New Zealand Department of Scientific and Industrial Research

GEOPHYSICS DIVISION

NEW ZEALAND SEISMOLOGICAL REPORT 1984

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POSTAL SERVICE

All measurement and interpretation of records is carried out at the central station. Requests and communications should therefore be sent to :

The Superintendent
Seismological Observatory
P.O. Box 1320
Wellington
New Zealand.

Correspondents are asked to note that surface mails from Europe and the Americas are infrequent, and that articles not sent by airmail may take four or five months to reach us.

Published in 1986

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NIUE

Observer:	L.I.Lavini

NADI

Observer:	E.Puamau

RAOUL ISLAND

Observer:	W.Latham

CAMPBELL ISLAND

Observer:	W.A.Perry

SCOTT BASE

Observer:	J.Ireland

INTRODUCTION

This Annual Report marks a major change in the philosophy of presenting the results of the Seismological Observatory's work. In the past an attempt was made to make the Report a substitute for an examination of seismograms by the reader. This was a sensible aim at a time when phase information was not also published by the International Seismological Centre and when copying seismograms was not only expensive but also likely to involve loss of quality. However, with a vast increase in the amount of data to be reported, it resulted in the Reports developing into cumbersome tomes, and even in these it was not possible to accommodate phase data from the high density sub-networks of seismographs installed in recent decades around Lake Pukaki and Wellington.

In the era of rapid and reliable data-transmission it seems likely that a comprehensive catalogue of the data held by the observatory will be more widely useful than an attempt to continue in the old tradition. For this reason, no phase arrival times or amplitudes are included in this Report, but additional information intended to help researchers to assess the quality of the data used for origin determination is presented in a summary of the information available for each earthquake. In addition, lists of origins only (without the quality-specifying parameters) are presented.

A further aim of the catalogue-style presentation of the Report is to help those who require additional data to specify more precisely the information that they need. The Observatory has data retrieval facilities capable of extracting data from archives according to a wide range of selective criteria. (see Observatory Services section). It is hoped that the Report in its new format will facilitate such data requests.

There have also been some less radical changes to Observatory practice that affect the contents of this Report. Readers who have not looked at one of these Reports for some time should note that criteria for deciding if an earthquake origin will be calculated have changed over recent years (see pages 22 and 23) and a modification to the system of weighting the arrival-time observations used to determine origins is introduced this year, (see page 23).

Another innovation is the inclusion of observations of underground nuclear explosions in French Polynesia. These have not been published previously, and explosions recorded from the beginning of the underground testing programme until the end of 1984 are listed in this issue. Future editions of the Report will contain only observations from the current year.

Teleseismic data do not appear in this Report, but are sent to the International Seismological Centre and published in their Bulletins. Readers requiring unpublished New Zealand data may apply to the Observatory. Definitive origins of local earthquakes are normally available wihin a few months of their occurrence.

M. A. LOWRY
Editor

NEW ZEALAND SEISMICITY IN 1984

Although 1984 saw the country's first onshore earthquake of magnitude greater than six for many years, most of the New Zealand public will remember it as seismically quiet. Residents of places around the southern end of Lake Taupo might disagree however, for they experienced a fairly brisk outburst of activity during the early months of the year. In the South Island, an earthquake in June caused some brief excitement among geologists and seismologists, because its epicentre at first appeared to lie close to the Alpine Fault, but a special study which included short-range observation of the aftershocks established that the true position was further east. In the closing days of the year there was something of a seismic grand finale, with the start of a series of major shocks out to sea in the Bay of Plenty.

Considering the seismic events of the year in more detail, on January 3rd an earthquake (serial 84/013) at a depth of a little more than 100km beneath a point northeast of D'Urville Island shook several places in Taranaki with intensities up to MM V and was reported to have been felt from Kawhia (reporting locality 30) to Christchurh (locality 110). Also in January, a slightly weaker but shallow earthquake (84/086) a little further west was felt on both sides of Cook Strait.

In February, the burst of activity around the southern end of Lake Taupo commenced, and it continued sporadically until the middle of April. The shocks were shallow, and the areas over which most of them were felt were small, but the strongest (84/172) produced shaking of intensity MM VI, was responsible for a minor power station fire at Takaanu (40) close to the epicentre, and was felt from Hamilton (20) to Wellington (68).

March 8th produced the gem of the 1984 collection, the (Local) magnitude 6·4 Motu River earthquake, centred roughly half way between Opotiki (35) and Gisborne (45), which was widely felt. Fortunately for those living in the vicinity, the depth of the origin, at 75 km, was not only typical for strong shocks in the area, but also enough to keep the maximum felt intensity down to MM VI, Earthquakes near this depth and location are interpreted as originating in the upper part of the subducting Pacific plate. Another shock (84/215) with a magnitude of more than 5·2 was felt at several places in the southwest of the North Island on the 14th of the same month. Once again the depth of the origin (238 km) kept felt intensities down. MM IV was the strongest reported.

On April 12th another earthquake (84/316), originating between the East Coast and the Bay of Plenty, but this time with a shallow focus (25 km deep), shook both nearby coasts with intensities up to MM V. On May 5th there was a magnitude 5·1 shock (84/384) that was followed on June 2nd by a magnitude 5·2 (84/463) very nearby. Both produced reports of MM V on the West Coast. Intensity MM VI was again reported from several places in south Westland (97) as a result of a magnitude 5·9 earthquake (84/521) in the Macauley River valley on June 24th. Single reports of the same intensity came from the thinly populated Mount Cook (105) and Mount Somers (107) localities, nearer to the epicentre on the eastward side of the Southern Alps. The area over which the shock was felt extended from Nelson (71) in the north to Otago (145) in the south. In the epicentral area, car-sized boulders had been dislodged from hillsides and strewn over the valley floor. Although some of the rocks seen in this position may have been monuments to earlier shocks, others had come to rest in the middle of farm tracks, and could only have arrived there recently. An aftershock sequence ensued, but because of the remoteness of the affected area, few people were inconvenienced.

July was a rather uneventful month, but in August an earthquake (84/657) of magnitude 5·0 near Oxford (101) was felt from Greymouth (92) on the West Coast to Akaroa (111) on Banks Peninsula. Eleven days later, a shock (84/680) of magnitude

5·3, located some 80 km under Hawkes Bay, was felt from Taupo (41), in the middle of the North Island, to Castlepoint (67) on the Wairarapa coast and Greymouth (92) on the West Coast. Both of these events produced reports of MM V.

September was again relatively quiet, but an earthquake of magnitude 5·2 (84/782) near Jackson Bay late in the month was felt as far away as Clarksville (152). The depth appears to have been unusually shallow.

October saw something of an upsurge in the number of shocks recorded, but little of special interest. In November, a shock (84/919) of only magnitude 4·9 and at a depth of over 70 km resulted in a report of MM VI from Pahiatua (49), some 50km away from the epicentre. This earthquake was quite widely felt in other North Island places from Ohakune (49) south.

In the last days of December, a series of shocks, several of them quite strong, began far out to sea in the Bay of Plenty. The epicentres were scattered over a considerable area, giving rise to some anxiety that thay might migrate far enough south to cause damage ashore. Although most of the shocks occurred during 1985, and the next Report will be a more appropriate place to describe the sequence fully, the strongest shock (84/1254) of M_L 6·3, occurred on December 30th. Swarm activity involving events of this magnitude has not been recorded on the mainland, but it is not unusual in the Kermadec Island region. It has often been suggested that there is a break between the activity of the Main Seismic Region of New Zealand and that of the Kermadec Seismic Region, but shocks of the 1984/1985 sequence came close to bridging the gap.

1984 was another year with no significant volcanic activity on either the North Island volcanoes or White Island.

THE INSTRUMENTAL NETWORKS

DESCRIPTION

The system of seismograph stations under the scientific direction of the Seismological Observatory at Wellington in 1984, comprised a standard network of stations covering the main islands of New Zealand and extending over the south-west Pacific from Samoa, Fiji, and Rarotonga, to Ross Island in the Antarctic; a smaller and closer-spaced network near Wellington; two seismographs which were formerly a part of the Pukaki Network and have now been redeployed to provide some microseismic background information on the area where a new dam is being built at Clyde; and specialised or temporary stations established for research purposes.

The stations of the standard network are of two kinds, one having short-period instruments intended to record shocks originating within about 1000 km, and the other equipped with long-period instruments designed to provide information about more distant earthquakes and about the internal structure of the Earth. These functions interlock, and every station yields information of both kinds. Most of the instruments record photographically, but at stations where facilities for photographic work would be difficult to provide, or where instantly visible records are needed for tsunami warning or other civil defence purposes, pen-and-ink or heated stylus recorders are in use.

Wellington Network stations transmit their outputs to a central recorder at the Seismological Observatory. The network has twelve stations, and is intended primarily for research but is also used in the rapid location of shocks of public interest or of importance for civil defence.

The Clyde dam surveillance stations operate in the same way as the Wellington Network but their telemetered output is recorded at Clyde and thence sent to Wellington for analysis.

A new network of telemetering stations with central recording at Wairakei is intended to monitor possible volcanic hazards in the region of Lake Taupo. The first two of these stations were installed in 1984.

There is also a 'Seismic Research Observatory' located at South Karori near Wellington. This is a specialised instrument sponsored by the United States Geological Survey and is one of about ten similar installations distributed around the world. The three-component seismometer is enclosed in a gas-filled capsule and has been lowered to a position about 10 m below sea-level in a bore-hole 165 mm in diameter and about 100 m deep. The outputs are transmitted by land-line to the Observatory at Kelburn, where both analogue records on heat-sensitive paper and digital records on magnetic tape are made. Three-component long-period and one vertical component short-period outputs are recorded.

In addition to information from the standard network, data is contributed by one station operated by the Defence Research Establishment on Great Barrier Island, another belonging to the Geology Department of Otago University at Dunedin, and volcanological research or surveillance stations, operated in various collaborations by the Geological and Geophysical Surveys of the D.S.I.R., the Universities of Auckland and Wellington and the Ministry of Works and Development. These volcanological stations are on White Island, in the Rotorua geothermal area, in Tongariro National Park, and around Lake Taupo. They are not under the control of the Observatory, but their readings are available for use in the local epicentre location programme when this is helpful. Temporary stations set up by the Observatory, for research or to monitor unusual seismic activity, may also supply data for this work.

CHANGES TO THE NETWORKS IN 1984

1984 saw the start of a major redeployment and expansion of the networks. The station at Waimangu (WGZ) ceased recording at the end of 1983 and in March of 1984 the instrument at Glacier Shelter (GSZ) on Mount Ruapehu was removed to be resited (in April) near the Dome Shelter (DRZ). An instrument formerly used in the Pukaki Network was put into operation at Clyde (CYZ) early in April, with the aim of monitoring the level of seismic activity near the site where a dam on the Clutha River is under construction, and another station, Maungaku (MGZ), primarily intended to give warning of lahar danger on Mount Ruapehu, was activated in the middle of the month. Also in April, the Geological Survey installed a seismometer on Rainbow Mountain (RBY) in the North Island thermal area. In June a second seismometer was installed close to the Clutha, at Mount Horn (MHZ). In July the Geological Survey deployed another instrument on Mount Tarawera (TAZ) and a standard network seismograph at Lake Rotoiti (RTY) in the north of the South Island began recording. Another standard network seismograph started working in August, sited at Rangipo (RGZ) in the central North Island. Finally, in December, two stations of the new Lake Taupo network, Hingarae (HITZ) and Rangitukua (RATZ) were put into operation.

INDEX OF STATION CODES AND POSITIONS

Throughout the tabular sections of this Report, stations are identified by the internationally recognised abbreviations allotted by the United States National Earthquake Information Service and used by the International Seismological Centre.

CODE	NAME	LATITUDE d m s	LONGITUDE d m s	ALT m
	SEISMIC RESEARCH OBSERVATORY			
SNZO	South Karori	41 18 37 S	174 42 17 E	-10
	STANDARD NETWORK			
AFI	Afiamalu	13 54 34 S	171 46 38 W	706
API	Apia	13 48 26 S	171 46 30 W	2
AUC	Auckland	36 51 36 S	174 46 41 E	79
BRZ	Borland Lodge	45 46 45 S	167 32 19 E	190
CAZ	Castlepoint	40 54 15 S	176 13 34 E	6
CBZ	Campbell Island	52 33 03 S	169 09 33 E	30
CIZ	Chatham Island	43 57 18 S	176 33 56 W	45
CMZ	Cashmere	43 35 10 S	172 38 23 E	255
COB	Cobb River	41 05 16 S	172 44 02 E	213
CRZ	Cape Reinga	34 25 55 S	172 40 47 E	140
ECZ	East Cape	37 41 37 S	178 32 46 E	40
GNZ	Gisborne	38 38 39 S	178 01 21 E	30
KAI	Kaimata	42 31 33 S	171 24 31 E	82
KKZ	Kaikoura	42 25 19 S	173 41 17 E	105
KRP	Karapiro	37 55 30 S	175 32 15 E	64
MNG	Mangahao	40 37 07 S	175 28 55 E	396
MSZ	Milford Sound	44 40 14 S	167 55 01 E	38
NDF	Nadi	17 45 25 S	177 27 00 E	30
NUE	Niue	19 04 35 S	169 55 41 W	56
OBZ	Oban	46 54 18 S	168 06 55 E	26

CODE	NAME	LATITUDE d m s	LONGITUDE d m s	ALT m
OMZ	Oamaru	45 04 14 S	170 54 53 E	95
ONE	Onerahi	35 46 33 S	174 21 45 E	30
RAO	Raoul Island	29 15 06 S	177 55 06 W	110
RAR	Rarotonga	21 12 45 S	159 46 24 W	28
RGZ	Rangipo	39 09 19 S	175 50 02 E	667
ROX	Roxburgh	45 28 33 S	169 19 13 E	106
RTY	Rotoiti	41 48 27 S	172 50 35 E	635
SBA	Scott Base	77 51 01 S	166 45 22 E	38
TNZ	Tarata	39 11 14 S	174 22 49 E	123
TRZ	Taradale	39 33 12 S	176 49 17 E	17
TUA	Tuai	38 48 29 S	177 09 02 E	274
WEL	Wellington	41 17 10 S	174 46 06 E	122
WIZ	White Island	37 31 42 S	177 11 21 E	40
WNZ	Wairakei	38 37 53 S	176 06 10 E	350
WTZ	Whakatane	37 59 05 S	176 59 18 E	4
		CLYDE NETWORK		
CYZ	Clyde	45 08 45 S	169 19 46 E	606
MHZ	Mount Horn	45 03 43 S	169 16 47 E	1 127
TMP	Tomahawk	44 18 54 S	170 07 12 E	720
		CONTRIBUTING STATIONS		
CNZ	Chateau	39 12 00 S	175 32 51 E	1 116
DNZ	Dunedin	45 51 59 S	170 30 54 E	15
DRZ	Dome Shelter	39 16 35 S	175 33 49 E	2 600
GBZ	Great Barrier	36 13 04 S	175 28 52 E	70
MGZ	Maungaku	39 00 07 S	175 32 20 E	806
NGZ	Ngauruhoe	39 10 39 S	175 36 12 E	1 400
RBY	Rainbow Mountain	38 19 16 S	176 23 16 E	739
TAZ	Tarawera	38 13 59 S	176 30 28 E	1 027
		TAUPO NETWORK		
RATZ	Rangitukua	38 52 07 S	175 46 16 E	649
HITZ	Hingarae	38 42 31 S	175 45 59 E	1 458
		WELLINGTON NETWORK		
BHW	Baring Head	41 24 33 S	174 52 17 E	10
BLW	Big Hill	41 22 07 S	175 28 29 E	340
CAW	Cannon Point	41 06 32 S	175 04 04 E	330
CCW	Cape Campbell	41 45 17 S	174 12 54 E	216
KIW	Kapiti Island	40 51 50 S	174 54 42 E	320
MOW	Moikau	41 25 18 S	175 15 07 E	430
MRW	Makara Radio	41 13 57 S	174 42 18 E	235
MTW	Mount Morrison	41 09 34 S	175 30 07 E	282
TCW	Tory Channel	41 12 48 S	174 16 33 E	150
WDW	Wainui Dam	41 16 07 S	174 59 37 E	130
WEL	Wellington	41 17 10 S	174 46 06 E	122
WHW	Wrights Hill	41 17 51 S	174 44 17 E	383

INSTRUMENTATION AND LITHOLOGY

STANDARD NETWORK AND CONTRIBUTING STATIONS

Stations are listed in the alphabetical order of their abbreviations. Pendulum and galvanometer periods, To and Tg, are given in seconds. The damping of electromagnetic instruments, when not listed, may be assumed to be critical. Magnifications listed are for the period of maximum response, except in the case of World-Wide Standard instruments, where the magnifications are given at the conventional periods of 1·0 and 15 seconds. Typical period response curves for Willmore II, Benioff, Wood-Anderson and Mark Products L-4C seismographs are shown at the end of this section.

	Instrument	Compt.	T_o	T_g	Damping	Magnification
AFI	AFIAMALU (World-Wide Standard Station)					
	Foundation: Basaltic lava flows.					
	Benioff	ZNE	1·0	0·75		12 500 at 1·0s
	Press-Ewing	ZNE	15	100		750 at 15s
API	APIA					
	Foundation: Coral sand on Recent and Pleistocene basalt.					
	Johnson-Matheson (photo-cell amplifier with hot stylus recorder).					
		Z	1·2	0·20		
AUC	AUCKLAND					
	Foundation: Volcanic beds on Tertiary sandstone and mudstone.					
	Mark Products L-4C (with Kinemetrics VR-1 pen-recorder).					
		Z	1·0			3 800 at 0·25s
BRZ	BORLAND LODGE					
	Foundation: Quaternary gravels.					
	Willmore II	Z	1·0	0·25		29 100 at 0·25s
	Wood-Anderson	X	0·80		crit.	2 800 at 0·80s
	The Wood-Anderson is oriented with the X component northeast.					
CAZ	CASTLEPOINT					
	Foundation: Quaternary mudstone.					
	Willmore II (with Kinemetrics VR-1 pen-recorder).					
		Z	1·0			Variable
	The magnification may be reduced when high seas are running.					
CBZ	CAMPBELL ISLAND					
	Foundation: Basalt.					
	Willmore II	Z	1·0	0·25		5 000 at 0·25s
CIZ	CHATHAM ISLANDS					
	Foundation: Clay over basalt.					
	Willmore II	Z	1·0	0·25		4 440 at 0·20s
		N	1·0	0·25		5 110 at 0·20s
		E	1·0	0·25		4 400 at 0·25s

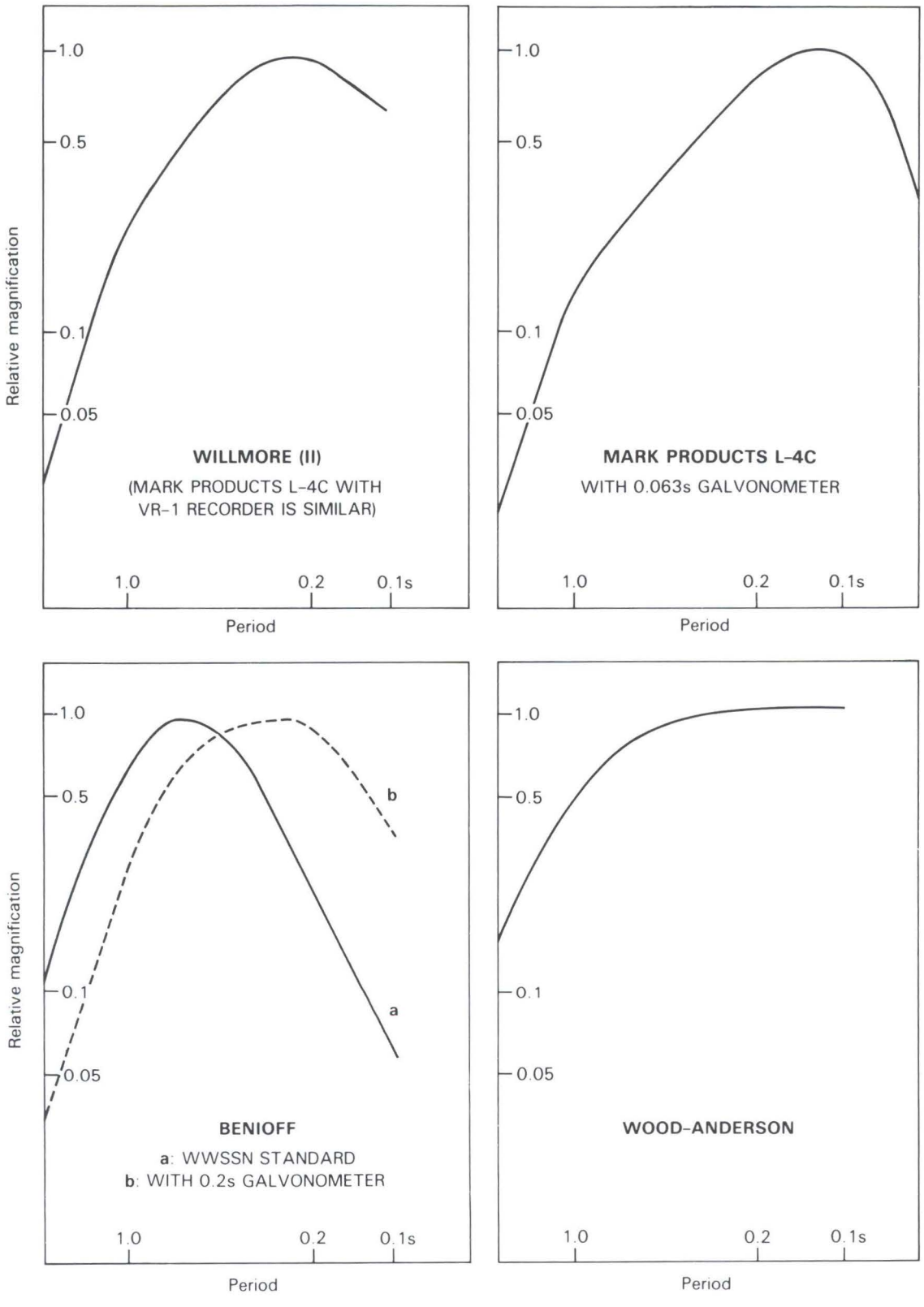
	Instrument	Compt.	T_o	T_g	Damping	Magnification
CMZ	CASHMERE					
	Foundation: Rhyolite.					
	Mark Products L-4C (Telemetered to Kinemetrics VR-1 pen-recorder).					
		Z	1·0			24 000 at 0·20s
CNZ	CHATEAU (Geophysical Survey)					
	Foundation: Volcanic ash and lava.					
	Willmore I (Telemetered to Kinemetrics VR-1 pen-recorder).					
		Z	1·0			Variable
COB	COBB RIVER					
	Foundation: Schist.					
	Willmore II	Z	1·0	0·25		27 300 at 0·20s
CRZ	CAPE REINGA					
	Foundation: Cretaceous basic volcanics.					
	Willmore II	Z	1·0	0·25		9 350 at 0·25s
		N	1·0	0·25		10 200 at 0·20s
DNZ	DUNEDIN (University of Otago)					
	Foundation: Basaltic lava flow.					
	Willmore III with Kinemetrics pen-recorder.					
		Z	1·0			Variable
		N	1·0			Variable
		E	1·0			Variable
DRZ	DOME SHELTER (Geophysical Survey)					
	Foundation: Recent andesitic ash.					
	Mark Products L-4C (High and low magnifications, telemetered to Kinemetrics VR-1 pen-recorders).					
		Z	1·0			Variable
ECZ	EAST CAPE					
	Foundation: Mudstone and sandstone.					
	Willmore II	Z	1·0	0·25		4 800 at 0·33s
GBZ	GREAT BARRIER (Defence Science Establishment)					
	Foundation: Tertiary volcanics.					
	Willmore II	Z	1·0	0·25		23 800 at 0·25s
GNZ	GISBORNE					
	Foundation: Alluvium on Tertiary mudstone.					
	Willmore II	Z	1·0	0·25		27 000 at 0·25s
		N	1·0	0·25		29 500 at 0·20s
KAI	KAIMATA					
	Foundation: Moraine and river gravels over Tertiary mudstone and sandstone.					
	Wood-Anderson	X	0·80		crit.	2 800 at 0·80s
	This instrument is oriented with the X component northeast.					
KKZ	KAIKOURA					
	Foundation: Tertiary limestone and mudstone.					
	Willmore II	Z	1·0	0·25		12 000 at 0·25s

	Instrument	Compt.	T_o	T_g	Damping	Magnification
KRP	KARAPIRO					
	Foundation: Greywacke.					
	Benioff	Z	1·0	0·20		46 700 at 0·25s
		E	1·0	0·20		41 000 at 0·50s
MGZ	MAUNGAKU (Ministry of Works)					
	Foundation: Quaternary andesite.					
	Mark Products L-4C (Telemetered to Kinemetrics VR-1 pen-recorder).					
		Z	1·0			Variable
MNG	MANGAHAO					
	Foundation: Greywacke.					
	Willmore II	Z	1·0	0·25		52 000 at 0·33s
MSZ	MILFORD SOUND					
	Foundation: Gneiss.					
	Willmore II	Z	1·0	0·25		49 800 at 0·25s
NDF	NADI					
	Foundation: Recent clays.					
	Willmore II (photo-cell amplifier with hot stylus recorder).					
		Z	1·25	0·20		6 000 approx.
NGZ	NGAURUHOE (Geophysical Survey)					
	Foundation: Recent volcanic flows.					
	Mark Products L-4C (Telemetered to Kinemetrics VR-1 pen-recorder).					
		Z	1·0			Variable
NUE	NIUE					
	Foundation: Hard coral.					
	Willmore II (with Kinemetrics VR-1 pen-recorder).					
		Z	1·0			17 200 at 0·10s
OBZ	OBAN					
	Foundation: Weathered granite.					
	Mark Products L-4C (with Kinemetrics VR-1 pen-recorder).					
		Z	1·0			12 000 at 1·0s
OMZ	OAMARU					
	Foundation: Recent deposits overlying Tertiary limestone.					
	Willmore II	Z	1·0	0·20		11 500 at 0·20s
ONE	ONERAHI					
	Foundation: Basalt.					
	Wood-Anderson	E	0·80		crit.	2 800 at 0·8s
RAO	RAOUL ISLAND					
	Foundation: Volcanic rock.					
	Willmore II	Z	1·0	0·25		4 800 at 0·25s
RAR	RAROTONGA (World-Wide Standard Station)					
	Foundation: Basalt.					
	Benioff	ZNE	1·0	0·75		6 250 at 1·0s
	Press-Ewing	ZNE	15	100		375 at 15s

	Instrument	Compt.	T_o	T_g	Damping	Magnification
RBY	RAINBOW MOUNTAIN (Geological Survey)					
	Foundation: Dacite lava.					
	Mark Products L-4C (Telemetered to Kinemetrics VR-1 pen-recorder).					
		Z	1·0	0·25		Variable
RGZ	RANGIPO					
	Foundation: Volcanic rock.					
	Mark Products L-4C (with Kinemetrics VR-1 pen-recorder).					
		Z	1·0	0·25		8 000 at 1.0s
ROX	ROXBURGH					
	Foundation: chlorite schist.					
	Willmore I	Z	1·0	0·25		11 500 at 0·25s
RTY	ROTOITI					
	Foundation: Glacial gravels.					
	Mark Products L-4C (with Kinemetrics VR-1 pen-recorder).					
		Z	1·0	0·25		Uncertain
SBA	SCOTT BASE (World-Wide Standard Station)					
	Foundation: Frozen basaltic debris resting on lava flows.					
	Benioff	ZNE	1·0	0·75		50 000 at 1·0s
						25 000 (Feb 10 onw'd)
						12 500 (Feb 26 onw'd)
						25 000 (Mar 24 onw'd)
						50 000 (Apr 27 onw'd)
	Press-Ewing	ZNE	15	100		750 at 15s
TAZ	TARAWERA (Geological Survey)					
	Foundation: Rhyolite lava.					
	Mark Products L-4C (Telemetered to Kinemetrics VR-1 pen-recorder).					
		Z	1·0	0·25		Variable
TNZ	TARATA					
	Foundation: Pleistocene mudstone.					
	Willmore II	Z	1·0	0·25		4 570 at 0·20s
TRZ	TARADALE					
	Foundation: Quaternary sands and silts, overlying Quaternary limestone.					
	Willmore II	Z	1·0	0·25		5 550 at 0·25s
TUA	TUAI					
	Foundation: Thick Tertiary sandstone and mudstone.					
	Willmore II	Z	1·0	0·25		7 080 at 0·25s
WEL	WELLINGTON (World-Wide Standard Station)					
	Foundation: Greywacke.					
	Benioff	ZNE	1·0	0·75		6 250 at 1·0s
	Press-Ewing	ZNE	15	100		750 at 15s
	Wood-Anderson	NE	0·80		crit.	1 400 at 0·8s
	Imamura	Z	1		5:1	2
		NE	4		5:1	2

The Benioff vertical component operates both photographic and heated-stylus recorders. There is also a pen-recorder operated by a Willmore I seismometer.

	Instrument	Compt.	T_o	T_g	Damping	Magnification
WIZ	WHITE ISLAND (Geological Survey/Victoria University)					
	Foundation: Recent andesite.					
	Mark Products L-4C (Telemetered to Kinemetrics VR-1 pen-recorder).					
		Z	1·0			Variable
WNZ	WAIRAKEI					
	Foundation: Pumice breccia.					
	Willmore I	Z	1·0	0·25		200 (nominal)
WTZ	WHAKATANE					
	Foundation: Weathered Jurassic greywacke.					
	Willmore II	Z	1·0	0·20		24 000 at 0·20s



PERIOD RESPONSE CURVES
Short Period Seismographs

SEISMIC RESEARCH OBSERVATORY

This station is sponsored by the United States Geological Survey. A three-component seismometer sealed in a gas-filled capsule is placed in a borehole 165mm in diameter and about 100m deep. Both digital and analogue recordings are made from the three long-period and the vertical component short-period outputs. The recorder is at the observatory site in Kelburn, and the signals are transmitted to it by landline. The ground surface is 88m above and the seismometer 10m below sea level.

Station		Component	Magnification
SNZO	South Karori	ZNE	20 000 at 25s
		Z	6 250 at 1·0s

The lithological foundation is Jurassic-Permian Greywacke.

CLYDE NETWORK

Two of the seismographs of the erstwhile Pukaki network have been relocated to allow data to be collected on the prevailing level of microseismicity in the area of the dam at present under construction at Clyde on the Clutha River. These instruments are operated by New Zealand Electricity, (division of the Ministry of Energy) and they (or their successors) will later be used to monitor any changes in local seismicity associated with the use of the lake for the generation of electric power. The records are interpreted and retained at the Observatory where they are available for other seismological use. During 1984, observations from these stations have not been treated differently from those of standard network stations. The network consists at present of two stations linked by radio to a common double pen recorder at Clyde. One ex-Pukaki Network station, at Tomahawk Gully (TMP), continues to run on its old site. The seismometers in use are Mark Products L-4C instruments with a natural period of one second, and the recorder is a Kinemetrics VR-1 giving the response curve shown in the diagram preceding this section.

The lithological foundation at all three stations is Mesozoic Greywacke.

Code	Station	Component	Magnification
CYZ	Clyde	Z	275 000 at 0·10s
MHZ	Mount Horn	Z	275 000 at 0·10s
TMP	Tomahawk Gully	Z	750 000 at 0·20s
		N	100 000 at 0·20s

TAUPO NETWORK

This network is intended to monitor volcanic and geothermal activity in the Taupo Volcanic Region. Although relatively quiet in historic times, (the 1886 Tarawera eruption notwithstanding), the geological record shows that the Region has been the scene of larger-scale activity at a number of times in the more distant past. The first two stations of the new network were installed in 1984.

Code	Station	Component	Magnification	Foundation
HITZ	Hingarae	Z	54 600 at 0·10s	Ignimbrite
RATZ	Rangitukua	Z	44 700 at 0·10s	Rhyolite

WELLINGTON NETWORK

The stations of the Wellington network are linked by radio or land-line to a common recorder at the main observatory site at Kelburn. The seismometers used are Mark Products L-4C instruments with a natural period of 1·0 second. Standard Station. The recorder used is a Teledyne Develocorder with galvanometers having a period of 0·063s (frequency 16Hz). Magnifications quoted refer to the trace as seen when projected on the screen of the Develocorder, which magnifies the film trace ten times. At Wellington only one low gain channel operated in 1984.

The lithological foundation at all stations is Jurassic-Permian Greywacke, except for CCW where it is Miocene sandstone.

N.B. The films from the Wellington network are normally read on a viewer which has a magnification approximately twice that of the Develocorder.

Station		Component	Magnification at 0·10s
BHW	Baring Head	Z	380 000
BLW	Big Hill	Z	340 000
CAW	Cannon Point	Z	420 000
CCW	Cape Campbell	Z	135 000
KIW	Kapiti Island	Z	500 000
MOW	Moikau	Z	210 000
MRW	Makara Radio	Z	400 000
MTW	Mount Morrison	Z	420 000
TCW	Tory Channel	Z	710 000
WDW	Wainui Dam	Z	640 000
WEL	Wellington	N	110 000

TIMING ARRANGEMENTS

Unless stated otherwise, times in this Report are given in Universal Time (U.T. or, more strictly, U.T.C., defined in a later section). For most seismological and civil purposes this may be regarded as the Mean Solar Time of the Greenwich meridian.

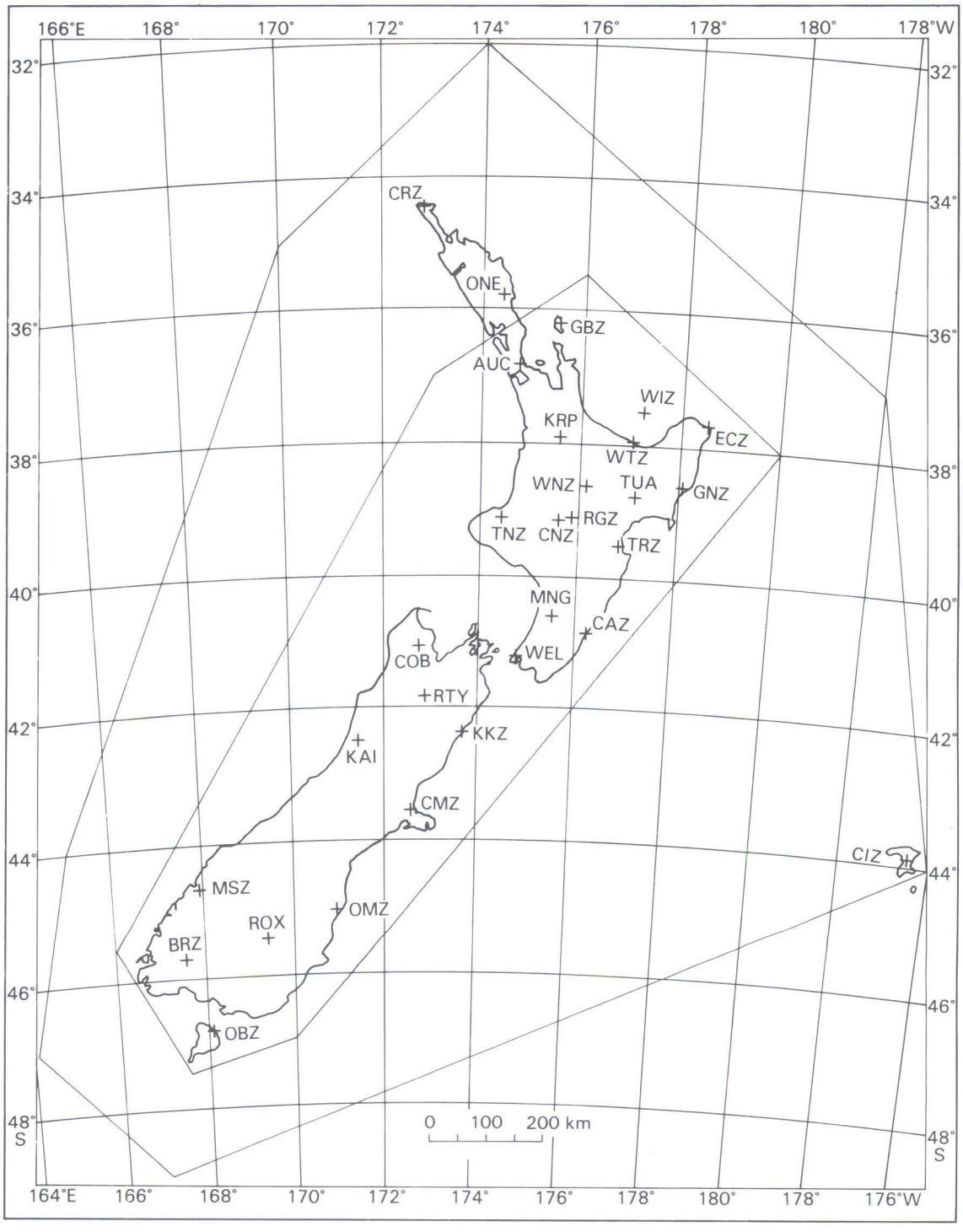
Throughout the standard network, minute marks derived from quartz crystal clocks of high stability appear on records as abrupt trace deflections of about two seconds duration. Radio time signals also operate the trace deflector so that the relationship between the locally generated minute marks and Universal Time can be established. In most cases the radio signals are those of the New Zealand Time Service (for which the Observatory is administratively responsible), transmitted hourly through the stations of Radio New Zealand, but in areas where local reception is bad, the Australian station VNG is used. It is estimated that the total error in time-signal recording resulting from signal transmission and delay in operation of the trace deflector should never exceed 30 milliseconds. Further details of the New Zealand Time Service appear later in this Report.

Stations of the World-Wide Standard Seismograph Network have the timing arrangements usual at such stations. At other stations beyond New Zealand, time signals originating at the Observatory or from VNG are used. Time-pulse signals of one second period derived directly from the national Time Service are displayed on the topmost and lowest traces of the Wellington network records. Additional periodic markings identify hours and minutes. It is sometimes desirable to know the local civil time at which an earthquake occurred. The times now used for civil purposes in New Zealand (except the Chatham Islands) are New Zealand Standard Time, and New Zealand Daylight Time, which are defined in the Time Act, 1974. New Zealand Standard Time is 12 hours, and New Zealand Daylight Time is 13 hours ahead of U.T. The period of Daylight Time is specified by Order in Council, as provided by the Act, normally extending from 02h NZST on the last Sunday in October until 02h NZST on the first Sunday in March of the following year.

The time observed in the Chatham Islands is 45 minutes in advance of that currently in use in New Zealand. New Zealand Standard Time is observed at Scott Base, in Fiji and on Raoul and Campbell Islands. Times observed elsewhere in the South Pacific are decided by the governments of the respective countries. Those affecting places which sometimes report earthquakes to the Observatory are listed below.

Western Samoa	11h 00m behind U.T.
Niue	11h 00m behind U.T.
Rarotonga	10h 00m behind U.T.
Tonga	13h 00m ahead of U.T.
Norfolk Island	11h 30m ahead of U.T.
French Polynesia	10h 00m behind U.T.

Note that Western Samoa, Niue, Rarotonga and French Polynesia are on the opposite side of the International Date Line from New Zealand.



Map showing the areas within which the Observatory attempts to determine origins for all shallow earthquakes of magnitude (M_L) 3·7 or more (inner polygon) and all earthquakes of magnitude 4·0 or greater (outer polygon).

INSTRUMENTAL DATA

CONTENT

This section contains origin times, epicentres, focal depths, and magnitudes of earthquakes in the New Zealand region that the Observatory has located from instrumental data, together with indicators of the quality of the data used.

In the areas within the inner and outer polygons outlined on the map opposite, the Observatory attempts to determine origins for all shallow earthquakes of M_L 3·7 or more, and all shocks of M_L 4·0 or more, respectively. (Origins are regarded as shallow if their depth is less than 60km.) Origins are also calculated for smaller or more distant earthquakes reported to have been felt in New Zealand. Weak shocks felt during earthquake swarms do not automatically get this individual attention, but an origin is found for at least one shock in any sequence giving rise to felt reports. Once an origin has been calculated, the data and determination are listed regardless of whether the outcome satisfies the selection criteria.

For the more intensively studied area around Wellington, coordinates of all seismic events of magnitude M_L 2·3 or more are calculated using data from a closely spaced local network of seismometers. Station readings are not published, but origins and magnitudes are listed at the end of this section.

DETERMINATION OF ORIGINS

Earthquake origins were determined using the phases P, Pn, P*, Pg, and the corresponding S phases. In computing travel times, (except for origins listed under the Wellington Network heading), it was assumed that the New Zealand crust was 33 km thick, and divided into two uniform layers by a discontinuity at a depth of 12 km. Above the discontinuity the velocities of P and S were 5·5 and 3·3 km/s respectively (Pg and Sg) and below it they were 6·5 and 3·7 km/s (P* and S*). Travel times for Pn and Sn, which travel in the mantle, were calculated using mantle velocities of 8·1 km/s for Pn and 4·6 km/s for Sn. Several studies have shown that these values are close to the average velocities for Pn and Sn in New Zealand. Travel times for P and S from sub-crustal earthquakes were derived from the Jeffreys-Bullen Tables (British Association for the Advancement of Science, 1958), and, at the base of the crust, corresponded to a velocity of 7·8 km/sec for P and 4·4 km/sec for S. It is known that the mantle in New Zealand is not laterally homogeneous, but until more accurate travel times can be routinely calculated, Jeffreys-Bullen Tables will continue to be used, to maintain consistency with earlier reports.

Calculations were carried out on a PDP 11/34 computer using FORTRAN programs developed by W. D. Smith, E. G. C. Smith, A. J. Haines and T. H. Webb. A provisional origin was repeatedly adjusted to obtain the best agreement between the observed arrival times for the various phases, and times computed from tables. More precisely, the origin was adjusted to minimise the sum of the squares of the weighted residuals (i.e. observed minus computed arrival times).

Weights in the range 0-100% were initially assigned to phase arrival times according to whether the phase was P or S and the precision of the measurement. S phases were given half the weight of P phases and phases labelled "e" or measured only to the nearest second were given half the weight of corresponding phases measured to a tenth of a second. A sharp P arrival was thus at first assigned 100% weight and an emergent S 25%. The weight of readings was further modified by the location program, which, after each iteration, weighted the residuals used to adjust the trial origin. The procedure (see Jeffreys, H., 1939: Probability Theory, Cambridge University Press.) greatly reduced the

weight given to phases with residuals greater than three standard errors.

In general, all four coordinates of the earthquake origin were calculated (origin time, latitude, longitude, and focal depth). In some cases, however, the focal depth was not allowed to vary, but restricted to some chosen depth. This was most commonly done for crustal earthquakes. Unless there was a station within 25 km of a shock in the upper crust, or within 50 km of a shock in the lower crust, a nominal depth of either 12 or 33 km was usually assigned, according to the crustal phases present and the goodness of fit of the resulting solution. Less often, the depth was restricted to a smaller value, particularly when the strengths of locally reported felt intensities indicated an uncommonly shallow focus. The letter R printed after the depth in the lists which follow betokens a restriction for any of the foregoing reasons. There were also occasions when information not acceptable as input to the location program indicated the depth of focus, and in such cases the depth was similarly held at the appropriate value and the restriction is shown by following the depth by the letter G (to indicate intervention by a Geophysicist). When convergence of the location program failed for lack of enough data, both epicentre and depth were fixed at values consistent with the available information, and computation limited to finding a compatible origin time. Such doubly-restricted origins have the letters RR printed after the depth.

In routine origin determinations, sufficient of the stations nearest to the epicentre were read to yield enough data for a satisfactory solution, together with a selection of other stations from which readings were recorded but not used. When enough observations were available, arrival times recorded at stations more than three degrees from the epicentre were excluded from the calculations. Observatory analysts were free to reject data which they thought to be unreliable completely, or to halve the weight given to it in the location program's procedure for minimising mean residuals. (See later details of the weighting procedure).

Origins determined from Wellington network data were obtained using a modified location program with different convergence criteria, in conjunction with a velocity model that has been found to be appropriate for the area. This model is given immediately before the data from the Wellington network.

In using the results in this section, it is essential to keep in mind that the positions of earthquakes with epicentres outside the network of seismograph stations can be very uncertain, even though the mean residual is small. For this reason, information on the spatial relationship between the epicentre and the stations which recorded the data used to find it are given with the other origin parameters. In keeping with the aim of helping the reader assess the reliability of the results presented, the number of magnitude estimates contributing to the mean value, and an indication of their scatter are also shown.

The solutions presented here are in all cases based upon uniform procedures applied to laterally homogeneous models. For origins determined using the standard network, the model approximates average conditions in the New Zealand region, but as the real structure is known to be asymmetrical, the true origin can be somewhat different from the one calculated. Care should therefore be taken not to attach significance to an epicentre in an unusual place or a focus at an unusual depth, without investigating the uncertainties of the determination.

Because a well-established local model has been used to calculate the origins listed under the Wellington Network heading, systematic errors in this area should be considerably smaller than in other parts of the country.

MAGNITUDES

The magnitudes assigned to local earthquakes are intended to be the values of M_L as originally defined by C.F. Richter (Bull. Seism. Soc. Am 25: 1-32, 1935, but his procedure for performing the magnitude calculation at other than the standard distance of 100 km has been modified, so as to take account of the observed

characteristics of energy propagation in New Zealand, including the effects of focal depth. (For full details, see Haines, A.J.: A local magnitude scale for New Zealand earthquakes. Bull. Seism. Soc. Am. 71: 275-94.)

STANDARD NETWORK

Magnitudes of earthquakes recorded by the standard network are based on the largest amplitudes in the P and S groups, recorded by the Willmore vertical and Wood-Anderson seismographs. (The deployment of these is described in the earlier section on instrumentation.) Where two-component Wood-Anderson instruments are available, the root-mean-square amplitude is used. An amplitude-distance relationship of the form

$$A = A_o R^{-N} \exp (- \alpha R)$$

where A is a trace amplitude recorded at an epicentral distance R, A_o is a calibration function, N is a geometric spreading factor and α is an inelastic attenuation coefficient, has been found to be appropriate in all parts of the country.

For all New Zealand crustal earthquakes N is 2 and α generally takes a value close to 0. With these values, the relationship describes head-wave propagation with no attenuation. In the Central Volcanic Region, however, (see Map, page 27), α takes values of 0.8 deg^{-1} for P waves and 1.05 deg^{-1} for S waves. Adjustments are therefore made according to the distance travelled in the volcanic region.

For deep earthquakes in the Main Seismic Region the same parameters as for crustal earthquakes apply (i.e. N = 2, α = 0), provided that (i) R now measures the slant distance from the focus to the base of the crust, and (ii) stations to the west of the volcanic region or south of the Main Seismic Region are not used, because the

TABLE 1

MAGNITUDE CORRECTIONS FOR THE TWO CLASSES OF FOCAL DEPTH, FOR P AND S PHASES RECORDED ON WILLMORE AND WOOD-ANDERSON INSTRUMENTS.

Station		Willmore P		Willmore S		Wood-Anderson	
		≤33 km	>33 km	≤33 km	>33 km	≤33 km	>33 km
BRZ	Fiordland only		0.05		-0.20		0.05
	All shallow	0.15		-0.10		0.15	
CMZ		0.05		-0.15			
COB		0.15		-0.40			
CRZ		0.25		0.20			
ECZ		0.60	0.40	0.50	0.40		
GNZ		0.00	0.00	-0.20	-0.20		
KAI							0.30
KKZ		0.25	0.25	0.05	0.05		
KRP		-0.25		-0.30			
MNG		-0.35	-0.40	-0.45	-0.50		
MSZ	Fiordland only		-0.35		-0.60		
	All shallow	-0.25		-0.50			
OBZ		0.00		-0.40			
OMZ		0.15		-0.15			
ONE						0.15	
ROX		0.15		-0.25			
TNZ		0.40		0.25			
TRZ		0.30	0.45	0.15	0.10		
TUA		0.40	0.40	0.35	0.40		
WEL						0.30	0.30
WNZ		0.95	1.30	0.75	1.35		
WTZ		-0.10	0.05	0.05	0.00		

structure demands different spreading and attenuation terms there.

For deep earthquakes in Fiordland the same amplitude-distance relationship is used, with (i) N given the value 1 (body wave propagation), (ii) α increasing with focal depth, and (iii) stations in the Main Seismic Region (apart from COB) not used, because of variations of the coefficients N and α. Milford Sound (MSZ) and Borland Lodge (BRZ) should ideally be excluded for the same reason, but as they are sometimes the only stations from which any estimate of magnitude can be made, they are used when necessary, with $N = 2$ and $\alpha = 0$.

Corrections are applied to allow for station characteristics. These include differences in site effects, frequency responses and magnifications of the instruments. Their determination is empirical, and made in such a manner as to give the most consistent estimates of magnitude from the different stations, and their absolute level is adjusted to give a standard Wood-Anderson instrument at Wellington a zero correction, a procedure that can be justified on a priori grounds and provides a smooth connection with New Zealand magnitudes published before 1977. Station corrections (Table 1) are added to the individual estimates of magnitude, which are then averaged. The trace amplitudes on which magnitude calculations are based are no longer published, but the number of measurements and the number of stations contributing to the average magnitude are listed. (e.g. "5M/4stn" appearing in a data summary indicates that 5 amplitude measurements of records from 4 stations were used to compute the average). When amplitude measurements from other stations are available, the BRZ and MSZ estimates are only given half weight in the calculation of the average magnitude.

Clyde Network

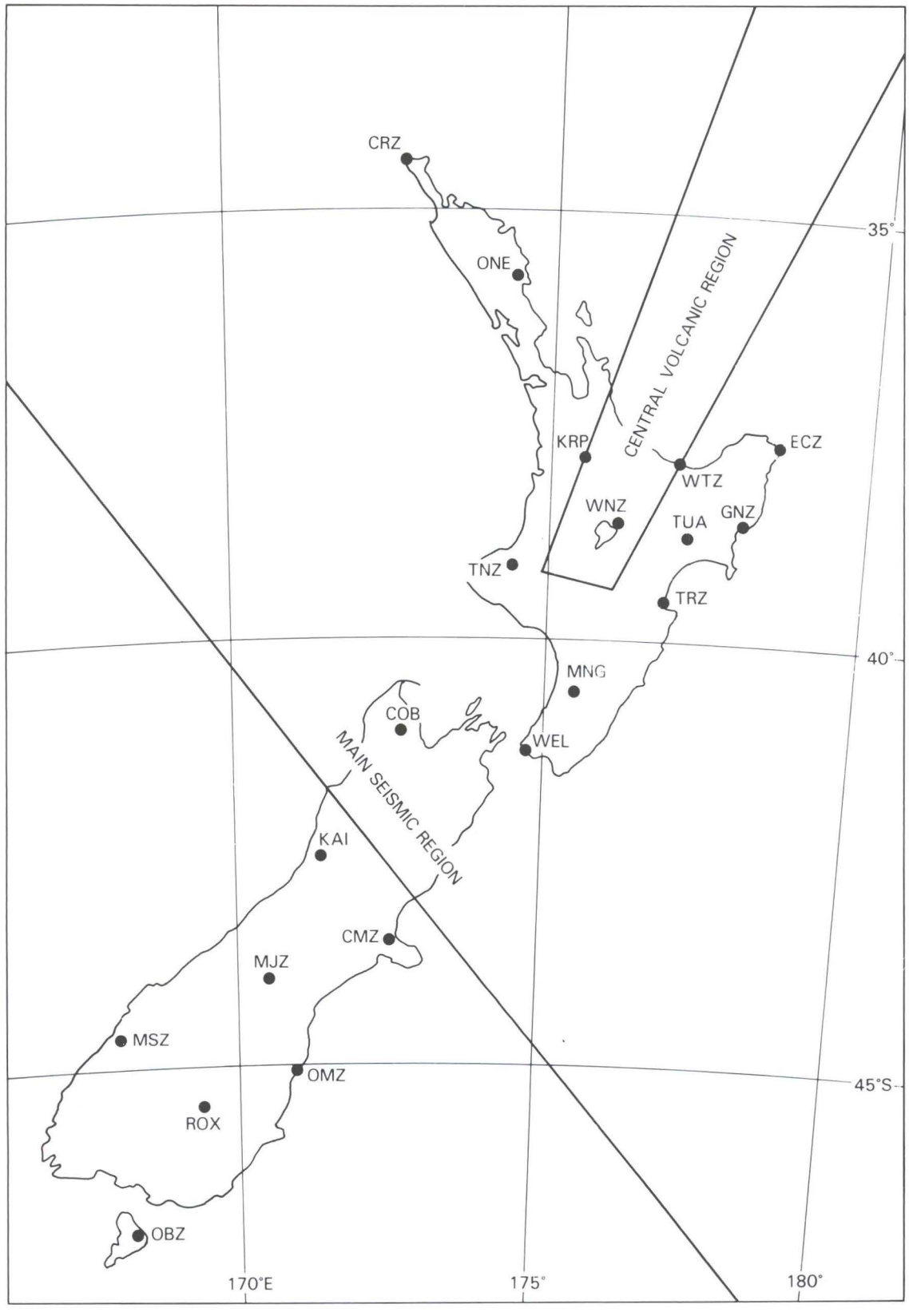
The two newly-installed Clyde stations were not used for magnitude determinations during 1984.

WELLINGTON NETWORK

Magnitudes are calculated using both the maximum amplitude on the viewing screen and the duration of the signal. The formulae are empirical, developed by R. Robinson for maximum consistency among stations. Both scales were calibrated against the Wood-Anderson determination at Wellington, for a selection of shocks that were large enough to record there. The formulae are listed below, where T_i is the duration in seconds at station i, A_i is the amplitude (mm) on the viewing screen, R_i is the slant distance from the focus (km), and C_i and K_i are station corrections for determinations made from durations and amplitudes respectively. Individual estimates are averaged to give the final values which appear in the list of origins.

$$M_T = -0.8 + 2.30 \log_{10} T_i + C_i$$

$$M_A = \log_{10} A_i - 1.71 + 1.56 \log_{10} R_i + K_i$$



Stations and regions used in Standard Magnitude determinations.

DATA FROM THE STANDARD NETWORK

LAYOUT

The first entry for each earthquake is the reference number, used throughout the Report. The second line gives the origin coordinates and the magnitude and the third line shows, beneath each of the coordinates in line two, its standard error. Where depth has been restricted, the letter R or G in place of the standard error indicates the fact. The fourth line starts with Rsd, the standard deviation of residuals, an indication of how well the adopted origin reconciles the available data with the standard earth model used by the location program. Formally,

$$Rsd = \left[\sum_{i=1}^{n} \{(w_i \, r_i / 100)^2 / (n-m)\} \right]^{1/2}$$

where r_i is the ith residual, w_i its weight, n the number of readings and m the number of parameters determined. (4 for unrestricted depth, 3 when depth is restricted.) When the number of readings used and the number of parameters are the same, the standard errors and Rsd are not defined. This is indicated by the letters ND. The remainder of the fourth line and most of the fifth line present information intended to indicate to the reader the degree of constraint on the adopted origin. Xph/Ystn shows that X phases from Y stations were used to determine the origin. (All phases given non-zero weight are counted but stations which failed to provide such a phase are not). Dmin is the distance from the epicentre to the nearest of these Y stations and Az. gap is the greatest angular gap in their distribution about the epicentre.

Corr. is the correlation coefficient of the errors in latitude and longitude. It may be used to construct an epicentral confidence region. (See Flinn, E.A., 1965. "Confidence regions and error determinations for seismic event locations." Rev. Geophys. 3: 157-185.) pM/Qstn shows that p magnitude estimates from phases recorded at Q stations contributed to the average value shown on line two. Msd is the standard deviation of the magnitude estimates.

The numbers of upward and downward first motions recorded are indicated at the end of line five.

Additional information may be appended to the above. This usually consists of a short summary of the places where a shock has been felt and the intensities there, but may include other comments. Further details of reports received by the Observatory concerning the effects of earthquakes and the intensities assessed from these observations appear in later sections of this Report.

84/1
JAN 01 0750 38·0s 43·32S 172·63E 12km M=3·3
0·3 0·02 0·04 R
Rsd 0·5s 10ph/8stn Dmin 29km Az.gap 130°
Corr. -0·517 11M/6stn Msd 0·3
Felt Belfast (102) and Christchurch (110).

84/2
JAN 01 1444 46·0s 34·89S 179·56W 12km M=4·3
2·5 0·09 0·24 R
Rsd 0·6s 9ph/9stn Dmin 354km Az.gap 295°
Corr. 0·569 17M/9stn Msd 0·3

84/3
JAN 02 0345 14·2s 45·37S 167·01E 73km M=3·7
0·9 0·07 0·07 12
Rsd 0·6s 12ph/7stn Dmin 61km Az.gap 265°
Corr. -0·457 9M/4stn Msd 0·4 1↑ 2↓

84/4
JAN 02 1112 08·4s 33·42S 179·36E 296km M=4·6
3·0 0·47 0·61 102
Rsd 1·5s 9ph/6stn Dmin 480km Az.gap 336°
Corr. -0·412 13M/7stn Msd 0·2 1↑

84/5
JAN 02 1215 23·5s 37·88S 176·57E 148km M=3·6
0·8 0·05 0·06 7
Rsd 0·5s 11ph/6stn Dmin 38km Az.gap 234°
Corr. -0·619 13M/7stn Msd 0·2 2↑ 1↓

84/6
JAN 02 1246 56·8s 41·60S 174·30E 5km M=4·0
0·2 0·01 0·01 R
Rsd 0·4s 14ph/14stn Dmin 18km Az.gap 127°
Corr. -0·340 17M/10stn Msd 0·2 4↑ 7↓

84/7
JAN 02 1624 43·0s 37·41S 176·00E 289km M=3·4
1·4 0·20 0·15 18
Rsd 0·5s 7ph/5stn Dmin 108km Az.gap 296°
Corr. -0·376 6M/4stn Msd 0·3

84/8
JAN 02 1839 04·9s 36·30S 176·85E 277km M=3·7
1·1 0·13 0·15 24
Rsd 0·5s 7ph/6stn Dmin 188km Az.gap 306°
Corr. -0·850 7M/4stn Msd 0·3

84/9
JAN 02 2346 35·0s 36·52S 178·49E 33km M=3·8
3·0 0·15 0·26 R
Rsd 1·5s 9ph/8stn Dmin 130km Az.gap 257°
Corr. 0·445 15M/9stn Msd 0·2 1↑ 1↓

84/10
JAN 03 0600 40·8s 36·85S 177·05E 241km M=4·4
0·9 0·08 0·07 8
Rsd 0·5s 11ph/7stn Dmin 126km Az.gap 289°
Corr. 0·154 13M/7stn Msd 0·2 2↑ 3↓

84/11
JAN 03 1615 08·0s 40·55S 173·11E 159km M=3·5
1·2 0·06 0·08 10
Rsd 0·6s 11ph/11stn Dmin 68km Az.gap 190°
Corr. -0·206 8M/5stn Msd 0·2 1↑ 7↓

84/12
JAN 03 1959 19·1s 40·01S 176·70E 33km M=4·2
0·2 0·02 0·03 R
Rsd 0·4s 15ph/13stn Dmin 52km Az.gap 165°
Corr. -0·446 25M/14stn Msd 0·3 2↑ 3↓
Felt Table Flat (58), Mount Vernon and Waipawa (60) MM IV.

84/13
JAN 03 2255 39·0s 40·53S 174·19E 104km M=5·5
0·7 0·03 0·03 10
Rsd 0·5s 12ph/17stn Dmin 71km Az.gap 105°
Corr. -0·117 8M/5stn Msd 0·3 12↑ 4↓
Felt throughout the southwestern half of the North Island and in the South Island north of Banks Peninsula. Maximum intensity MM VI at Titahi Bay (68).

84/14
JAN 04 1006 16·1s 38·14S 176·44E 5km M=4·1
0·2 0·01 0·01 R
Rsd 0·4s 8ph/9stn Dmin 21km Az.gap 92°
Corr. -0·116 13M/8stn Msd 0·3 3↑ 2↓
Felt Lake Okareka and Owhata (33) MM IV.

84/15
JAN 04 1137 59·9s 38·15S 176·46E 5km M=3·6
0·2 0·01 0·01 R
Rsd 0·3s 7ph/7stn Dmin 20km Az.gap 142°
Corr. -0·188 11M/8stn Msd 0·4 2↑ 1↓
Felt Lake Okareka and Owhata (33) MM IV, also Tikatere (33).

84/16
JAN 04 1142 59·5s 38·16S 176·47E 5km M=3·6
0·2 0·02 0·02 R
Rsd 0·4s 6ph/7stn Dmin 20km Az.gap 141°
Corr. -0·408 11M/8stn Msd 0·3 1↑ 1↓
Felt Lake Okareka and Owhata (33) MM IV.

84/17
JAN 04 1144 26·7s 38·13S 176·47E 5km M=3·2
0·2 0·02 0·02 R
Rsd 0·3s 6ph/6stn Dmin 22km Az.gap 144°
Corr. -0·198 8M/7stn Msd 0·5
Felt Owhata (33) MM IV.

84/18
JAN 04 1149 57·8s 38·13S 176·48E 5km M=3·3
0·4 0·03 0·04 R
Rsd 0·7s 6ph/7stn Dmin 23km Az.gap 145°
Corr. -0·381 10M/7stn Msd 0·4 2↑ 1↓
Felt Lake Okareka and Owhata (33) MM IV.

84/19
JAN 04 1150 14·3s 38·01S 176·40E 5km M=3·3
0·6 0·05 0·04 R
Rsd 0·5s 4ph/5stn Dmin 34km Az.gap 170°
Corr. 0·137 4M/4stn Msd 0·4

84/20
JAN 04 1151 32·9s 38·14S 176·45E 5km M=3·5
0·2 0·01 0·01 R
Rsd 0·3s 6ph/7stn Dmin 20km Az.gap 143°
Corr. -0·151 11M/8stn Msd 0·3 1↑ 1↓

84/21
JAN 04 1155 02·8s 38·14S 176·46E 5km M=3·5
0·2 0·01 0·01 R
Rsd 0·3s 5ph/5stn Dmin 21km Az.gap 144°
Corr. -0·265 11M/8stn Msd 0·4 1↑ 2↓
Felt Owhata (33) MM IV.

84/22
JAN 04 1155 46·8s 38·16S 176·42E 5km M=3·5
0·1 0·02 0·01 R
Rsd 0·2s 4ph/4stn Dmin 19km Az.gap 141°
Corr. -0·253 8M/7stn Msd 0·4 1↑

84/23
JAN 04 1202 05·2s 38·10S 176·46E 5km M=3·6
0·2 0·02 0·02 R
Rsd 0·4s 5ph/5stn Dmin 25km Az.gap 152°
Corr. 0·024 11M/9stn Msd 0·5 2↑
Felt Lake Okareka, Owhata and Rainbow Mountain (33) MM IV.

84/24
JAN 04 1215 30·2s 38·15S 176·46E 5km M=3·5
0·1 0·01 0·01 R
Rsd 0·2s 6ph/6stn Dmin 20km Az.gap 142°
Corr. -0·351 11M/8stn Msd 0·3 3↑ 1↓
Felt Lake Okareka and Owhata (33) MM IV.

84/25
JAN 04 1513 41·2s 45·06S 167·70E 127km M=3·9
0·6 0·04 0·04 4
Rsd 0·5s 11ph/7stn Dmin 46km Az.gap 193°
Corr. -0·109 12M/6stn Msd 0·4 2↑ 2↓

84/26
JAN 04 1639 49·7s 38·17S 176·45E 5km M=4·0
0·1 0·01 0·01 R
Rsd 0·1s 6ph/7stn Dmin 18km Az.gap 139°
Corr. -0·175 10M/8stn Msd 0·4 3↑ 1↓
Felt Rainbow Mountain, Waiotapu (33) MM V and at other places in locality 33.

84/27
JAN 04 1640 54·6s 38·14S 176·47E 5km M=3·8
0·2 0·01 0·01 R
Rsd 0·3s 5ph/6stn Dmin 21km Az.gap 143°
Corr. -0·271 11M/8stn Msd 0·4
Felt Rainbow Mountain (33) MM V and at other places in locality 33.

84/28
JAN 04 1659 43·4s 38·13S 176·46E 5km M=3·3
0·2 0·01 0·02 R
Rsd 0·2s 5ph/5stn Dmin 22km Az.gap 146°
Corr. -0·640 8M/7stn Msd 0·4 1↑ 1↓
Felt Lake Okareka, Owhata, Rainbow Mountain (33) MM IV and at other places in localities 33 and 34.

84/29
JAN 04 1723 51·3s 39·14S 175·09E 213km M=3·7
1·1 0·06 0·10 8
Rsd 0·5s 10ph/8stn Dmin 43km Az.gap 190°
Corr. -0·367 9M/6stn Msd 0·2 2↑ 1↓

84/30
JAN 04 1929 37·5s 38·13S 176·45E 5km M=3·3
0·2 0·01 0·02 R
Rsd 0·2s 5ph/6stn Dmin 22km Az.gap 145°
Corr. -0·626 8M/7stn Msd 0·4 1↑
Felt Lake Okareka (33) MM IV, and Lake Rerewhakaaitu (34).

84/31
JAN 05 0923 13·3s 33·61S 179·87E 33km M=4·3
1·3 0·07 0·14 R
Rsd 0·4s 9ph/8stn Dmin 494km Az.gap 313°
Corr. 0·226 11M/8stn Msd 0·3 1↓

84/32
JAN 06 0908 20·0s 47·79S 165·48E 33km M=3·9
1·1 0·11 0·17 R
Rsd 0·6s 7ph/4stn Dmin 273km Az.gap 339°
Corr. -0·672 7M/3stn Msd 0·1 1↓

84/33
JAN 06 1912 10·3s 37·51S 179·62W 33km M=3·8
0·7 0·06 0·05 R
Rsd 0·3s 7ph/7stn Dmin 163km Az.gap 325°
Corr. -0·094 11M/7stn Msd 0·2

84/34
JAN 07 0249 14·8s 42·39S 165·06E 33km M=4·4
1·7 0·12 0·15 R
Rsd 0·8s 10ph/7stn Dmin 343km Az.gap 279°
Corr. 0·040 14M/7stn Msd 0·2 2↑ 4↓

84/35
JAN 07 1430 30·0s 50·01S 164·05E 33km M=4·4
1·3 0·10 0·16 R
Rsd 0·6s 9ph/5stn Dmin 538km Az.gap 339°
Corr. -0·337 10M/5stn Msd 0·2

84/36
JAN 08 0151 55·8s 45·89S 167·02E 86km M=3·5
0·5 0·03 0·04 3
Rsd 0·2s 8ph/5stn Dmin 42km Az.gap 297°
Corr. 0·469 9M/4stn Msd 0·4 5↓

84/37
JAN 08 0632 06·5s 39·71S 175·40E 12km M=3·0
0·4 0·02 0·12 R
Rsd 0·2s 7ph/4stn Dmin 50km Az.gap 197°
Corr. -0·584 7M/4stn Msd 0·4 2↑ 2↓
Felt Ahuahu (57).

84/38
JAN 09 0226 40·5s 38·43S 179·74W 33km M=3·9
1·8 0·10 0·15 R
Rsd 0·6s 8ph/6stn Dmin 171km Az.gap 308°
Corr. -0·236 14M/9stn Msd 0·3

84/39
JAN 09 1603 10·9s 38·36S 176·29E 5km M=3·5
0·1 0·01 0·01 R
Rsd 0·3s 9ph/8stn Dmin 9km Az.gap 110°
Corr. 0·020 13M/7stn Msd 0·3 4↑ 1↓
Felt Ngapouri Road, Rainbow Mountain, Reporoa (33) MM V, Ngakuru (33) MM IV and elsewhere in locality 33.

84/40
JAN 09 1636 21·4s 38·36S 176·30E 5km M=2·8
0·2 0·02 0·02 R
Rsd 0·5s 7ph/6stn Dmin 9km Az.gap 110°
Corr. -0·077 9M/7stn Msd 0·3 2↑
Felt Ngapouri Road, Rainbow Mountain (33) MM IV and elsewhere in locality 33.

84/41
JAN 10 1750 48·8s 40·20S 177·06E 33km M=3·2
0·2 0·01 0·03 R
Rsd 0·1s 8ph/7stn Dmin 74km Az.gap 219°
Corr. -0·685 7M/4stn Msd 0·2 1↑ 1↓
Felt Waipawa (60) MM IV.

84/42
JAN 11 0846 37·0s 39·91S 176·75E 33km M=3·9
0·6 0·04 0·06 R
Rsd 0·6s 14ph/11stn Dmin 39km Az.gap 164°
Corr. -0·541 16M/9stn Msd 0·2 2↑ 3↓
Felt Mount Vernon, Waipawa (60) MM IV.

84/43
JAN 11 1940 27·7s 36·75S 178·04E 170km M=4·7
1·6 0·08 0·11 13
Rsd 0·7s 10ph/7stn Dmin 114km Az.gap 233°
Corr. 0·370 13M/7stn Msd 0·2 3↑ 1↓

84/44
JAN 11 2209 07·3s 45·10S 167·58E 128km M=4·1
0·9 0·08 0·05 4
Rsd 0·4s 10ph/7stn Dmin 55km Az.gap 207°
Corr. -0·570 12M/6stn Msd 0·3 2↑

84/45
JAN 12 1224 34·6s 34·90S 179·82W 33km M=3·8
2·5 0·18 0·23 R
Rsd 0·6s 5ph/4stn Dmin 343km Az.gap 334°
Corr. -0·151 8M/5stn Msd 0·2

84/46
JAN 13 2128 10·4s 32·76S 179·93E 33km M=4·8
1·9 0·14 0·31 R
Rsd 0·8s 9ph/6stn Dmin 561km Az.gap 339°
Corr. -0·452 11M/7stn Msd 0·2

84/47
JAN 15 1737 44·0s 39·72S 175·58E 5km M=3·4
0·4 0·02 0·11 R
Rsd 0·4s 12ph/9stn Dmin 50km Az.gap 120°
Corr. -0·814 5M/4stn Msd 0·6

84/48
JAN 16 0909 54·6s 36·86S 177·55E 180km M=4·4
1·1 0·08 0·07 12
Rsd 0·6s 11ph/11stn Dmin 128km Az.gap 261°
Corr. 0·199 10M/6stn Msd 0·2

84/49
JAN 17 1457 21·7s 37·95S 176·40E 172km M=3·9
1·0 0·06 0·06 8
Rsd 0·8s 13ph/8stn Dmin 52km Az.gap 170°
Corr. -0·298 13M/7stn Msd 0·3

84/50
JAN 18 0755 29·6s 38·85S 175·44E 231km M=3·9
0·6 0·05 0·07 6
Rsd 0·4s 12ph/10stn Dmin 39km Az.gap 215°
Corr. -0·861 8M/5stn Msd 0·3

84/51
JAN 19 0051 17·3s 36·88S 176·81E 257km M=4·1
0·4 0·06 0·04 6
Rsd 0·2s 8ph/5stn Dmin 124km Az.gap 279°
Corr. -0·525 11M/7stn Msd 0·3

84/52
JAN 19 1022 46·3s 41·81S 174·12E 12km M=3·7
0·2 0·02 0·02 R
Rsd 0·5s 18ph/18stn Dmin 10km Az.gap 140°
Corr. -0·476 11M/7stn Msd 0·3

84/53
JAN 19 1340 39·0s 39·00S 174·94E 232km M=3·8
0·7 0·03 0·05 6
Rsd 0·5s 18ph/13stn Dmin 57km Az.gap 166°
Corr. -0·497 9M/5stn Msd 0·2

84/54
JAN 19 1505 37·1s 37·95S 176·73E 156km M=4·2
0·7 0·04 0·05 6
Rsd 0·7s 15ph/11stn Dmin 23km Az.gap 122°
Corr. 0·224 10M/6stn Msd 0·2 1↑

84/55
JAN 19 1528 20·0s 37·48S 176·55E 201km M=4·8
0·6 0·03 0·04 6
Rsd 0·5s 13ph/10stn Dmin 68km Az.gap 133°
Corr. 0·244 10M/6stn Msd 0·3

84/56
JAN 19 1750 41·3s 40·52S 174·46E 79km M=4·6
0·3 0·01 0·02 5
Rsd 0·4s 22ph/20stn Dmin 54km Az.gap 132°
Corr. -0·372 11M/6stn Msd 0·3 1↓
Felt Wellington and Eastbourne (68) MM IV, Levin and Waikawa Beach (65) MM III, Palmerston North (62).

84/57
JAN 19 1851 38·1s 35·80S 178·30E 227km M=4·5
1·7 0·13 0·14 18
Rsd 0·5s 10ph/8stn Dmin 212km Az.gap 309°
Corr. -0·139 9M/6stn Msd 0·2

84/58
JAN 19 2127 12·6s 38·58S 175·72E 176km M=4·1
0·5 0·02 0·03 4
Rsd 0·5s 16ph/12stn Dmin 67km Az.gap 146°
Corr. -0·494 9M/7stn Msd 0·3

84/59
JAN 19 2257 32·0s 45·03S 167·43E 81km M=3·5
0·8 0·05 0·07 5
Rsd 0·5s 13ph/7stn Dmin 55km Az.gap 230°
Corr. -0·759 10M/5stn Msd 0·3

84/60
JAN 20 0328 35·9s 45·11S 166·97E 33km M=4·1
0·6 0·03 0·06 R
Rsd 0·5s 13ph/7stn Dmin 86km Az.gap 261°
Corr. -0·549 11M/6stn Msd 0·2

84/61
JAN 20 1842 45·9s 36·32S 177·88E 243km M=4·5
0·6 0·06 0·05 6
Rsd 0·3s 8ph/5stn Dmin 201km Az.gap 308°
Corr. 0·421 10M/6stn Msd 0·2

84/62
JAN 21 1641 35·0s 47·61S 164·89E 33km M=4·3
1·2 0·06 0·15 R
Rsd 0·7s 12ph/8stn Dmin 256km Az.gap 253°
Corr. -0·530 9M/5stn Msd 0·3

84/63
JAN 21 1802 42·8s 40·46S 176·73E 42km M=3·0
0·4 0·01 0·04 8
Rsd 0·3s 11ph/10stn Dmin 65km Az.gap 191°
Corr. -0·593 4M/2stn Msd 0·2

84/64
JAN 22 0912 51·1s 38·89S 175·03E 227km M=4·3
0·9 0·07 0·09 9
Rsd 0·8s 19ph/12stn Dmin 56km Az.gap 202°
Corr. -0·803 13M/7stn Msd 0·3 1↑

84/65
JAN 22 1213 48·6s 41·24S 172·36E 12km M=3·8
0·6 0·03 0·05 R
Rsd 0·6s 17ph/11stn Dmin 36km Az.gap 203°
Corr. -0·492 9M/6stn Msd 0·4
Felt Arapito (74) Cobb (75) MM IV.

84/66
JAN 22 2134 40·6s 38·63S 177·36E 33km M=3·4
0·5 0·04 0·05 R
Rsd 1·0s 9ph/8stn Dmin 27km Az.gap 117°
Corr. -0·214 8M/4stn Msd 0·2 1↓

84/67
JAN 22 2138 49·5s 45·07S 167·51E 79km M=3·5
0·7 0·04 0·07 8
Rsd 0·6s 11ph/6stn Dmin 54km Az.gap 217°
Corr. -0·708 10M/5stn Msd 0·2

84/68
JAN 24 0505 20·6s 41·09S 174·04E 56km M=3·8
0·3 0·03 0·02 5
Rsd 0·5s 19ph/16stn Dmin 24km Az.gap 123°
Corr. -0·240 5M/3stn Msd 0·1 1↓

84/69
JAN 24 0749 41·9s 40·31S 175·88E 73km M=4·1
0·5 0·03 0·04 9
Rsd 0·7s 19ph/16stn Dmin 48km Az.gap 110°
Corr. -0·682 9M/7stn Msd 0·4
Felt Moawhango, Table Flat, Hunterville (58), Palmerston North. (62), Dannevirke (63) MM IV, Ngamatapouri (56) MM III, Ohingaiti (58).

84/70
JAN 24 2154 25·4s 40·04S 176·90E 61km M=4·5
0·6 0·04 0·07 14
Rsd 1·0s 14ph/12stn Dmin 55km Az.gap 179°
Corr. -0·694 11M/7stn Msd 0·5 1↑
Felt Elsthorpe, Waipawa (60) MM IV, Hastings (60), Kapua (63).

84/71
JAN 24 2236 40·7s 37·91S 176·26E 237km M=4·0
1·9 0·10 0·12 16
Rsd 1·1s 8ph/5stn Dmin 64km Az.gap 176°
Corr. -0·306 5M/3stn Msd 0·3

84/72
JAN 26 0129 21·4s 40·06S 176·76E 33km M=3·4
1·5 0·03 0·08 12
Rsd 0·8s 12ph/10stn Dmin 57km Az.gap 171°
Corr. -0·609 8M/6stn Msd 0·2

84/73
JAN 26 1211 43·4s 38·05S 176·57E 150km M=4·0
1·0 0·05 0·06 8
Rsd 0·9s 14ph/8stn Dmin 37km Az.gap 160°
Corr. -0·193 13M/8stn Msd 0·2

84/74
JAN 26 1505 33·0s 39·16S 174·78E 223km M=3·8
1·0 0·05 0·07 10
Rsd 0·8s 16ph/11stn Dmin 66km Az.gap 168°
Corr. -0·601 9M/6stn Msd 0·2

84/75
JAN 26 1855 24·8s 38·85S 175·11E 228km M=4·0
0·9 0·05 0·07 9
Rsd 0·7s 16ph/11stn Dmin 54km Az.gap 161°
Corr. -0·650 12M/7stn Msd 0·3 1↑

84/76
JAN 26 2139 18·2s 36·62S 177·76E 204km M=4·0
1·2 0·11 0·07 11
Rsd 0·3s 7ph/5stn Dmin 138km Az.gap 277°
Corr. 0·115 8M/4stn Msd 0·2

84/77
JAN 26 2336 22·8s 40·88S 172·88E 217km M=3·7
0·6 0·04 0·05 5
Rsd 0·4s 14ph/9stn Dmin 26km Az.gap 188°
Corr. -0·368 4M/2stn Msd 0·2

84/78
JAN 27 1222 16·1s 38·86S 174·64E 12km M=3·7
0·8 0·05 0·05 R
Rsd 0·6s 13ph/10stn Dmin 42km Az.gap 184°
Corr. -0·714 9M/5stn Msd 0·2

84/79
JAN 27 1931 36·8s 39·07S 178·18E 12km M=3·4
2·1 0·12 0·11 R
Rsd 0·8s 5ph/3stn Dmin 49km Az.gap 304°
Corr. -0·665 3M/2stn Msd 0·3

84/80
JAN 27 1937 38·6s 39·12S 178·26E 12km M=3·4
2·8 0·14 0·18 R
Rsd 0·8s 5ph/3stn Dmin 57km Az.gap 311°
Corr. -0·711 3M/2stn Msd 0·2

84/81
JAN 28 2312 13·9s 37·11S 177·54E 33km M=3·8
1·1 0·09 0·06 R
Rsd 0·8s 8ph/7stn Dmin 108km Az.gap 244°
Corr. -0·347 13M/8stn Msd 0·2 1↑

84/82
JAN 28 2330 59·9s 37·38S 179·19E 33km M=4·3
1·8 0·12 0·16 R
Rsd 0·9s 8ph/7stn Dmin 67km Az.gap 318°
Corr. 0·033 16M/9stn Msd 0·2

84/83
JAN 29 0006 58·1s 39·44S 176·84E 32km M=3·9
0·2 0·02 0·03 2
Rsd 0·6s 12ph/8stn Dmin 13km Az.gap 137°
Corr. -0·585 11M/6stn Msd 0·2
Felt Patoka (52) and Kotemaori (53). Maximum intensity MM V at Patoka.

84/84
JAN 29 0435 24·8s 38·02S 176·32E 159km M=4·1
0·4 0·03 0·03 3
Rsd 0·4s 8ph/7stn Dmin 59km Az.gap 162°
Corr. -0·325 11M/6stn Msd 0·4 3↑ 1↓

84/85
JAN 29 1013 31·2s 32·15S 178·14W 476km M=5·2
0·9 0·07 0·09 17
Rsd 0·5s 8ph/5stn Dmin 685km Az.gap 314°
Corr. 0·219 11M/7stn Msd 0·2

84/86
JAN 29 1235 48·3s 41·64S 173·95E 8km M=5·1
0·4 0·02 0·02 3
Rsd 0·5s 10ph/9stn Dmin 55km Az.gap 116°
Corr. -0·280 17M/10stn Msd 0·4 8↑ 2↓
Felt at Blenheim (77, 83), throughout Wellington (68) and in the Marlborough Sounds (78). Maximum intensity MM V at Naenae (68).

84/87
JAN 30 1552 31·2s 37·36S 177·21E 128km M=3·6
1·9 0·13 0·10 19
Rsd 1·0s 6ph/4stn Dmin 72km Az.gap 254°
Corr. -0·282 6M/4stn Msd 0·2

84/88
JAN 31 0253 21·1s 44·21S 169·40E 12km M=3·7
1·0 0·05 0·04 R
Rsd 0·6s 6ph/5stn Dmin 59km Az.gap 216°
Corr. 0·245 7M/5stn Msd 0·2

84/89
FEB 01 0208 07·6s 40·59S 175·36E 33km M=3·5
0·1 0·01 0·02 1
Rsd 0·2s 8ph/8stn Dmin 49km Az.gap 167°
Corr. -0·493 3M/2stn Msd 0·3 1↑

84/90
FEB 01 0648 29·1s 37·82S 179·35E 25km M=3·9
0·6 0·04 0·04 3
Rsd 0·2s 6ph/4stn Dmin 72km Az.gap 307°
Corr. 0·164 9M/5stn Msd 0·2

84/91
FEB 01 1707 00·9s 47·45S 165·31E 33km M=4·1
0·9 0·05 0·08 R
Rsd 0·4s 4ph/2stn Dmin 221km Az.gap 328°
Corr. 0·093 5M/3stn Msd 0·3

84/92
FEB 03 0408 54·2s 41·62S 173·96E 8km M=3·9
0·3 0·02 0·02 2
Rsd 0·5s 7ph/6stn Dmin 26km Az.gap 174°
Corr. 0·345 6M/4stn Msd 0·4 3↑ 1↓

84/93
FEB 03 0656 02·5s 41·61S 173·96E 7km M=4·3
0·3 0·02 0·02 2
Rsd 0·4s 7ph/7stn Dmin 26km Az.gap 117°
Corr. 0·004 6M/4stn Msd 0·4 4↑
Felt in Marlborough (77, 78).

84/94
FEB 04 1117 12·6s 35·10S 179·83E 202km M=5·3
0·6 0·05 0·07 16
Rsd 0·6s 10ph/8stn Dmin 310km Az.gap 301°
Corr. 0·339 9M/5stn Msd 0·2 2↓

84/95
FEB 04 1510 25·4s 44·91S 167·71E 69km M=3·9
0·6 0·04 0·03 6
Rsd 0·3s 7ph/5stn Dmin 97km Az.gap 244°
Corr. -0·611 8M/5stn Msd 0·2 1↓

84/96
FEB 05 0431 53·2s 41·05S 173·70E 73km M=3·6
1·3 0·06 0·06 18
Rsd 0·9s 9ph/7stn Dmin 52km Az.gap 172°
Corr. -0·261 3M/2stn Msd 0·2 4↑ 1↓

84/97
FEB 06 0312 46·3s 33·75S 179·19W 302km M=5·1
0·6 0·10 0·09 39
Rsd 0·5s 8ph/6stn Dmin 483km Az.gap 317°
Corr. 0·525 11M/6stn Msd 0·2

84/98
FEB 06 1915 07·0s 34·78S 178·86E 251km M=4·6
1·4 0·10 0·13 17
Rsd 0·7s 9ph/6stn Dmin 325km Az.gap 291°
Corr. 0·678 7M/4stn Msd 0·2

84/99
FEB 07 1504 09·4s 41·64S 173·95E 6km M=3·0
0·2 0·01 0·02 2
Rsd 0·4s 10ph/9stn Dmin 26km Az.gap 108°
Corr. -0·402 7M/4stn Msd 0·4 3↑ 1↓
Felt in Seddon (84).

84/100
FEB 08 1215 21·9s 39·97S 174·78E 23km M=3·5
0·2 0·02 0·03 3
Rsd 0·5s 10ph/7stn Dmin 100km Az.gap 164°
Corr. -0·348 7M/4stn Msd 0·3 1↑ 1↓

84/101
FEB 09 1252 07·4s 45·86S 166·97E 88km M=3·4
0·4 0·02 0·02 3
Rsd 0·2s 6ph/4stn Dmin 45km Az.gap 274°
Corr. -0·392 5M/2stn Msd 0·4

84/102
FEB 09 1500 30·8s 39·13S 176·10E 84km M=4·5
0·3 0·02 0·02 3
Rsd 0·3s 9ph/8stn Dmin 48km Az.gap 79°
Corr. -0·249 8M/5stn Msd 0·2 3↑ 3↓
Felt at Patoka (52) MM IV.

84/103
FEB 09 2130 31·9s 39·33S 175·43E 20km M=3·9
0·1 0·01 0·02 1
Rsd 0·2s 9ph/8stn Dmin 13km Az.gap 119°
Corr. -0·226 7M/4stn Msd 0·5

84/104
FEB 10 2004 19·5s 41·37S 174·65E 19km M=3·3
0·1 0·01 0·01 1
Rsd 0·3s 12ph/11stn Dmin 14km Az.gap 116°
Corr. -0·119 7M/4stn Msd 0·4 5↑ 1↓
Felt in Wellington (68). Maximum intensity MM IV at Seatoun (68).

84/105
FEB 11 0919 37·8s 41·14S 174·69E 27km M=4·2
0·1 0·01 0·01 1
Rsd 0·2s 11ph/11stn Dmin 10km Az.gap 119°
Corr. -0·225 7M/4stn Msd 0·4 6↑ 1↓
Felt Brothers Island (78) and greater Wellington (68). Maximum intensity MM IV near Cook Strait.

84/106
FEB 12 0725 10·0s 41·39S 174·64E 15km M=3·2
0·2 0·02 0·02 3
Rsd 0·5s 13ph/11stn Dmin 15km Az.gap 124°
Corr. -0·125 4M/2stn Msd 0·5 2↑ 1↓
Felt Johnsonville (68) MM III.

84/107
FEB 12 1138 46·2s 38·62S 177·47E 48km M=3·5
0·1 0·00 0·00 0
Rsd 0·1s 6ph/5stn Dmin 35km Az.gap 141°
Corr. -0·169 6M/4stn Msd 0·3 1↓

84/108
FEB 13 0931 10·6s 39·46S 174·23E 184km M=3·6
0·3 0·02 0·04 4
Rsd 0·2s 8ph/6stn Dmin 117km Az.gap 221°
Corr. -0·734 3M/2stn Msd 0·3

84/109
FEB 14 0530 54·7s 40·12S 173·74E 118km M=4·3
0·6 0·04 0·04 8
Rsd 0·6s 12ph/9stn Dmin 129km Az.gap 199°
Corr. -0·396 3M/2stn Msd 0·2 1↑

84/110
FEB 14 1658 09·8s 47·43S 165·51E 33km M=4·5
1·4 0·07 0·17 R
Rsd 0·9s 5ph/3stn Dmin 206km Az.gap 235°
Corr. -0·039 4M/2stn Msd 0·2

84/111
FEB 14 2301 51·3s 45·01S 167·59E 80km M=3·5
1·1 0·09 0·06 13
Rsd 0·5s 6ph/4stn Dmin 46km Az.gap 283°
Corr. 0·253 5M/3stn Msd 0·3

84/112
FEB 15 0203 38·6s 37·83S 176·28E 170km M=3·6
0·2 0·02 0·02 2
Rsd 0·1s 6ph/5stn Dmin 65km Az.gap 265°
Corr. -0·455 8M/4stn Msd 0·4

84/113
FEB 16 1243 59·3s 41·30S 172·02E 6km M=3·8
0·6 0·04 0·05 3
Rsd 0·3s 7ph/5stn Dmin 64km Az.gap 228°
Corr. -0·737 8M/5stn Msd 0·4

84/114
FEB 17 0055 42·9s 40·20S 174·22E 87km M=3·4
0·5 0·02 0·02 9
Rsd 0·4s 12ph/9stn Dmin 95km Az.gap 175°
Corr. -0·467 3M/2stn Msd 0·2 2↑

84/115
FEB 17 0730 56·1s 40·17S 173·81E 142km M=3·5
0·8 0·04 0·04 10
Rsd 0·5s 9ph/7stn Dmin 121km Az.gap 194°
Corr. -0·367 3M/2stn Msd 0·5

84/116
FEB 17 0857 37·4s 45·05S 167·67E 108km M=3·4
0·6 0·04 0·04 5
Rsd 0·5s 7ph/5stn Dmin 47km Az.gap 214°
Corr. -0·093 3M/2stn Msd 0·2 1↑

84/117
FEB 17 1956 07·8s 37·23S 176·75E 189km M=3·9
ND ND ND ND
Rsd ND 4ph/3stn Dmin 86km Az.gap 300°
Corr. ND 3M/2stn Msd 0·6

84/118
FEB 18 0152 25·6s 40·79S 173·87E 33km M=3·7
0·5 0·05 0·03 R
Rsd 0·7s 11ph/9stn Dmin 58km Az.gap 192°
Corr. -0·134 10M/6stn Msd 0·2 1↓

84/119
FEB 18 0336 27·8s 42·83S 171·58E 0km M=3·5
0·2 0·01 0·02 R
Rsd 0·4s 7ph/5stn Dmin 36km Az.gap 123°
Corr. -0·260 8M/5stn Msd 0·3 1↓
Felt Arthur's Pass (93). Maximum intensity MM V at Otira (93).

84/120
FEB 18 0434 10·9s 44·43S 168·79E 10km M=4·1
0·6 0·05 0·02 2
Rsd 0·4s 7ph/4stn Dmin 75km Az.gap 195°
Corr. 0·344 5M/3stn Msd 0·2 1↑
Felt near Wanaka (123). Maximum intensity MM IV on Mount Aspiring (113) and at Minaret Station (114).

84/121
FEB 18 1224 43·0s 39·77S 173·95E 182km M=3·5
0·7 0·03 0·04 8
Rsd 0·4s 9ph/7stn Dmin 146km Az.gap 211°
Corr. -0·560 3M/2stn Msd 0·3 2↑ 1↓

84/122
FEB 19 1735 02·3s 41·15S 174·70E 26km M=3·7
0·1 0·01 0·01 1
Rsd 0·4s 13ph/11stn Dmin 9km Az.gap 118°
Corr. -0·379 4M/2stn Msd 0·3 3↑ 3↓
Felt in Ngaio and Khandallah (68). Maximum intensity MM IV in Khandallah.

84/123
FEB 20 0207 31·7s 38·91S 175·70E 5km M=3·6
0·4 0·01 0·11 R
Rsd 0·4s 5ph/4stn Dmin 35km Az.gap 193°
Corr. -0·431 4M/2stn Msd 0·3 1↓
Felt Motuoapa (40) MM III.

84/124
FEB 20 0351 25·9s 40·57S 173·33E 204km M=4·1
0·8 0·03 0·05 8
Rsd 0·4s 11ph/9stn Dmin 76km Az.gap 193°
Corr. -0·556 5M/3stn Msd 0·2 6↑ 1↓

84/125
FEB 20 1016 47·0s 39·38S 175·06E 104km M=3·6
0·8 0·03 0·06 8
Rsd 0·4s 10ph/8stn Dmin 45km Az.gap 198°
Corr. 0·221 3M/2stn Msd 0·2 3↑ 1↓

84/126
FEB 20 1516 00·3s 37·12S 177·15E 191km M=3·8
1·9 0·12 0·09 14
Rsd 0·6s 5ph/4stn Dmin 97km Az.gap 279°
Corr. 0·571 4M/2stn Msd 0·6

84/127
FEB 20 1742 58·3s 36·67S 177·88E 168km M=4·1
1·2 0·09 0·07 13
Rsd 0·7s 8ph/6stn Dmin 113km Az.gap 278°
Corr. -0·003 7M/4stn Msd 0·2 1↑

84/128
FEB 20 2241 13·7s 38·91S 175·70E 8km M=3·9
0·5 0·03 0·08 11
Rsd 0·8s 6ph/5stn Dmin 35km Az.gap 149°
Corr. 0·284 6M/3stn Msd 0·2 2↓
Felt Motuoapa and Turangi (40) MM IV.

84/129
FEB 20 2243 57·0s 38·91S 175·72E 5km M=3·8
R R R R
Rsd 0·2s 4ph/3stn Dmin 35km Az.gap 207°
Corr. R 4M/2stn Msd 0·2 2↓
Felt at Motuoapa (40) MM III.

84/130
FEB 21 0808 01·2s 38·91S 175·69E 7km M=4·8
0·2 0·01 0·03 2
Rsd 0·5s 11ph/8stn Dmin 34km Az.gap 152°
Corr. -0·607 10M/8stn Msd 0·3 1↑ 2↓
Felt in the centre of the North Island. Maximum intensity MM VI near Turangi (40).

84/131
FEB 21 0823 40·7s 38·90S 175·70E 8km M=5·3
0·8 0·02 0·06 6
Rsd 0·8s 9ph/7stn Dmin 46km Az.gap 155°
Corr. -0·455 10M/7stn Msd 0·3 1↑ 4↓
Felt throughout the central North Island and as far away as Wellington (68). Maximum intensity MM VI near Turangi (40). This is the largest earthquake in the sequence near Turangi between February 20 and February 22. Several earthquakes of magnitude less than 3·4 were felt. The following were confirmed instrumentally. Of these the largest were those felt with intensity MM IV, and the remainder were smaller than magnitude 3·0.
FEB 21 0807 - Felt Moerangi Station (40) MM IV.
FEB 21 0820 - Felt Motuoapa (40).
FEB 21 0829 - Felt near Turangi (40), maximum MM IV.
FEB 21 0830 - Felt near Turangi (40).
FEB 21 0831 - Felt Motuoapa (40).
FEB 21 0842 - Felt Motuoapa (40).
FEB 21 0844 - Felt Motuoapa (40).
FEB 21 0932 - Felt Motuoapa (40).
FEB 22 0007 - Felt Motuoapa (40).

84/132
FEB 21 0826 55·6s 38·90S 175·69E 11km M=4·1
0·1 0·01 0·01 1
Rsd 0·2s 6ph/6stn Dmin 35km Az.gap 153°
Corr. -0·415 6M/4stn Msd 0·4 1↓
Felt near Turangi (40). Maximum intensity MM V at Moerangi Station (40).

84/133
FEB 21 0850 09·9s 38·92S 175·72E 12km M=3·5
0·4 0·02 0·05 R
Rsd 0·7s 5ph/4stn Dmin 111km Az.gap 166°
Corr. 0·174 6M/4stn Msd 0·4
Felt near Turangi (40). Maximum intensity MM IV at Omori and Moerangi Station (40).

84/134
FEB 21 0852 15·3s 38·92S 175·71E 3km M=4·0
0·4 0·01 0·02 3
Rsd 0·3s 6ph/5stn Dmin 47km Az.gap 166°
Corr. 0·114 8M/5stn Msd 0·4 1↑ 1↓
Felt near Turangi (40). Maximum intensity MM IV at Moerangi Station (40).

84/135
FEB 21 0941 00·1s 38·90S 175·71E 5km M=4·0
0·2 0·01 0·02 2
Rsd 0·3s 9ph/8stn Dmin 36km Az.gap 149°
Corr. -0·432 8M/5stn Msd 0·4 1↑ 2↓
Felt near Turangi (40). Maximum intensity MM IV at Moerangi Station (40).

84/136
FEB 21 1254 03·9s 38·91S 175·73E 7km M=3·8
0·1 0·01 0·02 2
Rsd 0·2s 7ph/6stn Dmin 36km Az.gap 145°
Corr. 0·092 8M/5stn Msd 0·4 1↑ 2↓
Felt at Moerangi Station (40) MM IV.

84/137
FEB 21 1313 24·1s 38·90S 175·74E 4km M=4·4
0·2 0·01 0·02 1
Rsd 0·3s 13ph/9stn Dmin 38km Az.gap 145°
Corr. -0·528 12M/7stn Msd 0·3 3↑ 2↓
Felt near Turangi (40). Maximum intensity MM VI at Motuoapa (40).

84/138
FEB 21 1355 19·0s 38·90S 175·72E 6km M=4·1
0·1 0·01 0·01 1
Rsd 0·3s 10ph/8stn Dmin 36km Az.gap 148°
Corr. -0·341 9M/5stn Msd 0·3 3↑ 2↓
Felt Moerangi Station (40) MM IV.

84/139
FEB 21 1531 11·9s 40·35S 173·58E 141km M=5·0
0·7 0·03 0·04 9
Rsd 0·5s 12ph/11stn Dmin 109km Az.gap 192°
Corr. -0·416 9M/5stn Msd 0·3 8↑
Felt New Plymouth (47), Wellington (68), Farewell Spit (72), and in the Marlborough Sounds (78). Maximum intensity MM V at Farewell Spit.

84/140
FEB 21 2253 55·5s 38·91S 175·69E 9km M=3·7
0·1 0·00 0·01 0
Rsd 0·1s 7ph/6stn Dmin 35km Az.gap 153°
Corr. -0·421 8M/4stn Msd 0·2 1↑ 2↓
Felt near Turangi (40). Maximum intensity MM IV at Omori and Moerangi Station (40).

84/141
FEB 22 0038 07·7s 38·92S 175·73E 6km M=4·2
0·2 0·01 0·02 1
Rsd 0·3s 12ph/9stn Dmin 35km Az.gap 145°
Corr. -0·426 11M/7stn Msd 0·2 2↑ 2↓
Felt Whangamata (32), Moerangi Station and Omori, (40) MM IV.

84/142
FEB 22 0259 16·5s 38·92S 175·72E 7km M=4·3
0·3 0·01 0·03 4
Rsd 0·5s 7ph/6stn Dmin 35km Az.gap 147°
Corr. 0·087 6M/3stn Msd 0·2 1↑ 1↓
Felt near Turangi (40). Maximum intensity MM IV at Moerangi Station and Omori (40).

84/143
FEB 22 0653 04·0s 38·92S 175·70E 5km M=3·6
0·1 0·00 0·03 R
Rsd 0·1s 5ph/4stn Dmin 34km Az.gap 194°
Corr. -0·469 6M/3stn Msd 0·1
Felt near Turangi (40). Maximum intensity MM IV at Omori (40).

84/144
FEB 22 1232 34·5s 38·93S 175·72E 6km M=3·6
0·1 0·01 0·01 2
Rsd 0·2s 8ph/7stn Dmin 34km Az.gap 146°
Corr. -0·020 9M/5stn Msd 0·2 1↓
Felt at Waihora Road (40) MM IV.

84/145
FEB 23 0933 27·0s 38·62S 176·19E 5km M=2·7
1·0 0·02 0·08 R
Rsd 0·5s 5ph/3stn Dmin 7km Az.gap 256°
Corr. -0·113 2M/1stn Msd 0·1 1↓
Felt in Taupo (41). Maximum intensity MM V.

84/146
FEB 23 1048 00·5s 45·06S 167·53E 80km M=3·6
1·3 0·06 0·06 15
Rsd 0·5s 6ph/4stn Dmin 53km Az.gap 228°
Corr. 0·000 4M/2stn Msd 0·2

84/147
FEB 23 2318 50·5s 38·53S 178·10E 29km M=3·4
0·3 0·02 0·03 1
Rsd 0·3s 6ph/3stn Dmin 14km Az.gap 266°
Corr. 0·324 5M/3stn Msd 0·1

84/148
FEB 24 1913 30·5s 43·59S 170·58E 4km M=3·9
0·5 0·02 0·04 3
Rsd 0·4s 8ph/5stn Dmin 89km Az.gap 150°
Corr. -0·620 11M/6stn Msd 0·2

84/149
FEB 25 0536 26·1s 38·89S 175·74E 3km M=3·7
0·2 0·01 0·02 2
Rsd 0·3s 8ph/6stn Dmin 38km Az.gap 146°
Corr. -0·423 10M/7stn Msd 0·3 1↓

84/150
FEB 25 1929 24·2s 44·99S 167·76E 133km M=3·5
0·6 0·03 0·04 4
Rsd 0·4s 8ph/5stn Dmin 38km Az.gap 189°
Corr. -0·086 7M/4stn Msd 0·2 1↑

84/151
FEB 26 0701 34·1s 38·03S 175·90E 12km M=3·8
0·1 0·01 0·01 R
Rsd 0·2s 9ph/7stn Dmin 34km Az.gap 157°
Corr. 0·017 5M/4stn Msd 0·5 1↑
Felt Lichfield, Putaruru (32) MM VI.

84/152
FEB 26 2112 13·9s 47·73S 165·31E 33km M=4·1
1·2 0·09 0·11 R
Rsd 0·5s 8ph/4stn Dmin 231km Az.gap 324°
Corr. -0·033 8M/4stn Msd 0·2

84/153
FEB 27 0415 04·7s 46·35S 165·46E 33km M=4·0
2·1 0·09 0·21 R
Rsd 0·8s 7ph/4stn Dmin 173km Az.gap 299°
Corr. 0·522 8M/4stn Msd 0·1

84/154
FEB 27 1455 42·0s 39·59S 174·24E 214km M=3·8
0·7 0·04 0·06 8
Rsd 0·5s 15ph/10stn Dmin 119km Az.gap 212°
Corr. -0·660 11M/7stn Msd 0·3 1↑

84/155
FEB 27 1501 06·1s 38·87S 175·83E 1km M=3·3
0·2 0·01 0·02 R
Rsd 0·4s 11ph/9stn Dmin 36km Az.gap 133°
Corr. -0·338 9M/6stn Msd 0·3
Felt Omori (40) MM IV.

84/156
FEB 28 0728 55·5s 37·92S 176·18E 215km M=3·9
1·2 0·06 0·07 9
Rsd 0·8s 16ph/9stn Dmin 56km Az.gap 175°
Corr. -0·394 11M/6stn Msd 0·2

84/157
FEB 28 1506 02·2s 41·24S 175·19E 17km M=3·8
0·2 0·01 0·01 2
Rsd 0·4s 19ph/17stn Dmin 17km Az.gap 57°
Corr. -0·193 9M/5stn Msd 0·4
Felt Waiorongomai (69) MM IV, and in the Wellington area (68).

84/158
FEB 29 1549 56·3s 39·89S 176·95E 12km M=3·8
0·6 0·03 0·05 R
Rsd 0·7s 11ph/8stn Dmin 39km Az.gap 202°
Corr. -0·580 5M/3stn Msd 0·2

84/159
FEB 29 1730 48·9s 45·19S 167·60E 140km M=3·9
0·7 0·03 0·05 5
Rsd 0·5s 11ph/6stn Dmin 62km Az.gap 200°
Corr. -0·198 8M/4stn Msd 0·4

84/160
MAR 01 0745 25·1s 38·92S 175·78E 1km M=3·2
0·3 0·02 0·04 R
Rsd 0·4s 9ph/7stn Dmin 37km Az.gap 139°
Corr. -0·329 5M/3stn Msd 0·2
Felt Moerangi Station (40) MM IV.

84/161
MAR 01 0937 40·1s 38·36S 176·25E 9km M=3·0
0·7 0·04 0·04 13
Rsd 1·2s 9ph/8stn Dmin 13km Az.gap 110°
Corr. -0·126 4M/4stn Msd 0·3
Felt Reporoa, Waiotapu (33) MM V.

84/162
MAR 01 0938 24·8s 40·96S 174·53E 51km M=4·3
0·2 0·02 0·02 3
Rsd 0·4s 19ph/22stn Dmin 34km Az.gap 111°
Corr. -0·450 9M/6stn Msd 0·2
Felt New Plymouth (47) to Fighting Bay (78). Maximum MM V at Paraparaumu (65), Lower Hutt, Wellington (68) and Fighting Bay (78).

84/163
MAR 01 1104 58·8s 38·94S 175·74E 1km M=3·5
0·3 0·02 0·04 R
Rsd 0·8s 13ph/13stn Dmin 29km Az.gap 141°
Corr. -0·488 10M/8stn Msd 0·4

84/164
MAR 01 1935 00·3s 38·98S 175·81E 1km M=3·1
0·4 0·00 0·04 2
Rsd 0·1s 7ph/6stn Dmin 28km Az.gap 200°
Corr. 0·198 4M/2stn Msd 0·2
Felt Moerangi Station (40) MM IV.

84/165
MAR 02 1515 45·3s 44·85S 167·75E 76km M=3·9
0·9 0·04 0·06 9
Rsd 0·6s 11ph/6stn Dmin 24km Az.gap 205°
Corr. -0·635 9M/5stn Msd 0·4 1↑

84/166
MAR 03 0706 04·8s 35·73S 178·94E 252km M=4·2
1·5 0·18 0·19 20
Rsd 0·7s 8ph/6stn Dmin 221km Az.gap 319°
Corr. -0·196 8M/4stn Msd 0·3

84/167
MAR 03 1007 12·7s 38·92S 175·78E 2km M=4·4
0·3 0·02 0·03 3
Rsd 0·6s 16ph/15stn Dmin 32km Az.gap 126°
Corr. -0·589 11M/8stn Msd 0·3 4↑ 3↓
Felt Moawhango (58) MM V, Moerangi Station, Omori, Turangi, Waihora Road (40) MM IV.

84/168
MAR 03 1018 27·2s 38·95S 175·81E 1km M=4·3
0·4 0·02 0·03 3
Rsd 0·7s 17ph/15stn Dmin 31km Az.gap 80°
Corr. -0·453 13M/8stn Msd 0·4 3↑ 1↓
Felt Turangi (40), Moawhango (58) MM V, Omori, Waihora Road (40) MM IV.

84/169
MAR 04 0457 55·1s 38·93S 175·38E 1km M=3·4
0·3 0·01 0·04 R
Rsd 0·4s 10ph/9stn Dmin 34km Az.gap 181°
Corr. 0·300 7M/5stn Msd 0·3

84/170
MAR 04 1035 38·5s 37·83S 176·38E 1km M=3·6
0·3 0·03 0·02 R
Rsd 0·4s 7ph/6stn Dmin 55km Az.gap 207°
Corr. 0·150 4M/3stn Msd 0·1 1↓
Felt Okere Falls (33) MM IV.

84/171
MAR 04 1728 42·2s 45·05S 167·60E 72km M=3·7
0·6 0·02 0·05 6
Rsd 0·4s 10ph/6stn Dmin 49km Az.gap 206°
Corr. -0·439 9M/6stn Msd 0·3 1↑

84/172
MAR 05 0207 17·6s 38·92S 175·79E 5km M=5·5
0·3 0·01 0·03 2
Rsd 0·6s 17ph/18stn Dmin 33km Az.gap 119°
Corr. -0·522 8M/7stn Msd 0·3 6↑ 2↓
Felt widely from Hamilton (24) to Wellington (68). Maximum intensity MM VII at Turangi (40). Epicentres of aftershocks M 3·4 and above follow until 11d 00h. Sixteen smaller aftershocks were also reported felt.

84/173
MAR 05 0210 07·7s 38·91S 175·78E 2km M=3·9
0·2 0·01 0·02 2
Rsd 0·3s 9ph/6stn Dmin 38km Az.gap 137°
Corr. -0·592 6M/4stn Msd 0·4
Felt Moerangi Station (40) MM IV, Taupo Airport (41).

84/174
MAR 05 0212 16·4s 38·94S 175·71E 6km M=3·8
0·4 0·02 0·04 4
Rsd 0·7s 12ph/8stn Dmin 28km Az.gap 153°
Corr. -0·375 9M/6stn Msd 0·4
Felt Moerangi Station, Omori (40) MM IV.

84/175
MAR 05 0226 01·2s 38·90S 175·78E 6km M=4·0
0·2 0·01 0·02 2
Rsd 0·5s 17ph/15stn Dmin 34km Az.gap 138°
Corr. -0·479 10M/7stn Msd 0·4
Felt Moerangi Station, Turangi (40) MM IV.

84/176
MAR 05 0227 58·3s 38·92S 175·82E 1km M=3·7
0·4 0·02 0·03 4
Rsd 0·7s 14ph/12stn Dmin 34km Az.gap 130°
Corr. -0·523 12M/8stn Msd 0·5
Felt Moerangi Station, Turangi (40) MM IV, also felt Omori (40).

84/177
MAR 05 0239 08·3s 38·92S 175·69E 6km M=3·6
0·2 0·01 0·02 2
Rsd 0·3s 13ph/13stn Dmin 29km Az.gap 148°
Corr. -0·277 12M/8stn Msd 0·4
Felt Moerangi Station, Omori, Turangi (40) MM IV.

84/178
MAR 05 0301 58·0s 38·92S 175·73E 1km M=4·1
0·2 0·01 0·02 R
Rsd 0·5s 14ph/14stn Dmin 31km Az.gap 144°
Corr. -0·489 10M/7stn Msd 0·4
Felt Moerangi Station, Omori, Turangi (40) MM IV.

84/179
MAR 05 0307 02·3s 38·92S 175·72E 1km M=3·9
0·3 0·02 0·03 R
Rsd 0·7s 14ph/12stn Dmin 30km Az.gap 146°
Corr. -0·408 10M/7stn Msd 0·3
Felt Moerangi Station, Omori, (40) MM IV.

84/180
MAR 05 0350 14·6s 38·90S 175·81E 1km M=4·0
0·2 0·01 0·02 R
Rsd 0·4s 14ph/14stn Dmin 36km Az.gap 134°
Corr. -0·340 11M/7stn Msd 0·3
Felt Moerangi Station, Omori, (40) MM V.

84/181
MAR 05 0413 44·7s 38·91S 175·80E 4km M=3·4
0·5 0·02 0·06 5
Rsd 0·5s 9ph/8stn Dmin 34km Az.gap 134°
Corr. -0·253 8M/6stn Msd 0·4
Felt Moerangi Station (40) MM IV.

84/182
MAR 05 0943 29·3s 38·92S 175·75E 4km M=3·5
0·2 0·01 0·02 2
Rsd 0·3s 13ph/11stn Dmin 31km Az.gap 142°
Corr. -0·267 13M/9stn Msd 0·4
Felt Moerangi Station, Omori, (40) MM IV.

84/183
MAR 05 1324 43·4s 38·89S 175·76E 1km M=4·1
0·3 0·02 0·02 3
Rsd 0·5s 10ph/11stn Dmin 35km Az.gap 141°
Corr. -0·493 11M/7stn Msd 0·4 1↓
Felt Moerangi Station, Turangi (40) MM V.

84/184
MAR 05 1348 11·7s 38·83S 175·84E 143km M=3·9
0·5 0·03 0·05 5
Rsd 0·6s 19ph/13stn Dmin 48km Az.gap 133°
Corr. -0·602 8M/5stn Msd 0·2 1↑

84/185
MAR 05 1921 31·0s 38·89S 175·81E 1km M=3·5
0·2 0·01 0·03 R
Rsd 0·5s 13ph/12stn Dmin 38km Az.gap 133°
Corr. -0·391 11M/9stn Msd 0·3

84/186
MAR 05 1934 10·4s 33·76S 179·03W 265km M=4·7
2·0 0·15 0·21 45
Rsd 0·7s 10ph/6stn Dmin 590km Az.gap 317°
Corr. 0·162 8M/4stn Msd 0·3

84/187
MAR 05 2353 34·9s 38·92S 175·81E 1km M=3·5
0·2 0·01 0·03 R
Rsd 0·5s 12ph/9stn Dmin 34km Az.gap 132°
Corr. -0·458 8M/6stn Msd 0·3
Felt Turangi (40) MM IV.

84/188
MAR 06 0143 03·9s 38·91S 175·81E 1km M=3·8
0·3 0·02 0·04 R
Rsd 0·8s 9ph/8stn Dmin 34km Az.gap 133°
Corr. -0·465 9M/7stn Msd 0·4 1↓
Felt Turangi (40) MM IV.

84/189
MAR 06 0150 58·8s 38·93S 175·70E 2km M=3·8
0·4 0·02 0·03 3
Rsd 0·7s 13ph/13stn Dmin 29km Az.gap 149°
Corr. -0·438 9M/6stn Msd 0·4

84/190
MAR 06 0417 24·3s 38·92S 175·46E 1km M=3·6
0·3 0·01 0·05 R
Rsd 0·4s 11ph/9stn Dmin 31km Az.gap 175°
Corr. -0·023 9M/6stn Msd 0·3
Felt Moerangi Station (40) MM V.

84/191
MAR 06 0501 50·2s 38·96S 175·75E 1km M=3·7
0·3 0·02 0·03 R
Rsd 0·6s 17ph/15stn Dmin 28km Az.gap 138°
Corr. -0·547 13M/9stn Msd 0·3
Felt Moerangi Station (40) MM IV.

84/192
MAR 06 0505 56·0s 38·91S 175·80E 3km M=3·7
0·2 0·01 0·02 2
Rsd 0·4s 13ph/11stn Dmin 35km Az.gap 135°
Corr. -0·276 11M/8stn Msd 0·4
Felt Moerangi Station (40) MM IV.

84/193
MAR 06 0511 01·0s 38·96S 175·70E 6km M=3·7
0·2 0·01 0·02 2
Rsd 0·5s 16ph/13stn Dmin 25km Az.gap 146°
Corr. -0·466 11M/7stn Msd 0·4
Felt Moerangi Station (40) MM IV.

84/194
MAR 06 0533 29·9s 38·92S 175·73E 1km M=3·4
0·2 0·01 0·03 R
Rsd 0·5s 10ph/8stn Dmin 31km Az.gap 145°
Corr. -0·157 6M/4stn Msd 0·3
Felt Moerangi Station (40) MM IV.

84/195
MAR 06 0550 07·7s 38·97S 175·75E 1km M=3·6
0·3 0·02 0·03 R
Rsd 0·6s 12ph/10stn Dmin 27km Az.gap 137°
Corr. -0·311 12M/8stn Msd 0·3
Felt Moerangi Station (40) MM IV.

84/196
MAR 06 0752 16·7s 38·94S 175·80E 1km M=3·6
0·2 0·02 0·02 R
Rsd 0·5s 15ph/12stn Dmin 31km Az.gap 130°
Corr. -0·382 12M/8stn Msd 0·4

84/197
MAR 06 2135 05·5s 38·94S 175·75E 1km M=3·7
0·2 0·01 0·02 R
Rsd 0·4s 13ph/11stn Dmin 29km Az.gap 140°
Corr. -0·301 11M/8stn Msd 0·3
Felt Moerangi Station, Turangi (40) MM IV.

84/198
MAR 07 1006 52·8s 41·84S 174·12E 20km M=3·7
0·3 0·03 0·03 2
Rsd 0·7s 21ph/18stn Dmin 12km Az.gap 142°
Corr. -0·545 8M/5stn Msd 0·3 2↑ 3↓

84/199
MAR 07 1848 46·5s 35·78S 178·68E 283km M=4·4
1·9 0·13 0·19 13
Rsd 1·0s 13ph/10stn Dmin 213km Az.gap 314°
Corr. 0·019 8M/5stn Msd 0·4

84/200
MAR 08 0040 52·5s 38·20S 177·44E 75km M=6·4
0·6 0·03 0·04 10
Rsd 0·7s 12ph/11stn Dmin 46km Az.gap 77°
Corr. 0·063 1M/1stn Msd ND 6↑ 10↓
Felt From East Cape (29) to Christchurch (110). Maximum intensity MM VI at Whakatane (27), Minginui Forest (42), Gisborne (45).

84/201
MAR 08 0916 11·2s 35·17S 179·80E 201km M=4·6
3·8 0·25 0·35 58
Rsd 1·4s 10ph/10stn Dmin 302km Az.gap 301°
Corr. 0·310 9M/6stn Msd 0·2

84/202
MAR 08 0956 06·5s 38·94S 175·53E 6km M=3·4
0·4 0·02 0·05 3
Rsd 0·6s 13ph/11stn Dmin 27km Az.gap 136°
Corr. -0·348 12M/8stn Msd 0·3
Felt Turangi (40) MM IV.

84/203
MAR 09 0321 36·5s 37·68S 178·39E 61km M=3·5
0·8 0·04 0·05 7
Rsd 0·5s 9ph/5stn Dmin 14km Az.gap 194°
Corr. 0·047 5M/3stn Msd 0·2

84/204
MAR 09 1704 09·2s 37·07S 177·20E 12km M=3·6
0·9 0·06 0·04 R
Rsd 0·8s 10ph/7stn Dmin 51km Az.gap 244°
Corr. -0·085 8M/5stn Msd 0·3

84/205
MAR 09 1729 27·8s 41·72S 171·90E 12km M=4·4
0·6 0·04 0·06 R
Rsd 1·0s 11ph/10stn Dmin 98km Az.gap 182°
Corr. -0·569 16M/10stn Msd 0·3 2↑
Felt Westport (79), Murchison (80) MM V, Greymouth (92) MM IV.

84/206
MAR 09 2154 08·7s 38·95S 175·67E 10km M=3·7
0·6 0·01 0·02 5
Rsd 0·4s 15ph/11stn Dmin 30km Az.gap 153°
Corr. -0·290 12M/9stn Msd 0·4

84/207
MAR 10 0025 15·2s 41·64S 171·79E 12km M=3·9
1·0 0·05 0·10 R
Rsd 0·9s 11ph/9stn Dmin 100km Az.gap 214°
Corr. -0·654 10M/7stn Msd 0·2 1↑
Felt Murchison (80) MM IV.

84/208
MAR 10 0515 10·5s 38·93S 175·76E 1km M=3·6
0·3 0·02 0·03 R
Rsd 0·6s 13ph/10stn Dmin 30km Az.gap 138°
Corr. -0·373 10M/7stn Msd 0·3
Felt Omori, Turangi (40) MM IV.

84/209
MAR 10 2352 45·9s 38·56S 179·78E 33km M=4·1
0·9 0·04 0·08 R
Rsd 0·4s 10ph/8stn Dmin 144km Az.gap 282°
Corr. -0·563 12M/8stn Msd 0·2

84/210
MAR 11 1642 47·6s 48·98S 173·33E 33km M=4·0
4·6 0·12 0·66 R
Rsd 1·4s 7ph/4stn Dmin 452km Az.gap 258°
Corr. 0·664 6M/3stn Msd 0·2

84/211
MAR 12 0827 55·3s 35·68S 179·47W 192km M=4·4
1·1 0·08 0·14 15
Rsd 0·6s 13ph/10stn Dmin 286km Az.gap 334°
Corr. -0·577 9M/5stn Msd 0·2

84/212
MAR 12 2323 41·2s 38·28S 176·11E 211km M=4·4
0·7 0·04 0·06 5
Rsd 0·7s 15ph/9stn Dmin 64km Az.gap 119°
Corr. -0·346 11M/6stn Msd 0·4 1↑ 3↓

84/213
MAR 13 0433 35·1s 38·93S 175·71E 5km M=3·7
0·3 0·02 0·03 R
Rsd 0·7s 15ph/10stn Dmin 29km Az.gap 147°
Corr. -0·491 10M/6stn Msd 0·2 1↑ 2↓
Felt Waihora Road (40).

84/214
MAR 13 1000 39·2s 37·00S 177·08E 230km M=4·0
0·7 0·08 0·06 6
Rsd 0·3s 7ph/5stn Dmin 109km Az.gap 248°
Corr. 0·269 7M/4stn Msd 0·3

84/215
MAR 14 0534 44·4s 38·85S 175·05E 238km M=5·2
0·6 0·03 0·05 6
Rsd 0·7s 23ph/18stn Dmin 58km Az.gap 136°
Corr. -0·529 9M/5stn Msd 0·2 9↑ 6↓
Felt in the southwest of the North Island. Maximum intensity MM 4 from Wanganui (57) and Palmerston North (62) to Johnsonville (68).

84/216
MAR 14 0758 14·5s 37·76S 176·22E 224km M=3·6
0·3 0·02 0·03 3
Rsd 0·1s 7ph/6stn Dmin 72km Az.gap 267°
Corr. -0·388 6M/3stn Msd 0·3

84/217
MAR 14 1316 37·8s 34·76S 179·94W 319km M=4·9
1·6 0·15 0·21 17
Rsd 0·8s 9ph/8stn Dmin 353km Az.gap 334°
Corr. -0·191 9M/5stn Msd 0·3

84/218
MAR 14 1712 39·7s 34·62S 179·13E 314km M=3·9
1·0 0·11 0·24 16
Rsd 0·4s 8ph/6stn Dmin 345km Az.gap 342°
Corr. -0·636 4M/3stn Msd 0·1

84/219
MAR 15 1147 42·6s 40·59S 173·79E 78km M=3·7
0·6 0·04 0·03 12
Rsd 0·6s 13ph/11stn Dmin 81km Az.gap 167°
Corr. -0·189 5M/3stn Msd 0·1 3↑ 4↓
Felt Lyall Bay, Upper Hutt, Wellington (68).

84/220
MAR 15 1249 46·9s 38·26S 176·10E 273km M=3·5
0·4 0·07 0·09 6
Rsd 0·3s 9ph/6stn Dmin 110km Az.gap 260°
Corr. -0·908 4M/2stn Msd 0·1

84/221
MAR 15 1426 08·3s 39·15S 174·93E 205km M=4·1
0·7 0·04 0·06 7
Rsd 0·8s 19ph/12stn Dmin 53km Az.gap 161°
Corr. -0·626 9M/5stn Msd 0·3 5↑

84/222
MAR 15 1841 33·5s 37·38S 177·60E 65km M=3·8
0·2 0·02 0·01 2
Rsd 0·2s 12ph/8stn Dmin 40km Az.gap 222°
Corr. 0·036 9M/5stn Msd 0·2 3↑ 1↓

84/223
MAR 15 1910 34·4s 38·47S 175·93E 191km M=4·3
0·7 0·04 0·06 6
Rsd 0·8s 16ph/11stn Dmin 70km Az.gap 128°
Corr. -0·510 8M/4stn Msd 0·3 3↑ 1↓

84/224
MAR 16 0740 35·3s 40·04S 176·74E 33km M=3·5
0·4 0·03 0·05 R
Rsd 0·5s 8ph/6stn Dmin 55km Az.gap 184°
Corr. -0·538 5M/3stn Msd 0·3 1↑

84/225
MAR 16 1454 35·8s 39·64S 174·95E 96km M=3·8
0·5 0·03 0·05 7
Rsd 0·8s 20ph/13stn Dmin 67km Az.gap 146°
Corr. -0·627 9M/5stn Msd 0·2 2↑ 1↓

84/226
MAR 16 1653 07·0s 39·19S 176·13E 73km M=3·5
0·3 0·02 0·03 4
Rsd 0·5s 16ph/11stn Dmin 50km Az.gap 71°
Corr. -0·373 11M/6stn Msd 0·2 1↑ 2↓

84/227
MAR 16 2243 40·2s 38·67S 175·79E 172km M=3·9
0·9 0·05 0·08 8
Rsd 1·0s 17ph/11stn Dmin 62km Az.gap 141°
Corr. -0·607 9M/5stn Msd 0·3 3↑

84/228
MAR 17 0646 34·4s 36·89S 177·56E 222km M=4·2
0·8 0·06 0·06 6
Rsd 0·5s 12ph/8stn Dmin 124km Az.gap 259°
Corr. 0·000 12M/7stn Msd 0·3 1↑

84/229
MAR 17 1434 58·2s 38·79S 175·51E 160km M=3·6
0·4 0·02 0·03 4
Rsd 0·4s 16ph/11stn Dmin 46km Az.gap 161°
Corr. -0·635 8M/5stn Msd 0·4

84/230
MAR 17 1906 20·4s 36·54S 178·26E 142km M=4·0
1·6 0·10 0·11 13
Rsd 0·8s 13ph/8stn Dmin 130km Az.gap 292°
Corr. 0·172 8M/4stn Msd 0·2 2↓

84/231
MAR 17 2224 23·1s 39·00S 176·02E 20km M=3·4
1·1 0·06 0·13 5
Rsd 0·5s 7ph/6stn Dmin 41km Az.gap 184°
Corr. -0·862 6M/3stn Msd 0·5 2↑

84/232
MAR 18 0007 39·7s 44·69S 168·09E 69km M=3·6
0·9 0·05 0·05 9
Rsd 0·6s 9ph/5stn Dmin 14km Az.gap 159°
Corr. -0·364 7M/3stn Msd 0·2 1↓

84/233
MAR 18 1849 43·1s 38·20S 175·83E 189km M=4·2
1·1 0·06 0·07 9
Rsd 0·8s 14ph/10stn Dmin 40km Az.gap 126°
Corr. -0·577 9M/6stn Msd 0·3 2↑ 1↓

84/234
MAR 18 1904 51·9s 44·28S 167·97E 0km M=4·0
0·9 0·05 0·05 R
Rsd 0·5s 12ph/6stn Dmin 43km Az.gap 281°
Corr. -0·446 9M/5stn Msd 0·3 1↑

84/235
MAR 19 1927 06·9s 40·63S 177·17E 33km M=4·3
0·6 0·03 0·06 R
Rsd 0·4s 14ph/10stn Dmin 123km Az.gap 228°
Corr. -0·850 11M/6stn Msd 0·3 3↑

84/236
MAR 19 1958 35·4s 35·23S 177·41W 33km M=5·5
1·8 0·12 0·19 R
Rsd 1·1s 21ph/14stn Dmin 453km Az.gap 308°
Corr. -0·302 21M/12stn Msd 0·3

84/237
MAR 20 1341 44·5s 37·27S 176·78E 226km M=5·2
1·3 0·05 0·05 12
Rsd 0·7s 17ph/12stn Dmin 46km Az.gap 160°
Corr. 0·368 9M/5stn Msd 0·2 5↑ 2↓

84/238
MAR 20 1448 38·6s 39·00S 175·08E 222km M=3·9
1·1 0·05 0·06 9
Rsd 0·6s 16ph/10stn Dmin 46km Az.gap 159°
Corr. -0·531 8M/4stn Msd 0·3 4↑

84/239
MAR 20 1651 14·6s 38·07S 176·19E 5km M=2·6
0·3 0·02 0·02 R
Rsd 0·3s 6ph/4stn Dmin 33km Az.gap 158°
Corr. 0·535 3M/2stn Msd 0·1
Felt Rotorua (33) MM V.

84/240
MAR 21 0719 50·5s 39·50S 178·00E 33km M=3·8
0·5 0·02 0·06 R
Rsd 0·5s 14ph/9stn Dmin 95km Az.gap 227°
Corr. -0·541 7M/4stn Msd 0·3 1↑

84/241
MAR 21 0839 04·2s 38·13S 176·37E 162km M=3·8
0·9 0·04 0·05 8
Rsd 0·4s 10ph/7stn Dmin 22km Az.gap 147°
Corr. 0·198 6M/4stn Msd 0·4 1↑

84/242
MAR 21 1031 40·6s 38·76S 176·51E 85km M=3·6
0·6 0·03 0·05 10
Rsd 0·9s 18ph/13stn Dmin 49km Az.gap 78°
Corr. -0·309 11M/6stn Msd 0·2 1↑ 2↓

84/243
MAR 21 1228 44·1s 44·93S 167·74E 76km M=3·8
0·6 0·03 0·04 5
Rsd 0·4s 12ph/6stn Dmin 33km Az.gap 197°
Corr. -0·474 11M/6stn Msd 0·3 1↑ 1↓

84/244
MAR 21 1448 24·4s 39·47S 177·99E 33km M=3·6
0·7 0·04 0·06 R
Rsd 0·6s 11ph/7stn Dmin 91km Az.gap 229°
Corr. -0·589 10M/5stn Msd 0·3

84/245
MAR 21 1654 33·0s 37·38S 177·12E 147km M=4·3
0·4 0·02 0·02 4
Rsd 0·4s 14ph/9stn Dmin 69km Az.gap 181°
Corr. 0·236 11M/6stn Msd 0·2 1↓

84/246
MAR 21 2041 33·3s 35·56S 179·48E 33km M=4·5
1·2 0·06 0·12 R
Rsd 0·5s 13ph/9stn Dmin 251km Az.gap 280°
Corr. -0·030 11M/7stn Msd 0·3

84/247
MAR 22 1418 20·8s 39·66S 178·88E 12km M=4·2
0·8 0·03 0·06 R
Rsd 0·4s 13ph/7stn Dmin 135km Az.gap 257°
Corr. -0·351 13M/7stn Msd 0·2

84/248
MAR 22 2335 58·9s 39·70S 179·25E 33km M=3·8
1·0 0·04 0·09 R
Rsd 0·5s 9ph/5stn Dmin 159km Az.gap 294°
Corr. -0·042 7M/4stn Msd 0·2
Epicentre doubtful.

84/249
MAR 23 0102 21·6s 41·06S 175·46E 12km M=4·0
0·2 0·01 0·02 R
Rsd 0·5s 13ph/11stn Dmin 12km Az.gap 87°
Corr. -0·349 5M/3stn Msd 0·5 4↑ 2↓
Felt Kelburn and Seatoun (68) MM IV.

84/250
MAR 23 1538 41·4s 38·91S 175·74E 5km M=4·0
0·2 0·01 0·03 R
Rsd 0·6s 15ph/12stn Dmin 32km Az.gap 144°
Corr. -0·386 15M/8stn Msd 0·3 3↑
Felt Omori and Western Bay Road (40) MM IV.

84/251
MAR 24 0503 37·3s 36·95S 177·21E 185km M=3·8
0·7 0·06 0·05 5
Rsd 0·3s 6ph/4stn Dmin 116km Az.gap 286°
Corr. 0·341 6M/3stn Msd 0·3

84/252
MAR 24 1734 45·9s 36·97S 179·97W 12km M=4·0
0·7 0·04 0·07 R
Rsd 0·2s 8ph/5stn Dmin 154km Az.gap 329°
Corr. -0·448 11M/7stn Msd 0·2

84/253
MAR 24 2049 10·7s 38·19S 176·27E 163km M=3·5
1·2 0·06 0·05 10
Rsd 0·6s 10ph/5stn Dmin 67km Az.gap 136°
Corr. -0·277 6M/3stn Msd 0·2 1↑

84/254
MAR 24 2235 40·9s 38·60S 176·58E 192km M=3·7
2·0 0·08 0·12 17
Rsd 0·5s 8ph/7stn Dmin 112km Az.gap 144°
Corr. 0·350 3M/2stn Msd 0·4 1↑ 1↓

84/255
MAR 24 2327 49·5s 39·80S 176·58E 33km M=3·4
0·2 0·02 0·03 R
Rsd 0·4s 15ph/11stn Dmin 34km Az.gap 166°
Corr. -0·529 8M/6stn Msd 0·2

84/256
MAR 25 2046 37·6s 35·92S 178·44E 232km M=4·2
1·3 0·14 0·16 18
Rsd 0·7s 10ph/6stn Dmin 198km Az.gap 323°
Corr. -0·454 12M/7stn Msd 0·3 1↑ 1↓

84/257
MAR 25 2245 57·4s 36·82S 179·94E 33km M=4·1
0·6 0·06 0·07 R
Rsd 0·2s 8ph/6stn Dmin 157km Az.gap 328°
Corr. -0·616 16M/9stn Msd 0·2 1↓

84/258
MAR 26 1216 48·9s 36·90S 179·90W 33km M=3·6
0·8 0·07 0·06 R
Rsd 0·3s 8ph/5stn Dmin 164km Az.gap 330°
Corr. -0·134 11M/7stn Msd 0·2

84/259
MAR 27 0732 43·5s 44·53S 167·69E 5km M=3·6
0·8 0·05 0·04 R
Rsd 0·4s 10ph/6stn Dmin 24km Az.gap 259°
Corr. -0·502 10M/5stn Msd 0·4 2↓

84/260
MAR 27 2127 06·9s 40·73S 177·17E 33km M=3·8
0·9 0·06 0·08 R
Rsd 0·7s 8ph/8stn Dmin 82km Az.gap 236°
Corr. -0·574 11M/7stn Msd 0·4 3↑ 1↓

84/261
MAR 28 0311 09·6s 40·10S 173·41E 181km M=4·6
0·7 0·04 0·06 8
Rsd 0·8s 14ph/13stn Dmin 144km Az.gap 183°
Corr. -0·778 13M/7stn Msd 0·2 12↑ 3↓

84/262
MAR 28 0713 46·1s 49·02S 165·45E 12km M=4·2
1·2 0·10 0·15 R
Rsd 0·4s 9ph/5stn Dmin 308km Az.gap 333°
Corr. -0·334 9M/5stn Msd 0·2 1↓

84/263
MAR 28 0836 18·2s 49·16S 165·65E 12km M=4·0
1·6 0·12 0·20 R
Rsd 0·4s 8ph/5stn Dmin 311km Az.gap 333°
Corr. -0·387 9M/5stn Msd 0·4

84/264
MAR 29 2153 29·5s 38·30S 175·97E 189km M=3·7
1·0 0·05 0·05 8
Rsd 0·5s 11ph/7stn Dmin 56km Az.gap 119°
Corr. -0·033 10M/6stn Msd 0·3 2↑ 4↓

84/265
MAR 30 1515 08·9s 37·08S 177·89E 187km M=3·5
1·8 0·15 0·16 19
Rsd 0·7s 8ph/5stn Dmin 128km Az.gap 291°
Corr. 0·198 6M/3stn Msd 0·3 1↑

84/266
MAR 30 1639 01·4s 29·72S 179·20W 33km M=5·5
8·0 0·35 1·35 R
Rsd 4·0s 7ph/8stn Dmin 908km Az.gap 345°
Corr. -0·445 11M/8stn Msd 0·3

84/267
MAR 30 1642 42·7s 39·36S 175·47E 12km M=3·4
0·3 0·02 0·04 R
Rsd 0·5s 11ph/7stn Dmin 19km Az.gap 167°
Corr. -0·442 11M/6stn Msd 0·4 1↑ 1↓

84/268
MAR 30 2251 04·6s 37·85S 176·26E 188km M=4·4
0·6 0·03 0·04 4
Rsd 0·4s 12ph/12stn Dmin 64km Az.gap 165°
Corr. -0·003 13M/7stn Msd 0·3 5↑ 2↓

84/269
APR 01 1448 11·5s 40·12S 174·85E 12km M=4·3
0·2 0·01 0·02 R
Rsd 0·3s 14ph/12stn Dmin 77km Az.gap 153°
Corr. -0·578 20M/13stn Msd 0·4 6↑ 8↓
Felt Okoia (57) MM V, Ohakune (49) and Wanganui (57) MM IV.

84/270
APR 01 2201 29·9s 40·47S 175·03E 33km M=3·4
0·8 0·03 0·06 7
Rsd 0·7s 11ph/11stn Dmin 42km Az.gap 119°
Corr. -0·278 8M/5stn Msd 0·3 9↑ 4↓

84/271
APR 02 0216 12·2s 40·45S 175·04E 33km M=3·7
0·3 0·02 0·05 2
Rsd 0·5s 11ph/12stn Dmin 42km Az.gap 120°
Corr. -0·351 13M/8stn Msd 0·3 11↑ 4↓

84/272
APR 02 0919 47·4s 41·75S 174·46E 24km M=4·0
0·1 0·01 0·01 1
Rsd 0·3s 11ph/15stn Dmin 20km Az.gap 156°
Corr. -0·566 24M/14stn Msd 0·4 8↑ 6↓
Felt Wellington (68) MM IV.

84/273
APR 02 0930 18·6s 41·73S 174·48E 29km M=4·4
0·1 0·01 0·01 0
Rsd 0·2s 15ph/17stn Dmin 22km Az.gap 155°
Corr. -0·532 30M/18stn Msd 0·4 5↑ 7↓
Felt Papakowhai (68) and Upper Hutt (69) MM V. Also felt at several places around Wellington (68) and at Waitaria Bay (78).

84/274
APR 02 1838 27·6s 39·88S 179·30E 33km M=4·1
1·4 0·07 0·11 R
Rsd 0·6s 10ph/9stn Dmin 175km Az.gap 269°
Corr. -0·480 21M/12stn Msd 0·2 2↓

84/275
APR 02 1845 20·2s 39·65S 179·44E 33km M=4·1
1·1 0·05 0·10 R
Rsd 0·4s 10ph/9stn Dmin 166km Az.gap 292°
Corr. -0·280 18M/12stn Msd 0·3 3↑ 2↓

84/276
APR 02 1914 49·3s 39·68S 179·29E 33km M=3·6
0·3 0·02 0·03 R
Rsd 0·2s 7ph/5stn Dmin 159km Az.gap 295°
Corr. -0·157 7M/5stn Msd 0·4 1↑ 1↓

84/277
APR 02 2114 28·8s 39·71S 179·18E 33km M=3·8
1·8 0·11 0·16 R
Rsd 0·9s 7ph/6stn Dmin 155km Az.gap 266°
Corr. -0·038 16M/9stn Msd 0·2 1↑ 1↓

84/278
APR 02 2146 11·7s 39·45S 175·44E 0km M=3·0
0·7 0·02 0·07 R
Rsd 0·3s 8ph/6stn Dmin 22km Az.gap 149°
Corr. 0·119 6M/3stn Msd 0·3
Felt Dome Ridge (50) MM V.

84/279
APR 03 0903 10·6s 46·96S 165·40E 12km M=4·3
0·6 0·03 0·04 R
Rsd 0·4s 7ph/6stn Dmin 207km Az.gap 309°
Corr. 0·226 12M/6stn Msd 0·2 1↑ 1↓

84/280
APR 03 0955 58·7s 38·97S 175·74E 5km M=3·2
0·3 0·01 0·03 R
Rsd 0·4s 9ph/8stn Dmin 18km Az.gap 123°
Corr. -0·432 11M/7stn Msd 0·4 3↑ 1↓
Felt Moerangi Station (40) MM IV.

84/281
APR 03 1928 54·6s 37·90S 175·78E 293km M=3·7
0·5 0·07 0·12 9
Rsd 0·3s 13ph/12stn Dmin 145km Az.gap 328°
Corr. -0·449 5M/3stn Msd 0·1 1↓

84/282
APR 04 0417 28·8s 39·09S 173·77E 12km M=3·6
0·2 0·01 0·02 R
Rsd 0·3s 11ph/9stn Dmin 54km Az.gap 210°
Corr. -0·494 12M/8stn Msd 0·3 4↑ 2↓

84/283
APR 04 1205 14·3s 37·26S 176·79E 230km M=3·7
0·6 0·08 0·05 3
Rsd 0·2s 5ph/4stn Dmin 82km Az.gap 299°
Corr. 0·103 8M/4stn Msd 0·3

84/284
APR 04 1636 57·4s 40·10S 174·27E 93km M=3·9
0·5 0·01 0·03 8
Rsd 0·4s 17ph/18stn Dmin 101km Az.gap 136°
Corr. -0·208 12M/7stn Msd 0·2 4↑ 9↓

84/285
APR 04 1746 02·7s 42·35S 172·97E 33km M=3·5
0·3 0·02 0·02 R
Rsd 0·3s 9ph/11stn Dmin 60km Az.gap 163°
Corr. 0·571 10M/6stn Msd 0·3 3↑ 6↓

84/286
APR 04 1803 04·0s 42·32S 173·00E 33km M=3·5
0·2 0·01 0·01 R
Rsd 0·2s 9ph/11stn Dmin 59km Az.gap 159°
Corr. 0·228 10M/6stn Msd 0·3 3↑ 3↓

84/287
APR 04 2109 05·3s 38·42S 175·83E 186km M=3·4
1·1 0·05 0·08 8
Rsd 0·5s 8ph/6stn Dmin 61km Az.gap 142°
Corr. -0·252 10M/5stn Msd 0·3 2↑ 2↓

84/288
APR 05 0931 59·9s 37·17S 176·86E 177km M=3·6
0·6 0·06 0·04 7
Rsd 0·2s 6ph/5stn Dmin 91km Az.gap 274°
Corr. 0·398 9M/5stn Msd 0·5 1↓

84/289
APR 05 1320 10·7s 48·22S 165·45E 33km M=3·8
2·3 0·13 0·18 R
Rsd 0·9s 9ph/5stn Dmin 248km Az.gap 329°
Corr. -0·174 9M/4stn Msd 0·2

84/290
APR 06 0830 47·6s 42·21S 173·84E 55km M=3·6
0·3 0·02 0·02 4
Rsd 0·2s 11ph/11stn Dmin 26km Az.gap 152°
Corr. -0·253 3M/2stn Msd 0·1 4↑ 6↓

84/291
APR 06 0950 07·8s 39·42S 174·35E 207km M=3·4
0·8 0·05 0·07 9
Rsd 0·8s 11ph/9stn Dmin 26km Az.gap 176°
Corr. -0·765 9M/5stn Msd 0·4 7↑ 1↓

84/292
APR 06 1159 50·5s 39·51S 178·02E 33km M=3·4
0·5 0·03 0·06 R
Rsd 0·5s 9ph/7stn Dmin 96km Az.gap 232°
Corr. -0·628 13M/8stn Msd 0·4 2↑

84/293
APR 06 1210 02·4s 45·19S 167·45E 74km M=3·4
0·6 0·02 0·04 6
Rsd 0·2s 10ph/6stn Dmin 66km Az.gap 218°
Corr. -0·465 9M/4stn Msd 0·4 4↓

84/294
APR 06 1235 42·8s 39·49S 178·05E 86km M=3·9
0·6 0·04 0·07 12
Rsd 0·5s 12ph/15stn Dmin 94km Az.gap 217°
Corr. -0·758 16M/9stn Msd 0·4 4↑ 2↓

84/295
APR 06 2118 06·4s 39·75S 179·34E 33km M=3·7
0·5 0·03 0·04 R
Rsd 0·2s 10ph/7stn Dmin 167km Az.gap 269°
Corr. -0·134 18M/12stn Msd 0·2 1↑ 1↓

84/296
APR 06 2227 36·9s 39·73S 179·31E 33km M=3·6
0·6 0·04 0·05 R
Rsd 0·3s 8ph/6stn Dmin 164km Az.gap 295°
Corr. 0·042 10M/6stn Msd 0·3 1↓

84/297
APR 06 2326 17·1s 39·72S 179·48E 33km M=3·7
0·6 0·04 0·06 R
Rsd 0·3s 9ph/6stn Dmin 174km Az.gap 292°
Corr. -0·054 13M/8stn Msd 0·2 1↑ 2↓

84/298
APR 07 0232 04·7s 39·71S 179·58E 33km M=3·5
1·1 0·07 0·09 R
Rsd 0·5s 9ph/5stn Dmin 179km Az.gap 302°
Corr. -0·026 10M/6stn Msd 0·3 2↓

84/299
APR 07 1639 12·9s 39·70S 179·30E 33km M=3·5
1·7 0·11 0·13 R
Rsd 0·7s 9ph/5stn Dmin 160km Az.gap 295°
Corr. -0·056 14M/9stn Msd 0·3

84/300
APR 07 2009 45·4s 37·65S 179·59E 33km M=4·2
1·7 0·08 0·14 R
Rsd 0·5s 10ph/7stn Dmin 92km Az.gap 318°
Corr. 0·509 16M/10stn Msd 0·2 1↑

84/301
APR 08 0840 28·7s 38·45S 179·37E 33km M=4·1
1·2 0·04 0·11 R
Rsd 0·5s 8ph/8stn Dmin 110km Az.gap 281°
Corr. -0·419 8M/5stn Msd 0·3

84/302
APR 08 1459 44·5s 44·94S 167·79E 64km M=4·2
0·8 0·03 0·05 8
Rsd 0·4s 8ph/5stn Dmin 31km Az.gap 186°
Corr. -0·606 7M/4stn Msd 0·1 1↑ 1↓

84/303
APR 08 2056 48·2s 37·36S 176·78E 229km M=3·9
0·1 0·01 0·01 1
Rsd 0·0s 5ph/4stn Dmin 126km Az.gap 263°
Corr. 0·239 5M/3stn Msd 0·2

84/304
APR 09 0822 53·1s 37·21S 178·09E 51km M=3·7
1·3 0·07 0·06 15
Rsd 0·6s 9ph/7stn Dmin 68km Az.gap 253°
Corr. 0·653 9M/5stn Msd 0·1 2↑

84/305
APR 09 0846 01·2s 36·40S 179·82E 115km M=4·1
1·6 0·10 0·14 21
Rsd 0·4s 8ph/7stn Dmin 182km Az.gap 327°
Corr. 0·511 10M/5stn Msd 0·4

84/306
APR 09 0932 13·8s 41·34S 174·49E 54km M=3·4
0·2 0·01 0·01 2
Rsd 0·3s 17ph/15stn Dmin 21km Az.gap 107°
Corr. -0·321 2M/2stn Msd 0·1
Felt both sides of Cook Strait. Maximum intensity MM IV at Fighting Bay (78).

84/307
APR 09 2319 21·9s 41·53S 174·72E 11km M=3·2
0·3 0·01 0·02 0
Rsd 0·1s 6ph/3stn Dmin 27km Az.gap 253°
Corr. -0·844 4M/2stn Msd 0·4
Felt Wellington (68).

84/308
APR 10 0134 00·5s 39·30S 177·62E 29km M=3·7
0·7 0·04 0·03 2
Rsd 0·4s 9ph/6stn Dmin 68km Az.gap 222°
Corr. -0·435 5M/3stn Msd 0·3 1↑

84/309
APR 10 0845 35·8s 39·87S 179·36E 33km M=4·0
1·2 0·05 0·12 R
Rsd 0·7s 10ph/8stn Dmin 178km Az.gap 283°
Corr. 0·034 6M/3stn Msd 0·2 1↓

84/310
APR 10 2257 40·3s 44·83S 167·90E 67km M=4·1
0·7 0·03 0·04 7
Rsd 0·4s 11ph/7stn Dmin 17km Az.gap 171°
Corr. -0·710 9M/5stn Msd 0·2 1↑ 3↓

84/311
APR 11 0928 08·3s 40·01S 179·12E 33km M=4·0
1·4 0·04 0·14 R
Rsd 0·8s 11ph/8stn Dmin 178km Az.gap 276°
Corr. -0·531 10M/6stn Msd 0·2 1↑

84/312
APR 11 1110 23·3s 39·85S 179·33E 33km M=3·9
1·1 0·04 0·10 R
Rsd 0·6s 11ph/7stn Dmin 175km Az.gap 285°
Corr. -0·440 8M/5stn Msd 0·2

84/313
APR 12 0043 10·9s 38·40S 176·04E 165km M=3·9
1·0 0·05 0·05 8
Rsd 0·6s 10ph/6stn Dmin 68km Az.gap 140°
Corr. 0·051 6M/3stn Msd 0·3 1↑

84/314
APR 12 0833 53·5s 46·18S 166·86E 98km M=3·6
0·3 0·01 0·03 2
Rsd 0·2s 8ph/4stn Dmin 69km Az.gap 257°
Corr. 0·254 8M/4stn Msd 0·5 1↓

84/315
APR 12 1029 01·8s 40·05S 176·51E 77km M=3·6
0·4 0·02 0·04 6
Rsd 0·6s 18ph/12stn Dmin 62km Az.gap 174°
Corr. -0·640 9M/6stn Msd 0·2 2↑

84/316
APR 12 1612 48·1s 37·90S 178·14E 25km M=5·2
0·3 0·02 0·03 3
Rsd 0·6s 12ph/12stn Dmin 43km Az.gap 129°
Corr. 0·133 18M/11stn Msd 0·3 2↑ 11↓
Felt in the eastern Bay of Plenty and at Tokomaru (37) and Ormond (44). Maximum intensity MM V at Te Kaha (28), Opotiki (35) and Ormond (44).

84/317
APR 12 1714 28·3s 39·41S 176·84E 49km M=3·3
0·3 0·02 0·02 3
Rsd 0·4s 13ph/8stn Dmin 16km Az.gap 135°
Corr. -0·484 8M/4stn Msd 0·2 1↑
Felt Patoka (52) MM IV.

84/318
APR 13 0134 31·5s 38·95S 175·71E 6km M=3·4
0·1 0·00 0·01 1
Rsd 0·1s 7ph/5stn Dmin 31km Az.gap 103°
Corr. -0·184 6M/4stn Msd 0·1 1↑
Felt Tongariro National Park (50) MM IV.

84/319
APR 13 0135 16·4s 38·95S 175·71E 5km M=3·5
0·2 0·01 0·01 1
Rsd 0·2s 7ph/5stn Dmin 31km Az.gap 103°
Corr. -0·231 6M/4stn Msd 0·2
Felt Tongariro National Park (50) MM IV.

84/320
APR 13 0848 58·3s 39·76S 173·93E 218km M=4·0
0·6 0·02 0·02 6
Rsd 0·2s 9ph/7stn Dmin 148km Az.gap 212°
Corr. -0·504 5M/3stn Msd 0·1

84/321
APR 13 0934 03·9s 39·89S 179·39E 33km M=3·7
1·1 0·04 0·11 R
Rsd 0·6s 12ph/7stn Dmin 182km Az.gap 287°
Corr. -0·139 9M/5stn Msd 0·3

84/322
APR 13 1332 30·4s 37·80S 178·29E 76km M=4·2
0·5 0·03 0·03 4
Rsd 0·3s 11ph/8stn Dmin 26km Az.gap 156°
Corr. -0·228 9M/5stn Msd 0·2 2↑

84/323
APR 13 1649 58·7s 38·97S 175·70E 2km M=3·5
0·2 0·01 0·01 2
Rsd 0·3s 9ph/6stn Dmin 29km Az.gap 95°
Corr. -0·175 6M/5stn Msd 0·3 2↑

84/324
APR 13 1822 37·6s 40·18S 174·91E 19km M=4·2
0·3 0·02 0·03 4
Rsd 1·0s 24ph/15stn Dmin 69km Az.gap 97°
Corr. -0·231 17M/9stn Msd 0·4 1↑ 1↓
Felt Ohakune (49) MM IV.

84/325
APR 14 0208 01·1s 38·96S 175·68E 5km M=3·2
0·4 0·02 0·08 R
Rsd 0·6s 6ph/4stn Dmin 29km Az.gap 152°
Corr. -0·236 4M/2stn Msd 0·2

84/326
APR 14 0852 54·0s 38·95S 175·77E 2km M=3·4
0·6 0·01 0·05 4
Rsd 0·4s 7ph/4stn Dmin 34km Az.gap 198°
Corr. 0·059 4M/2stn Msd 0·1
Felt Tongariro National Park (50) MM IV.

84/327
APR 14 0859 12·6s 38·93S 175·62E 5km M=3·3
0·2 0·01 0·05 R
Rsd 0·3s 6ph/4stn Dmin 31km Az.gap 188°
Corr. -0·119 4M/2stn Msd 0·1
Felt Tongariro National Park (50) MM IV.

84/328
APR 14 0920 25·1s 38·97S 175·70E 5km M=2·9
0·6 0·02 0·13 R
Rsd 0·4s 5ph/3stn Dmin 29km Az.gap 193°
Corr. -0·659 4M/2stn Msd 0·2

84/329
APR 14 0923 38·1s 38·94S 175·65E 5km M=3·2
0·2 0·01 0·04 R
Rsd 0·3s 6ph/4stn Dmin 30km Az.gap 189°
Corr. -0·153 4M/2stn Msd 0·1
Felt Tongariro National Park (50) MM IV.

84/330
APR 14 2102 05·2s 38·01S 176·37E 152km M=3·9
0·4 0·03 0·02 3
Rsd 0·3s 10ph/6stn Dmin 55km Az.gap 163°
Corr. -0·028 9M/5stn Msd 0·3 2↑

84/331
APR 15 0049 37·6s 38·95S 175·79E 5km M=3·5
0·4 0·02 0·04 R
Rsd 0·5s 7ph/4stn Dmin 34km Az.gap 199°
Corr. -0·099 5M/3stn Msd 0·2
Felt Tongariro National Park (50) MM III.

84/332
APR 15 0359 05·7s 37·78S 176·70E 4km M=3·6
0·1 0·00 0·01 1
Rsd 0·1s 9ph/5stn Dmin 34km Az.gap 156°
Corr. 0·275 7M/4stn Msd 0·2 2↓

84/333
APR 15 1135 22·8s 36·49S 177·89E 232km M=4·2
1·2 0·14 0·10 11
Rsd 0·4s 7ph/5stn Dmin 184km Az.gap 305°
Corr. 0·589 7M/4stn Msd 0·2

84/334
APR 16 0309 17·6s 35·80S 178·99E 280km M=4·1
2·4 0·14 0·18 21
Rsd 0·6s 7ph/5stn Dmin 301km Az.gap 323°
Corr. 0·310 6M/3stn Msd 0·2

84/335
APR 16 1451 58·2s 44·53S 168·29E 5km M=4·9
0·8 0·06 0·04 R
Rsd 0·7s 6ph/8stn Dmin 33km Az.gap 169°
Corr. -0·371 10M/6stn Msd 0·3 2↑
Felt in northwest Otago. Maximum intensity MM V at Mount Aspiring (113), Minaret Station (114), Routeburn Track (121) and Wanaka (123). DNZ timing uncertain.

84/336
APR 17 1549 12·9s 45·45S 167·33E 108km M=4·2
0·5 0·03 0·04 4
Rsd 0·4s 13ph/9stn Dmin 40km Az.gap 228°
Corr. -0·050 10M/6stn Msd 0·4 2↑ 1↓

84/337
APR 18 0724 42·5s 40·74S 174·75E 35km M=3·4
0·3 0·02 0·03 6
Rsd 0·4s 9ph/8stn Dmin 20km Az.gap 104°
Corr. -0·499 1M/1stn Msd ND 2↑ 1↓

84/338
APR 18 0741 30·9s 46·25S 166·22E 5km M=4·3
1·2 0·06 0·12 R
Rsd 0·9s 9ph/5stn Dmin 115km Az.gap 281°
Corr. -0·136 9M/5stn Msd 0·2 2↓

84/339
APR 18 0958 09·8s 40·16S 173·65E 157km M=3·7
0·7 0·03 0·03 8
Rsd 0·3s 9ph/8stn Dmin 128km Az.gap 201°
Corr. -0·335 2M/2stn Msd 0·2 3↓

84/340
APR 19 1641 55·2s 41·77S 174·52E 25km M=3·8
0·4 0·03 0·04 2
Rsd 0·5s 12ph/11stn Dmin 25km Az.gap 172°
Corr. -0·729 4M/4stn Msd 0·3 1↑ 1↓

84/341
APR 19 1642 06·5s 41·78S 174·54E 25km M=4·3
0·3 0·03 0·05 R
Rsd 0·4s 5ph/5stn Dmin 58km Az.gap 192°
Corr. -0·703 10M/7stn Msd 0·2
In the coda of previous shock.

84/342
APR 19 2103 17·9s 48·55S 165·40E 12km M=4·2
1·0 0·07 0·12 R
Rsd 0·4s 8ph/5stn Dmin 274km Az.gap 336°
Corr. -0·374 9M/4stn Msd 0·3

84/343
APR 20 0810 18·3s 35·48S 179·08E 291km M=4·0
1·2 0·09 0·14 11
Rsd 0·5s 7ph/4stn Dmin 335km Az.gap 327°
Corr. 0·162 6M/3stn Msd 0·3

84/344
APR 20 2129 03·7s 40·14S 174·96E 23km M=3·7
0·2 0·01 0·02 2
Rsd 0·4s 11ph/9stn Dmin 69km Az.gap 132°
Corr. -0·170 7M/4stn Msd 0·4 1↑ 2↓

84/345
APR 21 0238 33·5s 38·47S 175·84E 165km M=4·0
1·0 0·04 0·06 8
Rsd 0·6s 9ph/6stn Dmin 66km Az.gap 140°
Corr. 0·132 5M/3stn Msd 0·4 1↑ 1↓

84/346
APR 21 0959 19·0s 39·20S 174·90E 12km M=4·0
0·4 0·02 0·05 R
Rsd 0·8s 14ph/11stn Dmin 56km Az.gap 161°
Corr. -0·470 13M/8stn Msd 0·2 2↑ 2↓

84/347
APR 21 1028 41·1s 36·73S 177·59E 262km M=3·9
1·5 0·11 0·12 9
Rsd 0·6s 8ph/5stn Dmin 148km Az.gap 297°
Corr. 0·203 7M/4stn Msd 0·3

84/348
APR 21 1056 52·3s 40·30S 174·43E 33km M=3·5
0·4 0·03 0·02 R
Rsd 0·5s 10ph/8stn Dmin 75km Az.gap 142°
Corr. -0·118 6M/4stn Msd 0·3 1↑

84/349
APR 21 1423 20·2s 37·75S 177·63E 58km M=3·7
1·0 0·05 0·06 12
Rsd 0·6s 7ph/6stn Dmin 46km Az.gap 219°
Corr. 0·569 4M/3stn Msd 0·1 2↓

84/350
APR 22 0327 03·0s 40·53S 176·77E 33km M=4·1
0·5 0·04 0·07 R
Rsd 0·7s 16ph/11stn Dmin 108km Az.gap 208°
Corr. -0·815 14M/10stn Msd 0·3 3↑

84/351
APR 22 0444 08·6s 41·28S 172·02E 12km M=4·0
0·9 0·06 0·08 R
Rsd 0·8s 12ph/11stn Dmin 63km Az.gap 200°
Corr. -0·743 8M/6stn Msd 0·3 1↓
Felt Arapito (74) MM IV.

84/352
APR 22 1759 03·3s 40·18S 176·71E 33km M=4·1
0·4 0·03 0·07 R
Rsd 0·7s 16ph/14stn Dmin 70km Az.gap 189°
Corr. -0·837 14M/9stn Msd 0·3 1↑ 2↓

84/353
APR 22 2055 09·2s 39·25S 175·42E 117km M=3·6
0·5 0·02 0·06 6
Rsd 0·5s 13ph/9stn Dmin 12km Az.gap 137°
Corr. -0·337 7M/5stn Msd 0·4 5↑ 1↓

84/354
APR 23 0417 38·6s 39·67S 174·34E 142km M=4·0
0·7 0·04 0·06 8
Rsd 0·7s 15ph/10stn Dmin 114km Az.gap 169°
Corr. -0·710 6M/4stn Msd 0·1 2↑ 4↓

84/355
APR 23 1459 53·0s 44·88S 168·67E 1km M=3·5
0·2 0·01 0·02 R
Rsd 0·3s 11ph/6stn Dmin 64km Az.gap 131°
Corr. 0·316 10M/5stn Msd 0·2 1↓

84/356
APR 24 0202 25·7s 40·58S 173·33E 159km M=4·0
0·8 0·04 0·05 8
Rsd 0·5s 15ph/12stn Dmin 75km Az.gap 190°
Corr. -0·207 5M/3stn Msd 0·2 7↑ 1↓

84/357
APR 24 1427 19·9s 35·37S 179·62E 33km M=3·9
2·3 0·10 0·26 R
Rsd 0·6s 7ph/5stn Dmin 324km Az.gap 330°
Corr. 0·013 4M/3stn Msd 0·4

84/358
APR 24 2218 01·2s 47·40S 165·51E 33km M=4·3
0·6 0·04 0·05 R
Rsd 0·2s 8ph/4stn Dmin 205km Az.gap 317°
Corr. 0·428 8M/4stn Msd 0·2

84/359
APR 24 2245 49·2s 38·29S 176·10E 190km M=4·1
1·0 0·05 0·06 7
Rsd 0·7s 14ph/9stn Dmin 64km Az.gap 118°
Corr. -0·023 7M/5stn Msd 0·2 3↑ 1↓

84/360
APR 25 1947 49·6s 38·63S 175·69E 178km M=3·8
1·2 0·05 0·08 10
Rsd 0·8s 13ph/9stn Dmin 61km Az.gap 148°
Corr. 0·026 6M/4stn Msd 0·2 2↑

84/361
APR 25 2230 11·0s 46·94S 166·68E 33km M=3·9
1·9 0·11 0·16 R
Rsd 1·0s 7ph/4stn Dmin 109km Az.gap 293°
Corr. 0·604 8M/5stn Msd 0·3

84/362
APR 25 2303 58·4s 37·92S 176·26E 184km M=4·1
1·5 0·07 0·08 12
Rsd 1·1s 13ph/8stn Dmin 63km Az.gap 152°
Corr. -0·140 9M/5stn Msd 0·4 2↑ 1↓

84/363
APR 26 2326 57·5s 35·90S 179·13E 33km M=4·5
1·4 0·09 0·13 R
Rsd 0·8s 10ph/6stn Dmin 250km Az.gap 324°
Corr. -0·055 9M/6stn Msd 0·4

84/364
APR 27 0729 56·5s 37·86S 176·41E 223km M=4·1
1·1 0·06 0·07 8
Rsd 0·8s 12ph/9stn Dmin 53km Az.gap 201°
Corr. -0·032 9M/6stn Msd 0·3

84/365
APR 27 2208 24·4s 34·36S 178·90W 33km M=4·7
0·6 0·05 0·08 R
Rsd 0·3s 10ph/7stn Dmin 498km Az.gap 339°
Corr. -0·588 11M/7stn Msd 0·3

84/366
APR 28 0136 30·7s 37·16S 177·40E 138km M=4·1
0·8 0·05 0·05 5
Rsd 0·4s 9ph/6stn Dmin 45km Az.gap 280°
Corr. 0·387 7M/5stn Msd 0·2

84/367
APR 28 1402 55·1s 36·88S 177·06E 241km M=4·2
0·5 0·04 0·04 6
Rsd 0·2s 10ph/7stn Dmin 123km Az.gap 288°
Corr. -0·108 9M/5stn Msd 0·3

84/368
APR 28 2350 41·2s 44·92S 167·39E 1km M=4·1
1·0 0·05 0·09 R
Rsd 0·8s 6ph/6stn Dmin 50km Az.gap 244°
Corr. -0·715 10M/7stn Msd 0·2

84/369
APR 29 1331 03·4s 38·13S 176·23E 208km M=3·8
2·1 0·11 0·13 19
Rsd 1·2s 11ph/9stn Dmin 65km Az.gap 145°
Corr. -0·397 8M/5stn Msd 0·3 1↓

84/370
APR 29 1612 51·6s 36·50S 177·50E 303km M=4·6
1·6 0·13 0·14 10
Rsd 0·7s 11ph/8stn Dmin 117km Az.gap 302°
Corr. 0·281 10M/6stn Msd 0·2

84/371
APR 29 1659 21·6s 37·14S 176·84E 234km M=4·0
0·5 0·04 0·04 4
Rsd 0·2s 10ph/6stn Dmin 94km Az.gap 304°
Corr. -0·273 10M/5stn Msd 0·3

84/372
APR 30 0833 12·6s 38·18S 176·29E 7km M=2·8
0·2 0·02 0·02 5
Rsd 0·3s 8ph/7stn Dmin 52km Az.gap 137°
Corr. 0·084 5M/5stn Msd 0·3
Felt Ngapouri (33) MM V.

84/373
APR 30 0844 34·9s 37·93S 176·29E 192km M=3·7
1·3 0·07 0·06 9
Rsd 0·7s 12ph/8stn Dmin 62km Az.gap 186°
Corr. -0·026 9M/5stn Msd 0·4 1↑

84/374
APR 30 2324 16·9s 38·62S 175·51E 192km M=4·1
0·8 0·04 0·05 7
Rsd 0·7s 16ph/13stn Dmin 62km Az.gap 125°
Corr. -0·358 7M/4stn Msd 0·3 2↑

84/375
MAY 01 0251 42·8s 45·16S 166·62E 12km M=3·4
1·0 0·03 0·08 R
Rsd 0·5s 7ph/5stn Dmin 99km Az.gap 272°
Corr. -0·063 6M/3stn Msd 0·2

84/376
MAY 01 2055 11·7s 45·25S 171·37E 1km M=4·4
0·6 0·04 0·06 R
Rsd 0·7s 13ph/10stn Dmin 41km Az.gap 192°
Corr. -0·446 11M/7stn Msd 0·3
Felt Twizel (116), Timaru (118), Oamaru (136), Dunedin (145).

84/377
MAY 03 0037 53·2s 45·19S 171·35E 9km M=4·4
0·3 0·02 0·02 1
Rsd 0·3s 9ph/8stn Dmin 37km Az.gap 189°
Corr. -0·351 8M/6stn Msd 0·3
Felt Twizel (116), Waitaki Valley (126), Oamaru (136).

84/378
MAY 03 0911 21·5s 41·20S 172·55E 184km M=4·3
1·0 0·05 0·07 11
Rsd 0·7s 17ph/11stn Dmin 20km Az.gap 183°
Corr. -0·401 11M/6stn Msd 0·2 6↑ 2↓
Felt Wellington (68).

84/379
MAY 03 2020 02·2s 36·45S 177·45E 281km M=4·3
1·7 0·19 0·16 22
Rsd 0·6s 8ph/5stn Dmin 168km Az.gap 279°
Corr. -0·291 9M/6stn Msd 0·2

84/380
MAY 04 0926 13·3s 44·53S 167·55E 28km M=3·8
1·1 0·07 0·08 3
Rsd 0·6s 9ph/6stn Dmin 33km Az.gap 284°
Corr. -0·616 8M/5stn Msd 0·2

84/381
MAY 04 2344 56·6s 41·27S 172·75E 138km M=3·5
2·6 0·10 0·16 19
Rsd 1·1s 5ph/3stn Dmin 21km Az.gap 154°
Corr. 0·064 2M/1stn Msd 0·2

84/382
MAY 04 2357 38·3s 36·35S 177·80E 198km M=4·0
1·6 0·16 0·13 15
Rsd 0·7s 7ph/6stn Dmin 141km Az.gap 288°
Corr. 0·484 8M/4stn Msd 0·2

84/383
MAY 05 0242 12·3s 45·66S 166·20E 12km M=4·1
0·7 0·03 0·06 R
Rsd 0·5s 9ph/5stn Dmin 105km Az.gap 304°
Corr. -0·010 6M/3stn Msd 0·2

84/384
MAY 05 0528 26·0s 42·25S 172·78E 12km M=5·1
0·3 0·03 0·03 R
Rsd 0·7s 10ph/11stn Dmin 78km Az.gap 104°
Corr. -0·434 18M/13stn Msd 0·3 4↑ 2↓
Felt Greymouth (93) MM V, Westport (79) MM IV, Maruia (87) MM III.

84/385
MAY 05 0533 30·1s 42·21S 172·78E 12km M=4·9
0·2 0·02 0·02 R
Rsd 0·5s 11ph/10stn Dmin 79km Az.gap 114°
Corr. -0·246 17M/15stn Msd 0·3 4↑ 1↓
Felt Maruia (87) MM IV.

84/386
MAY 05 0604 28·8s 41·63S 174·19E 65km M=4·1
0·3 0·02 0·02 4
Rsd 0·5s 26ph/19stn Dmin 14km Az.gap 96°
Corr. -0·483 9M/6stn Msd 0·2 2↑ 7↓
Felt Island Bay (68).

84/387
MAY 05 0611 55·7s 42·23S 172·81E 12km M=3·3
0·5 0·03 0·04 R
Rsd 0·7s 11ph/7stn Dmin 76km Az.gap 146°
Corr. 0·106 6M/4stn Msd 0·2

84/388
MAY 05 0624 49·5s 42·19S 172·84E 12km M=4·8
0·5 0·05 0·04 R
Rsd 1·0s 10ph/11stn Dmin 75km Az.gap 142°
Corr. -0·197 19M/13stn Msd 0·3 1↑ 1↓
Felt Greymouth (93) MM V, Maruia (87) MM IV, The Poplars (94). Preceded by a small shock 12 seconds earlier.

84/389
MAY 05 0643 31·0s 42·21S 172·81E 12km M=3·4
0·2 0·02 0·02 R
Rsd 0·4s 11ph/7stn Dmin 77km Az.gap 144°
Corr. -0·056 6M/4stn Msd 0·3

84/390
MAY 05 0653 16·1s 42·20S 172·86E 12km M=3·4
0·4 0·03 0·04 R
Rsd 0·6s 10ph/7stn Dmin 73km Az.gap 143°
Corr. 0·281 6M/4stn Msd 0·2

84/391
MAY 05 0654 46·8s 42·21S 172·82E 12km M=3·6
0·5 0·03 0·04 R
Rsd 0·7s 11ph/8stn Dmin 76km Az.gap 145°
Corr. 0·237 6M/4stn Msd 0·1

84/392
MAY 05 1155 32·5s 42·22S 172·79E 12km M=3·4
0·4 0·02 0·03 R
Rsd 0·5s 12ph/8stn Dmin 78km Az.gap 146°
Corr. 0·093 6M/4stn Msd 0·2

84/393
MAY 05 1415 24·9s 42·22S 172·79E 12km M=4·5
0·3 0·02 0·02 R
Rsd 0·5s 9ph/8stn Dmin 78km Az.gap 146°
Corr. 0·023 16M/9stn Msd 0·3 1↑ 1↓
Felt Greymouth (93) MM V, Maruia (87) MM IV.

84/394
MAY 05 1500 41·3s 42·20S 172·83E 12km M=3·7
0·5 0·03 0·04 R
Rsd 0·7s 10ph/10stn Dmin 76km Az.gap 143°
Corr. 0·284 6M/4stn Msd 0·2 1↑

84/395
MAY 05 1534 58·9s 36·46S 177·64E 229km M=4·3
0·8 0·07 0·06 9
Rsd 0·4s 10ph/8stn Dmin 159km Az.gap 282°
Corr. 0·209 10M/7stn Msd 0·2

84/396
MAY 05 2008 28·2s 41·80S 171·68E 12km M=3·4
0·5 0·04 0·07 R
Rsd 0·4s 10ph/6stn Dmin 84km Az.gap 212°
Corr. -0·901 6M/4stn Msd 0·2

84/397
MAY 05 2242 04·0s 40·62S 178·51E 33km M=3·9
1·1 0·06 0·09 R
Rsd 0·7s 14ph/13stn Dmin 186km Az.gap 266°
Corr. -0·747 14M/9stn Msd 0·2

84/398
MAY 06 0108 39·6s 40·91S 174·77E 10km M=3·4
0·3 0·01 0·02 2
Rsd 0·5s 16ph/12stn Dmin 13km Az.gap 118°
Corr. -0·247 10M/6stn Msd 0·4 6↑ 3↓
Felt Raumati (65) and Makara (68).

84/399
MAY 06 0217 21·7s 43·08S 170·35E 12km M=4·7
0·5 0·04 0·08 R
Rsd 0·7s 11ph/7stn Dmin 106km Az.gap 204°
Corr. -0·823 19M/10stn Msd 0·3 3↑ 1↓
Felt Greymouth (93) and Erewhon Station (107) MM V.

84/400
MAY 06 1617 42·4s 43·20S 170·64E 12km M=3·3
0·3 0·02 0·05 R
Rsd 0·3s 7ph/6stn Dmin 97km Az.gap 195°
Corr. -0·818 13M/7stn Msd 0·3 1↑
Felt Greymouth (93) MM IV.

84/401
MAY 07 0833 37·5s 42·17S 172·81E 12km M=3·4
0·5 0·02 0·03 R
Rsd 0·4s 8ph/6stn Dmin 78km Az.gap 138°
Corr. 0·513 11M/7stn Msd 0·2 2↑ 1↓

84/402
MAY 07 0934 33·5s 37·57S 176·43E 210km M=4·7
0·4 0·02 0·02 3
Rsd 0·3s 18ph/16stn Dmin 67km Az.gap 130°
Corr. 0·348 15M/8stn Msd 0·3 3↑ 5↓

84/403
MAY 07 1349 29·5s 42·18S 172·80E 12km M=3·6
0·2 0·02 0·02 R
Rsd 0·4s 10ph/7stn Dmin 79km Az.gap 141°
Corr. -0·170 14M/9stn Msd 0·2 1↑ 2↓

84/404
MAY 07 2105 24·5s 40·23S 173·75E 153km M=4·6
0·7 0·03 0·04 8
Rsd 0·5s 15ph/11stn Dmin 118km Az.gap 170°
Corr. -0·579 15M/8stn Msd 0·3 10↑ 5↓

84/405
MAY 07 2139 20·4s 40·20S 173·45E 171km M=3·7
1·4 0·08 0·09 14
Rsd 0·9s 10ph/10stn Dmin 115km Az.gap 183°
Corr. -0·604 5M/3stn Msd 0·3 2↑

84/406
MAY 07 2249 45·9s 37·49S 176·62E 147km M=4·0
1·2 0·06 0·05 10
Rsd 0·8s 12ph/10stn Dmin 51km Az.gap 212°
Corr. -0·041 12M/7stn Msd 0·3 1↑ 1↓

84/407
MAY 08 0959 46·3s 37·27S 177·71E 52km M=3·8
0·6 0·05 0·03 6
Rsd 0·5s 13ph/12stn Dmin 54km Az.gap 204°
Corr. 0·007 12M/7stn Msd 0·2 1↑ 4↓

84/408
MAY 08 2201 37·2s 37·22S 177·31E 133km M=4·7
0·6 0·03 0·04 5
Rsd 0·5s 17ph/13stn Dmin 36km Az.gap 176°
Corr. 0·310 15M/8stn Msd 0·3 2↑ 5↓

84/409
MAY 09 0054 12·4s 37·60S 176·45E 166km M=3·6
0·6 0·04 0·04 5
Rsd 0·2s 7ph/5stn Dmin 64km Az.gap 288°
Corr. -0·234 11M/8stn Msd 0·4 1↑

84/410
MAY 09 1320 06·3s 38·02S 177·54E 70km M=3·6
0·7 0·04 0·04 9
Rsd 0·8s 12ph/8stn Dmin 49km Az.gap 98°
Corr. -0·354 12M/7stn Msd 0·2 1↑ 3↓

84/411
MAY 10 0746 39·1s 39·19S 173·82E 12km M=4·0
0·2 0·02 0·02 R
Rsd 0·3s 8ph/10stn Dmin 48km Az.gap 164°
Corr. -0·504 21M/13stn Msd 0·2 3↑ 3↓
Felt Okato (46) and New Plymouth (47).

84/412
MAY 10 2327 55·3s 38·34S 176·31E 12km M=3·1
0·5 0·04 0·04 R
Rsd 0·6s 6ph/5stn Dmin 37km Az.gap 113°
Corr. -0·234 7M/5stn Msd 0·5 1↑

Felt Reporoa (33) MM IV.

84/413
MAY 10 2339 12·1s 38·45S 176·29E 12km M=3·4
0·4 0·03 0·03 R
Rsd 0·7s 7ph/6stn Dmin 26km Az.gap 99°
Corr. 0·032 6M/4stn Msd 0·3 1↑ 1↓
Felt Reporoa (33) MM IV.

84/414
MAY 11 2324 58·4s 45·41S 166·84E 12km M=3·3
2·9 0·06 0·31 R
Rsd 0·9s 6ph/4stn Dmin 68km Az.gap 256°
Corr. -0·036 10M/5stn Msd 0·2 1↓

84/415
MAY 12 0051 58·3s 43·99S 169·08E 12km M=4·0
1·6 0·13 0·07 R
Rsd 0·9s 6ph/5stn Dmin 91km Az.gap 244°
Corr. 0·062 15M/8stn Msd 0·2 1↑ 2↓

84/416
MAY 12 0958 16·1s 33·20S 179·37E 353km M=4·1
2·1 0·29 0·40 39
Rsd 0·8s 7ph/5stn Dmin 572km Az.gap 345°
Corr. -0·596 4M/2stn Msd 0·2 1↓

84/417
MAY 12 2343 54·7s 41·67S 173·95E 12km M=3·4
0·2 0·01 0·02 R
Rsd 0·4s 7ph/6stn Dmin 24km Az.gap 108°
Corr. 0·013 9M/6stn Msd 0·4 4↑ 2↓

84/418
MAY 13 0049 55·8s 43·59S 170·79E 12km M=3·5
0·3 0·03 0·07 R
Rsd 0·4s 10ph/7stn Dmin 97km Az.gap 142°
Corr. -0·812 13M/8stn Msd 0·3
Felt Erewhon Station (107) MM V.

84/419
MAY 13 0127 34·8s 43·61S 170·86E 12km M=3·5
0·3 0·03 0·07 R
Rsd 0·6s 8ph/7stn Dmin 98km Az.gap 139°
Corr. -0·601 17M/9stn Msd 0·3
Felt Erewhon Station (107) MM IV.

84/420
MAY 13 0738 50·6s 40·11S 174·85E 12km M=3·5
0·3 0·02 0·03 R
Rsd 0·6s 10ph/11stn Dmin 78km Az.gap 100°
Corr. -0·091 15M/9stn Msd 0·4 4↑ 3↓

84/421
MAY 13 1250 22·7s 38·03S 176·88E 5km M=3·9
0·2 0·01 0·02 R
Rsd 0·4s 10ph/10stn Dmin 10km Az.gap 111°
Corr. -0·440 16M/9stn Msd 0·3 1↑ 1↓
Felt at Pikowai (27), Kawerau (34) and Port Ohope (35).

84/422
MAY 13 1254 12·2s 37·86S 177·40E 33km M=3·4
0·2 0·02 0·02 R
Rsd 0·4s 8ph/7stn Dmin 39km Az.gap 107°
Corr. 0·167 15M/8stn Msd 0·3 2↑ 1↓

84/423
MAY 13 1452 36·3s 33·01S 178·27W 33km M=5·5
1·5 0·07 0·13 R
Rsd 0·7s 16ph/13stn Dmin 594km Az.gap 310°
Corr. 0·305 31M/18stn Msd 0·4

84/424
MAY 14 0135 17·8s 36·87S 177·48E 12km M=3·7
0·9 0·06 0·04 R
Rsd 0·6s 9ph/6stn Dmin 77km Az.gap 259°
Corr. -0·110 12M/6stn Msd 0·3 1↑ 3↓

84/425
MAY 14 0656 57·3s 38·66S 175·75E 161km M=3·4
0·8 0·03 0·05 8
Rsd 0·5s 10ph/8stn Dmin 59km Az.gap 155°
Corr. -0·300 10M/6stn Msd 0·3 2↑

84/426
MAY 14 1134 37·7s 42·13S 172·72E 12km M=3·5
0·6 0·04 0·04 R
Rsd 0·4s 6ph/6stn Dmin 116km Az.gap 176°
Corr. 0·376 8M/5stn Msd 0·1 2↑ 3↓

84/427
MAY 15 0924 12·9s 47·13S 164·88E 33km M=3·5
2·2 0·11 0·21 R
Rsd 1·0s 7ph/4stn Dmin 247km Az.gap 317°
Corr. -0·146 9M/4stn Msd 0·2 1↑

84/428
MAY 15 1250 26·8s 47·55S 165·52E 33km M=3·5
1·5 0·08 0·16 R
Rsd 0·6s 6ph/4stn Dmin 209km Az.gap 320°
Corr. 0·089 8M/4stn Msd 0·1

84/429
MAY 16 0551 23·1s 37·45S 177·51E 112km M=4·2
0·8 0·05 0·04 7
Rsd 0·6s 14ph/8stn Dmin 30km Az.gap 214°
Corr. 0·066 12M/7stn Msd 0·2 5↑ 2↓

84/430
MAY 17 0727 32·5s 37·39S 177·71E 33km M=4·7
0·3 0·03 0·03 R
Rsd 0·6s 12ph/12stn Dmin 48km Az.gap 175°
Corr. 0·425 29M/17stn Msd 0·2 5↑ 5↓
Felt Whakatane (27) MM IV, Te Kaha (28) and Opotiki (35).

84/431
MAY 17 1651 20·5s 45·14S 167·76E 128km M=3·0
1·0 0·02 0·08 8
Rsd 0·3s 6ph/4stn Dmin 53km Az.gap 179°
Corr. -0·032 8M/4stn Msd 0·2 1↑ 1↓

84/432
MAY 18 1913 39·5s 37·14S 177·59E 181km M=3·5
1·5 0·17 0·09 16
Rsd 0·7s 7ph/4stn Dmin 105km Az.gap 242°
Corr. 0·645 8M/4stn Msd 0·5 2↑

84/433
MAY 19 1758 51·4s 36·69S 179·61E 33km M=4·1
0·5 0·03 0·05 R
Rsd 0·3s 9ph/6stn Dmin 258km Az.gap 324°
Corr. -0·190 10M/6stn Msd 0·3 2↓

84/434
MAY 20 1647 59·4s 41·55S 173·86E 48km M=3·4
0·5 0·03 0·03 8
Rsd 0·6s 13ph/11stn Dmin 37km Az.gap 110°
Corr. -0·142 5M/3stn Msd 0·1 2↑ 5↓

84/435
MAY 20 2156 28·9s 36·63S 179·15W 12km M=4·0
9·3 0·61 0·65 R
Rsd 1·5s 7ph/6stn Dmin 335km Az.gap 333°
Corr. 0·527 3M/3stn Msd 0·0

84/436
MAY 21 0741 57·4s 42·18S 172·84E 12km M=3·7
0·5 0·05 0·04 R
Rsd 0·7s 10ph/8stn Dmin 75km Az.gap 140°
Corr. -0·446 8M/5stn Msd 0·3 1↑

84/437
MAY 22 0349 18·4s 38·80S 179·95E 12km M=4·0
0·8 0·06 0·08 R
Rsd 0·6s 9ph/9stn Dmin 168km Az.gap 279°
Corr. 0·060 9M/5stn Msd 0·2

84/438
MAY 23 0015 01·0s 42·14S 172·78E 12km M=3·4
0·4 0·03 0·04 R
Rsd 0·4s 9ph/8stn Dmin 82km Az.gap 109°
Corr. 0·073 8M/5stn Msd 0·3 1↓

84/439
MAY 23 0407 42·7s 39·21S 174·91E 29km M=3·7
0·4 0·02 0·04 3
Rsd 0·6s 11ph/9stn Dmin 45km Az.gap 107°
Corr. -0·387 8M/4stn Msd 0·3 1↑ 1↓

84/440
MAY 23 1227 53·6s 40·74S 178·57E 12km M=4·1
1·0 0·05 0·11 R
Rsd 0·4s 11ph/10stn Dmin 198km Az.gap 256°
Corr. -0·907 14M/8stn Msd 0·2 1↑ 1↓

84/441
MAY 24 2211 41·9s 39·03S 175·83E 115km M=4·1
0·4 0·02 0·03 4
Rsd 0·5s 17ph/13stn Dmin 31km Az.gap 86°
Corr. -0·215 10M/6stn Msd 0·3 3↑ 1↓

84/442
MAY 24 2332 21·2s 38·26S 176·33E 170km M=3·8
1·6 0·08 0·13 14
Rsd 0·8s 9ph/6stn Dmin 65km Az.gap 129°
Corr. -0·372 4M/2stn Msd 0·4 1↑

84/443
MAY 25 0002 04·5s 33·81S 177·96W 280km M=4·8
0·8 0·08 0·15 11
Rsd 0·3s 8ph/6stn Dmin 646km Az.gap 343°
Corr. -0·780 5M/3stn Msd 0·1

84/444
MAY 25 0104 42·0s 41·19S 179·87E 12km M=3·8
0·6 0·03 0·04 R
Rsd 0·2s 4ph/2stn Dmin 324km Az.gap 308°
Corr. -0·518 4M/2stn Msd 0·2

84/445
MAY 25 0803 42·2s 38·09S 176·19E 210km M=4·4
1·3 0·07 0·07 11
Rsd 0·8s 11ph/9stn Dmin 60km Az.gap 151°
Corr. -0·406 10M/5stn Msd 0·3 4↑ 2↓

84/446
MAY 26 1928 03·2s 39·22S 177·55E 33km M=3·9
0·7 0·04 0·09 R
Rsd 0·9s 12ph/10stn Dmin 57km Az.gap 185°
Corr. -0·514 12M/6stn Msd 0·3 1↑

84/447
MAY 26 2048 21·7s 38·74S 175·97E 12km M=3·4
0·5 0·04 0·06 R
Rsd 1·0s 10ph/11stn Dmin 17km Az.gap 124°
Corr. -0·449 10M/6stn Msd 0·2

84/448
MAY 26 2100 57·7s 40·16S 173·56E 151km M=4·4
0·8 0·04 0·04 11
Rsd 0·5s 9ph/7stn Dmin 125km Az.gap 205°
Corr. -0·364 4M/3stn Msd 0·4 5↑ 3↓

84/449
MAY 27 1820 14·2s 37·12S 177·40E 146km M=4·0
0·6 0·05 0·03 3
Rsd 0·3s 9ph/7stn Dmin 103km Az.gap 242°
Corr. 0·180 11M/6stn Msd 0·3 1↑ 3↓

84/450
MAY 28 0236 08·7s 40·26S 173·47E 12km M=3·7
0·6 0·04 0·05 R
Rsd 0·7s 12ph/9stn Dmin 111km Az.gap 179°
Corr. -0·437 9M/5stn Msd 0·2 1↑

84/451
MAY 28 1334 18·2s 41·59S 171·71E 12km M=3·7
0·7 0·04 0·08 R
Rsd 0·4s 10ph/7stn Dmin 102km Az.gap 225°
Corr. -0·869 7M/4stn Msd 0·2 1↑

84/452
MAY 29 0843 10·3s 39·02S 174·76E 12km M=3·0
0·7 0·03 0·07 R
Rsd 0·9s 10ph/7stn Dmin 38km Az.gap 150°
Corr. -0·279 6M/3stn Msd 0·2
Felt Uruti Road (38) MM V.

84/453
MAY 29 1543 49·3s 40·61S 174·37E 70km M=3·8
0·4 0·02 0·03 7
Rsd 0·4s 14ph/12stn Dmin 53km Az.gap 111°
Corr. -0·423 5M/3stn Msd 0·4 6↑ 3↓

84/454
MAY 30 0356 26·6s 38·80S 177·93E 33km M=3·6
0·2 0·02 0·01 R
Rsd 0·1s 6ph/4stn Dmin 18km Az.gap 244°
Corr. -0·453 5M/3stn Msd 0·2

84/455
MAY 30 0809 47·0s 37·58S 178·34E 75km M=3·5
0·3 0·01 0·02 3
Rsd 0·1s 6ph/4stn Dmin 23km Az.gap 212°
Corr. 0·447 4M/2stn Msd 0·2 1↑

84/456
MAY 30 1534 02·6s 38·76S 175·85E 138km M=3·6
1·1 0·04 0·08 13
Rsd 0·7s 10ph/9stn Dmin 51km Az.gap 138°
Corr. -0·483 4M/3stn Msd 0·1 1↑

84/457
MAY 30 1757 02·2s 37·94S 176·50E 176km M=4·2
1·3 0·06 0·06 10
Rsd 0·7s 10ph/7stn Dmin 44km Az.gap 187°
Corr. -0·023 11M/6stn Msd 0·3 4↑ 2↓

84/458
MAY 31 0244 22·3s 35·33S 178·98E 316km M=4·3
1·2 0·10 0·17 11
Rsd 0·5s 12ph/9stn Dmin 344km Az.gap 327°
Corr. -0·463 5M/3stn Msd 0·3

84/459
JUN 01 0224 00·9s 45·93S 168·27E 12km M=3·8
0·2 0·01 0·02 R
Rsd 0·4s 11ph/7stn Dmin 59km Az.gap 100°
Corr. -0·356 9M/4stn Msd 0·3 1↓

84/460
JUN 01 1023 16·8s 38·91S 177·60E 33km M=4·8
0·5 0·04 0·07 R
Rsd 1·2s 13ph/12stn Dmin 41km Az.gap 157°
Corr. -0·490 16M/11stn Msd 0·3 2↑ 3↓
Felt Gisborne (45).

84/461
JUN 01 1955 00·8s 42·26S 172·77E 12km M=3·9
0·4 0·04 0·04 R
Rsd 0·6s 10ph/7stn Dmin 116km Az.gap 118°
Corr. -0·441 6M/4stn Msd 0·3

84/462
JUN 02 0345 27·4s 33·32S 177·45W 12km M=5·5
2·3 0·10 0·23 R
Rsd 1·2s 16ph/14stn Dmin 606km Az.gap 313°
Corr. -0·191 24M/15stn Msd 0·3
Surface waves recorded on WEL.

84/463
JUN 02 1220 31·8s 42·30S 172·74E 12km M=5·2
0·5 0·04 0·06 R
Rsd 0·8s 12ph/13stn Dmin 80km Az.gap 103°
Corr. -0·460 24M/13stn Msd 0·2 1↑ 2↓
Felt in the northwest of the South Island (72,74,80,87,93,96). Maximum intensity MM V.

84/464
JUN 02 1826 03·4s 42·24S 172·82E 12km M=3·6
0·2 0·02 0·02 R
Rsd 0·4s 11ph/8stn Dmin 75km Az.gap 103°
Corr. -0·054 9M/5stn Msd 0·2 1↓

84/465
JUN 02 1943 20·3s 42·25S 172·74E 12km M=3·7
0·3 0·03 0·03 R
Rsd 0·5s 11ph/8stn Dmin 81km Az.gap 106°
Corr. 0·029 9M/5stn Msd 0·2 1↓

84/466
JUN 03 0043 14·8s 39·01S 175·98E 121km M=4·0
0·5 0·02 0·04 6
Rsd 0·7s 19ph/12stn Dmin 37km Az.gap 96°
Corr. -0·434 12M/7stn Msd 0·3 4↑ 1↓

84/467
JUN 03 1137 19·2s 37·58S 177·22E 133km M=3·9
0·5 0·04 0·02 4
Rsd 0·4s 8ph/5stn Dmin 50km Az.gap 202°
Corr. 0·009 8M/4stn Msd 0·3 1↓

84/468
JUN 04 0020 15·4s 38·05S 176·61E 130km M=3·5
2·5 0·11 0·11 20
Rsd 1·2s 9ph/7stn Dmin 34km Az.gap 159°
Corr. 0·252 9M/5stn Msd 0·3

84/469
JUN 04 1328 39·2s 39·49S 175·71E 71km M=3·7
0·3 0·02 0·03 6
Rsd 0·6s 20ph/14stn Dmin 26km Az.gap 123°
Corr. -0·562 9M/5stn Msd 0·2 1↑ 1↓

84/470
JUN 06 0241 28·1s 39·37S 175·14E 129km M=4·3
0·5 0·02 0·03 5
Rsd 0·7s 25ph/15stn Dmin 38km Az.gap 85°
Corr. -0·485 13M/7stn Msd 0·3 6↑

84/471
JUN 06 1326 41·1s 38·27S 176·38E 155km M=4·1
0·8 0·04 0·05 7
Rsd 0·7s 14ph/9stn Dmin 62km Az.gap 123°
Corr. 0·038 11M/6stn Msd 0·3 4↑

84/472
JUN 06 1859 30·0s 38·18S 176·95E 33km M=3·7
0·5 0·04 0·09 R
Rsd 1·2s 7ph/7stn Dmin 21km Az.gap 150°
Corr. -0·014 9M/5stn Msd 0·4

84/473
JUN 06 1911 24·5s 40·49S 175·05E 1km M=3·5
0·3 0·02 0·02 R
Rsd 0·6s 15ph/12stn Dmin 40km Az.gap 103°
Corr. 0·094 10M/7stn Msd 0·3 1↑ 6↓

84/474
JUN 06 2223 09·6s 39·73S 174·10E 191km M=4·7
0·7 0·03 0·05 6
Rsd 0·7s 20ph/15stn Dmin 65km Az.gap 165°
Corr. -0·528 10M/6stn Msd 0·2 8↑ 1↓
Felt Wellington (68) MM III.

84/475
JUN 07 0526 13·3s 38·85S 176·16E 1km M=2·8
0·3 0·01 0·03 R
Rsd 0·1s 4ph/3stn Dmin 60km Az.gap 261°
Corr. -0·886 1M/1stn Msd ND
Felt Acacia Bay (41).

84/476
JUN 07 2039 23·3s 45·10S 167·42E 33km M=3·7
0·9 0·03 0·08 R
Rsd 1·2s 13ph/7stn Dmin 62km Az.gap 234°
Corr. -0·090 10M/5stn Msd 0·3

84/477
JUN 08 0526 09·4s 35·87S 179·92E 33km M=4·0
3·8 0·14 0·38 R
Rsd 0·9s 6ph/5stn Dmin 236km Az.gap 330°
Corr. 0·225 5M/5stn Msd 0·2

84/478
JUN 08 0627 26·2s 41·30S 174·73E 48km M=4·4
0·3 0·03 0·04 4
Rsd 1·1s 24ph/22stn Dmin 0km Az.gap 76°
Corr. -0·480 5M/5stn Msd 0·1 7↑ 1↓
Felt Whitby (68) MM VI, Wellington (68), Featherston (69), Brothers Is (73) MM IV, Waitaria Bay (78).

84/479
JUN 08 1533 27·3s 42·25S 172·77E 12km M=3·7
0·2 0·02 0·03 R
Rsd 0·5s 12ph/11stn Dmin 79km Az.gap 105°
Corr. -0·195 9M/6stn Msd 0·2

84/480
JUN 08 2121 50·3s 47·55S 165·74E 33km M=3·6
1·6 0·08 0·13 R
Rsd 1·3s 10ph/5stn Dmin 194km Az.gap 320°
Corr. -0·083 8M/4stn Msd 0·2

84/481
JUN 09 0556 02·9s 42·20S 172·82E 12km M=3·7
0·4 0·03 0·04 R
Rsd 0·9s 12ph/10stn Dmin 76km Az.gap 105°
Corr. -0·295 10M/7stn Msd 0·2 1↑

84/482
JUN 09 1403 12·0s 38·30S 175·79E 200km M=4·9
0·6 0·03 0·04 6
Rsd 0·7s 23ph/16stn Dmin 48km Az.gap 100°
Corr. -0·126 13M/8stn Msd 0·3 5↑ 2↓

84/483
JUN 10 0800 38·3s 38·44S 175·67E 252km M=4·1
0·6 0·03 0·05 5
Rsd 0·5s 16ph/11stn Dmin 58km Az.gap 155°
Corr. -0·598 10M/6stn Msd 0·3 3↑

84/484
JUN 11 1948 33·9s 40·90S 178·56E 33km M=4·1
1·7 0·09 0·12 R
Rsd 1·8s 14ph/12stn Dmin 197km Az.gap 272°
Corr. -0·677 14M/9stn Msd 0·2

84/485
JUN 11 2216 04·8s 42·22S 172·79E 12km M=4·2
0·4 0·03 0·06 R
Rsd 1·0s 10ph/8stn Dmin 118km Az.gap 117°
Corr. -0·432 8M/5stn Msd 0·1 1↓

84/486
JUN 12 0805 23·9s 39·63S 174·97E 132km M=4·0
0·7 0·02 0·04 7
Rsd 0·8s 21ph/14stn Dmin 71km Az.gap 85°
Corr. -0·324 8M/6stn Msd 0·2 8↑ 1↓

84/487
JUN 12 1952 53·7s 41·96S 171·77E 12km M=4·4
0·8 0·05 0·08 R
Rsd 1·3s 10ph/9stn Dmin 69km Az.gap 195°
Corr. -0·625 9M/5stn Msd 0·3 1↑
Felt Westport (79) and Reefton (86) MM V, Greymouth (92) MM IV.

84/488
JUN 13 0826 07·8s 36·93S 176·87E 305km M=4·0
1·7 0·18 0·16 21
Rsd 0·7s 10ph/7stn Dmin 117km Az.gap 253°
Corr. 0·075 7M/5stn Msd 0·2

84/489
JUN 13 1411 24·4s 38·91S 175·80E 1km M=3·7
0·2 0·01 0·02 3
Rsd 0·8s 19ph/14stn Dmin 24km Az.gap 92°
Corr. -0·430 13M/8stn Msd 0·4
Felt Omori and Waihora Road (40) MM III.

84/490
JUN 14 0149 36·3s 43·01S 171·41E 8km M=4·7
0·2 0·02 0·04 G
Rsd 0·7s 13ph/11stn Dmin 54km Az.gap 144°
Corr. -0·528 16M/10stn Msd 0·3 2↑ 4↓
Felt Arthurs Pass (93) MM IV. Depth from S-P from strong motion record obtained at Arthurs Pass.

84/491
JUN 14 0302 13·0s 40·70S 174·54E 45km M=4·4
0·4 0·03 0·04 11
Rsd 1·2s 21ph/19stn Dmin 36km Az.gap 101°
Corr. -0·391 7M/6stn Msd 0·1 3↑ 5↓
Felt Eastbourne, Kelburn (68), Farewell Spit (72) MM IV.

84/492
JUN 14 0824 57·2s 40·83S 176·52E 77km M=3·6
0·8 0·04 0·06 6
Rsd 1·0s 14ph/12stn Dmin 26km Az.gap 210°
Corr. -0·585 6M/4stn Msd 0·1 1↓

84/493
JUN 14 1329 53·4s 39·49S 176·95E 25km M=3·7
0·4 0·02 0·03 3
Rsd 0·9s 15ph/10stn Dmin 13km Az.gap 168°
Corr. -0·392 9M/6stn Msd 0·2 1↑ 1↓

84/494
JUN 14 1528 01·3s 41·76S 174·56E 62km M=3·5
0·4 0·02 0·03 4
Rsd 0·7s 19ph/17stn Dmin 29km Az.gap 156°
Corr. -0·653 3M/3stn Msd 0·1 3↑ 3↓

84/495
JUN 15 0855 36·1s 38·76S 175·79E 3km M=3·4
0·3 0·02 0·02 3
Rsd 0·8s 14ph/10stn Dmin 31km Az.gap 99°
Corr. -0·423 9M/7stn Msd 0·2
Felt Waihora Road (40) MM IV.

84/496
JUN 15 0959 04·8s 45·37S 167·19E 58km M=4·1
0·9 0·04 0·08 9
Rsd 0·8s 13ph/7stn Dmin 53km Az.gap 239°
Corr. -0·278 13M/8stn Msd 0·2 1↓
Felt West Arm Manapouri (138) MM V, Te Anau Downs (130) MM IV.

84/497
JUN 15 1325 10·4s 40·20S 174·88E 17km M=3·5
0·6 0·02 0·06 6
Rsd 0·8s 18ph/13stn Dmin 69km Az.gap 98°
Corr. -0·315 10M/6stn Msd 0·3 4↑ 3↓

84/498
JUN 15 1523 19·2s 44·89S 167·75E 49km M=3·5
0·9 0·04 0·06 8
Rsd 0·6s 12ph/7stn Dmin 28km Az.gap 198°
Corr. -0·592 10M/6stn Msd 0·2 2↑

84/499
JUN 15 2033 20·3s 39·79S 174·30E 105km M=3·6
0·9 0·03 0·05 11
Rsd 0·7s 14ph/9stn Dmin 68km Az.gap 144°
Corr. -0·279 6M/4stn Msd 0·3 4↑ 1↓

84/500
JUN 16 0118 36·4s 35·25S 178·58E 218km M=4·9
1·0 0·07 0·11 13
Rsd 1·1s 16ph/13stn Dmin 271km Az.gap 263°
Corr. 0·401 13M/7stn Msd 0·3

84/501
JUN 16 2113 57·7s 40·38S 173·82E 109km M=4·2
0·6 0·02 0·04 9
Rsd 0·7s 19ph/13stn Dmin 100km Az.gap 151°
Corr. -0·472 7M/5stn Msd 0·2 4↑ 6↓

84/502
JUN 17 0004 02·9s 39·40S 178·02E 33km M=3·7
0·5 0·02 0·03 R
Rsd 0·5s 8ph/10stn Dmin 84km Az.gap 223°
Corr. -0·532 6M/5stn Msd 0·3 1↑

84/503
JUN 17 1344 06·1s 40·83S 172·05E 0km M=4·8
0·7 0·04 0·06 R
Rsd 0·9s 11ph/11stn Dmin 64km Az.gap 204°
Corr. -0·702 22M/12stn Msd 0·3 4↑ 2↓
Felt Newtown (68) to Greymouth (92). Maximum intensity MM V at Farewell Spit (72) and Karamea (74).

84/504
JUN 17 1503 52·7s 42·26S 172·66E 10km M=3·6
1·6 0·02 0·05 12
Rsd 0·6s 7ph/8stn Dmin 88km Az.gap 110°
Corr. -0·046 11M/7stn Msd 0·1 2↑ 2↓

84/505
JUN 17 2123 19·9s 40·06S 172·87E 5km M=4·4
0·7 0·04 0·06 R
Rsd 0·9s 11ph/13stn Dmin 115km Az.gap 188°
Corr. -0·661 13M/8stn Msd 0·3 6↑ 2↓
Felt Farewell Spit (72) MM V.

84/506
JUN 17 2127 14·7s 38·68S 176·08E 120km M=3·7
1·4 0·08 0·07 15
Rsd 0·9s 9ph/7stn Dmin 69km Az.gap 187°
Corr. -0·527 6M/3stn Msd 0·4 3↑ 3↓

84/507
JUN 18 0601 01·4s 40·37S 176·65E 33km M=3·5
0·9 0·05 0·13 R
Rsd 0·9s 7ph/9stn Dmin 69km Az.gap 197°
Corr. -0·675 8M/4stn Msd 0·2 4↑

84/508
JUN 19 0816 21·1s 39·10S 176·30E 100km M=3·7
0·6 0·02 0·04 8
Rsd 0·5s 12ph/13stn Dmin 61km Az.gap 67°
Corr. -0·198 10M/5stn Msd 0·2 2↑ 3↓

84/509
JUN 19 1141 27·5s 38·35S 178·15E 33km M=3·4
0·5 0·03 0·06 R
Rsd 0·5s 7ph/7stn Dmin 34km Az.gap 173°
Corr. -0·006 8M/5stn Msd 0·3

84/510
JUN 20 0939 53·2s 40·58S 174·43E 90km M=3·5
0·5 0·03 0·02 6
Rsd 0·3s 9ph/8stn Dmin 52km Az.gap 205°
Corr. -0·188 4M/2stn Msd 0·1 5↑ 1↓

84/511
JUN 21 0104 22·6s 37·04S 178·67E 12km M=3·7
4·9 0·23 0·38 R
Rsd 0·7s 6ph/6stn Dmin 73km Az.gap 299°
Corr. 0·930 5M/4stn Msd 0·2 1↓

84/512
JUN 21 1124 51·7s 45·46S 167·17E 71km M=4·3
1·2 0·04 0·12 11
Rsd 0·7s 11ph/9stn Dmin 45km Az.gap 238°
Corr. -0·339 13M/7stn Msd 0·3 3↑ 5↓
Felt Manapouri (139).

84/513
JUN 22 0802 12·6s 43·06S 173·98E 12km M=3·7
0·5 0·03 0·06 R
Rsd 0·5s 8ph/8stn Dmin 74km Az.gap 204°
Corr. -0·734 9M/5stn Msd 0·2 1↑ 2↓

84/514
JUN 22 2332 53·2s 37·62S 176·37E 215km M=3·9
3·5 0·20 0·19 29
Rsd 0·9s 6ph/4stn Dmin 68km Az.gap 285°
Corr. -0·323 5M/3stn Msd 0·3 2↑ 1↓

84/515
JUN 23 1544 30·1s 42·22S 172·74E 12km M=4·0
0·2 0·02 0·03 R
Rsd 0·6s 10ph/11stn Dmin 82km Az.gap 108°
Corr. -0·454 10M/7stn Msd 0·2 2↑ 1↓

84/516
JUN 23 1638 23·2s 45·67S 171·17E 12km M=4·1
0·7 0·05 0·07 R
Rsd 0·8s 11ph/10stn Dmin 55km Az.gap 212°
Corr. -0·491 12M/6stn Msd 0·2 1↑ 1↓

84/517
JUN 23 1728 35·1s 41·18S 172·63E 197km M=4·3
0·5 0·03 0·05 6
Rsd 0·5s 13ph/13stn Dmin 13km Az.gap 181°
Corr. -0·646 6M/5stn Msd 0·2 2↑ 2↓

84/518
JUN 24 0328 42·4s 40·37S 176·38E 32km M=3·4
0·5 0·04 0·09 5
Rsd 0·9s 9ph/10stn Dmin 61km Az.gap 155°
Corr. -0·600 8M/5stn Msd 0·2 2↑ 3↓

84/519
JUN 24 0913 22·8s 38·71S 175·27E 240km M=4·3
1·3 0·05 0·07 12
Rsd 0·6s 14ph/13stn Dmin 40km Az.gap 140°
Corr. -0·717 15M/8stn Msd 0·3 7↑ 2↓

84/520
JUN 24 0933 34·2s 38·19S 175·76E 302km M=4·0
1·9 0·10 0·12 17
Rsd 0·7s 11ph/10stn Dmin 35km Az.gap 134°
Corr. -0·771 10M/6stn Msd 0·3 1↑ 4↓

84/521
JUN 24 1329 39·9s 43·60S 170·64E 5km M=5·9
0·1 0·01 0·02 R
Rsd 0·3s 10ph/15stn Dmin 90km Az.gap 148°
Corr. -0·694 18M/10stn Msd 0·2 9↑ 6↓
Felt the length of the South Island. Maximum intensity MM VIII in Macaulay River valley (106).

84/522
JUN 24 1340 28·6s 43·62S 170·88E 5km M=3·5
0·9 0·07 0·17 R
Rsd 0·8s 6ph/5stn Dmin 129km Az.gap 170°
Corr. -0·613 13M/8stn Msd 0·3

84/523
JUN 24 1343 27·9s 43·68S 170·67E 5km M=5·1
0·1 0·02 0·03 R
Rsd 0·4s 11ph/10stn Dmin 83km Az.gap 144°
Corr. -0·702 9M/5stn Msd 0·2 2↑ 3↓
Felt from Hokitika (91) to Timaru (118). Maximum intensity MM V at Evans Creek (98).

84/524
JUN 24 1349 43·0s 43·66S 170·60E 5km M=3·7
0·2 0·02 0·04 R
Rsd 0·4s 7ph/7stn Dmin 142km Az.gap 174°
Corr. -0·617 12M/7stn Msd 0·3
Felt Whataroa (97).

84/525
JUN 24 1355 14·8s 43·63S 170·61E 5km M=3·7
0·2 0·02 0·04 R
Rsd 0·4s 9ph/8stn Dmin 139km Az.gap 147°
Corr. -0·745 13M/7stn Msd 0·1
Felt Whataroa (97).

84/526
JUN 24 1355 47·0s 43·58S 170·78E 5km M=3·9
0·4 0·03 0·06 R
Rsd 0·4s 8ph/7stn Dmin 127km Az.gap 143°
Corr. -0·638 9M/7stn Msd 0·3 1↑
Felt Whataroa (97) MM IV.

84/527
JUN 24 1356 55·8s 43·57S 170·58E 5km M=3·8
0·2 0·02 0·05 R
Rsd 0·3s 8ph/7stn Dmin 134km Az.gap 178°
Corr. -0·764 9M/6stn Msd 0·2
Felt Whataroa (97).

84/528
JUN 24 1359 12·5s 43·59S 170·72E 5km M=3·6
0·2 0·02 0·04 R
Rsd 0·3s 7ph/6stn Dmin 131km Az.gap 171°
Corr. -0·654 10M/7stn Msd 0·2 1↑
Felt Whataroa (97).

84/529
JUN 24 1403 17·4s 43·61S 170·80E 5km M=3·4
0·2 0·02 0·04 R
Rsd 0·3s 7ph/6stn Dmin 130km Az.gap 141°
Corr. -0·475 12M/7stn Msd 0·3

84/530
JUN 24 1409 48·0s 43·62S 170·72E 5km M=3·6
0·3 0·03 0·07 R
Rsd 0·7s 9ph/9stn Dmin 134km Az.gap 143°
Corr. -0·622 12M/7stn Msd 0·3
Felt Whataroa (97).

84/531
JUN 24 1414 16·4s 43·60S 170·64E 5km M=3·4
0·3 0·04 0·10 R
Rsd 0·5s 8ph/6stn Dmin 135km Az.gap 148°
Corr. -0·870 11M/7stn Msd 0·3

84/532
JUN 24 1423 57·1s 43·47S 170·47E 5km M=3·9
0·8 0·07 0·14 R
Rsd 1·2s 10ph/9stn Dmin 130km Az.gap 188°
Corr. -0·780 14M/7stn Msd 0·2 1↓
Felt Ross (91) MM IV, Whataroa (97).

84/533
JUN 24 1450 39·7s 43·60S 170·57E 5km M=4·0
0·3 0·03 0·06 R
Rsd 0·7s 10ph/9stn Dmin 138km Az.gap 150°
Corr. -0·685 10M/6stn Msd 0·2 1↑
Felt Whataroa (97) MM IV.

84/534
JUN 24 1452 02·4s 43·55S 170·51E 5km M=3·6
0·7 0·06 0·10 R
Rsd 0·8s 8ph/7stn Dmin 135km Az.gap 155°
Corr. -0·584 9M/5stn Msd 0·2
Felt Whataroa (97).

84/535
JUN 24 1457 30·9s 43·61S 170·61E 5km M=3·9
0·4 0·03 0·06 R
Rsd 0·4s 8ph/7stn Dmin 137km Az.gap 176°
Corr. -0·750 10M/6stn Msd 0·2 1↑
Felt Whataroa (97).

84/536
JUN 24 1535 57·3s 43·68S 170·62E 5km M=3·7
0·3 0·03 0·04 R
Rsd 0·4s 9ph/8stn Dmin 143km Az.gap 145°
Corr. -0·702 11M/7stn Msd 0·3 1↓
Felt Greymouth (92) MM IV and Whataroa (97).

84/537
JUN 24 1536 57·9s 43·60S 170·65E 5km M=3·6
0·5 0·04 0·07 R
Rsd 0·7s 10ph/9stn Dmin 134km Az.gap 147°
Corr. -0·709 9M/6stn Msd 0·2
Felt Whataroa (97).

84/538
JUN 24 1659 31·0s 43·61S 170·67E 5km M=4·2
0·3 0·02 0·04 R
Rsd 0·5s 11ph/10stn Dmin 135km Az.gap 146°
Corr. -0·670 12M/7stn Msd 0·3

84/539
JUN 24 1738 40·8s 43·59S 170·74E 5km M=4·0
0·2 0·01 0·02 R
Rsd 0·3s 9ph/8stn Dmin 130km Az.gap 144°
Corr. -0·663 11M/7stn Msd 0·2 1↑

84/540
JUN 24 1939 03·6s 43·58S 170·59E 5km M=3·8
0·2 0·02 0·04 R
Rsd 0·2s 9ph/8stn Dmin 135km Az.gap 150°
Corr. -0·657 10M/6stn Msd 0·1

84/541
JUN 24 2040 25·2s 43·60S 170·56E 5km M=4·6
0·3 0·03 0·05 R
Rsd 0·5s 11ph/10stn Dmin 138km Az.gap 150°
Corr. -0·719 11M/6stn Msd 0·2 1↓
Felt Whataroa (97) MM IV.

84/542
JUN 24 2042 29·3s 43·57S 170·57E 5km M=4·5
0·2 0·02 0·04 R
Rsd 0·4s 10ph/9stn Dmin 135km Az.gap 180°
Corr. -0·745 9M/5stn Msd 0·2 1↑ 2↓

84/543
JUN 24 2107 28·9s 43·56S 170·75E 5km M=3·8
0·2 0·02 0·03 R
Rsd 0·2s 9ph/8stn Dmin 127km Az.gap 145°
Corr. -0·566 7M/6stn Msd 0·2

84/544
JUN 24 2122 36·7s 43·59S 170·59E 5km M=4·2
0·4 0·04 0·06 R
Rsd 0·6s 10ph/9stn Dmin 135km Az.gap 150°
Corr. -0·652 9M/6stn Msd 0·2 2↓

84/545
JUN 25 0001 54·3s 38·16S 177·10E 33km M=3·4
0·3 0·03 0·04 R
Rsd 0·6s 10ph/6stn Dmin 22km Az.gap 150°
Corr. 0·461 7M/4stn Msd 0·2 2↑

84/546
JUN 25 0234 40·2s 43·59S 170·45E 5km M=3·7
0·3 0·03 0·05 R
Rsd 0·6s 9ph/8stn Dmin 142km Az.gap 155°
Corr. -0·714 11M/6stn Msd 0·3 1↑

84/547
JUN 25 0420 51·2s 43·65S 170·64E 5km M=4·1
0·3 0·03 0·06 R
Rsd 0·6s 9ph/8stn Dmin 139km Az.gap 173°
Corr. -0·715 7M/4stn Msd 0·2 1↑

84/548
JUN 25 0721 39·5s 43·55S 170·66E 5km M=3·5
0·5 0·04 0·07 R
Rsd 0·6s 8ph/7stn Dmin 129km Az.gap 176°
Corr. -0·682 9M/5stn Msd 0·2

84/549
JUN 25 1021 30·8s 43·56S 170·73E 5km M=3·6
0·2 0·02 0·03 R
Rsd 0·2s 8ph/7stn Dmin 127km Az.gap 172°
Corr. -0·785 9M/5stn Msd 0·3 1↓

84/550
JUN 25 1505 41·9s 43·65S 170·79E 5km M=3·9
0·4 0·05 0·07 R
Rsd 0·8s 10ph/9stn Dmin 135km Az.gap 139°
Corr. -0·688 11M/6stn Msd 0·2 1↑

84/551
JUN 25 1558 39·1s 41·71S 174·18E 79km M=4·3
0·3 0·03 0·06 4
Rsd 0·5s 10ph/10stn Dmin 5km Az.gap 115°
Corr. -0·690 3M/2stn Msd 0·2 1↑ 2↓
Felt Wellington city and suburbs. Maximum intensity MM IV in the city. See also Wellington Net solution.

84/552
JUN 25 1616 14·4s 43·69S 170·76E 5km M=3·6
0·3 0·03 0·04 R
Rsd 0·4s 10ph/9stn Dmin 139km Az.gap 139°
Corr. -0·606 11M/6stn Msd 0·3

84/553
JUN 26 0043 41·8s 43·63S 170·65E 5km M=3·9
0·2 0·02 0·03 R
Rsd 0·5s 9ph/8stn Dmin 137km Az.gap 146°
Corr. -0·636 11M/6stn Msd 0·2 1↑

84/554
JUN 26 0212 40·8s 46·74S 165·11E 12km M=4·2
4·5 0·15 0·48 R
Rsd 1·0s 5ph/4stn Dmin 216km Az.gap 309°
Corr. 0·586 12M/6stn Msd 0·3 1↑ 1↓

84/555
JUN 26 1452 12·7s 38·79S 175·94E 12km M=3·5
0·3 0·02 0·03 R
Rsd 0·7s 12ph/10stn Dmin 42km Az.gap 104°
Corr. -0·189 9M/5stn Msd 0·3 2↑ 1↓

84/556
JUN 26 1950 53·0s 37·74S 179·40E 79km M=4·0
1·4 0·04 0·13 7
Rsd 0·3s 7ph/6stn Dmin 76km Az.gap 313°
Corr. 0·222 8M/4stn Msd 0·2 1↑

84/557
JUN 27 1255 48·7s 43·69S 170·65E 5km M=3·4
0·4 0·04 0·05 R
Rsd 0·6s 9ph/8stn Dmin 82km Az.gap 144°
Corr. -0·641 11M/6stn Msd 0·2 2↑
Felt Erewhon Station (107) MM IV.

84/558
JUN 28 0151 59·2s 38·91S 176·57E 77km M=5·1
0·5 0·03 0·04 10
Rsd 1·0s 15ph/15stn Dmin 51km Az.gap 85°
Corr. -0·257 3M/2stn Msd 0·1 3↑ 11↓
Felt Minginui (42) to Feilding (62). Maximum intensity MM V at Waiouru (50) and Patoka (52).

84/559
JUN 28 0235 48·9s 35·58S 179·05E 206km M=4·9
5·1 0·31 0·34 55
Rsd 0·9s 7ph/8stn Dmin 239km Az.gap 322°
Corr. 0·203 8M/5stn Msd 0·2

84/560
JUN 28 0307 32·2s 37·72S 176·71E 0km M=4·1
0·6 0·05 0·04 R
Rsd 1·0s 8ph/7stn Dmin 38km Az.gap 167°
Corr. -0·177 6M/4stn Msd 0·2 4↑ 1↓
Felt Whakatane (27).

84/561
JUN 28 0509 20·0s 43·57S 170·46E 5km M=3·8
0·2 0·03 0·05 R
Rsd 0·5s 12ph/10stn Dmin 139km Az.gap 156°
Corr. -0·687 16M/8stn Msd 0·2 1↓

84/562
JUN 28 0514 35·5s 37·66S 176·94E 133km M=4·3
0·8 0·03 0·02 7
Rsd 0·4s 10ph/9stn Dmin 26km Az.gap 161°
Corr. -0·136 9M/5stn Msd 0·3 6↑ 2↓

84/563
JUN 28 0850 59·0s 37·76S 176·66E 0km M=3·8
0·3 0·02 0·02 R
Rsd 0·5s 12ph/8stn Dmin 38km Az.gap 162°
Corr. -0·198 9M/5stn Msd 0·2 2↑

84/564
JUN 28 0922 10·4s 37·57S 177·14E 120km M=4·2
1·0 0·05 0·03 9
Rsd 0·5s 9ph/8stn Dmin 6km Az.gap 152°
Corr. 0·067 12M/6stn Msd 0·2 2↑ 1↓

84/565
JUN 28 1532 11·7s 37·75S 176·70E 12km M=3·6
0·6 0·04 0·04 R
Rsd 1·0s 9ph/7stn Dmin 36km Az.gap 162°
Corr. -0·079 9M/6stn Msd 0·2 1↑

84/566
JUN 28 1626 53·3s 43·49S 170·66E 5km M=3·6
0·7 0·06 0·10 R
Rsd 1·0s 13ph/10stn Dmin 123km Az.gap 152°
Corr. -0·622 15M/8stn Msd 0·2

84/567
JUN 28 1651 12·4s 36·94S 177·17E 231km M=4·2
1·3 0·07 0·05 8
Rsd 0·2s 7ph/7stn Dmin 117km Az.gap 287°
Corr. 0·430 11M/6stn Msd 0·4 2↑

84/568
JUN 28 1820 30·7s 38·21S 175·98E 225km M=4·3
2·3 0·10 0·09 19
Rsd 0·8s 10ph/8stn Dmin 50km Az.gap 125°
Corr. -0·316 9M/5stn Msd 0·4 4↑

84/569
JUN 28 2044 47·3s 44·61S 169·61E 5km M=3·9
0·4 0·02 0·03 R
Rsd 0·4s 9ph/8stn Dmin 57km Az.gap 126°
Corr. 0·193 12M/6stn Msd 0·1 1↑ 4↓
Felt Tara Hills (124) MM V.

84/570
JUN 29 1133 56·9s 43·55S 170·47E 5km M=3·6
0·9 0·06 0·08 R
Rsd 0·7s 7ph/7stn Dmin 90km Az.gap 156°
Corr. 0·048 12M/6stn Msd 0·3 1↑

84/571
JUN 29 1827 34·8s 39·72S 176·96E 33km M=3·7
0·5 0·05 0·11 R
Rsd 0·6s 10ph/7stn Dmin 22km Az.gap 186°
Corr. -0·846 6M/4stn Msd 0·1 1↓

84/572
JUN 29 1854 46·7s 43·86S 171·10E 12km M=4·0
0·3 0·03 0·05 R
Rsd 0·4s 7ph/9stn Dmin 93km Az.gap 133°
Corr. -0·782 15M/8stn Msd 0·3 1↑
Felt Erewhon Station (107).

84/573
JUN 30 0430 45·2s 37·28S 178·02E 70km M=3·7
0·6 0·04 0·03 6
Rsd 0·2s 7ph/5stn Dmin 120km Az.gap 289°
Corr. 0·785 6M/3stn Msd 0·2 1↑

84/574
JUN 30 0722 55·1s 34·46S 179·79E 33km M=4·7
4·8 0·27 0·35 R
Rsd 0·9s 7ph/7stn Dmin 375km Az.gap 333°
Corr. 0·619 10M/5stn Msd 0·2 1↑ 1↓

84/575
JUN 30 0817 20·7s 34·16S 178·54W 131km M=4·5
0·9 0·08 0·13 34
Rsd 0·2s 6ph/4stn Dmin 585km Az.gap 341°
Corr. -0·493 4M/2stn Msd 0·3

84/576
JUN 30 0905 29·3s 34·18S 178·52W 130km M=4·5
1·9 0·15 0·21 R
Rsd 0·5s 6ph/5stn Dmin 584km Az.gap 341°
Corr. -0·316 4M/2stn Msd 0·2

84/577
JUN 30 2305 19·5s 40·17S 174·95E 5km M=3·8
0·4 0·02 0·05 R
Rsd 1·0s 14ph/13stn Dmin 67km Az.gap 94°
Corr. 0·045 11M/6stn Msd 0·2 2↑ 2↓

84/578
JUL 01 1526 19·7s 43·53S 170·57E 5km M=3·5
0·4 0·04 0·07 R
Rsd 0·6s 11ph/7stn Dmin 131km Az.gap 154°
Corr. -0·705 10M/6stn Msd 0·3 1↓
Felt Erewhon Station (107) MM IV.

84/579
JUL 01 1629 20·0s 40·24S 173·59E 186km M=4·0
1·1 0·06 0·08 13
Rsd 0·7s 7ph/5stn Dmin 119km Az.gap 199°
Corr. -0·520 11M/6stn Msd 0·3 2↑ 3↓

84/580
JUL 01 2056 29·7s 43·56S 170·70E 5km M=3·5
0·4 0·03 0·05 R
Rsd 0·5s 10ph/7stn Dmin 129km Az.gap 147°
Corr. -0·614 8M/5stn Msd 0·2

84/581
JUL 02 0156 56·3s 37·86S 176·91E 5km M=3·7
0·3 0·02 0·03 R
Rsd 0·6s 7ph/5stn Dmin 16km Az.gap 129°
Corr. 0·125 8M/5stn Msd 0·3 1↑
Felt Whakatane (27).

84/582
JUL 02 0336 18·2s 37·86S 176·90E 5km M=3·7
0·3 0·02 0·02 R
Rsd 0·5s 8ph/6stn Dmin 16km Az.gap 129°
Corr. 0·089 8M/5stn Msd 0·3 1↑
Felt Whakatane (27).

84/583
JUL 02 0412 39·7s 38·85S 174·95E 209km M=4·1
1·1 0·06 0·09 13
Rsd 0·7s 11ph/7stn Dmin 114km Az.gap 170°
Corr. -0·737 9M/5stn Msd 0·2 1↑

84/584
JUL 02 0418 09·8s 37·86S 176·89E 5km M=3·9
0·3 0·02 0·03 R
Rsd 0·4s 9ph/7stn Dmin 17km Az.gap 130°
Corr. -0·148 11M/6stn Msd 0·2 1↑

84/585
JUL 02 0525 56·8s 37·86S 176·85E 5km M=3·6
0·4 0·01 0·03 R
Rsd 0·3s 6ph/6stn Dmin 19km Az.gap 134°
Corr. -0·060 5M/3stn Msd 0·3 1↑

84/586
JUL 02 0823 07·4s 39·64S 176·78E 48km M=3·4
0·3 0·06 0·09 3
Rsd 0·3s 9ph/5stn Dmin 10km Az.gap 177°
Corr. -0·960 6M/4stn Msd 0·2 1↑ 1↓

84/587
JUL 02 0823 40·3s 37·86S 176·92E 5km M=3·4
0·1 0·01 0·01 R
Rsd 0·1s 4ph/4stn Dmin 15km Az.gap 127°
Corr. -0·136 5M/3stn Msd 0·3 1↑

84/588
JUL 02 1809 29·1s 37·84S 176·85E 5km M=4·2
0·2 0·01 0·01 R
Rsd 0·3s 10ph/9stn Dmin 20km Az.gap 136°
Corr. -0·112 11M/6stn Msd 0·2 4↑
Felt Whakatane (27).

84/589
JUL 02 1817 55·1s 37·86S 176·91E 5km M=3·4
0·3 0·01 0·03 R
Rsd 0·4s 7ph/5stn Dmin 15km Az.gap 128°
Corr. 0·048 6M/4stn Msd 0·2
Felt Whakatane (27).

84/590
JUL 02 1822 44·9s 37·86S 176·92E 5km M=3·4
0·1 0·00 0·01 R
Rsd 0·1s 8ph/5stn Dmin 15km Az.gap 126°
Corr. -0·047 5M/3stn Msd 0·2 1↑
Felt Whakatane (27).

84/591
JUL 02 1903 18·9s 37·85S 176·86E 5km M=3·4
0·3 0·01 0·02 R
Rsd 0·3s 5ph/4stn Dmin 19km Az.gap 135°
Corr. 0·115 4M/3stn Msd 0·1
Felt Whakatane (27).

84/592
JUL 03 0322 41·4s 37·87S 176·94E 5km M=3·8
0·2 0·01 0·02 R
Rsd 0·4s 8ph/7stn Dmin 14km Az.gap 124°
Corr. -0·048 8M/5stn Msd 0·2 2↑

84/593
JUL 03 0952 12·2s 39·60S 175·85E 48km M=3·7
0·3 0·02 0·03 5
Rsd 0·4s 14ph/9stn Dmin 52km Az.gap 92°
Corr. -0·446 11M/6stn Msd 0·2 2↓

84/594
JUL 04 0546 55·8s 43·66S 170·65E 5km M=3·8
0·1 0·01 0·03 R
Rsd 0·3s 14ph/8stn Dmin 84km Az.gap 144°
Corr. -0·730 12M/7stn Msd 0·2 2↑

84/595
JUL 04 0614 20·7s 38·02S 176·88E 5km M=3·6
0·4 0·02 0·04 R
Rsd 0·8s 8ph/6stn Dmin 10km Az.gap 111°
Corr. -0·275 9M/5stn Msd 0·3 3↑ 1↓

84/596
JUL 04 2333 05·8s 37·87S 176·89E 5km M=3·6
0·2 0·01 0·02 R
Rsd 0·3s 8ph/5stn Dmin 15km Az.gap 127°
Corr. 0·066 7M/4stn Msd 0·3 1↓
Felt Whakatane (27).

84/597
JUL 06 0817 07·3s 43·63S 170·61E 5km M=3·4
0·1 0·01 0·02 R
Rsd 0·2s 7ph/5stn Dmin 86km Az.gap 175°
Corr. -0·799 8M/5stn Msd 0·3 1↑
Felt Lilybank Station (106) MM IV.

84/598
JUL 06 0824 49·1s 34·82S 179·84W 176km M=4·9
1·7 0·13 0·16 44
Rsd 0·7s 12ph/8stn Dmin 350km Az.gap 307°
Corr. -0·034 12M/6stn Msd 0·1 1↑

84/599
JUL 06 1023 56·3s 39·31S 176·46E 71km M=4·0
0·4 0·02 0·03 6
Rsd 0·5s 14ph/9stn Dmin 41km Az.gap 79°
Corr. -0·475 11M/6stn Msd 0·2 6↑ 1↓

84/600
JUL 07 1744 48·8s 37·96S 176·47E 165km M=3·7
1·2 0·06 0·06 10
Rsd 0·7s 11ph/8stn Dmin 46km Az.gap 168°
Corr. -0·094 11M/6stn Msd 0·2 3↑

84/601
JUL 07 1833 43·5s 43·16S 171·98E 12km M=4·1
0·3 0·02 0·03 R
Rsd 0·5s 12ph/7stn Dmin 71km Az.gap 117°
Corr. 0·220 12M/7stn Msd 0·2 1↑

84/602
JUL 07 2304 13·8s 38·05S 176·60E 5km M=4·2
0·2 0·02 0·02 R
Rsd 0·5s 8ph/8stn Dmin 78km Az.gap 124°
Corr. -0·261 10M/5stn Msd 0·2 1↑ 1↓

84/603
JUL 08 1510 31·2s 38·51S 177·91E 12km M=3·4
0·6 0·05 0·03 R
Rsd 0·6s 5ph/4stn Dmin 18km Az.gap 143°
Corr. -0·053 7M/4stn Msd 0·3 1↑ 1↓

84/604
JUL 08 1617 56·5s 43·59S 170·62E 5km M=4·1
0·1 0·01 0·02 R
Rsd 0·2s 13ph/9stn Dmin 90km Az.gap 149°
Corr. -0·710 16M/8stn Msd 0·3 1↑ 1↓
Felt Kurow (125).

84/605
JUL 08 2334 13·2s 37·68S 178·30E 78km M=4·4
1·2 0·04 0·07 11
Rsd 0·3s 8ph/7stn Dmin 22km Az.gap 177°
Corr. 0·762 10M/6stn Msd 0·3 1↑ 4↓

84/606
JUL 09 0231 03·2s 37·72S 176·81E 5km M=3·6
0·5 0·02 0·04 R
Rsd 0·4s 4ph/4stn Dmin 34km Az.gap 160°
Corr. -0·385 6M/3stn Msd 0·3 2↑

84/607
JUL 09 0319 52·2s 43·58S 170·59E 5km M=3·6
0·3 0·02 0·04 R
Rsd 0·4s 9ph/5stn Dmin 90km Az.gap 151°
Corr. -0·704 9M/5stn Msd 0·2
Felt Lilybank Station (106) MM V.

84/608
JUL 10 0343 09·4s 37·86S 176·84E 5km M=3·4
0·2 0·01 0·02 R
Rsd 0·2s 5ph/5stn Dmin 19km Az.gap 134°
Corr. -0·019 6M/3stn Msd 0·4 2↓
Felt Whakatane (27).

84/609
JUL 10 1322 47·6s 43·62S 170·72E 5km M=3·4
0·5 0·04 0·07 R
Rsd 0·6s 6ph/4stn Dmin 91km Az.gap 173°
Corr. -0·782 7M/4stn Msd 0·2 1↑
Felt Erewhon Station (107) MM IV.

84/610
JUL 11 1825 12·0s 43·63S 170·59E 5km M=4·2
0·1 0·01 0·03 R
Rsd 0·3s 10ph/8stn Dmin 85km Az.gap 176°
Corr. -0·797 14M/7stn Msd 0·2 3↑ 1↓
Felt Lilybank Station (106) MM V, Erewhon Station (107) MM IV.

84/611
JUL 12 1843 04·8s 38·55S 175·84E 185km M=3·9
1·4 0·05 0·08 12
Rsd 0·8s 11ph/7stn Dmin 74km Az.gap 140°
Corr. -0·318 9M/5stn Msd 0·3 2↑ 1↓

84/612
JUL 15 0010 47·9s 47·12S 166·11E 33km M=3·9
0·8 0·05 0·05 R
Rsd 0·2s 6ph/4stn Dmin 154km Az.gap 306°
Corr. 0·582 6M/4stn Msd 0·2

84/613
JUL 15 0748 11·1s 44·27S 168·41E 12km M=4·2
0·7 0·05 0·03 R
Rsd 0·6s 12ph/8stn Dmin 59km Az.gap 243°
Corr. -0·057 10M/6stn Msd 0·3 1↑

84/614
JUL 16 0203 28·8s 43·60S 170·47E 12km M=4·1
0·2 0·02 0·04 R
Rsd 0·3s 10ph/8stn Dmin 85km Az.gap 156°
Corr. -0·527 10M/5stn Msd 0·3 1↑
Felt Erewhon Station (107) MM V.

84/615
JUL 17 1157 29·3s 43·58S 170·46E 12km M=3·8
0·4 0·03 0·05 R
Rsd 0·5s 12ph/9stn Dmin 86km Az.gap 156°
Corr. -0·684 7M/4stn Msd 0·3 1↑

84/616
JUL 18 1501 48·2s 38·08S 176·91E 5km M=4·2
0·3 0·02 0·03 R
Rsd 0·7s 13ph/10stn Dmin 12km Az.gap 105°
Corr. -0·345 8M/6stn Msd 0·3 2↑ 1↓

Felt Whakatane (27) MM V.

84/617
JUL 18 1527 52·3s 38·43S 175·88E 210km M=5·2
0·6 0·03 0·05 5
Rsd 0·7s 25ph/17stn Dmin 30km Az.gap 89°
Corr. -0·331 11M/6stn Msd 0·2 7↑ 3↓
Felt Khandallah (68) MM V.

84/618
JUL 18 1739 12·4s 38·09S 176·96E 5km M=3·7
0·3 0·02 0·03 R
Rsd 0·7s 11ph/9stn Dmin 12km Az.gap 106°
Corr. -0·155 7M/5stn Msd 0·2 2↑
Felt Whakatane (27) MM V.

84/619
JUL 20 0244 33·6s 39·91S 175·84E 49km M=3·7
0·2 0·01 0·03 4
Rsd 0·2s 11ph/8stn Dmin 83km Az.gap 127°
Corr. -0·401 4M/2stn Msd 0·1 2↑ 1↓

84/620
JUL 20 1808 54·3s 38·33S 178·68E 33km M=4·0
1·1 0·05 0·11 R
Rsd 0·9s 10ph/7stn Dmin 67km Az.gap 236°
Corr. -0·536 8M/5stn Msd 0·3 1↑ 2↓

84/621
JUL 21 0226 41·1s 39·42S 175·39E 27km M=3·6
0·2 0·03 0·04 3
Rsd 0·3s 15ph/9stn Dmin 22km Az.gap 170°
Corr. -0·024 5M/3stn Msd 0·2 1↑ 1↓

84/622
JUL 21 0749 28·8s 40·93S 174·77E 27km M=3·9
0·2 0·02 0·02 2
Rsd 0·4s 14ph/11stn Dmin 14km Az.gap 116°
Corr. -0·532 5M/3stn Msd 0·4 1↑
Felt Brooklyn, Karori, Khandallah (68).

84/623
JUL 21 2229 49·4s 44·18S 168·63E 12km M=3·5
0·4 0·03 0·02 R
Rsd 0·3s 13ph/7stn Dmin 79km Az.gap 232°
Corr. -0·413 6M/3stn Msd 0·3 1↓

84/624
JUL 22 0136 37·6s 41·25S 175·01E 32km M=3·5
0·1 0·02 0·02 1
Rsd 0·3s 12ph/10stn Dmin 2km Az.gap 98°
Corr. -0·346 3M/2stn Msd 0·2 1↑
Felt Hutt Valley and Wellington (68) MM IV.

84/625
JUL 22 0511 33·7s 35·50S 179·13E 248km M=4·5
2·4 0·19 0·25 39
Rsd 0·9s 8ph/6stn Dmin 249km Az.gap 323°
Corr. -0·387 7M/5stn Msd 0·1 1↓

84/626
JUL 22 0827 57·3s 38·10S 176·84E 5km M=4·3
0·2 0·02 0·02 R
Rsd 0·7s 12ph/11stn Dmin 19km Az.gap 107°
Corr. -0·258 11M/7stn Msd 0·2 2↑

84/627
JUL 23 0458 21·5s 30·71S 178·39W 411km M=6·3
3·1 0·16 0·28 39
Rsd 1·2s 10ph/8stn Dmin 168km Az.gap 183°
Corr. 0·005 4M/2stn Msd 0·1 1↑ 1↓

84/628
JUL 24 0114 24·6s 43·64S 170·60E 12km M=4·0
0·1 0·02 0·03 R
Rsd 0·4s 13ph/10stn Dmin 85km Az.gap 147°
Corr. -0·781 8M/4stn Msd 0·3 2↑
Felt Mahitahi (104), Erewhon (107) MM IV.

84/629
JUL 24 1347 09·1s 35·45S 179·17E 282km M=4·4
1·4 0·12 0·16 11
Rsd 0·5s 12ph/8stn Dmin 255km Az.gap 323°
Corr. 0·063 6M/3stn Msd 0·1

84/630
JUL 24 2156 08·3s 44·79S 167·62E 12km M=4·0
0·6 0·03 0·05 R
Rsd 0·5s 13ph/8stn Dmin 26km Az.gap 238°
Corr. -0·586 5M/3stn Msd 0·2

84/631
JUL 25 0145 46·5s 45·03S 167·28E 90km M=3·8
1·6 0·10 0·16 20
Rsd 1·1s 12ph/6stn Dmin 86km Az.gap 266°
Corr. -0·784 5M/3stn Msd 0·3

84/632
JUL 25 2314 18·3s 38·90S 175·53E 172km M=4·1
0·4 0·02 0·05 3
Rsd 0·2s 14ph/10stn Dmin 31km Az.gap 259°
Corr. -0·381 5M/3stn Msd 0·2 2↑ 1↓

84/633
JUL 26 0222 15·9s 44·96S 167·60E 94km M=4·1
0·5 0·03 0·04 6
Rsd 0·5s 15ph/9stn Dmin 41km Az.gap 215°
Corr. -0·456 8M/5stn Msd 0·3

84/634
JUL 26 0907 45·0s 35·37S 179·16E 277km M=4·4
1·4 0·11 0·20 14
Rsd 0·5s 10ph/6stn Dmin 263km Az.gap 324°
Corr. -0·192 6M/4stn Msd 0·2

84/635
JUL 26 2039 20·6s 44·98S 167·61E 121km M=4·2
0·7 0·03 0·05 5
Rsd 0·6s 13ph/7stn Dmin 42km Az.gap 211°
Corr. -0·496 7M/4stn Msd 0·6

84/636
JUL 27 0054 19·4s 45·09S 167·56E 124km M=4·3
0·6 0·03 0·04 4
Rsd 0·5s 16ph/8stn Dmin 55km Az.gap 210°
Corr. -0·346 8M/4stn Msd 0·4 2↑

84/637
JUL 27 0245 49·3s 41·35S 173·94E 54km M=3·8
0·4 0·03 0·02 6
Rsd 0·5s 13ph/11stn Dmin 32km Az.gap 94°
Corr. -0·336 3M/2stn Msd 0·1 2↓
Felt Fighting Bay (78) MM IV.

84/638
JUL 27 2119 03·1s 37·80S 176·90E 5km M=3·9
0·4 0·03 0·03 R
Rsd 0·9s 10ph/7stn Dmin 22km Az.gap 138°
Corr. -0·341 6M/4stn Msd 0·3 2↑

84/639
JUL 28 0441 24·1s 39·62S 175·71E 53km M=3·4
1·1 0·05 0·09 15
Rsd 0·8s 10ph/8stn Dmin 49km Az.gap 108°
Corr. 0·126 3M/2stn Msd 0·3

84/640
JUL 29 1229 23·1s 45·04S 167·76E 131km M=4·7
0·6 0·03 0·04 4
Rsd 0·7s 13ph/7stn Dmin 42km Az.gap 185°
Corr. -0·425 9M/6stn Msd 0·3 1↑

84/641
JUL 29 1450 45·0s 39·19S 173·76E 16km M=4·0
0·3 0·02 0·02 1
Rsd 0·3s 11ph/10stn Dmin 53km Az.gap 239°
Corr. -0·463 11M/7stn Msd 0·4 1↑
Felt New Plymouth (47) MM V.

84/642
JUL 30 1740 17·6s 40·64S 174·62E 54km M=3·7
0·3 0·02 0·03 6
Rsd 0·6s 22ph/20stn Dmin 35km Az.gap 101°
Corr. -0·346 7M/6stn Msd 0·2 5↑ 2↓

84/643
JUL 30 1814 06·6s 45·36S 166·57E 1km M=3·6
1·6 0·04 0·12 R
Rsd 0·9s 10ph/6stn Dmin 89km Az.gap 269°
Corr. 0·081 6M/4stn Msd 0·2

84/644
JUL 30 1830 41·4s 45·42S 166·55E 1km M=3·6
1·5 0·03 0·10 R
Rsd 1·4s 11ph/6stn Dmin 87km Az.gap 269°
Corr. -0·139 7M/4stn Msd 0·2

84/645
JUL 31 1655 34·0s 37·58S 177·32E 129km M=3·7
1·6 0·09 0·07 12
Rsd 1·0s 13ph/7stn Dmin 12km Az.gap 161°
Corr. 0·157 11M/6stn Msd 0·2 1↑

84/646
AUG 01 1851 05·3s 39·63S 176·92E 30km M=4·3
0·3 0·02 0·04 2
Rsd 0·6s 13ph/15stn Dmin 12km Az.gap 161°
Corr. -0·545 16M/11stn Msd 0·2 1↑
Felt Central Hawkes Bay. Maximum intensity MM V at Patoka (52).

84/647
AUG 02 1511 15·1s 47·11S 165·26E 33km M=4·0
2·0 0·09 0·16 R
Rsd 1·6s 8ph/4stn Dmin 219km Az.gap 313°
Corr. -0·116 6M/3stn Msd 0·1

84/648
AUG 02 1819 08·5s 41·26S 175·17E 22km M=4·0
0·1 0·01 0·01 1
Rsd 0·3s 17ph/18stn Dmin 15km Az.gap 59°
Corr. -0·230 12M/9stn Msd 0·3 5↑ 4↓
Felt Wellington and vicinity. Maximum intensity MM V at Wellington (68) and Wairongomai (69).

84/649
AUG 04 0839 44·7s 40·14S 174·85E 1km M=4·2
0·2 0·01 0·03 R
Rsd 0·4s 19ph/20stn Dmin 109km Az.gap 100°
Corr. 0·340 18M/11stn Msd 0·3 5↑ 1↓

84/650
AUG 04 0944 21·8s 35·34S 179·47E 237km M=4·5
1·9 0·16 0·20 29
Rsd 0·8s 9ph/6stn Dmin 274km Az.gap 327°
Corr. 0·209 9M/5stn Msd 0·3

84/651
AUG 04 2227 27·5s 49·11S 164·98E 33km M=4·2
1·3 0·12 0·16 R
Rsd 0·6s 10ph/6stn Dmin 339km Az.gap 341°
Corr. -0·498 6M/4stn Msd 0·1

84/652
AUG 05 0719 31·1s 38·31S 177·15E 46km M=3·7
0·3 0·02 0·02 4
Rsd 0·4s 13ph/9stn Dmin 39km Az.gap 64°
Corr. -0·027 12M/7stn Msd 0·2 1↓

84/653
AUG 05 1145 04·7s 43·54S 170·55E 19km M=3·9
0·6 0·03 0·05 6
Rsd 0·8s 17ph/12stn Dmin 92km Az.gap 154°
Corr. -0·616 13M/7stn Msd 0·2

84/654
AUG 05 1349 46·9s 38·68S 175·83E 148km M=3·8
0·7 0·05 0·06 7
Rsd 1·0s 17ph/13stn Dmin 58km Az.gap 97°
Corr. -0·280 12M/7stn Msd 0·4 6↑

84/655
AUG 06 0922 39·8s 49·12S 165·22E 33km M=4·6
1·0 0·10 0·16 R
Rsd 0·6s 11ph/6stn Dmin 327km Az.gap 334°
Corr. -0·641 6M/3stn Msd 0·3

84/656
AUG 06 1417 21·0s 36·04S 178·58E 89km M=3·8
1·1 0·06 0·09 25
Rsd 0·4s 9ph/6stn Dmin 207km Az.gap 319°
Corr. 0·475 7M/4stn Msd 0·2

84/657
AUG 06 1602 57·9s 43·22S 172·14E 12km M=5·0
0·3 0·03 0·05 R
Rsd 1·0s 10ph/10stn Dmin 57km Az.gap 90°
Corr. -0·316 10M/9stn Msd 0·2 5↑ 1↓
Felt widely in Canterbury and Westland. Maximum intensity MM V from Greymouth (92) to Christchurch (110) and Akaroa (111). Several aftershocks:
6d 16h 06m, M 3·4;
6d 16h 09m, M 3·6;
7d 02h 11m, M 3·2;
7d 05h 42m, M 3·0;
8d 11h 26m, M 3·0;
10d 01h 21m, M 3·3.

84/658
AUG 06 1753 50·2s 43·22S 172·08E 12km M=3·5
0·5 0·03 0·06 R
Rsd 0·9s 10ph/7stn Dmin 61km Az.gap 100°
Corr. 0·079 11M/7stn Msd 0·3
Felt Mount White Station (100) MM IV.

84/659
AUG 06 1843 43·1s 43·16S 172·14E 12km M=3·5
0·4 0·03 0·04 R
Rsd 0·8s 12ph/8stn Dmin 62km Az.gap 92°
Corr. 0·072 11M/6stn Msd 0·3

84/660
AUG 06 1902 31·0s 43·19S 172·10E 12km M=4·1
0·3 0·02 0·04 R
Rsd 0·8s 14ph/11stn Dmin 62km Az.gap 91°
Corr. -0·327 11M/7stn Msd 0·2 1↑
Felt Mount White Station (100) MM IV.

84/661
AUG 07 0316 09·7s 38·38S 175·91E 202km M=4·0
1·2 0·05 0·07 10
Rsd 0·7s 15ph/10stn Dmin 59km Az.gap 99°
Corr. -0·466 9M/5stn Msd 0·2 3↑ 1↓

84/662
AUG 08 0144 42·3s 43·62S 170·60E 12km M=3·4
0·7 0·07 0·09 R
Rsd 0·8s 10ph/6stn Dmin 86km Az.gap 152°
Corr. -0·735 9M/5stn Msd 0·3

84/663
AUG 08 2152 53·2s 42·19S 172·77E 14km M=3·9
0·3 0·02 0·02 4
Rsd 0·5s 12ph/10stn Dmin 43km Az.gap 108°
Corr. -0·190 9M/6stn Msd 0·3

84/664
AUG 09 1147 10·0s 38·22S 176·29E 154km M=3·7
1·0 0·05 0·07 8
Rsd 1·0s 13ph/8stn Dmin 66km Az.gap 131°
Corr. -0·268 9M/5stn Msd 0·4 1↑

84/665
AUG 10 1358 16·7s 39·02S 174·85E 223km M=3·9
0·7 0·03 0·05 7
Rsd 0·6s 22ph/13stn Dmin 68km Az.gap 170°
Corr. -0·630 10M/6stn Msd 0·2 5↑

84/666
AUG 11 0438 57·3s 37·79S 176·65E 209km M=3·8
3·1 0·17 0·16 25
Rsd 1·1s 7ph/5stn Dmin 37km Az.gap 226°
Corr. -0·019 5M/3stn Msd 0·4

84/667
AUG 11 0605 25·6s 39·69S 175·15E 97km M=3·7
0·4 0·02 0·03 5
Rsd 0·5s 14ph/12stn Dmin 58km Az.gap 138°
Corr. -0·594 5M/4stn Msd 0·2

84/668
AUG 12 1506 59·6s 44·61S 168·06E 12km M=4·0
0·5 0·05 0·03 R
Rsd 0·6s 9ph/7stn Dmin 14km Az.gap 202°
Corr. -0·365 8M/5stn Msd 0·2 1↑ 1↓

84/669
AUG 12 1911 46·8s 38·43S 175·95E 172km M=3·9
1·5 0·06 0·08 13
Rsd 0·7s 10ph/7stn Dmin 66km Az.gap 131°
Corr. 0·068 6M/3stn Msd 0·4 2↑ 2↓

84/670
AUG 13 0317 43·3s 39·01S 174·94E 225km M=4·2
1·7 0·06 0·09 16
Rsd 0·7s 13ph/10stn Dmin 57km Az.gap 166°
Corr. -0·250 6M/4stn Msd 0·3 6↑

84/671
AUG 13 0412 50·7s 45·45S 167·00E 5km M=4·3
0·9 0·03 0·09 R
Rsd 0·6s 10ph/6stn Dmin 113km Az.gap 248°
Corr. -0·440 13M/7stn Msd 0·2

84/672
AUG 13 1114 53·2s 41·27S 174·51E 30km M=3·7
0·3 0·04 0·03 2
Rsd 0·6s 11ph/10stn Dmin 16km Az.gap 159°
Corr. -0·027 7M/4stn Msd 0·4 1↑ 6↓

84/673
AUG 14 0740 57·4s 40·18S 175·00E 52km M=3·7
0·5 0·02 0·07 12
Rsd 0·6s 10ph/10stn Dmin 63km Az.gap 115°
Corr. -0·426 7M/4stn Msd 0·2 3↑ 1↓

84/674
AUG 16 0208 21·5s 40·61S 175·29E 45km M=4·7
0·4 0·03 0·04 7
Rsd 0·7s 12ph/13stn Dmin 16km Az.gap 109°
Corr. -0·652 9M/5stn Msd 0·3 2↑ 4↓
Felt From Ahuahu Valley (57) to Wellington (68). Maximum intensity MM V at Ohau, Paraparaumu, Waikawa Beach (65).

84/675
AUG 16 1259 06·3s 43·31S 171·04E 5km M=3·7
0·4 0·05 0·15 R
Rsd 0·9s 8ph/8stn Dmin 92km Az.gap 165°
Corr. -0·852 11M/6stn Msd 0·2

84/676
AUG 16 1554 47·9s 45·35S 167·29E 12km M=3·4
0·3 0·01 0·03 R
Rsd 0·2s 8ph/5stn Dmin 91km Az.gap 233°
Corr. -0·055 6M/3stn Msd 0·3 1↑

84/677
AUG 17 0902 31·1s 48·67S 165·77E 12km M=4·1
1·6 0·11 0·19 R
Rsd 0·7s 6ph/4stn Dmin 263km Az.gap 338°
Corr. -0·294 6M/3stn Msd 0·2

84/678
AUG 17 1129 42·3s 41·46S 173·41E 117km M=4·3
0·6 0·04 0·04 8
Rsd 0·5s 10ph/10stn Dmin 61km Az.gap 87°
Corr. -0·704 11M/6stn Msd 0·2 1↑ 4↓

84/679
AUG 17 1544 11·9s 39·06S 176·19E 103km M=3·7
0·7 0·03 0·05 9
Rsd 0·7s 13ph/12stn Dmin 48km Az.gap 82°
Corr. -0·278 12M/7stn Msd 0·2 4↑

84/680
AUG 17 1841 59·5s 39·56S 176·57E 84km M=5·3
0·4 0·02 0·03 7
Rsd 0·6s 17ph/18stn Dmin 21km Az.gap 102°
Corr. -0·544 7M/4stn Msd 0·3 4↑ 9↓
Felt southern half of North Island. Intensity reached MM V widely in Hawkes Bay.

84/681
AUG 18 0408 54·5s 39·56S 176·64E 79km M=3·8
0·4 0·03 0·04 6
Rsd 0·6s 11ph/12stn Dmin 16km Az.gap 130°
Corr. -0·536 10M/6stn Msd 0·3 3↑ 3↓

84/682
AUG 18 0723 49·8s 43·61S 171·18E 5km M=3·7
0·4 0·04 0·06 R
Rsd 0·8s 8ph/7stn Dmin 115km Az.gap 124°
Corr. -0·495 17M/9stn Msd 0·2

84/683
AUG 18 2150 25·0s 34·14S 179·40W 132km M=5·6
1·7 0·11 0·14 43
Rsd 0·9s 14ph/13stn Dmin 436km Az.gap 313°
Corr. 0·298 13M/7stn Msd 0·2 4↑

84/684
AUG 19 1301 12·5s 41·17S 172·64E 209km M=3·6
1·3 0·06 0·09 10
Rsd 0·7s 13ph/11stn Dmin 12km Az.gap 187°
Corr. -0·252 3M/2stn Msd 0·2 3↑

84/685
AUG 19 1546 30·5s 42·88S 172·18E 12km M=3·7
0·1 0·01 0·02 R
Rsd 0·1s 9ph/7stn Dmin 86km Az.gap 171°
Corr. -0·466 10M/5stn Msd 0·3

84/686
AUG 20 1345 43·5s 42·46S 173·67E 28km M=4·4
0·3 0·02 0·03 2
Rsd 0·5s 13ph/10stn Dmin 5km Az.gap 167°
Corr. -0·606 8M/5stn Msd 0·3 1↑
Felt Kaikoura (90) MM III.

84/687
AUG 21 0002 43·3s 45·94S 166·77E 12km M=3·6
1·6 0·06 0·15 R
Rsd 0·9s 8ph/5stn Dmin 62km Az.gap 256°
Corr. -0·410 8M/4stn Msd 0·4 1↓

84/688
AUG 21 1517 01·5s 43·65S 170·65E 5km M=4·5
0·1 0·01 0·02 R
Rsd 0·4s 14ph/10stn Dmin 85km Az.gap 145°
Corr. -0·698 18M/10stn Msd 0·2 1↓
Felt Lilybank Station (106) MM V.

84/689
AUG 21 2005 15·0s 40·19S 175·27E 12km M=3·8
0·1 0·01 0·03 R
Rsd 0·3s 12ph/9stn Dmin 81km Az.gap 156°
Corr. -0·651 5M/3stn Msd 0·5 1↑ 5↓

84/690
AUG 22 1527 50·2s 43·19S 171·84E 12km M=3·6
0·3 0·02 0·04 R
Rsd 0·5s 12ph/8stn Dmin 79km Az.gap 107°
Corr. 0·291 13M/7stn Msd 0·2

84/691
AUG 23 0808 40·0s 39·74S 176·37E 33km M=3·8
0·2 0·02 0·03 R
Rsd 0·5s 15ph/12stn Dmin 44km Az.gap 142°
Corr. -0·452 17M/9stn Msd 0·2 1↑ 4↓

84/692
AUG 23 2126 40·8s 40·93S 175·15E 24km M=4·2
0·2 0·02 0·02 2
Rsd 0·5s 15ph/12stn Dmin 21km Az.gap 121°
Corr. 0·003 14M/8stn Msd 0·3 7↑ 1↓
Felt Wellington (68) MM IV.

84/693
AUG 24 1504 46·3s 38·25S 175·83E 212km M=4·0
1·6 0·08 0·07 13
Rsd 0·8s 13ph/11stn Dmin 44km Az.gap 109°
Corr. -0·650 10M/6stn Msd 0·3 2↑ 1↓

84/694
AUG 25 0545 09·2s 38·65S 175·77E 178km M=3·9
0·8 0·04 0·05 8
Rsd 0·6s 15ph/12stn Dmin 61km Az.gap 103°
Corr. -0·724 7M/5stn Msd 0·2 3↑ 1↓

84/695
AUG 25 0636 24·7s 38·88S 175·14E 223km M=4·0
1·1 0·05 0·07 10
Rsd 0·6s 15ph/13stn Dmin 50km Az.gap 159°
Corr. -0·666 9M/5stn Msd 0·2 2↑ 1↓

84/696
AUG 25 0656 02·5s 45·06S 167·55E 78km M=3·5
0·9 0·04 0·07 8
Rsd 0·5s 15ph/8stn Dmin 52km Az.gap 213°
Corr. -0·227 7M/4stn Msd 0·2

84/697
AUG 25 0840 50·7s 37·00S 178·32E 161km M=3·8
4·9 0·29 0·38 26
Rsd 1·5s 6ph/5stn Dmin 161km Az.gap 301°
Corr. 0·515 4M/2stn Msd 0·2

84/698
AUG 25 1146 10·2s 37·41S 178·17E 93km M=3·6
0·7 0·04 0·04 7
Rsd 0·3s 9ph/7stn Dmin 46km Az.gap 238°
Corr. 0·585 10M/5stn Msd 0·3 1↓

84/699
AUG 25 2032 01·1s 38·98S 175·66E 5km M=3·9
0·2 0·02 0·03 R
Rsd 0·6s 13ph/11stn Dmin 22km Az.gap 97°
Corr. -0·333 17M/9stn Msd 0·3 1↑
Felt Turangi (40) MM III.

84/700
AUG 25 2248 11·6s 38·96S 175·67E 5km M=3·7
0·4 0·03 0·07 R
Rsd 1·0s 13ph/11stn Dmin 25km Az.gap 97°
Corr. -0·323 13M/8stn Msd 0·3

84/701
AUG 25 2248 44·4s 38·96S 175·69E 5km M=4·4
0·2 0·01 0·03 R
Rsd 0·6s 13ph/11stn Dmin 29km Az.gap 96°
Corr. -0·369 20M/11stn Msd 0·3
Felt Omori, Waihora Road (40) MM IV and Turangi (40) MM III.

84/702
AUG 26 0355 57·4s 38·97S 175·68E 5km M=3·4
0·2 0·01 0·02 R
Rsd 0·4s 11ph/9stn Dmin 24km Az.gap 97°
Corr. -0·532 14M/8stn Msd 0·3 2↑ 1↓

84/703
AUG 26 0539 28·0s 38·97S 175·68E 5km M=3·4
0·1 0·01 0·01 R
Rsd 0·3s 10ph/8stn Dmin 24km Az.gap 97°
Corr. -0·266 14M/9stn Msd 0·3 2↑ 1↓
Felt Turangi (40) MM III.

84/704
AUG 26 0544 13·7s 38·98S 175·70E 5km M=3·6
0·1 0·01 0·01 R
Rsd 0·3s 10ph/7stn Dmin 28km Az.gap 95°
Corr. -0·227 15M/9stn Msd 0·4 3↑ 1↓

84/705
AUG 26 0545 35·8s 38·96S 175·69E 5km M=3·6
0·1 0·01 0·01 R
Rsd 0·3s 10ph/9stn Dmin 25km Az.gap 96°
Corr. -0·306 11M/7stn Msd 0·3 3↑
Felt Turangi (40) MM IV.

84/706
AUG 26 0546 04·6s 38·98S 175·71E 5km M=3·8
0·1 0·01 0·01 R
Rsd 0·2s 10ph/10stn Dmin 24km Az.gap 95°
Corr. -0·562 15M/9stn Msd 0·3 2↑
Felt Turangi (40) MM III.

84/707
AUG 26 0706 15·3s 38·16S 174·64E 155km M=3·8
1·7 0·15 0·15 24
Rsd 1·1s 11ph/10stn Dmin 140km Az.gap 255°
Corr. -0·752 8M/4stn Msd 0·5 3↑ 1↓

84/708
AUG 26 0816 10·8s 36·38S 177·54E 221km M=3·7
1·6 0·13 0·14 16
Rsd 0·5s 8ph/6stn Dmin 171km Az.gap 322°
Corr. -0·124 8M/5stn Msd 0·3 1↑

84/709
AUG 26 0906 40·0s 40·93S 172·55E 12km M=3·8
0·8 0·04 0·08 R
Rsd 0·9s 12ph/12stn Dmin 23km Az.gap 191°
Corr. -0·542 15M/9stn Msd 0·2 2↑ 2↓
Felt North-west Nelson. Maximum intensity MM V at Paturau (71).

84/710
AUG 26 1135 26·7s 35·93S 179·24E 159km M=3·9
3·7 0·31 0·32 38
Rsd 0·6s 6ph/8stn Dmin 205km Az.gap 322°
Corr. 0·767 9M/5stn Msd 0·1 1↓

84/711
AUG 27 0439 58·9s 39·19S 179·80E 33km M=4·3
1·5 0·10 0·11 R
Rsd 0·5s 8ph/8stn Dmin 166km Az.gap 294°
Corr. -0·501 17M/11stn Msd 0·4 2↑ 1↓

84/712
AUG 27 0533 25·4s 41·56S 174·55E 54km M=3·6
0·2 0·02 0·01 3
Rsd 0·3s 13ph/19stn Dmin 32km Az.gap 138°
Corr. -0·324 6M/5stn Msd 0·2 4↑ 6↓
Felt Wellington (68) MM IV.

84/713
AUG 27 0926 43·1s 38·97S 175·63E 5km M=3·7
0·1 0·01 0·01 R
Rsd 0·2s 10ph/9stn Dmin 23km Az.gap 99°
Corr. -0·134 16M/9stn Msd 0·3 3↑ 2↓
Felt Omori, Turangi and Waihora Road (40) MM IV.

84/714
AUG 27 2145 08·8s 42·24S 172·71E 12km M=3·6
0·3 0·02 0·03 R
Rsd 0·5s 13ph/10stn Dmin 49km Az.gap 108°
Corr. 0·228 13M/8stn Msd 0·2 1↑ 4↓

84/715
AUG 28 0746 39·2s 38·23S 176·02E 203km M=3·5
1·8 0·07 0·13 15
Rsd 0·9s 9ph/7stn Dmin 54km Az.gap 125°
Corr. 0·095 10M/6stn Msd 0·5 2↑ 1↓

84/716
AUG 28 1316 34·7s 36·55S 179·19W 12km M=4·6
0·9 0·07 0·08 R
Rsd 0·4s 14ph/9stn Dmin 238km Az.gap 334°
Corr. -0·266 26M/16stn Msd 0·2 1↑ 1↓

84/717
AUG 28 1755 03·3s 38·34S 175·98E 190km M=4·0
1·0 0·04 0·06 8
Rsd 0·6s 13ph/8stn Dmin 60km Az.gap 118°
Corr. -0·207 13M/7stn Msd 0·3 5↑ 1↓

84/718
AUG 28 2222 13·4s 39·81S 174·03E 240km M=3·6
0·3 0·04 0·06 3
Rsd 0·2s 9ph/10stn Dmin 75km Az.gap 166°
Corr. -0·863 8M/6stn Msd 0·2 1↑

84/719
AUG 29 0454 32·4s 38·44S 175·39E 275km M=3·9
1·2 0·09 0·12 10
Rsd 0·6s 9ph/7stn Dmin 59km Az.gap 176°
Corr. -0·122 11M/7stn Msd 0·3 1↓

84/720
AUG 29 2335 48·3s 44·32S 167·73E 3km M=3·7
0·4 0·02 0·02 1
Rsd 0·1s 6ph/5stn Dmin 42km Az.gap 266°
Corr. -0·798 14M/7stn Msd 0·3 1↑ 1↓

84/721
AUG 30 1606 07·7s 33·24S 178·10W 12km M=5·9
2·1 0·10 0·18 R
Rsd 0·9s 13ph/11stn Dmin 580km Az.gap 310°
Corr. 0·519 30M/16stn Msd 0·4 1↑ 2↓

84/722
AUG 30 2121 29·9s 39·52S 174·17E 189km M=4·6
0·6 0·05 0·06 8
Rsd 0·7s 15ph/12stn Dmin 123km Az.gap 179°
Corr. -0·692 13M/8stn Msd 0·2 9↑ 4↓

84/723
AUG 30 2238 57·9s 33·18S 178·86W 304km M=4·5
2·7 0·20 0·34 43
Rsd 1·0s 11ph/8stn Dmin 553km Az.gap 321°
Corr. -0·112 10M/5stn Msd 0·3

84/724
AUG 30 2333 47·2s 44·81S 167·33E 5km M=4·5
0·5 0·03 0·04 R
Rsd 0·4s 12ph/10stn Dmin 49km Az.gap 238°
Corr. -0·601 9M/5stn Msd 0·3 5↑ 2↓
Felt Milford Sound (120) MM IV.

84/725
AUG 31 1314 30·1s 42·25S 172·79E 5km M=4·0
0·1 0·01 0·02 R
Rsd 0·4s 10ph/9stn Dmin 49km Az.gap 103°
Corr. -0·221 27M/15stn Msd 0·3 4↑ 3↓

84/726
SEP 01 0130 45·9s 41·07S 174·55E 33km M=3·7
0·1 0·01 0·02 R
Rsd 0·4s 16ph/15stn Dmin 23km Az.gap 115°
Corr. -0·217 17M/11stn Msd 0·3 7↑ 5↓
Felt Waitaria Bay (78).

84/727
SEP 01 0520 07·7s 38·25S 178·45E 33km M=3·8
0·1 0·00 0·01 R
Rsd 0·1s 6ph/8stn Dmin 58km Az.gap 212°
Corr. -0·618 19M/11stn Msd 0·2 1↑

84/728
SEP 01 1821 33·8s 36·24S 177·48E 213km M=3·8
0·3 0·03 0·03 3
Rsd 0·1s 6ph/4stn Dmin 198km Az.gap 308°
Corr. 0·521 7M/4stn Msd 0·4

84/729
SEP 01 2140 05·1s 37·90S 176·16E 212km M=3·8
1·1 0·05 0·05 9
Rsd 0·4s 9ph/6stn Dmin 54km Az.gap 210°
Corr. -0·045 9M/5stn Msd 0·3 1↑ 1↓

84/730
SEP 02 0615 23·5s 37·41S 177·09E 265km M=3·7
1·2 0·26 0·37 28
Rsd 0·7s 10ph/6stn Dmin 160km Az.gap 301°
Corr. -0·949 5M/3stn Msd 0·3 1↑

84/731
SEP 03 1055 10·4s 38·71S 176·10E 12km M=2·3
3·9 0·25 0·27 R
Rsd 2·6s 4ph/4stn Dmin 8km Az.gap 176°
Corr. -0·123 2M/2stn Msd 0·1 1↓

84/732
SEP 03 2030 58·2s 37·74S 176·40E 296km M=4·0
1·0 0·05 0·06 8
Rsd 0·4s 9ph/7stn Dmin 78km Az.gap 194°
Corr. -0·177 10M/6stn Msd 0·2 4↑

84/733
SEP 04 0814 30·7s 33·56S 177·45W 33km M=4·4
2·4 0·14 0·25 R
Rsd 1·0s 10ph/8stn Dmin 584km Az.gap 314°
Corr. -0·168 13M/8stn Msd 0·4

84/734
SEP 04 1332 27·0s 39·55S 174·09E 203km M=4·4
0·8 0·04 0·07 10
Rsd 0·6s 14ph/10stn Dmin 137km Az.gap 182°
Corr. -0·746 12M/7stn Msd 0·4 3↑ 3↓

84/735
SEP 04 1408 40·0s 32·86S 179·46W 442km M=5·2
3·3 0·35 0·39 48
Rsd 0·9s 9ph/10stn Dmin 566km Az.gap 319°
Corr. 0·450 14M/8stn Msd 0·3 3↑ 1↓

84/736
SEP 04 1726 35·8s 40·53S 174·14E 87km M=3·8
0·4 0·02 0·02 8
Rsd 0·3s 13ph/15stn Dmin 75km Az.gap 158°
Corr. -0·469 11M/6stn Msd 0·2 2↑

84/737
SEP 04 2207 33·8s 39·77S 177·05E 42km M=3·7
0·4 0·02 0·04 4
Rsd 0·4s 14ph/14stn Dmin 31km Az.gap 189°
Corr. -0·558 10M/7stn Msd 0·4 3↑ 3↓

84/738
SEP 05 1411 25·9s 37·88S 176·23E 210km M=3·5
1·1 0·06 0·07 7
Rsd 0·5s 11ph/7stn Dmin 61km Az.gap 195°
Corr. 0·048 9M/5stn Msd 0·4 2↑ 1↓

84/739
SEP 06 0608 44·8s 38·29S 177·28E 55km M=3·4
0·4 0·02 0·02 4
Rsd 0·4s 11ph/11stn Dmin 42km Az.gap 97°
Corr. 0·521 11M/6stn Msd 0·1 2↑ 1↓

84/740
SEP 06 0803 24·4s 49·96S 164·26E 33km M=4·6
0·8 0·06 0·13 R
Rsd 0·3s 13ph/8stn Dmin 444km Az.gap 339°
Corr. -0·544 14M/7stn Msd 0·2

84/741
SEP 07 0102 38·8s 37·37S 177·39E 86km M=3·6
1·2 0·08 0·05 12
Rsd 0·6s 7ph/12stn Dmin 25km Az.gap 221°
Corr. -0·154 8M/5stn Msd 0·2 1↓

84/742
SEP 07 0213 24·6s 37·28S 177·12E 5km M=3·7
1·4 0·08 0·06 R
Rsd 0·7s 8ph/8stn Dmin 28km Az.gap 228°
Corr. -0·007 11M/6stn Msd 0·1 2↓

84/743
SEP 07 0431 41·2s 42·30S 172·70E 12km M=3·5
0·5 0·03 0·05 R
Rsd 0·6s 10ph/10stn Dmin 83km Az.gap 104°
Corr. 0·250 11M/7stn Msd 0·2 1↑ 1↓

84/744
SEP 09 1311 19·0s 33·25S 177·90W 178km M=4·6
1·6 0·13 0·24 48
Rsd 0·5s 9ph/6stn Dmin 651km Az.gap 343°
Corr. -0·472 6M/4stn Msd 0·2

84/745
SEP 10 0106 38·2s 41·71S 173·86E 12km M=3·5
0·4 0·03 0·04 R
Rsd 0·9s 9ph/7stn Dmin 30km Az.gap 101°
Corr. -0·146 9M/6stn Msd 0·3 3↑
Also see Wellington Net origin.

84/746
SEP 10 0535 53·7s 40·35S 176·25E 85km M=3·7
0·6 0·02 0·05 8
Rsd 0·5s 19ph/19stn Dmin 62km Az.gap 143°
Corr. -0·603 4M/4stn Msd 0·2 3↓

84/747
SEP 10 2138 12·9s 38·30S 177·55E 59km M=3·4
0·5 0·02 0·03 7
Rsd 0·6s 16ph/9stn Dmin 56km Az.gap 81°
Corr. -0·178 10M/5stn Msd 0·2

84/748
SEP 12 0613 52·9s 38·08S 175·74E 292km M=5·0
0·7 0·03 0·05 6
Rsd 0·7s 18ph/17stn Dmin 25km Az.gap 91°
Corr. -0·142 10M/6stn Msd 0·3 2↑ 5↓
USGS 06 13 51·0 37·89S 175·39E 290km SE 0·7.

84/749
SEP 12 1012 06·1s 39·55S 177·34E 22km M=3·9
0·5 0·02 0·05 2
Rsd 0·6s 18ph/14stn Dmin 45km Az.gap 223°
Corr. -0·461 10M/9stn Msd 0·2 1↓

84/750
SEP 13 0303 00·1s 37·06S 176·85E 295km M=4·1
1·1 0·07 0·07 8
Rsd 0·4s 9ph/6stn Dmin 104km Az.gap 280°
Corr. 0·174 7M/4stn Msd 0·2

84/751
SEP 14 0020 47·1s 42·24S 172·83E 12km M=3·8
0·4 0·03 0·05 R
Rsd 1·0s 9ph/11stn Dmin 74km Az.gap 102°
Corr. -0·283 12M/7stn Msd 0·2

84/752
SEP 14 0202 07·7s 38·05S 176·09E 209km M=4·4
0·9 0·05 0·06 7
Rsd 0·8s 19ph/13stn Dmin 51km Az.gap 135°
Corr. -0·439 9M/6stn Msd 0·2 2↑ 2↓

84/753
SEP 14 0304 46·2s 38·94S 175·75E 1km M=3·5
0·3 0·02 0·04 R
Rsd 0·7s 9ph/8stn Dmin 25km Az.gap 94°
Corr. 0·156 7M/6stn Msd 0·3

84/754
SEP 15 1639 29·1s 39·77S 177·05E 26km M=3·6
0·5 0·02 0·05 2
Rsd 0·5s 10ph/8stn Dmin 31km Az.gap 215°
Corr. -0·206 8M/5stn Msd 0·3

84/755
SEP 17 0213 23·2s 43·60S 170·64E 12km M=3·5
0·5 0·06 0·11 R
Rsd 0·8s 11ph/7stn Dmin 90km Az.gap 148°
Corr. -0·830 10M/6stn Msd 0·3

84/756
SEP 19 1052 39·1s 38·55S 177·86E 10km M=3·5
0·5 0·03 0·04 6
Rsd 0·8s 11ph/8stn Dmin 17km Az.gap 154°
Corr. 0·290 7M/4stn Msd 0·3
Largest member of a numerous swarm commencing with a very small shock at 08h 03m, building up gradually, and finishing at 22h. Next largest shocks at 14h 33m, M 3·4 and 14h 43m, M 3·3.

84/757
SEP 19 1231 46·7s 37·88S 177·66E 48km M=3·7
1·0 0·05 0·04 16
Rsd 0·9s 11ph/11stn Dmin 57km Az.gap 123°
Corr. 0·162 5M/3stn Msd 0·3 1↑ 2↓

84/758
SEP 19 1601 37·2s 41·39S 172·34E 1km M=3·5
0·3 0·02 0·03 R
Rsd 0·4s 13ph/10stn Dmin 47km Az.gap 185°
Corr. -0·645 6M/4stn Msd 0·3

84/759
SEP 19 2209 52·2s 37·88S 177·41E 31km M=3·6
0·5 0·06 0·04 8
Rsd 0·8s 11ph/7stn Dmin 43km Az.gap 105°
Corr. -0·142 6M/4stn Msd 0·2

84/760
SEP 20 0524 34·4s 40·29S 173·52E 166km M=4·0
0·9 0·04 0·06 9
Rsd 0·6s 14ph/9stn Dmin 111km Az.gap 199°
Corr. -0·462 5M/4stn Msd 0·3 5↑

84/761
SEP 20 1928 08·2s 39·91S 175·54E 12km M=3·4
0·3 0·02 0·04 R
Rsd 0·8s 18ph/12stn Dmin 70km Az.gap 113°
Corr. -0·306 11M/7stn Msd 0·3 3↑ 1↓

84/762
SEP 21 0846 04·3s 39·91S 174·52E 128km M=3·9
0·4 0·01 0·03 4
Rsd 0·5s 18ph/13stn Dmin 81km Az.gap 122°
Corr. -0·386 9M/6stn Msd 0·3 6↓

84/763
SEP 21 1024 26·9s 33·84S 179·33W 115km M=4·9
2·3 0·11 0·21 62
Rsd 0·9s 14ph/9stn Dmin 468km Az.gap 300°
Corr. 0·495 11M/6stn Msd 0·2

84/764
SEP 21 1159 39·9s 39·48S 175·31E 90km M=3·7
0·2 0·01 0·02 3
Rsd 0·4s 20ph/13stn Dmin 31km Az.gap 79°
Corr. -0·460 9M/6stn Msd 0·3 6↑ 2↓

84/765
SEP 21 1224 30·7s 42·91S 171·59E 1km M=2·4
0·3 0·02 0·04 R
Rsd 0·3s 5ph/3stn Dmin 45km Az.gap 151°
Corr. 0·544 2M/2stn Msd 0·2
Felt Arthurs Pass (93) MM IV.

84/766
SEP 21 1256 20·9s 33·35S 179·40W 164km M=4·5
1·6 0·14 0·29 61
Rsd 0·5s 10ph/7stn Dmin 517km Az.gap 340°
Corr. -0·604 9M/5stn Msd 0·1

84/767
SEP 21 1646 58·8s 37·99S 176·85E 152km M=5·0
0·9 0·04 0·04 7
Rsd 0·8s 18ph/13stn Dmin 12km Az.gap 165°
Corr. -0·302 8M/5stn Msd 0·3 4↑ 2↓

84/768
SEP 21 2021 14·1s 45·15S 167·60E 86km M=4·4
1·5 0·07 0·10 24
Rsd 1·2s 9ph/6stn Dmin 59km Az.gap 216°
Corr. -0·264 7M/5stn Msd 0·2 2↑
Felt Te Anau Downs (130) MM V.

84/769
SEP 22 0146 44·5s 49·65S 164·52E 33km M=4·5
1·5 0·14 0·24 R
Rsd 0·7s 11ph/6stn Dmin 406km Az.gap 337°
Corr. -0·601 8M/4stn Msd 0·2

84/770
SEP 22 0231 14·1s 45·26S 166·84E 12km M=4·6
0·8 0·02 0·08 R
Rsd 0·3s 9ph/7stn Dmin 79km Az.gap 261°
Corr. -0·383 10M/6stn Msd 0·2
Felt West Arm Hostel (138) MM IV.

84/771
SEP 22 2152 46·0s 43·36S 171·02E 12km M=3·5
0·3 0·02 0·02 R
Rsd 0·5s 12ph/9stn Dmin 98km Az.gap 140°
Corr. -0·567 13M/7stn Msd 0·2
TMP Clock erratic.

84/772
SEP 23 0315 45·3s 37·09S 176·95E 209km M=4·1
1·2 0·10 0·07 8
Rsd 0·6s 11ph/8stn Dmin 100km Az.gap 243°
Corr. 0·288 9M/6stn Msd 0·4

84/773
SEP 23 0358 10·5s 39·67S 179·33E 33km M=3·8
0·9 0·05 0·08 R
Rsd 0·4s 11ph/8stn Dmin 160km Az.gap 287°
Corr. -0·184 9M/6stn Msd 0·2

84/774
SEP 23 2208 31·9s 38·31S 176·10E 156km M=3·9
0·9 0·05 0·07 8
Rsd 0·8s 15ph/10stn Dmin 65km Az.gap 116°
Corr. -0·320 9M/5stn Msd 0·3 5↑

84/775
SEP 24 0442 51·9s 50·28S 164·46E 33km M=4·3
2·8 0·37 0·78 R
Rsd 1·0s 6ph/3stn Dmin 462km Az.gap 349°
Corr. -0·836 5M/3stn Msd 0·3

84/776
SEP 24 1812 24·9s 35·04S 179·59W 227km M=4·6
2·4 0·15 0·28 24
Rsd 1·1s 17ph/14stn Dmin 339km Az.gap 320°
Corr. -0·294 6M/5stn Msd 0·2

84/777
SEP 26 0929 19·1s 35·35S 178·76E 293km M=4·7
0·7 0·06 0·09 7
Rsd 0·5s 23ph/12stn Dmin 261km Az.gap 320°
Corr. -0·257 10M/6stn Msd 0·2 1↑ 1↓

84/778
SEP 26 1122 37·6s 44·68S 168·23E 76km M=3·7
0·7 0·04 0·04 7
Rsd 0·7s 14ph/9stn Dmin 25km Az.gap 161°
Corr. -0·251 8M/5stn Msd 0·1 1↑

84/779
SEP 26 1340 28·6s 38·79S 175·90E 143km M=4·7
0·5 0·03 0·04 5
Rsd 0·7s 21ph/16stn Dmin 24km Az.gap 90°
Corr. -0·440 7M/4stn Msd 0·3 7↑ 1↓

84/780
SEP 26 1633 24·3s 38·50S 175·86E 162km M=4·2
0·6 0·03 0·05 5
Rsd 0·8s 28ph/17stn Dmin 26km Az.gap 97°
Corr. -0·483 11M/7stn Msd 0·3 1↑

84/781
SEP 27 1738 27·1s 39·60S 174·05E 173km M=3·9
0·6 0·03 0·04 6
Rsd 0·4s 15ph/10stn Dmin 142km Az.gap 217°
Corr. -0·537 5M/3stn Msd 0·3 3↑

84/782
SEP 27 2141 05·7s 44·15S 168·56E 1km M=5·2
0·3 0·02 0·02 R
Rsd 0·3s 12ph/18stn Dmin 77km Az.gap 182°
Corr. -0·584 12M/8stn Msd 0·3 3↑
Felt from Mount Aspiring station (113) to Clarkesville (152). Maximum intensity MM V at scattered places.

84/783
SEP 28 0600 59·7s 37·01S 176·94E 251km M=4·0
1·5 0·10 0·07 12
Rsd 0·5s 8ph/7stn Dmin 108km Az.gap 249°
Corr. 0·258 7M/5stn Msd 0·2

84/784
SEP 29 1402 32·1s 41·22S 174·50E 32km M=4·1
0·1 0·01 0·01 0
Rsd 0·4s 21ph/21stn Dmin 17km Az.gap 82°
Corr. -0·207 15M/9stn Msd 0·4 3↑ 2↓
Felt Fighting Bay (78) MM V, Wellington (68) MM IV. See Wellington Net origin.

84/785
SEP 30 0612 37·8s 38·27S 176·16E 162km M=4·1
0·6 0·03 0·04 5
Rsd 0·7s 21ph/14stn Dmin 31km Az.gap 122°
Corr. -0·422 11M/6stn Msd 0·2 4↑

84/786
SEP 30 0802 45·2s 43·58S 169·61E 12km M=3·2
2·2 0·13 0·09 R
Rsd 0·9s 8ph/5stn Dmin 91km Az.gap 286°
Corr. 0·532 4M/2stn Msd 0·3
Felt Paringa (103) MM IV.

84/787
OCT 01 1834 46·9s 37·26S 179·83E 33km M=4·7
0·7 0·04 0·06 R
Rsd 0·3s 10ph/9stn Dmin 123km Az.gap 326°
Corr. 0·083 11M/8stn Msd 0·2 1↑ 1↓

84/788
OCT 01 1840 34·9s 37·24S 179·82E 33km M=4·5
0·7 0·03 0·06 R
Rsd 0·3s 12ph/9stn Dmin 123km Az.gap 328°
Corr. 0·165 10M/7stn Msd 0·2 1↓

84/789
OCT 01 1843 35·3s 37·24S 179·80E 33km M=4·0
0·9 0·04 0·08 R
Rsd 0·2s 9ph/7stn Dmin 122km Az.gap 328°
Corr. 0·414 8M/6stn Msd 0·3 1↓

84/790
OCT 02 1126 21·8s 38·50S 175·75E 182km M=3·9
0·7 0·04 0·05 5
Rsd 0·7s 18ph/13stn Dmin 66km Az.gap 142°
Corr. -0·293 7M/5stn Msd 0·1 2↓

84/791
OCT 02 1314 22·0s 39·72S 176·93E 33km M=3·6
0·4 0·03 0·05 2
Rsd 0·5s 13ph/11stn Dmin 21km Az.gap 178°
Corr. -0·374 4M/4stn Msd 0·2 1↓

84/792
OCT 02 1852 44·8s 39·07S 174·84E 214km M=5·0
0·8 0·03 0·06 7
Rsd 0·8s 24ph/19stn Dmin 42km Az.gap 135°
Corr. -0·656 11M/6stn Msd 0·2 1↑ 2↓
Felt Ahuahu Valley (57), Hastings (60), Wainuiomata (68).

84/793
OCT 02 2200 45·8s 39·27S 175·38E 113km M=3·6
0·8 0·03 0·10 10
Rsd 0·7s 13ph/10stn Dmin 16km Az.gap 162°
Corr. -0·553 4M/4stn Msd 0·2 2↑

84/794
OCT 03 0801 05·6s 45·14S 167·62E 112km M=3·8
0·7 0·04 0·06 7
Rsd 0·7s 13ph/7stn Dmin 57km Az.gap 216°
Corr. -0·056 7M/4stn Msd 0·2

84/795
OCT 03 1659 30·1s 38·94S 175·77E 1km M=3·7
0·2 0·01 0·02 R
Rsd 0·6s 16ph/16stn Dmin 21km Az.gap 93°
Corr. -0·158 10M/7stn Msd 0·4 1↓
Felt Moerangi Station (40) MM V, Turangi, Pukawa (40) MM IV.

84/796
OCT 03 2156 34·2s 37·25S 179·53E 33km M=4·3
0·8 0·05 0·07 R
Rsd 0·4s 12ph/7stn Dmin 100km Az.gap 319°
Corr. 0·127 9M/6stn Msd 0·3 1↓

84/797
OCT 03 2351 21·5s 37·45S 179·13E 33km M=4·3
2·1 0·08 0·18 R
Rsd 0·4s 10ph/9stn Dmin 58km Az.gap 309°
Corr. 0·829 10M/7stn Msd 0·4 1↓

84/798
OCT 04 1022 09·4s 39·47S 178·15E 33km M=4·0
1·0 0·05 0·10 R
Rsd 0·7s 10ph/9stn Dmin 93km Az.gap 236°
Corr. -0·714 7M/5stn Msd 0·4 2↑

84/799
OCT 04 1440 20·2s 44·82S 167·79E 75km M=3·8
0·7 0·04 0·05 8
Rsd 0·7s 15ph/8stn Dmin 19km Az.gap 201°
Corr. -0·341 9M/5stn Msd 0·3

84/800
OCT 04 2122 27·3s 37·51S 177·75E 72km M=4·4
1·1 0·06 0·05 12
Rsd 0·8s 13ph/10stn Dmin 50km Az.gap 199°
Corr. 0·191 10M/8stn Msd 0·2 1↑

84/801
OCT 05 0932 15·4s 37·99S 177·65E 20km M=4·0
0·4 0·03 0·03 6
Rsd 0·9s 11ph/9stn Dmin 58km Az.gap 107°
Corr. -0·021 6M/4stn Msd 0·3 2↑ 1↓

84/802
OCT 06 0952 03·3s 37·34S 179·72E 33km M=4·2
0·8 0·05 0·07 R
Rsd 0·4s 13ph/8stn Dmin 111km Az.gap 321°
Corr. 0·358 8M/5stn Msd 0·3
The largest member of a swarm. Other shocks at 08h 00m, M 3·7; 09h 40m, M 3·7; 09h 42m, M 3·4; 10h 11m, M 3·7; 17h 53m, M 3·5.

84/803
OCT 06 1643 37·8s 39·44S 178·04E 33km M=3·8
0·7 0·04 0·06 R
Rsd 0·5s 12ph/10stn Dmin 88km Az.gap 234°
Corr. -0·679 7M/5stn Msd 0·3

84/804
OCT 06 2323 31·9s 38·51S 175·89E 186km M=4·1
0·7 0·04 0·06 6
Rsd 0·6s 19ph/12stn Dmin 72km Az.gap 133°
Corr. -0·519 11M/6stn Msd 0·1 1↓

84/805
OCT 07 0352 03·4s 38·07S 176·27E 5km M=2·0
ND ND ND R
Rsd ND 3ph/3stn Dmin 64km Az.gap 159°
Corr. ND 2M/2stn Msd 0·5
Felt Rotorua (33) MM IV.

84/806
OCT 08 0608 11·8s 37·36S 179·54E 71km M=4·0
0·9 0·06 0·07 9
Rsd 0·5s 11ph/8stn Dmin 95km Az.gap 319°
Corr. -0·077 13M/7stn Msd 0·4 1↓

84/807
OCT 09 0114 40·0s 36·16S 179·25W 33km M=4·4
0·5 0·05 0·05 R
Rsd 0·2s 11ph/9stn Dmin 260km Az.gap 333°
Corr. -0·415 13M/9stn Msd 0·2

84/808
OCT 09 1123 05·3s 37·30S 179·98W 33km M=4·2
1·0 0·05 0·09 R
Rsd 0·6s 15ph/9stn Dmin 137km Az.gap 300°
Corr. 0·080 15M/9stn Msd 0·4 1↑ 4↓

84/809
OCT 09 1517 17·9s 45·66S 165·31E 12km M=3·7
1·4 0·08 0·14 R
Rsd 0·7s 11ph/6stn Dmin 174km Az.gap 299°
Corr. -0·214 9M/4stn Msd 0·3 1↓

84/810
OCT 09 2205 59·8s 39·17S 175·30E 94km M=4·1
0·7 0·03 0·07 8
Rsd 0·8s 14ph/11stn Dmin 26km Az.gap 195°
Corr. -0·207 14M/8stn Msd 0·1 1↑ 4↓

84/811
OCT 10 0038 35·4s 37·87S 176·57E 225km M=3·6
0·2 0·04 0·04 3
Rsd 0·1s 5ph/4stn Dmin 116km Az.gap 264°
Corr. -0·952 5M/3stn Msd 0·1 2↑

84/812
OCT 10 1318 47·5s 38·29S 175·88E 227km M=3·8
0·9 0·05 0·07 7
Rsd 0·6s 15ph/9stn Dmin 50km Az.gap 108°
Corr. -0·369 9M/5stn Msd 0·3 2↑ 1↓

84/813
OCT 10 1628 26·8s 32·12S 176·90W 12km M=5·0
2·2 0·11 0·21 R
Rsd 0·7s 13ph/12stn Dmin 745km Az.gap 319°
Corr. 0·008 22M/14stn Msd 0·3

84/814
OCT 10 1630 44·6s 32·13S 179·43W 33km M=4·6
8·5 0·17 0·72 R
Rsd 0·8s 6ph/7stn Dmin 644km Az.gap 307°
Corr. 0·826 12M/12stn Msd 0·2

84/815
OCT 10 2150 40·4s 43·67S 170·63E 12km M=3·7
0·3 0·02 0·03 R
Rsd 0·3s 10ph/7stn Dmin 82km Az.gap 145°
Corr. -0·693 12M/7stn Msd 0·3 1↑ 1↓

84/816
OCT 11 0049 11·4s 38·12S 176·37E 156km M=3·7
0·6 0·03 0·02 5
Rsd 0·2s 8ph/6stn Dmin 56km Az.gap 149°
Corr. -0·084 11M/6stn Msd 0·3 2↑ 2↓
Felt Taihape (58) MM III.

84/817
OCT 11 0821 26·9s 33·77S 179·02W 33km M=5·7
2·0 0·10 0·17 R
Rsd 1·0s 15ph/11stn Dmin 487km Az.gap 303°
Corr. 0·304 24M/16stn Msd 0·3 1↑
Felt Wellington (68) MM IV.

84/818
OCT 11 1549 31·9s 40·89S 174·76E 10km M=3·5
0·3 0·02 0·02 2
Rsd 0·5s 18ph/14stn Dmin 13km Az.gap 88°
Corr. -0·268 11M/7stn Msd 0·3 3↑ 1↓

84/819
OCT 11 1638 45·6s 34·61S 179·50E 231km M=4·7
2·4 0·16 0·23 26
Rsd 0·6s 8ph/12stn Dmin 353km Az.gap 301°
Corr. 0·743 12M/7stn Msd 0·3 2↓

84/820
OCT 11 2019 56·3s 38·22S 175·84E 203km M=4·9
0·6 0·03 0·03 5
Rsd 0·6s 18ph/15stn Dmin 42km Az.gap 92°
Corr. 0·042 11M/7stn Msd 0·3 6↑ 4↓

84/821
OCT 11 2116 11·4s 39·65S 175·81E 73km M=3·7
0·2 0·01 0·02 3
Rsd 0·3s 16ph/10stn Dmin 55km Az.gap 135°
Corr. -0·640 7M/4stn Msd 0·1 1↑ 3↓

84/822
OCT 11 2351 05·6s 39·74S 176·94E 40km M=3·8
0·3 0·02 0·04 5
Rsd 0·6s 18ph/15stn Dmin 23km Az.gap 167°
Corr. -0·454 12M/7stn Msd 0·4 3↑ 5↓

84/823
OCT 12 0008 03·0s 44·96S 167·55E 33km M=3·6
0·4 0·02 0·05 R
Rsd 0·4s 13ph/7stn Dmin 43km Az.gap 221°
Corr. -0·616 13M/7stn Msd 0·3 2↑ 2↓

84/824
OCT 12 0050 40·5s 33·22S 177·67W 12km M=5·0
1·7 0·08 0·18 R
Rsd 0·7s 15ph/10stn Dmin 603km Az.gap 313°
Corr. -0·125 23M/14stn Msd 0·3

84/825
OCT 12 0403 16·5s 33·22S 177·67W 12km M=4·3
R R R R
Rsd 0·9s 7ph/6stn Dmin 603km Az.gap 344°
Corr. R 12M/8stn Msd 0·2

84/826
OCT 12 0413 00·0s 33·22S 177·67W 12km M=4·2
R R R R
Rsd 0·7s 7ph/5stn Dmin 603km Az.gap 351°
Corr. R 13M/8stn Msd 0·3

84/827
OCT 12 0806 42·6s 33·22S 177·67W 12km M=4·3
R R R R
Rsd 1·1s 6ph/5stn Dmin 603km Az.gap 351°
Corr. R 12M/7stn Msd 0·4

84/828
OCT 12 1012 55·3s 37·35S 179·47E 81km M=3·4
0·7 0·04 0·06 11
Rsd 0·3s 9ph/7stn Dmin 90km Az.gap 317°
Corr. -0·322 10M/6stn Msd 0·4 1↓

84/829
OCT 12 1014 27·9s 37·39S 179·51E 79km M=3·5
0·5 0·03 0·04 4
Rsd 0·2s 11ph/8stn Dmin 92km Az.gap 318°
Corr. 0·020 10M/5stn Msd 0·5 1↓

84/830
OCT 12 1018 59·4s 40·30S 173·69E 12km M=3·7
0·2 0·01 0·01 R
Rsd 0·2s 11ph/10stn Dmin 119km Az.gap 170°
Corr. -0·522 16M/10stn Msd 0·3 2↓

84/831
OCT 12 1527 57·7s 39·47S 175·60E 12km M=3·5
0·1 0·01 0·02 R
Rsd 0·2s 11ph/9stn Dmin 22km Az.gap 168°
Corr. -0·121 15M/8stn Msd 0·3 1↓

84/832
OCT 12 2310 26·2s 40·34S 174·34E 92km M=3·7
0·5 0·03 0·03 10
Rsd 0·3s 10ph/12stn Dmin 76km Az.gap 144°
Corr. -0·614 4M/3stn Msd 0·2 4↑ 4↓

84/833
OCT 13 0019 27·9s 38·62S 176·80E 12km M=3·0
0·2 0·01 0·02 R
Rsd 0·3s 6ph/5stn Dmin 37km Az.gap 109°
Corr. 0·208 11M/6stn Msd 0·3 3↑
Felt Minginui Forest (42) MM IV.

84/834
OCT 13 0034 41·2s 38·63S 176·82E 12km M=2·7
0·5 0·03 0·04 R
Rsd 0·5s 5ph/4stn Dmin 35km Az.gap 179°
Corr. 0·657 10M/5stn Msd 0·3 1↑ 1↓
Felt Minginui Forest (42) MM IV.

84/835
OCT 13 0807 29·8s 37·18S 179·62E 33km M=3·4
1·5 0·07 0·15 R
Rsd 0·4s 5ph/3stn Dmin 111km Az.gap 332°
Corr. -0·282 8M/5stn Msd 0·2 1↓

84/836
OCT 13 1258 21·9s 32·58S 179·41W 33km M=4·4
2·9 0·25 0·52 R
Rsd 1·3s 10ph/9stn Dmin 597km Az.gap 342°
Corr. -0·717 12M/8stn Msd 0·2

84/837
OCT 13 1705 05·8s 37·69S 179·38W 33km M=3·7
3·0 0·13 0·27 R
Rsd 0·6s 8ph/7stn Dmin 183km Az.gap 303°
Corr. -0·808 9M/6stn Msd 0·5 1↓

84/838
OCT 13 1936 08·1s 33·18S 177·57W 12km M=4·4
2·5 0·12 0·21 R
Rsd 0·6s 8ph/6stn Dmin 612km Az.gap 313°
Corr. 0·428 12M/8stn Msd 0·3

84/839
OCT 13 2320 45·6s 32·74S 178·28W 12km M=4·4
3·0 0·15 0·27 R
Rsd 0·7s 7ph/6stn Dmin 621km Az.gap 311°
Corr. 0·364 12M/7stn Msd 0·3

84/840
OCT 13 2349 12·8s 32·99S 178·14W 12km M=4·2
2·2 0·10 0·24 R
Rsd 0·7s 7ph/8stn Dmin 602km Az.gap 311°
Corr. 0·045 10M/6stn Msd 0·3

84/841
OCT 14 0655 14·3s 34·26S 179·92E 33km M=3·9
3·1 0·18 0·30 R
Rsd 0·7s 7ph/6stn Dmin 401km Az.gap 335°
Corr. 0·243 9M/6stn Msd 0·3

84/842
OCT 14 0827 24·8s 38·09S 176·67E 87km M=3·5
0·6 0·03 0·03 6
Rsd 0·6s 10ph/9stn Dmin 30km Az.gap 117°
Corr. -0·132 10M/5stn Msd 0·1 2↓

84/843
OCT 14 1001 43·0s 38·56S 175·68E 171km M=4·7
0·7 0·03 0·05 6
Rsd 0·6s 18ph/13stn Dmin 37km Az.gap 129°
Corr. -0·520 15M/8stn Msd 0·3 9↑ 2↓

84/844
OCT 14 1103 36·3s 45·33S 167·21E 95km M=3·9
0·8 0·03 0·07 10
Rsd 0·6s 12ph/7stn Dmin 92km Az.gap 238°
Corr. -0·255 9M/6stn Msd 0·2 3↓

84/845
OCT 14 1353 50·2s 38·66S 175·38E 221km M=4·0
0·5 0·03 0·05 4
Rsd 0·4s 12ph/11stn Dmin 62km Az.gap 153°
Corr. 0·141 15M/8stn Msd 0·4 4↑ 1↓

84/846
OCT 14 2151 11·8s 39·47S 175·67E 12km M=3·5
0·1 0·01 0·02 R
Rsd 0·3s 13ph/10stn Dmin 23km Az.gap 103°
Corr. 0·072 17M/10stn Msd 0·3 1↑ 2↓
Felt Waiouru (50) MM IV.

84/847
OCT 15 0040 45·2s 35·08S 179·22E 211km M=4·3
0·9 0·09 0·11 25
Rsd 0·5s 7ph/8stn Dmin 296km Az.gap 327°
Corr. -0·108 13M/8stn Msd 0·3 1↑ 1↓

84/848
OCT 15 0615 48·7s 40·55S 175·17E 43km M=3·8
0·2 0·01 0·02 5
Rsd 0·4s 15ph/19stn Dmin 28km Az.gap 83°
Corr. -0·281 10M/6stn Msd 0·2 5↑ 3↓
Felt Himatangi Beach (61) MM IV, and Levin (65).

84/849
OCT 15 0945 42·1s 36·54S 177·87E 167km M=3·8
0·7 0·06 0·05 8
Rsd 0·5s 14ph/9stn Dmin 125km Az.gap 231°
Corr. 0·283 13M/7stn Msd 0·3 1↑ 1↓

84/850
OCT 15 1421 15·1s 37·37S 179·70E 33km M=3·5
1·4 0·07 0·13 R
Rsd 0·7s 13ph/10stn Dmin 108km Az.gap 295°
Corr. -0·085 13M/7stn Msd 0·3 1↓

84/851
OCT 15 2333 38·1s 44·97S 167·80E 135km M=3·9
0·7 0·04 0·05 5
Rsd 0·6s 13ph/7stn Dmin 34km Az.gap 202°
Corr. 0·239 6M/4stn Msd 0·3 1↑ 3↓

84/852
OCT 16 0009 56·0s 48·83S 164·47E 12km M=4·1
3·2 0·59 0·91 R
Rsd 1·1s 4ph/3stn Dmin 347km Az.gap 350°
Corr. -0·889 6M/3stn Msd 0·3

84/853
OCT 16 0736 32·2s 45·17S 167·55E 118km M=4·3
0·8 0·04 0·05 8
Rsd 0·5s 13ph/9stn Dmin 62km Az.gap 221°
Corr. -0·038 9M/5stn Msd 0·3 1↑ 3↓

84/854
OCT 17 0904 24·1s 37·66S 179·01E 33km M=4·3
1·4 0·05 0·13 R
Rsd 0·5s 11ph/12stn Dmin 41km Az.gap 278°
Corr. 0·699 25M/16stn Msd 0·3 2↑ 1↓

84/855
OCT 17 1528 34·4s 41·26S 174·15E 52km M=3·8
0·3 0·02 0·02 4
Rsd 0·4s 15ph/20stn Dmin 12km Az.gap 86°
Corr. -0·381 10M/7stn Msd 0·3 4↑ 3↓
Felt Eastbourne (68).

84/856
OCT 17 1751 08·2s 37·51S 179·98E 33km M=4·0
1·9 0·09 0·18 R
Rsd 0·9s 12ph/8stn Dmin 128km Az.gap 298°
Corr. 0·047 18M/11stn Msd 0·2

84/857
OCT 17 2142 51·7s 34·15S 178·07W 237km M=4·6
2·2 0·33 0·29 92
Rsd 0·7s 7ph/5stn Dmin 497km Az.gap 342°
Corr. -0·392 11M/6stn Msd 0·3

84/858
OCT 18 0147 01·4s 48·77S 164·59E 33km M=4·0
1·9 0·11 0·30 R
Rsd 0·5s 5ph/5stn Dmin 336km Az.gap 337°
Corr. -0·515 8M/4stn Msd 0·2

84/859
OCT 18 1518 46·6s 37·32S 179·69E 33km M=3·6
1·4 0·07 0·12 R
Rsd 0·3s 6ph/4stn Dmin 109km Az.gap 321°
Corr. 0·398 8M/5stn Msd 0·3 1↑

84/860
OCT 18 1530 41·5s 37·42S 179·48E 33km M=3·8
1·2 0·06 0·11 R
Rsd 0·6s 14ph/10stn Dmin 88km Az.gap 290°
Corr. -0·011 16M/9stn Msd 0·2 1↑

84/861
OCT 19 0920 52·1s 35·95S 179·42E 33km M=3·8
1·7 0·10 0·13 R
Rsd 0·3s 5ph/5stn Dmin 209km Az.gap 326°
Corr. 0·627 10M/6stn Msd 0·2

84/862
OCT 19 1657 49·8s 38·19S 175·97E 198km M=3·7
0·8 0·04 0·05 7
Rsd 0·4s 8ph/6stn Dmin 48km Az.gap 128°
Corr. -0·181 10M/6stn Msd 0·3 1↑ 2↓

84/863
OCT 19 1659 51·7s 35·54S 178·63W 33km M=5·1
4·6 0·18 0·38 R
Rsd 0·8s 11ph/10stn Dmin 347km Az.gap 314°
Corr. 0·739 26M/15stn Msd 0·3 3↑

84/864
OCT 20 0450 36·6s 35·23S 178·97W 33km M=5·0
1·6 0·05 0·14 R
Rsd 0·5s 14ph/12stn Dmin 352km Az.gap 300°
Corr. 0·508 29M/16stn Msd 0·3

84/865
OCT 20 0500 53·3s 35·19S 178·74W 33km M=4·5
2·1 0·09 0·20 R
Rsd 0·6s 10ph/7stn Dmin 369km Az.gap 302°
Corr. 0·128 17M/11stn Msd 0·3 1↓

84/866
OCT 20 2106 10·1s 41·46S 172·20E 5km M=3·2
0·4 0·01 0·03 R
Rsd 0·3s 9ph/5stn Dmin 61km Az.gap 199°
Corr. -0·348 10M/6stn Msd 0·3 2↑
Felt Karamea (74) MM IV.

84/867
OCT 21 0845 04·1s 47·06S 166·19E 12km M=4·1
1·6 0·10 0·13 R
Rsd 0·9s 8ph/4stn Dmin 147km Az.gap 303°
Corr. 0·472 4M/2stn Msd 0·2 1↓

84/868
OCT 21 1216 02·1s 38·60S 175·88E 161km M=3·6
0·9 0·05 0·16 7
Rsd 0·8s 8ph/9stn Dmin 62km Az.gap 133°
Corr. -0·121 6M/4stn Msd 0·4 2↑ 2↓

84/869
OCT 21 1356 31·0s 39·54S 174·29E 176km M=4·1
0·6 0·03 0·06 7
Rsd 0·6s 16ph/12stn Dmin 114km Az.gap 175°
Corr. -0·508 5M/4stn Msd 0·3 6↑

84/870
OCT 21 1545 17·3s 37·46S 179·49E 33km M=4·0
1·6 0·08 0·13 R
Rsd 0·7s 8ph/5stn Dmin 87km Az.gap 324°
Corr. 0·129 10M/6stn Msd 0·2 1↑ 2↓

84/871
OCT 21 2101 27·4s 39·97S 175·11E 12km M=4·2
0·3 0·03 0·07 R
Rsd 0·6s 8ph/10stn Dmin 79km Az.gap 146°
Corr. -0·511 10M/6stn Msd 0·3 4↑ 3↓
Felt Marton (61), Levin (65).

84/872
OCT 21 2106 56·5s 40·05S 175·39E 12km M=3·8
0·2 0·01 0·07 R
Rsd 0·5s 10ph/10stn Dmin 64km Az.gap 152°
Corr. -0·521 5M/3stn Msd 0·4 4↑ 1↓

84/873
OCT 22 0153 21·3s 37·75S 177·62E 33km M=4·0
0·6 0·06 0·04 R
Rsd 0·9s 9ph/8stn Dmin 45km Az.gap 143°
Corr. -0·033 11M/7stn Msd 0·1 1↑ 4↓

84/874
OCT 22 0536 52·8s 38·36S 175·81E 214km M=3·9
3·9 0·14 0·12 37
Rsd 1·0s 8ph/7stn Dmin 53km Az.gap 148°
Corr. -0·231 10M/5stn Msd 0·2 3↑

84/875
OCT 24 0741 51·2s 39·99S 176·77E 33km M=4·1
0·3 0·03 0·05 R
Rsd 0·8s 17ph/16stn Dmin 48km Az.gap 168°
Corr. -0·649 14M/10stn Msd 0·2 5↑ 1↓
Felt Gwavas (59) MM IV.

84/876
OCT 24 1215 56·5s 34·95S 179·86E 33km M=4·7
7·4 0·46 0·57 R
Rsd 1·3s 7ph/7stn Dmin 326km Az.gap 333°
Corr. 0·431 13M/7stn Msd 0·2 1↓

84/877
OCT 24 1358 55·9s 39·79S 176·70E 5km M=3·5
0·5 0·04 0·06 R
Rsd 1·0s 11ph/10stn Dmin 28km Az.gap 181°
Corr. -0·568 12M/7stn Msd 0·2 4↑ 3↓

84/878
OCT 25 1018 45·6s 38·34S 177·58E 87km M=3·9
1·2 0·05 0·07 16
Rsd 1·1s 11ph/11stn Dmin 51km Az.gap 81°
Corr. -0·071 9M/6stn Msd 0·2 4↑ 7↓

84/879
OCT 26 0454 55·7s 38·81S 176·10E 139km M=3·7
1·0 0·04 0·07 11
Rsd 0·7s 11ph/9stn Dmin 59km Az.gap 107°
Corr. -0·445 9M/5stn Msd 0·2 4↑ 2↓

84/880
OCT 26 0615 48·2s 38·40S 175·79E 208km M=3·7
1·3 0·06 0·07 10
Rsd 0·5s 10ph/8stn Dmin 57km Az.gap 142°
Corr. -0·106 9M/5stn Msd 0·3 1↑ 4↓

84/881
OCT 26 1445 31·2s 37·99S 176·20E 226km M=3·7
4·8 0·19 0·15 41
Rsd 0·9s 6ph/5stn Dmin 59km Az.gap 173°
Corr. -0·009 7M/4stn Msd 0·2 2↑

84/882
OCT 26 1828 01·5s 41·29S 172·20E 12km M=3·5
1·1 0·06 0·11 R
Rsd 0·6s 9ph/8stn Dmin 50km Az.gap 218°
Corr. -0·816 7M/5stn Msd 0·2 1↑

84/883
OCT 26 1946 51·1s 40·89S 175·30E 27km M=3·8
0·4 0·04 0·05 3
Rsd 0·9s 11ph/12stn Dmin 31km Az.gap 127°
Corr. -0·581 9M/6stn Msd 0·4 2↑ 1↓

84/884
OCT 27 0323 33·0s 38·71S 177·38E 28km M=3·5
0·3 0·02 0·03 3
Rsd 0·6s 12ph/12stn Dmin 23km Az.gap 124°
Corr. -0·125 8M/5stn Msd 0·2 1↑

84/885
OCT 27 0946 04·4s 36·61S 177·73E 235km M=3·9
0·9 0·11 0·08 11
Rsd 0·3s 5ph/5stn Dmin 141km Az.gap 277°
Corr. 0·679 10M/6stn Msd 0·2 1↓

84/886
OCT 27 1949 44·6s 37·37S 177·13E 220km M=3·5
7·2 0·39 0·34 46
Rsd 1·1s 5ph/4stn Dmin 69km Az.gap 265°
Corr. 0·738 6M/3stn Msd 0·3

84/887
OCT 28 1821 25·2s 40·53S 176·79E 36km M=3·5
1·1 0·05 0·10 23
Rsd 0·6s 9ph/8stn Dmin 63km Az.gap 226°
Corr. -0·816 4M/2stn Msd 0·1 1↑

84/888
OCT 29 0322 08·0s 39·77S 177·27E 33km M=4·0
0·4 0·03 0·05 R
Rsd 0·5s 9ph/10stn Dmin 46km Az.gap 187°
Corr. -0·606 9M/6stn Msd 0·1 1↑
Felt Rotorua (33) MM V.

84/889
OCT 29 1247 18·6s 45·31S 167·21E 48km M=3·5
1·2 0·05 0·13 9
Rsd 0·5s 8ph/6stn Dmin 59km Az.gap 266°
Corr. -0·738 11M/6stn Msd 0·2 2↑

84/890
OCT 31 1124 37·1s 41·28S 172·66E 182km M=3·8
1·9 0·07 0·10 16
Rsd 0·7s 11ph/10stn Dmin 22km Az.gap 160°
Corr. -0·517 7M/5stn Msd 0·2 4↑ 1↓

84/891
OCT 31 1301 28·0s 38·48S 175·54E 199km M=3·8
1·6 0·06 0·08 15
Rsd 0·5s 11ph/10stn Dmin 61km Az.gap 168°
Corr. -0·303 10M/5stn Msd 0·3 1↑ 2↓

84/892
NOV 01 1140 06·6s 37·49S 178·98E 33km M=3·6
3·5 0·11 0·31 R
Rsd 1·0s 7ph/6stn Dmin 44km Az.gap 305°
Corr. 0·638 7M/5stn Msd 0·3 1↑

84/893
NOV 02 0054 30·5s 45·74S 165·45E 12km M=3·7
1·9 0·10 0·18 R
Rsd 0·7s 8ph/4stn Dmin 162km Az.gap 296°
Corr. -0·031 8M/4stn Msd 0·3

84/894
NOV 02 0624 06·7s 37·27S 176·88E 196km M=4·7
0·9 0·04 0·04 8
Rsd 0·4s 11ph/11stn Dmin 39km Az.gap 162°
Corr. 0·034 11M/6stn Msd 0·3 2↑ 2↓

84/895
NOV 02 0707 55·5s 40·64S 173·28E 175km M=3·9
1·1 0·05 0·05 10
Rsd 0·5s 11ph/10stn Dmin 68km Az.gap 168°
Corr. -0·453 5M/3stn Msd 0·4 4↑

84/896
NOV 02 1643 30·1s 44·64S 168·18E 12km M=3·6
0·6 0·05 0·05 R
Rsd 0·9s 9ph/8stn Dmin 21km Az.gap 179°
Corr. -0·025 7M/4stn Msd 0·3 2↑

84/897
NOV 03 0208 04·8s 36·68S 179·16E 251km M=4·3
1·7 0·20 0·15 25
Rsd 0·6s 7ph/8stn Dmin 125km Az.gap 318°
Corr. 0·231 11M/6stn Msd 0·2 2↓

84/898
NOV 03 0937 44·2s 38·58S 175·60E 179km M=3·8
1·6 0·09 0·12 13
Rsd 0·6s 9ph/8stn Dmin 67km Az.gap 229°
Corr. -0·849 11M/6stn Msd 0·3 4↑ 1↓

84/899
NOV 03 1054 37·8s 39·79S 176·96E 33km M=3·7
0·2 0·02 0·04 R
Rsd 0·3s 11ph/10stn Dmin 28km Az.gap 183°
Corr. -0·728 12M/7stn Msd 0·2 3↓
Felt Clifton (60) MM IV.

84/900
NOV 03 1604 40·7s 37·32S 177·23E 171km M=3·9
2·8 0·17 0·16 22
Rsd 1·4s 8ph/7stn Dmin 77km Az.gap 225°
Corr. 0·198 11M/6stn Msd 0·2 2↓

84/901
NOV 04 0729 01·0s 45·71S 167·02E 75km M=3·7
0·7 0·03 0·08 7
Rsd 0·6s 9ph/5stn Dmin 41km Az.gap 244°
Corr. -0·204 8M/4stn Msd 0·5 1↓

84/902
NOV 04 1048 15·4s 38·84S 175·35E 222km M=3·8
0·9 0·06 0·10 7
Rsd 0·7s 11ph/7stn Dmin 43km Az.gap 218°
Corr. -0·796 6M/3stn Msd 0·3

84/903
NOV 04 1301 44·2s 39·89S 174·29E 164km M=4·3
0·4 0·02 0·03 5
Rsd 0·3s 12ph/15stn Dmin 78km Az.gap 142°
Corr. -0·577 6M/4stn Msd 0·2 4↑ 1↓

84/904
NOV 04 1554 31·0s 37·63S 176·54E 325km M=4·2
0·5 0·09 0·05 4
Rsd 0·1s 7ph/4stn Dmin 56km Az.gap 286°
Corr. -0·646 10M/5stn Msd 0·3

84/905
NOV 04 2204 33·5s 38·78S 175·84E 149km M=3·8
0·9 0·05 0·09 7
Rsd 0·6s 10ph/9stn Dmin 41km Az.gap 200°
Corr. -0·640 6M/3stn Msd 0·3 3↑

84/906
NOV 05 2259 29·7s 34·75S 179·82W 224km M=5·0
5·3 0·34 0·38 34
Rsd 1·2s 11ph/10stn Dmin 358km Az.gap 307°
Corr. 0·642 6M/5stn Msd 0·4

84/907
NOV 07 1327 10·9s 44·17S 167·78E 12km M=3·6
1·7 0·09 0·14 R
Rsd 0·6s 7ph/6stn Dmin 57km Az.gap 281°
Corr. -0·709 6M/3stn Msd 0·4

84/908
NOV 07 1437 11·5s 37·66S 176·17E 305km M=3·9
1·0 0·17 0·27 24
Rsd 0·5s 7ph/5stn Dmin 196km Az.gap 282°
Corr. -0·928 4M/2stn Msd 0·2 1↑ 1↓

84/909
NOV 07 1927 42·2s 38·34S 175·85E 212km M=4·2
1·1 0·06 0·08 9
Rsd 0·5s 9ph/8stn Dmin 53km Az.gap 133°
Corr. -0·801 6M/4stn Msd 0·1 4↑ 2↓

84/910
NOV 07 2358 48·4s 44·86S 167·31E 12km M=4·4
1·2 0·07 0·11 R
Rsd 0·8s 8ph/6stn Dmin 52km Az.gap 262°
Corr. -0·580 5M/3stn Msd 0·4

84/911
NOV 08 1142 09·1s 37·04S 176·86E 279km M=4·2
1·9 0·13 0·16 15
Rsd 0·7s 9ph/7stn Dmin 105km Az.gap 305°
Corr. -0·145 10M/5stn Msd 0·3

84/912
NOV 08 1226 13·4s 38·20S 176·29E 168km M=3·7
1·7 0·09 0·10 16
Rsd 0·9s 10ph/7stn Dmin 65km Az.gap 219°
Corr. -0·512 8M/5stn Msd 0·4 1↑

84/913
NOV 08 2255 58·9s 47·57S 165·30E 12km M=3·9
1·4 0·11 0·13 R
Rsd 0·6s 7ph/4stn Dmin 225km Az.gap 321°
Corr. -0·158 5M/3stn Msd 0·2

84/914
NOV 08 2348 09·4s 39·50S 175·71E 33km M=3·6
0·3 0·02 0·05 R
Rsd 0·9s 13ph/11stn Dmin 27km Az.gap 91°
Corr. 0·107 10M/6stn Msd 0·3 1↑ 1↓
Felt Moawhango (58) MM 5.

84/915
NOV 08 2351 07·2s 39·61S 175·70E 5km M=3·3
0·2 0·01 0·03 R
Rsd 0·6s 12ph/10stn Dmin 39km Az.gap 100°
Corr. 0·122 6M/4stn Msd 0·3

Felt Moawhango (58) MM 4.

84/916
NOV 08 2351 36·9s 39·49S 175·60E 33km M=3·3
0·3 0·02 0·06 R
Rsd 0·7s 10ph/6stn Dmin 24km Az.gap 151°
Corr. -0·058 3M/2stn Msd 0·3
This event was followed 50 seconds later by a smaller one not listed here.

84/917
NOV 08 2357 57·5s 39·62S 175·69E 5km M=3·5
0·2 0·01 0·03 R
Rsd 0·7s 15ph/12stn Dmin 39km Az.gap 99°
Corr. 0·011 11M/6stn Msd 0·2 1↑ 1↓
Felt Moawhango (58) MM 4.

84/918
NOV 09 1406 30·4s 38·16S 175·59E 33km M=4·1
2·0 0·12 0·27 R
Rsd 0·6s 5ph/4stn Dmin 273km Az.gap 343°
Corr. 0·327 2M/1stn Msd 0·1

84/919
NOV 09 1613 46·2s 39·91S 176·75E 76km M=4·9
0·4 0·02 0·03 7
Rsd 0·6s 17ph/19stn Dmin 40km Az.gap 92°
Corr. -0·570 10M/7stn Msd 0·2 5↑ 5↓
Felt throughout the southern half of the North Island, maximum intensity MM 6 at Pahiatua (62).

84/920
NOV 09 1634 17·9s 45·95S 169·83E 12km M=3·4
0·5 0·02 0·05 R
Rsd 0·5s 9ph/5stn Dmin 54km Az.gap 149°
Corr. -0·027 7M/4stn Msd 0·2

84/921
NOV 09 1959 23·3s 45·16S 167·96E 12km M=3·9
0·6 0·04 0·07 R
Rsd 1·1s 7ph/6stn Dmin 55km Az.gap 150°
Corr. -0·253 6M/3stn Msd 0·4

84/922
NOV 10 1419 33·3s 45·26S 167·27E 60km M=3·4
0·6 0·02 0·04 8
Rsd 0·4s 9ph/5stn Dmin 61km Az.gap 237°
Corr. -0·465 8M/4stn Msd 0·2

84/923
NOV 10 1434 24·7s 38·19S 176·11E 196km M=4·2
2·1 0·09 0·08 17
Rsd 0·7s 8ph/7stn Dmin 58km Az.gap 133°
Corr. -0·404 14M/7stn Msd 0·3

84/924
NOV 10 1454 19·2s 33·78S 176·22W 257km M=4·8
1·9 0·41 0·56 45
Rsd 0·4s 6ph/5stn Dmin 747km Az.gap 354°
Corr. -0·882 10M/5stn Msd 0·3

84/925
NOV 10 2120 31·5s 30·98S 176·16W 448km M=5·1
5·7 1·38 2·61 52
Rsd 0·9s 5ph/4stn Dmin 949km Az.gap 355°
Corr. -0·935 3M/2stn Msd 0·3

84/926
NOV 11 1035 27·1s 42·34S 173·17E 12km M=4·9
0·2 0·02 0·02 R
Rsd 0·6s 9ph/7stn Dmin 44km Az.gap 95°
Corr. -0·156 30M/16stn Msd 0·2
Felt Murchison (80) MM 5, Maruia (87) MM 4 and Cheviot (96).

84/927
NOV 11 1104 50·3s 42·31S 173·13E 12km M=3·5
0·2 0·01 0·04 R
Rsd 0·3s 7ph/4stn Dmin 49km Az.gap 142°
Corr. 0·328 5M/3stn Msd 0·2
This event was the largest of a swarm of six shocks lasting six hours.

84/928
NOV 11 1343 26·8s 44·91S 167·78E 74km M=4·0
0·4 0·02 0·03 5
Rsd 0·5s 12ph/9stn Dmin 29km Az.gap 192°
Corr. -0·002 11M/6stn Msd 0·3

84/929
NOV 11 2320 13·0s 36·69S 177·49E 12km M=4·7
0·7 0·05 0·02 R
Rsd 0·3s 7ph/6stn Dmin 97km Az.gap 269°
Corr. 0·503 12M/8stn Msd 0·3 1↑

84/930
NOV 12 0521 24·6s 39·01S 176·07E 86km M=4·0
0·5 0·03 0·04 7
Rsd 0·8s 13ph/13stn Dmin 26km Az.gap 94°
Corr. -0·494 6M/4stn Msd 0·2 3↑

84/931
NOV 12 1333 09·0s 34·62S 179·44W 150km M=4·6
3·8 0·24 0·31 42
Rsd 0·7s 8ph/7stn Dmin 386km Az.gap 337°
Corr. 0·369 6M/4stn Msd 0·3

84/932
NOV 12 1949 05·3s 40·94S 172·57E 12km M=3·7
3·7 0·09 0·34 R
Rsd 0·9s 7ph/6stn Dmin 22km Az.gap 297°
Corr. -0·535 3M/2stn Msd 0·3
Felt Bainham (72).

84/933
NOV 12 2256 33·2s 37·54S 179·22E 27km M=5·0
4·2 0·11 0·32 7
Rsd 0·6s 11ph/11stn Dmin 62km Az.gap 301°
Corr. 0·904 19M/13stn Msd 0·2 2↓

84/934
NOV 13 0205 39·2s 37·41S 179·43E 33km M=3·9
3·5 0·13 0·29 R
Rsd 0·1s 5ph/5stn Dmin 84km Az.gap 316°
Corr. 0·984 4M/3stn Msd 0·2
This event was one of a swarm of six lasting eleven hours.

84/935
NOV 13 1033 43·9s 39·46S 175·76E 12km M=3·6
0·2 0·01 0·04 R
Rsd 0·3s 8ph/8stn Dmin 34km Az.gap 176°
Corr. -0·159 3M/2stn Msd 0·4 1↑ 1↓

84/936
NOV 13 1041 38·0s 39·22S 175·47E 140km M=3·7
0·5 0·04 0·06 5
Rsd 0·5s 7ph/6stn Dmin 7km Az.gap 230°
Corr. -0·741 5M/3stn Msd 0·4 1↑

84/937
NOV 13 1710 07·6s 37·47S 176·85E 232km M=4·0
1·5 0·60 0·84 73
Rsd 0·7s 7ph/5stn Dmin 166km Az.gap 295°
Corr. -0·981 2M/1stn Msd 0·4

84/938
NOV 14 2023 16·3s 32·43S 179·68W 488km M=5·1
2·0 0·34 0·79 35
Rsd 0·5s 8ph/6stn Dmin 606km Az.gap 347°
Corr. -0·828 4M/2stn Msd 0·1

84/939
NOV 15 0745 00·2s 39·23S 176·96E 66km M=4·0
0·8 0·04 0·06 11
Rsd 0·7s 10ph/10stn Dmin 38km Az.gap 144°
Corr. -0·478 7M/4stn Msd 0·2

84/940
NOV 16 2017 20·3s 44·80S 166·79E 5km M=4·0
1·5 0·13 0·11 R
Rsd 0·7s 9ph/6stn Dmin 90km Az.gap 283°
Corr. -0·517 3M/2stn Msd 0·1

84/941
NOV 17 0529 37·1s 39·61S 175·79E 12km M=4·1
0·2 0·01 0·04 R
Rsd 0·7s 15ph/13stn Dmin 42km Az.gap 136°
Corr. 0·029 15M/9stn Msd 0·3 1↑ 1↓
Felt Moawhango (58) MM 5 and Waiouru (50) MM 4. This event belonged to a swarm of five lasting one and a half hours.

84/942
NOV 17 1145 09·5s 32·86S 178·99W 157km M=5·5
1·7 0·19 0·47 R
Rsd 2·4s 16ph/16stn Dmin 412km Az.gap 187°
Corr. -0·818 11M/7stn Msd 0·2
See USGS solution.

84/943
NOV 17 1321 44·3s 43·02S 171·32E 12km M=3·7
0·2 0·02 0·03 R
Rsd 0·2s 5ph/5stn Dmin 55km Az.gap 158°
Corr. -0·219 5M/3stn Msd 0·3

84/944
NOV 19 1009 44·0s 42·22S 173·07E 33km M=4·1
0·4 0·03 0·05 R
Rsd 0·8s 11ph/11stn Dmin 49km Az.gap 145°
Corr. -0·065 8M/6stn Msd 0·2 3↑ 4↓

84/945
NOV 19 1932 27·1s 39·47S 175·74E 12km M=3·5
0·7 0·02 0·11 R
Rsd 0·5s 8ph/7stn Dmin 34km Az.gap 215°
Corr. 0·626 3M/2stn Msd 0·5 1↑ 2↓
Felt Moawhango (58) MM IV.

84/946
NOV 19 2151 35·3s 39·48S 175·67E 12km M=3·9
0·1 0·01 0·02 R
Rsd 0·4s 13ph/12stn Dmin 33km Az.gap 124°
Corr. -0·159 14M/8stn Msd 0·3 5↓
Felt Ohakune (49) MM V and Moawhango (58) MM IV.

84/947
NOV 20 1222 51·0s 38·72S 175·20E 268km M=3·8
1·5 0·07 0·11 13
Rsd 0·4s 10ph/9stn Dmin 61km Az.gap 183°
Corr. -0·785 6M/3stn Msd 0·2

84/948
NOV 20 2139 06·9s 39·30S 176·37E 89km M=3·9
0·5 0·02 0·04 7
Rsd 0·7s 18ph/16stn Dmin 48km Az.gap 62°
Corr. -0·296 9M/5stn Msd 0·2 3↑ 3↓

84/949
NOV 21 0029 45·6s 37·61S 176·90E 286km M=4·2
0·7 0·08 0·10 7
Rsd 0·3s 10ph/7stn Dmin 151km Az.gap 287°
Corr. -0·752 3M/2stn Msd 0·1

84/950
NOV 21 1127 27·9s 44·08S 168·76E 12km M=3·9
1·2 0·09 0·06 R
Rsd 0·7s 8ph/7stn Dmin 94km Az.gap 216°
Corr. -0·453 9M/6stn Msd 0·2 1↓

84/951
NOV 21 1751 34·7s 39·49S 175·67E 12km M=3·9
0·1 0·01 0·02 R
Rsd 0·4s 12ph/11stn Dmin 34km Az.gap 89°
Corr. -0·113 14M/7stn Msd 0·3 2↑ 4↓
Felt Moawhango (58) MM V and Ohingaiti (64).

84/952
NOV 21 2128 56·2s 39·61S 175·83E 12km M=3·1
0·2 0·01 0·04 R
Rsd 0·2s 9ph/8stn Dmin 52km Az.gap 193°
Corr. 0·013 2M/1stn Msd 0·4 2↑
Felt Moawhango (58) MM IV.

84/953
NOV 22 0550 46·8s 38·50S 177·89E 12km M=3·6
0·5 0·04 0·03 R
Rsd 0·5s 8ph/7stn Dmin 20km Az.gap 175°
Corr. 0·340 7M/5stn Msd 0·3 1↑

84/954
NOV 22 2031 28·2s 38·54S 177·70E 12km M=3·8
0·4 0·03 0·04 R
Rsd 0·8s 8ph/7stn Dmin 31km Az.gap 101°
Corr. -0·028 6M/4stn Msd 0·3 1↑ 1↓

84/955
NOV 24 1730 00·5s 38·91S 175·59E 127km M=4·1
0·3 0·01 0·02 3
Rsd 0·3s 17ph/17stn Dmin 16km Az.gap 105°
Corr. -0·487 12M/7stn Msd 0·2 6↑ 1↓

84/956
NOV 25 0609 03·2s 39·91S 177·15E 12km M=3·8
0·3 0·02 0·03 R
Rsd 0·3s 12ph/13stn Dmin 48km Az.gap 196°
Corr. -0·556 11M/6stn Msd 0·2 1↓

84/957
NOV 26 0037 11·8s 38·54S 175·84E 172km M=4·4
0·7 0·03 0·04 6
Rsd 0·6s 17ph/13stn Dmin 73km Az.gap 99°
Corr. -0·385 5M/3stn Msd 0·3 5↑ 2↓

84/958
NOV 26 0336 55·6s 35·56S 179·07E 331km M=4·7
1·7 0·18 0·25 15
Rsd 0·7s 12ph/11stn Dmin 242km Az.gap 322°
Corr. -0·477 6M/4stn Msd 0·1

84/959
NOV 26 0855 16·2s 41·73S 174·53E 30km M=4·0
0·2 0·02 0·01 0
Rsd 0·3s 15ph/17stn Dmin 26km Az.gap 200°
Corr. -0·446 7M/4stn Msd 0·4 4↑ 5↓
Felt Wellington region (68), maximum intensity MM IV.

84/960
NOV 26 1546 04·5s 43·68S 170·82E 5km M=3·5
0·2 0·03 0·05 R
Rsd 0·3s 8ph/5stn Dmin 90km Az.gap 137°
Corr. -0·869 9M/6stn Msd 0·1

84/961
NOV 26 1731 19·8s 31·73S 177·31W 423km M=5·3
1·2 0·10 0·21 16
Rsd 0·6s 19ph/15stn Dmin 762km Az.gap 318°
Corr. -0·594 9M/6stn Msd 0·3

84/962
NOV 26 1733 41·7s 38·34S 175·85E 220km M=4·2
0·8 0·04 0·05 6
Rsd 0·5s 18ph/13stn Dmin 53km Az.gap 132°
Corr. -0·444 5M/3stn Msd 0·2

84/963
NOV 28 0519 54·3s 44·79S 169·20E 12km M=3·2
0·4 0·03 0·05 R
Rsd 0·5s 7ph/5stn Dmin 41km Az.gap 185°
Corr. -0·539 7M/3stn Msd 0·2
Felt Wanaka (123) MM V.

84/964
NOV 28 0835 13·8s 38·16S 176·34E 1km M=3·4
0·6 0·05 0·04 R
Rsd 0·8s 9ph/8stn Dmin 17km Az.gap 141°
Corr. -0·231 8M/5stn Msd 0·4 1↓
Felt Ngapouri Road and Waiotapu (33) MM V. Largest event of a swarm lasting about 3 hours. One other event felt Ngapouri Road (33) MM IV at 08h 37m.

84/965
NOV 28 1545 31·6s 38·07S 176·32E 175km M=3·6
1·3 0·08 0·06 10
Rsd 0·4s 9ph/8stn Dmin 60km Az.gap 158°
Corr. 0·064 6M/3stn Msd 0·3 1↑ 1↓

84/966
NOV 29 1422 43·3s 32·96S 178·26W 260km M=4·6
1·6 0·15 0·35 29
Rsd 0·5s 9ph/6stn Dmin 705km Az.gap 343°
Corr. -0·700 5M/3stn Msd 0·1

84/967
NOV 30 0520 38·6s 45·07S 167·64E 83km M=3·8
0·4 0·04 0·04 9
Rsd 0·4s 11ph/7stn Dmin 80km Az.gap 242°
Corr. -0·627 8M/4stn Msd 0·4 1↓

84/968
NOV 30 1553 54·5s 36·85S 177·02E 258km M=3·8
0·7 0·06 0·08 5
Rsd 0·2s 11ph/8stn Dmin 126km Az.gap 311°
Corr. -0·636 5M/3stn Msd 0·1

84/969
DEC 01 0908 15·8s 39·23S 174·65E 199km M=4·9
0·6 0·02 0·03 6
Rsd 0·4s 18ph/18stn Dmin 23km Az.gap 106°
Corr. -0·594 11M/7stn Msd 0·2 7↑ 5↓
Felt Ahuahu Valley (57).

84/970
DEC 01 1806 28·5s 33·39S 177·50W 309km M=4·5
1·6 0·28 0·52 28
Rsd 0·5s 9ph/6stn Dmin 709km Az.gap 350°
Corr. -0·907 3M/2stn Msd 0·1

84/971
DEC 02 1010 52·3s 41·18S 174·59E 56km M=3·5
0·2 0·01 0·02 3
Rsd 0·4s 26ph/21stn Dmin 11km Az.gap 82°
Corr. -0·357 6M/4stn Msd 0·2 5↑ 3↓
Felt Wellington, Hutt Valley (68), Fighting Bay (78) MM IV. See also Wellington Net epicentre.

84/972
DEC 03 1303 20·6s 40·85S 175·28E 24km M=3·7
0·1 0·01 0·01 2
Rsd 0·4s 22ph/20stn Dmin 31km Az.gap 70°
Corr. -0·342 14M/8stn Msd 0·3 4↑ 3↓
See also Wellington net epicentre.

84/973
DEC 03 1715 09·6s 38·97S 175·72E 11km M=3·4
0·2 0·01 0·02 2
Rsd 0·4s 13ph/10stn Dmin 16km Az.gap 93°
Corr. -0·040 11M/7stn Msd 0·2
Felt Turangi (40) MM V, Waihora Road (40) MM IV.

84/974
DEC 04 2052 00·3s 44·52S 168·31E 15km M=3·9
1·0 0·04 0·05 7
Rsd 0·8s 11ph/7stn Dmin 98km Az.gap 207°
Corr. -0·391 9M/5stn Msd 0·2

84/975
DEC 05 1116 47·0s 40·63S 176·37E 53km M=3·4
0·7 0·04 0·06 9
Rsd 0·8s 13ph/9stn Dmin 33km Az.gap 169°
Corr. -0·557 6M/4stn Msd 0·3 3↑ 1↓

84/976
DEC 05 1524 36·3s 38·12S 176·00E 278km M=4·0
0·7 0·04 0·07 6
Rsd 0·5s 14ph/9stn Dmin 46km Az.gap 141°
Corr. -0·480 13M/7stn Msd 0·3

84/977
DEC 05 1746 44·5s 39·30S 176·40E 68km M=3·7
0·3 0·02 0·03 5
Rsd 0·6s 19ph/14stn Dmin 45km Az.gap 72°
Corr. -0·242 11M/7stn Msd 0·2 1↑ 1↓
Felt Patoka (52) MM IV.

84/978
DEC 05 1824 47·0s 37·77S 177·97W 33km M=4·1
1·4 0·08 0·12 R
Rsd 0·6s 11ph/9stn Dmin 307km Az.gap 323°
Corr. 0·040 6M/4stn Msd 0·2

84/979
DEC 05 2258 29·4s 43·31S 171·77E 4km M=3·5
0·4 0·02 0·02 3
Rsd 0·4s 11ph/7stn Dmin 77km Az.gap 115°
Corr. -0·040 9M/5stn Msd 0·3
Felt Coleridge Power Station (100) MM IV.

84/980
DEC 06 0428 49·5s 40·14S 174·87E 1km M=3·4
0·2 0·01 0·03 R
Rsd 0·7s 17ph/12stn Dmin 74km Az.gap 99°
Corr. 0·014 9M/5stn Msd 0·3 2↑ 1↓

84/981
DEC 07 2328 40·9s 49·52S 164·17E 33km M=4·8
1·4 0·04 0·20 R
Rsd 0·9s 10ph/5stn Dmin 413km Az.gap 257°
Corr. 0·002 10M/6stn Msd 0·3

84/982
DEC 07 2337 52·6s 43·64S 170·74E 2km M=3·8
0·5 0·04 0·05 5
Rsd 0·7s 11ph/10stn Dmin 90km Az.gap 171°
Corr. -0·554 9M/6stn Msd 0·3

84/983
DEC 08 1723 19·3s 44·45S 169·56E 1km M=3·6
0·6 0·04 0·05 R
Rsd 0·7s 10ph/6stn Dmin 47km Az.gap 170°
Corr. -0·695 11M/6stn Msd 0·3

84/984
DEC 09 1125 42·7s 36·83S 177·46E 12km M=4·6
0·8 0·05 0·07 R
Rsd 0·8s 12ph/11stn Dmin 81km Az.gap 205°
Corr. 0·516 12M/10stn Msd 0·2

84/985
DEC 09 1419 11·6s 35·88S 179·12E 33km M=4·0
2·4 0·13 0·20 R
Rsd 0·9s 9ph/7stn Dmin 208km Az.gap 320°
Corr. 0·460 6M/4stn Msd 0·3

84/986
DEC 10 0655 01·5s 38·20S 178·52E 1km M=3·4
2·2 0·07 0·16 R
Rsd 0·9s 6ph/8stn Dmin 56km Az.gap 219°
Corr. 0·526 7M/5stn Msd 0·4

84/987
DEC 11 0516 26·7s 34·98S 179·13E 33km M=4·2
2·3 0·15 0·16 R
Rsd 0·6s 7ph/6stn Dmin 305km Az.gap 326°
Corr. 0·243 7M/6stn Msd 0·2

84/988
DEC 13 1745 39·6s 35·64S 178·44E 246km M=4·4
1·7 0·18 0·18 26
Rsd 1·0s 12ph/8stn Dmin 228km Az.gap 313°
Corr. -0·126 10M/6stn Msd 0·2

84/989
DEC 13 2117 41·8s 39·14S 176·94E 32km M=3·5
0·3 0·03 0·05 3
Rsd 0·8s 14ph/12stn Dmin 41km Az.gap 133°
Corr. -0·544 14M/8stn Msd 0·3

84/990
DEC 14 0044 31·2s 37·59S 178·44E 70km M=3·8
1·0 0·04 0·06 8
Rsd 0·4s 10ph/8stn Dmin 15km Az.gap 228°
Corr. 0·565 6M/4stn Msd 0·3

84/991
DEC 14 0431 54·1s 37·66S 176·81E 164km M=4·8
1·0 0·05 0·04 8
Rsd 0·7s 14ph/12stn Dmin 37km Az.gap 172°
Corr. -0·182 9M/5stn Msd 0·2 4↑

84/992
DEC 14 0536 03·6s 42·36S 173·75E 10km M=4·0
0·4 0·03 0·04 2
Rsd 0·8s 12ph/10stn Dmin 9km Az.gap 169°
Corr. -0·316 8M/6stn Msd 0·3 1↑ 1↓
Felt Kaikoura (90) MM III.

84/993
DEC 14 1221 33·9s 43·17S 173·20E 47km M=4·0
0·4 0·03 0·04 9
Rsd 0·6s 16ph/11stn Dmin 65km Az.gap 184°
Corr. -0·595 5M/4stn Msd 0·2 2↓
Felt Akaroa (111) MM V.

84/994
DEC 14 1339 31·2s 38·09S 178·98E 75km M=4·3
0·9 0·02 0·08 6
Rsd 0·4s 12ph/11stn Dmin 58km Az.gap 267°
Corr. 0·013 10M/6stn Msd 0·2 2↑

84/995
DEC 15 1311 47·1s 42·25S 172·78E 13km M=4·1
0·3 0·02 0·03 3
Rsd 0·6s 16ph/15stn Dmin 49km Az.gap 104°
Corr. -0·290 11M/8stn Msd 0·2 2↑ 1↓

84/996
DEC 16 2158 24·0s 38·58S 175·69E 176km M=4·0
1·2 0·06 0·10 10
Rsd 0·9s 13ph/10stn Dmin 16km Az.gap 111°
Corr. -0·638 4M/3stn Msd 0·3 5↑

84/997
DEC 18 0549 02·0s 37·12S 176·57E 438km M=5·5
0·7 0·04 0·06 6
Rsd 0·5s 19ph/15stn Dmin 71km Az.gap 155°
Corr. 0·361 10M/6stn Msd 0·2 2↑ 7↓

84/998
DEC 18 0620 37·5s 33·67S 177·79W 33km M=4·8
5·9 0·50 0·39 R
Rsd 1·0s 7ph/7stn Dmin 556km Az.gap 330°
Corr. -0·043 8M/4stn Msd 0·4

84/999
DEC 18 1709 52·9s 41·10S 174·00E 46km M=3·6
0·4 0·03 0·03 7
Rsd 0·6s 10ph/9stn Dmin 26km Az.gap 122°
Corr. -0·282 4M/3stn Msd 0·2 1↑ 1↓

84/1000
DEC 19 1512 49·2s 38·08S 176·10E 182km M=4·1
1·3 0·05 0·07 10
Rsd 0·8s 12ph/9stn Dmin 40km Az.gap 151°
Corr. -0·302 12M/6stn Msd 0·2 1↑

84/1001
DEC 20 2053 08·0s 40·91S 175·76E 28km M=4·0
0·3 0·02 0·03 2
Rsd 0·5s 13ph/10stn Dmin 35km Az.gap 116°
Corr. -0·071 7M/4stn Msd 0·3 4↑ 1↓

84/1002
DEC 22 0333 26·5s 40·52S 174·40E 84km M=3·8
0·3 0·01 0·02 4
Rsd 0·3s 15ph/11stn Dmin 58km Az.gap 114°
Corr. -0·479 5M/3stn Msd 0·4 2↑

84/1003
DEC 22 1904 06·1s 38·27S 176·00E 173km M=4·0
0·9 0·04 0·05 7
Rsd 0·6s 12ph/7stn Dmin 56km Az.gap 117°
Corr. -0·046 11M/6stn Msd 0·3 2↑

84/1004
DEC 23 2059 33·1s 38·05S 176·43E 179km M=3·7
1·6 0·09 0·07 12
Rsd 0·7s 9ph/7stn Dmin 22km Az.gap 163°
Corr. 0·257 7M/4stn Msd 0·5 1↑

84/1005
DEC 24 1426 21·5s 33·93S 177·80W 33km M=4·6
2·2 0·19 0·33 R
Rsd 0·7s 8ph/6stn Dmin 643km Az.gap 342°
Corr. -0·636 10M/6stn Msd 0·2

84/1006
DEC 25 0414 50·2s 38·68S 176·08E 128km M=4·0
0·6 0·02 0·03 6
Rsd 0·5s 14ph/8stn Dmin 62km Az.gap 112°
Corr. 0·010 6M/3stn Msd 0·2 2↓

84/1007
DEC 25 1918 25·1s 34·95S 179·46W 244km M=4·9
2·1 0·26 0·18 26
Rsd 0·8s 10ph/7stn Dmin 353km Az.gap 336°
Corr. -0·460 10M/5stn Msd 0·2 1↓

84/1008
DEC 26 0940 26·8s 40·50S 176·41E 32km M=3·8
0·2 0·02 0·03 2
Rsd 0·5s 18ph/15stn Dmin 48km Az.gap 163°
Corr. -0·646 12M/7stn Msd 0·2 4↑

84/1009
DEC 26 1913 12·8s 36·45S 177·98E 12km M=4·2
1·4 0·08 0·08 R
Rsd 0·6s 6ph/4stn Dmin 147km Az.gap 288°
Corr. 0·573 11M/6stn Msd 0·2

84/1010
DEC 26 2357 25·7s 37·90S 177·60E 44km M=4·1
0·5 0·04 0·03 9
Rsd 0·6s 9ph/8stn Dmin 55km Az.gap 167°
Corr. 0·032 8M/5stn Msd 0·1 2↑ 3↓

84/1011
DEC 27 0740 24·7s 37·20S 177·28E 187km M=4·1
0·5 0·03 0·03 4
Rsd 0·3s 12ph/7stn Dmin 91km Az.gap 234°
Corr. -0·064 10M/6stn Msd 0·2 1↑

84/1012
DEC 27 0839 57·4s 37·84S 177·51E 47km M=4·0
0·2 0·02 0·01 3
Rsd 0·3s 9ph/7stn Dmin 48km Az.gap 174°
Corr. -0·032 7M/4stn Msd 0·2 4↓

84/1013
DEC 27 1758 27·1s 36·42S 177·65E 12km M=3·8
1·8 0·11 0·07 R
Rsd 0·7s 5ph/4stn Dmin 162km Az.gap 283°
Corr. 0·417 5M/3stn Msd 0·1

84/1014
DEC 27 2042 50·3s 38·20S 176·20E 5km M=2·6
R R R R
Rsd 0·6s 4ph/2stn Dmin 27km Az.gap 199°
Corr. R 1M/1stn Msd ND
Felt Rotorua (33) MM III.

84/1015
DEC 28 0033 17·3s 36·70S 177·53E 12km M=4·0
0·8 0·05 0·05 R
Rsd 0·5s 8ph/6stn Dmin 96km Az.gap 269°
Corr. 0·424 5M/5stn Msd 0·1

84/1016
DEC 28 0056 05·6s 36·61S 177·54E 12km M=4·1
1·8 0·12 0·11 R
Rsd 0·9s 7ph/6stn Dmin 150km Az.gap 274°
Corr. 0·639 5M/5stn Msd 0·1

84/1017
DEC 28 0058 30·1s 36·62S 177·62E 12km M=4·2
1·1 0·07 0·08 R
Rsd 0·8s 9ph/7stn Dmin 108km Az.gap 275°
Corr. -0·046 5M/5stn Msd 0·1

84/1018
DEC 28 0131 00·1s 36·70S 177·66E 12km M=4·2
1·2 0·08 0·07 R
Rsd 0·8s 9ph/7stn Dmin 101km Az.gap 271°
Corr. 0·409 5M/5stn Msd 0·2

84/1019
DEC 28 0141 31·8s 36·80S 177·60E 12km M=3·9
2·2 0·17 0·05 R
Rsd 0·6s 6ph/6stn Dmin 130km Az.gap 265°
Corr. -0·277 5M/5stn Msd 0·2

84/1020
DEC 28 0210 04·1s 36·69S 177·60E 12km M=4·2
1·0 0·07 0·06 R
Rsd 0·6s 10ph/7stn Dmin 100km Az.gap 271°
Corr. 0·220 5M/5stn Msd 0·2

84/1021
DEC 28 0224 13·8s 36·86S 177·56E 12km M=4·2
1·4 0·10 0·05 R
Rsd 0·6s 7ph/6stn Dmin 81km Az.gap 261°
Corr. 0·380 5M/5stn Msd 0·2

84/1022
DEC 28 0246 53·0s 36·63S 177·52E 12km M=4·0
1·8 0·12 0·06 R
Rsd 0·6s 8ph/6stn Dmin 150km Az.gap 273°
Corr. 0·366 5M/5stn Msd 0·2

84/1023
DEC 28 0312 15·9s 36·61S 177·67E 12km M=4·0
1·4 0·09 0·07 R
Rsd 0·8s 9ph/6stn Dmin 110km Az.gap 275°
Corr. 0·292 5M/5stn Msd 0·2

84/1024
DEC 28 0323 43·0s 36·85S 177·54E 12km M=3·8
3·1 0·24 0·10 R
Rsd 0·9s 6ph/5stn Dmin 130km Az.gap 262°
Corr. 0·589 5M/5stn Msd 0·1

84/1025
DEC 28 0337 21·8s 36·65S 177·62E 12km M=4·0
1·2 0·07 0·06 R
Rsd 0·7s 9ph/6stn Dmin 105km Az.gap 273°
Corr. -0·056 5M/5stn Msd 0·2

84/1026
DEC 28 0339 19·0s 36·57S 177·70E 12km M=4·2
2·8 0·16 0·11 R
Rsd 0·5s 6ph/5stn Dmin 145km Az.gap 278°
Corr. 0·875 5M/5stn Msd 0·1
In the coda of preceding shock.

84/1027
DEC 28 0402 55·1s 36·61S 177·64E 12km M=4·0
1·7 0·11 0·07 R
Rsd 0·8s 7ph/6stn Dmin 144km Az.gap 276°
Corr. 0·415 5M/5stn Msd 0·1
In the coda of a small shock.

84/1028
DEC 28 0423 05·8s 36·60S 177·62E 12km M=4·4
4·1 0·26 0·12 R
Rsd 0·9s 7ph/6stn Dmin 147km Az.gap 275°
Corr. 0·527 5M/5stn Msd 0·2
In the coda of a small shock.

84/1029
DEC 28 0427 59·4s 36·57S 177·59E 12km M=4·9
0·7 0·05 0·04 R
Rsd 0·4s 9ph/7stn Dmin 150km Az.gap 220°
Corr. 0·815 4M/4stn Msd 0·2

84/1030
DEC 28 0443 47·7s 36·65S 177·49E 12km M=4·1
1·6 0·11 0·10 R
Rsd 0·8s 6ph/5stn Dmin 149km Az.gap 271°
Corr. 0·585 3M/3stn Msd 0·2

84/1031
DEC 28 0453 38·5s 36·66S 177·57E 12km M=4·5
1·0 0·07 0·06 R
Rsd 0·7s 10ph/8stn Dmin 102km Az.gap 215°
Corr. 0·561 6M/6stn Msd 0·2

84/1032
DEC 28 0457 36·4s 36·53S 177·58E 12km M=4·9
2·0 0·13 0·07 R
Rsd 0·9s 10ph/8stn Dmin 116km Az.gap 221°
Corr. 0·433 7M/7stn Msd 0·3

84/1033
DEC 28 0528 04·9s 36·59S 177·49E 12km M=4·2
3·4 0·25 0·08 R
Rsd 0·7s 5ph/4stn Dmin 154km Az.gap 274°
Corr. 0·114 5M/5stn Msd 0·2

84/1034
DEC 28 0628 37·6s 36·73S 177·65E 12km M=4·4
1·0 0·07 0·04 R
Rsd 0·7s 11ph/7stn Dmin 98km Az.gap 270°
Corr. 0·064 4M/4stn Msd 0·3

84/1035
DEC 28 0748 11·2s 36·67S 177·58E 12km M=4·2
1·2 0·08 0·07 R
Rsd 0·9s 9ph/7stn Dmin 102km Az.gap 271°
Corr. -0·134 4M/4stn Msd 0·3

84/1036
DEC 28 0803 03·9s 36·74S 177·65E 12km M=4·2
1·8 0·13 0·05 R
Rsd 0·8s 9ph/7stn Dmin 96km Az.gap 269°
Corr. 0·414 4M/4stn Msd 0·3

84/1037
DEC 28 0814 54·9s 36·73S 177·58E 12km M=4·1
1·4 0·10 0·06 R
Rsd 0·6s 8ph/5stn Dmin 137km Az.gap 269°
Corr. 0·520 4M/4stn Msd 0·2

84/1038
DEC 28 0833 13·0s 36·74S 177·45E 12km M=3·9
1·9 0·13 0·06 R
Rsd 0·9s 8ph/6stn Dmin 143km Az.gap 266°
Corr. 0·201 5M/5stn Msd 0·1

84/1039
DEC 28 0845 31·4s 36·84S 177·49E 12km M=4·2
1·0 0·07 0·04 R
Rsd 0·4s 8ph/6stn Dmin 134km Az.gap 262°
Corr. 0·539 5M/5stn Msd 0·2

84/1040
DEC 28 0858 14·0s 36·76S 177·55E 12km M=3·9
1·0 0·07 0·05 R
Rsd 0·6s 10ph/6stn Dmin 137km Az.gap 267°
Corr. 0·526 4M/4stn Msd 0·2

84/1041
DEC 28 0918 23·5s 36·70S 177·55E 12km M=4·2
1·3 0·09 0·06 R
Rsd 0·8s 10ph/6stn Dmin 141km Az.gap 270°
Corr. 0·490 5M/5stn Msd 0·2

84/1042
DEC 28 0938 41·8s 36·64S 177·64E 12km M=4·1
1·8 0·12 0·08 R
Rsd 1·1s 9ph/6stn Dmin 141km Az.gap 274°
Corr. 0·463 5M/5stn Msd 0·2

84/1043
DEC 28 0952 40·1s 36·67S 177·63E 12km M=4·2
1·8 0·12 0·08 R
Rsd 1·1s 9ph/6stn Dmin 140km Az.gap 273°
Corr. 0·541 5M/5stn Msd 0·2

84/1044
DEC 28 1014 35·7s 36·74S 177·59E 12km M=4·1
1·2 0·08 0·05 R
Rsd 0·8s 10ph/6stn Dmin 136km Az.gap 269°
Corr. 0·454 5M/5stn Msd 0·2

84/1045
DEC 28 1101 55·4s 36·63S 177·62E 12km M=4·2
1·4 0·09 0·07 R
Rsd 0·8s 8ph/6stn Dmin 144km Az.gap 275°
Corr. 0·568 4M/4stn Msd 0·3

84/1046
DEC 28 1116 58·1s 36·62S 177·57E 12km M=5·3
1·4 0·10 0·08 R
Rsd 0·9s 9ph/7stn Dmin 148km Az.gap 217°
Corr. 0·432 7M/7stn Msd 0·3 2↑

84/1047
DEC 28 1123 28·3s 36·64S 177·63E 12km M=4·6
0·7 0·05 0·04 R
Rsd 0·5s 10ph/7stn Dmin 143km Az.gap 219°
Corr. 0·619 6M/5stn Msd 0·2 1↑

84/1048
DEC 28 1146 37·5s 36·84S 177·51E 12km M=4·0
1·0 0·07 0·03 R
Rsd 0·5s 9ph/6stn Dmin 132km Az.gap 261°
Corr. 0·346 5M/5stn Msd 0·2

84/1049
DEC 28 1147 44·7s 36·75S 177·58E 12km M=4·7
0·6 0·04 0·04 R
Rsd 0·4s 8ph/7stn Dmin 136km Az.gap 212°
Corr. 0·807 2M/2stn Msd 0·1
In the coda of a small shock.

84/1050
DEC 28 1232 34·9s 36·59S 177·63E 12km M=4·0
1·8 0·12 0·11 R
Rsd 0·9s 8ph/6stn Dmin 148km Az.gap 276°
Corr. 0·609 5M/5stn Msd 0·1

84/1051
DEC 28 1235 35·7s 36·79S 177·54E 12km M=4·4
1·9 0·14 0·05 R
Rsd 0·9s 9ph/6stn Dmin 134km Az.gap 264°
Corr. 0·411 4M/4stn Msd 0·4

84/1052
DEC 28 1305 35·2s 36·66S 177·53E 12km M=5·1
1·2 0·09 0·05 R
Rsd 0·8s 11ph/7stn Dmin 146km Az.gap 214°
Corr. 0·551 7M/7stn Msd 0·3

84/1053
DEC 28 1311 17·6s 36·67S 177·57E 12km M=4·3
1·6 0·10 0·07 R
Rsd 0·8s 7ph/6stn Dmin 143km Az.gap 271°
Corr. 0·390 5M/5stn Msd 0·3
In the coda of preceding shock.

84/1054
DEC 28 1316 28·8s 36·69S 177·56E 12km M=3·7
1·5 0·09 0·08 R
Rsd 0·7s 8ph/6stn Dmin 141km Az.gap 270°
Corr. 0·587 6M/5stn Msd 0·3

84/1055
DEC 28 1353 48·2s 36·53S 177·66E 12km M=4·4
1·9 0·14 0·07 R
Rsd 0·7s 9ph/6stn Dmin 151km Az.gap 279°
Corr. 0·709 5M/5stn Msd 0·3

84/1056
DEC 28 1358 13·8s 36·65S 177·63E 12km M=5·4
1·0 0·07 0·06 R
Rsd 0·7s 10ph/8stn Dmin 142km Az.gap 218°
Corr. 0·667 6M/6stn Msd 0·3

84/1057
DEC 28 1412 29·0s 36·61S 177·51E 12km M=3·9
1·8 0·11 0·10 R
Rsd 0·9s 7ph/6stn Dmin 152km Az.gap 274°
Corr. 0·545 6M/5stn Msd 0·2

84/1058
DEC 28 1416 27·3s 36·90S 177·51E 12km M=3·7
1·3 0·09 0·07 R
Rsd 0·6s 8ph/6stn Dmin 127km Az.gap 258°
Corr. 0·402 6M/5stn Msd 0·3

84/1059
DEC 28 1417 18·3s 36·78S 177·50E 12km M=3·9
7·3 0·53 0·10 R
Rsd 1·0s 5ph/5stn Dmin 138km Az.gap 265°
Corr. -0·590 2M/2stn Msd 0·4
In the coda of preceding shock.

84/1060
DEC 28 1420 23·9s 36·71S 177·60E 12km M=4·2
1·3 0·09 0·06 R
Rsd 0·8s 9ph/6stn Dmin 138km Az.gap 270°
Corr. 0·598 4M/4stn Msd 0·1

84/1061
DEC 28 1427 54·4s 36·68S 177·56E 12km M=4·2
1·2 0·09 0·05 R
Rsd 0·8s 10ph/6stn Dmin 142km Az.gap 270°
Corr. 0·448 4M/4stn Msd 0·2

84/1062
DEC 28 1429 48·0s 36·82S 177·58E 12km M=4·1
2·4 0·18 0·04 R
Rsd 0·5s 6ph/5stn Dmin 130km Az.gap 264°
Corr. 0·488 4M/4stn Msd 0·3
In the coda of preceding shock.

84/1063
DEC 28 1434 47·7s 36·75S 177·50E 12km M=3·9
1·0 0·07 0·04 R
Rsd 0·6s 9ph/6stn Dmin 140km Az.gap 266°
Corr. 0·411 6M/5stn Msd 0·3

84/1064
DEC 28 1446 34·4s 36·61S 177·59E 12km M=4·3
1·6 0·10 0·07 R
Rsd 0·9s 9ph/6stn Dmin 147km Az.gap 274°
Corr. 0·467 5M/5stn Msd 0·3

84/1065
DEC 28 1450 03·8s 36·73S 177·50E 12km M=4·0
1·5 0·10 0·07 R
Rsd 0·8s 8ph/5stn Dmin 141km Az.gap 267°
Corr. 0·535 5M/5stn Msd 0·3

84/1066
DEC 28 1500 27·0s 36·69S 177·54E 12km M=3·9
1·2 0·08 0·06 R
Rsd 0·8s 11ph/6stn Dmin 143km Az.gap 270°
Corr. 0·416 5M/5stn Msd 0·2

84/1067
DEC 28 1509 12·5s 36·61S 177·59E 12km M=4·1
1·2 0·08 0·06 R
Rsd 0·6s 7ph/5stn Dmin 147km Az.gap 274°
Corr. 0·614 5M/5stn Msd 0·2

84/1068
DEC 28 1532 30·1s 36·63S 177·58E 12km M=4·5
1·1 0·07 0·06 R
Rsd 0·8s 12ph/7stn Dmin 146km Az.gap 217°
Corr. 0·583 6M/6stn Msd 0·2

84/1069
DEC 28 1812 53·3s 36·76S 177·39E 12km M=4·2
1·1 0·07 0·07 R
Rsd 0·8s 8ph/7stn Dmin 140km Az.gap 205°
Corr. 0·588 6M/6stn Msd 0·1

84/1070
DEC 28 1820 15·5s 36·55S 177·65E 12km M=5·6
1·2 0·08 0·07 R
Rsd 0·9s 10ph/7stn Dmin 149km Az.gap 223°
Corr. 0·639 6M/6stn Msd 0·3 1↓

84/1071
DEC 28 1823 01·3s 36·60S 177·60E 12km M=4·7
R R R R
Rsd 0·9s 3ph/3stn Dmin 163km Az.gap 328°
Corr. R 3M/3stn Msd 0·5
In the coda of preceding shock.

84/1072
DEC 28 1840 47·1s 36·82S 177·48E 12km M=3·9
1·6 0·11 0·06 R
Rsd 0·7s 8ph/5stn Dmin 136km Az.gap 262°
Corr. 0·540 4M/4stn Msd 0·2

84/1073
DEC 28 1849 27·8s 36·79S 177·41E 12km M=3·9
1·0 0·07 0·05 R
Rsd 0·6s 7ph/5stn Dmin 137km Az.gap 263°
Corr. 0·445 5M/5stn Msd 0·3

84/1074
DEC 28 1900 26·7s 36·53S 177·62E 12km M=4·9
1·2 0·09 0·05 R
Rsd 0·7s 9ph/7stn Dmin 153km Az.gap 223°
Corr. 0·688 7M/7stn Msd 0·3 1↑

84/1075
DEC 28 1920 48·8s 36·63S 177·61E 12km M=4·3
1·7 0·11 0·08 R
Rsd 1·1s 7ph/4stn Dmin 145km Az.gap 274°
Corr. 0·328 5M/5stn Msd 0·2

84/1076
DEC 28 1939 04·9s 36·66S 177·51E 12km M=4·4
1·4 0·10 0·10 R
Rsd 0·6s 5ph/5stn Dmin 147km Az.gap 214°
Corr. 0·691 6M/6stn Msd 0·3

84/1077
DEC 28 2002 05·1s 36·60S 177·55E 12km M=4·7
0·9 0·06 0·05 R
Rsd 0·7s 11ph/7stn Dmin 151km Az.gap 217°
Corr. 0·478 6M/6stn Msd 0·2 1↑

84/1078
DEC 28 2012 38·6s 36·48S 177·60E 12km M=4·0
0·4 0·03 0·01 R
Rsd 0·1s 6ph/4stn Dmin 159km Az.gap 280°
Corr. 0·254 4M/4stn Msd 0·2

84/1079
DEC 28 2016 53·9s 36·70S 177·40E 12km M=3·9
0·6 0·04 0·04 R
Rsd 0·3s 6ph/4stn Dmin 147km Az.gap 268°
Corr. 0·516 5M/5stn Msd 0·1

84/1080
DEC 28 2115 49·3s 36·60S 177·56E 12km M=4·2
0·9 0·05 0·04 R
Rsd 0·6s 11ph/7stn Dmin 108km Az.gap 274°
Corr. 0·017 5M/5stn Msd 0·2

84/1081
DEC 28 2215 19·9s 36·47S 177·53E 12km M=4·6
0·9 0·06 0·04 R
Rsd 0·7s 11ph/6stn Dmin 121km Az.gap 280°
Corr. -0·137 4M/4stn Msd 0·1

84/1082
DEC 28 2217 33·7s 36·52S 177·50E 12km M=4·1
0·8 0·04 0·04 R
Rsd 0·3s 6ph/5stn Dmin 115km Az.gap 296°
Corr. -0·425 4M/4stn Msd 0·1

84/1083
DEC 28 2252 16·3s 36·69S 177·57E 12km M=4·4
0·8 0·05 0·04 R
Rsd 0·7s 12ph/7stn Dmin 99km Az.gap 270°
Corr. 0·089 5M/4stn Msd 0·2

84/1084
DEC 28 2357 45·7s 36·71S 177·49E 12km M=4·5
1·0 0·07 0·03 R
Rsd 0·6s 12ph/7stn Dmin 95km Az.gap 269°
Corr. −0·066 4M/4stn Msd 0·3

84/1085
DEC 29 0017 34·7s 36·65S 177·51E 12km M=4·1
1·2 0·07 0·05 R
Rsd 0·8s 10ph/8stn Dmin 101km Az.gap 272°
Corr. −0·070 5M/5stn Msd 0·2

84/1086
DEC 29 0037 09·8s 36·61S 177·59E 12km M=4·0
1·0 0·06 0·05 R
Rsd 0·8s 9ph/7stn Dmin 108km Az.gap 274°
Corr. 0·250 5M/5stn Msd 0·2

84/1087
DEC 29 0128 05·6s 36·58S 177·64E 12km M=4·0
0·7 0·04 0·04 R
Rsd 0·4s 8ph/5stn Dmin 112km Az.gap 276°
Corr. 0·010 5M/5stn Msd 0·2

84/1088
DEC 29 0130 23·5s 36·68S 177·64E 12km M=4·0
1·1 0·07 0·03 R
Rsd 0·6s 10ph/7stn Dmin 102km Az.gap 272°
Corr. −0·146 4M/4stn Msd 0·3

84/1089
DEC 29 0132 16·3s 36·68S 177·66E 12km M=4·5
0·9 0·05 0·04 R
Rsd 0·6s 9ph/7stn Dmin 103km Az.gap 272°
Corr. 0·219 4M/4stn Msd 0·3

84/1090
DEC 29 0206 27·3s 36·63S 177·53E 12km M=4·3
0·9 0·06 0·04 R
Rsd 0·8s 13ph/7stn Dmin 104km Az.gap 273°
Corr. 0·097 5M/5stn Msd 0·2

84/1091
DEC 29 0223 50·7s 36·60S 177·56E 12km M=4·2
0·9 0·06 0·04 R
Rsd 0·7s 11ph/7stn Dmin 108km Az.gap 274°
Corr. 0·183 5M/5stn Msd 0·3

84/1092
DEC 29 0237 47·9s 36·73S 177·48E 12km M=3·8
0·8 0·04 0·06 R
Rsd 0·5s 8ph/6stn Dmin 92km Az.gap 267°
Corr. 0·307 4M/4stn Msd 0·2

84/1093
DEC 29 0250 17·4s 36·68S 177·52E 12km M=4·1
0·9 0·05 0·04 R
Rsd 0·6s 10ph/7stn Dmin 98km Az.gap 270°
Corr. 0·024 5M/5stn Msd 0·3

84/1094
DEC 29 0326 04·3s 36·61S 177·43E 12km M=4·2
0·7 0·04 0·05 R
Rsd 0·5s 10ph/7stn Dmin 104km Az.gap 273°
Corr. 0·060 5M/5stn Msd 0·2

84/1095
DEC 29 0400 37·4s 36·69S 177·58E 12km M=4·8
1·5 0·11 0·04 R
Rsd 0·9s 12ph/8stn Dmin 100km Az.gap 271°
Corr. 0·050 5M/5stn Msd 0·3 1↑

84/1096
DEC 29 0441 56·0s 36·72S 177·59E 12km M=4·4
0·9 0·06 0·03 R
Rsd 0·7s 11ph/7stn Dmin 97km Az.gap 269°
Corr. 0·041 5M/5stn Msd 0·3

84/1097
DEC 29 0444 14·7s 36·83S 177·53E 12km M=4·8
2·1 0·16 0·05 R
Rsd 1·0s 10ph/6stn Dmin 132km Az.gap 262°
Corr. 0·386 5M/5stn Msd 0·3 1↑
In the coda of preceding shock.

84/1098
DEC 29 0453 50·3s 36·70S 177·44E 12km M=4·2
0·6 0·04 0·02 R
Rsd 0·5s 11ph/7stn Dmin 95km Az.gap 268°
Corr. 0·011 6M/5stn Msd 0·1

84/1099
DEC 29 0459 08·2s 36·75S 177·44E 12km M=4·1
1·0 0·06 0·04 R
Rsd 0·6s 10ph/6stn Dmin 142km Az.gap 265°
Corr. 0·345 4M/4stn Msd 0·1

84/1100
DEC 29 0507 01·5s 36·70S 177·49E 12km M=4·4
1·0 0·06 0·04 R
Rsd 0·8s 12ph/7stn Dmin 96km Az.gap 269°
Corr. −0·058 5M/5stn Msd 0·2

84/1101
DEC 29 0636 35·2s 36·68S 177·51E 12km M=4·4
0·7 0·05 0·03 R
Rsd 0·6s 11ph/7stn Dmin 99km Az.gap 270°
Corr. 0·097 4M/4stn Msd 0·3

84/1102
DEC 29 0646 44·8s 36·71S 177·54E 12km M=4·9
1·7 0·12 0·05 R
Rsd 0·9s 10ph/8stn Dmin 96km Az.gap 269°
Corr. 0·133 5M/5stn Msd 0·3

84/1103
DEC 29 0737 49·9s 36·59S 177·60E 12km M=4·3
1·6 0·11 0·04 R
Rsd 0·7s 9ph/6stn Dmin 111km Az.gap 276°
Corr. 0·309 5M/5stn Msd 0·3

84/1104
DEC 29 0833 26·3s 36·68S 177·53E 12km M=4·1
1·2 0·08 0·04 R
Rsd 0·8s 10ph/7stn Dmin 98km Az.gap 270°
Corr. 0·305 5M/5stn Msd 0·3

84/1105
DEC 29 0905 47·9s 36·71S 177·52E 12km M=4·2
0·7 0·05 0·03 R
Rsd 0·5s 11ph/7stn Dmin 95km Az.gap 269°
Corr. 0·335 5M/5stn Msd 0·1

84/1106
DEC 29 0917 14·6s 36·69S 177·59E 12km M=4·3
1·1 0·07 0·03 R
Rsd 0·6s 10ph/6stn Dmin 140km Az.gap 271°
Corr. 0·327 5M/5stn Msd 0·2

84/1107
DEC 29 0925 29·4s 36·63S 177·53E 12km M=4·0
1·3 0·09 0·08 R
Rsd 0·6s 6ph/5stn Dmin 149km Az.gap 273°
Corr. 0·500 5M/5stn Msd 0·2

84/1108
DEC 29 0931 17·9s 36·52S 177·58E 12km M=4·2
1·3 0·08 0·04 R
Rsd 0·6s 8ph/6stn Dmin 156km Az.gap 278°
Corr. 0·329 5M/5stn Msd 0·3
In the coda of a small shock.

84/1109
DEC 29 1116 46·6s 36·64S 177·52E 12km M=4·0
1·3 0·08 0·04 R
Rsd 0·7s 11ph/6stn Dmin 148km Az.gap 272°
Corr. 0·125 4M/4stn Msd 0·2

84/1110
DEC 29 1314 52·0s 36·59S 177·55E 12km M=4·3
1·4 0·09 0·05 R
Rsd 0·8s 11ph/6stn Dmin 151km Az.gap 274°
Corr. 0·073 5M/5stn Msd 0·3

84/1111
DEC 29 1323 30·0s 36·68S 177·53E 12km M=4·0
1·1 0·07 0·05 R
Rsd 0·7s 9ph/6stn Dmin 145km Az.gap 271°
Corr. 0·409 5M/5stn Msd 0·2

84/1112
DEC 29 1337 52·2s 36·69S 177·51E 12km M=4·1
1·3 0·09 0·04 R
Rsd 0·8s 12ph/6stn Dmin 145km Az.gap 270°
Corr. -0·014 5M/5stn Msd 0·1

84/1113
DEC 29 1411 20·1s 36·65S 177·51E 12km M=4·1
1·0 0·07 0·03 R
Rsd 0·7s 10ph/6stn Dmin 148km Az.gap 272°
Corr. 0·212 5M/5stn Msd 0·2

84/1114
DEC 29 1435 52·6s 36·58S 177·56E 12km M=4·8
1·9 0·13 0·06 R
Rsd 1·1s 11ph/6stn Dmin 151km Az.gap 275°
Corr. 0·260 4M/4stn Msd 0·2 1↓

84/1115
DEC 29 1441 48·3s 36·63S 177·40E 12km M=4·0
1·5 0·09 0·06 R
Rsd 0·8s 9ph/5stn Dmin 155km Az.gap 272°
Corr. 0·358 5M/5stn Msd 0·1

84/1116
DEC 29 1459 02·4s 36·57S 177·48E 12km M=4·0
1·3 0·09 0·05 R
Rsd 0·8s 9ph/5stn Dmin 157km Az.gap 275°
Corr. -0·007 5M/5stn Msd 0·2

84/1117
DEC 29 1523 02·8s 36·61S 177·60E 12km M=3·9
1·3 0·08 0·05 R
Rsd 0·7s 11ph/6stn Dmin 147km Az.gap 274°
Corr. 0·235 5M/5stn Msd 0·2

84/1118
DEC 29 1530 36·5s 36·62S 177·55E 12km M=4·5
1·1 0·08 0·04 R
Rsd 0·7s 11ph/6stn Dmin 149km Az.gap 274°
Corr. 0·310 5M/4stn Msd 0·2

84/1119
DEC 29 1542 31·4s 36·61S 177·55E 12km M=4·2
1·4 0·09 0·05 R
Rsd 0·8s 11ph/6stn Dmin 150km Az.gap 274°
Corr. 0·229 5M/5stn Msd 0·2

84/1120
DEC 29 1615 44·1s 36·65S 177·54E 12km M=3·9
1·1 0·07 0·04 R
Rsd 0·7s 11ph/6stn Dmin 146km Az.gap 272°
Corr. 0·296 5M/5stn Msd 0·3

84/1121
DEC 29 1722 12·8s 36·68S 177·58E 12km M=4·9
2·0 0·15 0·05 R
Rsd 1·0s 10ph/6stn Dmin 141km Az.gap 271°
Corr. 0·156 5M/5stn Msd 0·3 1↑

84/1122
DEC 29 1734 18·8s 36·65S 177·62E 12km M=4·2
1·5 0·10 0·05 R
Rsd 1·0s 10ph/6stn Dmin 142km Az.gap 273°
Corr. 0·300 4M/4stn Msd 0·3

84/1123
DEC 29 1832 38·1s 36·68S 177·58E 12km M=4·3
1·8 0·13 0·05 R
Rsd 0·6s 8ph/6stn Dmin 141km Az.gap 271°
Corr. 0·720 4M/4stn Msd 0·3
S's obscured by following shock.

84/1124
DEC 29 1833 05·9s 36·67S 177·52E 12km M=5·3
0·8 0·06 0·05 R
Rsd 1·0s 11ph/8stn Dmin 146km Az.gap 204°
Corr. 0·459 6M/6stn Msd 0·3 1↓

84/1125
DEC 29 1842 55·8s 36·53S 177·57E 12km M=4·4
1·3 0·09 0·05 R
Rsd 0·8s 10ph/7stn Dmin 116km Az.gap 277°
Corr. 0·414 5M/5stn Msd 0·2

84/1126
DEC 29 2046 26·0s 36·68S 177·55E 12km M=4·7
1·6 0·11 0·06 R
Rsd 1·1s 10ph/6stn Dmin 143km Az.gap 270°
Corr. 0·269 5M/5stn Msd 0·2 1↓

84/1127
DEC 29 2107 40·8s 36·65S 177·55E 12km M=5·4
1·6 0·12 0·05 R
Rsd 1·0s 11ph/6stn Dmin 146km Az.gap 272°
Corr. 0·135 4M/4stn Msd 0·2 2↑

84/1128
DEC 29 2109 12·8s 45·16S 167·61E 113km M=4·4
0·2 0·02 0·02 3
Rsd 0·3s 11ph/7stn Dmin 59km Az.gap 215°
Corr. -0·145 4M/3stn Msd 0·5 2↑ 2↓

84/1129
DEC 29 2119 08·0s 36·68S 177·61E 12km M=3·9
1·5 0·10 0·05 R
Rsd 0·9s 9ph/6stn Dmin 140km Az.gap 272°
Corr. 0·339 5M/5stn Msd 0·3

84/1130
DEC 29 2120 36·2s 36·70S 177·56E 12km M=4·7
1·2 0·09 0·04 R
Rsd 0·8s 11ph/6stn Dmin 141km Az.gap 270°
Corr. 0·309 4M/4stn Msd 0·3

84/1131
DEC 29 2144 58·2s 36·67S 177·49E 12km M=4·4
0·8 0·05 0·05 R
Rsd 0·6s 11ph/7stn Dmin 99km Az.gap 270°
Corr. 0·195 5M/5stn Msd 0·2

84/1132
DEC 29 2154 15·8s 36·63S 177·57E 12km M=4·1
0·7 0·04 0·03 R
Rsd 0·5s 12ph/6stn Dmin 106km Az.gap 273°
Corr. 0·337 5M/5stn Msd 0·2

84/1133
DEC 29 2156 08·7s 36·73S 177·55E 12km M=4·0
3·0 0·19 0·05 R
Rsd 0·8s 7ph/5stn Dmin 139km Az.gap 268°
Corr. 0·062 5M/5stn Msd 0·2

84/1134
DEC 29 2201 43·8s 36·75S 177·53E 12km M=3·9
2·5 0·16 0·04 R
Rsd 0·6s 5ph/4stn Dmin 138km Az.gap 267°
Corr. -0·037 5M/5stn Msd 0·2

84/1135
DEC 29 2212 04·6s 36·61S 177·52E 12km M=3·9
1·4 0·09 0·05 R
Rsd 0·7s 7ph/6stn Dmin 106km Az.gap 273°
Corr. 0·150 5M/5stn Msd 0·1

84/1136
DEC 29 2214 31·0s 36·64S 177·61E 12km M=4·0
1·8 0·13 0·04 R
Rsd 0·7s 8ph/5stn Dmin 143km Az.gap 273°
Corr. 0·158 5M/5stn Msd 0·2

84/1137
DEC 29 2232 28·8s 36·64S 177·55E 12km M=4·0
0·8 0·05 0·05 R
Rsd 0·7s 9ph/5stn Dmin 104km Az.gap 272°
Corr. 0·067 5M/5stn Msd 0·1

84/1138
DEC 29 2235 08·0s 36·62S 177·57E 12km M=4·0
1·6 0·10 0·07 R
Rsd 0·9s 8ph/5stn Dmin 106km Az.gap 273°
Corr. 0·422 5M/5stn Msd 0·2

84/1139
DEC 29 2251 13·7s 36·63S 177·55E 12km M=4·0
1·6 0·11 0·05 R
Rsd 0·9s 10ph/6stn Dmin 105km Az.gap 273°
Corr. 0·145 5M/5stn Msd 0·2

84/1140
DEC 29 2333 56·7s 36·66S 177·54E 12km M=4·3
1·1 0·07 0·04 R
Rsd 0·7s 10ph/6stn Dmin 102km Az.gap 272°
Corr. 0·377 5M/5stn Msd 0·3

84/1141
DEC 29 2337 30·1s 36·85S 177·48E 12km M=4·2
1·3 0·10 0·03 R
Rsd 0·6s 9ph/8stn Dmin 79km Az.gap 260°
Corr. 0·254 4M/4stn Msd 0·3

84/1142
DEC 29 2339 34·7s 36·50S 177·74E 12km M=4·0
2·5 0·15 0·05 R
Rsd 0·8s 8ph/6stn Dmin 150km Az.gap 282°
Corr. 0·360 5M/5stn Msd 0·2
In the coda of the preceding shock.

84/1143
DEC 29 2351 27·8s 36·74S 177·46E 12km M=4·6
1·2 0·08 0·04 R
Rsd 0·6s 9ph/7stn Dmin 91km Az.gap 266°
Corr. -0·140 4M/4stn Msd 0·2 1↓

84/1144
DEC 29 2354 44·4s 36·64S 177·49E 12km M=4·1
2·2 0·16 0·06 R
Rsd 0·8s 6ph/5stn Dmin 150km Az.gap 272°
Corr. 0·117 5M/5stn Msd 0·3

84/1145
DEC 30 0021 12·6s 36·69S 177·53E 12km M=4·1
1·2 0·08 0·05 R
Rsd 0·7s 10ph/8stn Dmin 98km Az.gap 269°
Corr. 0·358 5M/5stn Msd 0·3

84/1146
DEC 30 0024 52·8s 36·65S 177·52E 12km M=3·9
1·2 0·07 0·07 R
Rsd 0·5s 6ph/5stn Dmin 148km Az.gap 271°
Corr. 0·522 5M/5stn Msd 0·1

84/1147
DEC 30 0025 56·5s 36·56S 177·65E 12km M=4·2
1·5 0·09 0·05 R
Rsd 0·7s 8ph/5stn Dmin 115km Az.gap 278°
Corr. 0·313 5M/5stn Msd 0·2

84/1148
DEC 30 0028 40·5s 36·70S 177·52E 12km M=4·3
1·3 0·09 0·04 R
Rsd 0·8s 12ph/7stn Dmin 96km Az.gap 269°
Corr. 0·015 5M/5stn Msd 0·2

84/1149
DEC 30 0058 21·8s 36·59S 177·58E 12km M=4·0
1·5 0·09 0·08 R
Rsd 0·6s 8ph/6stn Dmin 150km Az.gap 275°
Corr. 0·651 4M/4stn Msd 0·1

84/1150
DEC 30 0059 24·2s 36·68S 177·53E 12km M=4·3
1·4 0·10 0·05 R
Rsd 0·9s 8ph/6stn Dmin 145km Az.gap 271°
Corr. 0·335 5M/5stn Msd 0·2

84/1151
DEC 30 0119 27·6s 36·68S 177·56E 12km M=4·0
1·3 0·09 0·05 R
Rsd 0·9s 11ph/7stn Dmin 100km Az.gap 270°
Corr. 0·285 5M/5stn Msd 0·1

84/1152
DEC 30 0129 47·5s 36·60S 177·52E 12km M=4·0
1·5 0·09 0·05 R
Rsd 0·8s 11ph/7stn Dmin 108km Az.gap 275°
Corr. 0·055 5M/5stn Msd 0·4

84/1153
DEC 30 0137 29·7s 36·67S 177·52E 12km M=4·2
1·2 0·08 0·04 R
Rsd 0·8s 12ph/7stn Dmin 100km Az.gap 271°
Corr. 0·311 5M/5stn Msd 0·2

84/1154
DEC 30 0154 52·1s 36·64S 177·51E 12km M=3·8
1·5 0·09 0·07 R
Rsd 0·7s 7ph/5stn Dmin 149km Az.gap 272°
Corr. 0·299 6M/5stn Msd 0·3

84/1155
DEC 30 0159 09·9s 36·64S 177·52E 12km M=4·0
0·9 0·06 0·04 R
Rsd 0·6s 8ph/6stn Dmin 102km Az.gap 272°
Corr. 0·352 5M/5stn Msd 0·3

84/1156
DEC 30 0222 48·9s 36·58S 177·55E 12km M=4·6
1·3 0·09 0·05 R
Rsd 0·9s 12ph/7stn Dmin 110km Az.gap 276°
Corr. 0·256 4M/4stn Msd 0·2

84/1157
DEC 30 0240 39·4s 36·69S 177·52E 12km M=3·9
1·2 0·07 0·06 R
Rsd 0·5s 8ph/7stn Dmin 98km Az.gap 270°
Corr. 0·382 5M/5stn Msd 0·1

84/1158
DEC 30 0252 05·5s 36·68S 177·48E 12km M=4·3
1·3 0·09 0·04 R
Rsd 0·7s 12ph/7stn Dmin 98km Az.gap 269°
Corr. 0·172 5M/5stn Msd 0·2

84/1159
DEC 30 0354 56·2s 36·65S 177·51E 12km M=4·5
1·2 0·08 0·05 R
Rsd 0·9s 11ph/7stn Dmin 101km Az.gap 272°
Corr. -0·013 4M/4stn Msd 0·2 1↑

84/1160
DEC 30 0419 24·7s 36·66S 177·56E 12km M=4·3
0·9 0·06 0·04 R
Rsd 0·8s 14ph/7stn Dmin 102km Az.gap 272°
Corr. -0·043 5M/5stn Msd 0·2

84/1161
DEC 30 0424 26·3s 36·70S 177·53E 12km M=4·1
1·7 0·12 0·04 R
Rsd 0·8s 10ph/6stn Dmin 97km Az.gap 269°
Corr. -0·198 5M/5stn Msd 0·1

84/1162
DEC 30 0425 24·6s 36·63S 177·51E 12km M=4·1
1·2 0·07 0·04 R
Rsd 0·7s 10ph/5stn Dmin 149km Az.gap 272°
Corr. 0·079 5M/5stn Msd 0·2
In the coda of preceding shock.

84/1163
DEC 30 0458 00·8s 36·69S 177·57E 12km M=3·9
2·6 0·17 0·07 R
Rsd 0·8s 8ph/6stn Dmin 99km Az.gap 270°
Corr. 0·238 5M/5stn Msd 0·2

84/1164
DEC 30 0524 55·3s 36·60S 177·54E 12km M=4·9
1·2 0·08 0·05 R
Rsd 0·9s 11ph/7stn Dmin 108km Az.gap 274°
Corr. 0·126 5M/5stn Msd 0·3 1↓

84/1165
DEC 30 0526 23·0s 36·68S 177·53E 12km M=4·5
0·9 0·06 0·03 R
Rsd 0·4s 6ph/5stn Dmin 144km Az.gap 271°
Corr. 0·501 4M/4stn Msd 0·2
In the coda of preceding shock.

84/1166
DEC 30 0556 28·8s 35·42S 178·72E 12km M=4·3
2·4 0·15 0·15 R
Rsd 0·7s 9ph/6stn Dmin 253km Az.gap 319°
Corr. 0·581 6M/5stn Msd 0·1 1↓

84/1167
DEC 30 0652 09·8s 36·72S 177·50E 12km M=4·3
1·5 0·10 0·05 R
Rsd 0·8s 11ph/7stn Dmin 94km Az.gap 268°
Corr. 0·335 5M/5stn Msd 0·1

84/1168
DEC 30 0705 46·4s 36·68S 177·53E 12km M=4·2
1·1 0·08 0·04 R
Rsd 0·9s 12ph/7stn Dmin 99km Az.gap 271°
Corr. 0·070 6M/5stn Msd 0·2

84/1169
DEC 30 0734 19·2s 36·64S 177·55E 12km M=3·9
1·3 0·09 0·06 R
Rsd 0·8s 9ph/6stn Dmin 104km Az.gap 272°
Corr. 0·233 5M/5stn Msd 0·2

84/1170
DEC 30 0743 01·6s 36·73S 177·52E 12km M=4·1
1·1 0·07 0·04 R
Rsd 0·8s 10ph/6stn Dmin 93km Az.gap 268°
Corr. 0·174 5M/5stn Msd 0·3

84/1171
DEC 30 0832 06·2s 36·60S 177·52E 12km M=5·2
2·0 0·15 0·06 R
Rsd 1·0s 10ph/7stn Dmin 107km Az.gap 274°
Corr. -0·158 5M/5stn Msd 0·3

84/1172
DEC 30 0927 55·3s 36·58S 177·52E 12km M=4·4
1·2 0·08 0·05 R
Rsd 0·9s 11ph/6stn Dmin 154km Az.gap 275°
Corr. 0·169 5M/5stn Msd 0·2

84/1173
DEC 30 0951 17·6s 36·61S 177·59E 12km M=4·9
1·8 0·12 0·08 R
Rsd 1·1s 9ph/6stn Dmin 147km Az.gap 274°
Corr. 0·471 4M/4stn Msd 0·3

84/1174
DEC 30 1007 01·4s 36·60S 177·51E 12km M=4·8
2·8 0·20 0·07 R
Rsd 1·1s 8ph/6stn Dmin 153km Az.gap 274°
Corr. 0·471 3M/3stn Msd 0·3

84/1175
DEC 30 1015 13·8s 36·62S 177·46E 12km M=4·6
1·9 0·13 0·06 R
Rsd 0·9s 9ph/6stn Dmin 153km Az.gap 272°
Corr. 0·193 5M/5stn Msd 0·2

84/1176
DEC 30 1054 17·3s 36·59S 177·55E 12km M=5·1
1·7 0·12 0·05 R
Rsd 0·6s 8ph/6stn Dmin 151km Az.gap 274°
Corr. 0·566 5M/5stn Msd 0·4

84/1177
DEC 30 1106 03·6s 36·60S 177·51E 12km M=5·4
2·4 0·18 0·06 R
Rsd 1·0s 9ph/7stn Dmin 152km Az.gap 274°
Corr. 0·407 6M/5stn Msd 0·3

84/1178
DEC 30 1109 35·2s 36·64S 177·42E 12km M=4·8
2·1 0·15 0·05 R
Rsd 0·9s 9ph/6stn Dmin 153km Az.gap 271°
Corr. 0·253 2M/2stn Msd 0·3

84/1179
DEC 30 1118 12·8s 36·62S 177·60E 12km M=4·2
1·7 0·11 0·07 R
Rsd 0·9s 9ph/6stn Dmin 146km Az.gap 274°
Corr. 0·475 5M/5stn Msd 0·3

84/1180
DEC 30 1122 18·1s 36·75S 177·53E 12km M=3·8
1·5 0·09 0·05 R
Rsd 0·7s 8ph/6stn Dmin 138km Az.gap 267°
Corr. 0·261 5M/5stn Msd 0·1

84/1181
DEC 30 1126 20·6s 36·75S 177·52E 12km M=3·7
1·5 0·10 0·05 R
Rsd 0·5s 8ph/6stn Dmin 139km Az.gap 266°
Corr. 0·278 5M/5stn Msd 0·3

84/1182
DEC 30 1128 27·3s 36·71S 177·49E 12km M=4·3
1·5 0·11 0·04 R
Rsd 0·8s 11ph/6stn Dmin 144km Az.gap 267°
Corr. 0·245 4M/4stn Msd 0·1 1↓

84/1183
DEC 30 1137 35·9s 36·65S 177·47E 12km M=3·9
1·3 0·09 0·06 R
Rsd 0·8s 8ph/6stn Dmin 150km Az.gap 271°
Corr. 0·336 5M/5stn Msd 0·2

84/1184
DEC 30 1157 41·8s 36·54S 177·29E 12km M=4·1
1·1 0·08 0·03 R
Rsd 0·3s 8ph/6stn Dmin 163km Az.gap 274°
Corr. -0·501 5M/5stn Msd 0·1

84/1185
DEC 30 1207 18·3s 36·81S 177·51E 12km M=4·1
0·8 0·05 0·03 R
Rsd 0·5s 10ph/6stn Dmin 134km Az.gap 263°
Corr. 0·286 5M/4stn Msd 0·3

84/1186
DEC 30 1210 44·3s 36·75S 177·54E 12km M=4·3
1·2 0·09 0·03 R
Rsd 0·6s 10ph/6stn Dmin 137km Az.gap 267°
Corr. 0·252 4M/4stn Msd 0·3 1↓

84/1187
DEC 30 1225 56·5s 36·53S 177·56E 12km M=4·2
1·7 0·11 0·07 R
Rsd 1·0s 10ph/6stn Dmin 156km Az.gap 277°
Corr. 0·004 4M/4stn Msd 0·2

84/1188
DEC 30 1240 16·5s 36·55S 177·53E 12km M=5·0
1·5 0·11 0·06 R
Rsd 1·0s 10ph/6stn Dmin 156km Az.gap 276°
Corr. 0·331 4M/4stn Msd 0·2

84/1189
DEC 30 1248 58·7s 36·71S 177·46E 12km M=3·9
1·8 0·13 0·05 R
Rsd 0·6s 8ph/6stn Dmin 146km Az.gap 268°
Corr. 0·044 5M/5stn Msd 0·2

84/1190
DEC 30 1250 18·1s 36·61S 177·21E 12km M=4·2
1·7 0·12 0·05 R
Rsd 0·9s 9ph/6stn Dmin 154km Az.gap 271°
Corr. 0·036 5M/5stn Msd 0·3

84/1191
DEC 30 1315 40·5s 36·69S 177·51E 12km M=3·7
1·3 0·09 0·04 R
Rsd 0·7s 10ph/6stn Dmin 144km Az.gap 270°
Corr. 0·124 5M/5stn Msd 0·2

84/1192
DEC 30 1318 12·4s 36·58S 177·60E 12km M=3·9
1·8 0·11 0·07 R
Rsd 0·9s 9ph/6stn Dmin 150km Az.gap 276°
Corr. 0·245 5M/5stn Msd 0·2

84/1193
DEC 30 1323 57·0s 36·60S 177·61E 12km M=4·1
1·9 0·13 0·08 R
Rsd 0·8s 7ph/5stn Dmin 147km Az.gap 275°
Corr. 0·506 5M/5stn Msd 0·2

84/1194
DEC 30 1332 52·0s 36·59S 177·58E 12km M=3·8
1·0 0·06 0·04 R
Rsd 0·5s 8ph/6stn Dmin 150km Az.gap 275°
Corr. 0·136 5M/5stn Msd 0·2

84/1195
DEC 30 1342 38·6s 36·60S 177·57E 12km M=4·3
1·1 0·07 0·05 R
Rsd 0·6s 9ph/6stn Dmin 149km Az.gap 275°
Corr. 0·404 5M/5stn Msd 0·2

84/1196
DEC 30 1351 48·3s 36·62S 177·58E 12km M=4·2
1·2 0·08 0·04 R
Rsd 0·8s 12ph/6stn Dmin 147km Az.gap 273°
Corr. 0·248 5M/5stn Msd 0·2

84/1197
DEC 30 1448 11·6s 45·22S 167·72E 114km M=4·2
0·2 0·03 0·06 6
Rsd 0·3s 9ph/6stn Dmin 124km Az.gap 252°
Corr. -0·811 5M/3stn Msd 0·4 1↓

84/1198
DEC 30 1449 26·9s 36·69S 177·49E 12km M=4·2
1·1 0·08 0·04 R
Rsd 0·8s 10ph/6stn Dmin 145km Az.gap 269°
Corr. 0·203 5M/5stn Msd 0·2

84/1199
DEC 30 1459 11·2s 36·53S 177·00E 12km M=5·2
1·3 0·10 0·04 R
Rsd 0·6s 10ph/6stn Dmin 161km Az.gap 274°
Corr. 0·174 4M/4stn Msd 0·1
Felt Mercury Bay (18) MM IV and Chiltern (18).

84/1200
DEC 30 1504 51·7s 36·67S 177·45E 12km M=4·2
1·1 0·07 0·06 R
Rsd 0·6s 8ph/6stn Dmin 149km Az.gap 270°
Corr. 0·463 5M/5stn Msd 0·3

84/1201
DEC 30 1506 47·8s 36·63S 177·58E 12km M=5·5
2·5 0·19 0·07 R
Rsd 1·2s 9ph/7stn Dmin 146km Az.gap 273°
Corr. 0·326 4M/3stn Msd 0·3 1↑ 1↓

84/1202
DEC 30 1509 56·3s 36·67S 177·55E 12km M=4·0
1·4 0·08 0·06 R
Rsd 0·5s 8ph/5stn Dmin 144km Az.gap 271°
Corr. 0·303 5M/5stn Msd 0·3
In the coda of preceding shock.

84/1203
DEC 30 1510 21·6s 39·78S 174·28E 146km M=3·5
0·4 0·02 0·03 4
Rsd 0·4s 19ph/18stn Dmin 66km Az.gap 145°
Corr. -0·174 4M/3stn Msd 0·3 2↑

84/1204
DEC 30 1511 32·9s 36·67S 177·41E 12km M=4·3
2·0 0·13 0·06 R
Rsd 0·6s 6ph/5stn Dmin 151km Az.gap 289°
Corr. 0·077 4M/4stn Msd 0·2
In the codas of preceding shocks.

84/1205
DEC 30 1522 05·4s 36·59S 177·53E 12km M=4·6
1·3 0·09 0·05 R
Rsd 0·9s 10ph/6stn Dmin 152km Az.gap 275°
Corr. 0·132 4M/4stn Msd 0·3

84/1206
DEC 30 1527 21·7s 36·70S 177·45E 12km M=4·0
1·1 0·07 0·05 R
Rsd 0·6s 9ph/6stn Dmin 147km Az.gap 268°
Corr. 0·392 5M/5stn Msd 0·2

84/1207
DEC 30 1545 37·3s 36·60S 177·62E 12km M=4·0
2·0 0·14 0·05 R
Rsd 0·7s 8ph/5stn Dmin 146km Az.gap 275°
Corr. -0·085 5M/5stn Msd 0·2

84/1208
DEC 30 1548 42·3s 36·71S 177·40E 12km M=4·3
1·4 0·09 0·03 R
Rsd 0·5s 10ph/6stn Dmin 146km Az.gap 267°
Corr. 0·122 5M/5stn Msd 0·3

84/1209
DEC 30 1554 52·4s 36·84S 177·18E 12km M=3·7
1·2 0·09 0·04 R
Rsd 0·7s 8ph/5stn Dmin 128km Az.gap 258°
Corr. -0·033 5M/5stn Msd 0·3

84/1210
DEC 30 1555 20·6s 36·67S 177·51E 12km M=3·9
2·9 0·18 0·07 R
Rsd 0·8s 7ph/6stn Dmin 146km Az.gap 270°
Corr. -0·061 5M/5stn Msd 0·2

84/1211
DEC 30 1608 31·2s 36·65S 177·47E 12km M=4·8
1·3 0·09 0·05 R
Rsd 0·9s 10ph/6stn Dmin 150km Az.gap 271°
Corr. 0·159 3M/3stn Msd 0·4

84/1212
DEC 30 1614 06·3s 36·77S 177·58E 12km M=4·0
2·4 0·17 0·06 R
Rsd 0·9s 8ph/6stn Dmin 134km Az.gap 266°
Corr. 0·531 5M/5stn Msd 0·2

84/1213
DEC 30 1616 27·0s 36·76S 177·41E 12km M=4·0
0·8 0·05 0·02 R
Rsd 0·4s 9ph/5stn Dmin 141km Az.gap 265°
Corr. -0·009 5M/5stn Msd 0·3

84/1214
DEC 30 1624 02·6s 36·64S 177·46E 12km M=4·0
1·3 0·08 0·04 R
Rsd 0·6s 7ph/5stn Dmin 152km Az.gap 272°
Corr. 0·080 5M/5stn Msd 0·2

84/1215
DEC 30 1630 14·2s 36·83S 177·51E 12km M=3·9
1·8 0·13 0·05 R
Rsd 0·8s 8ph/6stn Dmin 132km Az.gap 261°
Corr. 0·452 5M/5stn Msd 0·2

84/1216
DEC 30 1631 51·3s 36·62S 177·54E 12km M=5·1
2·0 0·15 0·05 R
Rsd 0·9s 9ph/7stn Dmin 149km Az.gap 273°
Corr. 0·016 4M/4stn Msd 0·3 1↑

84/1217
DEC 30 1637 11·6s 36·62S 177·40E 12km M=4·1
1·1 0·07 0·05 R
Rsd 0·6s 8ph/6stn Dmin 156km Az.gap 272°
Corr. 0·368 5M/5stn Msd 0·2

84/1218
DEC 30 1645 33·6s 36·59S 177·51E 12km M=4·8
1·0 0·07 0·04 R
Rsd 0·7s 10ph/6stn Dmin 154km Az.gap 274°
Corr. 0·123 5M/5stn Msd 0·3

84/1219
DEC 30 1649 03·1s 36·53S 177·52E 12km M=4·1
2·2 0·16 0·06 R
Rsd 0·7s 9ph/5stn Dmin 158km Az.gap 277°
Corr. 0·629 5M/5stn Msd 0·2

84/1220
DEC 30 1650 40·3s 36·75S 177·55E 12km M=3·8
R R R R
Rsd 0·9s 6ph/5stn Dmin 137km Az.gap 288°
Corr. R 4M/4stn Msd 0·2

84/1221
DEC 30 1651 01·8s 36·70S 177·55E 12km M=4·5
1·3 0·09 0·05 R
Rsd 0·8s 8ph/6stn Dmin 141km Az.gap 270°
Corr. 0·446 6M/5stn Msd 0·3

84/1222
DEC 30 1655 24·9s 36·64S 177·52E 12km M=4·3
4·2 0·28 0·05 R
Rsd 0·8s 7ph/6stn Dmin 148km Az.gap 272°
Corr. -0·221 6M/5stn Msd 0·3
In the coda of a small shock.

84/1223
DEC 30 1710 52·0s 36·63S 177·40E 12km M=4·2
2·3 0·17 0·07 R
Rsd 0·8s 7ph/6stn Dmin 155km Az.gap 272°
Corr. 0·148 5M/5stn Msd 0·3

84/1224
DEC 30 1724 30·7s 36·71S 177·39E 12km M=4·3
0·9 0·06 0·04 R
Rsd 0·6s 9ph/6stn Dmin 146km Az.gap 267°
Corr. 0·080 5M/5stn Msd 0·3

84/1225
DEC 30 1732 33·8s 36·64S 177·24E 12km M=4·4
1·5 0·11 0·03 R
Rsd 0·7s 11ph/6stn Dmin 151km Az.gap 270°
Corr. -0·190 5M/5stn Msd 0·3

84/1226
DEC 30 1756 34·6s 36·22S 177·17E 12km M=4·6
1·4 0·09 0·04 R
Rsd 0·6s 9ph/6stn Dmin 197km Az.gap 287°
Corr. -0·440 5M/5stn Msd 0·2

84/1227
DEC 30 1804 39·5s 36·76S 177·52E 12km M=4·1
1·2 0·08 0·04 R
Rsd 0·9s 11ph/6stn Dmin 138km Az.gap 266°
Corr. 0·111 6M/5stn Msd 0·2

84/1228
DEC 30 1823 36·0s 36·71S 177·42E 12km M=4·5
1·3 0·10 0·05 R
Rsd 0·6s 8ph/6stn Dmin 146km Az.gap 268°
Corr. -0·078 5M/5stn Msd 0·3

84/1229
DEC 30 1846 08·8s 36·99S 177·68E 12km M=3·4
0·9 0·06 0·05 R
Rsd 0·6s 9ph/5stn Dmin 109km Az.gap 255°
Corr. 0·414 4M/4stn Msd 0·2

84/1230
DEC 30 1847 20·0s 36·76S 177·51E 12km M=3·7
3·7 0·25 0·09 R
Rsd 1·3s 6ph/4stn Dmin 138km Az.gap 287°
Corr. 0·006 3M/3stn Msd 0·1

84/1231
DEC 30 1900 53·0s 36·68S 177·45E 12km M=3·9
1·2 0·08 0·05 R
Rsd 0·7s 7ph/5stn Dmin 149km Az.gap 269°
Corr. 0·288 5M/5stn Msd 0·4

84/1232
DEC 30 1932 55·5s 36·68S 177·35E 12km M=4·3
1·6 0·11 0·04 R
Rsd 0·5s 6ph/5stn Dmin 149km Az.gap 268°
Corr. -0·532 5M/5stn Msd 0·2

84/1233
DEC 30 1933 46·0s 36·74S 177·55E 12km M=4·3
2·3 0·16 0·04 R
Rsd 0·5s 5ph/4stn Dmin 138km Az.gap 268°
Corr. 0·660 4M/4stn Msd 0·4

84/1234
DEC 30 1938 50·6s 36·77S 177·40E 12km M=4·5
1·9 0·14 0·05 R
Rsd 0·8s 8ph/6stn Dmin 139km Az.gap 263°
Corr. -0·089 5M/4stn Msd 0·2

84/1235
DEC 30 1945 54·5s 36·71S 177·38E 12km M=4·4
0·9 0·06 0·04 R
Rsd 0·5s 8ph/5stn Dmin 146km Az.gap 287°
Corr. -0·380 4M/4stn Msd 0·3

84/1236
DEC 30 2007 04·8s 36·72S 177·61E 12km M=5·1
1·9 0·14 0·05 R
Rsd 0·9s 9ph/7stn Dmin 97km Az.gap 270°
Corr. 0·375 3M/2stn Msd 0·3

84/1237
DEC 30 2010 27·9s 36·87S 177·53E 12km M=3·8
11·6 0·83 0·15 R
Rsd 1·7s 5ph/5stn Dmin 129km Az.gap 260°
Corr. -0·682 5M/5stn Msd 0·3
In coda of preceding shock.

84/1238
DEC 30 2022 46·0s 36·90S 177·33E 12km M=4·4
1·6 0·12 0·07 R
Rsd 1·0s 7ph/7stn Dmin 71km Az.gap 256°
Corr. -0·134 3M/3stn Msd 0·3 1↑

84/1239
DEC 30 2026 22·5s 36·57S 177·47E 12km M=5·3
1·8 0·14 0·06 R
Rsd 0·9s 9ph/7stn Dmin 109km Az.gap 275°
Corr. 0·026 4M/3stn Msd 0·3

84/1240
DEC 30 2029 37·8s 36·65S 177·43E 12km M=4·1
1·3 0·09 0·02 R
Rsd 0·1s 4ph/4stn Dmin 153km Az.gap 290°
Corr. -0·408 4M/4stn Msd 0·1

84/1241
DEC 30 2033 13·0s 36·70S 177·62E 12km M=3·9
2·5 0·16 0·06 R
Rsd 0·9s 7ph/5stn Dmin 137km Az.gap 271°
Corr. 0·503 5M/5stn Msd 0·2

84/1242
DEC 30 2039 26·5s 36·72S 177·58E 12km M=4·0
2·4 0·17 0·06 R
Rsd 1·0s 8ph/6stn Dmin 138km Az.gap 269°
Corr. 0·356 3M/3stn Msd 0·1
In the coda of a small shock.

84/1243
DEC 30 2040 09·7s 36·62S 177·58E 12km M=4·2
2·4 0·15 0·06 R
Rsd 1·1s 9ph/6stn Dmin 147km Az.gap 274°
Corr. 0·503 4M/4stn Msd 0·1
Interpretation doubtful. In the coda of preceding shock.

84/1244
DEC 30 2059 55·1s 36·65S 177·57E 12km M=5·5
1·7 0·12 0·05 R
Rsd 0·9s 11ph/9stn Dmin 103km Az.gap 206°
Corr. 0·299 6M/6stn Msd 0·3

84/1245
DEC 30 2103 17·7s 36·71S 177·48E 12km M=5·0
3·5 0·25 0·07 R
Rsd 1·1s 6ph/6stn Dmin 145km Az.gap 268°
Corr. 0·191 3M/3stn Msd 0·4

84/1246
DEC 30 2111 46·2s 36·82S 177·51E 12km M=4·0
1·2 0·09 0·03 R
Rsd 0·6s 8ph/6stn Dmin 83km Az.gap 263°
Corr. 0·181 4M/4stn Msd 0·3

84/1247
DEC 30 2112 04·7s 36·67S 177·51E 12km M=4·3
2·8 0·21 0·07 R
Rsd 1·1s 5ph/4stn Dmin 146km Az.gap 270°
Corr. 0·387 3M/3stn Msd 0·4
In the coda of preceding shock.

84/1248
DEC 30 2123 17·7s 36·84S 177·42E 12km M=3·9
1·2 0·09 0·03 R
Rsd 0·3s 5ph/4stn Dmin 132km Az.gap 260°
Corr. -0·178 4M/4stn Msd 0·2

84/1249
DEC 30 2123 47·5s 36·74S 177·45E 12km M=5·0
1·3 0·09 0·03 R
Rsd 0·6s 9ph/6stn Dmin 144km Az.gap 266°
Corr. 0·091 2M/2stn Msd 0·3
Felt Opotiki (35) MM V.

84/1250
DEC 30 2126 23·2s 36·47S 177·70E 12km M=4·0
5·3 0·35 0·14 R
Rsd 1·2s 5ph/5stn Dmin 155km Az.gap 282°
Corr. 0·536 4M/4stn Msd 0·1

84/1251
DEC 30 2128 36·9s 36·57S 177·43E 12km M=5·2
1·6 0·12 0·05 R
Rsd 0·8s 9ph/7stn Dmin 108km Az.gap 274°
Corr. -0·017 3M/3stn Msd 0·4 1↓

84/1252
DEC 30 2135 46·7s 36·73S 177·52E 12km M=3·8
1·4 0·10 0·03 R
Rsd 0·3s 6ph/5stn Dmin 93km Az.gap 268°
Corr. 0·440 5M/4stn Msd 0·2

84/1253
DEC 30 2136 20·1s 36·56S 177·49E 12km M=5·0
2·1 0·15 0·06 R
Rsd 1·1s 10ph/7stn Dmin 110km Az.gap 275°
Corr. -0·109 5M/5stn Msd 0·3 1↓

84/1254
DEC 30 2136 54·9s 36·58S 177·54E 12km M=6·3
1·0 0·07 0·06 R
Rsd 0·8s 12ph/14stn Dmin 152km Az.gap 207°
Corr. 0·279 10M/10stn Msd 0·3 1↓
Felt widely in the North Island from Whenuapai (16) to Cape Runaway (29) to Palmerston North (62). Maximum intensity MM V at Waihi Beach (21), Cape Runaway (29) and Ormond (44).

84/1255
DEC 30 2143 50·8s 36·59S 177·65E 12km M=4·9
2·4 0·12 0·29 R
Rsd 1·0s 5ph/5stn Dmin 249km Az.gap 253°
Corr. 0·857 6M/6stn Msd 0·1
Interpretation doubtful.

84/1256
DEC 30 2149 06·6s 36·77S 177·48E 12km M=4·2
1·8 0·12 0·05 R
Rsd 1·0s 8ph/6stn Dmin 139km Az.gap 265°
Corr. 0·083 4M/4stn Msd 0·2
Interpretation doubtful.

84/1257
DEC 30 2150 31·2s 36·94S 177·55E 12km M=4·4
1·2 0·08 0·04 R
Rsd 0·7s 7ph/6stn Dmin 122km Az.gap 256°
Corr. 0·348 3M/3stn Msd 0·1
Interpretation doubtful.

84/1258
DEC 30 2152 23·4s 36·73S 177·31E 12km M=4·6
1·9 0·14 0·06 R
Rsd 0·9s 8ph/6stn Dmin 142km Az.gap 266°
Corr. -0·144 4M/4stn Msd 0·2

84/1259
DEC 30 2156 13·7s 36·88S 177·40E 12km M=5·1
1·6 0·13 0·05 R
Rsd 0·9s 9ph/6stn Dmin 127km Az.gap 258°
Corr. -0·288 4M/4stn Msd 0·3 1↑

84/1260
DEC 30 2158 36·1s 36·81S 177·54E 12km M=4·0
1·0 0·08 0·03 R
Rsd 0·4s 6ph/3stn Dmin 132km Az.gap 263°
Corr. 0·421 2M/2stn Msd 0·1
In the coda of preceding shock.

84/1261
DEC 30 2202 11·0s 36·98S 177·48E 12km M=3·8
2·4 0·17 0·04 R
Rsd 0·7s 8ph/6stn Dmin 119km Az.gap 252°
Corr. -0·220 5M/5stn Msd 0·3

84/1262
DEC 30 2204 41·5s 36·76S 177·43E 12km M=4·2
4·7 0·33 0·04 R
Rsd 0·6s 6ph/6stn Dmin 141km Az.gap 264°
Corr. -0·113 4M/4stn Msd 0·2

84/1263
DEC 30 2207 22·5s 36·86S 177·42E 12km M=4·1
2·3 0·17 0·04 R
Rsd 0·7s 9ph/6stn Dmin 130km Az.gap 259°
Corr. -0·266 4M/4stn Msd 0·2

84/1264
DEC 30 2209 10·5s 36·95S 177·43E 12km M=3·8
1·0 0·07 0·02 R
Rsd 0·2s 6ph/5stn Dmin 122km Az.gap 254°
Corr. 0·093 4M/4stn Msd 0·4

84/1265
DEC 30 2210 45·5s 36·86S 177·57E 12km M=3·9
1·5 0·12 0·04 R
Rsd 0·5s 5ph/4stn Dmin 127km Az.gap 261°
Corr. -0·244 4M/4stn Msd 0·3

84/1266
DEC 30 2213 16·0s 37·01S 177·45E 12km M=4·2
1·1 0·09 0·02 R
Rsd 0·6s 8ph/6stn Dmin 115km Az.gap 249°
Corr. -0·090 4M/4stn Msd 0·3

84/1267
DEC 30 2214 11·4s 36·91S 177·41E 12km M=4·2
2·3 0·15 0·05 R
Rsd 0·6s 6ph/5stn Dmin 125km Az.gap 256°
Corr. -0·065 3M/3stn Msd 0·2
Interpretation doubtful.

84/1268
DEC 30 2218 13·4s 36·74S 177·54E 12km M=4·0
2·7 0·19 0·08 R
Rsd 1·0s 7ph/6stn Dmin 138km Az.gap 267°
Corr. 0·589 4M/4stn Msd 0·1

84/1269
DEC 30 2218 50·4s 36·94S 177·37E 12km M=3·7
1·9 0·09 0·13 R
Rsd 0·4s 4ph/3stn Dmin 121km Az.gap 320°
Corr. 0·738 3M/3stn Msd 0·2

84/1270
DEC 30 2221 45·2s 36·68S 177·45E 12km M=4·9
1·8 0·14 0·05 R
Rsd 0·7s 9ph/8stn Dmin 97km Az.gap 270°
Corr. 0·141 3M/3stn Msd 0·3

84/1271
DEC 30 2222 21·9s 36·60S 177·60E 12km M=5·3
R R R R
Rsd 0·5s 4ph/4stn Dmin 148km Az.gap 209°
Corr. 0·000 3M/3stn Msd 0·3
In the coda of the preceding shock.

84/1272
DEC 30 2229 41·7s 36·84S 177·55E 12km M=3·9
1·5 0·10 0·06 R
Rsd 0·9s 7ph/5stn Dmin 129km Az.gap 262°
Corr. 0·389 4M/4stn Msd 0·3

84/1273
DEC 30 2230 56·5s 36·93S 177·54E 12km M=3·8
3·4 0·27 0·08 R
Rsd 1·3s 6ph/6stn Dmin 123km Az.gap 256°
Corr. 0·480 4M/4stn Msd 0·2

84/1274
DEC 30 2233 17·1s 37·00S 177·41E 12km M=4·1
1·1 0·09 0·03 R
Rsd 0·6s 11ph/7stn Dmin 61km Az.gap 250°
Corr. -0·060 4M/4stn Msd 0·4

84/1275
DEC 30 2234 52·9s 36·98S 177·34E 12km M=3·8
0·2 0·01 0·00 R
Rsd 0·1s 5ph/5stn Dmin 116km Az.gap 251°
Corr. -0·415 3M/3stn Msd 0·4

84/1276
DEC 30 2239 09·7s 36·96S 177·49E 12km M=3·5
2·0 0·14 0·05 R
Rsd 0·6s 6ph/5stn Dmin 68km Az.gap 253°
Corr. -0·067 5M/5stn Msd 0·2

84/1277
DEC 30 2241 05·5s 36·95S 177·50E 12km M=4·8
1·6 0·12 0·04 R
Rsd 0·9s 10ph/7stn Dmin 70km Az.gap 255°
Corr. 0·016 4M/4stn Msd 0·1

84/1278
DEC 30 2241 41·0s 36·70S 177·60E 12km M=5·1
R R R R
Rsd 0·7s 4ph/4stn Dmin 228km Az.gap 274°
Corr. 0·000 2M/2stn Msd 0·1
In the coda of the preceding shock.

84/1279
DEC 30 2242 32·4s 36·60S 177·60E 12km M=4·5
R R R R
Rsd 0·6s 6ph/4stn Dmin 148km Az.gap 275°
Corr. 0·000 2M/2stn Msd 0·2
Interpretation very doubtful.

84/1280
DEC 30 2246 50·6s 37·01S 177·56E 12km M=3·7
0·7 0·05 0·01 R
Rsd 0·3s 7ph/6stn Dmin 115km Az.gap 251°
Corr. 0·424 5M/5stn Msd 0·2

84/1281
DEC 30 2254 19·0s 36·98S 177·35E 12km M=4·0
0·4 0·03 0·02 R
Rsd 0·4s 8ph/6stn Dmin 116km Az.gap 251°
Corr. 0·010 4M/4stn Msd 0·2 1↓

84/1282
DEC 30 2302 25·9s 37·14S 177·38E 12km M=4·0
1·2 0·08 0·04 R
Rsd 0·7s 9ph/6stn Dmin 100km Az.gap 240°
Corr. -0·491 5M/5stn Msd 0·2

84/1283
DEC 30 2320 35·7s 36·72S 177·58E 12km M=4·1
2·7 0·20 0·06 R
Rsd 0·8s 9ph/7stn Dmin 96km Az.gap 269°
Corr. 0·329 5M/5stn Msd 0·2

84/1284
DEC 30 2321 33·8s 36·66S 177·56E 12km M=4·4
4·8 0·36 0·13 R
Rsd 1·4s 5ph/4stn Dmin 144km Az.gap 272°
Corr. 0·714 5M/5stn Msd 0·3
In the coda of preceding shock.

84/1285
DEC 30 2322 48·6s 37·08S 177·52E 12km M=3·8
1·7 0·13 0·03 R
Rsd 0·5s 5ph/4stn Dmin 111km Az.gap 247°
Corr. -0·058 5M/5stn Msd 0·4

84/1286
DEC 30 2323 59·6s 37·07S 177·51E 12km M=3·8
1·2 0·09 0·05 R
Rsd 0·4s 6ph/5stn Dmin 112km Az.gap 247°
Corr. 0·609 5M/5stn Msd 0·3
Interpretation doubtful.

84/1287
DEC 30 2347 29·3s 36·72S 177·57E 12km M=4·0
1·1 0·08 0·03 R
Rsd 0·4s 5ph/4stn Dmin 138km Az.gap 269°
Corr. 0·582 4M/4stn Msd 0·3

84/1288
DEC 31 0004 19·4s 37·05S 177·24E 12km M=3·5
1·6 0·13 0·04 R
Rsd 0·9s 5ph/3stn Dmin 106km Az.gap 246°
Corr. -0·120 3M/3stn Msd 0·2
Interpretation doubtful.

84/1289
DEC 31 0037 44·5s 37·14S 177·41E 12km M=3·9
1·3 0·10 0·04 R
Rsd 1·0s 10ph/6stn Dmin 47km Az.gap 240°
Corr. -0·250 4M/4stn Msd 0·2

84/1290
DEC 31 0043 07·7s 36·84S 177·53E 12km M=3·6
1·2 0·08 0·05 R
Rsd 0·8s 9ph/6stn Dmin 83km Az.gap 262°
Corr. 0·121 4M/4stn Msd 0·1

84/1291
DEC 31 0044 55·0s 36·93S 177·57E 12km M=4·0
1·6 0·11 0·04 R
Rsd 0·6s 8ph/6stn Dmin 75km Az.gap 257°
Corr. 0·024 4M/4stn Msd 0·2

84/1292
DEC 31 0046 55·4s 36·70S 177·43E 12km M=4·3
0·9 0·06 0·04 R
Rsd 0·7s 8ph/6stn Dmin 94km Az.gap 268°
Corr. -0·119 4M/4stn Msd 0·2

84/1293
DEC 31 0047 43·8s 36·53S 177·31E 12km M=4·5
1·7 0·09 0·06 R
Rsd 0·7s 7ph/5stn Dmin 111km Az.gap 275°
Corr. 0·018 4M/4stn Msd 0·2
In the coda of the preceding shock.

84/1294
DEC 31 0052 54·1s 36·50S 177·50E 12km M=5·1
1·2 0·09 0·07 R
Rsd 1·0s 9ph/8stn Dmin 118km Az.gap 209°
Corr. 0·275 4M/4stn Msd 0·2

84/1295
DEC 31 0113 58·9s 37·07S 177·29E 12km M=3·9
1·1 0·09 0·05 R
Rsd 0·7s 8ph/6stn Dmin 52km Az.gap 244°
Corr. -0·066 4M/4stn Msd 0·4

84/1296
DEC 31 0124 51·1s 36·74S 177·49E 12km M=4·5
1·0 0·08 0·04 R
Rsd 0·5s 7ph/6stn Dmin 91km Az.gap 267°
Corr. -0·157 4M/4stn Msd 0·2

84/1297
DEC 31 0134 54·8s 36·63S 177·46E 12km M=4·3
1·2 0·08 0·05 R
Rsd 0·8s 9ph/6stn Dmin 102km Az.gap 272°
Corr. -0·007 4M/4stn Msd 0·1

84/1298
DEC 31 0155 03·4s 36·75S 177·47E 12km M=4·6
0·8 0·06 0·03 R
Rsd 0·7s 12ph/7stn Dmin 90km Az.gap 266°
Corr. -0·059 7M/6stn Msd 0·3

84/1299
DEC 31 0203 46·2s 36·62S 177·47E 12km M=3·8
1·4 0·09 0·06 R
Rsd 0·8s 8ph/6stn Dmin 153km Az.gap 272°
Corr. 0·085 5M/5stn Msd 0·1

84/1300
DEC 31 0204 13·4s 36·71S 177·38E 12km M=4·0
4·3 0·31 0·09 R
Rsd 0·6s 6ph/6stn Dmin 146km Az.gap 267°
Corr. -0·796 5M/5stn Msd 0·2

84/1301
DEC 31 0211 45·7s 36·74S 177·57E 12km M=3·8
0·8 0·05 0·03 R
Rsd 0·5s 7ph/6stn Dmin 137km Az.gap 268°
Corr. 0·509 5M/5stn Msd 0·1

84/1302
DEC 31 0218 30·1s 37·01S 177·41E 12km M=3·7
1·7 0·11 0·04 R
Rsd 0·8s 9ph/7stn Dmin 61km Az.gap 250°
Corr. -0·150 5M/5stn Msd 0·2

84/1303
DEC 31 0221 17·3s 36·61S 177·54E 12km M=4·6
1·8 0·11 0·06 R
Rsd 0·9s 9ph/6stn Dmin 107km Az.gap 274°
Corr. 0·260 7M/6stn Msd 0·2

84/1304
DEC 31 0231 04·7s 36·79S 177·45E 12km M=4·6
1·6 0·12 0·06 R
Rsd 0·9s 10ph/7stn Dmin 85km Az.gap 263°
Corr. 0·302 6M/6stn Msd 0·2 1↓

84/1305
DEC 31 0248 46·2s 36·79S 177·45E 12km M=4·1
1·8 0·12 0·06 R
Rsd 1·0s 8ph/6stn Dmin 85km Az.gap 263°
Corr. 0·105 5M/5stn Msd 0·3

84/1306
DEC 31 0258 28·2s 36·65S 177·52E 12km M=3·9
2·6 0·17 0·05 R
Rsd 0·9s 8ph/6stn Dmin 102km Az.gap 271°
Corr. 0·356 5M/5stn Msd 0·1

84/1307
DEC 31 0309 17·0s 36·87S 177·30E 12km M=4·1
1·4 0·10 0·05 R
Rsd 0·5s 8ph/7stn Dmin 73km Az.gap 257°
Corr. -0·053 6M/5stn Msd 0·2

84/1308
DEC 31 0326 38·6s 36·91S 177·26E 12km M=3·9
1·2 0·08 0·05 R
Rsd 0·7s 9ph/7stn Dmin 69km Az.gap 255°
Corr. 0·358 5M/5stn Msd 0·1

84/1309
DEC 31 0333 41·7s 36·72S 177·37E 12km M=4·0
2·8 0·20 0·07 R
Rsd 0·9s 8ph/7stn Dmin 92km Az.gap 266°
Corr. 0·101 5M/5stn Msd 0·2

84/1310
DEC 31 0334 44·1s 37·01S 177·14E 12km M=4·2
1·7 0·13 0·05 R
Rsd 1·0s 8ph/6stn Dmin 58km Az.gap 248°
Corr. -0·291 5M/5stn Msd 0·3
In the coda of the preceding shock.

84/1311
DEC 31 0347 49·0s 36·72S 177·38E 12km M=3·9
0·8 0·05 0·05 R
Rsd 0·4s 7ph/6stn Dmin 144km Az.gap 266°
Corr. 0·539 5M/5stn Msd 0·3

84/1312
DEC 31 0350 10·8s 36·89S 177·34E 12km M=3·8
1·8 0·12 0·07 R
Rsd 0·9s 9ph/7stn Dmin 72km Az.gap 256°
Corr. 0·439 5M/5stn Msd 0·3

84/1313
DEC 31 0351 38·2s 38·73S 178·21E 33km M=3·5
0·6 0·05 0·06 R
Rsd 0·4s 7ph/6stn Dmin 19km Az.gap 217°
Corr. -0·632 4M/4stn Msd 0·2

84/1314
DEC 31 0356 59·5s 36·72S 177·40E 12km M=4·0
0·6 0·04 0·04 R
Rsd 0·4s 7ph/5stn Dmin 92km Az.gap 296°
Corr. 0·147 4M/4stn Msd 0·3

84/1315
DEC 31 0405 05·5s 36·63S 177·55E 12km M=4·6
1·4 0·10 0·04 R
Rsd 0·8s 12ph/7stn Dmin 105km Az.gap 273°
Corr. 0·057 6M/6stn Msd 0·3

84/1316
DEC 31 0415 30·9s 36·91S 177·41E 12km M=4·1
2·0 0·15 0·04 R
Rsd 0·7s 11ph/7stn Dmin 71km Az.gap 256°
Corr. -0·385 5M/5stn Msd 0·1

84/1317
DEC 31 0427 21·5s 36·65S 177·47E 12km M=4·0
1·9 0·13 0·08 R
Rsd 0·9s 8ph/6stn Dmin 100km Az.gap 271°
Corr. 0·246 5M/5stn Msd 0·2
Interpretation doubtful.

84/1318
DEC 31 0429 46·5s 36·68S 177·43E 12km M=4·1
0·9 0·06 0·05 R
Rsd 0·5s 7ph/6stn Dmin 97km Az.gap 269°
Corr. 0·452 5M/5stn Msd 0·2

84/1319
DEC 31 0444 08·2s 36·62S 177·55E 12km M=4·1
1·3 0·08 0·06 R
Rsd 0·8s 9ph/7stn Dmin 105km Az.gap 274°
Corr. 0·253 5M/5stn Msd 0·3

84/1320
DEC 31 0446 26·4s 36·73S 177·53E 12km M=4·0
2·2 0·14 0·04 R
Rsd 0·7s 10ph/7stn Dmin 93km Az.gap 267°
Corr. 0·051 6M/5stn Msd 0·1

84/1321
DEC 31 0453 01·7s 36·64S 177·41E 12km M=4·9
1·7 0·13 0·06 R
Rsd 0·9s 10ph/8stn Dmin 101km Az.gap 271°
Corr. -0·121 6M/6stn Msd 0·3

84/1322
DEC 31 0457 10·9s 36·68S 177·55E 12km M=4·7
1·4 0·11 0·04 R
Rsd 0·7s 10ph/8stn Dmin 99km Az.gap 270°
Corr. 0·170 5M/5stn Msd 0·4 1↓

84/1323
DEC 31 0502 30·2s 36·95S 177·39E 12km M=3·9
1·6 0·12 0·06 R
Rsd 1·1s 9ph/7stn Dmin 67km Az.gap 253°
Corr. -0·037 5M/5stn Msd 0·3

84/1324
DEC 31 0521 07·6s 36·71S 177·42E 12km M=4·2
1·2 0·08 0·04 R
Rsd 0·6s 9ph/7stn Dmin 93km Az.gap 267°
Corr. 0·210 5M/5stn Msd 0·2

84/1325
DEC 31 0523 08·9s 36·69S 177·49E 12km M=4·2
1·7 0·13 0·04 R
Rsd 0·8s 9ph/7stn Dmin 96km Az.gap 269°
Corr. -0·039 4M/4stn Msd 0·3

84/1326
DEC 31 0527 41·4s 36·85S 177·46E 12km M=4·3
1·2 0·09 0·03 R
Rsd 0·6s 10ph/7stn Dmin 79km Az.gap 260°
Corr. 0·110 4M/4stn Msd 0·3

84/1327
DEC 31 0551 52·8s 36·63S 177·55E 12km M=5·1
1·5 0·10 0·04 R
Rsd 0·8s 10ph/8stn Dmin 105km Az.gap 207°
Corr. 0·212 6M/6stn Msd 0·4

84/1328
DEC 31 0554 20·4s 36·73S 177·54E 12km M=4·0
3·8 0·25 0·05 R
Rsd 1·1s 6ph/5stn Dmin 140km Az.gap 268°
Corr. 0·005 4M/4stn Msd 0·1
In the coda of preceding shock.

84/1329
DEC 31 0619 49·9s 36·65S 177·60E 12km M=3·9
1·2 0·07 0·06 R
Rsd 0·8s 8ph/6stn Dmin 104km Az.gap 272°
Corr. 0·077 5M/5stn Msd 0·2

84/1330
DEC 31 0659 30·9s 36·71S 177·35E 12km M=3·8
1·1 0·07 0·04 R
Rsd 0·4s 7ph/7stn Dmin 92km Az.gap 267°
Corr. 0·195 4M/4stn Msd 0·1

84/1331
DEC 31 0719 49·0s 36·67S 177·37E 12km M=4·1
1·0 0·07 0·04 R
Rsd 0·6s 7ph/5stn Dmin 150km Az.gap 269°
Corr. -0·080 5M/5stn Msd 0·1

84/1332
DEC 31 0722 40·9s 36·79S 177·36E 12km M=3·9
1·0 0·07 0·04 R
Rsd 0·8s 8ph/6stn Dmin 84km Az.gap 263°
Corr. 0·136 5M/5stn Msd 0·1

84/1333
DEC 31 0723 35·6s 36·68S 177·42E 12km M=4·2
0·7 0·04 0·04 R
Rsd 0·6s 8ph/6stn Dmin 96km Az.gap 269°
Corr. 0·103 5M/5stn Msd 0·2

84/1334
DEC 31 0733 24·1s 36·80S 177·49E 12km M=3·8
1·6 0·11 0·05 R
Rsd 0·8s 7ph/5stn Dmin 136km Az.gap 263°
Corr. 0·299 4M/4stn Msd 0·0

84/1335
DEC 31 0742 03·5s 36·89S 177·41E 12km M=5·1
1·6 0·13 0·04 R
Rsd 0·8s 8ph/6stn Dmin 126km Az.gap 257°
Corr. 0·018 5M/5stn Msd 0·2 1↓

84/1336
DEC 31 0747 55·4s 36·78S 177·44E 12km M=4·1
1·3 0·10 0·05 R
Rsd 0·6s 7ph/5stn Dmin 140km Az.gap 264°
Corr. 0·361 5M/5stn Msd 0·3

84/1337
DEC 31 0818 17·3s 36·70S 177·45E 12km M=4·1
0·9 0·06 0·04 R
Rsd 0·6s 9ph/6stn Dmin 147km Az.gap 268°
Corr. 0·331 5M/5stn Msd 0·1

84/1338
DEC 31 0843 04·7s 37·17S 177·38E 12km M=3·5
0·7 0·05 0·02 R
Rsd 0·3s 7ph/5stn Dmin 97km Az.gap 238°
Corr. 0·120 4M/4stn Msd 0·3

84/1339
DEC 31 0938 57·6s 37·06S 177·30E 12km M=3·6
1·5 0·11 0·07 R
Rsd 0·9s 7ph/5stn Dmin 106km Az.gap 245°
Corr. 0·532 5M/5stn Msd 0·2

84/1340
DEC 31 0950 58·0s 36·61S 177·57E 12km M=4·1
1·4 0·09 0·06 R
Rsd 0·9s 9ph/6stn Dmin 148km Az.gap 274°
Corr. 0·377 5M/5stn Msd 0·2

84/1341
DEC 31 0959 07·9s 36·96S 177·36E 12km M=5·5
1·6 0·12 0·05 R
Rsd 1·0s 9ph/7stn Dmin 119km Az.gap 252°
Corr. -0·207 5M/5stn Msd 0·3

84/1342
DEC 31 1011 15·0s 37·17S 177·33E 12km M=4·2
1·7 0·15 0·04 R
Rsd 1·1s 8ph/6stn Dmin 95km Az.gap 237°
Corr. -0·333 4M/4stn Msd 0·3

84/1343
DEC 31 1032 16·6s 36·45S 177·74E 12km M=4·1
0·9 0·05 0·05 R
Rsd 0·4s 8ph/6stn Dmin 156km Az.gap 284°
Corr. 0·541 5M/5stn Msd 0·3

84/1344
DEC 31 1049 32·9s 37·15S 177·39E 12km M=4·0
1·8 0·15 0·04 R
Rsd 0·9s 7ph/6stn Dmin 99km Az.gap 239°
Corr. 0·088 4M/4stn Msd 0·2

84/1345
DEC 31 1055 41·7s 37·27S 177·29E 12km M=4·2
1·6 0·13 0·06 R
Rsd 0·9s 7ph/6stn Dmin 83km Az.gap 229°
Corr. 0·153 5M/5stn Msd 0·2

84/1346
DEC 31 1118 17·9s 36·71S 177·47E 12km M=4·1
1·0 0·07 0·04 R
Rsd 0·7s 9ph/6stn Dmin 145km Az.gap 268°
Corr. 0·276 5M/5stn Msd 0·1

84/1347
DEC 31 1134 23·7s 36·91S 177·46E 12km M=4·4
1·1 0·07 0·04 R
Rsd 0·7s 9ph/6stn Dmin 126km Az.gap 256°
Corr. 0·318 5M/5stn Msd 0·1

84/1348
DEC 31 1144 52·5s 36·60S 177·52E 12km M=4·8
2·0 0·14 0·06 R
Rsd 1·0s 9ph/7stn Dmin 152km Az.gap 273°
Corr. 0·225 6M/6stn Msd 0·3

84/1349
DEC 31 1223 38·8s 36·73S 177·44E 12km M=3·8
0·8 0·05 0·03 R
Rsd 0·5s 9ph/6stn Dmin 145km Az.gap 267°
Corr. 0·216 4M/4stn Msd 0·0

84/1350
DEC 31 1336 02·9s 36·91S 177·52E 12km M=4·0
1·5 0·11 0·05 R
Rsd 0·8s 11ph/6stn Dmin 126km Az.gap 257°
Corr. 0·265 5M/5stn Msd 0·1

84/1351
DEC 31 1343 26·6s 36·07S 177·58E 12km M=4·1
2·0 0·12 0·13 R
Rsd 1·1s 7ph/6stn Dmin 199km Az.gap 294°
Corr. 0·469 5M/5stn Msd 0·1

84/1352
DEC 31 1556 06·1s 36·99S 177·47E 12km M=4·5
1·9 0·15 0·04 R
Rsd 0·8s 8ph/6stn Dmin 119km Az.gap 252°
Corr. 0·291 5M/5stn Msd 0·3

84/1353
DEC 31 1603 01·3s 36·93S 177·37E 12km M=4·9
1·9 0·15 0·05 R
Rsd 1·0s 9ph/6stn Dmin 122km Az.gap 255°
Corr. -0·320 6M/6stn Msd 0·3 1↓

84/1354
DEC 31 1718 18·7s 36·72S 177·39E 12km M=3·9
0·7 0·05 0·03 R
Rsd 0·5s 10ph/6stn Dmin 144km Az.gap 267°
Corr. 0·182 5M/5stn Msd 0·3

84/1355
DEC 31 1908 35·8s 36·69S 177·31E 12km M=4·0
0·9 0·06 0·03 R
Rsd 0·6s 9ph/6stn Dmin 147km Az.gap 268°
Corr. 0·013 5M/5stn Msd 0·1

84/1356
DEC 31 1912 04·0s 36·56S 177·55E 12km M=3·8
1·6 0·10 0·08 R
Rsd 0·9s 7ph/5stn Dmin 153km Az.gap 276°
Corr. 0·281 5M/5stn Msd 0·3

84/1357
DEC 31 1921 23·2s 36·68S 177·53E 12km M=3·8
1·4 0·10 0·06 R
Rsd 0·9s 9ph/5stn Dmin 144km Az.gap 270°
Corr. 0·408 4M/4stn Msd 0·4

84/1358
DEC 31 1942 01·1s 36·75S 177·39E 12km M=4·0
1·1 0·07 0·04 R
Rsd 0·6s 9ph/6stn Dmin 142km Az.gap 265°
Corr. 0·191 4M/4stn Msd 0·2

84/1359
DEC 31 1956 26·1s 36·95S 177·44E 12km M=4·3
1·2 0·09 0·04 R
Rsd 0·8s 8ph/6stn Dmin 122km Az.gap 254°
Corr. 0·141 5M/5stn Msd 0·2

84/1360
DEC 31 1959 12·9s 37·04S 177·38E 12km M=4·0
1·2 0·10 0·05 R
Rsd 1·0s 7ph/5stn Dmin 111km Az.gap 248°
Corr. 0·171 5M/5stn Msd 0·2

84/1361
DEC 31 2008 40·0s 36·90S 177·41E 12km M=3·6
0·5 0·04 0·02 R
Rsd 0·2s 6ph/5stn Dmin 126km Az.gap 256°
Corr. 0·410 4M/4stn Msd 0·2

84/1362
DEC 31 2017 43·8s 37·12S 177·29E 12km M=3·7
1·0 0·07 0·04 R
Rsd 0·5s 7ph/5stn Dmin 100km Az.gap 241°
Corr. -0·148 4M/4stn Msd 0·3

84/1363
DEC 31 2045 11·3s 36·97S 177·37E 12km M=5·0
1·4 0·11 0·04 R
Rsd 0·9s 11ph/8stn Dmin 64km Az.gap 252°
Corr. -0·227 4M/4stn Msd 0·3

84/1364
DEC 31 2123 32·0s 36·72S 177·62E 12km M=4·4
1·1 0·08 0·03 R
Rsd 0·6s 8ph/7stn Dmin 98km Az.gap 270°
Corr. 0·228 6M/6stn Msd 0·3

84/1365
DEC 31 2151 46·4s 37·00S 177·06E 12km M=3·6
0·6 0·03 0·02 R
Rsd 0·3s 11ph/5stn Dmin 59km Az.gap 249°
Corr. 0·039 4M/4stn Msd 0·3

LISTS OF ORIGIN AND MAGNITUDE DETRMINATIONS

STANDARD NETWORK

A chronological list of the New Zealand earthquake origins determined from the data summarised on the preceding pages follows. A reference number at the beginning of each entry identifies the origin with the instrumental data summary, and also with the appropriate full listing of non-instrumental data (if there is any) that appears in a later section.

The letter "R" following a depth indicate that depth was not determined by computation, but by consideration of crustal phases, or that a depth was assigned of necessity to achieve convergence of the location algorithm. The letter "G" in the same position shows that a depth was determined on the basis of information not accessible to the location program.

The letter "F" following a magnitude indicates that at least one report of the earthquake being felt (or some other macroseismic phenomenon being observed) has been received by the Observatory.

NUM	DATE	TIME	LAT	LONG	DEP	MAG
1	JAN 01	0750 38·0	43·32S	172·63E	12R	3·3F
2	JAN 01	1444 46·0	34·89S	179·56W	12R	4·3
3	JAN 02	0345 14·2	45·37S	167·01E	73	3·7
4	JAN 02	1112 08·4	33·42S	179·36E	296	4·6
5	JAN 02	1215 23·5	37·88S	176·57E	148	3·6
6	JAN 02	1246 56·8	41·60S	174·30E	5R	4·0
7	JAN 02	1624 43·0	37·41S	176·00E	289	3·4
8	JAN 02	1839 04·9	36·30S	176·85E	277	3·7
9	JAN 02	2346 35·0	36·52S	178·49E	33R	3·8
10	JAN 03	0600 40·8	36·85S	177·05E	241	4·4
11	JAN 03	1615 08·0	40·55S	173·11E	159	3·5
12	JAN 03	1959 19·1	40·01S	176·70E	33R	4·2F
13	JAN 03	2255 39·0	40·53S	174·19E	104	5·5F
14	JAN 04	1006 16·1	38·14S	176·44E	5R	4·1F
15	JAN 04	1137 59·9	38·15S	176·46E	5R	3·6F
16	JAN 04	1142 59·5	38·16S	176·47E	5R	3·6F
17	JAN 04	1144 26·7	38·13S	176·47E	5R	3·2F
18	JAN 04	1149 57·8	38·13S	176·48E	5R	3·3F
19	JAN 04	1150 14·3	38·01S	176·40E	5R	3·3
20	JAN 04	1151 32·9	38·14S	176·45E	5R	3·5
21	JAN 04	1155 02·8	38·14S	176·46E	5R	3·5F
22	JAN 04	1155 46·8	38·16S	176·42E	5R	3·5
23	JAN 04	1202 05·2	38·10S	176·46E	5R	3·6F
24	JAN 04	1215 30·2	38·15S	176·46E	5R	3·5F
25	JAN 04	1513 41·2	45·06S	167·70E	127	3·9
26	JAN 04	1639 49·7	38·17S	176·45E	5R	4·0F
27	JAN 04	1640 54·6	38·14S	176·47E	5R	3·8F
28	JAN 04	1659 43·4	38·13S	176·46E	5R	3·3F
29	JAN 04	1723 51·3	39·14S	175·09E	213	3·7
30	JAN 04	1929 37·5	38·13S	176·45E	5R	3·3F
31	JAN 05	0923 13·3	33·61S	179·87E	33R	4·3
32	JAN 06	0908 20·0	47·79S	165·48E	33R	3·9
33	JAN 06	1912 10·3	37·51S	179·62W	33R	3·8
34	JAN 07	0249 14·8	42·39S	165·06E	33R	4·4
35	JAN 07	1430 30·0	50·01S	164·05E	33R	4·4
36	JAN 08	0151 55·8	45·89S	167·02E	86	3·5
37	JAN 08	0632 06·5	39·71S	175·40E	12R	3·0F
38	JAN 09	0226 40·5	38·43S	179·74W	33R	3·9
39	JAN 09	1603 10·9	38·36S	176·29E	5R	3·5F
40	JAN 09	1636 21·4	38·36S	176·30E	5R	2·8F
41	JAN 10	1750 48·8	40·20S	177·06E	33R	3·2F
42	JAN 11	0846 37·0	39·91S	176·75E	33R	3·9F
43	JAN 11	1940 27·7	36·75S	178·04E	170	4·7
44	JAN 11	2209 07·3	45·10S	167·58E	128	4·1
45	JAN 12	1224 34·6	34·90S	179·82W	33R	3·8
46	JAN 13	2128 10·4	32·76S	179·93E	33R	4·8
47	JAN 15	1737 44·0	39·72S	175·58E	5R	3·4
48	JAN 16	0909 54·6	36·86S	177·55E	180	4·4
49	JAN 17	1457 21·7	37·95S	176·40E	172	3·9
50	JAN 18	0755 29·6	38·85S	175·44E	231	3·9
51	JAN 19	0051 17·3	36·88S	176·81E	257	4·1
52	JAN 19	1022 46·3	41·81S	174·12E	12R	3·7
53	JAN 19	1340 39·0	39·00S	174·94E	232	3·8
54	JAN 19	1505 37·1	37·95S	176·73E	156	4·2
55	JAN 19	1528 20·0	37·48S	176·55E	201	4·8
56	JAN 19	1750 41·3	40·52S	174·46E	79	4·6F
57	JAN 19	1851 38·1	35·80S	178·30E	227	4·5
58	JAN 19	2127 12·6	38·58S	175·72E	176	4·1
59	JAN 19	2257 32·0	45·03S	167·43E	81	3·5
60	JAN 20	0328 35·9	45·11S	166·97E	33R	4·1
61	JAN 20	1842 45·9	36·32S	177·88E	243	4·5
62	JAN 21	1641 35·0	47·61S	164·89E	33R	4·3
63	JAN 21	1802 42·8	40·46S	176·73E	42	3·0
64	JAN 22	0912 51·1	38·89S	175·03E	227	4·3
65	JAN 22	1213 48·6	41·24S	172·36E	12R	3·8F
66	JAN 22	2134 40·6	38·63S	177·36E	33R	3·4
67	JAN 22	2138 49·5	45·07S	167·51E	79	3·5
68	JAN 24	0505 20·6	41·09S	174·04E	56	3·8
69	JAN 24	0749 41·9	40·31S	175·88E	73	4·1F
70	JAN 24	2154 25·4	40·04S	176·90E	61	4·5F
71	JAN 24	2236 40·7	37·91S	176·26E	237	4·0
72	JAN 26	0129 21·4	40·06S	176·76E	33	3·4
73	JAN 26	1211 43·4	38·05S	176·57E	150	4·0
74	JAN 26	1505 33·0	39·16S	174·78E	223	3·8
75	JAN 26	1855 24·8	38·85S	175·11E	228	4·0
76	JAN 26	2139 18·2	36·62S	177·76E	204	4·0
77	JAN 26	2336 22·8	40·88S	172·88E	217	3·7
78	JAN 27	1222 16·1	38·86S	174·64E	12R	3·7
79	JAN 27	1931 36·8	39·07S	178·18E	12R	3·4
80	JAN 27	1937 38·6	39·12S	178·26E	12R	3·4
81	JAN 28	2312 13·9	37·11S	177·54E	33R	3·8
82	JAN 28	2330 59·9	37·38S	179·19E	33R	4·3
83	JAN 29	0006 58·1	39·44S	176·84E	32	3·9F
84	JAN 29	0435 24·8	38·02S	176·32E	159	4·1
85	JAN 29	1013 31·2	32·15S	178·14W	476	5·2
86	JAN 29	1235 48·3	41·64S	173·95E	8	5·1F
87	JAN 30	1552 31·2	37·36S	177·21E	128	3·6
88	JAN 31	0253 21·1	44·21S	169·40E	12R	3·7
89	FEB 01	0208 07·6	40·59S	175·36E	33	3·5
90	FEB 01	0648 29·1	37·82S	179·35E	25	3·9
91	FEB 01	1707 00·9	47·45S	165·31E	33R	4·1
92	FEB 03	0408 54·2	41·62S	173·96E	8	3·9
93	FEB 03	0656 02·5	41·61S	173·96E	7	4·3F
94	FEB 04	1117 12·6	35·10S	179·83E	202	5·3
95	FEB 04	1510 25·4	44·91S	167·71E	69	3·9
96	FEB 05	0431 53·2	41·05S	173·70E	73	3·6
97	FEB 06	0312 46·3	33·75S	179·19W	302	5·1
98	FEB 06	1915 07·0	34·78S	178·86E	251	4·6
99	FEB 07	1504 09·4	41·64S	173·95E	6	3·0F
100	FEB 08	1215 21·9	39·97S	174·78E	23	3·5

NUM	DATE	TIME	LAT	LONG	DEP	MAG
101	FEB 09	1252 07·4	45·86S	166·97E	88	3·4
102	FEB 09	1500 30·8	39·13S	176·10E	84	4·5F
103	FEB 09	2130 31·9	39·33S	175·43E	20	3·9
104	FEB 10	2004 19·5	41·37S	174·65E	19	3·3F
105	FEB 11	0919 37·8	41·14S	174·69E	27	4·2F
106	FEB 12	0725 10·0	41·39S	174·64E	15	3·2F
107	FEB 12	1138 46·2	38·62S	177·47E	48	3·5
108	FEB 13	0931 10·6	39·46S	174·23E	184	3·6
109	FEB 14	0530 54·7	40·12S	173·74E	118	4·3
110	FEB 14	1658 09·8	47·43S	165·51E	33R	4·5
111	FEB 14	2301 51·3	45·01S	167·59E	80	3·5
112	FEB 15	0203 38·6	37·83S	176·28E	170	3·6
113	FEB 16	1243 59·3	41·30S	172·02E	6	3·8
114	FEB 17	0055 42·9	40·20S	174·22E	87	3·4
115	FEB 17	0730 56·1	40·17S	173·81E	142	3·5
116	FEB 17	0857 37·4	45·05S	167·67E	108	3·4
117	FEB 17	1956 07·8	37·23S	176·75E	189	3·9
118	FEB 18	0152 25·6	40·79S	173·87E	33R	3·7
119	FEB 18	0336 27·8	42·83S	171·58E	0R	3·5F
120	FEB 18	0434 10·9	44·43S	168·79E	10	4·1F
121	FEB 18	1224 43·0	39·77S	173·95E	182	3·5
122	FEB 19	1735 02·3	41·15S	174·70E	26	3·7F
123	FEB 20	0207 31·7	38·91S	175·70E	5R	3·6F
124	FEB 20	0351 25·9	40·57S	173·33E	204	4·1
125	FEB 20	1016 47·0	39·38S	175·06E	104	3·6
126	FEB 20	1516 00·3	37·12S	177·15E	191	3·8
127	FEB 20	1742 58·3	36·67S	177·88E	168	4·1
128	FEB 20	2241 13·7	38·91S	175·70E	8	3·9F
129	FEB 20	2243 57·0	38·91S	175·72E	5R	3·8F
130	FEB 21	0808 01·2	38·91S	175·69E	7	4·8F
131	FEB 21	0823 40·7	38·90S	175·70E	8	5·3F
132	FEB 21	0826 55·6	38·90S	175·69E	11	4·1F
133	FEB 21	0850 09·9	38·92S	175·72E	12R	3·5F
134	FEB 21	0852 15·3	38·92S	175·71E	3	4·0F
135	FEB 21	0941 00·1	38·90S	175·71E	5	4·0F
136	FEB 21	1254 03·9	38·91S	175·73E	7	3·8F
137	FEB 21	1313 24·1	38·90S	175·74E	4	4·4F
138	FEB 21	1355 19·0	38·90S	175·72E	6	4·1F
139	FEB 21	1531 11·9	40·35S	173·58E	141	5·0F
140	FEB 21	2253 55·5	38·91S	175·69E	9	3·7F
141	FEB 22	0038 07·7	38·92S	175·73E	6	4·2F
142	FEB 22	0259 16·5	38·92S	175·72E	7	4·3F
143	FEB 22	0653 04·0	38·92S	175·70E	5R	3·6F
144	FEB 22	1232 34·5	38·93S	175·72E	6	3·6F
145	FEB 23	0933 27·0	38·62S	176·19E	5R	2·7F
146	FEB 23	1048 00·5	45·06S	167·53E	80	3·6
147	FEB 23	2318 50·5	38·53S	178·10E	29	3·4
148	FEB 24	1913 30·5	43·59S	170·58E	4	3·9
149	FEB 25	0536 26·1	38·89S	175·74E	3	3·7
150	FEB 25	1929 24·2	44·99S	167·76E	133	3·5
151	FEB 26	0701 34·1	38·03S	175·90E	12R	3·8F
152	FEB 26	2112 13·9	47·73S	165·31E	33R	4·1
153	FEB 27	0415 04·7	46·35S	165·46E	33R	4·0
154	FEB 27	1455 42·0	39·59S	174·24E	214	3·8
155	FEB 27	1501 06·1	38·87S	175·83E	1R	3·3F
156	FEB 28	0728 55·5	37·92S	176·18E	215	3·9
157	FEB 28	1506 02·2	41·24S	175·19E	17	3·8F
158	FEB 29	1549 56·3	39·89S	176·95E	12R	3·8
159	FEB 29	1730 48·9	45·19S	167·60E	140	3·9
160	MAR 01	0745 25·1	38·92S	175·78E	1R	3·2F
161	MAR 01	0937 40·1	38·36S	176·25E	9	3·0F
162	MAR 01	0938 24·8	40·96S	174·53E	51	4·3F
163	MAR 01	1104 58·8	38·94S	175·74E	1R	3·5
164	MAR 01	1935 00·3	38·98S	175·81E	1	3·1F
165	MAR 02	1515 45·3	44·85S	167·75E	76	3·9
166	MAR 03	0706 04·8	35·73S	178·94E	252	4·2
167	MAR 03	1007 12·7	38·92S	175·78E	2	4·4F
168	MAR 03	1018 27·2	38·95S	175·81E	1	4·3F
169	MAR 04	0457 55·1	38·93S	175·38E	1R	3·4
170	MAR 04	1035 38·5	37·83S	176·38E	1R	3·6F
171	MAR 04	1728 42·2	45·05S	167·60E	72	3·7
172	MAR 05	0207 17·6	38·92S	175·79E	5	5·5F
173	MAR 05	0210 07·7	38·91S	175·78E	2	3·9F
174	MAR 05	0212 16·4	38·94S	175·71E	6	3·8F
175	MAR 05	0226 01·2	38·90S	175·78E	6	4·0F
176	MAR 05	0227 58·3	38·92S	175·82E	1	3·7F
177	MAR 05	0239 08·3	38·92S	175·69E	6	3·6F
178	MAR 05	0301 58·0	38·92S	175·73E	1R	4·1F
179	MAR 05	0307 02·3	38·92S	175·72E	1R	3·9F
180	MAR 05	0350 14·6	38·90S	175·81E	1R	4·0F
181	MAR 05	0413 44·7	38·91S	175·80E	4	3·4F
182	MAR 05	0943 29·3	38·92S	175·75E	4	3·5F
183	MAR 05	1324 43·4	38·89S	175·76E	1	4·1F
184	MAR 05	1348 11·7	38·83S	175·84E	143	3·9
185	MAR 05	1921 31·0	38·89S	175·81E	1R	3·5
186	MAR 05	1934 10·4	33·76S	179·03W	265	4·7
187	MAR 05	2353 34·9	38·92S	175·81E	1R	3·5F
188	MAR 06	0143 03·9	38·91S	175·81E	1R	3·8F
189	MAR 06	0150 58·8	38·93S	175·70E	2	3·8
190	MAR 06	0417 24·3	38·92S	175·46E	1R	3·6F
191	MAR 06	0501 50·2	38·96S	175·75E	1R	3·7F
192	MAR 06	0505 56·0	38·91S	175·80E	3	3·7F
193	MAR 06	0511 01·0	38·96S	175·70E	6	3·7F
194	MAR 06	0533 29·9	38·92S	175·73E	1R	3·4F
195	MAR 06	0550 07·7	38·97S	175·75E	1R	3·6F
196	MAR 06	0752 16·7	38·94S	175·80E	1R	3·6
197	MAR 06	2135 05·5	38·94S	175·75E	1R	3·7F
198	MAR 07	1006 52·8	41·84S	174·12E	20	3·7
199	MAR 07	1848 46·5	35·78S	178·68E	283	4·4
200	MAR 08	0040 52·5	38·20S	177·44E	75	6·4F

NUM	DATE	TIME	LAT	LONG	DEP	MAG
201	MAR 08	0916 11·2	35·17S	179·80E	201	4·6
202	MAR 08	0956 06·5	38·94S	175·53E	6	3·4F
203	MAR 09	0321 36·5	37·68S	178·39E	61	3·5
204	MAR 09	1704 09·2	37·07S	177·20E	12R	3·6
205	MAR 09	1729 27·8	41·72S	171·90E	12R	4·4F
206	MAR 09	2154 08·7	38·95S	175·67E	10	3·7
207	MAR 10	0025 15·2	41·64S	171·79E	12R	3·9F
208	MAR 10	0515 10·5	38·93S	175·76E	1R	3·6F
209	MAR 10	2352 45·9	38·56S	179·78E	33R	4·1
210	MAR 11	1642 47·6	48·98S	173·33E	33R	4·0
211	MAR 12	0827 55·3	35·68S	179·47W	192	4·4
212	MAR 12	2323 41·2	38·28S	176·11E	211	4·4
213	MAR 13	0433 35·1	38·93S	175·71E	5R	3·7F
214	MAR 13	1000 39·2	37·00S	177·08E	230	4·0
215	MAR 14	0534 44·4	38·85S	175·05E	238	5·2F
216	MAR 14	0758 14·5	37·76S	176·22E	224	3·6
217	MAR 14	1316 37·8	34·76S	179·94W	319	4·9
218	MAR 14	1712 39·7	34·62S	179·13E	314	3·9
219	MAR 15	1147 42·6	40·59S	173·79E	78	3·7F
220	MAR 15	1249 46·9	38·26S	176·10E	273	3·5
221	MAR 15	1426 08·3	39·15S	174·93E	205	4·1
222	MAR 15	1841 33·5	37·38S	177·60E	65	3·8
223	MAR 15	1910 34·4	38·47S	175·93E	191	4·3
224	MAR 16	0740 35·3	40·04S	176·74E	33R	3·5
225	MAR 16	1454 35·8	39·64S	174·95E	96	3·8
226	MAR 16	1653 07·0	39·19S	176·13E	73	3·5
227	MAR 16	2243 40·2	38·67S	175·79E	172	3·9
228	MAR 17	0646 34·4	36·89S	177·56E	222	4·2
229	MAR 17	1434 58·2	38·79S	175·51E	160	3·6
230	MAR 17	1906 20·4	36·54S	178·26E	142	4·0
231	MAR 17	2224 23·1	39·00S	176·02E	20	3·4
232	MAR 18	0007 39·7	44·69S	168·09E	69	3·6
233	MAR 18	1849 43·1	38·20S	175·83E	189	4·2
234	MAR 18	1904 51·9	44·28S	167·97E	0R	4·0
235	MAR 19	1927 06·9	40·63S	177·17E	33R	4·3
236	MAR 19	1958 35·4	35·23S	177·41W	33R	5·5
237	MAR 20	1341 44·5	37·27S	176·78E	226	5·2
238	MAR 20	1448 38·6	39·00S	175·08E	222	3·9
239	MAR 20	1651 14·6	38·07S	176·19E	5R	2·6F
240	MAR 21	0719 50·5	39·50S	178·00E	33R	3·8
241	MAR 21	0839 04·2	38·13S	176·37E	162	3·8
242	MAR 21	1031 40·6	38·76S	176·51E	85	3·6
243	MAR 21	1228 44·1	44·93S	167·74E	76	3·8
244	MAR 21	1448 24·4	39·47S	177·99E	33R	3·6
245	MAR 21	1654 33·0	37·38S	177·12E	147	4·3
246	MAR 21	2041 33·3	35·56S	179·48E	33R	4·5
247	MAR 22	1418 20·8	39·66S	178·88E	12R	4·2
248	MAR 22	2335 58·9	39·70S	179·25E	33R	3·8
249	MAR 23	0102 21·6	41·06S	175·46E	12R	4·0F
250	MAR 23	1538 41·4	38·91S	175·74E	5R	4·0F
251	MAR 24	0503 37·3	36·95S	177·21E	185	3·8
252	MAR 24	1734 45·9	36·97S	179·97W	12R	4·0
253	MAR 24	2049 10·7	38·19S	176·27E	163	3·5
254	MAR 24	2235 40·9	38·60S	176·58E	192	3·7
255	MAR 24	2327 49·5	39·80S	176·58E	33R	3·4
256	MAR 25	2046 37·6	35·92S	178·44E	232	4·2
257	MAR 25	2245 57·4	36·82S	179·94E	33R	4·1
258	MAR 26	1216 48·9	36·90S	179·90W	33R	3·6
259	MAR 27	0732 43·5	44·53S	167·69E	5R	3·6
260	MAR 27	2127 06·9	40·73S	177·17E	33R	3·8
261	MAR 28	0311 09·6	40·10S	173·41E	181	4·6
262	MAR 28	0713 46·1	49·02S	165·45E	12R	4·2
263	MAR 28	0836 18·2	49·16S	165·65E	12R	4·0
264	MAR 29	2153 29·5	38·30S	175·97E	189	3·7
265	MAR 30	1515 08·9	37·08S	177·89E	187	3·5
266	MAR 30	1639 01·4	29·72S	179·20W	33R	5·5
267	MAR 30	1642 42·7	39·36S	175·47E	12R	3·4
268	MAR 30	2251 04·6	37·85S	176·26E	188	4·4
269	APR 01	1448 11·5	40·12S	174·85E	12R	4·3F
270	APR 01	2201 29·9	40·47S	175·03E	33	3·4
271	APR 02	0216 12·2	40·45S	175·04E	33	3·7
272	APR 02	0919 47·4	41·75S	174·46E	24	4·0F
273	APR 02	0930 18·6	41·73S	174·48E	29	4·4F
274	APR 02	1838 27·6	39·88S	179·30E	33R	4·1
275	APR 02	1845 20·2	39·65S	179·44E	33R	4·1
276	APR 02	1914 49·3	39·68S	179·29E	33R	3·6
277	APR 02	2114 28·8	39·71S	179·18E	33R	3·8
278	APR 02	2146 11·7	39·45S	175·44E	0R	3·0F
279	APR 03	0903 10·6	46·96S	165·40E	12R	4·3
280	APR 03	0955 58·7	38·97S	175·74E	5R	3·2F
281	APR 03	1928 54·6	37·90S	175·78E	293	3·7
282	APR 04	0417 28·8	39·09S	173·77E	12R	3·6
283	APR 04	1205 14·3	37·26S	176·79E	230	3·7
284	APR 04	1636 57·4	40·10S	174·27E	93	3·9
285	APR 04	1746 02·7	42·35S	172·97E	33R	3·5
286	APR 04	1803 04·0	42·32S	173·00E	33R	3·5
287	APR 04	2109 05·3	38·42S	175·83E	186	3·4
288	APR 05	0931 59·9	37·17S	176·86E	177	3·6
289	APR 05	1320 10·7	48·22S	165·45E	33R	3·8
290	APR 06	0830 47·6	42·21S	173·84E	55	3·6
291	APR 06	0950 07·8	39·42S	174·35E	207	3·4
292	APR 06	1159 50·5	39·51S	178·02E	33R	3·4
293	APR 06	1210 02·4	45·19S	167·45E	74	3·4
294	APR 06	1235 42·8	39·49S	178·05E	86	3·9
295	APR 06	2118 06·4	39·75S	179·34E	33R	3·7
296	APR 06	2227 36·9	39·73S	179·31E	33R	3·6
297	APR 06	2326 17·1	39·72S	179·48E	33R	3·7
298	APR 07	0232 04·7	39·71S	179·58E	33R	3·5
299	APR 07	1639 12·9	39·70S	179·30E	33R	3·5
300	APR 07	2009 45·4	37·65S	179·59E	33R	4·2

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301	APR 08	0840 28·7	38·45S	179·37E	33R	4·1
302	APR 08	1459 44·5	44·94S	167·79E	64	4·2
303	APR 08	2056 48·2	37·36S	176·78E	229	3·9
304	APR 09	0822 53·1	37·21S	178·09E	51	3·7
305	APR 09	0846 01·2	36·40S	179·82E	115	4·1
306	APR 09	0932 13·8	41·34S	174·49E	54	3·4F
307	APR 09	2319 21·9	41·53S	174·72E	11	3·2F
308	APR 10	0134 00·5	39·30S	177·62E	29	3·7
309	APR 10	0845 35·8	39·87S	179·36E	33R	4·0
310	APR 10	2257 40·3	44·83S	167·90E	67	4·1
311	APR 11	0928 08·3	40·01S	179·12E	33R	4·0
312	APR 11	1110 23·3	39·85S	179·33E	33R	3·9
313	APR 12	0043 10·9	38·40S	176·04E	165	3·9
314	APR 12	0833 53·5	46·18S	166·86E	98	3·6
315	APR 12	1029 01·8	40·05S	176·51E	77	3·6
316	APR 12	1612 48·1	37·90S	178·14E	25	5·2F
317	APR 12	1714 28·3	39·41S	176·84E	49	3·3F
318	APR 13	0134 31·5	38·95S	175·71E	6	3·4F
319	APR 13	0135 16·4	38·95S	175·71E	5	3·5F
320	APR 13	0848 58·3	39·76S	173·93E	218	4·0
321	APR 13	0934 03·9	39·89S	179·39E	33R	3·7
322	APR 13	1332 30·4	37·80S	178·29E	76	4·2
323	APR 13	1649 58·7	38·97S	175·70E	2	3·5
324	APR 13	1822 37·6	40·18S	174·91E	19	4·2F
325	APR 14	0208 01·1	38·96S	175·68E	5R	3·2
326	APR 14	0852 54·0	38·95S	175·77E	2	3·4F
327	APR 14	0859 12·6	38·93S	175·62E	5R	3·3F
328	APR 14	0920 25·1	38·97S	175·70E	5R	2·9
329	APR 14	0923 38·1	38·94S	175·65E	5R	3·2F
330	APR 14	2102 05·2	38·01S	176·37E	152	3·9
331	APR 15	0049 37·6	38·95S	175·79E	5R	3·5F
332	APR 15	0359 05·7	37·78S	176·70E	4	3·6
333	APR 15	1135 22·8	36·49S	177·89E	232	4·2
334	APR 16	0309 17·6	35·80S	178·99E	280	4·1
335	APR 16	1451 58·2	44·53S	168·29E	5R	4·9F
336	APR 17	1549 12·9	45·45S	167·33E	108	4·2
337	APR 18	0724 42·5	40·74S	174·75E	35	3·4
338	APR 18	0741 30·9	46·25S	166·22E	5R	4·3
339	APR 18	0958 09·8	40·16S	173·65E	157	3·7
340	APR 19	1641 55·2	41·77S	174·52E	25	3·8
341	APR 19	1642 06·5	41·78S	174·54E	25R	4·3
342	APR 19	2103 17·9	48·55S	165·40E	12R	4·2
343	APR 20	0810 18·3	35·48S	179·08E	291	4·0
344	APR 20	2129 03·7	40·14S	174·96E	23	3·7
345	APR 21	0238 33·5	38·47S	175·84E	165	4·0
346	APR 21	0959 19·0	39·20S	174·90E	12R	4·0
347	APR 21	1028 41·1	36·73S	177·59E	262	3·9
348	APR 21	1056 52·3	40·30S	174·43E	33R	3·5
349	APR 21	1423 20·2	37·75S	177·63E	58	3·7
350	APR 22	0327 03·0	40·53S	176·77E	33R	4·1
351	APR 22	0444 08·6	41·28S	172·02E	12R	4·0F
352	APR 22	1759 03·3	40·18S	176·71E	33R	4·1
353	APR 22	2055 09·2	39·25S	175·42E	117	3·6
354	APR 23	0417 38·6	39·67S	174·34E	142	4·0
355	APR 23	1459 53·0	44·88S	168·67E	1R	3·5
356	APR 24	0202 25·7	40·58S	173·33E	159	4·0
357	APR 24	1427 19·9	35·37S	179·62E	33R	3·9
358	APR 24	2218 01·2	47·40S	165·51E	33R	4·3
359	APR 24	2245 49·2	38·29S	176·10E	190	4·1
360	APR 25	1947 49·6	38·63S	175·69E	178	3·8
361	APR 25	2230 11·0	46·94S	166·68E	33R	3·9
362	APR 25	2303 58·4	37·92S	176·26E	184	4·1
363	APR 26	2326 57·5	35·90S	179·13E	33R	4·5
364	APR 27	0729 56·5	37·86S	176·41E	223	4·1
365	APR 27	2208 24·4	34·36S	178·90W	33R	4·7
366	APR 28	0136 30·7	37·16S	177·40E	138	4·1
367	APR 28	1402 55·1	36·88S	177·06E	241	4·2
368	APR 28	2350 41·2	44·92S	167·39E	1R	4·1
369	APR 29	1331 03·4	38·13S	176·23E	208	3·8
370	APR 29	1612 51·6	36·50S	177·50E	303	4·6
371	APR 29	1659 21·6	37·14S	176·84E	234	4·0
372	APR 30	0833 12·6	38·18S	176·29E	7	2·8F
373	APR 30	0844 34·9	37·93S	176·29E	192	3·7
374	APR 30	2324 16·9	38·62S	175·51E	192	4·1
375	MAY 01	0251 42·8	45·16S	166·62E	12R	3·4
376	MAY 01	2055 11·7	45·25S	171·37E	1R	4·4F
377	MAY 03	0037 53·2	45·19S	171·35E	9	4·4F
378	MAY 03	0911 21·5	41·20S	172·55E	184	4·3F
379	MAY 03	2020 02·2	36·45S	177·45E	281	4·3
380	MAY 04	0926 13·3	44·53S	167·55E	28	3·8
381	MAY 04	2344 56·6	41·27S	172·75E	138	3·5
382	MAY 04	2357 38·3	36·35S	177·80E	198	4·0
383	MAY 05	0242 12·3	45·66S	166·20E	12R	4·1
384	MAY 05	0528 26·0	42·25S	172·78E	12R	5·1F
385	MAY 05	0533 30·1	42·21S	172·78E	12R	4·9F
386	MAY 05	0604 28·8	41·63S	174·19E	65	4·1F
387	MAY 05	0611 55·7	42·23S	172·81E	12R	3·3
388	MAY 05	0624 49·5	42·19S	172·84E	12R	4·8F
389	MAY 05	0643 31·0	42·21S	172·81E	12R	3·4
390	MAY 05	0653 16·1	42·20S	172·86E	12R	3·4
391	MAY 05	0654 46·8	42·21S	172·82E	12R	3·6
392	MAY 05	1155 32·5	42·22S	172·79E	12R	3·4
393	MAY 05	1415 24·9	42·22S	172·79E	12R	4·5F
394	MAY 05	1500 41·3	42·20S	172·83E	12R	3·7
395	MAY 05	1534 58·9	36·46S	177·64E	229	4·3
396	MAY 05	2008 28·2	41·80S	171·68E	12R	3·4
397	MAY 05	2242 04·0	40·62S	178·51E	33R	3·9
398	MAY 06	0108 39·6	40·91S	174·77E	10	3·4F
399	MAY 06	0217 21·7	43·08S	170·35E	12R	4·7F
400	MAY 06	1617 42·4	43·20S	170·64E	12R	3·3F

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401	MAY 07	0833 37·5	42·17S	172·81E	12R	3·4
402	MAY 07	0934 33·5	37·57S	176·43E	210	4·7
403	MAY 07	1349 29·5	42·18S	172·80E	12R	3·6
404	MAY 07	2105 24·5	40·23S	173·75E	153	4·6
405	MAY 07	2139 20·4	40·20S	173·45E	171	3·7
406	MAY 07	2249 45·9	37·49S	176·62E	147	4·0
407	MAY 08	0959 46·3	37·27S	177·71E	52	3·8
408	MAY 08	2201 37·2	37·22S	177·31E	133	4·7
409	MAY 09	0054 12·4	37·60S	176·45E	166	3·6
410	MAY 09	1320 06·3	38·02S	177·54E	70	3·6
411	MAY 10	0746 39·1	39·19S	173·82E	12R	4·0F
412	MAY 10	2327 55·3	38·34S	176·31E	12R	3·1F
413	MAY 10	2339 12·1	38·45S	176·29E	12R	3·4F
414	MAY 11	2324 58·4	45·41S	166·84E	12R	3·3
415	MAY 12	0051 58·3	43·99S	169·08E	12R	4·0
416	MAY 12	0958 16·1	33·20S	179·37E	353	4·1
417	MAY 12	2343 54·7	41·67S	173·95E	12R	3·4
418	MAY 13	0049 55·8	43·59S	170·79E	12R	3·5F
419	MAY 13	0127 34·8	43·61S	170·86E	12R	3·5F
420	MAY 13	0738 50·6	40·11S	174·85E	12R	3·5
421	MAY 13	1250 22·7	38·03S	176·88E	5R	3·9F
422	MAY 13	1254 12·2	37·86S	177·40E	33R	3·4
423	MAY 13	1452 36·3	33·01S	178·27W	33R	5·5
424	MAY 14	0135 17·8	36·87S	177·48E	12R	3·7
425	MAY 14	0656 57·3	38·66S	175·75E	161	3·4
426	MAY 14	1134 37·7	42·13S	172·72E	12R	3·5
427	MAY 15	0924 12·9	47·13S	164·88E	33R	3·5
428	MAY 15	1250 26·8	47·55S	165·52E	33R	3·5
429	MAY 16	0551 23·1	37·45S	177·51E	112	4·2
430	MAY 17	0727 32·5	37·39S	177·71E	33R	4·7F
431	MAY 17	1651 20·5	45·14S	167·76E	128	3·0
432	MAY 18	1913 39·5	37·14S	177·59E	181	3·5
433	MAY 19	1758 51·4	36·69S	179·61E	33R	4·1
434	MAY 20	1647 59·4	41·55S	173·86E	48	3·4
435	MAY 20	2156 28·9	36·63S	179·15W	12R	4·0
436	MAY 21	0741 57·4	42·18S	172·84E	12R	3·7
437	MAY 22	0349 18·4	38·80S	179·95E	12R	4·0
438	MAY 23	0015 01·0	42·14S	172·78E	12R	3·4
439	MAY 23	0407 42·7	39·21S	174·91E	29	3·7
440	MAY 23	1227 53·6	40·74S	178·57E	12R	4·1
441	MAY 24	2211 41·9	39·03S	175·83E	115	4·1
442	MAY 24	2332 21·2	38·26S	176·33E	170	3·8
443	MAY 25	0002 04·5	33·81S	177·96W	280	4·8
444	MAY 25	0104 42·0	41·19S	179·87E	12R	3·8
445	MAY 25	0803 42·2	38·09S	176·19E	210	4·4
446	MAY 26	1928 03·2	39·22S	177·55E	33R	3·9
447	MAY 26	2048 21·7	38·74S	175·97E	12R	3·4
448	MAY 26	2100 57·7	40·16S	173·56E	151	4·4
449	MAY 27	1820 14·2	37·12S	177·40E	146	4·0
450	MAY 28	0236 08·7	40·26S	173·47E	12R	3·7
451	MAY 28	1334 18·2	41·59S	171·71E	12R	3·7
452	MAY 29	0843 10·3	39·02S	174·76E	12R	3·0F
453	MAY 29	1543 49·3	40·61S	174·37E	70	3·8
454	MAY 30	0356 26·6	38·80S	177·93E	33R	3·6
455	MAY 30	0809 47·0	37·58S	178·34E	75	3·5
456	MAY 30	1534 02·6	38·76S	175·85E	138	3·6
457	MAY 30	1757 02·2	37·94S	176·50E	176	4·2
458	MAY 31	0244 22·3	35·33S	178·98E	316	4·3
459	JUN 01	0224 00·9	45·93S	168·27E	12R	3·8
460	JUN 01	1023 16·8	38·91S	177·60E	33R	4·8F
461	JUN 01	1955 00·8	42·26S	172·77E	12R	3·9
462	JUN 02	0345 27·4	33·32S	177·45W	12R	5·5
463	JUN 02	1220 31·8	42·30S	172·74E	12R	5·2F
464	JUN 02	1826 03·4	42·24S	172·82E	12R	3·6
465	JUN 02	1943 20·3	42·25S	172·74E	12R	3·7
466	JUN 03	0043 14·8	39·01S	175·98E	121	4·0
467	JUN 03	1137 19·2	37·58S	177·22E	133	3·9
468	JUN 04	0020 15·4	38·05S	176·61E	130	3·5
469	JUN 04	1328 39·2	39·49S	175·71E	71	3·7
470	JUN 06	0241 28·1	39·37S	175·14E	129	4·3
471	JUN 06	1326 41·1	38·27S	176·38E	155	4·1
472	JUN 06	1859 30·0	38·18S	176·95E	33R	3·7
473	JUN 06	1911 24·5	40·49S	175·05E	1R	3·5
474	JUN 06	2223 09·6	39·73S	174·10E	191	4·7F
475	JUN 07	0526 13·3	38·85S	176·16E	1R	2·8F
476	JUN 07	2039 23·3	45·10S	167·42E	33R	3·7
477	JUN 08	0526 09·4	35·87S	179·92E	33R	4·0
478	JUN 08	0627 26·2	41·30S	174·73E	48	4·4F
479	JUN 08	1533 27·3	42·25S	172·77E	12R	3·7
480	JUN 08	2121 50·3	47·55S	165·74E	33R	3·6
481	JUN 09	0556 02·9	42·20S	172·82E	12R	3·7
482	JUN 09	1403 12·0	38·30S	175·79E	200	4·9
483	JUN 10	0800 38·3	38·44S	175·67E	252	4·1
484	JUN 11	1948 33·9	40·90S	178·56E	33R	4·1
485	JUN 11	2216 04·8	42·22S	172·79E	12R	4·2
486	JUN 12	0805 23·9	39·63S	174·97E	132	4·0
487	JUN 12	1952 53·7	41·96S	171·77E	12R	4·4F
488	JUN 13	0826 07·8	36·93S	176·87E	305	4·0
489	JUN 13	1411 24·4	38·91S	175·80E	1	3·7F
490	JUN 14	0149 36·3	43·01S	171·41E	8G	4·7F
491	JUN 14	0302 13·0	40·70S	174·54E	45	4·4F
492	JUN 14	0824 57·2	40·83S	176·52E	77	3·6
493	JUN 14	1329 53·4	39·49S	176·95E	25	3·7
494	JUN 14	1528 01·3	41·76S	174·56E	62	3·5
495	JUN 15	0855 36·1	38·76S	175·79E	3	3·4F
496	JUN 15	0959 04·8	45·37S	167·19E	58	4·1F
497	JUN 15	1325 10·4	40·20S	174·88E	17	3·5
498	JUN 15	1523 19·2	44·89S	167·75E	49	3·5
499	JUN 15	2033 20·3	39·79S	174·30E	105	3·6
500	JUN 16	0118 36·4	35·25S	178·58E	218	4·9

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501	JUN 16	2113 57·7	40·38S	173·82E	109	4·2
502	JUN 17	0004 02·9	39·40S	178·02E	33R	3·7
503	JUN 17	1344 06·1	40·83S	172·05E	0R	4·8F
504	JUN 17	1503 52·7	42·26S	172·66E	10	3·6
505	JUN 17	2123 19·9	40·06S	172·87E	5R	4·4F
506	JUN 17	2127 14·7	38·68S	176·08E	120	3·7
507	JUN 18	0601 01·4	40·37S	176·65E	33R	3·5
508	JUN 19	0816 21·1	39·10S	176·30E	100	3·7
509	JUN 19	1141 27·5	38·35S	178·15E	33R	3·4
510	JUN 20	0939 53·2	40·58S	174·43E	90	3·5
511	JUN 21	0104 22·6	37·04S	178·67E	12R	3·7
512	JUN 21	1124 51·7	45·46S	167·17E	71	4·3F
513	JUN 22	0802 12·6	43·06S	173·98E	12R	3·7
514	JUN 22	2332 53·2	37·62S	176·37E	215	3·9
515	JUN 23	1544 30·1	42·22S	172·74E	12R	4·0
516	JUN 23	1638 23·2	45·67S	171·17E	12R	4·1
517	JUN 23	1728 35·1	41·18S	172·63E	197	4·3
518	JUN 24	0328 42·4	40·37S	176·38E	32	3·4
519	JUN 24	0913 22·8	38·71S	175·27E	240	4·3
520	JUN 24	0933 34·2	38·19S	175·76E	302	4·0
521	JUN 24	1329 39·9	43·60S	170·64E	5R	5·9F
522	JUN 24	1340 28·6	43·62S	170·88E	5R	3·5
523	JUN 24	1343 27·9	43·68S	170·67E	5R	5·1F
524	JUN 24	1349 43·0	43·66S	170·60E	5R	3·7F
525	JUN 24	1355 14·8	43·63S	170·61E	5R	3·7F
526	JUN 24	1355 47·0	43·58S	170·78E	5R	3·9F
527	JUN 24	1356 55·8	43·57S	170·58E	5R	3·8F
528	JUN 24	1359 12·5	43·59S	170·72E	5R	3·6F
529	JUN 24	1403 17·4	43·61S	170·80E	5R	3·4
530	JUN 24	1409 48·0	43·62S	170·72E	5R	3·6F
531	JUN 24	1414 16·4	43·60S	170·64E	5R	3·4
532	JUN 24	1423 57·1	43·47S	170·47E	5R	3·9F
533	JUN 24	1450 39·7	43·60S	170·57E	5R	4·0F
534	JUN 24	1452 02·4	43·55S	170·51E	5R	3·6F
535	JUN 24	1457 30·9	43·61S	170·61E	5R	3·9F
536	JUN 24	1535 57·3	43·68S	170·62E	5R	3·7F
537	JUN 24	1536 57·9	43·60S	170·65E	5R	3·6F
538	JUN 24	1659 31·0	43·61S	170·67E	5R	4·2
539	JUN 24	1738 40·8	43·59S	170·74E	5R	4·0
540	JUN 24	1939 03·6	43·58S	170·59E	5R	3·8
541	JUN 24	2040 25·2	43·60S	170·56E	5R	4·6F
542	JUN 24	2042 29·3	43·57S	170·57E	5R	4·5
543	JUN 24	2107 28·9	43·56S	170·75E	5R	3·8
544	JUN 24	2122 36·7	43·59S	170·59E	5R	4·2
545	JUN 25	0001 54·3	38·16S	177·10E	33R	3·4
546	JUN 25	0234 40·2	43·59S	170·45E	5R	3·7
547	JUN 25	0420 51·2	43·65S	170·64E	5R	4·1
548	JUN 25	0721 39·5	43·55S	170·66E	5R	3·5
549	JUN 25	1021 30·8	43·56S	170·73E	5R	3·6
550	JUN 25	1505 41·9	43·65S	170·79E	5R	3·9
551	JUN 25	1558 39·1	41·71S	174·18E	79	4·3F
552	JUN 25	1616 14·4	43·69S	170·76E	5R	3·6
553	JUN 26	0043 41·8	43·63S	170·65E	5R	3·9
554	JUN 26	0212 40·8	46·74S	165·11E	12R	4·2
555	JUN 26	1452 12·7	38·79S	175·94E	12R	3·5
556	JUN 26	1950 53·0	37·74S	179·40E	79	4·0
557	JUN 27	1255 48·7	43·69S	170·65E	5R	3·4F
558	JUN 28	0151 59·2	38·91S	176·57E	77	5·1F
559	JUN 28	0235 48·9	35·58S	179·05E	206	4·9
560	JUN 28	0307 32·2	37·72S	176·71E	0R	4·1F
561	JUN 28	0509 20·0	43·57S	170·46E	5R	3·8
562	JUN 28	0514 35·5	37·66S	176·94E	133	4·3
563	JUN 28	0850 59·0	37·76S	176·66E	0R	3·8
564	JUN 28	0922 10·4	37·57S	177·14E	120	4·2
565	JUN 28	1532 11·7	37·75S	176·70E	12R	3·6
566	JUN 28	1626 53·3	43·49S	170·66E	5R	3·6
567	JUN 28	1651 12·4	36·94S	177·17E	231	4·2
568	JUN 28	1820 30·7	38·21S	175·98E	225	4·3
569	JUN 28	2044 47·3	44·61S	169·61E	5R	3·9F
570	JUN 29	1133 56·9	43·55S	170·47E	5R	3·6
571	JUN 29	1827 34·8	39·72S	176·96E	33R	3·7
572	JUN 29	1854 46·7	43·86S	171·10E	12R	4·0F
573	JUN 30	0430 45·2	37·28S	178·02E	70	3·7
574	JUN 30	0722 55·1	34·46S	179·79E	33R	4·7
575	JUN 30	0817 20·7	34·16S	178·54W	131	4·5
576	JUN 30	0905 29·3	34·18S	178·52W	130R	4·5
577	JUN 30	2305 19·5	40·17S	174·95E	5R	3·8
578	JUL 01	1526 19·7	43·53S	170·57E	5R	3·5F
579	JUL 01	1629 20·0	40·24S	173·59E	186	4·0
580	JUL 01	2056 29·7	43·56S	170·70E	5R	3·5
581	JUL 02	0156 56·3	37·86S	176·91E	5R	3·7F
582	JUL 02	0336 18·2	37·86S	176·90E	5R	3·7F
583	JUL 02	0412 39·7	38·85S	174·95E	209	4·1
584	JUL 02	0418 09·8	37·86S	176·89E	5R	3·9
585	JUL 02	0525 56·8	37·86S	176·85E	5R	3·6
586	JUL 02	0823 07·4	39·64S	176·78E	48	3·4
587	JUL 02	0823 40·3	37·86S	176·92E	5R	3·4
588	JUL 02	1809 29·1	37·84S	176·85E	5R	4·2F
589	JUL 02	1817 55·1	37·86S	176·91E	5R	3·4F
590	JUL 02	1822 44·9	37·86S	176·92E	5R	3·4F
591	JUL 02	1903 18·9	37·85S	176·86E	5R	3·4F
592	JUL 03	0322 41·4	37·87S	176·94E	5R	3·8
593	JUL 03	0952 12·2	39·60S	175·85E	48	3·7
594	JUL 04	0546 55·8	43·66S	170·65E	5R	3·8
595	JUL 04	0614 20·7	38·02S	176·88E	5R	3·6
596	JUL 04	2333 05·8	37·87S	176·89E	5R	3·6F
597	JUL 06	0817 07·3	43·63S	170·61E	5R	3·4F
598	JUL 06	0824 49·1	34·82S	179·84W	176	4·9
599	JUL 06	1023 56·3	39·31S	176·46E	71	4·0
600	JUL 07	1744 48·8	37·96S	176·47E	165	3·7

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601	JUL 07	1833 43·5	43·16S	171·98E	12R	4·1
602	JUL 07	2304 13·8	38·05S	176·60E	5R	4·2
603	JUL 08	1510 31·2	38·51S	177·91E	12R	3·4
604	JUL 08	1617 56·5	43·59S	170·62E	5R	4·1F
605	JUL 08	2334 13·2	37·68S	178·30E	78	4·4
606	JUL 09	0231 03·2	37·72S	176·81E	5R	3·6
607	JUL 09	0319 52·2	43·58S	170·59E	5R	3·6F
608	JUL 10	0343 09·4	37·86S	176·84E	5R	3·4F
609	JUL 10	1322 47·6	43·62S	170·72E	5R	3·4F
610	JUL 11	1825 12·0	43·63S	170·59E	5R	4·2F
611	JUL 12	1843 04·8	38·55S	175·84E	185	3·9
612	JUL 15	0010 47·9	47·12S	166·11E	33R	3·9
613	JUL 15	0748 11·1	44·27S	168·41E	12R	4·2
614	JUL 16	0203 28·8	43·60S	170·47E	12R	4·1F
615	JUL 17	1157 29·3	43·58S	170·46E	12R	3·8
616	JUL 18	1501 48·2	38·08S	176·91E	5R	4·2F
617	JUL 18	1527 52·3	38·43S	175·88E	210	5·2F
618	JUL 18	1739 12·4	38·09S	176·96E	5R	3·7F
619	JUL 20	0244 33·6	39·91S	175·84E	49	3·7
620	JUL 20	1808 54·3	38·33S	178·68E	33R	4·0
621	JUL 21	0226 41·1	39·42S	175·39E	27	3·6
622	JUL 21	0749 28·8	40·93S	174·77E	27	3·9F
623	JUL 21	2229 49·4	44·18S	168·63E	12R	3·5
624	JUL 22	0136 37·6	41·25S	175·01E	32	3·5F
625	JUL 22	0511 33·7	35·50S	179·13E	248	4·5
626	JUL 22	0827 57·3	38·10S	176·84E	5R	4·3
627	JUL 23	0458 21·5	30·71S	178·39W	411	6·3
628	JUL 24	0114 24·6	43·64S	170·60E	12R	4·0F
629	JUL 24	1347 09·1	35·45S	179·17E	282	4·4
630	JUL 24	2156 08·3	44·79S	167·62E	12R	4·0
631	JUL 25	0145 46·5	45·03S	167·28E	90	3·8
632	JUL 25	2314 18·3	38·90S	175·53E	172	4·1
633	JUL 26	0222 15·9	44·96S	167·60E	94	4·1
634	JUL 26	0907 45·0	35·37S	179·16E	277	4·4
635	JUL 26	2039 20·6	44·98S	167·61E	121	4·2
636	JUL 27	0054 19·4	45·09S	167·56E	124	4·3
637	JUL 27	0245 49·3	41·35S	173·94E	54	3·8F
638	JUL 27	2119 03·1	37·80S	176·90E	5R	3·9
639	JUL 28	0441 24·1	39·62S	175·71E	53	3·4
640	JUL 29	1229 23·1	45·04S	167·76E	131	4·7
641	JUL 29	1450 45·0	39·19S	173·76E	16	4·0F
642	JUL 30	1740 17·6	40·64S	174·62E	54	3·7
643	JUL 30	1814 06·6	45·36S	166·57E	1R	3·6
644	JUL 30	1830 41·4	45·42S	166·55E	1R	3·6
645	JUL 31	1655 34·0	37·58S	177·32E	129	3·7
646	AUG 01	1851 05·3	39·63S	176·92E	30	4·3F
647	AUG 02	1511 15·1	47·11S	165·26E	33R	4·0
648	AUG 02	1819 08·5	41·26S	175·17E	22	4·0F
649	AUG 04	0839 44·7	40·14S	174·85E	1R	4·2
650	AUG 04	0944 21·8	35·34S	179·47E	237	4·5
651	AUG 04	2227 27·5	49·11S	164·98E	33R	4·2
652	AUG 05	0719 31·1	38·31S	177·15E	46	3·7
653	AUG 05	1145 04·7	43·54S	170·55E	19	3·9
654	AUG 05	1349 46·9	38·68S	175·83E	148	3·8
655	AUG 06	0922 39·8	49·12S	165·22E	33R	4·6
656	AUG 06	1417 21·0	36·04S	178·58E	89	3·8
657	AUG 06	1602 57·9	43·22S	172·14E	12R	5·0F
658	AUG 06	1753 50·2	43·22S	172·08E	12R	3·5F
659	AUG 06	1843 43·1	43·16S	172·14E	12R	3·5
660	AUG 06	1902 31·0	43·19S	172·10E	12R	4·1F
661	AUG 07	0316 09·7	38·38S	175·91E	202	4·0
662	AUG 08	0144 42·3	43·62S	170·60E	12R	3·4
663	AUG 08	2152 53·2	42·19S	172·77E	14	3·9
664	AUG 09	1147 10·0	38·22S	176·29E	154	3·7
665	AUG 10	1358 16·7	39·02S	174·85E	223	3·9
666	AUG 11	0438 57·3	37·79S	176·65E	209	3·8
667	AUG 11	0605 25·6	39·69S	175·15E	97	3·7
668	AUG 12	1506 59·6	44·61S	168·06E	12R	4·0
669	AUG 12	1911 46·8	38·43S	175·95E	172	3·9
670	AUG 13	0317 43·3	39·01S	174·94E	225	4·2
671	AUG 13	0412 50·7	45·45S	167·00E	5R	4·3
672	AUG 13	1114 53·2	41·27S	174·51E	30	3·7
673	AUG 14	0740 57·4	40·18S	175·00E	52	3·7
674	AUG 16	0208 21·5	40·61S	175·29E	45	4·7F
675	AUG 16	1259 06·3	43·31S	171·04E	5R	3·7
676	AUG 16	1554 47·9	45·35S	167·29E	12R	3·4
677	AUG 17	0902 31·1	48·67S	165·77E	12R	4·1
678	AUG 17	1129 42·3	41·46S	173·41E	117	4·3
679	AUG 17	1544 11·9	39·06S	176·19E	103	3·7
680	AUG 17	1841 59·5	39·56S	176·57E	84	5·3F
681	AUG 18	0408 54·5	39·56S	176·64E	79	3·8
682	AUG 18	0723 49·8	43·61S	171·18E	5R	3·7
683	AUG 18	2150 25·0	34·14S	179·40W	132	5·6
684	AUG 19	1301 12·5	41·17S	172·64E	209	3·6
685	AUG 19	1546 30·5	42·88S	172·18E	12R	3·7
686	AUG 20	1345 43·5	42·46S	173·67E	28	4·4F
687	AUG 21	0002 43·3	45·94S	166·77E	12R	3·6
688	AUG 21	1517 01·5	43·65S	170·65E	5R	4·5F
689	AUG 21	2005 15·0	40·19S	175·27E	12R	3·8
690	AUG 22	1527 50·2	43·19S	171·84E	12R	3·6
691	AUG 23	0808 40·0	39·74S	176·37E	33R	3·8
692	AUG 23	2126 40·8	40·93S	175·15E	24	4·2F
693	AUG 24	1504 46·3	38·25S	175·83E	212	4·0
694	AUG 25	0545 09·2	38·65S	175·77E	178	3·9
695	AUG 25	0636 24·7	38·88S	175·14E	223	4·0
696	AUG 25	0656 02·5	45·06S	167·55E	78	3·5
697	AUG 25	0840 50·7	37·00S	178·32E	161	3·8
698	AUG 25	1146 10·2	37·41S	178·17E	93	3·6
699	AUG 25	2032 01·1	38·98S	175·66E	5R	3·9F
700	AUG 25	2248 11·6	38·96S	175·67E	5R	3·7

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701	AUG 25	2248 44·4	38·96S	175·69E	5R	4·4F
702	AUG 26	0355 57·4	38·97S	175·68E	5R	3·4
703	AUG 26	0539 28·0	38·97S	175·68E	5R	3·4F
704	AUG 26	0544 13·7	38·98S	175·70E	5R	3·6
705	AUG 26	0545 35·8	38·96S	175·69E	5R	3·6F
706	AUG 26	0546 04·6	38·98S	175·71E	5R	3·8F
707	AUG 26	0706 15·3	38·16S	174·64E	155	3·8
708	AUG 26	0816 10·8	36·38S	177·54E	221	3·7
709	AUG 26	0906 40·0	40·93S	172·55E	12R	3·8F
710	AUG 26	1135 26·7	35·93S	179·24E	159	3·9
711	AUG 27	0439 58·9	39·19S	179·80E	33R	4·3
712	AUG 27	0533 25·4	41·56S	174·55E	54	3·6F
713	AUG 27	0926 43·1	38·97S	175·63E	5R	3·7F
714	AUG 27	2145 08·8	42·24S	172·71E	12R	3·6
715	AUG 28	0746 39·2	38·23S	176·02E	203	3·5
716	AUG 28	1316 34·7	36·55S	179·19W	12R	4·6
717	AUG 28	1755 03·3	38·34S	175·98E	190	4·0
718	AUG 28	2222 13·4	39·81S	174·03E	240	3·6
719	AUG 29	0454 32·4	38·44S	175·39E	275	3·9
720	AUG 29	2335 48·3	44·32S	167·73E	3	3·7
721	AUG 30	1606 07·7	33·24S	178·10W	12R	5·9
722	AUG 30	2121 29·9	39·52S	174·17E	189	4·6
723	AUG 30	2238 57·9	33·18S	178·86W	304	4·5
724	AUG 30	2333 47·2	44·81S	167·33E	5R	4·5F
725	AUG 31	1314 30·1	42·25S	172·79E	5R	4·0
726	SEP 01	0130 45·9	41·07S	174·55E	33R	3·7F
727	SEP 01	0520 07·7	38·25S	178·45E	33R	3·8
728	SEP 01	1821 33·8	36·24S	177·48E	213	3·8
729	SEP 01	2140 05·1	37·90S	176·16E	212	3·8
730	SEP 02	0615 23·5	37·41S	177·09E	265	3·7
731	SEP 03	1055 10·4	38·71S	176·10E	12R	2·3
732	SEP 03	2030 58·2	37·74S	176·40E	296	4·0
733	SEP 04	0814 30·7	33·56S	177·45W	33R	4·4
734	SEP 04	1332 27·0	39·55S	174·09E	203	4·4
735	SEP 04	1408 40·0	32·86S	179·46W	442	5·2
736	SEP 04	1726 35·8	40·53S	174·14E	87	3·8
737	SEP 04	2207 33·8	39·77S	177·05E	42	3·7
738	SEP 05	1411 25·9	37·88S	176·23E	210	3·5
739	SEP 06	0608 44·8	38·29S	177·28E	55	3·4
740	SEP 06	0803 24·4	49·96S	164·26E	33R	4·6
741	SEP 07	0102 38·8	37·37S	177·39E	86	3·6
742	SEP 07	0213 24·6	37·28S	177·12E	5R	3·7
743	SEP 07	0431 41·2	42·30S	172·70E	12R	3·5
744	SEP 09	1311 19·0	33·25S	177·90W	178	4·6
745	SEP 10	0106 38·2	41·71S	173·86E	12R	3·5
746	SEP 10	0535 53·7	40·35S	176·25E	85	3·7
747	SEP 10	2138 12·9	38·30S	177·55E	59	3·4
748	SEP 12	0613 52·9	38·08S	175·74E	292	5·0
749	SEP 12	1012 06·1	39·55S	177·34E	22	3·9
750	SEP 13	0303 00·1	37·06S	176·85E	295	4·1
751	SEP 14	0020 47·1	42·24S	172·83E	12R	3·8
752	SEP 14	0202 07·7	38·05S	176·09E	209	4·4
753	SEP 14	0304 46·2	38·94S	175·75E	1R	3·5
754	SEP 15	1639 29·1	39·77S	177·05E	26	3·6
755	SEP 17	0213 23·2	43·60S	170·64E	12R	3·5
756	SEP 19	1052 39·1	38·55S	177·86E	10	3·5
757	SEP 19	1231 46·7	37·88S	177·66E	48	3·7
758	SEP 19	1601 37·2	41·39S	172·34E	1R	3·5
759	SEP 19	2209 52·2	37·88S	177·41E	31	3·6
760	SEP 20	0524 34·4	40·29S	173·52E	166	4·0
761	SEP 20	1928 08·2	39·91S	175·54E	12R	3·4
762	SEP 21	0846 04·3	39·91S	174·52E	128	3·9
763	SEP 21	1024 26·9	33·84S	179·33W	115	4·9
764	SEP 21	1159 39·9	39·48S	175·31E	90	3·7
765	SEP 21	1224 30·7	42·91S	171·59E	1R	2·4F
766	SEP 21	1256 20·9	33·35S	179·40W	164	4·5
767	SEP 21	1646 58·8	37·99S	176·85E	152	5·0
768	SEP 21	2021 14·1	45·15S	167·60E	86	4·4F
769	SEP 22	0146 44·5	49·65S	164·52E	33R	4·5
770	SEP 22	0231 14·1	45·26S	166·84E	12R	4·6F
771	SEP 22	2152 46·0	43·36S	171·02E	12R	3·5
772	SEP 23	0315 45·3	37·09S	176·95E	209	4·1
773	SEP 23	0358 10·5	39·67S	179·33E	33R	3·8
774	SEP 23	2208 31·9	38·31S	176·10E	156	3·9
775	SEP 24	0442 51·9	50·28S	164·46E	33R	4·3
776	SEP 24	1812 24·9	35·04S	179·59W	227	4·6
777	SEP 26	0929 19·1	35·35S	178·76E	293	4·7
778	SEP 26	1122 37·6	44·68S	168·23E	76	3·7
779	SEP 26	1340 28·6	38·79S	175·90E	143	4·7
780	SEP 26	1633 24·3	38·50S	175·86E	162	4·2
781	SEP 27	1738 27·1	39·60S	174·05E	173	3·9
782	SEP 27	2141 05·7	44·15S	168·56E	1R	5·2F
783	SEP 28	0600 59·7	37·01S	176·94E	251	4·0
784	SEP 29	1402 32·1	41·22S	174·50E	32	4·1F
785	SEP 30	0612 37·8	38·27S	176·16E	162	4·1
786	SEP 30	0802 45·2	43·58S	169·61E	12R	3·2F
787	OCT 01	1834 46·9	37·26S	179·83E	33R	4·7
788	OCT 01	1840 34·9	37·24S	179·82E	33R	4·5
789	OCT 01	1843 35·3	37·24S	179·80E	33R	4·0
790	OCT 02	1126 21·8	38·50S	175·75E	182	3·9
791	OCT 02	1314 22·0	39·72S	176·93E	33	3·6
792	OCT 02	1852 44·8	39·07S	174·84E	214	5·0F
793	OCT 02	2200 45·8	39·27S	175·38E	113	3·6
794	OCT 03	0801 05·6	45·14S	167·62E	112	3·8
795	OCT 03	1659 30·1	38·94S	175·77E	1R	3·7F
796	OCT 03	2156 34·2	37·25S	179·53E	33R	4·3
797	OCT 03	2351 21·5	37·45S	179·13E	33R	4·3
798	OCT 04	1022 09·4	39·47S	178·15E	33R	4·0
799	OCT 04	1440 20·2	44·82S	167·79E	75	3·8
800	OCT 04	2122 27·3	37·51S	177·75E	72	4·4

NUM	DATE	TIME	LAT	LONG	DEP	MAG
801	OCT 05	0932 15·4	37·99S	177·65E	20	4·0
802	OCT 06	0952 03·3	37·34S	179·72E	33R	4·2
803	OCT 06	1643 37·8	39·44S	178·04E	33R	3·8
804	OCT 06	2323 31·9	38·51S	175·89E	186	4·1
805	OCT 07	0352 03·4	38·07S	176·27E	5R	2·0F
806	OCT 08	0608 11·8	37·36S	179·54E	71	4·0
807	OCT 09	0114 40·0	36·16S	179·25W	33R	4·4
808	OCT 09	1123 05·3	37·30S	179·98W	33R	4·2
809	OCT 09	1517 17·9	45·66S	165·31E	12R	3·7
810	OCT 09	2205 59·8	39·17S	175·30E	94	4·1
811	OCT 10	0038 35·4	37·87S	176·57E	225	3·6
812	OCT 10	1318 47·5	38·29S	175·88E	227	3·8
813	OCT 10	1628 26·8	32·12S	176·90W	12R	5·0
814	OCT 10	1630 44·6	32·13S	179·43W	33R	4·6
815	OCT 10	2150 40·4	43·67S	170·63E	12R	3·7
816	OCT 11	0049 11·4	38·12S	176·37E	156	3·7F
817	OCT 11	0821 26·9	33·77S	179·02W	33R	5·7F
818	OCT 11	1549 31·9	40·89S	174·76E	10	3·5
819	OCT 11	1638 45·6	34·61S	179·50E	231	4·7
820	OCT 11	2019 56·3	38·22S	175·84E	203	4·9
821	OCT 11	2116 11·4	39·65S	175·81E	73	3·7
822	OCT 11	2351 05·6	39·74S	176·94E	40	3·8
823	OCT 12	0008 03·0	44·96S	167·55E	33R	3·6
824	OCT 12	0050 40·5	33·22S	177·67W	12R	5·0
825	OCT 12	0403 16·5	33·22S	177·67W	12R	4·3
826	OCT 12	0413 00·0	33·22S	177·67W	12R	4·2
827	OCT 12	0806 42·6	33·22S	177·67W	12R	4·3
828	OCT 12	1012 55·3	37·35S	179·47E	81	3·4
829	OCT 12	1014 27·9	37·39S	179·51E	79	3·5
830	OCT 12	1018 59·4	40·30S	173·69E	12R	3·7
831	OCT 12	1527 57·7	39·47S	175·60E	12R	3·5
832	OCT 12	2310 26·2	40·34S	174·34E	92	3·7
833	OCT 13	0019 27·9	38·62S	176·80E	12R	3·0F
834	OCT 13	0034 41·2	38·63S	176·82E	12R	2·7F
835	OCT 13	0807 29·8	37·18S	179·62E	33R	3·4
836	OCT 13	1258 21·9	32·58S	179·41W	33R	4·4
837	OCT 13	1705 05·8	37·69S	179·38W	33R	3·7
838	OCT 13	1936 08·1	33·18S	177·57W	12R	4·4
839	OCT 13	2320 45·6	32·74S	178·28W	12R	4·4
840	OCT 13	2349 12·8	32·99S	178·14W	12R	4·2
841	OCT 14	0655 14·3	34·26S	179·92E	33R	3·9
842	OCT 14	0827 24·8	38·09S	176·67E	87	3·5
843	OCT 14	1001 43·0	38·56S	175·68E	171	4·7
844	OCT 14	1103 36·3	45·33S	167·21E	95	3·9
845	OCT 14	1353 50·2	38·66S	175·38E	221	4·0
846	OCT 14	2151 11·8	39·47S	175·67E	12R	3·5F
847	OCT 15	0040 45·2	35·08S	179·22E	211	4·3
848	OCT 15	0615 48·7	40·55S	175·17E	43	3·8F
849	OCT 15	0945 42·1	36·54S	177·87E	167	3·8
850	OCT 15	1421 15·1	37·37S	179·70E	33R	3·5
851	OCT 15	2333 38·1	44·97S	167·80E	135	3·9
852	OCT 16	0009 56·0	48·83S	164·47E	12R	4·1
853	OCT 16	0736 32·2	45·17S	167·55E	118	4·3
854	OCT 17	0904 24·1	37·66S	179·01E	33R	4·3
855	OCT 17	1528 34·4	41·26S	174·15E	52	3·8F
856	OCT 17	1751 08·2	37·51S	179·98E	33R	4·0
857	OCT 17	2142 51·7	34·15S	178·07W	237	4·6
858	OCT 18	0147 01·4	48·77S	164·59E	33R	4·0
859	OCT 18	1518 46·6	37·32S	179·69E	33R	3·6
860	OCT 18	1530 41·5	37·42S	179·48E	33R	3·8
861	OCT 19	0920 52·1	35·95S	179·42E	33R	3·8
862	OCT 19	1657 49·8	38·19S	175·97E	198	3·7
863	OCT 19	1659 51·7	35·54S	178·63W	33R	5·1
864	OCT 20	0450 36·6	35·23S	178·97W	33R	5·0
865	OCT 20	0500 53·3	35·19S	178·74W	33R	4·5
866	OCT 20	2106 10·1	41·46S	172·20E	5R	3·2F
867	OCT 21	0845 04·1	47·06S	166·19E	12R	4·1
868	OCT 21	1216 02·1	38·60S	175·88E	161	3·6
869	OCT 21	1356 31·0	39·54S	174·29E	176	4·1
870	OCT 21	1545 17·3	37·46S	179·49E	33R	4·0
871	OCT 21	2101 27·4	39·97S	175·11E	12R	4·2F
872	OCT 21	2106 56·5	40·05S	175·39E	12R	3·8
873	OCT 22	0153 21·3	37·75S	177·62E	33R	4·0
874	OCT 22	0536 52·8	38·36S	175·81E	214	3·9
875	OCT 24	0741 51·2	39·99S	176·77E	33R	4·1F
876	OCT 24	1215 56·5	34·95S	179·86E	33R	4·7
877	OCT 24	1358 55·9	39·79S	176·70E	5R	3·5
878	OCT 25	1018 45·6	38·34S	177·58E	87	3·9
879	OCT 26	0454 55·7	38·81S	176·10E	139	3·7
880	OCT 26	0615 48·2	38·40S	175·79E	208	3·7
881	OCT 26	1445 31·2	37·99S	176·20E	226	3·7
882	OCT 26	1828 01·5	41·29S	172·20E	12R	3·5
883	OCT 26	1946 51·1	40·89S	175·30E	27	3·8
884	OCT 27	0323 33·0	38·71S	177·38E	28	3·5
885	OCT 27	0946 04·4	36·61S	177·73E	235	3·9
886	OCT 27	1949 44·6	37·37S	177·13E	220	3·5
887	OCT 28	1821 25·2	40·53S	176·79E	36	3·5
888	OCT 29	0322 08·0	39·77S	177·27E	33R	4·0F
889	OCT 29	1247 18·6	45·31S	167·21E	48	3·5
890	OCT 31	1124 37·1	41·28S	172·66E	182	3·8
891	OCT 31	1301 28·0	38·48S	175·54E	199	3·8
892	NOV 01	1140 06·6	37·49S	178·98E	33R	3·6
893	NOV 02	0054 30·5	45·74S	165·45E	12R	3·7
894	NOV 02	0624 06·7	37·27S	176·88E	196	4·7
895	NOV 02	0707 55·5	40·64S	173·28E	175	3·9
896	NOV 02	1643 30·1	44·64S	168·18E	12R	3·6
897	NOV 03	0208 04·8	36·68S	179·16E	251	4·3
898	NOV 03	0937 44·2	38·58S	175·60E	179	3·8
899	NOV 03	1054 37·8	39·79S	176·96E	33R	3·7F
900	NOV 03	1604 40·7	37·32S	177·23E	171	3·9

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901	NOV 04	0729 01·0	45·71S	167·02E	75	3·7
902	NOV 04	1048 15·4	38·84S	175·35E	222	3·8
903	NOV 04	1301 44·2	39·89S	174·29E	164	4·3
904	NOV 04	1554 31·0	37·63S	176·54E	325	4·2
905	NOV 04	2204 33·5	38·78S	175·84E	149	3·8
906	NOV 05	2259 29·7	34·75S	179·82W	224	5·0
907	NOV 07	1327 10·9	44·17S	167·78E	12R	3·6
908	NOV 07	1437 11·5	37·66S	176·17E	305	3·9
909	NOV 07	1927 42·2	38·34S	175·85E	212	4·2
910	NOV 07	2358 48·4	44·86S	167·31E	12R	4·4
911	NOV 08	1142 09·1	37·04S	176·86E	279	4·2
912	NOV 08	1226 13·4	38·20S	176·29E	168	3·7
913	NOV 08	2255 58·9	47·57S	165·30E	12R	3·9
914	NOV 08	2348 09·4	39·50S	175·71E	33R	3·6F
915	NOV 08	2351 07·2	39·61S	175·70E	5R	3·3F
916	NOV 08	2351 36·9	39·49S	175·60E	33R	3·3
917	NOV 08	2357 57·5	39·62S	175·69E	5R	3·5F
918	NOV 09	1406 30·4	38·16S	175·59E	33R	4·1
919	NOV 09	1613 46·2	39·91S	176·75E	76	4·9F
920	NOV 09	1634 17·9	45·95S	169·83E	12R	3·4
921	NOV 09	1959 23·3	45·16S	167·96E	12R	3·9
922	NOV 10	1419 33·3	45·26S	167·27E	60	3·4
923	NOV 10	1434 24·7	38·19S	176·11E	196	4·2
924	NOV 10	1454 19·2	33·78S	176·22W	257	4·8
925	NOV 10	2120 31·5	30·98S	176·16W	448	5·1
926	NOV 11	1035 27·1	42·34S	173·17E	12R	4·9F
927	NOV 11	1104 50·3	42·31S	173·13E	12R	3·5
928	NOV 11	1343 26·8	44·91S	167·78E	74	4·0
929	NOV 11	2320 13·0	36·69S	177·49E	12R	4·7
930	NOV 12	0521 24·6	39·01S	176·07E	86	4·0
931	NOV 12	1333 09·0	34·62S	179·44W	150	4·6
932	NOV 12	1949 05·3	40·94S	172·57E	12R	3·7F
933	NOV 12	2256 33·2	37·54S	179·22E	27	5·0
934	NOV 13	0205 39·2	37·41S	179·43E	33R	3·9
935	NOV 13	1033 43·9	39·46S	175·76E	12R	3·6
936	NOV 13	1041 38·0	39·22S	175·47E	140	3·7
937	NOV 13	1710 07·6	37·47S	176·85E	232	4·0
938	NOV 14	2023 16·3	32·43S	179·68W	488	5·1
939	NOV 15	0745 00·2	39·23S	176·96E	66	4·0
940	NOV 16	2017 20·3	44·80S	166·79E	5R	4·0
941	NOV 17	0529 37·1	39·61S	175·79E	12R	4·1F
942	NOV 17	1145 09·5	32·86S	178·99W	157R	5·5
943	NOV 17	1321 44·3	43·02S	171·32E	12R	3·7
944	NOV 19	1009 44·0	42·22S	173·07E	33R	4·1
945	NOV 19	1932 27·1	39·47S	175·74E	12R	3·5F
946	NOV 19	2151 35·3	39·48S	175·67E	12R	3·9F
947	NOV 20	1222 51·0	38·72S	175·20E	268	3·8
948	NOV 20	2139 06·9	39·30S	176·37E	89	3·9
949	NOV 21	0029 45·6	37·61S	176·90E	286	4·2
950	NOV 21	1127 27·9	44·08S	168·76E	12R	3·9
951	NOV 21	1751 34·7	39·49S	175·67E	12R	3·9F
952	NOV 21	2128 56·2	39·61S	175·83E	12R	3·1F
953	NOV 22	0550 46·8	38·50S	177·89E	12R	3·6
954	NOV 22	2031 28·2	38·54S	177·70E	12R	3·8
955	NOV 24	1730 00·5	38·91S	175·59E	127	4·1
956	NOV 25	0609 03·2	39·91S	177·15E	12R	3·8
957	NOV 26	0037 11·8	38·54S	175·84E	172	4·4
958	NOV 26	0336 55·6	35·56S	179·07E	331	4·7
959	NOV 26	0855 16·2	41·73S	174·53E	30	4·0F
960	NOV 26	1546 04·5	43·68S	170·82E	5R	3·5
961	NOV 26	1731 19·8	31·73S	177·31W	423	5·3
962	NOV 26	1733 41·7	38·34S	175·85E	220	4·2
963	NOV 28	0519 54·3	44·79S	169·20E	12R	3·2F
964	NOV 28	0835 13·8	38·16S	176·34E	1R	3·4F
965	NOV 28	1545 31·6	38·07S	176·32E	175	3·6
966	NOV 29	1422 43·3	32·96S	178·26W	260	4·6
967	NOV 30	0520 38·6	45·07S	167·64E	83	3·8
968	NOV 30	1553 54·5	36·85S	177·02E	258	3·8
969	DEC 01	0908 15·8	39·23S	174·65E	199	4·9F
970	DEC 01	1806 28·5	33·39S	177·50W	309	4·5
971	DEC 02	1010 52·3	41·18S	174·59E	56	3·5F
972	DEC 03	1303 20·6	40·85S	175·28E	24	3·7
973	DEC 03	1715 09·6	38·97S	175·72E	11	3·4F
974	DEC 04	2052 00·3	44·52S	168·31E	15	3·9
975	DEC 05	1116 47·0	40·63S	176·37E	53	3·4
976	DEC 05	1524 36·3	38·12S	176·00E	278	4·0
977	DEC 05	1746 44·5	39·30S	176·40E	68	3·7F
978	DEC 05	1824 47·0	37·77S	177·97W	33R	4·1
979	DEC 05	2258 29·4	43·31S	171·77E	4	3·5F
980	DEC 06	0428 49·5	40·14S	174·87E	1R	3·4
981	DEC 07	2328 40·9	49·52S	164·17E	33R	4·8
982	DEC 07	2337 52·6	43·64S	170·74E	2	3·8
983	DEC 08	1723 19·3	44·45S	169·56E	1R	3·6
984	DEC 09	1125 42·7	36·83S	177·46E	12R	4·6
985	DEC 09	1419 11·6	35·88S	179·12E	33R	4·0
986	DEC 10	0655 01·5	38·20S	178·52E	1R	3·4
987	DEC 11	0516 26·7	34·98S	179·13E	33R	4·2
988	DEC 13	1745 39·6	35·64S	178·44E	246	4·4
989	DEC 13	2117 41·8	39·14S	176·94E	32	3·5
990	DEC 14	0044 31·2	37·59S	178·44E	70	3·8
991	DEC 14	0431 54·1	37·66S	176·81E	164	4·8
992	DEC 14	0536 03·6	42·36S	173·75E	10	4·0F
993	DEC 14	1221 33·9	43·17S	173·20E	47	4·0F
994	DEC 14	1339 31·2	38·09S	178·98E	75	4·3
995	DEC 15	1311 47·1	42·25S	172·78E	13	4·1
996	DEC 16	2158 24·0	38·58S	175·69E	176	4·0
997	DEC 18	0549 02·0	37·12S	176·57E	438	5·5
998	DEC 18	0620 37·5	33·67S	177·79W	33R	4·8
999	DEC 18	1709 52·9	41·10S	174·00E	46	3·6
1000	DEC 19	1512 49·2	38·08S	176·10E	182	4·1

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1001	DEC 20	2053 08·0	40·91S	175·76E	28	4·0
1002	DEC 22	0333 26·5	40·52S	174·40E	84	3·8
1003	DEC 22	1904 06·1	38·27S	176·00E	173	4·0
1004	DEC 23	2059 33·1	38·05S	176·43E	179	3·7
1005	DEC 24	1426 21·5	33·93S	177·80W	33R	4·6
1006	DEC 25	0414 50·2	38·68S	176·08E	128	4·0
1007	DEC 25	1918 25·1	34·95S	179·46W	244	4·9
1008	DEC 26	0940 26·8	40·50S	176·41E	32	3·8
1009	DEC 26	1913 12·8	36·45S	177·98E	12R	4·2
1010	DEC 26	2357 25·7	37·90S	177·60E	44	4·1
1011	DEC 27	0740 24·7	37·20S	177·28E	187	4·1
1012	DEC 27	0839 57·4	37·84S	177·51E	47	4·0
1013	DEC 27	1758 27·1	36·42S	177·65E	12R	3·8
1014	DEC 27	2042 50·3	38·20S	176·20E	5R	2·6F
1015	DEC 28	0033 17·3	36·70S	177·53E	12R	4·0
1016	DEC 28	0056 05·6	36·61S	177·54E	12R	4·1
1017	DEC 28	0058 30·1	36·62S	177·62E	12R	4·2
1018	DEC 28	0131 00·1	36·70S	177·66E	12R	4·2
1019	DEC 28	0141 31·8	36·80S	177·60E	12R	3·9
1020	DEC 28	0210 04·1	36·69S	177·60E	12R	4·2
1021	DEC 28	0224 13·8	36·86S	177·56E	12R	4·2
1022	DEC 28	0246 53·0	36·63S	177·52E	12R	4·0
1023	DEC 28	0312 15·9	36·61S	177·67E	12R	4·0
1024	DEC 28	0323 43·0	36·85S	177·54E	12R	3·8
1025	DEC 28	0337 21·8	36·65S	177·62E	12R	4·0
1026	DEC 28	0339 19·0	36·57S	177·70E	12R	4·2
1027	DEC 28	0402 55·1	36·61S	177·64E	12R	4·0
1028	DEC 28	0423 05·8	36·60S	177·62E	12R	4·4
1029	DEC 28	0427 59·4	36·57S	177·59E	12R	4·9
1030	DEC 28	0443 47·7	36·65S	177·49E	12R	4·1
1031	DEC 28	0453 38·5	36·66S	177·57E	12R	4·5
1032	DEC 28	0457 36·4	36·53S	177·58E	12R	4·9
1033	DEC 28	0528 04·9	36·59S	177·49E	12R	4·2
1034	DEC 28	0628 37·6	36·73S	177·65E	12R	4·4
1035	DEC 28	0748 11·2	36·67S	177·58E	12R	4·2
1036	DEC 28	0803 03·9	36·74S	177·65E	12R	4·2
1037	DEC 28	0814 54·9	36·73S	177·58E	12R	4·1
1038	DEC 28	0833 13·0	36·74S	177·45E	12R	3·9
1039	DEC 28	0845 31·4	36·84S	177·49E	12R	4·2
1040	DEC 28	0858 14·0	36·76S	177·55E	12R	3·9
1041	DEC 28	0918 23·5	36·70S	177·55E	12R	4·2
1042	DEC 28	0938 41·8	36·64S	177·64E	12R	4·1
1043	DEC 28	0952 40·1	36·67S	177·63E	12R	4·2
1044	DEC 28	1014 35·7	36·74S	177·59E	12R	4·1
1045	DEC 28	1101 55·4	36·63S	177·62E	12R	4·2
1046	DEC 28	1116 58·1	36·62S	177·57E	12R	5·3
1047	DEC 28	1123 28·3	36·64S	177·63E	12R	4·6
1048	DEC 28	1146 37·5	36·84S	177·51E	12R	4·0
1049	DEC 28	1147 44·7	36·75S	177·58E	12R	4·7
1050	DEC 28	1232 34·9	36·59S	177·63E	12R	4·0
1051	DEC 28	1235 35·7	36·79S	177·54E	12R	4·4
1052	DEC 28	1305 35·2	36·66S	177·53E	12R	5·1
1053	DEC 28	1311 17·6	36·67S	177·57E	12R	4·3
1054	DEC 28	1316 28·8	36·69S	177·56E	12R	3·7
1055	DEC 28	1353 48·2	36·53S	177·66E	12R	4·4
1056	DEC 28	1358 13·8	36·65S	177·63E	12R	5·4
1057	DEC 28	1412 29·0	36·61S	177·51E	12R	3·9
1058	DEC 28	1416 27·3	36·90S	177·51E	12R	3·7
1059	DEC 28	1417 18·3	36·78S	177·50E	12R	3·9
1060	DEC 28	1420 23·9	36·71S	177·60E	12R	4·2
1061	DEC 28	1427 54·4	36·68S	177·56E	12R	4·2
1062	DEC 28	1429 48·0	36·82S	177·58E	12R	4·1
1063	DEC 28	1434 47·7	36·75S	177·50E	12R	3·9
1064	DEC 28	1446 34·4	36·61S	177·59E	12R	4·3
1065	DEC 28	1450 03·8	36·73S	177·50E	12R	4·0
1066	DEC 28	1500 27·0	36·69S	177·54E	12R	3·9
1067	DEC 28	1509 12·5	36·61S	177·59E	12R	4·1
1068	DEC 28	1532 30·1	36·63S	177·58E	12R	4·5
1069	DEC 28	1812 53·3	36·76S	177·39E	12R	4·2
1070	DEC 28	1820 15·5	36·55S	177·65E	12R	5·6
1071	DEC 28	1823 01·3	36·60S	177·60E	12R	4·7
1072	DEC 28	1840 47·1	36·82S	177·48E	12R	3·9
1073	DEC 28	1849 27·8	36·79S	177·41E	12R	3·9
1074	DEC 28	1900 26·7	36·53S	177·62E	12R	4·9
1075	DEC 28	1920 48·8	36·63S	177·61E	12R	4·3
1076	DEC 28	1939 04·9	36·66S	177·51E	12R	4·4
1077	DEC 28	2002 05·1	36·60S	177·55E	12R	4·7
1078	DEC 28	2012 38·6	36·48S	177·60E	12R	4·0
1079	DEC 28	2016 53·9	36·70S	177·40E	12R	3·9
1080	DEC 28	2115 49·3	36·60S	177·56E	12R	4·2
1081	DEC 28	2215 19·9	36·47S	177·53E	12R	4·6
1082	DEC 28	2217 33·7	36·52S	177·50E	12R	4·1
1083	DEC 28	2252 16·3	36·69S	177·57E	12R	4·4
1084	DEC 28	2357 45·7	36·71S	177·49E	12R	4·5
1085	DEC 29	0017 34·7	36·65S	177·51E	12R	4·1
1086	DEC 29	0037 09·8	36·61S	177·59E	12R	4·0
1087	DEC 29	0128 05·6	36·58S	177·64E	12R	4·0
1088	DEC 29	0130 23·5	36·68S	177·64E	12R	4·0
1089	DEC 29	0132 16·3	36·68S	177·66E	12R	4·5
1090	DEC 29	0206 27·3	36·63S	177·53E	12R	4·3
1091	DEC 29	0223 50·7	36·60S	177·56E	12R	4·2
1092	DEC 29	0237 47·9	36·73S	177·48E	12R	3·8
1093	DEC 29	0250 17·4	36·68S	177·52E	12R	4·1
1094	DEC 29	0326 04·3	36·61S	177·43E	12R	4·2
1095	DEC 29	0400 37·4	36·69S	177·58E	12R	4·8
1096	DEC 29	0441 56·0	36·72S	177·59E	12R	4·4
1097	DEC 29	0444 14·7	36·83S	177·53E	12R	4·8
1098	DEC 29	0453 50·3	36·70S	177·44E	12R	4·2
1099	DEC 29	0459 08·2	36·75S	177·44E	12R	4·1
1100	DEC 29	0507 01·5	36·70S	177·49E	12R	4·4

NUM	DATE	TIME	LAT	LONG	DEP	MAG
1101	DEC 29	0636 35·2	36·68S	177·51E	12R	4·4
1102	DEC 29	0646 44·8	36·71S	177·54E	12R	4·9
1103	DEC 29	0737 49·9	36·59S	177·60E	12R	4·3
1104	DEC 29	0833 26·3	36·68S	177·53E	12R	4·1
1105	DEC 29	0905 47·9	36·71S	177·52E	12R	4·2
1106	DEC 29	0917 14·6	36·69S	177·59E	12R	4·3
1107	DEC 29	0925 29·4	36·63S	177·53E	12R	4·0
1108	DEC 29	0931 17·9	36·52S	177·58E	12R	4·2
1109	DEC 29	1116 46·6	36·64S	177·52E	12R	4·0
1110	DEC 29	1314 52·0	36·59S	177·55E	12R	4·3
1111	DEC 29	1323 30·0	36·68S	177·53E	12R	4·0
1112	DEC 29	1337 52·2	36·69S	177·51E	12R	4·1
1113	DEC 29	1411 20·1	36·65S	177·51E	12R	4·1
1114	DEC 29	1435 52·6	36·58S	177·56E	12R	4·8
1115	DEC 29	1441 48·3	36·63S	177·40E	12R	4·0
1116	DEC 29	1459 02·4	36·57S	177·48E	12R	4·0
1117	DEC 29	1523 02·8	36·61S	177·60E	12R	3·9
1118	DEC 29	1530 36·5	36·62S	177·55E	12R	4·5
1119	DEC 29	1542 31·4	36·61S	177·55E	12R	4·2
1120	DEC 29	1615 44·1	36·65S	177·54E	12R	3·9
1121	DEC 29	1722 12·8	36·68S	177·58E	12R	4·9
1122	DEC 29	1734 18·8	36·65S	177·62E	12R	4·2
1123	DEC 29	1832 38·1	36·68S	177·58E	12R	4·3
1124	DEC 29	1833 05·9	36·67S	177·52E	12R	5·3
1125	DEC 29	1842 55·8	36·53S	177·57E	12R	4·4
1126	DEC 29	2046 26·0	36·68S	177·55E	12R	4·7
1127	DEC 29	2107 40·8	36·65S	177·55E	12R	5·4
1128	DEC 29	2109 12·8	45·16S	167·61E	113	4·4
1129	DEC 29	2119 08·0	36·68S	177·61E	12R	3·9
1130	DEC 29	2120 36·2	36·70S	177·56E	12R	4·7
1131	DEC 29	2144 58·2	36·67S	177·49E	12R	4·4
1132	DEC 29	2154 15·8	36·63S	177·57E	12R	4·1
1133	DEC 29	2156 08·7	36·73S	177·55E	12R	4·0
1134	DEC 29	2201 43·8	36·75S	177·53E	12R	3·9
1135	DEC 29	2212 04·6	36·61S	177·52E	12R	3·9
1136	DEC 29	2214 31·0	36·64S	177·61E	12R	4·0
1137	DEC 29	2232 28·8	36·64S	177·55E	12R	4·0
1138	DEC 29	2235 08·0	36·62S	177·57E	12R	4·0
1139	DEC 29	2251 13·7	36·63S	177·55E	12R	4·0
1140	DEC 29	2333 56·7	36·66S	177·54E	12R	4·3
1141	DEC 29	2337 30·1	36·85S	177·48E	12R	4·2
1142	DEC 29	2339 34·7	36·50S	177·74E	12R	4·0
1143	DEC 29	2351 27·8	36·74S	177·46E	12R	4·6
1144	DEC 29	2354 44·4	36·64S	177·49E	12R	4·1
1145	DEC 30	0021 12·6	36·69S	177·53E	12R	4·1
1146	DEC 30	0024 52·8	36·65S	177·52E	12R	3·9
1147	DEC 30	0025 56·5	36·56S	177·65E	12R	4·2
1148	DEC 30	0028 40·5	36·70S	177·52E	12R	4·3
1149	DEC 30	0058 21·8	36·59S	177·58E	12R	4·0
1150	DEC 30	0059 24·2	36·68S	177·53E	12R	4·3
1151	DEC 30	0119 27·6	36·68S	177·56E	12R	4·0
1152	DEC 30	0129 47·5	36·60S	177·52E	12R	4·0
1153	DEC 30	0137 29·7	36·67S	177·52E	12R	4·2
1154	DEC 30	0154 52·1	36·64S	177·51E	12R	3·8
1155	DEC 30	0159 09·9	36·64S	177·52E	12R	4·0
1156	DEC 30	0222 48·9	36·58S	177·55E	12R	4·6
1157	DEC 30	0240 39·4	36·69S	177·52E	12R	3·9
1158	DEC 30	0252 05·5	36·68S	177·48E	12R	4·3
1159	DEC 30	0354 56·2	36·65S	177·51E	12R	4·5
1160	DEC 30	0419 24·7	36·66S	177·56E	12R	4·3
1161	DEC 30	0424 26·3	36·70S	177·53E	12R	4·1
1162	DEC 30	0425 24·6	36·63S	177·51E	12R	4·1
1163	DEC 30	0458 00·8	36·69S	177·57E	12R	3·9
1164	DEC 30	0524 55·3	36·60S	177·54E	12R	4·9
1165	DEC 30	0526 23·0	36·68S	177·53E	12R	4·5
1166	DEC 30	0556 28·8	35·42S	178·72E	12R	4·3
1167	DEC 30	0652 09·8	36·72S	177·50E	12R	4·3
1168	DEC 30	0705 46·4	36·68S	177·53E	12R	4·2
1169	DEC 30	0734 19·2	36·64S	177·55E	12R	3·9
1170	DEC 30	0743 01·6	36·73S	177·52E	12R	4·1
1171	DEC 30	0832 06·2	36·60S	177·52E	12R	5·2
1172	DEC 30	0927 55·3	36·58S	177·52E	12R	4·4
1173	DEC 30	0951 17·6	36·61S	177·59E	12R	4·9
1174	DEC 30	1007 01·4	36·60S	177·51E	12R	4·8
1175	DEC 30	1015 13·8	36·62S	177·46E	12R	4·6
1176	DEC 30	1054 17·3	36·59S	177·55E	12R	5·1
1177	DEC 30	1106 03·6	36·60S	177·51E	12R	5·4
1178	DEC 30	1109 35·2	36·64S	177·42E	12R	4·8
1179	DEC 30	1118 12·8	36·62S	177·60E	12R	4·2
1180	DEC 30	1122 18·1	36·75S	177·53E	12R	3·8
1181	DEC 30	1126 20·6	36·75S	177·52E	12R	3·7
1182	DEC 30	1128 27·3	36·71S	177·49E	12R	4·3
1183	DEC 30	1137 35·9	36·65S	177·47E	12R	3·9
1184	DEC 30	1157 41·8	36·54S	177·29E	12R	4·1
1185	DEC 30	1207 18·3	36·81S	177·51E	12R	4·1
1186	DEC 30	1210 44·3	36·75S	177·54E	12R	4·3
1187	DEC 30	1225 56·5	36·53S	177·56E	12R	4·2
1188	DEC 30	1240 16·5	36·55S	177·53E	12R	5·0
1189	DEC 30	1248 58·7	36·71S	177·46E	12R	3·9
1190	DEC 30	1250 18·1	36·61S	177·21E	12R	4·2
1191	DEC 30	1315 40·5	36·69S	177·51E	12R	3·7
1192	DEC 30	1318 12·4	36·58S	177·60E	12R	3·9
1193	DEC 30	1323 57·0	36·60S	177·61E	12R	4·1
1194	DEC 30	1332 52·0	36·59S	177·58E	12R	3·8
1195	DEC 30	1342 38·6	36·60S	177·57E	12R	4·3
1196	DEC 30	1351 48·3	36·62S	177·58E	12R	4·2
1197	DEC 30	1448 11·6	45·22S	167·72E	114	4·2
1198	DEC 30	1449 26·9	36·69S	177·49E	12R	4·2
1199	DEC 30	1459 11·2	36·53S	177·00E	12R	5·2F
1200	DEC 30	1504 51·7	36·67S	177·45E	12R	4·2

NUM	DATE	TIME	LAT	LONG	DEP	MAG
1201	DEC 30	1506 47·8	36·63S	177·58E	12R	5·5
1202	DEC 30	1509 56·3	36·67S	177·55E	12R	4·0
1203	DEC 30	1510 21·6	39·78S	174·28E	146	3·5
1204	DEC 30	1511 32·9	36·67S	177·41E	12R	4·3
1205	DEC 30	1522 05·4	36·59S	177·53E	12R	4·6
1206	DEC 30	1527 21·7	36·70S	177·45E	12R	4·0
1207	DEC 30	1545 37·3	36·60S	177·62E	12R	4·0
1208	DEC 30	1548 42·3	36·71S	177·40E	12R	4·3
1209	DEC 30	1554 52·4	36·84S	177·18E	12R	3·7
1210	DEC 30	1555 20·6	36·67S	177·51E	12R	3·9
1211	DEC 30	1608 31·2	36·65S	177·47E	12R	4·8
1212	DEC 30	1614 06·3	36·77S	177·58E	12R	4·0
1213	DEC 30	1616 27·0	36·76S	177·41E	12R	4·0
1214	DEC 30	1624 02·6	36·64S	177·46E	12R	4·0
1215	DEC 30	1630 14·2	36·83S	177·51E	12R	3·9
1216	DEC 30	1631 51·3	36·62S	177·54E	12R	5·1
1217	DEC 30	1637 11·6	36·62S	177·40E	12R	4·1
1218	DEC 30	1645 33·6	36·59S	177·51E	12R	4·8
1219	DEC 30	1649 03·1	36·53S	177·52E	12R	4·1
1220	DEC 30	1650 40·3	36·75S	177·55E	12R	3·8
1221	DEC 30	1651 01·8	36·70S	177·55E	12R	4·5
1222	DEC 30	1655 24·9	36·64S	177·52E	12R	4·3
1223	DEC 30	1710 52·0	36·63S	177·40E	12R	4·2
1224	DEC 30	1724 30·7	36·71S	177·39E	12R	4·3
1225	DEC 30	1732 33·8	36·64S	177·24E	12R	4·4
1226	DEC 30	1756 34·6	36·22S	177·17E	12R	4·6
1227	DEC 30	1804 39·5	36·76S	177·52E	12R	4·1
1228	DEC 30	1823 36·0	36·71S	177·42E	12R	4·5
1229	DEC 30	1846 08·8	36·99S	177·68E	12R	3·4
1230	DEC 30	1847 20·0	36·76S	177·51E	12R	3·7
1231	DEC 30	1900 53·0	36·68S	177·45E	12R	3·9
1232	DEC 30	1932 55·5	36·68S	177·35E	12R	4·3
1233	DEC 30	1933 46·0	36·74S	177·55E	12R	4·3
1234	DEC 30	1938 50·6	36·77S	177·40E	12R	4·5
1235	DEC 30	1945 54·5	36·71S	177·38E	12R	4·4
1236	DEC 30	2007 04·8	36·72S	177·61E	12R	5·1
1237	DEC 30	2010 27·9	36·87S	177·53E	12R	3·8
1238	DEC 30	2022 46·0	36·90S	177·33E	12R	4·4
1239	DEC 30	2026 22·5	36·57S	177·47E	12R	5·3
1240	DEC 30	2029 37·8	36·65S	177·43E	12R	4·1
1241	DEC 30	2033 13·0	36·70S	177·62E	12R	3·9
1242	DEC 30	2039 26·5	36·72S	177·58E	12R	4·0
1243	DEC 30	2040 09·7	36·62S	177·58E	12R	4·2
1244	DEC 30	2059 55·1	36·65S	177·57E	12R	5·5
1245	DEC 30	2103 17·7	36·71S	177·48E	12R	5·0
1246	DEC 30	2111 46·2	36·82S	177·51E	12R	4·0
1247	DEC 30	2112 04·7	36·67S	177·51E	12R	4·3
1248	DEC 30	2123 17·7	36·84S	177·42E	12R	3·9
1249	DEC 30	2123 47·5	36·74S	177·45E	12R	5·0F
1250	DEC 30	2126 23·2	36·47S	177·70E	12R	4·0
1251	DEC 30	2128 36·9	36·57S	177·43E	12R	5·2
1252	DEC 30	2135 46·7	36·73S	177·52E	12R	3·8
1253	DEC 30	2136 20·1	36·56S	177·49E	12R	5·0
1254	DEC 30	2136 54·9	36·58S	177·54E	12R	6·3F
1255	DEC 30	2143 50·8	36·59S	177·65E	12R	4·9
1256	DEC 30	2149 06·6	36·77S	177·48E	12R	4·2
1257	DEC 30	2150 31·2	36·94S	177·55E	12R	4·4
1258	DEC 30	2152 23·4	36·73S	177·31E	12R	4·6
1259	DEC 30	2156 13·7	36·88S	177·40E	12R	5·1
1260	DEC 30	2158 36·1	36·81S	177·54E	12R	4·0
1261	DEC 30	2202 11·0	36·98S	177·48E	12R	3·8
1262	DEC 30	2204 41·5	36·76S	177·43E	12R	4·2
1263	DEC 30	2207 22·5	36·86S	177·42E	12R	4·1
1264	DEC 30	2209 10·5	36·95S	177·43E	12R	3·8
1265	DEC 30	2210 45·5	36·86S	177·57E	12R	3·9
1266	DEC 30	2213 16·0	37·01S	177·45E	12R	4·2
1267	DEC 30	2214 11·4	36·91S	177·41E	12R	4·2
1268	DEC 30	2218 13·4	36·74S	177·54E	12R	4·0
1269	DEC 30	2218 50·4	36·94S	177·37E	12R	3·7
1270	DEC 30	2221 45·2	36·68S	177·45E	12R	4·9
1271	DEC 30	2222 21·9	36·60S	177·60E	12R	5·3
1272	DEC 30	2229 41·7	36·84S	177·55E	12R	3·9
1273	DEC 30	2230 56·5	36·93S	177·54E	12R	3·8
1274	DEC 30	2233 17·1	37·00S	177·41E	12R	4·1
1275	DEC 30	2234 52·9	36·98S	177·34E	12R	3·8
1276	DEC 30	2239 09·7	36·96S	177·49E	12R	3·5
1277	DEC 30	2241 05·5	36·95S	177·50E	12R	4·8
1278	DEC 30	2241 41·0	36·70S	177·60E	12R	5·1
1279	DEC 30	2242 32·4	36·60S	177·60E	12R	4·5
1280	DEC 30	2246 50·6	37·01S	177·56E	12R	3·7
1281	DEC 30	2254 19·0	36·98S	177·35E	12R	4·0
1282	DEC 30	2302 25·9	37·14S	177·38E	12R	4·0
1283	DEC 30	2320 35·7	36·72S	177·58E	12R	4·1
1284	DEC 30	2321 33·8	36·66S	177·56E	12R	4·4
1285	DEC 30	2322 48·6	37·08S	177·52E	12R	3·8
1286	DEC 30	2323 59·6	37·07S	177·51E	12R	3·8
1287	DEC 30	2347 29·3	36·72S	177·57E	12R	4·0
1288	DEC 31	0004 19·4	37·05S	177·24E	12R	3·5
1289	DEC 31	0037 44·5	37·14S	177·41E	12R	3·9
1290	DEC 31	0043 07·7	36·84S	177·53E	12R	3·6
1291	DEC 31	0044 55·0	36·93S	177·57E	12R	4·0
1292	DEC 31	0046 55·4	36·70S	177·43E	12R	4·3
1293	DEC 31	0047 43·8	36·53S	177·31E	12R	4·5
1294	DEC 31	0052 54·1	36·50S	177·50E	12R	5·1
1295	DEC 31	0113 58·9	37·07S	177·29E	12R	3·9
1296	DEC 31	0124 51·1	36·74S	177·49E	12R	4·5
1297	DEC 31	0134 54·8	36·63S	177·46E	12R	4·3
1298	DEC 31	0155 03·4	36·75S	177·47E	12R	4·6
1299	DEC 31	0203 46·2	36·62S	177·47E	12R	3·8
1300	DEC 31	0204 13·4	36·71S	177·38E	12R	4·0

NUM	DATE	TIME	LAT	LONG	DEP	MAG
1301	DEC 31	0211 45·7	36·74S	177·57E	12R	3·8
1302	DEC 31	0218 30·1	37·01S	177·41E	12R	3·7
1303	DEC 31	0221 17·3	36·61S	177·54E	12R	4·6
1304	DEC 31	0231 04·7	36·79S	177·45E	12R	4·6
1305	DEC 31	0248 46·2	36·79S	177·45E	12R	4·1
1306	DEC 31	0258 28·2	36·65S	177·52E	12R	3·9
1307	DEC 31	0309 17·0	36·87S	177·30E	12R	4·1
1308	DEC 31	0326 38·6	36·91S	177·26E	12R	3·9
1309	DEC 31	0333 41·7	36·72S	177·37E	12R	4·0
1310	DEC 31	0334 44·1	37·01S	177·14E	12R	4·2
1311	DEC 31	0347 49·0	36·72S	177·38E	12R	3·9
1312	DEC 31	0350 10·8	36·89S	177·34E	12R	3·8
1313	DEC 31	0351 38·2	38·73S	178·21E	33R	3·5
1314	DEC 31	0356 59·5	36·72S	177·40E	12R	4·0
1315	DEC 31	0405 05·5	36·63S	177·55E	12R	4·6
1316	DEC 31	0415 30·9	36·91S	177·41E	12R	4·1
1317	DEC 31	0427 21·5	36·65S	177·47E	12R	4·0
1318	DEC 31	0429 46·5	36·68S	177·43E	12R	4·1
1319	DEC 31	0444 08·2	36·62S	177·55E	12R	4·1
1320	DEC 31	0446 26·4	36·73S	177·53E	12R	4·0
1321	DEC 31	0453 01·7	36·64S	177·41E	12R	4·9
1322	DEC 31	0457 10·9	36·68S	177·55E	12R	4·7
1323	DEC 31	0502 30·2	36·95S	177·39E	12R	3·9
1324	DEC 31	0521 07·6	36·71S	177·42E	12R	4·2
1325	DEC 31	0523 08·9	36·69S	177·49E	12R	4·2
1326	DEC 31	0527 41·4	36·85S	177·46E	12R	4·3
1327	DEC 31	0551 52·8	36·63S	177·55E	12R	5·1
1328	DEC 31	0554 20·4	36·73S	177·54E	12R	4·0
1329	DEC 31	0619 49·9	36·65S	177·60E	12R	3·9
1330	DEC 31	0659 30·9	36·71S	177·35E	12R	3·8
1331	DEC 31	0719 49·0	36·67S	177·37E	12R	4·1
1332	DEC 31	0722 40·9	36·79S	177·36E	12R	3·9
1333	DEC 31	0723 35·6	36·68S	177·42E	12R	4·2
1334	DEC 31	0733 24·1	36·80S	177·49E	12R	3·8
1335	DEC 31	0742 03·5	36·89S	177·41E	12R	5·1
1336	DEC 31	0747 55·4	36·78S	177·44E	12R	4·1
1337	DEC 31	0818 17·3	36·70S	177·45E	12R	4·1
1338	DEC 31	0843 04·7	37·17S	177·38E	12R	3·5
1339	DEC 31	0938 57·6	37·06S	177·30E	12R	3·6
1340	DEC 31	0950 58·0	36·61S	177·57E	12R	4·1
1341	DEC 31	0959 07·9	36·96S	177·36E	12R	5·5
1342	DEC 31	1011 15·0	37·17S	177·33E	12R	4·2
1343	DEC 31	1032 16·6	36·45S	177·74E	12R	4·1
1344	DEC 31	1049 32·9	37·15S	177·39E	12R	4·0
1345	DEC 31	1055 41·7	37·27S	177·29E	12R	4·2
1346	DEC 31	1118 17·9	36·71S	177·47E	12R	4·1
1347	DEC 31	1134 23·7	36·91S	177·46E	12R	4·4
1348	DEC 31	1144 52·5	36·60S	177·52E	12R	4·8
1349	DEC 31	1223 38·8	36·73S	177·44E	12R	3·8
1350	DEC 31	1336 02·9	36·91S	177·52E	12R	4·0
1351	DEC 31	1343 26·6	36·07S	177·58E	12R	4·1
1352	DEC 31	1556 06·1	36·99S	177·47E	12R	4·5
1353	DEC 31	1603 01·3	36·93S	177·37E	12R	4·9
1354	DEC 31	1718 18·7	36·72S	177·39E	12R	3·9
1355	DEC 31	1908 35·8	36·69S	177·31E	12R	4·0
1356	DEC 31	1912 04·0	36·56S	177·55E	12R	3·8
1357	DEC 31	1921 23·2	36·68S	177·53E	12R	3·8
1358	DEC 31	1942 01·1	36·75S	177·39E	12R	4·0
1359	DEC 31	1956 26·1	36·95S	177·44E	12R	4·3
1360	DEC 31	1959 12·9	37·04S	177·38E	12R	4·0
1361	DEC 31	2008 40·0	36·90S	177·41E	12R	3·6
1362	DEC 31	2017 43·8	37·12S	177·29E	12R	3·7
1363	DEC 31	2045 11·3	36·97S	177·37E	12R	5·0
1364	DEC 31	2123 32·0	36·72S	177·62E	12R	4·4
1365	DEC 31	2151 46·4	37·00S	177·06E	12R	3·6

WELLINGTON NETWORK

The origins listed in this section have been determined from data provided by stations of the Wellington network, details of which are given in an earlier section of this Report. For some large events, an alternative solution found using stations of the standard network may also exist. Because of the close spacing of the stations of the Wellington network, and the well-constrained velocity structure in the region, the origins which follow are to be preferred for most studies of tectonic setting and structure, but for statistical work involving a larger part of the country, the results from the standard network will provide more homogeneous data.

The velocity/depth structure used in this section is:

Depth km	P-velocity km/s	S-velocity km/s
0·0 - 0·4	4·40	2·54
0·4 - 5·0	5·63	3·16
5·0 - 15·0	5·77	3·49
15·0 - 25.0	6·39	3·50
25·0 - 35·0	6·79	3·92
35.0 - 45·0	8·07	4·80
45·0 -	8·77	4·86

This structure is the outcome of inversion of arrival time data from the network by R. Robinson, whose work also showed that the introduction of station delay terms, which are added to the raw arrival times, improves the consistency of results.

The program used for locating the origins is the same as that used for the standard network except for the use of the above crustal model and more stringent convergence criteria. The format of presentation is basically similar to that used in the list of origins derived from standard network data, but additional columns provide for listing here the number of phases read (NP), the number of stations that recorded the shock (NS), the standard error of residuals (S.E.), the distance in kilometers from the epicentre to the nearest of the recording stations (DM) and the greatest angular gap (in degrees) in azimuthal distribution of these stations about the epicentre (GAP).

As in 1983, the less well recorded shocks were not processed to yield origins, but a nagnitude threshold of about M_L 2·3 was used to decide which shocks were worthy of analysis.

NUM	DATE	TIME	LAT	LONG	DEP	MAG	NP	NS	S.E.	DM	GAP
W/001	JAN 01	0822 08·3	41·196S	174·511E	35·3	2·3	8	7	0·06	17	143
W/002	JAN 01	0902 52·8	41·682S	174·269E	11·3	2·2	9	8	0·07	9	151
W/003	JAN 02	1245 20·3	41·659S	174·309E	14·5	2·1	6	5	0·05	13	164
W/004	JAN 02	1246 56·6	41·638S	174·317E	10·3	4·2	10	10	0·27	15	143
W/005	JAN 03	0452 33·9	41·659S	174·301E	14·3	2·1	8	7	0·09	12	153
W/006	JAN 03	1208 33·3	40·874S	174·715E	12·6	2·1	8	7	0·15	17	222
W/007	JAN 03	2255 41·4	40·453S	174·203E	78·3	5·3	11	11	0·08	75	306
W/008	JAN 04	0726 57·1	41·640S	174·332E	4·4	2·3	8	7	0·19	16	145
W/009	JAN 04	1100 32·8	41·670S	174·303E	15·0	2·1	9	7	0·18	11	148
W/010	JAN 04	1222 45·7	41·645S	174·339E	2·5	2·3	7	6	0·09	16	160
W/011	JAN 04	1513 18·0	40·681S	174·073E	73·1	2·7	7	6	0·02	62	302
W/012	JAN 04	1556 28·3	41·645S	174·324E	10·3	3·2	9	8	0·22	15	144
W/013	JAN 06	1628 33·1	40·978S	175·382E	22·2	3·1	9	9	0·09	23	225
W/014	JAN 07	0748 00·6	40·631S	174·381E	29·3	2·5	6	6	0·11	52	292
W/015	JAN 07	1402 33·0	41·729S	174·877E	33·9	2·6	9	8	0·21	46	216
W/016	JAN 07	1518 42·2	41·354S	174·654E	32·9	2·8	11	10	0·14	9	120
W/017	JAN 11	0302 48·7	41·290S	175·175E	26·1	3·2	11	9	0·10	15	160
W/018	JAN 11	0542 33·7	41·552S	174·106E	14·7	2·5	9	8	0·17	24	224
W/019	JAN 11	0615 55·4	41·674S	173·798E	19·5	2·6	8	7	0·08	36	294
W/020	JAN 13	1138 45·8	41·385S	175·375E	33·0	2·3	9	8	0·09	9	202
W/021	JAN 14	1852 43·2	41·371S	174·390E	59·6	2·5	10	8	0·09	20	241
W/022	JAN 16	0219 39·3	41·626S	174·522E	51·8	2·5	9	8	0·09	41	265
W/023	JAN 16	1204 46·8	41·124S	174·462E	61·8	3·0	11	10	0·06	18	176
W/024	JAN 16	1632 28·4	41·241S	175·048E	7·2	2·6	10	9	0·11	6	96
W/025	JAN 19	1022 44·1	41·881S	173·993E	13·6	3·5	11	11	0·20	24	312
W/026	JAN 19	1735 00·8	41·239S	175·294E	28·7	2·3	11	9	0·11	20	101
W/027	JAN 19	1750 43·5	40·532S	174·533E	66·8	4·6	11	11	0·10	49	295
W/028	JAN 20	0744 04·8	40·912S	174·214E	55·5	2·3	7	6	0·04	34	274
W/029	JAN 20	1209 23·3	41·050S	175·460E	15·2	2·2	9	8	0·07	13	230
W/030	JAN 20	2049 52·8	41·298S	174·530E	33·1	2·4	9	8	0·09	16	191
W/031	JAN 22	0036 51·2	42·026S	174·564E	29·0	3·2	11	11	0·15	42	271
W/032	JAN 22	0717 25·8	40·790S	174·547E	61·9	2·5	8	7	0·11	32	259
W/033	JAN 22	1823 12·2	41·616S	174·643E	32·3	2·5	14	10	0·19	36	178
W/034	JAN 22	2304 35·7	41·660S	174·530E	33·3	2·5	13	9	0·13	28	183
W/035	JAN 23	1649 37·6	41·833S	174·941E	30·9	2·4	10	6	0·14	62	289
W/036	JAN 23	2331 59·5	41·576S	174·244E	5·0	2·4	9	8	0·36	20	177
W/037	JAN 24	0351 19·9	41·097S	174·001E	56·2	3·0	10	9	0·20	26	266
W/038	JAN 24	0505 20·8	41·034S	173·996E	58·9	3·9	11	11	0·14	31	270
W/039	JAN 24	0512 31·0	41·123S	173·959E	58·7	2·5	7	6	0·16	28	320
W/040	JAN 24	1756 43·7	41·831S	174·920E	31·7	3·1	11	10	0·17	53	236
W/041	JAN 24	1804 50·4	41·824S	174·928E	32·1	2·4	10	8	0·11	60	236
W/042	JAN 24	1902 57·3	41·827S	174·922E	31·9	2·3	8	6	0·15	61	288
W/043	JAN 25	1528 46·9	41·831S	174·929E	31·7	2·3	8	6	0·13	61	288
W/044	JAN 25	1723 39·5	41·981S	174·531E	29·2	2·7	9	7	0·08	37	288
W/045	JAN 25	1844 32·4	41·005S	173·765E	76·1	2·8	7	7	0·06	49	322
W/046	JAN 25	2107 41·5	41·593S	174·212E	14·6	2·4	10	9	0·16	18	188
W/047	JAN 27	0828 08·6	40·883S	174·562E	53·7	2·3	9	7	0·08	30	233
W/048	JAN 28	0134 31·2	41·244S	175·174E	25·2	2·1	11	9	0·08	15	99
W/049	JAN 29	0201 37·7	41·222S	174·453E	57·6	2·4	8	7	0·05	15	165
W/050	JAN 29	1233 45·5	41·623S	173·919E	20·2	2·6	10	9	0·14	54	314

NUM	DATE	TIME	LAT	LONG	DEP	MAG	NP	NS	S.E.	DM	GAP
W/051	JAN 30	0446 23·7	41·655S	173·948E	10·5	2·5	9	8	0·21	25	273
W/052	JAN 30	2335 08·1	40·877S	174·718E	11·2	2·1	9	8	0·12	16	220
W/053	JAN 31	1659 36·5	41·232S	174·799E	29·2	2·5	11	10	0·04	8	101
W/054	JAN 31	2257 38·8	41·837S	174·504E	35·0	2·6	11	10	0·11	26	234
W/055	FEB 01	0206 02·8	41·261S	173·859E	62·5	2·9	11	10	0·24	35	273
W/056	FEB 01	0208 05·2	40·521S	175·546E	32·6	3·6	8	9	0·09	66	320
W/057	FEB 02	1053 58·7	40·504S	174·460E	68·1	2·9	10	9	0·11	55	299
W/058	FEB 03	0408 52·2	41·701S	173·803E	16·3	3·8	12	12	0·28	35	297
W/059	FEB 03	0656 02·7	41·588S	173·926E	22·0	4·1	11	11	0·21	51	314
W/060	FEB 03	2258 10·7	41·677S	173·820E	11·8	2·7	11	10	0·30	34	293
W/061	FEB 05	0431 55·2	41·296S	173·775E	74·8	3·7	12	12	0·19	43	280
W/062	FEB 05	0701 13·3	41·252S	175·148E	24·3	2·2	12	10	0·08	13	94
W/063	FEB 07	1504 08·2	41·670S	173·869E	11·8	2·9	12	11	0·25	30	287
W/064	FEB 09	0034 05·9	40·940S	175·172E	26·2	2·3	12	10	0·14	21	200
W/065	FEB 09	0655 36·0	40·570S	174·341E	67·3	3·1	8	7	0·05	58	300
W/066	FEB 10	2004 19·2	41·371S	174·640E	20·1	3·3	12	12	0·20	12	118
W/067	FEB 10	2226 02·9	40·560S	174·396E	72·0	2·7	11	9	0·07	55	298
W/068	FEB 11	0919 37·4	41·142S	174·689E	30·5	4·3	12	12	0·10	10	134
W/069	FEB 11	1025 20·7	41·363S	175·110E	26·6	2·1	11	10	0·08	14	136
W/070	FEB 11	1743 03·0	41·149S	174·682E	31·2	2·2	11	10	0·10	10	134
W/071	FEB 12	0725 09·6	41·370S	174·639E	19·8	2·8	12	12	0·17	12	117
W/072	FEB 15	0417 49·2	41·044S	174·710E	31·8	2·5	10	9	0·08	21	157
W/073	FEB 15	1456 40·9	41·367S	174·356E	34·6	2·4	13	11	0·11	18	144
W/074	FEB 17	1932 28·5	41·236S	174·188E	70·8	2·7	11	10	0·07	8	238
W/075	FEB 18	0152 24·8	40·975S	173·832E	76·6	3·8	12	12	0·09	46	283
W/076	FEB 19	1735 02·0	41·143S	174·693E	28·2	3·5	12	12	0·14	10	134
W/077	FEB 21	1657 34·5	41·683S	173·902E	12·6	2·5	11	8	0·19	27	285
W/078	FEB 22	0043 59·7	41·135S	174·575E	34·2	2·3	12	10	0·08	15	152
W/079	FEB 22	0527 10·3	40·865S	175·197E	32·4	2·4	11	10	0·21	24	232
W/080	FEB 22	0906 58·1	40·767S	174·177E	59·9	3·2	9	8	0·08	50	290
W/081	FEB 22	1037 04·7	41·094S	174·662E	28·1	2·2	11	9	0·14	16	151
W/082	FEB 23	0536 25·1	41·037S	175·567E	31·8	2·6	12	10	0·10	15	263
W/083	FEB 24	0111 56·9	41·145S	174·692E	27·6	2·8	11	10	0·16	10	133
W/084	FEB 24	0558 22·5	40·851S	174·689E	50·6	2·1	9	6	0·11	19	233
W/085	FEB 24	1843 09·0	41·810S	175·321E	32·2	2·3	10	9	0·10	43	292
W/086	FEB 25	0048 50·6	41·222S	173·988E	56·3	2·6	9	8	0·06	24	317
W/087	FEB 27	0709 08·7	41·737S	174·527E	32·9	3·0	12	11	0·16	26	203
W/088	FEB 28	0337 25·8	40·786S	174·515E	71·3	2·5	10	8	0·10	35	262
W/089	FEB 28	1506 01·9	41·234S	175·188E	20·8	3·7	12	12	0·13	17	103
W/090	MAR 01	0229 38·8	41·707S	173·830E	15·7	2·7	13	11	0·22	33	295
W/091	MAR 01	0938 24·9	40·904S	174·507E	54·4	4·3	12	12	0·09	34	234
W/092	MAR 03	1937 16·8	41·056S	174·576E	33·9	2·9	11	10	0·11	22	178
W/093	MAR 03	2324 18·4	41·682S	173·846E	12·0	2·8	13	11	0·24	32	291
W/094	MAR 04	0824 38·2	40·916S	175·673E	31·7	2·7	11	10	0·17	31	283
W/095	MAR 04	1054 42·9	41·009S	174·788E	54·6	3·0	11	10	0·06	19	151
W/096	MAR 06	0741 36·6	40·696S	174·819E	38·6	2·4	11	10	0·15	20	274
W/097	MAR 06	1534 05·6	40·830S	174·695E	5·0	2·6	9	8	0·25	19	242
W/098	MAR 07	0637 06·8	41·140S	174·685E	30·6	2·5	11	10	0·10	10	136
W/099	MAR 07	1006 49·5	41·972S	173·941E	16·6	3·5	12	12	0·42	34	315
W/100	MAR 08	0545 05·4	41·295S	175·209E	32·0	2·8	13	11	0·12	14	87

NUM	DATE	TIME	LAT	LONG	DEP	MAG	NP	NS	S.E.	DM	GAP
W/101	MAR 09	1229 59·4	40·552S	174·759E	24·5	2·6	10	9	0·24	37	288
W/102	MAR 09	1730 56·1	40·868S	174·886E	61·4	3·6	6	5	0·69	43	176
W/103	MAR 13	1633 59·7	41·837S	174·934E	31·2	2·3	10	8	0·16	48	247
W/104	MAR 15	0047 03·0	41·010S	175·365E	24·2	2·3	11	10	0·07	20	212
W/105	MAR 15	0137 55·7	41·565S	174·688E	27·2	2·1	10	7	0·05	23	276
W/106	MAR 15	0849 09·6	41·573S	174·797E	26·7	2·5	11	9	0·12	19	244
W/107	MAR 15	1147 44·4	40·595S	173·891E	83·1	3·6	12	12	0·11	76	301
W/108	MAR 16	0020 54·9	41·369S	174·354E	59·7	2·6	12	10	0·12	19	144
W/109	MAR 16	0329 44·5	41·309S	175·930E	30·2	2·5	10	9	0·18	39	317
W/110	MAR 16	0511 26·6	40·873S	174·715E	12·3	2·2	11	8	0·12	17	223
W/111	MAR 16	0856 34·9	41·102S	174·796E	28·8	2·2	10	9	0·07	16	126
W/112	MAR 16	1752 43·7	41·224S	174·483E	35·2	2·4	11	10	0·08	17	152
W/113	MAR 18	1646 45·0	41·098S	175·400E	25·4	2·3	12	10	0·09	11	186
W/114	MAR 20	0251 36·8	40·877S	174·452E	46·6	2·4	9	8	0·11	39	246
W/115	MAR 20	0533 56·5	41·169S	174·644E	34·3	2·5	13	10	0·06	9	133
W/116	MAR 20	1232 43·4	41·607S	174·197E	14·4	2·4	9	8	0·15	16	195
W/117	MAR 22	1054 40·6	40·875S	174·736E	61·9	2·5	11	10	0·10	15	219
W/118	MAR 23	0102 20·8	41·086S	175·510E	27·7	3·8	11	11	0·11	8	249
W/119	MAR 23	0445 21·9	41·096S	173·747E	68·9	2·6	6	5	0·19	46	329
W/120	MAR 23	1832 36·1	40·683S	174·256E	66·4	2·9	8	8	0·11	59	292
W/121	MAR 24	0010 08·9	40·823S	174·742E	17·1	2·8	10	10	0·15	15	284
W/122	MAR 24	0537 37·4	41·359S	174·203E	37·3	2·6	11	10	0·17	17	202
W/123	MAR 25	2128 02·5	40·750S	174·889E	33·3	2·3	9	9	0·10	13	267
W/124	MAR 29	0853 35·5	41·288S	175·279E	26·4	2·4	11	10	0·15	15	86
W/125	MAR 30	1015 44·9	40·786S	175·441E	27·3	2·7	11	10	0·11	42	274
W/126	APR 02	0216 11·3	40·437S	174·984E	28·6	3·7	10	10	0·18	48	297
W/127	APR 02	0919 47·2	41·730S	174·458E	30·8	4·3	12	12	0·24	20	198
W/128	APR 02	0930 18·3	41·726S	174·461E	30·6	4·7	12	12	0·29	21	197
W/129	APR 02	0935 54·4	41·716S	174·467E	29·1	2·4	11	10	0·20	21	195
W/130	APR 02	1222 36·7	41·729S	174·449E	30·4	2·3	13	10	0·15	20	198
W/131	APR 02	1304 05·2	40·724S	174·392E	51·3	2·7	11	10	0·16	47	280
W/132	APR 02	1314 08·3	41·703S	174·462E	27·0	2·3	9	8	0·12	21	279
W/133	APR 02	1924 25·5	41·720S	174·458E	28·7	3·5	11	11	0·15	20	194
W/134	APR 02	1927 13·4	41·718S	174·457E	29·9	2·9	12	12	0·13	20	194
W/135	APR 03	0324 21·3	41·715S	174·487E	24·9	2·2	9	8	0·10	23	217
W/136	APR 03	0838 28·5	40·526S	174·668E	45·2	2·5	7	6	0·08	43	308
W/137	APR 03	0957 34·4	41·772S	174·440E	14·5	2·5	10	9	0·37	19	217
W/138	APR 03	1514 20·0	41·613S	174·265E	22·7	2·3	9	8	0·16	16	285
W/139	APR 03	1522 30·3	40·983S	174·626E	33·2	2·3	10	9	0·09	27	192
W/140	APR 03	1738 05·7	41·361S	174·548E	17·4	2·7	12	12	0·22	17	111
W/141	APR 04	0626 38·5	41·069S	174·151E	47·3	3·0	10	8	0·17	19	255
W/142	APR 04	0853 32·7	41·733S	174·458E	30·0	3·1	13	11	0·24	20	199
W/143	APR 04	0932 47·1	41·727S	174·459E	29·7	3·3	12	10	0·18	20	199
W/144	APR 05	1421 31·1	41·737S	174·459E	29·8	2·5	11	9	0·21	20	211
W/145	APR 06	1016 47·5	40·893S	175·504E	26·7	3·3	11	11	0·10	30	267
W/146	APR 07	2125 56·8	41·595S	174·789E	28·7	2·3	11	10	0·16	22	186
W/147	APR 08	1310 38·9	41·246S	175·231E	24·6	2·5	11	10	0·13	20	99
W/148	APR 09	0746 03·4	41·727S	174·463E	30·5	3·1	12	12	0·14	21	198
W/149	APR 09	0932 14·5	41·327S	174·487E	57·1	3·5	12	12	0·08	21	100
W/150	APR 09	2226 42·5	41·081S	174·285E	64·7	2·7	9	9	0·06	15	242

NUM	DATE	TIME	LAT	LONG	DEP	MAG	NP	NS	S.E.	DM	GAP
W/151	APR 10	0859 38·0	41·581S	174·292E	29·7	2·6	12	11	0·14	20	160
W/152	APR 11	0639 01·5	41·736S	174·467E	29·6	2·9	12	11	0·27	21	201
W/153	APR 11	1752 37·4	40·546S	175·341E	30·8	3·1	8	8	0·25	51	299
W/154	APR 13	0545 57·9	41·750S	174·500E	32·2	2·5	13	10	0·19	24	210
W/155	APR 13	0841 24·5	40·773S	174·809E	0·0	3·2	11	11	0·14	13	265
W/156	APR 15	0614 44·5	40·448S	174·932E	43·5	2·3	8	7	0·25	46	296
W/157	APR 16	0348 48·7	40·944S	175·396E	24·7	3·3	11	10	0·08	25	238
W/158	APR 16	0823 09·6	41·721S	174·457E	30·3	3·3	12	11	0·15	20	195
W/159	APR 16	0856 46·8	41·044S	174·759E	31·5	2·4	11	9	0·08	21	148
W/160	APR 18	0143 13·7	41·928S	174·045E	10·1	2·5	10	9	0·26	24	313
W/161	APR 18	0724 41·6	40·651S	174·719E	42·8	3·6	11	11	0·12	29	280
W/162	APR 19	1641 55·0	41·736S	174·447E	30·4	4·0	11	11	0·15	19	202
W/163	APR 19	1642 05·8	41·729S	174·450E	32·4	4·3	1	1	ND	56	360
W/164	APR 19	1652 46·2	41·704S	174·456E	28·3	2·5	11	10	0·17	21	190
W/165	APR 19	1732 25·6	41·267S	174·994E	28·6	2·5	10	9	0·08	0	72
W/166	APR 19	1847 20·2	41·751S	174·451E	30·1	2·5	11	10	0·20	19	208
W/167	APR 22	0025 10·1	41·137S	174·755E	33·4	2·7	11	10	0·11	11	126
W/168	APR 24	0851 27·7	41·074S	174·202E	50·6	3·0	10	10	0·14	17	271
W/169	APR 25	0146 36·4	41·152S	175·241E	28·0	2·4	11	10	0·10	15	133
W/170	APR 29	0613 26·0	40·921S	175·599E	12·8	2·6	9	8	0·15	28	281
W/171	APR 29	0626 33·7	40·931S	175·576E	12·1	2·7	9	8	0·14	26	277
W/172	APR 29	1229 45·3	41·751S	174·490E	32·0	2·3	10	8	0·20	23	230
W/173	APR 29	1437 56·2	41·723S	174·456E	29·4	3·3	11	11	0·14	20	197
W/174	APR 30	1733 12·2	41·608S	174·784E	27·9	2·6	9	8	0·09	23	254
W/175	MAY 01	0221 22·1	41·725S	174·471E	29·6	2·7	12	11	0·15	21	197
W/176	MAY 03	1248 14·4	41·337S	174·778E	30·2	2·2	11	8	0·12	6	152
W/177	MAY 04	0532 07·5	41·121S	175·480E	19·3	2·0	9	7	0·19	5	216
W/178	MAY 05	0604 30·0	41·657S	174·196E	60·3	4·1	11	11	0·13	11	197
W/179	MAY 05	1528 54·2	41·343S	175·112E	23·5	2·3	13	9	0·20	15	123
W/180	MAY 05	2251 24·3	41·192S	174·592E	36·8	2·6	8	7	0·08	10	132
W/181	MAY 06	0108 38·8	40·871S	174·718E	12·7	3·4	10	10	0·13	16	223
W/182	MAY 08	1131 07·9	41·594S	173·860E	40·5	2·4	9	8	0·20	34	280
W/183	MAY 10	0531 38·2	41·014S	175·471E	10·5	2·1	9	8	0·19	16	242
W/184	MAY 12	0232 07·8	41·743S	174·496E	28·6	2·3	8	7	0·15	23	215
W/185	MAY 12	1857 59·1	41·274S	174·439E	62·1	2·5	11	9	0·07	15	183
W/186	MAY 12	2343 52·5	41·724S	173·782E	18·9	3·4	12	12	0·20	36	301
W/187	MAY 13	0233 40·6	40·501S	174·538E	13·4	2·8	6	6	0·21	51	296
W/188	MAY 13	0532 23·3	41·032S	174·635E	56·0	2·4	9	7	0·08	23	175
W/189	MAY 13	1655 52·5	41·359S	174·839E	25·5	2·7	10	10	0·13	6	135
W/190	MAY 15	0828 32·3	41·453S	174·195E	23·9	2·5	11	10	0·26	27	197
W/191	MAY 16	0344 30·4	41·098S	175·353E	25·5	2·4	10	9	0·08	14	174
W/192	MAY 17	1301 32·9	41·728S	173·802E	18·9	2·6	8	7	0·15	35	301
W/193	MAY 17	1638 25·7	41·189S	174·587E	17·7	2·3	9	8	0·25	11	133
W/194	MAY 20	1647 59·2	41·590S	173·770E	50·3	3·5	11	11	0·38	41	289
W/195	MAY 21	0416 02·3	41·256S	174·541E	32·2	2·4	11	9	0·11	14	160
W/196	MAY 21	0637 06·3	41·117S	174·649E	54·0	2·5	13	9	0·10	14	147
W/197	MAY 22	1611 38·8	40·970S	174·683E	37·5	2·4	10	9	0·09	23	187
W/198	MAY 23	2138 00·9	40·503S	174·331E	35·0	2·8	7	8	0·13	63	304
W/199	MAY 24	2305 14·4	41·103S	174·154E	51·2	2·4	9	7	0·23	16	288
W/200	MAY 25	0905 46·6	41·571S	174·148E	14·2	2·7	10	9	0·23	21	211

NUM	DATE	TIME	LAT	LONG	DEP	MAG	NP	NS	S.E.	DM	GAP
W/201	MAY 26	2233 02·8	40·762S	174·158E	60·5	2·5	6	5	0·03	51	291
W/202	MAY 28	0839 10·9	41·837S	174·647E	32·4	2·3	6	5	0·15	51	312
W/203	MAY 29	0413 52·3	41·958S	174·519E	29·8	2·4	8	6	0·11	34	286
W/204	MAY 29	1543 50·4	40·579S	174·409E	68·4	3·6	11	11	0·10	53	296
W/205	MAY 30	0021 05·3	40·636S	174·692E	29·4	2·3	7	6	0·15	31	282
W/206	MAY 31	0630 43·2	40·552S	174·723E	44·1	2·4	6	5	0·07	38	308
W/207	MAY 31	1030 56·5	41·250S	175·249E	14·3	2·6	10	9	0·09	19	99
W/208	MAY 31	2006 59·0	41·254S	175·238E	13·3	2·3	10	9	0·18	19	97
W/209	JUN 01	0052 04·4	40·945S	175·174E	25·6	2·2	10	8	0·14	20	199
W/210	JUN 01	1248 26·1	40·899S	175·705E	31·0	2·4	9	7	0·13	34	287
W/211	JUN 01	1632 35·5	41·747S	174·543E	32·3	2·5	11	10	0·20	27	207
W/212	JUN 03	0948 34·6	41·236S	175·192E	26·8	2·4	10	9	0·07	18	102
W/213	JUN 04	1245 42·8	41·104S	175·185E	11·6	2·2	11	9	0·15	10	144
W/214	JUN 05	2213 30·7	41·312S	174·212E	37·9	2·7	10	9	0·14	12	206
W/215	JUN 06	0644 30·0	41·471S	174·482E	24·5	2·2	10	9	0·10	29	244
W/216	JUN 06	1405 11·0	41·020S	174·954E	41·7	2·5	11	9	0·08	14	121
W/217	JUN 06	1911 23·0	40·397S	174·935E	3·3	3·3	10	10	0·20	52	300
W/218	JUN 06	1914 00·9	41·496S	174·527E	48·7	2·3	10	8	0·13	28	246
W/219	JUN 07	0414 06·2	41·369S	175·105E	26·6	2·4	10	9	0·10	14	142
W/220	JUN 07	1039 02·7	41·371S	175·103E	25·8	2·3	11	9	0·10	14	144
W/221	JUN 07	1244 59·3	41·585S	174·297E	29·8	3·4	11	11	0·16	20	158
W/222	JUN 08	0627 27·5	41·181S	174·712E	37·6	4·6	11	11	0·07	6	122
W/223	JUN 08	0821 39·3	41·182S	174·703E	37·1	2·3	10	9	0·07	6	122
W/224	JUN 09	2203 15·2	40·534S	174·823E	41·0	2·7	7	6	0·14	37	311
W/225	JUN 12	1200 40·5	41·292S	175·207E	23·3	2·6	10	9	0·09	15	87
W/226	JUN 12	2215 01·1	41·371S	174·544E	33·2	3·0	10	10	0·11	18	209
W/227	JUN 13	0456 28·2	40·597S	174·746E	28·9	2·3	8	6	0·10	33	285
W/228	JUN 13	2253 35·0	41·248S	174·306E	64·8	2·6	9	8	0·04	5	223
W/229	JUN 14	0302 12·9	40·694S	174·471E	51·3	4·4	10	10	0·13	42	281
W/230	JUN 14	0521 34·3	41·727S	174·462E	30·9	3·4	11	11	0·20	21	197
W/231	JUN 14	1528 03·5	41·699S	174·580E	53·5	3·4	11	11	0·14	31	195
W/232	JUN 16	0134 32·6	41·395S	174·609E	27·9	2·2	9	8	0·12	15	212
W/233	JUN 16	2302 23·0	40·662S	174·440E	48·1	2·5	8	6	0·11	46	287
W/234	JUN 17	2227 53·5	41·507S	174·473E	19·3	2·3	11	10	0·15	32	136
W/235	JUN 19	0450 02·9	41·224S	173·804E	57·9	2·5	8	7	0·19	40	324
W/236	JUN 20	2231 45·3	41·627S	173·898E	33·2	2·5	10	8	0·19	30	278
W/237	JUN 22	0741 10·4	41·230S	175·529E	14·7	2·5	10	9	0·24	8	212
W/238	JUN 22	1310 12·3	41·391S	175·451E	14·6	2·4	10	9	0·18	3	219
W/239	JUN 23	0234 49·5	41·239S	174·457E	34·7	2·5	9	8	0·07	15	162
W/240	JUN 23	2206 46·0	40·501S	174·441E	19·5	2·9	7	7	0·25	57	300
W/241	JUN 23	2312 17·6	40·493S	174·453E	22·2	3·2	8	7	0·21	57	299
W/242	JUN 24	0900 25·7	41·547S	174·357E	5·0	2·2	11	10	0·27	26	143
W/243	JUN 25	0744 52·5	41·066S	174·884E	29·4	2·2	9	8	0·07	16	114
W/244	JUN 25	1558 40·9	41·630S	174·092E	65·7	4·1	12	12	0·13	17	236
W/245	JUN 26	1455 03·1	40·847S	175·263E	27·3	2·5	11	10	0·10	30	244
W/246	JUN 29	0006 49·4	41·418S	174·999E	24·8	2·1	11	9	0·07	11	184
W/247	JUN 29	0041 43·3	41·729S	174·457E	28·6	2·4	11	9	0·28	20	200
W/248	JUN 29	0241 05·4	41·814S	174·511E	30·3	2·8	10	9	0·11	25	231
W/249	JUN 29	0242 52·8	41·804S	174·506E	29·4	2·3	9	8	0·11	25	228
W/250	JUN 29	0825 39·3	40·826S	174·415E	74·3	2·8	10	8	0·23	42	261

NUM	DATE	TIME	LAT	LONG	DEP	MAG	NP	NS	S.E.	DM	GAP
W/251	JUL 03	2016 46·3	41·412S	175·036E	25·6	2·1	8	7	0·11	14	178
W/252	JUL 04	2150 25·4	40·469S	174·799E	49·3	2·8	8	6	0·12	45	295
W/253	JUL 06	1937 15·4	41·602S	174·235E	5·0	2·1	7	6	0·26	17	180
W/254	JUL 07	2201 51·5	41·600S	174·195E	14·6	2·3	8	7	0·19	17	195
W/255	JUL 08	0323 59·8	41·675S	174·554E	32·9	2·3	7	6	0·14	45	272
W/256	JUL 09	0003 21·7	40·664S	174·996E	11·2	2·1	7	6	0·18	23	277
W/257	JUL 09	0058 27·4	40·829S	174·777E	46·7	2·2	7	6	0·10	12	245
W/258	JUL 09	1547 43·5	40·873S	175·627E	25·5	2·4	9	8	0·14	33	287
W/259	JUL 11	1400 50·2	41·608S	174·060E	13·8	2·7	11	10	0·21	21	241
W/260	JUL 11	1740 55·9	41·598S	174·078E	11·1	2·9	12	11	0·26	21	235
W/261	JUL 11	1749 22·5	41·603S	174·061E	13·6	3·1	12	11	0·23	21	241
W/262	JUL 11	1852 28·6	41·619S	174·023E	20·0	2·6	10	9	0·31	22	253
W/263	JUL 12	0307 33·3	40·871S	174·716E	12·7	2·5	10	9	0·11	17	223
W/264	JUL 12	0814 52·7	41·613S	174·084E	14·1	2·4	8	7	0·17	19	236
W/265	JUL 12	1429 35·3	41·129S	174·691E	35·4	3·2	12	12	0·12	12	137
W/266	JUL 13	0319 11·7	41·551S	174·632E	14·3	2·8	11	10	0·15	25	162
W/267	JUL 14	0132 08·1	41·512S	175·136E	22·6	2·5	10	9	0·07	14	233
W/268	JUL 16	0650 17·8	41·408S	173·657E	45·8	2·4	6	5	0·12	56	345
W/269	JUL 18	1544 32·6	40·716S	174·819E	33·2	2·2	9	7	0·22	18	272
W/270	JUL 19	0036 42·1	40·599S	174·724E	27·3	2·2	7	6	0·16	33	285
W/271	JUL 19	1048 27·4	40·886S	175·555E	26·2	2·1	8	7	0·25	31	275
W/272	JUL 19	2352 20·4	41·291S	175·279E	25·6	2·1	10	9	0·10	15	85
W/273	JUL 20	0947 58·8	41·250S	174·584E	3·3	2·7	11	11	0·23	10	153
W/274	JUL 20	1652 52·7	41·736S	174·466E	31·2	2·4	14	11	0·14	21	201
W/275	JUL 21	0749 28·1	40·930S	174·725E	34·9	3·7	11	11	0·10	17	195
W/276	JUL 22	0136 37·5	41·264S	174·999E	32·0	3·4	12	12	0·10	1	84
W/277	JUL 22	0409 49·9	40·659S	174·467E	45·2	2·5	12	8	0·22	44	286
W/278	JUL 22	0413 45·5	40·700S	174·522E	48·0	2·8	9	8	0·12	38	279
W/279	JUL 23	0014 25·3	41·369S	175·108E	26·3	2·3	11	10	0·09	13	141
W/280	JUL 23	0917 57·3	41·767S	173·815E	42·6	2·8	9	8	0·29	34	305
W/281	JUL 23	1529 32·5	41·738S	174·468E	31·7	2·3	12	10	0·17	21	204
W/282	JUL 24	0134 10·8	41·192S	175·845E	23·0	2·5	12	10	0·19	29	303
W/283	JUL 26	0618 45·4	40·882S	175·752E	31·9	2·5	12	9	0·18	37	292
W/284	JUL 27	0245 49·6	41·363S	173·903E	57·6	3·6	12	12	0·28	35	268
W/285	JUL 27	0640 24·4	41·294S	174·428E	15·5	2·1	11	8	0·17	16	196
W/286	JUL 27	1503 01·0	41·048S	174·466E	55·1	2·5	9	8	0·09	24	201
W/287	JUL 27	1630 08·8	41·277S	175·041E	25·3	2·0	11	10	0·07	4	92
W/288	JUL 30	1549 31·9	41·704S	174·400E	23·7	2·5	10	8	0·18	16	283
W/289	JUL 30	1740 17·2	40·525S	174·639E	51·5	3·7	8	8	0·11	44	292
W/290	JUL 31	0922 45·3	40·671S	174·795E	35·4	2·6	10	9	0·12	24	277
W/291	AUG 01	0319 10·6	41·231S	175·159E	21·9	2·2	12	10	0·28	14	102
W/292	AUG 01	1423 49·3	41·469S	173·811E	51·8	3·4	11	11	0·15	46	281
W/293	AUG 02	1819 08·3	41·260S	175·170E	24·9	4·0	11	11	0·13	15	95
W/294	AUG 03	1336 27·4	41·221S	173·745E	66·7	3·0	7	6	0·10	45	341
W/295	AUG 04	2338 47·0	40·602S	174·716E	40·1	2·5	7	6	0·06	33	301
W/296	AUG 05	1844 53·5	40·643S	174·421E	50·0	2·4	7	6	0·09	48	290
W/297	AUG 09	1111 43·6	40·945S	175·109E	26·7	2·3	10	9	0·12	19	188
W/298	AUG 09	1705 34·6	41·788S	174·423E	29·6	3·0	10	9	0·26	18	287
W/299	AUG 10	1405 27·0	41·724S	174·454E	26·8	2·4	9	7	0·12	20	216
W/300	AUG 10	2252 10·4	41·275S	175·312E	26·9	2·6	11	11	0·09	17	88

NUM	DATE	TIME	LAT	LONG	DEP	MAG	NP	NS	S.E.	DM	GAP
W/301	AUG 11	0609 29·6	40·999S	175·611E	27·1	2·4	12	10	0·12	20	272
W/302	AUG 13	1114 52·5	41·242S	174·489E	35·6	3·1	10	10	0·14	18	160
W/303	AUG 13	1513 10·7	40·653S	175·582E	57·4	2·7	11	9	0·12	57	300
W/304	AUG 15	1030 03·7	40·561S	174·506E	47·1	2·5	8	6	0·27	48	294
W/305	AUG 15	1944 14·8	41·235S	174·496E	34·5	2·5	10	9	0·09	18	155
W/306	AUG 16	0208 22·2	40·618S	175·332E	41·0	4·6	11	11	0·12	45	294
W/307	AUG 17	1254 01·6	41·719S	173·812E	19·0	2·7	10	9	0·23	34	299
W/308	AUG 19	1524 31·6	40·792S	175·380E	27·6	2·8	10	9	0·16	40	268
W/309	AUG 20	2107 39·8	41·044S	173·930E	67·2	2·7	9	8	0·27	35	274
W/310	AUG 21	0441 06·7	40·888S	174·594E	43·0	2·2	9	8	0·08	27	228
W/311	AUG 23	1310 29·2	40·565S	175·297E	30·8	3·1	9	8	0·14	47	295
W/312	AUG 23	2126 40·0	40·879S	175·148E	29·7	4·1	11	11	0·13	20	221
W/313	AUG 23	2204 40·1	40·988S	174·649E	56·1	3·3	12	11	0·07	26	187
W/314	AUG 24	1457 27·2	40·952S	175·526E	21·2	2·6	10	9	0·22	23	264
W/315	AUG 25	0059 52·0	40·922S	174·663E	34·1	2·4	13	10	0·14	22	208
W/316	AUG 25	0716 52·0	41·261S	175·594E	25·2	2·4	9	8	0·14	14	254
W/317	AUG 26	0126 04·4	41·004S	174·361E	49·3	2·5	11	10	0·17	24	235
W/318	AUG 27	0533 26·3	41·560S	174·562E	51·6	3·5	12	12	0·13	31	159
W/319	AUG 28	1406 04·2	41·489S	175·550E	25·1	2·7	11	10	0·23	15	285
W/320	AUG 28	1937 13·2	41·741S	174·494E	31·7	2·3	9	7	0·15	23	226
W/321	AUG 29	1243 08·5	41·341S	175·153E	21·7	2·6	10	9	0·10	12	115
W/322	AUG 30	0159 13·6	41·658S	175·146E	27·8	2·4	10	9	0·13	28	263
W/323	AUG 30	2219 27·0	40·668S	175·542E	29·4	2·5	10	8	0·14	55	296
W/324	SEP 01	0130 45·1	41·021S	174·528E	38·1	3·5	11	11	0·12	28	197
W/325	SEP 02	1326 13·4	41·711S	174·469E	28·7	2·7	11	10	0·22	21	192
W/326	SEP 04	0901 57·1	41·584S	174·309E	29·3	2·6	13	11	0·16	20	154
W/327	SEP 04	1651 48·4	40·867S	175·484E	25·4	3·1	11	10	0·08	33	267
W/328	SEP 04	1653 56·5	40·885S	175·469E	25·3	2·2	12	10	0·07	31	262
W/329	SEP 04	1657 14·8	40·883S	175·465E	25·3	3·2	11	11	0·09	31	262
W/330	SEP 04	1726 38·3	40·475S	174·216E	62·8	3·8	7	8	0·03	73	308
W/331	SEP 06	0054 17·8	41·341S	175·151E	21·9	3·1	11	10	0·13	12	115
W/332	SEP 06	0200 08·1	40·857S	175·146E	31·6	2·7	13	10	0·19	20	230
W/333	SEP 06	1611 06·0	40·877S	175·470E	25·1	2·3	9	8	0·10	32	263
W/334	SEP 09	0050 29·5	40·929S	175·700E	24·9	2·3	11	9	0·10	31	285
W/335	SEP 10	0106 38·0	41·657S	173·814E	20·0	3·5	9	8	0·15	63	320
W/336	SEP 10	0120 37·4	40·922S	175·266E	26·3	2·5	11	10	0·08	27	221
W/337	SEP 16	0213 15·4	40·888S	175·469E	24·9	2·2	8	7	0·07	30	262
W/338	SEP 16	0922 35·5	40·861S	175·123E	32·1	2·8	8	7	0·10	18	227
W/339	SEP 16	2156 36·3	41·419S	174·497E	33·4	2·4	10	9	0·09	24	230
W/340	SEP 18	1859 59·9	40·850S	174·136E	57·9	2·4	7	6	0·11	42	288
W/341	SEP 19	0640 56·9	41·582S	173·897E	14·5	2·7	11	10	0·32	33	273
W/342	SEP 19	1240 55·3	40·904S	175·946E	26·3	3·0	7	7	0·37	47	320
W/343	SEP 20	0219 10·3	41·090S	175·536E	32·1	2·6	11	9	0·27	8	265
W/344	SEP 21	2132 54·0	41·346S	175·156E	24·0	3·2	11	10	0·08	12	104
W/345	SEP 22	0032 51·1	41·067S	174·691E	57·6	2·6	10	9	0·07	18	154
W/346	SEP 22	1112 16·4	41·491S	174·104E	37·4	2·6	10	8	0·20	30	223
W/347	SEP 28	1125 09·3	40·438S	174·964E	4·2	2·4	11	10	0·14	47	297
W/348	SEP 29	0305 44·8	40·625S	174·685E	25·6	2·9	11	9	0·14	33	283
W/349	SEP 29	0308 23·5	40·616S	174·689E	29·0	2·6	9	8	0·11	33	284
W/350	SEP 29	1402 31·6	41·203S	174·485E	37·1	4·1	12	12	0·11	18	138

NUM	DATE	TIME	LAT	LONG	DEP	MAG	NP	NS	S.E.	DM	GAP
W/351	OCT 01	0557 06·8	41·626S	174·330E	5·0	3·0	9	9	0·20	17	140
W/352	OCT 01	2314 36·8	41·194S	175·270E	25·5	2·8	9	8	0·10	19	119
W/353	OCT 03	1139 19·1	40·989S	175·564E	27·2	2·5	11	9	0·13	20	266
W/354	OCT 05	1552 17·9	41·289S	175·237E	27·1	3·1	11	11	0·07	15	87
W/355	OCT 05	2120 36·8	40·811S	174·997E	33·0	2·7	11	10	0·13	9	260
W/356	OCT 06	0720 27·5	42·060S	174·462E	29·1	2·4	9	8	0·16	40	288
W/357	OCT 06	0856 45·6	41·740S	174·499E	31·8	3·3	12	11	0·21	24	204
W/358	OCT 08	1833 39·3	41·104S	174·156E	51·0	2·8	10	9	0·17	16	251
W/359	OCT 09	1536 29·0	41·851S	173·771E	11·2	3·0	10	10	0·14	39	318
W/360	OCT 09	1617 08·9	41·084S	174·609E	34·7	2·4	10	9	0·09	18	163
W/361	OCT 11	1549 31·0	40·858S	174·710E	13·3	3·4	11	11	0·14	17	229
W/362	OCT 12	0543 06·1	41·326S	173·805E	64·8	3·0	9	8	0·30	41	277
W/363	OCT 12	0714 24·2	41·268S	174·136E	45·4	3·5	10	10	0·24	13	243
W/364	OCT 12	1754 20·9	40·878S	175·092E	31·6	2·9	10	9	0·10	15	216
W/365	OCT 13	0144 28·2	40·828S	174·858E	4·0	2·8	10	9	0·17	6	255
W/366	OCT 14	0840 10·5	41·695S	174·527E	31·3	2·6	11	10	0·23	27	190
W/367	OCT 15	0615 47·2	40·402S	175·221E	32·5	3·9	9	11	0·20	58	303
W/368	OCT 17	0055 42·1	40·584S	174·335E	41·1	2·9	7	6	0·10	58	299
W/369	OCT 17	1528 35·1	41·271S	174·115E	47·9	4·0	12	12	0·25	15	245
W/370	OCT 17	1627 30·1	41·786S	174·998E	32·3	2·5	9	8	0·12	43	285
W/371	OCT 17	2156 01·9	41·276S	174·046E	47·8	2·7	9	8	0·17	21	316
W/372	OCT 19	1506 17·3	41·424S	173·716E	67·1	2·8	9	9	0·26	52	288
W/373	OCT 20	0422 09·2	41·328S	175·736E	22·3	2·4	10	9	0·31	22	301
W/374	OCT 20	2248 10·5	41·349S	175·782E	23·4	2·7	11	10	0·23	26	307
W/375	OCT 21	2013 07·2	40·934S	174·850E	57·0	2·4	10	8	0·04	9	157
W/376	OCT 22	1639 01·4	41·351S	175·796E	23·6	2·5	10	9	0·20	27	309
W/377	OCT 23	0031 21·0	40·560S	174·599E	45·4	3·2	9	8	0·21	43	290
W/378	OCT 23	1828 10·0	41·669S	174·268E	13·5	2·9	11	10	0·24	10	156
W/379	OCT 23	1833 11·1	41·691S	174·289E	14·5	2·5	7	6	0·07	9	162
W/380	OCT 23	1855 36·4	41·673S	174·272E	13·6	2·7	11	10	0·16	10	152
W/381	OCT 25	0250 29·0	40·782S	174·457E	45·4	2·3	10	7	0·09	39	266
W/382	OCT 26	1946 51·0	40·819S	175·252E	30·6	3·9	12	12	0·15	29	251
W/383	OCT 28	1030 01·7	41·154S	175·252E	30·0	2·4	14	10	0·11	16	134
W/384	OCT 28	2020 50·7	41·521S	174·389E	13·0	2·5	12	11	0·22	29	135
W/385	OCT 29	0152 53·2	40·623S	174·605E	81·4	2·6	12	9	0·17	37	286
W/386	OCT 29	0924 51·4	41·510S	174·472E	18·9	2·6	12	11	0·15	32	136
W/387	OCT 30	0931 30·5	41·715S	174·471E	28·1	2·2	10	9	0·13	22	204
W/388	NOV 02	0606 42·7	40·576S	174·960E	38·2	2·9	11	9	0·17	32	286
W/389	NOV 02	1255 32·3	40·675S	174·629E	6·9	2·1	10	7	0·12	32	280
W/390	NOV 03	0059 14·3	40·918S	175·697E	24·8	2·4	10	9	0·16	31	285
W/391	NOV 06	0615 28·8	40·865S	174·847E	61·2	3·1	10	10	0·03	5	217
W/392	NOV 06	0808 24·2	41·101S	174·517E	51·3	2·2	8	7	0·05	22	174
W/393	NOV 06	1430 04·0	40·493S	174·277E	55·4	2·8	8	7	0·17	68	306
W/394	NOV 07	0828 24·9	40·554S	174·811E	27·2	2·4	9	8	0·14	35	288
W/395	NOV 07	1346 45·8	41·203S	174·086E	51·2	2·4	10	9	0·09	16	313
W/396	NOV 08	0116 34·6	40·760S	175·204E	30·2	3·3	11	11	0·22	27	266
W/397	NOV 08	0120 47·4	40·770S	175·189E	29·8	2·8	10	9	0·16	26	263
W/398	NOV 08	0134 05·1	40·773S	175·191E	31·8	2·3	7	6	0·16	26	262
W/399	NOV 08	0642 10·2	40·939S	174·445E	70·2	2·6	13	10	0·18	34	233
W/400	NOV 09	0629 08·5	41·293S	174·244E	38·0	2·7	8	8	0·19	9	273

NUM	DATE	TIME	LAT	LONG	DEP	MAG	NP	NS	S.E.	DM	GAP
W/401	NOV 10	1918 13·3	40·963S	174·534E	63·1	2·5	9	9	0·06	33	213
W/402	NOV 13	2054 01·8	41·572S	173·640E	50·7	2·7	11	10	0·25	52	300
W/403	NOV 14	0813 03·7	41·234S	174·608E	33·6	2·6	10	10	0·10	8	143
W/404	NOV 15	0048 38·8	41·612S	174·652E	33·7	2·5	11	11	0·12	29	255
W/405	NOV 16	0720 08·7	40·964S	174·503E	9·2	2·3	9	8	0·10	34	217
W/406	NOV 16	2108 06·6	41·013S	174·454E	41·2	2·1	6	5	0·09	27	213
W/407	NOV 17	0517 16·7	41·245S	174·758E	29·8	2·4	11	9	0·08	5	90
W/408	NOV 18	0413 22·6	41·236S	175·028E	13·1	2·6	10	10	0·13	15	76
W/409	NOV 18	0927 27·5	40·971S	174·744E	34·0	2·5	8	7	0·11	18	174
W/410	NOV 18	1014 30·4	40·976S	174·745E	34·1	2·3	8	7	0·13	19	172
W/411	NOV 18	1439 01·9	41·175S	174·862E	30·1	2·4	11	9	0·07	15	102
W/412	NOV 19	0346 28·2	41·940S	174·023E	18·3	2·9	11	10	0·38	26	312
W/413	NOV 19	1642 21·8	41·559S	174·317E	5·0	2·4	8	7	0·37	23	154
W/414	NOV 20	1220 03·5	41·734S	174·474E	32·0	2·4	9	8	0·22	22	211
W/415	NOV 21	1216 57·7	41·522S	174·467E	19·0	2·2	10	9	0·18	34	254
W/416	NOV 21	1534 09·3	40·884S	175·571E	25·4	2·1	8	8	0·18	31	276
W/417	NOV 24	0314 04·6	40·964S	175·092E	30·4	2·5	10	9	0·07	16	176
W/418	NOV 24	1607 28·0	41·092S	174·699E	30·6	2·4	11	10	0·11	16	146
W/419	NOV 25	0121 27·0	41·450S	174·966E	24·9	2·2	10	9	0·09	20	211
W/420	NOV 25	0756 37·1	41·078S	174·444E	61·7	2·5	11	10	0·07	21	196
W/421	NOV 26	0650 04·6	41·605S	174·889E	29·8	2·4	12	9	0·10	22	248
W/422	NOV 26	0751 05·4	41·720S	174·449E	30·6	2·4	8	7	0·21	20	214
W/423	NOV 26	0855 15·8	41·739S	174·501E	31·7	3·7	12	12	0·21	24	204
W/424	NOV 26	1931 03·3	41·508S	174·144E	10·1	2·3	7	6	0·29	28	212
W/425	NOV 27	0605 56·9	41·476S	175·304E	25·0	2·2	12	9	0·11	7	231
W/426	NOV 27	0710 19·1	41·652S	174·738E	25·5	2·1	9	7	0·08	39	258
W/427	NOV 29	0909 03·8	40·948S	173·959E	70·6	2·9	8	8	0·26	40	306
W/428	NOV 30	0230 00·1	40·907S	174·503E	66·3	3·2	11	10	0·08	35	233
W/429	DEC 02	1010 52·8	41·138S	174·575E	57·4	4·0	12	12	0·06	15	152
W/430	DEC 03	0004 42·5	41·346S	175·153E	23·1	2·2	12	9	0·08	12	117
W/431	DEC 03	1125 40·5	41·148S	174·587E	56·1	2·4	12	10	0·08	14	147
W/432	DEC 03	1303 20·6	40·869S	175·292E	26·9	3·8	13	12	0·23	32	240
W/433	DEC 03	1325 12·0	40·857S	175·290E	24·3	2·2	10	8	0·24	32	243
W/434	DEC 04	0244 47·3	40·846S	175·295E	27·8	2·4	11	9	0·24	32	248
W/435	DEC 04	1954 40·0	40·568S	174·625E	5·4	2·3	7	6	0·08	41	290
W/436	DEC 05	0254 00·4	40·578S	174·633E	5·0	2·5	10	8	0·20	40	289
W/437	DEC 05	2325 04·6	41·216S	175·297E	25·5	2·3	12	10	0·07	18	110
W/438	DEC 07	0338 06·9	40·977S	174·309E	48·9	2·4	9	7	0·18	26	250
W/439	DEC 07	1609 53·5	41·339S	174·530E	57·4	2·6	14	11	0·09	18	105
W/440	DEC 09	0807 47·4	41·732S	174·469E	31·7	2·2	8	7	0·18	21	210
W/441	DEC 12	1248 04·2	41·578S	174·140E	11·2	2·6	10	9	0·28	20	214
W/442	DEC 12	1433 14·3	41·111S	173·754E	82·3	2·8	8	7	0·13	45	325
W/443	DEC 12	1651 34·1	41·286S	175·185E	17·4	2·6	11	10	0·34	16	88
W/444	DEC 13	1527 26·1	40·999S	174·646E	38·2	3·0	12	11	0·07	26	184
W/445	DEC 14	1919 31·4	40·873S	175·854E	34·0	2·5	10	9	0·13	43	300
W/446	DEC 15	1909 39·6	40·730S	174·929E	8·6	2·6	11	10	0·17	15	270
W/447	DEC 17	1026 00·9	40·789S	174·490E	42·6	2·5	11	9	0·18	37	262
W/448	DEC 18	1709 53·0	41·189S	173·998E	57·7	3·6	10	9	0·12	23	261
W/449	DEC 19	0111 04·4	41·565S	174·717E	33·0	2·3	10	8	0·17	30	245
W/450	DEC 20	1707 54·8	41·737S	174·487E	31·4	2·6	11	10	0·17	22	205

NUM	DATE	TIME	LAT	LONG	DEP	MAG	NP	NS	S.E.	DM	GAP
W/451	DEC 20	2053 06·1	40·895S	175·954E	33·6	3·7	11	11	0·17	48	305
W/452	DEC 22	0333 28·5	40·484S	174·459E	72·0	3·6	11	11	0·10	57	300
W/453	DEC 25	1742 35·1	41·447S	173·734E	70·5	2·8	12	11	0·19	52	287
W/454	DEC 26	0108 33·4	40·608S	174·625E	8·2	2·3	9	8	0·08	37	286
W/455	DEC 28	2139 46·7	40·783S	174·661E	56·1	2·3	7	6	0·04	23	259
W/456	DEC 29	2054 08·5	41·273S	174·506E	14·7	2·2	10	8	0·25	17	173

NON-INSTRUMENTAL DATA

THE FELT REPORTING SYSTEM

The Observatory has recruited a network of about 500 voluntary observers covering the country, who use a standard form to describe the effects of any earthquake they feel. The Observatory also collects casual reports from meteorolgical observers, radio and newspaper reporters, postmasters and members of the local public. For large earthquakes, or ones with features of special interest, questionnaires are issued and assessed.

Several difficulties arise in assessing the distribution of felt intensity. The population of the country is very unevenly distributed, and the observers personal circumstances may prevent them from feeling a shock that has been noticed by others. These shortcomings also affect lists of earthquakes felt in particular localities. It may reasonably be assumed that a strong earthquake reported from one township was felt in another nearby, even though the Observatory has received no report. However, an index of this kind must summarise the data and not the deductions, so the following scheme is used.

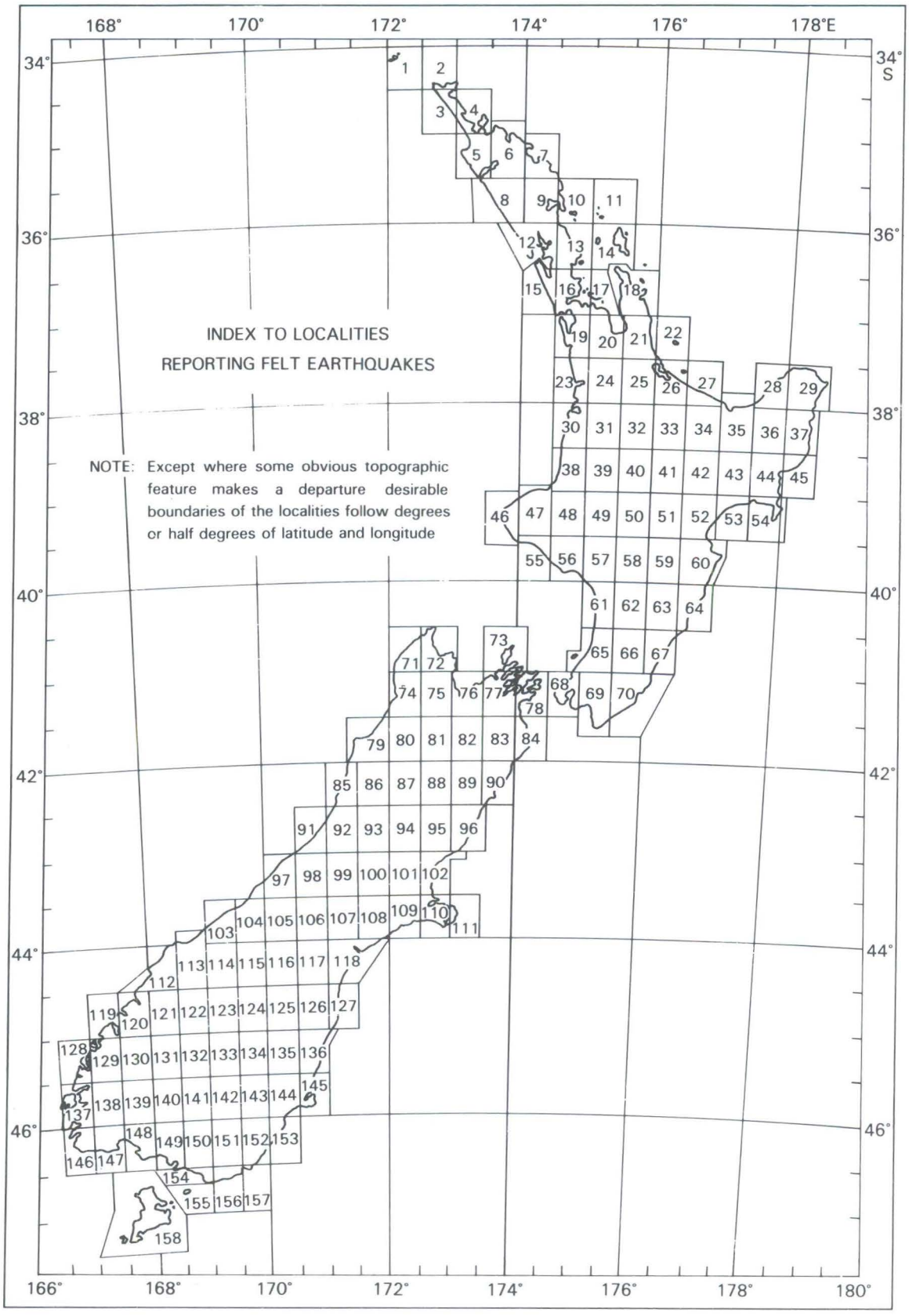
The land area of New Zealand has been divided into 'localities', mostly bounded by half-degree lines of latitude and longitude, but varied as necessary to avoid splitting obvious geographic or structural units (see map overleaf). Each locality has a number and a name, usually that of the principal population centre within it. The names are listed opposite the map. In most localities there are at least two well-separated reporters, but there are still some sparsely populated parts of the country without observers, notably in Southland.

The first part of this section gives,for each felt earthquake, its reference number (84/ is omitted), origin, the names of the places from which reports were received and the numbers of the localities within which these places lie. Intensities on the Modified Mercalli scale (N.Z. version, 1965) have been assigned by the Observatory. This intensity scale is set out in the N.Z. Journal of Geology and Geophysics, 9: 122-9 (1966). When there is insufficient information to assign a scale value, the observer's comment, shortened if necessary, is listed in quotes ('...'). The word 'felt' indicates that no detailed information is available.

Small felt earthquakes (M_L<3·7) which occur during long sequences may have no individually calculated origin if, in the opinion of the analyst, their foci lie very close to those of a stronger shock of the sequence. Such reports are assigned the reference number of the stronger shock with a suffix added. Thus a suffix 'n' indicates that the report refers to the nth extra earthquake associated with a reference number. For example, 131_4 is the fourth earthquake, reported as felt and instrumentally confirmed but with no calculated origin, associated with reference number 131. The original felt reports are acknowledged in information lines following the Summary of Data for the worked origin Ref. 131, as well as appearing at the end of the list of "Places Reporting Felt Earthquakes". The existence of reports related to other associated earthquakes is indicated in the body of this list by an asterisk following the reference number.

In the second listing, "Earthquakes Felt in Standard Localities", the localities which have reported shocks during the year are presented in alphabetical order, each followed by the reference numbers of the shocks felt and their respective reported maximum intensities within that locality. By comparing the reports in neighbouring localities, it is possible to form a truer estimate of the incidence of the felt effects than would be possible from a simple list of places reporting each shock. Reports of shocks with assigned origins appear in this list, identified by the Reference - Number - plus - Suffix notation described above.

Finally, reported shocks that cannot be instumentally confirmed, and reports from places in the south-west Pacific not acknowledged elsewhere are listed.



Standard Reporting Localities.

STANDARD REPORTING LOCALITIES

1	Three Kings	41	Taupo	81	Glenhope	121	Glenorchy
2	Te Reinga	42	Te Whaiti	82	Wairau	122	Arrowtown
3	Ninety Mile Beach	43	Tuai	83	Awatere	123	Wanaka
4	Doubtless Bay	44	Whakapunaki	84	Cape Campbell	124	St Bathans
5	Kaitaia	45	Gisborne	85	Greymouth	125	Kurow
6	Kaikohe	46	Cape Egmont	86	Reefton	126	Duntroon
7	Bay of Islands	47	New Plymouth	87	Maruia	127	Waimate
8	Dargaville	48	Whangamomona	88	Hanmer	128	Secretary Is.
9	Whangarei	49	Ohakune	89	Clarence	129	Doubtful Sound
10	Bream Head	50	Chateau	90	Kaikoura	130	Te Anau
11	Moko Hinau	51	Kaweka	91	Hokitika	131	Livingstone Mts
12	Kaipara	52	Napier	92	Kumara	132	Kingston
13	Warkworth	53	Wairoa	93	Arthur's Pass	133	Alexandra
14	Barrier Islands	54	Mahia	94	Lake Sumner	134	Poolburn
15	Helensville	55	Hawera	95	Culverden	135	Ranfurly
16	Auckland	56	Waverley	96	Cheviot	136	Oamaru
17	Waiheke	57	Wanganui	97	Franz Josef	137	Resolution Island
18	Coromandel	58	Taihape	98	Hari Hari	138	Pilians Pass
19	Pukekohe	59	Ruahine	99	Whitcombe Pass	139	Monowai
20	Mercer	60	Hastings	100	Lake Coleridge	140	Mossburn
21	Thames	61	Bulls	101	Oxford	141	Waikaia
22	Mayor Is.	62	Palmerston North	102	Rangiora	142	Roxburgh
23	Raglan	63	Dannevirke	103	Haast	143	Lawrence
24	Hamilton	64	Porangahau	104	Bruce Bay	144	Outram
25	Matamata	65	Otaki	105	Mount Cook	145	Dunedin
26	Tauranga	66	Masterton	106	Tekapo	146	Puysegur Point
27	Whakatane	67	Castlepoint	107	Mount Somers	147	Poteretere
28	Te Kaha	68	Wellington	108	Ashburton	148	Tuatapere
29	East Cape	69	Featherston	109	Rakaia	149	Invercargill
30	Kawhia	70	Martinborough	110	Christchurch	150	Gore
31	Te Kuiti	71	Mount Stevens	111	Akaroa	151	Clinton
32	Tokoroa	72	Takaka	112	Big Bay	152	Balclutha
33	Rotorua	73	D'Urville Island	113	Jackson's Bay	153	Waihola
34	Murupara	74	Karamea	114	Makarora	154	Bluff
35	Opotiki	75	Motueka	115	Lake Ohau	155	Ruapuke
36	Motu	76	Nelson	116	Pukaki	156	Tahakopa
37	Tolaga Bay	77	Blenheim	117	Fairlie	157	Owaka
38	Mokau	78	Picton	118	Timaru	158	Stewart Is.
39	Taumarunui	79	Westport	119	George Sound	159	Chatham Islands
40	Tokaanu	80	Murchison	120	Milford		

PLACES REPORTING FELT EARTHQUAKES

1 Jan 01 0750 43·32S 172·63E 12km M=3·3
MM3 Christchurch Airport (110);
'felt' Belfast (102).

12 Jan 03 1959 40·01S 176·70E 33km M=4·2
MM4 Table Flat (58); Mount Vernon, Waipawa (60).

13 Jan 03 2255 40·53S 174·19E 104km M=5·5
MM6 Titahi Bay (68);
MM5 Pihanga (46); Urenui (47); Hawera (55); Okoia (57); Palmerston North; Feilding (62); Waikawa Beach (65); Berhampore, Haywards Hill (68); Paturau (71);
MM4 Kawhia (30); Te Kuiti (31); Mahoenui (38); Waihora Road (40); Warea (46); Dawson Falls, Eltham, Inglewood; Stratford (47); Purangi (48); Ohakune (49); Waiouru (50); Hawera (55); Table Flat, Taihape (58); Mount Vernon (60); Himitangi Beach (61); Pahiatua (62); Dannevirke (63); Levin, Ohau, Paraparaumu, Raumati South (65); Kelburn, Lower Hutt, Wellington (68); Stephens Island (73); Nelson, Richmond (76); Fighting Bay (78); Blenheim (83); Maruia (87); Greymouth (92);
MM3 Featherston (69);
'felt' Nettleton (23); Mohoenui (38); New Plymouth (47); Highland Park (68); Nelson Airport (76); Pokokini, Woodbourne (77); Christchurch (110);
'force 5' Ahuahu (47);
'force 4' Kelburn (68); Appleby (76);
'force 3' North Egmont (47); Kairanga (61);
'strong' Wanganui (57); Ohingaiti (58); Levin, Kapiti Coast (65); Wellington (68); Nelson (76);
'long shake' Levin (65);
'sharp' Waitaria Bay (78);
'moderate' Bainham (72);
'mild' Palmerston North (62);
'slight' Westport Airport (79).

14 Jan 04 1006 38·14S 176·44E 5km M=4·1
MM4 Lake Okareka, Owhata (33).

15 Jan 04 1137 38·15S 176·46E 5km M=3·6
MM4 Lake Okareka, Owhata (33).
'sharp' Tikitere (33).

17 Jan 04 1144 38·13S 176·46E 5km M=3·2
MM4 Owhata (33).

18 Jan 04 1149 38·13S 176·48E 5km M=3·3
MM4 Lake Okareka, Owhata (33).

21 Jan 04 1155 38·14S 176·46E 5km M=3·5
MM4 Owhata (33).

23 Jan 04 1202 38·10S 176·46E 5km M=3·6
MM4 Lake Okareka, Owhata, Rainbow Mountain (33).

24 Jan 04 1215 38·15S 176·46E 5km M=3·5
MM4 Lake Okareka, Owhata (33).

26 Jan 04 1639 38·17S 176·45E 5km M=4·0
MM5 Rainbow Mountain, Waiotapu (33);
MM4 Lake Okareka, Owhata (33);
'felt' Waiotapu (33); Lake Rerewhaakaitu (34).

27 Jan 04 1640 38·14S 176·47E 5km M=3·8
MM5 Rainbow Mountain (33);
'felt' Golden Springs, Highland Road (33).

28 Jan 04 1659 38·13S 176·46E 5km M=3·3
MM4 Lake Okareka, Owhata, Rainbow Mountain (33);
'felt' Waimangu Valley, Waiotapu, Waiotapu Camp (33); Rerewhakaaitu (34).

30 Jan 04 1929 38·13S 176·45E 5km M=3·3
MM4 Lake Okareka (33);
'felt' Lake Rerewhakaaitu (33).

37 Jan 08 0632 39·71S 175·40E 12km M=3·0
'force 3' Ahuahu (57).

39 Jan 09 1603 38·36S 176·29E 5km M=3·5
MM5 Ngapouri Road, Rainbow Mountain, Reporoa (33);
MM4 Ngakuru (33);
'felt' Highland Road, Reporoa, Waiotapu (33).

40 Jan 09 1636 38·36S 176·30E 5km M=2·8
MM4 Ngapouri Road, Rainbow Mountain (33);
'felt' Highland Road, Reporoa, Waiotapu (33).

41 Jan 10 1750 40·20S 177·06E 33km M=3·2
MM4 Waipawa (60).

42 Jan 11 0846 39·90S 176·75E 33km M=3·9
MM4 Mount Vernon, Waipawa (60).

56 Jan 19 1750 40·52S 174·46E 79km M=4·6
MM4 Eastbourne, Wellington (68);
MM3 Levin, Waikawa Beach (65); Miramar (68);
'felt' Palmerston North (62); Churton Park, Hataitai, Linden, Wadestown, Wellington (68);
'MM 4' Highland Park (68);
'force 3' Ahuahu (57).

65 Jan 22 1213 41·23S 172·36E 12km M=3·8
MM4 Arapito (74); Cobb (75);
'felt' Arapito (74).

69 Jan 24 0749 40·31S 175·88E 73km M=4·1
MM4 Hunterville, Moawhango, Table Flat (58); Himitangi Beach (61); Palmerston North (62); Dannevirke (63);
MM3 Ngamatapouri (56);
'felt' Ohingaiti (58); Palmerston North (62); Dannevirke (63).

70 Jan 24 2154 40·04S 176·90E 61km M=4·5
MM4 Elsthorpe, Waipawa (60);
'felt' Hastings (60);
'MM 4' Kopua (63).

83 Jan 29 0006 39·44S 176·84E 32km M=3·9
MM5 Patoka (52);
MM4 Kotemaori (53).

86 Jan 29 1235 41·64S 173·95E 8km M=5·1
MM5 Naenae (68);
MM4 Khandallah, Seatoun, Wellington (68); Blenheim (77);
'felt' Avalon, Berhampore, Churton Park, Kilbirnie, Newtown, Stokes Valley, Tawa, Wellington (68); Waitaria Bay (78); Blenheim (83).

93 Feb 03 0656 41·61S 173·96E 7km M=4·3
'felt' Marlborough (77),(78).

99 Feb 07 1504 41·64S 173·95E 6km M=3·0
'felt' Seddon (84).

102 Feb 09 1500 39·13S 176·10E 84km M=4·5
MM4 Patoka (52).

104 Feb 10 2004 41·37S 174·65E 19km M=3·3
MM4 Seatoun (68)
'felt' Karori, Miramar, Seatoun (68).

105 Feb 11 0919 41·14S 174·69E 27km M=4·2
MM4 Karori, Papakowhai (68); Brothers Island (78);
'felt' Johnsonville, Hutt Valley, Karori, Kelburn (68).

106 Feb 12 0725 41·39S 174·64E 15km M=3·2
MM3 Johnsonville (68).

119 Feb 18 0336 42·83S 171·58E 0km M=3·5
MM5 Otira (93);
MM3 Arthurs Pass (93);
'felt' Rotomanu (93).

120 Feb 18 0434 44·43S 168·79E 10km M=4·1
MM4 Mount Aspiring (113); Minaret Station (114);
'felt' Wanaka(123).

122 Feb 19 1735 41·15S 174·70E 26km M=3·7
MM4 Khandallah (68);
'felt' Ngaio (68).

123 Feb 20 0207 38·91S 175·70E 5km M=3·6
MM3 Motuoapa (40).

128 Feb 20 2241 38·91S 175·70E 8km M=3·9
MM4 Motuoapa, Turangi (40).

129 Feb 20 2243 38·91S 175·72E 5km M=3·8
MM3 Motuoapa (40).

130 Feb 21 0808 38·91S 175·69E 7km M=4·8
MM6 Moerangi Station, Omori, Turangi (40);
MM5 Omori, Waihora Road (40);
MM4 Kakahi (39); Taupo (41); Waiouru (50);
'felt' Hamilton (24); Taumarunui (39); Kuratau, Whangamata Road (40); Lower Retaruke (47); Ruapehu (50);
'moderate' Whangamata (32); Motuoapa (40);
'light' Motuoapa (40);
'MM 2' Waiouru (50).

131* Feb 21 0823 38·90S 175·70E 8km M=5·3
MM6 Moerangi, Turangi (40);
MM5 Kakahi (39); Motuoapa, Omori (40); Waiouru (50); Taoroa (58);

MM4 Taupo (41); Patoka (52); Palmerston North (62);
MM3 Wellington (68);
'felt' Hamilton (24); Taumarunui (39); Kuratau (40); Lower Retaruke (47); Raetihi (49); Waiouru (50); Napier (52); Ohingaiti (58); Wellington (68);
'MM 3' Waiouru (50);
'force 2' Kairanga (61);
'moderate' Whangamata (32);
'v. slight' New Plymouth (47).

132 Feb 21 0826 38·90S 175·69E 11km M=4·1
MM5 Moerangi Station (40);
MM4 Waihora Road (40);
'moderate' Motuoapa (40).

133 Feb 21 0850 38·92S 175·72E 12km M=3·5
MM4 Moerangi Station, Omori (40);
'light' Motuoapa (40).

134 Feb 21 0852 38·92S 175·71E 3km M=4·0
MM4 Moerangi Station (40);
'moderate' Motuoapa (40).

135 Feb 21 0941 38·90S 175·71E 5km M=4·0
MM4 Moerangi Station (40);
'moderate' Motuoapa (40);
'slight' Waihora Road (40).

136 Feb 21 1254 38·91S 175·73E 7km M=3·8
MM4 Moerangi Station (40).

137 Feb 21 1313 38·90S 175·74E 4km M=4·4
MM6 Motuoapa (40);
MM4 Moerangi Station (40).

138 Feb 21 1355 38·90S 175·72E 6km M=4·1
MM4 Moerangi Station (40).

139 Feb 21 1531 40·35S 173·58E 141km M=5·0
MM5 Farewell Spit (72);
MM4 Wellington (68);
'felt' New Plymouth (47); Brooklyn, Wellington (68); Farewell Spit (72); Waitaria Bay (78).

140 Feb 21 2253 38·91S 175·69E 9km M=3·7
MM4 Moerangi Station, Omori (40);
'slight' Waihora Road (40).

141 Feb 22 0038 38·92S 175·73E 6km M=4·2
MM4 Moerangi Station, Omori (40).

142 Feb 22 0259 38·92S 175·72E 7km M=4·3
MM4 Moerangi Station, Omori (40).
'light' Motuoapa (40).

143 Feb 22 0653 38·92S 175·70E 5km M=3·6
MM4 Omori (40);
'light' Motuoapa (40).

144 Feb 22 1232 38·93S 175·72E 6km M=3·6
MM4 Waihora Road (40).

145 Feb 23 0933 38·62S 176·18E 5km M=2·7
MM5 Taupo (41);
MM4 Taupo (41).

151 Feb 26 0701 38·03S 175·90E 12km M=3·8
MM6 Putaruru (32)
MM4 Lichfield (32).

155 Feb 27 1501 38·87S 175·83E 1km M=3·3
MM4 Omori (40).

157 Feb 28 1506 41·24S 175·19E 17km M=3·8
MM4 Wairongomai (69);
MM3 Newtown (68);
'felt' Avalon, Khandallah, Stokes Valley, Wainuiomata, Wellington (68).

160 Mar 01 0745 38·92S 175·78E 1km M=3·2
MM4 Moerangi Station (40).

161 Mar 01 0937 38·36S 176·25E 9km M=3·0
MM5 Reporoa, Waiotapu (33).

162 Mar 01 0938 40·96S 174·53E 51km M=4·3
MM5 Paraparaumu (65); Lower Hutt, Wellington (68); Fighting Bay (78);
MM4 Okoia (57); Himatangi Beach (61); Levin (65); Kelburn, Khandallah, Korokoro, Mornington, Wellington (68);
MM3 Levin (65);
'felt' New Plymouth (47); Raumati (65); Churton Park, Hataitai, Khandallah, Lower Hutt, Newtown, Newlands, Paremata, Seatoun, Titahi Bay, Wellington, Whitby (68).

164 Mar 01 1935 38·98S 175·81E 1km M=3·1
MM4 Moerangi Station (40).

167 Mar 03 1007 38·92S 175·78E 2km M=4·4
MM5 Moawhango (58);

MM4 Moerangi Station, Turangi, Waihora Road (40); Omori (41).

168 Mar 03 1018 38·95S 175·81E 1km M=4·3
MM5 Turangi (40); Moawhango (58);
MM4 Waihora Road (40); Omori (41).

170 Mar 04 1035 37·83S 176·38E 1km M=3·6
MM4 Okere Falls (33).

172* Mar 05 0207 38·92S 175·79E 5km M=5·5
MM7 Turangi (40);
MM6 Moerangi Station, Motuoapa, Tokaanu, Turangi (40);
MM5 Whakamaru, Whangamata (32); Tuhua, Waimiha (39); Omori, Taupo (41);
MM4 Arataki Road, Mangakino (32); Bennydale, Tapuwae (39); Turangi (40); Taupo (41); Minginui Forest (42); Waiouru (50); Taihape (58);
MM3 New Plymouth (47); Table Flat (58);
'F4' Taumarunui (39);
'F3' Kairanga (61);
'felt' Hamilton (24); Ongarue, Taumarunui (39); Turangi (40); Wairakei, Wairakei Research Station, Taupo, Western Bay (41); Waiouru (50); Wellington (68).

173 Mar 05 0210 38·91S 175·78E 2km M=3·9
MM4 Moerangi Station (40);
'strong' Taupo Airport (41).

174 Mar 05 0212 38·94S 175·71E 6km M=3·8
MM4 Moerangi Station (40); Omori (41).

175 Mar 05 0226 38·90S 175·78E 6km M=4·0
MM4 Moerangi Station, Turangi (40).

176 Mar 05 0227 38·92S 175·82E 1km M=3·7
MM4 Moerangi Station, Turangi (40); Omori (41).

177 Mar 05 0239 38·92S 175·69E 6km M=3·6
MM4 Moerangi Station, Turangi (40); Omori (41).

178 Mar 05 0301 38·92S 175·73E 1km M=4·1
MM4 Moerangi Station, Turangi (40); Omori (41).

179 Mar 05 0307 38·92S 175·72E 1km M=3·9
MM4 Moerangi Station (40); Omori (41).

180 Mar 05 0350 38·90S 175·81E 1km M=4·0
MM5 Moerangi Station (40); Omori (41).

181 Mar 05 0413 38·91S 175·80E 4km M=3·4
MM4 Moerangi Station (40).

182 Mar 05 0943 38·92S 175·75E 4km M=3·5
MM4 Moerangi Station (40); Omori (41).

183 Mar 05 1324 38·89S 175·76E 1km M=4·1
MM5 Moerangi Station, Turangi (40).

187 Mar 05 2353 38·92S 175·81E 1km M=3·5
MM4 Turangi (40).

188 Mar 06 0143 38·91S 175·81E 1km M=3·8
MM4 Turangi (40).

190 Mar 06 0417 38·92S 175·46E 1km M=3·6
MM5 Moerangi Station (40).

191 Mar 06 0501 38·95S 175·75E 1km M=3·7
MM4 Moerangi Station (40).

192 Mar 06 0505 38·91S 175·80E 3km M=3·7
MM4 Moerangi Station (40).

193 Mar 06 0511 38·96S 175·70E 6km M=3·7
MM4 Moerangi Station (40).

194 Mar 06 0533 38·92S 175·73E 1km M=3·4
MM4 Moerangi Station (40).

195 Mar 06 0550 38·96S 175·75E 1km M=3·6
MM4 Moerangi Station (40).

197 Mar 06 2135 38·94S 175·75E 1km M=3·7
MM4 Moerangi Station, Turangi (40).

200 Mar 08 0040 38·20S 177·44E 75km M=6·4
MM6 Whakatane (27); Minginui Forest (42); Gisborne (45);
MM5 Whakatane (27); East Cape Lighthouse (29); Whakamaru (32); Ngakuru, Reporoa (33); Kawerau (34); Opotiki (35); Ruatahina, Te Whaiti (42); Aniwaniwa, Kairoa Station, Waikaremoana (43); Ormond (44); Gisborne (45); Hastings, Mount Vernon, Waipawa (60); Ohau (65);

MM4 Maketu (26); Cape Runaway (29); Rotorua (33); Waimana (35); Tuhua (39); Taupo (41); Wairapukao (42); Tuai (43); Ohakune (49); Kaweka (51); Napier (52); Moawhango, Table Flat, Taihape (58); Gwavas Forest (59); Himatangi Beach (61); Aramoana (64); Paraparaumu (65); Kelburn, Khandallah (68); Paturau (71); Farewell Spit (72); Blenheim (77); Fighting Bay (78); Murchison (80); Springs Junction (87); Greymouth (92); Akaroa (111);
MM3 Kelburn (68); Waiorongomai (69);
'F5' Ahuahu Valley (57);
'F3' Whakamarama (25); Kairanga (61);
'substant.' Esk Forest (52);
'MM3' Waiouru Military Camp (50);
'sharp' Puruni (65);
'felt' Waihi (21); Hamilton (24); Whakamarama (25); Te Ranga (26); Pikowai; Whakatane (27); Te Kaha (28); Lake Rerewhakaaitu, Rotorua (33); Taupo (41); Gisborne (45); Napier (52); Wairoa (53); Mahia Beach (54); Wanganui (57); Petone (68); Blenheim (77); Christchurch (110);
'slight' Ongarue (39).

202 Mar 08 0956 38·94S 175·53E 6km M=3·4
MM4 Turangi (40).

205 Mar 09 1729 41·72S 171·89E 12km M=4·4
MM5 Westport (79); Murchison (80);
MM4 Greymouth (92).

207 Mar 10 0025 41·64S 171·79E 12km M=3·9
MM4 Murchison (80).

208 Mar 10 0515 38·93S 175·76E 1km M=3·6
MM4 Turangi (40); Omori (41).

213 Mar 13 0433 38·93S 175·71E 5km M=3·7
'felt' Waihora Road (40).

215 Mar 14 0534 38·85S 175·05E 238km M=5·2
MM4 Wanganui (57); Moawhango, Table Flat (58); Palmerston North (62); Johnsonville (68);
'felt' Feilding, Palmerston North, Palmerston North Airport (62); Kelburn, Wellington (68).

219 Mar 15 1147 40·59S 173·79E 78km M=3·7
'felt' Lyall Bay, Upper Hutt, Wellington (68).

239 Mar 20 1651 38·07S 176·19E 5km M=2·6
MM5 Rotorua (33).

249 Mar 23 0102 41·06S 175·46E 12km M=4·0
MM4 Seatoun (68);
'felt' Kelburn (68).

250 Mar 23 1538 38·91S 175·74E 5km M=4·0
MM4 Western Bay Road (40); Omori (41).

269 Apr 01 1448 40·12S 174·85E 12km M=4·3
MM5 Okoia (57);
MM4 Ohakune (49); Wanganui (57);
'felt' Wanganui (57).

271 Apr 02 0216 40·45S 175·04E 33km M=3·7
MM4 Levin (65).

272 Apr 02 0919 41·75S 174·46E 24km M=4·0
MM4 Wellington (68);
'F4' Gracefield (68);
'?' Khandallah (68);
'felt' Eastbourne, Island Bay, Karori, Wellington (68).

273 Apr 02 0930 41·73S 174·48E 29km M=4·4
MM5 Papakowhai (68); Upper Hutt (69);
MM4 Khandallah, Kilbirnie, Tawa, Wellington, Wilton (68);
MM3 Karori (68);
'F4.5' Gracefield (68);
'tremor' Waitaria Bay (78).

278 Apr 02 2146 39·45S 175·44E 0km M=3·0
MM5 Dome Ridge (50).

280 Apr 03 0955 38·97S 175·74E 5km M=3·2
MM4 Moerangi Station (40).

306 Apr 09 0932 41·34S 174·49E 54km M=3·4
MM4 Fighting Bay (78);

'felt' Island Bay, Lower Hutt, Wellington (68).

307 Apr 09 2319 41·53S 174·72E 11km M=3·2
'felt' Wellington (68).

316 Apr 12 1612 37·90S 178·14E 25km M=5·2
MM5 Te Kaha (28); Opotiki (35); Ormond (44);
MM4 Whakatane (27); Tokomaru (37);
'felt' Whakatane (27); Katoa (29).

317 Apr 12 1714 39·41S 176·84E 49km M=3·3
MM4 Patoka (52).

318 Apr 13 0134 38·95S 175·71E 6km M=3·4
MM4 Tongariro National Park (50).

319 Apr 13 0135 38·95S 175·71E 5km M=3·5
MM4 Tongariro National Park (50).

324 Apr 13 1822 40·18S 174·91E 19km M=4·2
MM4 Ohakune (49).

326 Apr 14 0852 38·95S 175·77E 2km M=3·4
MM4 Tongariro National Park (50).

327 Apr 14 0859 38·93S 175·62E 5km M=3·3
MM4 Tongariro National Park (50).

329 Apr 14 0923 38·94S 175·64E 5km M=3·2
MM4 Tongariro National Park (50).

331 Apr 15 0049 38·95S 175·78E 5km M=3·5
MM3 Tongariro National Park (50).

335 Apr 16 1451 44·53S 168·29E 5km M=4·9
MM5 Mount Aspiring (113); Minaret Station (114); Routeburn Track (121); Wanaka (123);
MM4 Clinton Forks Hut (120); Earnslaw (121);
'F4' Wanaka (123);
'felt' Lake McKenzie, Lake Howden (121); Wanaka (123); Queenstown (132).

351 Apr 22 0444 41·28S 172·02E 12km M=4·0
MM4 Arapito (74).

372 Apr 30 0833 38·18S 176·29E 7km M=2·8
MM5 Ngapouri Road (33).

376 May 01 2055 45·25S 171·37E 1km M=4·4
'felt' Twizel (116); Timaru (118); Oamaru (136); Dunedin (145).

377 May 03 0037 45·19S 171·35E 9km M=4·4
'felt' Twizel (116); Waitaki Valley (126); Oamaru (136).

378 May 03 0911 41·20S 172·55E 184km M=4·3
'felt' Wellington (68).

384 May 05 0528 42·25S 172·78E 12km M=5·1
MM5 Greymouth (93);
MM4 Westport (79);
MM3 Maruia (87).

385 May 05 0533 42·21S 172·78E 12km M=4·9
MM4 Maruia (87).

386 May 05 0604 41·63S 174·19E 65km M=4·1
'light' Island Bay (68).

388 May 05 0624 42·19S 172·84E 12km M=4·8
MM5 Greymouth (93);
MM4 Westport (79); Maruia (87);
'slight' The Poplars (94).

393 May 05 1415 42·22S 172·79E 12km M=4·5
MM5 Greymouth (93);
MM4 Maruia (87).

398 May 06 0108 40·91S 174·77E 10km M=3·4
'felt' Raumati (65) Makara (68).

399 May 06 0217 43·08S 170·35E 12km M=4·7
MM5 Greymouth (93); Erewhon Station (107).

400 May 06 1617 43·20S 170·64E 12km M=3·3
MM4 Greymouth (93).

411 May 10 0746 39·19S 173·82E 12km M=4·0
MM4 Okato (46);
'strong' New Plymouth (47).

412 May 10 2327 38·34S 176·31E 12km M=3·1
MM4 Reporoa (33).

413 May 10 2339 38·45S 176·29E 12km M=3·4
MM4 Reporoa (33).

418 May 13 0049 43·59S 170·79E 12km M=3·5
MM5 Erewhon Station (107).

419 May 13 0127 43·61S 170·86E 12km M=3·5
MM4 Erewhon Station (107).

421 May 13 1250 38·03S 176·88E 5km M=3·9
'felt' Pikowai (27); Kawerau (34); Port Ohope (35);
'sharp' Ohope Beach (35).

422 May 13 1254 37·86S 177·40E 33km M=3·4
'sharp' Ohope Beach (35).

430 May 17 0727 37·39S 177·71E 33km M=4·7
MM4 Whakatane (27);
'sharp' Te Kaha (28); Opotiki (35).

452 May 29 0843 39·02S 174·76E 12km M=3·0
MM5 Uruti Road (38).

460 Jun 01 1023 38·91S 177·60E 33km M=4·8
'felt' Gisborne (45).

463 Jun 02 1220 42·30S 172·74E 12km M=5·2
MM5 Farewell Spit (72); Arapito (74); Murchison (80); Greymouth (93);
MM4 Maruia (87);
'felt' Bainham (72); Arapito (74);
'slight' Ferniehurst (96).

474 Jun 06 2223 39·73S 174·10E 191km M=4·7
MM3 Wellington (68).

475 Jun 07 0526 38·85S 176·16E 1km M=2·8
MM4 Acacia Bay (41).

478 Jun 08 0627 41·30S 174·73E 48km M=4·4
MM6 Whitby (68);
MM5 Wellington, Kilbirnie, Khandallah, Waterloo (68);
MM4 Karori, Brooklyn, Kilbirnie, Kelburn, Wilton (68); Featherston (69); Brothers Island (73);
'felt' Kelburn, Kilbirnie, Lower Hutt, Miramar, Wellington (68); Upper Hutt (69); Waitaria Bay (78);
'force 5' Highland Park (68).

487 Jun 12 1952 41·96S 171·77E 12km M=4·4
MM5 Westport (79); Reefton (86);
MM4 Westport (79); Greymouth (92);
'felt' Punakaiki (85).

489 Jun 13 1411 38·91S 175·80E 1km M=3·7
MM4 Turangi (40);
MM3 Waihora Road, Omori (40).

490 Jun 14 0149 43·01S 171·41E 8km M=4·7
MM3 Lake Coleridge (100).

491 Jun 14 0302 40·70S 174·54E 45km M=4·4
MM4 Eastbourne, Kelburn (68); Farewell Spit (72);
'felt' Harbourview, Kelburn, Mornington, Wellington (68); Farewell Spit (72).

495 Jun 15 0855 38·76S 175·79E 3km M=3·4
MM4 Waihora Road (40).

496 Jun 15 0959 45·37S 167·19E 58km M=4·1
MM5 West Arm Manapouri (138);
MM4 Te Anau Downs (130);
'felt' Te Anau Downs (130).

503 Jun 17 1344 40·83S 172·05E 0km M=4·8
MM5 Himatangi Beach (61); Farewell Spit, Takaka (72); Arapito, Karamea (74); Murchison (80);
MM4 Wellington (68); Paturau (71); Cobb Power Station (75); Westport (79); Greymouth (92);
'felt' Newtown (68), Bainham (72); Nelson, Wakefield (76);
'F/3-4' Westport (79).

505 Jun 17 2123 40·06S 172·87E 5km M=4·4
MM5 Farewell Spit (72).

512 Jun 21 1124 45·46S 167·17E 71km M=4·3
MM5 Manapouri (139).

521 Jun 24 1329 43·60S 170·64E 5km M=5·9
MM6 Fox Glacier, Franz Josef, Franz Josef Glacier, Whataroa (97); Lilybank Station (105); Erewhon (107);
MM5 Patarau (71); Westport (79); Hokitika, Paroa, Ross (91); Greymouth, Inchbonnie (92); Fox Glacier, Whataroa (97); Evans Creek (98); Mahitahi (104); Mount Cook, Mount Cook Village (105); Glenariffe Salmon Research Station, Maronan (108);

	Akaroa (111); Mount Aspiring (113); Wanaka (114); Fairlie, Hakataramea (117); Timaru (118); Tara Hills (124); Bannockburn, Cromwell (133); Matakanui Station (134);
MM4	Arapito (74); Ross (91); Kowhitirangi (92); Arthurs Pass (93); Lake Coleridge (100); Mahitahi (104); Burwood, Christchurch (110); Lake Ohau Station (115); Te Ngawai (117); Wanaka (123); Cromwell (133); Palmerston (136); Awarua Radio (154);
'felt'	Greymouth, Punakaiki (85); Franz Josef, Whataroa (97); Akaroa, Little River (110); Riverview (117); Aghadoe (118); Branches (122); Tara Hills (124); Clyde Dam, Cromwell (133); Broad Bay (145);
'v. strong'	Riverview (117);
'strong'	Adair Research Station (118), Christchurch (110);
'MM 4'	Lake Pukaki (116);
'MM 2'	Kaikoura (90);
'long'	Whataroa (97); Akaroa (110);
'rolling'	Otira (93);
'force 4'	Hokitika (91);
'force 6'	Lilybank (106); Kakahu (118);
'sharp'	Methven (108);
'lightly'	Mount Cook (105).

523 Jun 24 1343 43·68S 170·66E 5km M=5·1

MM5	Evans Creek (98);
MM4	Kowhitirangi (92); Whataroa (97); Mahitahi (104); Hakataramea (117); Timaru (118)
'felt'	Whataroa (97);
'small'	Hokitika (91).

524 Jun 24 1349 43·66S 170·60E 5km M=3·7

'felt'	Whataroa (97).

525 Jun 24 1355 43·63S 170·61E 5km M=3·7

MM4	Whataroa (97);
'felt'	Whataroa (97).

526 Jun 24 1355 43·58S 170·78E 5km M=3·9

'felt'	Whataroa (97).

527 Jun 24 1356 43·57S 170·58E 5km M=3·8

MM4	Whataroa (97);
'felt'	Whataroa (97).

528 Jun 24 1359 43·59S 170·72E 5km M=3·6

'felt'	Whataroa (97).

530 Jun 24 1409 43·62S 170·72E 5km M=3·6

'felt'	Whataroa (97).

532 Jun 24 1423 43·47S 170·47E 5km M=3·9

MM4	Ross (91);
'felt'	Whataroa (97).

533 Jun 24 1450 43·60S 170·57E 5km M=4·0

MM4	Whataroa (97);
'felt'	Whataroa (97).

534 Jun 24 1452 43·55S 170·51E 5km M=3·6

'felt'	Whataroa (97).

535 Jun 24 1457 43·61S 170·61E 5km M=3·9

'felt'	Whataroa (97).

536 Jun 24 1535 43·68S 170·62E 5km M=3·7

MM4	Greymouth (92);
'felt'	Whataroa (97).

537 Jun 24 1536 43·60S 170·65E 5km M=3·6

'felt'	Whataroa (97).

541 Jun 24 2040 43·60S 170·56E 5km M=4·6

MM3	Whataroa (97).

551 Jun 25 1558 41·71S 174·18E 79km M=4·3

MM4	Wellington (68);
'felt'	Kelburn, Kilbirnie, Rongotai (68).

557 Jun 27 1255 43·69S 170·65E 5km M=3·4

MM4	Erewhon Station (107).

558 Jun 28 0151 38·91S 176·57E 77km M=5·1

MM5	Waiouru (50); Patoka (52);
MM4	Patoka (52); Wairoa (53); Taihape (58); Mount Vernon (60);
MM3	Minginui Forest Headquarters (42);
'felt'	Napier (52); Feilding (62).

560 Jun 28 0307 37·72S 176·71E 0km M=4·1

'felt'	Whakatane (27).

569 Jun 28 2044 44·61S 169·61E 5km M=3·9

MM5	Tara Hills (124);
'felt'	Tara Hills (124).

572 Jun 29 1854 43·86S 171·10E 12km M=4·0

MM4	Erewhon Station (107).

578 Jul 01 1526 43·53S 170·57E 5km M=3·5

MM4	Erewhon Station (107).

581 Jul 02 0156 37·86S 176·91E 5km M=3·7
'felt' Whakatane (27).

582 Jul 02 0336 37·86S 176·90E 5km M=3·7
'felt' Whakatane (27).

588 Jul 02 1809 37·84S 176·85E 5km M=4·2
'felt' Whakatane (27).

589 Jul 02 1817 37·86S 176·91E 5km M=3·4
'felt' Whakatane (27).

590 Jul 02 1822 37·86S 176·92E 5km M=3·4
'felt' Whakatane (27).

591 Jul 02 1903 37·85S 176·86E 5km M=3·4
'felt' Whakatane (27).

596 Jul 04 2333 37·87S 176·89E 5km M=3·6
'felt' Whakatane (27).

597 Jul 06 0817 43·63S 170·61E 5km M=3·4
MM4 Lilybank Station (106).

604 Jul 08 1617 43·59S 170·62E 5km M=4·1
'felt' Kurow (125).

607 Jul 09 0319 43·58S 170·59E 5km M=3·6
MM5 Lilybank Station (106);
MM4 Erewhon Station (107).

608 Jul 10 0343 37·86S 176·84E 5km M=3·4
'felt' Whakatane (27).

609 Jul 10 1322 43·62S 170·71E 5km M=3·4
MM4 Erewhon Station (107).

610 Jul 11 1825 43·63S 170·59E 5km M=4·2
MM5 Lilybank Station (106);
MM4 Erewhon Station (107).

614 Jul 16 0203 43·60S 170·47E 12km M=4·1
MM5 Erewhon Station (107).

616 Jul 18 1501 38·08S 176·91E 5km M=4·2
MM5 Whakatane (27).

617 Jul 18 1527 38·43S 175·88E 210km M=5·2
MM5 Khandallah (68).

618 Jul 18 1739 38·09S 176·96E 5km M=3·7
MM5 Whakatane (27).

622 Jul 21 0749 40·93S 174·77E 27km M=3·9
MM4 Khandallah (68);
'felt' Brooklyn, Karori (68).

624 Jul 22 0136 41·25S 175·01E 32km M=3·5
MM4 Brooklyn, Waterloo (68);
'felt' Stokes Valley, Waiwhetu, Waterloo (68).

628 Jul 24 0114 43·64S 170·60E 12km M=4·0
MM4 Mahitahi (104), Erewhon (107).

637 Jul 27 0245 41·35S 173·94E 54km M=3·8
MM4 Fighting Bay (78).

641 Jul 29 1450 39·19S 173·76E 16km M=4·0
MM5 New Plymouth (47);
'felt' New Plymouth (47).

646 Aug 01 1851 39·63S 176·92E 30km M=4·3
MM5 Patoka (52);
MM4 Hastings, Mount Vernon, Taradale, Te Awanga, Whakatu (60);
'felt' Napier (52); Dannevirke (63).

648 Aug 02 1819 41·26S 175·17E 22km M=4·0
MM5 Wellington (68); Waiorongomai (69);
MM4 Tawa, Wellington (68);
'felt' Avalon, Gracefield, Johnsonville, Porirua, Tawa, Wadestown, Wellington, Woburn (68); Pinehaven, Upper Hutt (69).

657 Aug 06 1602 43·22S 172·14E 12km M=5·0
MM5 Greymouth (92); Motonau Beach (96); Mount White Station (100); Darfield (101); Rangiora (102); Christchurch, Okuti Valley (110); Akaroa (111);
MM4 Arthurs Pass (93); Kilmarnock (96); Coleridge Power Station (100); Woodend (102);
'force 4' Mount Pleasant (2 Shocks?) (110);
'loud' Cora Lynn (100);
'force 3' Christchurch Airport (110);
'felt' Harper Village (99); Lincoln College, Burnham Camp; Southbridge (109); Christchurch (110); Akaroa, Brockworth (111).

658 Aug 06 1753 43·22S 172·08E 12km M=3·5
MM4 Mount White Station (100).

660 Aug 06 1902 43·19S 172·10E 12km M=4·1
MM4 Mount White Station (100).

674 Aug 16 0208 40·61S 175·29E 46km M=4·7
MM5 Ohau (65); Paraparaumu, Waikawa Beach (65);

MM4 Palmerston North (62); Levin (65); Kelburn (68); Waiorongomai (69);
'force 4' Ahuahu Valley (57);
'force 2' Levin (65);
'strong' Wanganui (57); Raumati (65);
'felt' Feilding (62); Otaki (65); Avalon, Wellington (68).

680 Aug 17 1841 39·56S 176·57E 84km M=5·3
MM5 Napier, Patoka (52); Wairoa (53); Moawhango (58); Gwavas Forest Headquarters (59); Clifton, Mount Vernon (60); Pahiatua, Palmerston North (62); Aramoana, Dannevirke (63);
MM4 Taupo (41); Pukekohu Station (42); Waiouru (50); Black Stump (51); Hawera (55); Table Flat, Taihape (58); Te Whanga, Whakatu (60); Himatangi Beach (61); Castlepoint (67); Greymouth (92);
'force 3' Kopua (63);
'force 2' North Egmont (47);
'strong' Napier (52);
'moderate' Waiouru Military Camp (50);
'felt' Tuai (43), New Plymouth (47); Mahia Beach (54); Faraway (59); Feilding (62); Waitahora (63); Porangahau (64); Wellington (68).

686 Aug 20 1345 42·46S 173·67E 28km M=4·4
'MM 3' Kaikoura (90).

688 Aug 21 1517 43·65S 170·65E 5km M=4·5
MM5 Lilybank Station (106).

692 Aug 23 2126 40·93S 175·15E 24km M=4·2
MM4 Wellington (68).

699 Aug 25 2032 38·98S 175·66E 5km M=3·9
MM3 Turangi (40).

701 Aug 25 2248 38·96S 175·69E 5km M=4·4
MM4 Waihora Road (40); Omori (41);
MM3 Turangi (40).

703 Aug 26 0539 38·97S 175·68E 5km M=3·4
MM3 Turangi (40).

705 Aug 26 0545 38·96S 175·69E 5km M=3·6
MM4 Turangi (40).

706 Aug 26 0546 38·98S 175·71E 5km M=3·8
MM3 Turangi (40).

709 Aug 26 0906 40·93S 172·55E 12km M=3·8
MM5 Paturau (71);
MM4 Cobb Power Station (75);
'felt' Paturau (71); Bainham, Wainui Inlet (72).

712 Aug 27 0533 41·56S 174·55E 54km M=3·6
MM4 Kelburn (68).

713 Aug 27 0926 38·97S 175·63E 5km M=3·7
MM4 Turangi, Waihora Road (40); Omori (41).

724 Aug 30 2333 44·81S 167·33E 5km M=4·5
MM4 Milford Sound (120).

726 Sep 01 0130 41·07S 174·55E 33km M=3·7
'felt' Waitaria Bay (78).

765 Sep 21 1224 42·91S 171·59E 1km M=2·4
MM4 Arthurs Pass (93).

768 Sep 21 2021 45·15S 167·60E 86km M=4·4
MM5 Te Anau Downs (130);
'felt' Te Anau Downs (130).

770 Sep 22 0231 45·26S 166·84E 12km M=4·6
MM4 West Arm Hostel (138).

782 Sep 27 2141 44·15S 168·56E 1km M=5·2
MM5 Mount Aspiring Station (113); Wanaka (123); Matakanui Station (134);
MM4 Cromwell (133); Clarkesville (152);
MM3 Lake Ohau Station (115);
'felt' Wanaka (123).

784 Sep 29 1402 41·22S 174·50E 32km M=4·1
MM5 Fighting Bay (78);
MM4 Khandallah, Miramar, Wellington (68);
'felt' Eastbourne, Epuni, Hataitai, Khandallah, Mount Cook, Newtown, Owhiro Bay (68).

786 Sep 30 0802 43·58S 169·61E 12km M=3·2
MM4 Paringa (103);
'felt' Paringa (103).

792 Oct 02 1852 39·07S 174·84E 214km M=5·0
'felt' Ahuahu Valley (57); Hastings (60); Wainuiomata (68).

795 Oct 03 1659 38·94S 175·77E 1km M=3·7
MM5 Moerangi Station (40);
MM4 Pukawa, Turangi (40).

805 Oct 07 0352 38·06S 176·27E 5km M=2·0
MM4 Rotorua (33).

816 Oct 11 0049 38·12S 176·37E 156km M=3·7
MM3 Taihape (58).

817 Oct 11 0821 33·77S 179·02W 33km M=5·7
MM4 Wellington (68).

833 Oct 13 0019 38·62S 176·80E 12km M=3·0
MM4 Minginui Forest Headquarters (42).

834 Oct 13 0034 38·63S 176·82E 12km M=2·7
MM4 Minginui Forest Headquarters (42).

846 Oct 14 2151 39·47S 175·67E 12km M=3·5
MM4 Waiouru (50).

848 Oct 15 0615 40·54S 175·17E 43km M=3·8
MM4 Himatangi Beach (61).
'felt' Levin (65).

855 Oct 17 1528 41·26S 174·15E 52km M=3·8
'felt' Eastbourne (68).

866 Oct 20 2106 41·46S 172·20E 5km M=3·2
MM4 Karamea (74).

871 Oct 21 2101 39·97S 175·11E 12km M=4·2
'felt' Marton (61); Levin Horticultural Research Centre (65).

875 Oct 24 0741 39·99S 176·77E 33km M=4·1
MM4 Gwavas (59).

888 Oct 29 0322 39·77S 177·27E 33km M=4·0
MM5 Rotorua (33);
'felt' Rotorua (33).

899 Nov 03 1054 39·79S 176·96E 33km M=3·7
MM4 Clifton (60).

914 Nov 08 2348 39·49S 175·71E 33km M=3·6
MM5 Moawhango (58).

915 Nov 08 2351 39·61S 175·70E 5km M=3·3
MM4 Moawhango (58).

917 Nov 08 2357 39·62S 175·69E 5km M=3·5
MM4 Moawhango (58).

919 Nov 09 1613 39·91S 176·75E 76km M=4·9
MM6 Pahiatua (62);
MM5 Ohakune (49); Patoka (52); Ngamatapouri (56); Moawhango, Table Flat (58); Gwavas Forest (59); Palmerston Nth (62);
MM4 Wanganui (57); Taihape (58); Ongaonga (59); Khandallah Wellington (68);
'felt' Ahuahu Valley (57); Ohingaiti (58); Napier (60); Palmerston North (61); Kopua (63); Waipukurau, Rotowai (64).

926 Nov 11 1035 42·34S 173·17E 12km M=4·9
MM5 Murchison (80);
MM4 Maruia (87);
'strong' Cheviot (96);
'felt' Cheviot (96).

932 Nov 12 1949 40·94S 172·57E 12km M=3·7
'felt' Bainham (72).

941 Nov 17 0529 39·61S 175·79E 12km M=4·1
MM5 Moawhango (58);
MM4 Waiouru (50).

945 Nov 19 1932 39·47S 175·74E 12km M=3·5
MM4 Moawhango (58).

946 Nov 19 2151 39·48S 175·67E 12km M=3·9
MM5 Ohakune (49);
MM4 Moawhango (58).

951 Nov 21 1751 39·49S 175·67E 12km M=3·9
MM5 Moawhango (58);
'felt' Ohingaiti (64).

952 Nov 21 2128 39·61S 175·83E 12km M=3·1
MM4 Moawhango (58).

959 Nov 26 0855 41·73S 174·53E 30km M=4·0
MM4 Wellington (68);
MM3 Johnsonville (68);
'felt' Churton Park (68).

963 Nov 28 0519 44·79S 169·20E 12km M=3·2
MM5 Wanaka (123).

964* Nov 28 0835 38·16S 176·34E 1km M=3·4
MM5 Ngapouri Road, Waiotapu (33);
MM4 Ngapouri Road (33).

969 Dec 01 0908 39·23S 174·65E 199km M=4·9
'F3' Ahuahu Valley (57).

971 Dec 02 1010 41·18S 174·59E 56km M=3·5
MM4 Johnsonville, Naenae, Waterloo, Wellington (68); Fighting Bay (78);
'felt' Hutt Valley, Johnsonville, Karori, Kelburn, Naenae, Ngaio, Waterloo (68).

973 Dec 03 1715 38·97S 175·72E 11km M=3·4
MM5 Turangi (40);
MM4 Waihora Road (40).

977 Dec 05 1746 39·30S 176·40E 68km M=3·7
MM4 Patoka (52).

979 Dec 05 2258 43·31S 171·77E 4km M=3·5
MM4 Coleridge Power Station (100).

992 Dec 14 0536 42·36S 173·75E 10km M=4·0
'MM 3' Kalkoura (90).

993 Dec 14 1221 43·17S 173·20E 47km M=4·0
MM5 Akaroa (111).

1014 Dec 27 2042 38·20S 176·20E 5km M=2·6
MM3 Rotorua (33).

1199 Dec 30 1459 36·53S 177·00E 12km M=5·2
MM4 Mercury Bay (18);
'felt' Chiltern (18).

1249 Dec 30 2123 36·74S 177·45E 12km M=5·0
MM5 Opotiki (35).

1254 Dec 30 2136 36·58S 177·54E 12km M=6·3
MM5 Waihi Beach (21); Cape Runaway (29); Ormond (44);
MM4 Onetangi (17); Hauraki Road (18); Waihi, Waihi Beach (21); Pukekohu Station (42); Gisborne (45); Palmerston North (62);
'mild' Bellevue (25);
'slight' Valley View (25);
'felt' Whenuapai (16); Chiltern (18); Paeroa, Thames, Whangamata (21); Mount Maunganui, Tauranga, Te Ranga (26); Whakatane (27); Rotorua (33); Opotiki, Port Ohope, Wainui (35); Gisborne (45); Wairoa (53).

1341 Dec 31 0959 36·96S 177·36E 12km M=5·5
MM4 Cape Runaway (29).

The following shocks were felt during long sequences, but did not meet other criteria for full analysis. Their foci lie close to those of the stronger shocks listed beside them.

Date	Time	Place(s)	Intensity	Assumed focus	Ref.
Feb 21	0807	Moerangi Station (40)	MM IV	84/131	$84/131_1$
Feb 21	0820	Motuoapa (40)	–	84/131	$84/131_2$
Feb 21	0829	near Turangi (40)	MM IV (max)	84/131	$84/131_3$
Feb 21	0830	near Turangi (40)	–	84/131	$84/131_4$
Feb 21	0831	Motuoapa (40)	–	84/131	$84/131_5$
Feb 21	0842	Motuoapa (40)	–	84/131	$84/131_6$
Feb 21	0844	Motuoapa (40)	–	84/131	$84/131_7$
Feb 21	0932	Motuoapa (40)	–	84/131	$84/131_8$
Feb 22	0007	Motuoapa (40)	–	84/131	$84/131_9$
Mar 05	0244	Omori (40)	MM IV	84/172	$84/172_1$
Mar 05	0319	Turangi (40)	MM IV	84/172	$84/172_2$
Mar 05	0334	Moerangi Station (40)	MM IV	84/172	$84/172_3$
Mar 05	0344	Moerangi Station (40)	MM IV	84/172	$84/172_4$
Mar 05	0434	Moerangi Station (40)	MM IV	84/172	$84/172_5$
Mar 05	0449	Moerangi Station (40)	MM IV	84/172	$84/172_6$
Mar 05	0603	Moerangi Station (40)	MM IV	84/172	$84/172_7$
Mar 05	0608	Omori (40)	MM IV	84/172	$84/172_8$
Mar 05	1136	Moerangi Station (40)	MM IV	84/172	$84/172_9$
Mar 05	1459	Turangi (40)	MM IV	84/172	$84/172_{10}$
Mar 05	1752	Turangi (40)	MM IV	84/172	$84/172_{11}$
Mar 06	0605	Moerangi Station (40)	MM IV	84/172	$84/172_{12}$
Mar 06	1325	Omori (40)	MM IV	84/172	$84/172_{13}$
Mar 06	1413	Moerangi Station (40)	MM IV	84/172	$84/172_{14}$
Mar 06	2228	Turangi (40)	MM IV	84/172	$84/172_{15}$
Mar 07	0250	Moerangi Station (40)	MM IV	84/172	$84/172_{16}$
Nov 28	0837	Ngapouri Road (33)	MM IV	84/964	$84/964_1$

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'.

111	Akaroa	200 (4), 521 (5), 657 (5), 993 (5).
133	Alexandra	521 (5), 782 (4).
122	Arrowtown	521 (4*).
93	Arthur's Pass	119 (5), 384 (5), 388 (5), 393 (5), 399 (5), 400 (4), 463 (5), 521 (4), 657 (4), 765 (4).
108	Ashburton	521 (5*).
16	Auckland	1254 (4*).
83	Awatere	13 (4), 86 (4*).
152	Balclutha	782 (4).
77	Blenheim	13 (4*), 86 (4), 93 (4*), 200 (4).
154	Bluff	521 (4).
104	Bruce Bay	521 (5), 523 (4), 628 (4).
61	Bulls	13 (4), 69 (4), 131 (2*), 162 (4), 172 (3*), 200 (4), 503 (5), 680 (4), 848 (4), 871 (4*), 919 (4*).
84	Cape Campbell	99 (4*).
46	Cape Egmont	13 (5), 411 (4).
67	Castlepoint	680 (4).
50	Chateau	13 (4), 130 (4), 131 (5), 172 (4), 200 (3*), 278 (5), 318 (4), 319 (4), 326 (4), 327 (4), 329 (4), 331 (3), 558 (5), 680 (4), 846 (4), 941 (4).
96	Cheviot	463 (3*), 657 (5), 926 (5*).
110	Christchurch	1 (3), 13 (4*), 521 (4*), 657 (4*).
18	Coromandel	1199 (4),1254 (4).
63	Dannevirke	13 (4), 69 (4), 70 (4*), 646 (4*), 680 (5), 919 (4*).
145	Dunedin	376 (4*), 521 (4*).
126	Duntroon	377 (4*).
73	D'Urville Island	13 (4), 478 (4).
29	East Cape	200 (5), 316 (4*),1254 (5),1341 (4).
117	Fairlie	521 (5).
69	Featherston	13 (3), 157 (4), 200 (3), 273 (5), 478 (4), 648 (5), 674 (4).
97	Franz Josef	521 (5), 523 (4), 524 (4*), 525 (4), 526 (4*), 527 (4), 528 (4*), 530 (4*), 532 (4*), 533 (4), 534 (4*), 535 (4*), 536 (4*), 537 (4*), 541 (3).
45	Gisborne	200 (6), 460 (4*),1254 (4).
121	Glenorchy	335 (4).
85	Greymouth	487 (4*), 521 (4*).
103	Haast	786 (4).
24	Hamilton	130 (4*), 131 (4*), 172 (4*), 200 (4*).
98	Hari Hari	521 (5), 523 (5).
60	Hastings	12 (4), 13 (4), 41 (4), 42 (4), 70 (4), 200 (5), 558 (4), 646 (4), 680 (5), 792 (4*), 899 (4), 919 (4*).
55	Hawera	13 (5), 680 (4).
91	Hokitika	521 (5), 523 (3*), 532 (4).
113	Jackson's Bay	120 (4), 335 (5), 521 (5), 782 (5).
90	Kaikoura	521 (2*), 686 (3*), 992 (3*).
74	Karamea	65 (4), 351 (4), 463 (5), 503 (5), 521 (4), 866 (4).
51	Kaweka	200 (4).
30	Kawhia	13 (4).

92	Kumara	13 (4), 200 (4), 205 (4), 487 (4), 503 (4), 521 (5), 523 (4), 536 (4), 657 (5), 680 (4).
125	Kurow	604 (4).
100	Lake Coleridge	490 (3), 521 (4), 657 (5), 658 (4), 660 (4), 979 (4).
115	Lake Ohau	521 (4), 782 (3).
94	Lake Sumner	388 (3*).
54	Mahia	680 (4*).
114	Makarora	335 (5), 521 (5).
87	Maruia	13 (4), 200 (4), 384 (3), 385 (4), 388 (4), 393 (4), 463 (4), 926 (4).
25	Matamata	200 (3*),1254 (3*).
120	Milford	335 (4), 724 (4).
38	Mokau	13 (4), 452 (5).
139	Monowai	512 (5).
75	Motueka	65 (4), 503 (4), 709 (4).
105	Mount Cook	521 (6).
107	Mount Somers	399 (5), 418 (5), 419 (4), 521 (6), 557 (4), 572 (4), 578 (4), 607 (4), 609 (4), 610 (4), 614 (5), 628 (4).
71	Mount Stevens	13 (5), 200 (4), 503 (4), 521 (5), 709 (5).
80	Murchison	200 (4), 205 (5), 207 (4), 463 (5), 503 (5), 926 (5).
34	Murupara	26 (4*), 28 (4*), 200 (5), 421 (4*).
52	Napier	83 (5), 102 (4), 131 (4), 200 (4), 317 (4*), 558 (5), 646 (5), 680 (5), 919 (5), 977 (4).
76	Nelson	13 (4*), 503 (4*).
47	New Plymouth	13 (5), 130 (4*), 131 (4*), 139 (4*), 162 (4*), 172 (3), 411 (5*), 641 (5), 680 (2*).
136	Oamaru	376 (4*), 377 (4*), 521 (4).
49	Ohakune	13 (4), 131 (4*), 200 (4), 269 (4), 324 (4), 919 (5), 946 (5).
35	Opotiki	200 (5), 316 (5), 421 (4*), 422 (5*), 430 (5*),1249 (5), 1254 (4*).
65	Otaki	13 (5), 56 (3), 162 (5), 200 (5), 271 (4), 398 (4*), 674 (5), 848 (4*), 871 (4*).
101	Oxford	657 (5).
62	Palmerston North	13 (5), 56 (4*), 69 (4), 131 (4), 215 (4), 558 (4*), 674 (4), 680 (5), 919 (6),1254 (4).
78	Picton	13 (4), 86 (4*), 93 (4*), 105 (4), 139 (4*), 162 (5), 200 (4), 273 (4*), 306 (4), 478 (4*), 637 (4), 726 (4*), 784 (5).
138	Pillans Pass	496 (5), 770 (4).
134	Poolburn	521 (5).
64	Porangahau	200 (4), 680 (4*), 919 (4*), 951 (4*).
116	Pukaki	376 (4*), 377 (4*), 521 (4*).
23	Raglan	13 (4*).
109	Rakaia	657 (4*).
102	Rangiora	1 (4*), 657 (5).
86	Reefton	487 (5).
33	Rotorua	14 (4), 15 (4), 17 (4), 18 (4), 21 (4), 23 (4), 24 (4), 26 (5), 27 (5), 28 (4), 30 (4), 39 (5), 40 (4), 161 (5), 170 (4), 200 (5), 239 (5), 372 (5), 412 (4), 413 (4), 805 (4), 888 (5), 964 (5), 964_1 (4), 1014 (3), 1254 (4*).
59	Ruahine	200 (4), 680 (5), 875 (4), 919 (5).
124	St Bathans	521 (4*), 569 (5).
58	Taihape	12 (4), 13 (4), 69 (4), 131 (5), 167 (5), 168 (5), 172 (4), 200 (4), 215 (4), 558 (4), 680 (5), 816 (3), 914 (5), 915 (4), 917 (4), 919 (5), 941 (5), 945 (4), 946 (4), 951 (5), 952 (4).
72	Takaka	13 (3*), 139 (5), 463 (5), 491 (4), 503 (5), 505 (5), 709 (4*), 932 (4*).

39	Taumarunui	130 (4), 131 (5), 172 (5), 200 (4).
41	Taupo	130 (4), 131 (4), 145 (5), 167 (4), 168 (4), 172 (5), 173 (5*), 174 (4), 176 (4), 177 (4), 178 (4), 179 (4), 180 (5), 182 (4), 200 (4), 208 (4), 250 (4), 475 (4), 680 (4), 701 (4), 713 (4).
26	Tauranga	200 (4),1254 (4*).
130	Te Anau	496 (4), 768 (5).
28	Te Kaha	200 (4*), 316 (5), 430 (5*).
31	Te Kuiti	13 (4).
42	Te Whaiti	172 (4), 200 (6), 558 (3), 680 (4), 833 (4), 834 (4), 1254 (4).
106	Tekapo	521 (6*), 597 (4), 607 (5), 610 (5), 688 (5).
21	Thames	200 (4*),1254 (5).
118	Timaru	376 (4*), 521 (5), 523 (4).
40	Tokaanu	13 (4), 123 (3), 128 (4), 129 (3), 130 (6), 131 (6), 131_1 (4), 131_2(4*), 131_3 (4), 131_4(4*), 131_5(4*), 131_6(4*), 131_7(4*), 131_8(4*), 131_9(4*), 132^{4} (5), 133^{5} (4), 134^{6} (4), 135^{7} (4), 136^{8} (4), 137^{9} (6), 138 (4), 140 (4), 141 (4), 142 (4), 143 (4), 144 (4), 155 (4), 160 (4), 164 (4), 167 (4), 168 (5), 172 (7), 172_1 (4), 172_2 (4), 172_3 (4), 172_4 (4), 172_5 (4), 172_6 (4), 172_7 (4), 172_8 (4), 172_9 (4), 172_{10}(4), 172_{11}(4), 172_{12}(4), 172_{13}(4), 172_{14}(4), 172_{15}(4), 172_{16}(4), 173^{11}(4), 174^{12}(4), 175^{13}(4), 176^{14}(4), 177^{15}(4), 178^{16}(4), 179 (4), 180 (5), 181 (4), 182 (4), 183 (5), 187 (4), 188 (4), 190 (5), 191 (4), 192 (4), 193 (4), 194 (4), 195 (4), 197 (4), 202 (4), 208 (4), 213 (4*), 250 (4), 280 (4), 489 (4), 495 (4), 699 (3), 701 (4), 703 (3), 705 (4), 706 (3), 713 (4), 795 (5), 973 (5).
32	Tokoroa	130 (3*), 131 (3*), 151 (6), 172 (5), 200 (5).
37	Tolaga Bay	316 (4).
43	Tuai	200 (5), 680 (4*).
17	Waiheke	1254 (4).
53	Wairoa	83 (4), 200 (4*), 558 (4), 680 (5),1254 (4*).
123	Wanaka	120 (4*), 335 (5), 521 (4), 782 (5), 963 (5).
57	Wanganui	13 (5), 37 (3*), 56 (3*), 162 (4), 200 (5*), 215 (4), 269 (5), 674 (4*), 792 (4*), 919 (4), 969 (3*).
56	Waverley	69 (3), 919 (5).
68	Wellington	13 (6), 56 (4), 86 (5), 104 (4), 105 (4), 106 (3), 122 (4), 131 (3), 139 (4), 157 (3), 162 (5), 172 (4*), 200 (4), 215 (4), 219 (4*), 249 (4), 272 (4), 273 (5), 306 (4*), 307 (4*), 378 (4*), 386 (3*), 398 (4*), 474 (3), 478 (6), 491 (4), 503 (4), 551 (4), 617 (5), 622 (4), 624 (4), 648 (5), 674 (4), 692 (4), 712 (4), 784 (4), 792 (4*), 817 (4), 855 (4*), 919 (4), 959 (4), 971 (4).
79	Westport	13 (3*), 205 (5), 384 (4), 388 (4), 487 (5), 503 (4), 521 (5).
44	Whakapunaki	200 (5), 316 (5),1254 (5).
27	Whakatane	200 (6), 316 (4), 421 (4*), 430 (4), 560 (4*), 581 (4*), 582 (4*), 588 (4*), 589 (4*), 590 (4*), 591 (4*), 596 (4*), 608 (4*), 616 (5), 618 (5).
48	Whangamomona	13 (4).
99	Whitcombe Pass	657 (4*).

UNCONFIRMED FELT REPORTS

The following shocks reported to the Observatory as having been felt cannot be confirmed by any instrumental record although in some cases they were reported by more than one observer.

Jan 03 07h 00m - 10h 00m	Lake Rerewhakaaito (33)	'felt'
Jan 04 00h 00m	Mahoenui (38)	MM 4
Jan 31 20h 39m	Stephens Island (73)	MM 4
Feb 11 03h 20m	Gracefield (68)	'felt'
Feb 20 01h 30m	Mahoenui (38)	'felt'
Feb 20 02h 30m	Omori (40)	MM 4
Feb 20 13h 14m	Omori (40)	MM 4
Feb 20 13h 55m	Omori (40)	MM 4
Feb 21 00h 22m	Waihora Road (40)	MM 4
Feb 21 03h 00m	Waihora Road (40)	MM 4
Feb 21 07h 55m	Taumarunui (39)	'force 3'
Feb 21 08h 07m	Moerangi Station (40)	MM 4
	Motuoapa (40)	'light'
Feb 21 08h 09m	Moerangi (40)	MM 5
Feb 21 08h 15m	Taumarunui (39)	'force 3'
Feb 21 08h 20m	Motuoapa (40)	'light'
Feb 21 08h 25m	Motuoapa (40)	'rumble'
Feb 22 00h 07m	Motuoapa (40	'moderate'
Feb 22 01h 39m	Whangamata (32)	MM 4
Feb 22 01h 59m	Omori (40)	MM 4
Feb 22 08h 25m	Ahitihi (38)	MM 4
Feb 22 17h 18m	Khandallah (68)	MM 4
Feb 26 20h 25m or 27d 08h 25m	Lyttelton (110)	'felt'
Mar 01 10h 00m - 12h 00m	Waiotapu (33)	MM 4
Mar 01 15h 10m	Waiotapu (33)	MM 5
Mar 01 19h 08m	Reporoa (33)	MM 4
Mar 03 08h 00m	Turangi (40)	MM 4
Mar 03 08h 10m	Turangi (40)	MM 4
Mar 04 21h 43m - 23h 36m	Moerangi Station (40)	'Continuous rumbling'
Mar 05 03h 30m	Turangi (40)	MM 4
Mar 05 04h 10m	Te Kuiti (31)	MM 3
Mar 06 12h 30m	Omori (40)	MM 4
Mar 20 17h 55m	Rotorua (33)	MM 6
Mar 31 12h 50m	Rotorua (33)	MM 4
Mar 31 13h 35m	Rotorua (33)	MM 4
Mar 31 17h 00m - 17h 30m (Several)	Rotorua (33)	'felt'
Apr 01 20h 55m	Hunter (127)	MM 4
Apr 03 00h 38m	Hunter (127)	MM 4
May 06 17h 24m	Stratford (47)	MM 4
May 06 19h 10m	Himatangi Beach (61)	MM 4

May 10 00h 05m	Himatangi Beach (61)	MM 4
May 11 17h 43m	Lake Manapouri (138)	MM 4
May 17 17h 29m	Lake Manapouri (138)	MM 4
May 26 08h 51m	Arthurs Pass (93)	MM 4
May 29 08h 48m	Uruti Road (38)	MM 2
Jun 10 18h 05m	Rotorua (33)	MM 5
Jun 15 01h 05m	Marsden Point (9)	MM 5
Jun 15 01h 49m	Arthurs Pass (93)	MM 4
Jun 17 08h 52m	Lake Coleridge (100)	MM 5
Jun 18 08h 50m	Glenariffe Salmon Station (108)	MM 5
Jun 20 22h 22m	Paturau (71)	MM 5
Jun 25 12h 00m - Jun 29 12h 00m	Pikowai Area (27)	'felt'
Jun 28 12h 15m	Erewhon Station (107)	MM 4
Jun 28 13h 45m	Erewhon Station (107)	MM 4
Jun 28 17h 25m	Erewhon Station (107)	MM 4
Jun 28 17h 45m	Erewhon Station (107)	MM 4
Jun 29 06h 21m	Erewhon Station (107)	MM 4
Jul 01 12h 00m - 12h 00m	Whakatane Airport (27)	'felt'
Jul 03 15h 06m	Erewhon Station (107)	MM 4
Jul 08 04h 30m	Kurow (125)	'felt'
Jul 09 11h 00m or 23h 00m	Whakatane (27)	'felt'
Jul 09 16h 50m or 10 04h 50m	Whakatane (27)	'felt'
Jul 22 01h 00m (approx)	Mount Victoria (68)	MM 4
Aug 06 16h 43m	Inchbonnie (92)	MM 4
Aug 15 02h 01m	Himatangi Beach (61)	MM 5
Aug 22 09h 00m or 10h 00m	Gracefield (68)	'felt'
Aug 23 01h 40m	Gracefield (68)	'felt'
Aug 24 18h 27m	Ohau (65)	MM 4
Aug 26 09h 45m	Turangi (40)	MM 4
Aug 27 09h 45m	Turangi (40)	MM 4
Aug 29 14h 50m	North Egmont (47)	'felt'
Sep 03 17h 00m	Omori (40)	MM 5
Sep 04 17h 30m	Lilybank Station (106)	MM 4
Sep 04 18h 30m	Lilybank Station (106)	MM 4
Sep 11 07h 27m	Lower Hutt (68)	MM 4
Sep 14 11h 30h	Ahuahu Valley (57)	'felt'
Sep 30 13h 34m	Rotorua (33)	MM 4
Oct 26 04h 00m	Owhata (33)	MM 4
Oct 26 04h 30m	Owhata (33)	MM 3
Oct 27 21h 15m	Tarakohe (72)	MM 4
Nov 01 03h 20m	Clifton (60)	MM 4
Nov 02 10h 11m	Khandallah (68)	MM 4
Nov 06 00h 02m	Motuoapa (40)	MM 4
Nov 06 05h 45m	Himatangi Beach (61)	MM 4
Dec 02 17h 45m	Turangi (40)	MM 4

REPORTS FROM OUTSIDE NEW ZEALAND

The Observatory sometimes receives reports of earthquakes felt on islands of the south-west Pacific and other places beyond the limits of its systematic reporting network. The intensities are usually those of the observers, and not those assigned by the Observatory. In 1984 the following reports were received.

Jan 24	07h 26m	Raoul Island	'felt'
Feb 03	20h 53m	Raoul Island	'felt'
Mar 22	14h 13m	Apia	'III'
Mar 23	20h 31m	Apia	'II'
Mar 24	12h 00m - 25d 12h 00m	Raoul Island	'MM 4'
Mar 25	04h 47m	Raoul Island	'felt'
Apr 08	19h 03m	Raoul Island	'felt'
Apr 09	17h 45m	Raoul Island	'felt'
Apr 27	09h 03m	Raoul Island	'felt'
May 04	17h 49m	Raoul Island	'strong'
May 04	18h 15m	Raoul Island	'felt'
May 08	03h 37m	Raoul Island	'felt'
May 08	11h 52m	Raoul Island	'felt'
May 10	11h 32m	Raoul Island	'felt'
May 25	02h 33m	Raoul Island	'felt'
May 25	07h 58m	Raoul Island	'felt'
Jun 11	06h 28m or 18h 28m	Nadi	'felt'
Jul 23	04h 31m	Raoul Island	'MM 5'
Jul 23	04h 59m	Raoul Island	'MM 5'
Sep 03	12h 03m	Raoul Island	'felt'
Sep 28	00h 03m	Raoul Island	'felt'
Oct 11	08h 22m	Raoul Island	'felt'
Oct 15	10h 21m	Apia	'MM IV - MM V'
Oct 19	01h 28m	Apia	'MM II - MM III'
Oct 19	14h 38m	Apia	'MM II - MM III'
Oct 30	01h 06m	Apia	'MM III'
Nov 27	13h 41m	Raoul Island	MM VI
Nov 28	15h 14m	Raoul Island	'felt'

TUAMOTU ARCHIPELAGO NUCLEAR EXPLOSIONS

Nuclear explosions at the French nuclear test sites in the Tuamotu Archipelago are often recorded at Rarotonga (RAR). The P-wave is usually not recorded but the T-waves have a rather distinctive signature with a very emergent onset, followed after a few seconds by a more prominent burst of energy which reaches its maximum and decays before the arrival of a smaller "echo" trailing the main energy by some 110 seconds. Although other teleseismic readings from the New Zealand instrumental networks are published by the International Seismological Centre, these T-wave observations are not.

Because the emergent first arrival cannot always be seen clearly when the explosions are relatively small, the instant of arrival is not recorded here. Instead, an inferred origin time is listed, based on the estimated travel time from the test site to Rarotonga, and indications that it is common practice to detonate tests exactly on the minute.

A means of estimating the magnitudes of these explosions has been devised, based on a comparison of maximum amplitudes of T-waves recorded at Rarotonga with magnitude estimates from the United States National Earthquake Information Service. (W.D.Smith, in preparation) These magnitudes are given, together with the N.E.I.S. and I.S.C. estimates where these are available. The maximum recorded trace amplitude at Rarotonga (in millimetres) is also listed.

For completeness, all underground explosions at test sites in the Tuamotu Archipelago recorded at Rarotonga up to the end of 1984 are included in the following list. In future Reports, only the explosions recorded in the current year will be shown.

DATE	TIME h m	AMPLITUDE millimetres	m_b (T-wave)	m_b (N.E.I.S.)	m_b (I.S.C.)
1975 JUN 05	18 15	6.0	5.3		
1975 NOV 26	00 48	4.8	5.2		
1976 JUL 11	00 30	3.5	5.1	5.0	5.0
1977 FEB 19	23 30	1.8	4.8	5.3	5.2
1977 MAR 19	23 01	11.0	5.6	5.9	5.8
1977 JUL 06	23 00	7.0	5.4		5.2
1977 NOV 12	01 30	4.5	5.2		
1977 NOV 24	17 00	12.0	5.6	6.0	6.0
1977 DEC 17	22 00	3.5	5.1		
1978 FEB 27	23 00	0.3	(4.0)		
1978 MAR 22	17 30	3.5	5.1	4.8	4.8
1978 JUL 26	23 00	1.5	4.7		
1978 NOV 02	18 00	1.0	4.6		
1978 NOV 30	17 32	14.0	5.7	5.9	5.8
1978 DEC 17	18 04	4.0	5.2		
1978 DEC 19	16 57	3.5	5.1	4.9	4.9
1979 MAR 01	17 24	2.5	5.0		
1979 MAR 09	16 37	4.0	5.2		
1979 MAR 24	16 28	2.5	5.0	4.9	4.9
1979 APR 04	18 07	2.0	4.9		4.7
1979 JUN 18	23 27	1.5	4.7	5.0	4.7
1979 JUN 29	18 56	7.0	5.4	5.3	5.4
1979 JUL 25	17 57	22.5	5.9	6.0	6.0
1979 JUL 28	19 56	4.0	5.2	4.4	4.4
1979 NOV 22	19 15	1.5	4.7		

DATE	TIME h m	AMPLITUDE millimetres	m_b (T-wave)	m_b (N.E.I.S.)	m_b (I.S.C.)
1980 FEB 23	18 03	0.7	4.3		
1980 MAR 03	17 56	4.0	5.1		
1980 MAR 23	19 37	20.0	5.8	5.7	5.7
1980 APR 01	19 31	6.0	5.3	5.1	5.1
1980 APR 04	18 33	0.8	4.4		4.5
1980 JUN 16	18 27	8.0	5.4	5.5	5.4
1980 JUN 21	17 01	3.5	5.0		
1980 JUL 06	17 27	2.0	4.8		4.6
1980 JUL 19	23 47	20.0	5.8	5.9	5.8
1980 NOV 25	17 53	1.0	4.5		
1980 DEC 03	17 33	14.0	5.6	5.6	5.6
1981 FEB 27	23 28	3.0	5.0		
1981 MAR 28	17 23	2.0	4.8		4.7
1981 APR 10	17 57	3.0	5.0		4.8
1981 JUL 08	22 23	7.0	5.3	5.3	5.3
1981 JUL 11	17 17	3.0	5.0		
1981 JUL 18	17 43	1.0	4.5		
1981 AUG 03	18 33	5.5	5.2	5.3	5.3
1981 NOV 11	17 07	1.2	4.6	4.5	4.5
1981 DEC 05	16 58	2.2	4.8	4.6	4.6
1981 DEC 08	16 47	5.0	5.2	5.2	5.2
1982 MAR 20	17 03	5.8	5.2	5.0	4.9
1982 JUN 27	17 00	0.8	4.4		
1982 JUL 01	17 02	6.5	5.3	5.2	5.1
1982 JUL 21	17 13	1.0	4.5		
1982 JUL 25	18 02	15.0	5.7	5.6	5.7
1983 APR 19	18 53	11.5	5.5	5.6	5.6
1983 MAY 25	17 31	12.0	5.6	5.9	5.9
1983 JUN 28	17 46	9.7	5.5	5.4	5.4
1983 JUL 20	20 30	3.0	5.0		
1983 AUG 04	17 14	3.0	5.0	5.2	5.3
1983 DEC 03	16 58	1.8	4.7		
1983 DEC 07	17 28	5.0	5.2		5.0
1984 MAY 08	17 26	7.0	5.3		
1984 MAY 12	17 31	15.0	5.7	5.7	5.7
1984 JUN 12	17 16	1.0	4.5		
1984 JUN 16	17 44	10.0	5.5	5.3	
1984 OCT 27	17 16	1.5	4.7		
1984 NOV 02	20 45	10.0	5.5	5.7	
1984 DEC 01	16 51	0.5	4.2		
1984 DEC 06	17 29	14.5	5.6	5.6	

PUBLICATIONS BY STAFF MEMBERS

During 1984 the following papers by members of the Seismological Observatory staff were published:

S-290 KAYAL, J.R. and SMITH, E.G.C.: Upper mantle P-wave velocity in the southeast North Island, New Zealand.
Tectonophysics 104: 115-125

Reversed Pn velocities have been determined from regional earthquake sources for the Wairarapa region in the southeast of North Island, New Zealand. Values were 8·64 (±0·13)km/s in the easternmost part of the region and 8·90 (±0·13)km/s in the central Wairarapa, which are consistent with the subducted Pacific plate lying at a shallow depth under the region. A value of 8·22 km/s between Wellington and the Wairarapa region is interpreted as a possible difference in the velocity structure above the refractor between the two localities.

S-291 SMITH, E.G.C. and DAVEY, F.J.: Joint hypocentre determination of intermediate depth earthquakes in Fiordland, New Zealand.
Tectonophysics 104: 23-28.

Relocation of well observed intermediate depth earthquakes in the Fiordland region by the method of joint hypocentre determination has revealed some fine structure in the Benioff zone. The earthquakes occur in three groups. The central group is the largest and occupiesa planar volume less than 15km thick striking N40°E and dipping at 80°. The deepest events in the region, at depths of 150km, occur at the northeast end of this group. The two smaller groups lie to the northeast and to the south of the main group. The focal mechanism of the majority of the main group is that of thrust faulting. We suggest that the main group lies within a section of Indian plate lithosphere which has been broken off and rotated into its observed position and that he northern edge of the unbroken subducted Pacific plate is indicated by the southern group. We suggest that the small northeastern group has quite a different tectonic origin and is similar to a group of earthquakes further north which are at a similar distance from, and presumably related to, the Alpine Fault.

Use has also been made of the travel-time information which is a by-product of the joint hypocentre method to construct upper mantle velocity models for P and S waves in the South Island. The features of the model are a high velocity region in the vicinity of the Benioff zone, and a subcrustal zone of high seismic velocities running east-west across the centre of the South Island in an otherwise normal mantle.

S-292 HAINES, A.J.: A phase-front method -- II. Broad frequency band SH-waves.
Geophys. J. R. astr. Soc. 77: 43-64.

Two variants of a new approach to modelling the propagation of short-period seismic waves through heterogeneous media are evaluated by considering broad-frequency SH-waves. Like the original narrow frequency band approach, they are based on parabolic approximations in the time domain which are derived by, first choosing a curvilinear coordinate system which is related to the phase fronts of the displacement field, and then making assumptions about the size of terms in the equation of motion. The resulting equations, which allow for diffraction where the diffracted energy propagates near the original direction of propagation, are only valid for disturbances whose wavelengths are small compared with the scale-length of variation in material properties. In the first approximation, a fixed representative frequency used for narrow frequency band disturbances is replaced by the apparent frequency of the waves at each point in time and space, whereas the second approximation involves decomposing the time variation of the source into narrow frequency band signals. The second approach can be applied to a far wider class of problems. In addition, tests show that it gives much more consistent results.

S-293 HAINES, A.J.: A phase-front method -- III. Acoustic waves, P-waves and S-waves.
Geophys. J. R. astr. Soc. 77: 65-103.

A new approach to modelling the propagation of short-period seismic waves is further developed by presenting the theory for accoustic waves and for

3-dimensional systems involving P- and S-waves in isotropic media. The method is based on the fast, numerical solution of approximate parabolic forms of the equation of motion in heterogeneous media, which are formulated in the time domain and are derived by, first, choosing a curvilinear space coordinate so that surfaces of constant phase roughly coincide with the surfaces on which the coordinate is constant, and then ordering the terms in the equation of motion according to magnitude. The parabolic approximations, which are only valid for waves whose wavelengths are small compared with the scale-lengths of the variations in material properties, resemble the equations of ray theory, except that the parabolic approximations allow for narrow-angle diffraction. To the first level of approximation P- and S-waves propagate independently. The principal component of each type of wave can be approximated by the solution to a parabolic equation which involves the appropriate wave speed. The additional component, which is defined in terms of the principal component, is such that accoustic waves and P-waves are essentially irrotational and S-waves are essentially equivoluminal.

Numerical solutions to a simple 2-D problem are presented for two initial disturbances with the same time-varying envelope but different periods. The results for the two frequencies are quite different. The higher frequency disturbance has foci near where they are predicted by ray theory, whereas the lower-frequency disturbance does not. The approximate solution for the lower-frequency disturbance which, like the solution for the higher-frequency disturbance, is valid for P- and S-waves as well as for accoustic waves, since the approximate equations have effectively the same form, is compared to the exact solution for the corresponding problem for time-harmonic accoustic waves, and is in good agreement.

S-294 REYNERS, M.: The Hawkes Bay, New Zealand, earthquake of 1982 September 02 and deformation in the interior of the subducted Pacific Plate.
Tectonophysics 106: 259-273.

The most damaging earthquake to occur in New Zealand in 1982 was the Hawkes Bay earthquake earthquake of September 02 (m_b 5·6). An aftershock study using portable microearthquake recorders has established that the event occurred some 20km south of Hastings, at a depth of about 47 km. This depth places the event in the mantle of the subducted Pacific plate. This earthquake is a member of a recently recognised class of intraplate shocks occurring along the strike of the subducted plate near the east coast of the North Island. Such events are characterised by normal faulting mechanisms. When taken together with activity in the crust of the subducted plate, this subcrustal activity resembles a double-planed seismic zone, restricted to the down-dip direction of the subducted plate. Several lines of evidence suggest that deformation in the mantle of the subducted plate is controlled by the state of coupling of the plate interface at shallow depth. (1) the subcrustal activity occurs directly beneath the source region of major interplate earthquakes along the east coast of the North Island, and there appears to be a pairing of interplate and subcrustal events; (2) stress directions determined for the subcrustal events are concordant with geodetic strain directions; and (3) the amount of subcrustal activity appears to be related to the state of coupling of the plate interface.

S-295 HAINES, A. J.: Prediction of seismic wave amplitudes using the phase-front parabolic approximation.
Bull. N.Z. Nat. Soc. Earthq. Eng. 17: 145-153.

A computer package has been developed to predict the pattern of SH-wave amplitudes in the vicinity of an earthquake. The phase-front parabolic approximation, which can be applied where there are significant lateral variations in the elastic constants within the Earth, has been adapted so that it also allows for surface topography. Examples are presented from a study of shaking in the Hutt Valley and the surrounding region as a result of movement on the Wellington Fault.

S-296 SMITH, E.G.C., SCOTT, B.J. and LATTER, J.H.: The Waiotapu earthquake of 1983 December 14.
Bull. N.Z. Natl. Soc. Earthq. Eng. 17: 272-279.

The continual earthquake swarm activity in the Waiotapu-Waikite Valley area that commenced in April 1982, reached a climax

on 14 December 1983 with the occurrence of a Magnitude 5·1 shock at shallow depth, on or close to the Ngapouri fault, near Waiotapu. It was the largest event in this area for more than 40 years. Felt intensities reached MM VIII in the epicentral region and resulted in claims for $29,000 worth of damage. Although inadequate for the determination of focal mechanism, first P-wave motions indicate that the earthquake produced east-west extension. On the assumption that the shock occurred on the Ngapouri fault (strike N55°E, northwest side down), this implies sinistral movement with a lesser dip-slip component. Geodetic data are consistent with extension at N110°E in the region, although the magnitude of the strain is technically too small to be statistically significant.

-- EIBY, G.A.: Leonard Gordon Penfold (1901-1983).
N,Z.Geophys. Soc. Newsletter No.7.

An obituary of a leading New Zealand amateur seismologist.

-- GLEDHILL, K.R. and LILEY, B.S.:The Hamilton radio telescope. Southern Stars 31: 41-52.

A radio telescope with a three metre diameter parabolic antenna has been built at the Physics Department of the University of the Waikato. It operates in the 1,400 - 1,427 MHz radio astronomy frequency band, and can detect densities of radio flux as low as 100Jy. The instrument was tested by observing transits of the Sun across the Galactic plane.

-- GLEDHILL, K.R. and LILEY, B.S.: The design of L-band GaAs FET amplifiers. Conf. Proc. Nelcon 84: 189-194.

The advantages of Gallium Arsenide field effect transistors (GaAs FET) for use at L-band frequencies (1,000-2,000MHz) are outlined and a method of producing a stable amplifier using source-lead inductive feedback is described. Equations are developed to relate the added source-lead inductance to the S-parameter representation of these devices.

-- HATHERTON, T.: Earthquakes. Scientific, economic and social reviews of natural hazards in New Zealand. (Speden, I. and Crozier, M.J., editors): 263-301. National Commision for UNESCO, Wellington.

An overview.

-- REYNERS, M.: An introduction to the seismicity of New Zealand. Royal Society Miscellaneous Series 7: 7-12

Contribution to: "An introduction to the recent crustal movements of New Zealand". (compiled by R.I. Walcott)

-- SMITH, W.D.: Principal New Zealand earthquakes in 1983.
Bull. N.Z. Natl. Soc. Earthq. Eng. 17 :56

A review of New Zealand seismicity in 1983.

Note: New Zealand Seismological Report, 1983 was delayed and did not appear until 1985.

OBSERVATORY SERVICES

PUBLICATIONS

The Seismological Observatory issues the following series of publications:

1. E-bulletins. These consist of the 'New Zealand Seismological Reports', containing summaries of the data used for each origin determination, lists of origins, felt intensity data, and brief accounts of the principal earthquakes of the year. They also comtain details of the instruments used to record earthquakes and descriptions of Observatory practices.

2. S-bulletins. These are mostly reprints of papers by members of the Observatory staff, but occasionally they have included material not published elsewhere, such as the Eiby-Muir near-earthquake tables, and a descriptive account of the Observatory and its work issued to conference delegates. Their automatic circulation is not now as widespread as in the past, but they are usually available from the Observatory on request.

3. P-bulletins. These were limited-circulation listings of microearthquakes located by the Pukaki network. With the winding up of the Pukaki Network this series of bulletins has ended, but it is possible that a similar series will be started to report results from the network surrounding the Clyde dam when enough stations are operational.

Copies of any of this material may be purchased from the Observatory. In suitable cases the Observatory may be able to enter into agreements for a free exchange of publications on a continuing basis.

EARTHQUAKE CATALOGUE

The Observatory has a master file of some 25,000 earthquake origins and associated information stored on magnetic tape. From this, lists of earthquakes within particular geographical areas of New Zealand or in categories defined in other ways can be made available to researchers. Full details have been published elsewhere (W.D. Smith, 1976: 'A Computer File of New Zealand Earthquakes'; Bull. N.Z. Natl. Soc. Earthq. Eng., Vol.9, No.2, pp.136-7, or N.Z. J. Geol. Geophys., Vol.19, No.3, pp.393-4). Criteria that may be specified are dates, magnitudes, focal depths, intensities and regions bounded in a number of different ways. Because of the dangers inherent in the use of incompletely assessed data, it is recommended that users should discuss their search criteria with the Observatory.

THE NEW ZEALAND TIME SERVICE

The Seismological Observatory is administratively responsible for the New Zealand Time Service, which distributes accurate time for civil and scientific purposes, both by radio and by land-line. The Time Service has three Hewlett-Packard double-oven quartz-crystal oscillators, with a measured stability exceeding two parts in 10^{11}. From these suitable signals for wider distribution are generated by electronic subdivision. Stand-by power supplies and duplicated equipment ensure that failures are rare.

At present, the most accurate source of time in New Zealand is the caesium beam primary frequency standard at the Physics and Engineering Laboratory at Lower Hutt, which is periodically compared by flying clock with the standards at the U.S. National Bureau of Standards and other time-keeping observatories. The Time Service clocks are kept in close agreement with the P.E.L. standard by daily comparison, followed, if necessary, by correction. (The comparison is made indirectly by comparing both the P.E.L. standard and the Time Service clocks with a synchronisation pulse transmitted by the national television network TV One. Details of the method may be found in P.E.L. Report No.600 "Frequency and Time in New Zealand via the T.V. Sync. Pulses").

The signals transmitted from the Observatory are an approximation (to the accuracy specified below) to Coordinated Universal Time (UTC), which is basically atomically kept time, adjusted when necessary by one second steps (leap seconds) to keep it in near agreement with the astronomically determined time known as UT1. Adjustments are normally made at the end of June or December.

The error of the signals seldom exceeds 100 microseconds, on leaving the Observatory, but delays are introduced by the circuits between the Observatory and the individual radio transmitters. A typical delay (that for station 2YA) is 1·8 milliseconds.

A formal discussion of time-scales is to be found in the Time Service Reports, Series 11, of the U.S. Naval Observatory. To the precision required for the great majority of civil purposes the distinctions between them are of no consequence.

The most widely used signals from the Time Service are the six 'pips' transmitted by those stations of the Broadcasting Corporation of New Zealand that carry the National Programme. The beginnings of the pips mark the 55th to 60th seconds of a particular minute, and each consists of 150 ms of 1 kHz tone, except when the pip indicates an exact hour and its length is doubled. Signals are transmitted on each hour and at 22h 58m and 22h 59m U.T.

Time-pips originating at the Time Service are also transmitted by some commercial stations of the Broadcasting Corporation of New Zealand, by Radio Windy (Wellington) on 891 kHz and by Radio Rhema (Christchurch, Nelson and Wellington) on 1503 kHz, but signals from other private stations are not under Observatory control, and cannot be recommended for navigational or scientific purposes.

The more extended signal intended for navigational purposes formerly transmitted by Wellington Radio on 417·5 kHz (call sign ZMO) between 22h 54m and 23h 00m each day is no longer broadcast.

In addition to the radio time signals, hourly signals are sent to the New Zealand Railways by land-line.

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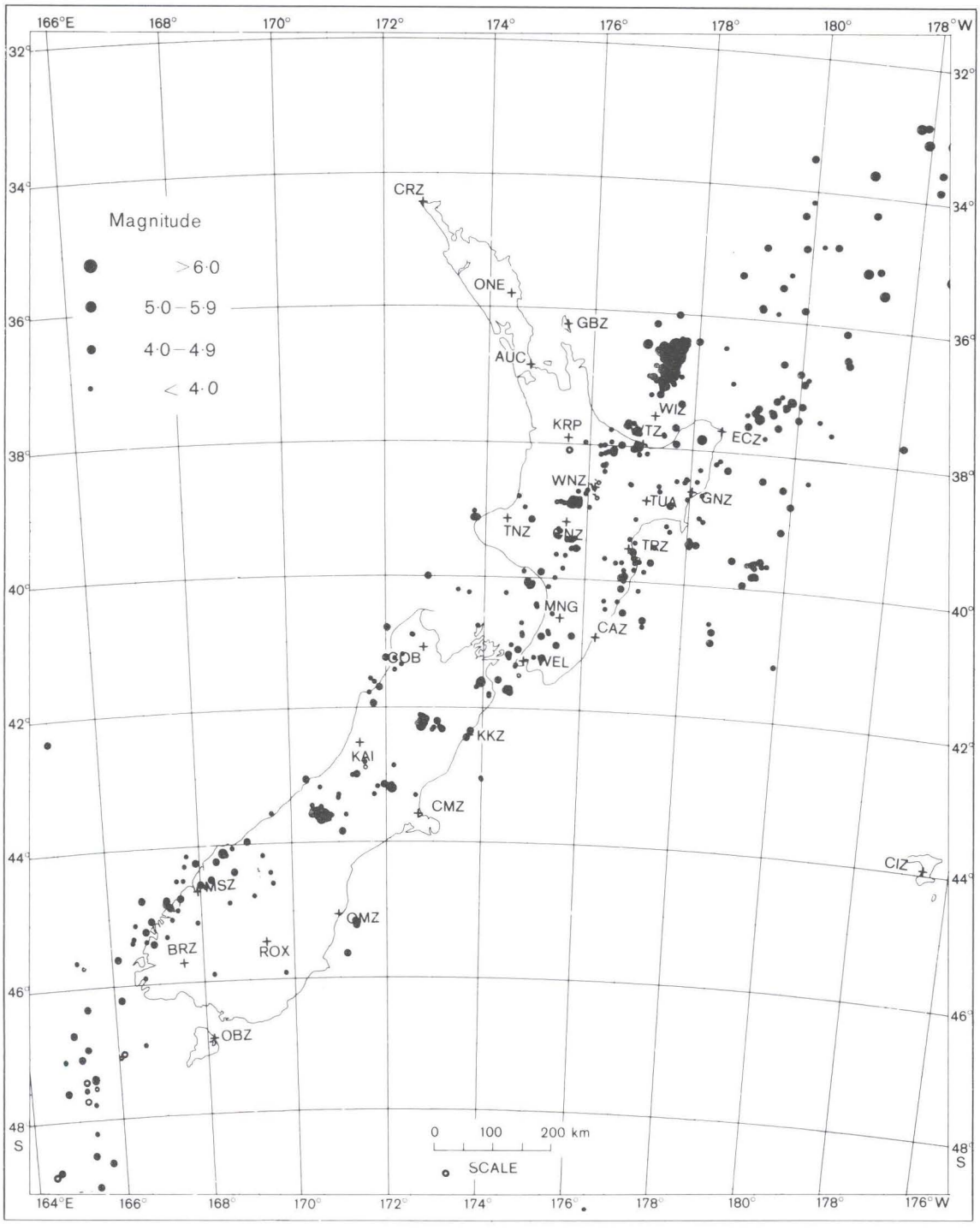
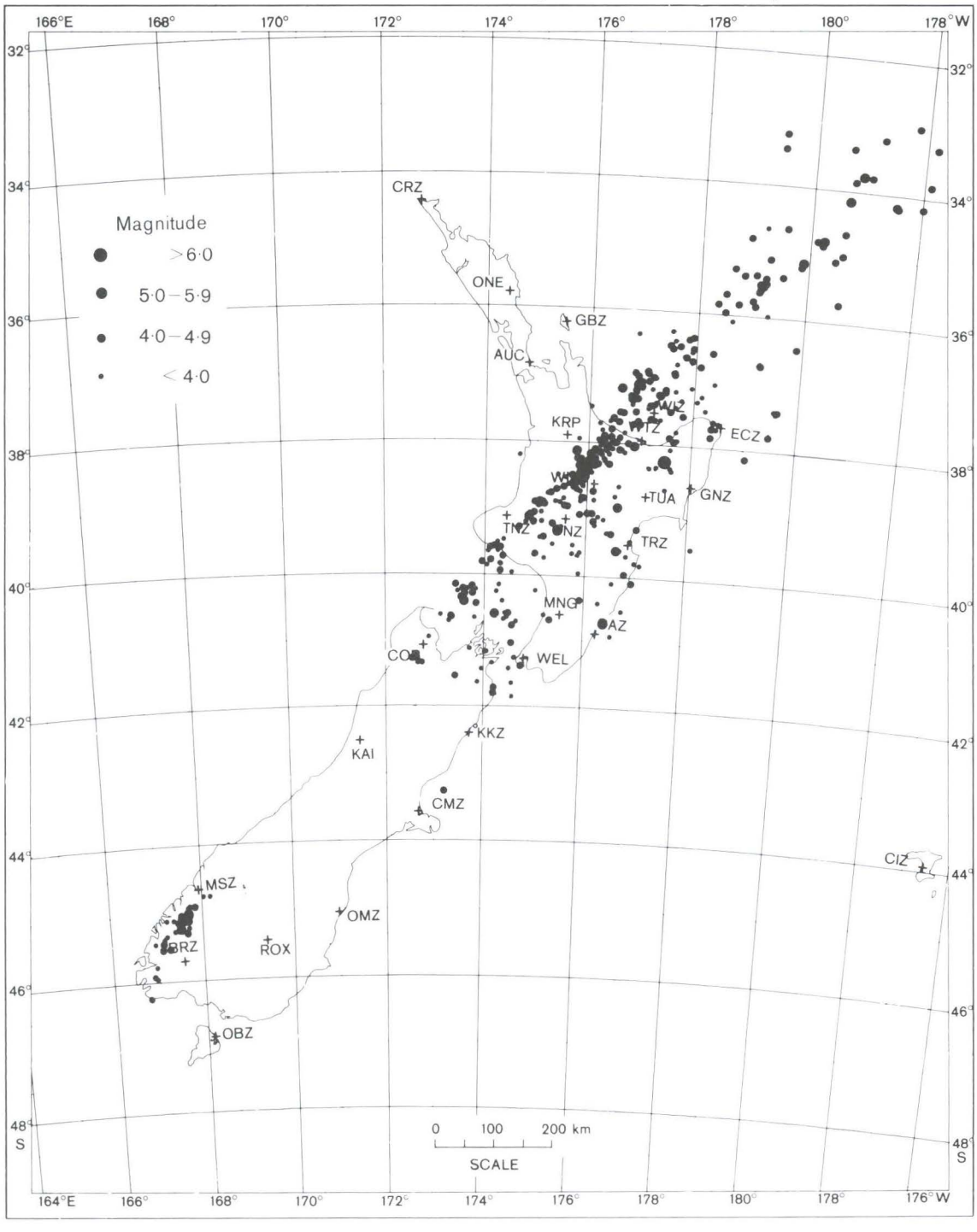
SHALLOW EARTHQUAKES (1984)



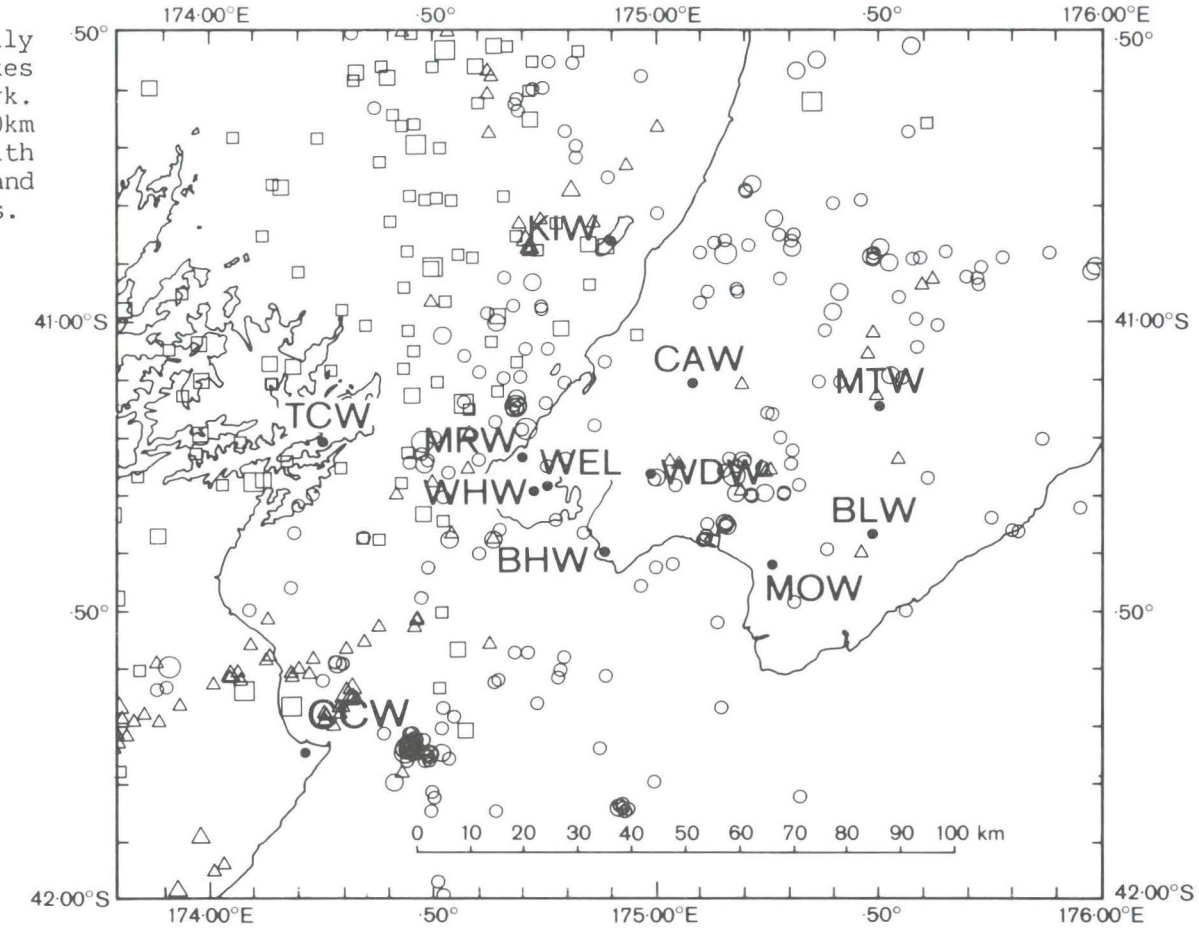
The map shows the instrumentally determined epicentres of all earthquakes whose focal depths are less than 40km. Shocks with a standard error greater than 2·0sec. and those that have recorded at only four or fewer stations are shown by open circles. The size of the circle is an indication of instrumental magnitude. When several shocks have the same epicentre, the magnitude of the largest is shown.

DEEP FOCUS EARTHQUAKES (1984)



The map shows the instrumentally determined epicentres of all earthquakes whose focal depths are 40km or more. Shocks with a standard error greater than 2·0sec. 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 the instrumental magnitude. When several shocks have the same epicentre, the magniyude of the largest is shown.

The map shows the instrumentally determined epicentres of earthquakes recorded by the Wellington network. Shocks with focal depths of <20km are shown by triangles, those with depths of 20–40km by circles and those with depths >40km by squares.



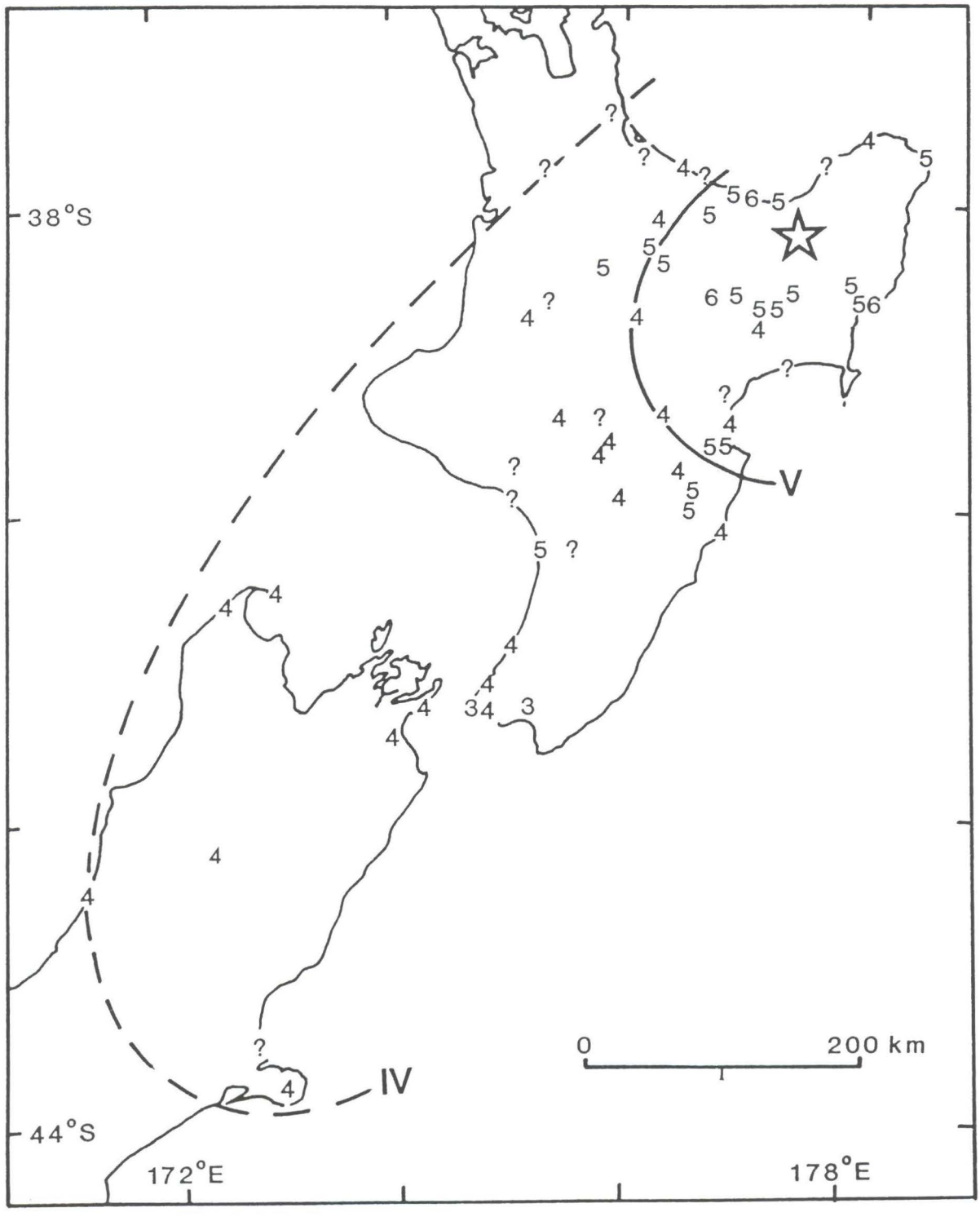
Magnitude

△ ○ □ ⩾4.0

△ ○ □ 3.0–3.9

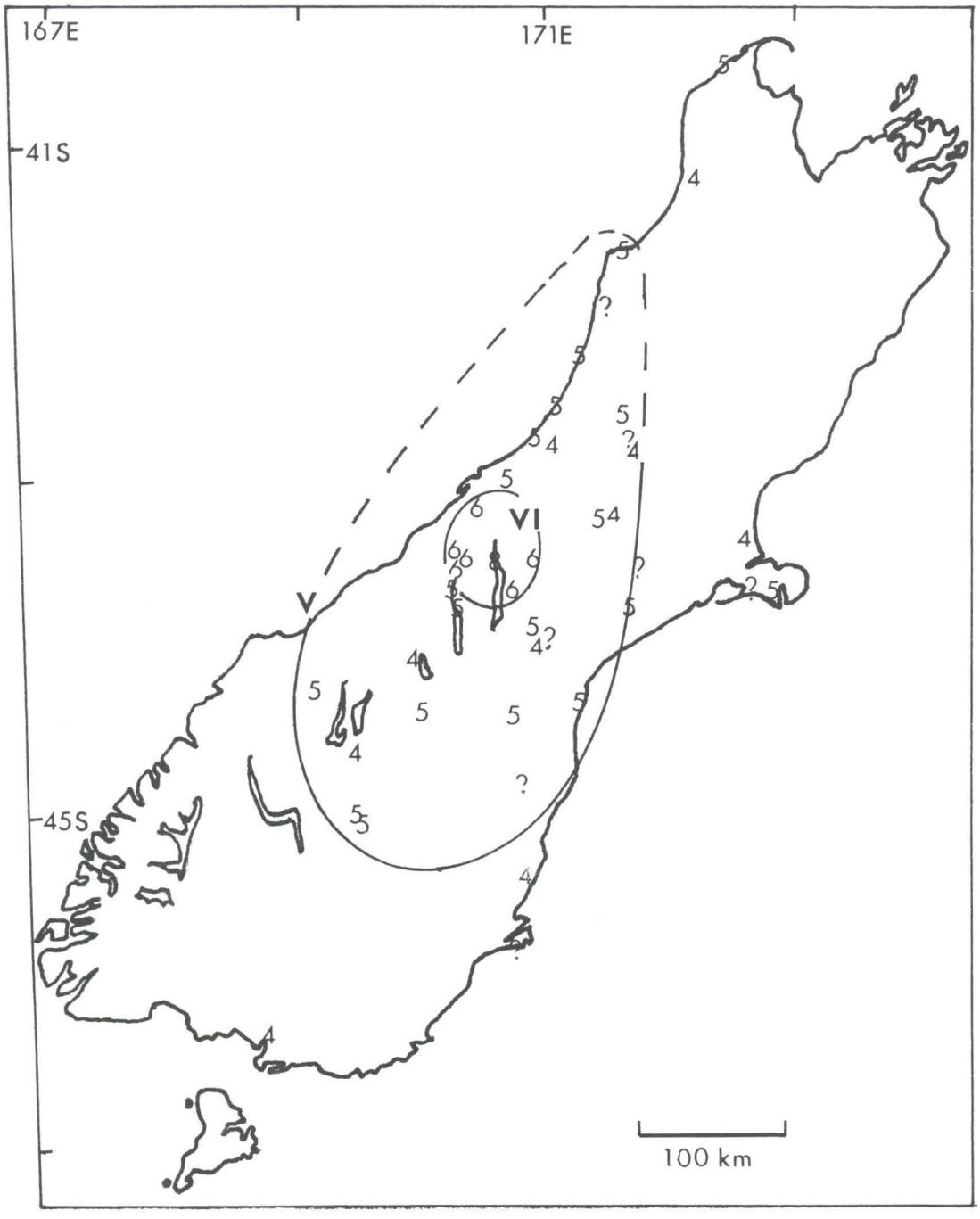
△ ○ □ 2.0–2.9

THE MOTU RIVER EARTHQUAKE OF MARCH 08



Reported Modified Mercalli intensities from the Motu River earthquake of March 8th at 1240 p.m. NZST (8d 00h 40m UT).

THE MACAULAY RIVER EARTHQUAKE OF JUNE 24



Reported Modified Mercalli intensities from the Macaulay River earthquake of June 25th 0132 a.m. NZST (24d 13h 32m UT).