDES: TUA 0.8 WEL 4.5 NPZ 3.5

PRO: 47/150

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AUG 08 $05^h32^m52^s.5$ $46°.43S$ $166°.66E$ 12 km $M = 5.4$

± 3.1 0.69 0.82 R S.E. of RES. 2.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
MNW	S*-P*			11		−1.5	100	0.93	46	
KAI	ePn	05	34	08		−0.6	100	5.17	43	5.5
	eSn		35	13		6.8				
WEL	ePn	05	34	42		−2.3	99	7.79	52	5.2
	iSn		36	11		1.9	100			
NPZ	ePn	05	35	04		1.1	100	9.15	39	5.4
	eSn		36	50		8.1				

AMPLITUDES: KAI 2.5 WEL 1.0 NPZ 1.5

PRO: 47/151

FELT: Puysegur Point (146). Listed in ISS additional readings.

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AUG 08 $06^h50^m28^s.3$ $46°.50S$ $166°.50E$ 12 km $M \sim 4.6$

± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eSn	06	52	45		−0.0	100	5.30	43	~4.6s

AMPLITUDES: KAI 0.3

PRO: 47/152

FELT: Puysegur Point (146).

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AUG 08 $20^h18^m56^s.0$ $46°.50S$ $168°.37E$ 12 km $M = 5.4$

± 2.6 0.13 0.17 R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
MNW	S*-P*			12		0.0	100	0.89	324	
KAI	ePn	20	20	03		−0.2	100	4.53	30	5.5
WEL	ePn	20	20	29		−7.5		6.97	44	5.2
	eSn		21	54		1.4	99			
NPZ	ePn	20	20	58		0.1	100	8.52	31	5.6
TUA	Sn	20	23	05		−1.5	99	10.03	43	5.1s
AUC	e	20	20	00				10.75	29	

AMPLITUDES: KAI 3.5 WEL 1.5 NPZ 2.5
TUA 0.4

PRO: 47/153

FELT: Puysegur Point (146). Listed in ISS additional readings.

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AUG 09 $03^h46^m46^s.3$ 46°.50S 166°.50E 12 km M ~ 4.6
± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	Sn	03	49	03		−0.0	100	5.30	43	~4.6s

AMPLITUDES: KAI 0.3

PRO: 47/156

FELT: Puysegur Point (146).

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AUG 09 $05^h33^m17^s.4$ 45°.38S 166°.78E 12 km M = 5.6
± 4.4 0.23 0.25 R S.E. of RES. 2.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
MNW	S*-P*			09		−0.6	100	0.71	124	
KAI	iP*	05	34	31		−2.5	99	4.39	51	5.8
	iS*		35	30		−0.7	100			
WEL	ePn	05	35	01		1.0	100	7.12	58	5.5
	eSn		36	20		2.2	99			
NPZ	eP*	05	35	34		−6.3		8.31	43	5.6
TUA	eP*	05	36	21		9.8		10.12	53	
AUC	eSn	05	37	30		−7.3		10.43	38	

AMPLITUDES: KAI 7.0 WEL 2.5 NPZ 2.5

PRO: 47/157

FELT: Invercargill (149), MM IV, and Puysegur Point (146).

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AUG 09 $06^h23^m58^s.3$ 46°.50S 166°.50E 12 km M ~ 4.6
± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	Sn	06	26	15		−0.0	100	5.30	43	~4.6s

AMPLITUDES: KAI 0.3

PRO: 47/158

FELT: Puysegur Point (146).

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AUG 10 $11^h59^m51^s.0$ 40°.39S 175°.03E 12 km M = 4.4
± 0.9 0.04 0.10 R S.E. of RES. 1.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
BUN	e	12	00	56				0.47	78	
WEL	iP*	12	00	07		−0.8	100	0.92	192	4.1
	S*			19		−1.1	100			
NPZ	iSn	12	00	36		−0.7	100	1.51	331	4.3
TUA	iSn	12	00	56		0.9	100	2.28	47	4.9
WAI	eSg	12	02	04		1.7	99	3.90	216	4.1s

AMPLITUDES: WEL 6.0 NPZ 4.0 TUA 4.0
WAI 0.3

PRO: 47/159

FELT: Southern parts of the North Island. Maximum reported intensity MM IV.

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AUG 14 $13^h58^m19^s.1$ 46°.50S 166°.50E 12 km M ~ 3.9
± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WAI	eSn	14	00	25		0.0	100	4.85	54	~3.9s
	eS*			55		8.9				

AMPLITUDES: WAI 0.1

PRO: 47/161

FELT: Puysegur Point (146).

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AUG 14 $17^h39^m36^s.1$ 46°.50S 166°.50E 12 km M ~ 3.9
± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WAI	Sn	17	41	42		0.0	100	4.85	54	~3.9s

AMPLITUDES: WAI 0.1

PRO: 47/162

FELT: Puysegur Point (146).

47/ 149

AUG 14 $17^h51^m40^s.5$ 38°.84S 177°.28E 33 km M = 4.3
± 2.4 0.07 0.17 R S.E. of RES. 2.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	iPn	17	52	17		−1.3	100	2.51	264	4.3
	iS*			57		−0.5	100			
AUC	iP*	17	52	31		1.6	100	2.80	314	
WEL	eP*	17	52	34		−0.8	100	3.11	217	4.3
	iSn		53	07		5.7				
	iS*			18		2.5	99			
WAI	eSn	17	54	14		−1.2	100	6.19	220	4.5s

AMPLITUDES: NPZ 1.5 WEL 0.9 WAI 0.3

PRO: 47/163

FELT: Gisborne (45), MM III.

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AUG 15 $22^h34^m29^s.8$ 45°.41S 166°.70E 12 km M ~ 4.7
± 1.9 0.09 0.16 R S.E. of RES. 0.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WAI	eP*	22	35	42		−0.0	100	4.17	64	4.7
	iSn		36	19		−0.2	100			
KAI	eSn	22	36	26		−0.2	100	4.45	51	4.7s
WEL	ePg	22	37	03		8.1		7.18	58	4.1s
	eSn			32		0.3	99			

AMPLITUDES: WAI 1.0 KAI 0.5 WEL 0.1

PRO: 47/164

FELT: Puysegur Point (146).

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AUG 17 $06^h47^m59^s.4$ 40°.46S 174°.60E 12 km M = 4.6

± 0.3 0.02 0.03 R S.E. of RES. 0.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
BUN	eSg	06	48	30		3.2		0.81	78	
WEL	iPg	06	48	17		0.6	100	0.84	171	4.5
	iS*			26		−0.1	100			
NPZ	eSn	06	48	44		0.4	100	1.45	344	4.4
TUA	eSn	06	49	10		−0.5	100	2.57	51	4.1s
KAI	eS*	06	49	35		−0.8	99	3.16	228	4.8
WAI	eSn	06	49	37		0.4	100	3.65	213	4.3s

AMPLITUDES: WEL 17 NPZ 6.0 TUA 0.5
KAI 1.2 WAI 0.5

PRO: 47/165

FELT: Southern parts of the North Island. Maximum reported intensity, MM IV.

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AUG 17 $08^h36^m04^s.7$ 41°.29S 173°.88E 12 km M = 4.0

± 0.5 0.03 0.04 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iP*	08	36	18		0.7	100	0.67	90	3.4
	iS*			26		−0.4	100			
NPZ	eP*	08	36	43		−0.8	99	2.22	4	3.7s
	iSn		37	08		0.5	100			
WAI	Sn	08	37	18		−0.0	100	2.66	213	4.5

AMPLITUDES: WEL 2.5 NPZ 0.5 WAI 1.3

PRO: 47/166

FELT: Southern parts of the North Island. Maximum reported intensity, MM IV.

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AUG 18 $11^h46^m33^s.3$ 39°.41S 175°.87E 33 km M = 4.7

± 0.9 0.02 0.06 R S.E. of RES. 0.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	iPn	11	46	57		0.5	100	1.44	283	4.5
	iS*		47	18		−0.4	100			
WEL	eP*	11	47	09		−0.6	99	2.05	204	4.5
	iS*			37		0.3	100			
KAI	eSn	11	48	30		0.4	100	4.59	226	4.8
WAI	eSn	11	48	41		−0.1	100	5.07	215	4.9

AMPLITUDES: NPZ 5.0 WEL 3.0 KAI 0.6

WAI 1.0

PRO: 47/167

FELT: Dannevirke (63), MM III.

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AUG 22 $05^h42^m38^s.6$ 43°.20S 173°.37E 12 km M ~ 3.8

± 2.4 0.15 0.12 R S.E. of RES. 1.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WAI	eS*	05	43	14		−0.3	100	1.13	254	2.6s
KAI	ePg	05	43	13		2.1	99	1.59	294	~3.8s
	iSn			25		−1.3	100			
WEL	eP*	05	43	17		0.1	100	2.18	29	~3.8s
	Sn			40		−0.3	100			

AMPLITUDES: WAI 0.1 KAI 0.5 WEL 0.5

PRO: 47/170

FELT: Cheviot (96), MM IV.

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AUG 22 $13^h47^m02^s.7$ 38°.59S 177°.39E 12 km M = 5.0

± 3.8 0.14 0.20 R S.E. of RES. 2.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP*	13	47	08		−0.8	100	0.29	221	
	iSg			18		4.9				
BUN	e?	13	47	18				2.18	218	
	eSn		48	02		−2.3	99			
NPZ	iP*	13	47	48		−0.8	100	2.64	259	4.9
	iS*		48	24		0.7	100			
WEL	eP*	13	48	04		2.7	99	3.37	216	5.0
	S*			46		0.8	100			
KAI	eP*	13	48	54		7.5		6.02	227	5.0
	eSn		49	55		18.4				
WAI	eP*	13	49	32		38.3		6.43	219	5.1
	eSn		50	25		38.2				

AMPLITUDES: TUA 30 NPZ 5.0 WEL 3.5
KAI 0.6 WAI 1.0

PRO: 47/171

FELT: Eastern Bay of Plenty and northern Hawke's Bay. Maximum reported intensity, MM V at Opotiki (35), Motu (36), and Gisborne (45). Listed in ISS. No additional data.

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AUG 22 $23^h59^m12^s.7$ 38°.40S 177°.55E 12 km M = 4.8

± 3.8 0.15 0.26 R S.E. of RES. 2.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP*	23	59	20		−2.6	99	0.51	217	4.1A
	iS*			30		0.3	100			
NPZ	iPn	23	59	57		0.6	100	2.80	255	4.8
	iSn	24	00	29		−0.3	100			
WEL	P*	24	00	17		1.9	100	3.59	216	4.8
KAI	Sn	24	01	32		−19.9		6.24	227	5.0s

AMPLITUDES: TUA 15 NPZ 3.5 WEL 2.0
KAI 0.5

PRO: 47/172

FELT: Motu (36), MM VI, and Wairoa (53).

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AUG 23 $19^h10^m25^s.1$ 41°.52S 173°.48E 20 km M = 4.4

± 0.6 0.04 0.04 5 S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iPn	19	10	44		0.5	100	1.00	77	4.1
	eS*			57		0.2	100			
KAI	eP*	19	10	58		0.3	100	1.84	236	4.5
	iSn		11	17		−0.4	100			
NPZ	eP*	19	11	08		−0.8	100	2.49	11	4.5
	iSn			34		1.0	99			
TUA	e	19	12	03				3.91	47	4.6
	eSn			06		−1.0	99			

AMPLITUDES: WEL 5.0 KAI 2.0 NPZ 2.5
TUA 0.8

PRO: 47/173

FELT: Nelson (76), MM IV.

47/ 158

AUG 24 $20^h35^m06^s.5$ 38°.80S 178°.30E 12 km M ~ 3.8

± R R R R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP*	20	35	24		1.0	100	0.90	269	3.8
	eS*			34		−1.1	100			

AMPLITUDES: TUA 2.5

PRO: 47/174

FELT: Gisborne (45).

47/ 159

AUG 26 $03^h38^m25^s.0$ 38°.58S 177°.03E 12 km M = 4.8

± 3.7 0.17 0.13 R S.E. of RES. 2.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iPg	03	38	27		−3.4	99	0.24	157	
	iSg			37		2.9	99			
NPZ	eP*	03	39	07		0.6	100	2.36	257	4.8
	eSg			45		0.5	100			
WEL	eP*	03	39	22		1.0	100	3.21	212	4.8
	iS*		40	01		−1.9	100			

AMPLITUDES: TUA 35 NPZ 5.0 WEL 2.5

PRO: 47/176

FELT: Opotiki (35), MM V, and Whakatane (27).

47/ 160

AUG 26 $12^h12^m28^s.7$ 40°.20S 174°.51E 12 km M = 3.9

± 1.9 0.32 1.76 R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iP*	12	12	48		−0.6	100	1.11	170	3.9
	iS*		13	03		−0.3	100			
NPZ	iP*	12	12	50		0.0	100	1.18	343	3.9

		S*		13	05		−0.7	100	

AMPLITUDES: WEL 2.5 NPZ 2.5

PRO: 47/177

FELT: Wanganui (57), MM IV.

47/ 161

AUG 27 $13^h37^m47^s.9$ 39°.56S 179°.38E 12 km M = 6.2

± 1.8 0.08 0.13 R S.E. of RES. 2.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iPn	13	38	16		−3.1	99	1.88	293	5.8
	iSn			41		−1.6	100			
HNZ	Sn-Pn			25		1.1	100	1.93	266	
BUN	Sn-Pn			34		−0.7	100	2.97	255	
	ePn		38	38		4.0				
	Sn		39	12		3.3				
WEL	iPn	13	38	41		−5.9		3.91	242	6.3
	iSn		39	29		−2.4	99			
NPZ	iPn	13	38	51		1.0	100	4.14	275	6.4
	iSn		39	39		2.2	100			
AUC	i?	13	38	31				4.52	305	
	iPn			57		2.0	100			
KAI	Pn	13	39	28		3.0		6.71	241	6.2
	iSn		40	40		1.4	100			
WAI	ePn	13	39	28		0.8	100	6.87	233	6.5
	iSn		40	42		−0.4	100			

AMPLITUDES: TUA 50 WEL 50 NPZ 70
KAI 8.0 WAI 22

Clock correction at BUN uncertain.

PRO: 47/178

FELT: Throughout the North Island, except in the Northland Peninsula, and at scattered places in the South Island north of Banks Peninsula. Maximum reported intensity MM VI at Tolaga Bay (37). Listed in ISS, which gives an epicentre at 39.4S 178.9E, using data from 117 additional stations.

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AUG 27 $16^h20^m46^s.5$ 39°.24S 179°.62E 12 km M = 6.2

± 2.5 0.08 0.17 R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP*	16	21	21		−0.3	100	1.97	282	5.9
	iSn			43		−0.3	100			
WEL	ePn	16	21	51		1.1	100	4.24	240	6.3
	e		22	30						
	iSn			39		1.3	100			
KAI	ePn	16	22	36		8.0		7.04	240	6.4
	iSn		23	46		1.0	100			
WAI	ePn	16	22	30		−0.5	100	7.22	231	6.0
	Sn		23	47		−2.3	99			

AMPLITUDES: TUA 60 WEL 45 KAI 10
WAI 7.0

PRO: 47/179

FELT: Gisborne district and in Wellington. Maximum reported intensity MM IV at Tolaga Bay (37).

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AUG 27 $16^h35^m24^s.5$ 39°.02S 179°.91E 12 km M = 5.1
± 5.8 0.15 0.35 R S.E. of RES. 2.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP*	16	36	03		0.4	100	2.17	275	5.0
	iSn			24		−1.9	100			
NPZ	iSn	16	37	25		1.9	100	4.54	268	
WEL	eP*	16	36	43		−0.2	100	4.54	239	5.1
	iSn		37	21		−2.0	100			
NPZ								4.54	268	5.1
KAI	Sn	16	38	32		1.8	100	7.34	239	4.9S
WAI	e	16	37	48				7.53	231	4.5S
	e		38	22						

AMPLITUDES: TUA 6.0 WEL 2.5 NPZ 2.6
KAI 0.3 WAI 0.2

PRO: 47/180

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AUG 27 $16^h37^m52^s.0$ 39°.26S 179°.17E 12 km M = 4.8
± 1.5 0.05 0.10 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iPn	16	38	19		−0.8	99	1.64	285	4.6
	iSn			41		0.3	100			
WEL	ePn	16	38	52		0.9	99	3.92	238	5.0
	iSn		39	35		−0.7	100			
NPZ	ePn	16	38	55		3.3		3.97	271	4.8
	eSn		39	37		0.3	100			
KAI	Sn	16	40	43		0.1	100	6.72	239	4.6S

AMPLITUDES: TUA 4.0 WEL 2.6 NPZ 1.7
KAI 0.2

PRO: 47/181

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AUG 27 $16^h41^m17^s.5$ 39°.32S 179°.81E 12 km M = 5.1
± 4.4 0.12 0.27 R S.E. of RES. 1.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP*	16	41	55		−0.1	100	2.13	283	4.2A
	iSn		42	17		−1.2	100			
WEL	eP*	16	42	33		0.5	100	4.33	241	5.2
	iSn		43	10		−0.8	100			
NPZ	eP*	16	42	31		−3.9		4.46	271	5.0
	iSn		43	16		1.8	99			

AMPLITUDES: TUA 1.0 WEL 3.2 NPZ 2.4

PRO: 47/182

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AUG 27 $17^h32^m50^s.3$ 39°.41S 179°.47E 33 km M = 5.3
± 3.4 0.10 0.25 R S.E. of RES. 2.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iPn	17	33	19		−0.8	100	1.91	288	5.4

	iSn			41	−1.0	100				
WEL	iPn	17	33	48	−1.2	100	4.06	241		5.8
	iSn		34	35	1.3	100				
NPZ	iPn	17	33	54	2.7	99	4.20	273		4.8
KAI	iSn	17	35	42	1.1	100	6.85	240		5.4
WAI	ePn	17	34	38	8.3		7.02	232		5.2
	iSn		35	43	−2.0	100				

AMPLITUDES: TUA 20 WEL 14 NPZ 1.8
KAI 1.0 WAI 1.0

PRO: 47/184

FELT: Tolaga Bay (27), MM IV, and Wairoa (53). Listed in ISS additional readings.

47/ 167

AUG 27 $23^h46^m55^s.5$ 39°.20S 179°.78E 12 km M = 5.1
± 2.3 0.09 0.15 R S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP*	23	47	32		−0.2	100	2.08	280	4.9
	iSn			54		−0.9	100			
WEL	iPn	23	48	01		0.5	100	4.36	240	5.5
	iSn			49		−0.6	100			
NPZ	iP*	23	48	12		−0.3	100	4.44	270	5.0
	iSn			53		1.5	99			
KAI	eSn	23	49	54		−2.8		7.15	240	4.4s
WAI	iSn	23	50	08		6.9		7.33	232	4.8s

AMPLITUDES: TUA 5.0 WEL 7.0 NPZ 2.2
KAI 0.1 WAI 0.4

Time correction at KAI uncertain.

PRO: 47/185

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AUG 27 $23^h59^m58^s.3$ 39°.38S 179°.26E 33 km M = 5.4
± 1.0 0.03 0.07 R S.E. of RES. 0.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iPn	24	00	25		−0.5	100	1.74	289	5.2
	iSn			46		0.0	100			
WEL	iPn	24	00	55		−0.4	100	3.92	240	5.5
	iSn		01	41		2.5				
NPZ	iPn	24	00	58		1.0	98	4.04	273	5.4
	iSn		01	41		−0.3	100			
KAI	iSn	24	02	46		0.3	100	6.71	240	5.3
WAI	eSn	24	02	50		−0.2	100	6.90	231	4.9s

AMPLITUDES: TUA 17 WEL 8.0 NPZ 7.0
KAI 1.0 WAI 0.5

PRO: 47/186

FELT: Te Whaiti (42), MM II. Listed in ISS additional readings.

47/ 169

AUG 28 $00^h56^m17^s.2$ 39°.29S 179°.60E 33 km M = 4.6
± 1.6 0.05 0.10 R S.E. of RES. 0.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iPn	00	56	48		0.4	100	1.96	283	4.3

	iSn		57 10		−0.3	100			
WEL	Sn	00	58 04		−0.0	100	4.20	240	4.9
NPZ	eP*	00	57 31		−0.7	99	4.30	271	4.6
	eSn		58 07		0.6	100			

AMPLITUDES: TUA 1.5 WEL 2.0 NPZ 1.0

PRO: 47/187

FELT: Te Whaiti (42), MM II.

47/ 170

AUG 28 $03^h00^m39^s.6$ 39°.35S 179°.31E 33 km M = 5.2

± 1.6 0.04 0.11 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iPn	03	01	07		−0.3	100	1.76	287	4.2A
	iSn			28		0.0	100			
WEL	ePn	03	01	42		4.6		3.98	239	5.4
	iSn		02	20		−1.1	99			
NPZ	ePn	03	01	39		0.2	100	4.08	272	5.0
	iSn		02	24		0.4	100			
KAI	iSn	03	03	28		−0.3	100	6.78	240	5.3
WAI	Sn	03	03	34		1.2	99	6.96	231	5.2

AMPLITUDES: TUA 1.5 WEL 7.0 NPZ 3.0
KAI 1.0 WAI 1.0

PRO: 47/188

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AUG 28 $08^h12^m42^s.6$ 38°.53S 178°.79E 33 km M = 4.5

± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iPn	08	13	04		−0.0	100	1.31	257	4.5
	iSn			20		−0.0	100			
WEL	eP*	08	14	05		10.6		4.14	227	4.5
	iSn			28		0.0	100			

AMPLITUDES: TUA 5.0 WEL 0.7

PRO: 47/189

FELT: Tolaga Bay (37), MM III.

47/ 172

AUG 28 $15^h07^m01^s.0$ 39°.33S 179°.44E 33 km M = 6.0

± 1.9 0.06 0.13 R S.E. of RES. 1.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iPn	15	07	30		0.1	100	1.85	286	6.1
	iSn			51		−0.6	100			
WEL	iPn	15	07	59		−1.1	100	4.07	240	6.0
	iSn		08	46		1.2	100			
NPZ	Pn	15	08	03		1.4	99	4.18	272	6.1
	iSn			47		−0.4	100			
KAI	iPn	15	08	41		2.7		6.87	240	5.9
	iSn		09	53		1.0	100			
WAI	ePn	15	08	34		−6.8		7.05	231	5.7
	iSn		09	55		−1.4	99			

AMPLITUDES: TUA 100 WEL 27 NPZ 35
KAI 3.2 WAI 3.5

PRO: 47/190

FELT: Tolaga Bay (37), MM IV.

47/ 173

AUG 28 $17^h10^m24^s.7$ 39°.23S 175°.96E 12 km M = 4.1
± 0.4 0.04 0.03 R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP*	17	10	44		0.8	100	1.02	66	4.1
	iS*			56		−0.7	100			
NPZ	iPn	17	10	51		0.6	100	1.48	276	4.1
	Sn		11	09		−0.6	100			
WEL	i	17	11	16				2.25	204	4.0
	iSn			28		−0.2	100			

AMPLITUDES: TUA 2.5 NPZ 2.0 WEL 0.6

PRO: 47/191

FELT: Taupo (41).

47/ 174

AUG 28 $18^h17^m10^s.3$ 40°.08S 175°.67E 12 km M = 4.0
± 0.1 0.01 0.01 R S.E. of RES. 0.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iSn	18	17	53		0.0	100	1.39	209	4.0
NPZ	iSn	18	17	58		0.0	100	1.59	309	3.5
TUA	Pn	18	17	39		−0.2	100	1.71	43	4.5
	iSn		18	01		0.1	100			

AMPLITUDES: WEL 2.0 NPZ 0.6 TUA 3.0

PRO: 47/192

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AUG 29 $00^h25^m53^s.5$ 38°.83S 175°.83E 162 km M = 4.7
± 0.9 0.04 0.02 5 S.E. of RES. 0.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iS	00	26	40		−0.1	100	1.03	89	4.9
NPZ	eP	00	26	26		2.8		1.39	260	3.7*
	iS			46		0.1	100			
WEL	iP	00	26	37		0.2	100	2.58	198	4.4
	iS		27	10		0.1	100			
KAI	iS	00	28	05		−0.2	100	4.99	221	3.4s

AMPLITUDES: TUA 6.0 NPZ 1.5 WEL 1.3
KAI 0.1

PRO: 47/193

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AUG 30 $01^h59^m10^s.3$ 38°.46S 178°.62E 12 km M ~ 4.4
± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP*	01	59	32		0.0	100	1.20	253	4.4
	iS*			48		0.0	100			
WEL	e	02	00	40				4.09	225	4.1s
	iSn			58		0.0	100			

AMPLITUDES: TUA 5.0 WEL 0.3

PRO: 47/194

FELT: Tolaga Bay (37), MM III.

47/ 177

SEP 01 $08^h02^m32^s.7$ 39°.59S 179°.33E 12 km M = 5.1

± 1.5 0.04 0.10 R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iPn	08	03	04		0.3	100	1.87	294	5.1
	iSn			26		−0.9	99			
WEL	iPn	08	03	31		−0.0	100	3.87	243	5.1
	iSn		04	15		−0.1	100			
NPZ	eP*	08	03	41		−3.0		4.11	276	5.0
	iSn		04	22		1.1	99			
KAI	Sn	08	05	22		−0.3	100	6.67	241	4.6s

AMPLITUDES: TUA 10 WEL 3.5 NPZ 2.5
KAI 0.2

PRO: 47/195

FELT: Tolaga Bay (37), MM III.

47/ 178

SEP 03 $08^h19^m24^s.5$ 39°.51S 176°.12E 12 km M = 4.0

± 0.5 0.04 0.04 R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	ePg	08	19	47		0.8	100	1.07	49	3.9
	iSg		20	00		−0.6	100			
NPZ	Pg	08	19	57		−0.8	100	1.65	285	4.1
	iSn		20	14		0.6	100			
WEL	Sn	08	20	23		−0.1	100	2.05	210	3.7s

AMPLITUDES: TUA 2.0 NPZ 2.0 WEL 0.5

PRO: 47/196

FELT: Taupo (41).

47/ 179

SEP 03 $16^h41^m06^s.3$ 43°.53S 179°.18W 12 km M ~ 4.7

± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iSn	16	43	16		0.0	100	5.00	294	4.7
TUA	eSn	16	43	27		0.0	100	5.46	328	4.7s
NPZ	eSn	16	43	58		0.0	100	6.76	309	4.6s

AMPLITUDES: WEL 0.8 TUA 0.5 NPZ 0.4

PRO: 47/197

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SEP 04 $14^h05^m24^s.1$ 39°.66S 179°.46E 12 km M = 5.6

± 3.4 0.11 0.23 R S.E. of RES. 2.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iPn	14	05	56		−0.7	100	1.99	295	5.6
	iSn		06	19		−2.2	100			
HNZ	iSn-Pg			12		−4.9		1.99	269	
WEL	Pn	14	06	22		−1.2	100	3.93	244	5.8
	iSn		07	07		−0.9	100			
NPZ	iPn	14	06	30		2.8	99	4.22	276	5.8

	iSn		07	17	2.2	100			
KAI	ePn	14	07	10	8.7		6.72	242	5.2
	iSn		08	15	0.0	100			
RIV	iP	14	10	45	11.8		23.36	276	
	iS		15	01	19.1				
	e			15					

AMPLITUDES: TUA 30 WEL 15 NPZ 16
KAI 0.8

PRO: 47/198

FELT: Tolaga Bay (37), MM IV, and Wairoa (53). Listed in ISS, with readings from 10 additional stations. No epicentre is suggested.

47/ 181

SEP 08 $22^h00^m39^s.9$ $39°.38$S $179°.46$E 12 km M = 5.6
± 3.1 0.13 0.21 R S.E. of RES. 2.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iPn	22	01	11		−0.1	100	1.88	287	5.3
	iSn			33		−1.6	100			
WEL	iPn	22	01	39		−1.8	100	4.06	241	5.5
	iSn		02	27		0.2	100			
NPZ	iPn	22	01	45		2.3	99	4.19	273	5.9
	iSn		02	31		0.9	100			

AMPLITUDES: TUA 16 WEL 7.5 NPZ 20

PRO: 47/200

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SEP 10 $09^h30^m03^s.0$ $41°.00$S $175°.50$E 12 km M ~ 2.9
± R R R R S.E. of RES. 0.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	eP*	09	30	15		0.2	100	0.62	242	2.9
	iS*			23		−0.3	100			

AMPLITUDES: WEL 0.8

PRO: 47/201

FELT: Masterton (66).

47/ 183

SEP 11 $11^h12^m21^s.9$ $40°.20$S $175°.00$E 12 km M = 3.5
± R R R R S.E. of RES. 0.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	eS*	11	12	57		0.5	100	1.10	189	3.5
NPZ	iSn	11	13	03		−0.5	100	1.34	327	3.4

AMPLITUDES: WEL 1.0 NPZ 0.6

PRO: 47/202

FELT: Wanganui (57), MM IV.

47/ 184

SEP 14 $14^h34^m01^s.2$ $43°.20$S $171°.50$E 12 km M ~ 3.3
± R R R R S.E. of RES. 0.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eP*	14	34	14		0.1	100	0.67	354	3.3

	iS*			23		−0.1	100		

AMPLITUDES: KAI 1.0

PRO: 47/203

FELT: Lake Coleridge (100), MM IV.

47/ 185

SEP 15 $09^h14^m06^s.9$ 41°.15S 176°.27E 12 km M = 5.6

± 0.9 0.04 0.06 R S.E. of RES. 1.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
BUN	S*-P*			14		0.7	100	0.99	330	
WEL	iPn	09	14	29		1.0	100	1.14	263	5.3
	iS*			42		−0.7	100			
HNZ	Sn-Pn			20		0.1	100	1.55	18	
TUA	iPn	09	14	47		1.4	99	2.44	16	5.6
	iSn		15	14		−0.8	100			
NPZ	iP*	09	14	52		−1.8	99	2.68	320	5.9
	iS*		15	30		1.2	100			
KAI	ePn	09	15	10		4.6		3.88	248	5.6
	iSn			50		0.4	100			
AUC	iPn	09	15	07		−6.0		4.44	344	
	iSn		16	00		−2.9				
RIV	iP	09	18	59		4.8		21.18	282	
	iS		22	52		7.3				

AMPLITUDES: WEL 70 TUA 18 NPZ 55
KAI 6.0

Error in clock correction at AUC suspected.

PRO: 47/204

FELT: Between the central North Island and Banks Peninsula. Maximum reported intensity MM V at Dannevirke (63), Eketahuna and Masterton (66), and Foxton (61). Listed in ISS, which adopts the NZ provisional epicentre, and gives data from 15 additional stations.

47/ 186

SEP 16 $14^h47^m07^s.5$ 40°.98S 172°.34E 12 km M ~ 3.9

± 0.3 0.01 0.02 R S.E. of RES. 0.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	S*	14	48	00		0.1	100	1.69	204	3.8s
WEL	iP*	14	47	40		−0.3	99	1.86	100	3.9
	iS*		48	05		0.2	100			
NPZ	iS*	14	48	19		0.1	100	2.33	35	3.8s

AMPLITUDES: KAI 0.5 WEL 1.0 NPZ 0.5

PRO: 47/205

47/ 187

SEP 20 $13^h12^m53^s.1$ 40°.44S 173°.02E 12 km M = 4.4

± 0.3 0.01 0.03 R S.E. of RES. 0.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TAK	eP*	13	13	00		−1.9		0.45	201	
WEL	iPn	13	13	20		−0.1	100	1.57	123	4.4
	iS*			42		0.0	100			
NPZ	iP*	13	13	22		0.6	99	1.59	31	4.4
	iS*			42		−0.4	100			

KAI	iS*	13	14	07	−0.1	100	2.41 210	4.2s

AMPLITUDES: WEL 4.0 NPZ 5.0 KAI 0.5

Time correction at TAK uncertain.

PRO: 47/206

47/ 188

SEP 22 $10^h43^m31^s.9$ 40°.11S 174°.48E 12 km M = 4.7
± 1.0 0.03 0.12 R S.E. of RES. 1.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	eP*	10	43	46		−5.7		1.09	343	3.4A
	iSg		44	08		−0.8	100			
WEL	ePg	10	43	57		0.8	100	1.20	170	4.4
	iS*		44	08		−1.4	100			
KAI	ePn	10	44	25		1.9	99	3.35	223	4.4s
	Sn		45	01		−0.7	100			
CHR	ePn	10	44	29		1.2	100	3.69	201	5.0
	iSn		45	09		−1.0	100			

AMPLITUDES: NPZ 0.9 WEL 7.5 KAI 0.5
CHR 2.5

PRO: 47/208

FELT: Wanganui (57), MM IV, Dannevirke (63), and Wellington (68).

47/ 189

SEP 23 $14^h53^m22^s.1$ 43°.20S 171°.50E 12 km M ~ 3.0
± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	eS*	14	53	44		0.0	100	0.67	354	~3.0s

AMPLITUDES: KAI 0.5

PRO: 47/209

FELT: Lake Coleridge (100), MM II.

47/ 190

SEP 23 $17^h54^m30^s.0$ 39°.50S 177°.50E 12 km M ~ 4.1
± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	eS	17	55	42		−2.1	100	2.69	278	3.9s
WEL	eS	17	55	46		0.7	100	2.74	229	4.1

AMPLITUDES: NPZ 0.5 WEL 0.7

PRO: 47/210

FELT: Wairoa (53), MM III.

47/ 191

SEP 30 $02^h56^m03^s.8$ 40°.22S 174°.43E 12 km M = 4.3
± 0.3 0.01 0.03 R S.E. of RES. 0.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iP*	02	56	24		0.3	99	1.09	167	4.2
	iS*			38		−0.3	100			
NPZ	e	02	56	18				1.19	346	4.4
	iS*			41		−0.1	100			
TUA	eSn	02	57	14		0.0	100	2.53	57	4.2

AMPLITUDES: WEL 6.0 NPZ 8.0 TUA 0.6

PRO: 47/211

FELT: Paraparaumu Beach (62), MM III.

47/ 192

SEP 30 $05^h38^m19^s.8$ $43°.20S$ $171°.50E$ 12 km M ~ 2.9

± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	eS*	05	38	48		0.0	100	0.88	112	~2.9s
	e		39	15						

AMPLITUDES: CHR 0.3

PRO: 47/212

FELT: Lake Coleridge (100), MM III.

47/ 193

OCT 01 $13^h29^m25^s.1$ $41°.59S$ $174°.67E$ 33 km M ~ 4.3

± 0.4 0.02 0.05 R S.E. of RES. 0.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iP*	13	29	33		0.1	100	0.31	14	3.2A
	iS*			39		0.4	100			
CHR	eP*	13	30	08		−0.3	100	2.46	217	~4.0s
	iSn			30		−0.1	100			
NPZ	e	13	30	19				2.56	350	4.5
	eSn			32		−0.6	99			
KAI	eSn	13	30	34		0.5	100	2.60	248	4.4

AMPLITUDES: WEL 7.0 CHR 0.5 NPZ 2.2
KAI 0.7

PRO: 47/213

FELT: Paraparaumu Beach (65), MM II.

47/ 194

OCT 03 $17^h59^m11^s.4$ $39°.26S$ $179°.80W$ 12 km M = 5.3

± 5.3 0.17 0.36 R S.E. of RES. 2.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iPn	17	59	49		−0.9	100	2.41	280	5.3
	iSn	18	00	16		−2.8	99			
WEL	iPn	18	00	20		0.0	100	4.62	242	4.4s
	iSn		01	13		1.2	100			
AUC	iPg	18	00	55		4.5		4.90	298	
	iSn		01	21		2.5	99			
KAI	e	18	02	06				7.42	241	5.3

AMPLITUDES: TUA 10 WEL 0.5 KAI 0.8

PRO: 47/214

47/ 195

OCT 09 $01^h09^m47^s.9$ $38°.54S$ $178°.67E$ 12 km M = 4.3

± 3.3 0.15 0.13 R S.E. of RES. 1.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP*	01	10	10		0.1	100	1.22	257	4.2
	iS*			25		−1.1	99			
NPZ	iSg	01	11	51		0.8	100	3.63	260	
WEL	eSn	01	11	35		0.1	100	4.06	226	4.4

AMPLITUDES: TUA 3.0 WEL 0.6

PRO: 47/215

FELT: Tolaga Bay (37), MM IV.

47/ 196

OCT 09 $23^h19^m34^s.3$ 40°.64S 173°.57E 113 km M = 5.0

± 0.9 0.04 0.07 11 S.E. of RES. 1.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iP	23	19	59		1.9	98	1.12	126	4.9
	iS		20	14		−0.4	100			
NPZ	ePP	23	20	07		3.9		1.62	14	4.7*
	iS			25		0.2	100			
KAI	P	23	20	18		3.6		2.49	220	
	S			44		−0.6	100			
CHR	P	23	20	21		0.0	100	2.98	193	4.5*
	S			56		−0.3	100			
TUA	ePP	23	20	26		0.5	100	3.31	58	5.0
	iS		21	03		−1.3	99			

AMPLITUDES: WEL 20 NPZ 14 CHR 3.5
TUA 2.0

PRO: 47/216

FELT: Wellington (68), MM III.

47/ 197

OCT 10 $04^h15^m20^s.3$ 38°.86S 178°.74E 12 km M ~ 4.3

± 3.0 0.09 0.16 R S.E. of RES. 1.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP*	04	15	43		0.3	100	1.24	272	4.3
	iS*			59		−0.2	100			
WEL	iSn	04	17	10		6.8		3.89	230	4.3s
CHR	Pg	04	17	32		−0.8	99	6.56	223	4.8s
	Sn		18	08		0.7	100			

AMPLITUDES: TUA 3.5 WEL 0.5 CHR 0.5

PRO: 47/217

47/ 198

OCT 12 $10^h11^m41^s.9$ 37°.00S 177°.50E 33 km M ~ 5.1

± R R R R S.E. of RES. 0.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	P*	10	12	14		−0.4	100	1.83	189	5.1
	S*			39		0.4	100			

AMPLITUDES: TUA 10

PRO: 47/218

FELT: Maraenui (28), MM IV.

47/ 199

OCT 13 $07^h31^m16^s.7$ 44°.42S 168°.48E 12 km M = 6.2

± 1.4 0.08 0.14 R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
MNW	Sn-Pn			19		−0.4	100	1.49	204	
DND	Sn-Pn			24		−1.3	100	2.06	136	
KAI	Pn	07	32	02		0.9	100	2.84	49	

CHR	Pn	07	32	06	1.2	100	3.12	75		
TAK	Sn-Pn			46	−7.5		4.78	43		
WEL	ePn	07	32	38	−0.3	100	5.58	58		6.1
	eSn		33	33	−7.1					
BUN	Sn-Pn		1	15	1.4	100	6.71	55		
	ePn		33	10	16.2					
	eSn		34	25	17.7					
NPZ	ePn	07	32	58	3.2		6.79	40		6.6
	eSn		34	10	0.9	100				
TUA	Sn-Pn		1	31	−1.9	99	8.58	52		5.9
	Pn		33	25	5.8					
	Sn		34	56	3.9					
AUC	Pn	07	33	22	−2.1	99	8.94	35		
	Sn		35	00	−0.7	100				

AMPLITUDES: WEL 15 NPZ 40 TUA 3.2

Clock corrections at BUN and TUA uncertain.

PRO: 47/219

FELT: Throughout the South Island. Intensity exceeded MM VII in southern Westland. At Jackson's Bay (113) heavy furniture was moved, all brick chimneys fell, landslides occurred, the water-supply was disrupted, and cracks appeared in the road. For isoseismal map, see Hayes, 1948. Listed in ISS, which adopts NZ provisional epicentre, and lists data from 20 additional stations.

47/ 200

OCT 13 $08^h18^m11^s.0$ 44°.40S 168°.50E 33 km M ~ 4.4

± R R R R S.E. of RES. 2.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	Pn	08	18	55		1.9	100	2.83	50	4.4
	Sn		19	23		−1.9	100			

AMPLITUDES: KAI 0.6

PRO: 47/221

FELT: Jackson's Bay (113).

47/ 201

OCT 13 $08^h39^m10^s.4$ 44°.09S 168°.37E 12 km M ~ 4.9

± 0.1 0.01 0.01 R S.E. of RES. 0.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	Pn	08	39	53		0.0	100	2.72	56	4.9
	Sn		40	25		−0.0	100			
CHR	P*	08	40	05		−0.0	100	3.13	81	4.2s
	S*			46		0.0	100			

AMPLITUDES: KAI 2.3 CHR 0.5

PRO: 47/222

FELT: Jackson's Bay (113).

47/ 202

OCT 13 $08^h47^m24^s.4$ 43°.88S 168°.08E 12 km M ~ 4.6

± 3.4 0.23 0.19 R S.E. of RES. 1.8

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	Pn	08	48	09		1.1	100	2.78	62	4.6

	Sn		40	−0.6	100			
CHR	P*	08	48 21	−1.1	100	3.31	86	4.2s
	S*		49 06	0.6	100			

AMPLITUDES: KAI 1.0 CHR 0.5

PRO: 47/223

FELT: Jackson's Bay (113)

47/ 203

OCT 13 $08^h53^m55^s.8$ 44°.40S 168°.50E 12 km M ~ 4.8

± R R R R S.E. of RES. 1.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	Pn	08	54	41		1.1	100	2.83	50	4.8
	Sn		55	12		−1.1	100			

AMPLITUDES: KAI 1.5

PRO: 47/225

FELT: Jackson's Bay (113).

47/ 204

OCT 13 $09^h21^m26^s.1$ 43°.43S 168°.60E 12 km M = 4.4

± 1.4 0.09 0.09 R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	Pn	09	22	03		0.6	100	2.25	67	4.4
	S*			35		−0.3	100			
CHR	Pn	09	22	11		−0.6	100	2.93	93	4.4
	S*			56		0.3	100			

AMPLITUDES: KAI 1.0 CHR 1.0

PRO: 47/226

FELT: Jackson's Bay (113).

47/ 205

OCT 13 $16^h11^m30^s.3$ 43°.34S 171°.43E 12 km M ~ 3.4

± 2.0 0.09 0.14 R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	P*	16	11	46		0.6	100	0.82	359	3.4
	S*			56		−0.4	100			
CHR	P*	16	11	46		−0.6	100	0.89	103	2.9s
	S*			59		0.4	100			

AMPLITUDES: KAI 0.7 CHR 0.3

PRO: 47/231

FELT: Lake Coleridge (100), MM III.

47/ 206

OCT 16 $09^h02^m07^s.7$ 40°.00S 174°.80E 12 km M ~ 3.2

± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	iS*	09	02	42		0.0	100	1.09	329	3.2

AMPLITUDES: NPZ 0.6

PRO: 47/237

FELT: Wanganui (57), MM IV.

47/ 207

OCT 16 $11^h07^m39^s.1$ 40°.50S 174°.50E 12 km M = 4.4
± R R R R S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iP*	11	07	55		0.8	100	0.81	166	4.7
	iS*		08	04		−1.1	100			
NPZ	ePg	11	08	10		1.1	100	1.47	347	4.1
	Sn			23		−0.8	100			

AMPLITUDES: WEL 30 NPZ 3.0

PRO: 47/238

FELT: Western parts of Wellington province, MM IV.

47/ 208

OCT 17 $20^h28^m38^s.1$ 38°.53S 175°.81E 12 km M = 4.1
± 0.6 0.06 0.02 R S.E. of RES. 0.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	P*	20	28	58		0.3	100	1.08	105	4.2
	S*		29	12		−0.2	100			
NPZ	Pg	20	29	07		−0.6	99	1.46	248	3.9
	Sn			23		0.5	100			
WEL	ePg	20	29	36		0.0	100	2.86	196	4.4s

AMPLITUDES: TUA 2.0 NPZ 0.9 WEL 0.5

PRO: 47/239

FELT: Taumarunui (39), MM IV.

47/ 209

OCT 18 $13^h00^m10^s.7$ 42°.68S 174°.34E 33 km M = 4.8
± 0.7 0.04 0.06 R S.E. of RES. 0.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iP*	13	00	36		−0.5	100	1.43	13	4.7
	Sn			52		0.9	99			
CHR	eP*	13	00	38		0.1	100	1.51	235	5.0
	eSn			53		−0.1	100			
KAI	eP*	13	00	52		3.0		2.17	273	4.6
	iSn		01	09		0.2	100			
NPZ	eP*	13	01	18		4.4		3.62	357	4.9
	Sn			43		−0.6	100			

AMPLITUDES: WEL 9.0 CHR 13 KAI 1.8
NPZ 2.5

PRO: 47/240

47/ 210

OCT 20 $17^h24^m16^s.5$ 41°.70S 171°.50E 12 km M ~ 3.2
± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	iS*	17	24	43		0.0	100	0.83	185	~3.2s

AMPLITUDES: KAI 0.5

PRO: 47/241

FELT: Westport (79), MM IV.

47/ 211

OCT 22 $15^h25^m25^s.9$ 38°.65S 178°.75E 33 km M = 5.1
± 1.6 0.05 0.10 R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iPn	15	25	47		0.3	100	1.26	262	5.1
	iSn		26	01		−1.2	99			
NPZ	Pn	15	26	20		0.3	100	3.67	262	4.7
	Sn		27	01		0.8	100			
WEL	iP*	15	26	35		−0.9	100	4.03	228	5.1
	iSn		27	10		1.2	99			
CHR	eSn	15	28	13		−0.3	100	6.71	222	5.2
KAI	iSn	15	28	15		−0.2	100	6.79	233	5.2

AMPLITUDES: TUA 25 NPZ 1.6 WEL 3.0
CHR 1.2 KAI 0.7

PRO: 47/242

FELT: Tolaga Bay (37), Wairoa (53), and Dannevirke (63).

47/ 212

OCT 23 $13^h54^m05^s.5$ 38°.51S 176°.67E 52 km M = 5.0
± 0.4 0.01 0.03 5 S.E. of RES. 0.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP	13	54	17		−0.2	100	0.49	129	4.9
	S			26		0.2	100			
HNZ	S-P			15		−0.4	99	1.17	172	
NPZ	P	13	54	39		0.0	100	2.11	254	4.0*
	S		55	04		0.0	100			
AUC	eP	13	54	44		3.3		2.22	317	
	iS		55	07		−0.1	100			
WEL	P	13	54	56		2.3		3.13	207	5.0
KAI	iS	13	56	34		0.1	100	5.67	223	3.9s
CHR	eS	13	56	31		−8.0		5.88	210	3.7s

AMPLITUDES: TUA 60 NPZ 2.5 WEL 4.0
KAI 0.3 CHR 0.3

PRO: 47/243

FELT: Opotiki (35), Napier (52), and Wairoa (53).

47/ 213

OCT 25 $03^h33^m04^s.8$ 37°.88S 176°.83E 260 km M = 5.0
± 0.7 0.03 0.03 3 S.E. of RES. 0.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP	03	33	41		0.1	100	0.95	165	4.9
	iS		34	09		−0.0	100			
NPZ	e	03	33	57				2.46	241	3.4s
	iS		34	30		−0.1	100			
WEL	e	03	34	27				3.75	204	5.1
	S			55		0.1	100			
CHR	eS	03	35	54		−0.1	100	6.48	208	4.1*

AMPLITUDES: TUA 3.0 NPZ 0.4 WEL 3.0
CHR 0.7

PRO: 47/244

FELT: Maraenui (28). MM IV.

47/ 214

OCT 26 $09^h27^m43^s.7$ 40°.22S 175°.23E 12 km M = 3.9
± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	09	28	04		0.0	100	1.13	198	3.8
	S*			19		0.0	100			
NPZ	eSn	09	28	28		0.0	100	1.46	322	4.0

AMPLITUDES: WEL 2.0 NPZ 2.0

PRO: 47/245

FELT: Hunterville (58), MM III, and Palmerston North (62).

47/ 215

OCT 26 $11^h57^m56^s.0$ 39°.50S 174°.86E 144 km M = 5.4
± 1.3 0.05 0.06 10 S.E. of RES. 1.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
NPZ	iP	11	58	19		0.7	100	0.75	305	4.5*
	iS			35		−0.3	100			
BUN	eS	11	58	40		1.3	100	0.98	143	
WEL	iP	11	58	30		1.5	99	1.78	182	5.1
	iS			52		−1.4	99			
TUA	iP	11	58	30		−0.0	100	1.92	69	5.6
	eS			55		−1.1	100			
AUC	iS	11	59	05		−7.0		2.64	359	
KAI	eP	11	59	02		5.1		3.99	220	4.7*
	iS			43		−0.6	100			

AMPLITUDES: NPZ 14 WEL 12 TUA 18
KAI 2.5

PRO: 47/246

FELT: In south-western parts of the North Island. Maximum reported intensity MM IV at Wanganui (57) and Dannevirke (63).

47/ 216

OCT 27 $07^h12^m30^s.0$ 38°.00S 178°.00E 12 km M ~ 4.7
± R R R R S.E. of RES. 1.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP*	07	12	50		1.0	100	1.04	219	4.7
	iS*		13	02		−1.0	100			
NPZ	eP*	07	13	30		3.3		3.26	250	4.0s

AMPLITUDES: TUA 14 NPZ 0.4

PRO: 47/247

FELT: Motu (36), MM IV.

47/ 217

OCT 27 $07^h30^m17^s.0$ 38°.00S 178°.00E 12 km M ~ 4.3
± R R R R S.E. of RES. 1.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP*	07	30	37		1.0	100	1.04	219	4.3
	iS*			49		−1.0	100			

AMPLITUDES: TUA 5.0

PRO: 47/248

FELT: Motu (36), MM IV.

47/ 218

OCT 29 $09^h40^m35^s.3$ 46°.50S 166°.50E 12 km M ~ 4.9

± R R R R S.E. of RES. 1.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
CHR	eSn	09	42	52		1.0	100	5.26	58	4.9
KAI	eSn	09	42	51		−1.0	100	5.30	43	4.6s

AMPLITUDES: CHR 1.0 KAI 0.3

PRO: 47/249

FELT: Foveaux Strait region (146, 148, 149), MM III.

47/ 219

OCT 31 $00^h50^m20^s.1$ 38°.43S 176°.68E 12 km M = 4.5

± 0.7 0.04 0.02 R S.E. of RES. 0.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP*	00	50	30		−0.2	100	0.52	136	4.4
	iS*			38		0.5	100			
NPZ	iP*	00	50	58		0.3	100	2.13	252	4.4
	iS*		51	26		0.3	100			
WEL	iP*	00	51	15		−1.0	99	3.20	207	4.8
	iS*			58		0.1	100			

AMPLITUDES: TUA 25 NPZ 2.5 WEL 2.5

PRO: 47/250

FELT: Opotiki (35).

47/ 220

NOV 01 $03^h17^m26^s.6$ 38°.01S 177°.91E 12 km M = 4.6

± 1.0 0.04 0.06 R S.E. of RES. 0.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iPg	03	17	47		0.1	100	1.00	217	5.0
	iSg		18	00		−0.4	100			
NPZ	eP*	03	18	22		−0.2	100	3.19	249	4.3
	eS*		19	04		0.1	100			
WEL	eP*	03	18	38		0.7	100	4.08	216	4.6
	iPg			48		−0.9	99			
	iS*		19	31		0.6	100			
	iSg			41		−2.8				

AMPLITUDES: TUA 30 NPZ 1.0 WEL 1.0

PRO: 47/251

FELT: Tolaga Bay (37), MM III.

47/ 221

NOV 01 $13^h25^m18^s.7$ 40°.65S 173°.27E 12 km M = 4.3

± 0.5 0.03 0.05 R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	ePg	13	25	46		0.9	100	1.30	120	4.1
	iSn			59		−0.3	100			
NPZ	ePn	13	25	47		−0.4	100	1.70	22	3.5s
	iSn		26	09		0.0	100			

KAI	iSn	13	26	25	0.9	100	2.33	216	3.9s
CHR	iSn	13	26	37	−1.1	99	2.92	189	4.4

AMPLITUDES: WEL 3.0 NPZ 0.5 KAI 0.3
CHR 1.0

PRO: 47/252

47/ 222

NOV 04 $09^h07^m47^s.3$ 37°.92S 178°.20E 12 km M ~ 4.3
± 0.8 0.03 0.04 R S.E. of RES. 0.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP*	09	08	09		−0.1	100	1.21	222	4.3
	iS*			25		−0.3	100			
NPZ	eP*	09	08	47		−0.1	100	3.44	249	3.9s
	eS*		09	32		0.1	100			
WEL	Sn	09	09	40		0.4	99	4.28	217	3.7s

AMPLITUDES: TUA 4.0 NPZ 0.3 WEL 0.1

PRO: 47/253

FELT: Maraenui (28), MM IV.

47/ 223

NOV 04 $09^h11^m50^s.1$ 38°.50S 179°.00E 12 km M ~ 4.4
± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eSn	09	12	35		0.0	100	1.48	257	4.4

AMPLITUDES: TUA 3.0

PRO: 47/254

FELT: Maraenui (28), MM II.

47/ 224

NOV 05 $19^h53^m45^s.4$ 40°.48S 173°.02E 12 km M = 3.9
± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	e	19	54	30				1.55	122	3.8
	iSn			32		0.0	100			
NPZ	iSn	19	54	34		0.0	100	1.63	30	3.9
TUA	eS*	19	55	35		0.0	100	3.60	64	3.8s

AMPLITUDES: WEL 1.0 NPZ 1.5 TUA 0.1

PRO: 47/255

FELT: Wanganui (57), MM III. This solution is not in satisfactory agreement with the felt information, and depends heavily upon the reality of the very small movement at TUA.

47/ 225

NOV 06 $03^h39^m35^s.6$ 43°.98S 169°.17E 33 km M ~ 4.5
± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	iPn	03	40	09		0.0	100	2.19	49	4.5
	S*			43		0.0	100			
WEL	eSn	03	41	40		0.0	100	4.93	59	3.8s

AMPLITUDES: KAI 1.5 WEL 0.1

PRO: 47/256

FELT: Jackson's Bay (113), MM V.

47/ 226

NOV 08 $22^h41^m10^s.1$ 39°.47S 179°.46E 12 km M = 5.9
± 1.6 0.06 0.11 R S.E. of RES. 1.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iPn	22	41	40		−1.7	100	1.92	289	5.8
	iSn		42	03		−2.4	99			
HNZ	iSn-Pn			24		−0.6	100	2.00	263	
ARA	iPn	22	42	00		−0.5	100	3.29	294	
	Sn			39		0.4	100			
WEL	iPn	22	42	08		−2.4	99	4.01	242	6.2
	iSn			55		−1.0	100			
NPZ	iPn	22	42	13		0.1	100	4.20	274	5.8
	iSn		43	01		0.6	100			
AUC	ePn	22	42	18		0.8	100	4.52	304	
	iSn		43	10		2.0	100			
KAI	Pn	22	42	51		2.4	99	6.81	241	5.8
	iSn		44	05		1.8	100			

AMPLITUDES: TUA 51 WEL 37 NPZ 15
KAI 3.0

PRO: 47/257

FELT: Northern Hawke's Bay, MM IV. Listed in ISS, which gives an epicentre at 39.4S 179.3E, using data from 10 additional stations.

47/ 227

NOV 08 $22^h43^m48^s.7$ 39°.32S 179°.57E 12 km M = 5.5
± 3.4 0.08 0.21 R S.E. of RES. 1.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iPn	22	44	21		0.2	100	1.95	284	5.6+
	iSn			44		−0.9	100			
WEL	iSn	22	45	37		−1.1	100	4.16	240	5.6
NPZ	Pn	22	44	57		4.4		4.27	272	4.9A
	Sn		45	42		1.1	100			
KAI	iSn	22	46	46		0.7	100	6.96	240	5.4

AMPLITUDES: TUA 30+ WEL 10 NPZ 2.0
KAI 1.0

PRO: 47/258

Listed in ISS additional readings.

47/ 228

NOV 09 $02^h04^m59^s.0$ 39°.69S 177°.70E 12 km M = 4.2
± ND ND ND R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iS*	02	05	30		0.0	100	0.98	334	4.0
WEL	iS*	02	06	23		0.0	100	2.74	234	4.3
NPZ	iS*	02	06	27		0.0	100	2.88	281	4.0s

AMPLITUDES: TUA 3.0 WEL 1.0 NPZ 0.5

PRO: 47/259

47/ 229

NOV 09 $16^h02^m59^s.4$ 41°.07S 174°.61E 12 km M ~ 4.0
± 0.5 0.03 0.04 R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iP*	16	03	04		−0.8	99	0.24	151	
	iS*			09		0.6	100			
NPZ	iSn	16	03	58		0.2	100	2.04	348	4.0
KAI	eS*	16	04	25		0.0	100	2.80	238	3.6s

AMPLITUDES: WEL 20 NPZ 1.0 KAI 0.1

PRO: 47/260

FELT: Wellington (68), MM IV.

47/ 230

NOV 15 $08^h28^m07^s.3$ 39°.14S 176°.01E 110 km M = 4.6
± 0.6 0.02 0.02 6 S.E. of RES. 0.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP	08	28	28		−0.1	100	0.95	70	4.6
	e			40						
	iS			44		0.0	100			
NPZ	eP	08	28	35		0.4	99	1.50	272	3.2s
	iS			55		−0.2	100			
WEL	iP	08	28	45		−0.3	100	2.35	203	4.5
	eS		29	14		0.1	100			
CHR	eS	08	30	14		−6.2		5.08	209	3.6s

AMPLITUDES: TUA 6.5 NPZ 0.5 WEL 2.0
CHR 0.3

PRO: 47/261

47/ 231

NOV 18 $22^h25^m36^s.0$ 44°.50S 169°.00E 12 km M ~ 4.1
± R R R R S.E. of RES. ND

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	Sn-Pn			31		−0.2	100	2.64	42	~4.2s
	ePn?		26	14		−3.5				
CHR	e	22	27	00				2.79	71	~3.9s

AMPLITUDES: KAI 0.5 CHR 0.3

PRO: 47/262

FELT: Queenstown (132), MM IV.

47/ 232

NOV 22 $04^h55^m57^s.7$ 40°.90S 172°.80E 12 km M ~ 3.2
± R R R R S.E. of RES. 1.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TAK	iSg	04	56	00		−1.6		0.04	4	
WEL	iSn	04	56	44		0.0	100	1.54	105	~3.2s
	eS*			47		1.6	100			
NPZ	eS*	04	57	00		−1.6	100	2.08	29	3.0s

AMPLITUDES: WEL 0.3 NPZ 0.1

No absolute timing at TAK.

PRO: 47/263

FELT: Takaka (72), MM II.

47/ 233

NOV 22 $18^h58^m28^s.8$ 40°.16S 174°.65E 12 km M = 3.8
± 0.8 0.06 0.30 R S.E. of RES. 0.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iPn	18	58	50		0.4	100	1.13	175	3.7
	iS*		59	04		−0.2	100			
NPZ	ePn	18	58	50		−0.4	100	1.18	338	3.8
	iS*		59	06		0.2	100			

AMPLITUDES: WEL 1.5 NPZ 2.0

PRO: 47/263b

FELT: Wanganui (57), MM III.

47/ 234

NOV 23 $03^h41^m36^s.3$ 40°.16S 174°.84E 12 km M = 3.8
± 0.6 0.02 0.12 R S.E. of RES. 0.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	Pn	03	41	57		−0.3	100	1.13	183	3.7
	iS*		42	12		0.1	100			
NPZ	ePn	03	41	59		0.3	100	1.24	331	3.8
	iS*		42	15		−0.1	100			

AMPLITUDES: WEL 1.5 NPZ 2.0

PRO: 47/263c

FELT: Wanganui (57), MM III.

47/ 235

NOV 23 $07^h41^m03^s.3$ 40°.10S 174°.90E 12 km M ~ 3.2
± R R R R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	S*	07	41	40		−0.6	100	1.19	185	~3.2s
NPZ	eS*	07	41	42		0.6	100	1.21	328	~3.2s

AMPLITUDES: WEL 0.5 NPZ 0.5

PRO: 47/263d

FELT: Wanganui (57), MM II.

47/ 236

NOV 23 $21^h40^m37^s.2$ 41°.45S 172°.44E 12 km M = 3.9
± 1.0 0.07 0.10 R S.E. of RES. 1.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	Sn	21	41	18		−0.3	100	1.32	215	3.9
WEL	iPn	21	41	08		1.3	99	1.75	85	3.9
	Sn			28		−0.8	100			
NPZ	eSn	21	41	51		−0.2	100	2.69	28	3.7s
	e			56						

AMPLITUDES: KAI 1.0 WEL 1.0 NPZ 0.3

PRO: 47/264

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NOV 25 $18^h43^m20^s.4$ 41°.66S 172°.45E 12 km M ~ 3.6

± 0.6 0.05 0.05 R S.E. of RES. 1.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	e	18	43	55				1.16	222	~3.5s
	eS*			57		0.1	100			
	eSg		44	05		5.3				
WEL	P*	18	43	52		0.1	100	1.78	79	~3.6s
	eSn		44	13		0.5	100			
	iS*			15		−0.4	100			
NPZ	eP*	18	44	09		−1.6	99	2.87	26	3.7s
	eSn			40		1.2	99			

AMPLITUDES: KAI 0.5 WEL 0.5 NPZ 0.3

PRO: 47/265

FELT: Karamea (74), MM III.

47/ 238

NOV 25 $23^h59^m00^s.7$ 38°.47S 176°.01E 12 km M = 4.8

± 0.1 0.01 0.01 R S.E. of RES. 0.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
ARA	S*-P*			06.5		−0.3	100	0.49	324	
TUA	eP*	23	59	18		−0.2	100	0.95	111	4.7
	S*			31		−0.0	100			
NPZ	ePn	23	59	28		−0.3	100	1.62	248	4.7
	Sn			49		−0.0	100			
AUC	Sg	24	00	11		6.8		1.88	328	
	ePg	23	59	39		0.2	100			
WEL	iS*	24	00	27.5		−3.8		2.97	198	4.9
	ePn	23	59	47		0.3	100			
KAI	eP*	24	00	36		2.8		5.35	219	5.1s
	ePg			51		2.1				
	iS*		01	48		5.2				
CHR	e	24	01	36				5.66	206	4.9s
	iSg		02	13		1.5				

AMPLITUDES: TUA 9.0 NPZ 4.5 WEL 1.5
KAI 0.3 CHR 0.3

PRO: 47/266

FELT: Taupo (41), MM IV.

47/ 239

NOV 27 $05^h25^m47^s.4$ 41°.21S 175°.61E 12 km M = 4.1

± 2.3 0.08 0.14 R S.E. of RES. 1.0

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iP*	05	25	59		−0.5	100	0.64	263	4.1
	iS*		26	08.5		0.3	100			
NPZ	eP*	05	26	31		0.7	99	2.45	331	4.1
	iSn			55		−0.5	100			

AMPLITUDES: WEL 13 NPZ 1.0

PRO: 47/267

FELT: Masterton (66), MM III.

47/ 240

DEC 03 $16^h37^m31^s.0$ 38°.00S 177°.50E 12 km M ~ 3.7
± R R R R S.E. of RES. 0.3

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP*	16	37	47		0.2	100	0.85	199	3.7
	iS*			58		−0.2	100			

AMPLITUDES: TUA 2.0

PRO: 47/268

FELT: Maraenui (28), MM IV.

47/ 241

DEC 04 $20^h46^m39^s.6$ 36°.63S 177°.65E 249 km M = 5.4
± 3.5 0.17 0.25 20 S.E. of RES. 2.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP	20	47	24		−0.1	100	2.20	190	5.4
	iS			59		0.2	100			
AUC	iS	20	48	00		−0.6	100	2.32	264	
NPZ	P	20	47	43		2.3	99	3.73	228	3.6s
	S		48	39		10.8				
	e			59						
WEL	iP	20	47	56		−1.8	99	5.16	205	5.3
	iS		48	59		0.1	100			
KAI	eS	20	49	58		4.0		7.60	217	4.2s

AMPLITUDES: TUA 5.5 NPZ 0.5 WEL 3.0
KAI 0.5

PRO: 47/269

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DEC 05 $23^h21^m09^s.9$ 35°.70S 177°.52W 184 km M = 6.1
± 0.9 0.09 0.08 10 S.E. of RES. 0.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	P	23	22	28		−0.1	100	5.26	232	5.9
	iS		23	29		0.2	100			
ARA	e	23	23	00				5.97	245	
NPZ	eP	23	23	00		2.6		7.49	241	3.9s
	iS		24	21		−0.1	100			
WEL	eP	23	23	07		0.0	100	8.23	225	6.3
	iS		24	38		−0.5	99			
KAI	iS	23	25	43		0.4	99	10.97	228	4.4s

AMPLITUDES: TUA 6.0 NPZ 0.5 WEL 11
KAI 0.5

PRO: 47/270

ISS gives an epicentre at 36.0S 178.0W, and a focal depth of 0.01r (96km), using data from 18 additional stations.

47/ 243

DEC 06 $01^h05^m53^s.9$ 43°.03S 173°.07E 12 km M = 4.5
± 1.9 0.10 0.06 R S.E. of RES. 1.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
KAI	iPg	01	06	23		2.3	99	1.32	292	4.3
	iSn			34		−1.0	100			
	iSg			38		−0.6	100			

WEL	eP*	01 06 32	0.1	100	2.16	36		4.5
	iSn	55	−0.1	100				
NPZ	eP*	01 07 02	−1.9	99	4.04	11		4.6
	eSn	41	0.7	100				
	iS*	57	0.4	100				

AMPLITUDES: KAI 2.5 WEL 3.0 NPZ 1.0

PRO: 47/271

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DEC 06 $19^h35^m35^s.7$ 41°.11S 173°.57E 96 km M ~ 4.6
± 1.5 0.06 0.09 21 S.E. of RES. 1.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iP	19	35	56		0.8	100	0.93	101	4.6
	iS		36	10		0.0	100			
NPZ	eP	19	36	15		5.3		2.08	11	3.6*
	iS			35		0.2	100			
KAI	eP	19	36	12		1.4	99	2.14	228	4.0*
	iS			35		−1.4	99			
TUA	eS	19	37	11		−0.9	100	3.59	51	4.5s

AMPLITUDES: WEL 15 NPZ 1.0 KAI 1.0
TUA 0.5

PRO: 47/272

FELT: Both sides of Cook Strait (65, 68, 76).

47/ 245

DEC 10 $07^h13^m24^s.9$ 41°.61S 174°.42E 12 km M = 4.1
± 0.8 0.05 0.06 R S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iP*	07	13	32		−1.2	99	0.41	39	3.8
	iS*			40		1.0	100			
KAI	Sn	07	14	33		0.5	100	2.42	247	3.9s
	eS*			39		−0.2	100			
NPZ	S*	07	14	43		−0.1	100	2.56	354	4.3

AMPLITUDES: WEL 13 KAI 0.3 NPZ 1.5

PRO: 47/273

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DEC 11 $10^h59^m14^s.7$ 42°.10S 174°.91E 12 km M = 4.1
± R R R R S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iP*	10	59	29		−0.8	100	0.82	353	3.8
	S*			42		1.1	100			
NPZ	P*	11	00	08		−0.7	100	3.10	348	4.3
	iSn			39		0.5	100			
	i			40						

AMPLITUDES: WEL 4.0 NPZ 1.0

PRO: 47/274

FELT: Blenheim (77) and Seddon (84), MM III.

47/ 247

DEC 11 $14^h20^m34^s.4$ 41°.13S 172°.62E 12 km M = 4.6
± 0.8 0.03 0.05 R S.E. of RES. 0.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	iPn	14	21	02		−0.2	100	1.63	96	4.5
	iS*			25		0.1	100			
NPZ	eP*	14	21	16		0.3	99	2.35	29	4.6
	iSn			40		−0.2	100			
TUA	eS*	14	22	33		−8.6		4.18	58	4.3s
	eSg			52		−3.4				

AMPLITUDES: WEL 5.0 NPZ 3.5 TUA 0.3

PRO: 47/276

FELT: West Nelson (72), MM IV.

47/ 248

DEC 12 $14^h38^m23^s.4$ 40°.70S 174°.70E 12 km M ~ 3.7
± R R R R S.E. of RES. 0.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	P*	14	38	35		0.4	100	0.58	175	3.7
	iS*			42		−0.7	99			
NPZ	eSn	14	39	14		0.3	100	1.70	343	

AMPLITUDES: WEL 5.5

PRO: 47/277

FELT: Wellington (68), MM II.

47/ 249

DEC 13 $07^h09^m27^s.3$ 40°.17S 175°.07E 12 km M = 3.9
± 0.4 0.01 0.06 R S.E. of RES. 0.2

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	eP*	07	09	48		0.1	100	1.14	191	3.8
	S*		10	03		−0.1	100			
NPZ	Pn	07	09	51		−0.1	100	1.34	325	3.8
	Sn		10	09		0.1	100			
TUA	ePg	07	10	14		4.1		2.11	50	4.2

AMPLITUDES: WEL 2.0 NPZ 1.5 TUA 1.0

No provisional solution.

47/ 250

DEC 15 $13^h17^m22^s.7$ 40°.09S 175°.10E 12 km M = 3.7
± 0.2 0.01 0.02 R S.E. of RES. 0.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
WEL	eP*	13	17	45		0.4	99	1.21	192	3.7
	iS*		18	00.5		−0.3	100			
NPZ	ePn	13	17	46		0.1	100	1.30	322	3.7
	Sn		18	03		−0.1	100			
TUA	eSn	13	18	21		−0.1	100	2.04	52	3.2s

AMPLITUDES: WEL 1.5 NPZ 1.5 TUA 0.1

PRO: 47/278

FELT: Wanganui (57), MM IV.

47/ 251

DEC 15 $14^h21^m10^s.8$ 38°.78S 176°.04E 164 km M = 5.1
± 1.3 0.06 0.05 9 S.E. of RES. 0.9

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	eP	14	21	37		0.9	99	0.86	92	5.3
	iS			55		−0.5	100			
NPZ	iP	14	21	42		−0.3	100	1.56	259	3.8*
	iS		22	07		0.4	100			
WEL	iP	14	21	55		−0.4	100	2.69	201	4.9
	iS		22	30		0.3	100			
KAI	S	14	23	24		−2.1		5.14	222	4.1s

AMPLITUDES: TUA 21 NPZ 1.8 WEL 3.5
KAI 0.5

PRO: 47/279

47/ 252

DEC 18 $07^h10^m16^s.8$ 39°.42S 175°.90E 33 km M = 4.8
± 0.3 0.02 0.03 R S.E. of RES. 0.7

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
HNZ	iSn-Pn			04		−6.8		0.81	109	
TUA	iPn	07	10	35		−1.0	99	1.15	58	5.2
	iSn			51		0.6	100			
NPZ	iPn	07	10	40		−0.2	100	1.46	283	4.3
	iSn			58		0.2	100			
WEL	ePn	07	10	49		0.6	100	2.05	204	4.8
	iSn		11	12		−0.1	100			
KAI	eSn	07	12	13		−0.3	100	4.60	226	4.7s
	i			21						

AMPLITUDES: TUA 29 NPZ 3.5 WEL 6.5
KAI 0.5

PRO: 47/280

FELT: Wellington (68), MM II.

47/ 253

DEC 19 $16^h04^m05^s.1$ 38°.22S 176°.23E 294 km M = 5.6
± 1.6 0.09 0.09 9 S.E. of RES. 1.1

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP	16	04	45		0.3	100	0.93	130	5.8
	iS		05	15		−0.7	100			
NPZ	iP	16	04	50		−0.7	100	1.89	243	3.7*
	iS		05	27		0.7	100			
WEL	iP	16	05	04.5		1.0	99	3.27	200	5.4
	iS			49.5		0.4	100			
KAI	eS	16	06	37		−0.9	100	5.66	219	5.1s

AMPLITUDES: TUA 18 NPZ 0.8 WEL 7.0
KAI 3.6

PRO: 47/281

47/ 254

DEC 22 $14^h53^m30^s.7$ 39°.33S 176°.93E 12 km M ~ 3.5
± 0.4 0.02 0.03 R S.E. of RES. 0.6

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
HNZ	S*-P*			05		0.1	100	0.34	185	
TUA	iP*	14	53	42		0.7	99	0.56	19	3.5
	iS*			48		−0.9	99			
	iSg			50		0.3	100			

NPZ	ePn	14 54 07	0.3	100	2.23	276		3.5s
	eSn	34	0.3	100				
	iS*	39	−0.3	100				
WEL	eP*	14 54 17	1.5		2.56	220		3.9s
	eSn	41	−0.4	100				
	i	55 08						

AMPLITUDES: TUA 3.0 NPZ 0.3 WEL 0.5

PRO: 47/282

FELT: Napier (52), MM III.

47/ 255

DEC 26 $02^h40^m11^s.7$ 38°.09S 176°.69E 149 km M = 5.1

± 2.6 0.08 0.14 18 S.E. of RES. 2.2

STN	PHASE	H M S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP	02 40 36		1.1	100	0.80	153	5.2
	iS	53		0.2	100			
HNZ	S-P	22		−1.5	100	1.59	175	
AUC	eP	02 40 45		−1.4	100	1.95	308	
	iS	41 12		−1.1	100			
NPZ	P	02 40 52		1.6	100	2.27	244	3.4s
	iS	41 22		2.1	100			
WEL	eP	02 41 13		6.5		3.52	204	4.9
	iS	46		−2.5	99			
CHR	iS	02 42 47		−6.2		6.25	208	4.4*

AMPLITUDES: TUA 18 NPZ 0.5 WEL 2.5
CHR 1.5

PRO: 47/283

FELT: Wairoa (53), MM III.

47/ 256

DEC 28 $17^h30^m22^s.0$ 40°.71S 172°.65E 12 km M ~ 3.5

± 0.6 0.03 0.04 R S.E. of RES. 0.8

STN	PHASE	H M S	DIR	RES	WT	DIST	AZ	MAG
WEL	ePn	17 30 50		−0.7	99	1.70	110	~3.3s
	eS*	31 15		0.3	100			
NPZ	eS*	17 31 23		0.2	100	1.97	34	~3.6s
KAI	eS*	17 31 25		0.2	100	2.04	207	3.3s

AMPLITUDES: WEL 0.3 NPZ 0.5 KAI 0.1

PRO: 47/284

FELT: Kahurangi Point (72), MM V, and Collingwood (72), MM III.

47/ 257

DEC 29 $14^h54^m29^s.5$ 41°.50S 174°.80E 12 km

± R R R R S.E. of RES. 0.5

STN	PHASE	H M S	DIR	RES	WT	DIST	AZ	MAG
WEL	iP*	14 54 34		−0.4	100	0.22	354	
	iS*	38		0.4	100			

AMPLITUDES: WEL 15

PRO: 47/285

FELT: Wellington (68), MM III.

47/ 258

DEC 31 $17^h08^m16^s.8$ 39°.09S 177°.77E 12 km M = 4.8

± 1.7 0.05 0.11 R S.E. of RES. 1.4

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	iP*	17	08	27		−0.5	100	0.56	300	5.1
	iS*			36		0.8	100			
NPZ	Pn	17	09	03		1.4	100	2.88	269	4.3
	iS*			43		−1.7	99			
WEL	iPn	17	09	04		−1.6	99	3.18	225	4.7
	iSn			43		0.5	100			
CHR	ePg	17	10	15		−0.8	100	5.89	219	5.0
	iSn			48		0.3	100			
KAI	eSn	17	10	50		1.5	100	5.92	233	4.7s

AMPLITUDES: TUA 108 NPZ 1.0 WEL 2.0
CHR 1.0 KAI 0.3

PRO: 47/286

FELT: Northern Hawke's Bay (43, 54, 53), MM IV; and Maraenui (28), MM III.

47/ 259

DEC 31 $22^h26^m21^s.0$ 38°.29S 175°.87E 33 km M = 4.6

± 0.5 0.03 0.02 R S.E. of RES. 0.5

STN	PHASE	H	M	S	DIR	RES	WT	DIST	AZ	MAG
TUA	Pn	22	26	40		−0.0	100	1.13	118	4.6
	iSn			54		−0.2	100			
NPZ	iPn	22	26	47		0.5	99	1.60	240	4.6
	Sn		27	05		−0.5	99			
WEL	ePn	22	27	07		−0.0	100	3.11	195	4.4s
	e			36						
	iSn			42		0.2	100			

AMPLITUDES: TUA 5.0 NPZ 4.0 WEL 0.3

PRO: 47/287

DISCUSSION

This Report assigns origins to about 100 earthquakes for which no previous solutions have been published, but omits about 160 others to which origins were assigned either in the Preliminary (P-series) Bulletins, or in the annual summaries published by Hayes. These rejected "origins" are no more than the geographical coordinates of the sources of unconfirmed felt reports, and many of them seem unlikely to represent real earthquakes. Eighty of them are small events near Lake Coleridge in 1946. The list of unconfirmed reports includes the provisionally allocated reference numbers of the rejected

earthquakes. In addition to these, six solutions previously allocated to instrumentally recorded shocks have been rejected for reasons explained in the section "Instrumental Data".

The definitive solutions now adopted have been obtained by a uniform procedure that is substantially equivalent to the one currently in use. The small differences are attributable to the problems that arise from the smaller number and more restricted geographical spread of the stations then operating, and to their poorer instrumentation and timing. Not all the new positions are necessarily closer to the "true" origins of the earthquakes, but gross errors have been corrected, and the use of an improved crustal model and a more uniform method of reduction should have produced a real gain in accuracy in the case of all well-recorded earthquakes lying within the perimeter of the recording network. When shocks lie far to the north or south of the country, the limited azimuthal spread of the recording stations produces a large uncertainty in the position of the epicentre along a roughly north-west to south-east line, particularly when no readings from Australian stations are available. It would in most cases be possible to obtain a solution within the known limits of the belts of seismicity by a selection of stations, or an arbitrary choice of depth, but it was thought preferable to leave the formal solutions untouched. This makes the inadequate solutions more readily identifiable. In many cases the shocks affected are large enough to have been assigned epicentres by such international agencies as the International Seismological Summary or the United States Coast and Geodetic Survey, using additional data from more distant stations. When this information is available it is included in the text.

Some solutions presented in this report include times that have been altered by some multiple of 30 seconds. Most of the recording drums that were then in use were driven either by clockwork, or by synchronous motors fed by mains that were not frequency controlled. The timing marks on successive traces are therefore not well aligned. If the operator has not recorded satisfactory time-signals, it is possible to mis-identify the half minute, though a good clock-correction can usually be found by graphing the clock rate over several days. This problem was particularly troublesome at Auckland, where on fine days severe tilting produced a band of superimposed traces just before the time at which signals were normally recorded. The rate of the drum varied greatly with the

winding of the spring, and when an event was not clearly recorded at several stations, misidentified minutes were common. Other stations suffered from related troubles. At Tuai the records were changed by power-station apprentices, and at New Plymouth by prisoners at the gaol, who did not always enter on and off times correctly. It seems justifiable to invoke this knowledge when the residuals calculated from the reported times suggest that an error of this kind is involved in the original interpretation. Attention is drawn to all instances of interference with the reported readings, and the values are not used unless it is impossible to obtain asatisfactory solution without them.

The proportion of significantly altered solutions disclosed by differencing the old and new results appears from the following table:

AMOUNT OF CHANGE GREATER THAN	NUMBER OF EARTHQUAKES 1945	1946	1947	Total
0°.25 in Lat.	22	31	61	114
0°.25 in Long.	39	77	82	198
30km in Depth	27	26	25	78
0°.5 in Lat.	12	9	20	31
0°.5 in Long.	16	28	33	77
50km in Depth	21	23	18	62
1°.0 in Lat.	1	5	7	13
1°.0 in Long.	4	9	11	24
100km in Depth	9	7	3	19
Total shocks differenced	138	191	247	576

It is now usual to assign shocks originally classified as S (shallow) or N (normal) the conventional depths of 12km and 33km. The distinction between these classes was first introduced in Preliminary Bulletin P–227, for 1951 January. Before that time, all earthquakes to which no depth was assigned were classified as normal. Since the tables of Wadati and Masuda then in use assigned a conventional depth of 25km to crustal shocks, that value was adopted in compiling the above table.

The extent to which seismologists assigning earthquake origins can be influenced by currently accepted theories and by fashions in research became very apparent as this revision proceeded. It is not unlikely that in the course of time similar criticism will be made of the present work. The largest single group of changes made affect focal

depth. When the original work was done, deep-focus earthquakes still possessed the attraction of novelty, and New Zealand seismologists were strongly aware that, whatever the deficiencies of their instrumental network, only in Japan were there comparable facilities for the study of deep shocks at small epicentral distances. As a result, whenever there seemed a possibility that a shock might be deep, a deep solution was sought. So little was known of the crustal structure that crustal phases could not be identified with any degree of confidence, the spacing between the stations of the network was so great that there was little control of depth in the range less than 100 km., and systematic mis-identification of the phase S* as S (a danger that K.E. Bullen had foreseen and warned against) made it easy to fit deep solutions to the small number of data available, even when equally satisfactory shallow solutions existed. Not even the convention that shocks were to be considered shallow until proved otherwise was sufficient to prevent this. Significant numbers of the less well-recorded shocks were assigned depths of 80 or 100 km. solely on the grounds of the appearance of the seismogram. Sharp P-movements in very close shocks were often wrongly assumed to be an indication of depth.

In revising these shocks, difficulty in finding shallow solutions was seldom experienced, but the presence of crustal phases could not always be established, and the possiblity of depths as great as 100 km. is still present in poorly-recorded shocks. Further examples of the systematic mis-interpretation of shocks in the West Nelson region to which attention was drawn in Bulletin E – 164 were found, but as the Wood-Anderson station at Cobb River had not yet been established, they were less obvious. The Jaggar instrument at Takaka, however, gave useful data for the larger events.

The lack of a sensitive station with good timing in the far south of the country prevented the positive identification of deep shocks in Fiordland. These are now known to be fairly common, but it is unlikely that the depth of any but the largest shocks in the early period can be established. The times of PKP arrivals at stations in the far hemisphere afford confirmation of depth in a few cases, but have not been used for any of the earthquakes in this Bulletin.

The period covered in this Report was one of unusually vigorous activity in the Central Seismic Region, many shocks being felt at the

Lake Coleridge power-station. Fuller discussion will be found in the section "Principal Earthquakes".

The magnitude revisions include the small exercise of discretion described in the introduction to this section, and follow the methods of Haines, which are summarised in current Reports. When ample data are available, the use of the new methods results in a greatly reduced scatter, and this gives an increased confidence in the solutions that depend on only a few stations. The use of a sign ~ to indicate entries that have been modified or which depend on only a single station should make it possible for researchers to select those data best suited for their particular investigation. Most magnitudes published earlier were rounded off to the nearest quarter or even half magnitude, so that the present listing represents a substantial improvement. Seismologists will be aware that large uncertainties in the magnitudes assigned to shocks far to the north or south of the country inevitably remain. It is desirable to bring this to the attention of other readers.

FELT EARTHQUAKE REPORTS

Observers are unevenly distributed over the region in which an earthquake can be felt, and personal circumstances may prevent any one of them from feeling a shock that was felt by others. This affects both the study of distribution of intensity in a single earthquake, and the statistics of earthquakes felt in a given place. The method of summarising the data used here is intended to minimise these problems.

In the first section, the names of places from which reports were received are listed, together with the "localities" in which they lie. These standard localities are defined by dividing the land area of New Zealand into rectangles whose sides measure half a degree of latitude or longitude, as shown on the accompanying map. Each is assigned a number and a name, usually that of the principal centre of population within it. The intensities quoted are intended to be those of the Modified Mercalli scale, N.Z. version (Eiby, 1966). A ? indicates that no information beyond the fact that the shock was felt is available, or that the description is not precise enough to allow an intensity to be assigned.

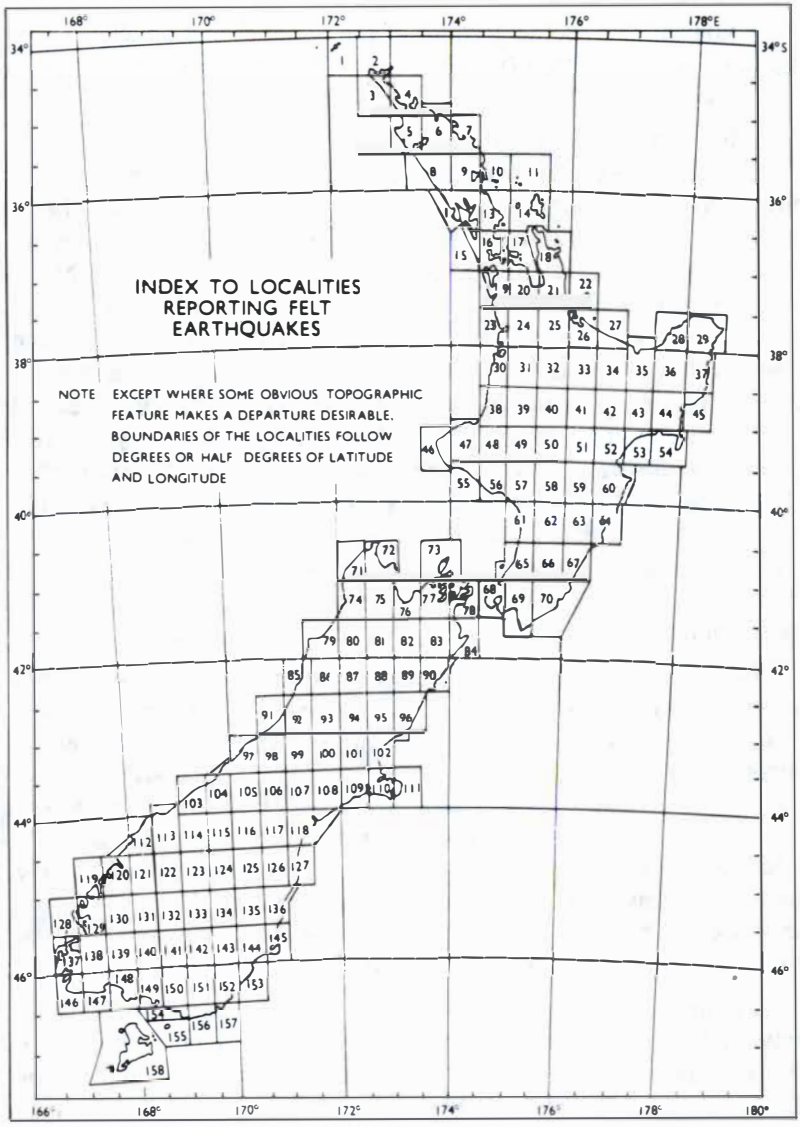
Localities from which felt reports were received during the period are listed alphabetically in the second section, followed by the number of the shock in the list of origins, and the maximum intensity reported from within that locality.

Finally, reported shocks that were not recorded instrumentally are listed. The proportion of these events that represents real earthquakes is probably higher than in recent Reports. In most cases they were believed to be certain enough to justify listing the coordinates of the source of the report as an established origin. Other reports were quietly discarded. Some of these early "earthquakes" clearly arose from the incorrect matching of approximately-timed felt reports with other reports and the instrumental readings. Only those supported by instrumental data are now assigned serial numbers and listed as origins. The readings are sometimes insufficient to define an origin, but the origins adopted are consistent with the available readings and the felt effects.

STANDARD REPORTING LOCALITIES

1 Three Kings
2 Te Reinga
3 Ninety Mile Beach
4 Doubtless Bay
5 Kaitaia
6 Kaikohe
7 Bay of Islands
8 Dargaville
9 Whangarei
10 Bream Head
11 Moko Hinau
12 Kaipara
13 Warkworth
14 Barrier Islands
15 Helensville
16 Auckland
17 Waiheke
18 Coromandel
19 Pukekohe
20 Mercer
21 Thames
22 Mayor Is.
23 Raglan
24 Hamilton
25 Matamata
26 Tauranga
27 Whakatane
28 Te Kaha
29 East Cape
30 Kawhia
31 Te Kuiti
32 Tokoroa
33 Rotorua
34 Murupara
35 Opotiki
36 Motu
37 Tolaga Bay
38 Mokau
39 Taumarunui
40 Tokaanu
41 Taupo
42 Te Whaiti
43 Tuai
44 Whakapunaki
45 Gisborne
46 Cape Egmont
47 New Plymouth
48 Whangamomona
49 Ohakune
50 Chateau
51 Kaweka
52 Napier
53 Wairoa
54 Mahia
55 Hawera
56 Waverley
57 Wanganui
58 Taihape
59 Ruahine
60 Hastings
61 Bulls
62 Palmerston North
63 Dannevirke
64 Porangahau
65 Otaki
66 Masterton
67 Castlepoint
68 Wellington
69 Featherston
70 Martinborough
71 Mount Stevens
72 Takaka
73 D'Urville Is.
74 Karamea
75 Motueka
76 Nelson
77 Blenheim
78 Picton
79 Westport
80 Murchison
81 Glenhope
82 Wairau
83 Awatere
84 Cape Campbell
85 Greymouth
86 Reefton
87 Maruia
88 Hanmer
89 Clarence
90 Kaikoura
91 Hokitika
92 Kumara
93 Arthur's Pass
94 Lake Sumner
95 Culverden
96 Cheviot
97 Franz Josef
98 Hari Hari
99 Whitcombe Pass
100 Lake Coleridge
101 Oxford
102 Rangiora
103 Haast
104 Bruce Bay
105 Mount Cook
106 Tekapo
107 Mount Somers
108 Ashburton
109 Rakaia
110 Christchurch
111 Akaroa
112 Big Bay
113 Jackson's Bay
114 Makarora
115 Lake Ohau
116 Pukaki
117 Fairlie
118 Timaru
119 George Sound
120 Milford
121 Glenorchy
122 Arrowtown
123 Wanaka
124 St Bathans
125 Kurow
126 Duntroon
127 Waimate
128 Secretary Is.
129 Doubtful Sound
130 Te Anau
131 Livingstone Mts
132 Kingston
133 Alexandra
134 Poolburn
135 Ranfurly
136 Oamaru
137 Resolution Is.
138 Pillans Pass
139 Monowai
140 Mossburn
141 Waikaia
142 Roxburgh
143 Lawrence
144 Outram
145 Dunedin
146 Puysegur Point
147 Poteretere
148 Tuatapere
149 Invercargill
150 Gore
151 Clinton
152 Balclutha
153 Waihola
154 Bluff
155 Ruapuke
156 Tahakopa
157 Owaka
158 Stewart Is.
159 Chatham Islands

Although the monthly "P-Bulletins" issued at the time list all except a few of the earthquakes reported felt, and give a rough indication of the felt area and the maximum intensity reported, no full list of the felt observations in this period seems to have been published. Hayes (1946, 1947, 1948) prepared isoseismal maps of some of the larger shocks, but they were printed on a very small scale and do not show the individual observations. Since felt intensities are among the most commonly misunderstood and misused of all



STANDARD REPORTING LOCALITIES

seismological data, some account of the qualities and deficiencies of the data now presented (which are in a form as close as possible to that now used) is desirable.

In 1945, the reporting form supplied to observers differed greatly from the one used now. After asking the place, time, duration, and direction of the earthquake, it set out the Wood and Neumann (1931) version of the Mercalli scale, and asked that statements that applied should be underlined and those that did not be deleted. Many reporters contented themselves with ringing one of the marginal numbers. Obsolete forms dating from before 1942 and based on the Rossi-Forel scale, and even a few going back to the previous century appeared from time to time. Additional information was gleaned from press clippings. Press reports of this period are greatly superior to those of the present day in both accuracy and detail, but the supply of clippings to the Observatory was erratic. The agency responsible received only a limited number of copies of each paper, and Ministers had first claim upon information thought likely to concern or interest them. The remains were then scanned for items of use to their departments.

The summaries of felt reports on the Observatory files sometimes refer to information in letters received many years ago. Unfortunately the establishment of the Geophysics Division and a number of arbitrary administrative edicts from the Department have enforced several re-numberings of the files, with the result that few of these letters can now be found or identified. In some cases the only evidence of a maximum reported intensity takes this form. When the intensity seems improbably high, some exercise of discretion has been used. Where there is danger that possibly relevant data could be lost, an appropriate note has been included.

The intensities given here differ in many cases from those previously published, which are considered unsatisfactory for several reasons, the most important being that the time of occurrence of the shock and the estimates of direction and duration do not seem to have been adequately considered in the original assessment. As a result the proportion of intensities that were assigned MM I or MM II is much larger than would be the case in a set of current observations. It may reasonably be assumed that a shock of less than MM III would not have awakened people in the early morning hours, and that a shock that continued for ten seconds and had a clear direction of

motion reached an intensity of at least MM IV. On the other hand, an observer's assessment of MM VI must be treated with caution if he makes no reference to the disturbance of material objects. Arguments of this kind have been invoked to justify the raising or lowering of the old assessments by one degree, and in a few instances where the evidence is clear, by two. This procedure has improved the internal consistency of the observations, and brings the distribution of reports of different intensity closer to that prevailing in present-day reports.

It is difficult to estimate the number of reporters, but it was probably about sixty or a hundred. A few were scientific amateurs, but most were postmasters or members of their staffs, lighthouse keepers, or other government officers stationed in remote places. Some shocks in mountainous and sparsely populated areas could have exceeded magnitude 5 without producing a felt report, but such cases would be exceptional.

PLACES REPORTING FELT EARTHQUAKES

1945

45/001 Jan 01 01h 08m 37.54S 177.36E 12 km M=4.8
MM 5 Wairoa (53).

45/002 Jan 02 04h 56m 39.91S 177.06E 12 km M=5.6
MM 5 Wairoa (53); Hastings, Waipawa (60);
MM 4 Napier (52); Wanganui (57); Hunterville, Taihape (58); Dannevirke (63); Porangahau (64); Castlepoint (67);
MM 3 Taupo (41); Palmerston North (62); Paraparaumu (65); Pongaroa (67);
MM 2 Bunnythorpe (62);
Not felt Gisborne (45).

45/003 Jan 03 14h 35m 41.28S 172.47E 12 km M=4.0
MM 3 Takaka (72).

45/007 Jan 14 21h 07m 40.37S 174.12E 12 km M=4.9
MM 4 Kahurangi Point (72);
MM 3 Collingwood, Takaka (72).

45/011 Feb 14 16h 20m 36.65S 175.91E 12 km M=3.9
MM 3 Thames (21).

45/012 Feb 18 13h 30m 41.16S 172.90E 12 km M=4.5
MM 4 Upper Takaka (72); Riwaka (75);
MM 3 Karamea (74);
? Takaka (72).

45/017 Mar 09 15h 21m 40.90S 174.60E 12 km M=3.9
MM 4 Karori (68).

45/018 Mar 09 19h 11m 41.10S 174.70E 12 km M=3.5
MM 2 Paraparaumu (65).

45/019 Mar 11 19h 22m 39.00S 174.00E 12 km
MM 4 New Plymouth (47).

45/020 Mar 12 18h 51m 39.00S 174.00E 12 km
MM 3 New Plymouth (47).

45/021 Mar 12 22h 02m 41.15S 172.52E 12 km M=3.7
MM 3 Takaka (72).

45/022 Mar 12 23h 49m 41.56S 173.46E 12 km M=5.4
MM 4 Kahurangi Point, Takaka, Upper Takaka (72);
MM 3 Paraparaumu (65); Wellington (68); Nelson (76); The Brothers (78); Hillersden (82).

45/023 Mar 15 20h 26m 40.14S 174.20E 12 km M=5.1
MM 3 Taumarunui (39); Hunterville (58); Foxton (61); Paraparaumu (65); Wellington (68).

45/025 Mar 18 18h 22m 41.00S 175.80E 12 km M=3.5
MM 3 Masterton (66).

45/026 Mar 19 16h 34m 39.30S 177.10E 12 km M=4.1
MM 4 Wairoa (53).

45/027 Mar 19 17h 45m 41.00S 175.70E 12 km M=3.8
MM 3 Masterton (66).

45/030 Mar 31 10h 29m 41.00S 175.80E 12 km M=3.2
MM 2 Te Parae (66).

45/033 Apr 17 09h 13m 41.28S 175.75E 12 km M=4.2
MM 4 Karori, Wellington (68);
MM 3 Masterton (66).

45/034 Apr 23 11h 04m 41.00S 175.70E 12 km M=2.6
MM 4 Masterton (66).

45/038 May 09 16h 50m 39.00S 174.00E 12 km
MM 3 New Plymouth (47).

45/039 May 10 13h 17m 41.03S 174.00E 12 km M=4.5
MM 3 Wellington (68), Blenheim (77);
MM 2 Paraparaumu (65).

45/040 May 15 17h 58m 40.90S 172.70E 12 km
MM 1 Takaka (72).

45/042 May 18 09h 27m 42.09S 174.13E 12 km M=4.9
MM 7 Parikawa Creek (90);
? Clarence Bridge, Kekerengu (90).

45/043 May 19 02h 41m 41.60S 175.00E 12 km M=4.0
MM 3 Karori (68).

45/044 May 21 18h 00m 41.80S 173.90E 33 km M=3.6
MM 3 Khandallah (68); Picton (78).

45/045 May 26 16h 50m 41.00S 174.70E 12 km M=4.3
MM 5 Foxton (61);
MM 3 Bunnythorpe (62); Karori (68);
MM 2 Paraparaumu (65).

45/050 Jun 07 03h 42m 41.13S 175.87E 12 km M=4.8
MM 5 Masterton (66);
MM 4 Foxton (61); Paraparaumu Beach (65);
MM 3 Dannevirke (63); Castlepoint (67); Wellington (68); Martinborough (70);
MM 2 Bunnythorpe (62).

45/051 Jun 07 03h 59m 41.05S 175.67E 12 km M=4.1
MM 2 Masterton (66).

45/052 Jun 08 09h 06m 41.61S 173.41E 12 km M=4.7
MM 2 Paraparaumu (65); Wellington (68).

45/054 Jun 14 17h 53m 42.66S 172.38E 12 km M=3.6
MM 4 Hanmer Springs (88).

45/055 Jun 14 22h 43m 41.60S 175.00E 12 km M=4.2
MM 4 Wellington (68).

45/057 Jun 22 12h 07m 41.34S 175.77E 12 km M=4.2
MM 2 Wellington (68).

45/058 Jun 25 18h 08m 43.30S 171.50E 12 km M=3.3
MM 4 Lake Coleridge (100).

45/062 Jul 06 15h 52m 42.68S 173.28E 12 km M=4.8
MM 4 Cheviot (96);
MM 3 Akaroa (111);
MM 2 Christchurch (110).

45/063 Jul 08 18h 02m 40.39S 175.05E 12 km M=3.7
MM 3 Palmerston North (68).

45/065 Jul 12 00h 45m 39.28S 175.10E 12 km M=4.2
MM 4 Taumarunui (39).

45/068 Jul 24 10h 55m 41.70S 174.70E 12 km M=4.0
MM 4 Wellington (68).

45/069 Jul 27 13h 55m 38.29S 176.95E 12 km M=4.6
MM 4 Wairoa (53).

45/070 Jul 28 14h 03m 39.12S 176.90E 12 km M=4.4
MM 4 Wairoa (53).

45/071 Jul 30 12h 30m 37.18S 176.09E 12 km M=4.5
? Auckland (16).

45/072 Aug 10 15h 07m 38.47S 176.03E 12 km M=4.4
MM 4 Taupo (41).

45/073 Aug 13 02h 20m 39.47S 175.45E 12 km M=5.2
MM 4 Wanganui (57);
MM 3 Portland Island (54); Hunterville (58).

45/074 Aug 15 14h 12m 40.20S 175.00E 12 km M=3.8
MM 4 Wanganui (57).

45/076 Aug 17 19h 32m 41.14S 174.02E 12 km M=3.9
MM 2 Wellington (68).

45/079 Aug 25 10h 12m 42.50S 172.80E 12 km M=3.5
MM 3 Hanmer Springs (88).

45/080 Aug 25 10h 29m 42.64S 172.79E 12 km M=3.8
MM 3 Hanmer Springs (88).

45/081 Aug 29 15h 57m 42.63S 172.73E 12 km M=4.7
MM 5 Hanmer Springs (88).

45/082 Aug 29 16h 27m 42.66S 172.75E 12 km M=4.1
MM 3 Hanmer Springs (88); Molesworth (89).

45/083 Aug 29 16h 46m 42.60S 172.70E 12 km M=3.1
MM 3 Hanmer Springs (88).

45/084 Aug 29 19h 59m 42.90S 172.80E 12 km M=2.6
MM 3 Hanmer Springs (88).

45/085 Aug 29 21h 42m 42.63S 172.57E 12 km M=3.6
MM 4 Hanmer Springs (88).

45/086 Aug 30 04h 55m 42.62S 172.75E 12 km M=5.1
MM 6 Hanmer Springs (88);
MM 5 Culverden (86);
MM 3 Molesworth (89).

45/087 Aug 30 05h 04m 42.60S 172.80E 12 km M=3.1
MM 3 Hanmer Springs (88).

45/088 Aug 30 07h 15m 42.69S 172.75E 12 km M=3.5
MM 3 Hanmer Springs (88).

45/089 Aug 30 08h 48m 42.60S 172.70E 12 km M=3.1
MM 4 Hanmer Springs (88).

45/090 Aug 30 10h 25m 42.65S 172.67E 12 km M=5.4
MM 6 Hanmer Springs (88);
MM 5 Culverden (95);
MM 4 Cheviot (96);
MM 3 Hokitika (91);
? Molesworth (89).

45/091 Aug 30 10h 27m 42.70S 172.70E 12 km
MM 3 Hanmer Springs (88).

45/092 Aug 30 10h 33m 42.60S 172.60E 12 km M=3.4
MM 3 Hanmer Springs (88).

45/093 Aug 30 12h 45m 42.64S 172.78E 12 km M=3.9
MM 4 Hanmer Springs (88).

45/094 Aug 30 15h 49m 42.64S 172.70E 12 km M=3.8
MM 4 Hanmer Springs (88).

45/095 Aug 30 19h 04m 42.60S 172.70E 12 km M=3.1
MM 4 Hanmer Springs (88).

45/096 Sep 01 22h 44m 47.47S 166.12E 12 km M=6.5
MM 5 Tuatapere (148);
MM 4 Wanaka (123); Queenstown (132); Roxburgh (142); Puysegur Point (146); Invercargill (149); Awarua (154);
MM 3 Jackson's Bay (113); Timaru (118); Cromwell (133); Lumsden, Nightcaps (140); Lawrence (143); Dunedin (145);
MM 2 Middlemarch (135);
? Halfmoon Bay (158);
Not felt Naseby (135); Oamaru (136).

45/097 Sep 04 17h 14m 47.15S 165.93E 12 km M=5.9
MM 5 Puysegur Point (146);
MM 4 Invercargill (149);
MM 3 Tuatapere (148);
MM 2 Nightcaps (140).

45/098 Sep 10 12h 20m 41.16S 172.60E 12 km M=4.2
MM 3 Karamea (74).

45/099 Sep 14 04h 04m 41.20S 172.60E 12 km M=3.5
MM 3 Upper Takaka (72).

45/100 Sep 15 18h 49m 41.14S 172.96E 12 km M=4.4
MM 5 Kahurangi Point (72);
MM 4 Takaka, Upper Takaka (72);
MM 3 Tasman (76).

45/101 Sep 15 19h 01m 41.38S 172.97E 12 km M=5.0
MM 3 Upper Takaka (172); Karamea (74);
MM 2 Wellington (68); Takaka (72); Tasman (76).

45/102 Sep 17 03h 39m 38.88S 178.57E 12 km M=5.0
MM 4 Tolaga Bay (37).

45/105 Sep 26 09h 38m 46.29S 168.31E 12 km M=5.3
MM 3 Nightcaps (140);
'sharp' Queenstown (132).

45/106 Sep 26 18h 46m 40.92S 172.92E 12 km M=4.2
MM 3 Takaka (72); Karamea (74); Kahurangi Point (71);
? Nelson (76).

45/108 Oct 05 14h 56m 38.75S 176.16E 180 km M=5.6
MM 3 Wanganui (57); Palmerston North (62);
'slight' Hastings (60);
? Wellington (68).

45/110 Oct 12 04h 18m 39.00S 175.70E 12 km M=4.2
MM 4 Tokaanu (40).

45/111 Oct 12 11h 22m 38.35S 175.67E 33 km M=4.4
MM 3 Tokaanu (40).

45/112 Oct 12 11h 59m 40.10S 175.00E 12 km M=3.2
MM 4 Wanganui (57).

45/113 Oct 12 22h 28m 38.80S 176.20E 12 km M=4.9
MM 4 Tokaanu (40); Wanganui (57).

45/115 Oct 14 12h 06m 40.49S 173.99E 75 km M=4.2
MM 4 Wanganui (57).

45/119 Oct 18 06h 06m 40.00S 175.00E 12 km M=4.1
MM 3 Wanganui (57).

45/121 Oct 30 18h 42m 38.66S 175.84E 12 km M=4.7
MM 4 Taumarunui (39).

45/124 Nov 09 20h 55m 40.88S 173.79E 12 km M=4.8
MM 4 Wanganui (57); Wellington (68).

45/129 Nov 16 06h 47m 39.50S 177.41E 12 km M=4.5
MM 3 Wairoa (53).

45/133 Dec 17 21h 41m 39.24S 178.49E 12 km M=4.8
MM 4 Wairoa (53).

45/134 Dec 19 17h 43m 41.00S 175.50E 12 km M=3.7
MM 3 Martinborough (70);
MM 2 Paraparaumu (65);
'short' Masterton (66).

45/135 Dec 22 16h 55m 41.48S 172.04E 12 km M=4.3
MM 3 Kahurangi Point (72).

45/136 Dec 26 13h 55m 40.31S 175.58E 12 km M=3.8
MM 2 Hunterville (58).

45/137 Dec 28 06h 31m 40.94S 173.17E 107 km M=3.8
MM 3 Takaka (72).

45/138 Dec 28 09h 15m 41.00S 173.20E 100 km
MM 3 Takaka (72).

45/139 Dec 30 07h 07m 37.87S 177.12E 265 km M=5.7
MM 2 Hastings (60).

1946

46/001 Jan 01 13h 24m 41.00S 175.30E 33 km M=3.4
MM 3 Upper Hutt (68).

46/003 Jan 06 02h 01m 39.84S 174.87E 12 km M=4.6
MM 4 Wanganui (57).

46/005 Jan 10 16h 40m 41.20S 175.70E 33 km
'slight' Martinborough (70).

46/007 Jan 14 07h 32m 41.33S 174.02E 12 km M=4.2
MM 3 Wellington (68).

46/010 Jan 28 16h 50m 40.10S 175.00E 33 km M=3.8
MM 4 Wanganui (57).

46/011 Feb 01 21h 38m 45.08S 166.84E 12 km M=5.0
MM 3 Milford Sound (120); Invercargill (149);
MM 2 Lumsden, Nightcaps (140); Lawrence (143).

46/012 Feb 02 18h 43m 40.00S 175.00E 33 km M=3.1
MM 4 Wanganui (57).

46/013 Feb 04 21h 47m 36.32S 177.19E 12 km M=5.7
MM 4 Great Barrier I. (14); Whitianga (18); Thames (21);
MM 3 Auckland (16); Paeroa, Waihi (21);
MM 2 Tauranga (26);
? Ngatea (27);
Not felt Warkworth (13).

46/016 Feb 12 00h 40m 37.22S 175.65E 12 km M=4.5
'slight' Paeroa (21).

46/018 Feb 12 06h 16m 39.79S 174.50E 12 km M=6.4
MM 6 Wanganui (57);
MM 5 Ohakune (49); Palmerston North (62);
MM 4 Motu (36); Taumarunui (39); New Plymouth (47); Whangamomona (48); Wairoa (53); Hawera (55); Taihape (58); Hastings (60); Foxton (61); Porangahau (62); Dannevirke (63); Paraparaumu, Paraparaumu Beach (65); Eketahuna (66); Pongaroa (67); Highbury, Karori, Mount Victoria (68); Martinborough (70); Collingwood, Takaka (72); Tadmor (75); Nelson (76); Blenheim (77); Picton (78); Hanmer Springs (88); Akaroa (111);
MM 3 Tolaga Bay (37); Taupo (41); Te Whaiti (42); Napier (52); Portland Island (54); Otaki (65); Masterton (66); Basin Reserve, Eastbourne, Oriental Bay (68); Karamea (74); Cape Campbell (84); Greymouth (85);
MM 2 Awakino (38); Waipawa (60); Hokitika (97); Ashburton (108); Christchurch (110);
'heavy' Waiouru (50);
Not felt Te Kuiti (31).

46/019 Feb 15 15h 32m 40.00S 175.00E 33 km M=3.2
MM 4 Wanganui (57).

46/020 Feb 16 03h 44m 42.50S 173.00E 33 km M=3.2
MM 3 Hanmer Springs (88).

46/021 Feb 16 22h 53m 41.33S 174.26E 33 km M=3.8
MM 4 Picton (78);
MM 3 Wellington (68).

46/022 Feb 19 09h 55m 40.85S 173.07E 12 km M=4.0
MM 3 Takaka, Upper Takaka (72).

46/023 Feb 21 07h 32m 39.34S 177.37E 12 km M=5.1
MM 4 Napier (52); Wairoa (53).

46/024 Feb 21 23h 45m 41.88S 173.16E 12 km M=4.6
MM 4 Collingwood (72);
MM 3 Upper Takaka (72); Karamea (74).

46/026 Feb 26 05h 30m 38.63S 176.35E 12 km M=5.6
MM 5 Opotiki (35); Motu (36);
MM 4 Taumarunui (39); Ohakune (49); Wairoa (53); Dannevirke (63);
MM 3 Gisborne (45).

46/028 Feb 28 23h 37m 40.88S 173.07E 12 km M=4.5
MM 4 Kahurangi Point, Takaka (72);
MM 3 Collingwood (72).

46/029 Mar 01 12h 37m 40.84S 173.00E 12 km M=4.3
MM 3 Takaka (72).

46/030 Mar 04 00h 47m 38.29S 178.60E 12 km M=5.4
MM 5 Tolaga Bay (37);
MM 4 East Cape (29); Motu (36).

46/031 Mar 04 16h 01m 40.20S 174.80E 12 km M=3.7
MM 3 Wanganui (57).

46/034 Mar 07 13h 50m 41.07S 173.17E 12 km M=4.1
MM 4 Takaka (72);
MM 3 Farewell Spit (72).

46/035 Mar 08 23h 26m 41.45S 171.91E 12 km M=4.3
MM 3 Karamea (74).

46/037 Mar 09 17h 15m 41.10S 175.70E 12 km M=4.1
MM 4 Masterton (66).

46/039 Mar 11 10h 35m 39.40S 174.78E 33 km M=3.9
MM 5 Ohakune (49);
MM 4 Wanganui (57).

46/040 Mar 12 17h 04m 40.90S 173.13E 12 km M=4.3
MM 3 Collingwood, Kahurangi Point (72);
'moderate' Farewell Spit (72); Nelson (76).

46/041 Mar 15 22h 56m 46.50S 168.00E 33 km
MM 4 Centre Island (148).

46/042 Mar 17 03h 28m 41.36S 175.87E 12 km M=4.5
MM 2 Wellington (68).

46/046 Mar 25 15h 29m 40.85S 174.03E 12 km M=4.8
MM 5 The Brothers (78);
MM 4 Wanganui (57); Wellington (68); Collingwood, Kahurangi Point, Takaka (72); Nelson (76).

46/047 Mar 31 06h 10m 41.40S 174.90E 12 km
MM 3 Wellington (68).

46/048 Apr 03 10h 01m 40.33S 174.21E 12 km M=4.7
MM 5 Wanganui (57); Foxton (61);
MM 4 New Plymouth (47);
MM 3 Taumarunui (39); Hawera (55); Hunterville (58); Paraparaumu (65).

46/050 Apr 08 14h 10m 40.20S 174.80E 12 km M=3.9
MM 3 Wanganui (57).

46/052 Apr 09 07h 46m 39.44S 178.37E 12 km M=4.1
MM 4 Wairoa (53).

46/053 Apr 13 10h 55m 41.35S 176.21E 12 km M=4.2
MM 4 Masterton (66).

46/054 Apr 16 21h 17m 38.62S 178.85E 12 km M=5.0
MM 5 Tolaga Bay (37);
Not felt Tokomaru Bay (37).

46/056 Apr 22 18h 19m 38.83S 176.15E 124 km M=5.3
MM 4 Taihape (58);
MM 3 Hunterville (58); Hastings (60);
MM 2 Paraparaumu (65); Upper Hutt (68);
'slight' Opotiki (35).

46/059 Apr 28 19h 54m 41.22S 175.74E 12 km M=4.6
MM 4 Masterton (66); Martinborough (70);
MM 3 Paraparaumu (65); Wellington (68).

46/060 Apr 30 15h 33m 41.16S 172.66E 33 km M=4.2
MM 4 Upper Takaka (72);
? Karamea (74).

46/061 May 02 10h 58m 40.50S 175.54E 12 km M=4.0
MM 4 Dannevirke (63);
MM 3 Hunterville (58); Pongaroa (67).

46/062 May 07 07h 04m 41.06S 177.84E 33 km M=5.4
MM 4 Dannevirke (63);
MM 3 Wellington (68).

46/064 May 08 01h 23m 39.95S 176.67E 12 km M=4.2
MM 3 Dannevirke (63).

46/065 May 08 03h 22m 41.17S 178.75E 33 km M=5.1
MM 3 Dannevirke (63).

46/068 May 09 04h 10m 40.68S 176.94E 12 km M=5.5
MM 4 Hastings (60); Dannevirke (63); Paraparaumu (65); Pongaroa (67);
MM 3 Porangahau (64); Masterton (66); Castlepoint (67).

46/069 May 09 04h 44m 40.58S 176.76E 12 km M=4.6
MM 2 Hastings (60).

46/070 May 12 10h 57m 40.30S 176.00E 12 km M=3.4
MM 3 Dannevirke (63).

46/073 May 17 17h 51m 46.00S 167.00E 33 km
MM 5 Puysegur Point (146).

46/078 Jun 07 14h 15m 39.75S 172.61E 12 km M=4.9
MM 5 Taumarunui (39); Ohakune (49); Wanganui (57);
MM 4 Hunterville, Taihape (58);
MM 3 New Plymouth (47).

46/080 Jun 10 03h 37m 41.30S 174.80E 12 km M=3.5
MM 3 Wellington (68).

46/081 Jun 10 18h 21m 43.00S 173.50E 12 km M=3.5
MM 3 Cheviot (96).

46/082 Jun 10 18h 22m 42.60S 173.50E 12 km M=3.9
MM 4 Cheviot (96).

46/083 Jun 11 07h 30m 41.20S 176.10E 12 km M=3.6
MM 3 Masterton (66).

46/085 Jun 14 13h 05m 40.12S 174.95E 12 km M=4.3
MM 4 Wanganui (57); Hunterville (58); Foxton (61).

46/086 Jun 15 05h 32m 41.22S 172.29E 12 km M=4.1
MM 3 Upper Takaka (72).

46/087 Jun 16 09h 46m 40.80S 176.00E 12 km M=3.1
MM 4 Masterton (66).

46/089 Jun 19 15h 42m 41.06S 174.89E 12 km M=3.5
MM 3 Paraparaumu (65).

46/090 Jun 26 12h 13m 43.14S 171.89E 12 km M=4.1
MM 2 Lake Coleridge (100).

46/091 Jun 26 12h 34m 43.51S 171.11E 12 km M=6.2
MM 7 Double Hill, Glenariffe, Glenrock, Glenthorne, Mt. Algidus, Mt. Oakden (99); Lake Coleridge (100);
MM 6 Murchison (80); Lake Heron, Peak Hill (99); Lake Coleridge homestead, Snowden (100);
MM 5 Westport (79); Greymouth (85); Reefton (86); Hanmer (88); Hokitika (91); Otira (93); Rangiora (102); Leeston (109); Christchurch (110); Akaroa (111); Fairlie (117); Geraldine (118); Oamaru (136);
MM 4 Kaikoura (90); Cheviot (96); Akaroa Lighthouse (111); Dunedin (145);
MM 3 Takaka (72); Karamea (74); Nelson (76); Culverden (95); Rakaia (109); Timaru (118); Wanaka (123); Queenstown (132); Cromwell (133); Middlemarch (135); Invercargill (149).
NOTE: The postmaster at Lake Coleridge reported that he had counted 63 aftershocks by 12h 40m, after which they became too numerous to report. It is possible that shocks 46/092 to 46/098 were among those felt, but no specific reports exist.

46/092 Jun 26 12h 53m 43.32S 171.31E 12 km M=4.7
MM 3 Greymouth (85); Hokitika (91).

46/093 Jun 26 13h 06m 43.03S 171.61E 12 km M=4.3
MM 3 Greymouth (85); Hokitika (91).

46/094 Jun 26 13h 16m 43.24S 171.55E 12 km M=4.1
MM 3 Hokitika (91).

46/095 Jun 26 13h 17m 42.99S 171.47E 12 km M=5.1
MM 3 Hokitika (91).

46/097 Jun 26 13h 29m 43.11S 171.41E 12 km M=3.9
MM 3 Hokitika (91).

46/098 Jun 26 13h 41m 43.17S 171.52E 12 km M=3.7
MM 3 Hokitika (91).

46/099 Jun 26 14h 15m 42.85S 170.65E 12 km M=4.4
MM 3 Hokitika (91).

46/100 Jun 26 14h 45m 43.26S 171.57E 12 km M=4.0
MM 4 Lake Coleridge (100).

46/103 Jun 26 22h 18m 43.32S 171.56E 12 km M=4.3
MM 3 Lake Coleridge (100).

46/109 Jun 27 08h 19m 43.48S 171.50E 12 km M=4.0
MM 4 Lake Coleridge (100).

46/110 Jun 27 18h 36m 43.15S 171.56E 12 km M=4.4
MM 4 Lake Coleridge (100).

46/112 Jun 28 00h 35m 43.12S 171.91E 12 km M=3.8
MM 4 Lake Coleridge (100).

46/113 Jun 28 06h 28m 43.06S 172.00E 12 km M=3.5
MM 3 Lake Coleridge (100).

46/114 Jun 28 07h 04m 43.19S 171.73E 12 km M=4.0
MM 3 Lake Coleridge (100).

46/115 Jun 28 07h 12m 43.35S 171.21E 12 km M=5.8
MM 6 Lake Coleridge (100);
MM 5 Westport (79); Greymouth (85); Hokitika (91); Otira (93); Harihari (98); Ashburton (108); Fairlie (117);
MM 4 Greymouth (85); Reefton (86); Christchurch (110); Dunedin (145);
MM 3 Karamea (74); Kaikoura (90); Culverden (95); Rakaia (109); Akaroa, Akaroa Heads (111); Timaru (118); Wanaka (123); Oamaru (136);
MM 2 Dunedin (145);
? Cheviot (96).

46/116 Jun 28 07h 15m 42.80S 171.20E 12 km M=3.8
MM 3 Hokitika (91).

46/117 Jun 28 07h 22m 43.11S 171.86E 12 km M=4.1
MM 3 Lake Coleridge (100).

46/118 Jun 28 07h 59m 43.02S 171.29E 12 km M=4.7
MM 4 Hokitika (91); Lake Coleridge (100);
MM 2 Greymouth (85).

46/119 Jun 28 08h 52m 43.24S 171.26E 12 km M=4.9
MM 4 Lake Coleridge (100);
MM 3 Hokitika (91);
MM 2 Greymouth (85).

46/120 Jun 28 09h 03m 43.17S 171.40E 12 km M=4.0
MM 3 Hokitika (91).

46/122 Jun 28 18h 56m 42.68S 170.74E 12 km M=4.3
MM 3 Lake Coleridge (100).

46/123 Jun 29 19h 48m 42.90S 171.50E 12 km M=3.1
MM 3 Lake Coleridge (100).

46/125 Jun 30 21h 07m 43.19S 171.31E 12 km M=5.1
MM 5 Hokitika (91); Lake Coleridge (100);
MM 4 Reefton (86);
MM 3 Westport (79); Greymouth (85);
'slight' Christchurch (110).

46/126 Jul 01 06h 54m 43.18S 171.65E 12 km M=3.4
MM 4 Lake Coleridge (100).

46/127 Jul 01 15h 36m 43.15S 171.23E 12 km M=4.0
MM 3 Lake Coleridge (100).

46/128 Jul 02 08h 27m 43.46S 171.14E 12 km M=4.6
MM 4 Lake Coleridge (100).

46/129 Jul 04 10h 16m 43.15S 171.62E 12 km M=3.8
MM 4 Lake Coleridge (100).

46/130 Jul 04 18h 00m 40.46S 172.83E 12 km M=5.0
MM 4 Wellington (69);
MM 3 Wanganui (57); Paraparaumu (65).

46/131 Jul 04 18h 00m 43.39S 170.75E 12 km M=5.0
MM 4 Lake Coleridge (100).

46/132 Jul 06 08h 29m 43.29S 171.23E 12 km M=3.5
MM 3 Lake Coleridge (100).

46/133 Jul 06 18h 20m 41.30S 172.16E 12 km M=4.0
MM 3 Upper Takaka (72).

46/134 Jul 07 07h 55m 43.18S 171.50E 12 km M=3.6
MM 3 Lake Coleridge (100).

46/135 Jul 08 14h 36m 38.09S 175.89E 175 km M=5.3
MM 4 Wairoa (53).

46/138 Jul 09 01h 53m 43.21S 171.81E 12 km M=3.3
MM 3 Lake Coleridge (100).

46/139 Jul 09 07h 55m 43.10S 171.50E 12 km M=3.0
MM 4 Lake Coleridge (100).

46/140 Jul 09 10h 12m 43.15S 171.64E 12 km M=3.4
MM 3 Lake Coleridge (100).

46/144 Jul 16 22h 41m 42.54S 173.10E 12 km M=3.8
MM 3 Molesworth (89).

46/146 Jul 22 15h 59m 42.50S 172.70E 12 km M=3.3
MM 4 Hanmer Springs (88);
MM 3 Lewis Pass (87).

46/147 Jul 24 05h 09m 42.94S 171.61E 12 km M=3.6
MM 3 Lake Coleridge (100).

46/148 Jul 24 19h 03m 42.35S 173.09E 12 km M=4.7
MM 4 Hanmer Springs (88);
MM 3 Molesworth (89);
MM 2 Takaka (72).

46/150 Jul 25 16h 44m 41.07S 175.86E 12 km M=3.4
MM 3 Masterton (66).

46/152 Jul 31 10h 12m 43.20S 171.30E 12 km M=3.0
MM 4 Lake Coleridge (100).

46/153 Jul 31 10h 17m 43.10S 171.30E 12 km M=3.5
MM 3 Lake Coleridge (100).

46/154 Aug 07 00h 01m 43.19S 171.52E 12 km M=3.7
MM 3 Lake Coleridge (100).

46/155 Aug 09 01h 37m 43.25S 171.50E 12 km M=2.9
MM 4 Lake Coleridge (100).

46/156 Aug 12 05h 08m 40.21S 174.27E 12 km M=4.3
MM 4 Wanganui (57).

46/158 Aug 12 18h 54m 43.33S 171.33E 12 km M=3.5
MM 4 Lake Coleridge (100).

46/159 Aug 14 05h 23m 38.50S 178.80E 12 km M=4.3
MM 3 Tolaga Bay (37).

46/161 Aug 16 12h 38m 42.10S 172.09E 12 km M=3.5
MM 4 Westport (79).

46/162 Aug 17 04h 39m 37.06S 177.37E 12 km M=5.3
MM 4 Opotiki (35).

46/163 Aug 17 15h 27m 40.89S 171.49E 12 km M=4.4
MM 4 Kahurangi Point (72);
MM 3 Karamea (74).

46/165 Aug 21 21h 38m 39.57S 175.78E 12 km M=4.9
MM 5 Taihape (58);
MM 4 Ohakune (49); Wanganui (57); Hunterville (58); Foxton (61);
MM 3 Taumarunui (39); Hastings (60); Fielding, Palmerston North (62); Dannevirke (63).

46/166 Aug 24 08h 42m 40.30S 176.10E 12 km M=3.4
MM 4 Dannevirke (63).

46/168 Aug 26 04h 28m 43.24S 171.72E 12 km M=3.3
MM 3 Lake Coleridge (100).

46/169 Sep 02 13h 06m 38.70S 178.50E 12 km M=4.3
MM 3 Gisborne (45).

46/170 Sep 06 11h 48m 40.84S 174.74E 83 km M=4.1
MM 3 Hunterville (58).

46/173 Sep 12 14h 31m 40.20S 175.80E 12 km M=4.2
MM 3 Hunterville (58).

46/174 Sep 14 10h 51m 39.05S 178.14E 12 km M=5.2
MM 5 Tolaga Bay (37); Gisborne (45);
MM 4 Wairoa (53).

46/175 Sep 16 10h 05m 41.20S 175.00E 12 km M=3.7
MM 3 Karori (68);
MM 2 Paraparaumu (65).

46/178 Sep 22 16h 59m 38.54S 178.65E 12 km M=4.3
MM 4 Tolaga Bay (37).

46/179 Sep 24 06h 40m 37.31S 178.99E 12 km M=5.5
MM 3 Wairoa (53); Dannevirke (63).

46/180 Sep 26 19h 29m 42.21S 168.58E 12 km M=4.2
MM 4 Milford Sound (120).

46/184 Oct 09 04h 34m 36.50S 175.00E 12 km
MM 2 Auckland (16).

46/189 Oct 14 08h 05m 42.12S 172.39E 12 km M=4.2
? Westport (79); Greymouth (85); Christchurch (110).

46/190 Oct 14 16h 50m 38.80S 178.50E 12 km M=4.2
MM 3 Gisborne (45).

46/191 Oct 15 02h 39m 41.00S 172.40E 12 km M=4.2
MM 3 Takaka (72).

46/193 Oct 16 20h 40m 40.92S 173.89E 12 km M=4.8
MM 3 Wellington (68); Nelson (76); Blenheim (77); Cape Campbell (84); Molesworth (89);
MM 2 Takaka (72).

46/194 Oct 20 15h 15m 41.00S 175.80E 12 km M=3.6
MM 3 Masterton (66).

46/195 Oct 21 05h 00m 39.73S 175.59E 12 km M=4.0
MM 4 Hunterville (56); Dannevirke (63).

46/197 Oct 26 03h 29m 39.64S 178.52E 12 km M=4.9
? Hastings (60).

46/198 Oct 26 23h 14m 41.12S 173.52E 12 km M=4.7
MM 4 Karori (68);
MM 3 Wellington (68).

46/199 Nov 04 16h 53m 43.03S 171.79E 12 km M=2.9
MM 4 Lake Coleridge (100).

46/200 Nov 08 06h 25m 37.26S 178.23E 12 km M=5.5
MM 3 Opotiki (35).

46/204 Nov 21 16h 09m 39.77S 176.66E 12 km M=4.2
MM 4 Napier (52);
MM 3 Dannevirke (63).

46/208 Dec 02 08h 26m 41.37S 175.72E 33 km M=4.4
MM 3 Wellington (68).

46/211 Dec 09 17h 45m 40.34S 173.34E 147 km M=5.1
MM 4 Wanganui (57); Paraparaumu (65); Karori (68).

46/212 Dec 12 10h 55m 40.20S 174.80E 12 km M=3.5
MM 3 Wanganui (57).

46/213 Dec 12 14h 40m 39.52S 174.87E 12 km M=5.5
MM 5 Karori (68);
MM 4 Wanganui (57);
MM 3 Paraparaumu (65).

46/217 Dec 17 05h 05m 42.50S 173.00E 12 km M=3.4
MM 4 Hanmer Springs (88).

46/219 Dec 19 15h 11m 41.50S 174.40E 12 km M=4.0
MM 2 Paraparaumu (65); Wellington (68).

46/220 Dec 20 06h 40m 41.86S 173.58E 12 km M=4.7
MM 4 Takaka (72).

46/221 Dec 25 03h 11m 41.00S 172.80E 12 km M=3.7
MM 3 Takaka (72).

46/223 Dec 28 15h 32m 41.14S 173.55E 12 km M=4.4
MM 3 Kahurangi Point, Takaka (72).

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47/004 Jan 10 16h 09m 46.35S 167.27E 33 km M=5.0
MM 4 Puysegur Point (146).

47/006 Jan 17 22h 11m 43.31S 171.30E 33 km M=4.4
MM 4 Lake Coleridge (100).

47/007 Jan 19 19h 22m 41.23S 173.08E 12 km M=4.0
MM 5 Takaka (72).

47/008 Jan 19 19h 35m 44.50S 167.40E 33 km M=4.3
MM 3 Milford Sound (120); Queenstown (132).

47/011 Jan 22 20h 23m 41.51S 173.15E 12 km M=5.1
MM 4 Nelson (76);
MM 3 Takaka (72); Karamea (74); Reefton (86);
'slight' Blenheim (77);
? New Plymouth (47).

47/013 Jan 27 13h 03m 39.49S 175.46E 12 km M=3.5
MM 4 Wanganui (57).

47/019 Feb 04 21h 06m 43.28S 171.30E 33 km M=3.9
MM 4 Lake Coleridge (100).

47/020 Feb 04 21h 14m 43.20S 171.40E 33 km M=2.9
MM 3 Lake Coleridge (100).

47/022 Feb 08 18h 45m 43.18S 171.64E 12 km M=3.8
MM 5 Lake Coleridge (100).

47/023 Feb 09 04h 19m 43.14S 171.75E 12 km M=3.5
MM 4 Lake Coleridge (100).

47/024 Feb 10 19h 25m 41.45S 171.64E 12 km M=4.4
MM 4 Karamea (44); Tadmor (45).

47/028 Feb 16 15h 30m 40.96S 173.69E 33 km M=4.2
MM 4 Mapua, Nelson (76).

47/029 Feb 16 22h 03m 41.12S 174.70E 84 km M=4.8
MM 3 Wellington (68).

47/030 Feb 17 09h 48m 38.12S 176.39E 296 km M=6.2
MM 4 Ohakune (49); Hunterville (58); Dannevirke (63); Otaki, Paraparaumu (65); Nelson (76);
MM 3 Napier (52); Hastings (60); Karori (68); The Brothers (78).

47/031 Feb 23 10h 42m 40.10S 174.53E 12 km M=4.3
MM 4 Wanganui (57).

47/037 Mar 13 22h 03m 40.90S 175.90E 33 km M=3.7
MM 3 Masterton (66).

47/038 Mar 14 10h 48m 40.67S 174.96E 12 km M=4.3
MM 4 Wanganui (57).

47/039 Mar 15 01h 23m 40.67S 174.96E 12 km M=3.5
MM 4 Wanganui (57).

47/040 Mar 16 14h 51m 40.04S 174.16E 12 km M=4.6
MM 4 Wanganui (57).

47/041 Mar 22 19h 00m 39.68S 176.65E 12 km M=4.1
MM 4 Napier (52); Hastings (60).

47/042 Mar 25 20h 32m 38.92S 178.24E 12 km M=6.0
MM 4 Opotiki (35); Motu (36); Tolaga Bay (37);
MM 3 Wairoa (53);
MM 2 Tuai (43).
For isoseismal map, see Hayes, 1948. Tsunami. See section 'Principal Earthquakes'

47/043 Mar 25 22h 14m 38.00S 177.30E 12 km M=3.7
MM 4 Opotiki (35).

47/044 Mar 26 07h 18m 40.10S 174.75E 12 km M=3.5
MM 4 Wanganui (57).

47/045 Mar 26 09h 08m 42.70S 172.60E 12 km M=4.4
MM 3 Te Kinga (92); Otira (93);
MM 2 Moana (42).

47/046 Mar 27 18h 25m 38.86S 177.80E 12 km M=5.3
MM 5 Gisborne (45); Wairoa (53);
MM 4 Motu (36); Tolaga Bay (37).

47/047 Mar 29 23h 48m 38.98S 178.85E 33 km M=4.7
MM 4 Tolaga Bay (37).

47/048 Mar 30 02h 53m 39.24S 178.01E 33 km M=4.9
MM 4 Tolaga Bay (37).

47/054 Apr 02 21h 45m 39.24S 178.85E 33 km M=5.0
MM 4 Tolaga Bay (37).

47/055 Apr 03 21h 10m 39.37S 179.01E 33 km M=5.3
MM 4 Tolaga Bay (37); Gisborne (40).

47/056 Apr 04 01h 38m 39.25S 178.24E 33 km M=4.9
MM 4 Gisborne (45);
MM 3 Wairoa (53).

47/057 Apr 04 12h 28m 39.15S 178.19E 33 km M=4.8
MM 4 Tolaga Bay (37); Gisborne (45).

47/059 Apr 07 09h 44m 39.51S 177.94E 12 km M=4.6
MM 4 Tolaga Bay (37); Wairoa (53).

47/060 Apr 08 09h 30m 37.50S 177.20E 33 km M=4.1
MM 3 Opotiki (35).

47/061 Apr 10 17h 40m 38.69S 178.69E 12 km M=4.5
MM 4 Tolaga Bay (37).

47/062 Apr 16 07h 10m 38.37S 175.87E 12 km M=4.1
MM 4 Tokaanu (40).

47/063 Apr 16 07h 31m 38.40S 175.90E 12 km M=3.5
MM 4 Tokaanu (40).

47/064 Apr 16 08h 04m 38.51S 176.14E 12 km M=3.4
MM 4 Taumarunui (39).

47/065 Apr 16 12h 41m 38.25S 175.75E 33 km M=4.9
MM 4 Taumarunui (39).

47/066 Apr 16 14h 47m 38.35S 175.82E 12 km M=5.0
MM 4 Taumarunui (39); Tokaanu (40).

47/068 Apr 17 01h 27m 38.94S 176.24E 33 km M=4.5
MM 4 Wairoa (53).

47/070 Apr 19 20h 08m 37.62S 175.35E 12 km M=3.8
MM 3 Morrinsville (25).

47/071 Apr 20 04h 43m 39.98S 174.93E 12 km M=4.3
MM 4 Hunterville (58).

47/072 Apr 21 23h 11m 39.65S 177.04E 12 km M=5.4
MM 5 Hastings (60);
MM 4 Opotiki (35); Napier (52); Wairoa (53); Hunterville (58); Dannevirke (63).

47/073 Apr 23 09h 45m 41.36S 175.79E 12 km M=4.8
MM 4 Foxton (61); Martinborough (70); Karori, Kelburn, Mount Victoria, Thorndon (63);
MM 3 Hunterville (58); Paraparaumu (65); Martinborough (70).

47/074 Apr 23 11h 38m 40.13S 176.45E 12 km M=4.0
MM 3 Waipawa (60);
? Waipukurau (60).

47/075 Apr 23 11h 41m 41.01S 172.98E 5 km M=3.9
MM 4 Upper Takaka (72);
MM 3 Tadmor (75);
MM 2 Takaka (72).

47/076 Apr 23 23h 51m 46.49S 169.05E 33 km M=5.3
MM 5 Centre Island (48);
MM 4 Queenstown (132); Middlemarch (135); Lumsden (140); Roxburgh (142); Lawrence (143); Dunedin (144); Gore (150); Balclutha (152); Awarua, Waipapa Point (154);
MM 3 Taieri (145); Invercargill (149);
MM 2 Oamaru (136);
MM 1 Nightcaps (140);
? Alexandra (133);
Not felt Cromwell (133).

47/077 Apr 24 09h 26m 46.50S 169.00E 33 km M=4.8
MM 4 Centre Island, Orepuki (148); Waipapa Point (154);
MM 3 Gore (150); Awarua (154).

47/078 Apr 25 03h 47m 41.04S 173.05E 33 km M=4.4
MM 4 Takaka, Upper Takaka (72).

47/079 Apr 25 04h 11m 41.02S 172.93E 12 km M=3.7
MM 4 Upper Takaka (72).

47/080 Apr 26 03h 34m 41.50S 175.00E 33 km
MM 2 Te Aro (68).

47/081 Apr 28 14h 48m 40.10S 175.30E 33 km M=4.6
MM 4 Wanganui (57); Foxton (61);
MM 3 Hunterville (58);
MM 2 Wellington (68);
MM 1 Paraparaumu Beach (65).

47/083 Apr 28 17h 35m 40.20S 175.04E 33 km M=4.4
MM 4 Wanganui (57);
MM 3 Hunterville (58), Foxton (61);
MM 2 Wellington (68);
MM 1 Paraparaumu Beach (65).

47/084 Apr 30 19h 39m 40.74S 176.53E 12 km M=5.1
MM 4 Dannevirke (63); Porangahau (64);
MM 3 Hastings (60); Pongaroa (67);
MM 2 Wanganui (57).

47/085 Apr 30 22h 52m 41.62S 172.15E 12 km M=4.3
MM 4 Karamea (74).

47/087 May 03 05h 11m 40.68S 175.81E 12 km M=4.6
MM 5 Castlepoint (67);
MM 3 Hunterville (58); Palmerston North (62); Masterton (66); Pongaroa (67);
? Bunnythorpe (62).

47/088 May 03 11h 29m 40.90S 175.80E 33 km M=3.4
MM 3 Masterton (66).

47/089 May 04 02h 11m 40.70S 174.70E 33 km M=3.9
MM 3 Plimmerton (68);
MM 2 Karori (68).

47/090 May 04 17h 30m 37.80S 177.00E 12 km M=4.2
MM 4 Whakatane (27).

47/091 May 05 02h 05m 39.36S 175.35E 33 km M=5.9
MM 5 Wanganui (57); Foxton (61); Otaki (65);
MM 4 Whangamomona (48); Ohakune (49); Hawera (55); Hunterville (58); Paraparaumu, Paraparaumu Beach (65); Wellington (68); Martinborough (70); Takaka (72);
MM 3 New Plymouth (47); Masterton (66);
'severe' Waverley (56);
'sharp' Kaponga (47);
'moderate' Nelson (76);
'slight' Palmerston North (62).

47/093 May 11 07h 50m 34.24S 179.30E 316 km M=6.1
MM 1 Karori, Khandallah (68).

47/096 May 17 07h 06m 38.28S 178.67E 12 km M=5.6
MM 5 Tolaga Bay (37); Gisborne (46); Wairoa (53);
MM 4 Opotiki (35); Wairoa (53);
Not felt Bunnythorpe (62).
Tsunami. See section 'Principal Earthquakes'.

47/098 May 17 15h 45m 38.70S 178.74E 12 km M=4.7
MM 5 Gisborne (45);
MM 4 Tolaga Bay (37).

47/100 May 17 21h 26m 38.71S 178.77E 12 km M=4.4
MM 4 Tolaga Bay (37).

47/101 May 17 21h 35m 38.76S 178.59E 12 km M=4.6
MM 4 Tolaga Bay (37).

47/102 May 18 08h 15m 38.50S 178.50E 12 km M=3.8
MM 4 Tolaga Bay (37).

47/103 May 19 12h 12m 39.05S 178.29E 12 km M=3.9
MM 4 Tolaga Bay (37).

47/104 May 21 19h 02m 42.65S 172.65E 12 km M=4.5
MM 4 Hanmer Springs (88); Lake Coleridge (100);
MM 3 Greymouth (85).

47/105 May 22 15h 01m 38.61S 178.23E 33 km M=4.6
MM 4 Tolaga Bay (37).

47/106 May 22 15h 02m 38.66S 178.41E 33 km M=4.6
MM 3 Tolaga Bay (37).

47/108 May 22 15h 24m 39.08S 178.21E 33 km M=4.0
MM 3 Tolaga Bay (37).

47/109 May 22 15h 51m 39.00S 178.20E 33 km M=3.7
MM 3 Tolaga Bay (37).

47/110 May 22 17h 24m 38.75S 178.68E 12 km M=4.7
MM 5 Tolaga Bay (37); Gisborne (45).

47/111 May 24 09h 33m 38.29S 177.99E 12 km M=3.9
MM 4 Tolaga Bay (37).

47/113 May 29 06h 25m 37.60S 177.78E 12 km M=4.8
MM 4 Motu (36); Tolaga Bay (37);
'slight' East Cape (29).

47/114 May 29 19h 05m 37.60S 177.80E 12 km M=4.2
MM 4 Tolaga Bay (37).

47/115 May 31 15h 36m 41.17S 172.20E 12 km M=3.7
MM 3 Kahurangi Point (72).

47/116 May 31 18h 31m 41.41S 174.20E 12 km M=4.1
MM 4 Wellington (68); Havelock (77); The Brothers (78).

47/118 Jun 16 10h 55m 38.41S 178.74E 33 km M=5.4
MM 7 Tolaga Bay (37);
MM 5 Gisborne (45);
MM 4 Opotiki (35); Motu (36);
MM 3 Wairoa (53).

47/119 Jun 16 11h 00m 38.40S 178.70E 33 km M=4.3
MM 4 Tolaga Bay (37).

47/120 Jun 16 11h 21m 38.40S 178.70E 33 km M=4.1
MM 3 Tolaga Bay (37).

47/121 Jun 27 14h 43m 40.70S 173.00E 12 km M=3.3
MM 3 Takaka (72).

47/122 Jun 30 16h 14m 38.90S 179.00E 33 km M=4.6
MM 4 Tolaga Bay (37).

47/123 Jul 05 11h 46m 39.32S 178.32E 12 km M=4.1
MM 4 Tolaga Bay (37).

47/125 Jul 09 18h 11m 40.82S 172.94E 12 km M=3.9
MM 3 Kahurangi Point (72); Takaka (73).

47/126 Jul 11 05h 08m 39.65S 174.40E 210 km M=5.6
MM 4 Bunnythorpe (62);
MM 3 Wanganui (57); Hunterville (58); Paraparaumu Beach (65); Wellington (68).

47/128 Jul 13 19h 58m 43.28S 171.28E 12 km M=3.3
MM 3 Lake Coleridge (100).

47/129 Jul 19 08h 41m 39.30S 177.63E 12 km M=4.6
MM 4 Wairoa (53);
MM 3 Wairoa (53);
MM 2 Napier (52).

47/131 Jul 23 16h 51m 40.92S 176.17E 12 km M=3.8
MM 3 Masterton (66).

47/134 Aug 02 13h 46m 38.00S 178.50E 12 km M=5.0
MM 4 Motu (36).

47/135 Aug 02 22h 12m 39.19S 176.38E 12 km M=3.8
MM 4 Motu (36).

47/136 Aug 02 22h 40m 39.19S 176.21E 12 km M=4.5
MM 4 Motu (36).

47/138 Aug 06 19h 29m 39.50S 174.00E 12 km M=3.8
MM 2 Taumarunui (39).

47/140 Aug 08 05h 32m 46.43S 166.66E 12 km M=5.4
'light' Puysegur Point (146).

47/141 Aug 08 06h 50m 46.50S 166.50E 12 km M=4.6
'light' Puysegur Point (146).

47/142 Aug 08 20h 18m 46.50S 168.37E 12 km M=5.4
'light' Puysegur Point (146).

47/143 Aug 09 03h 46m 46.50S 166.50E 12 km M=4.6
'light' Pyysegur Point (146).

47/144 Aug 09 05h 33m 45.38S 166.78E 12 km M=5.6
MM 4 Invercargill (149);
'moderate' Puysegur Point (146).

47/145 Aug 09 06h 23m 46.50S 166.50E 12 km M=4.6
'light' Puysegur Point (146).

47/146 Aug 10 11h 59m 40.39S 175.03E 12 km M=4.4
MM 4 Hunterville (58); Bunnythorpe (52); Dannevirke (63); Masterton (66);
MM 3 Wellington (68);
MM 2 Titahi Bay (68);
'mild' Castlepoint (67).

47/147 Aug 14 13h 58m 46.50S 166.50E 12 km M=3.9
'light' Puysegur Point (146).

47/148 Aug 14 17h 39m 46.50S 166.50E 12 km M=3.9
'light' Puysegur Point (146).

47/149 Aug 14 17h 51m 38.84S 177.28E 33 km M=4.3
MM 3 Gisborne (45).

47/150 Aug 15 22h 34m 45.41S 166.70E 12 km M=4.7
'light' Puysegur Point (146).

47/151 Aug 17 06h 47m 40.46S 174.60E 12 km M=4.6
MM 4 Paraparaumu Beach (65); Masterton (66); Karori (68);
MM 3 Wanganui (57); Bunnythorpe (62); Wellington (68);
? Palmerston North (62).

47/152 Aug 17 08h 36m 41.29S 173.88E 12 km M=4.0
MM 4 Masterton (66); Martinborough (70);
MM 3 Otaki (65);
MM 2 Paraparaumu Beach (65);
'slight' Palmerston North (62).

47/153 Aug 18 11h 46m 39.41S 175.87E 33 km M=4.7
MM 3 Dannevirke (63).

47/154 Aug 22 05h 42m 43.20S 173.37E 12 km M=3.8
MM 4 Cheviot (96).

47/155 Aug 22 13h 47m 38.59S 177.39E 12 km M=5.0
MM 5 Opotiki (35); Motu (36); Gisborne (45);
MM 4 Tolaga Bay (37);
MM 3 Wairoa (53).

47/156 Aug 22 23h 59m 38.40S 177.55E 12 km M=4.8
MM 6 Motu (36);
MM 3 Wairoa (53).

47/157 Aug 23 19h 10m 41.52S 173.48E 20 km M=4.4
MM 4 Nelson (76).

47/158 Aug 24 20h 35m 38.80S 178.30E 12 km M=3.8
'slight' Gisborne (45).

47/159 Aug 26 03h 38m 38.58S 177.03E 12 km M=4.8
MM 5 Opotiki (35);
'severe' Whakatane (27).

47/160 Aug 26 12h 12m 40.20S 174.51E 12 km M=3.9
MM 4 Wanganui (57).

47/161 Aug 27 13h 37m 39.56S 179.38E 12 km M=6.2
MM 6 Tolaga Bay (37);
MM 5 Opotiki (35); Motu (36); Gisborne (45); Wairoa (53); Havelock North (60);
MM 4 Tauranga (26); Whakatane (27); Tokaanu (40); Te Whaiti (42); Napier (52); Hawera (55); Wanganui (57); Hunterville, Taihape (58); Bunnythorpe, Feilding, Palmerston North (62); Dannevirke (63); Otaki, Paraparaumu (65); Eketahuna, Masterton (66); Wellington (68);
MM 3 Taumarunui (39); New Plymouth (47); Portland Island (54); Greymouth (85);
MM 2 Blenheim (77); Christchurch (110);
'light' Taupo (41);
Not felt Te Kuiti (31); Awakino (38); Ohakune (49).

47/162 Aug 27 16h 20m 39.24S 179.62E 12 km M=6.2
MM 4 Tolaga Bay (37);
MM 3 Te Whaiti (42); Gisborne (45); Wairoa (53); Wellington (68).

47/166 Aug 27 17h 32m 39.41S 179.47E 33 km M=5.3
MM 4 Tolaga Bay (37);
MM 2 Wairoa (53).

47/168 Aug 27 23h 59m 39.38S 179.26E 33 km M=5.4
MM 2 Te Whaiti (42).

47/169 Aug 28 00h 56m 39.29S 179.60E 33 km M=4.6
MM 2 Te Whaiti (42).

47/171 Aug 28 08h 12m 38.53S 178.79E 33 km M=4.5
MM 3 Tolaga Bay (37).

47/172 Aug 28 15h 07m 39.33S 179.44E 33 km M=6.0
MM 4 Tolaga Bay (37).

47/173 Aug 28 17h 10m 39.23S 175.96E 12 km M=4.1
? Taupo (41).

47/176 Aug 30 01h 59m 38.46S 178.62E 12 km M=4.4
MM 3 Tolaga Bay (37).

47/177 Sep 01 08h 02m 39.59S 179.33E 12 km M=5.1
MM 3 Tolaga Bay (37).

47/178 Sep 03 08h 19m 39.51S 176.12E 12 km M=4.0
'sharp' Taupo (41).

47/180 Sep 04 14h 05m 39.66S 179.46E 12 km M=5.6
MM 4 Tolaga Bay (37);
MM 3 Wairoa (53).

47/182 Sep 10 09h 30m 41.00S 175.50E 12 km M=2.9
? Masterton (66).

47/183 Sep 11 11h 12m 40.20S 175.00E 12 km M=3.5
MM 4 Wanganui (57).

47/184 Sep 14 14h 34m 43.20S 171.50E 12 km M=3.3
MM 4 Lake Coleridge (100).

47/185 Sep 15 09h 14m 41.15S 176.27E 12 km M=5.6
MM 5 Foxton (61); Dannevirke (63); Eketahuna, Masterton (66);
MM 4 Ohakune (49); Wairoa (53); Wanganui (57); Bunnythorpe (62); Porangahau (64); Otaki, Paraparaumu Beach (65); Kelburn, Mount Victoria (68); Martinborough (70); Nelson (76); Havelock (78);
MM 3 Taumarunui (39); New Plymouth (47); Wairoa (53); Collingwood, Kahurangi Point, Takaka (72); Tadmor (75); Blenheim (77); Akaroa, Akaroa Lighthouse (111);
MM 2 Greymouth (85); Christchurch (11);
'slight' Ashburton (108);
? Napier (52).

47/188 Sep 22 10h 43m 40.11S 174.48E 12 km M=4.7
MM 4 Wanganui (57);
MM 3 Dannevirke (63);
MM 2 Wellington (68).

47/189 Sep 23 14h 53m 43.20S 171.50E 12 km M=3.0
MM 2 Lake Coleridge (100).

47/190 Sep 23 17h 54m 39.50S 177.50E 12 km M=4.1
MM 3 Wairoa (53).

47/191 Sep 30 02h 56m 40.22S 174.43E 12 km M=4.3
MM 3 Paraparaumu Beach (65).

47/192 Sep 30 05h 38m 43.20S 171.50E 12 km M=2.9
MM 3 Lake Coleridge (100).

47/193 Oct 01 13h 29m 41.59S 174.67E 33 km M=4.3
MM 2 Paraparaumu Beach (65).

47/195 Oct 09 01h 09m 38.54S 178.67E 12 km M=4.3
MM 4 Tolaga Bay (37).

47/196 Oct 09 23h 19m 40.64S 173.57E 113 km M=5.0
MM 3 Wellington (68).

47/198 Oct 12 10h 11m 37.00S 177.50E 33 km M=5.1
MM 4 Maraenui (28).

47/199 Oct 13 07h 31m 44.42S 168.48E 12 km M=6.2
MM 8 Jackson's Bay (113);
MM 5 The Hermitage (105); Queenstown (132); Cromwell (133); Naseby (135); Nightcaps (140);
MM 4 Westport (79); Hokitika (91); Benmore Station (99); Lake Tekapo (106); Fairlie (117); Milford Sound (120); Middlemarch (135); Oamaru (136); Dunedin (145); Centre Island (148); Invercargill (149); Gore (150); Balclutha (152); Awarua Radio (154);
MM 3 Takaka (72); Karamea (74); Greymouth (85); Reefton (86); Otira (93); Lake Coleridge (100); Rakaia (109); Timaru (118); Moeraki Point (186); Lumsden (140); Roxburgh (142); Invercargill (149);
MM 2 Christchurch (110); Akaroa (111).
For isoseismal map, see Hayes, 1948.

47/200 Oct 13 08h 18m 44.40S 168.50E 33 km M=4.4
'slight' Jackson's Bay (113).

47/201 Oct 13 08h 39m 44.09S 168.37E 12 km M=4.9
'slight' Jackson's Bay (113).

47/202 Oct 13 08h 47m 43.88S 168.08E 12 km M=4.6
'slight' Jackson's Bay (113).

47/203 Oct 13 08h 53m 44.40S 168.50E 12 km M=4.8
'slight' Jackson's Bay (113).

47/204 Oct 13 09h 21m 43.43S 168.60E 12 km M=4.4
'sharp' Jackson's Bay (113).

47/205 Oct 13 16h 11m 43.34S 171.43E 12 km M=3.4
MM 3 Lake Coleridge (100).

47/206 Oct 16 09h 02m 40.00S 174.80E 12 km M=3.2
MM 4 Wanganui (57).

47/207 Oct 16 11h 07m 40.50S 174.50E 12 km M=4.4
MM 4 Wanganui (57); Otaki, Paraparaumu Beach (65); Wellington (68).

47/208 Oct 17 20h 28m 38.53S 175.81E 12 km M=4.1
MM 4 Taumarunui (39).

47/210 Oct 20 17h 24m 41.70S 171.50E 12 km M=3.2
MM 4 Westport (79).

47/211 Oct 22 15h 25m 38.65S 178.75E 33 km M=5.1
MM 4 Tolaga Bay (37);
MM 3 Wairoa (53); Dannevirke (63).

47/212 Oct 23 13h 54m 38.51S 176.67E 52 km M=5.0
MM 4 Wairoa (53);
MM 3 Opotiki (35); Wairoa (53);
? Napier (52).

47/213 Oct 25 03h 33m 37.88S 176.83E 260 km M=5.0
MM 3 Maraenui (28).

47/214 Oct 26 09h 27m 40.22S 175.23E 12 km M=3.9
MM 3 Hunterville (58);
'slight' Palmerston North (52).

47/215 Oct 26 11h 57m 39.50S 174.86E 144 km M=5.4
MM 4 Wanganui (57); Dannevirke (63);
MM 3 New Plymouth (47); Hunterville (58); Bunnythorpe (62); Karori (68).

47/216 Oct 27 07h 12m 38.00S 178.00E 12 km M=4.7
MM 4 Motu (36).

47/217 Oct 27 07h 30m 38.00S 178.00E 12 km M=4.3
MM 4 Motu (36).

47/218 Oct 29 09h 40m 46.50S 166.50E 12 km M=4.9
MM 3 Centre Island (148); Invercargill (149);
'slight' Puysegur Point (146).

47/219 Oct 31 00h 50m 38.43S 176.68E 12 km M=4.5
? Opotiki (35).

47/220 Nov 01 03h 17m 38.01S 177.91E 12 km M=4.6
MM 3 Tolaga Bay (37).

47/222 Nov 04 09h 07m 37.92S 178.20E 12 km M=4.3
MM 4 Maraenui (28).

47/223 Nov 04 09h 11m 38.50S 179.00E 12 km M=4.4
MM 2 Maraenui (28).

47/224 Nov 05 19h 53m 40.48S 173.02E 12 km M=3.9
MM 3 Wanganui (57).

47/225 Nov 06 03h 39m 43.98S 169.17E 33 km M=4.5
MM 5 Jackson's Bay (113).

47/226 Nov 08 22h 41m 39.47S 179.46E 12 km M=5.9
MM 4 Tolaga Bay (37); Te Whaiti (42); Wairoa (53);
MM 2 Hastings (60).

47/229 Nov 09 16h 02m 41.07S 174.61E 12 km M=4.0
MM 4 Wellington (68);
MM 3 Paraparaumu Beach (65).

47/231 Nov 18 22h 25m 44.50S 169.00E 12 km M=4.1
MM 4 Queenstown (132).

47/232 Nov 22 04h 55m 40.90S 172.80E 12 km M=3.2
MM 2 Takaka (72).

47/233 Nov 22 18h 58m 40.16S 174.65E 12 km M=3.8
MM 3 Wanganui (57).

47/234 Nov 23 03h 41m 40.16S 174.84E 12 km M=3.8
MM 3 Wanganui (57).

47/235 Nov 23 07h 41m 40.10S 174.90E 12 km M=3.2
MM 2 Wanganui (57).

47/237 Nov 25 18h 43m 41.66S 172.45E 12 km M=3.6
MM 3 Karamea (74).

47/238 Nov 25 23h 59m 38.47S 176.01E 12 km M=4.8
MM 4 Taupo (41).

47/239 Nov 27 05h 25m 41.21S 175.61E 12 km M=4.1
MM 3 Masterton (66).

47/240 Dec 03 16h 37m 38.00S 177.50E 12 km M=3.7
MM 4 Maraenui (28).

47/244 Dec 06 19h 35m 41.11S 173.57E 96 km M=4.6
MM 2 Paraparaumu (65); Newtown, Wellington (68);
'sharp' Nelson (76).

47/246 Dec 11 10h 59m 42.10S 174.91E 12 km M=4.1
MM 3 Blenheim (77); Seddon (84).

47/247 Dec 11 14h 20m 41.13S 172.62E 12 km M=4.6
MM 4 Collingwood, Farewell Spit, Kahurangi Point (72);
MM 3 Takaka (72).

47/248 Dec 12 14h 38m 40.70S 174.70E 12 km M=3.7
MM 2 Wellington (68).

47/250 Dec 15 13h 17m 40.09S 175.10E 12 km M=3.7
MM 4 Wanganui (57).

47/252 Dec 18 07h 10m 39.42S 175.90E 33 km M=4.8
MM 2 Wellington (68).

47/254 Dec 22 14h 53m 39.33S 176.93E 12 km M=3.5
MM 3 Napier (52).

47/255 Dec 26 02h 40m 38.09S 176.69E 149 km M=5.1
MM 3 Wairoa (53).

47/256 Dec 28 17h 30m 40.71S 172.65E 12 km M=3.5
MM 5 Kahurangi Point (72);
MM 3 Collingwood (72).

47/257 Dec 29 14h 54m 41.50S 174.80E 12 km
MM 3 Wellington (68).

47/258 Dec 31 17h 08m 39.09S 177.77E 12 km M=4.8
MM 4 Tuai (43); Gisborne (45); Wairoa (53);
MM 3 Maraenui (28).

EARTHQUAKES FELT IN STANDARD LOCALITIES

Localities within which earthquakes were felt are listed in alphabetical order, each preceded by its number on the reference map. The figure following the name of the locality is the number of the epicentre followed by the maximum intensity (in brackets) reported within the district covered by the locality name. An asterisk (*) indicates that the particular intensity was not evaluated from the standard questionnaire. The location of the earthquake, the instrumental magnitude and the actual places at which it was reported felt may be found from the table of "Places Reporting Felt Earthquakes".

1945

111 Akaroa 62 (3).
133 Alexandra 96 (3).
16 Auckland 71 (?).
77 Blenheim 39 (3).
154 Bluff 96 (4).
61 Bulls 23 (3), 45 (5), 50 (4).
67 Castlepoint 2 (4), 50 (3).
96 Cheviot 62 (4), 90 (4).
110 Christchurch 62 (2).
89 Clarence 82 (3), 86 (3), 90 (?).
95 Culverden 90 (5).
63 Dannevirke 2 (4), 50 (3).
145 Dunedin 96 (3).

88 Hanmer 54 (4), 79 (3), 80 (3), 81 (5), 82 (3), 83 (3), 84 (3), 85 (4), 86 (6), 87 (3), 88 (3), 89 (4), 90 (6), 91 (3), 92 (3), 93 (4), 94 (4), 95 (4).
60 Hastings 2 (5), 108(3*), 139 (2).
91 Hokitika 90 (3).
149 Invercargill 96 (4), 97 (4).
113 Jackson's Bay 96 (3).
90 Kaikoura 42 (7).
74 Karamea 12 (3), 98 (3), 101 (3), 106 (3).
132 Kingston 96 (4), 105(5*).
100 Lake Coleridge 58 (4).
143 Lawrence 96 (3).
54 Mahia 73 (3).
70 Martinborough 50 (3), 134 (3).
66 Masterton 25 (3), 27 (3), 30 (2), 33 (3), 34 (4), 50 (5), 51 (2), 134(3*).
140 Mossburn 96 (3), 97 (2), 105 (3).
75 Motueka 12 (4).
71 Mount Stevens 106 (3).
52 Napier 2 (4).
76 Nelson 22 (3), 100 (3), 101 (2), 106 (?).
47 New Plymouth 19 (4), 20 (3), 38 (3).
65 Otaki 2 (3), 18 (2), 22 (3), 39 (2), 45 (2), 50 (4), 52 (2), 134 (2).
62 Palmerston North 2 (3), 45 (3), 50 (2), 108 (3).
78 Picton 44 (3).
64 Porangahau 2 (4).
146 Puysegur Point 96 (4), 97 (5).
135 Ranfurly 96 (2).
86 Reefton 86 (5).
142 Roxburgh 96 (4).
158 Stewart Is. 96 (?).
58 Taihape 2 (4), 23 (3), 73 (3), 136 (2).
72 Takaka 3 (3), 7 (4), 12 (4), 21 (3), 22 (4), 40 (1), 99 (3), 100 (5), 101 (2), 106 (3), 135 (3), 137 (3), 138 (3).
39 Taumarunui 23 (3), 65 (4), 121 (4).
41 Taupo 2 (3), 72 (4).
21 Thames 11 (3).
118 Timaru 96 (3).
40 Tokaanu 110 (4), 111 (3), 113 (4).
37 Tolaga Bay 102 (4).
148 Tuatapere 96 (5), 97 (3).
82 Wairau 22 (3).
53 Wairoa 1 (5), 2 (5), 26 (4), 69 (4), 70 (4), 129 (3), 133 (4).
123 Wanaka 96 (4).

57 Wanganui	2 (4),	73 (4),	74 (4),	108 (3),	112 (4),
	113 (4),	115 (4),	119 (3),	124 (4).	
68 Wellington	17 (4),	22 (3),	23 (3),	33 (4),	39 (3),
	43 (3),	44 (3),	45 (3),	50 (3),	52 (2),
	55 (4),	57 (2),	63 (3),	68 (4),	76 (2),
	101 (2),	108 (?),	124 (4).		

1946

111 Akaroa	18 (4),	91 (5),	115 (3).		
93 Arthur's Pass	91 (5),	115 (5).			
108 Ashburton	18 (2),	115 (5).			
16 Auckland	13 (3),	184 (2).			
14 Barrier Islands	13 (4).				
77 Blenheim	193 (3).				
61 Bulls	18 (4),	48 (5),	85 (4),	165 (4).	
84 Cape Campbell	18 (3),	193 (3).			
67 Castlepoint	18 (4),	61 (3),	68 (4).		
50 Chateau	18(5*).				
96 Cheviot	81 (3),	82 (4),	91 (4),	115 (?).	
110 Christchurch	18 (2),	91 (5),	115 (4),	125(3*),	189 (?).
89 Clarence	144 (3),	148 (3),	193 (3).		
18 Coromandel	13 (4).				
95 Culverden	91 (3),	115 (3).			
63 Dannevirke	18 (4),	26 (4),	61 (4),	62 (4),	64 (3),
	65 (3),	68 (4),	70 (3),	165 (3),	166 (4),
	179 (3),	195 (4),	204 (3).		
145 Dunedin	91 (4),	115 (4).			
29 East Cape	30 (4).				
117 Fairlie	91 (5),	115 (5).			
69 Featherston	130 (4).				
97 Franz Josef	18 (2).				
45 Gisborne	26 (3),	169 (3),	174 (5),	190 (3).	
85 Greymouth	18 (3),	91 (5),	92 (3),	93 (3),	115 (5),
	118 (2),	119 (2),	125 (3),	189 (?).	
88 Hanmer	18 (4),	20 (3),	91 (5),	146 (4),	148 (4),
	217 (4).				
98 Hari Hari	115 (5).				
60 Hastings	18 (4),	56 (3),	68 (4),	69 (2),	165 (3),
	197 (?).				
55 Hawera	18 (4),	48 (3).			
91 Hokitika	91 (5),	92 (3),	93 (3),	94 (3),	95 (3),
	97 (3),	98 (3),	99 (3),	115 (5),	116 (3),
	118 (4),	119 (3),	120 (3),	125 (5).	
149 Invercargill	11 (3),	91 (3).			
90 Kaikoura	91 (4),	115 (3).			

74 Karamea	18 (3),	24 (3),	35 (3),	60 (?),	91 (3),
	115 (3),	163 (3).			
132 Kingston	91 (3).				
100 Lake Coleridge	90 (2),	91 (7),	100 (4),	103 (3),	109 (4),
	110 (4),	112 (4),	113 (3),	114 (3),	115 (6),
	117 (3),	118 (4),	119 (4),	122 (3),	123 (3),
	125 (5),	126 (4),	127 (3),	128 (4),	129 (4),
	131 (4),	132 (3),	134 (3),	138 (3),	139 (4),
	140 (3),	147 (3),	152 (4),	153 (3),	154 (3),
	155 (4),	158 (4),	168 (3),	199 (4).	
143 Lawrence	11 (2).				
54 Mahia	18 (3).				
70 Martinborough	5(3*),	18 (4),	59 (4).		
87 Maruia	146 (3).				
66 Masterton	18 (4),	37 (4),	53 (4),	59 (4),	68 (3),
	83 (3),	87 (4),	150 (3),	194 (3).	
120 Milford	11 (3),	180 (4).			
38 Mokau	18 (2).				
140 Mossburn	11 (2).				
36 Motu	18 (4),	26 (5),	30 (4).		
75 Motueka	18 (4).				
80 Murchison	91 (6).				
52 Napier	18 (3),	23 (4),	204 (4).		
76 Nelson	18 (4),	40(4*),	46 (4),	91 (3),	193 (3).
47 New Plymouth	18 (4),	48 (4),	78 (3).		
136 Oamaru	91 (5),	115 (3).			
49 Ohakune	18 (5),	26 (4),	39 (5),	78 (5),	165 (4).
35 Opotiki	26 (5),	56(3*),	162 (4),	200 (3).	
65 Otaki	18 (4),	48 (3),	56 (2),	59 (3),	68 (4),
	89 (3),	130 (3),	175 (2),	211 (4),	213 (3),
	219 (2).				
62 Palmerston North	18 (5),	165 (3).			
78 Picton	18 (4),	21 (4),	46 (5).		
64 Porangahau	68 (3).				
146 Puysegur Point	73 (5).				
109 Rakaia	91 (5),	115 (3).			
135 Ranfurly	91 (3).				
102 Rangiora	91 (5).				
86 Reefton	91 (5),	115 (4),	125 (4).		
58 Taihape	18 (4),	48 (3),	56 (4),	61 (3),	78 (4),
	85 (4),	165 (5),	170 (3),	173 (3).	
72 Takaka	18 (4),	22 (3),	24 (4),	28 (4),	29 (3),
	34 (4),	40 (3),	46 (4),	60 (4),	86 (3),
	91 (3),	133 (3),	148 (2),	163 (4),	191 (3),
	193 (2),	220 (4),	221 (3),	223 (3).	
39 Taumarunui	18 (4),	26 (4),	48 (3),	78 (5),	165 (3).
41 Taupo	18 (3).				
26 Tauranga	13 (2).				

42 Te Whaiti 18 (3).
21 Thames 13 (4), 16(3*).
118 Timaru 91 (3), 115 (3).
37 Tolaga Bay 18 (3), 30 (5), 54 (5), 159 (3), 174 (5), 178 (4).
148 Tuatapere 41 (4).
53 Wairoa 18 (4), 23 (4), 26 (4), 52 (4), 135 (4), 174 (4), 179 (3).
123 Wanaka 91 (3), 115 (3).
57 Wanganui 3 (4), 10 (4), 12 (4), 18 (6), 19 (4), 31 (3), 39 (4), 46 (4), 48 (5), 50 (3), 78 (5), 85 (4), 130 (3), 156 (4), 165 (4), 211 (4), 212 (3), 213 (4).
56 Waverley 195 (4).
68 Wellington 1 (3), 7 (3), 18 (4), 21 (3), 42 (2), 46 (4), 47 (3), 56 (2), 59 (3), 62 (3), 80 (3), 175 (3), 193 (3), 198 (4), 208 (3), 211 (4), 213 (5), 219 (2).
79 Westport 91 (5), 115 (5), 125 (3), 161 (4), 189 (?).
27 Whakatane 13 (?).
99 Whitcombe Pass 91 (7).

1947

111 Akaroa 185 (3), 199 (2).
133 Alexandra 76 (?), 199 (5).
93 Arthur's Pass 45 (3).
108 Ashburton 185(3*).
152 Balclutha 199 (4).
77 Blenheim 11(3*), 116 (4), 161 (2), 185 (3), 246 (3).
154 Bluff 76 (4), 77 (4), 199 (4).
61 Bulls 73 (4), 81 (4), 83 (3), 91 (5), 185 (5).
84 Cape Campbell 246 (3).
46 Cape Egmont 96 (5).
67 Castlepoint 84 (3), 87 (5), 146(3*).
96 Cheviot 154 (4).
110 Christchurch 161 (2), 199 (2).
63 Dannevirke 30 (4), 72 (4), 84 (4), 146 (4), 153 (3), 185 (5), 188 (3), 211 (3), 215 (4).
145 Dunedin 76 (3), 199 (4).
73 D'Urville Island 125 (3).
29 East Cape 113(3*).
117 Fairlie 199 (4).
45 Gisborne 24 (4), 46 (5), 56 (4), 57 (4), 98 (5), 110 (5), 118 (5), 149 (3), 155 (5), 158(3*), 161 (5), 162 (3), 258 (4).

150 Gore	76 (4),	77 (3),	199 (4).		
85 Greymouth	104 (3),	161 (3),	185 (2),	199 (3).	
88 Hanmer	104 (4).				
60 Hastings	30 (3),	41 (4),	72 (5),	74 (3),	84 (3),
	161 (5),	226 (2).			
55 Hawera	91 (4),	161 (4).			
91 Hokitika	199 (4).				
149 Invercargill	76 (3),	144 (4),	199 (4),	218 (3).	
113 Jackson's Bay	199 (8),	200(3*),	201(3*),	202(3*),	203(3*),
	204(5*),	225 (5).			
74 Karamea	11 (3),	85 (4),	199 (3),	237 (3).	
132 Kingston	8 (3),	76 (4),	199 (5),	231 (4).	
92 Kumara	45 (3).				
100 Lake Coleridge	6 (4),	19 (4),	20 (3),	22 (5),	23 (4),
	104 (4),	128 (3),	184 (4),	189 (2),	192 (3),
	199 (3),	205 (3).			
143 Lawrence	76 (4).				
54 Mahia	161 (3).				
70 Martinborough	73 (4),	91 (4),	152 (4),	185 (4).	
66 Masterton	37 (3),	87 (3),	88 (3),	91 (3),	131 (3),
	146 (4),	151 (4),	152 (4),	161 (4),	182 (?),
	185 (5),	239 (3).			
25 Matamata	70 (3).				
120 Milford	8 (3),	199 (4).			
11 Moko Hinau	185 (2).				
140 Mossburn	76 (4),	199 (5).			
36 Motu	42 (4),	46 (4),	113 (4),	118 (4),	134 (4),
	135 (4),	136 (4),	155 (5),	156 (6),	161 (5),
	216 (4),	217 (4).			
75 Motueka	75 (3),	185 (3).			
105 Mount Cook	199 (5).				
52 Napier	30 (3),	41 (4),	72 (4),	129 (2),	146 (4),
	161 (4),	185 (?),	212 (?),	214(3*),	254 (3).
76 Nelson	11 (4),	28 (4),	30 (4),	91(4*),	157 (4),
	185 (4),	244(5*).			
47 New Plymouth	11 (?),	91 (3),	161 (3),	185 (3),	215 (3).
136 Oamaru	76 (2),	199 (4).			
49 Ohakune	30 (4),	91 (4),	185 (4).		
35 Opotiki	42 (4),	43 (4),	60 (3),	72 (4),	96 (4),
	118 (4),	155 (5),	159 (5),	161 (5),	212 (3),
	219 (?).				
65 Otaki	30 (4),	73 (3),	81 (1),	83 (1),	91 (5),
	126 (3),	151 (4),	152 (3),	161 (4),	185 (4),
	191 (3),	193 (2),	207 (4),	229 (3),	244 (2).
144 Outram	76 (4).				
62 Palmerston North	87 (3),	91(3*),	126 (4),	151 (3),	152(3*),
	161 (4),	185 (4),	215 (3).		

78 Picton	30 (3),	116 (4),	185 (4).		
64 Porangahau	84 (4),	185 (4).			
146 Puysegur Point	4 (4),	140(3*),	141(3*),	142(3*),	143(3*),
	144(4*),	145(3*),	147(3*),	148(3*),	150(3*),
	218(3*).				
109 Rakaia	199 (3).				
135 Ranfurly	76 (4).				
86 Reefton	11 (3),	199 (3).			
142 Roxburgh	199 (3).				
58 Taihape	30 (4),	71 (4),	72 (4),	73 (3),	81 (3),
	83 (3),	87 (3),	126 (3),	146 (4),	214 (3),
	215 (3).				
72 Takaka	7 (5),	11 (3),	75 (4),	78 (4),	79 (4),
	91 (4),	115 (3),	121 (3),	125 (3),	185 (3),
	199 (3),	232 (2),	247 (4),	256 (5).	
39 Taumarunui	64 (4),	65 (4),	66 (4),	138 (2),	161 (3),
	185 (3),	208 (4).			
41 Taupo	161(3*),	173 (?),	178(5*),	238 (4).	
26 Tauranga	161 (4).				
28 Te Kaha	198 (4),	213 (3),	222 (4),	223 (2),	240 (4),
	258 (3).				
42 Te Whaiti	45 (2),	161 (4),	162 (3),	168 (2),	169 (2),
	226 (4).				
106 Tekapo	199 (4).				
118 Timaru	199 (3).				
40 Tokaanu	55 (4),	62 (4),	63 (4),	66 (4),	161 (4).
37 Tolaga Bay	42 (4),	46 (4),	47 (4),	48 (4),	54 (4),
	55 (4),	57 (4),	59 (4),	61 (4),	96 (5),
	98 (4),	100 (4),	101 (4),	102 (4),	103 (4),
	105 (4),	106 (3),	108 (3),	109 (3),	110 (5),
	111 (4),	113 (4),	114 (4),	118 (7),	119 (4),
	120 (3),	122 (4),	123 (4),	155 (4),	161 (6),
	162 (4),	166 (4),	171 (3),	172 (4),	176 (3),
	177 (3),	180 (4),	195 (4),	211 (4),	220 (3),
	226 (4).				
43 Tuai	42 (2),	258 (4).			
148 Tuatapere	77 (4),	199 (4),	218 (3).		
53 Wairoa	42 (3),	46 (5),	56 (3),	59 (4),	68 (4),
	72 (4),	96 (5),	118 (3),	129 (4),	155 (3),
	156 (3),	161 (5),	162 (3),	166 (2),	180 (3),
	185 (4),	190 (3),	211 (3),	212 (4),	226 (4),
	255 (3),	258 (4).			
57 Wanganui	13 (4),	31 (4),	38 (4),	39 (4),	40 (4),
	44 (4),	81 (4),	83 (4),	84 (2),	91 (5),
	126 (3),	151 (3),	160 (4),	161 (4),	183 (4),
	185 (4),	188 (4),	206 (4),	207 (4),	215 (4),
	224 (3),	233 (3),	234 (3),	235 (2),	250 (4).
56 Waverley	91(5*).				

68 Wellington	29 (3),	30 (3),	73 (4),	80 (2),	81 (2),
	83 (2),	89 (3),	91 (4),	93 (1),	116 (4),
	126 (3),	146 (3),	151 (4),	161 (4),	162 (3),
	185 (4),	188 (2),	196 (3),	207 (4),	215 (3),
	229 (4),	244 (2),	248 (2),	252 (2),	257 (3).
79 Westport	199 (4),	210 (4).			
44 Whakapunaki	24 (4).				
27 Whakatane	90 (4),	159(5*),	161 (4).		
48 Whangamomona	76 (5),	91 (4).			
99 Whitcombe Pass	199 (4).				

UNCONFIRMED REPORTS

The following shocks assigned epicentres by Hayes (1946, 1947, 1948), and appearing in Provisional Bulletins P-155 to P-190 were not recorded instrumentally, and are not included in the origin lists in this Report. Lack of instrumental confirmation does not necessarily imply that no real earthquake occurred.

Unconfirmed shocks to which no provisional epicentres were assigned appear separately in a following list.

PRO:	45/8	Jan. 16	15h 30m	Felt Otake (136), MM III.
PRO:	45/11	Jan. 11	20h 23m	Felt Dannevirke (63), MM III.
PRO:	45/16	Feb. 18	16h 35m	Felt Upper Takaka (72), MM III.
PRO:	45/21	Mar. 7	15h 31m	Felt Portland Island (54), MM III.
PRO:	45/34	Mar. 26	16h 52m	Felt Foxton (61), MM IV.
PRO:	45/37	Apr. 7	06h 30m	Felt Mapua (76), MM III.
PRO:	45/52	May 20	14h 06m	Felt Rotorua (33), MM II.
PRO:	45/53	May 20	14h 25m	Felt Rotorua (33), MM III.
PRO:	45/64	Jun. 10	06h 40m	Felt Wanganui (57), MM III.
PRO:	45/66	Jun. 14	18h 25m	Felt Hanmer Springs (88), MM IV.
PRO:	45/68	Jun. 17	19h 59m	Felt Upper Takaka (72), MM III.
PRO:	45/72	Jun. 25	18h 57m	Felt Lake Coleridge (100), MM III.
PRO:	45/80	Jul. 19	14h 35m	Felt The Brothers (78).
PRO:	45/81	Jul. 20	07h 35m	Felt Rotorua (33), MM III.
PRO:	45/82	Jul. 20	11h 20m	Felt Rotorua (33), MM III.
PRO:	45/83	Jul. 20	12h 35m	Felt Rotorua (33), MM III.
PRO:	45/84	Jul. 20	12h 59m	Felt Rotorua (33), MM IV.
PRO:	45/85	Jul. 20	13h 50m	Felt Rotorua (33), MM IV.
PRO:	45/86	Jul. 20	14h 07m	Felt Rotorua (33), MM IV.
PRO:	45/87	Jul. 20	14h 39m	Felt Rotorua (33), MM V.

PRO:	45/94	Aug. 10	08h 45m	Felt Motu (35), MM III.
PRO:	45/110	Aug. 29	23h 55m	Felt Hanmer Springs (88), MM III.
PRO:	45/113	Aug. 30	06h 20m	Felt Hanmer Springs (88), MM III.
PRO:	45/115	Aug. 30	07h 37m	Felt Hanmer Springs (88), MM III.
PRO:	45/131	Sep. 22	15h 13m	Felt Pembroke (now called Wanaka, 123), MM III.
PRO:	45/132	Sep. 22	15h 40m	Felt Nightcaps (140), MM IV.

It is possible that PRO: 45/131 and 45/132 are reports of the same event. Neither is independently confirmed.

PRO:	45/134	Sep. 23	04h 15m	Felt Cromwell (133), MM IV.
PRO:	45/138	Oct. 5	12h 59m	Felt Wanganui (57), MM III.
PRO:	45/142	Oct. 12	06h 10m	Felt Tokaanu (40), MM IV.
PRO:	45/145	Oct. 12	21h 05m	Felt Tokaanu (40), MM IV.
PRO:	45/156	Nov. 6	09h 47m	Felt Portland Island (54), MM II.
PRO:	45/159	Nov. 10	11h 46m	Felt Wanganui (57), MM III.
PRO:	45/168	Dec. 12	02h 38m	Felt Hanmer Springs (88), MM II.
PRO:	45/169	Dec. 17	17h 44m	Felt Centre Island (148), MM IV.
PRO:	46/2	Jan. 5	22h 10m	Felt Wanganui (57).
PRO:	46/7	Jan. 15	10h 52m	Felt Wanganui (57), MM III.
PRO:	46/8	Jan. 15	12h 42m	Felt Wanganui (57), MM III.
PRO:	46/10	Jan. 28	11h 59m	Felt Wanganui (57), MM IV.
PRO:	46/56	May 1	06h 44m	Felt Kahurangi Point (72), MM IV.
PRO:	46/69	May 19	06h 11m	Felt Te Whaiti (42), MM V.
PRO:	46/73	May 25	23h 52m	Felt Taupo (41), MM III.
PRO:	46/86	Jun. 25	05h 02m	Felt Upper Takaka (72), MM III.
PRO:	46/88	Jun. 26	12h 33m	Felt Lake Coleridge (100), MM III.
PRO:	46/109	Jun. 28	06h 34m	Felt Lake Coleridge (100), MM III.
PRO:	46/110	Jun. 28	06h 50m	Felt Lake Coleridge (100), MM III.
PRO:	46/111	Jun. 28	07h	Felt Lake Coleridge (100), MM III.
PRO:	46/120	Jun. 29	19h 46m	Felt Lake Coleridge (100), MM III.
PRO:	46/122	Jun. 30	08h 03m	Felt Lake Coleridge (100), MM III.
PRO:	46/123	Jun. 30	08h 21m	Felt Lake Coleridge (100), MM III.
PRO:	46/124	Jun. 30	08h 32m	Felt Lake Coleridge (100), MM III.
PRO:	46/125	Jun. 30	08h 38m	Felt Lake Coleridge (100), MM III.
PRO:	46/126	Jun. 30	08h 49m	Felt Lake Coleridge (100), MM III.
PRO:	46/130	Jul. 1	09h 40m	Felt Lake Coleridge (100), MM III.
PRO:	46/131	Jul. 1	14h 35m	Felt Lake Coleridge (100), MM III.
PRO:	46/134	Jul. 2	11h 45m	Felt Lake Coleridge (100), MM III.
PRO:	46/135	Jul. 2	14h 30m	Felt Lake Coleridge (100), MM III.
PRO:	46/136	Jul. 2	16h 50m	Felt Lake Coleridge (100), MM II.
PRO:	46/137	Jul. 2	17h 45m	Felt Lake Coleridge (100), MM III.
PRO:	46/138	Jul. 2	19h 14m	Felt Lake Coleridge (100), MM II.
PRO:	46/139	Jul. 3	18h 15m	Felt Rotorua (33), MM III.
PRO:	46/140	Jul. 3	19h 15m	Felt Rotorua (33), MM II.

PRO:	46/144	Jul.	4	19h 05m	Felt Lake Coleridge (100), MM III.
PRO:	46/145	Jul.	4	19h 15m	Felt Lake Coleridge (100), MM III.
PRO:	46/146	Jul.	4	19h 25m	Felt Lake Coleridge (100), MM II.
PRO:	46/147	Jul.	6	07h 01m	Felt Lake Coleridge (100), MM III.
PRO:	46/150	Jul.	7	05h 32m	Felt Lake Coleridge (100), MM III.
PRO:	46/152	Jul.	8	13h 15m	Felt Lake Coleridge (100), MM III.
PRO:	46/154	Jul.	8	14h 40m	Felt Lake Coleridge (100), MM III.
PRO:	46/155	Jul.	8	16h 40m	Felt Lake Coleridge (100), MM III.
PRO:	46/159	Jul.	9	16h 18m	Felt Lake Coleridge (100), MM IV.
PRO:	46/161	Jul.	10	08h 03m	Felt Lake Coleridge (100), MM III.
PRO:	46/162	Jul.	10	12h 49m	Felt Lake Coleridge (100), MM IV.
PRO:	46/163	Jul.	10	15h 46m	Felt Lake Coleridge (100), MM III.
PRO:	46/164	Jul.	11	09h 30m	Felt Lake Coleridge (100), MM IV.
PRO:	46/165	Jul.	11	12h 01m	Felt Lake Coleridge (100), MM III.
PRO:	46/166	Jul.	12	13h 14m	Felt Lake Coleridge (100), MM III.
PRO:	46/167	Jul.	12	13h 30m	Felt Lake Coleridge (100), MM III.
PRO:	46/169	Jul.	13	07h 30m	Felt Lake Coleridge (100), MM III.
PRO:	46/170	Jul.	13	09h 16m	Felt Lake Coleridge (100), MM II.
PRO:	46/171	Jul.	14	07h 10m	Felt Lake Coleridge (100), MM IV.
PRO:	46/172	Jul.	15	06h 43m	Felt Lake Coleridge (100), MM IV.
PRO:	46/173	Jul.	16	21h 35m	Felt Lake Coleridge (100), MM IV.
PRO:	46/175	Jul.	18	16h 44m	Felt Lake Coleridge (100), MM II.
PRO:	46/176	Jul.	18	18h 05m	Felt Lake Coleridge (100), MM IV.
PRO:	46/177	Jul.	18	19h 52m	Felt Lake Coleridge (100), MM II.
PRO:	46/178	Jul.	22	06h 50m	Felt Lake Coleridge (100), MM III.
PRO:	46/180	Jul.	23	02h 09m	Felt Taupo (41), MM III.
PRO:	46/181	Jul.	23	02h 11m	Felt Taupo (41), MM III.
PRO:	46/182	Jul.	23	02h 30m	Felt Taupo (41), MM III.
PRO:	46/186	Jul.	27	03h 02m	Felt Lake Coleridge (100), MM III.
PRO:	46/187	Jul.	28	15h 46m	Felt Lake Coleridge (100), MM IV.
PRO:	46/188	Jul.	28	17h 15m	Felt Queenstown (132).
PRO:	46/189	Jul.	29	13h 40m	Felt Lake Coleridge (100), MM IV.
PRO:	46/190	Jul.	29	13h 43m	Felt Lake Coleridge (100), MM III.
PRO:	46/191	Jul.	29	14h 10m	Felt Lake Coleridge (100), MM IV.
PRO:	46/192	Jul.	29	14h 18m	Felt Lake Coleridge (100), MM III.
PRO:	46/195	Aug.	1	17h 19m	Felt Lake Coleridge (100), MM IV.
PRO:	46/196	Aug.	2	18h 15m	Felt Rotorua (33), MM III.
PRO:	46/197	Aug.	5	16h 45m	Felt Rotorua (33), 'slight'.
PRO:	46/199	Aug.	8	07h 26m	Felt Lake Coleridge (100), MM III.
PRO:	46/201	Aug.	9	20h 09m	Felt Lake Coleridge (100), MM III.
PRO:	46/202	Aug.	10	21h 18m	Felt Lake Coleridge (100), MM III.
PRO:	46/204	Aug.	12	10h 01m	Felt Lake Coleridge (100), MM III.
PRO:	46/211	Aug.	17	07h 29m	Felt Lake Coleridge (100).
PRO:	46/224	Sep.	15	20h 25m	Felt Lake Coleridge (100), MM IV.
PRO:	46/230	Sep.	24	07h 42m	Felt Tolaga Bay (37), MM IV.

PRO:	46/232	Oct. 2	06h 42m	Felt Tiritiri I. (17), 'slight'.
PRO:	46/233	Oct. 6	20h 40m	Felt Nelson (76), MM II.
PRO:	46/250	Nov. 4	22h 07m	Felt Queenstown (132), MM III.
PRO:	46/251	Nov. 5	00h 36m	Felt Queenstown (132), MM III.
PRO:	46/255	Nov. 15	01h 47m	Felt Lake Coleridge (100), MM III.
PRO:	46/270	Dec. 25		Felt Lake Coleridge (100), MM III.
PRO:	46/271	Dec. 28		Felt Lake Coleridge (100), MM III.
PRO:	46/272	Dec. 28	05h 15m	Felt Paraparaumu (65), MM III.
PRO:	47/3	Jan. 5	10h 40m	Felt Lake Coleridge (100), MM IV.
PRO:	47/7	Jan. 16	14h 41m	Felt Invercargill (149), MM IV.
PRO:	47/12	Jan. 20	18h 34m	Felt Lake Coleridge (100), MM IV.
PRO:	47/22	Feb. 4	21h 14m	Felt Lake Coleridge (100), MM III.
PRO:	47/25	Feb. 7	21h 15m	Felt Lake Coleridge (100), MM IV.
PRO:	47/28	Feb. 9	12h 55m	Felt Lake Coleridge (100), MM IV.
PRO:	47/29	Feb. 9	15h 55m	Felt Lake Coleridge (100), MM IV.
PRO:	47/49	Mar. 26	16h 09m	Felt Queenstown (132), MM IV.
PRO:	47/64	Apr. 16	09h 39m	Felt Taumarunui (39), MM IV.
PRO:	47/66	Apr. 16	13h 30m	Felt Taumarunui (39), MM IV.
PRO:	47/67	Apr. 16	13h 45m	Felt Taumarunui (39), MM III.
PRO:	47/83	Apr. 27	08h 00m	Felt Queenstown (132), MM III.
PRO:	47/112	May 23	09h 35m	Felt Tolaga Bay (37), MM III.
PRO:	47/113	May 23	12h 16m	Felt Tolaga Bay (37), MM III.
PRO:	47/114	May 23	18h 35m	Felt Tolaga Bay (37), MM III.
PRO:	47/116	May 25	19h 05m	Felt Tolaga Bay (37), MM III.
PRO:	47/122	Jun. 2	13h 54m	Felt Tolaga Bay (37), MM IV.
PRO:	47/123	Jun. 12	19h 12m	Felt Tolaga Bay (37), MM IV.
PRO:	47/127	Jun. 21	17h 27m	Felt Lake Coleridge (100), MM III.
PRO:	47/128	Jun. 23	19h 42m	Felt Wairoa (53), MM III.
PRO:	47/135	Jul. 11	18h 55m	Felt Wairoa (53), MM III.
PRO:	47/138	Jul. 17	06h	Felt Takaka (73), MM III.
PRO:	47/154	Aug. 8	20h 25m	Felt Puysegur Point (146).
PRO:	47/155	Aug. 9	03h 33m	Felt Puysegur Point (146).
PRO:	47/160	Aug. 10	22h 28m	Felt Motu (36), MM III.
PRO:	47/168	Aug. 19	12h 02m	Felt Dannevirke (63), MM III.
PRO:	47/169	Aug. 21	07h 40m	Felt Puysegur Point.
PRO:	47/175	Aug. 25	19h 28m	Felt Cheviot (96), MM IV.
PRO:	47/183	Aug. 27	16h 45m	Felt Dannevirke (63), MM III.
PRO:	47/199	Sep. 8	01h 16m	Felt Clyde (133), MM V, and Cromwell (133), MM IV.
PRO:	47/207	Sep. 22	09h 53m	Felt Lake Coleridge (100).
PRO:	47/220	Oct. 13	08h 07m	Felt Jackson's Bay (113), slight.
PRO:	47/224	Oct. 13	08h 49m	Felt Jackson's Bay (113), slight.
PRO:	47/227	Oct. 13	09h 25m	Felt Jackson's Bay (113), slight.
PRO:	47/228	Oct. 13	09h 55m	Felt Jackson's Bay (113), slight.

PRO:	47/229	Oct. 13 severe.	10h 08m	Felt Jackson's Bay (113), fairly
PRO:	47/230	Oct. 13 severe.	10h 11m	Felt Jackson's Bay (113), fairly
PRO:	47/232	Oct. 14 severe.	00h 23m	Felt Jackson's Bay (113), fairly
PRO:	47/233	Oct. 14	01h 10m	Felt Jackson's Bay (113), ?
PRO:	47/234	Oct. 14	06h 37m	Felt Jackson's Bay (113), ?
PRO:	47/235	Oct. 14	08h 00m	Felt Jackson's Bay (113), ?
PRO:	47/236	Oct. 14	09h 00m	Felt Jackson's Bay (113), ?
PRO:	47/263a	Nov. 22	16h 30m	Felt Wanganui (57), MM II.
PRO:	47/275	Nov. 11	11h 20m	Felt Kahurangi Point (72), MM III.

The following additional shocks reported to the Observatory were neither assigned provisional origins nor confirmed by instrumental recordings:

1945	Mar. 10	10h 10m	Portland Island (54)	MM IV
	Mar. 10	10h 13m	Portland Island (54)	MM IV
	May 14	10h 10m	Kahurangi Point (72)	MM IV

1945 Aug. 22 Afternoon. Eruption of Mount Ruapehu.
Press reports state that the first explosion from the crater was accompanied by a deep rumbling sound and caused a sharp earthquake that was felt in Ohakune and Raetihi (49). This is possibly the report of an air-wave. There is no instrumental confirmation of a seismic movement.

1946	Jun. 11	17h 13m	Lake Coleridge (100)	
	Jun. 13	17h 44m	Wanganui (57)	MM III
	Jun. 15	09h 43m	Lake Coleridge (100)	MM III
	Jul. 15	19h 26m	Lake Coleridge (100)	MM III

Oct. 26 and 27. Mr J. Mossop, Postmaster at Lake Coleridge, reports that on October 26 and 27, 8 and 6 shocks respectively were felt at Mount Oakden (99). The heaviest, with an intensity of MM V, produced cracks up to 16 inches (40cm.) wide in the ground. This was the only one of the series felt at Lake Coleridge. These shocks cannot be confirmed instrumentally. Mr and Mrs Anderson, who were at Mt Algidus at this time and in close touch with their neighbours at Mt Oakden, suggest that this is a belated reference to the main shock occasioned by the arrival of a long-awaited bricklayer in the district. They are certain that no further strong shocks occurred at this time. The present manager of Mt Oakden, who arrived shortly after the main earthquake knows only of the one instance of damage to the property.

1947	Aug. 28	10h 50m	Taupo (41)	'fairly heavy'
	Aug. 28	17h 45m	Taupo (41)	

FELT REPORTS FROM OUTSIDE NEW ZEALAND

The Observatory sometimes receives reports of earthquakes felt on islands of the south-west Pacific, mainly from observers at weather stations. The following information is presented in the form in which it was received. It should be noted that assessments of "force" or intensity are those made by the observers, and have not been assigned by the Observatory. The word "force" is used incorrectly in the reports from Raoul Island and other meteorological stations. The figures given may be regarded as rough indications of relative intensity on some arbitrary scale.

Raoul Island

The original file has been attacked by insects. Missing passages that have been supplied are enclosed in square brackets.

				Duration	Direction	'Force'
1945	Jan.	2	22h 01m.5	3s	E - W	4
			Sudden sharp shock.			
		7	02h 47m	60s	E - W	5
			Weak commencement. Sharp je[rky shock].			
		8	02h 44m	5s	?	3
			Weak sharp shock.			
		23	09h 00m	10s	E - W	2
			Weak slow shake			
	Feb.	7	13h 25m	15s	SE - NW	4
			Windows rattle, walls crackled [and] movemen[t of] standing objects.			
		11	06h 35m	10s	NE - SW	3
			Buildings creak. Win[dow]s ratt[le.]			
	Mar.	4	13h 43m	3s	SE - NW	3
			Short sharp shock. Rumbling heard 2 secs. before.			
		4	13h 45m.5	3s	SE - NW	3
			Short sharp shock. Rumbling heard 2 secs. before.			
		18	16h 07m	1m 45s	?	4
			Creaking of walls, and movement of lights.			
		30	11h 13m	40s	?	2 - 3
			Light swinging motion.			
		30	14h 19m	55s	SE - NW	5
			Sharp jerky motion preceded by rumbling. Transmitters and movable objects set rocking.			
	Apr.	17	12h 12m	1m 20s	SE - NW	4
			Steady swaying. Movement of lights.			
		19	15h 16m	10s	?	3
			Steady rock. Lights move.			
	May	13	12h 00m	7s	?	2 - 3
			Slight jerky motion.			
		14	12h 00m	4s	?	2 - 3
			Light swinging.			
		17	09h 59m	3s	N	2
			Light swinging.			
		18	09h 57m	1m 25s	NW - SE	5
			Two sharp shocks. Slight pause between them.			
		22	19h 15m	4s	-	1 - 2
			Lights swinging.			
	Jun.	3	20h 05m (approx)	4s	SE - NW	3
		5	21h 17m	1m	N - S	1 - 2
			Cracking of walls and swinging motion.			
		8	19h 26m	2s	-	1
			Short jerk.			
		11	11h 40m	10s	SE - NW	3
			Sharp shock.			
	Jul.	28	08h 56m	15s	-	1
			Slow rocking motion.			

	Sep.	12	00h 58m	10s	E	2
			Rocking motion.			
		12	17h 11m	3s	-	1
			Slight rocking.			
		21	15h 17m	10s	-	1
			Slight crackling of walls. Lights swaying.			
	Oct.	26	03h 06m	3s	-	1
			Slight rocking motion.			
	Nov.	27	01h 14m	20s	-	1
			Slight rocking motion. Lights not moving.			
		29	19h 17m	10s	SE - NW	1
			Rocking motion. Lights set swinging.			
	Dec.	26	23h 36m	20s	-	2
			Two short shocks separated by about 10 s, followed by gentle rumbling.			
		29	14h 45m	90s	W	4
			Sharp shock followed by rocking motion.			
1946	Jan.	6	09h 30m	1s	-	2
			Sharp shock. Walls creaking.			
		21	15h 25m	20s	-	2
			Rocking motion. Lights swinging.			
	Mar.	5	15h 25m	3s	-	1
			Slight rocking.			
		28	16h 50m	2s	-	1
			Short jolt.			
	Apr.	11	13h 45m	10s	E - W	3
			Steady rocking.			
		16	08h 00m	3s	E - W	1
			Slight jolt.			
	Jun.	2	11h 35m	10s	-	2
			Sharp jolt.			
		21	01h 53m	4s	-	1
			Slight rocking motion.			
		27	21h 40m	30s	-	4
			Rocking motion, gentle at first, then gradually increasing until building vibrating. Heavy objects swayed (i.e. P and T transmitters).			
	Jul.	2	03h 37m	2s	-	1
			Very light. Felt while writing.			
		8	10h 05m	15s	-	3
			Rocking motion.			
		8	17h 46m	15s	E - W	3
			Slow and gentle rocking. Lights swinging.			
	Oct.	5	09h 10m	15s	NE - SW	3
			Sharp jolt.			
	Dec.	3	13h 55m	15s	-	4
			Jolting motion. Woke sleepers.			
1947	Feb.	6	14h 55m	10s	-	4
			Slow starting, then sudden jolt. Woke all sleepers.			
		14	06h 39m	10s	-	3
			Gradual rocking motion.			
		26	20h 26m	2s	-	1
			Gradual rocking motion.			

	27	01h 10m	2s	-	1
		Gradual rocking motion.			
Mar.	30	15h 43m	10s	-	4
		Slow starting, then sudden jolt. Woke all sleepers.			
Apr.	10	15h 40m	6s	-	4
		Slight rocking motion.			
	20	21h 45m	2s	-	3
		Slight rocking motion. Developed into final jolt.			
May	19	10h 40m	1s	-	3
		One sudden jolt.			
	27	09h 59m	5s	-	3
		Slight rocking, then sudden jolt.			
	28	14h 48m	50s	-	5
		Rapid vibration. Woke all sleepers.			
Jun.	25	01h 02m	2s	?	1
		Slight rocking motion.			
Jul.	28	09h 41m	1s	?	1
		Two sharp jolts.			
Aug.	26	10h 01m	2s	?	4
Sep.	11	10h 14m	6s	?	3
		Slow starting to gentle rocking. Slow ending.			
Oct.	10	02h 43m	8s	?	3
		Rocking motion slowly subsiding.			
	18	01h 01m	35s	?	4
		Slow rocking motion.			
Nov.	10	01h 37m	5s	?	4
		Sharp jolt gradually subsiding.			
	21	09h 35m	20s	?	3
		Rocking motion.			
Dec.	7	13h 14m	5s	?	2
		Rocking motion preceded by 10 s rumbling.			
	27	16h 40m	10s	-	4
		Rocking motion.			

Auckland Island

1947	May	25	13h 11m	0.5s	-	4
			Creaking of walls. Some awakened.			

Campbell Island

1947	Jan.	24	12h 28m	1s	?	5
			Wakened one sleeper. Time checked by radio time-signal.			
	Jul.	20	21h 37m	0.5s	-	3

Tonga, Niue, Rarotonga

During 1945, 1946, and 1947, no reports were received from Tonga, Niue, or Rarotonga, although there have been reports in other years.

PRINCIPAL EARTHQUAKES

1945 – 47

The level of New Zealand seismicity during the three years covered by this Report was moderate, although several earthquakes caused minor damage. The most serious of these were near Lake Coleridge in 1946 (Origin 46/91) and at Jackson's Bay in the following year (Origin 47/199).

The largest shallow earthquake in 1945 (Origin 45/96) had a magnitude of 6.5. It occurred on September 1, and was felt throughout Otago and Southland, with reports extending northwards to Timaru and Jackson's Bay. The epicentre lay about 100 km south-west of Stewart Island, the maximum felt intensity reported being MM V at Tuatapere (145). It was also felt on Stewart Island, but the lack of detail in the reports suggests that the intensity was not great. An aftershock of magnitude 5.7 (Origin 45/97) has been placed some 50 km to the north-west. The International Seismological Summary allots both shocks a common epicentre 25 km farther in the same direction. At this period, the only seismograph in the southern part of the South Island was a Jaggar shock-recorder without absolute timing at Monowai, but the Australian stations at Brisbane and Riverview both have negative residuals, and do not favour the ISS solution.

The magnitude 6.2 earthquake near Lake Coleridge on 1946 June 26 (Origin 46/91) is the largest shock known to have had its origin in the Central Seismic Region; but the northern boundary of the Region is uncertain, leaving the status of some early shocks farther to the north in doubt. The intensity near the epicentre exceeded MM VII within an area that included the power-station at Lake Coleridge (100) and the sheep-stations at Mount Algidus, Mount Oakden, and Double Hill (99). Chimneys were thrown down or so severely damaged that they had to be demolished, heavy furniture and other goods were thrown about and overturned, and many of the power-station windows were shattered. Similar damage extended over an area at least 20 km in diameter. Concrete water-control structures were also damaged, and turbulence of the Lake and the streams that feed it was reported. Variations in the flow of streams and of the level

of well-water were also observed. The shock was felt over most of the South Island. Fiordland and the northern parts of Marlborough were the only areas of any great extent from which no reports were received, but there were no reports from the North Island, and in the wider New Zealand context the shock cannot be considered a major event.

The *Westport News* reported that at the time of the shock "flashes of electric discharge were seen along the hills towards Denniston", but according to the Christchurch *Press* the ship *Gael* experienced a severe electrical storm between Cape Farewell and Karamea, and it is therefore not possible to confirm an appearance of "earthquake lights".

Only one foreshock was recorded, a magnitude 4.3 event 21 minutes earlier (Origin 46/90); but aftershocks were numerous and persistent. Three of them (Origins 46/95, 115, and 125) reached magnitude 5, and the activity persisted with little intermission until late August. With the exception of a very small shock on November 4 (Origin 46/199) it then ceased until January of the following year, when small shocks in the area previously active resumed, continuing throughout 1947 and with less frequency through 1948. In 1949 there was a shock of magnitude 4.5 on December 9 which probably belongs to the sequence (Origin 49/250), but 1949 and 1950 are completely without recorded shocks between 42°.5 and 44°.0 S, and this earthquake must be considered the end of the sequence.

With a few exceptions that can be attributed to uncertain location, the epicentres of the aftershocks lie within a roughly circular region about 35 km across, with its centre close to the northern end of Lake Coleridge. The epicentre of the principal shock lies just within the eastern boundary of this region. The Postmaster at Lake Coleridge reported many felt shocks, the greater number of which can be confirmed instrumentally, but during the earliest part of the sequence they proved too numerous to be reported indivudually. Sixty-three felt shocks were counted within the first five minutes. All observers are agreed that the earthquakes were noisy, the sounds being described as booms, or like explosive blasts. Soon after the main shock the district was visited by Mr H.F. Baird, Director of the Magnetic Survey, Christchurch; but the seasonal weather conditions and the state of the rivers prevented effective reconnaissance, and the statements about faulting attributed to him by the press are purely

speculative. Reports of ground fissures almost certainly refer to slumps and landslides on the steep sides of the valleys and on river-terraces, and not to geological faulting.

Before the principal earthquake there was little activity within the region later defined by the aftershocks. In 1943 August a shock of magnitude 6 (Provisional Origin 43/147) occurred to the north in the vicinity of the Hope Fault. This was followed by aftershocks, which continued until about the end of the year, but after that the only activity in this part of New Zealand was a few scattered shocks to the south of Lake Coleridge, none with a magnitude above 4.5. Activity in the Central Seismic Region may be characterised as sporaddic, and confined to a single small area for the duration of an outbreak, during which nearby parts of the Region remain without detectable shocks.

Nearly all tsunamis that reach the New Zealand coast are of very distant origin. The waves that followed the earthquakes off the East Coast of the North Island on 1947 March 25 and May 17 (Origins 47/42 and 47/96) are therefore most unusual. The first tsunami reached a maximum height of about 10 metres at places between Anaura Bay (about 60 km south of East Cape) and Mahia Peninsula, affecting about 150 km of coastline. At Tatapouri a hotel was damaged, its outbuildings destroyed, and sand, seaweed, and fish deposited in the dining-room. The decking of the main highway bridge at Pouawa was lifted off and carried some distance upstream, and the home of Mr A.F. Hall at Turihaua was demolished. There was no loss of life.

The second tsunami occurred at night and was not directly observed, but it reached a comparable or possibly greater height at Waihau, where it swept the timber assembled for repairing bridges damaged by the first event into a nearby plantation. On this occasion only about 50 km of coastline were affected, no reports coming from south of Gisborne.

The associated earthquakes had magnitudes less than six, and were only weakly and locally felt. Their seismograms show an abnormal predominance of low-frequency movements. This is also found to be the case with certain tsunami-generating earthquakes that occur at the western margin of the Japan Trench, but the height of the New Zealand tsunamis is unusually great for earthquakes of this magnitude. This suggests that the mechanism responsible

involves some unusual factor. Eiby (1982a, 1982b) has published a description of the events, including photographs of the damage, and suggests that the expulsion of mud and breccia from the diapiric folds known to exist beneath the coastal platform could be involved. On the land nearby several instances of spectacular eruptions resulting from the rupture of these folds have been observed.

Both the tsunami-generating earthquakes were followed by aftershocks. Throughout the rest of the year, the level of seismic activity in the region remained abnormally high, an unusually large number of shocks being felt at Tolaga Bay.

In late August of 1945, another noteworthy sequence of earthquakes occurred in north Canterbury, many of the shocks involved being felt at Hanmer Springs, though the epicentres seem to have been rather scattered. The two largest shocks, both on August 30 (Origins 45/86 and 45/90) had magnitudes of 5.0 and 5.1 respectively. Several earlier shocks in much the same region are probably related, for example Origins 45/54 and 45/64 in June and July. A shock of magnitude 4.8 on May 18 (Origin 45/42) lying to the north east of the Hanmer events is reported to have produced an intensity of MM VII at Parikawa Creek (90), on the main road about 50 km. north of Kaikoura. The chimneys of one house fell, and those of another were damaged. Two standing adults were thrown to the ground, a heavy stove was moved, and articles were dislodged from shelves and cupboards. The area affected was small, the damaged properties being less than a kilometre apart. At Kekerangu, ten kilometres north, and Clarence Bridge, a similar distance to the south the shock was described as "hardly felt". These observations argue for a very shallow origin. Small aftershocks are reported to have persisted for several days.

Other activity in 1945 that calls for mention includes the shallow shocks on January 2 (Origin 45/2, magnitude 5.5), felt in central and eastern parts of the North Island and reaching MM V at several places in Hawke's Bay; and on June 7 (Origin 45/50, magnitude 4.8) which reached MM V in Masterton and was felt throughout Wellington province. On October 5, a shock of magnitude 5.7 at a depth of 180 km and centred some 80 km east of Lake Taupo (Origin 45/108) was felt at a few places from Hastings to Wellington, but no intensities above MM III were reported. A Bay of Plenty shock of the same magnitude on December 30 (Origin 45/139) had a depth of 265

km and was felt only at Hastings, with intensity MM II.

The year 1946 was dominated by the activity near Lake Coleridge and north Canterbury already discussed, but on February 12 a shock of magnitude 5.8 (Origin 46/18) was felt from northern Taranaki and Hawke's Bay to Greymouth and Banks Peninsula, reaching an intensity of MM VI at Wanganui. The epicentre lies close to the Taranaki coast about 50 km to the west of that city.

Activity in 1947 was spread widely. On October 13 a shock of magnitude 6.2 (Origin 47/199) seriously affected the isolated settlement at Jackson's Bay (113) in southern Westland, where the intensity reached MM VIII. All brick chimneys were brought down, landslides occurred in the hills, the 4-in. (10 cm.) iron water-main was pulled apart at the joints, and cracks appeared in the road from Jackson's Bay to Haast. People on ths section of the road reported seeing avalanches in the mountains. Heavy furniture was moved, and there was extensive damage to goods thrown from shelves. Difficulty was experienced in standing. This part of the country is very sparsely populated, and there are no other settlements within the area of maximum intensity. It is known, however, that three water-tanks at Jacob's River (104), near Bruce Bay, burst, and that chimneys were damaged, but did not fall. Heavy furniture was moved. The intensity certainly reached MM VI, and probably MM VII.

As usual, the list of origins contains several large shocks to the north east of the country. These belong more properly to the Kermadec system than to the Main Seismic Region of New Zealand, but the larger events are often felt within the country. The largest of the shallow earthquakes in this period were shocks of magnitude 6.0 and 6.3 on 1946 September 29 and November 24 (Origins 46/181 and 46/205), and one of magnitude 6.5 on 1947 February 25 (Origin 47/32). Several deep earthquakes in this region are also listed, the largest being shocks of magnitude 6.1 on 1947 May 11 and December 5, with depths of 279 and 316 km respectively (Origins 47/93 and 47/242). The second of these shocks was felt in two Wellington suburbs. Isolated reports of this kind are characteristic of deep earthquakes in the Kermadec region. Less usual is the shock of 1945 March 29 (Origin 45/29), to which the exceptional depth of 668 km has been assigned. The International Seismological Summary lists readings of this shock, but was unable to suggest a satisfactory origin, presumably because of the great depth. It does not however

constitute a record, similar earthquakes and greater depths being known.

A few minor events warrant mention, in particular several shocks near the Coromandel Peninsula. This is an area in which the activity frequently assumes the character of an earthquake swarm, but the present instances all seem to be isolated shallow shocks. The earthquakes on 1945 July 30 (Origin 45/71) and 1946 February 4 (Origin 46/13), both of which were felt in Auckland city, should perhaps be grouped with the shocks of the western Bay of Plenty, but they lie a little farther to the west than usual. The second event, of magnitude 5.7, is the largest of the set and gave rise to felt reports from a number of places between Great Barrier Island and Tauranga, though all the reported intensities were low. The earlier shock, of magnitude 4.5, although close to a number of other centres, was reported only from Auckland, as was the one on 1946 October 9 (Origin 46/184), which is confirmed only by a small movement recorded on the Milne-Shaw seismograph at Auckland. The position of this shock is therefore very uncertain, and no formal magnitude calculation is possible, though the magnitude is unlikely to have reached 4. The suggested epicentre, close to the Whangaparaoa Peninsula, has been the centre of similar small activity in more recent years. The last shock of the set was the earliest in time (Origin 45/11), and was felt in Thames with an intensity of MM III. The epicentre is in the northern part of Coromandel Peninsula, and the magnitude was 3.9.

One of the more significant eruptions of Mount Ruapehu, the southernmost of the central North Island volcanoes, began with an emission of mud and ash on 1945 March 8. Gregg (1960) has described the course of the event, and includes photographs and further references. Copious emission of ash continued, soon disrupting and contaminating the electricity and water supplies of the Chateau Tongariro, a large tourist hotel on the lower slopes of the mountain, temporarily occupied by the patients of a mental hospital who had been evacuated to the Chateau on account of the war. It had to be vacated. By March 20 a small circular tholoid had appeared in the Crater Lake. The water was displaced as it grew, and passed through an ice-cave into the valley of the Whangaehu River. At the end of July, the tholoid had become a domed plug that completely filled the crater.

The maximum of the activity was reached on August 22, when a tremendous cloud of ash-laden steam was erupted, sending dust as far as Wanganui, 85 km to the south. Collapse of the crater floor followed, and activity declined until September 27, when boulders were being violently propelled through the ascending ash-cloud. Gregg states that a small local earthquake was felt at this time, but no reports reached the Observatory. Any earthquakes associated with eruption must have been small and localised in effect. By the end of November, the eruption had entered a solfataric stage, but minor eruptions of ash occurred in April and June of 1946, and were reported in the press in March, April, and May of 1947. After that, the eruption was certainly complete.

White Island does not seem to have abnormally active during the period of this Report.

PUBLICATIONS BY STAFF MEMBERS

The following papers by members of the Observatory staff were published in 1945, 1946, and 1947:

S-74 JONES, W.M., 1945: Effects of focal depth on epicentral determinations from S-P intervals in the South Pacific region.

N.Z. J. Sci. Tech. 26B: 219-226.

For earthquakes in the more important seismic portion of the South Pacific the effects of focal depth on the location of epicentres by S-P intervals at Wellington, Brisbane, and Suva are investigated, and the displacements of the epicentres due to incorrect assumptions of focal depths are illustrated. Methods are considered for obtaining directly good approximation to an epicentre without any assumption of focal depth.

S-75 JONES, W.M., 1945: The application of P-difference methods of epicentral determination to New Zealand local seismology.

N.Z. J. Sci. Tech. 26B: 359-365.

Using the travel-times of P-phases given for near earthquakes in the Jeffreys-Bullen 1940 tables, the differences in the times of arrival of the first impulses at the Wellington and New Plymouth, and at the Wellington and Tuai seismological stations are shown by a series of curves, both for a surface focus and for a focus of depth 160 km. The variations with focal depth of the epicentral positions given by the intersections of such curves are discussed, and a method considered of obtaining an epicentre, from the records of four stations, independent of focal depth.

S-76 JONES, W.M., 1945: Determination of epicentres in the South Pacific from differences in the arrival-times of ScS.

N.Z. J. Sci. Tech. 26B: 366-369.

The differences in the times of arrival of ScS at the Wellington and Suva, and at the Wellington and Brisbane, Seismological Observatories for earthquakes in the more important seismic region of the South Pacific are shown by series of curves for the case of a surface focus. The positions of epicentres as determined by the intersections of such curves are not greatly affected by focal depth.

S-77 HAYES, R.C., 1945: Earthquakes in New Zealand during the year 1944.

N.Z. J. Sci. Tech. 27B: 33-35.

S-78 JONES, W.M., 1945: Note on a table of distances from South Pacific seismological observatories.

N.Z. J. Sci. Tech. 27B: 163-166.

A table has been compiled, mainly for seismological purposes, giving, in degrees and minutes, the "geographical" distances from five South Pacific observatories to points, at intervals of one degree in latitude and longitude,

in the South Pacific region, from 0° to 35° south latitude, and from 160° east to 170° west longitude. A sample sheet only is printed here, as a basis for a brief discussion of the table.

S-79 JONES, W.M., 1946: The seismic geometry of a volcano such as Ruapehu.

N.Z. J. Sci. Tech. 27B: 317-329.

For a volcano of the size of Ruapehu, the problem of the location of the foci of seismic disturbances is discussed. A group of hypothetical stations is used to consider the geometrical principles involved, the layout of stations for particular methods,and the bearings of instrumental performance and initial assumptions on the accuracy attainable. Remarks are made also on the problem of early location of incipient activity in the thermal region.

S-80 HAYES, R.C., 1946: Earthquakes in New Zealand during the year 1945.

N.Z. J. Sci. Tech. 27B: 436-438.

S-81 JONES, W.M., 1946: Note on Wood-Anderson records of mine explosions at Wellington.

N.Z. J. Sci. Tech. 28B: 59-64.

Illustrations and a brief discussion are given of the records of a series of eight mine explosions in the entrance to Wellington harbour, obtained on a Wood-Anderson torsion-seismograph at the Dominion Observatory, at distances of from 3.7 to 3.4 miles. An interesting feature is the persistence for over a minute of wave-trains with periods approximating to 1 second.

S-82 JONES, W.M., 1947: Additional table of direction-cosines for latitudes 41° - 90°.

N.Z. J. Sci. Tech. 28B: 292-295.

The table previously published, designed mainly for seismological work in the Pacific, giving direction-cosines at 1° intervals in latitude and longitude, with a range of 60° in longitude, is here extended to cover the latitude range 41° to 90°.

S-83 JONES, W.M., 1947: Table of geographical distances from Wellington, Brisbane, Suva, Riverview, Apia, Christchurch, Auckland (Museum). Range: 0° to 35° S. Lat. 160° E. to 170° W. Long.

Dom. Obs. Bull. S-83. N.Z. D.S.I.R., Wellington.

S-84 JONES, W.M., 1947: New Zealand microseisms associated with the storm of 14th-16th February, 1947.

N.Z. J. Sci. Tech. 29B: 142-152.

Microseisms associated with the storm of 14th -16th February, 1947, have been studied from the seismograph records at several New Zealand stations. Measurements were made of average trace-amplitudes, and of the periods of dominant wave-trains. Maximum amplitudes at Auckland, Wellington, and Christchurch were reached when the storm centre was at sea, some 440 km. to the east of Wellington. The dominant periods ranged from 4 to 7 sec., except at New Plymouth (2 to 4 sec.), and tended to be greatest at the times of maximum amplitudes. Some associations of the macroseismic activity with the strength and gust-frequency of southerly wind at Wellington are discussed.

S-85 HAYES, R.C., 1947: Earthquakes in New Zealand during the year 1946. *N.Z. J. Sci. Tech. 29B*: 90-93.

NOTE: The annual Seismological Reports (E-Bulletins) and monthly cyclostyled Provisional Bulletins (P-Bulletins) issued during this period carry no dates of publication.

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EIBY, G.A., 1982a: Earthquakes and tsunamis in a region of diapiric folding. *Tectonophysics 85.* : T1-T8.

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HAYES, R.C., 1948: Earthquakes in New Zealand during the year 1947. *N.Z. J. Sci. and Technol. 30B.* : 102-105.

WADATI, K., and MASUDA, K., 1933: On the travel-times of earthquake waves. *Geophys. Mag. 7.*

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I wish to record my indebtedness to Dr W.D. Smith, present Superintendent of the Seismological Observatory, Wellington, and to all members of his staff, who have willingly shared facilities and discussed problems that arose in the course of this work. Particular mention must be made of the uncomplaining helpfulness of Dr T.H. Webb who disentangled the many confusions that resulted from my lack of familiarity with the habits of computers. For all this help and encouragement I am most grateful, and tender my sincere thanks.

G.A. EIBY

ERRATA

Attention is drawn to several omissions and errors affecting information that appears in the N.Z. Seismological Report for 1948-49-50 (Bulletin E-164 of this series).

ORIGIN 48/083:

This earthquake was not reported felt, and the statement that follows the instrumental data at the top of page 63 should therefore be deleted.

ORIGINS 48/157 and 48/158:

The instrumental data on pages 84 and 85 are correctly listed, but the felt reports on page 296 have been telescoped. Shock 48/158 was not felt, and the correct information for shock 48/157 should read:

48/157 Aug 31 03h 53m 41.11S 174.20E 12 km M = 3.7
MM 2 Wellington (68).

ORIGIN 49/11:

The felt reports of this earthquake have been omitted from the listings on page 298. The entry should read:

49/011 Jan 24 13h 06m 40.50S 172.71E 12 km M = 3.6
MM 3 Takaka (72).

LIST OF MAPS

(in pocket inside back cover)

1. Epicentres of Normal Focus Earthquakes in 1945.
2. Epicentres of Normal Focus Earthquakes in 1946.
3. Epicentres of Normal Focus Earthquakes in 1947.
4. Epicentres of Deep Focus Earthquakes, 1945-47.

P.D. HASSELBERG, GOVERNMENT PRINTER, WELLINGTON, NEW ZEALAND—1983

SHALLOW EARTHQUAKES

1945

This map shows the instrumentally determined epicentres of all earthquakes whose focal depths are less than 40 km. Shocks with a standard error greater than 2·0 sec., and those that have been recorded at only four or fewer stations are shown by open circles. The size of the circle is an indi – cation of instrumental magnitude. When several shocks have the same epicentre, the magnitude of the largest is shown.

Magnitude
- >6·0
- 5·0–5·9
- 4·0–4·9
- <4·0

Auckland
Arapuni
Tuai
New Plymouth
Havelock North
Bunnythorpe
Takaka
Wellington
Kaimata
Wairiri
Christchurch
Monowai
Dunedin

SCALE
20 0 20 40 60 80 100 Statute miles
20 0 20 40 60 80 100 Kilometres

NEW ZEALAND SEISMOLOGICAL REPORT 1945–1947
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Map Supplement

P.D. Hasselberg, Government Printer, Wellington, New Zealand.
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MAP 1

SHALLOW EARTHQUAKES

1946

This map shows the instrumentally determined epicentres of all earthquakes whose focal depths are less than 40 km. Shocks with a standard error greater than 2·0 sec., and those that have been recorded at only four or fewer stations are shown by open circles. The size of the circle is an indi – cation of instrumental magnitude. When several shocks have the same epicentre , the magnitude of the largest is shown.

Magnitude

- >6·0
- 5·0–5·9
- 4·0–4·9
- <4·0

Auckland
Arapuni
Tuai
New Plymouth
Havelock North
Takaka
Wellington
Kaimata
Christchurch
Wairiri
Monowai
Dunedin

SCALE
20 0 20 40 60 80 100 Statute miles
20 0 20 40 60 80 100 Kilometres

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MAP 2

SHALLOW EARTHQUAKES

1947

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Magnitude

- ● >6·0
- ● 5·0–5·9
- ● 4·0–4·9
- ● <4·0

Auckland
Arapuni
Tuai
New Plymouth
Havelock North
Bunnythorpe
Taupo
Wellington
Kaimata
Wairiri
Christchurch
Monowai
Dunedin

SCALE
20 0 20 40 60 80 100 Statute miles
20 0 20 40 60 80 100 Kilometres

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MAP 3

DEEP EARTHQUAKES

1945–1947

This map shows the instrumentally determined epicentres of all earthquakes whose focal depths are 40 km or more. Shocks with a standard error greater than 2·0 sec., and those that have been recorded at only four or fewer stations are shown by open circles. The size of the circle is an indication of instrumental magnitude. When several shocks have the same epicentre, the magnitude of the largest is shown.

Magnitude

- >6·0
- 5·0-5·9
- 4·0-4·9
- <4·0

Auckland
Arapuni
Tuai
New Plymouth
Havelock North
Bunnythorpe
Takaka
Wellington
Kaimata
Christchurch
Wairiri
Monowai
Dunedin

SCALE
20 0 20 40 60 80 100 Statute miles
20 0 20 40 60 80 100 Kilometres

NEW ZEALAND SEISMOLOGICAL REPORT 1945–1947
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MAP 4

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