

**Seismic Array HiKurangi Experiment II
(SAHKE II)**

Onshore Active Source Acquisition Report

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**GNS Science Report 2011/50
December 2011**

BIBLIOGRAPHIC REFERENCE

Seward, A.; Henrys, S.; Okaya, D.; Stern, T.; Savage, M.; Sato, H.; Iwasaki, T.; Sutherland, R.; Henderson, M. 2011. Seismic Array HiKurangi Experiment II (SAHKE II): Onshore Active Source Acquisition Report, *GNS Science Report* 2011/50. 74 p.

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ABSTRACT

This report documents the planning and acquisition of an active source seismic experiment in the lower North Island. The **Seismic Array HiKurangi Experiment (SAHKE)** was designed to investigate the physical parameters controlling locking at the plate boundary beneath the southern North Island and characterise slip processes in the key segment of the Hikurangi margin. This 2011 experiment is the second phase of a two-phase seismic survey to study the characteristics of the subduction interface beneath the Wellington – Wairarapa region. 12 borehole explosive sources were distributed along a NW-SE transect stretching from coast to coast (Kapiti to Glendu). The energy was recorded on 835 seismic stations (277 3-component and 558 vertical sensors) deployed at 100 m spacing and 50 m between Kaitoke and Featherston. Additional 3-component seismometers were deployed at each shot point. The shots were detonated during the night time of May 10-11 and May 12-13, between the hours of 9pm and 5 am. The quality of the data recorded was excellent for all shots.

KEYWORDS

SAHKE, Active source, Seismic array, Wellington-Wairarapa Transect, Hikurangi margin, subduction interface, New Zealand.

1.0 INTRODUCTION

GNS Science in conjunction with Victoria University of Wellington, the University of Tokyo (Earthquake Research Institute) and the University of Southern California have undertaken the second phase of the **Seismic Array HiKurangi Experiment (SAHKE)** comprising 12 onshore seismic blasts recorded at 835 seismic stations along a transect of the Wellington-Wairarapa region in the lower North Island, New Zealand. The purpose of this project is to produce seismic images of the subsurface of the lower North Island to investigate the physical parameters controlling locking at the subduction interface and the interaction with the faulting systems evident at the surface.

The SAHKE project is split into two phases. The first phase, carried out and completed between November 2009 and April 2010, consisted of 62 portable seismometers deployed as a number of arrays in the Wellington-Wairarapa region (Seward *et al.*, 2010). The sensors primarily recorded energy released by an airgun array towed behind a ship surveying the Pegasus Basin to the south-east of the North Island (Figure 1.1). During the 5 months of deployments, local, regional and teleseismic earthquakes were recorded as well.

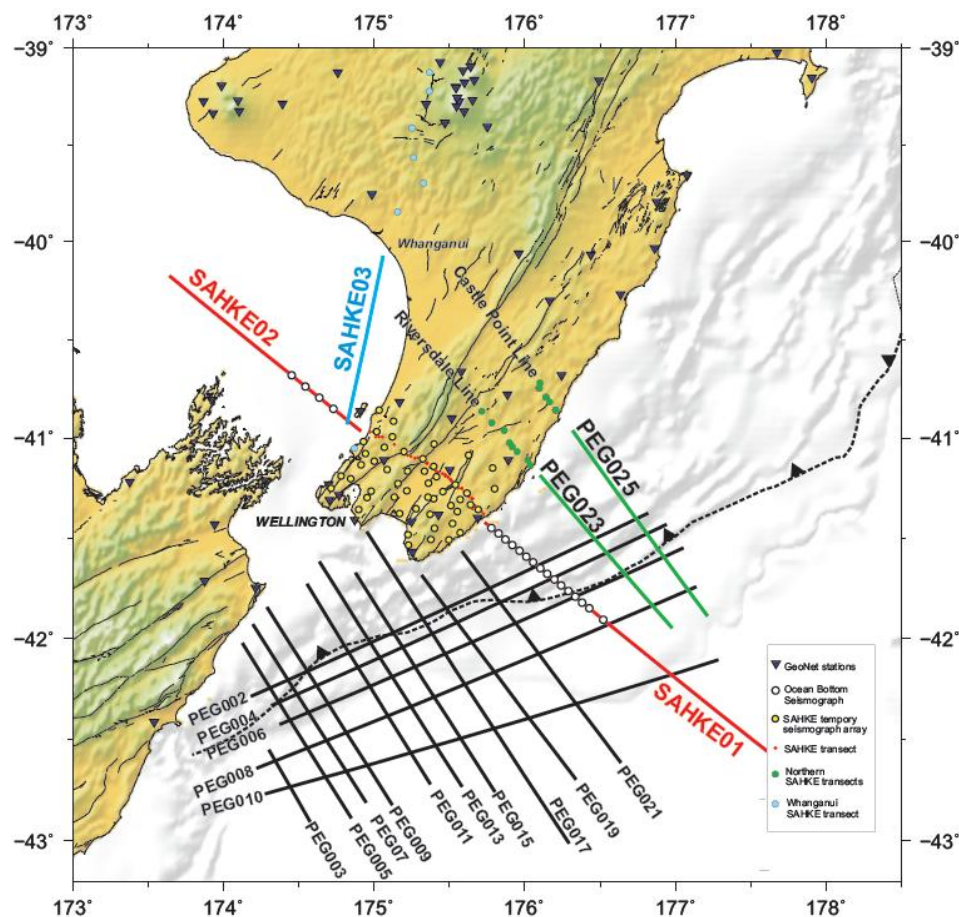


Figure 1.1 Location map showing various elements of the SAHKE phase 1 data acquisition. Black lines show the lines of the PEGASUS survey recorded by the SAHKE ARRAY deployment (stations shown by yellow dots). The red lines are SAHKE01 and SAHKE02 recorded onshore by the TRANSECT deployment indicated by red dots. 20 Ocean bottom seismometers were also deployed during this survey along SAHKE01 and SAHKE02. The blue line shows the offshore Wanganui line (SAHKE03), which was recorded by the associated blue stations onshore (WANGANUI line). The green lines show the northernmost lines of the PEGASUS survey, which were shot in mid-March 2011 and were recorded by two dedicated onshore seismic lines (Castlepoint line and Riversdale line). Inverted blue triangles indicate the locations of permanent stations which are part of the National Network and Wellington regional network monitored by GeoNet.

The second phase of the SAHKE project (SAHKE II) involved the detonation of 12 onshore seismic blasts recorded on 835 seismic stations deployed along a transect stretching from coast to coast (Figure 1.2). This transect array was the same transect line established during SAHKE I which recorded the SAHKE01 and SAHKE02 offshore ship lines. During SAHKE I 32 3-component seismic stations were deployed roughly every 2 km along the transect. SAHKE II densified the transect to 3-component stations every 300m across the island, with vertical component stations spaced every 100m in between. Station spacing was further reduced to 50 m between Kaitoke and Featherston to image the steeply dipping Wairarapa fault. Together with deployments during SAHKE I and the data acquired during SAHKE II this completes the double-sided onshore-offshore transect of the lower North Island.

This report documents the permitting, drilling, shot loading and firing, instrument deployment, data acquisition and archiving during SAHKE II. A summary of the 7-month project is given in Table 1.1.

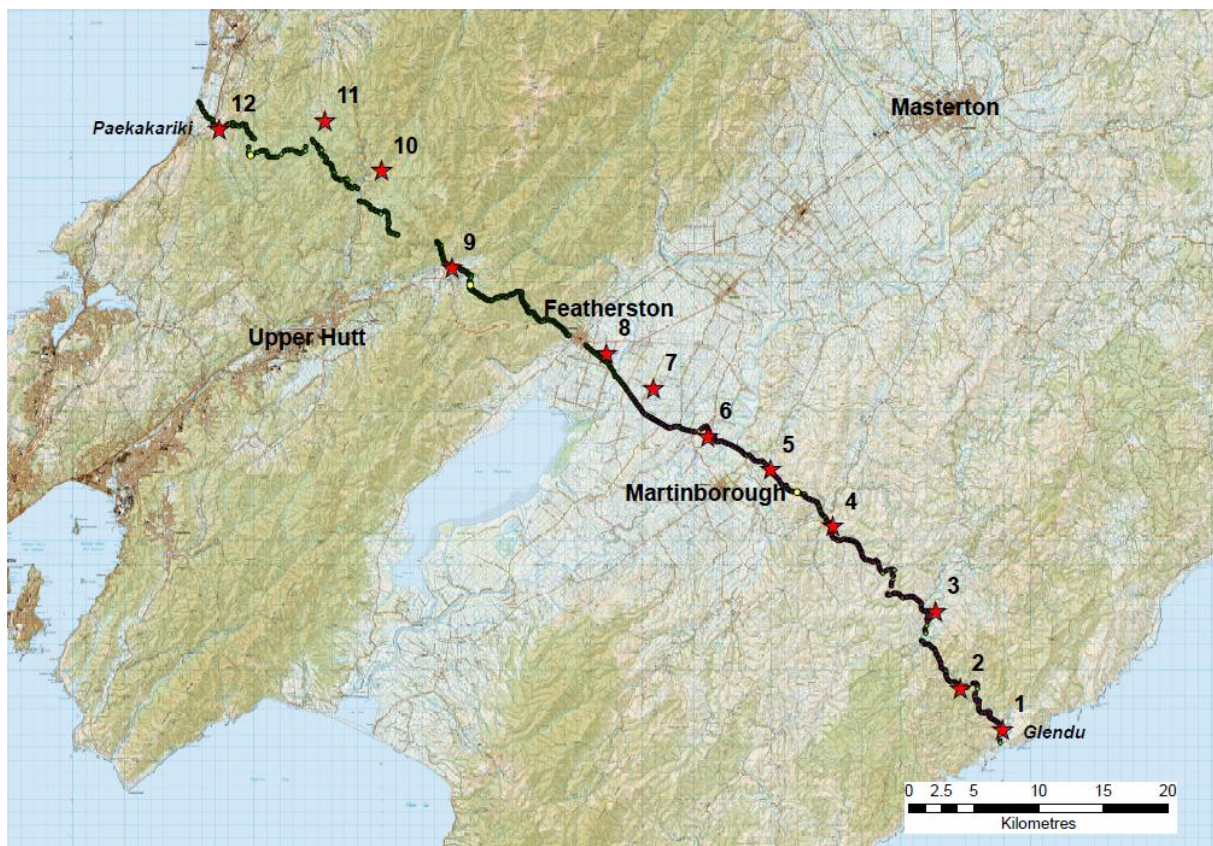


Figure 1.2 Map showing the location of the seismometers (spaced 50-100m along the dark line) deployed during SAHKE II, and the (numbered) red stars show the locations of the 12 borehole seismic sources. Yellow circles indicate the positions of 3 RT130 collocated seismic stations.

Table 1.1 Gantt chart of the SAHKE II project timeline. See Table 3.2 for more detail of May 2011.

	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11
Scouting	site locations & permissions					
Permitting						
Drilling		tender	contract		drilling	
Explosives		quote	contract			
Instrumentation						
Preparation						
Deployment						
Shooting						
Pickup						
Post Experiment						

	Apr-11	May-11	Jun-11
Scouting			
Permitting			
Drilling			
Explosives	planning	loading	
Instrumentation	shipping		
Preparation			
Deployment			
Shooting			
Pickup			
Post Experiment			clean up data archiving

1.1 TECTONIC SETTING OF THE SOUTHERN NORTH ISLAND

The Wellington region lies at the southern end of the Tonga-Kermadec-Hikurangi subduction zone. It forms part of the westward subduction of thick and bathymetrically elevated oceanic Hikurangi Plateau (Pacific Plate) beneath the Australian Plate, that initiated 20 – 25 Ma ago (Ballance, 1976). In the southernmost North Island, the contemporary oblique plate convergence of ~42 mm/yr can be resolved into ~30 mm/yr of margin-orthogonal motion and ~28 mm/yr of margin-parallel motion (Beavan *et al.*, 2002). The margin-orthogonal component is accommodated by thrust faulting and related folding in the onshore and offshore parts of the Hikurangi Margin's upper plate. In the southern part of the North Island, this takes place by slip on NE-striking reverse faults and folds that occur in an offshore accretionary wedge, and by slip on the subduction megathrust. However, contemporary GPS data indicate that the subduction interface beneath the Wellington region is currently interseismically coupled (locked) over a 90–110 km wide zone perpendicular to the strike of the margin (Wallace *et al.*, 2009). The margin-parallel component of plate motion is accommodated by (1) dextral-slip on the NNE-striking faults of the North Island Dextral fault belt (NIDFB), including the Wellington and Wairarapa faults (e.g. Beanland, 1995, Mouslopoulou *et al.*, 2007, Van Dissen and Berryman, 1996), (2) clockwise vertical-axis rotation of eastern parts of the North Island (e.g. Nicol *et al.*, 2007, Rowan and Roberts, 2008, Wallace *et al.*, 2004), (3) strike-slip on active ENE-striking structures in Cook Strait (such as the Boo Boo Fault), and (4) oblique-slip on other NE-striking offshore faults, including the subduction megathrust which has accommodated a large proportion (>80%) of Neogene and Quaternary crustal plate boundary convergence (Nicol and Beavan, 2003, Nicol *et al.*, 2007). Seismicity data suggest that faults of the overriding plate, including the Wairarapa Fault, intersect the subduction megathrust at depths of 20-30 km beneath the southernmost part of the North Island (Reyners, 1998, Beavan and Darby, 2005).

The wedge of accreted sediment in the southernmost part of the Hikurangi margin is imaged using seismic reflection data, as a thick (> 3 km) but narrow (<80 km wide) prism that

encroaches onshore but widens to the north (Barnes *et al.*, 2010, Davey *et al.*, 1986, Henrys *et al.*, 2006, Lewis and Pettinga, 1993). Earthquake records of conversions of P to S waves from the plate boundary suggest that these low-velocity sediments remain on top of the subducting plate and may be metamorphosed into schistose facies as they descend beneath the western regions (Bannister *et al.*, 2007, Savage *et al.*, 2007). The accretionary wedge comprises a backstop of Mesozoic greywacke rocks and pre-existing passive margin sediments, that range in age from mid Cretaceous to Palaeogene and have been thrust faulted and back tilted since 25 Ma (Lewis and Pettinga, 1993). These rocks, deposited on the active margin of Gondwanaland, are now exposed in the Wellington region (Begg and Johnston, 2000) and along the axial ranges of the North Island. Intervening slope basins on the margin comprise Miocene to Recent trench-fill turbidite sediments overlying the interplate décollement. Correlation of the seismic stratigraphy with published stratigraphy of the Hikurangi Plateau sedimentary sequence (Davy *et al.*, 2008) constrains the ages and stratigraphy of the Mesozoic and Cenozoic sequence subducting beneath the décollement (Barnes *et al.*, 2010). This sequence is inferred to include Cretaceous volcanoclastics, pelagic and clastic sedimentary rocks, and late Cretaceous–early Oligocene (70–32 Ma) nanofossil chinks with alternating clays.

In summary, substantial progress has been made over the last decade in our understanding of a diverse range of tectonics and subduction interface processes at the Hikurangi margin (see Wallace *et al.*, 2009). Marine geophysical studies reveal major along-strike changes in the style of tectonism, including along-strike changes from a strongly accretionary environment (southern Hikurangi margin) to subduction erosion (northern Hikurangi margin) (Barker *et al.*, 2009, Barnes *et al.*, 2010, Barnes and Mercier de Lepinay, 1997, Collot *et al.*, 1996, Collot *et al.*, 2001, Davey *et al.*, 1986, Lewis *et al.*, 1998, Lewis and Pettinga, 1993). The change from accretion to erosion is also accompanied by a northward decrease in thickness of sediment on the subducting Pacific Plate (Lewis *et al.*, 1998) and a three-fold northward increase in the rate of convergence at the trench (Wallace *et al.*, 2004). Recent geodetic studies reveal that there are major along-strike variations in the depth to the down-dip limit of the likely seismogenic zone (Wallace *et al.*, 2004, Wallace *et al.*, 2009). The availability of both contemporary and long-term slip measurements and a paleoseismic record for the southern Hikurangi Margin provides a superb opportunity to address questions for the along-strike heterogeneity of kinematic behaviour at subduction zones worldwide. The SAHKE project aims to understand the frictional properties and geometry of the subduction interface beneath the southern segment of the Hikurangi Margin. Results will be compared to similar studies completed along other segments of the margin (e.g. Henrys *et al.*, 2003, Sutherland *et al.*, 2009) and to studies of other subduction zones - and ultimately, make predictions of earthquake behaviour along the margin.

2.0 BOREHOLE SEISMIC SOURCES

2.1 LOCATION DETERMINATION

The location of the SAHKE transect line was primarily chosen for its accessibility by road and track perpendicular to the strike of major upper crustal faults and along the orthogonal component of motion for the subducting Pacific Plate. Shot point locations were sought in open spaces, where shaking of nearby residences, buildings, and other structures would be minimised. Proximity to unstable landforms was also taken into consideration. Regions of farmland and forest estates were ideal for our needs, as they mostly had good access track, security gates and distances from buildings. In addition, the shot points also needed to be accessible by a drill rig and an explosive loading vehicle in all weather conditions.

Once sites were found and written consent granted by landowners / land users (Appendix 1-Table A1.2), the district councils were consulted over consent requirements for this project (see section 2.2).

2.2 PERMITTING AND CONSENT

The project was discussed with the Greater Wellington Regional Council (GWRC) regarding permits and consent requirements. They required no formal consenting process for this project.

The transect line crosses 3 districts within the Wellington region. The consent needs for each of these districts were discussed with each district council (Kapiti Coast District Council (KCDC), Upper Hutt City Council (UHCC) and South Wairarapa District Council (SWDC)). Proposed locations for the drill sites were also registered with "BeforeUdig" to ensure that no underground surfaces would be disturbed. Only KCDC required a formal consent application for earthworks (see Appendix 2).

Most boreholes were located on private properties with the landowners' written permission. One site was situated on Department of Conservation (DOC) land and required a "low impact, research and collection permit" and another was located on Wellington Regional Council Parks and Forestry property which also required a "low impact collecting and research permit". Both applications and permits can be found in Appendix 2.

Local Iwi were also consulted on drill site locations. Only *Te Runanga o Ati Awa ki Whakarongotai* requiring being on site when site 12 was drilled. Other Iwi's required notification if any historic artefacts were uncovered during drilling and specified that all drilling operations were to be halted in such circumstances. No historic artefacts were uncovered.

2.3 DRILLING OF BOREHOLES

Drilling of the boreholes was planned for the month of February 2011. Honnors Welldrillers Ltd were contracted to drill the 12 seismic boreholes and started at site 7 on January 25th 2011. Boreholes were drilled by a truck-mounted drill rig (Figure 2.1) which used either an Ecentrix Odex system with a down hole hammer or a top drive casing hammer drilling system, depending on the local geology. Initial geological assessments (Appendix 3; Table A3.1) were made from geological maps and site visits.



Figure 2.1 Photo (a) shows the drill rig using its top drive casing hammer drilling system; (b) shows the 8in steel casing with a drill bit extension inside; (c) shows the Ecentrix Odex drill bit.

All boreholes were completed by March 20th 2011 after a few complications that hindered the progress of drilling.

2.3.1 Drilling specifications

Each borehole was drilled to the following specifications:

1. All boreholes to be 200mm (8in) in diameter,
2. All boreholes to reach a vertical depth of 50m,
3. All boreholes to be fully cased with steel casing and be provided with suitable security, for example, capped with a lockable cap,
4. Casing must be well coupled to surrounding ground (anchored when necessary) to avoid blowing out of casing,
5. The casing must protrude above the surrounding ground and appropriate steps taken at the casing exit point to prevent entry of surface water.

2.3.2 Drilling methods

Depending on the local geology at each site, different methods were used to drill the boreholes. The drilling techniques used for each hole are described below.

Shotpoint 1:

Ecentrix Odex Style; Down hole hammer with top casing hammer assistance; Air drill to clear hole. Fully cased to 48.3m.

Start date: 15/02/2011

Completion date: 18/02/2011



Figure 2.2 Site 1

Shotpoint 2:

Ecentrix Odex Style; Down hole hammer with top casing hammer assistance; Air drill to clear hole. Fully cased to 48.0m.

Start date: 10/02/2011

Completion date: 15/02/2011



Figure 2.3 Site 2

Shotpoint 3:

Ecentrix Odex Style; Down hole hammer with top casing hammer assistance; Air drill to clear hole. Fully cased to 50.3m.

Start date: 19/02/2011

Completion date: 20/02/2011



Figure 2.4 Site 3

Shotpoint 4:

Commenced hole as 250mm diameter top case; Open drill to 50m, Hole became unstable due to heaving sands. Installed 200mm casing and hammer drive to 50m. Filled large sand void with gravel and cement. Cemented casing to surface.

Start date: 03/02/2011

Completion date: 08/02/2011



Figure 2.5 Site 4

Shotpoint 5:

Commence hole as 250mm diameter. Air drill to 50m, cased to 50m, wash drill and grout annulus.

Start date: 02/02/2011

Completion date: 09/02/2011



Figure 2.6 Site 5

Shotpoint 6:

Used top drive casing hammer drilling system; Air drill to base of casing. Fully cased to 50m.

Start date: 27/01/2011

Completion date: 02/02/2011



Figure 2.7 Site 6

Shotpoint 7:

Used top drive casing hammer drilling system; Air drill to base of hole. Fully cased to 50m.

Start date: 25/01/2011

Completion date: 27/01/2011



Figure 2.8 Site 7

Shotpoint 8:

Use top drive casing hammer drilling system; Air drill to base of hole. Fully cased to 50m.

Start date: 26/02/2011

Completion date: 03/03/2011



Figure 2.9 Site 8

Shotpoint 9:

Ecentrix Odex Style; Down hole hammer with top casing hammer assistance; Air drill to clear hole. Fully cased to 50.4m.

Start date: 22/02/2011

Completion date: 24/02/2011



Figure 2.10 Site 9

Shotpoint 10:

Ecentrix Odex Style; Down hole hammer with top casing hammer assistance; Air drill to clear hole. Fully cased to 50m.

Start date: 25/02/2011

Completion date: 27/02/2011



Figure 2.11 Site 10

Shotpoint 11:

Drilled 250mm Down Hold hammer, top driving casing hammer and air drill. Install 200mm casing and grout annulus. Fully cased to 50m.

Start date: 09/02/2011

Completion date: 19/03/2011



Figure 2.12 Site 11

Shotpoint 12:

Ecentrix Odex Style; Down hole hammer with top casing hammer assistance; Air drill to clear hole. Fully cased to 50m.

Start date: 04/03/2011

Completion date: 09/03/2011



Figure 2.13 Site 12

2.4 BOREHOLE EXPLOSIVES SPECIFICATIONS

Each borehole was loaded with explosives to the following specifications:

1. Boreholes were filled with 500kg of Centra™ Gold explosive emulsion with the exception of shot 7 and 8 where 350kg was used.
2. All boreholes were top primed with 3 seismic booster each 500g (Pentholite) together with detonators.
3. Explosives were sealed within the blast hole by crushed stone. The borehole access was locked in order to prevent any direct access to the detonation wires. The detonator wire was protected to avoid damage.



Figure 2.14 Loading of shot hole 11. The MMU truck used to transport explosive emulsion.

Emulsion was delivered to each site by a special purpose vehicle (Mobile Manufacturing Unit, MMU). Limitation to access for 2 sites meant that Senatel™ solid explosives were used instead.

Boreholes were loaded between the 3rd and 5th of May, 2011. Detonation of the explosives was completed by Orica at night between the 10-11th and 12-13th May, 2011. Table 2.1 summarises borehole shot times and explosive types.

Table 2.1 Shot summary information

Borehole	Latitude	Longitude	NZTM (N)	NZTM (E)	Elevation (m)	Shot time (UTC)	Borehole depth (m)	Charge size (kg)	Type of Explosive	Date borehole loaded
1	-41.37981	175.72479	5415496	1827849	24	2011:132:15:23:00	48.3	500	Centra™ Gold	4-May
2	-41.35205	175.68480	5418683	1824601	33	2011:132:14:43:00	48.0	500	Centra™ Gold	4-May
3	-41.29930	175.65999	5424604	1822705	70	2011:132:13:57:00	50.4	500	Centra™ Gold	4-May
4	-41.24227	175.56282	5431191	1814755	92	2011:132:13:00:00	50.0	500	Centra™ Gold	5-May
5	-41.20403	175.50369	5435571	1809922	100	2011:132:12:14:00	50.0	500	Centra™ Gold	4-May
6	-41.18247	175.44523	5438104	1805088	26	2011:132:11:13:00	50.0	500	Senatel™	5-May
7	-41.14971	175.39397	5441861	1800888	28	2011:132:10:24:00	50.0	350	Centra™ Gold	4-May
8	-41.12631	175.35007	5444559	1797274	35	2011:132:09:03:00	50.0	350	Centra™ Gold	4-May
9	-41.06937	175.20571	5451198	1785315	219	2011:130:11:14:00	50.4	500	Centra™ Gold	3-May
10	-41.00309	175.13882	5458697	1779876	355	2011:130:13:22:00	50.0	500	Senatel™	5-May
11	-40.96936	175.08568	5462549	1775496	395	2011:130:15:13:00	50.0	500	Centra™ Gold	3-May
12	-40.97708	174.98897	5461882	1767333	54	2011:130:16:46:00	50.0	500	Centra™ Gold	3-May

3.0 SEISMOMETER DEPLOYMENT

3.1 LOCATION DETERMINATION

The transect line runs from coast to coast over an 80 km profile from Glendu Rocks in the east to Paekakariki in the west. The transect line follows established roads and tracks to cross the island allowing access by vehicle, with the exception of a couple of areas which required access by foot. One of these areas was through dense bush, which had a peat floor of up to 2 m thick. It was decided that the data quality that would result from such poor coupling was not worth the amount of time and effort it would take to deploy in this region, which resulted in a 2 km gap in the resulting data set.

A straight line profile was assumed which ran in line with the offshore profile lines (SAHKE01 & SAHKE02) shot during SAHKE I (Seward *et al.*, 2010). The profile was divided by 50m spacing between points. These points were then orthogonally projected onto the accessible roads and tracks in the proximity. Seismic stations were distributed every 100m (i.e. every 2nd point) across the island, with a densification to every 50m in the centre (between the 2 main active faults).

3.2 INSTRUMENTS

1300 “Texan” seismometers (REFTEK RT125) were provided by IRIS/PASSCAL and 277 “Lunchbox” seismometers (HAKUSAN LS8200SD) were provided by ERI, University of Tokyo. For the SAHKE deployment, 835 of the Texan instruments were used as 3 component seismometers connected to 3C sensors (Figure 3.1). The timing of the ERI instrument is corrected automatically by a built-in GPS receiver which keeps its accuracy within 1 ms. During deployment of the ERI instrument, its status of recording including GPS clock, and geophone connection and orientation is also automatically checked and displayed by a Light Emitting Diode.



Figure 3.1 (a) photo of “Texan” seismometer attached to a vertical component sensor; (b) Photo of 3 “Texan” seismometers connected to a 3 component sensor (Black – Vertical, Blue – North, Yellow- East; (c) Photo of the ERI “Lunchbox” seismometers connected to a vertical sensor.

Three REFTEK RT130 seismometers (Figure 3.2) were also deployed and collocated at a 3C Texan site in each region. The collocation of these instruments may provide some insight into the time drift associated with the Texans as the RT130 have continuously updated GPS clocks. The Texan instruments were time stamped both prior to deployment and on collection to account for any time drift that may have occurred during deployment (Table A5.2).



Figure 3.2 (a) REFTEK RT130 (b) 3 component sensors (3C) attached to RT130 collocated with the 3C sensor connected to 3 single Texan instruments.

3.3 INSTRUMENT PROGRAMMING

Both the Texan and ERI instruments were programmed to record continuously for 6 or 8hr time periods during the nights of May 9 – 14, 2011. The Texans were set to record for a time period of 6 hours the first night, 8 hours for the nights of 10-13, and an additional 6 hours on the 14th. Table 3.1 lists the programming parameters used for both instrument types.

Table 3.1 Programmed recording times for the instruments deployed.

Date	Instrument	Start time		End time	
		<i>local time</i>	<i>UTC</i>	<i>local time</i>	<i>UTC</i>
May 9	Texan	22:55	2011:129:10:55:00	04:55	2011:129:16:55:00
	ERI	21:00	2011:129:09:00:00	05:00	2011:129:05:00:00
May 10	Texan	20:55	2011:130:08:55:00	04:55	2011:130:16:55:00
	ERI	21:00	2011:130:09:00:00	05:00	2011:130:05:00:00
May 11	Texan	20:55	2011:131:08:55:00	04:55	2011:131:16:55:00
	ERI	21:00	2011:131:09:00:00	05:00	2011:131:05:00:00
May 12	Texan	20:55	2011:132:08:55:00	04:55	2011:132:16:55:00
	ERI	21:00	2011:132:09:00:00	05:00	2011:132:05:00:00
May 13	Texan	20:55	2011:133:08:55:00	04:55	2011:133:16:55:00
	ERI	21:00	2011:133:09:00:00	05:00	2011:133:05:00:00
May 14	Texan	22:55	2011:134:10:55:00	04:55	2011:134:16:55:00
	ERI	21:00	2011:134:09:00:00	05:00	2011:134:05:00:00

The Texan instruments were programmed to record at a sample rate of 250 Hz (4 ms sample rate) and a gain of 32 with file lengths of 1 hr. The ERI LS8200SD recorded at a sample rate of 250 Hz.

3.4 DEPLOYMENT

The 3C sensors were deployed every 300m along the transect, while the vertical component sensors were distributed in-between with 100m spacing. The spacing of sensors was densified between Kaitoke and Featherston to 50m spacing between stations and a 3C site every 150m. The deployment was split into 3 segments (Figure 3.3): Kapiti, which covered the western part of the transect, from Kapiti Coast to the Akatarawa Forest; Kaitoke, which covered the central densified region, between Kaitoke and Featherston; Wairarapa, which covered the eastern side of the transect. The majority of the single component sites deployed in the Wairarapa region were the ERI “Lunchbox” seismometers.

All 3-component instruments were aligned to magnetic North when deployed.

Table 3.2 Timeline for SAHKE II during May 2011. Red indicates nights when shot were detonated, while pink indicate the time period that the instruments were programmed to record.

May-11																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	Sun	M	Tue	W	Th	Fr	Sat	Sun	M	Tue	W	Th	Fr	Sat	Sun	M	Tue	W	Th	Fr	Sat	Sun
IRIS instruments arrive																						
ERI Instruments arrive																						
Instrument preparation																						
Deploy Instruments																						
Detonate Shots																						
Collect instruments																						
Clean up																						

The deployment of the seismometers was relatively rapid, taking approximately 15-20 mins for a station. Since daylight hours were limited during this time of year, field teams were based within the regions they were working. Six field teams were based in the Wairarapa and had the most traveling to do to get to their deploying area. The field teams were split into those deploying the ERI instruments and those deploying the 3C Texan sites. All teams averaged between 20 – 30 sites per day. Three teams were based in Kaitoke to deploy the densified region of the transect. Teams worked together deploying both 1C and 3C and managed to get 30 – 50 sites done per day. The teams based in Kapiti had the region of most difficult access and needed to deploy on foot or with the aid of a quad bike delivering instruments. Three teams were deployed in this region and averaged 20 sites per team per day. The locations of both the Texans and ERI stations were determined using hand-held GPS using NZTM coordinates.

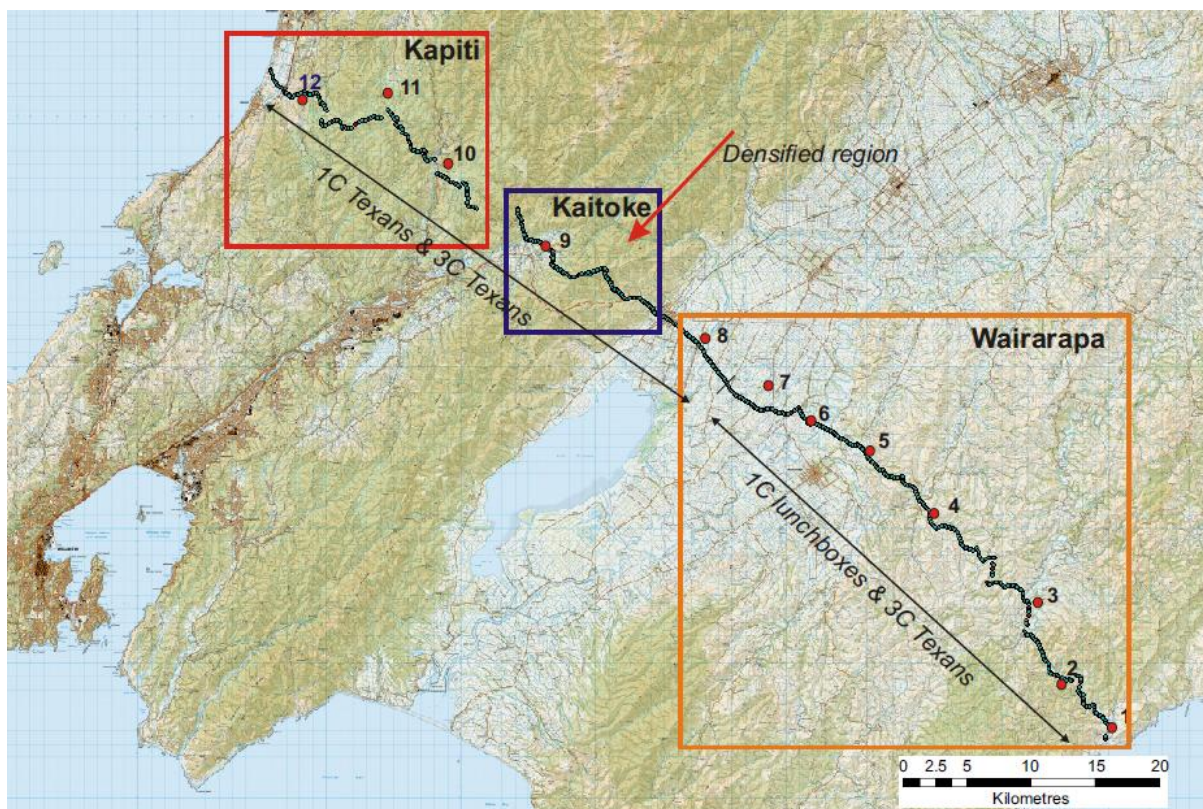


Figure 3.3 Map showing the deployment regions.

The three Reftek-130s were collocated with three 3C Texan stations. One Reftek-130 was deployed in each region at stations with good ground coupling. Several vertical component Texan stations were also collocated with the 1C ERI instruments. Additional vertical component stations were deployed at shots 3, 7, 8 and 9. These stations had several houses in proximity, and the additional instruments were used to monitor ground roll associated with the shot. Instrument locations and details are given in Appendix 4 (Table A4.1).

3.4.1 Weather

Weather during SAHKE II deployment, shooting, and pick up was mostly mild. Temperatures on most days were about 10-15°C. The average daily high for the month of May, 2011, was 13.7 °C.

The autumn period is generally dominated by low pressure systems that sweep from west to east across the lower North Island bringing intense rain for short periods. A period of rain at the beginning of May preceded our first scheduled installation day causing some delays in accessing farm tracks. In addition 2 shot hole sites could not be reached by the MMU truck and were therefore loaded with re-packed explosives. Another front passed during the day that we had allocated to shot firing. We delayed firing over the night of 11 May to allow the front to pass.

On 15 May, heavy rain caused flooding in Wellington, with SH2 closed by a slip in Hutt Valley (see Figure 3.4). We were able to delay pick up of instruments in the ranges till this rain had passed and were not hampered in getting instruments out of the field.

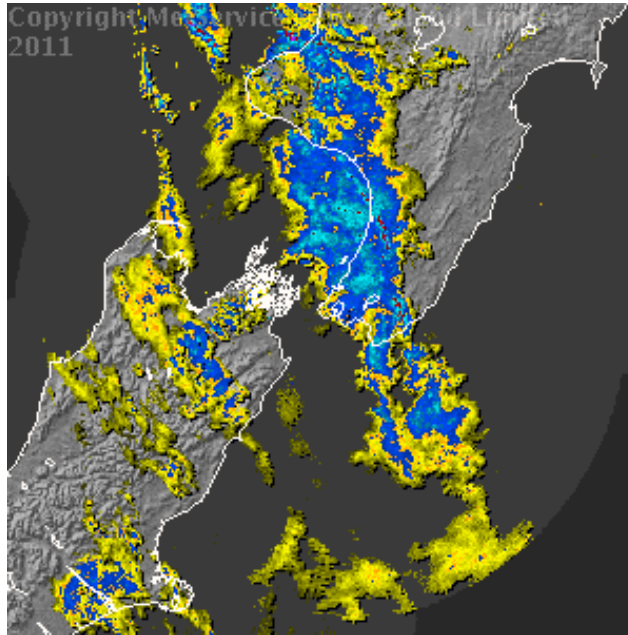


Figure 3.4 Radar map of the Wellington region during 15 May. The light blue colours indicate the most intense rainfall. The passing front caused only slight delays in collecting seismometers.

4.0 DATA

4.1 DETONATION OF THE SHOTS

Shots were detonated at night, between the hours of 9pm and 5am. This time period is chosen as it is generally quiet and the seismic signals can be detected more readily. All instruments were programmed to record during this time period (Table 3.1). Since the instruments were recording continuously, the time of the shot triggering was dependant only on the shot firing team. The triggering of the shot was done with the use of the GPS clock that sends a pulse to the detonator on the minute mark.



Figure 4.1 Shot firing trigger system.

4.1.1 Shot firing system

The shot firing system consists of four parts: the Spectrum TM4 GPS clock, a PIC microcontroller, a fast optical relay, and an SIE blasting machine. The operation of the complete system is as follows:

1. the operator connects the shot-firing wires from detonators to the blasting machine;
2. the GPS clock system is turned on and the user waits until the time has initialised;
3. after initialisation has been achieved, the clock will output a trigger pulse at every minute mark;
4. the operator waits until approximately 20 seconds before the minute mark and presses the “charge” button on the blasting machine;
5. approximately one second before the minute mark the operator presses the “fire” button;
6. at the minute mark the GPS clock system outputs a signal to the blasting machine, which in turn discharges the internal capacitor through the shot line into the detonators.

The Spectrum TM4 uses the information transmitted by GPS satellites to determine not only its position, but also an estimate for the current time as defined in the GPS time system. This is internally adjusted to UTC. Once initialised the TM4 can maintain a close estimate for UTC even when GPS satellites are not available, for example, under tree cover. It achieves this by using an ovenized quartz oscillator and by estimating the clock’s drift through comparison with the GPS time estimates. The TM4 can be programmed over its serial port interface to output TTL-level pulses through its signal lines. These pulses can be programmed to occur at any time, and there are a range of duration and repeat options. In this case, to simplify the system for the operator, it was decided to use a pulse on every minute mark.

To simplify the system further, instead of using a laptop computer to manually program the TM4, the programming of the TM4 is performed automatically by a circuit based around a PIC microcontroller. As soon as the system is turned on the PIC microcontroller repeatedly interrogates the TM4 over its serial port to determine whether the time it is calculating is valid. When the time is valid then the PIC will program the TM4 to output firing pulses at each minute mark. The PIC will continue to check the TM4 to make sure the system is operating correctly. Additionally, because the TM4 does not have its own display, the PIC operates an LCD display. The display shows the date, time, the number of GPS satellites, whether the time is valid, and whether the pulse has been programmed.

The output signal directly from the TM4 is only TTL level and is not sufficient to operate the mechanical relays in the blasting machine. Also, when interfacing digital logic to any external device it is advisable to have robust isolation. Isolation is especially important in this case, where not only is the back EMF from the relay an issue, but also the possibility of inadvertently coupling high-voltage from the capacitor discharge into the signal line. For this reason the TM4 output is connected to a fast optical relay, which is in turn connected to the blasting machine.

The blasting machine is a typical capacitor discharge system. When the charge button is pressed the internal capacitor is charged using a high voltage (~120V) to approximately 1.5J. In its normal operating mode, when the fire button is pressed the capacitor is connected to the shot firing line to fire the explosives. The blasting machine also has another operating mode, which if selected means that the shot will only fire if both the fire button is pressed and an external switch has been operated. This external switch connection in this case is connected to the optical relay in the GPS clock system.

Specifications of the shot firing system suggest that the electrical discharge should occur within 10-ms of the programmed time. This is primarily the delay in the mechanical relay of the blasting machine. However, in practice, the delay in firing was much less than 10-ms.

During each of the SAHKE shots an array of three vertical geophones, and a single 3C seismometer connected to REFTEK 130 seismographs were used to validate shot times. The geophone array was laid out nearby and parallel to the shot firing line. As a consequence the induced voltage is clearly seen on some of the seismograms. The electrical discharge occurs 3 – 5ms after the programmed time. The explosion is recorded approximately 11ms after the programmed time, although initiation undoubtedly occurs much earlier.

4.2 DATA MERGING

The mix of REFTEK and ERI instruments posed several merging problems. Although all of the playback systems produce SEG-Y data tapes, the header files were different for each system. Merging the data required extensive processing to archive the data in SEG-Y format in a manner that would be useful for subsequent data analysis (see Table A6.1). The SEG-Y standard requires that all the data have common sampling rates and lengths with coherent indexing within the SEG-Y trace headers.

Data were ordered primarily by shot and secondarily by channel. Channel number is based on station location and on station components. Channel numbering starts in the west and is increased eastward by each trace.

4.3 DATA QUALITY

The quality of the data recorded was good for all shots. The energy from each shot was recorded clearly at each seismometer from coast to coast. Figure 4.2 shows a preliminary shot gather from shot 9, near Kaitoke. The data quality is excellent. Clear direct arrivals are visible on all traces and distinctive reflections from the probable top of slab (PslabP).

There are several instruments that had problems during the deployment. These stations are listed in Appendix 4 (Tables A5.1 & A5.2).

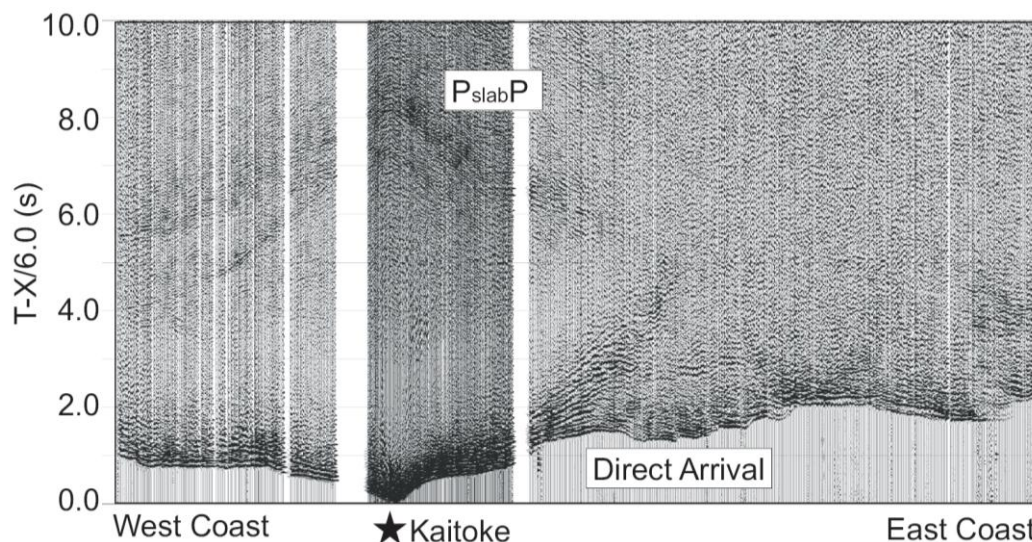


Figure 4.2 Shot gather from Kaitoke source (shot 9). Each trace is one seismogram location. Gaps in the data plot correspond to areas where stations were not deployed, due to access issues (Akatawara Ranges and Featherston). Trace spacing is 100 m across the profile, with the exception between Kaitoke and Featherston where instruments were spaced 50 m apart.

5.0 OUTREACH

During the experiment, and afterwards, efforts were made to inform the public about the projects. Prior to the start of the projects, landowners and councils were given information flyers that outlined the objectives and plans of the experiment. District councils were kept informed as the project evolved. Landowners were informed of the project, what we would be doing and when we would be on their property. Public notices were published in all local newspapers (Figure 5.1). Table 5.1 lists the contacts with the media.

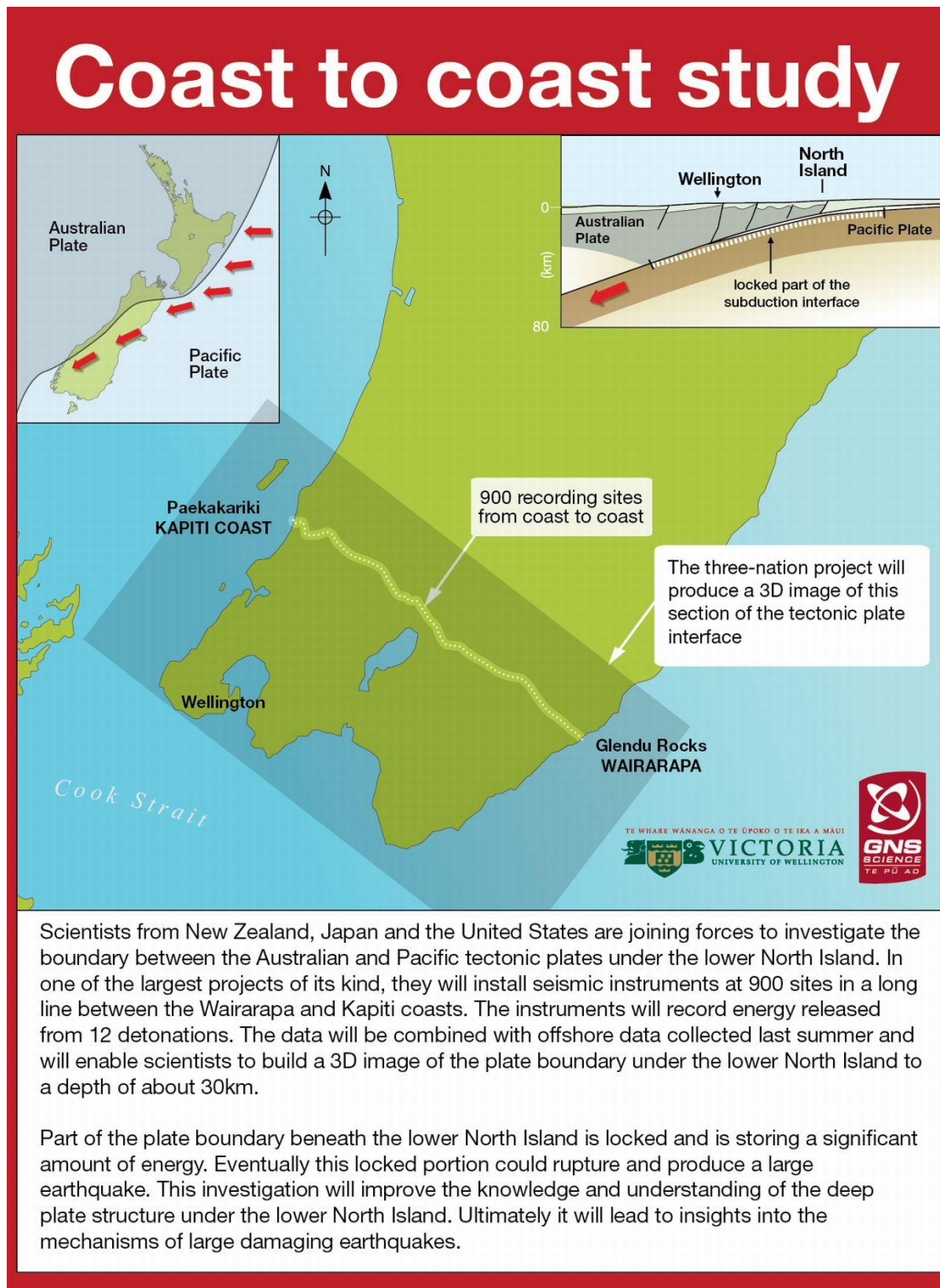


Figure 5.1 Public Notice published in local and region newspapers.

Table 5.1 List of media releases associated with the SAHKE project.

GNS Media Releases
GNS 04 May 2010
GNS 11 & 14 May 2010
Other Media
Kapiti Observer 05 May 2010
Dominion Post 05 May 2010
National Radio (Our Changing World) 02 June 2010

6.0 ACKNOWLEDGEMENTS

The New Zealand Foundation for Research Science and Technology and the Japanese Science and Technology Agency, and the National Science Foundation, USA, funded this work. We are grateful to the individual land owners, Greater Wellington Regional Council, Transpower, Department of Conservation and regional Iwi who kindly allowed us onto their land. The IRIS/Passcal instrument pool and the Earthquake Research Institute provided the instruments. Staff at GNS Science (Gary Gosper, Lianne Brejnakowski, Brett Gilles, Dave Hewitson, Sharryn Duggan and IT Support Staff), helped at critical times to ensure that this project ran smoothly. A more complete list of organisations and people that assisted in this experiment is given in Appendix 1.

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APPENDIX 1: ACKNOWLEDGEMENTS

Table A1.1 List of organisations and personnel that aided in the SAHKE project.

Organisation	Name	Position / Title	
Regional and District Councils	GWRC - Wellington	Luke Faithful	Senior Resource Advisor
		Owen Spearpoint	Biodiversity Monitoring Advisor
	GWRC - Upper Hutt	Steve Edwards	Eastern Principal Ranger
		Jeremy Paterson	Kaitoke Ranger
		Dean Hearfield	Akatarawa Ranger
	GWRC - Masterton	Lindsay Annear	Groundwater officer
	GWRC - Kapiti	Mark Ross	Queen Elizabeth Park Ranger
	Kapiti Coast District Council (KCDC)	Ross Goodman	Resource Consent Planner
		Hannah Bateman	Policy Planner
	Upper Hutt City Council (UHCC)	Jason Harvey-Wills	Consultant Investigator Officer
South Wairarapa District Council (SWDC)	Jen Olson	Resource Management	
	Rachel Hornsby	Planning and Environment Officer	
Department of Conservation	DoC - Wellington	Peter Blaxter	
	DoC - Kapiti	Wayne Boness	Program manager Kapiti
		Kris Ercksen	Conservation Support Officer
	DoC - Wairarapa	Garry Foster	
Iwi	<i>Te Runganga o Ati Awa Ki Whakarongotai Inc.</i>	Danny Mullen	Environmental Officer
	<i>Rangitane o Wairarapa</i>	Horipo Rimene	Environmental Advisor
Underground services	Chorus	Lynn Frost	Network Protection Administrator
Drillers	Honor Welldrillers Ltd	Greg Honor	Owner
Seismic Instruments	IRIS/PASSCAL	Bruce Beaudoin	Director
		Jackie Gonzales	Shipping Coordinator
		Lloyd Carothers	Technician
		Greg Chavez	Technician
	ERI	Hiroshi Sato	Principal Scientist

Table A1.2 Landowners / Farm managers for borehole sites

Name	Contact	Land	Shot point
Fergus Cameron	06 308 8886	Pahaoa Station	Shot 1; Shot 2
Ralf Riddle	06 308 8895	Ngaiapu Station	Shot 3
Bill Shaw	06 306 9644	Longbush Farm	Shot 4
Charlie Creswell	027 715 5177	Huangarua	Shot 5
Alister & Malcolm Jasper	06 306 9949 / 06 306 9669	The Cutting	Shot 6
Don Fuge	06 308 9683	Phillips Line	Shot 7
Keith Snell	027 440 1802	Camp road	Shot 8
Denis Falloon	04 526 7340	Kaitoke	Shot 9
Russell Kirk	021 444 929	Cloustonville	Shot 10
Ian Warwick	04 904 7186	Menin Reiki	Shot 11
Will Van Crichten	04 292 8679	Whareroa Farm	Shot 12

Table A1.3 Field Personnel

Organisation	Name	Role
GNS Science	Stuart Henrys	- Principal Investigator - Project manager - Shooting team 1 / 2 - Wairarapa field team
	Anya Seward	- Project & Logistics coordinator - Health and Safety officer - Shooting Team 1 - RT130 & shot point deployment
	Rupert Sutherland	- Principal Investigator - Shooting Team 2 - Wairarapa field team
	Dan Barker	- Wairarapa field team
	Vaughan Stagpool	- Wairarapa field team
	Jenny Black	- Kaitoke field team
	Sandra Bourguignon	- Wairarapa field team
	Matt Hill	- Kaitoke field team
	Paul Viskovic	- Kaitoke field team
	Sarah Andrew	- Kaitoke field team
Victoria University of Wellington	Tim Stern	- Principal Investigator - Kapiti field team
	Martha Savage	- Principal Investigator - Wairarapa field team
	Aaron Wech	- Kapiti field team
	Mark Henderson	- Shooting team
	Brook Tozer	- Kapiti field team
	Adam Carrizales	- Kapiti field team
	Adrian Shelly	- Kapiti field team
	Ben Hines	- Kapiti field team
	Lloyd Pledger	- Kapiti field team
	Caroline Hall	- Kapiti field team
	Jess Johnson	- Kaitoke field team
	Sapthala Karalliyadda	- Kaitoke field team
	Brook Keats	- Kaitoke field team
	Katrina Jacobs	- Base logistics
ERI, University of Tokyo	Hiroshi Sato	- Principal Investigator - Wairarapa field team
	Eiji Kurashimo	- Wairarapa field team
	Yoshitaka Nakayama	- Wairarapa field team
	Toshio Haneda	- Wairarapa field team
	Takeshi Iidaka	- Wairarapa field team
	Tatsuya Ishiyama	- Wairarapa field team
	Shigehiro Kitamura	- Wairarapa field team
University of Southern California	David Okaya	- Principal Investigator - Wairarapa field team
	Panxu Zhang	- Wairarapa field team
	Yilei Rong	- Wairarapa field team
	Won Joon Song	- Kaitoke field team
PASSCAL	Lloyd Carothers	- Texan Technician - RT130 & shot point deployment
	Greg Chavez	- Texan Technician - RT130 & shot point deployment

APPENDIX 2: PERMIT AND CONSENT APPLICATIONS

A 2.1 Resource consent for Kapiti Coast District council

Resource Consent for Earthworks was needed for the two boreholes that were proposed to be drilled within the Kapiti Coast region. An application was submitted to Ross Goodman at Kapiti Coast District Council in December 2010, and was approved in January 2011 (see CD Appendix 2 – Kapiti Coast).

In addition to the application written permission was required from the landowners, other people who may be affected by the work, and the local Iwi. In total, four notices of written approval were included in the application.

A 2.2 Consent application for the Department of Conservation

A Low Impact, Research and Collection Application was required by the Department of Conservation (DoC) for borehole site 12, which was situated on DoC owned land (see CD Appendix 2 – Department of Conservation). The application also included the deployment of seismometers in this region and on part of the Pylon Track (near Featherston).

A 2.3 Consent application for Greater Wellington Regional Council

A Low Impact Collecting and Research Permit was required for the drilling of borehole 9 on Greater Wellington Regional Council land (See CD Appendix 2 – Forest & Parks). The permit was also required for the deployment of seismometers in the Akatarawa Forest Park and Kaitoke Park. After some discussion with Owen Spearpoint in the GWRC head office, to further discuss our proposed work, a permit was given that covered access to Queen Elizabeth Park on the Kapiti Coast as well as those regions applied for.

APPENDIX 3: DRILL LOGS

This section provides additional information regarding the geology and drill logs at the boreholes sites. Table A3.1 shows the preliminary geological information at each proposed drilling site as based on the geological maps of New Zealand. Table A3.2 lists the logs recorded by the drilling team during drilling. Figure A3.1 illustrated the geological cross sections of the boreholes.

Table A3.1 Initial geology and hazard assessment of proposed borehole sites

Site	Location	Geology	Access	Potential Hazards
1. Glendu	Glendu -41.38154 , 175.73104	Soil layer at top with gravels and unconsolidated silt beneath	Good access Flat paddock adjacent to gravel road	Close to river Barn 500m away <i>Alternative site available</i>
2. Pahoa	Pahoa rd -41.35234 , 175.68497	River gravels, sand and silts overlying hard sandstone	Good access Paddock adjacent to gravel road	Close to river Close to public gravel road
3. Hinakura	Hinakura -41.30807 , 175.66516	Gravels, sandstone and siltstone	Good access Flat paddock off well maintained main farm track	Hill side terrain
4. Longbush	Near Longbush rd / Hinakura rd junction -41.23991 , 175.56505	River bed sediments of sand and silt, minor gravel overlying limestone	Good access (potential marsh field after rain) Paddock off main farm track	500 m from barn Surrounding hill slopes when wet
5. Martinborough	North of Martinborough -41.20963 , 175.51077	Thin soil overlying moderately hard sandstone	Good access Main farm track	Proximity to Martinborough
6. Bidwill Cutting	Featherston / Greytown junction -41.18073 , 175.44689	Gravels	Good track, with steep section	Access issues ?
7. Featherston	Camp road -41.013088 , 175.37747	Gravels	Flat paddock crossings	
8. Rimutaka	Rimutaka Hills YET to be determined	Gravels and hard rock		
9. Kaitoke	Kaitoke / Upper Hutt -41.06834 , 175.20501	Thick gravels overlying greywacke	Good access cross paddocks	Hill side terrain
10. Cloustonville	Akatarawa -41.00772 , 175.13766	Thins soil overlying greywacke	Well maintained Tracks Some steep segments	Hills
11. Menin Reiki	Kapiti / Akatarawa -40.97064 , 175.08489	Thin soil overlying greywacke	Well maintained Forestry tracks	Forestry vehicles
12. Whareroa Farm	Kapiti -40.97671 , 174.98876	Soil/silt overlying greywacke	Good tracks cross paddocks	Public site / DOC land

Table A3.2 Logs from drilling at borehole sites

Borehole 1:

Depth (m)	Description
1.00	Top soil
6.00	Gravel
48.3	Mix of papa, mudstone and clay

Borehole 2:

Depth (m)	Description
0.30	Top soil
12.00	Brown silt and overburden
16.00	Blue silt and overburden: water bearing
26.00	Brown rubble and rock: water bearing
40.00	Blue clay and stone
48.00	Less but firmer blue clay and stones

Borehole 3:

Depth (m)	Description
9.00	Gravel and top soil
50.36	Papa

Borehole 4:

Depth (m)	Description
1.50	Brown pan
3.00	Brown silt
28.00	Fine blue silt - dry
50.0	Sandy blue silt: water bearing – very unstable

Borehole 5:

Depth (m)	Description
20.3	Brown clay, pan and small stones
50.3	Blue mudstone

Borehole 6:

Depth (m)	Description
1.00	Top soil and stones
3.00	Brown Pan
6.50	Brown Gravel – clay bound
8.00	Blue clay bound gravel
15.5	Brown gravel : water bearing
23.0	Blue clay bound gravel
26.0	Brown clay
33.0	Brown clay and stones
50.00	Stiff blue clay

Borehole 7:

Depth (m)	Description
0.50	Top soil and stones
18.5	Brown gravel – little water
21.5	Stiff blue clay
25.0	Mix of red and blue gravel : water bearing
26.0	Brown clay
27.5	Blue clay
33.5	Blue clay and stone – little water
39.0	Mix of brown, red and blue clay – stiff and sticky
43.0	Sandy blue gravels : water bearing
50.0	Brown clay bound gravels

Borehole 8:

Depth (m)	Description
20.0	Gravel and clay
50.0	Gravel and bands of clay : water bearing

Borehole 9:

Depth (m)	Description
16.0	Gravel and clay
18.0	Blue clay
50.42	Blue rock – quite hard

Borehole 10:

Depth (m)	Description
6.0	Clay
50.0	Rock: water bearing from 12.5m

Borehole 11:

Depth (m)	Description
8.0	Top soil
14.0	Gravel with some water
18.00	Hard brown rock
50.5	Blue rock – very firm at 27m: water bearing from 22m

Borehole 12:

Depth (m)	Description
3.0	Top soil and clay
6.0	Gravel and clay
18.0	Gravel and clay
50.2	Rock: water bearing

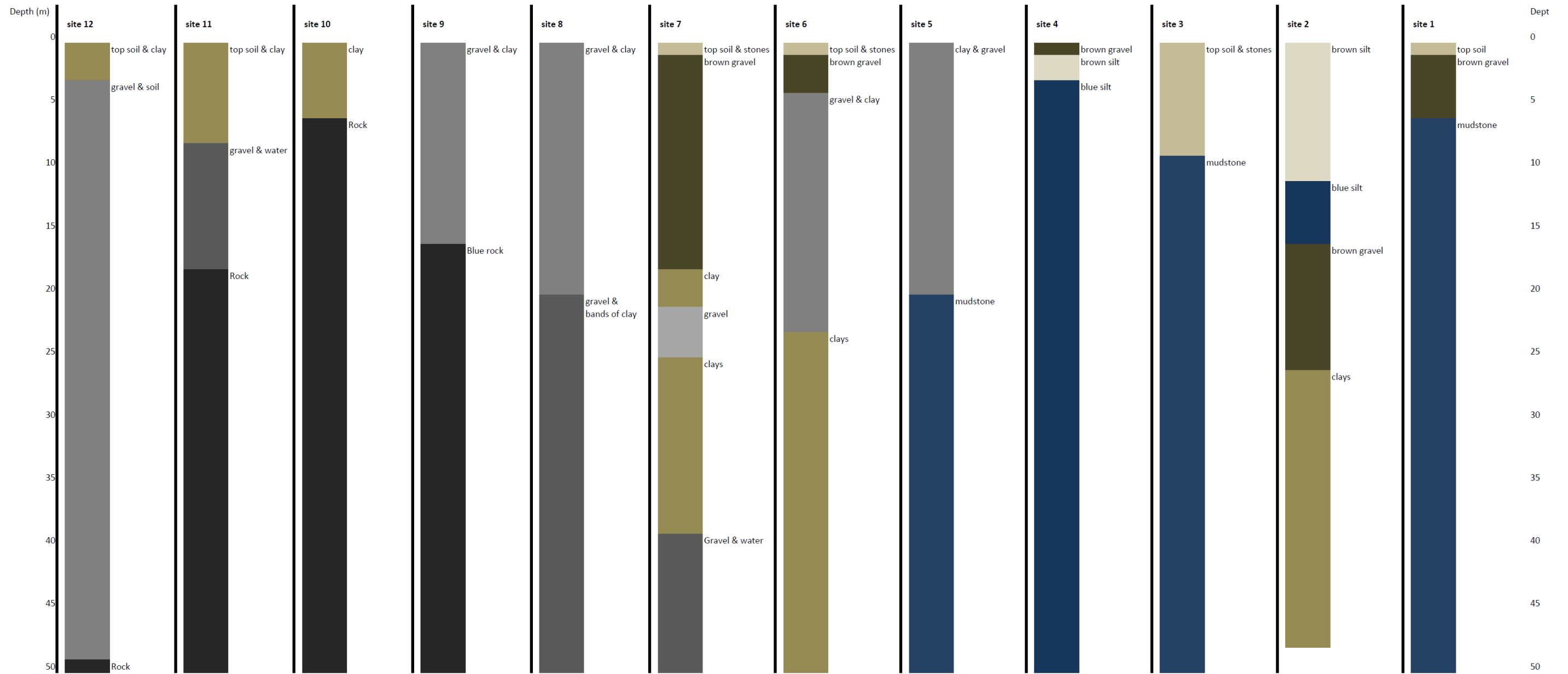


Figure A3.1 Illustration of the drill logs for the 12 boreholes from west (12) to east (1).

APPENDIX 4: INSTRUMENT LOCATIONS

Instruments were deployed roughly every 100m across the lower North Island. The 3C sensors were deployed every 300m along the Transect, while the vertical component sensors were distributed in-between with 100m spacing. The spacing of sensors was densified between Kaitoke and Featherston to 50m spacing between stations and a 3C site every 150m. Table A4.1 lists the locations and serial numbers of the instruments deployed.

Table A4.1 List of seismometers deployed. (Stations in italics are questionable locations due to poor GPS coverage)

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
10000	5463971	1765720	-40.9586	174.9692	3	1			0506	2232	3802			KAP1	11:35	9-May-11		15-May-11
10002	5463895	1765815	-40.9593	174.9703	11		1		0164					KAP1	11:25	9-May-11	11:25	15-May-11
10004	5463800	1765886	-40.9601	174.9712	6		1		0468					KAP1	11:20	9-May-11	11:30	15-May-11
10006	5463689	1765934	-40.9611	174.9718	4	1			0454	2139	3981			KAP1	11:15	9-May-11	11:34	15-May-11
10008	5463564	1765976	-40.9622	174.9723	3		1		0476					KAP1	11:10	9-May-11	11:39	15-May-11
10010	5463436	1766004	-40.9634	174.9727	3		1		0609					KAP1	11:05	9-May-11	11:42	15-May-11
10012	5463320	1766049	-40.9644	174.9733	2	1			0535	2670	2892			KAP1	11:00	9-May-11	11:47	15-May-11
10014	5463242	1766109	-40.9651	174.9740	5		1		0536					KAP1	10:45	9-May-11	11:51	15-May-11
10016	5463171	1766167	-40.9657	174.9747	5		1		0197					KAP1	10:40	9-May-11	11:55	15-May-11
10018	5463104	1766222	-40.9663	174.9754	5	1			0084	2754	2841			KAP1	10:30	9-May-11	12:05	15-May-11
10020	5462989	1766324	-40.9673	174.9766	5		1		0469					KAP1	10:25	9-May-11	12:12	15-May-11
10022	5462870	1766336	-40.9684	174.9768	5		1		0113					KAP1	10:10	9-May-11	12:17	15-May-11
10024	5462804	1766397	-40.9690	174.9775	7	1			0221	2241	3789			KAP1	10:00	9-May-11	12:20	15-May-11
10026	5462732	1766471	-40.9696	174.9784	5		1		0605					KAP1	09:50	9-May-11	12:24	15-May-11
10028	5462695	1766556	-40.9699	174.9795	3		1		0404					KAP1	09:40	9-May-11	12:28	15-May-11
10030	5462641	1766666	-40.9704	174.9808	7	1			0426	2584	3668			KAP1	09:25	9-May-11	12:35	15-May-11
10032	5462603	1766717	-40.9707	174.9814	9		1		0178					KAP1	09:10	9-May-11	12:41	15-May-11
10034	5462583	1766831	-40.9709	174.9828	12		1		0095					KAP1	09:05	9-May-11	12:45	15-May-11
10036	5462406	1766848	-40.9725	174.9830	17	1			0040	2147	2981			KAP1	09:00	9-May-11	12:55	15-May-11
10038	5462260	1766870	-40.9738	174.9833	20		1		0405					KAP3	12:15	9-May-11	13:13	15-May-11
10040	5462192	1766970	-40.9744	174.9845	26		1		0427					KAP3	12:20	9-May-11	13:17	15-May-11
10042	5462162	1767039	-40.9746	174.9853	32	1			0051	2634	4023			KAP3	12:30	9-May-11	13:21	15-May-11
10044	5462105	1767131	-40.9751	174.9864	30		1		1066					KAP3	01:00	9-May-11	13:27	15-May-11
10046	5462020	1767187	-40.9759	174.9871	33		1		0158					KAP3	01:15	9-May-11	13:33	15-May-11
10048	5461981	1767319	-40.9762	174.9887	35	1			0042	2541	3684			KAP3	13:23	9-May-11	13:45	15-May-11
10050	5461985	1767412	-40.9761	174.9898	27		1		0791					KAP3	14:40	9-May-11	13:49	15-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
10052	5462013	1767550	-40.9759	174.9915	40		1		0679					KAP3	14:35	9-May-11	13:54	15-May-11
10054	5462068	1767741	-40.9753	174.9937	58	1			0924	2713	3613			KAP3	14:25	9-May-11	14:00	15-May-11
10056	5462158	1767914	-40.9745	174.9957	71		1		1021					KAP3	14:18	9-May-11	14:08	15-May-11
10058	5462231	1768021	-40.9738	174.9970	76		1		1027					KAP3	14:13	9-May-11	14:13	15-May-11
10060	5462310	1768194	-40.9731	174.9990	88	1			1591	2250	0713			KAP3	14:01	9-May-11	14:20	15-May-11
10062	5462342	1768406	-40.9727	175.0015	159		1		1026					KAP3	13:50	9-May-11	14:40	15-May-11
10064	5462113	1768359	-40.9748	175.0010	205		1		1036					KAP3	13:41	9-May-11	14:53	15-May-11
10066	5462230	1768572	-40.9737	175.0035	236	1			1147	2741	2848			KAP3	13:10	9-May-11	15:02	15-May-11
10068	5462136	1768630	-40.9745	175.0042	244		1		1013					KAP3	13:00	9-May-11	15:13	15-May-11
10070	5462108	1768773	-40.9748	175.0060	300		1		1754					KAP3	11:49	9-May-11	16:12	15-May-11
10072	5462069	1768893	-40.9751	175.0074	312	1			0119	2560	4052			KAP3	11:38	9-May-11		15-May-11
10074	5462172	1769024	-40.9741	175.0089	260		1		0460					KAP3	11:15	9-May-11	15:54	15-May-11
10076	5462239	1769158	-40.9735	175.0105	228		1		1742					KAP2	11:04	9-May-11	15:45	15-May-11
10078	5462194	1769257	-40.9739	175.0117	253	1			0543	2582	2806			KAP2	10:45	9-May-11	15:24	15-May-11
10080	5462182	1769385	-40.9740	175.0132	272		1		0169					KAP2	10:35	9-May-11	15:17	15-May-11
10082	5462001	1769381	-40.9756	175.0132	291		1		1717					KAP2	10:21	9-May-11	15:16	15-May-11
10084	5461932	1769467	-40.9762	175.0142	311	1			0475	2247	3829			KAP2	12:02	9-May-11	15:11	15-May-11
10086	5461817	1769498	-40.9772	175.0146	320		1		0050					KAP2	09:48	9-May-11	15:07	15-May-11
10088	5461680	1769517	-40.9785	175.0149	329		1		0434					KAP2	09:41	9-May-11	15:05	15-May-11
10090	5461546	1769536	-40.9797	175.0152	339	1			1966	2416	3628			KAP2	09:30	9-May-11	14:57	15-May-11
10092	5461523	1769670	-40.9798	175.0168	359		1		0512					KAP2	09:21	9-May-11	14:52	15-May-11
10094	5461456	1769727	-40.9804	175.0175	373		1		0461					KAP2	09:14	9-May-11	14:47	15-May-11
10096	5461353	1769781	-40.9813	175.0181	481	1			1719	2496	3791			KAP2	16:05	9-May-11	16:20	15-May-11
10098	5461299	1769885	-40.9818	175.0194	540		1		1546					KAP2	15:55	9-May-11	16:10	15-May-11
10100	5461158	1769887	-40.9831	175.0194	526		1		1514					KAP2	15:45	9-May-11	16:15	15-May-11
10102	5461184	1769997	-40.9828	175.0207	563	1			1512	2487	2917			KAP2	15:30	9-May-11	16:02	15-May-11
10104	5461089	1770068	-40.9837	175.0216	541		1		1667					KAP2	15:25	9-May-11	16:00	15-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
10106	5460207	1769590	-40.9917	175.0162	426		1		1882					KAP2	14:15	9-May-11	12:30	16-May-11
10108	5461042	1769587	-40.9842	175.0159	405	1			1703	2686	3849			KAP2	13:45	9-May-11	13:27	15-May-11
10110	5459953	1769609	-40.9940	175.0165	424		1		1912					KAP2	13:28	9-May-11	13:36	15-May-11
10112	5459806	1769658	-40.9953	175.0171	472		1		1921					KAP2	13:15	9-May-11	13:48	15-May-11
10114	5459797	1769780	-40.9953	175.0185	468	1			1615	2503	3925			KAP2	12:00	9-May-11	14:32	15-May-11
10114	5459797	1769783	-40.9953	175.0186	475							991E	LAG	13:20	9-May-11		14-May-11	
10116	5459847	1769942	-40.9949	175.0205	480		1		1691					KAP2	11:45	9-May-11	14:30	15-May-11
10118	5460037	1770211	-40.9931	175.0236	517		1		1823					KAP2	11:32	9-May-11	14:25	15-May-11
10120	5460071	1770351	-40.9928	175.0253	525	1			1782	2501	3959			KAP2	11:12	9-May-11	14:20	15-May-11
10122	5460169	1770537	-40.9918	175.0274	536		1		0518					KAP2	11:05	9-May-11	14:05	15-May-11
10124	5460190	1770673	-40.9916	175.0291	547		1		0569					KAP2	11:00	9-May-11	14:09	15-May-11
10126	5460177	1770794	-40.9917	175.0305	554	1			0117	2050	3780			KAP2	10:40	9-May-11	14:00	15-May-11
10128	5460164	1770881	-40.9918	175.0315	553		1		0592					KAP2	10:25	9-May-11	13:55	15-May-11
10130	5460125	1770988	-40.9921	175.0328	553		1		0100					KAP2	10:15	9-May-11	13:48	15-May-11
10132	5460031	1771053	-40.9930	175.0336	552	1			0110	2152	3817			KAP2	10:05	9-May-11	13:45	15-May-11
10134	5459874	1771064	-40.9944	175.0338	562		1		0101					KAP2	09:55	9-May-11	13:40	15-May-11
10136	5459771	1771075	-40.9953	175.0339	560		1		0103					KAP2	09:45	9-May-11	13:30	15-May-11
10138	5459694	1771130	-40.9960	175.0346	560	1			0162	2613	3934			KAP1	16:32	7-May-11	13:35	15-May-11
10140	5459685	1771278	-40.9960	175.0364	559		1		0027					KAP1	16:25	7-May-11	13:27	15-May-11
10142	5459681	1771440	-40.9960	175.0383	556		1		0161					KAP1	16:12	7-May-11	13:10	15-May-11
10144	5459666	1771541	-40.9962	175.0395	542	1			0152	2337	3627			KAP1	15:55	7-May-11	13:15	15-May-11
10146	5459676	1771633	-40.9960	175.0406	557		1		0149					KAP1	15:40	7-May-11	13:02	15-May-11
10148	5459675	1771815	-40.9960	175.0428	571		1		0622					KAP1	15:30	7-May-11	12:45	15-May-11
10150	5459907	1772120	-40.9939	175.0463	548	1			0471	2515	3640			KAP1	15:10	7-May-11	12:53	15-May-11
10152	5460163	1772383	-40.9915	175.0494	522		1		0562					KAP1	15:00	7-May-11		15-May-11
10154	5460248	1772571	-40.9907	175.0516	528		1		0106					KAP1	14:45	7-May-11		15-May-11
10156	5460227	1772665	-40.9909	175.0527	530	1			0505	2648	3855			KAP1	14:30	7-May-11		15-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
10158	5460233	1772796	-40.9908	175.0543	529		1		0439					KAP1	09:35	7-May-11		15-May-11
10160	5460249	1772932	-40.9906	175.0559	513		1		0184					KAP1	10:00	7-May-11		15-May-11
10162	5460122	1773209	-40.9917	175.0592	482	1			0472	2523	3901			KAP1	10:40	7-May-11		15-May-11
10164	5460095	1773344	-40.9919	175.0608	468		1		0445					KAP1	10:55	7-May-11		15-May-11
10166	5460025	1773457	-40.9925	175.0622	437		1		0420					KAP1	11:10	7-May-11		15-May-11
10168	5459975	1773531	-40.9930	175.0631	422	1			0489	2525	3755			KAP1	11:16	7-May-11		15-May-11
10170	5459979	1773652	-40.9929	175.0645	434		1		0494					KAP1	11:35	7-May-11		15-May-11
10172	5460077	1773819	-40.9920	175.0665	399		1		0409					KAP1	13:03	7-May-11		15-May-11
10174	5460192	1773997	-40.9909	175.0685	349	1			0458	2499	3828			KAP1	12:50	7-May-11		15-May-11
10176	5460475	1774020	-40.9884	175.0687	337		1		0513					KAP1	12:15	7-May-11		15-May-11
10178	5461029	1774534	-40.9833	175.0747	508		1		1864					KAP2 & 3	12:08	8-May-11	11:25	15-May-11
10180	5460910	1774591	-40.9843	175.0754	501	1			1830	2585	3965			KAP2 & 3	11:58	8-May-11	11:30	15-May-11
10182	5460825	1774650	-40.9851	175.0761	501		1		1908					KAP2 & 3	11:49	8-May-11	11:35	15-May-11
10184	5460808	1774714	-40.9852	175.0769	501		1		1548					KAP2 & 3	12:42	8-May-11	11:40	15-May-11
10186	5460722	1774797	-40.9860	175.0779	528	1			1849	2082	2926			KAP2 & 3	12:34	8-May-11	11:43	15-May-11
10188	5460609	1774910	-40.9870	175.0793	527		1		1934					KAP2 & 3	11:23	8-May-11	11:50	15-May-11
10190	5460512	1774912	-40.9878	175.0793	528		1		0521					KAP2 & 3	12:17	8-May-11	11:53	15-May-11
10192	5460418	1774964	-40.9887	175.0800	537	1			1923	2452	3980			KAP2 & 3	11:08	8-May-11	11:57	15-May-11
10194	5460304	1775015	-40.9897	175.0806	528		1		0153					KAP2 & 3	11:02	8-May-11	12:00	15-May-11
10196	5460355	1775190	-40.9892	175.0827	557		1		1871					KAP2 & 3	10:54	8-May-11	12:03	15-May-11
10198	5460221	1775226	-40.9904	175.0831	559	1			1763	2243	3762			KAP2 & 3	10:46	8-May-11	12:06	15-May-11
10200	5459945	1775157	-40.9929	175.0824	549		1		1558					KAP2 & 3	12:56	8-May-11	12:15	15-May-11
10202	5459879	1775247	-40.9935	175.0835	555		1		1853					KAP2 & 3	13:03	8-May-11	12:18	15-May-11
10204	5459776	1775298	-40.9944	175.0841	561	1			0499	2760	3848			KAP2 & 3	13:35	8-May-11		15-May-11
10206	5459778	1775438	-40.9943	175.0858	562		1		0134					KAP2 & 3	13:50	8-May-11	12:30	15-May-11
10208	5459721	1775525	-40.9948	175.0868	558		1		0498					KAP2 & 3	14:00	8-May-11	12:33	15-May-11
10210	5459684	1775579	-40.9951	175.0875	552	1			0132	2706	3756			KAP2 & 3	14:05	8-May-11	12:36	15-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
10212	5459526	1775627	-40.9965	175.0881	543		1		0140					KAP2 & 3	14:10	8-May-11	12:55	15-May-11
10214	5459322	1775560	-40.9984	175.0874	535		1		0642					KAP2 & 3	14:20	8-May-11	13:00	15-May-11
10216	5459266	1775655	-40.9989	175.0885	538	1			0191	2102	3612			KAP2 & 3	14:25	8-May-11	13:06	15-May-11
10218	5459210	1775763	-40.9994	175.0898	542		1		0465					KAP2 & 3	14:00	8-May-11	11:07	15-May-11
10220	5459196	1775873	-40.9995	175.0911	539		1		0395					KAP2 & 3	14:06	8-May-11	11:03	15-May-11
10222	5459161	1775962	-40.9998	175.0922	521	1			0111	2650	4028			KAP2 & 3	14:15	8-May-11		15-May-11
10224	5459066	1776026	-41.0006	175.0930	521		1		0529					KAP2 & 3	14:26	8-May-11	10:52	15-May-11
10226	5458918	1776036	-41.0019	175.0931	521		1		0181					KAP2 & 3	14:36	8-May-11	10:48	15-May-11
10228	5458808	1776053	-41.0029	175.0934	521	1			0130	2186	3821			KAP2 & 3	14:46	8-May-11	10:45	15-May-11
10230	5458697	1776081	-41.0039	175.0937	507		1		1868					KAP2 & 3	15:15	8-May-11	10:32	14-May-11
10232	5458598	1776159	-41.0048	175.0947	521		1		1753					KAP2 & 3	15:05	8-May-11	10:45	14-May-11
10234	5458466	1776221	-41.0060	175.0955	543	1			1583	2505	3917			KAP2 & 3	14:35	8-May-11	10:50	14-May-11
10236	5458274	1776162	-41.0077	175.0948	517		1		0118					KAP2 & 3	14:15	8-May-11	11:00	14-May-11
10238	5458196	1776244	-41.0084	175.0958	508		1		1556					KAP2 & 3	13:35	8-May-11	11:02	14-May-11
10240	5458130	1776320	-41.0090	175.0967	492	1			0597	2072	2937			KAP2 & 3	13:24	8-May-11	11:10	14-May-11
10242	5458057	1776358	-41.0096	175.0972	500		1		0199					KAP2 & 3	13:15	8-May-11	11:15	14-May-11
10244	5458032	1776500	-41.0098	175.0989	520		1		0613					KAP2 & 3	13:05	8-May-11	11:20	14-May-11
10246	5458002	1776592	-41.0101	175.1000	520	1			0572	2684	3761			KAP2 & 3	12:23	8-May-11	10:10	14-May-11
10248	5457917	1776658	-41.0108	175.1008	516		1		0394					KAP2 & 3	12:05	8-May-11	11:35	14-May-11
10250	5457927	1776798	-41.0107	175.1025	487		1		0127					KAP2 & 3	11:40	8-May-11	11:45	14-May-11
10252	5457962	1776937	-41.0103	175.1041	472	1			0188	2079	3932			KAP1	11:00	8-May-11	11:47	14-May-11
10254	5457981	1777072	-41.0101	175.1057	444		1		0598					KAP1	10:45	8-May-11	11:55	14-May-11
10256	5458007	1777214	-41.0099	175.1074	421		1		1630					KAP1	15:27	8-May-11	12:00	14-May-11
10258	5457930	1777276	-41.0106	175.1082	412	1			1832	2735	3890			KAP1	16:35	8-May-11	12:02	14-May-11
10260	5457650	1777213	-41.0131	175.1075	390		1		1929					KAP1	15:48	8-May-11	12:10	14-May-11
10262	5457542	1777223	-41.0141	175.1076	376		1		1861					KAP1	15:57	8-May-11	12:16	14-May-11
10264	5457392	1777273	-41.0154	175.1083	357	1			1738	2502	4043			KAP1	14:06	8-May-11	12:22	14-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
10266	5457419	1777371	-41.0151	175.1094	354		1		1729					KAP1	14:12	8-May-11	12:25	14-May-11
10268	5457404	1777446	-41.0153	175.1103	355		1		0076					KAP1	12:00	8-May-11	12:32	14-May-11
10270	5457348	1777549	-41.0157	175.1116	338	1			0580	2472	3813			KAP1	11:50	8-May-11	12:37	14-May-11
10272	5457286	1777604	-41.0163	175.1122	326		1		0430					KAP1	11:33	8-May-11	12:45	14-May-11
10274	5457409	1777849	-41.0151	175.1151	194		1		0131					KAP1	16:07	8-May-11		14-May-11
10276	5457284	1777942	-41.0162	175.1163	185	1			1639	2414	3506			KAP1	16:20	8-May-11	14:00	14-May-11
10278	5457253	1778049	-41.0165	175.1175	183		1		1842					KAP1	16:20	8-May-11	14:05	14-May-11
10292	5456274	1778173	-41.0253	175.1193	124		1		0495					KAP2 & 3	15:16	7-May-11	14:30	14-May-11
10294	5456261	1778292	-41.0254	175.1207	203	1			0551	2138	3636			KAP2 & 3	15:08	7-May-11	14:17	14-May-11
10296	5456204	1778386	-41.0259	175.1218	218		1		0073					KAP2 & 3	15:03	7-May-11	14:13	14-May-11
10298	5456232	1778553	-41.0256	175.1238	255		1		0423					KAP2 & 3	14:52	7-May-11	14:09	14-May-11
10300	5456172	1778603	-41.0261	175.1244	277	1			0643	2751	3642			KAP2 & 3	14:45	7-May-11	14:06	14-May-11
10302	5456116	1778708	-41.0266	175.1257	300		1		0105					KAP2 & 3	14:35	7-May-11	14:03	14-May-11
10304	5456055	1778768	-41.0271	175.1264	320		1		0407					KAP2 & 3	14:27	7-May-11	14:01	14-May-11
10306	5456034	1778834	-41.0273	175.1272	330	1			0123	2119	3799			KAP2 & 3	14:20	7-May-11	13:57	14-May-11
10308	5455944	1778946	-41.0281	175.1286	345		1		0418					KAP2 & 3	14:10	7-May-11	13:54	14-May-11
10310	5455853	1778974	-41.0289	175.1289	355		1		0176					KAP2 & 3	16:06	7-May-11	13:51	14-May-11
10312	5455743	1779031	-41.0299	175.1296	362	1			0417	2038	3653			KAP2 & 3	15:56	7-May-11	13:44	14-May-11
10314	5455638	1779079	-41.0308	175.1302	485		1		0415					KAP2 & 3	15:32	7-May-11	13:41	14-May-11
10316	5455673	1779228	-41.0305	175.1320	421		1		0464					KAP2 & 3	15:20	7-May-11	13:36	14-May-11
10318	5455638	1779325	-41.0307	175.1332	443	1			0463	2130	4086			KAP2 & 3	15:04	7-May-11	13:31	14-May-11
10320	5455552	1779395	-41.0315	175.1340	457		1		0196					KAP2 & 3	14:53	7-May-11	13:27	14-May-11
10322	5455495	1779460	-41.0320	175.1348	462		1		0634					KAP2 & 3	14:41	7-May-11	13:24	14-May-11
10324	5455516	1779599	-41.0318	175.1365	455	1			0640	2457	3589			KAP2 & 3	14:30	7-May-11	12:42	14-May-11
10326	5455464	1779704	-41.0322	175.1377	451		1		0538					KAP2 & 3	14:17	7-May-11	12:34	14-May-11
10328	5455382	1779750	-41.0330	175.1383	447		1		0641					KAP2 & 3	14:08	7-May-11	12:30	14-May-11
10330	5455312	1779837	-41.0336	175.1393	448	1			0576	2557	4088			KAP2 & 3	13:25	7-May-11	12:24	14-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
10332	5455498	1780099	-41.0318	175.1424	442		1		1706					KAP2 & 3		7-May-11	12:02	14-May-11
10334	5455486	1780218	-41.0319	175.1438	445		1		1641					KAP2 & 3	10:21	7-May-11	11:57	14-May-11
10336	5455431	1780311	-41.0324	175.1449	455	1			1957	2029	4029			KAP2 & 3	10:31	7-May-11	11:51	14-May-11
10338	5455346	1780366	-41.0331	175.1456	467		1		1568					KAP2 & 3	10:48	7-May-11	11:47	14-May-11
10340	5455171	1780391	-41.0347	175.1460	453		1		1783					KAP2 & 3	11:00	7-May-11	11:42	14-May-11
10342	5455038	1780383	-41.0359	175.1459	474	1			0620	2137	2874			KAP2 & 3	11:19	7-May-11	11:37	14-May-11
10344	5454873	1780387	-41.0374	175.1460	477		1		0223					KAP2 & 3	11:32	7-May-11	11:32	14-May-11
10346	5454734	1780434	-41.0386	175.1466	485		1		0063					KAP2 & 3	11:48	7-May-11	11:25	14-May-11
10348	5454612	1780452	-41.0397	175.1469	516	1			0561	2135	2991			KAP2 & 3	12:14	7-May-11	11:17	14-May-11
10350	5454459	1780453	-41.0411	175.1469	524		1		0549					KAP2 & 3	12:24	7-May-11	11:12	14-May-11
10352	5454156	1780373	-41.0439	175.1461	567		1		1696					KAP2 & 3	13:16	7-May-11	11:03	14-May-11
10354	5454051	1780422	-41.0448	175.1467	562	1			1553	2189	2900			KAP2 & 3	13:07	7-May-11	10:59	14-May-11
10356	5453974	1780478	-41.0455	175.1474	576		1		1559					KAP2 & 3	12:55	7-May-11	10:55	14-May-11
10358	5453855	1780509	-41.0465	175.1478	580		1		1972					KAP2 & 3	12:50	7-May-11	10:50	14-May-11
10360	5453808	1780629	-41.0469	175.1492	578	1			1954	2672	2930			KAP2 & 3	12:30	7-May-11	10:42	14-May-11
10362	5453820	1780748	-41.0468	175.1506	564		1		1857					KAP2 & 3	12:10	7-May-11	10:39	14-May-11
10364	5453767	1780850	-41.0473	175.1518	559		1		1883					KAP2 & 3	11:55	7-May-11	10:34	14-May-11
10366	5453733	1780940	-41.0475	175.1529	561	1			1747	2755	3860			KAP2 & 3	11:30	7-May-11	10:25	14-May-11
10368	5453710	1781048	-41.0477	175.1542	566		1		1971					KAP2 & 3	11:15	7-May-11	10:22	14-May-11
10370	5453661	1781117	-41.0481	175.1550	575		1		1917					KAP2 & 3	11:05	7-May-11	10:15	14-May-11
10425	5453162	1784160	-41.0520	175.1914	207		1		0160					KAI1	09:15	9-May-11	09:40	14-May-11
10426	5453139	1784209	-41.0522	175.1920	209	1			0403	2543	3625			KAI1	09:00	9-May-11	09:45	14-May-11
10427	5453039	1784206	-41.0531	175.1920	218		1		0581					KAI1	09:40	9-May-11	09:51	14-May-11
10428	5453064	1784250	-41.0528	175.1925	219		1		0398					KAI1	09:45	9-May-11	09:55	14-May-11
10429	5452989	1784313	-41.0535	175.1933	216	1			0567	2635	3657			KAI1	09:55	9-May-11	09:57	14-May-11
10430	5452979	1784319	-41.0536	175.1933	215		1		0207					KAI1	10:25	9-May-11	09:59	14-May-11
10431	5452941	1784344	-41.0539	175.1936	210		1		0148					KAI1	10:35	9-May-11	10:00	14-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
10432	5452919	1784383	-41.0541	175.1941	210	1			0442	2251	3939			KAI1	10:40	9-May-11	10:05	14-May-11
10433	5452883	1784442	-41.0544	175.1948	204		1		0516					KAI1	10:51	9-May-11	10:20	14-May-11
10434	5452851	1784461	-41.0547	175.1951	203		1		0509					KAI1	11:00	9-May-11	10:12	14-May-11
10435	5452790	1784505	-41.0552	175.1956	208	1			0037	2631	4070			KAI1	11:13	9-May-11	10:13	14-May-11
10436	5452629	1784429	-41.0567	175.1947	213		1		0211					KAI1	11:24	9-May-11	10:14	14-May-11
10437	5452577	1784448	-41.0572	175.1950	214		1		0034					KAI1	12:00	9-May-11	10:24	14-May-11
10438	5452515	1784486	-41.0577	175.1955	217	1			0480	2740	4090			KAI1	12:06	9-May-11	10:27	14-May-11
10439	5452477	1784499	-41.0580	175.1956	221		1		0052					KAI1	12:18	9-May-11	10:30	14-May-11
10440	5452413	1784512	-41.0586	175.1958	223		1		0116					KAI1	12:30	9-May-11	10:32	14-May-11
10441	5452328	1784532	-41.0594	175.1961	223	1			0412	2195	3624			KAI1	12:37	9-May-11	10:34	14-May-11
10442	5452236	1784508	-41.0602	175.1958	221		1		0414					KAI1	12:50	9-May-11	10:38	14-May-11
10443	5452181	1784514	-41.0607	175.1959	225		1		0393					KAI1	13:00	9-May-11		14-May-11
10444	5452119	1784548	-41.0613	175.1963	228	1			0124	2492	3831			KAI1	13:10	9-May-11	10:44	14-May-11
10445	5452090	1784586	-41.0615	175.1968	226		1		0411					KAI1	13:20	9-May-11	10:48	14-May-11
10446	5452022	1784617	-41.0621	175.1972	224		1		0623					KAI1	13:21	9-May-11	10:51	14-May-11
10447	5451952	1784628	-41.0627	175.1973	218	1			0041	2490	3996			KAI1	13:30	9-May-11	10:55	14-May-11
10448	5451867	1784641	-41.0635	175.1975	216		1		0604					KAI1	13:41	9-May-11	10:58	14-May-11
10449	5451806	1784665	-41.0640	175.1978	214		1		0179					KAI1	13:50	9-May-11	11:01	14-May-11
10450	5451754	1784674	-41.0645	175.1979	211	1			1915	2729	3673			KAI1	08:00	10-May-11	11:03	15-May-11
10451	5451686	1784698	-41.0651	175.1982	208		1		1914					KAI1	08:20	10-May-11	11:09	15-May-11
10452	5451635	1784709	-41.0656	175.1984	202		1		1939					KAI1	08:41	10-May-11	11:14	15-May-11
10453	5451598	1784758	-41.0659	175.1990	200	1			1900	2545	3915			KAI1	08:47	10-May-11	11:18	15-May-11
10454	5451518	1784737	-41.0666	175.1987	206		1		1898					KAI1	09:24	10-May-11	11:22	15-May-11
10455	5451455	1784778	-41.0672	175.1992	207		1		1526					KAI1	09:30	10-May-11	11:25	15-May-11
10456	5451423	1784800	-41.0675	175.1995	208	1			1610	2746	4074			KAI1	09:46	10-May-11		15-May-11
10457	5451458	1784895	-41.0671	175.2006	207		1		1820					KAI1	10:04	10-May-11	12:01	15-May-11
10458	5451418	1784928	-41.0675	175.2010	207		1		1859					KAI1	10:13	10-May-11	12:05	15-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
10459	5451392	1784962	-41.0677	175.2014	207	1			1695	2096	3788			KAI1	10:27	10-May-11	12:08	15-May-11
10460	5451355	1785001	-41.0680	175.2019	209		1		0216					KAI1		10-May-11	12:16	15-May-11
10461	5451325	1785033	-41.0683	175.2023	212		1		1607					KAI1		10-May-11	12:19	15-May-11
10462	5451328	1785119	-41.0682	175.2033	210	1			1994	2374	3585			KAI1	11:05	10-May-11	12:30	15-May-11
10463	5451319	1785176	-41.0683	175.2040	210		1		1712					KAI1	11:15	10-May-11	12:31	15-May-11
10464	5451342	1785234	-41.0681	175.2047	220		1		1690					KAI1	11:30	10-May-11	12:39	15-May-11
10465	5451320	1785282	-41.0683	175.2053	215	1			0170	2572	3793			KAI1	11:50	10-May-11	12:42	15-May-11
10466	5451307	1785334	-41.0684	175.2059	219		1		0038					KAI1	12:00	10-May-11	12:45	15-May-11
10467	5451286	1785387	-41.0686	175.2065	221		1		0586					KAI1	12:15	10-May-11	12:52	15-May-11
10468	5451271	1785434	-41.0687	175.2071	226	1			0544	2522	4072			KAI1	12:54	10-May-11	12:53	15-May-11
10469	5451260	1785487	-41.0688	175.2077	227		1		0570					KAI1	13:05	10-May-11	13:00	15-May-11
10470	5451257	1785544	-41.0688	175.2084	224		1		0478					KAI1	13:07	10-May-11	13:07	15-May-11
10471	5451253	1785603	-41.0688	175.2091	224	1			0424	2611	3678			KAI1		10-May-11	13:16	15-May-11
10472	5451246	1785659	-41.0689	175.2098	227		1		0120					KAI1	13:50	10-May-11	13:20	15-May-11
10473	5451230	1785712	-41.0690	175.2104	224		1		0163					KAI1	14:00	10-May-11	13:30	15-May-11
10474	5451221	1785767	-41.0691	175.2111	225	1			0481	2612	2942			KAI1	14:14	10-May-11	13:34	15-May-11
10475	5451223	1785812	-41.0690	175.2116	224		1		0168					KAI1	14:20	10-May-11	13:39	15-May-11
10476	5451186	1785880	-41.0694	175.2124	244		1		0456					KAI1	14:40	10-May-11		15-May-11
10477	5451149	1785899	-41.0697	175.2127	244	1			0587	2257	3989			KAI1	14:50	10-May-11	13:50	15-May-11
10478	5451105	1785924	-41.0701	175.2130	257		1		0440					KAI1	15:00	10-May-11	13:53	15-May-11
10479	5451061	1785953	-41.0705	175.2133	272		1		0048					KAI1	15:05	10-May-11		15-May-11
10480	5451010	1785982	-41.0709	175.2137	266	1			0770	2035	2928			KAI1	15:15	10-May-11	13:59	15-May-11
10481	5450974	1786014	-41.0712	175.2141	260		1		0112					KAI1	15:30	10-May-11	14:05	15-May-11
10482	5450953	1786062	-41.0714	175.2147	265		1		0774					KAI1	15:40	10-May-11	14:09	15-May-11
10483	5450961	1786104	-41.0713	175.2152	263	1			0759	2552	3898			KAI1	15:50	10-May-11	14:13	15-May-11
10484	5450983	1786158	-41.0711	175.2158	257		1		0992					KAI1	16:00	10-May-11	14:17	15-May-11
10485	5450868	1786187	-41.0721	175.2162	220		1		1037					KAI1	13:45	8-May-11	14:48	15-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
10486	5450911	1786241	-41.0717	175.2168	223	1			1787	2277	3990			KAI1	13:37	8-May-11	14:45	15-May-11
10487	5450884	1786304	-41.0720	175.2176	225		1		1964					KAI1	13:26	8-May-11	14:40	15-May-11
10488	5450870	1786348	-41.0721	175.2181	223		1		0435					KAI1	13:19	8-May-11	14:37	15-May-11
10489	5450843	1786418	-41.0723	175.2189	224	1			0993	2710	3609			KAI1	13:10	8-May-11	14:34	15-May-11
10490	5450800	1786438	-41.0727	175.2192	222		1		0826					KAI1	12:58	8-May-11	14:26	15-May-11
10491	5450772	1786479	-41.0729	175.2197	222		1		1142					KAI1	12:51	8-May-11	13:14	15-May-11
10492	5450733	1786526	-41.0733	175.2203	223	1			0703	2095	3940			KAI1	12:25	8-May-11	13:06	14-May-11
10493	5450662	1786522	-41.0739	175.2202	221		1		0763					KAI1	12:10	8-May-11	13:03	14-May-11
10494	5450626	1786559	-41.0742	175.2207	225		1		0151					KAI1	12:00	8-May-11	12:59	14-May-11
10495	5450604	1786614	-41.0744	175.2213	224	1			0219	2411	2872			KAI1	11:50	8-May-11	12:53	14-May-11
10496	5450590	1786665	-41.0745	175.2219	228		1		0524					KAI1	11:35	8-May-11	12:51	14-May-11
10497	5450571	1786710	-41.0747	175.2225	230		1		0201					KAI1	11:30	8-May-11		14-May-11
10498	5450553	1786765	-41.0748	175.2231	230	1			0215	2763	4094			KAI1	11:24	8-May-11		14-May-11
10499	5450535	1786808	-41.0750	175.2237	232		1		0159					KAI1	11:12	8-May-11		14-May-11
10500	5450501	1786841	-41.0753	175.2241	235		1		0432					KAI1	11:03	8-May-11		14-May-11
10501	5450307	1786758	-41.0771	175.2231	235	1			0031	2596	3603			KAI1	10:50	8-May-11	12:27	14-May-11
10502	5450080	1786672	-41.0791	175.2222	238		1		0447					KAI1	10:40	8-May-11	12:22	14-May-11
10503	5450053	1786717	-41.0794	175.2227	249		1		0218					KAI1	10:30	8-May-11	12:18	14-May-11
10504	5450042	1786767	-41.0794	175.2233	240	1			0183	2466	3621			KAI1	10:20	8-May-11	14:05	14-May-11
10505	5449914	1786729	-41.0806	175.2229	270		1		0546					KAI1	10:01	8-May-11	13:52	14-May-11
10506	5449888	1786759	-41.0808	175.2233	273		1		0555					KAI1	09:50	8-May-11	13:49	14-May-11
10507	5449787	1786752	-41.0817	175.2232	307	1			0577	2918	2699			KAI1	09:36	8-May-11		14-May-11
10507	5449784	1786750	-41.0818	175.2232	291							9517	LAG	12:54	9-May-11		14-May-11	
10508	5449565	1786680	-41.0838	175.2224	341		1		0171					KAI1	09:20	8-May-11	13:30	14-May-11
10509	5449560	1786738	-41.0838	175.2231	348		1		0556					KAI1	08:50	8-May-11	13:26	14-May-11
10510	5449513	1786746	-41.0842	175.2232	352	1			1675	2797	3790			KAI1	16:56	7-May-11	13:16	14-May-11
10511	5449462	1786785	-41.0847	175.2237	361		1		1730					KAI1	16:45	7-May-11	13:14	14-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
10512	5449409	1786812	-41.0851	175.2241	372		1		1595					KAI1	16:40	7-May-11	13:12	14-May-11
10513	5449384	1786855	-41.0853	175.2246	383	1			1948	2034	4022			KAI1	16:31	7-May-11	13:10	14-May-11
10514	5449374	1786914	-41.0854	175.2253	394		1		1744					KAI1	16:21	7-May-11	13:06	14-May-11
10515	5449381	1786984	-41.0853	175.2261	413		1		1791					KAI2 & 3	16:10	7-May-11	13:02	14-May-11
10516	5449359	1787014	-41.0855	175.2265	413	1			1609	2180	2896			KAI2 & 3	16:00	7-May-11	12:59	14-May-11
10517	5449322	1787058	-41.0859	175.2270	411		1		0534					KAI2 & 3	15:51	7-May-11	12:55	14-May-11
10518	5449275	1787077	-41.0863	175.2272	424		1		1732					KAI2 & 3	15:45	7-May-11	12:44	14-May-11
10519	5449238	1787104	-41.0866	175.2276	436	1			1877	2799	3722			KAI2 & 3	15:38	7-May-11	13:42	14-May-11
10520	5449211	1787146	-41.0868	175.2281	445		1		1810					KAI2 & 3	15:25	7-May-11	12:37	14-May-11
10521	5449167	1787215	-41.0872	175.2289	431		1		0208					KAI2 & 3	15:16	7-May-11	12:28	14-May-11
10522	5449157	1787282	-41.0873	175.2297	420	1			1881	2711	3838			KAI2 & 3	15:10	7-May-11	12:26	14-May-11
10523	5449164	1787313	-41.0872	175.2301	475		1		0210					KAI2 & 3	15:00	7-May-11	11:45	14-May-11
10524	5449106	1787337	-41.0877	175.2304	492		1		1721					KAI2 & 3	14:53	7-May-11	11:42	14-May-11
10525	5449081	1787378	-41.0880	175.2309	482	1			0186	2677	3607			KAI2 & 3	14:49	7-May-11	11:39	14-May-11
10526	5449064	1787429	-41.0881	175.2315	500		1		1841					KAI2 & 3	14:42	7-May-11	11:35	14-May-11
10527	5449016	1787458	-41.0885	175.2319	503		1		0590					KAI2 & 3	14:32	7-May-11	11:33	14-May-11
10528	5448968	1787471	-41.0889	175.2320	523	1			1829	2798	3949			KAI2 & 3	14:26	7-May-11	11:29	14-May-11
10529	5448930	1787514	-41.0893	175.2326	529		1		0500					KAI2 & 3	14:10	7-May-11	11:18	14-May-11
10530	5448928	1787574	-41.0893	175.2333	528		1		1880					KAI2 & 3	14:06	7-May-11	11:16	14-May-11
10531	5448912	1787614	-41.0894	175.2337	543	1			1885	2722	2925			KAI2 & 3	13:30	7-May-11	11:12	14-May-11
10532	5448919	1787672	-41.0893	175.2344	539		1		0143					KAI2 & 3	13:21	7-May-11	11:09	14-May-11
10533	5448881	1787723	-41.0897	175.2351	557		1		1904					KAI2 & 3	13:15	7-May-11	11:06	14-May-11
10534	5448852	1787757	-41.0899	175.2355	574	1			1585	3737	4004			KAI2 & 3	13:05	7-May-11	11:04	14-May-11
10535	5448816	1787795	-41.0902	175.2359	587		1		0212					KAI2 & 3	12:43	7-May-11	10:57	14-May-11
10536	5448780	1787830	-41.0906	175.2364	588		1		0514					KAI2 & 3	12:29	7-May-11	10:55	14-May-11
10537	5448725	1787857	-41.0910	175.2367	584	1			1804	2455	3721			KAI2 & 3	12:14	7-May-11	10:49	14-May-11
10538	5448706	1787900	-41.0912	175.2372	597		1		0615					KAI2 & 3	12:03	7-May-11	10:45	14-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
10539	5448682	1787953	-41.0914	175.2379	589		1		1547					KAI2 & 3	11:55	7-May-11	10:41	14-May-11
10540	5448679	1788006	-41.0914	175.2385	610	1			0429	2769	2924			KAI2 & 3	11:36	7-May-11	10:37	14-May-11
10541	5448645	1788051	-41.0917	175.2390	610		1		1720					KAI2 & 3	11:28	7-May-11	10:32	14-May-11
10542	5448641	1788113	-41.0917	175.2398	609		1		1998					KAI2 & 3	11:19	7-May-11	10:30	14-May-11
10543	5448661	1788182	-41.0915	175.2406	629	1			0511	2796	3655			KAI2 & 3	11:11	7-May-11	10:25	14-May-11
10544	5448622	1788218	-41.0919	175.2410	627		1		1774					KAI2 & 3	11:05	7-May-11	10:23	14-May-11
10545	5448629	1788278	-41.0918	175.2417	636		1		0585					KAI2 & 3	10:53	7-May-11	09:46	14-May-11
10546	5448586	1788313	-41.0922	175.2422	649	1			0146	2800	2935			KAI2 & 3	10:38	7-May-11		14-May-11
10547	5448582	1788351	-41.0922	175.2426	656		1		0568					KAI2 & 3	10:20	7-May-11	10:12	14-May-11
10548	5448625	1788471	-41.0918	175.2440	668		1		1764					KAI2 & 3	10:13	7-May-11	10:01	14-May-11
10549	5448728	1788597	-41.0908	175.2455	691	1			0203	2639	3675			KAI2 & 3	09:41	7-May-11	09:57	14-May-11
10550	5448774	1788694	-41.0904	175.2466	839		1		1669					KAI2 & 3	09:06	8-May-11	11:56	14-May-11
10551	5448828	1788792	-41.0899	175.2478	728		1		0627					KAI2 & 3	09:10	8-May-11	12:00	14-May-11
10552	5448846	1788872	-41.0897	175.2487	728	1			1848	2618	2877			KAI2 & 3	09:19	8-May-11	12:03	14-May-11
10553	5448844	1788937	-41.0897	175.2495	733		1		0401					KAI2 & 3	09:30	8-May-11	12:08	14-May-11
10554	5448871	1788972	-41.0895	175.2499	741		1		0637					KAI2 & 3	09:44	8-May-11	12:11	14-May-11
10555	5448832	1789020	-41.0898	175.2505	745	1			0419	2616	3732			KAI2 & 3	09:56	8-May-11	12:13	14-May-11
10556	5448919	1789162	-41.0890	175.2522	740		1		0128					KAI2 & 3	10:07	8-May-11	12:17	14-May-11
10557	5448931	1789250	-41.0889	175.2532	730		1		0437					KAI2 & 3	10:21	8-May-11	12:21	14-May-11
10558	5448948	1789280	-41.0887	175.2536	724	1			1725	2603	3819			KAI2 & 3	10:29	8-May-11	12:23	14-May-11
10559	5448933	1789370	-41.0888	175.2546	720		1		0421					KAI2 & 3	10:34	8-May-11	12:28	14-May-11
10560	5448945	1789409	-41.0887	175.2551	714		1		1584					KAI2 & 3	10:55	8-May-11	12:30	14-May-11
10561	5448925	1789451	-41.0889	175.2556	718	1			0097	2601	3786			KAI2 & 3	10:58	8-May-11	12:32	14-May-11
10562	5448877	1789500	-41.0893	175.2562	713		1		1658					KAI2 & 3	11:03	8-May-11	12:36	14-May-11
10563	5448831	1789515	-41.0897	175.2564	719		1		0136					KAI2 & 3	11:07	8-May-11	12:40	14-May-11
10564	5449025	1789720	-41.0879	175.2588	747	1			0137	2590	4079			KAI2 & 3	11:18	8-May-11	12:44	14-May-11
10565	5449026	1789816	-41.0879	175.2599	748		1		0450					KAI2 & 3	11:33	8-May-11	12:48	14-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
10566	5449064	1789878	-41.0875	175.2606	742		1		1637					KAI2 & 3	11:39	8-May-11	12:50	14-May-11
10567	5449072	1789953	-41.0874	175.2615	732	1			0611	2587	3631			KAI2 & 3	11:54	8-May-11	12:51	14-May-11
10568	5449100	1790017	-41.0872	175.2623	750		1		1773					KAI2 & 3	12:01	8-May-11	12:57	14-May-11
10569	5449135	1790112	-41.0868	175.2634	762		1		0099					KAI2 & 3	12:18	8-May-11	12:59	14-May-11
10570	5449213	1790221	-41.0861	175.2647	774	1			0635	2587	3985			KAI2 & 3	12:24	8-May-11	13:02	14-May-11
10571	5449257	1790314	-41.0857	175.2658	773		1		0441					KAI2 & 3	12:38	8-May-11	13:06	14-May-11
10572	5449283	1790385	-41.0854	175.2666	761		1		0200					KAI2 & 3	12:43	8-May-11	13:08	14-May-11
10573	5449279	1790451	-41.0855	175.2674	766	1			0457	2599	2887			KAI2 & 3	13:03	8-May-11	13:09	14-May-11
10574	5449276	1790516	-41.0855	175.2682	771		1		1557					KAI2 & 3	13:05	8-May-11	13:13	14-May-11
10575	5449260	1790549	-41.0856	175.2686	766		1		0452					KAI2 & 3	13:13	8-May-11	13:15	14-May-11
10576	5449249	1790639	-41.0857	175.2696	756	1			1529	2015	4084			KAI2 & 3	13:23	8-May-11	13:18	14-May-11
10577	5449225	1790666	-41.0859	175.2700	757		1		0047					KAI2 & 3	13:30	8-May-11	13:20	14-May-11
10578	5449238	1790717	-41.0858	175.2706	755		1		1831					KAI2 & 3	13:38	8-May-11	13:21	14-May-11
10579	5449096	1790703	-41.0870	175.2704	730	1			0142	2598	4095			KAI2 & 3	13:50	8-May-11	13:24	14-May-11
10580	5448977	1790667	-41.0881	175.2700	705		1		1910					KAI2 & 3	13:59	8-May-11	13:30	14-May-11
10581	5448899	1790681	-41.0888	175.2702	688		1		1812					KAI2 & 3	14:10	8-May-11	13:32	14-May-11
10582	5448806	1790700	-41.0897	175.2705	664	1			1752	2101	3723			KAI2 & 3	14:20	8-May-11	13:35	14-May-11
10583	5448754	1790687	-41.0901	175.2704	659		1		1601					KAI2 & 3	14:28	8-May-11	13:37	14-May-11
10584	5448679	1790717	-41.0908	175.2707	639		1		1682					KAI2 & 3	14:34	8-May-11	13:39	14-May-11
10585	5448632	1790751	-41.0912	175.2712	628	1			1911	2594	3966			KAI2 & 3	14:43	8-May-11	13:44	14-May-11
10586	5448568	1790770	-41.0918	175.2714	620		1		0492					KAI2 & 3	14:53	8-May-11	13:46	14-May-11
10587	5448510	1790779	-41.0923	175.2715	608		1		1808					KAI2 & 3	15:00	8-May-11	13:48	14-May-11
10588	5448480	1790797	-41.0926	175.2718	600	1			1745	2614	3604			KAI2 & 3	15:06	8-May-11	13:50	14-May-11
10589	5448447	1790844	-41.0929	175.2723	602		1		1874					KAI2 & 3	15:23	8-May-11	13:54	14-May-11
10590	5448435	1790897	-41.0930	175.2730	590		1		1805					KAI2 & 3	15:28	8-May-11	13:55	14-May-11
10591	5448384	1790946	-41.0934	175.2736	575	1			1795	2643	3720			KAI2 & 3	15:38	8-May-11	13:57	14-May-11
10592	5448328	1790948	-41.0939	175.2736	570		1		1731					KAI2 & 3	15:46	8-May-11	14:03	14-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
10593	5448287	1790972	-41.0943	175.2739	563		1		1813					KAI2 & 3	15:54	8-May-11	14:04	14-May-11
10594	5448215	1791002	-41.0949	175.2743	542	1			1815	2166	3754			KAI2 & 3	16:04	8-May-11	14:08	14-May-11
10595	5448140	1790990	-41.0956	175.2742	534		1		0782					KAI2 & 3	08:33	9-May-11	14:10	14-May-11
10596	5448136	1791062	-41.0956	175.2750	499		1		1670					KAI2 & 3	08:42	9-May-11	14:15	14-May-11
10597	5448140	1791119	-41.0956	175.2757	477	1			1006	2470	3897			KAI2 & 3	08:43	9-May-11	14:24	14-May-11
10598	5448146	1791175	-41.0955	175.2764	469		1		0980					KAI2 & 3	08:56	9-May-11	14:26	14-May-11
10599	5447971	1791117	-41.0971	175.2757	421		1		0830					KAI2 & 3	09:04	9-May-11	14:32	14-May-11
10600	5447921	1791142	-41.0975	175.2760	412	1			1811	2482	3833			KAI2 & 3	09:16	9-May-11	14:34	14-May-11
10601	5447830	1791154	-41.0983	175.2762	389		1		0714					KAI2 & 3	09:13	9-May-11	14:40	14-May-11
10602	5447774	1791177	-41.0988	175.2765	379		1		1757					KAI2 & 3	09:28	9-May-11	14:43	14-May-11
10603	5447726	1791187	-41.0993	175.2766	369	1			0779	2214	3924			KAI2 & 3	09:25	9-May-11	14:46	14-May-11
10604	5447676	1791231	-41.0997	175.2772	352		1		1847					KAI2 & 3	09:40	9-May-11	14:48	14-May-11
10605	5447652	1791264	-41.0999	175.2776	359		1		0789					KAI2 & 3	09:45	9-May-11	14:49	14-May-11
10606	5447636	1791299	-41.1000	175.2780	335	1			1895	2167	4050			KAI2 & 3	09:51	9-May-11	14:51	14-May-11
10607	5447661	1791414	-41.0998	175.2793	305		1		0853					KAI2 & 3	09:59	9-May-11	14:55	14-May-11
10608	5447697	1791472	-41.0995	175.2800	288		1		1974					KAI2 & 3	10:07	9-May-11	14:57	14-May-11
10609	5447646	1791504	-41.0999	175.2804	285	1			0793	2540	3903			KAI2 & 3	10:17	9-May-11	14:59	14-May-11
10610	5447658	1791581	-41.0998	175.2813	263		1		1561					KAI2 & 3	10:22	9-May-11	15:02	14-May-11
10611	5447666	1791637	-41.0997	175.2820	264		1		0539					KAI2 & 3	10:29	9-May-11	15:04	14-May-11
10612	5447624	1791671	-41.1001	175.2824	249	1			0044	2738	2864			KAI2 & 3	10:36	9-May-11	15:05	14-May-11
10613	5447579	1791693	-41.1005	175.2827	262		1		0716					KAI2 & 3	10:44	9-May-11	10:47	15-May-11
10614	5447518	1791700	-41.1010	175.2828	246		1		0501					KAI2 & 3	10:50	9-May-11	10:50	15-May-11
10615	5447457	1791726	-41.1016	175.2831	236	1			0994	2098	3597			KAI2 & 3	10:58	9-May-11	10:54	15-May-11
10616	5447398	1791757	-41.1021	175.2835	220		1		0139					KAI2 & 3	11:05	9-May-11	10:58	15-May-11
10617	5447381	1791780	-41.1022	175.2838	216		1		0771					KAI2 & 3	11:12	9-May-11	11:00	15-May-11
10618	5447339	1791830	-41.1026	175.2844	206	1			0517	2036	4014			KAI2 & 3	11:21	9-May-11	11:02	15-May-11
10619	5447302	1791884	-41.1029	175.2851	192		1		0845					KAI2 & 3	11:25	9-May-11	11:08	15-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
10620	5447278	1791927	-41.1031	175.2856	187		1		0515					KAI2 & 3	11:30	9-May-11	11:10	15-May-11
10621	5447247	1791943	-41.1034	175.2858	179	1			0848	2118	2983			KAI2 & 3	11:36	9-May-11	11:12	15-May-11
10622	5447218	1791963	-41.1037	175.2860	174		1		0115					KAI2 & 3	11:45	9-May-11	11:16	15-May-11
10623	5447154	1791957	-41.1042	175.2860	142		1		0639					KAI2 & 3	11:49	9-May-11	11:18	15-May-11
10624	5447097	1792027	-41.1047	175.2868	134	1			0082	2653	2846			KAI2 & 3	11:58	9-May-11	11:21	15-May-11
10625	5447075	1792040	-41.1049	175.2870	136		1		0814					KAI2 & 3	12:06	9-May-11	11:25	15-May-11
10626	5447027	1792106	-41.1053	175.2878	123		1		0202					KAI2 & 3	12:11	9-May-11	11:27	15-May-11
10627	5447002	1792146	-41.1056	175.2883	124	1			0633	2489	3912			KAI2 & 3	12:19	9-May-11	11:28	15-May-11
10628	5446966	1792207	-41.1059	175.2890	118		1		0750					KAI2 & 3	12:25	9-May-11	11:38	15-May-11
10629	5446968	1792266	-41.1058	175.2897	115		1		0617					KAI2 & 3	12:29	9-May-11	11:41	15-May-11
10630	5446998	1792332	-41.1055	175.2905	114	1			0180	2600	3785			KAI2 & 3		9-May-11	11:44	15-May-11
10631	5447117	1792472	-41.1044	175.2921	132		1		1048					KAI2 & 3	12:48	9-May-11	11:49	15-May-11
10632	5447122	1792519	-41.1044	175.2927	142		1		0449					KAI2 & 3	13:02	9-May-11	11:51	15-May-11
10633	5447039	1792536	-41.1051	175.2929	180	1			1959	2495	3713			KAI2 & 3	09:08	10-May-11	12:14	15-May-11
10634	5447108	1792688	-41.1045	175.2947	175		1		0114					KAI2 & 3	09:20	10-May-11	12:21	15-May-11
10635	5447094	1792741	-41.1046	175.2953	158		1		0523						09:24	10-May-11	12:24	15-May-11
10636	5447086	1792801	-41.1046	175.2960	152	1			1600	2413	3664			KAI2 & 3	09:30	10-May-11	12:25	15-May-11
10637	5447079	1792842	-41.1047	175.2965	146		1		0559					KAI2 & 3	09:38	10-May-11	12:30	15-May-11
10638	5447076	1792876	-41.1047	175.2969	142		1		0527					WAI	09:43	10-May-11	12:36	15-May-11
10639	5447057	1792983	-41.1049	175.2982	138	1			1614	2520	3744			WAI	09:46	10-May-11	12:39	15-May-11
10640	5447050	1793048	-41.1049	175.2990	135		1		0490					WAI	09:56	10-May-11	12:41	15-May-11
10641	5447050	1793079	-41.1049	175.2993	133		1		0563					WAI	10:02	10-May-11	12:43	15-May-11
10642	5447037	1793111	-41.1050	175.2997	118	1			1608	2475	3800			WAI	10:08	10-May-11	12:52	15-May-11
10643	5446997	1793172	-41.1054	175.3005	111		1		0630					WAI	10:14	10-May-11	12:54	15-May-11
10644	5446996	1793201	-41.1054	175.3008	122		1		0594					WAI	10:18	10-May-11	12:48	15-May-11
10645	5446949	1793235	-41.1058	175.3012	113	1			1916	2175	3581			WAI	10:23	10-May-11	12:53	15-May-11
10646	5446936	1793256	-41.1059	175.3015	115		1		0121					WAI	10:30	10-May-11	13:00	15-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
10647	5446899	1793284	-41.1062	175.3018	117		1		0522					WAI	10:33	10-May-11	13:02	15-May-11
10648	5446847	1793340	-41.1067	175.3025	114	1			1698	2529	2870			WAI	10:45	10-May-11	13:04	15-May-11
10649	5446821	1793358	-41.1069	175.3027	112		1		0045					WAI	10:52	10-May-11	13:06	15-May-11
10650	5446787	1793413	-41.1072	175.3034	115		1		0416					WAI	10:58	10-May-11	13:08	15-May-11
10651	5446758	1793441	-41.1074	175.3037	113	1			0413	2149	3976			WAI	11:04	10-May-11	13:09	15-May-11
10652	5446730	1793478	-41.1077	175.3042	113		1		0619					WAI	11:10	10-May-11	13:17	15-May-11
10653	5446700	1793526	-41.1079	175.3048	115		1		0510					WAI	11:19	10-May-11		15-May-11
10654	5446660	1793565	-41.1083	175.3053	103	1			1844	2132	3610			WAI	11:26	10-May-11	13:19	15-May-11
10655	5446641	1793601	-41.1085	175.3057	101		1		0582					WAI	11:33	10-May-11	13:22	15-May-11
10656	5446605	1793647	-41.1088	175.3062	100		1		0542					WAI	11:41	10-May-11	13:23	15-May-11
10657	5446589	1793689	-41.1089	175.3068	95	1			1746	2591	2888			WAI	11:46	10-May-11	13:25	15-May-11
10658	5446563	1793730	-41.1091	175.3072	93		1		0628					WAI	11:52	10-May-11	13:27	15-May-11
10659	5446531	1793783	-41.1094	175.3079	90		1		0477					WAI	12:00	10-May-11	13:29	15-May-11
10660	5446499	1793810	-41.1097	175.3082	90	1			0466	2721	2898			WAI	12:20	10-May-11	13:30	15-May-11
10661	5446477	1793843	-41.1099	175.3086	88		1		0488					WAI	12:30	10-May-11	13:32	15-May-11
10662	5446433	1793882	-41.1103	175.3091	87		1		0525					WAI	12:33	10-May-11	13:38	15-May-11
10663	5446399	1793900	-41.1106	175.3093	85	1			1897	2550	2987			WAI	12:39	10-May-11	13:40	15-May-11
10664	5446355	1793940	-41.1110	175.3098	83		1		0553					WAI	12:46	10-May-11	13:42	15-May-11
10665	5446312	1793958	-41.1113	175.3100	75		1		0579					WAI	12:54	10-May-11	13:43	15-May-11
10666	5446269	1794013	-41.1117	175.3107	75	1			1825	2509	4062			WAI	12:59	10-May-11	13:46	15-May-11
10667	5446240	1794062	-41.1120	175.3113	75		1		0224					WAI	13:12	10-May-11	13:49	15-May-11
10668	5446202	1794094	-41.1123	175.3117	76		1		0526					WAI	13:20	10-May-11	13:51	15-May-11
10669	5446149	1794106	-41.1128	175.3119	80	1			1681	2456	3837			WAI	13:27	10-May-11	13:54	15-May-11
10670	5446101	1794130	-41.1132	175.3122	128		1		0391					WAI	13:34	10-May-11	13:57	15-May-11
10671	5446025	1794152	-41.1139	175.3124	175		1		0138					WAI	13:39	10-May-11	13:59	15-May-11
10672	5445975	1794183	-41.1143	175.3128	159	1			1980	2387	3770			WAI	13:45	10-May-11	14:03	15-May-11
10673	5445930	1794206	-41.1147	175.3131	145		1		0520					WAI	13:55	10-May-11	14:06	15-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
10674	5445896	1794242	-41.1150	175.3136	140		1		0612					WAI	14:02	10-May-11	14:07	15-May-11
10675	5445877	1794322	-41.1152	175.3145	129	1			1678	2393	4016			WAI	14:11	10-May-11	14:09	15-May-11
10676	5445895	1794403	-41.1150	175.3155	119		1		0433					WAI	14:15	10-May-11	14:13	15-May-11
10706	5445149	1795661	-41.1214	175.3307	392		1		1007					WAI	09:26	10-May-11	13:05	15-May-11
10708	5445075	1795742	-41.1220	175.3317	407	1			1772	2586	3638			WAI	09:13	10-May-11	12:57	15-May-11
10710	5444999	1795811	-41.1227	175.3325	417		1		0692					WAI	09:05	10-May-11	12:54	15-May-11
10712	5444940	1795884	-41.1232	175.3334	411		1		1063					WAI	08:52	10-May-11	12:51	15-May-11
10714	5444892	1795953	-41.1236	175.3342	408	1			1924	2566	4032			WAI	08:35	10-May-11	12:48	15-May-11
10716	5444812	1796045	-41.1243	175.3354	409		1		0666					TXN1	08:26	10-May-11	12:41	15-May-11
10718	5444737	1796129	-41.1250	175.3364	402		1		0735					TXN1	08:15	10-May-11	12:38	15-May-11
10720	5444685	1796198	-41.1254	175.3372	395	1			0046	2154	3916			TXN1	17:00	9-May-11	12:35	15-May-11
10722	5444619	1796283	-41.1260	175.3383	376		1		0220					TXN1	16:56	9-May-11	12:32	15-May-11
10724	5444564	1796349	-41.1265	175.3391	362		1		1197					TXN1	16:50	9-May-11	12:29	15-May-11
10726	5444496	1796434	-41.1271	175.3401	371	1			0545	2128	4071			TXN1	16:42	9-May-11	12:18	15-May-11
10728	5444436	1796511	-41.1276	175.3410	353		1		0879					TXN1	16:39	9-May-11	12:16	15-May-11
10730	5444374	1796586	-41.1281	175.3419	344		1		0873					TXN1	16:36	9-May-11	12:14	15-May-11
10732	5444303	1796670	-41.1288	175.3430	325	1			0145	2134	3891			TXN1	16:33	9-May-11	12:06	15-May-11
10734	5444244	1796748	-41.1293	175.3439	321		1		1507					TXN1	16:30	9-May-11	12:02	15-May-11
10736	5444184	1796827	-41.1298	175.3449	379		1		0878					TXN1	16:19	9-May-11	11:40	15-May-11
10738	5444128	1796893	-41.1303	175.3457	391	1			0537	2121	3859			TXN1	16:14	9-May-11	11:35	15-May-11
10740	5444058	1796973	-41.1309	175.3466	413		1		0741					TXN1	16:09	9-May-11	11:32	15-May-11
10742	5444000	1797053	-41.1314	175.3476	438		1		0881					TXN1	16:03	9-May-11	11:28	15-May-11
10744	5443961	1797102	-41.1317	175.3482	476	1			0533	2203	3863			TXN1	15:58	9-May-11	11:22	15-May-11
10746	5443883	1797190	-41.1324	175.3493	499		1		0672					TXN1	15:55	9-May-11	11:18	15-May-11
10748	5443817	1797283	-41.1330	175.3504	511		1		1931					TXN1	15:52	9-May-11	11:16	15-May-11
10750	5443771	1797338	-41.1334	175.3511	530	1			0550	2621	3826			TXN1	15:42	9-May-11	11:13	15-May-11
10752	5443692	1797432	-41.1341	175.3522	513		1		0444					TXN1	15:30	9-May-11	11:00	15-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
10754	5443594	1797494	-41.1349	175.3530	493		1		0811					TXN1	15:17	9-May-11	10:55	15-May-11
10756	5443494	1797551	-41.1358	175.3537	500	1			0588	2074	3936			TXN1	15:05	9-May-11	10:50	15-May-11
10758	5443415	1797603	-41.1365	175.3544	496		1		0629					TXN1		9-May-11	10:45	15-May-11
10760	5443317	1797673	-41.1374	175.3552	484		1		0864					TXN1	14:48	9-May-11	10:42	15-May-11
10762	5443221	1797723	-41.1382	175.3558	484	1			0484	2080	3622			TXN1	14:40	9-May-11	10:38	15-May-11
10764	5443125	1797790	-41.1391	175.3567	476		1		1970					TXN1	14:32	9-May-11	10:35	15-May-11
10766	5443032	1797836	-41.1399	175.3572	454		1		0626					TXN1	08:30	7-May-11	10:28	15-May-11
10768	5442910	1797891	-41.1410	175.3579	466	1			0591	2218	3718			TXN1	08:42	7-May-11	10:24	15-May-11
10770	5442825	1797928	-41.1418	175.3584	448		1		0192					TXN1	09:02	7-May-11	10:18	15-May-11
10772	5442713	1797934	-41.1428	175.3585	429		1		0610					TXN1	09:12	7-May-11	10:10	15-May-11
10774	5442660	1798102	-41.1432	175.3605	345		1		0189					TXN1	09:30	7-May-11	10:02	15-May-11
10776	5442593	1798158	-41.1438	175.3612	408	1			0185	2270	2837			TXN1	09:45	7-May-11	09:50	15-May-11
10778	5442510	1798218	-41.1445	175.3620	322		1		0438					TXN1	10:20	7-May-11	09:45	15-May-11
10780	5442414	1798305	-41.1454	175.3630	350	1			0193	2732	2920			TXN1	10:32	7-May-11	09:37	15-May-11
10782	5442359	1798346	-41.1459	175.3635	359		1		0479					TXN1	10:44	7-May-11	09:30	15-May-11
10784	5442250	1798412	-41.1468	175.3644	318		1		0399					TXN1	11:00	7-May-11	09:26	15-May-11
10786	5442182	1798484	-41.1474	175.3652	337	1			0194	2617	3908			TXN1	11:12	7-May-11	09:22	15-May-11
10788	5442098	1798540	-41.1482	175.3659	328		1		0422					TXN1	11:28	7-May-11	09:18	15-May-11
10790	5442036	1798602	-41.1487	175.3667	315		1		0578					TXN1	11:45	7-May-11	09:13	15-May-11
10792	5441928	1798666	-41.1497	175.3675	264	1			0632	2451	2945			TXN1	12:02	7-May-11	09:06	15-May-11
10794	5441847	1798741	-41.1504	175.3684	140		1		0125					TXN1	12:18	7-May-11	09:00	15-May-11
10796	5441767	1798789	-41.1511	175.3690	8			1				01038		ERI3			08:05	14-May-11
10796	5441771	1798790	-41.1510	175.3690	11		1		0728					TXN2	11:47	10-May-11	17:30	14-May-11
10798	5441685	1798830	-41.1518	175.3695	17	1			0482	2446	3654			TXN2	11:35	10-May-11	17:26	14-May-11
10800	5441593	1798897	-41.1526	175.3703	8			1				01035		ERI3	09:05	7-May-11	08:10	14-May-11
10802	5441502	1798985	-41.1534	175.3714	11			1				01111		ERI3	09:30	7-May-11	08:12	14-May-11
10804	5441422	1799025	-41.1541	175.3719	13	1			0190	2194	4031			TXN2	11:26	10-May-11	17:19	14-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
10806	5441309	1799105	-41.1551	175.3729	15			1				06012		ERI3	09:40	7-May-11	08:15	14-May-11
10808	5441245	1799153	-41.1557	175.3735	10			1				01157		ERI3	09:55	7-May-11	08:25	14-May-11
10810	5441165	1799214	-41.1564	175.3743	13	1			0462	2567	4006			TXN2	11:20	10-May-11	17:12	14-May-11
10812	5441069	1799281	-41.1572	175.3751	11			1				01169		ERI3	10:10	7-May-11	08:28	14-May-11
10814	5440957	1799362	-41.1582	175.3761	13			1				02029		ERI3	10:25	7-May-11	08:37	14-May-11
10816	5440901	1799406	-41.1587	175.3766	17	1			0108	2168	4015			TXN2	11:08	10-May-11	17:05	14-May-11
10818	5440821	1799462	-41.1594	175.3773	15			1				01173		ERI3	10:43	7-May-11	08:40	14-May-11
10820	5440739	1799521	-41.1601	175.3781	15			1				01172		ERI3	10:57	7-May-11	08:50	14-May-11
10822	5440659	1799584	-41.1609	175.3788	16	1			0446	2182	3634			TXN2	10:56	10-May-11	16:57	14-May-11
10824	5440567	1799647	-41.1617	175.3796	14			1				02028		ERI3	11:15	7-May-11	08:53	14-May-11
10826	5440484	1799708	-41.1624	175.3804	15			1				01174		ERI3	11:32	7-May-11	08:57	14-May-11
10828	5440397	1799777	-41.1632	175.3812	18	1			0205	2004	3646			TXN2	10:46	10-May-11	16:51	14-May-11
10830	5440323	1799847	-41.1638	175.3821	16			1				01170		ERI3	11:47	7-May-11	09:05	14-May-11
10832	5440235	1799913	-41.1646	175.3829	16			1				07010		ERI3	12:03	7-May-11	09:10	14-May-11
10834	5440147	1799961	-41.1654	175.3835	14	1			0397	2184	3955			TXN2	10:38	10-May-11	16:44	14-May-11
10836	5440060	1800017	-41.1661	175.3842	17			1				06013		ERI3	12:15	7-May-11	09:15	14-May-11
10838	5439977	1800081	-41.1669	175.3850	18			1				07007		ERI3	12:28	7-May-11	09:20	14-May-11
10840	5439893	1800145	-41.1676	175.3858	19	1			0503	2112	4066			TXN2	10:29	10-May-11	16:39	14-May-11
10842	5439815	1800219	-41.1683	175.3867	21			1				06010		ERI3	12:45	7-May-11	09:33	14-May-11
10844	5439748	1800328	-41.1689	175.3880	23			1				06009		ERI3	13:00	7-May-11	09:35	14-May-11
10846	5439727	1800409	-41.1690	175.3890	24	1			0459	2528	3919			TXN2	10:23	10-May-11	16:29	14-May-11
10848	5439646	1800500	-41.1697	175.3901	21			1				04006		ERI3	13:15	7-May-11	09:38	14-May-11
10850	5439613	1800591	-41.1700	175.3912	24			1				07008		ERI3	13:28	7-May-11	09:43	14-May-11
10852	5439564	1800679	-41.1704	175.3922	24	1			0485	2675	2941			TXN2	09:59	10-May-11	16:17	14-May-11
10854	5439520	1800755	-41.1708	175.3932	24			1				04011		ERI3	09:51	7-May-11	09:47	14-May-11
10854	5439523	1800756	-41.1708	175.3932	23			1	1083					TXN2	14:28	10-May-11	16:11	14-May-11
10856	5439449	1800840	-41.1714	175.3942	23			1				04007		ERI3	13:47	7-May-11	09:52	14-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
10858	5439416	1800938	-41.1717	175.3954	22	1			0443	2117	3795			TXN2	09:44	10-May-11		14-May-11
10860	5439366	1801021	-41.1721	175.3964	26			1				05019		ERI3	14:50	7-May-11	09:58	14-May-11
10862	5439317	1801107	-41.1726	175.3974	21			1				05015		ERI3	15:05	7-May-11	10:05	14-May-11
10864	5439253	1801183	-41.1731	175.3983	25	1			0187	2693	3009			TXN2	09:30	10-May-11	15:57	14-May-11
10866	5439212	1801288	-41.1735	175.3996	26			1				06001		ERI3	15:20	7-May-11	10:11	14-May-11
10868	5439164	1801371	-41.1739	175.4006	25			1				06002		ERI3	15:37	7-May-11	10:22	14-May-11
10870	5439129	1801444	-41.1742	175.4015	25	1			0098	2018	3923			TXN2	09:13	10-May-11	15:48	14-May-11
10872	5439079	1801515	-41.1746	175.4023	29			1				05020		ERI3	15:50	7-May-11	10:30	14-May-11
10874	5439015	1801627	-41.1751	175.4037	27			1				03011		ERI3	16:03	7-May-11	10:35	14-May-11
10876	5438967	1801713	-41.1756	175.4047	28	1			0453	2802	3956			TXN2	09:00	10-May-11	15:36	14-May-11
10878	5438921	1801788	-41.1759	175.4057	26			1				05018		ERI3	16:15	7-May-11	10:38	14-May-11
10880	5438846	1801879	-41.1766	175.4068	29			1				07006		ERI3	16:30	7-May-11	10:43	14-May-11
10882	5438818	1801968	-41.1768	175.4078	23	1			0487	2400	2999			TXN2	08:47	10-May-11	15:29	14-May-11
10884	5438754	1802042	-41.1774	175.4087	28			1				06011		ERI3	16:45	7-May-11	10:52	14-May-11
10886	5438746	1802176	-41.1774	175.4103	26			1				01040		ERI2	16:28	7-May-11	08:54	15-May-11
10888	5438781	1802350	-41.1771	175.4124	25	1			0102	2071	3688			TXN2	17:00	7-May-11	15:21	14-May-11
10890	5438835	1802466	-41.1766	175.4138	35			1				05017		ERI2	16:20	7-May-11	08:49	15-May-11
10892	5438860	1802632	-41.1763	175.4157	41			1				01032		ERI2	16:02	7-May-11	08:45	15-May-11
10894	5438866	1802746	-41.1762	175.4171	42	1			1967	2048	3753			TXN2	16:20	7-May-11	15:12	14-May-11
10896	5438843	1802920	-41.1764	175.4192	41			1				01108		ERI2	15:45	7-May-11	08:40	15-May-11
10898	5438777	1802930	-41.1770	175.4193	47			1				01112		ERI2	15:33	7-May-11	08:26	15-May-11
10900	5438721	1803023	-41.1774	175.4204	50	1			1662	2104	3834			TXN2	15:42	7-May-11	15:02	14-May-11
10902	5438672	1803109	-41.1779	175.4215	44			1				01034		ERI2	15:23	7-May-11		15-May-11
10904	5438632	1803239	-41.1782	175.4230	41			1				01033		ERI2	15:15	7-May-11	08:26	15-May-11
10906	5438613	1803299	-41.1783	175.4238	41	1			0573	2314	3641			TXN2	15:15	7-May-11	14:45	14-May-11
10908	5438584	1803432	-41.1786	175.4253	42			1				01162		ERI2	15:02	7-May-11	08:24	15-May-11
10910	5438559	1803524	-41.1788	175.4265	44			1				01107		ERI2	14:57	7-May-11	08:20	15-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
10912	5438537	1803636	-41.1789	175.4278	46	1			1888	2551	2982			TXN2	14:55	7-May-11	14:33	14-May-11
10914	5438512	1803736	-41.1791	175.4290	49			1				01159		ERI2	14:45	7-May-11	08:16	15-May-11
10916	5438488	1803838	-41.1793	175.4302	49			1				03001		ERI2	14:35	7-May-11	08:12	15-May-11
10918	5438470	1803920	-41.1795	175.4312	54	1			1605	2164	3614			TXN2	14:40	7-May-11	14:24	14-May-11
10920	5438440	1804048	-41.1797	175.4327	53			1				01166		ERI2	14:25	7-May-11	08:08	15-May-11
10922	5438438	1804129	-41.1797	175.4337	50			1				03004		ERI2	14:13	7-May-11	08:03	15-May-11
10924	5438522	1804397	-41.1789	175.4369	61	1			1616	2554	4003			TXN2	12:00	7-May-11	14:12	14-May-11
10926	5438691	1804629	-41.1773	175.4396	66			1				01167		ERI2	13:59	7-May-11	07:58	15-May-11
10928	5438843	1804852	-41.1759	175.4422	68			1				01168		ERI2	13:50	7-May-11	07:54	15-May-11
10930	5438920	1804967	-41.1752	175.4435	76	1			1988	2092	3705			TXN2	11:44	7-May-11	11:44	14-May-11
10932	5438807	1805032	-41.1762	175.4443	72			1				03003		ERI2	13:36	7-May-11	09:39	15-May-11
10934	5438700	1805073	-41.1771	175.4449	63			1				03009		ERI2	13:28	7-May-11	09:32	14-May-11
10936	5438563	1805108	-41.1783	175.4453	17	1			0631	2019	3728			TXN2	13:31	7-May-11	09:30	14-May-11
10938	5438502	1805186	-41.1789	175.4463	21			1				03005		ERI2	13:20	7-May-11	09:25	14-May-11
10940	5438404	1805231	-41.1797	175.4468	22			1				01051		ERI2	13:07	7-May-11	09:20	14-May-11
10942	5438238	1805236	-41.1812	175.4470	20	1			0483	2105	3005			TXN2	13:14	7-May-11	09:18	14-May-11
10944	5438166	1805304	-41.1819	175.4478	19			1				03007		ERI2	12:55	7-May-11	09:15	14-May-11
10946	5438151	1805418	-41.1820	175.4491	23			1				06003		ERI2	12:45	7-May-11	09:18	14-May-11
10948	5438132	1805541	-41.1821	175.4506	21	1			1598	2111	3845			TXN2	12:51	7-May-11	08:47	14-May-11
10950	5438043	1805603	-41.1829	175.4514	22			1				01037		ERI2	11:08	7-May-11	08:40	14-May-11
10952	5437894	1805607	-41.1842	175.4515	21			1				05016		ERI2	10:52	7-May-11	08:26	14-May-11
10954	5437753	1805623	-41.1855	175.4517	21	1			1628	2679	4093			TXN2	10:45	7-May-11	08:35	14-May-11
10956	5437777	1805762	-41.1852	175.4534	23			1				01041		ERI2	10:40	7-May-11	08:27	14-May-11
10958	5437655	1805815	-41.1863	175.4540	17			1				01104		ERI2	10:28	7-May-11	08:20	14-May-11
10960	5437727	1805979	-41.1856	175.4560	19	1			1550	2084	3900			TXN2	10:21	7-May-11	08:17	14-May-11
10962	5437718	1806094.5	-41.1857	175.4574	17			1				01103		ERI2	10:19	7-May-11	08:10	14-May-11
10964	5437709	1806210	-41.1857	175.4587	15			1				01036		ERI2	09:56	7-May-11	08:04	14-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
10966	5437673	1806298	-41.1860	175.4598	15	1			1793	2047	3685			TXN2	10:01	7-May-11	08:06	14-May-11
10968	5437615	1806384	-41.1865	175.4608	19			1					01039	ERI2	09:45	7-May-11	07:53	14-May-11
10970	5437571	1806487	-41.1869	175.4621	180			1					04004	ERI1	09:02	7-May-11	15:08	14-May-11
10972	5437545	1806588	-41.1871	175.4633	140	1			0560	2574	3824			TXN1	14:38	7-May-11	14:58	14-May-11
10974	5437500	1806671	-41.1875	175.4643	108			1					04005	ERI1	09:22	7-May-11	14:54	14-May-11
10976	5437462	1806780	-41.1878	175.4656	150			1					04013	ERI1	09:36	7-May-11	14:40	14-May-11
10978	5437429	1806872	-41.1881	175.4667	110	1			0094	2575	3967			TXN1	13:52	7-May-11	14:24	14-May-11
10980	5437394	1806970	-41.1884	175.4679	143			1					03008	ERI1	09:54	7-May-11	14:18	14-May-11
10982	5437328	1807042	-41.1890	175.4688	164			1					01067	ERI1	10:05	7-May-11	14:14	14-May-11
10984	5437280	1807133	-41.1894	175.4699	195	1			0104	2656	2844			TXN1	14:50	7-May-11	14:02	14-May-11
10986	5437232	1807253	-41.1898	175.4713	164			1					04008	ERI1	10:34	7-May-11	15:30	14-May-11
10988	5437197	1807331	-41.1901	175.4723	265			1					04024	ERI1	14:41	10-May-11	15:44	14-May-11
10990	5437153	1807395	-41.1904	175.4730	255	1			0583	2728	2875			TXN1	15:13	7-May-11	15:46	14-May-11
10992	5437091	1807472	-41.1910	175.4740	281			1					01002	ERI1	11:23	7-May-11	16:58	14-May-11
10994	5437037	1807576	-41.1914	175.4752	299			1					04012	ERI1	11:36	7-May-11	17:00	14-May-11
10996	5436990	1807690	-41.1918	175.4766	236	1			0508	2720	2840			TXN1	15:24	7-May-11	15:52	14-May-11
10998	5436917	1807730	-41.1925	175.4771	38			1					01164	ERI1	11:55	7-May-11	17:36	14-May-11
11000	5436844	1807794	-41.1931	175.4779	37			1					01165	ERI1	12:08	7-May-11	17:28	14-May-11
11002	5436740	1807863	-41.1940	175.4788	235	1			0552	2658	2919			TXN1	15:40	7-May-11	15:58	14-May-11
11004	5436697	1807952	-41.1944	175.4798	40			1					01069	ERI1	12:22	7-May-11	17:22	14-May-11
11006	5436653	1808033	-41.1948	175.4808	40			1					01063	ERI1	12:34	7-May-11		14-May-11
11008	5436598	1808117	-41.1953	175.4818	298	1			0390	2077	4080			TXN1	15:53	7-May-11	16:06	14-May-11
11010	5436659	1808274	-41.1947	175.4837	40			1					03002	ERI1	13:27	7-May-11	17:07	14-May-11
11012	5436588	1808358	-41.1953	175.4847	33			1					01156	ERI1	14:53	7-May-11	17:00	14-May-11
11014	5436516	1808440	-41.1959	175.4857	332	1			0155	2563	2889			TXN1	16:13	7-May-11	16:13	14-May-11
11016	5436441	1808501	-41.1966	175.4865	46			1					01070	ERI1	13:58	7-May-11	16:48	14-May-11
11018	5436357	1808561	-41.1973	175.4872	49			1					04010	ERI1	14:08	7-May-11	16:42	14-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
11020	5436307	1808640	-41.1977	175.4882	320	1			0147	2122	3921			TXN1	16:32	7-May-11	16:22	14-May-11
11022	5436228	1808710	-41.1984	175.4890	47			1				01071		ERI1	14:27	7-May-11	16:31	14-May-11
11024	5436185	1808809	-41.1988	175.4902	56			1				02027		ERI1	14:38	7-May-11	16:20	14-May-11
11026	5436166	1808910	-41.1989	175.4914	347	1			0175	2622	3825			TXN1	17:05	7-May-11	16:32	14-May-11
11028	5436166	1809038	-41.1989	175.4929	60			1				01163		ERI1	14:52	7-May-11	16:12	14-May-11
11030	5436178	1809159	-41.1988	175.4944	60			1				03006		ERI1	15:09	7-May-11	16:06	14-May-11
11032	5436220	1809299	-41.1983	175.4960	346	1			0571	2646	3743			TXN1	17:16	7-May-11	16:40	14-May-11
11034	5436124	1809399	-41.1992	175.4973	69			1				01064		ERI1	15:33	7-May-11	15:58	14-May-11
11036	5436057	1809462	-41.1998	175.4980	73			1				01065		ERI1	15:54	7-May-11	15:50	14-May-11
11038	5436008	1809500	-41.2002	175.4985	297	1			0519	2066	3911			TXN1	17:40	7-May-11	13:42	14-May-11
11040	5435894	1809589	-41.2012	175.4996	87			1				01072		ERI1	16:07	7-May-11	15:42	14-May-11
11042	5435832	1809641	-41.2018	175.5002	88			1				01066		ERI1	16:18	7-May-11	15:35	14-May-11
11044	5435743	1809730	-41.2025	175.5013	275	1			0177	2593	3943			TXN1	08:00	8-May-11	13:34	14-May-11
11046	5435678	1809793	-41.2031	175.5021	97			1				01110		ERI1	16:35	7-May-11	15:27	14-May-11
11048	5435615	1809881	-41.2036	175.5032	102			1				01105		ERI1	16:47	7-May-11	15:21	14-May-11
11050	5435467	1809881	-41.2050	175.5032	242	1			0165	2169	3905			TXN1	08:15	8-May-11	13:24	14-May-11
11052	5435369	1809932	-41.2058	175.5039	118			1				01106		ERI1	17:03	7-May-11		14-May-11
11054	5435307	1809999	-41.2064	175.5047	136			1				03014		ERI1	07:50	8-May-11	15:05	14-May-11
11056	5435220	1810086	-41.2071	175.5058	124	1			0049	2605	3884			TXN1	08:30	8-May-11	13:14	14-May-11
11058	5435155	1810153	-41.2077	175.5066	154			1				01057		ERI1	08:03	8-May-11	14:58	14-May-11
11060	5435093	1810234	-41.2082	175.5076	164			1				01056		ERI1	08:16	8-May-11	14:54	14-May-11
11062	5435028	1810308	-41.2088	175.5085	258	1			0154	2431	3883			TXN1	08:42	8-May-11	12:44	14-May-11
11064	5434950	1810384	-41.2095	175.5094	185			1				08003		ERI1	08:31	8-May-11	14:45	14-May-11
11066	5434892	1810468	-41.2100	175.5104	188			1				08006		ERI1	08:44	8-May-11	14:38	14-May-11
11068	5434832	1810551	-41.2105	175.5114	244	1			0209	2094	3001			TXN1	09:02	8-May-11	12:28	14-May-11
11070	5434731	1810602	-41.2114	175.5121	162			1				01175		ERI1	09:02	8-May-11	14:20	14-May-11
11072	5434640	1810648	-41.2122	175.5127	149			1				08010		ERI1	09:22	8-May-11	14:08	14-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
11074	5434535	1810707	-41.2131	175.5134	289	1			1737	2199	3846			TXN1	09:36	8-May-11	12:15	14-May-11
11076	5434447	1810762	-41.2139	175.5141	94			1				08009		ERI1	09:41	8-May-11	13:54	14-May-11
11078	5434337	1810836	-41.2149	175.5150	101			1				01171		ERI1	10:03	8-May-11	13:47	14-May-11
11080	5434280	1810892	-41.2154	175.5157	308	1			1625	2759	2855			TXN1	10:02	8-May-11	12:00	14-May-11
11082	5434279	1811021	-41.2154	175.5172	117			1				05001		ERI1	10:22	8-May-11	12:27	14-May-11
11084	5434305	1811152	-41.2151	175.5188	133			1				05005		ERI1	10:41	8-May-11	12:16	14-May-11
11086	5434200	1811201	-41.2160	175.5194	326	1			1619	2702	4007			TXN1	10:17	8-May-11	11:51	14-May-11
11088	5434054	1811227	-41.2173	175.5198	164			1				05004		ERI1	10:58	8-May-11	12:02	14-May-11
11090	5434004	1811309	-41.2178	175.5208	169			1				01137		ERI1	11:15	8-May-11	11:53	14-May-11
11092	5433941	1811384	-41.2183	175.5217	333	1			1989	2192	3810			TXN1	10:32	8-May-11	11:42	14-May-11
11094	5433882	1811463	-41.2188	175.5226	181			1				06006		ERI1	11:30	8-May-11	11:45	14-May-11
11096	5433839	1811553	-41.2192	175.5237	194			1				05002		ERI1	11:45	8-May-11	11:35	14-May-11
11098	5433823	1811650	-41.2193	175.5249	346	1			1623	2234	3569			TXN1	11:02	8-May-11	11:35	14-May-11
11100	5433797	1811782	-41.2195	175.5265	216			1				06005		ERI1	12:11	8-May-11	11:28	14-May-11
11102	5433770	1811881	-41.2197	175.5277	233			1				06007		ERI1	12:23	8-May-11	11:19	14-May-11
11104	5433763	1811994	-41.2198	175.5290	331	1			0122	2044	2996			TXN1	11:20	8-May-11	11:02	14-May-11
11104	5434056	1812531	-41.2170	175.5353	231							9547		LAG	15:50	8-May-11		14-May-11
11106	5433748	1812103	-41.2199	175.5303	251			1				01134		ERI1	12:51	8-May-11	11:10	14-May-11
11108	5433714	1812203	-41.2201	175.5315	271			1				06008		ERI1	13:50	8-May-11	11:02	14-May-11
11110	5433665	1812332	-41.2206	175.5331	388	1			0032	2662	3928			TXN1	11:40	8-May-11	10:52	14-May-11
11112	5433621	1812408	-41.2209	175.5340	351			1				03012		ERI1	14:20	8-May-11	10:50	14-May-11
11114	5433575	1812508	-41.2213	175.5352	352			1				05003		ERI1	14:33	8-May-11	10:44	14-May-11
11116	5433638	1812572	-41.2207	175.5359	212	1			0540	2588	3658			TXN1	12:40	8-May-11	10:40	14-May-11
11118	5433438	1812613	-41.2225	175.5365	351			1				01189		ERI1	08:27	9-May-11	08:37	14-May-11
11120	5433367	1812685	-41.2231	175.5374	330			1				01136		ERI1	08:41	9-May-11	08:43	14-May-11
11122	5433318	1812786	-41.2236	175.5386	443	1			1711	2717	4075			TXN1		8-May-11	09:00	14-May-11
11124	5433270	1812870	-41.2240	175.5396	274			1				01135		ERI1	09:00	9-May-11	08:57	14-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
11126	5433234	1812965	-41.2243	175.5408	251			1				01140		ERI1	09:16	9-May-11	09:03	14-May-11
11128	5433196	1813057	-41.2246	175.5419	437	1			0408	2075	3914			TXN1	04:10	8-May-11	08:45	14-May-11
11130	5433154	1813139	-41.2249	175.5429	229			1				01143		ERI1	16:50	8-May-11	09:10	14-May-11
11132	5433123	1813260	-41.2252	175.5443	194			1				01145		ERI1	17:04	8-May-11	09:17	14-May-11
11134	5433096	1813363	-41.2254	175.5455	355	1			0624	2654	3887			TXN1	15:53	8-May-11	09:14	14-May-11
11136	5433052	1813449	-41.2258	175.5466	130			1				01138		ERI1	17:21	8-May-11	09:24	14-May-11
11138	5432988	1813568	-41.2263	175.5480	319			1				01141		ERI2	07:50	9-May-11	09:28	14-May-11
11140	5432906	1813591	-41.2271	175.5483	367	1			0425	2678	3929			TXN1	08:00	9-May-11	08:03	14-May-11
11142	5432799	1813635	-41.2280	175.5489	383			1				07003		ERI2	07:58	9-May-11	08:20	14-May-11
11144	5432670	1813691	-41.2291	175.5496	363			1				01144		ERI2	08:06	9-May-11	08:23	14-May-11
11146	5432588	1813702	-41.2299	175.5498	394	1			0222	2263	3695			TXN1	08:10	9-May-11	08:13	14-May-11
11148	5432436	1813753	-41.2312	175.5504	50			1				01084		ERI2	12:44	8-May-11	10:10	14-May-11
11150	5432322	1813786	-41.2323	175.5509	55			1				01049		ERI2	12:54	8-May-11	10:15	14-May-11
11152	5432208	1813837	-41.2333	175.5515	69	1			0204	2467	3971			TXN1	08:50	9-May-11	10:05	14-May-11
11154	5432104	1813878	-41.2342	175.5520	72			1				01086		ERI2	13:06	8-May-11	10:21	14-May-11
11156	5432020	1813955	-41.2349	175.5530	72			1				01089		ERI2	13:17	8-May-11	10:27	14-May-11
11158	5431974	1814039	-41.2353	175.5540	89	1			0554	2153	3952			TXN1	09:05	9-May-11	10:30	14-May-11
11160	5431893	1814104	-41.2360	175.5548	91			1				01046		ERI2	13:27	8-May-11	10:32	14-May-11
11162	5431847	1814190	-41.2364	175.5558	96			1				01088		ERI2	13:37	8-May-11	10:36	14-May-11
11164	5431732	1814219	-41.2375	175.5562	100	1			0150	2518	3910			TXN1	09:15	9-May-11	10:51	14-May-11
11166	5431616	1814283	-41.2385	175.5570	123			1				01188		ERI2	13:46	8-May-11	10:47	14-May-11
11168	5431527	1814330	-41.2393	175.5576	132			1				01192		ERI2	13:57	8-May-11	10:49	14-May-11
11168	5431526	1814331	-41.2393	175.5576	129		1		0773					TXN2	12:27	10-May-11	16:05	14-May-11
11170	5431485	1814423	-41.2396	175.5587	131	1			0473	2068	3588			TXN1	09:35	9-May-11	11:10	14-May-11
11172	5431415	1814498	-41.2402	175.5597	136			1				01193		ERI2	14:17	8-May-11	11:00	14-May-11
11174	5431336	1814566	-41.2409	175.5605	132			1				01194		ERI2	14:27	8-May-11	11:05	14-May-11
11176	5431223	1814607	-41.2419	175.5610	133	1			0531	2193	3944			TXN1	09:45	9-May-11	11:45	14-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
11178	5431064	1814637	-41.2434	175.5614	119			1				01187		ERI2	14:45	8-May-11	11:20	14-May-11
11180	5430929	1814644	-41.2446	175.5616	104			1				01190		ERI2	15:02	8-May-11	11:50	14-May-11
11182	5430788	1814662	-41.2458	175.5618	97	1			0214	2724	3714			TXN1	10:10	9-May-11	12:12	14-May-11
11184	5430639	1814687	-41.2472	175.5622	102			1				01186		ERI2	15:20	8-May-11	12:02	14-May-11
11186	5430494	1814702	-41.2485	175.5624	104			1				01024		ERI2	15:40	8-May-11	12:12	14-May-11
11188	5430341	1814714	-41.2498	175.5626	281	1			0213	2433	2914			TXN1	10:48	9-May-11	08:30	15-May-11
11190	5430263	1814794	-41.2505	175.5636	105			1				08002		ERI2	07:58	8-May-11	13:25	14-May-11
11192	5430204	1814874	-41.2510	175.5646	105			1				08001		ERI2	08:08	8-May-11	13:30	14-May-11
11194	5430169	1814945	-41.2513	175.5654	297	1			0455	2204	2805			TXN1	11:05	9-May-11	08:24	15-May-11
11196	5430122	1815059	-41.2517	175.5668	103			1				01059		ERI2	08:15	8-May-11	13:35	14-May-11
11198	5430073	1815139	-41.2521	175.5678	102			1				01054		ERI2	08:25	8-May-11	13:44	14-May-11
11200	5430029	1815222	-41.2525	175.5688	297	1			1750	2519	3853			TXN1	11:30	9-May-11	08:18	15-May-11
11202	5430071	1815386	-41.2521	175.5707	100			1				08004		ERI2	08:36	8-May-11	13:50	14-May-11
11204	5430155	1815582	-41.2513	175.5730	102			1				08008		ERI2	08:44	8-May-11	13:55	14-May-11
11206	5430158	1815699	-41.2512	175.5744	321	1			1938	2406	4001			TXN1	11:40	9-May-11	08:14	15-May-11
11208	5430101	1815811	-41.2517	175.5758	104			1				08007		ERI2	08:55	8-May-11	13:58	14-May-11
11210	5430112	1815912	-41.2516	175.5770	105			1				01061		ERI2	09:04	8-May-11	14:03	14-May-11
11212	5430097	1816019	-41.2517	175.5783	395	1			1644	2142	4054			TXN1	11:52	9-May-11	07:46	15-May-11
11214	5430072	1816117	-41.2519	175.5794	109			1				07009		ERI2	09:13	8-May-11	14:10	14-May-11
11216	5430034	1816217	-41.2522	175.5807	109			1				06004		ERI2	09:23	8-May-11	14:15	14-May-11
11218	5429990	1816314	-41.2526	175.5818	362	1			1715	2553	4038			TXN1	12:05	9-May-11	07:52	15-May-11
11220	5429960	1816409	-41.2528	175.5830	111			1				01092		ERI2	09:31	8-May-11	14:18	14-May-11
11222	5429920	1816506	-41.2531	175.5841	117			1				01091		ERI2	09:40	8-May-11	14:22	14-May-11
11224	5429855	1816583	-41.2537	175.5851	353	1			1604	2412	3596			TXN1	12:16	9-May-11	07:58	15-May-11
11226	5429796	1816664	-41.2542	175.5861	115			1				01087		ERI2	09:50	8-May-11	14:26	14-May-11
11228	5429691	1816714	-41.2552	175.5867	116			1				01083		ERI2	09:57	8-May-11	14:31	14-May-11
11230	5429565	1816743	-41.2563	175.5871	359	1			0172	2569	2909			TXN1	12:28	9-May-11	08:01	15-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
11232	5429466	1816805	-41.2572	175.5879	120			1				01090		ERI2	10:06	8-May-11	14:36	14-May-11
11234	5429376	1816861	-41.2579	175.5886	119			1				01085		ERI2	10:14	8-May-11	14:38	14-May-11
11236	5429276	1816930	-41.2588	175.5894	353	1			0451	2065	3656			TXN1	12:38	9-May-11	08:06	15-May-11
11238	5429178	1816954	-41.2597	175.5897	123			1				04009		ERI2	08:47	9-May-11	14:45	14-May-11
11240	5429039	1816981	-41.2609	175.5901	136			1				01023		ERI2	08:57	9-May-11	14:50	14-May-11
11242	5428875	1816997	-41.2624	175.5904	154	1			1611	2623	2852			TXN2	16:39	9-May-11	15:40	15-May-11
11244	5428797	1817060	-41.2631	175.5911	158			1				01025		ERI2	09:05	9-May-11	14:54	14-May-11
11246	5428727	1817132	-41.2637	175.5920	172			1				01031		ERI2	09:15	9-May-11	14:58	14-May-11
11248	5428598	1817181	-41.2649	175.5927	177	1			1663	2726	2891			TXN2	16:22	9-May-11		15-May-11
11250	5428557	1817253	-41.2652	175.5935	191			1				01029		ERI2	09:23	9-May-11	15:03	14-May-11
11252	5428543	1817367	-41.2653	175.5949	201			1				01026		ERI2	09:34	9-May-11	15:07	14-May-11
11254	5428538	1817496	-41.2653	175.5964	212	1			1748	2097	3681			TXN2	16:08	9-May-11	15:30	15-May-11
11256	5428488	1817575	-41.2657	175.5974	209			1				03016		ERI2	09:43	9-May-11	15:11	14-May-11
11258	5428461	1817674	-41.2660	175.5986	220			1				01027		ERI2	09:53	9-May-11	15:15	14-May-11
11260	5428434	1817765	-41.2662	175.5997	221	1			1854	2531	4085			TXN2	15:55	9-May-11		15-May-11
11262	5428371	1817857	-41.2667	175.6008	231			1				01022		ERI2	10:02	9-May-11	15:25	14-May-11
11264	5428494	1818071	-41.2656	175.6033	241			1				01028		ERI2	10:11	9-May-11	15:30	14-May-11
11266	5428430	1818146	-41.2661	175.6042	249	1			0792	2417	3715			TXN2	15:38	9-May-11	15:20	15-May-11
11268	5428365	1818228	-41.2667	175.6052	247			1				03020		ERI2	10:35	9-May-11	15:35	14-May-11
11270	5428250	1818279	-41.2677	175.6059	150			1				03018		ERI2	10:44	9-May-11	15:38	14-May-11
11272	5428135	1818300	-41.2687	175.6062	250	1			0129	2647	2882			TXN2	15:25	9-May-11		15-May-11
11274	5427992	1818347	-41.2700	175.6068	251			1				03013		ERI2	10:55	9-May-11	15:43	14-May-11
11276	5427896	1818384	-41.2709	175.6073	266			1				03010		ERI2	11:05	9-May-11	15:48	14-May-11
11278	5427775	1818420	-41.2719	175.6077	270	1			1818	2028	3645			TXN2	15:12	9-May-11	15:10	15-May-11
11280	5427699	1818480	-41.2726	175.6085	285			1				03019		ERI2	11:15	9-May-11	15:52	14-May-11
11282	5427604	1818543	-41.2734	175.6093	293			1				03015		ERI2	11:25	9-May-11	15:55	14-May-11
11284	5427505	1818614	-41.2743	175.6101	280	1			1836	2664	3775			TXN2	14:56	9-May-11		15-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
11286	5427696	1818871	-41.2725	175.6131	300			1				01062		ERI2	13:45	9-May-11	16:00	14-May-11
11288	5427781	1819026	-41.2717	175.6150	303			1				01043		ERI2	13:55	9-May-11		14-May-11
11290	5427786	1819127	-41.2716	175.6162	306	1			1666	2578	3963			TXN2	14:33	9-May-11	15:02	15-May-11
11292	5427830	1819313	-41.2712	175.6184	322			1				01045		ERI2	14:05	9-May-11	16:10	14-May-11
11294	5427803	1819430	-41.2714	175.6198	320			1				01048		ERI2	14:14	9-May-11	16:16	14-May-11
11296	5427753	1819522	-41.2718	175.6209	324	1			1999	2645	3842			TXN2	14:18	9-May-11		15-May-11
11298	5427397	1819342	-41.2751	175.6189	305			1				01060		ERI2	14:22	9-May-11	16:20	14-May-11
11300	5427281	1819424	-41.2761	175.6199	298			1				08005		ERI2	14:30	9-May-11	16:25	14-May-11
11302	5427000	1819364	-41.2787	175.6193	285	1			1792	2691	4060			TXN2	13:52	9-May-11	14:50	15-May-11
11304	5426758	1819292	-41.2808	175.6185	273			1				01047		ERI2	14:40	9-May-11	16:30	14-May-11
11306	5426547	1819277	-41.2828	175.6184	258			1				01044		ERI2	14:48	9-May-11	16:35	14-May-11
11308	5425947	1818999	-41.2882	175.6153	176	1			0144	2163	4068			TXN2	11:56	9-May-11		15-May-11
11310	5425826	1819006	-41.2893	175.6154	188			1				01042		ERI2	14:58	9-May-11	16:42	14-May-11
11312	5425822	1819124	-41.2893	175.6168	178			1				01050		ERI2	15:07	9-May-11	16:46	14-May-11
11314	5425911	1819329	-41.2885	175.6192	158	1			0548	2704	3706			TXN2	11:43	9-May-11	14:40	15-May-11
11316	5425958	1819469	-41.2880	175.6209	147			1				01052		ERI2	15:18	9-May-11	16:50	14-May-11
11318	5425946	1819579	-41.2881	175.6222	137			1				01058		ERI2	15:28	9-May-11	16:55	14-May-11
11320	5425957	1819718	-41.2879	175.6239	110	1			0474	2641	2830			TXN2	11:26	9-May-11		15-May-11
11322	5425939	1819818	-41.2881	175.6251	106			1				01139		ERI1	10:39	9-May-11	11:50	15-May-11
11324	5425865	1819910	-41.2887	175.6262	93			1				01195		ERI1	10:57	9-May-11	11:42	15-May-11
11326	5425810	1819969	-41.2892	175.6269	83	1			0785	2108	3858			TXN2	11:13	9-May-11		15-May-11
11328	5425729	1820043	-41.2899	175.6278	70			1				01009		ERI1	11:40	9-May-11	11:36	15-May-11
11330	5425691	1820126	-41.2902	175.6288	68			1				01004		ERI1	11:31	9-May-11	11:31	15-May-11
11332	5425601	1820184	-41.2910	175.6296	62	1			0547	2160	3865			TXN2	11:00	9-May-11	14:25	15-May-11
11334	5425632	1820371	-41.2907	175.6318	48			1				01003		ERI1	11:45	9-May-11	11:26	15-May-11
11336	5425668	1820488	-41.2903	175.6332	46			1				01185		ERI1	13:56	9-May-11	11:19	15-May-11
11338	5425723	1820654	-41.2898	175.6351	41	1			0589	2651	3997			TXN2	10:50	9-May-11	14:16	15-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
11340	5425710	1820774	-41.2899	175.6366	44			1				04028		ERI1	14:13	9-May-11	11:13	15-May-11
11342	5425704	1820926	-41.2899	175.6384	44			1				04027		ERI1	14:13	9-May-11	11:08	15-May-11
11344	5425694	1820990	-41.2900	175.6391	36	1			0431	2749	3968			TXN2	10:40	9-May-11		15-May-11
11346	5425624	1821077	-41.2906	175.6402	44			1				01181		ERI1	14:39	9-May-11	11:02	15-May-11
11348	5425569	1821161	-41.2910	175.6412	53			1				04029		ERI1	14:50	9-May-11	10:57	15-May-11
11350	5425520	1821223	-41.2915	175.6420	35	1			0528	2561	3913			TXN2	10:26	9-May-11	14:10	15-May-11
11352	5425436	1821306	-41.2922	175.6430	42			1				04030		ERI1	15:02	9-May-11	10:53	15-May-11
11354	5425399	1821375	-41.2925	175.6438	45			1				01178		ERI1	15:16	9-May-11	10:47	15-May-11
11356	5425318	1821463	-41.2932	175.6449	31	1			0141	2146	3832			TXN2	10:02	9-May-11		15-May-11
11358	5425257	1821522	-41.2937	175.6456	40			1				01177		ERI1	15:30	9-May-11	10:39	15-May-11
11360	5425131	1821612	-41.2949	175.6468	38			1				01182		ERI1	15:42	9-May-11	10:31	15-May-11
11362	5424943	1821573	-41.2966	175.6464	27	1			0776	2073	3703			TXN2	09:50	9-May-11	14:00	15-May-11
11364	5424818	1821598	-41.2977	175.6467	36			1				01179		ERI1	16:02	9-May-11	10:25	15-May-11
11366	5424689	1821665	-41.2988	175.6476	43			1				01176		ERI1	16:18	9-May-11	10:17	15-May-11
11368	5424615	1821682	-41.2995	175.6478	22	1			0557	2006	3827			TXN2	09:35	9-May-11		15-May-11
11370	5424581	1821803	-41.2998	175.6492	33			1				01127		ERI1	09:12	10-May-11	10:10	15-May-11
11372	5424574	1821914	-41.2998	175.6506	34			1				01015		ERI1	09:23	10-May-11	10:00	15-May-11
11374	5424423	1822057	-41.3011	175.6523	28	1			0486	2161	2832			TXN2	09:12	9-May-11	13:55	15-May-11
11376	5424396	1822086	-41.3013	175.6527	30			1				01006		ERI1	09:40	10-May-11	09:52	15-May-11
11378	5424293	1822090	-41.3023	175.6528	32			1				01130		ERI1	09:51	10-May-11	09:47	15-May-11
11380	5424039	1822019	-41.3046	175.6520	32	1			0738	2207	3619			TXN2	08:59	9-May-11	13:35	15-May-11
11382	5423914	1822052	-41.3057	175.6525	38			1				01128		ERI1	10:08	10-May-11	09:35	15-May-11
11384	5423777	1822081	-41.3069	175.6529	34			1				01124		ERI1	10:24	10-May-11	09:28	15-May-11
11386	5423465	1822001	-41.3097	175.6520	28	1			0636	2402	3854			TXN2	08:46	9-May-11		15-May-11
11388	5423153	1821885	-41.3126	175.6507	30			1				01123		ERI1	10:40	10-May-11	09:20	15-May-11
11390	5423002	1821904	-41.3139	175.6510	28			1				01021		ERI1	10:54	10-May-11	09:13	15-May-11
11392	5422864	1821929	-41.3152	175.6514	22	1			0174	2172	3730			TXN2	08:33	9-May-11	13:25	15-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
11394	5422296	1821622	-41.3204	175.6479	30			1				01125		ERI1	11:16	10-May-11	09:02	15-May-11
11396	5422234	1821736	-41.3209	175.6493	28			1				01131		ERI1	11:33	10-May-11	08:57	15-May-11
11398	5422146	1821792	-41.3217	175.6500	30	1			0206	2176	3977			TXN2	08:18	9-May-11		15-May-11
11400	5422043	1821854	-41.3226	175.6508	32			1				01101		ERI1	11:49	10-May-11	08:52	15-May-11
11402	5422019	1821985	-41.3228	175.6523	38			1				01093		ERI1	12:06	10-May-11	08:45	15-May-11
11404	5422028	1822073	-41.3227	175.6534	43	1			0532	2070	4087			TXN2	08:08	9-May-11	13:15	15-May-11
11406	5422011	1822177	-41.3228	175.6546	62			1				04023		ERI3	12:05	10-May-11	15:55	14-May-11
11408	5421960	1822277	-41.3232	175.6559	54			1				04025		ERI3	11:50	10-May-11	15:50	14-May-11
11410	5421907	1822308	-41.3237	175.6562	46	1			1674	2565	3870			TXN2	17:18	8-May-11	12:58	15-May-11
11412	5421788	1822387	-41.3247	175.6572	40			1				04031		ERI3	11:30	10-May-11	15:45	14-May-11
11414	5421735	1822471	-41.3252	175.6583	33			1				04032		ERI3	11:10	10-May-11	15:38	14-May-11
11416	5421711	1822595	-41.3254	175.6597	23	1			0757	2581	3868			TXN2	16:43	8-May-11	12:45	15-May-11
11418	5421610	1822636	-41.3263	175.6603	30			1				04026		ERI3	10:50	10-May-11	15:32	14-May-11
11420	5421494	1822685	-41.3273	175.6609	34			1				01080		ERI3	10:40	10-May-11	15:27	14-May-11
11422	5421412	1822717	-41.3280	175.6613	33	1			1981	2267	3729			TXN2	16:23	8-May-11		15-May-11
11424	5421285	1822764	-41.3291	175.6619	30			1				01079		ERI3	10:25	10-May-11	15:20	14-May-11
11426	5421182	1822824	-41.3301	175.6627	25			1				01074		ERI3	10:10	10-May-11	15:15	14-May-11
11428	5421070	1822883	-41.3310	175.6634	14	1			1951	2801	4046			TXN2	16:06	8-May-11	12:35	15-May-11
11430	5420973	1822931	-41.3319	175.6640	24			1				01078		ERI3	09:52	10-May-11	15:08	14-May-11
11432	5420867	1822974	-41.3328	175.6646	28			1				01075		ERI3	09:35	10-May-11	15:03	14-May-11
11434	5420754	1823032	-41.3338	175.6653	27	1			1587	2011	3877			TXN2	15:54	8-May-11		15-May-11
11436	5420646	1823069	-41.3348	175.6658	32			1				01076		ERI3	09:23	10-May-11	14:58	14-May-11
11438	5420512	1823102	-41.3360	175.6662	33			1				01077		ERI3	09:05	10-May-11	14:52	14-May-11
11440	5420348	1823118	-41.3375	175.6665	22	1			1780	2126	3879			TXN2	15:43	8-May-11	12:25	15-May-11
11442	5420239	1823142	-41.3385	175.6668	30			1				01073		ERI3	13:15	9-May-11	14:45	14-May-11
11444	5420149	1823196	-41.3392	175.6675	32			1				01081		ERI3	13:03	9-May-11	14:37	14-May-11
11446	5420071	1823291	-41.3399	175.6687	27	1			0866	2259	2906			TXN2	15:29	8-May-11		15-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
11448	5420058	1823382	-41.3400	175.6697	3			1				01117		ERI3	12:45	9-May-11	14:27	14-May-11
11450	5420009	1823453	-41.3404	175.6706	32			1				01082		ERI3	12:25	9-May-11	14:20	14-May-11
11452	5419880	1823485	-41.3416	175.6710	29	1			1029	2714	3935			TXN2	14:45	8-May-11	12:16	15-May-11
11454	5419703	1823497	-41.3432	175.6712	33			1				01120		ERI3	12:05	9-May-11	14:15	14-May-11
11456	5419552	1823528	-41.3445	175.6717	18			1				01121		ERI3	11:45	9-May-11	14:05	14-May-11
11458	5419487	1823553	-41.3451	175.6720	6	1			0742	2144	3725			TXN2	14:25	8-May-11		15-May-11
11460	5419341	1823615	-41.3464	175.6728	32			1				01113		ERI3	11:28	9-May-11	13:39	14-May-11
11462	5419244	1823663	-41.3473	175.6734	41			1				01118		ERI3	11:10	9-May-11	13:31	14-May-11
11464	5419175	1823760	-41.3479	175.6746	43	1			1704	2045	4013			TXN2	10:55	8-May-11	13:24	15-May-11
11466	5419140	1823846	-41.3481	175.6756	56			1				01116		ERI3	14:03	9-May-11	11:58	14-May-11
11468	5419101	1823936	-41.3485	175.6767	60			1				01119		ERI3	10:35	9-May-11	13:15	14-May-11
11470	5418986	1824046	-41.3495	175.6781	78	1			0867	2162	4019			TXN2	13:49	8-May-11	11:50	15-May-11
11472	5419110	1824179	-41.3483	175.6796	64			1				01122		ERI3	10:17	9-May-11	12:55	14-May-11
11474	5419054	1824265	-41.3488	175.6807	59			1				07005		ERI3	10:00	9-May-11	12:50	14-May-11
11476	5419006	1824300	-41.3492	175.6811	54	1			1551	2041	3760			TXN2	13:27	8-May-11	11:49	15-May-11
11478	5418923	1824410	-41.3499	175.6824	43			1				07004		ERI3	09:45	9-May-11	12:42	14-May-11
11480	5418846	1824492	-41.3506	175.6834	21			1				01183		ERI3	09:30	9-May-11	12:35	14-May-11
11482	5418769	1824545	-41.3513	175.6841	25	1			0769	2682	3741			TXN2	13:14	8-May-11	11:39	15-May-11
11484	5418720	1824637	-41.3517	175.6852	19			1				07001		ERI3	09:10	9-May-11	12:28	14-May-11
11486	5418715	1824773	-41.3517	175.6868	11			1				06019		ERI3	08:50	9-May-11	12:20	14-May-11
11488	5418754	1824908	-41.3513	175.6884	33	1			1736	2468	3994			TXN2	13:01	8-May-11	11:40	15-May-11
11490	5418789	1825034	-41.3510	175.6899	33			1				01008		ERI3	08:27	9-May-11	12:09	14-May-11
11492	5418720	1825129	-41.3516	175.6911	25			1				01005		ERI3	08:10	9-May-11	12:00	14-May-11
11494	5418698	1825152	-41.3518	175.6914	22	1			0667	2488	3881			TXN2	12:48	8-May-11		15-May-11
11496	5419001	1825598	-41.3489	175.6966	27			1				06014		ERI3	17:10	8-May-11	11:47	15-May-11
11498	5419025	1825722	-41.3487	175.6981	24			1				06015		ERI3	17:03	8-May-11	11:46	15-May-11
11500	5419021	1825808	-41.3487	175.6991	27	1			0625	2254	3726			TXN2	12:05	8-May-11	11:20	15-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
11502	5418919	1825883	-41.3496	175.7000	25			1				06020		ERI3	16:45	8-May-11	11:42	15-May-11
11504	5418797	1825922	-41.3507	175.7005	23			1				06017		ERI3	16:30	8-May-11	11:33	15-May-11
11506	5418598	1825937	-41.3524	175.7008	24	1			0043	2089	3792			TXN2	11:51	8-May-11		15-May-11
11508	5418212	1825754	-41.3560	175.6987	40			1				01184		ERI3	16:15	8-May-11	11:25	15-May-11
11510	5417984	1825716	-41.3580	175.6984	21			1				07002		ERI3	16:00	8-May-11	11:17	15-May-11
11512	5417933	1825758	-41.3585	175.6989	14	1			0166	2458	3749			TXN2	11:36	8-May-11	11:01	15-May-11
11514	5417745	1825791	-41.3602	175.6994	18			1				06016		ERI3	15:50	8-May-11	11:10	15-May-11
11516	5417653	1825852	-41.3610	175.7001	24			1				01133		ERI3	15:32	8-May-11	11:04	15-May-11
11518	5417710	1826035	-41.3604	175.7023	28	1			0541	2673	2997			TXN2	11:21	8-May-11	10:54	15-May-11
11520	5417615	1826063	-41.3612	175.7027	27			1				01102		ERI3	15:15	8-May-11	10:57	15-May-11
11522	5417378	1826030	-41.3634	175.7024	28			1				01132		ERI3	15:00	8-May-11	10:50	15-May-11
11524	5417202	1826017	-41.3650	175.7023	30	1			0396	2087	3823			TXN2	11:06	8-May-11	10:46	15-May-11
11526	5417031	1826027	-41.3665	175.7024	14			1				03017		ERI3	14:25	8-May-11	10:43	15-May-11
11528	5416903	1826064	-41.3677	175.7029	13			1				01098		ERI3	14:08	8-May-11	10:37	15-May-11
11530	5416847	1826110	-41.3681	175.7035	3	1			0574	2626	2804			TXN2	10:52	8-May-11	10:30	15-May-11
11532	5416768	1826204	-41.3688	175.7047	15			1				01094		ERI3	13:47	8-May-11	10:30	15-May-11
11534	5416735	1826288	-41.3691	175.7057	13			1				01097		ERI3	13:32	8-May-11	10:25	15-May-11
11536	5416716	1826410	-41.3692	175.7071	12	1			0428	2633	3864			TXN2	10:32	8-May-11	10:11	15-May-11
11538	5416718	1826531	-41.3692	175.7086	23			1				01095		ERI3	13:15	8-May-11	10:17	15-May-11
11540	5416805	1826737	-41.3683	175.7110	22			1				01100		ERI3	12:55	8-May-11	10:13	15-May-11
11542	5416825	1826856	-41.3681	175.7124	20	1			0107	2141	3767			TXN2	10:20	8-May-11	10:05	15-May-11
11544	5416684	1826895	-41.3694	175.7129	15			1				01099		ERI3	12:35	8-May-11	10:05	15-May-11
11546	5416455	1826834	-41.3715	175.7123	21			1				01096		ERI3	12:29	8-May-11	10:00	15-May-11
11548	5416399	1826928	-41.3719	175.7134	19	1			0638	2086	2986			TXN2	10:02	8-May-11	09:57	15-May-11
11550	5416309	1826975	-41.3727	175.7140	1			1				01154		ERI3	12:02	8-May-11	09:53	15-May-11
11552	5416266	1827055	-41.3731	175.7150	4			1				01150		ERI3	11:45	8-May-11	09:47	15-May-11
11554	5416214	1827148	-41.3735	175.7161	10	1			0157	2183	3591			TXN2	09:47	8-May-11	09:52	15-May-11

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
11556	5416150	1827230	-41.3741	175.7171	12			1				01146		ERI3	11:25	8-May-11	09:45	15-May-11
11558	5416103	1827319	-41.3745	175.7182	21			1				01001		ERI3	11:05	8-May-11	09:40	15-May-11
11560	5416051	1827414	-41.3749	175.7194	16	1			0595	2743	3851			TXN2	09:35	8-May-11	09:39	15-May-11
11562	5415984	1827484	-41.3755	175.7202	20			1				01142		ERI3	10:50	8-May-11	09:30	15-May-11
11564	5415915	1827558	-41.3761	175.7212	19			1				01148		ERI3	10:35	8-May-11	09:24	15-May-11
11566	5415837	1827624	-41.3768	175.7220	17	1			0402	2226	3804			TXN2	09:23	8-May-11	09:33	15-May-11
11568	5415760	1827692	-41.3775	175.7228	16			1				01149		ERI3	10:24	8-May-11	09:17	15-May-11
11570	5415564	1827692	-41.3792	175.7229	16			1				01152		ERI3	10:10	8-May-11	09:15	15-May-11
11572	5415523	1827775	-41.3796	175.7239	23	1			0504	2628	2939			TXN2	09:11	8-May-11	09:27	15-May-11
11574	5415465	1827855	-41.3801	175.7249	19			1				01155		ERI3	09:50	8-May-11	09:07	15-May-11
11576	5415370	1827899	-41.3809	175.7254	17			1				01153		ERI3	09:35	8-May-11	08:58	15-May-11
11578	5415264	1827960	-41.3819	175.7262	19	1			0195	2443	2949			TXN2	08:59	8-May-11	09:21	15-May-11
11580	5415092	1827938	-41.3834	175.7260	20			1				01115		ERI3	09:20	8-May-11	08:50	15-May-11
11582	5414553	1827694	-41.3883	175.7233	9			1				01114		ERI3	09:00	8-May-11	08:40	15-May-11
11584	5414391	1827682	-41.3898	175.7232	5	1			0109	2170	2847			TXN2	08:47	8-May-11	09:00	15-May-11

Table A4.2 Shot point stations: Seismometers deployed within 30 m of the shot point

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
SP1	5415448	1827887	-41.3802	175.7253	15	1			1517	2185	3850			LAG	16:30	10-May-11	11:30	15-May-11
SP2	5418717	1824638	-41.3517	175.6852	27	1			1879	2453	2865			LAG	16:35	10-May-11	11:01	15-May-11
SP3	5424639	1822841	-41.2989	175.6616	65	1			1735	2485	2876			LAG	17:35	10-May-11	12:25	15-May-11
SP4	5431192	1809943	-41.2422	175.5624	96	1			1839	2133	3895			LAG	17:55	10-May-11	13:13	15-May-11
SP5	5435562	1805160	-41.2041	175.5039	96	1			1862	2230	2868			LAG	18:35	10-May-11	13:47	16-May-11
SP6	5438130	1800709	-41.1822	175.4461	27	1			1919	2078	2838			LAG	14:20	10-May-11		16-May-11
SP7	5441896	1797271	-41.1258	175.3919	27	1			1579	2548	3709			LAG	13:55	10-May-11	11:30	15-May-11
SP8	5444611	1785289	-41.0694	175.3500	32	1			1573	2205	2910			LAG	13:20	10-May-11	10:50	15-May-11
SP9	5451197	1779866	-41.0694	175.2054	221	1			1622	2100	2903			LAG	12:10	10-May-11	15:30	14-May-11
SP10	5458715	1779866	-41.0029	175.1387	258	1			1926	2223	3866			LAG	11:20	10-May-11	14:35	14-May-11
SP11	5625378	1775526	-40.9695	175.0860	376	1			1928	2017	4091			LAG	10:10	10-May-11	13:00	14-May-11
SP12	5461937	1767285	-40.9766	174.9883	48	1			1728	2767	3710			LAG	08:50	10-May-11	12:10	14-May-11

Table A4.3 Extra "uphole" station list: stations deployed near the shot points deployed for a short period of time to measure the disturbance of neighbouring properties

Site	NZTM		lat	lon	Elv	Site type			Instrument serial number					Team	Deployed		Collected	
	N	E				T-3C	T-V	ERI	T-V	T-N	T-E	ERI	RT-130		time	date	time	date
S3-A	5424827	1823008	-41.2981	175.6636	69		1		0958					R&S	01:53	12-May-11	12:15	14-May-11
S7-A	5442355	1800830	-41.1453	175.3931	32		1		1705					R&S	21:46	12-May-11	08:05	14-May-11
S8-A	5444417	1797975	-41.1274	175.3585	32		1		0717					R&S	20:05	12-May-11	08:20	14-May-11
S8-B	5444251	1797831	-41.1290	175.3568	37		1		0721					R&S	20:16	12-May-11	08:30	14-May-11
S8-C	5443986	1797206	-41.1315	175.3494	24		1		0780					R&S	20:34	12-May-11	09:00	14-May-11
S8-D	5444931	1797776	-41.1228	175.3559	34		1		0135					R&S	20:40	12-May-11	08:45	14-May-11
S9-A	5451309	1785246	-41.0684	175.2049	213		1		2577					A	21:45	10-May-11	23:45	10-May-11
S9-B	5451314	1785126	-41.0684	175.2034	210		1		3608					A	21:40	10-May-11	23:55	10-May-11
S9-C	5451339	1784943	-41.0682	175.2012	204		1		1903					S	21:45	10-May-11	23:45	10-May-11
S9-D	5451399	1784786	-41.0677	175.1994	206		1		1779					S	21:50	10-May-11	23:50	10-May-11

APPENDIX 5: INSTRUMENT ISSUES

Table A5.1 List of Texan stations that experienced a time drift

Station	Component	Serial	Drift (s)	Drift rate
10022	z	0113	-8.02 e-4	-69298.016 ms/day
10192	e	3980	-2.867 e-7	-24.793 ms/day
10204	e	3848	+4.077 e-7	+35.226 ms/day
10210	e	3756	+1 e-7	+8.651 ms/day
10342	e	2874	-1.206 e-7	-10.421 ms/day
10432	e	3939	-1.3122 e-7	-11.336 ms/day
10436	z	0211	-9.62 e-8	-8.317 ms/day
10462	n	2374	-1.066 e-7	-9.215 ms/day
10462	e	3585	-1.39 e-7	-12.013 ms/day
10474	e	2942	-1.111 e-7	-9.617 ms/day
10483	n	2552	-1.027 e-7	-8.877 ms/day
10486	n	2277	-9.75e-8	-8.432 ms/day
10511	z	1730	-9.37 e-8	-8.09 ms/day
10526	z	1841	-1.1 e-7	-9.512 ms/day
10546	n	2800	-9.459 e-8	-8.173 ms/day
10550	z	1669	-1 e-7	-8.9 ms/day
10597	e	3897	-9.631 e-8	-8.322 ms/day
10611	z	0539	-1.07 e-7	-9.247 ms/day
10630	e	3785	-1.259 e-7	-10.880 ms/day
10708	z	1772	-1.231 e-7	-10.64 ms/day
10720	z	0046	-7.433	-64.229 ms/day
10990	e	2875	-1.65 e-7	-9.206 ms/day
11068	n	2094	-1.11 e-7	-9.602 ms/day
11218	z	1715	-1.2 e-7	-10.4 ms/day
11332	e	3865	-1.027 e-7	-8.877 ms/day
11548	e	2986	-1.01 e-7	-8.795 ms /day

Table A5.2 List of Texan station problems

Station	Component	Serial	Problem
10000	z	0506	SCE 8, 10, 12, 14
10002	z	0164	SCE 238, 40, 42
10024	e	3789	SCE 16, 18, 20, 22
10036	e	2981	SCE 24, 26, 28, 30
10050	z	0791	SCE 34 - DiF - memory 92M
10060	e	0713	SCE 23? - LBV - memory 60M
10060	n	2250	SCE 38, 40, 42
10074	z	0460	SCE 3 - LBV 2.6V - memory 8M
10102	e	2917	SCE 24, 26, 28, 30
10116	z	1691	SCE 33 - DiF - memory 88M
10126	n	2050	SCE 28 - LBV - memory 76M
10126	z	0117	SCE 32, 34, 36
10132	n	2152	SCE 24 - LBV - memory 65M
10164	z	0445	SCE 7 - LBV - memory 18M
10172	z	0409	SCE42 - LBV - memory 115M
10174	e	3828	SCE 38, 40, 42
10180	e	3965	SCE 32 - LBV
10212	z	0140	SCE 24, 26, 28, 30
10252	e	3932	SCE 16, 18, 20, 22, 36 - LBV
10264	n	2502	SCE 24, 26, 28, 30
10276	z	1639	SCE 24, 26, 28, 30
10300	e	3642	SCE 24, 26, 28, 30
10306	e	3799	SCE 32, 34, 36
10308	n	2119	SCE 24, 26, 28, 30
10308	z	0418	SCE 33 - DiF - memory 88M
10346	z	0063	SCE 35 - DiF - memory 95 M
10364	z	1883	SCE 8, 10, 12, 14
10426	n	2543	SCE 8, 10, 12, 14
10429	z	0567	SCE 32, 34, 36
10430	z	0207	SCE 24, 26, 28, 30
10441	z	0412	SCE 8, 10, 12, 14
10459	n	2096	DiF - memory 82M
10460	z	0216	Destroyed
10462	z	1994	SCE 37 - LBV
10464	z	1690	SCE 32, 34, 36
10484	z	0759	SCE 30 - LBV 1.4V - memory 79M
10487	z	1964	SCE 29 - LBV 1.6V - memory 78M
10488	z	0435	SCE 20 - LBV 2.5V - memory 54M
10492	z	0703	LBV - SCE 31 - memory 84M
10495	n	2411	SCE 24, 26, 28, 30
10504	e	3621	LBV - SCE 30 - memory 79 M
10505	z	0546	LBV - SCE 6 - memory 15M
10510	n	2797	SCE 8, 10, 12, 14

Station	Component	Serial	Problem
10516	n	2180	SCE 32, 34, 36
10522	z	1881	SCE 32, 34, 36
10525	e	3607	DiF - memory 98 M
10543	z	0511	0 bites recovered
10547	z	568	SCE 16, 18, 20, 22
10549	e	2639	SCE 10 - DiF - memory 26M
10556	z	0128	SCE 32, 34, 36
10558	n	2603	SCE 32, 34, 36
10582	e	3723	SCE 16, 18, 20, 22
10588	e	3604	SCE 32, 34, 36
10591	z	1795	SCE 32, 34, 36
10595	z	0782	SCE 29 - DiF - memory 78M
10598	z	0980	SCE 8, 10, 12, 14
10601	z	0714	SCE 24 - DiF - memory 64M
10603	z	0779	SCE 28 - LBV - memory 76M
10605	z	0789	SCE 25 - LBV - memory 67M
10607	z	0853	SCE 26 - LBV - memory 70M
10608	z	1974	SCE 24, 26, 28, 30
10609	z	0793	SCE 27 - LBV - memory 74M
10613	z	0716	SCE 27 - LBV - memory 74M
10614	z	0501	SCE 32, 34, 36
10617	z	0771	SCE 40 - LBV - memory 109M
10618	e	4014	SCE 41 - LBV
10619	z	0845	SCE 22 - LBV - memory 58M
10621	z	0848	SCE 26 - LBV - memory 70M
10622	z	0115	SCE 42 - LBV
10625	z	0814	solid dim red light - LBV - memory 60M
10626	z	0202	SCE 32, 34, 36
10627	e	3912	SCE 42 - LBV - memory 113M
10632	z	1048	SCE 42 - LBV - memory 115M
10633	e	3713	SCE 16, 18, 20, 22
10636	e	3664	SCE 8, 10, 12, 14, 16, 18, 20, 22
10641	z	0563	SCE 16, 18, 20, 22
10648	n	2529	SCE 16, 18, 20, 22
10654	z	1844	SCE 8, 10, 12, 14
10674	z	0612	SCE 38, 40, 42
10675	z	1678	SCE 8, 10, 12, 14
10710	z	0692	SCE 31 - LBV 1.7V - memory 78M
10728	z	0879	SCE 30 - DiF - memory 81M
10730	z	0873	SCE 29 - LBV 1.7V - memory 77M
10734	z	0145	SCE 16, 18, 20, 22 - LBV
10736	z	0878	SCE 31 - LBV - memory 85M
10740	z	0741	SCE 23 - LBV 1.7V - memory 63M
10742	z	0881	SCE 28 - LBV 1.7V - memory 115M
10746	z	0672	SCE 29 - LBV 1.6V - memory 79M

Station	Component	Serial	Problem
10748	z	1931	SCE 30 - LBV - memory 79M - lost time
10754	z	0811	SCE 31 - LBV - memory 84M
10760	z	0864	DiF - memory 82M
10764	z	1970	SCE 8, 10, 12, 14
10768	z	0591	SCE 32, 34, 36
10772	z	0610	SCE 32, 34, 36
10776	n	2270	SCE 24, 26, 28, 30
10786	n	2617	SCE 32, 34, 36
10786	z	0399	SCE 33 - no end time
10786	z	0194	SCE 41, 42 - LBV - memory 112M
10796	z	0728	SCE 28 - LBV 1.7V - memory 75M
10798	z	0482	SCE 42 - LBV - memory 114M
10828	n	2004	SCE 24, 26, 28, 30
10828	z	0205	SCE 36 - DiF - memory 98M
10846	n	2528	SCE 24, 26, 28, 30
10894	e	3753	SCE 16, 18, 20, 22
10912	n	2551	SCE 16, 18, 20, 22
10942	n	2105	SCE 24, 26, 28, 30
10972	e	2834	SCE 38, 40, 42
10978	e	3967	SCE 36 - LBV
10996	z	0508	SCE 24, 26, 28, 30, 32, 34, 36
11014	e	2889	SCE 21 - LBV - memory 115M
11014	e	2889	SCE 24, 26, 28, 30
11014	z	0155	SCE 8, 10, 12, 14
11074	z	1737	SCE 16, 18, 20, 22
11098	z	1623	SCE 24, 26, 28, 30
11164	z	0150	SCE 38, 40, 42
11194	z	0455	SCE 41 - LBV - memory 110M
11200	e	1750	8K data
11230	z	0172	SCE 10 - DiF - memory 26M
11242	e	2852	SCE 24, 26, 28, 30
11242	z	1611	SCE 35 - LBV 1.7V - memory 85M
11254	n	2097	SCE 8, 10, 12, 14
11266	z	0792	SCE 29 - LBV 1.7V - memory 79M
11278	z	1818	SCE 16, 18, 20, 22
11278	e	3645	SCE 8, 10, 12, 14
11290	e	3963	SCE 8, 10, 12, 14
11296	n	2645	SCE 16, 18, 20, 22
11296	e	3842	SCE 8, 10, 12, 14
11308	z	0144	SCE 16, 18, 20, 22
11314	e	3706	SCE 38, 40, 42
11326	z	0785	SCE 27 - DiF - memory 72M
11332	z	0547	SCE 24, 26, 28, 30
11386	e	3854	LBV - memory 98M
11404	e	4087	SCE 16, 18, 20, 22

Station	Component	Serial	Problem
11410	e	3870	SCE 24, 36, 38, 30
11446	z	0866	SCE 33 - LBV 1.6V - memory 88M
11452	e	3935	SCE 32, 34, 36
11452	n	2714	SCE 8, 10, 12, 14
11470	z	0867	LBV 2.3V - memory 82M
11482	z	0769	SCE 38, 40, 42
11488	n	2468	DiF unknown - 4K data
11494	z	0667	SCE 38, 40, 42
11530	n	2626	DiF - 6K data
11530	z	0574	SCE 16, 18, 20, 22
11578	e	2949	SCE 38, 40, 42
11584	n	2170	DCE 38, 40, 42
S8-A	z	0717	SCE 28 - DiF - memory 115M
S8-B	z	0721	SCE 28 - DiF - memory 76M
SP10	z	1622	DiF - memory 98M
SP11	z	1928	SCE 24 - LBV - memory 63M
SP5	z	1862	SCE 24, 26, 28, 30

SCE – Sample Count Errors – can cause noisy data files. Numbers following SCE indicate which files are affected.

LBV – Low Battery Voltage – causes Texan to shut down in the field, how early is indicated by the size of the memory recovered.

DiF – Disabled in Field – most likely due to low battery, but no proof.

Table A5.3 List of ERI station problems

Station	Component	Serial	Problem
10902	z	01034	Logger did not work – No data
10946	z	06003	disconnected GPS - Time correction was incomplete since 21:00 11/5/2011
11018	z	04010	Logger did not work – No data
11072	z	08010	disconnected GPS - Time correction was incomplete since start
11120	z	01136	Logger did not work – No data
11142	z	07003	disconnected GPS - Time correction was incomplete since 01:00 13/5/2011
11192	z	08001	disconnected GPS - Time correction was incomplete since 21:00 11/5/2011
11324	z	01195	Logger did not work – No data

APPENDIX 6: SEG-Y HEADERS

Table A6.1 SEG-Y header information. Fields in bold are specific trace header entries for the SAHKE II experiment

Size	Bytes	ORIGINAL SEG-Y	New IRIS SEG-Y	CLARITAS HEADERS	SAHKE-Explosion (Vertical)	SAHKE-Explosion (full 3Comp)	Comment
long	1- 4	Sequence number within line	lineSeq	LINE	Sequence number within line	Sequence number within line	
long	5- 8	Sequence number within reel	reelSeq	REEL	Sequence number within reel	Sequence number within reel	
long	9- 12	Original field record number	event_number	RECORDNUM	Shot gather # [1-12]	Shot gather # [1-12]	1-12
long	13- 16	Original trace record number	channel_number	CHANNEL	Shot gather trace # [1-878]	Shot gather trace # [1-291]	1-total (878 or 291)
long	17- 20	Energy source point number	energySourcePt	SHOTID	SP# (e.g., 02 or 11)	SP# (e.g., 02 or 11)	01-12
long	21- 24	CDP gather number	cdpEns	CDP	<i>CDP number [empty]</i>	<i>CDP number [empty]</i>	<i>[empty]</i>
long	25- 28	Trace number in CDP gather	traceInEnsemble	CDPTRACE	<i>CDP trace number [empty]</i>	<i>CDP trace number [empty]</i>	<i>[empty]</i>
short	29- 30	Trace identification code:	traceID (=1)	TRTYPE	<i>SEG-Y Trace ID code [set to 1]</i>	<i>SEG-Y Trace ID code [set to 1]</i>	<i>[1]</i>
short	31- 32	No. vertically summed traces	vertSum	VERT_SUM	No. vertically summed traces [set to 1]	No. vertically summed traces [set to 1]	<i>[1]</i>
short	33- 34	No. horz summed traces	horSum	HORI_SUM	No. horz summed traces [set to 1]	No. horz summed traces [set to 1]	<i>[1]</i>
short	35- 36	1 = production, 2 = test	dataUse	USE	<i>Data usage [set to 1=production]</i>	<i>Data usage [set to 1=production]</i>	<i>[1]</i>
long	37- 40	Source to receiver distance	sourceToRecDist	OFFSET	Source-receiver offset (signed)	Source-receiver offset (signed)	derived from geometry table
long	41- 44	Receiver group elevation	recElevation	REC_HT	Receiver group elevation	Receiver group elevation	from geometry table
long	45- 48	Source surface elevation	sourceSurfElev	SOURCE_HT	Source surface elevation	Source surface elevation	from geometry table
long	49- 52	Source depth	sourceDepth	SOURCE_DEP	Source depth	Source depth	from geometry table
long	53- 56	Datum elevation at receiver	datumElevRec	REC_DAT	<i>Datum elevation at receiver [set to 0]</i>	<i>Datum elevation at receiver [set to 0]</i>	<i>[0]</i>
long	57- 60	Datum elevation at source	datumElemSource	SOURCE_DAT	<i>Datum elevation at source [set to 0]</i>	<i>Datum elevation at source [set to 0]</i>	<i>[0]</i>
long	61- 64	Water depth at source	recWaterDepth	SOURCE_WATER	<i>Water depth at source [set to 0]</i>	<i>Water depth at source [set to 0]</i>	<i>[0]</i>
long	65- 68	Water depth at rec. group	sourceWaterDepth	REC_WATER	<i>Water depth at receiver [set to 0]</i>	<i>Water depth at receiver [set to 0]</i>	<i>[0]</i>
short	69- 70	Elevation value scaler	elevationScaler (=1)	HT_SCALE	Elevation scalar [set to 1]	Elevation scalar [set to 1]	1
short	71- 72	Coordinate value scaler	coordScaler (=1)	COORD_SCALE	Coordinate scalar [set to 1]	Coordinate scalar [set to 1]	1
long	73- 76	Source X-coordinate	sourceLongOrX	SOURCE_X	Source long (dec deg x 100000)	Source long (dec deg x 100000)	from geometry table
long	77- 80	Source Y-coordinate	sourceLatOrY	SOURCE_Y	Source lat (dec deg x 100000)	Source lat (dec deg x 100000)	from geometry table

Size	Bytes	ORIGINAL SEG-Y	New IRIS SEG-Y	CLARITAS HEADERS	SAHKE-Explosion (Vertical)	SAHKE-Explosion (full 3Comp)	Comment
long	81- 84	Receiver X-coordinate	recLongOrX	REC_X	Receiver long (dec deg x 100000)	Receiver long (dec deg x 100000)	from geometry table
long	85- 88	Receiver Y-coordinate	recLatOrY	REC_Y	Receiver lat (dec deg x 100000)	Receiver lat (dec deg x 100000)	from geometry table
short	89- 90	Coord units (1-m/ft 2-sec-arc)	coordUnits	COORD_UNIT	Coordinate units	Coordinate units	=3 (decimal degrees)
short	91- 92	Weathering vel at CDP	weatheringVel	WEATH_VEL	<i>Weathering velocity</i>	<i>Weathering velocity</i>	[0]
short	93- 94	Sub-weathering vel.	subWeatheringVel	SUBWEATH_VEL	<i>Sub-weathering velocity</i>	<i>Sub-weathering velocity</i>	[0]
short	95- 96	Uphole time at src (microsec)	sourceUpholeTime	SOURCE_UPHOLE_TIME	<i>Uphole time at src (microsec)</i>	<i>Uphole time at src (microsec)</i>	[0]
short	97- 98	Uphole time at rec. (microsec)	recUpholeTime	REC_UPHOLE_TIME	<i>Uphole time at rec. (microsec)</i>	<i>Uphole time at rec. (microsec)</i>	[0]
short	99-100	Shotpoint static in msec	sourceStaticCor	SOURCE_STATIC	<i>Source static (msec)</i>	<i>Source static (msec)</i>	[0]
short	101-102	Rec. static at CDP in msec	recStaticCor	REC_STATIC	<i>Receiver static (msec)</i>	<i>Receiver static (msec)</i>	[0]
short	103-104	Total static applied *10,000	totalStatic	TOTAL_STATIC	<i>Total static applied *10,000</i>	<i>Total static applied *10,000</i>	[0]
short	105-106	Lag time A (msec)	lagTimeA	LAG_TIME_A	<i>Lag time A (msec)</i>	<i>Lag time A (msec)</i>	[0]
short	107-108	Lag time B	lagTimeB	LAG_TIME_B	<i>Lag time B</i>	<i>Lag time B</i>	[0]
short	109-110	Delay recording time	delay	DELAY	<i>Relative time first sample</i>	<i>Relative time first sample</i>	[0]
short	111-112	Front mute time in sec	muteStart	DATA_START	<i>Polarity (not used; set to 0)</i>	<i>Polarity (not used; set to 0)</i>	[0]
short	113-114	Tail mute in sec	muteEnd	DATA_STOP	<i>Orientation (not used; set to 0)</i>	Orientation Magn. North (deg)	=22 deg ; magn N = 22°E true
short	115-116	Num. samples in this trace	sampleLength	SAMP_NUM	#Samples this trace	#Samples this trace	15000
short	117-118	Sampling rate (microsec)	deltaSample	SAMP_RATE	Sampling rate (microsec)	Sampling rate (microsec)	4000
short	119-120	Gain type: 1=fixed 2=binary...	gainType (=1)	GAIN_TYPE	<i>PASSCAL:Gain type</i>	<i>PASSCAL:Gain type</i>	
short	121-122	Instrument gain constant	gainConst	INSTR_GAIN_CONSTANT	<i>PASSCAL:instr. gain constant</i>	<i>PASSCAL:instr. gain constant</i>	
short	123-124	Instrument initial gain in dB	initialGain	INSTR_INIT_GAIN	<i>instrument initial gain in dB</i>	<i>instrument initial gain in dB</i>	
short	125-126	Correlated trace? 1=no 2=yes	correlated	CDP_X	\ NZTM source X	\ NZTM source X	NZTM meters
short	127-128	Sweep start frequency	sweepStart		/ "	/ "	
short	129-130	Sweep end frequency	sweepEnd	CDP_Y	\ NZTM source Y	\ NZTM source Y	NZTM meters
short	131-132	Sweep length in milliseconds	sweepLength		/ "	/ "	
short	133-134	Sweep type 1=lin, 2=parab...	sweepType	SPARE1	\ NZTM receiver X	\ NZTM receiver X	NZTM meters
short	135-136	Sweep taper at start of trace	sweepTaperAtStart		/ "	/ "	
short	137-138	Sweep taper at end of trace	sweepTaperAtEnd	SPARE2	\ NZTM receiver Y	\ NZTM receiver Y	NZTM meters
short	139-140	Taper type	taperType		/ "	/ "	
short	141-142	Alias filter frequency	aliasFreq	ALIAS_FREQ	Colocation Station	Colocation Station	(0=No, 1=Yes)
short	143-144	Alias filter slope	aliasSlope	ALIAS_SLOPE	Colocation other DAS type	Colocation other DAS type	1=Txn 2=ERI 3=RT130

Size	Bytes	ORIGINAL SEG-Y	New IRIS SEG-Y	CLARITAS HEADERS	SAHKE-Explosion (Vertical)	SAHKE-Explosion (full 3Comp)	Comment
short	145-146	Notch filter frequency	notchFreq	NOTCH_FREQ	Colocation other DAS #	Colocation other DAS #	from geometry table
short	147-148	Notch filter slope	notchSlope	NOTCH_SLOPE	<i>notch filter slope</i>	<i>notch filter slope</i>	
short	149-150	Low-cutoff frequency	lowCutFreq	LOW_CUT_FREQ	<i>low-cutoff frequency</i>	<i>low-cutoff frequency</i>	
short	151-152	Hi-cutoff frequency	hiCutFreq	HIGH_CUT_FREQ	Deployment (set to 1)	Deployment (set to 1)	1
short	153-154	Low-cutoff slope	lowCutSlope	LOW_CUT_SLOPE	Transect line #	Transect line #	1
short	155-156	Hi-cutoff slope	hiCutSlope	HIGH_CUT_SLOPE	transect trace #	transect trace #	1-ntraces
short	157-158	Year data was recorded	year	YEAR	Year of shot	Year of shot	from shot table
short	159-160	Day of year	day	DAY	Day of shot	Day of shot	from shot table
short	161-162	Hour of day (24 hour clock)	hour	HOUR	Hour of shot	Hour of shot	from shot table
short	163-164	Minute of hour	minute	MINUTE	Minute of shot	Minute of shot	from shot table
short	165-166	Second of minute	second	SECOND	Second of shot	Second of shot	from shot table
short	167-168	Time code: 1=local 2=GMT...	timeBasisCode	TIME_BASE	Time code	Time code	4=UTC
short	169-170	Trace weighting factor	traceWtingFactor	WEIGHTING_FACTOR	[empty]	[empty]	
short	171-172	Geophone group # roll switch	phoneRollPos1	REC_NUM_POS1	Merged array stn index (1-narray)	Merged array stn index (1-narray)	1-narray (index within stations)
short	173-174	Group # of 1st trace in field data	phoneFirstTrace	REC_NUM_FIRST_FIELD	PASSCAL: Field stake #	PASSCAL: Field stake #	from geometry table
short	175-176	Group # of last trace in field	phoneLastTrace	REC_NUM_LAST_FIELD	Stn deployed instrument type	Stn deployed instrument type	1=Txn-v 13=Txn-3c 2=ERI 3=rt130
short	177-178	Gap size	gapSize	GAP_SIZE	Stn deployed instrument index	Stn deployed instrument index	index within instrument gather
short	179-180	Over travel of line taper	taperOvertravel	OVERTRAVEL	Component	Component	1=Z, 2=north, 3=east
EXTENDED SEG-Y HEADERS							
short	181-182		(char) station_name	CORR	\ I: Microsec trace start time	\ I: Microsec trace start time	
short	183-184		(char) "		/ " "	/ " "	
short	185-186		(char) " last=0	USER	I: Charge size (kg)	I: Charge size (kg)	from shot table
short	187-188		(char) sensor_serial	SWEEP_START	Time first sample - year	Time first sample - year	from shot table
short	189-190		(char) "	SWEEP_END	Time first sample - Julian day	Time first sample - Julian day	from shot table
short	191-192		(char) "	SWEEP_LENGTH	Time first sample - hour	Time first sample - hour	from shot table
short	193-194		(char) " last=0	SWEEP_TYPE	Time first sample - minute	Time first sample - minute	from shot table
short	195-196		(char) channel_name	SWEEP_TAPER_START	Time first sample - second	Time first sample - second	from shot table
short	197-198		(char) " last=0	SWEEP_TAPER_TYPE	\ Time first sample- microsec	\ Time first sample- microsec	from shot table
short	199-200		(char) extrash[2]		/ " "	/ " "	

Size	Bytes	ORIGINAL SEG-Y	New IRIS SEG-Y	CLARITAS HEADERS	SAHKE-Explosion (Vertical)	SAHKE-Explosion (full 3Comp)	Comment
long	201-204		samp_rate (microsec)	SAMP_RATE	I: Override samp rate (set to 4000)	I: Override samp rate (set to 4000)	4000
short	205-206		data_form		I: Azim of sensor axis (set to 0)	I: Azim of sensor axis (set to 0)	0
short	207-208		m_secs	INLINE	I: Geophone inclination (set to 0)	I: Geophone inclination (set to 0)	0
short	209-210		trigyear	INTERNAL_SORT1	\ I: LMO static (x/v) (ms) (set to 0)	\ I: LMO static (x/v) (ms) (set to 0)	0
short	211-212		trigday		/ " "	/ " "	
short	213-214		trighour	INTERNAL_SORT2	I: Flag: LMO has been used (0=N)	I: Flag: LMO has been used (0=N)	0
short	215-216		trigminute	SPARE3	I: Instrument	I: Instrument	1=Txn (all), 2=ERI, 3=RT130
short	217-218		trigsecond	LASTTR	blank	blank	0 for all traces except the last trace
short	219-220		trigmills	AZIMUTH	I: Azim of src-recr (azim degree)	I: Azim of src-recr (azim degree)	from geometry table
short	221-222		(float) scale_fac	SHOT_PEG	Geophone type (coded) (set to 1)	Geophone type (coded) (set to 1)	1
short	223-224		(float) "	REC_PEG	Geophone number (set to 0)	Geophone number (set to 0)	0
short	225-226		inst_no	SPARE4	DAS #	DAS #	from geometry table
short	227-228		not_to_be_used	CROSSLINE	"not to be used" (set to 0)	"not to be used" (set to 0)	0
long	229-232		num_samps	SAMP_NUM	Num. samples (see 115-116)	Num. samples (see 115-116)	15000
short	233-234		(long) max counts	REPEAT	\ Reftek amplitude bias removed	\ Reftek amplitude bias removed	0
short	235-236		(long) "		/ " (set to 0)	/ " (set to 0)	
short	237-238		(long) min counts		clockcor timing corr. (set to 0)	clockcor timing corr. (set to 0)	0
short	239-240		(long) "		blank	blank	0