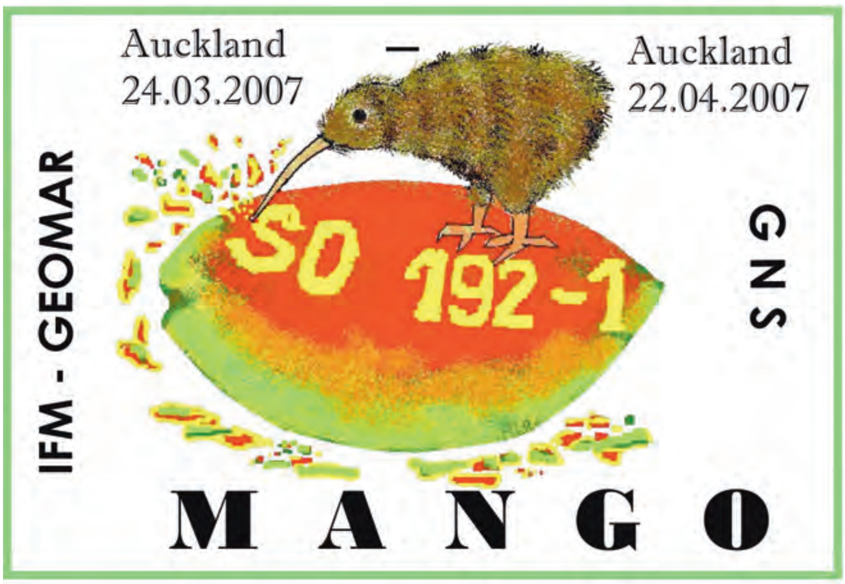
IFM-GEOMAR REPORT

IFM-GEOMAR
Leibniz-Institut für Meereswissenschaften
an der Universität Kiel

FS Sonne
Fahrtbericht / Cruise Report SO 192-1
MANGO

Marine Geoscientific Investigations on the Input and Output of the Kermadec Subduction Zone

Auckland - Auckland
24.03. - 22.04.2007



Berichte aus dem Leibniz-Institut
für Meereswissenschaften an der
Christian-Albrechts-Universität zu Kiel

Nr. 11
Mai 2007

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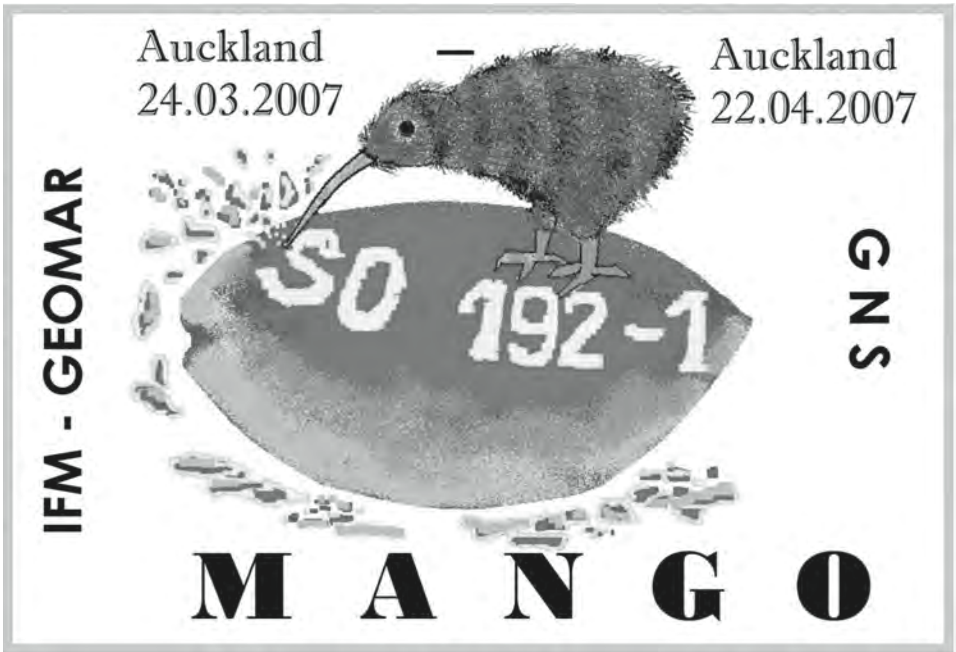

Berichte aus dem Leibniz-Institut
für Meereswissenschaften an der
Christian-Albrechts-Universität zu Kiel

Nr. 11, Mai 2007

ISSN Nr.: 1614-6298

IFM-GEOMAR
Leibniz-Institut für Meereswissenschaften
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Herausgeber / Editor:
Ernst Flüh & Heidrun Kopp

IFM-GEOMAR Report
ISSN Nr.: 1614-6298

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1.1 Summary

From March to April 2007 the RV *SONNE* cruise SO192-1 took place as part of the MANGO project (Marine Geoscientific Investigations on the Input and Output of the Kermadec Subduction Zone) north of New Zealand to acquire various geophysical datasets between 27°S and 38°S along the Kermadec subduction system.

The Kermadec margin marks the plate boundary between the Pacific plate and the Australian plate and merges with the Tonga trench in the north. The southern extent of the subduction zone bordering New Zealand's North Island is characterized by the entry of the Hikurangi Plateau into the Kermadec trench. The entire system displays an elementary tectonic setting and thus poses an ideal target to investigate the mechanisms of mass transfer at convergent plate boundaries.

We have chosen four major east-west oriented refraction profiles between 180°E-185°E for the data acquisition, located on different sections of the margin, at approximately 29°S, 33°S, 34°S and 37°S. All transects were covered with seismic wide-angle refraction data with a total of 147 ocean bottom hydrophone or seismometer deployments. All instruments but one were successfully recovered. A cluster of 8 G-guns of 8 l each, i.e. nominally 64 l capacity of each shot was used as seismic source. A combined total number of 9831 shots were fired along 722,6 nm of profiles during this cruise at an overall excellent performance rate.

1.2 Zusammenfassung

Als Teil des MANGO Projektes (Marine Geowissenschaftliche Untersuchungen zum In- und Output der Kermadec Subduktionszone) fand die FS SONNE Fahrt SO192-1 von März bis April 2007 nördlich von Neuseeland statt mit dem Ziel, einen umfangreichen geophysikalischen Datensatz zwischen 27°S und 38°S aufzuzeichenen.

Der Kermadec Kontinentrand markiert die Plattengrenze zwischen der Pazifischen und Australischen Lithosphärenplatte und geht in den Tonga-Bogen im Norden über. Der südliche Bereich der Subduktionszone ist durch den Eintritt des Hikurangi-Plateaus in den Tiefseegraben gekennzeichnet. Das gesamte System ist durch die relativ einfache und grundlegende Tektonik charakterisiert, welche die Subduktionszone zu einem idealen Zielgebiet für die Erforschung der Mechanismen des Massentransfers an konvergenten Plattenrändern macht.

Die Datenerfassung erfolgte auf vier senkrecht zum Tiefseegraben verlaufenden Profilen zwischen 180°E-185°E, die in unterschiedlichen Sektoren der Subduktionszone bei etwa 29°S, 33°S, 34°S und 37°S liegen. Entlang dieser Linien wurden weitwinkelseismische Daten akquiriert, wobei insgesamt 147 Ozeanbodenhydrophone und Ozeanbodenseismometer erfolgreich zum Einsatz kamen. Alle Geräte bis auf eines konnten im Folgenden erfolgreich geborgen werden. Ein G-Gun Array bestehend aus 8 Kanonen mit jeweils 8l Volumen diente dabei als seismische Quelle für insgesamt 9831 Schüsse entlang von 722,6 nm Profillänge. Das Array zeichnete sich dabei durch eine sehr hohe Zuverlässigkeit aus.

2. Introduction

The 2500 km long intra-oceanic Tonga-Kermadec system displays first order global tectonic features of a subducting plate boundary and thus represents an ideal target for studying mass transfer at convergent margins (Fig. 2.1). Since ~45 Ma the Pacific plate has been subducting beneath the Australian pate along this margin (Sutherland, 1995). The Tonga and Lau Ridges, in the north, as well as the Kermadec and Colville Ridges to the south represent the magmatic imprint of subduction zone processes along the plate boundary. Based on sparse single-channel seismic data, acquired during the 1970s and early 1980s and complemented by satellite-based data, a simplified structural model of the Kermadec subduction zone is proposed by Collot and Davy (1998) and shown in Fig. 2.2. Their synthesis of available data suggests an accretionary margin occurs in the northern part (26°S-31°S) in contrast to an erosion-dominated margin in the south (31°S-36°S). The change in tectonic style along the margin also coincides with a marked offset of the active volcanoes to the west near 32°S (corresponding to the southernmost Kermadec Island). To the south, solely submarine volcanoes are known before the Harve Trough propagates into continental crust of the North Island of New Zealand (Cole, 1986).

Also, south of 35°S, the Kermadec Island arc is characterized by distinct changes in the structure of the lower plate. To the north, a sediment-covered oceanic plate is subducted, whereas the southern portion is dominated by subduction of the Hikurangi plateau, a Cretaceous age ocean plateau with a thick (15 km) crust (Davy and Wood, 1984). In the wake of the Hikurangi Plateau propagation southward (~10 mm/a) along the subduction zone there is likely to be a pronounced gradient in the mass transfer, which is reflected in the volcanism, petrology and chemistry of hydrothermal fluids along the active Kermadec Island arc (see De Ronde et al., 2006). An additional component in the complexity of the system results from the transition from oceanic to continental crust of the island arc north of New Zealand.

In summary, the Tonga-Kermadec subduction zone warrants investigation to better understand the interaction between the subduction interface and the over-riding plate. Specifically, the Kermadec segment of the Tonga-Kermadec subduction zone is ideally placed to examine the nature of the subducting plate and magmagenesis, volcanism and hydrothermal fluid chemistry, as well as the seismogenic behaviour of the plate interface. This report describes four parallel wide-angle active seismic profiles traversing the margin and designed to provide constraints on crustal structure. We also describe underway magnetic and swath data acquired to help reconcile the geological interpretation. It is anticipated that GNS Science will also acquire high quality MCS profiles coincident with the two southern transects, from a separate geophysical survey. Complimentary igneous rock samples will be collected as part of SO-192 Leg 2 for petrologic investigations and analysis of isotope and chemical composition.

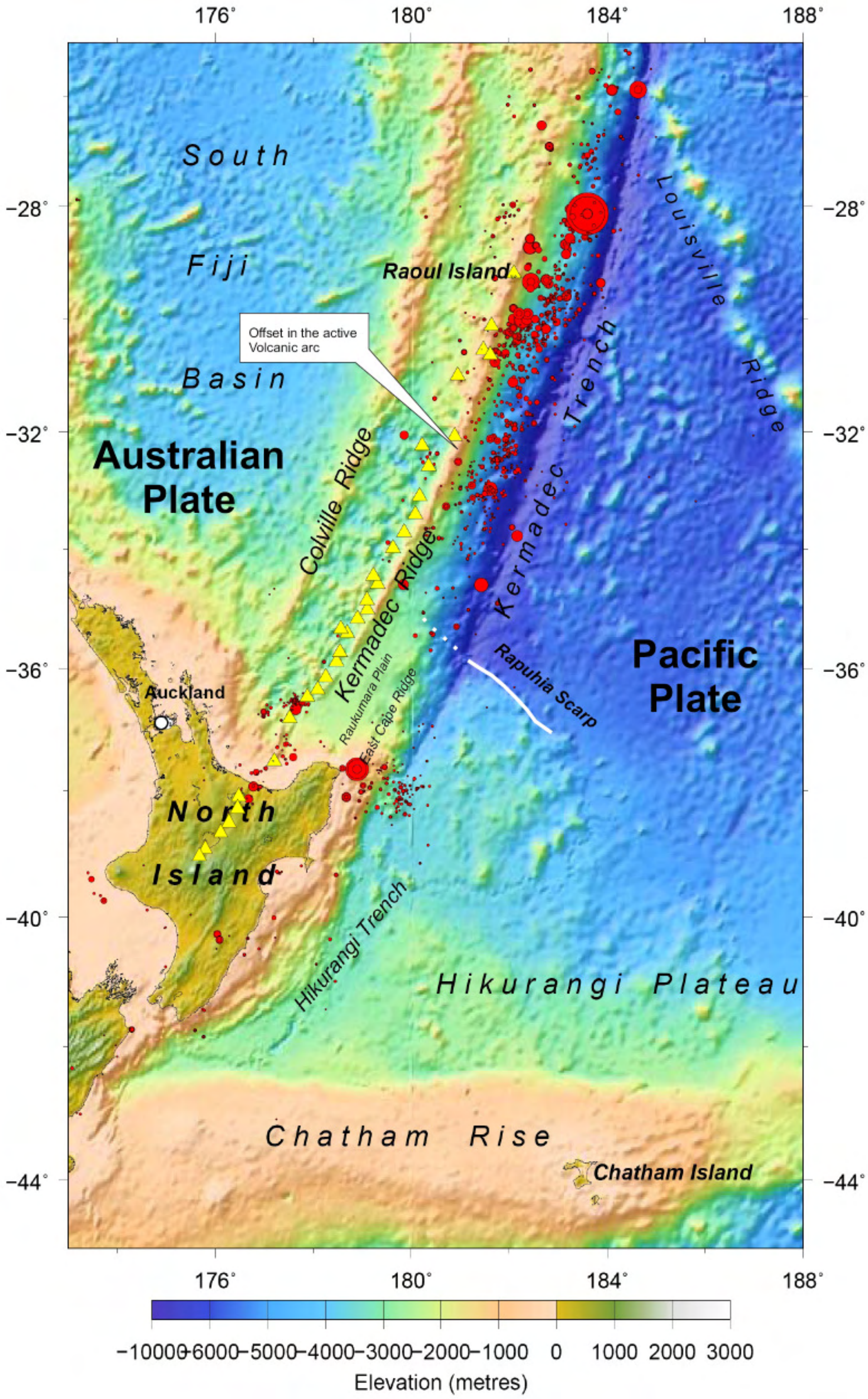

Figure 2.1: *Shaded bathymetry map of the study area along the Kermadec margin north of New Zealand. Earthquake epicentres shallower than 30 km, from the IRIS Data Management Center (January 1990 through June 2006), are plotted as red circles. The size of the circle is proportional to the earthquake magnitude. Also shown for reference, are select locations of volcanic centers and the margin of the Hikurangi Plateau, as given by the Rapuhia Scarp. There is a noteable decrease in density of earthquake epicenters both along the arc south of where the Hikurangi Plateau is thought to intersect the Kermadec arc (dashed white line).*

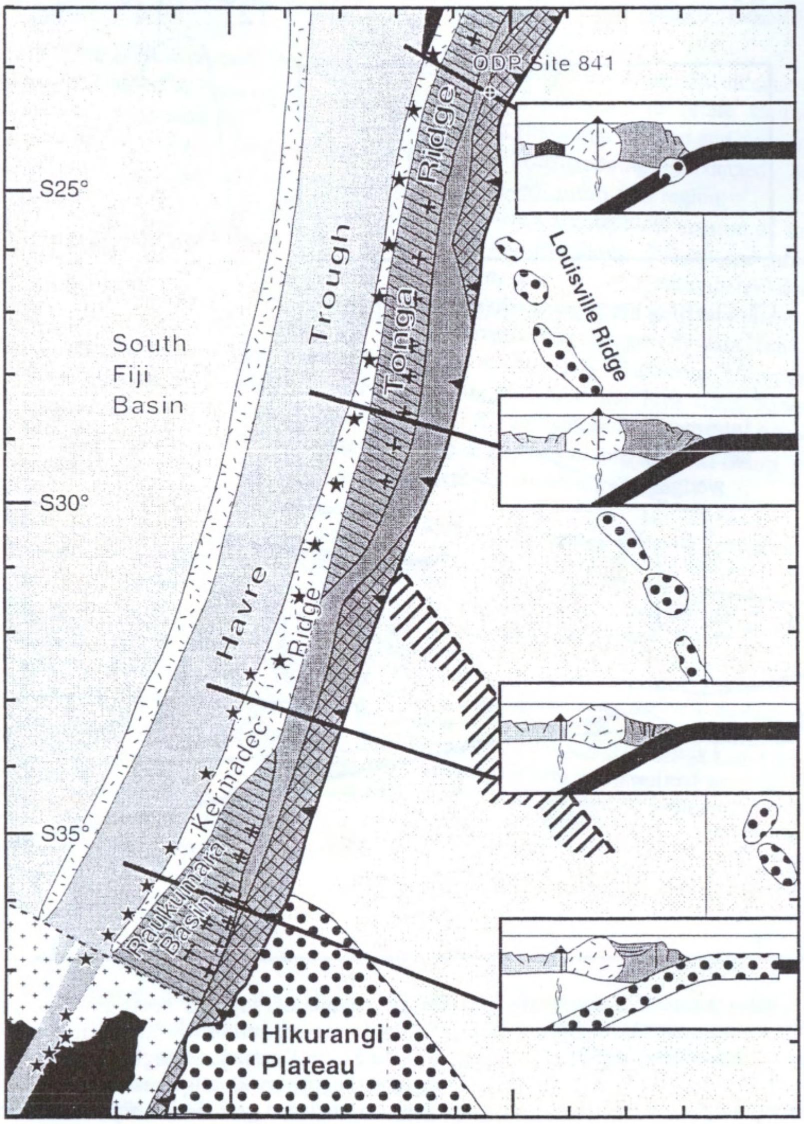

Figure 2.2: Structural interpretation of the Tonga-Kermadec subduction zone after Collot and Davy (1998). The northern segment (26°S-31°S) is characterized by accretion, whereas the southern extent of the margin is dominated by erosive processes (31°S-36°S). The transition between these two regimes is characterized by the entry of the Hikurangi Plateau into the trench at ~5 Ma (stippled area on the oceanic plate).

2.1 Aims of the project and objectives of cruise SO192 Leg 1

The main goal of the investigations conducted during cruise SO192 of RV SONNE is to determine the relation between the subduction of oceanic lithosphere (sediment and basalt) and the magmagenesis as manifested in the evolution of island arc volcanoes and associated fluids and hydrothermal chemistry. Leg 1 is dedicated to active source seismic studies to investigate the crustal structure of the margin. Of crucial interest here is the mass transfer and balance along the southern Kermadec Island Arc with its variation in the mode of mass transfer in neighboring regimes. The investigations will address the following questions:

- How much sediment is input into the system and how does the crustal structure vary from north to south?

- Can the material transfer be traced through the system from its input into the deep sea trench to its output along the volcanic arc? Can an estimate for the related mass balance be provided?
- How do the submarine stratovolcanoes evolve and what is their internal structure?
- How is the upper plate influenced by the subduction of sedimentary material and how does the change from oceanic to continental type crust of the upper plate relate to the subduction zone processes?

These issues are to be investigated in the framework of a German-New Zealand joint interdisciplinary project.

2.2 Kinematics of the Kermadec Island Arc

The Tonga-Kermadec arc is part of the approximately 2500 km long southward propagating Lau-Havre-Taupo arc-backarc complex. The convergence between the Pacific and Australian plates results in the subduction of the Pacific plate along the Kermadec margin. Subduction related magmatism is observed along the Kermadec ridge. To the west, the Havre Trough results from back-arc spreading. Although the role of the Kermadec subduction zone as part of the convergent Tonga-Kermadec margin has been recognized more than 30 years ago (Karig, 1970), its structure and composition remains enigmatic due to lack of detailed geophysical data in constraining the crustal structure. Passive seismic tomography studies, however, provide regional scale images that show the subducting slab along the Tonga-Kermadec system to depths greater than the 660km-discontinuity (van der Hilst, 1995).

Subduction of the Pacific Plate underneath the Australian Plate has been continuously active since 40 Ma and displays an increasing obliqueness to the south. At 32°S the Pacific plate motion is approximately perpendicular to the strike of Tonga-Kermadec arc with a convergence velocity of 53 mm/a (DeMets et al, 1990, 1994) but trending almost parallel to trench at 42°S, near the southern North Island of New Zealand. The large scale kinematics of the margin system is mainly governed by the convergence of the Pacific and Australian plates, but the along-strike variations in the thickness (and buoyancy) of the subducting plate are likely to dictate the kinematics of different sectors of the margin.

The recent convergence direction is controlled by the rifting in the Havre Trough and since 5 Ma occurs at an angle of approximately 20° to the plate boundary (Pelletier and Louat, 1988). The degree of obliqueness is thus below the values for which a compensation of the parallel convergence component through tectonic transpressional structures or strike-slip faults may be expected (McCaffrey, 1992). These mechanisms are observed further to the south along the Hikurangi subduction zone (Collot and Davy, 1998). Prior to the initiation of the back-arc rifting, the convergence angle of the relative plate motion reached 40° so that fossil transpressional structures may be preserved in the forearc.

2.2.1 Evolution of the Kermadec Ridge, back-arc rifting and volcanism

The Australia-Pacific motion north of New Zealand has been convergent since ~45 Ma (Sutherland, 1995). The oldest rocks known in the Tonga forearc are found on the island of ‘Eua (Ewart et al., 1977) and in ODP hole 841, where they have been dated at about 45 Ma (McDougall, 1994) This is consistent with dredge results from the Kermadec forearc, where a continuous sequence dating back to Oligocene time has been recovered (Ballance et al., 1999).

The cause of back-arc opening is widely debated, and many origins for this phenomenon have been proposed (e.g. Molnar and Atwater, 1978) but the most widely cited cause for back-arc rifting is rollback of a negatively buoyant subducting slab (e.g., Molnar and Atwater, 1978). If rollback occurs, the upper plate fore-arc will keep up with the seaward migration of the trench hinge-line because of ‘‘trench suction’’ causing extension to occur in the back-arc region. The oceanic crust subducting at the Kermadec trench is relatively old, probably early to mid-Cretaceous (Bradshaw, 1989), and rollback of the negatively buoyant oceanic slab here has lead to the evolution of a Tonga-Kermadec arc system. The most recent volcanic arc has split into two distinct ridges after the initiation of spreading in the western Havre Trough 4-5 Ma. Spreading rates of up to 1.5 cm/a are observed in the southern Havre Trough (Wright, 1993) and originated in a back-arc basin. Today, only the Kermadec Ridge remains active. Early magnetic investigations (Kibblewhite and Denham, 1967) display a distinct magnetic signature of the ridge caused by its basaltic-andesitic core (Cole, 1986). The ridge is covered by a 4 km thick sedimentary apron of mainly volcanoclastic origin (Cole, 1986).

Near 32°S a 15-25 km long offset of the volcanoes from the ridge axis to the back-arc is observed; its cause remains unclear (Wright, 1994; De Ronde, 2006). South of this offset, only submarine volcanoes have been mapped before the Harve Trough propagates into continental crust of the North Island of New Zealand (Cole, 1986).

2.2.2 Forearc dynamics: Transition from accretion to erosion

Collot and Davy (1998) present a simplified model of the Kermadec subduction zone based on satellite-derived bathymetry (Sandwell and Smith, 1994). The transition from accretion dominated processes in the north to subduction erosion in the south occurs at approximately 31°S. The erosive regime coincides with the segment of the forearc that has experienced the southward migration of Hikurangi Plateau subduction. The initial entry of this plateau into the deep-sea trench occurred approximately 5 Ma at 31°S (Collot and Davy, 1998). The 1000 km wide basaltic plateau (Strong, 1994) originated in Mesozoic times and is classified as a ‘large igneous province’ (Wood and Davy, 1994). Today’s conditions find the northern apex of the plateau in the Kermadec deep-sea trench at 36°S (Davy, 1992). The thickness of the Hikurangi Plateau has been inferred from gravity studies (Davy and Wood, 1994) and reaches 12 - 15 km. Though at the upper limit, this thickness of the basaltic oceanic plateau still allows it to be subducted despite its buoyancy. The Hikurangi Plateau is bordered to the north by the 1 km high Rapuhia Scarp, which has been interpreted as a crustal fault (Davy and Wood, 1994) marking the transition to conventional oceanic crust of 8 km thickness (Houtz et al., 1967). This southern extent of the Kermadec subduction zone displays all the classical features of a convergent margin described by Karig and Sharman (1975). From west to east these include the fore-arc basin, identified as the Raukumara basin, and an outer high, referred to as the East Cape Ridge (Davey et al. 1997). The Raukumara basin contains over 6.5 km of sediments (Gillies and Davey, 1986; Davey et al. 1997) and is marked by a -150 mgal free air gravity anomaly.

Presently, it is unclear if tectonic erosion remains active after the migration of the Hikurangi Plateau to the south. Preliminary indications for local accretive processes along the deformation front of the Kermadec trench are found in early single-channel streamer data (Pelletier and Dupont, 1990). These data suggest the reemergence of sediment accretion after the passage of the Hikurangi Plateau, favored by an increased terrigenous sediment supply of the Hikurangi fan south of 35°S (Gamble et al., 1995, 1997).

2.3 Petrology and Geochemistry of the southern Kermadec island arc

The composition of the subducted oceanic lithosphere is reflected in the chemistry of the island arc volcanoes in so far as three segments of the island arc may be identified. North of approximately 30°S the island arc volcanoes are mainly influenced by subducted altered basaltic crust (Carter et al., 1996; Gamble et al., 1996; Haase et al., 2002). Seafloor morphology of one of the volcanoes (Rumble III) is displayed in Figure 2.3.1.

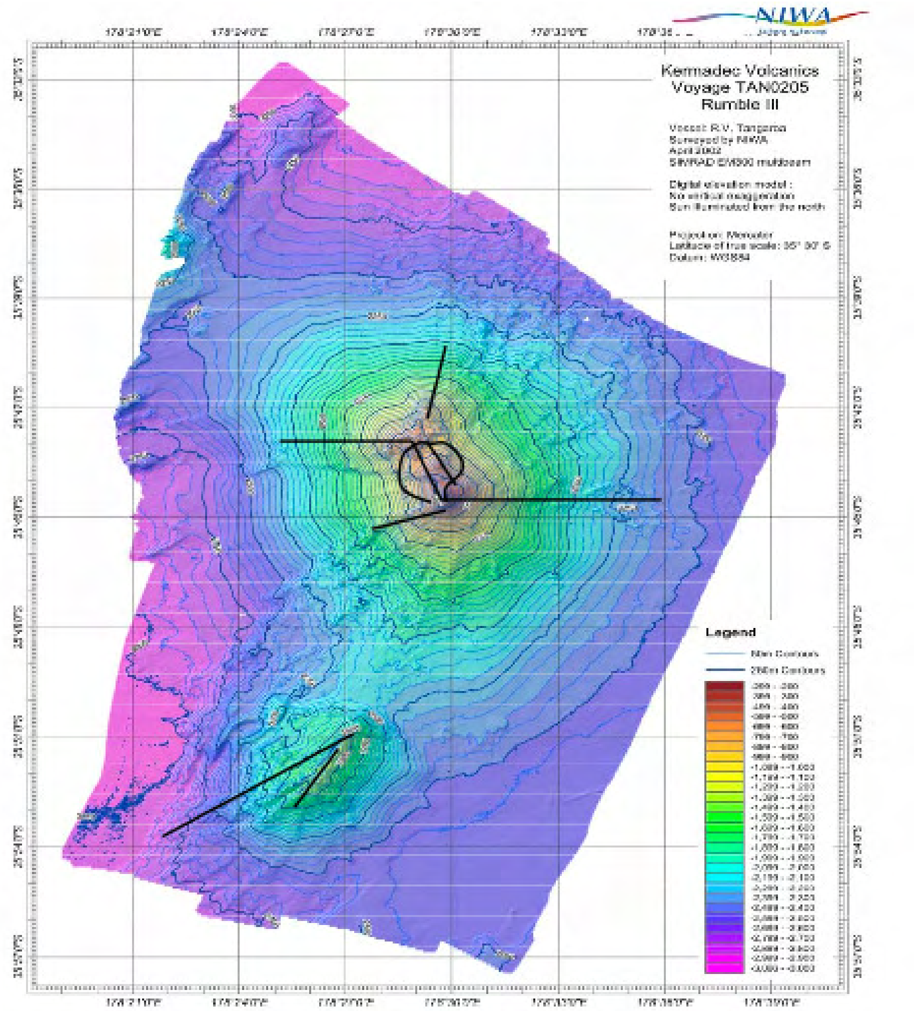

Figure 2.3.1: *High-resolution bathymetric survey of Rumble III. This volcanoe was mapped using the EM-300 Simrad System of RV Tangaroa during a New Zealand survey. Black lines show the planned OFOS and ROV profiles to be conducted during SO192 Leg 2.*

South of 30°S an amplified sediment input to the magmatic source of the island arc correlates to an increased thickness of the sediment cover of the subducted lithosphere in the vicinity of New Zealand (Carter and McCave, 1994; Lewis, 1994). However, the variability in the few available $^{206}Pb/^{204}Pb$ isotope ratios suggests either a variable sediment supply or inconsistent sediment composition. An input of fluids from the subducted portion of the Hikurangi Plateau is unproven, as the island arc magmas show much higher Sr and $^{208}Pb/^{204}Pb$ ratios for a given $^{206}Pb/^{204}Pb$ isotope ratio (Carter et al., 1996; Haase et al., 2002) than material from the Hikurangi Plateau (Mortimer and Parkinson, 1996). An additional change in the composition of the magmatic sources is likely to occur at the transition to continental crust. The only available sample from Whakatane Seamount displays an increase in the Sr isotope ratios. Lava from Clark Seamount as well show much increased $^{87}Sr/^{66}Sr$ and low $^{143}Nd/^{144}Nd$, implying an increased impact of subducted sediment on the mantle underneath Clark (Gamble et al., 1997).

3. Participants
3.1 Scientists - SO 192 Leg 1

Prof. Dr. Ernst R. Flüh	IFM-GEOMAR, chief scientist
Ivonne Arroyo	IFM-GEOMAR
Dr. Daniel Barker	GNS
Daniel Bassett	VUW
Anke Dannowski	IFM-GEOMAR
Sarah Held	CAU Kiel
Dr. Stuart Henrys	GNS
Katja Iwanowski	CAU Kiel
Claudia Jung	IFM-GEOMAR
Helene Kraft	IFM-GEOMAR
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Claudia Podolski	CAU Kiel
Ilka Riepenhausen	CAU Kiel
Anne-Dörte Rohde	IFM-GEOMAR
Dr. Martin Scherwath	IFM-GEOMAR
Anna Schmidt	CAU Kiel
Klaus-Peter Steffen	IFM-GEOMAR
Junjiang Zhu	IFM-GEOMAR

3.2 Crew - SO 192 Leg 1

Lutz Mallon	Master
Nils Aden	Chief Mate
Heinz Ulrich Büchele	2nd Mate
Jens Göbel	2nd Mate
Anke Walther	Surgeon
Norman Lindhorst	Chief Engineer
Andreas Rex	2nd Engineer
Klaus Klinder	2nd Engineer
Uwe Rieper	Electrician
Jörg Leppin	Chief Electrician
Matthias Grossmann	System Operator
Frank Egloff	System Operator
Holger Zeitz	Motorman
Przemyslaw Marcinkowski	Motorman
Rainer Rosemeyer	Fitter
Wilhelm Wieden	Cook
Frank Tiemann	Cook
Werner Slotta	Chief Steward
Gabriel Rudnicki	2nd Steward
Andreas Schrapel	Bosum
Christian Drumm	A. B.
Jürgen Kraft	A. B.
Detlef Etzdorf	A. B.
Enrico Wilde	A. B.
Christian Lengen	A. B.
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3.3 Addresses of Participating Institutions

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Figure 3.1.1: *Participants of cruise SO192 Leg 1, Auckland-Auckland*

4. Agenda of cruise SO192 Leg 1

Cruise SO 192 Leg 1 "MANGO" started on March 24, 2007, in Auckland, New Zealand. Altogether 18 scientists embarked on RV SONNE in Auckland, comprising the international group of scientists from Costa Rica, China, Germany, Great Britain and New Zealand. The transit from Auckland to the study region started at 15:30 25.03.2007 and was intensely used for the preparation of the scientific equipment and installation of hardware. Recording of bathymetric data with the Simrad system was started at 22:30 and continued throughout the cruise.

On 26.03. a few magnetic/swath bathymetry profiles parrallel to our first seismic line were run, while instrument preparation continued. All release systems for the ocean bottom instruments were successfully tested right after midnight on 27.03., at the same time a ctd probe was run to a depth of 3200m. Some more profile were made during 27.03, before instrument deployment started 20:00 on 27.03. After instrument deployment (OBS01 to OBH29) was completed, wheather conditions had become adversely, and we decided not to deploy the airguns, instead wait for better conditions. This was finally done 29.03 at 11:00 and shooting continued in poor wheather conditions with a few interruptions for repairs until midnight 30.03. On 31.03. all 29 instruments were recovered, and the transit to Profile 21 began.

During the night 01/02.04 30 instruments were deployed along Profile P21, and shooting along this line started around 10:00 on April 02. Wheather conditions were excellent, and no failure occured to the airguns during shooting, which was finished just before midnight 03. April. Instrument recovery also went smooth and was completed on April 04.

After transit to Profile P31 first a parrallel Profile with magnetics and bathymetry was run, before instruments OBS60 to OBH89 were deployed the night 05/06. April, and shooting started at 10:00 06. April. It was finished in ideal wheather conditions at 16:00 07. April, and after another magnetics profile instrument recovery was partially completed on April 08. Two more magnetic profiles were run before the last instruments were recovered and Sonne headed north for Raoul Island.

Close to Raoul Island, a composite profile requiring two deployments of the 30 instruments available was planned. At first, two seismometers were placed on Raoul Island, and Ocean Bottom instruments OBH90 to OBS 119 in the night 10/11. April. Between OBH97 and OBH98 a ca. 40 nm wide gap with no instruments had to be left, because of waterdepth in ecess of 6000 m. Shooting started at 11:00 11.04 with moderate winds, which soon after increased and peaked at 20 m/s. The 170 nm long profile P41 was terminated my midnight 12.04.. All instruments except OBS 119 were recovered and redeployed to the east (OBH120 to OBH148) the next two days. In excellent wheather condition the 125 nm Long Profile P42 was shot on 15./16.04. The two seismomter on Raoul Island were recovered in the aftzernoon of 16.04, and subsequently the OBS 119 to 148 were picked up. Unfortunately, OBS130 did not reply to the acoustic interrogation. Another attempt to relase OBS130 was made in the evening of 17.04., sending command from all directions and carefully listening to any possible replies. No signal was detected and the instrument was declared lost.

In the afternnon of 18.04 we reached the area of Profile 31 again and comtinued to map this corridor for about 24 hours, with additional magnetic observations as well. During the remaining transit to Auckland another magnetic profile was collected parrallel to seismic line P11 during the night 20/21.04.. The Simrad multibean system was turned off at 09:00 on 21.04 when reaching the shelf break, terminating the scientific programme. Sonne berthes in Auckland 21.04 at 16:00 after transiting for 27 days and 4950 nm. In Figure 4.1 a track plot of SO192-1 is shown.

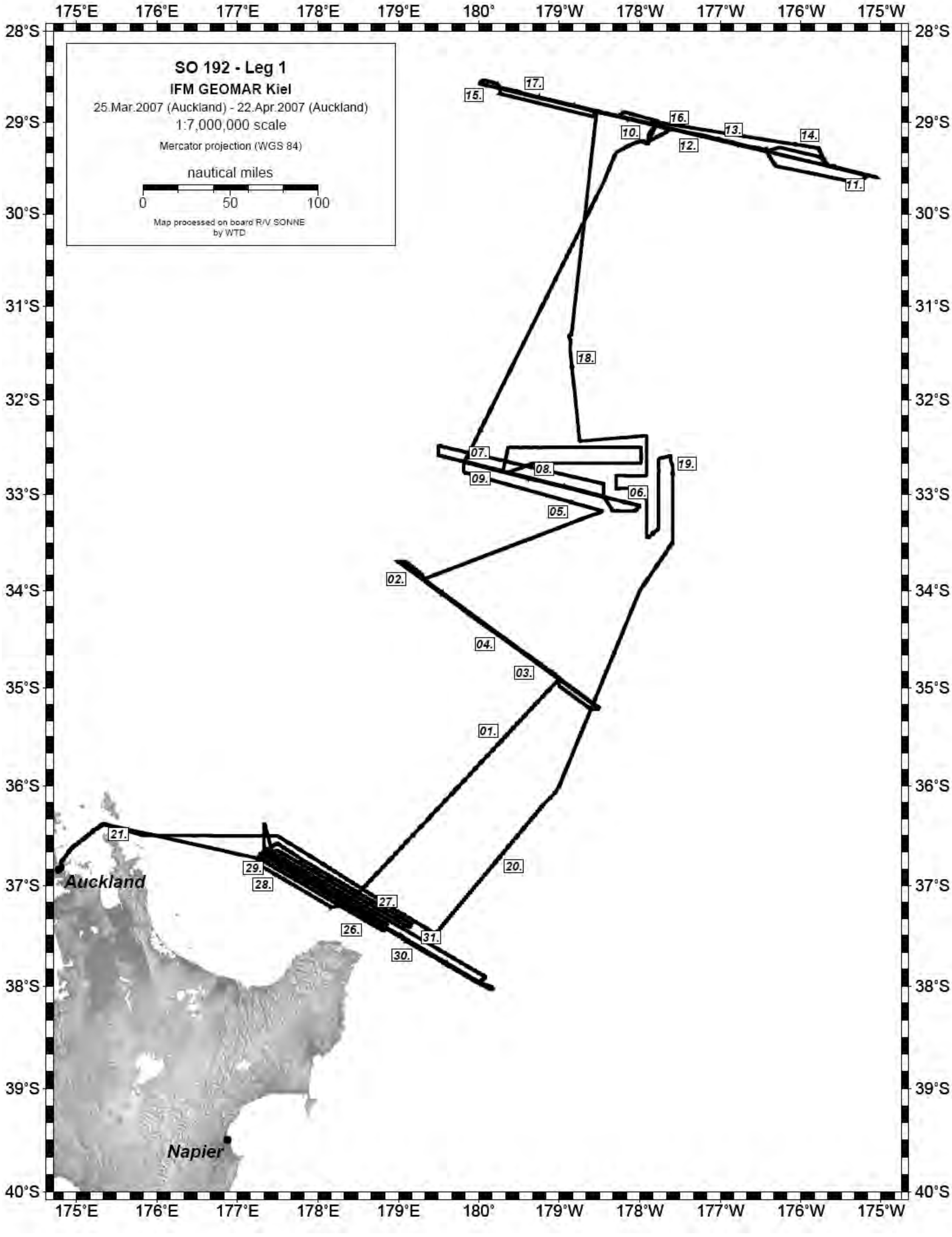


__Figure 4.1:__ Track chart of cruise SO192 Leg 1.

5. Scientific equipment

5.1 Shipboard equipment

5.1.1 Navigation

A crucial prerequisite for all kinds of marine surveys is the precise knowledge of position information (latitude, longitude, altitude above/below a reference level). Since 1993 the global positioning system (GPS) is commercially available and widely used for marine surveys. It operates 24 satellites in synchronous orbits, thus at least 3 satellites are visible anywhere at any moment (Seeber, 1996). The full precision of this originally military service yields positioning accuracies of a few meters. In the past this was restricted to military forces and inaccessible to commercial users (Blondel and Murton, 1997). Since about 2000 the full resolution is generally available (with an accuracy in the order of 15 m). During this cruise the operation of the differential (DGPS) option was not requested as standard precision coordinates are precise enough for seismological monitoring stations.

GPS-values as well as most other cruise parameters are continuously stored in the navigation database, and are distributed via the DVS- ("data distribution system") on the ship's network.

5.1.2 Simrad EM120 swathmapping bathymetry system

The EM120 system is a multibeam echosounder (with 191 beams) providing accurate bathymetric mapping up to depths exceeding 11000 m. This system is composed of two transducer arrays fixed on the hull of the ship, which send successive frequency coded acoustic signals (11.25 to 12.6 kHz). Data acquisition is based on successive emission-reception cycles of this signal. The emission beam is 150° wide across track, and 2° along track direction (Fig. 5.1.2.1). The reception is obtained from 191 overlapping beams, with widths of 2° across track and 20° along it (Fig. 5.1.2.1). The beam spacing can be defined as equidistant or equiangular, and the maximum seafloor coverage fixed or not. The echoes from the intersection area (2°*2°) between transmission and reception patterns (Fig. 5.1.2.1) produce a signal from which depth and reflectivity are extracted.

For depth measurements, 191 isolated depth values are obtained perpendicular to the track for each signal. Using the 2-way-travel-time and the beam angle known for each beam, and taking into account the ray bending due to refraction in the water column by sound speed variations, depth is estimated for each beam. A combination of phase (for the central beams) and amplitude (lateral beams) is used to provide a measurement accuracy practically independent of the beam pointing angle. The raw depth data need then to be processed to obtain depth-contour maps. In the first step, the data are merged with navigation files to compute their geographic position, and the depth values are plotted on a regular grid to obtain a digital terrain model (*DTM)*. In the last stage, the grid is interpolated, and finally smoothed to obtain a better graphic representation.

Together with depth measurements, the acoustic signal is sampled each 3.2ms and processed to obtain a cartographic representation, commonly named mosaic, where grey levels are representative of backscatter amplitudes. These data provide thus information on the sea-floor nature and texture; it can be simply said that a smooth and soft seabed will backscatter little energy, whereas a rough and hard relief will return a stronger echo.

The EM120 was used continuously during cruise 192 Leg 1. Bathymetric data were processed routinely onboard during the survey, using the NEPTUNE software from Simrad, available on board and the academic software MB-System from Lamont-Doherty Earth Observatory. Subsequently, the data collected during SO192 Leg 1 were merged with data collected during the previous leg and during previous cruises and maps were generated which are shown in Figure 6.1.1.

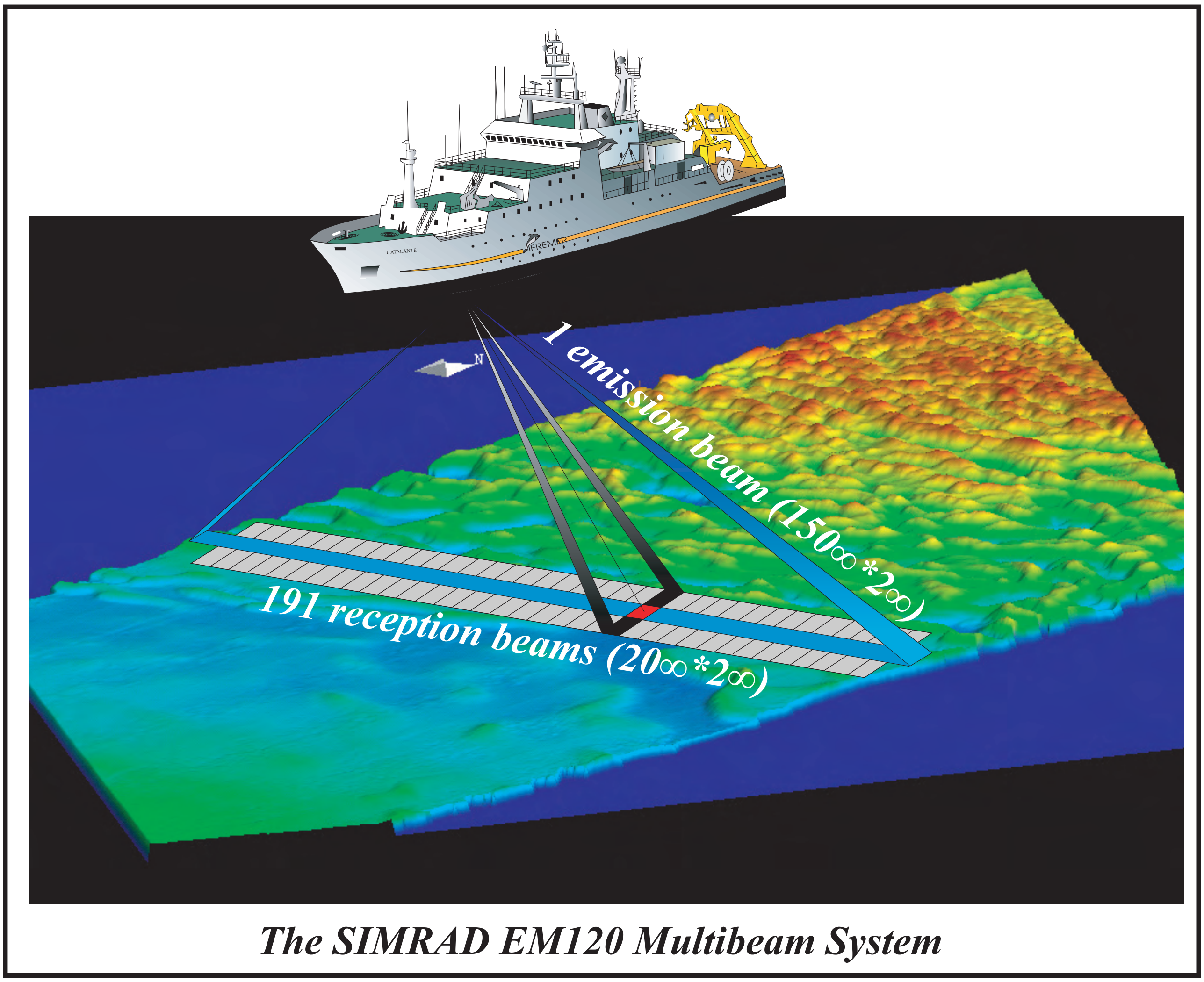


Figure 5.1.2.1: *Acquisition method for bathymetric and backscatter data from the Simrad EM120 system (crossed beams technique).*

5.1.3 Parasound

The PARASOUND system works both as a low-frequency sediment echosounder and as a high-frequency narrow beam sounder to determine the water depth. It utilizes the parametric effect, which produces additional frequencies through nonlinear acoustic interaction of finite amplitude waves. If two sound waves of similar frequencies (here 18 kHz and e.g. 22 kHz) are emitted simultaneously, a signal of the difference frequency (e.g. 4 kHz) is generated for sufficiently high primary amplitudes. The new component travels within the emission cone of the original high frequency waves, which are limited to an angle of only 4° for the equipment used. Therefore, the footprint size of 7% of the water depth is much smaller than for conventional systems and both vertical and lateral resolution is significantly improved.

The PARASOUND system is permanently installed on the ship. The hull-mounted transducer array has 128 elements within an area of 1 m^2. It requires up to 70 kW of electric power due to the low degree of efficiency of the parametric effect. In 2 electronic cabinets, beam formation, signal generation and the separation of the primary (18, 22 kHz) and secondary frequencies (4 kHz) is carried out. Using the third electronic cabinet located in the echosounder control room, the system is operated on a 24 hour watch schedule.

Since the two-way travel time in the deep sea is long compared to the length of the reception window of up to 266 ms, the PARASOUND System sends out a burst of pulses at 400 ms intervals, until the first echo returns. The coverage in this discontinuous mode is dependent on the water depth and also produces non-equidistant shot distances between bursts.

The main tasks of the operators are system and quality control and to adjust the start of the reception window. Because of the limited penetration of the echosounding signal into the sediment, only a short time window close to the sea floor is recorded.

In addition to the analog recording features with the b/w DESO 25 device, the PARASOUND System is equipped with the digital data acquisition system ParaDigMA, developed at the University of Bremen. The data is stored on removable hard disks using the standard, industry-compatible SEGY-format. The 486-processor based PC allows for buffering, transfer and storage of the digital seismograms at very high repetition rates. Of the emitted series of pulses, usually only every second pulse can be digitized and stored, resulting in recording intervals of 800 ms for a given pulse sequence. The seismograms are sampled at a frequency of 40 kHz, with a typical registration length of 266 ms for a depth window of ~200 m. The source signal is a band limited, 2-6 kHz sinusoidal wavelet with a dominant frequency of 4 kHz and duration of 1 period (250 µs total length).

The PARASOUND system was not used during this cruise.

5.1.4 CTD data

The CTD rosette onboard RV SONNE was deployed during cruise SO192 to measure physical oceanographic parameters (Fig. 5.1.4.1.). The CTD station was run to a water depth of 1800 m at a velocity of 1 m/s continuously measuring the sound speed in-situ. The sound velocity profile is shown in Figure 5.1.4.2.

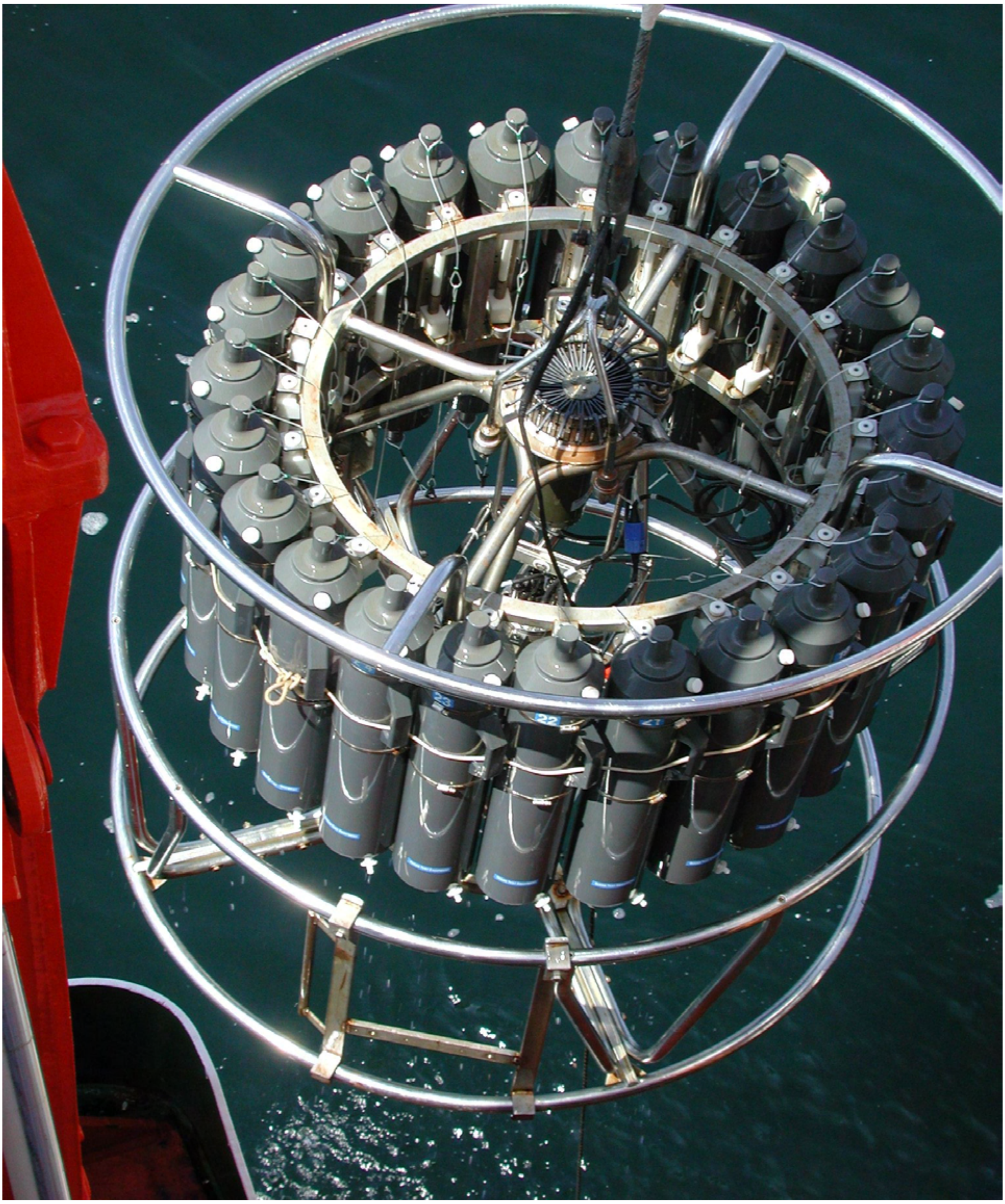


Figure 5.1.4.1: *RV SONNE's onboard CTD rosette upon deployment.*

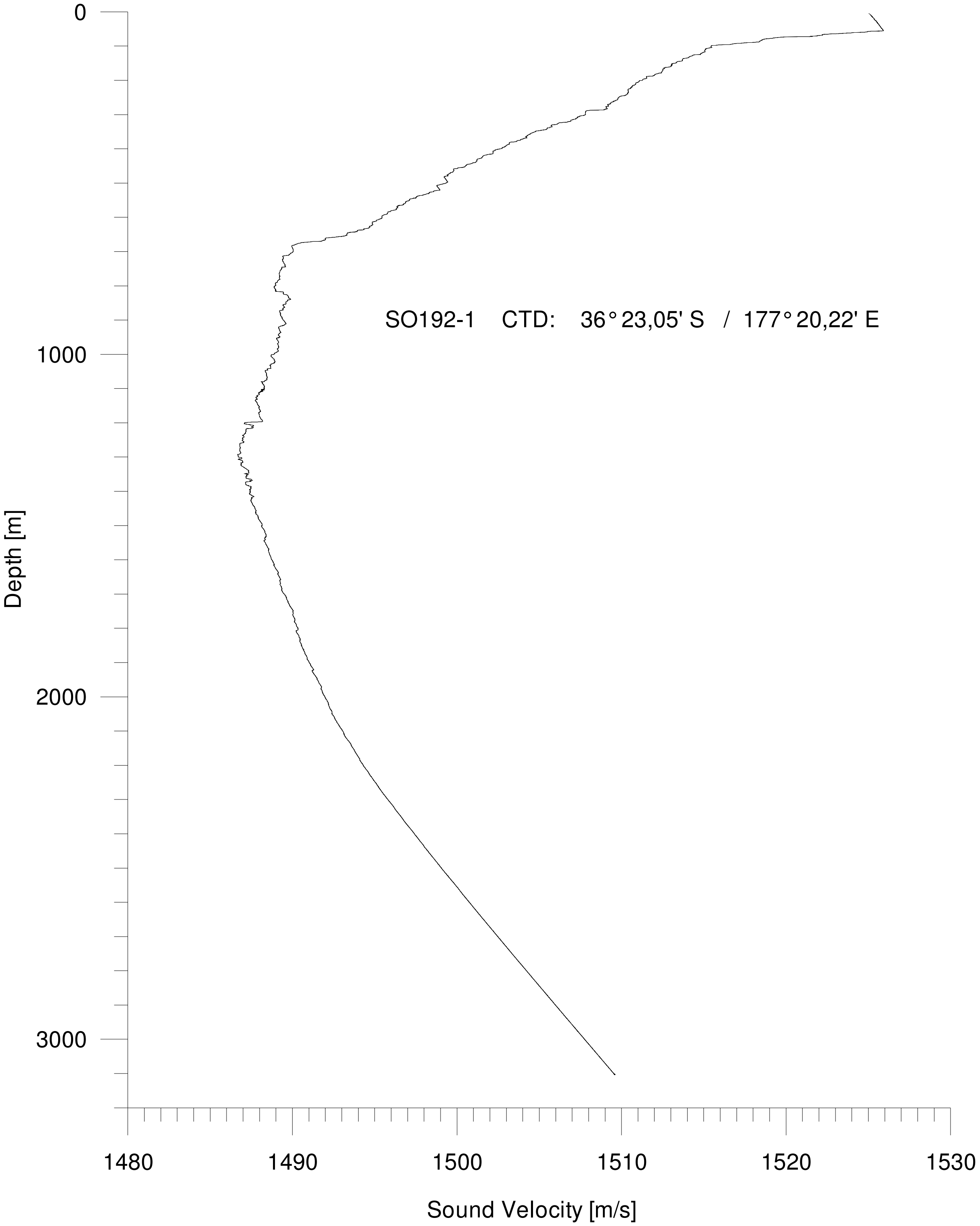


Figure 5.1.4.2: *Sound velocity profile obtained from CTD measurement during SO192-1 on 26.03.2007 at 14:00 UTC.*

Accurate sound velocity profiles are needed for calibration of the water sound velocity to transfer the echo times of the bathymetric swath mapping into water depth. The velocity profile exhibits the typical curvature with similar characteristics of measurements conducted elsewhere.

5.2 Computer facilities for bathymetry and seismic data processing

The experiments and investigations during SO192 required special computing facilities in addition to the existing shipboard systems. For programming of ocean bottom stations, processing and interpretation of seismic data and analysis of magnetics, several PC-workstations and a dedicated PC-laptop were installed by the wide angle and bathymetry groups of IFM-GEOMAR.

Due to the large amount of data transfer IFM-GEOMAR installed a workstation cluster onboard comprising the following systems:

1	"caicos"	INTEL Pentium 4 3.2 GHz	2 CPU, 1 GB memory	375 GB disks, 4x PCMCIA	Windows XP Linux (Suse 10.1)
2	"potosi"	INTEL Pentium 4 3.2 GHz	2 CPU, 1 GB memory	375 GB disks, 4x PCMCIA	Windows XP Linux (Suse 10.1)
3	"crimea"	AMD Duron 700 MHz	1 CPU, 128 MB memory	68 GB disks, 6x PCMCIA	Windows XP Linux (Suse 9.3)
4	"roorise"	AMD Duron 700 MHz	1 CPU, 128 MB memory	68 GB disks	Windows XP Linux (Suse 10.1)

In addition to these computers, several laptops were used and two Macintosh computers for the seismic modeling and interpretation with the forward modeling program MacRay were available. For plotting and printing one Kyocera Mita FS6020 Postscript Laserprinter (paper size A3 and A4) as well as the shipboard color plotters were available.

The workstation cluster was placed in the Magnetiklabor and the Reinlabor where "roorise" was used for working on the bathymetry data, whereas the other three PCs were used to work with the seismic data. The huge amount of data and thus data transfer required a high-performance network, which was accomplished by a switched twisted-pair ethernet. A 24-port ethernet switching-hub (3COM-SuperstackII 3300) with an uplink connection of 100 Mbps maintained the necessary network performance. A shipboard router was used to allow for communication between the IFM-GEOMAR and the shipboard network in order to keep the shipboard network undisturbed by the workstation cluster. This provided the additional benefit of a simplified network configuration. The workstations used the same IP-addresses and network configuration as at IFM-GEOMAR so no further setup work was necessary. Sharkoon 250 GB usbdisks were used as backup system. They were formatted to allow for backup of files larger than 2 GB, typical sizes for seismic data files.

This network setup showed a reliable and stable performance, and no breakdowns were observed.

5.3 OBH/OBS Seismic Instrumentation
5.3.1 OBH/OBS

The Ocean Bottom Hydrophone (OBH)

The first IFM-GEOMAR Ocean Bottom Hydrophone was built in 1991 and tested at sea in January 1992. This type of instrument has proved to have a high reliability; more than 4000 successful deployments were conducted since 1991. A total of 8 OBH and 22 OBS instruments were available for SO192-1. Altogether 147 sites were deployed for refraction seismic profiles during the SO192-1 cruise.
The principle design and a photograph showing the instrument upon deployment are shown in Figure 5.3.1. The design is described in detail by Flueh and Bialas (1996).

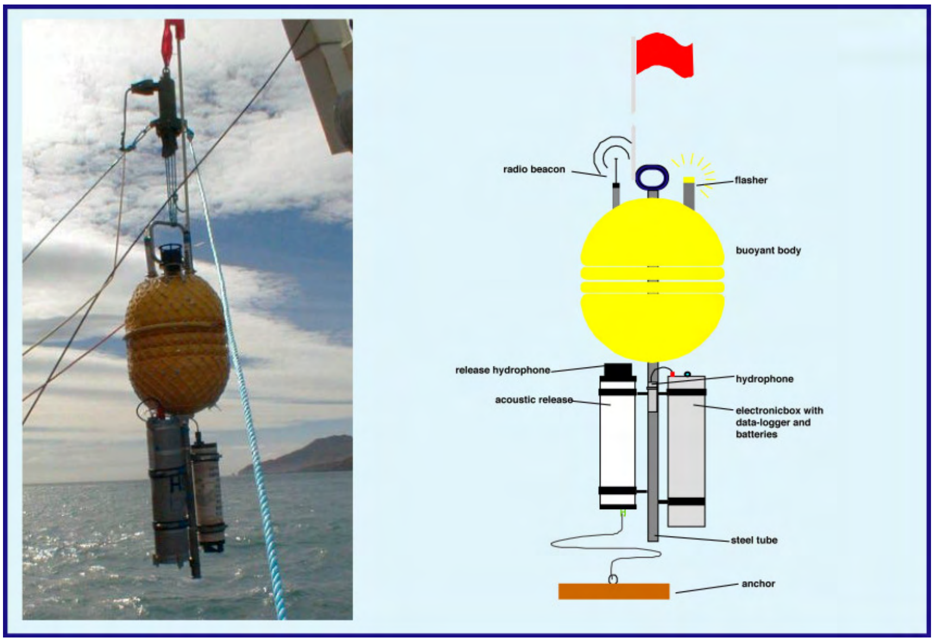
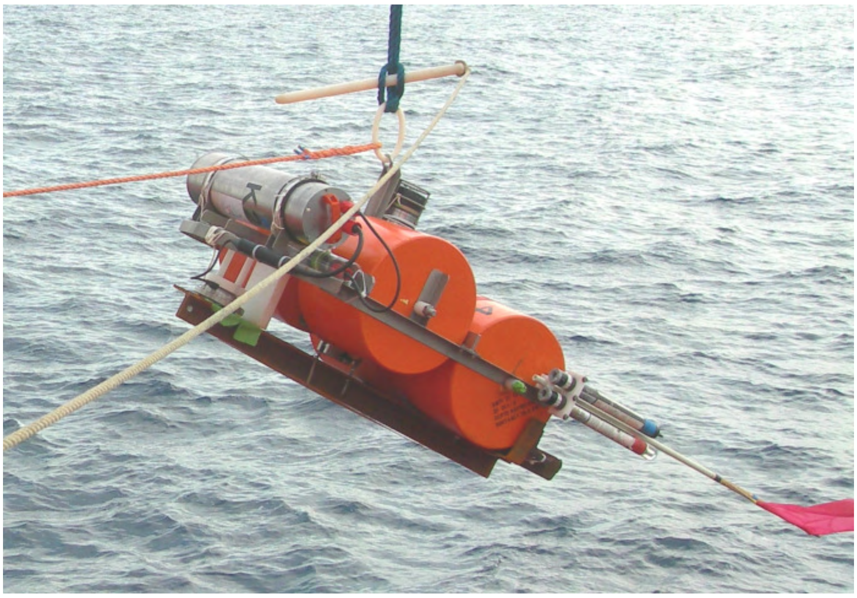


Figure 5.3.1: *Principle design of the IFM-GEOMAR OBH (right panel, after Flueh and Bialas, 1996) and the instrument upon deployment (left panel).*

The system components are mounted on a steel tube, which holds the buoyancy body on its top. The buoyancy body is made of syntactic foam and is rated, as are all other components of the system, for a water depth of 6000 m. Attached to the buoyant body are a radio beacon, a flash light, a flag and a swimming line for retrieving from aboard the vessel. The hydrophone for the acoustic release is also mounted here. The release transponder is a model *RT661CE* or *RT861* made by *MORS Technology* which recently became *IXSea*, or alternatively a *K/MT562* made by *KUM GmbH*. Communication with the instrument is possible through the ship's transducer system, and even at maximum speed and ranges of 4 to 5 miles release and range commands are successful. For anchors, we use pieces of railway tracks weighing about 40 kg each. The anchors are suspended 2 to 3 m below the instrument. The sensor is an *E-2PD* hydrophone from *OAS Inc.*, the *HTI-01-PCA* hydrophone from *HIGH TECH INC* or the *DPG* hydrophone, and the recording device is an *MBS, MLS* or *MTS* recorder of *SEND GmbH*, which is contained in its own pressure tube and mounted below the buoyant body opposite the release transponder (see Figure 5.3.1).

The IFM-GEOMAR Ocean Bottom Seismometer 2002



The IFM-GEOMAR Ocean Bottom Seismometer 2002 (OBS-2002) is a new design based on experiences gained with the IFM-GEOMAR Ocean Bottom Hydrophone (OBH; Flueh and Bialas, 1996) and the IFM-GEOMAR Ocean Bottom Seismometer (OBS, Bialas and Flueh, 1999). For system compatibility the acoustic release, pressure tubes, and the hydrophones are identical to those used for the OBH. Syntactic foam is used as floatation body again but this time in a less expensive cylinder shape. The entire frame can be dismounted for transportation, which allows storage of more than 50 instruments in one 20" container. Upon cruise preparation onboard all parts are screwed together within a very short time. Four main floatation cylinders are fixed within the system frame, while additional disks can be added to the sides without changes. The basic system is designed to carry a hydrophone and a small seismometer for higher frequency active seismic profiling. The sensitive seismometer is deployed between the anchor and the OBS frame, which allows good coupling with the sea floor. While the OBS sits on the seafloor, the only connection from the seismometer to the instrument is a cable and an attached wire, which retracts the seismometer during ascent to the sea surface. The three component seismometer (*KUM*) is housed in a titanium tube, modified from a package built by Tim Owen (Cambridge) earlier. Geophones of 4.5 or 15 Hz natural frequency are available. The signal of the sensors is recorded by use of the *Marine Longtime Recorder (MLS),* and *Marine Tsunameter Seismocorder (MTS)*, which are manufactured by *SEND GmbH* and specially designed for long-time recordings of low frequency bands. The hydrophone can be replaced by a differential pressure gauge (DPG) as described by Cox et al (1984).
While deployed to the seafloor the entire system rests horizontally on the anchor frame. After releasing its anchor weight the instrument turns 90° into the vertical and ascends to the surface with the floatation on top. This ensures a maximally reduced system height and water current sensibility at the ground (during measurement). On the other hand the sensors are well protected against damage during recovery and the transponder is kept under water, allowing permanent ranging, while the instrument floats at the surface.

Marine Broadband Seismic Recorder (MBS)

The so-called *Marine Broadband Seismic* recorder *(MBS;* Bialas and Flueh, 1999*)*, manufactured by *SEND GmbH*, was developed based upon experience with the DAT-based recording unit

Methusalem (Flueh and Bialas, 1996) over previous years. This recorder involves no mechanically driven recording media, and the PCMCIA technology enables static flash memory cards to be used as non-powered storage media. Read/write errors due to failure in tape handling operations should not occur with this system. In addition, a data compression algorithm is implemented to increase data capacity. Redesign of the electronic layout enables decreased power consumption (1.5 W) of about 25% compared to the *Methusalem* system. Depending on the sampling rate, data output could be in 16 to 18 bit signed data. Based on digital decimation filtering, the system was developed to serve a variety of seismic recording requirements. Therefore, the bandwidth reaches from 0.1 Hz for seismological observations to the 50 Hz range for refraction seismic experiments and up to 10 kHz for high resolution seismic surveys. The basic system is adapted to the required frequency range by setting up the appropriate analogue front module. Alternatively, 1, 2, 3 or 4 analogue input channels may be processed. Operational handling of the recording unit is similar to that of the *Methusalem* system, or a file can be loaded via command or automatically after power-on. The time base is based on a DTCXO with a 0.05 ppm accuracy over temperature. Setting and synchronising the time as well as monitoring the drift is carried out automatically by synchronisation signals (DCF77 format) from a GPS-based coded time signal generator. Clock synchronisation and drift are checked after recovery and compared with the original GPS units. After software pre-amplification the signals are low-pass filtered using a 5-pole Bessel filter with a -3 dB corner frequency of 10 kHz. Then each channel is digitised using a sigma-delta A/D converter at a resolution of 22 bits producing 32-bit signed digital data. After delta modulation and Huffman coding the samples are saved on PCMCIA storage cards together with timing information. Up to 4 storage cards may be used. Data compression allows increase of this capacity. Recently, technical specifications of microdrives (disk drives of PCMCIA type II technology) have been modified to operate below 10° C, therefore 2 GB drives are now available for data storage. After recording the flashcards need to be copied to a PC workstation. During this transcription the data are decompressed and data files from a maximum of four flash memories are combined into one data set and formatted according to the PASSCAL data scheme used by the *Methusalem* system. This enables full compatibility with the established processing system. While the *Methusalem* system did provide 16 bit integer data, the 18 bit data resolution of the *MBS* can be fully utilised using a 32 bit data format.

The Marine Longtime Seismograph (MLS)

For the purpose of low-frequency recordings such as seismological observations of earthquakes during long-term deployments of about one year time a new data logger, the Marine Longtime Seismograph (MLS) was developed by *SEND GmbH* with support by IFM-GEOMAR.
The MLS is again a four channel data logger whose input channels have been optimised for 3-component seismometers and one hydrophone channel. Due to the modular design of the analogue front end it can be adapted to different seismometers and hydrophones or pressure sensors. Currently front ends for the Spahr Webb, PMD and Güralp seismometers as well as for a differential pressure gauge (DPG), a pressure sensor of high sensitivity and the OAS/HTI hydrophone are available. With these sensors we are able to record events between 50 Hz and 120 s. The very low power consumption of 250 mW during recording together with a high precision internal clock (0.05 ppm drift) allows data acquisition for one year. Data storage is done on up to 12 PCMCIA type II flashcards or microdrives, now available with a capacity of up to 2 GB. The instrument can be parameterised and programmed via a RS232 interface. After low

pass filtering the signals of the input channels are digitised using Sigma-Delta A/D converters. A final decimating sharp digital low-pass filter is realised in software by a Digital Signal Processor. The effective signal resolution depends on the sample rate and varies between 18.5 bit at 20 ms and 22 bits at 1 s. Playback of the data is done under the same scheme as described for the MBS above. After playback and decompression the data is provided in PASSCAL format from where it can be easily transformed into standard seismological data formats.

The Marine Tsunameter Seismocorder (MTS)

This data logger is based on the experiences with the MBS and MLS devices. The GEOLON-MTS has been developed by *SEND GmbH* and is a high precision instrument for acquisition, processing, storage of seismic signals and additionally pressure data. Like the MLS it is optimised for long time (more than 1 year) standalone operation on the ocean bottom, data storage capacity is also up to 12 PCMCIA cards. The four channel data logger is prepared for connection with a hydrophone (also different types like e.g. HTI, OAS, or the Differential Pressure Gauge, DPG) and different types of three component seismometers as described above for the MLS.

Additionally a digital absolute pressure gauge can be connected to the auxiliary connector, which were not used during SO190-2.

Playback of the data is done according to the scheme described for the MBS and MLS above. After playback and decompression the data is provided in PASSCAL format.

5.3.2 Streamer

In addition to the ocean bottom seismic recorders for cruise SO192-1, a GNS 16 channel streamer was used. This streamer was deployed to provide a simple low-fold seismic reflection profile along the OBS/H profiles to assist in data interpretation. It is anticipated that GNS will also be able to contribute high quality MCS profiles coincident with profiles P11 and P21, to be acquired in the coming months from a separate geophysical survey.
The Trout ™ towed hydrophone array was manufactured by Marschall Acoustics Instruments Pty. Limited (Penrith, NSW, Australia*)*. The system comprises an active section of 16 modules spaced at 2 m, each containing dual hydrophone elements and integrated pre-amplifier and line driver. The lead-in cable and deck cable, totalling a further 140 m, connected directly to the array's deckbox in the Geolab. The individual hydrophones have a flat frequency response from 5 Hz to 8 kHz and are omnidirectional below 2kHz (i.e., omnidirectional for the frequency spectra of the source for this survey). The deckbox allows for two gain settings with a 30 dB difference; the low gain setting employed has a sensitivity of –185 dB, re 1V/µbar. The streamer is not oil-filled, but

has a neutrally-bouyant solid construction. Active hydrophone modules are encapsulated in a three layer process, with the external capsule forming a hydrodynamic housing. Similar hydrodynamic flotation-only modules are fore and aft of the active section, and moderate weighting of one of the lead floats adjusts tow depth. However, there is no sensor monitoring tow depth and no active control is possible during towing. The streamer was deployed and recovered manually.
Two four-channel MBS data loggers (s.a.) were used to record the seismic signals of the G-gun clusters for 8 of the available 16 channels, selected based on best signal/noise characteristics. Direct water wave arrival and reflection signals could be well observed using the online display capabilities of the MBS device (s.a.).
Due to the close distance between the two G-gun arrays at the stern of SONNE the starboard side boom on the backdeck was employed to tow the streamer. Deployment and towing was guided through the large diameter rolls of the IFM-GEOMAR magnetometer to avoid strong bending. With 7 m offset to the vessel the streamer was towed in safe distance to the starboard gun array.

5.3.3 Airgun System

G-gun Cluster

As the main seismic source G-gun clusters manufactured by *Sercel Marine Sources Division* (former *SODERA*) and *Seismograph Services Inc.* were operated in two arrays. Eight guns were set up in four clusters, carried by two 5 m long frames (Figure 5.3.2). All guns were fired through the IFM-GEOMAR LongShot airgun source controller manufactured by *RealTime* using the shipboard photo trigger of the *Preussag* telemetry system (see External Trigger below).
Each cluster comprises of two 520 cinch (8 l) G-guns (Figure 5.3.2) and the cluster arrangement provides a good primary to bubble signal ratio. Operating eight guns provides a volume of 64 litres, but should benefit in radiated energy from the multiple guns and the high working pressure. The G-guns were operated at 210 bar. For this purpose a second compressor was set up by RF onboard SONNE to increase the 140 bar pressure from the onboard *Leobersdorfer* unit to 210 bar. Profiles were shot at 40s and 60s shot interval. Using this interval the pressure could be kept between 205 and 210 bar with seldom dropped due to blow off from the safety valve. The single delay times of the guns kept constant during this time and hence should provide a consistent shape of the source signal.

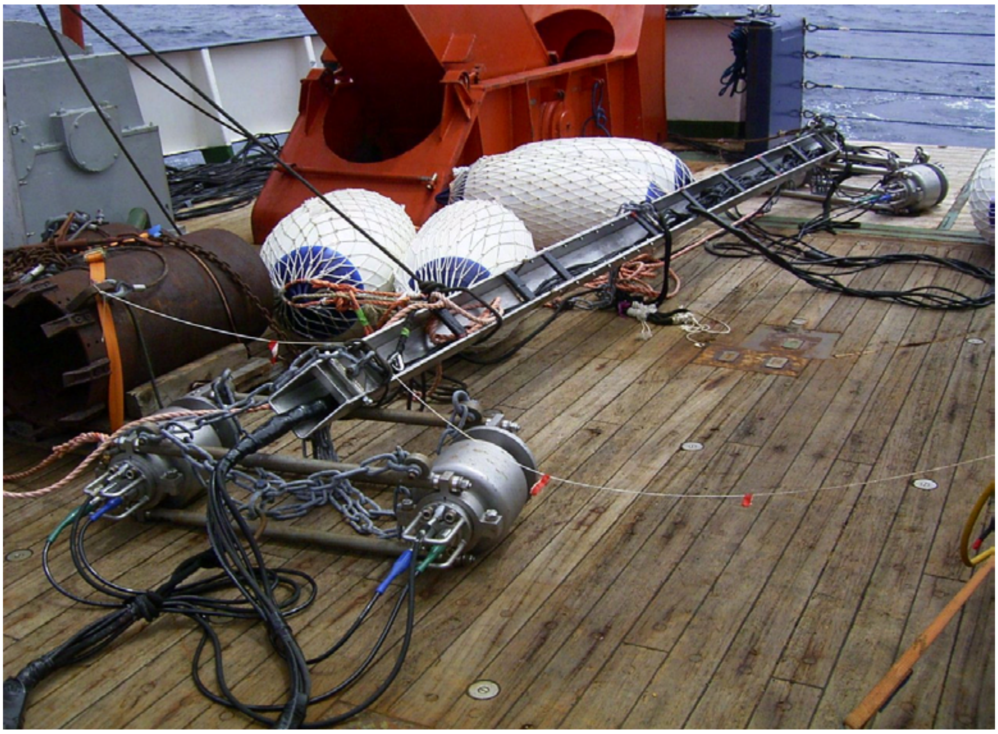


Figure 5.3.2*: Picture of a 5 m long G-gun Cluster carrier. Two G-gun clusters are mounted below the carrier, while four Polyform floatation are visible on the left hand side.*

The gun carriers (each 5 m long) were deployed through the inside of the A-frame, while towing was done by the aft mooring winches, which cables were guided through blocks on the outside ends of the A-frame (Figure 5.3.3). For lifting purposes winches on top of the A-frame were used. First the winch of the A-frame lifted one gun carrier, which was then guided behind the aft of the vessel. Here the towing winch took over the weight while the back of the carrier already tipped into the water. Now the hoisting rope was attached to the towing rope and finally the entire carrier was lowered into the water. Meanwhile four F11 size *Polyform* buoys were pushed into the water, acting as flotation for the frame. Towing depth was 8m during SO192-1 cruise.

Figure 5.3.3: *Starboard side G-gun carrier during recovery.*
The gun frame is lifted by the hoisting rope with a winch on top of the A-frame. Starboard towing wire can be seen directing towards the top left where it is led through a roll on the outside part of the A-frame.

This operation procedure allowed to deploy the guns and frame in horizontal position, which minimizes the danger of destroying pipes and cables. As the mooring winch does operate much faster than the assistant winch of the A-frame danger caused by the moving frame for people and equipment was further reduced. The two pairs of F11 size floatation on each carrier had been fixed at front and end so that the end float could be dropped into water prior to lowering of the carrier while it floats away from the vessel. The front buoy was kept on slip on the back post of the A-frame. It was dropped into water when the carrier started floating and hence cross cuts with ropes and floats was avoided. As well danger to crew working within the A-frame space was avoided. The entire procedure now allows deployment lifting the front of the gun carrier only about 2 meters out of the water. During recovery procedure the hoisting rope on top of the A-frame allowed to keep the gun carrier in horizontal position all the time as well. Next the second carrier was deployed/recovered in the same manner.

External trigger during SO192-1

Since the replacement of the old *Atlas* ANP navigation system on the bridge by the new DSHIP system from *Werum* GPS controlled seismic trigger signals are no longer available. Therefore the control device of the digital camera used with the *Preussag* OFOS telemetry system was used to provide a trigger signal for the airgun shots. The impulse was delivered to the *LongShot* trigger box. The trigger pulses from the OFOS system, necessary for subsequent data processing and instrument location, were stored on a MBS recorder and displayed in real time to double check. For this process the same time basis was used as for the OBH. A test of the timing reliability of the *LongShot* trigger box was performed consisting of a synchronous recording of the OFOS trigger signal and the Clock Time Break (CTB) of the *Longshot* device, i.e. a TTL pulse that is 5 ms wide and representing the aim-point or the time when the guns are firing. This aim-point was set to be 60 ms after the OFOS trigger pulse, but the test resulted in a delay of 155 ms pointing to an additional internal delay of the *Longshot* trigger box. After careful analysis of the direct arrivals and multiples in the seismic data, a delay of 135 ms with respect to the OFOS trigger pulse was determined, thus indicating a time shift of 20 ms of the airgun firing time given by the CTB pulse.
Exact position calculation for the shot time should be done by later post-processing using shot time and UTC time values stored with GPS coordinates in the ship's data base.

5.4 Magnetometer

A GeoMetrics G801/3 Marine Proton Magnetometer was deployed during cruise SO192-1 to record the Earth's magnetic field. It was deployed during transit between seismic profiling in regions where no magnatic recordings are available. The main aim was to get magnetic reversals. The seafloor had inheritited those reversals during its creation some million years ago. These magnetic reversals will allow us the yield the age of the seafloor.

The G801/3 magnetometer consists of a gasoline-filled sensor attached to a 250-m-long marine cable and a control unit. The sensor essentially consists of two coils. During the polarization cycle an electric current generates a strong magnetic field in one of the coils and forces the magnetic moments of the protons of the gasoline to be aligned for a short time parallel to the applied field. During the following measuring cycle, i.e. when the electric current is turned off, the protons start realigning themselves with the Earth's magnetic field. According to the moment preservation law, this happens by precession of the protons with a frequency proportional to the intensity of the geomagnetic field. The AC electric current forced by the precession of the protons is picked up by the second coil, is amplified, counted and transformed into magnetic field intensity values (measuring unit: 10^{-9} Tesla = 1 nT).

In order to minimize the influence of the ship's hull, the sensor of the Magnetometer is towed ~180 m behind the ship. The distance between the ship and the sensor is sufficient to minimize the magnetic influence of the vessel resulting in a resolution of about 5 nT. On board of R/V Sonne, the winch was placed on the port back deck and the sensor is towed to the port side of the vessel. A boom led the cable about 7 m to the side of the ship in order to prevent it from colliding with the ship.

Before data acquisition, the tow fish was dissembled and the membrane condition checked, after which the gasoline was filled in. The measured values of the total intensity magnetic field were displayed on a console and written as digital output coded in BCD values. The system was set to deliver one data value every 3 seconds via digital multiport interface to a PC, where the data are stored as a function of UTC time in ASCII tables. After data backup the files were transferred to one of the processing PC. GPS coordinates and time were taken from the ship's navigation system and assigned to each magnetic stamp on the basis of the recorded time. The magnetic and the navigation data were resampled to a 30-s interval. After optional median filtering they were displayed using GMT plot routines (Wessel and Smith, 1995).

6. Work completed and preliminary scientific results

6.1 Bathymetric Survey

For a better understanding of subduction zone processes, a detailed knowledge of the relation between the variability of the lower plate and the tectonic evolution of the upper plate is required. Thus extensive bathymetric mapping is necessary in order to be able to create an image of the ocean floor morphology. One of the objectives of the cruise SO 192-1 was to extend the area with reliable bathymetric coverage along the Kermadec Arc subduction zone. The data collected throughout the cruise shall be augmented during upcoming cruises of RV SONNE and have to be merged with scattered data from previous ship tracks. During SO192-1 most of the data collected were edited onboard, and maps were generated along the seismic profiles collected (see 6.3)

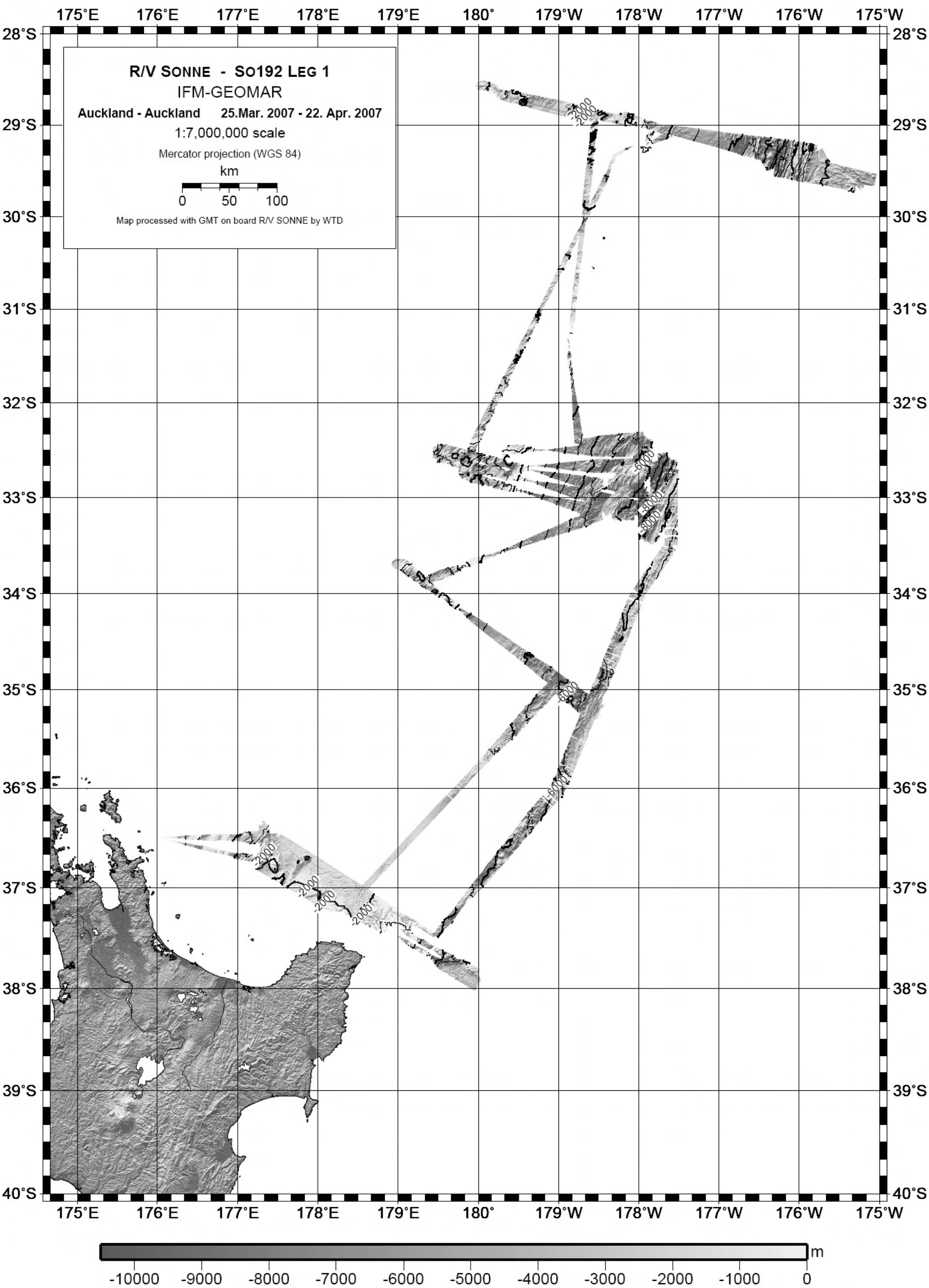


Fig.6.1.1: Compilation of bathymetric data collected during SO192-1.

6.2 Magnetic Data

During R/V SONNE 192-1 Mango several magnetic profiles were collected along a loose grid covering the Kermadec subduction zone. The magnetometer was deployed on the transit between the seismic profiles and during the bathymetric survey. The profile locations can be found in Appendix 9.3. A track is given in Figure 6.2.1.

The magnetic signatures above tectonic features, e.g. subduction zones, supply important tectonic and geologic information. Furthermore, analysis of the magnetic stripe pattern of the incoming oceanic crust yields information on crustal age.

The magnetic data transmitted from the magnetometer to the ship was stored as a function of UTC time. During processing, the ship's navigation was merged with the magnetic field data by using the UTC time as common basis. Afterwards the time series were reduced by a fixed value. Therefore our research area can roughly be divided into two parts: For the southern part, a value of 53300 nT was used, while the time series of the northern part were reduced by 50600 nT . Furthermore the data has been filtered to see the long wavelength anomalies. No other corrections were applied. The resulting anomalies are in the order of +/- 500 nT.

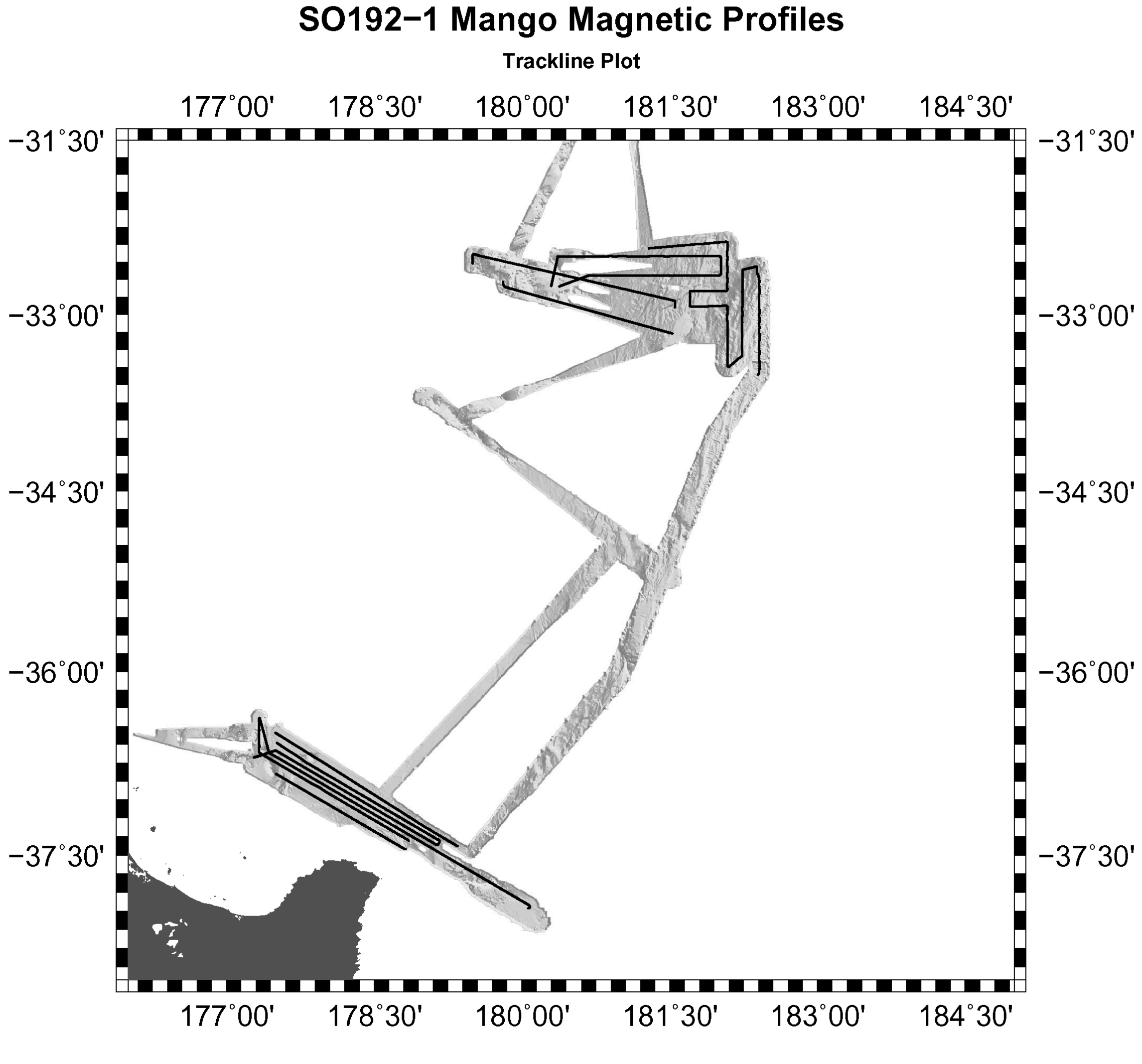


Figure 6.2.1: Magnetic track lines of SO192-1 Mango. In the background a bathymetric map of the area is displayed.

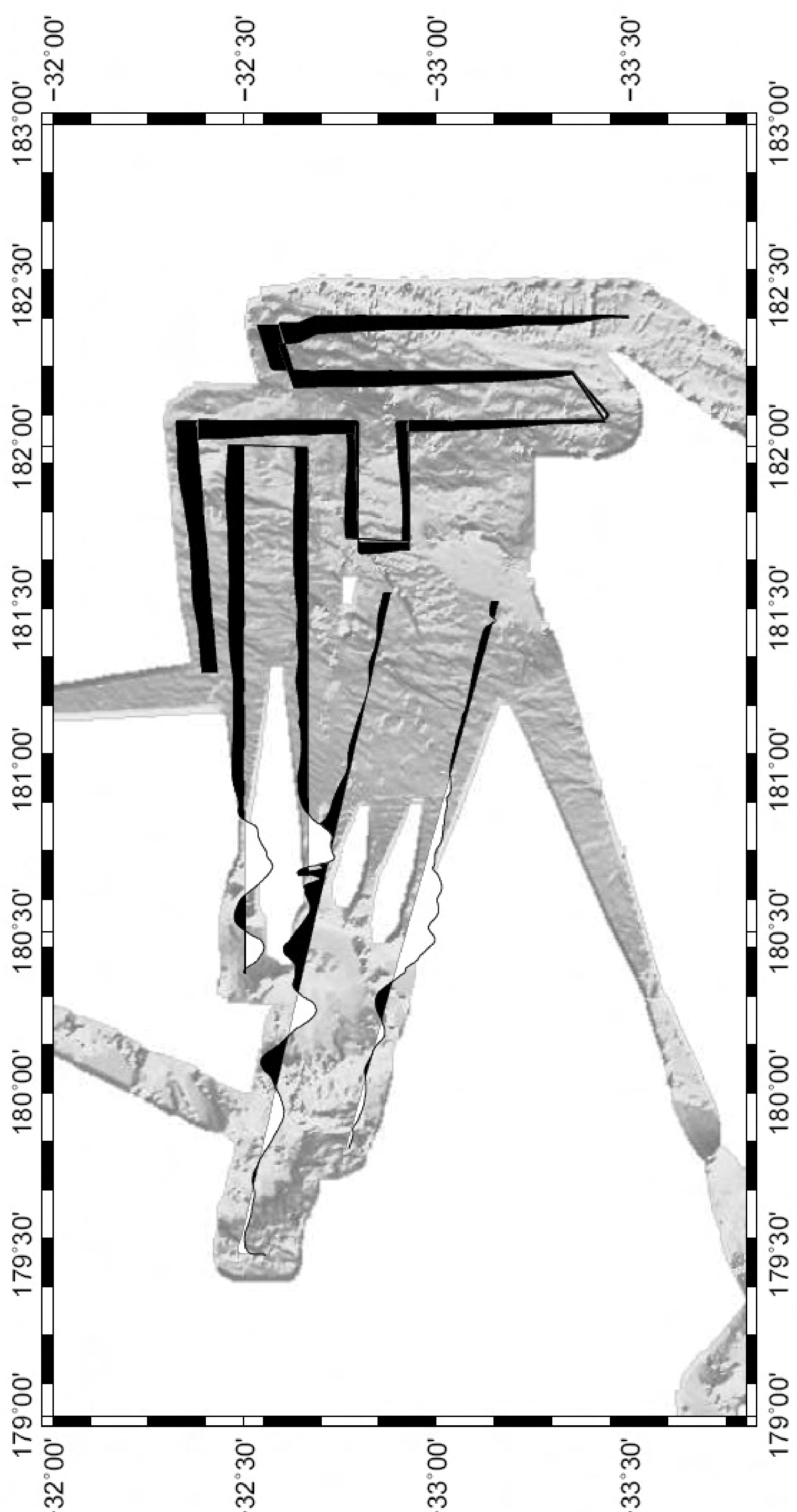


Figure 6.2.2: Magnetic profiles between 38° S and 36° S. Bathymetry is displayed in the background. The profiles are situated perpendicular to the trench. The total field values are reduced using a fixed value of 53300 nT. The positive anomalies are shown in black, while negative anomalies are white.

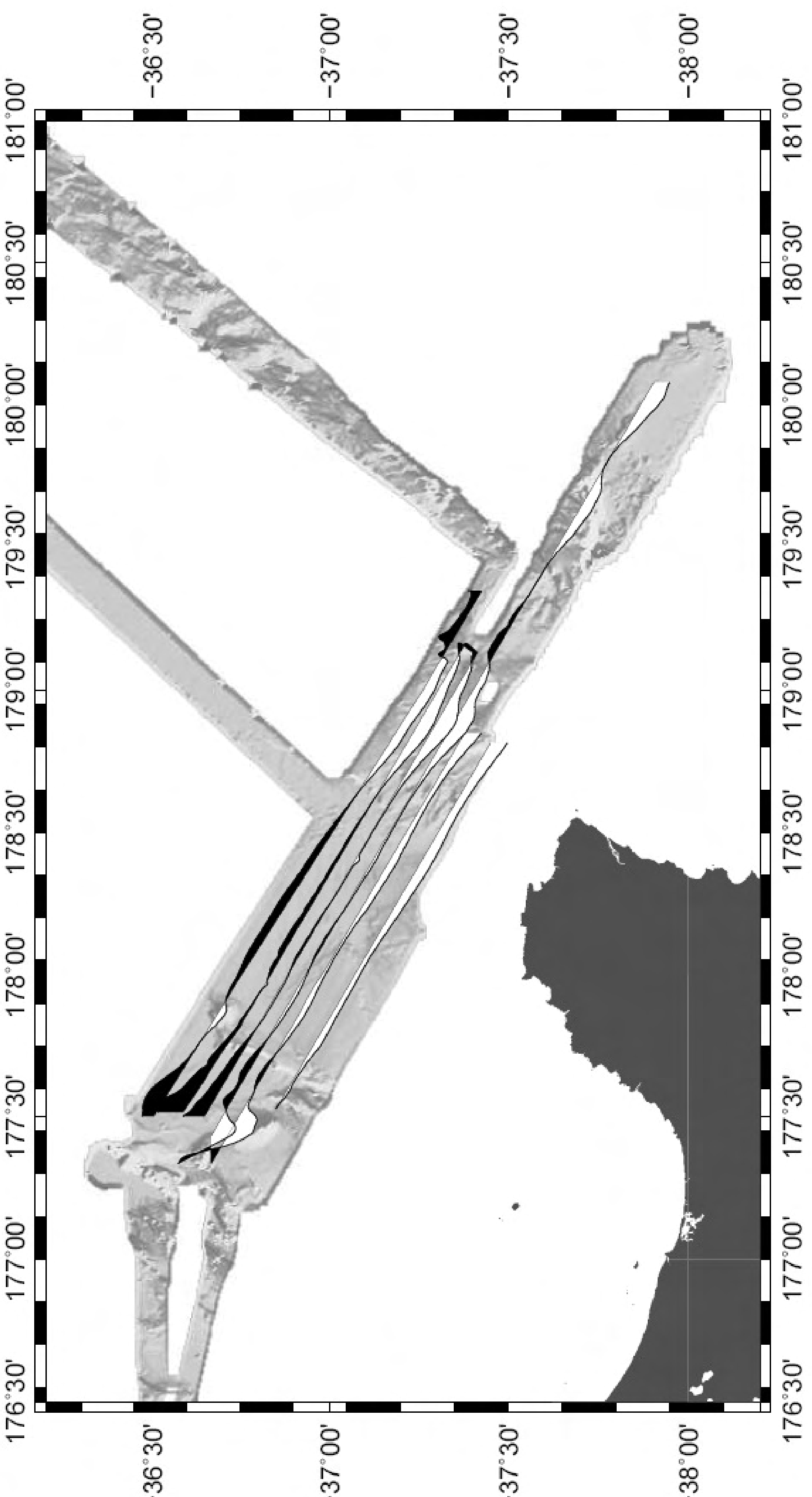


Figure 6.2.3: Magnetic profiles between 34° and 32° S. Bathymetry is displayed in the background. The profiles are situated perpendicular as well as parallel to the trench. The total field values are reduced using a fixed value of 50600 nT. The positive anomalies are shown in black, while negative anomalies are white.

6.3. Seismic Data

The main objective of SO192-1 was to collect seismic wide-angle data along profiles in different tectonic settings along the Kermadec margin. These data were to complement the multichannel seismic reflection data collected during the previous GNS surveys. Profiles were therefore chosen coincident with the reflection lines, though sometimes extended further to the backarc basin or further seaward. Altogether 4 profiles were collected, with a maximum of OBH/S deployed per profile. In total, 147 deployments of ocean bottom seismic recorders were made. Airguns were typically shot at 60 s trigger interval with a ships speed of 5 knots. In Figure 6.3.1 an overview of the seismic profiles is given.
In this chapter the processing and interpretation tools are described, to be followed by a presentation of some data and some preliminary interpretation of the data made onboard for each working area (chapters 6.3.1 to 6.3.4). Further information on instrumentation and airgun shots are given in Appendices 9.1 and 9.2, and all data are visualized in the accompanying data report.

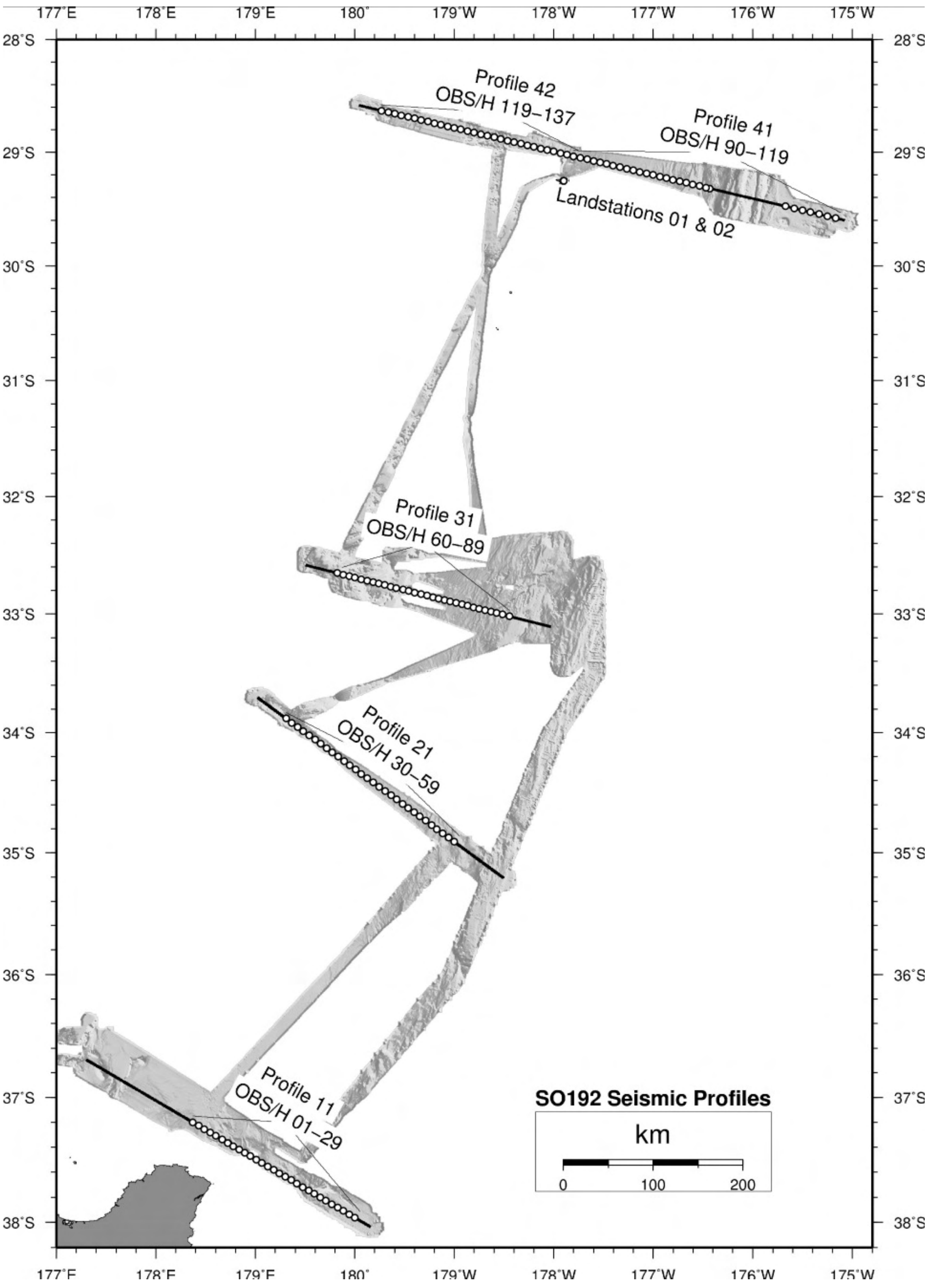


Figure 6.3.1: Overview of the seismic profiles

- **The processing scheme**

The OBH/S data recorded in continuous mode on the MLS, MBS, and MTS units have to be converted into standard trace-based SEG-Y format for further processing. The necessary program structure was mainly taken from the existing REFTEK routines and modified for the OBH requirements and IFM-GEOMAR´s hardware platforms.
The flow chart shown in Figure 6.3.2 illustrates the processing scheme applied to the raw data. A detailed description of the main programs follows below:

SEND2X program package:

For the PC-cards used with the MBS, MLS, and MTS recorders, data expansion and format conversion into REFTEK data format is performed using a Linux based PC. The program package send2x consists of the routines **mlsread**, **mtsread**, **mbsread**, **resample** and **seg-ywrite** and is used to read data from the flashcards used during recording, to decompress the data and finally write it onto the PC's hard disk using PASSCAL data format. Either 16 or 32 bit storage is available. Alternatively, the current version allows the conversion of raw data into a binary file, an audio-wave file, or into the SEG-Y format if an appropriate shot file is available.

While processing the MLS/MTS recordings many time slips of one sampling interval were detected by the send2x software, typically at a rate of one time slip every 1-2 hours. The time slips are caused by mismatch of the actual sampling rate of the MLS/MTS recorder compared to the desired sampling rate. This mismatch arises because the clock rate of the crystal oscillator in the MLS/MTS recorder is temperature dependent (Klaus Schleisiek, SEND GmbH, pers. comm.). The temperature dependence is known and corrected for in the determination of the system time, but for performance reasons the sampling pulses are directly generated from the oscillator signal without any time correction. The **send2x** routine detects when the accumulated inaccuracies of the sample rate cause an effective timing error of one sample, but it only reports and does not correct the "time slip".
The resulting total time error was on average 200 to 400 ms for the wide-angle profiles, showing clearly the necessity of a special time slip correction for the MLS/MTS data. A correction for the time slips is applied with the **resample** routine.

Detailed description of individual routines:

mlsread, mbsread, mtsread
These programs are used to convert raw data acquired by the GEOLON-MLS/MBS/MTS or MTS-M data logger. At first, the raw data of all PCMCIA cards belonging to one recording session as well as the corresponding MLS/MBS.SYS file must be copied to a directory using e.g. the cp command. The programs are used to decompress and convert the raw seismic data into the internal send2x format. In case of mtsread the raw data of the absolute pressure gauge will be converted into ASCII format and stored in a separate file. The name of this file will be generated automatically with the extension **.pressure**

resample
Data recorded with the GEOLON-MLS and GEOLON-MTS or MTS-M may show so-called "time slips" (see above), due to differences between the long term stabilization of the internal clock and the sample frequency clock. Thus, within a given sample period, less or more samples than required are recorded, e.g. 99 samples instead of 100. If this misalignment of sample periods

and samples actually collected is influencing the precision of your experiment, you can correct the data using RESAMPLE. RESAMPLE does not correct time slips for other SEND Data Loggers, but may be used for correction of filter influences and adjusting skew times.

segy-write
segy-write converts the data stored in s2x format to standard SEG-Y format. The option --reftek is used for creating a pseudo SEG-Y trace consisting of one header and a continuous data trace containing all samples, as used by the PASSCAL suite of seismic utility programs. For each channel (normally pressure, vertical velocity, and velocity along two mutually perpendicular horizontal directions for OBS; pressure for OBH) one file is created with the name derived from the start time, the serial number of the Methusalem system, and the channel number. The program allows optional 16bit or 32bit output. The file size of the pseudo-SEGY file is directly related to the recording time. For instance, a recording time of one hour sampled at 200 Hz (16 Bit) will produce a file size of 1.44 MB per channel. A record with two channels and a recording time of two days will produce a total data volume of 70 MB.

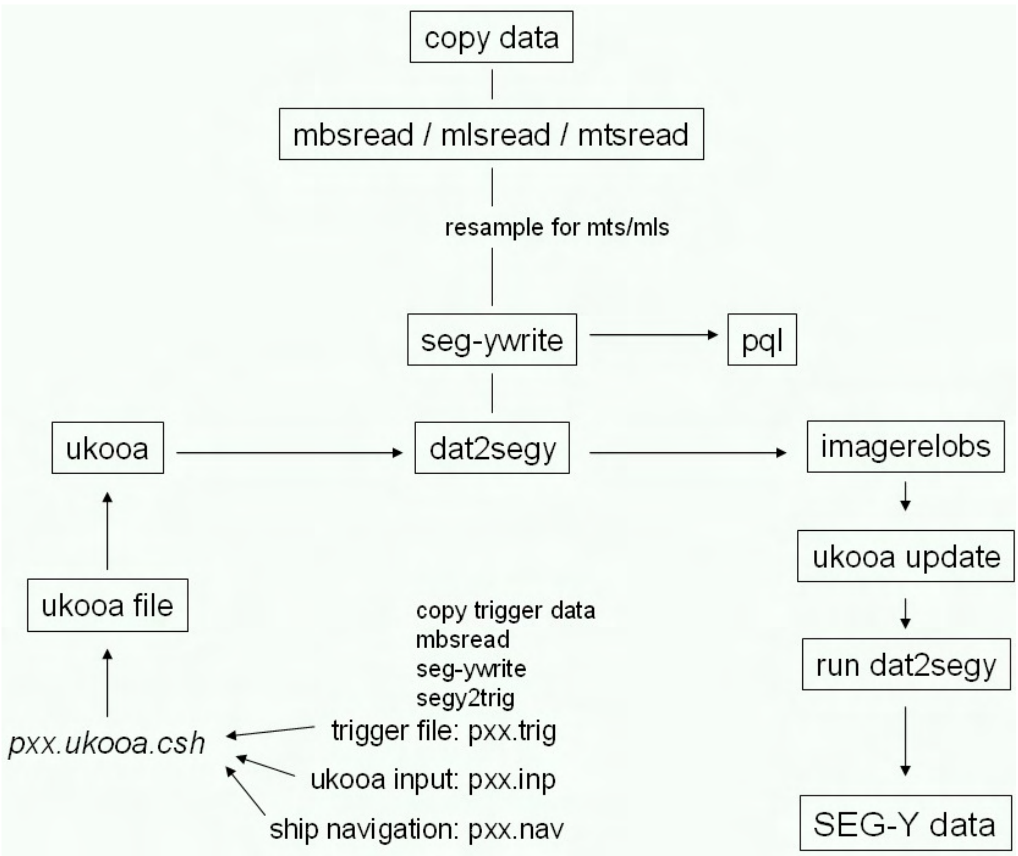


Figure 6.3.2: *Processing flow of seismic refraction data (OBS/OBH) from raw data to SEG-Y records.*

Other programs used for regular processing:

pql2

pql2 (Passcal Quick Look 2) is a simple display program for continuous seismic data. Its interactive zooming capability allows a rapid inspection of data quality.

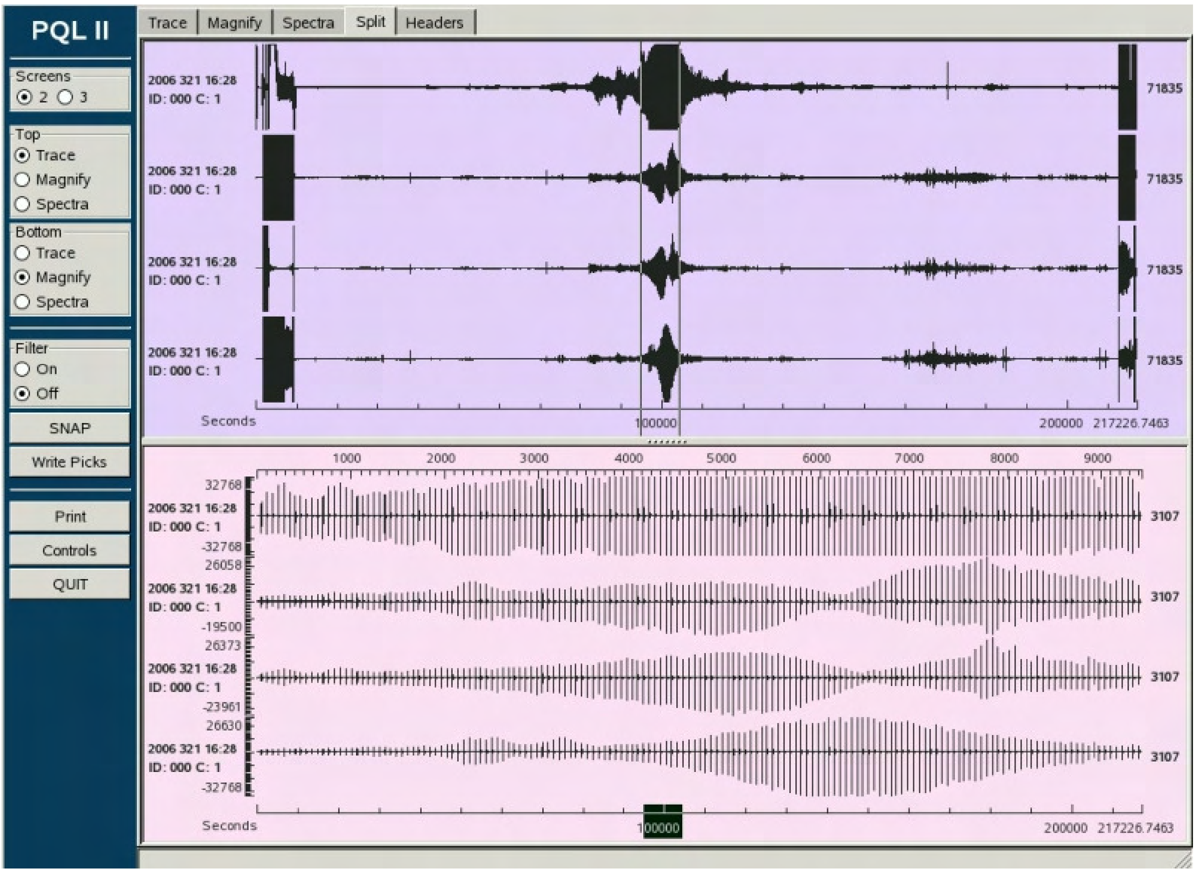


Figure 6.3.3: *Screenshot of pql2 showing 4 channel obs data (pressure; vertical, horizontal, perpendicular horizontal component) for the complete time-span of recording (top) and a close-up taken at the time of shooting (bottom).*

segy2trig

The trigger signal, provided by the airgun control system, is recorded on an additional MBS unit during the shooting period. The trigger data are treated similarly to regular seismic data and are downloaded to the hard disk via the mbsread and seg-ywrite programs. Then, the segy2trig program detects the shot times in the data stream by identifying the trigger signal through a given slope steepness, duration and threshold of the trigger pulse. The output is an ASCII table consisting of the shot number and the shot time. Accuracy of the shot time is one of the most crucial matters in seismic wide-angle work, and must be reproduced with a precision of a few ms. Due to this demand the shot times have to be corrected with the shift of the internal recorder clock. Additionally, the trigger file contains the profile number, the start/end time of the profile and the trigger recording. The shot times are part of the ukooa file, which links them with the source coordinates.

ukooa
The ukooa program is used to establish the geometric database by calculating the positions of sources at any given shot time and offset from the ship. The source is placed on the ship track using simple degree/meter conversions and then written to a file in UKOOA-P84/1 format. Corrections for offsets between antenna and airguns as well as consistency checks are included. This file will be used when creating a SEG-Y section via the dat2segy program. The program requires the trigger file to contain the shot times, navigation, and a parameter file containing information for the UKOOA file header as basic input information.

dat2segy
The dat2segy program produces standard SEG-Y records either in a 16 or 32 bit integer format by cutting the single SEG-Y trace (the seg-ywrite - - reftek output) into traces with a defined time length based on the geometry and shooting time information in the ukooa file. In addition, the user can set several parameters for controlling the output. These parameters are information about the profile and the receiver station, number of shots to be used, trace length, time offset of the trace and reduction velocity (to determine the time of the first sample within a record). Also the clock drift of the recorder (skew) is taken into account and corrected for. For the MLS data the total time error resulting from the observed time slips described above was subtracted from the clock drift value. The final SEG-Y format consists of the file header followed by the traces. Each trace is built up by a trace header followed by the data samples. The output of the dat2segy program can be used as input for further processing with SEISMOS or Seismic Unix (SU).

imagerelobs
Because of drifting of the OBH and OBS instruments during deployment and inaccuracies in the ship's GPS navigation system, the OBH positions may be mislocated by up to several 100 m. Since this error leads to asymmetry and incorrect traveltime information in the record section, it has to be corrected. This is accomplished with the program relobs.
For input, the assumed OBH location, shot locations and the picked traveltimes of the direct wave near to its apex are needed. To simplify the picking a static correction with a hyperbolic equation was performed to flatten the direct wave. This yields a much more coherent direct arrival which would normally suffer from strong spatial aliasing in the uncorrected section making it difficult to track. By shifting the OBH position, relobs minimizes the deviation between computed and real travel times using a least mean square fitting algorithm (assuming a constant water velocity). The source offset, i.e. the distance from the research vessel's GPS position to the center of the airgun array, was determined to be 90 m.

Besides these main programs for the regular processing sometimes additional features are needed for special handling of the raw data:

segyhdr
The routine segyhdr prints all the header values of the raw data on the screen.

segyshift
Segyshift modifies the time of the first sample, allowing the whole raw data trace to be shifted by a given value. This is very useful when shifting the time base from Middle European Time to Greenwich Mean Time or any local time. Because of recording problems, the data sometimes show a constant time shift, which can be corrected as well with segyshift.

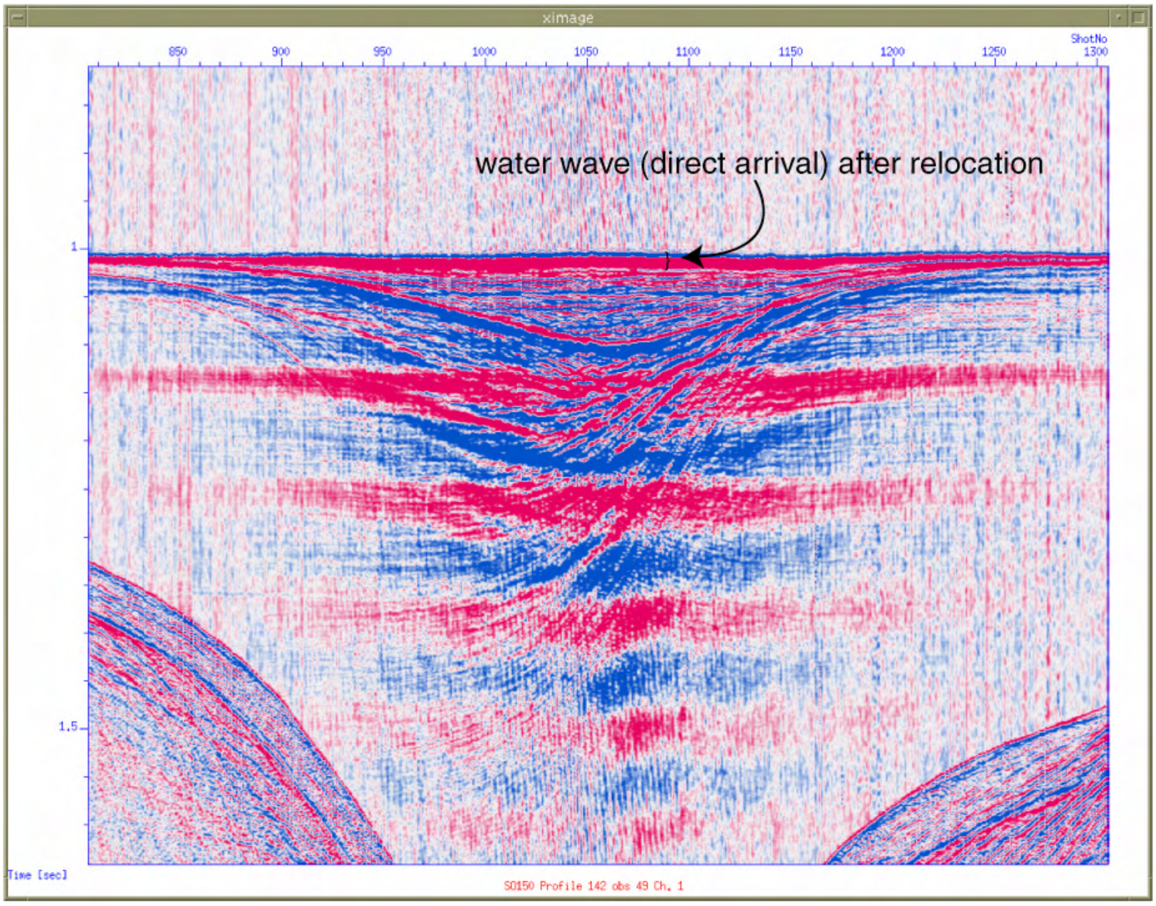


Figure 6.3.4: *Example of a re-located (after using imagerelobs) station for which the direct arrival (blue and red phase indicated by the small black bracket) has been flattened.*

Directory structure

The directory structure displayed below is usually set up for each seismic profile. The data directory contains the raw data files and the PASSCAL data files, which are to be converted to SEGY-format and stored in the perm directory. The ukooa directory contains the information on the navigation and the ukooa files which are used for geometry installation. shells contains different shell scripts (e.g. for plotting etc.), gmt also contains plotting files for location maps etc. The picks directory stores the OBH/OBS pick files as well as all input files to the MacRay and TOMO2D modelling programs (see below).

- **OBH/OBS data analysis and processing**

Frequency filter analysis: To determine the frequencies of the seismic energy, filter panels with narrow frequency band passes for the offset range of -45 - 70 km are shown in Figure 6.3.6. and Figure 6.3.7. The amplitude spectra of the used Butterworth frequency filter operators are characterized by linear slopes. The filter is described by four corner frequencies, i.e. lower stop/pass band boundary and upper pass/stop boundary. The main energy of the phase between 3 and 5 s is between 3-25 Hz and for the direct wave it reaches up to more than 73 Hz. As a broad frequency range is contained in the data, time and offset dependent filtering was applied (see below).

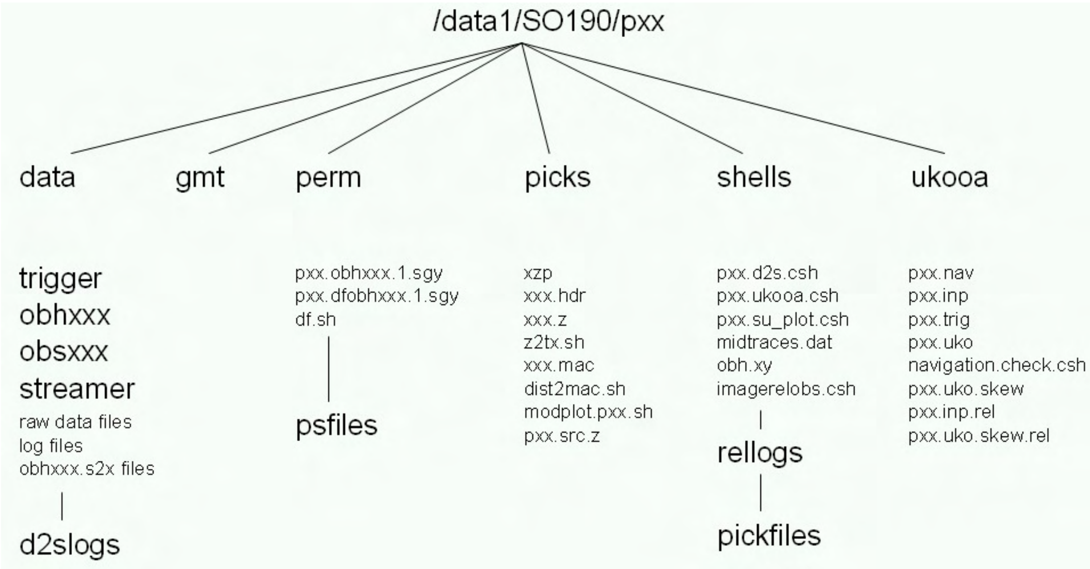


Figure 6.3.5: *Schematic diagram of Linux directory structure used for active seismic experiments. Additional directories (e.g. rayinvr, tomo2d) may be added.*

Deconvolution analysis: To improve the temporal resolution of the seismic data a deconvolution is applied to compress the basic seismic wavelet. The recorded wavelet has many components, including the source signature, recording filter, and hydrophone/geophone response. Ideally, deconvolution should compress the wavelet components and leaving only the earth's reflectivity in the seismic trace. We applied Wiener deconvolution in successive trace segments, based on the following assumptions:

1. The earth's reflectivity is 'white'.
2. The wavelet shows the minimum-delay phase behavior.

As in these wide-angle data the amplitude spectra of the seismic traces vary with time and offset (e.g. reflected, refracted pp phases and reflected ps and ss phases), the deconvolution must be able to follow these time and offset variations. To improve especially the spatial resolution of the seismic data a multi-trace deconvolution also called rollalong deconvolution, which uses autocorrelograms averaged over a number of traces, is performed to compress the basic seismic wavelet. Here, each trace is divided into 3-s data gates with 1-s overlaps, in which time invariant deconvolution operators are computed from the average autocorrelation function of 11 traces. The operator is recalculated for every trace in each data segment and applied. The overall deconvolved trace results from a weighted merging of the independently deconvolved gates.

Raw data are input for the deconvolution process. As several recordings were influenced by a DC shift, a 1-3-Hz high-pass minimum delay Butterworth frequency filter with 60 dB attenuation between the pass and reject zone was applied prior to deconvolution in order to center the amplitudes around zero.
The deconvolution test panels are shown in Figure 6.3.8, Figure 6.3.9 and Figure 6.3.10 for the offset ranges -45 - 70 km. Constant operator length of 100 ms (predictive lag excluded) with a variation of the prediction lag from 10 to 60 ms are displayed for a multi-trace deconvolution (avere=11). The best compromise between temporal resolution and signal-to-noise ratio is obtained for an operator length of 100 ms including a predictive length of 40 ms which was chosen for the processing of the data sets of this cruise. After deconvolution, an offset- and time-

variant Butterworth filter with minimum-phase characteristic was applied. As the seafloor depth changes along the seismic lines, each trace was statically corrected to a fixed seafloor travel time of 11 s based on the water depth before filtering. This information is available in the trace headers. After this filter was applied, the data were shifted back to their original travel times.

Processed data: Comparison of the unprocessed data in Figure 6.3.11 (upper panel) to the preprocessed data in Figure 6.3.11 (lower panel) shows a clear compression of the wavelet signal and an increase in signal-to-noise ratio, especially in the far offset range. For the picking of events and model building by raytracing or tomographic inversion both sections were used to keep all available seismic information.

Final processing sequence

- Input: SEGY-data, 4 ms or 5 ms sampling rate with complete geometry information
- Tapering the first 0.5 s to zero to reduce the response of the debias filter operator
- Butterworth highpass (debias)
- Gated Wiener deconvolution: gate length 3 s, overlap 1 s, length of merge region 1 s, operator length 100 ms (prediction interval included), prediction interval 40 ms
- Static correction to a fixed seafloor traveltime of 11 s
- Time and offset-dependent Butterworth frequency filter

On time-shifted traces with a reduced time scale of 6 km/s the following filter parameters were used:

lower stop/pass	upper pass/stop (Hz)	offset(m)	beginfull(s)	endfull(s)
1/10	65/85	0	0	12.8
		8000	0	12.6
		48000	0	0
1/5	45/60	0	13.7	14.3
		8800	13.5	14.4
		13200	13.0	13.9
		52000	2.0	4.7
		107000	0.5	1.0
1/5	30/40	0	15.3	16.8
		11700	15.1	16.6
		19200	14.8	16.3
		61700	7.0	10.1
		114000	2.0	3.0
		152000	1.5	2.4
1/5	20/30	0	19.0	trace length
		20000	18.4	trace length
		130000	3.5	trace length

- **Data archiving**

All seismic raw data and the final processed SEGY data were archived on external usbdisks.

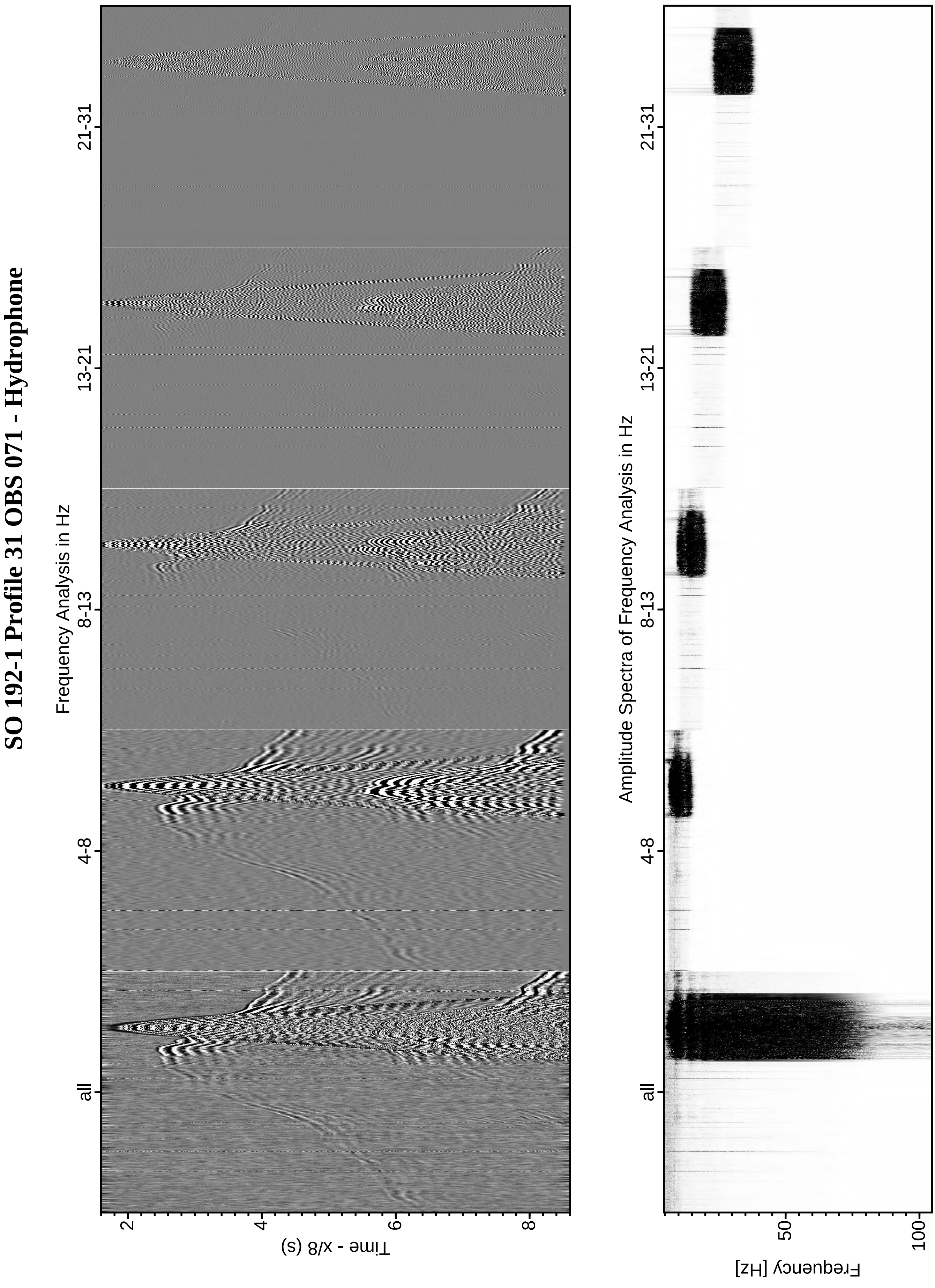


Figure 6.3.6: Frequency analysis: frequency range 4-31 Hz.

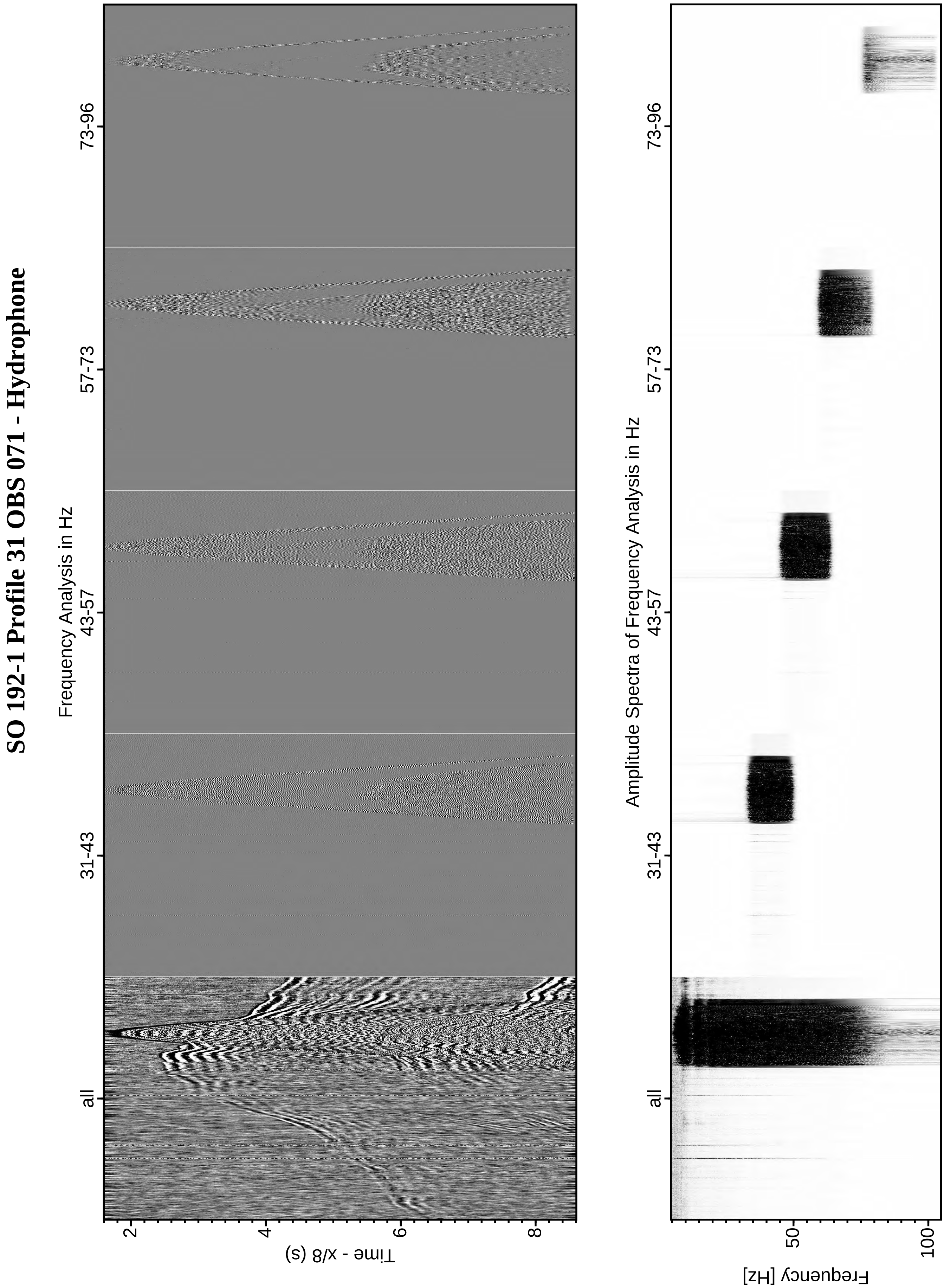


Figure 6.3.7: Frequency analysis: frequency range 31-96 Hz.

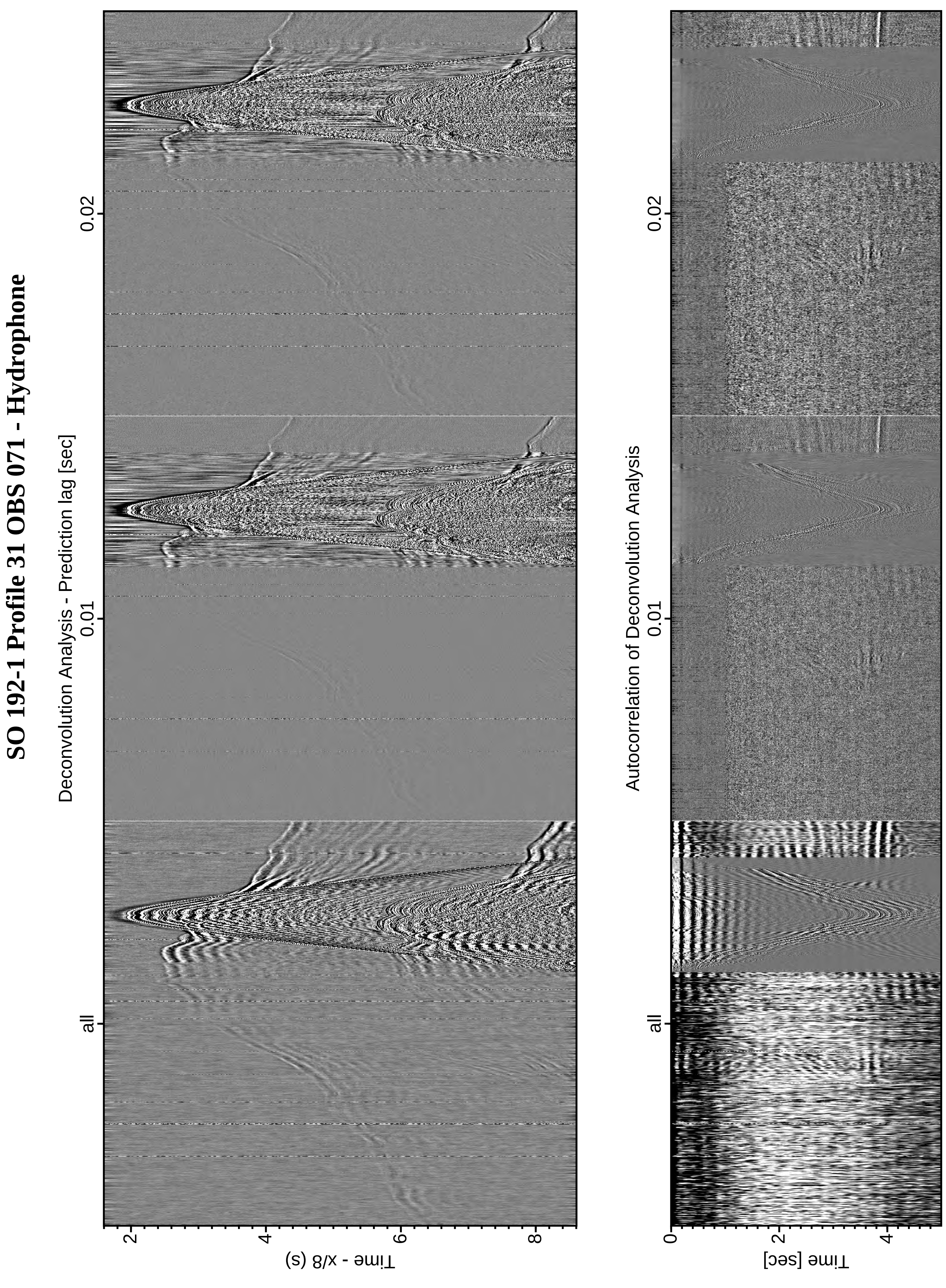


Figure 6.3.8: Deconvolution test panels with prediction lag 10ms and 20ms.

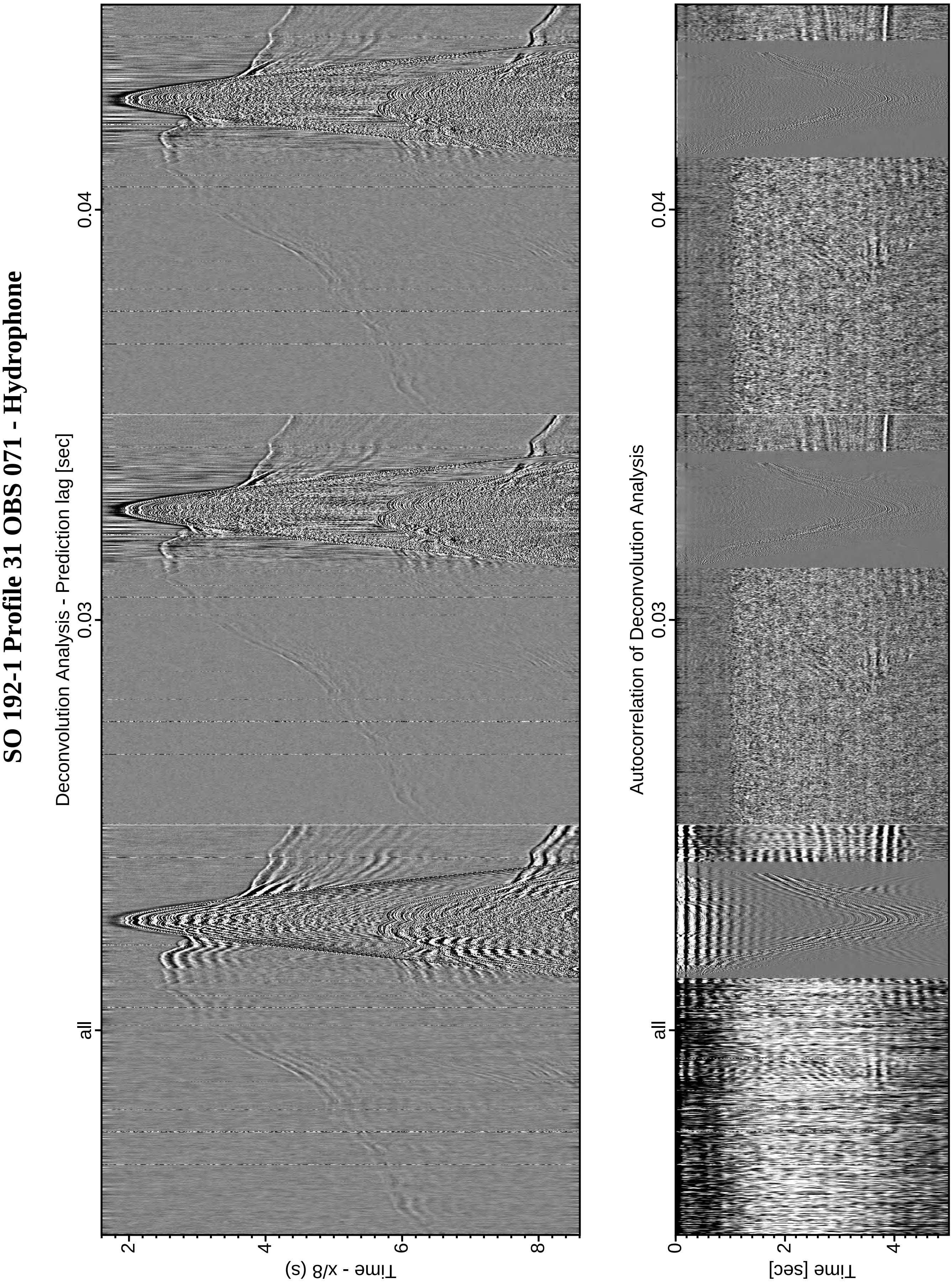


Figure 6.3.9: Deconvolution test panels with prediction lag 30ms and 40ms.

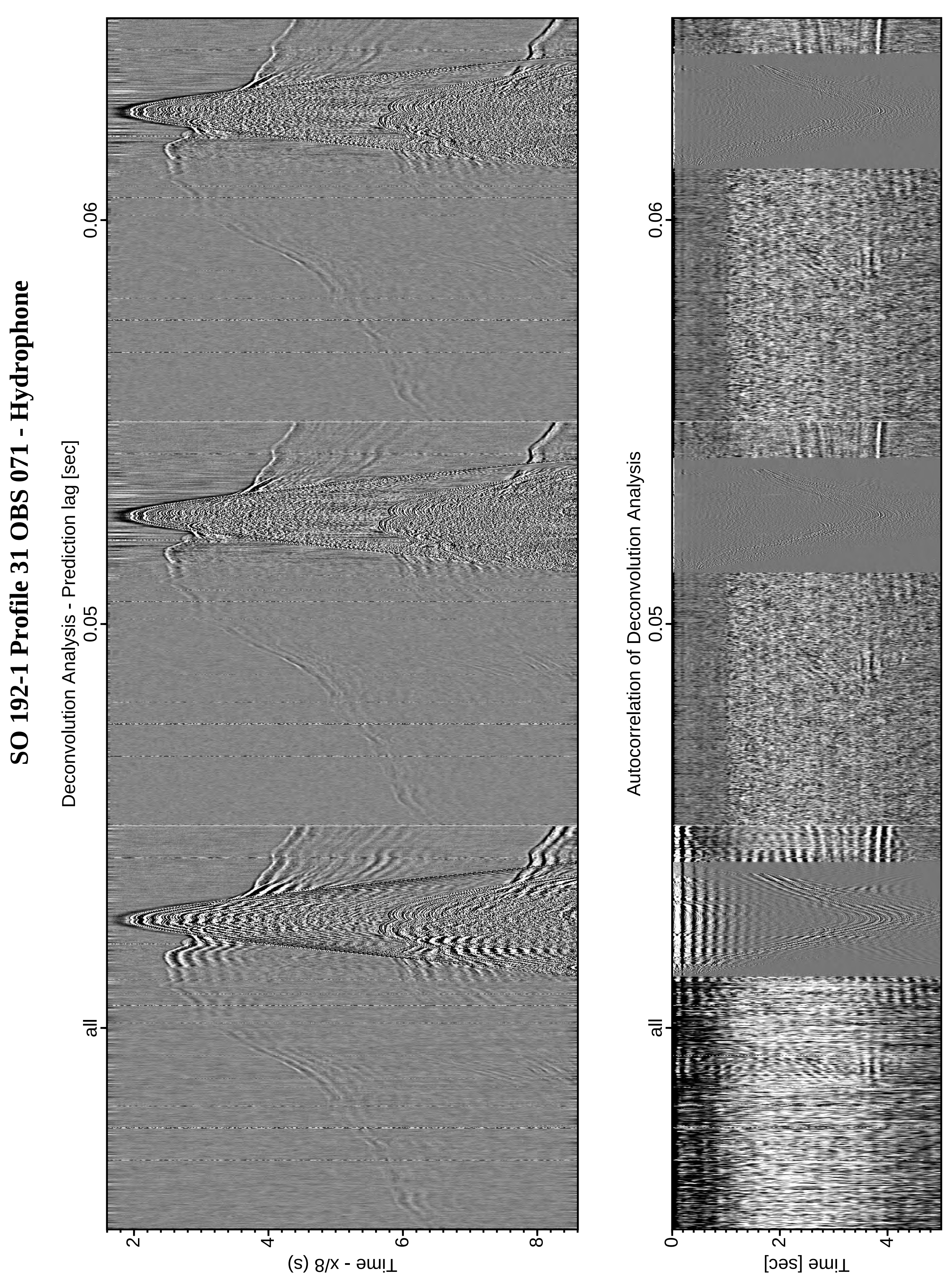


Figure 6.3.10: Deconvolution test panels with prediction lag 50ms and 60ms.

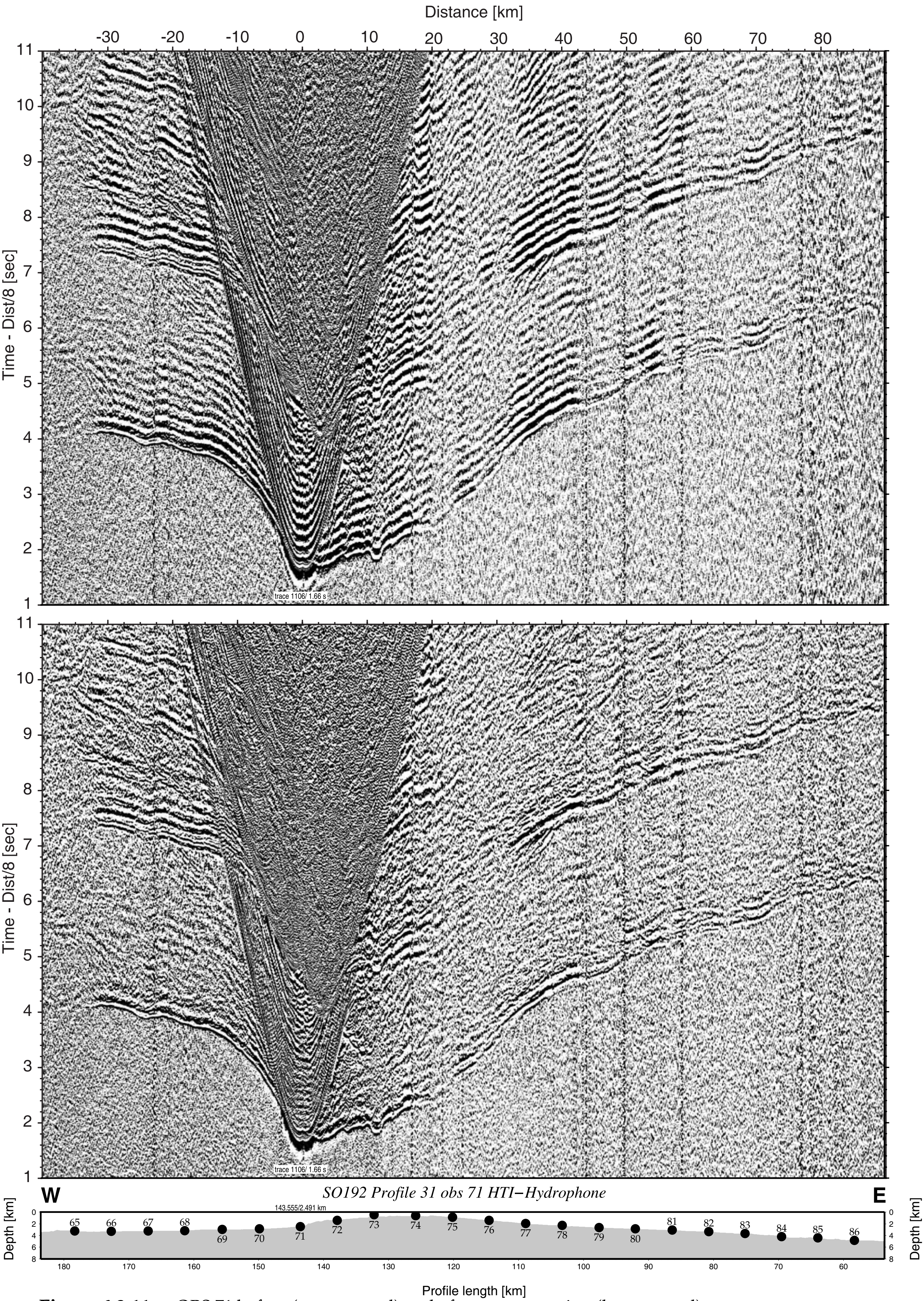


Figure 6.3.11: OBS 71 before (upper panel) and after preprocessing (lower panel).

- **Modeling of OBH/S data**

Forward ray tracing

To obtain the deep structure of the margin and the *P*-wave velocity field, two methods were used: a forward modeling technique using the MacRay program and a joint refraction and reflection tomography using the Korenaga code TOMO2D (Korenaga 2000; Korenaga, et al 2000). The starting models for both methods include the known bathymetry. The resulting models of the combined analysis of the reflection and refraction seismic data are shown in chapters 6.3.1 – 6.3.4. The major horizons (top of oceanic crust, subducting slab, top of the crystalline basement identified in the MCS sections are correlated with the reflection phases from the wide-angle data at zero offset to provide a starting model for forward modelling (Luetgert 1992; Zelt 1999).
The reflection and refraction arrivals were identified and picked on all seismic OBH/S sections. Picking accuracy in the seismogram sections is better than 50 ms for the near offset range (i.e. ±100 m with a velocity of 2 km s−1), as well as for oceanic crustal phases, and is better than 100 ms for large offsets (i.e. ±500 m with a velocity of 5 km s−1) where seismic phases interfere with strong multiple reverberations of the direct wave from previous shots.

Forward ray tracing (MacRay)

With this technique not only the first arrivals but also later refracted and reflected phases could be used to resolve complicated structures on the profiles. A 2-D seismic ray tracing method was applied using the MacRay program (Luetgert 1992). Calculated traveltimes from the velocity model are compared with the seismic refraction datasets. The strong multiple arrivals observed in some OBH/S stations were used to identify seismic events, e.g. *P*n- phase of the subducting slab.

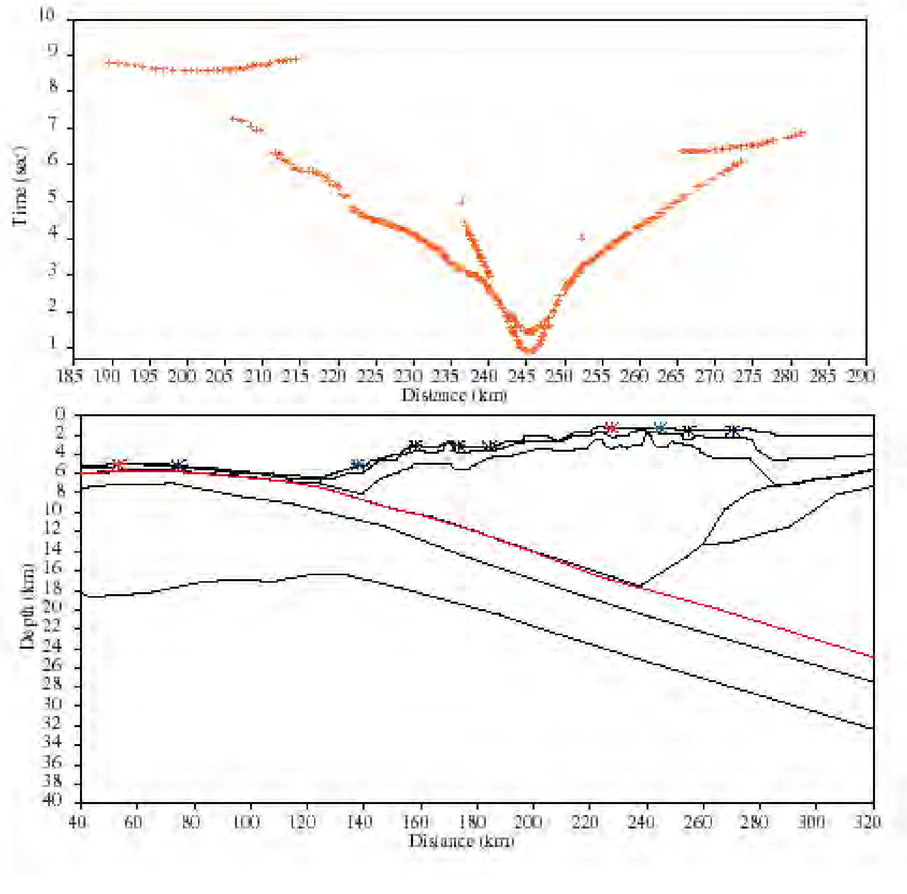


Figure 6.3.12: *MacRay travel time picks and velocity model.*

Joint Refraction and Reflection Tomography (TOMO2D)

The joint refraction and reflection tomography package used for modelling is TOMO2D (Korenaga, 2000). The method is iterative, and new ray paths are calculated during each iteration by using Fermat's principle to linearize the inversion. A combination of smoothing and damping constraints is applied in order to regularize the system of equations and to restrict the maximum amount of model updates not to violate the linearization assumptions. Finally, the linear system of equations is solved using the sparse matrix solver LSQR (Paige and Saunders, 1982).
The forward algorithm is a hybrid scheme based on the shortest path (or graph) method and the ray bending method. The hybrid scheme is implemented on an irregular grid and achieves the desired accuracy by adjusting the graph template size, which makes it a very flexible and efficient tool for the calculation of ray paths and traveltimes. By forcing seismic ray paths to follow the connections of a network, one introduces errors in the ray geometry and in the traveltime along the ray. Ray paths usually travel zig-zag in homogeneous or smooth velocity zones, resulting in longer ray paths and higher traveltimes. Errors are worst in propagation directions which are poorly covered by available connections. Therefore, Korenaga et al. (2000) utilized a forward star to obtain a good coverage of search directions for available ray paths. For crustal velocity models, where the vertical velocity gradient usually dominates the horizontal gradient, a star that preferentially searches the downward direction has shown favorable characteristics with respect to an isotropic star with the same number of nodes (Van Avendonk et al., 2001). In this study, the results of the SPM within the hybrid algorithm only serve as an initial guess for subsequent ray bending refinements. Therefore, ray paths and traveltimes should be close enough to the true ones to ensure that the ray bending technique will not fail to converge to a global minimum traveltime path. Moreover, iterating the ray bending method from a poor SPM solution proves to be slower and makes the hybrid ray tracer less efficient (Van Avendonk et al., 2001). In our case, we use a mixed fifth/tenth order forward star, identical to the one used by Korenaga et al. (2000) and similar to the 3x7 forward star used by Van Avendonk et al. (2001) who both worked on refraction datasets with somewhat comparable geometries.
The bending method used in the TOMO2D code uses a conjugate gradient search where rays are parameterized as beta-splines. This approach avoids inaccuracies in concave slowness regions (low velocity zones) and results in a considerably higher accuracy and efficiency.
For the inversion process, a "creeping strategy" (Shaw and Orcutt, 1985) is applied, which regularizes the model perturbation with respect to the solution of the previous iteration. Each inversion step must be small (to account for the linearization assumptions) and is controlled by a total of four weighting parameters (two for damping and two for smoothing). After each inversion step, a solution is obtained that is closer to the minimum, but still lies within the limits of linearity. Subsequently, new ray paths and traveltimes are computed with the new model and the inversion is initialized again. A series of these iterative steps can change an initial model dramatically if such a fit is required by the data.
The two dimensional velocity model is parameterized as a shared mesh beneath the seafloor. Seafloor topography is explicitly included in the method by vertically sharing the columns of nodes to follow local seafloor relief. Grid node spacing can vary both in the horizontal and vertical dimensions. Bilinear interpolation is used in each parallel shaped grid cell, resulting in a smooth velocity field between different cells. Grid node spacing is the same for forward calculations and for the inverse step. Thus, the mesh must be fine enough to account for an accurate forward theoretical result. It should be finer than the expected velocity variations caused by the spatial limits of structural features not to introduce any bias to the tomographic velocity solution. For the steep vertical and lateral velocity gradients that typify subduction structure a nodal spacing in the order of hundreds of meters or less is necessary.

A reflector is represented as an array of linear segments whose nodal spacing is completely variable and independent of that used in the velocity grid. The horizontal coordinate of each segment is held constant, whereas its vertical value is updated in the inverse solution. Although a velocity discontinuity at the reflector is fundamental for the generation of reflected phases, this is not explicitly treated in the modelling. Instead, a "floating reflector" approach is used to update reflector depths freely without changing adjacent velocity nodes.

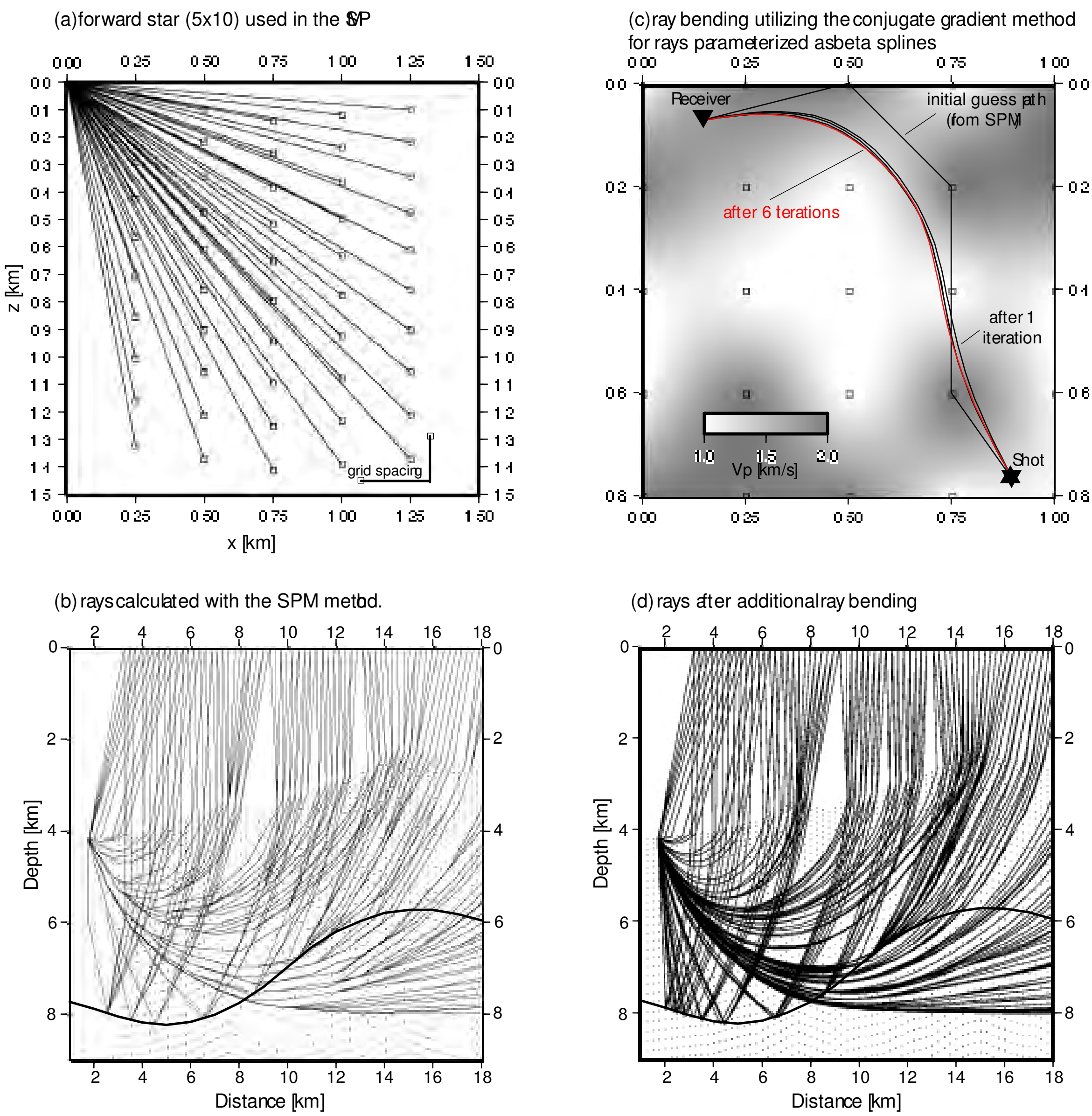


Figure 6.3.13: *Hybrid forward algorithm. (a): Forward star used in the shortest path method with no vertical exaggeration. (b): Rays calculated with the SPM. (c): Bending with conjugate gradients from an initial guess path in a complicated medium, with velocities smoothly varying from 1.0-2.0 km/s. Traveltimes: initial guess path 0.825996s, after 6 iterations 0.786604s (no analytic solution known). (d): Rays of figure (c) after additional ray bending.*

Parameter adjustment

For all profiles, a laterally varying horizontal node spacing of 250m is employed. Vertical node spacing linearly increases from 100m at the seafloor to 250m at a depth of 10km below seafloor and is then kept constant at 250m for the deeper model areas. Thus, a higher spatial resolution due to better ray coverage is anticipated for the upper parts of the models. Furthermore, increasing velocity node smoothing with depths for both horizontal and vertical correlation lengths is used in order to reduce small-scale model structure at greater depths, which would not be resolvable with the available dataset anyway.

To minimize the influence of the a priori chosen smoothing length scales on the structural interpretation of geologic features in the velocity models, vertical and horizontal correlation lengths are not allowed to vary laterally. Additionally, in order to ensure comparability of the derived model structure, the parameterization of smoothing length scales is the same for all profiles. Throughout the modelling, a horizontal correlation length of 2 km at the seafloor increasing linearly to 8 km at the bottom and a vertical correlation length increasing linearly from 0.2 km at the seafloor to 1.5km at the bottom of each model is used. Since there is a tradeoff between the chosen correlation lengths and the corresponding smoothing weights in terms that a higher smoothing weight compensates a lower correlation length, but at the same time requires clearly less computational memory during the inverse calculations, the smoothing length scales are chosen rather less conservatively. For reflector nodes, the corresponding smoothing length scales are sampled from the horizontal 2D velocity correlation lengths at the appropriate depths. Individual smoothing weights for each model are tested using a single-step inversion and are later held fixed during all iterations. Appropriate smoothing weights should minimize the roughness of the tomographic output models but at the same time decrease significantly the data variance.

Sweeps on velocity and depth damping weights are done at each iteration to restrict the average perturbation of velocity and reflector nodes to maximal 5%. With increasing number of iterations, model updates become smaller, and hence damping is not required anymore. Depending on the chosen starting model, damping is stopped after 1-3 iterations.

In order to obtain a starting model, a 1D velocity-depth profile is expanded laterally along the whole model range, starting for all velocity nodes at their individual seafloor depth. A flat-lying reflector completes the obtained 2D starting model, which can be regarded as pretty far away from the real subsurface structure.

For the derived starting models initial RMS traveltime misfits can reach up to 800ms with a corresponding normalized X^2 of 120. Initial model updates exceed our predefined bounds, hence damping is applied for the first iterations. After 10-15 iterations, the RMS misfit is reduced by 70-90% to typical values of 70-90ms ($X^2 \approx 2\text{-}3$) for the preliminary models presented in the following sections.

6.3.1 Profile 11

Profile P11 (Figure 6.3.1.1) crosses from west to east the eastern boundary of the Taupo Volcanic Zone (the southern continuation of the Harve Trough), the southern part of the Raukumara Plain, ~25 km north of East Cape, the Hikurangi Trench, and the Hikirangi Plateau. A total of 29 instruments were deployed on 27./28.03., but shooting could not start before 29.03. due to poor wheather conditions. The instrument spacing was 3.2 nm, and shooting was extenden to both sides of the array. Shooting had to be interrupted several times due to failure of guns and hoses, suffering from the bad wheather conditions. Shooting was terminated on 30.03., and all instruments were safely recovered. During shooting an 8-channel streamer was also deployed. Figure 6.3.1.1 shows the location of the intruments and the extent of the shooting line. The near vertical incidence seismic reflection section of the streamer is shown in Figure 6.3.1.2. OBS/H data examples are shown in Figures 6.3.1.3 to 6.3.1.5. Details on instruments and airgun shots can be found in Appendices 9.1 and 9.2. The remaining data are all presented in the supplementary data report.
In general, the data quality is poor, with signal penetration of only a few tens of kilometers.

Prominent in the reflection section (Figure 6.3.1.2) is the Raukumara basin, which contains over 6.5 km of sediment (Gillies and Davey, 1986; Davey et al. 1997) and is marked by a -150 mgal free air gravity anomaly. The profile was planned to cross over the minimum of the gravity anomaly. Up to 3 s of sedimentary section corresponding to the basin fill is imaged above the seafloor multiple in P11. Davey et al. (1997) analysed gravity and magnetic data along a profile immediately to the north of P11 and found bodies of high magnetisation and density along the East Cape Ridge, the prominent uplifted eastern margin of the Raukumara basin. The western margin of the basin is characterised by normal faulting where the profile crosses the Kermadec Ridge. East of the trench and underlying the fore-arc region lays the Hikurangi Plateau, an ocean plateau with a thickened (15 km) crust (Davy and Wood, 1984), which has been dated as mid Cretaceous in age. Sediments up to 1 km in thickness have accumulated in the trench.

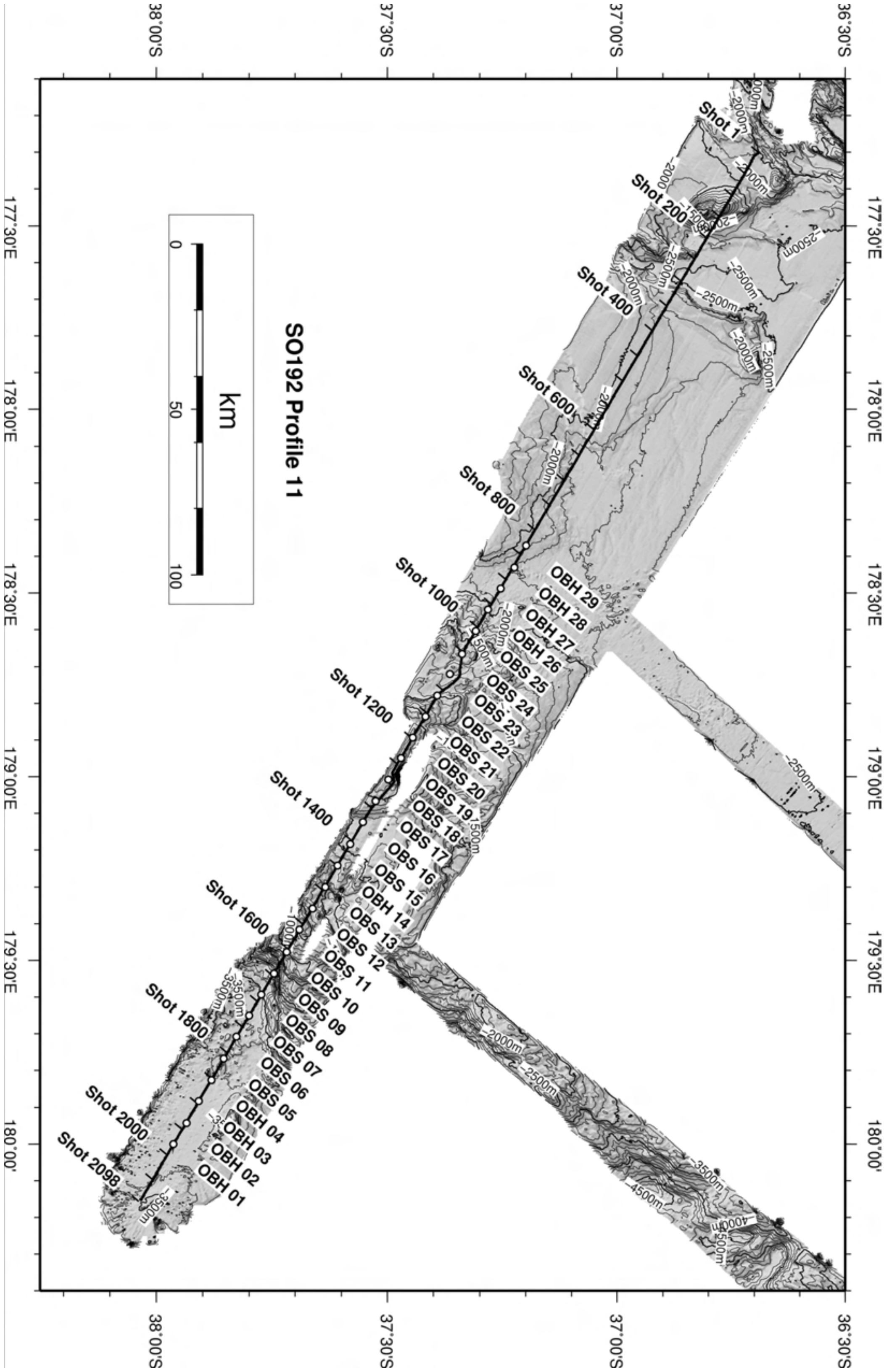


Figure 6.3.1.1: Location map of MANGO wide-angle seismic profile P11. Bathymetry contours are at 100 m.

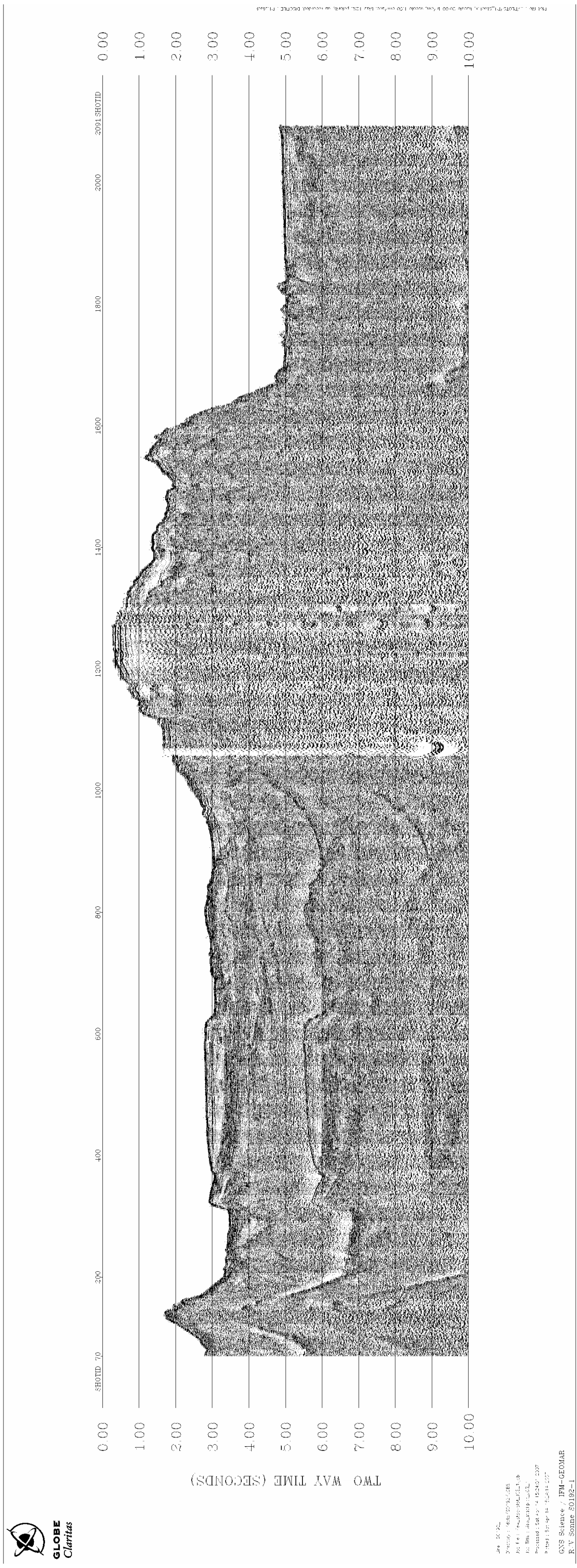


Figure 6.3.1.2: Migrated seismic reflection line of Profile P11 displayed from the Kermadec Ridge, in the west (left-hand side), Raukumara basin, East Cape Ridge, to the oceanic crust of the Hikurangi Plateau in the east.

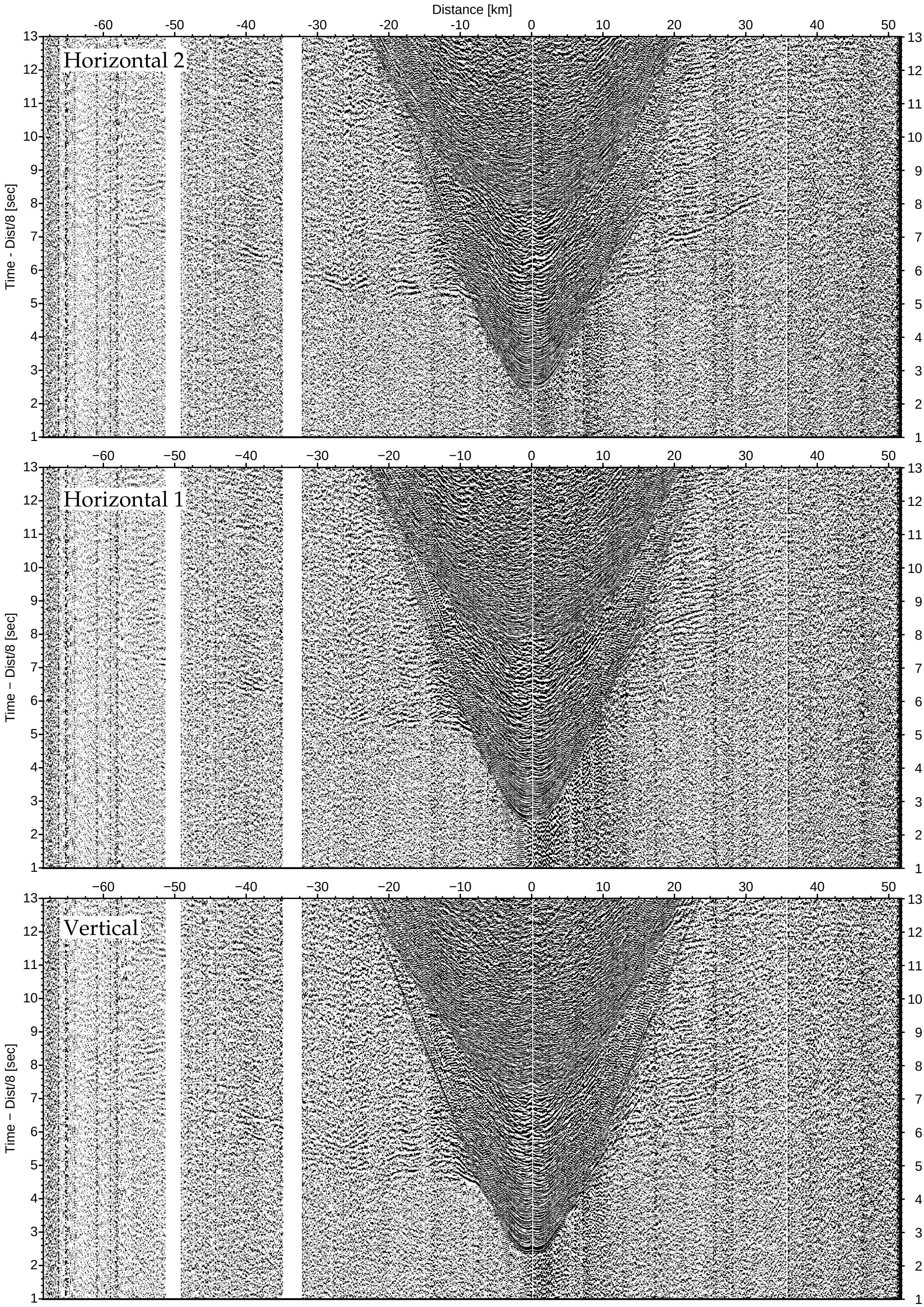


Figure 6.3.1.3: Record sections from obs 07 (HTI/Owen−4.5Hz Geophone), Profile 11.

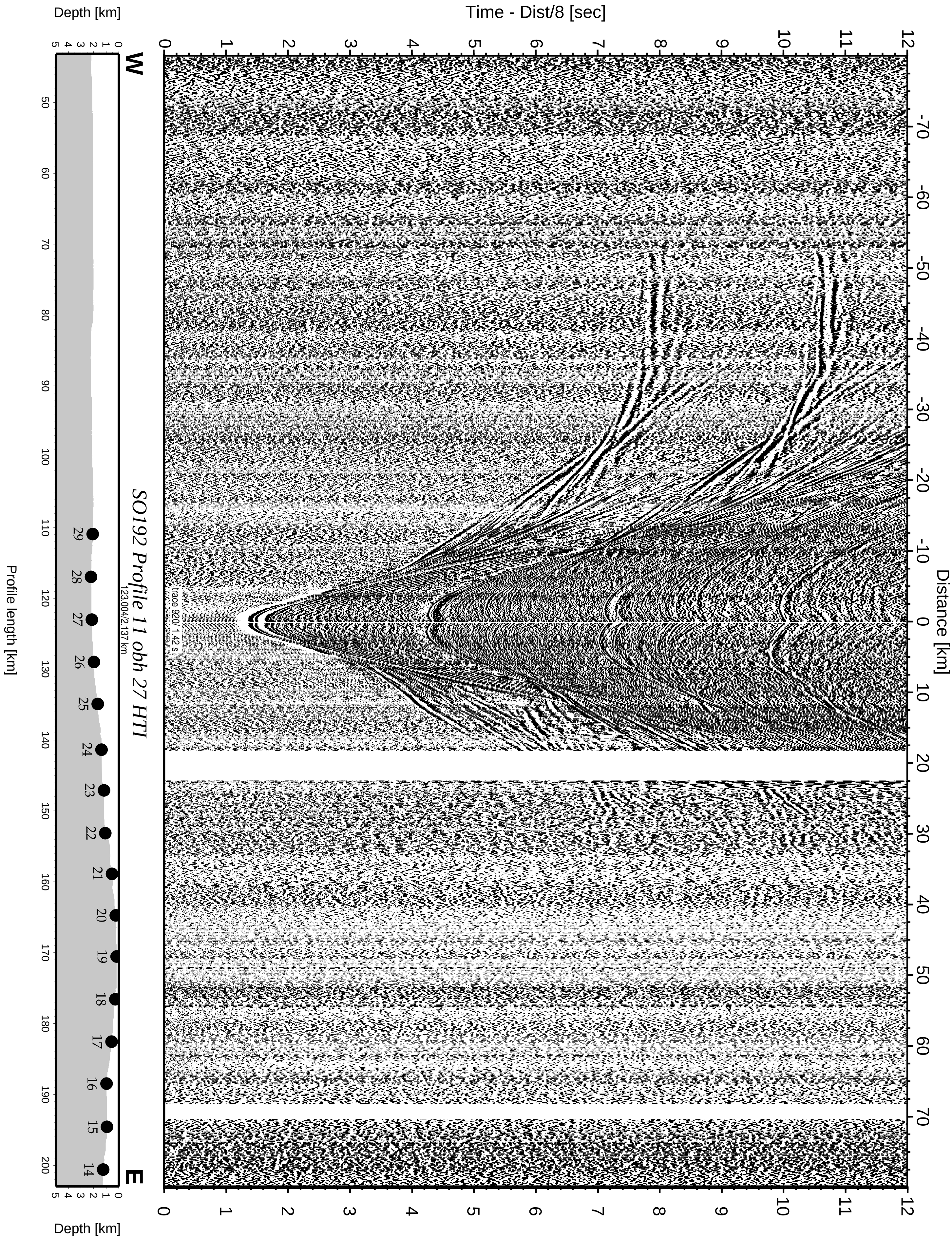


Figure 6.3.1.4: Record section from obh 27 HTI, Profile 11.

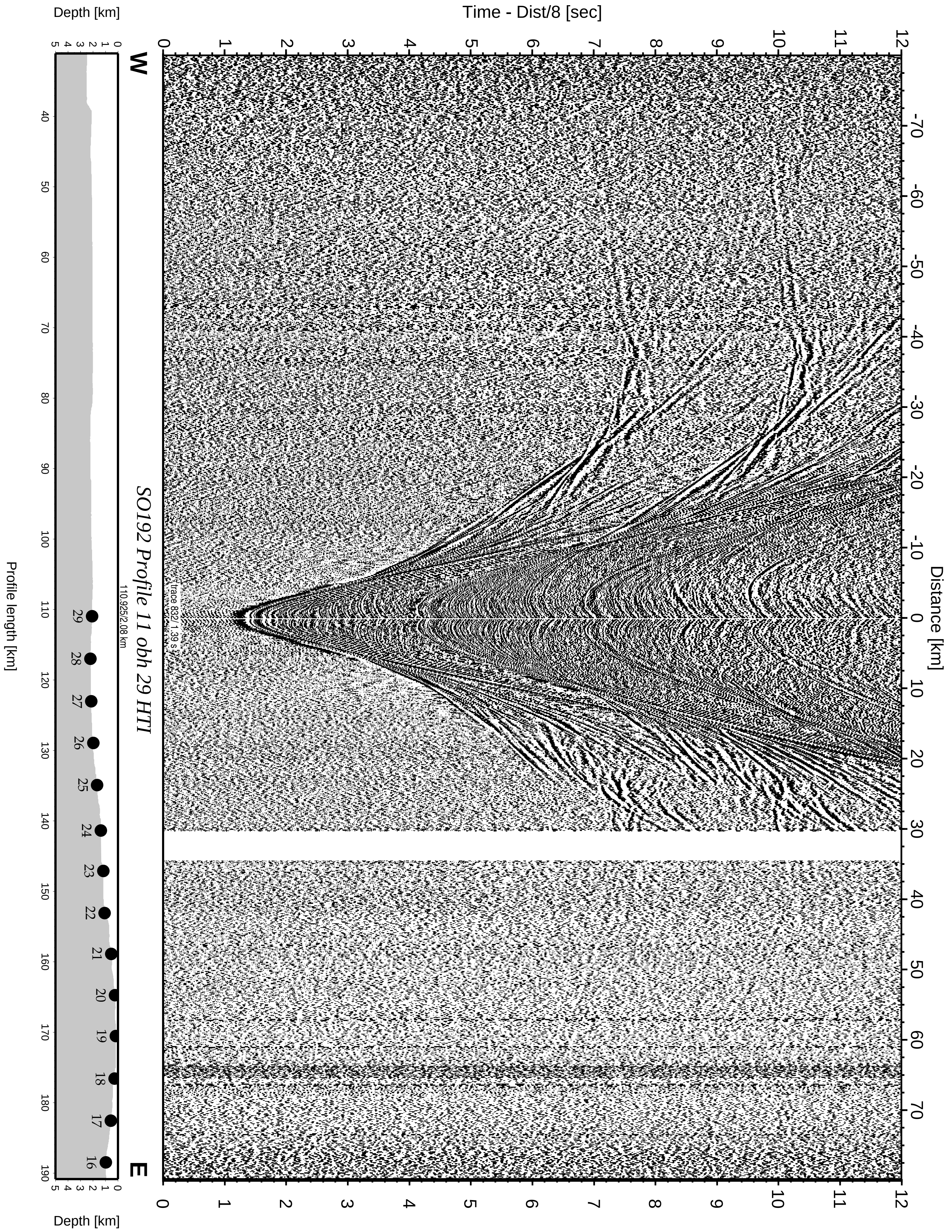


Figure 6.3.1.5: Record section from obh 29 HTI, Profile 11.

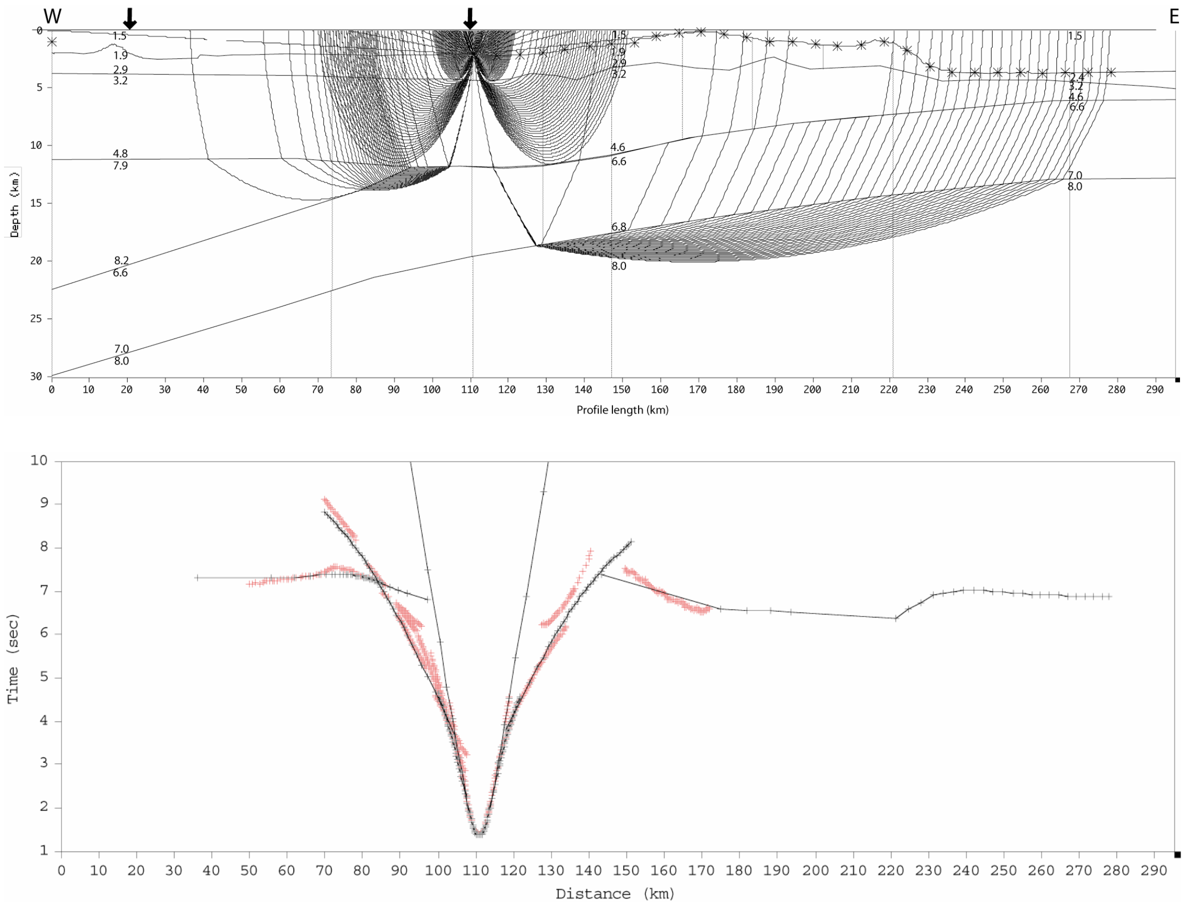
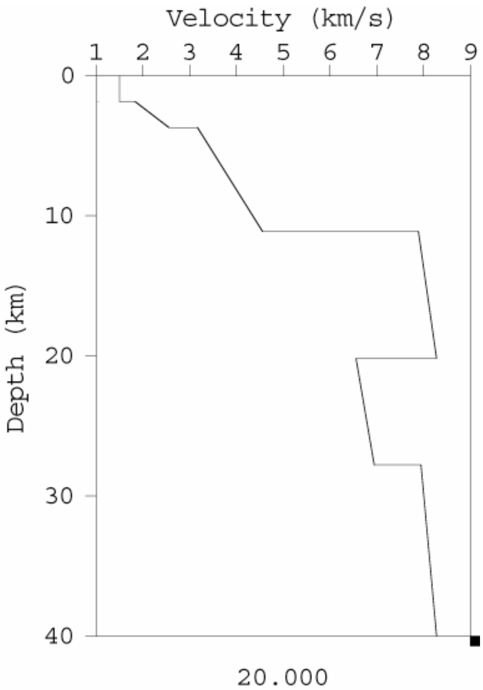


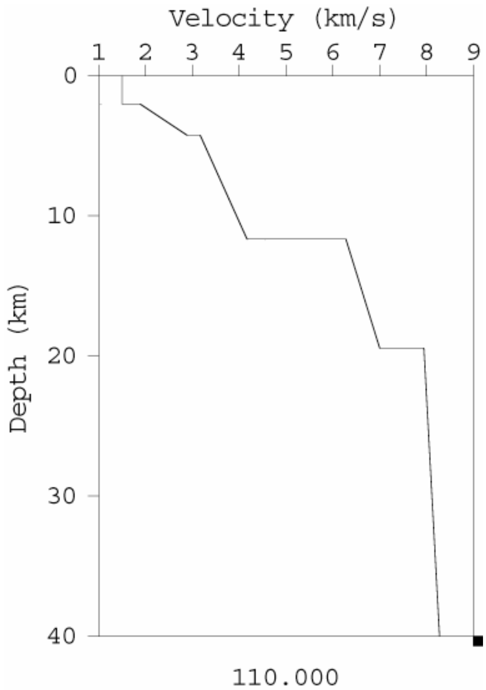
Figure 6.3.1.6: Preliminary model of Profile 11, obtained using MacRay. Stars mark the locations of the OBH's on the sea floor.

Figure 6.3.1.6 shows a preliminary interpretation of the data. The model is created with the ray tracing code McRay using the picks of stations 15-17 and 19-29 of profile P11.
Six layers were used to fit the observed travel times. The water column is set with a constant velocity of 1.5 km/s, the other layers vary laterally and vertically.
The thickness of the sediment layer varies between 1.8 - 2.9 km, and shows a velocity increase from 1.9 km/s to 2.9 km/s.
The third layer comprises the upper crust of Hikurangi Plateau in the East and compacted sediment below the upper plate.
The velocity of the top of the layer is 3.2 km/s and increases to 4.2 km/s at the bottom on the east side to 4.6 km/s on the west side of the profile. Layer 5 shows a dip in westward direction and shows velocity values of 6.6 km/s at the top of the layer to 7.0 at the bottom of the layer. The thickness of the fifth layer is almost constant at 7 km.
The thickness in the model matches thereby the near vertical reflection data (see Figure 6.3.1.2) and is interptreted as a sedimentary forearc basin.
Layer 4 shows velocities of 8 km/s on average, typical mantle velocities. It terminates at 90 km, westward of the start of the profile and has a thickness of 11 km at the beginning.
The sixth layer shows the same dip in westward direction like layer 5 and presents the oceanic mantle with velocities of about 8 km/s.

Below, two velocity depth profiles of the preliminary interpretation of P11 are shown, one at km 20, the other one at km 110 of the model.



P11: Velocity – Depth at 20 km



P11: Velocity – Depth at 110 km

A preliminary interpretation of the eastern part of Profile p11 is based on the travel time picks of OBH/OBS stations 1-14. The resulting model obtained using the ray tracing code Mac Ray is shown in Figure 6.3.1.7

It is devided into 4 layers. The upper interface marks the sedimentary layer and for simplicity an average velocity of 2.0 km/s has been assumed. The thicknes could be determined from the seismic reflection data of p11 and varies between 0.2-1.0 km.

The second layer has average velocity gradient from about 2.5-2.7 km/s at the top to 3.0-3.9 km/s at the bottom of the layer. The velocity are regionally higher in the west,from 230 to 160 km, along the line with 2.7 km/s at the top and 3.9 km/s at the bottom of the layer. The thickness varies between 1.8 and 7 km.

Layer 3 shows the westwards dipping upper part of the oceanic crust The velocity in this part incresing from 5.2 km/s on the top to 5.9 km/s at the bottom. The thickness is about 4km in the east and increase to the west.

The exact boundary of the oceanic crust is not modeled in detail here. At a depth of 10km the Interface is marked with a velocity contrast from 5.9 to 7.0 km/s

Deeper structures could not be interpreted.

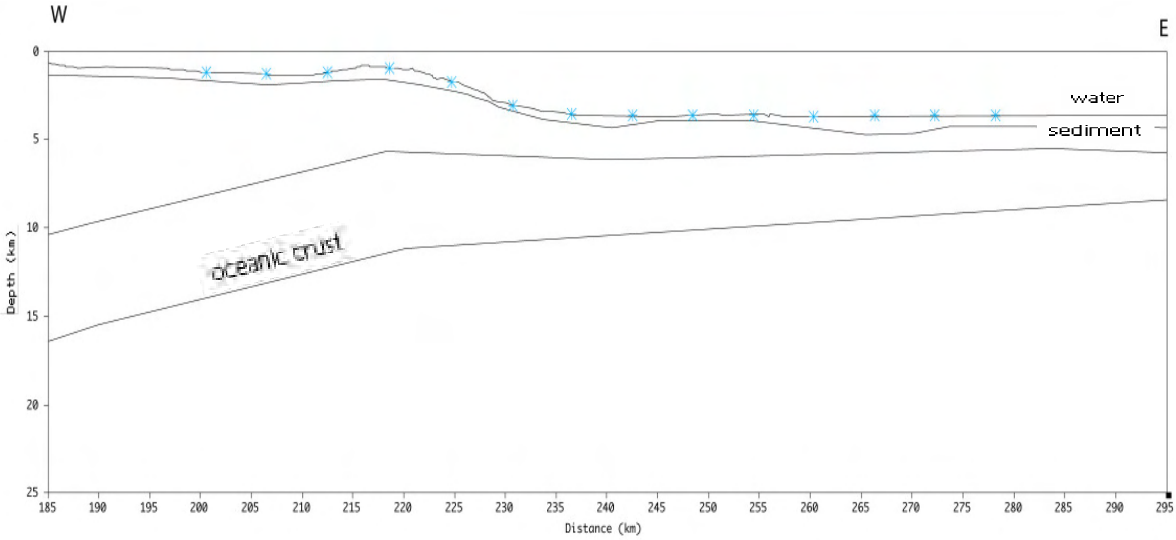


Fig. 6.3.1.7: Preliminary model of the eastern part of Profile 11, obtained using Mac Ray. Stars mark the locations of the OBH/S at the sea floor.

6.3.2 Profile 21

Profile P21 (Figure 6.3.2.1) crosses from west to east the eastern boundary of the Harve Trough, Kermadec Ridge, the northern limit of the Raukumara Plain, and the trench margin ~50 km north of the subducting Hikurangi Plateau and Rapuhia Scarp. The profile was planned to cross the arc in the wake of the Hikurangi Plateau subduction where Davy and Collot (2000) noted a step of 1.5 km in depth between the Central and Southern Kermadec Trench and where the NW projection of the Rapuhia Scar is marked by a change in seafloor morphology of the Kermadec arc (De Ronde et al 2007). A total of 30 instruments (OBH30 to OBH69) were deployed 01./02.04, and shooting started 10:15 on 02.04, at a speed of 4.0 kn with 60 s trigger interval. The eight channel streamer was also deployed. The 153 nm long shooting line was terminated 23:30 on 03.04, and subsequently all instruments were recovered.

Figure 6.3.2.1 shows the location of the intruments and the extent of the shooting line. The stacked vertical incidence seismic reflection section from the streamer is shown in Figure 6.3.2.2. OBS/H data examples are shown in Figures 6.3.2.5 to 6.3.2.7. Details on instruments and airgun shots can be found in Appendices 9.1 and 9.2, the remaining data are all presented in the accompanying data report.

In general, the data quality on P21 is excellent, with signal penetration of more than 100 kilometers in places. In addition, we serendipitously recorded the Mw 8.0 Solomon Island earthquake (Figure 6.3.2.3 location) ,which occurred at 20:39:56 UTC on 1 April, two hours after the last OBH had been deployed. Figure 6.3.2.4 shows the coda from this event.

Reflection and swath bathymetry data of the Harve Trough show a complex volcanic morphology dominated by normal faulting. Active submarine volcanoes in this part of the arc occur up to 40 km west the Kermadec Ridge (De Ronde et al., 2007). The inner trench margin images the northern extent of the Ruakumara basin and, here, 2 s of basin fill dip trenchward. Indistinct and less coherent reflections dip back towards the Kermadec Ridge deeper in the basin. Extensive normal faulting cut through sediments to the seafloor on the eastern edge of the basin and along the continuation of the East Cape Ridge. The zone of faulting also marks the present trench slope break. Within the trench, at the far eastern end of the profile, a thin veneer of sediment is visble (< 1 s) lying above a prominent reflector interpreted to be the top of the oceanic crust and seen subducting beneath the margin.

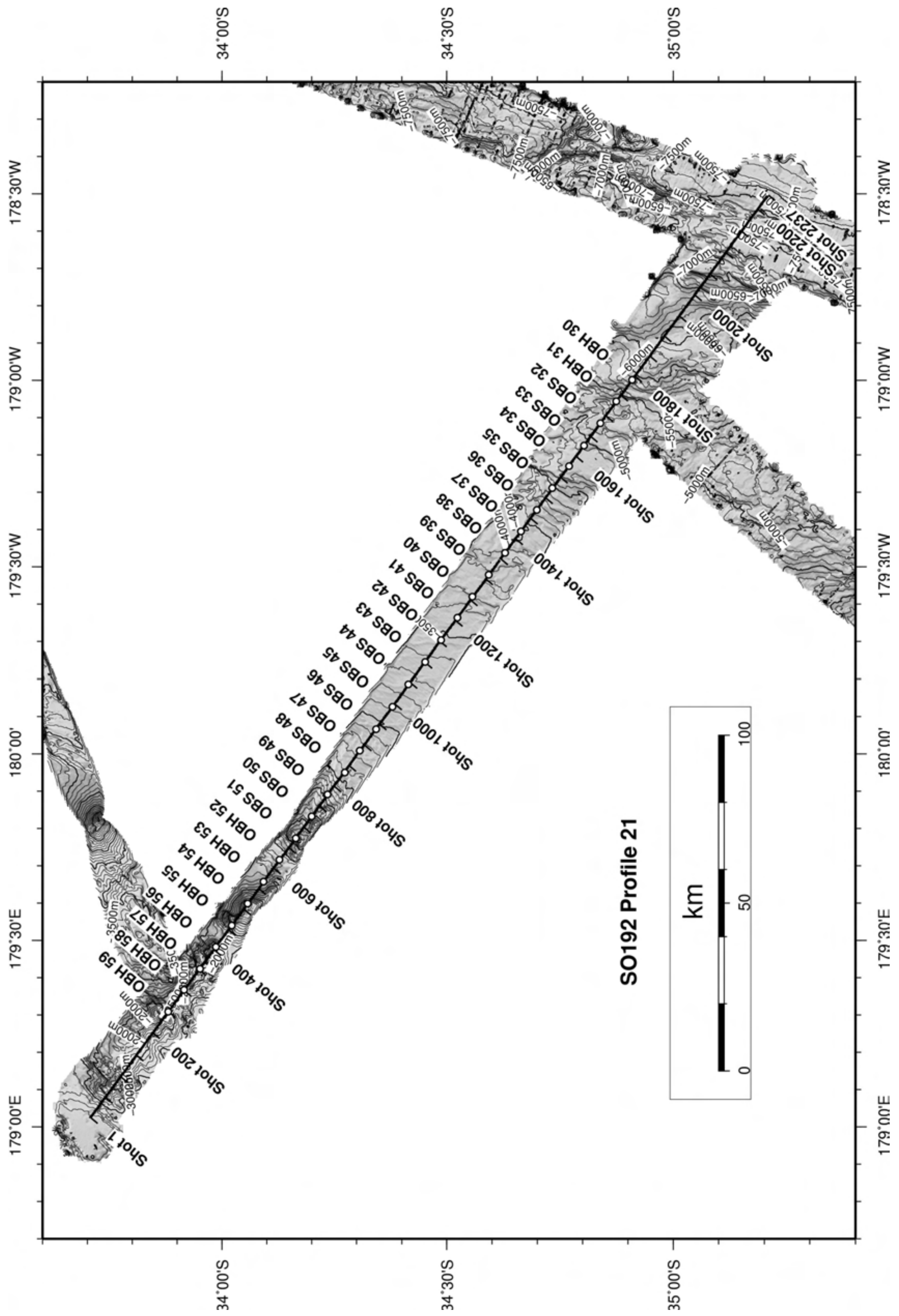


Figure 6.3.2.1: Location map of MANGO wide-angle seismic profile P21. Bathymetry contours are at 100 m.

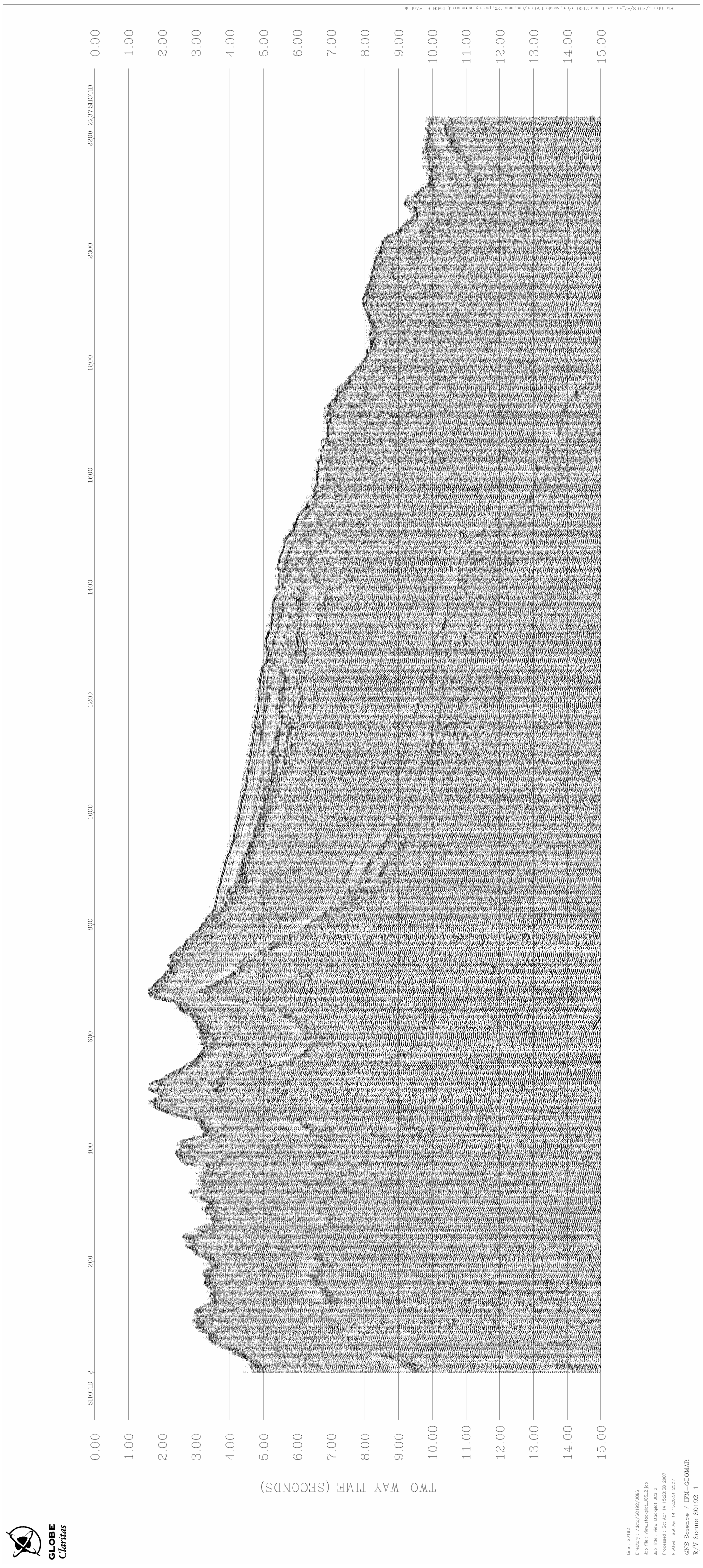


Figure 6.3.2.2: Migrated seismic reflection line of Profile P21 displayed from the Harve Trough and Kermadec Ridge, in the west (left-hand side), to the oceanic crust in the east.

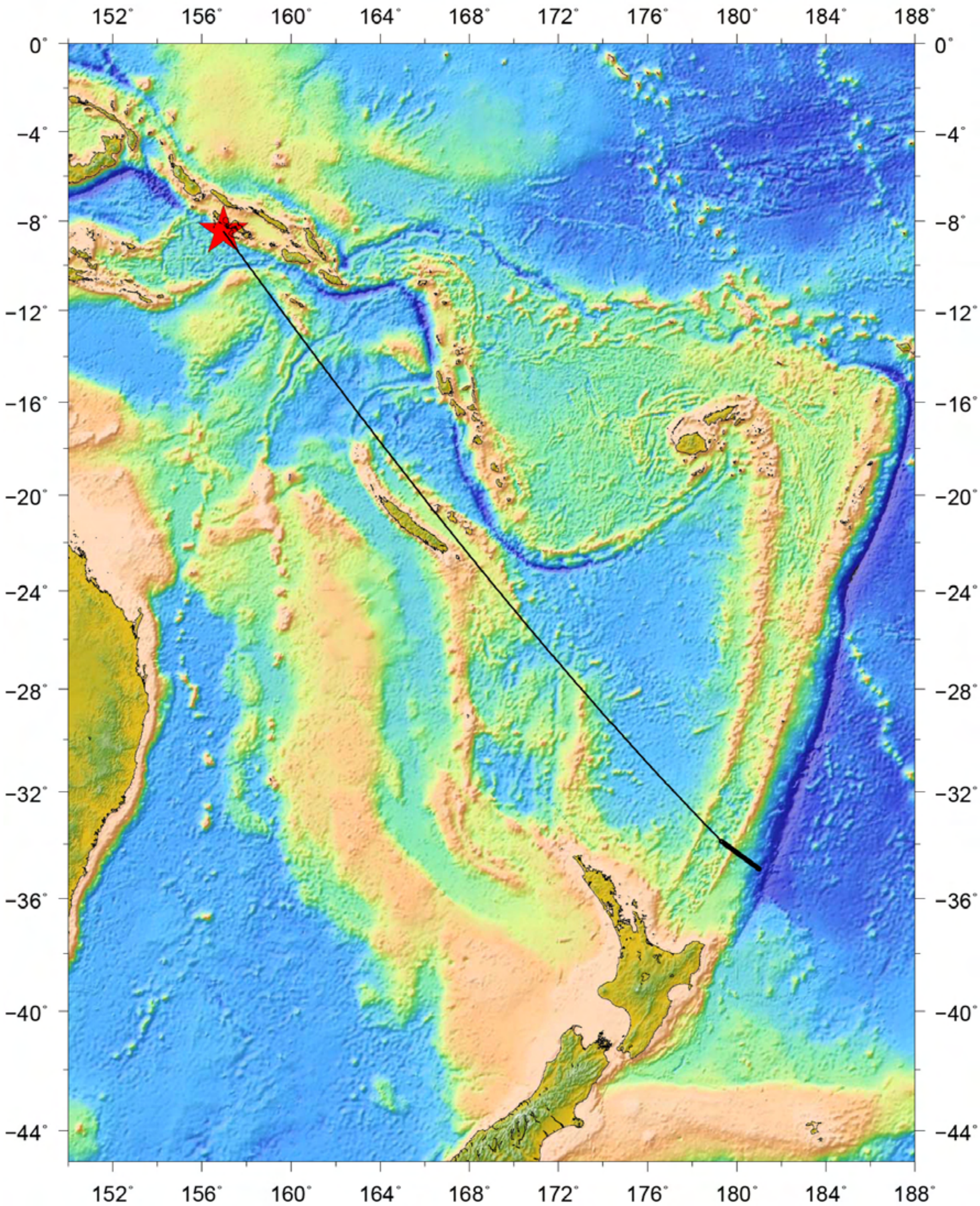


Figure 6.3.2.3: Location of the Mw 8.0 Solomon Island earthquake (Sunday April 1st, 20:39:56 UTC; epicenter 8.453 S, 156.957 E, 10-km depth) that was recorded along the OBS/H array during deployment of P12. The great cicle path (thin black line) between the epicentre and P21 (thick line) shows the array azimuth is suitable for determining traveltime deplays.

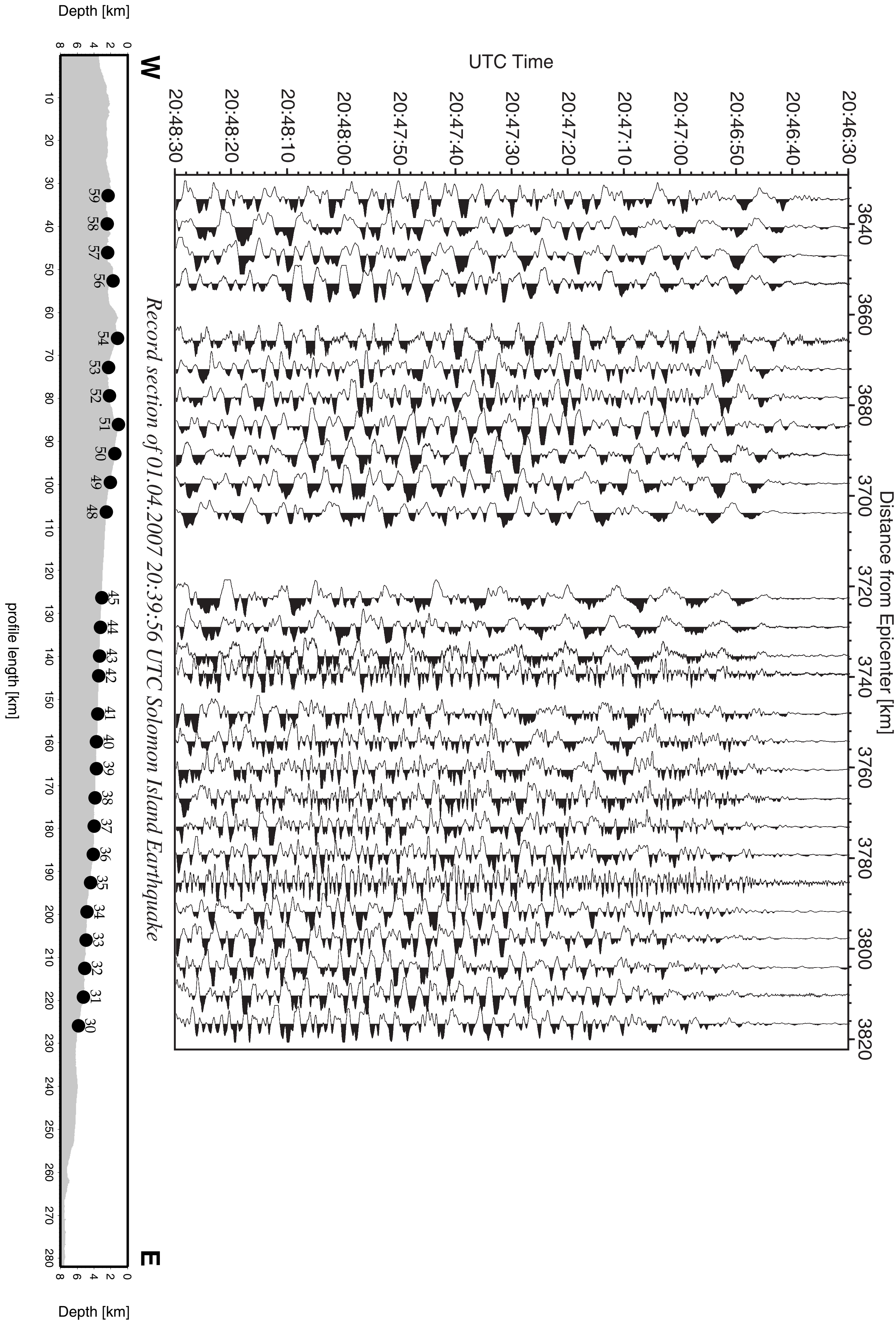


Figure 6.3.2.4: Record section of 01.04.2007 20:39:56 UTC Solomon Island Earthquake.

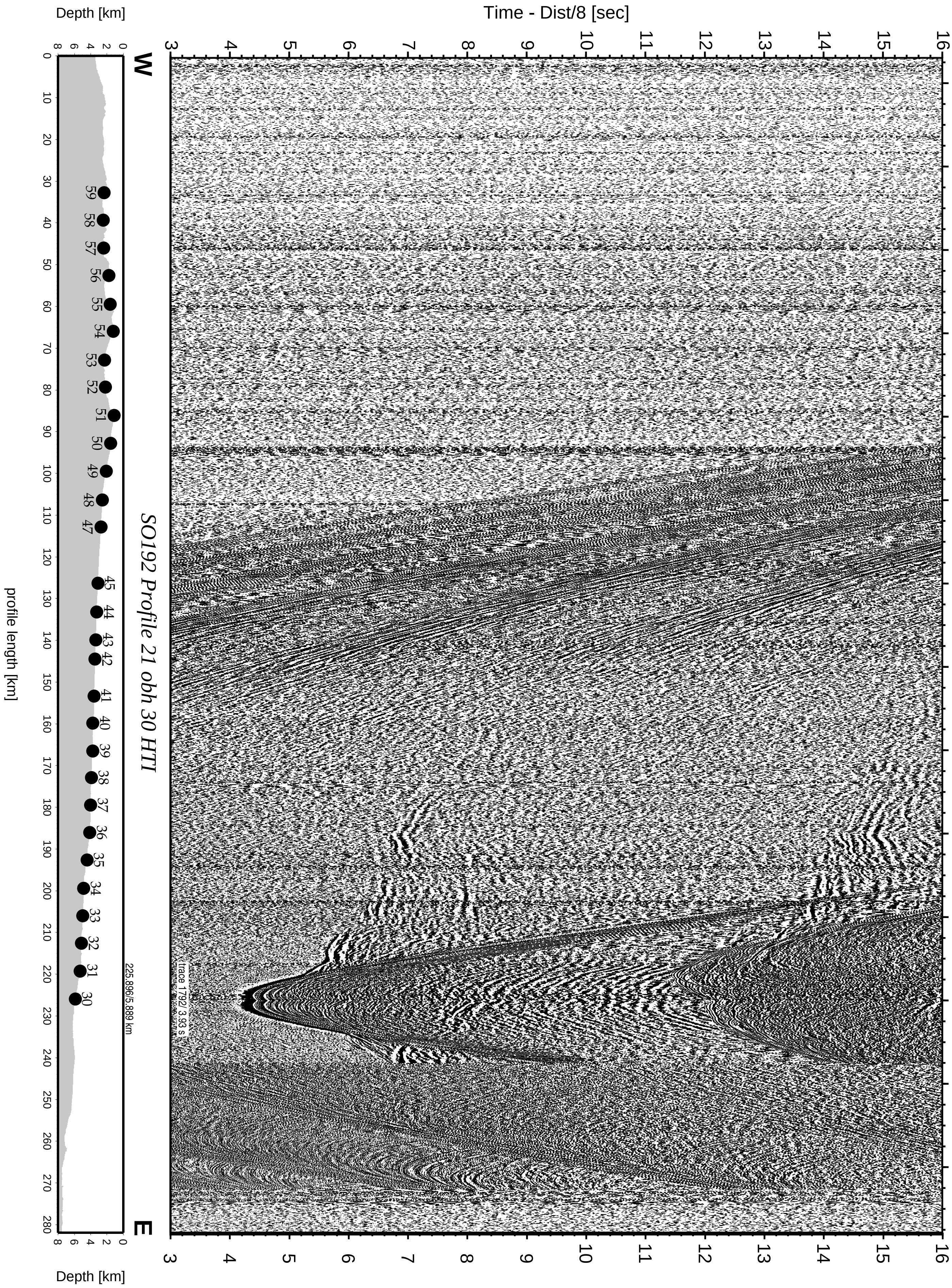


Figure 6.3.2.5: Record section from obh 30 HTI, Profile 21.

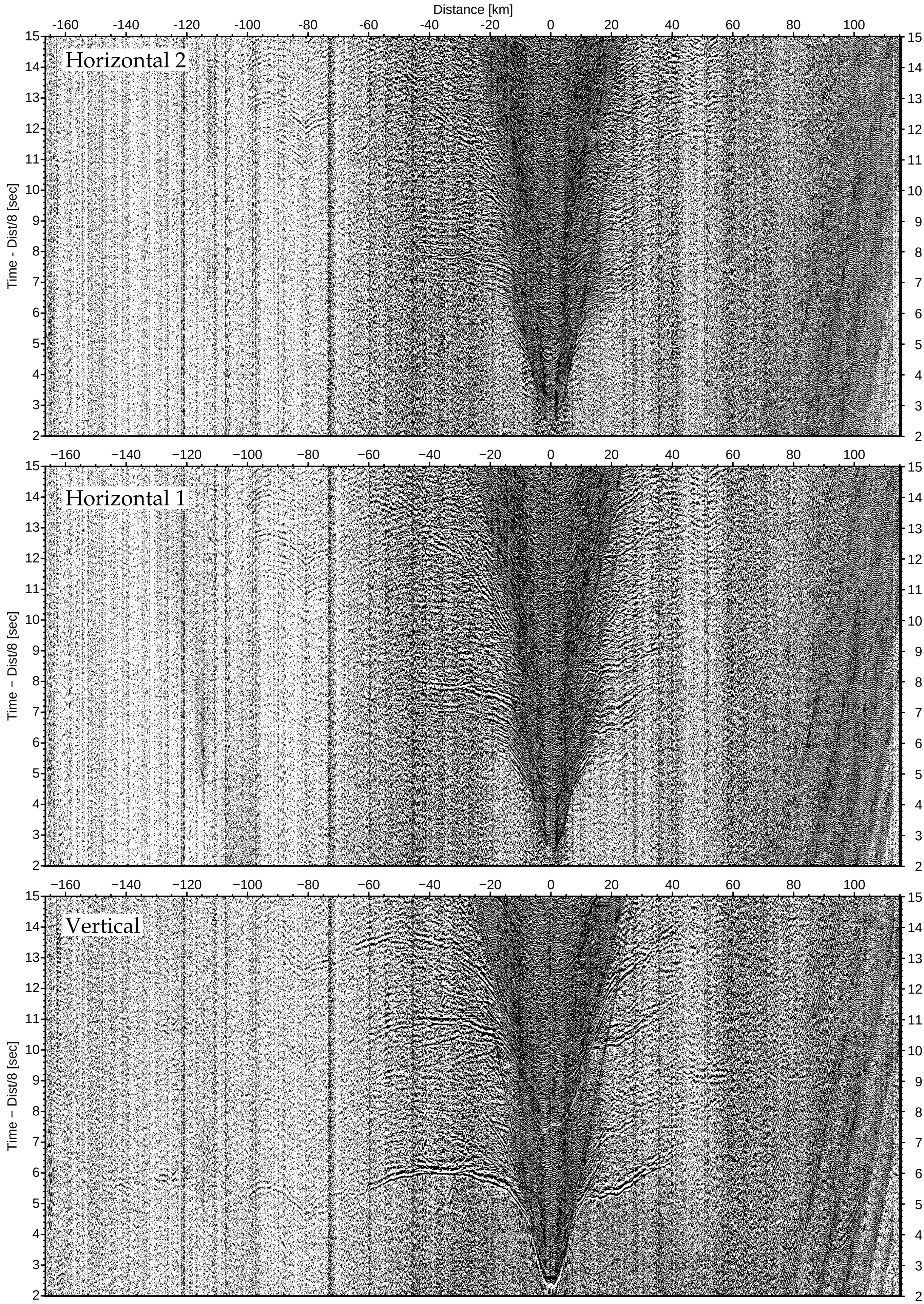


Figure 6.3.2.6: Record sections from obs 39 (HTI/Owen−4.5Hz Geophone), Profile 21.

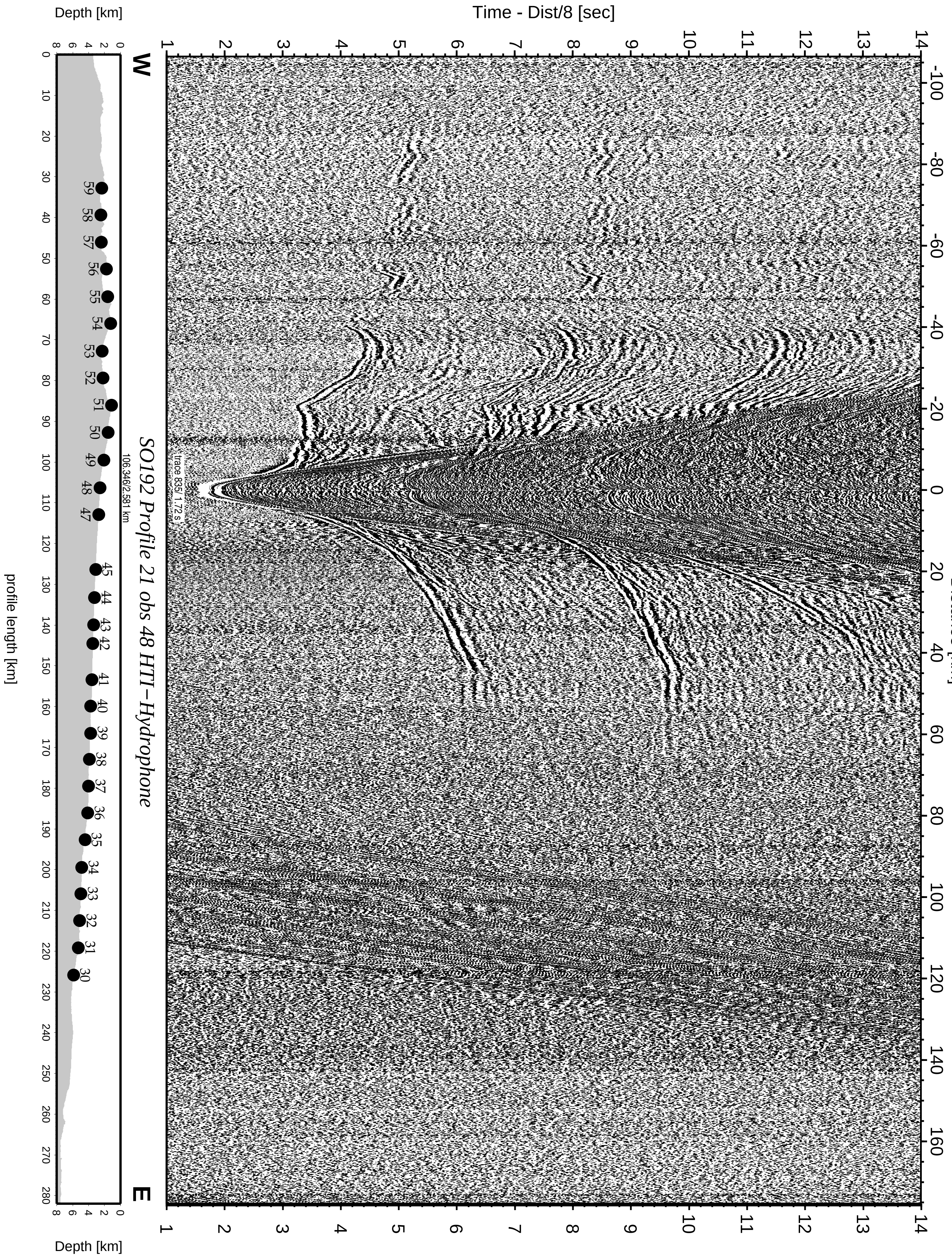


Figure 6.3.2.7: Record section from obs 48 HTI−Hydrophone, Profile 21.

A preliminary onboard interpretation was done for seismic profile P21. By using the travel time picks of OBH/S 30 to 59 and the modelling software MacRay the model below (Fig.6.3.2.8) was obtained consisting of three layers: a sedimentary layer on top, the upper crust and lower crust. As can be seen in the model, the sedimentary layer stretches across one third of the profile representing the sedimentary forearc basin of the Kermadec Ridge. It starts at approximately 100 km and ends at 200 km of the profile. The greatest depth of this basin is about 1.5-2 km at 120-170km. A velocity of 1.8 km/s at the top and 3 km/s at the bottom is assumed for the sedimentary layer. Fig. 6.3.2.9c shows a velocity-depth profile for this region (OBH 44) and Fig. 6.3.2.3 shows an example of picks and modelled travel times (OBH 44).
Upper crust velocities range from about 6 km/s in the northwest to 4.5 km/s below the basin.
We assume lower crust velocities of about 7 km/s throughout the whole profile.
In general, the crust thickens below the ridge reaching a depth of about 16 km. Then it becomes narrow again below the basin. Fig. 6.3.2.9a and 6.3.2.9b show the velocity distribution below the edge of the basin (OBH 48) and below the ridge (OBH 53).
The model gives a preliminary interpretation of the crust beneath the Kermadec ridge and forearc basin to a depth of about 16km. In order to draw conclusions about a subducted plate in this region further and more detailed modelling will be necessary.

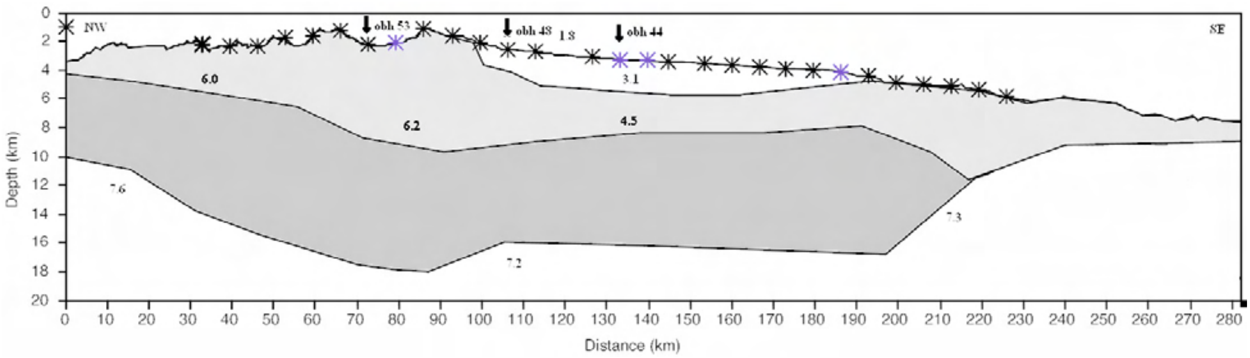
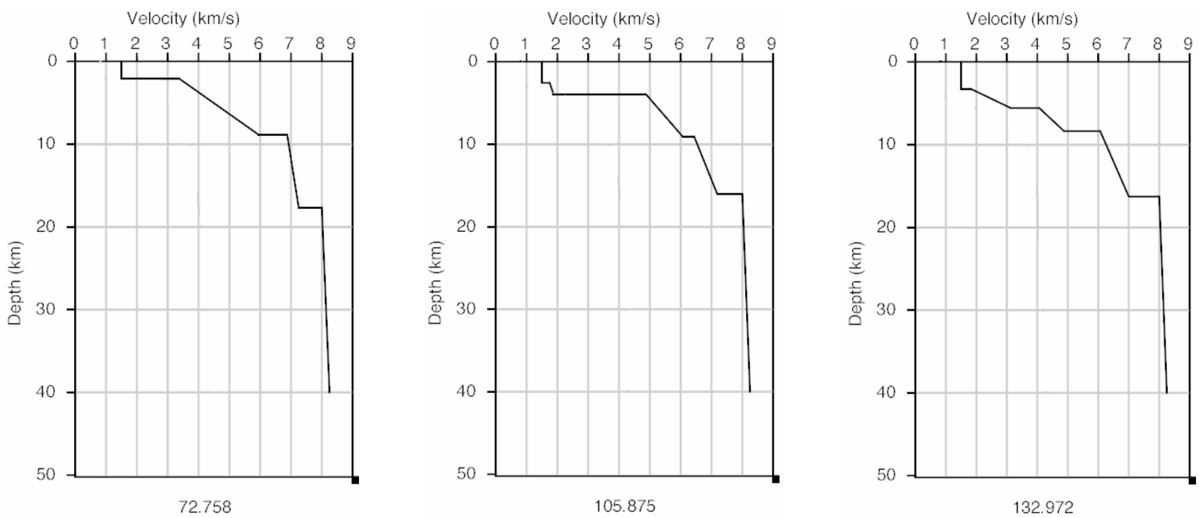


Fig. 6.3.2.8: Preliminary model of Profile 21, obtained using MacRay. Stars mark the locations of the OBH/S at the sea bottom.



a) OBH 53 b) OBH 48 c) OBH 44

Fig. 6.3.2.9 a-c: velocity-depth profiles below OBH 53, OBH 48 and OBH 44

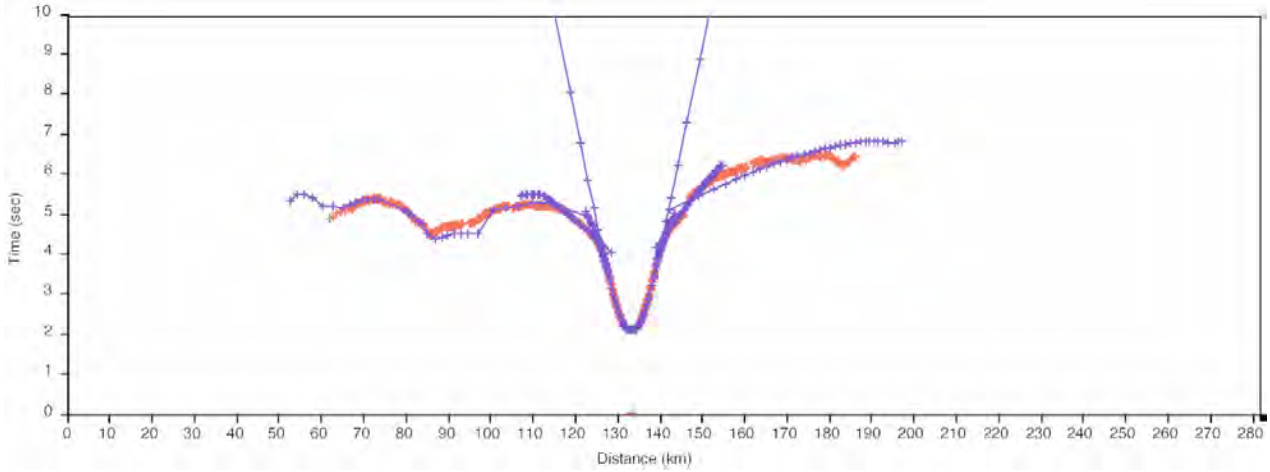


Fig. 6.3.2.10: picks and modelled travel times for OBH 44

Additionally to the forward modelling, a tomographic inversion was performed for profile P21 using the tomography program package TOMO2D (cf. chapter 6.3) by considering only refracted phases. As a simple starting model a 1D velocity depth profile was used with velocities rising gradually from 2.0 km/s at the sea floor up to 8.2 km/s at a depth of 30 km bsf (fig. 6.3.2.11 a). The RMS obtained for this model is 440 ms. For the iterative approach, a damping scheme was applied allowing for max. 3% velocity updates per iteration. For the smoothing constraints, depth depending horizontal correlation lenghts ranging from 1 km at the sea floor to 10 km at the model bottom were used. To allow for more vertical than lateral velocity structure, vertical correlation lengths of 0.4-2.5 km were chosen significantly smaller. After 20 iterations, the RMS dropped to 97 ms, which still lies at the upper limit of the assigned pickuncertainties of 30-100 ms but seems reasonable in the light of a preliminary shipboard interpretation.

The corresponding tomographic output model is shown in figure 6.3.2.11 b. Areas with no ray coverage are masked. Traveltime residuals of synthetic traveltimes obtained from this model still reveal the presence of some major discrepancies to the observed picks (fig. 6.3.2.11 d), which might be due to remaining velocity structure and in places bad picks.

The tomographic output in figure 6.3.2.11 b shows considerable lateral velocity variations with lower velocities for upper model portions between 100 and 180 km profile length, which most probably indicates a thickened sedimentary section here. The geometry of the sedimentary basin together with the location of its bordering basement highs are in close agreement to the results obtained from ray tracing (fig. 6.3.2.8) and GNS streamer data (fig. 6.3.2.2). and marks the northern extent of the Ruakumara basin.

Ray coverage in the deeper model areas is quite sparse. However, for the eastern part of the model obtained velocities do not reach up to typical mantle velocities. At the very western model edge, velocities >8.0 km/s at depths of ~12 km bsl might indicate a crustal thickness of only ~10 km here.

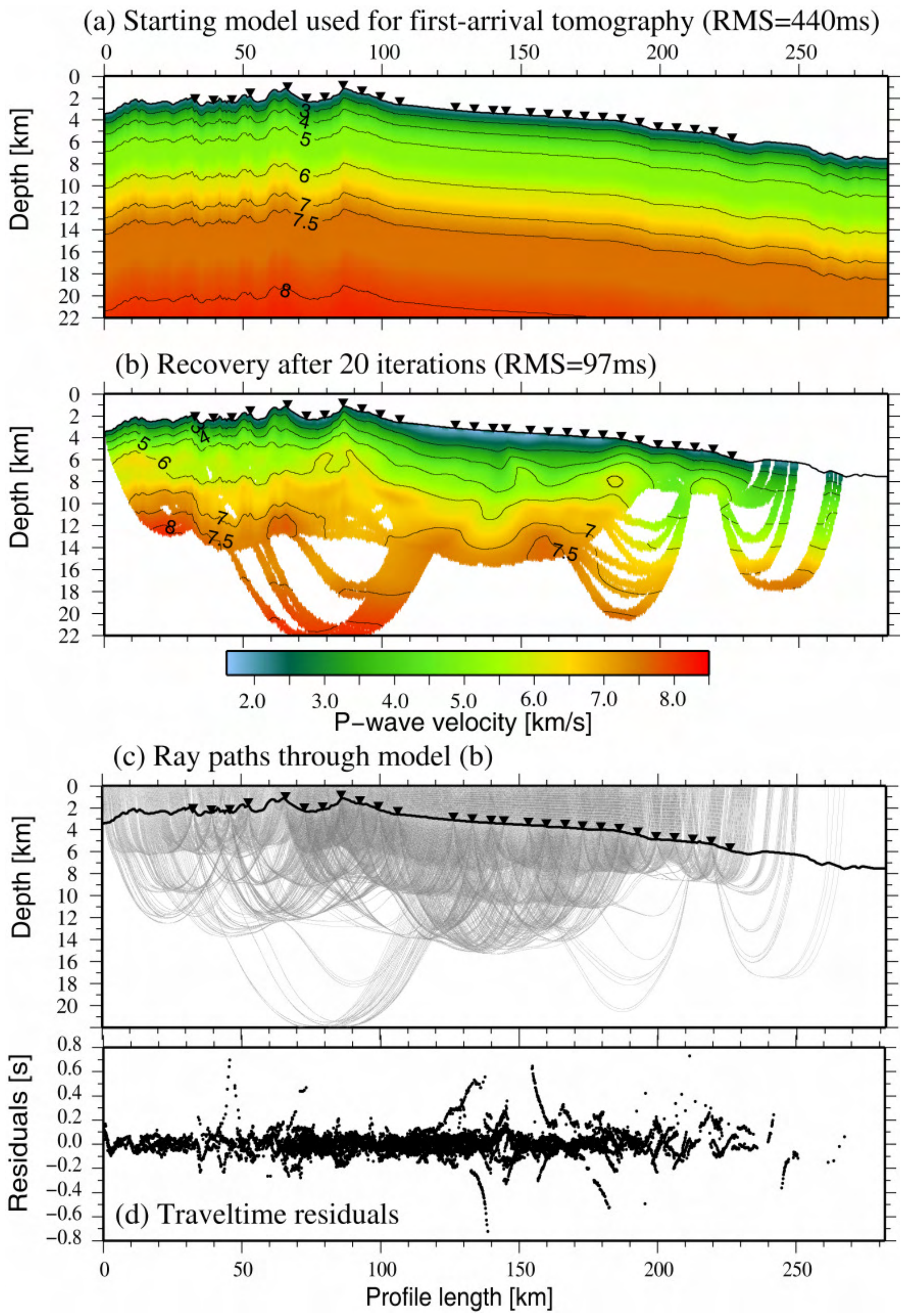


Figure: 6.3.2.11: Tomographic inversion for profile p21. (a) Starting model. (b) Recovery after 20 iterations. (c) Ray coverage of the tomographic output model. (d) Corresponding traveltime residuals

6.3. Profile 31

Profile P31 (Figure 6.3.3.1) crosses from west to east the eastern boundary of the Harve Trough, Kermadec Ridge, and the trench margin at about 33° S well north of the subducting influence of the Hikurangi Plateau. The profile was planned to cross the arc in a region where subduction of the Pacific Plate beneath the Australian Plate was considered typical of the Kermadec erosive margin.

A total of 30 instruments (OBS60 to OBH89) were deployed 05./06.04, and shooting started 09:55 on 06.04, at a speed of 4.0 kn with 60 s trigger intervall. The eight channel streamer was also deployed. The 130 nm long shooting line was terminated 03:55 on 07.04., and subsequently all instruments were recovered. Figure 6.3.3.1 shows the location of the intruments and the extent of the shooting line. The stacked vertical incidence seismic reflection section from the streamer is shown in Figure 6.3.3.2. OBS/H data examples are shown in Figures 6.3.3.3 to 6.3.3.5. Details on instruments and airgun shots can be found in Appendices 9.1 and 9.2. The remaining data are all presented in the accompanying data report.

In general, the data quality is excelllent, with signal penetration of more than 100 kilometers offset in places.

Similar to P21 profile P31 reflection and swath bathymetry data of the Harve Trough show a complex volcanic morphology. Active submarine volcanoes in this part of the arc occur adjacent (within 20 km) to the western flank of the prominent Kermadec Ridge (De Ronde et al., 2007). The trench margin shows a thin veneer of sediments likely to represent eroded volcanic debris flows derived from the Kermadec ridge. Along this part of the tench slope the reflection and swath data also show widespread slumping and collapse structures.

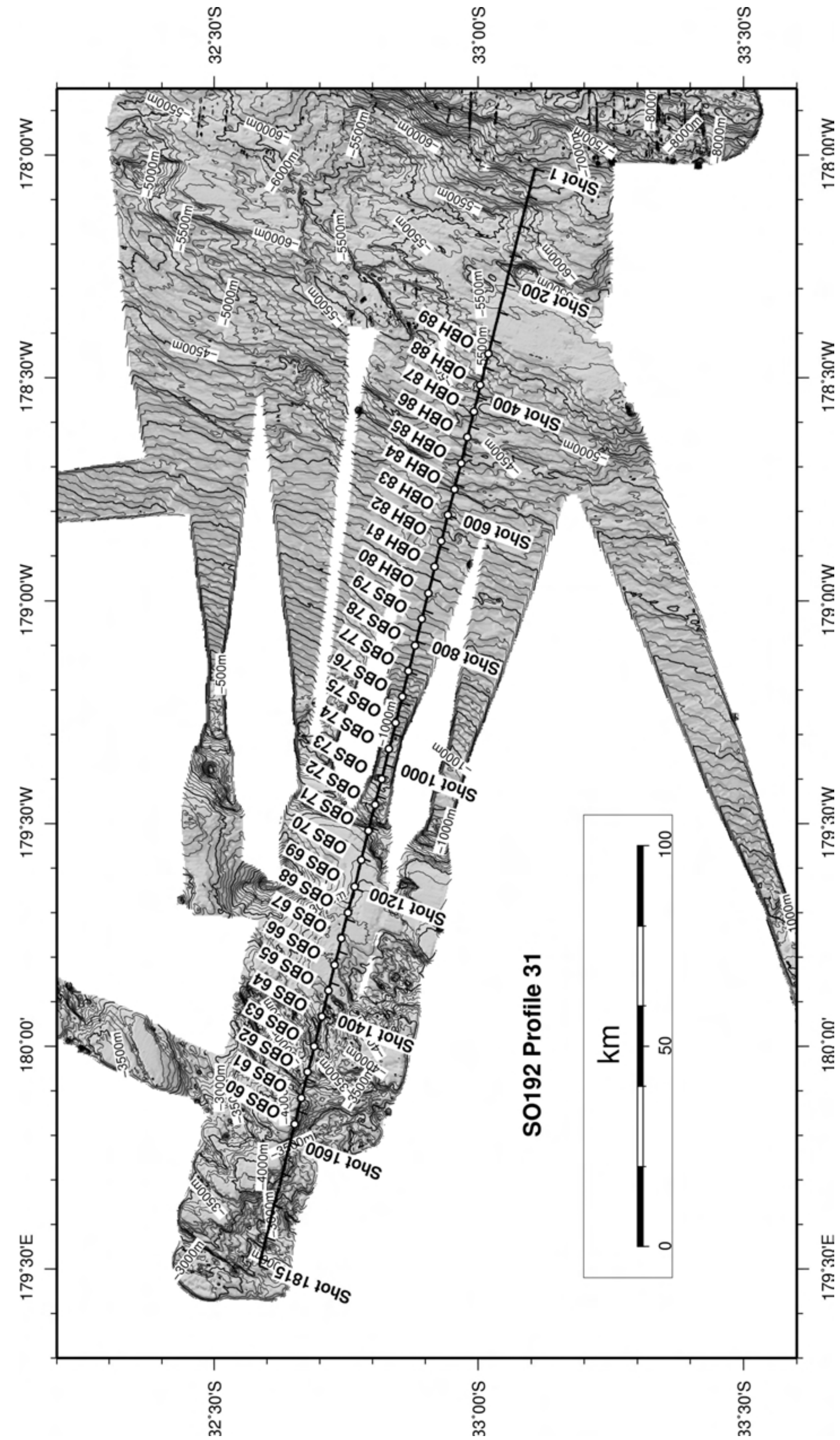


Figure 6.3.3.1: Location map of MANGO wide-angle seismic profile P31. Bathymetry contours are at 100 m.

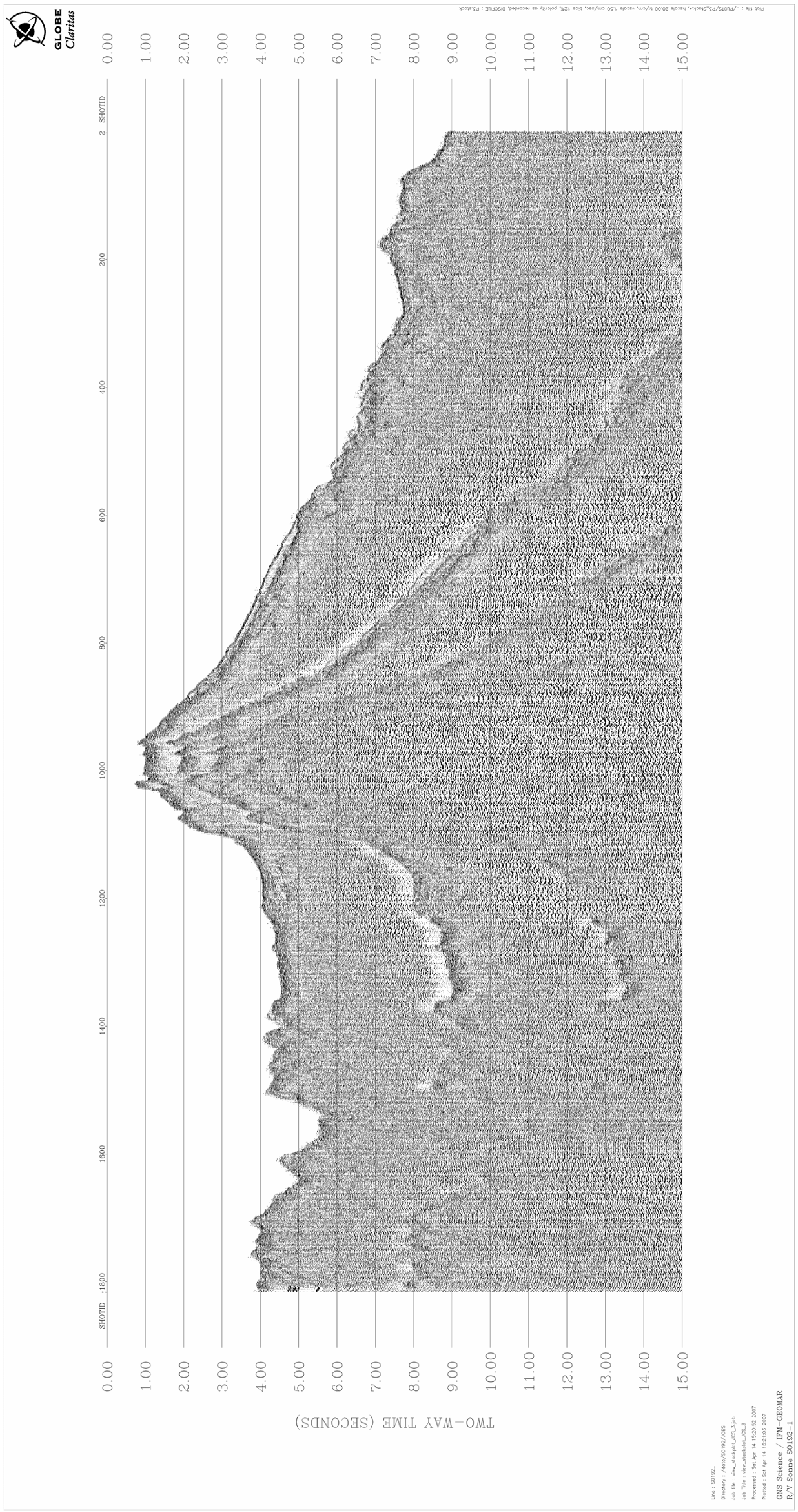


Figure 6.3.3.2. Migrated seismic reflection line of Profile P31 displayed from the back-arc Harve Trough in the west (left-hand side), across the Kermadec Ridge, to the Hikurangi Trench margin in the east.

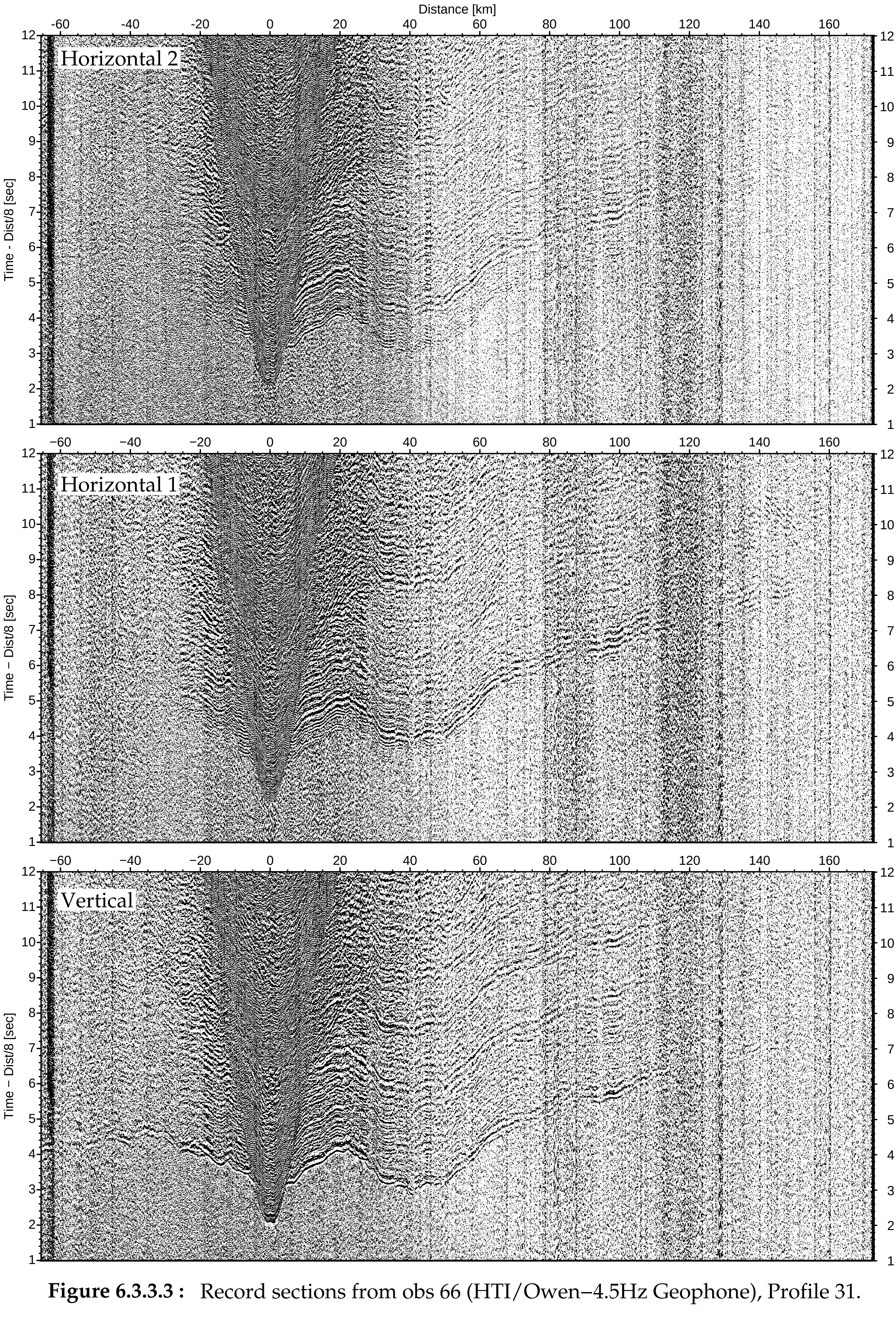


Figure 6.3.3.3 : Record sections from obs 66 (HTI/Owen–4.5Hz Geophone), Profile 31.

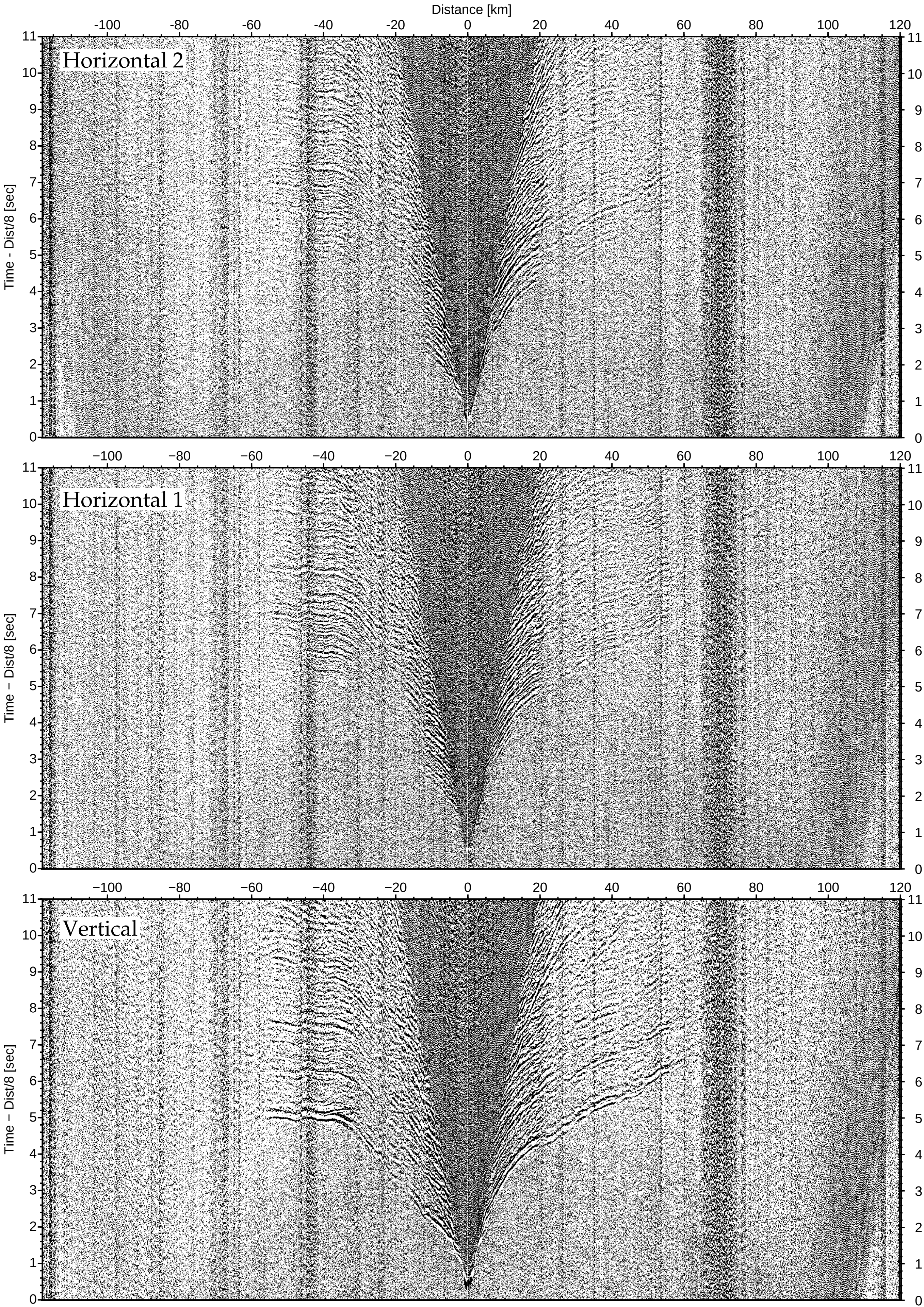


Figure 6.3.3.4 : Record sections from obs 75 (HTI/Owen−4.5Hz Geophone), Profile 31.

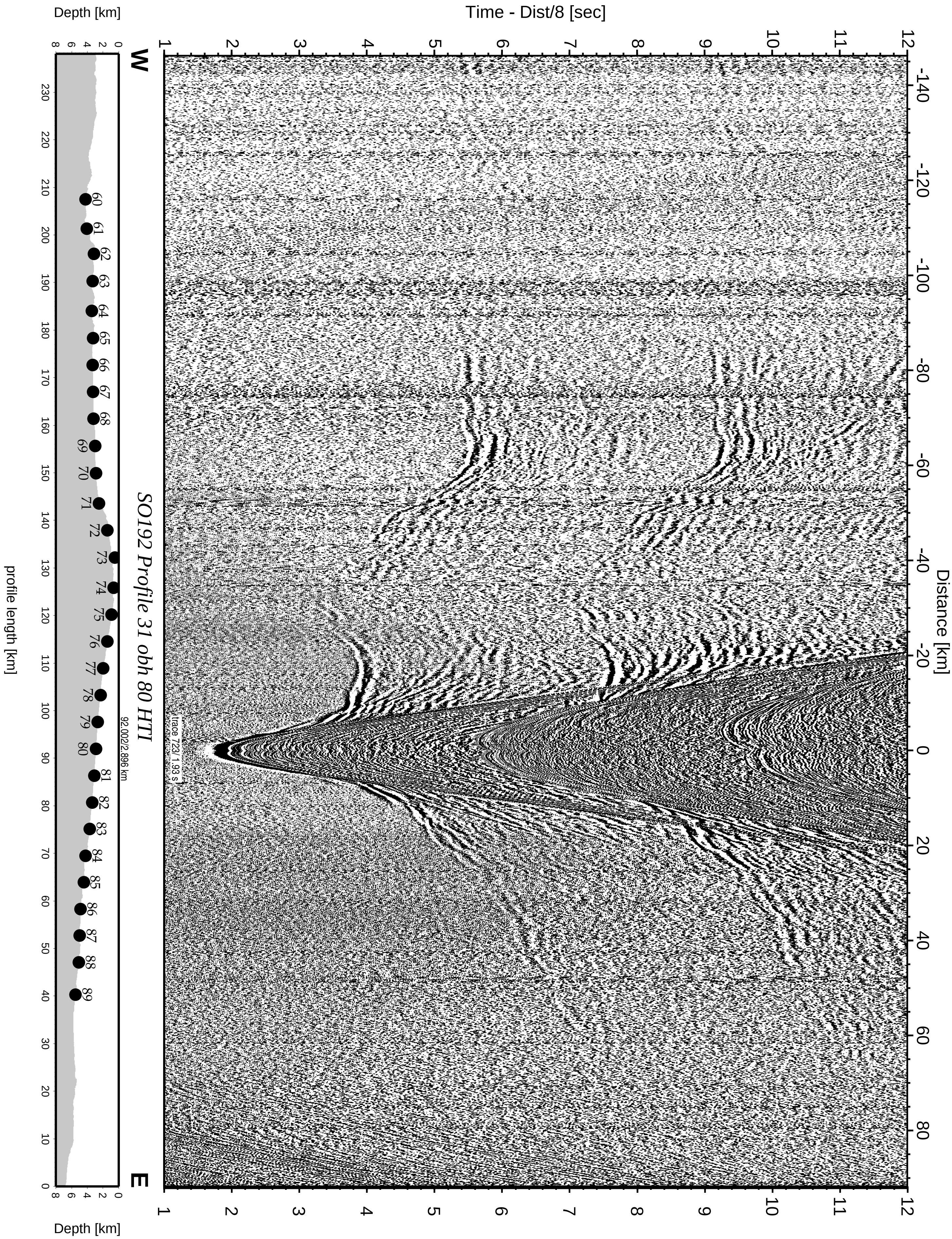


Figure 6.3.3.5 : Record section from obh 80 HTI, Profile 31.

Using the forward ray tracing method (MacRay), a preliminary velocity-depth model for Profile 31 was obtained for the region of the Kermadec Ridge. In total 30 ocean bottom stations-OBH(S) were deployed. The length of profile 31 is about 240km and the shot interval is 60s. Except for OBH 82, every station records a clear Pg phase. Beneath the Kermadec ridge some stations record very clear bending phases from lower crust.

In the western part of the profile, about a 1.0-2.0 km thick sedimentary layer with velocities of 2.3-3.8 km/s can be clear identified on the top of basement. Below the basement upper crust and lower crust layers show velocities of 5.0-5.5 and 6.6-7.2, respectively. Pn phase from OBS66 at about 9.8 km depth with offsets from 15 km to 30 km might mark the crust-mantle boundary (Moho), although it is difficult to identify a clear PmP phase.

In the central part of the profile, the thickness of upper and lower crust become thicker, with 3.6-5km and 6.0-6.3 km, respectively and also velocities are higher than the western and the eastern section. They increase to 5.1-5.8 km/s and 6.9-7.3 km/s for the upper and lower crust. The deeper structure and the downgoing plate have not been modeled on board.

Towards the trench, the thickness of upper and lower crust decrease dramatically. Reflection and refraction from the downgoing plate are observed, but have not been modeled yet.

From the preliminary velocity-depth model, we can conclude that the structure of Kermadec Ridge can be well resolved with future modeling and tomography inversion.

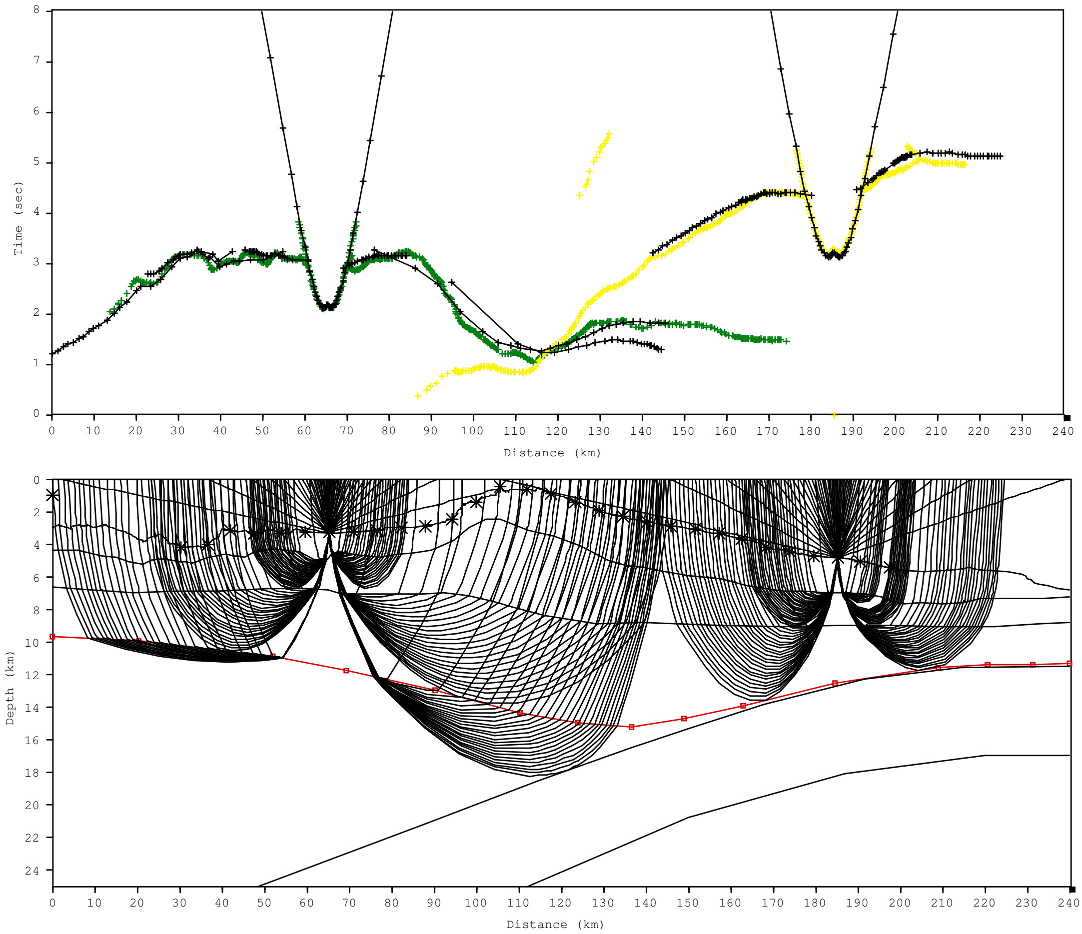


Fig.6.3.1.6: Preliminary velocity model for profile 31. First arrivals, calculated travel time and raypaths from OBS66 and OBH87 are showed above.

6.3.4 Profiles 41 & 42

From west to east profiles 41 & 42 comprise a complete transect from Colville Ridge, the Havre Trough back-arc basin, active volcanic arc of the Kermadec Ridge, Hikurangi Trench and margin, to the incoming Pacific Plate oceanic crust. The total transect is 487 km long and is located 22 km (12 nm) north of Raoul Island, an active volcanoe on the Kermadec Ridge. The profile was planned to cross the arc/back-arc in a region where subduction of the Pacific Plate beneath the Australian Plate is characterised by unusually intense seismicity and has experienced several large ($Mw \geq 7.0$) earthquakes (Song and Simmons, 2003).

After the installation of two seismometers on Raoul Island on 10.04., 29 instruments (OBS119 to OBH92, and OBH90) were deployed at 3.6 nm spacing from Kermadec Ridge to the west. A 43 nm long gap between instruments OBH98 and OBH97 had to be incorporated, since water depth in the Kermadec trench is greater than 6000 m (the maximum depth our instruments can be deployed to safely), Along the profile the maximum water depth in the Kermadec Trench reaches 9740 m . Shooting started at 11:00 local time on 11.04. in moderate weather conditions, which unfortunately worsened during shooting with maximum wind speeds of 20m/s. Profile 41 is 170 nm long, extending for 20 nm to the west of OBS119.

All instruments, except OBS119, were recovered and redeployed to the east (OBS 120 to OBH148). Shooting along Profile 42 was made on 15./16.04 in perfect weather conditions. The shooting line was 125 nm long. After recovery of the two land seismometers from Raoul Island the instruments were picked up 16./17.04. Unfortunately, OBS130 did not reply to the acoustic interrogation.

Figure 6.3.4.1 shows the location of the instruments and the extent of the shooting line. The stacked vertical incidence seismic reflection section from the streamer is shown in Figures 6.3.4.2 and 6.4.4.3. Data examples are shown in Figures 6.3.4.4 to 6.3.4.9. Details on instruments and airgun shots can be found in Appendices 9.1 and 9.2. The remaining data are all presented in the accompanying data report. In general, the data quality is very good. A comparison of the data quality of P41 compared to P42 shot under very poor versus very good weather conditions can be seen in Figures 6.3.4.6 and 6.3.4.7, showing the data from OBS119. They demonstrate the weather independency of the active seismic measurements in deep water. The source of deep water noise remains unexplored.

Colville Ridge and Kermadec Ridge are pronounced highs in the reflection data and define the flanks of the back-arc spreading region of the Harve Trough (Figure 6.4.4.3). Numerous normal faults are visible cutting sediment filled half grabens in the west of the Trough. The centre of trough is marked by an irregular seafloor fabric visible also on swath data. Sediments on the eastern slope of the Kermadec Ridge and trench margin are up to ~1.5 km thick. A number of deeper discontinous reflectors are also observed at 6.0-7.0 s TWT, beneath this part of the margin, suggesting the presence of a substantial fore-arc basin.

East of the trench and trench slope, on the Pacific Plate, a prominent oceanic crust reflector is visible beneath a thin (~200 m thick) veneer of sediments. OBHs 90 to 97 were located on this segment of the profile and allow us to define the crustal structure of the incoming plate. The velocity profile of the oceanic crust was investigated by analysing different arrival phases on several OBH receiver gahters. All of the OBHs have a similar appearance with a pronounced Moho reflection. Several instruments also show clear S-waves. An average velocity profile as deduced from several stations is shown in Figure 6.3.4.10. The crustal thickness is 6.5 km with a high velocity gradient from 4.3 to 6.9 km/s in the upper 3 km. Deeper, the velocity is nearly constant at 7.0 km/s. Velocities in the upper mantle are surprisingly low at 7.7 to 7.8 km/s.

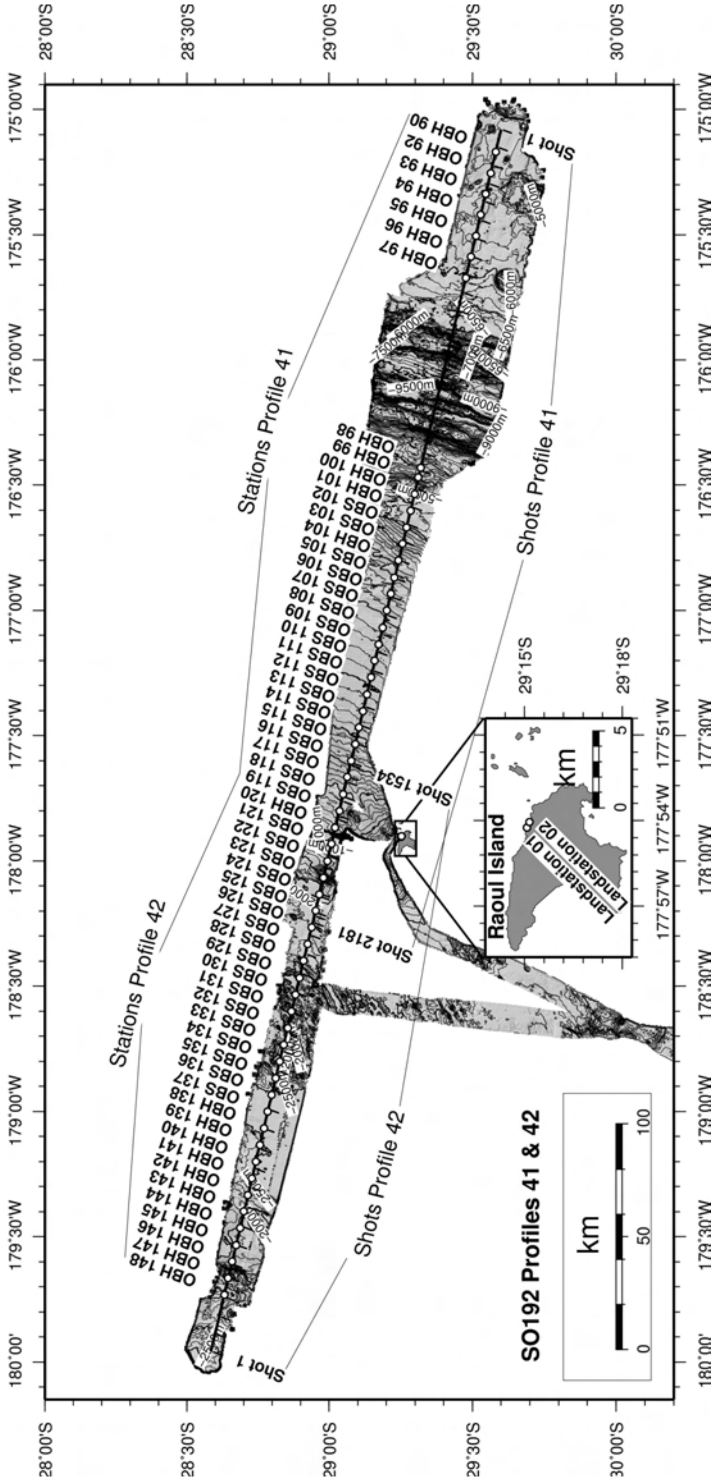


Figure 6.3.4.1: Location map of MANGO wide-angle seismic profiles P41 and P42, overlapping as indicated. The two landstations 01 and 02 (see inset) were recording shots from both sides of Raoul Island. Bathymetry contour are at 100 m.

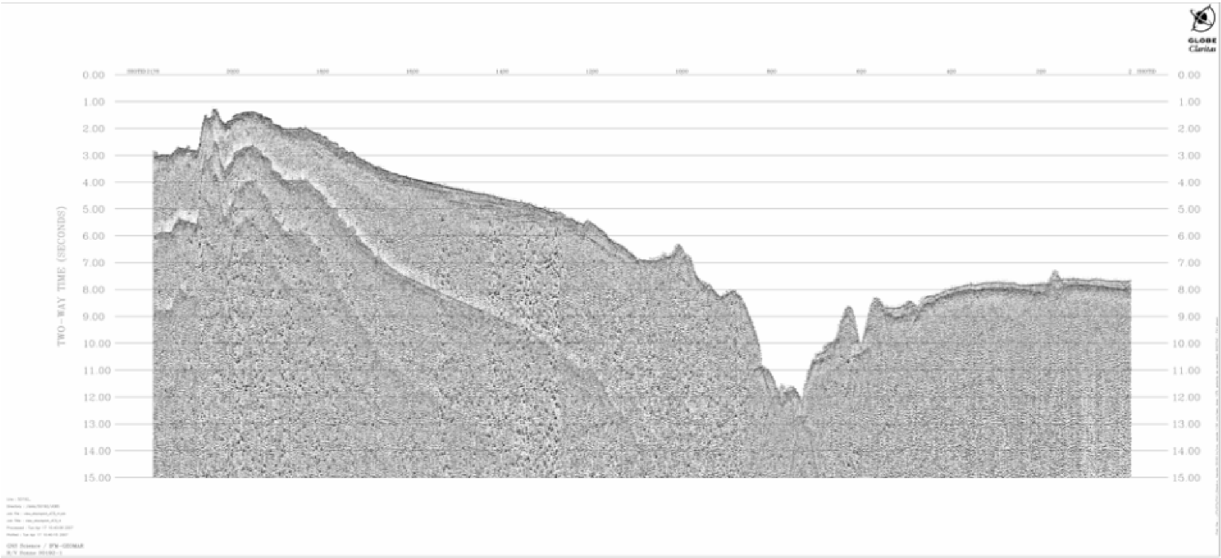


Figure 6.3.4.2: Stacked seismic reflection line of Profile P41 displayed from the Kermadec Ridge, in the west (leftt-hand side), to the oceanic crust in the east. The maximum water depth in the trench reaches 9740 m.

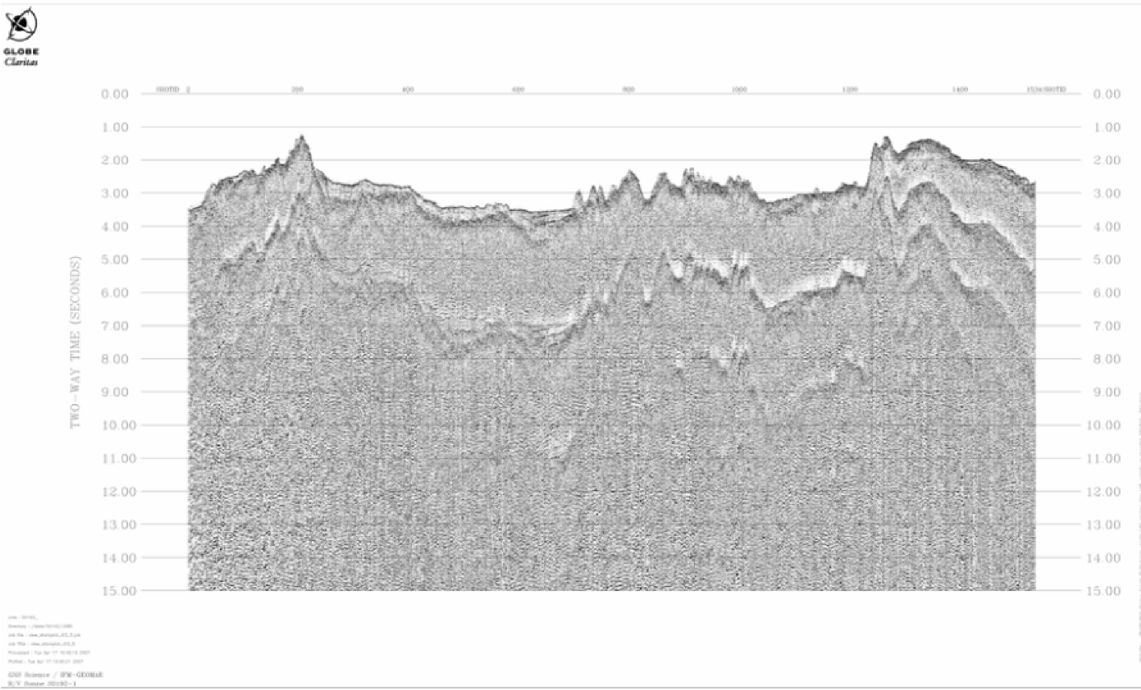


Figure 6.3.4.3: Stacked seismic reflection line of Profile P42 displayed from the Colville Ridge in the west (leftt-hand side) to the Kermadec Ridge (east) and over lap with western end of P41 (Figure 6.3.4.2).

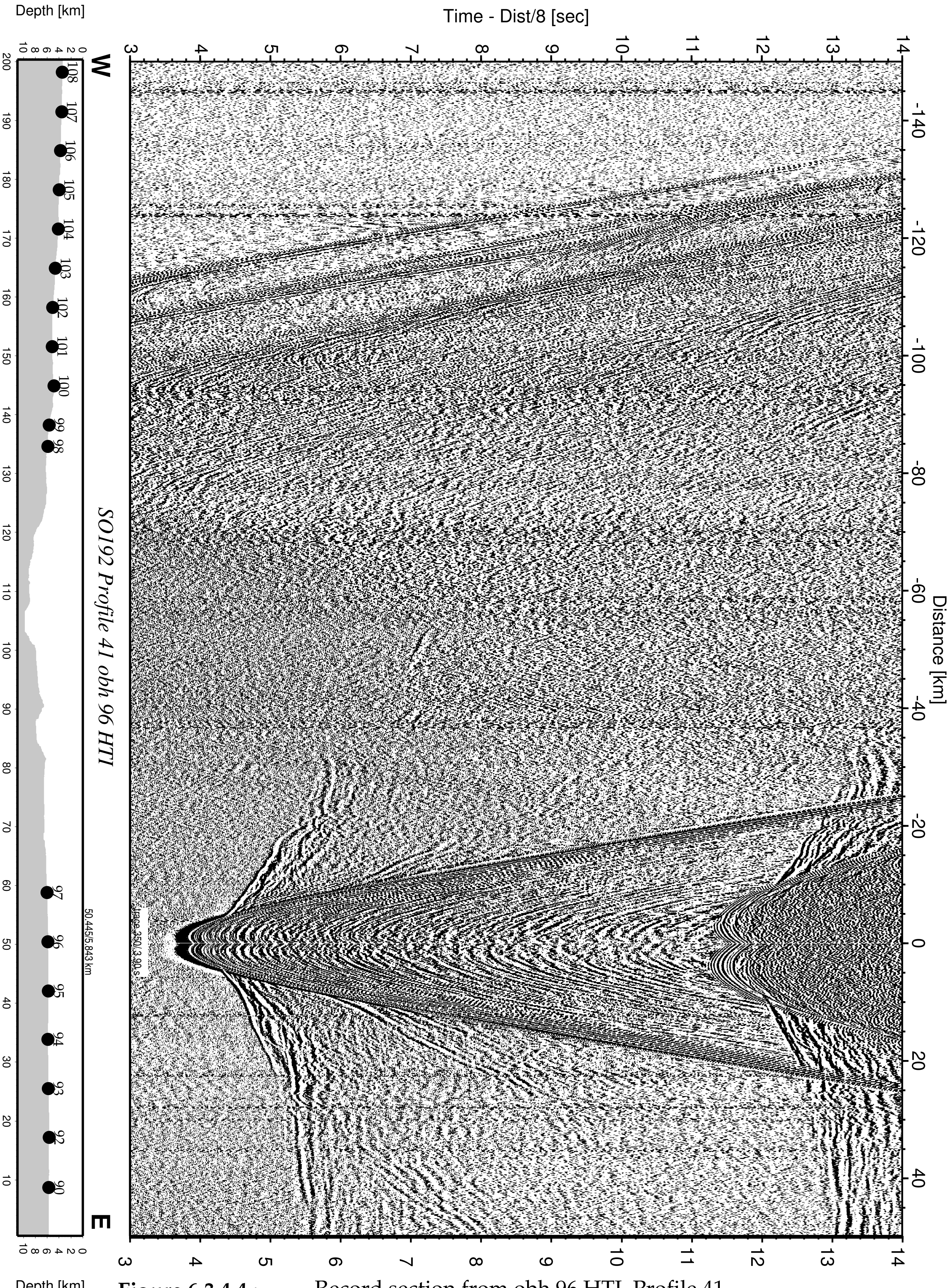


Figure 6.3.4.4 : Record section from obh 96 HTI, Profile 41.

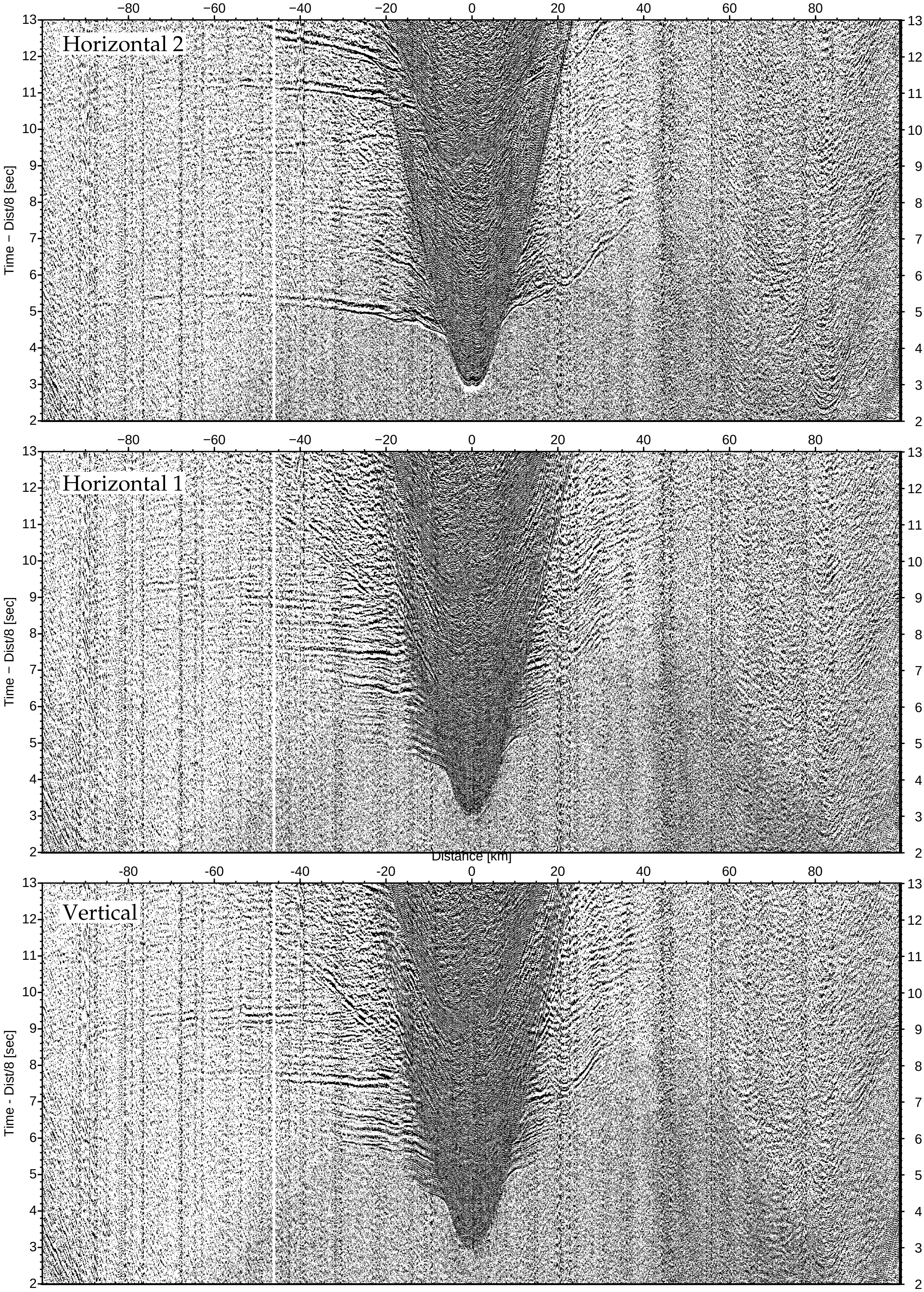


Figure 6.3.4.5 : Record sections from obs 103 (HTI/Owen−4.5Hz Geophone), Profile 41.

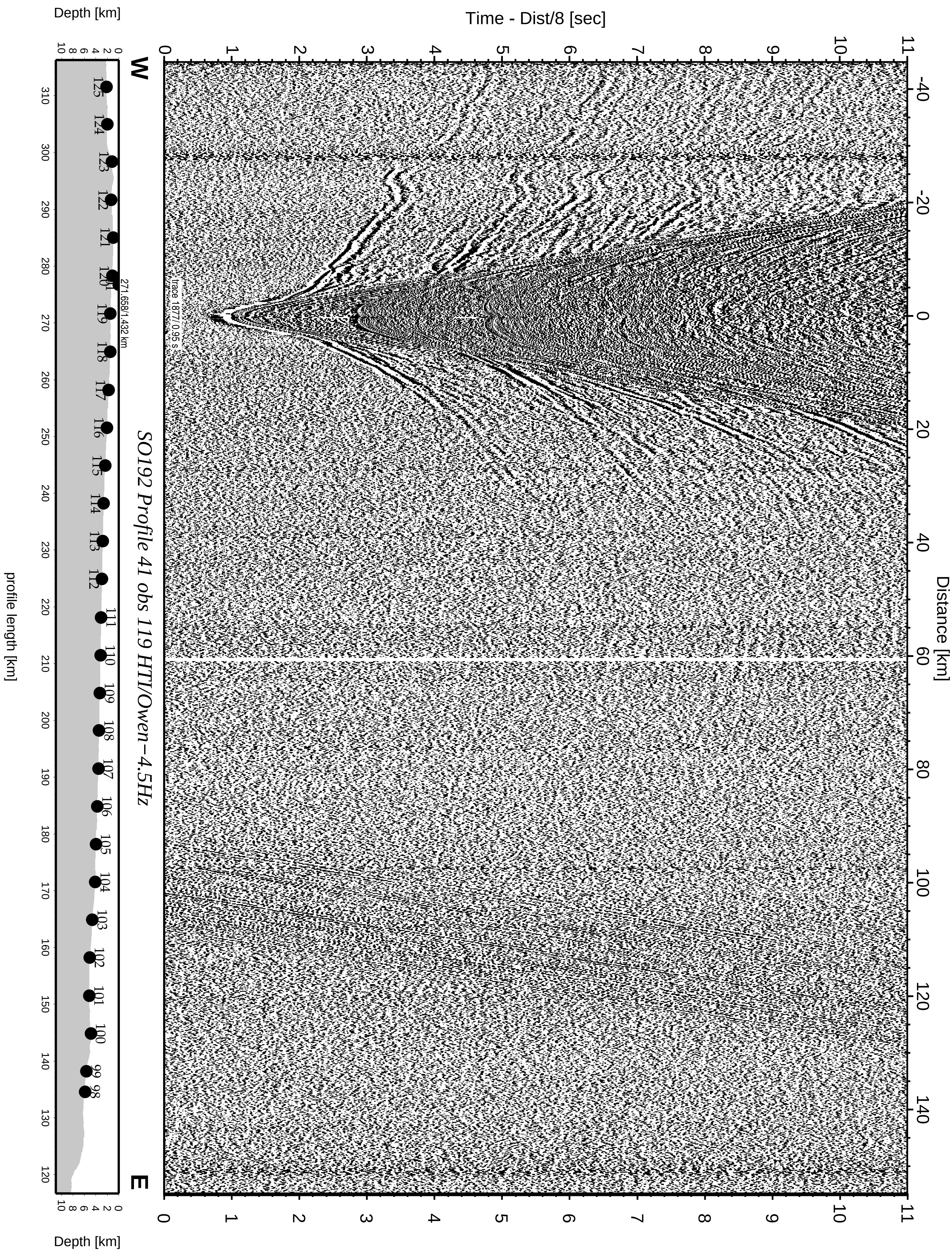


Figure 6.3.4.6 : Record section from obs 119 HTI/Owen–4.5Hz, Profile 41.

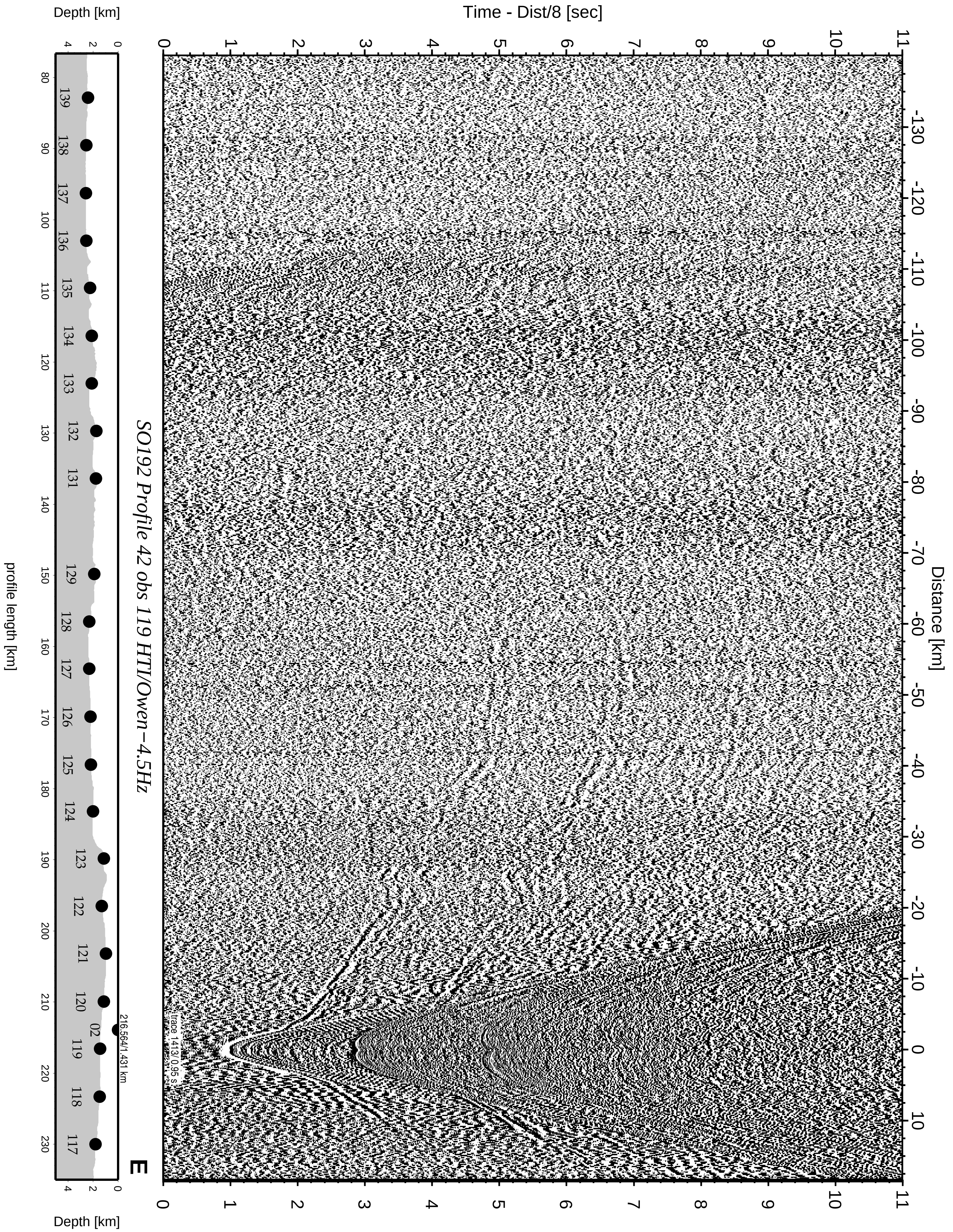


Figure 6.3.4.7 : Record section from obs 119 HTI/Owen−4.5Hz, Profile 42.

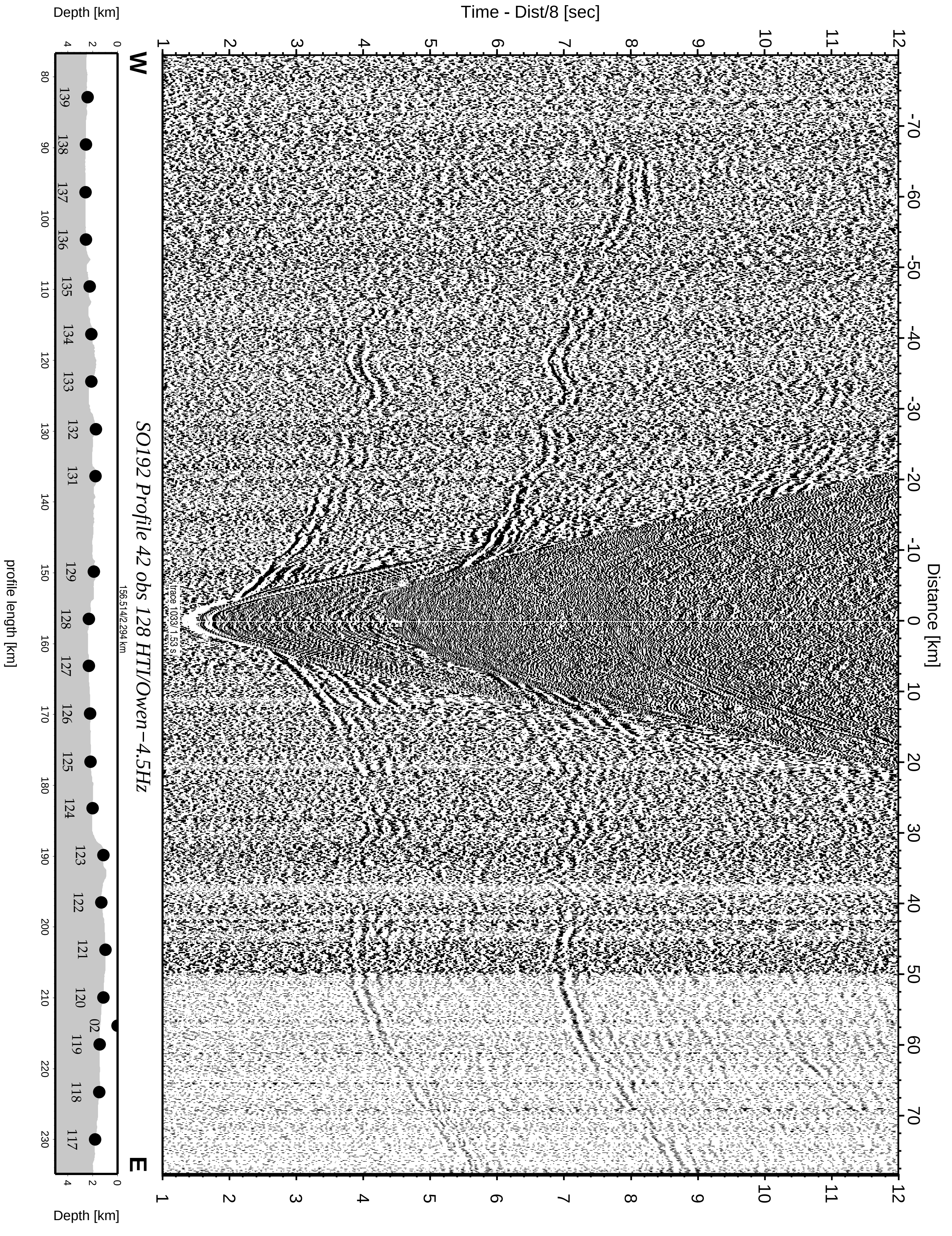


Figure 6.3.4.8 : Record section from obs 128 HTI/Owen–4.5Hz, Profile 42.

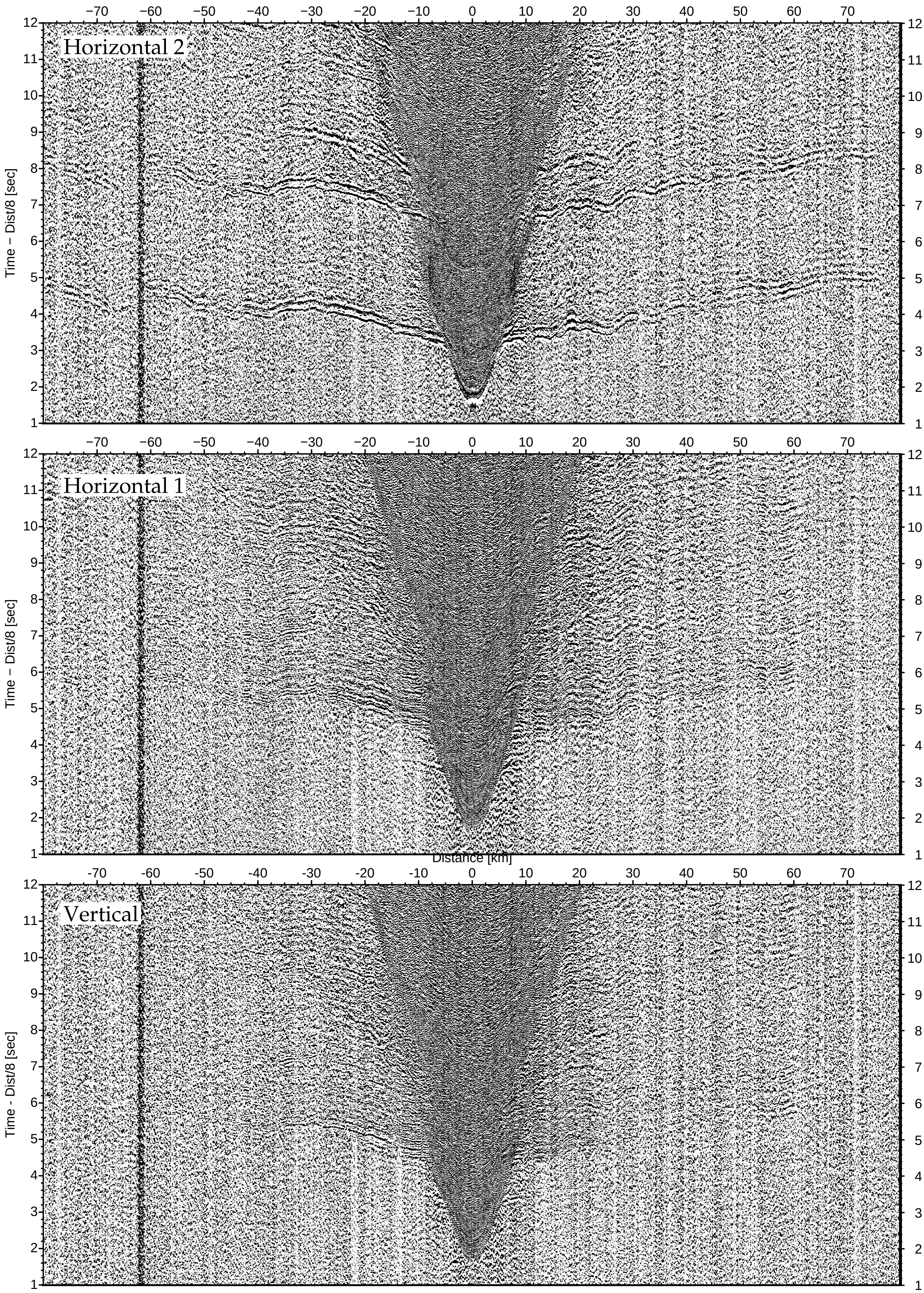


Figure 6.3.4.9 : Record sections from obs 137 (HTI/Owen−4.5Hz Geophone), Profile 42.

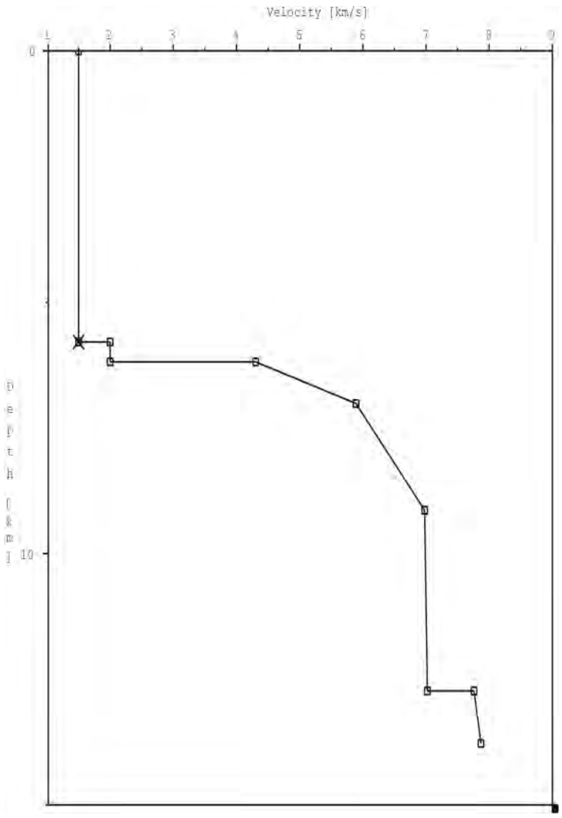


Figure 6.3.4.10: Average velocity-depth model for the oceanic crust seaward of the trench.

7. Acknowledgements

The cruise SO192-1 was financed by the German Ministry of Education and Research. The authors wish to express their gratitude to the various colleagues who have supported the work during the cruise. Particular thanks are directed to the ship's master Captain Lutz Mallon and the crew of RV Sonne. Karen Baird of the New Zealand Department of Conservation (DoC) arranged for us at short notice to place two seismometers on Raoul Island and facilitated the required authorisation from the DoC Acting Area Manager (Matthew Ward). Participation of New Zealand participants in SO192-1 was funded by a Foundation for Research Science and Technology contract to GNS Science.

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Appendix 9.1.1

SO192-1 Profil 11

INST.	LAT	LON	DISTANCE	DEPLOY.	RECOV.	DEPTH	RELEASER CODE	REC.	SKEW	SENSORS	REMARKS
	D:M	D:M	TO NEXT	DATE	DATE	(m)	TIME RELEASE	NO.	(ms)		
OBH 01	37°57,775' S	179°59,952' E	3,2 nm	27.03.07	30.03.07	3625	03B6+0355 Mode B (18.04.07/ 23:00)	MLS 991256	-4	HTI 88	gr. Kugel
OBH 02	37°56,095' S	179°56,535' E	3,2 nm	27.03.07	30.03.07	3638	D654 Mode A (18.04.07 / 08:00)	MLS 991255	-10	HTI 33	gr. Kugel
OBH 03	37°54,494' S	179°53,034' E	3,2 nm	27.03.07	30.03.07	3653	6969 Mode A (18.04.07 / 11:00)	MLS 010407	9	HTI 79	kl. Kugel
OBH 04	37°52,860' S	179°49,524' E	3,2 nm	27.03.07	30.03.07	3696	C454 Mode A (18.04.07 / 16:00)	MTS 050805	5	HTI 48	kl. Kugel
OBS 05	37°51,221' S	179°46,012' E	3,2 nm	27.03.07	30.03.07	3755	0397 0355 Mode B (17.04.07 / 23:00)	MTS 050814	6	HTI 90 + Owen 63 (4,5 Hz)	3-leg
OBS 06	37°49,609' S	179°42,471' E	3,2 nm	27.03.07	30.03.07	3679	03B3+0355 Mode B (18.04.07 / 18:00)	MLS 991252	-7	HTI 69 + Owen 55 (4,5 Hz)	3-leg
OBS 07	37°47,958' S	179°38,984' E	3,2 nm	27.03.07	30.03.07	3653	3609 Mode B (17.04.07 / 20:00)	MLS 061203	2	HTI 53 + Owen 79 (4,5 Hz)	3-leg
OBS 08	37°46,340' S	179°35,476' E	3,2 nm	27.03.07	30.03.07	3555	3619 Mode B (18.04.07 / 24:00)	MLS 061201	-5	HTI 64 + Owen 19 (4,5 Hz)	3-leg
OBS 09	37°44,680' S	179°32,016' E	3,2 nm	27.03.07	30.03.07	3080	0387+0355 Mode B (18.04.07 / 15:00)	MLS 061202	-4	HTI 68 + Owen 61 (4,5 Hz)	3-leg
OBS 10	37°43,060' S	179°28,475' E	3,2 nm	27.03.07	30.03.07	1668	3659 Mode B (18.04.07 / 22:00)	MLS 040804	11	HTI 39 + Owen 80 (4,5 Hz)	3-leg
OBS 11	37°41,399' S	179°24,971' E	3,2 nm	27.03.07	30.03.07	947	3614 Mode B (17.04.07 / 22:00)	MLS 991250	13	HTI 30 + Owen 81 (4,5 Hz)	3-leg
OBS 12	37°39,765' S	179°21,519' E	3,2 nm	27.03.07	30.03.07	1251	03B2+0355 Mode B (18.04.07 / 13:00)	MLS 070302	1	HTI 22 + Owen 58 (4,5 Hz)	3-leg
OBS 13	37°38,087' S	179°18,003' E	3,2 nm	27.03.07	30.03.07	1360	3624 Mode B (19.04.07 / 00:00)	MLS 991260	1	HTI 73 + Owen 82 (4,5 Hz)	3-leg
OBH 14	37°36,485' S	179°14,505' E	3,2 nm	27.03.07	31.03.07	1219	0398+0355 Mode B (17.04.07 / 19:00)	MLS 061205	10176	HTI 78	3-leg
OBS 15	37°34,843' S	179°10,990' E	3,2 nm	27.03.07	31.03.07	941	427476 (18.04.07 / 02:00)	MLS 040304	-2	HTI 87 + Owen 86 (4,5 Hz)	Walze
OBS 16	37°33,196' S	179°07,484' E	3,2 nm	27.03.07	31.03.07	976	435551 (18.04.07 / 17:00)	MTS 041104	6	HTI 32 + Owen 84 (4,5 Hz)	Walze
OBS 17	37°31,529' S	179°03,969' E	3,2 nm	27.03.07	31.03.07	545	442205 (18.04.07 / 10:00)	MLS 991259	-9	HTI 84 + Owen 83 (4,5 Hz)	Walze
OBS 18	37°29,901' S	179°00,471' E	3,2 nm	27.03.07	31.03.07	264	430135 (18.04.07 / 12:00)	MLS 000712	0	HTI 40 + Owen 85 (4,5 Hz)	Walze
OBS 19	37°28,261' S	178°56,980' E	3,2 nm	27.03.07	31.03.07	154	03B7+0355 Mode B (18.04.07 / 17:00)	MLS 991251	-3	HTI 37 + Owen 64 (4,5 Hz)	Walze
OBS 20	37°26,655' S	178°53,513' E	3,2 nm	27.03.07	31.03.07	260	432367 (18.04.07 / 01:00)	MLS 000706	7	HTI 41 + Owen 56 (4,5 Hz)	Walze
OBS 21	37°24,002' S	178°49,993' E	3,2 nm	27.03.07	31.03.07	533	145147 (18.04.07 / 00:00)	MLS 061204	12	HTI 83 + Owen 73 (4,5 Hz)	Walze
OBS 22	37°23,354' S	178°46,518' E	3,2 nm	27.03.07	31.03.07	1062	435445 (18.04.07 / 09:00)	MLS 991246	-4	HTI 27 + Owen 57 (4,5 Hz)	Walze
OBS 23	37°21,734' S	178°43,012' E	3,2 nm	27.03.07	31.04.07	1281	143320 (18.04.07 / 03.00)	MLS 070301	136	HTI 82 + Owen 78 (4,5 Hz)	Walze
OBS 24	37°20,058' S	178°39,494' E	3,2 nm	27.03.07	31.04.07	1352	430326 (18.04.07 / 06.00)	MTS 050810	29	HTI 76 + Owen 77 (4,5 Hz)	Walze
OBS 25	37°18,395' S	178°35,985' E	3,2 nm	27.03.07	31.04.07	1694	143234 (18.04.07 / 04:00)	MLS 041101	17	HTI 89 + Owen 71 (4,5 Hz)	Walze
OBH 26	37°16,755' S	178°32,486' E	3,2 nm	27.03.07	31.04.07	1966	B495 Mode A (18.04.07 / 14:00)	MLS 991247	4	HTI 77	kl. Kugel
OBH 27	37°15,079' S	178°29,009' E	3,2 nm	27.03.07	31.04.07	2144	6354 Mode B (18.04.07 / 05:00)	MLS 991249	-1	HTI 58	kl. Kugel
OBH 28	37°13,474' S	178°25,517' E	3,2 nm	27.03.07	31.04.07	2192	6959 Mode A(18.04.07 / 19:00)	MTS 050816	3	HTI 86	kl. Kugel
OBH 29	37°11,798' S	178°22,004' E		27.03.07	31.04.07	2079	4A54 Mode B (18.04.07 / 20:00)	MLS 991235	4	HTI 65	kl. Kugel
Trigger								MBS 971202	-3		
Streamer 1								MBS 000612	-8		
Streamer 2								MBS 971201	-6		

Appendix 9.1.2

SO192-1 Profil 21

INST.	LAT	LON	DISTANCE	DEPLOY.	RECOV.	DEPTH	RELEASER CODE	REC.	SKEW	SENSORS	REMARKS
	D:M	D:M	TO NEXT	DATE	DATE	(m)	TIME RELEASE	NO.	(ms)		
OBH 30	34°54,541' S	178°59,947' W	3,6 nm	01.04.07	03.04.07	5892	C504 (18.04.07 / 21:00)	MLS 991237	-5	HTI 60	3-leg
OBH 31	34°52,389' S	179°03,480' W	3,6 nm	01.04.07	03.04.07	5294	0398+0355 Mode B (17.04.07 / 19:00)	MLS 010406	1	HTI 78	3-leg
OBS 32	34°50,256' S	179°06,989' W	3,6 nm	01.04.07	03.04.07	5128	3624 Mode B (19.04.07 / 00:00)	MLS 991260	2	HTI 73 + Owen 82 (4,5 Hz)	3-leg
OBS 33	34°48,189' S	179°10,515' W	3,6 nm	01.04.07	03.04.07	4974	03B2+0355 Mode B (18.04.07 / 13:00)	MLS 010401	0	HTI 22 + Owen 58 (4,5 Hz)	3-leg
OBS 34	34°46,094' S	179°13,965' W	3,6 nm	01.04.07	03.04.07	4840	3614 Mode B (17.04.07 / 22:00)	MLS 991250	11	HTI 30 + Owen 80 (4,5 Hz)	3-leg
OBS 35	34°43,855' S	179°17,482' W	3,6 nm	01.04.07	03.04.07	4446	0387+0355 Mode B (18.04.07 / 15:00)	MLS 061202	-35	HTI 68 + Owen 61 (4,5 Hz)	3-leg
OBS 36	34°41,838' S	179°21,022' W	3,6 nm	01.04.07	03.04.07	4129	0397+0355 Mode B (17.04.07 / 23:00)	MTS 050814	4	HTI 90 + Owen 63 (4,5 Hz)	3-leg
OBS 37	34°39,745' S	179°24,507' W	3,6 nm	01.04.07	03.04.07	4023	03B3+0355 Mode B (18.04.07 / 18:00)	MLS 991252	-5	HTI 69 + Owen 55 (4,5 Hz)	3-leg
OBS 38	34°37,622' S	179°27,960' W	3,6 nm	01.04.07	03.04.07	3878	3609 Mode B (17.04.07 / 20:00)	MLS 061203	1	HTI 53 + Owen 79 (4,5 Hz)	3-leg
OBS 39	34°35,426' S	179°31,504' W	3,6 nm	01.04.07	03.04.07	3735	3619 Mode B (18.04.07 / 24:00)	MLS 061201	-4	HTI 64 + Owen 19 (4,5 Hz)	3-leg
OBS 40	34°33,161' S	179°35,194' W	3,6 nm	01.04.07	03.04.07	3619	3659 Mode B (18.04.07 / 22:00)	MLS 040804	8	HTI 39 + Owen 80 (4,5 Hz)	3-leg
OBS 41	34°31,159' S	179°38,551' W	3,6 nm	01.04.07	03.04.07	3564	427476 (18.04.07 / 02:00)	MLS 040304	-2	HTI 87 + Owen 86 (4,5 Hz)	Walze
OBS 42	34°29,054' S	179°42,040' W	3,6 nm	01.04.07	03.04.07	3473	435551 (18.04.07 / 17:00)	MTS 041104	4	HTI 32 + Owen 84 (4,5 Hz)	Walze
OBS 43	34°26,947' S	179°45,575' W	3,6 nm	01.04.07	04.04.07	3362	442205 (18.04.07 / 10:00)	MLS 991259	-7	HTI 84 + Owen 83 (4,5 Hz)	Walze
OBS 44	34°24,788' S	179°48,020' W	3,6 nm	01.04.07	04.04.07	3260	430135 (18.04.07 / 12:00)	MLS 000712	0	HTI 40 + Owen 85 (4,5 Hz)	Walze
OBS 45	34°22,683' S	179°52,548' W	3,6 nm	01.04.07	04.04.07	3115	03B7+0355 Mode B (18.04.07 / 17:00)	MLS 991251	-2	HTI 37 + Owen 64 (4,5 Hz)	Walze
OBS 46	34°20,617' S	179°56,018' W	3,6 nm	01.04.07	04.04.07	2945	432367 (18.04.07 / 01:00)	MLS 991241	4	HTI 28 + Owen 56 (4,5 Hz)	Walze
OBS 47	34°18,389' S	179°59,502' W	3,6 nm	01.04.07	04.04.07	2743	145147 (18.04.07 / 00:00)	MLS 061204	-1558	HTI 83 + Owen 73 (4,5 Hz)	Walze
OBS 48	34°16,360' S	179°56,968' E	3,6 nm	01.04.07	04.04.07	2580	430326 (18.04.07 / 06.00)	MTS 050810	24	HTI 76 + Owen 77 (4,5 Hz)	Walze
OBS 49	34°14,140' S	179°53,475' E	3,6 nm	01.04.07	04.04.07	2092	435445 (18.04.07 / 09:00)	MLS 991246	-4	HTI 27 + Owen 57 (4,5 Hz)	Walze
OBS 50	34°12,029' S	179°49,984' E	3,6 nm	01.04.07	04.04.07	1578	143234 (18.04.07 / 04:00)	MLS 041101	13	HTI 89 + Owen 71 (4,5 Hz)	Walze
OBS 51	34°09,902' S	179°46,485' E	3,6 nm	01.04.07	04.04.07	1136	143320 (18.04.07 / 03.00)	MLS 991248	104	HTI 82 + Owen 78 (4,5 Hz)	Walze
OBH 52	34°07,739' S	179°42,979' E	3,6 nm	01.04.07	04.04.07	2171	4A54 Mode B (18.04.07 / 20:00)	MLS 991235	10	HTI 65	kl. Kugel
OBH 53	34°05,623' S	179°39,481' E	3,6 nm	01.04.07	04.04.07	2269	6959 Mode A (18.04.07 / 19:00)	MTS 050816	1	HTI 86	kl. Kugel
OBH 54	34°03,471' S	179°35,971' E	3,6 nm	01.04.07	04.04.07	1271	6354 Mode B (18.04.07 / 05:00)	MLS 991249	-1	HTI 58	kl. Kugel
OBH 55	34°01,370' S	179°32,468' E	3,6 nm	01.04.07	04.04.07	1558	B495 Mode A (18.04.07 / 14:00)	MLS 991247	3	HTI 77	kl. Kugel
OBH 56	33°59,185' S	179°28,916' E	3,6 nm	01.04.07	04.04.07	1756	C454 Mode A (18.04.07 / 16:00)	MTS 050805	3	HTI 48	kl. Kugel
OBH 57	33°57,111' S	179°25,440' E	3,6 nm	01.04.07	04.04.07	2443	6969 Mode A (18.04.07 / 11:00)	MLS 010407	7	HTI 79	kl. Kugel
OBH 58	33°54,947' S	179°21,980' E	3,6 nm	01.04.07	04.04.07	2462	D654 Mode A (18.04.07 / 08:00)	MLS 991255	-9	HTI 33	gr. Kugel
OBH 59	33°52,845' S	179°18,511' E		01.04.07	04.04.07	2320	03B6+0355 Mode B (18.04.07 / 23:00)	MLS 991256	-4	HTI 88	gr. Kugel
Trigger								MBS 971202	-3		
Streamer 1								MBS 000612	-9		
Streamer 2								MBS 971201	-6		

Appendix 9.1.3

SO192-1 Profil 31

INST.	LAT	LON	DISTANCE	DEPLOY.	RECOV.	DEPTH	RELEASER CODE	REC.	SKEW	SENSORS	REMARKS
	D:M	D:M	TO NEXT	DATE	DATE	(m)	TIME RELEASE	NO.	(ms)		
OBS 60	32°39,128' S	179°49,486' E	3,0 nm	05.04.07	09.04.07	4213	143234 (18.04.07 / 04:00)	MLS 041101	20	HTI 89 + Owen 71 (4,5 Hz)	Walze
OBS 61	32°39,901' S	179°53,018' E	3,0 nm	05.04.07	09.04.07	4102	143320 (18.04.07 / 03.00)	MLS 991248	149	HTI 82 + Owen 78 (4,5 Hz)	Walze
OBS 62	32°40,638' S	179°56,511' E	3,0 nm	05.04.07	09.04.07	3150	435445 (18.04.07 / 09:00)	MLS 991260	3	HTI 27 + Owen 57 (4,5 Hz)	Walze
OBS 63	32°41,375' S	179°59,976' W	3,5 nm	05.04.07	09.04.07	3315	430326 (18.04.07 / 06.00)	MLS 010401	0	HTI 76 + Owen 77 (4,5 Hz)	Walze
OBS 64	32°42,238' S	179°56,031' W	3,0 nm	05.04.07	09.04.07	3429	145147 (18.04.07 / 00:00)	MLS 991250	15	HTI 83 + Owen 73 (4,5 Hz)	Walze
OBS 65	32°42,974' S	179°52,494' W	3,0 nm	05.04.07	09.04.07	3265	03B7+0355 Mode B (18.04.07 / 17:00)	MLS 061202	7	HTI 37 + Owen 64 (4,5 Hz)	Walze
OBS 66	32°43,715' S	179°49,009' W	3,0 nm	05.04.07	09.04.07	3293	432367 (18.04.07 / 01:00)	MTS 050814	4	HTI 28 + Owen 56 (4,5 Hz)	Walze
OBS 67	32°43,715' S	179°49,009' W	3,0 nm	05.04.07	08.04.07	3209	442205 (18.04.07 / 10:00)	MLS 991252	-8	HTI 84 + Owen 83 (4,5 Hz)	Walze
OBS 68	32°45,200' S	179°42,001' W	3,0 nm	05.04.07	08.04.07	3183	430135 (18.04.07 / 12:00)	MLS 061203	-6	HTI 40 + Owen 85 (4,5 Hz)	Walze
OBS 69	32°45,961' S	179°38,492' W	3,0 nm	05.04.07	08.04.07	2974	427476 (18.04.07 / 02:00)	MLS 061201	-9	HTI 87 + Owen 86 (4,5 Hz)	Walze
OBS 70	32°46,733' S	179°34,944' W	3,5 nm	05.04.07	08.04.07	2888	435551 (18.04.07 / 17:00)	MLS 040804	9	HTI 32 + Owen 84 (4,5 Hz)	Walze
OBS 71	32°47,547' S	179°30.965' W	3,0 nm	05.04.07	08.04.07	2488	0397+0355 Mode B (17.04.07 / 23:00)	MLS 040304	-7	HTI 90 + Owen 63 (4,5 Hz)	3-leg
OBS 72	32°48,290' S	179°27,470' W	3,0 nm	05.04.07	08.04.07	1459	0387+0355 Mode B (18.04.07 / 15:00)	MTS 041104	5	HTI 68 + Owen 61 (4,5 Hz)	3-leg
OBS 73	32°49,065' S	179°23,973' W	3,5 nm	05.04.07	08.04.07	519	3614 Mode B (17.04.07 / 22:00)	MLS 991259	-7	HTI 30 + Owen 81 (4,5 Hz)	3-leg
OBS 74	32°49,875' S	179°19,967' W	3,0 nm	05.04.07	08.04.07	646	03B2+0355 Mode B (18.04.07 / 13:00)	MLS 000712	1	HTI 22 + Owen 58 (4,5 Hz)	3-leg
OBS 75	32°50,623' S	179°16,455' W	3,0 nm	05.04.07	07.04.07	914	3624 Mode B (19.04.07 / 00:00)	MLS 991251	-1	HTI 73 + Owen 82 (4,5 Hz)	3-leg
OBS 76	32°51,364' S	179°12,969' W	3,0 nm	05.04.07	07.04.07	1429	03B3+0355 Mode B (18.04.07 / 18:00)	MLS 991241	4	HTI 69 + Owen 55 (4,5 Hz)	3-leg
OBS 77	32°52,111' S	179° 9,451' W	3,0 nm	05.04.07	07.04.07	1955	3609 Mode B (17.04.07 / 20:00)	MLS 061204	9	HTI 53 + Owen 79 (4,5 Hz)	3-leg
OBS 78	32°52,865' S	179°05,979 'W	3,0 nm	05.04.07	07.04.07	2315	3619 Mode B (18.04.07 / 24:00)	MTS 050810	21	HTI 64 + Owen 19 (4,5 Hz)	3-leg
OBS 79	32°53,599' S	179°02,450' W	3,0 nm	05.04.07	07.04.07	2645	3659 Mode B (18.04.07 / 22:00)	MLS 991246	-3	HTI 39 + Owen 80 (4,5 Hz)	3-leg
OBH 80	32°54,327' S	178°58,959' W	3,0 nm	05.04.07	07.04.07	2895	6969 Mode A (18.04.07 / 11:00)	MLS 991237	-6	HTI 79	kl. Kugel
OBH 81	32°55,064' S	178°55,450' W	3,0 nm	05.04.07	07.04.07	3091	C454 Mode A (18.04.07 / 16:00)	MLS 010406	1	HTI 48	kl. Kugel
OBH 82	32°55,798' S	178°51,958' W	3,0 nm	05.04.07	07.04.07	3370	B495 Mode A (18.04.07 / 14:00)	MLS 991235	3	HTI 50	kl. Kugel
OBH 83	32°56,579' S	178°48,495' W	3,0 nm	05.04.07	07.04.07	3674	6354 Mode B (18.04.07 / 05:00)	MTS 050816	1	HTI 58	kl. Kugel
OBH 84	32°57,331' S	178°45,000' W	3,0 nm	05.04.07	07.04.07	4210	6959 Mode A (18.04.07 / 19:00)	MLS 991249	0	HTI 86	kl. Kugel
OBH 85	32°58,052' S	178°41,496' W	3,0 nm	05.04.07	07.04.07	4454	4A54 Mode B (18.04.07 / 20:00)	MLS 991247	2	HTI 65	kl. Kugel
OBH 86	32°58,786' S	178°37,960' W	3,0 nm	05.04.07	07.04.07	4852	03B6+0355 Mode B (18.04.07 / 23:00)	MTS 050805	2	HTI 88	gr. Kugel
OBH 87	32°59,529' S	178°34,482' W	3,0 nm	05.04.07	07.04.07	4945	D654 Mode A (18.04.07 / 08:00)	MLS 010407	5	HTI 33	gr. Kugel
OBH 88	33°00,240' S	178°30,984' W	3,7 nm	05.04.07	07.04.07	5098	0398+0355 (17.04.07 / 19:00)	MLS 991255	-5	HTI 78	3-leg
OBH 89	33°01,158' S	178°26,765' W		05.04.07	07.04.07	5467	C504 Mode B (18.04.07 / 21:00)	MLS 991256	-3	HTI 60	3-leg
Trigger								MBS 971202	-2		
Streamer 1								MBS 000612	-8		
Streamer 2								MBS 971201	-4		

Appendix 9.1.4

SO192-1 Profil 41

INST.	LAT	LON	DISTANCE	DEPLOY.	RECOV.	DEPTH	RELEASER CODE	REC.	SKEW	SENSORS	REMARKS
	D:M	D:M	TO NEXT	DATE	DATE	(m)	TIME RELEASE	NO.	(ms)		
OBH 90	29°34,950' S	175°10,030' W	4,5 nm	10.04.07	13.04.07	5703	D654 Mode A (18.04.07 / 08:00)	MLS 991256	-5	HTI 33	gr. Kugel
OBH 92	29°33,893' S	175°15,002' W	4,5 nm	10.04.07	13.04.07	5684	4A54 Mode B (18.04.07 / 20:00)	MLS 010407	7	HTI 65	kl. Kugel
OBH 93	29°32,837' S	175°20,001' W	4,5 nm	10.04.07	13.04.07	5714	6959 Mode A (18.04.07 / 19:00)	MTS 050805	3	HTI 86	kl. Kugel
OBH 94	29°31,813' S	175°25,023' W	4,5 nm	10.04.07	13.04.07	5844	6354 Mode B (18.04.07 / 05:00)	MLS 991247	4	HTI 58	kl. Kugel
OBH 95	29°30,790' S	175°30,012' W	4,5 nm	10.04.07	13.04.07	5775	B495 Mode A (18.04.07 / 14:00)	MLS 991249	-1	HTI 50	kl. Kugel
OBH 96	29°29,724' S	175°35,002' W	4,5 nm	10.04.07	13.04.07	5843	C454 Mode A (18.04.07 / 16:00)	MTS 050816	2	HTI 48	kl. Kugel
OBH 97	29°28,689' S	175°40,065' W	43,2 nm	10.04.07	13.04.07	5980	6969 Mode A (18.04.07 / 11:00)	MLS 991235	4	HTI 79	kl. Kugel
OBH 98	29°19,219' S	176°25,711' W	2,1 nm	10.04.07	13.04.07	5855	0398+0355 (17.04.07 / 19:00)	MLS 010406	22	HTI 78	3-leg
OBH 99	29°18,770' S	176°28,012' W	3,6 nm	10.04.07	13.04.07	5681	C504 Mode B (18.04.07 / 21:00)	MLS 991237	-7	HTI 60	3-leg
OBH 100	29°17,927' S	176°32,012' W	3,6 nm	10.04.07	13.04.07	4834	0387+0355 Mode B (18.04.07 / 15:00)	MTS 050814	4	HTI 68	3-leg
OBH 101	29°17,095' S	176°36,002' W	3,6 nm	10.04.07	13.04.07	5148	0397+0355 Mode B (17.04.07 / 23:00)	MLS 061201	-5	HTI 90	3-leg
OBS 102	29°16,261' S	176°40,004' W	3,6 nm	10.04.07	13.04.07	5103	3614 Mode B (17.04.07 / 22:00)	MLS 040804	10	HTI 30 + Owen 81 (4,5 Hz)	3-leg
OBS 103	29°15,432' S	176°43,997' W	3,6 nm	10.04.07	13.04.07	4610	03B2+0355 Mode B (18.04.07 / 13:00)	MLS 991233	8	HTI 22 + Owen 58 (4,5 Hz)	3-leg
OBH 104	29°14,573' S	176°47,997' W	3,6 nm	10.04.07	13.04.07	4103	3659 Mode B (18.04.07 / 22:00)	MLS040101	-4	HTI 39	3-leg
OBS 105	29°13,748' S	176°52,001' W	3,6 nm	10.04.07	13.04.07	3952	3619 Mode B (18.04.07 / 24:00)	MLS 991259	-8	HTI 64 + Owen 19 (4,5 Hz)	3-leg
OBS 106	29°12,931' S	176°56,009' W	3,6 nm	10.04.07	13.04.07	3758	3609 Mode B (17.04.07 / 20:00)	MLS 000712	0	HTI 53 + Owen 79 (4,5 Hz)	3-leg
OBS 107	29°12,100' S	176°59,964' W	3,6 nm	10.04.07	13.04.07	3554	03B3+0355 Mode B (18.04.07 / 18:00)	MLS 991248	105	HTI 69 + Owen 55 (4,5 Hz)	3-leg
OBS 108	29°11,276' S	177°04,007' W	3,6 nm	10.04.07	12.04.07	3429	3624 Mode B (19.04.07 / 00:00)	MLS 010401	-1	HTI 73 + Owen 82 (4,5 Hz)	3-leg
OBS 109	29°10,461' S	177°07,971' W	3,6 nm	10.04.07	12.04.07	3291	143234 (18.04.07 / 04:00)	MLS 991246	-4	HTI 89 + Owen 71 (4,5 Hz)	Walze
OBS 110	29°09,606' S	177°11,974' W	3,6 nm	10.04.07	12.04.07	3175	143320 (18.04.07 / 03.00)	MLS 041101	13	HTI 82 + Owen 78 (4,5 Hz)	Walze
OBS 111	29°08,786' S	177°15,951' W	3,6 nm	10.04.07	12.04.07	3055	435445 (18.04.07 / 09:00)	MTS 050810	22	HTI 27 + Owen 57 (4,5 Hz)	Walze
OBS 112	29°07,953' S	177°20,006' W	3,6 nm	10.04.07	12.04.07	2919	430326 (18.04.07 / 06.00)	MLS 061204	10	HTI 76 + Owen 77 (4,5 Hz)	Walze
OBS 113	29°07,130' S	177°24,020' W	3,6 nm	10.04.07	12.04.07	2795	145147 (18.04.07 / 00:00)	MLS 991241	5	HTI 83 + Owen 73 (4,5 Hz)	Walze
OBS 114	29°06,242' S	177°27,980' W	3,6 nm	10.04.07	12.04.07	2612	03B7+0355 Mode B (18.04.07 / 17:00)	MLS 991251	-2	HTI 37 + Owen 64 (4,5 Hz)	Walze
OBS 115	29°05,456' S	177°31,987' W	3,6 nm	10.04.07	12.04.07	2369	432367 (18.04.07 / 01:00)	MLS 061203	3164	HTI 28 + Owen 56 (4,5 Hz)	Walze
OBS 116	29°04,667' S	177°35,984' W	3,6 nm	10.04.07	12.04.07	2096	435551 (18.04.07 / 17:00)	MLS 991252	-5	HTI 32 + Owen 84 (4,5 Hz)	Walze
OBS 117	29°03,779' S	177°39,978' W	3,6 nm	10.04.07	12.04.07	1791	427476 (18.04.07 / 02:00)	MLS 061202	9	HTI 87 + Owen 86 (4,5 Hz)	Walze
OBS 118	29°02,941' S	177°43,992' W	3,6 nm	10.04.07	12.04.07	1463	442205 (18.04.07 / 10:00)	MLS 991250	10	HTI 84 + Owen 83 (4,5 Hz)	Walze
OBS 119	29° 02,145' S	177°48,041' W		10.04.07	16.04.07	1431	430135 (18.04.07 / 12:00)	MLS 991260	5	HTI 40 + Owen 85 (4,5 Hz)	Walze
Landstation 01	29°15,127' S	117°54,357' W		10.04.07	16.04.07	-65		MLS 040304	-4	Owen 63 (4,5 Hz)	
Landstation 02	29°15,238' S	117°54,108' W		10.04.07	16.04.07	-193		MTS 041104	4	Owen 61 (4,5 Hz)	
Trigger								MBS 971202	-3		
Streamer 1								MBS 971201	-4		
Streamer 2								MBS 000612	-8		

Appendix 9.1.5

SO 192-1 Profil 42

INST.	LAT	LON	DISTANCE	DEPLOY.	RECOV.	DEPTH	RELEASER CODE	REC.	SKEW	SENSORS	REMARKS
	D:M	D:M	TO NEXT	DATE	DATE	(m)	TIME RELEASE	NO.	(ms)		
Landstation 01	29°15,127' S	117°54,357' W		10.04.07	16.04.07	-65		MLS 040304	-4	Owen 63 (4,5 Hz)	
Landstation 02	29°15,238' S	117°54,108' W		10.04.07	16.04.07	-193		MTS 041104	4	Owen 61 (4,5 Hz)	
OBS 119	29° 02,145' S	177°48,041' W	3,6 nm	10.04.07	16.04.07	1431	430135 (18.04.07 / 12:00)	MLS 991260	5	HTI 40 + Owen 85 (4,5 Hz)	Walze
OBH 120	29°01,263' S	177°51,997' W	3,6 nm	14.04.07	16.04.07	1125	03B6+0355 Mode B (18.04.07 / 23:00)	MLS 991255	-7	HTI 88	gr. Kugel
OBS 121	29°00,458' S	177°56,036' W	3,6 nm	14.04.07	16.04.07	968	03B7+0355 Mode B (18.04.07 / 17:00)	MLS 991251	-2	HTI 37 + Owen 64 (4,5 Hz)	Walze
OBS 122	28°59,608' S	178°00,035' W	3,6 nm	14.04.07	16.04.07	1285	145147 (18.04.07 / 00:00)	MLS 991241	3	HTI 83 + Owen 73 (4,5 Hz)	Walze
OBS 123	28°58,787' S	178°04,034' W	3,6 nm	14.04.07	16.04.07	1138	430326 (18.04.07 / 06.00)	MLS 061204	8	HTI 76 + Owen 77 (4,5 Hz)	Walze
OBS 124	28°57,973' S	178°08,005' W	3,6 nm	14.04.07	16.04.07	2007	435445 (18.04.07 / 09:00)	MTS 050810	19	HTI 27 + Owen 57(4,5 Hz)	Walze
OBS 125	28°57,121' S	178°12,022' W	3,6 nm	14.04.07	16.04.07	2156	143320 (18.04.07 / 03.00)	MLS 041101	11	HTI 82 + Owen 78 (4,5 Hz)	Walze
OBS 126	28°56,289' S	178°16,003' W	3,6 nm	14.04.07	16.04.07	2200	442205 (18.04.07 / 10:00)	MLS 991250	9	HTI 84 + Owen 83 (4,5 Hz)	Walze
OBS 127	28°55,476' S	178°20,033' W	3,6 nm	14.04.07	16.04.07	2309	427476 (18.04.07 / 02:00)	MLS 061202	-29	HTI 87 + Owen 86 (4,5 Hz)	Walze
OBS 128	28°54,651' S	178°23,984' W	3,6 nm	14.04.07	16.04.07	2294	432367 (18.04.07 / 01:00)	MLS 061203	3	HTI 28 + Owen 56 (4,5 Hz)	Walze
OBS 129	28°53,819' S	178°27,996' W	3,6 nm	14.04.07	16.04.07	1894	435551 (18.04.07 / 17:00)	MLS 991252	-5	HTI 32 + Owen 57 (4,5 Hz)	Walze
OBS 130	28°52,932' S	178°32,016' W	3,6 nm	14.04.07		1838	143234 (18.04.07 / 04:00)	MLS 991246		HTI 89 + Owen 71 (4,5 Hz)	Walze
OBS 131	28°52,106' S	178°36,018' W	3,6 nm	14.04.07	16.04.07	1736	0397+0355 Mode B (17.04.07 / 23:00)	MLS 061201	-4	HTI 90 + Owen 58 (4,5Hz)	3-leg
OBS 132	28°51,273' S	178°40,006' W	3,6 nm	14.04.07	16.04.07	1723	3614 Mode B (17.04.07 / 22:00)	MLS 040804	8	HTI 30 + Owen 81 (4,5Hz)	3-leg
OBS 133	28°50,450' S	178°44,007' W	3,6 nm	14.04.07	16.04.07	2119	3659 Mode B (18.04.07 / 22:00)	MLS040101	-4	HTI 39 + Owen 80 (4,5Hz)	3-leg
OBS 134	28°49,613' S	178°47,999' W	3,6 nm	14.04.07	16.04.07	2106	3624 Mode B (19.04.07 / 00:00)	MLS 010401	-1	HTI 73 + Owen 82 (4,5Hz)	3-leg
OBS 135	28°48,771' S	178°52,035' W	3,6 nm	14.04.07	16.04.07	2250	03B3+0355 Mode B (18.04.07 / 18:00)	MLS 991248	91	HTI 69 + Owen 55 (4,5Hz)	3-leg
OBS 136	28°47,951' S	178°56,005' W	3,6 nm	14.04.07	16.04.07	2542	3609 Mode B (17.04.07 / 20:00)	MLS 000712	1	HTI 53 + Owen 79 (4,5Hz)	3-leg
OBS 137	28°47,092' S	178°59,999' W	3,6 nm	14.04.07	16.04.07	2575	3619 Mode B (18.04.07 / 24:00)	MLS 991259	-7	HTI 64 + Owen 19 (4,5Hz)	3-leg
OBH 138	28°46,282' S	179°03,983' W	3,6 nm	14.04.07	16.04.07	2546	6969 Mode A (18.04.07 / 11:00)	MLS 991235	3	HTI 79	kl.Kugel
OBH 139	28°45,441' S	179°08,011' W	3,6 nm	14.04.07	16.04.07	2410	C454 Mode A (18.04.07 / 16:00)	MTS 050816	1	HTI 48	kl.Kugel
OBH 140	28°44,606' S	179°12,008' W	3,6 nm	14.04.07	16.04.07	2497	B495 Mode A (18.04.07 / 14:00)	MLS 991249	0	HTI 50	kl.Kugel
OBH 141	28°43,768' S	179°16,023' W	3,6 nm	14.04.07	16.04.07	2483	6354 Mode B (18.04.07 / 05:00)	MLS 991247	3	HTI 58	kl.Kugel
OBH 142	28°42,908' S	179°19,963' W	3,6 nm	14.04.07	16.04.07	2332	6959 Mode A (18.04.07 / 19:00)	MTS 050805	2	HTI 86	kl.Kugel
OBH 143	28°42,066' S	179°23,989' W	3,6 nm	14.04.07	16.04.07	2039	4A54 Mode B (18.04.07 / 20:00)	MLS 010407	7	HTI 65	kl.Kugel
OBH 144	28°41,245' S	179°27,984' W	3,6 nm	14.04.07	17.04.07	1977	D654 Mode A (18.04.07 / 08:00)	MLS 991256	-4	HTI 33	gr. Kugel
OBH 145	28°40,401'S	179°32,019' W	3,6 nm	14.04.07	17.04.07	1976	03B2+0355 Mode B (18.04.07 / 13:00)	MLS 991233	6	HTI 22	3-leg
OBH 146	28°39,569' S	179°36,003' W	3,6 nm	14.04.07	17.04.07	1881	C504 Mode B (18.04.07 / 21:00)	MLS 991237	-6	HTI 60	3-leg
OBH 147	28°38,754' S	179°39,992' W	3,6 nm	14.04.07	17.04.07	1066	0387+0355 Mode B (18.04.07 / 15:00)	MTS 050814	3	HTI 68	3-leg
OBH 148	28°37,912' S	179°43,988' W		14.04.07	17.04.07	1531	0398+0355 Mode B (17.04.07 / 19:00)	MLS 010406	1	HTI 78	3-leg
Trigger								MBS 971202	-2		
Streamer 1								MBS 000612	-6		
Streamer 2								MBS 971201	-3		

Appendix 9.2 Airgun Shots

Profile	Date [UTC]	Time	Latitude	Longitude	Depth/m	Guns	Trigger/s	Shot Number	Profile Length/nm	Comment
SO192-1 p11	28.03.2007	22:56:18	36°41,413' S	177°18,061' E	1950	8	60	1	0	first shot
course: 123,6°	29.03.2007	01:17	36°46,296' S	177°27,889' E	1400	7	60	141	9,267	
	29.03.2007	08:10	37°01,311' S	177°59,704' E	2021	6	60	554	38,81	
	29.03.2007	14:15	37°15,270' S	178°29,293' E	2140	6	60	919	66,22	2 floatations lost starboard side
	29.03.2007	16:30	37°20,316' S	178°39,526' E	1360	6	60	1054	75,79	
										gap
	29.03.2007	17:26	37°20,622' S	178°42,330' E	1328	2	60	1055	77,88	
	29.03.2007	21:27	37°29,221' S	179°01,049' E	381	6	60	1296	95,05	
	29.03.2007	23:10	37°33,997' S	179°09,150' E	924	6	60	1399	103	
										gap
	29.03.2007	23:27	37°34,583' S	179°10,426' E	945	6	60	1400	104,2	
	30.03.2007	01:10	37°38,482' S	179°18,686' E	1386	6	60	1530	111,8	
										gap
	30.03.2007	01:34	37°39,183' S	179°20,337' E	1380	6	60	1531	113,3	
	30.03.2007	02:55	37°42,427' S	179°27,165' E	1280	6	60	1612	119,6	2 floatations lost starboard side
	30.03.2007	08:15	37°54,805' S	179°53,741' E	3653	6	60	1932	143,9	2 floatations lost portside
	30.03.2007	11:30	38,02,088' S	179°50,697' E	3563	6		2067	145,7	last shot
SO192-1 p21	01.04.2007	22:15:19	33°42,399' S	179°01,485' E	3425	8	60	1	0	first shot
course: 126,4°	03.04.2007	11:05	35°11,647' S	178°31,640' W	7435	8	50	2210	150,4	
	03.04.2007	11:09	35°11,798' S	178°31,370' W	7430	8	58	2214	150,7	
	03.04.2007	11:10	35°11,842' S	178°31,034' W	7447	8	55	2215	151	
	03.04.2007	11:28:01	35°12,476' S	178°30,234' W	7509	8		2234	151,9	last shot
SO192-1 p31	05.04.2007	21:55	33°06,437' S	178°01,820' W	6807	8	60	1	0	first shot
course: 284,2°	07.04.2007	03:26	32°35,508' S	179°32,402' E	2953	8	40	1773	126,3	
	07.04.2007	03:27	32°35,498' S	179°32,352' E	2952	8	35	1774	126,4	
	07.04.2007	03:30	32°35,449' S	179°32,129' E	2957	8	30	1780	126,4	
	07.04.2007	03:40	32°35,272' S	179°31,304' E	2883	8	60	1800	127,3	
	07.04.2007	03:54	32°35,081' S	179°30,359' E	2956	8		1814	128,1	last shot
SO192-1 p41	10.04.2007	22:59:30	29°35,992' S	175°04,940' W	5715	8	60	1	0	first shot
course: 283,4°	11.04.2007	17:09	29°16,506' S	176°38,722' W	5126	8	60	1090	83,97	1 floatation lost portside
	11.04.2007	23:28	29°09,683' S	177°11,550' W	3201	8	60	1468	113,4	
										gap
	11.04.2007	23:33	29°09,609' S	177°11,963' W	3176	8	60	1469	113,8	
	12.04.2007	07:30	29°00,867' S	177°53,905' W	2000	7	60	1945	151,5	
	12.04.2007	11:25	28°56,528' S	178°14,844' W	2194	7		2182	170,3	last shot
SO192-1 p42	14.04.2007	23:17	28°35,100' S	179°57,403' W	2056	8	60	1	0	first shot
course: 103,4°	15.04.2007	02:58	28°39,240' S	179°37,711' W	1567	8	60	223	17,77	2 floatations lost portside
	15.04.2007	03:15	28°39,333' S	179°36,976' W	1772	8	60	238	18,42	off profile
	15.04.2007	06:43	28°39,506' S	179°36,420' W	1831	8	60	251	18,94	back on profile
	16.04.2007	00:51	29°04,400' S	177°36,833' W	1995	8		1534	126,6	last shot

Appendix 9.3: Magnetic profiles

profile	beginn				end				
	latitude	longitude	date	time (UTC)	latitude	longitude	date	time (UTC)	length of profile
P 1	36° 50,44' S	177° 30,29' E	25.03.2007	18:08	37° 27,10' S	178° 49,02' E	26.03.2007	01:18	78 nm
P 2	37° 22,78' S	178° 50,89' E	26.03.2007	01:51	36° 40,08' S	177° 20,16' E	26.03.2007	10:08	84 nm
P 3	36° 39,93' S	177° 25,98' E	26.03.2007	17:16	37° 54,52' S	179° 55,17' W	27.03.2007	07:10	153 nm
P 4	36° 38,90' S	177° 30,13' E	28.03.2007	02:52	37° 25,05' S	179° 8,05 ' E	28.03.2007	11:36	91 nm
P 5	37° 23,31' S	179° 09,85' E	28.03.2007	11:52	36° 35,20' S	177° 30,79' E	28.03.2007	20:49	92 nm
P 6	33° 09,76' S	178° 28,48' W	04.04.2007	22:03	32° 46,04' S	179° 50,10' E	05.04.2007	06:31	89 nm
P 7	32° 29,07' S	179° 30,50' E	07.04.2007	05:05	32° 53,05' S	178° 27,01' W	07.04.2007	14:57	106 nm
P 8	32° 40,11' S	179° 19,65' W	08.04.2007	05:45	32° 40,01' S	178° 0,04' W	08.04.2007	11:54	67 nm
P 9	32° 30,18' S	177° 59,32' W	08.04.2007	12:53	32° 30,09' S	179° 37,78' W	08.04.2007	20:56	83 nm
P 10	32° 25,91' S	178° 42,55' W	18.04.2007	03:57	32° 22,68' S	177° 55,15' W	18.04.2007	07:42	26 nm
P 11	32° 22,68' S	177° 55,15' W	18.04.2007	07:42	32° 47,30' S	177° 54,99' W	18.04.2007	10:08	19 nm
P 12	32° 47,30' S	177° 54,99' W	18.04.2007	10:08	32° 47,88' S	178° 16,84' W	18.04.2007	11:56	8 nm
P 13	32° 47,88' S	178° 16,84' W	18.04.2007	11:56	32° 55,86' S	178° 17,53' W	18.04.2007	12:46	19 nm
P 14	32° 55,86' S	178° 17,53' W	18.04.2007	12:46	32° 55,61' S	177° 55,29' W	18.04.2007	14:31	31 nm
P 15	32° 55,61' S	177° 55,29' W	18.04.2007	14:31	33° 26,24' S	177° 54,92 ' W	18.04.2007	17:27	9 nm
P 16	33° 26,24' S	177° 54,92 ' W	18.04.2007	17:27	33° 21, 44' S	177° 46,02' W	18.04.2007	18:22	44 nm
P 17	33° 21, 44' S	177° 46,02' W	18.04.2007	18:22	32° 37,72' S	177° 45,79' W	18.04.2007	22:14	8 nm
P 18	32° 37,72' S	177° 45,79' W	18.04.2007	22:14	32° 35, 41' S	177° 37,37' W	18.04.2007	22:54	56 nm
P 19	32° 35, 41' S	177° 37,37' W	18.04.2007	22:54	33° 29,54' S	177° 35,52' W	19.04.2007	04:02	36 nm
P 20	37° 28,44' S	179° 26,71' E	20.04.2007	05:11	36° 30,30' S	177° 30,00' E	20.04.2007	14:40	157 nm

Abkürzungen / Abbreviation

z.W	zu Wasser
a.D.	an Deck
SL (max.)	(maximale)Seillänge
LT	Lottiefe nach Hydrosweep
W x	eingesetzte Winde
SM	Simrad - Multibeam - Lot
PS	Parasound
rwk:	Rechtweisender Kurs
d:	Distanz
v:	Geschwindigkeit in Knoten
SL:	Seillänge
KL:	Kabellänge
SZ:	Seilzug

Eingesetzte Geräte		Einsätze
CTD	Releasertest	1
OBS / H	ausgesetzt	147
OBS / H	geborgen	146
Magnetometer		7
Airgun		5
Streamer		5

Geräteverluste: 1 OBS

Winde	D/M	Typ	RF-Nr	SO 192-1 Einsatz	Gesamt Einsatz	SO 192-1 S`länge	Gesamt S`länge	Zust.	SO 192-1 gefierte max. L	jemals gefierte max. Länge
W 1	18,2	LWL	812001	0 h	789 h	0 m	368457 m	4	0 m	8022 m
W 2	18,2	LWL	120301500	0 h	0 h	0 m	0 m	1	0 m	0 m
W 4	11	NSW	818045	0 h	458 h	0 m	386158 m	4	0 m	8081 m
W 5	11	NSW	818237	0 h	109 h	0 m	104037 m	3	0 m	5861 m
W 6	18,2	Koax	815286	3 h	851 h	3100 m	707911 m	3	3100 m	6000 m

Station	Datum	UTC	PositionLat	PositionLon	Tiefe [m]	Windstärke [m/s]	Kurs [°]	v [kn]	Gerät	Gerätekürzel	Aktion	Bemerkung
SO192/001-1	25.03.07	10:32	36° 31,00' S	176° 4,46' E	214	ENE 6	103	10,3	Vermessung	PROFIL	Beginn Profil	rwk: 103°, d: 55sm
SO192/001-1	25.03.07	16:43	36° 44,02' S	177° 16,54' E	1829	NE 5	103	4,5	Vermessung	PROFIL	Kursänderung	rwk: 120°, d: 12sm
SO192/001-1	25.03.07	18:00	36° 50,01' S	177° 29,38' E	1905	NE 5	134	3,2	Vermessung	PROFIL	Ende Profil	
SO192/002-1	25.03.07	18:00	36° 50,01' S	177° 29,38' E	1905	NE 5	134	3,2	Magnetometer	MAGN	Beginn Station	
SO192/002-1	25.03.07	18:08	36° 50,44' S	177° 30,29' E	2289	NE 5	110	8,1	Magnetometer	MAGN	Magnetometer zu Wasser	SL 300m, rwk: 120°, d: 78sm
SO192/002-1	26.03.07	01:18	37° 27,10' S	178° 49,02' E	419	NNE 5	85	9	Magnetometer	MAGN	Kursänderung	rwK: 029°, d: 5 sm
SO192/002-1	26.03.07	01:51	37° 22,78' S	178° 50,89' E	828	ENE 5	302	10,8	Magnetometer	MAGN	Kursänderung	rwK: 301°, d: 84 sm
SO192/002-1	26.03.07	10:08	36° 40,08' S	177° 20,16' E	1945	ENE 7	299	9,4	Magnetometer	MAGN	Kursänderung	rwK: 360°, d: 17 nm
SO192/002-1	26.03.07	11:45	36° 24,18' S	177° 20,01' E	3294	E 8	355	8,1	Magnetometer	MAGN	Ende Profil	
SO192/002-1	26.03.07	11:59	36° 23,32' S	177° 19,99' E	3293	E 6	6	3,1	Magnetometer	MAGN	Magnetometer an Deck	
SO192/002-1	26.03.07	12:00	36° 23,26' S	177° 20,00' E	3292	E 7	3	2,6	Magnetometer	MAGN	Ende Station	
SO192/003-1	26.03.07	12:01	36° 23,21' S	177° 20,01' E	3298	E 6	358	3,1	CTD	CTD	Beginn Station	Releasertest
SO192/003-1	26.03.07	12:10	36° 23,05' S	177° 20,23' E	3295	E 7	192	0,3	CTD	CTD	zu Wasser	
SO192/003-1	26.03.07	12:34	36° 23,04' S	177° 20,22' E	3290	ENE 8	106	0,8	CTD	CTD	auf Tiefe	SL: 1100 m, Sonde installiert
SO192/003-1	26.03.07	13:18	36° 23,05' S	177° 20,22' E	0	E 8	344	0,7	CTD	CTD	auf Tiefe	SL: 3100 m
SO192/003-1	26.03.07	14:51	36° 23,03' S	177° 20,17' E	3293	E 8	279	0,6	CTD	CTD	an Deck	Sonde a.D., SL 1100m
SO192/003-1	26.03.07	15:16	36° 23,01' S	177° 20,14' E	3287	E 7	303	0,5	CTD	CTD	an Deck	
SO192/003-1	26.03.07	15:18	36° 23,01' S	177° 20,13' E	3288	E 8	227	0,5	CTD	CTD	Ende Station	
SO192/004-1	26.03.07	15:30	36° 23,46' S	177° 20,48' E	3284	ENE 9	174	5,4	Magnetometer	MAGN	Beginn Station	
SO192/004-1	26.03.07	15:37	36° 24,03' S	177° 20,63' E	3287	ENE 9	176	5,6	Magnetometer	MAGN	Magnetometer zu Wasser	SL: 300 m, FüG: 10,5 kn, rwK: 165°

Station	Datum	UTC	PositionLat	PositionLon	Tiefe [m]	Windstärke [m/s]	Kurs [°]	v [kn]	Gerät	Gerätekürzel	Aktion	Bemerkung
SO192/004-1	26.03.07	17:16	36° 39,93' S	177° 25,98' E	2142	E 9	161	10,4	Magnetometer	MAGN	Kursänderung	rwk: 120°, d: 153sm
SO192/004-1	27.03.07	07:10	37° 54,52' S	179° 55,17' W	3635	E 9	153	10,5	Magnetometer	MAGN	Kursänderung	rwk: 231°, d: 1sm
SO192/004-1	27.03.07	07:19	37° 55,73' S	179° 56,07' W	3607	E 9	236	8,8	Magnetometer	MAGN	Ende Profil	
SO192/004-1	27.03.07	07:30	37° 56,19' S	179° 57,01' W	3606	E 11	233	3,2	Magnetometer	MAGN	Magnetometer an Deck	
SO192/005-1	27.03.07	07:52	37° 57,72' S	179° 59,88' W	3624	E 10	229	4,2	OBS/OBH	OBS/OBH	Beginn Station	
SO192/005-1	27.03.07	07:55	37° 57,77' S	179° 59,95' E	3624	ESE 6	298	1,6	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 01
SO192/005-1	27.03.07	08:21	37° 56,08' S	179° 56,53' E	3640	E 7	309	1,4	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 02
SO192/005-1	27.03.07	08:47	37° 54,49' S	179° 53,03' E	3653	E 8	312	1,1	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 03
SO192/005-1	27.03.07	09:13	37° 52,86' S	179° 49,52' E	3699	E 9	349	1,2	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 04
SO192/005-1	27.03.07	09:40	37° 51,22' S	179° 46,01' E	3754	E 8	317	1,1	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 05
SO192/005-1	27.03.07	10:05	37° 49,61' S	179° 42,47' E	3679	E 7	253	0,7	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 06
SO192/005-1	27.03.07	10:31	37° 47,96' S	179° 38,99' E	3659	E 7	309	0,9	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 07
SO192/005-1	27.03.07	10:57	37° 46,34' S	179° 35,48' E	3555	E 7	8	0,7	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 08
SO192/005-1	27.03.07	11:24	37° 44,68' S	179° 32,02' E	3080	ENE 6	297	1,6	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 09
SO192/005-1	27.03.07	11:50	37° 43,06' S	179° 28,48' E	1671	E 6	279	2,7	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 10
SO192/005-1	27.03.07	12:29	37° 41,41' S	179° 24,98' E	956	NE 8	94	0,6	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 11
SO192/005-1	27.03.07	12:56	37° 39,77' S	179° 21,52' E	1251	E 7	281	0,7	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 12
SO192/005-1	27.03.07	13:20	37° 38,09' S	179° 18,00' E	1363	ESE 6	346	1,2	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 13
SO192/005-1	27.03.07	13:45	37° 36,49' S	179° 14,51' E	1218	E 5	344	1,1	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 14
SO192/005-1	27.03.07	14:12	37° 34,85' S	179° 10,99' E	940	ESE 4	315	1,2	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 15
SO192/005-1	27.03.07	14:38	37° 33,20' S	179° 7,49' E	977	E 6	4	1,4	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 16
SO192/005-1	27.03.07	15:04	37° 31,53' S	179° 3,97' E	547	ESE 6	330	1	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 17
SO192/005-1	27.03.07	15:29	37° 29,91' S	179° 0,48' E	268	ESE 6	338	2	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 18
SO192/005-1	27.03.07	15:54	37° 28,26' S	178° 56,98' E	154	ESE 6	332	0,5	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 19
SO192/005-1	27.03.07	16:20	37° 26,66' S	178° 53,51' E	258	SE 6	357	1,6	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 20
SO192/005-1	27.03.07	16:46	37° 25,01' S	178° 50,00' E	533	SE 4	328	1,7	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 21
SO192/005-1	27.03.07	17:11	37° 23,35' S	178° 46,52' E	1059	SE 6	212	0,5	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 22
SO192/005-1	27.03.07	17:35	37° 21,73' S	178° 43,01' E	1284	ESE 9	333	1,2	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 23
SO192/005-1	27.03.07	17:58	37° 20,07' S	178° 39,50' E	1357	ESE 6	339	1,6	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 24
SO192/005-1	27.03.07	18:22	37° 18,40' S	178° 35,99' E	1693	SE 8	322	2	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 25
SO192/005-1	27.03.07	18:46	37° 16,74' S	178° 32,48' E	1965	SE 6	336	2,3	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 26
SO192/005-1	27.03.07	19:10	37° 15,08' S	178° 29,01' E	2142	ESE 8	9	1,3	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 27
SO192/005-1	27.03.07	19:34	37° 13,47' S	178° 25,52' E	2190	ESE 9	355	1,6	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 28
SO192/005-1	27.03.07	19:58	37° 11,81' S	178° 22,01' E	2072	ESE 11	6	1,3	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 29
SO192/005-1	27.03.07	20:00	37° 11,76' S	178° 22,00' E	2074	E 12	355	1,6	OBS/OBH	OBS/OBH	Ende Station	
SO192/006-1	27.03.07	20:00	37° 11,76' S	178° 22,00' E	2074	E 12	355	1,6	Vermessung	PROFIL	Beginn Profil	rwk: 263°, d: 10sm
SO192/006-1	27.03.07	20:54	37° 12,98' S	178° 10,14' E	1757	E 13	261	11,8	Vermessung	PROFIL	Kursänderung	rwK: 301°, d: 51 nm
SO192/006-1	28.03.07	01:02	36° 47,03' S	177° 15,03' E	1706	E 13	300	12,8	Vermessung	PROFIL	Kursänderung	rwK: 012°, d: 6 sm
SO192/006-1	28.03.07	01:31	36° 42,67' S	177° 16,14' E	1739	E 12	14	5,1	Vermessung	PROFIL	Ende Profil	
SO192/007-1	28.03.07	01:32	36° 42,61' S	177° 16,15' E	1730	E 10	9	4	Magnetometer	MAGN	Beginn Station	

Station	Datum	UTC	PositionLat	PositionLon	Tiefe [m]	Windstärke [m/s]	Kurs [°]	v [kn]	Gerät	Gerätekürzel	Aktion	Bemerkung
SO192/007-1	28.03.07	01:32	36° 42,61' S	177° 16,15' E	1730	E 10	9	4	Magnetometer	MAGN	Kursänderung	rwK: 072°, d: 10 sm
SO192/007-1	28.03.07	01:43	36° 42,30' S	177° 16,95' E	1861	E 13	75	6,2	Magnetometer	MAGN	Magnetometer zu Wasser	SL: 300 m
SO192/007-1	28.03.07	01:44	36° 42,28' S	177° 17,06' E	1761	E 13	77	5,7	Magnetometer	MAGN	Beginn Profil	rwK: 072°, d: 10 sm
SO192/007-1	28.03.07	02:52	36° 38,90' S	177° 30,13' E	2475	ESE 10	106	9,6	Magnetometer	MAGN	Kursänderung	rwK: 121°, d: 91 sm
SO192/007-1	28.03.07	11:36	37° 25,05' S	179° 8,05' E	1060	ENE 11	110	9,8	Magnetometer	MAGN	Kursänderung	rwK: 028°, d: 3 nm
SO192/007-1	28.03.07	11:52	37° 23,31' S	179° 9,85' E	1114	E 12	23	9,9	Magnetometer	MAGN	Kursänderung	rwK: 301°, d: 92 nm
SO192/007-1	28.03.07	20:49	36° 35,20' S	177° 30,79' E	2474	ENE 9	304	9,8	Magnetometer	MAGN	Ende Profil	
SO192/007-1	28.03.07	21:02	36° 34,76' S	177° 30,05' E	2469	ENE 8	291	2,2	Magnetometer	MAGN	Magnetometer an Deck	
SO192/007-1	28.03.07	21:03	36° 34,73' S	177° 29,99' E	2469	ENE 7	294	2,6	Magnetometer	MAGN	Ende Station	
SO192/008-1	28.03.07	22:15	36° 41,05' S	177° 16,78' E	2197	ENE 11	187	0,7	Profil	PR	Stationsbeginn	
SO192/008-1	28.03.07	22:25	36° 41,07' S	177° 16,81' E	2200	ENE 11	154	0,4	Profil	PR	Bb Airgun zu Wasser	
SO192/008-1	28.03.07	22:38	36° 40,90' S	177° 17,00' E	2211	ENE 12	4	0,4	Profil	PR	Stb Airgun zu Wasser	
SO192/008-1	28.03.07	22:56	36° 41,39' S	177° 18,04' E	1952	NE 12	160	4,6	Profil	PR	Beginn Profil	rwK: 121°, d: 162 nm
SO192/008-1	29.03.07	00:04	36° 43,86' S	177° 22,77' E	2009	ENE 11	118	3,9	Profil	PR	Streamer zu Wasser	SL: ca. 200m
SO192/008-1	29.03.07	16:45	37° 20,76' S	178° 40,94' E	1316	NNE 14	110	2,8	Profil	PR	Streamer an Deck	
SO192/008-1	29.03.07	17:13	37° 20,85' S	178° 42,33' E	1273	ENE 12	47	3,2	Profil	PR	Stb-Airgunarray an Deck	
SO192/008-1	29.03.07	17:39	37° 20,82' S	178° 43,98' E	1168	NNE 12	154	4,2	Profil	PR	Streamer zu Wasser	
SO192/008-1	29.03.07	21:03	37° 29,35' S	178° 59,56' E	175	NE 10	82	3,3	Profil	PR	Streamer an Deck	
SO192/008-1	29.03.07	21:21	37° 29,17' S	179° 0,59' E	285	NE 11	94	2,2	Profil	PR	Stb Airgun zu Wasser	
SO192/008-1	29.03.07	21:31	37° 29,41' S	179° 1,33' E	396	NNE 14	129	4,5	Profil	PR	Streamer zu Wasser	
SO192/008-1	30.03.07	11:26	38° 2,07' S	179° 50,76' W	3556	NNE 12	118	1,1	Profil	PR	Streamer an Deck	
SO192/008-1	30.03.07	11:27	38° 2,10' S	179° 50,73' W	3546	N 11	156	3,8	Profil	PR	Ende Profil	
SO192/008-1	30.03.07	11:49	38° 1,64' S	179° 49,82' W	3458	NE 10	46	1,8	Profil	PR	Stb Airgun an Deck	
SO192/008-1	30.03.07	11:58	38° 1,36' S	179° 49,64' W	3433	NNE 12	20	0,7	Profil	PR	Bb airgun an Deck	
SO192/008-1	30.03.07	12:19	38° 0,68' S	179° 49,24' W	3509	NE 11	67	1,8	Profil	PR	Stationsende	
SO192/009-1	30.03.07	12:52	37° 59,25' S	179° 54,42' W	0	NE 13	286	10,7	OBS/OBH	OBS/OBH	Beginn Station	
SO192/009-1	30.03.07	12:53	37° 59,19' S	179° 54,65' W	0	NE 11	289	11,9	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 01
SO192/009-1	30.03.07	13:24	37° 57,60' S	179° 59,59' E	0	E 13	134	5,7	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 01
SO192/009-1	30.03.07	13:36	37° 58,02' S	180° 0,00' E	0	N 9	175	1,9	OBS/OBH	OBS/OBH	OBS an Deck	OBS 01
SO192/009-1	30.03.07	13:37	37° 58,04' S	180° 0,00' W	0	N 10	151	0,8	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 02
SO192/009-1	30.03.07	14:03	37° 56,76' S	179° 56,71' E	0	NE 12	302	8,3	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 02
SO192/009-1	30.03.07	14:05	37° 56,63' S	179° 56,39' E	0	NNE 13	302	8,6	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 03
SO192/009-1	30.03.07	14:21	37° 56,38' S	179° 56,59' E	0	NNE 11	165	1	OBS/OBH	OBS/OBH	OBS an Deck	OBS 02
SO192/009-1	30.03.07	14:51	37° 54,82' S	179° 52,66' E	0	NE 14	314	7,8	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 03
SO192/009-1	30.03.07	14:51	37° 54,82' S	179° 52,66' E	0	NE 14	314	7,8	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 04
SO192/009-1	30.03.07	15:02	37° 54,80' S	179° 52,99' E	0	NNE 13	145	1,4	OBS/OBH	OBS/OBH	OBS an Deck	OBS 03
SO192/009-1	30.03.07	15:43	37° 53,09' S	179° 49,16' E	0	ESE 10	249	3	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 04
SO192/009-1	30.03.07	15:45	37° 53,03' S	179° 49,11' E	0	ENE 11	7	3	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 05
SO192/009-1	30.03.07	15:53	37° 53,15' S	179° 49,45' E	0	N 14	83	1,5	OBS/OBH	OBS/OBH	OBS an Deck	OBS 04
SO192/009-1	30.03.07	16:09	37° 52,79' S	179° 48,13' E	0	NE 11	308	9,7	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 05

STATIONSBUCH

Station	Datum	UTC	PositionLat	PositionLon	Tiefe [m]	Windstärke [m/s]	Kurs [°]	v [kn]	Gerät	Gerätekürzel	Aktion	Bemerkung
SO192/009-1	30.03.07	16:26	37° 51,52' S	179° 45,78' E	0	NNE 12	278	0,5	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 05
SO192/009-1	30.03.07	16:28	37° 51,52' S	179° 45,80' E	0	NE 11	99	0,8	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 06
SO192/009-1	30.03.07	16:36	37° 51,45' S	179° 46,05' E	0	NNE 11	137	1,3	OBS/OBH	OBS/OBH	OBS an Deck	OBS 05
SO192/009-1	30.03.07	17:06	37° 49,88' S	179° 42,30' E	0	NE 11	25	2,3	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 06
SO192/009-1	30.03.07	17:07	37° 49,84' S	179° 42,33' E	0	NE 12	77	1,5	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 07
SO192/009-1	30.03.07	17:19	37° 49,93' S	179° 42,58' E	0	NNE 12	156	0,7	OBS/OBH	OBS/OBH	OBS an Deck	OBS 06
SO192/009-1	30.03.07	17:48	37° 48,34' S	179° 38,89' E	0	NE 13	27	2,6	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 07
SO192/009-1	30.03.07	17:51	37° 48,27' S	179° 38,96' E	0	NE 12	84	1,6	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 08
SO192/009-1	30.03.07	18:00	37° 48,31' S	179° 39,14' E	0	NNE 12	155	3,1	OBS/OBH	OBS/OBH	OBS an Deck	OBS 07
SO192/009-1	30.03.07	18:31	37° 46,59' S	179° 35,39' E	0	NNE 13	20	1,4	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 08
SO192/009-1	30.03.07	18:37	37° 46,60' S	179° 35,63' E	0	NNE 12	143	2	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 09
SO192/009-1	30.03.07	18:39	37° 46,63' S	179° 35,68' E	0	NE 13	143	1	OBS/OBH	OBS/OBH	OBS an Deck	OBS 08
SO192/009-1	30.03.07	19:11	37° 45,01' S	179° 31,90' E	0	NNE 12	78	1,1	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 09
SO192/009-1	30.03.07	19:21	37° 45,05' S	179° 32,32' E	0	NE 13	159	3,5	OBS/OBH	OBS/OBH	OBS an Deck	OBS 09
SO192/009-1	30.03.07	19:31	37° 44,96' S	179° 31,58' E	0	NE 12	303	10,9	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 10
SO192/009-1	30.03.07	19:55	37° 43,30' S	179° 28,44' E	0	NNE 11	87	0,7	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 10
SO192/009-1	30.03.07	20:02	37° 43,34' S	179° 28,73' E	1805	NNE 11	143	0,7	OBS/OBH	OBS/OBH	OBS an Deck	OBS 10
SO192/009-1	30.03.07	20:16	37° 43,19' S	179° 27,81' E	0	NNE 12	290	8	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 11
SO192/009-1	30.03.07	20:37	37° 41,82' S	179° 24,79' E	0	ENE 12	82	3,9	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 11
SO192/009-1	30.03.07	20:44	37° 41,83' S	179° 25,25' E	0	N 11	138	1,5	OBS/OBH	OBS/OBH	OBS an Deck	OBS 11
SO192/009-1	30.03.07	20:59	37° 41,83' S	179° 24,57' E	0	NNE 13	297	9,6	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 12
SO192/009-1	30.03.07	21:35	37° 40,14' S	179° 21,41' E	0	NNE 13	86	3	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 12
SO192/009-1	30.03.07	21:40	37° 40,11' S	179° 21,78' E	0	N 13	117	1,4	OBS/OBH	OBS/OBH	OBS an Deck	OBS 12
SO192/009-1	30.03.07	21:59	37° 40,01' S	179° 20,64' E	0	NNE 11	308	9,9	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 13
SO192/009-1	30.03.07	22:32	37° 38,43' S	179° 17,96' E	0	NNE 11	81	4,8	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 13
SO192/009-1	30.03.07	22:39	37° 38,44' S	179° 18,35' E	0	NNE 11	171	1,6	OBS/OBH	OBS/OBH	OBS an Deck	OBS 13
SO192/009-1	30.03.07	22:56	37° 38,41' S	179° 17,40' E	0	NNE 12	294	9,6	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 14
SO192/009-1	30.03.07	23:38	37° 36,77' S	179° 14,37' E	0	NNE 13	72	3,1	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 14
SO192/009-1	30.03.07	23:44	37° 36,63' S	179° 14,73' E	0	NNE 12	117	2,1	OBS/OBH	OBS/OBH	OBS an Deck	OBS 14
SO192/009-1	31.03.07	00:03	37° 36,58' S	179° 13,70' E	0	NNE 10	285	8,1	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 15
SO192/009-1	31.03.07	00:35	37° 35,12' S	179° 10,99' E	0	N 13	116	4,3	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 15
SO192/009-1	31.03.07	00:45	37° 35,16' S	179° 11,37' E	0	NNE 12	187	2,4	OBS/OBH	OBS/OBH	OBS an Deck	OBS 15
SO192/009-1	31.03.07	01:03	37° 34,88' S	179° 9,76' E	0	NNE 11	287	11,5	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 16
SO192/009-1	31.03.07	01:26	37° 33,45' S	179° 7,41' E	0	NNW 13	68	4,2	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 16
SO192/009-1	31.03.07	01:33	37° 33,33' S	179° 7,73' E	0	NNE 12	121	2,1	OBS/OBH	OBS/OBH	OBS an Deck	OBS 16
SO192/009-1	31.03.07	01:52	37° 32,73' S	179° 5,52' E	0	NNE 12	297	11	OBS/OBH	Gerätekürzel	OBS ausgelöst	OBS 17
SO192/009-1	31.03.07	02:08	37° 31,61' S	179° 3,62' E	0	NNW 11	60	8,1	OBS/OBH	OBS/OBH	OBS gesichtet	OBS17
SO192/009-1	31.03.07	02:26	37° 31,63' S	179° 4,06' E	0	NNE 7	121	0,9	OBS/OBH	OBS/OBH	OBS an Deck	OBS 17
SO192/009-1	31.03.07	02:48	37° 30,72' S	179° 1,53' E	0	NNW 8	304	10,7	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 18
SO192/009-1	31.03.07	02:51	37° 30,46' S	179° 0,90' E	0	NNW 8	285	11,1	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 18

STATIONSBUCH

Station	Datum	UTC	PositionLat	PositionLon	Tiefe [m]	Windstärke [m/s]	Kurs [°]	v [kn]	Gerät	Gerätekürzel	Aktion	Bemerkung
SO192/009-1	31.03.07	03:08	37° 29,70' S	179° 0,91' E	0	NNW 9	140	1,9	OBS/OBH	OBS/OBH	OBS an Deck	OBS 18
SO192/009-1	31.03.07	03:40	37° 28,60' S	178° 56,92' E	0	NW 9	289	9,4	OBS/OBH	OBS/OBH	OBS ausgelöst	
SO192/009-1	31.03.07	04:07	37° 28,49' S	178° 57,10' E	0	NNW 8	303	2,2	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 19
SO192/009-1	31.03.07	04:19	37° 28,08' S	178° 57,32' E	0	WNW 7	174	0,9	OBS/OBH	OBS/OBH	OBS an Deck	OBS 19
SO192/009-1	31.03.07	04:46	37° 27,07' S	178° 54,67' E	0	NW 9	301	12,1	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 20
SO192/009-1	31.03.07	04:50	37° 26,83' S	178° 53,86' E	0	NW 9	290	7,5	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 20
SO192/009-1	31.03.07	04:59	37° 26,57' S	178° 53,77' E	0	WNW 7	64	1,2	OBS/OBH	OBS/OBH	OBS an Deck	OBS 20
SO192/009-1	31.03.07	05:21	37° 25,73' S	178° 51,55' E	0	NNW 9	299	11,4	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 21
SO192/009-1	31.03.07	05:30	37° 25,14' S	178° 50,05' E	0	NW 10	305	4,2	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 21
SO192/009-1	31.03.07	05:40	37° 24,92' S	178° 50,55' E	0	WNW 8	72	1,1	OBS/OBH	OBS/OBH	OBS an Deck	OBS 21
SO192/009-1	31.03.07	06:03	37° 24,33' S	178° 48,85' E	0	NNW 9	296	12,6	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 22
SO192/009-1	31.03.07	06:15	37° 23,46' S	178° 46,67' E	0	NW 9	294	4,8	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 22
SO192/009-1	31.03.07	06:55	37° 23,42' S	178° 47,63' E	0	NW 7	114	0,5	OBS/OBH	OBS/OBH	OBS an Deck	OBS 22
SO192/009-1	31.03.07	07:02	37° 23,51' S	178° 47,30' E	0	NNW 9	264	7	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 23
SO192/009-1	31.03.07	07:19	37° 22,15' S	178° 43,92' E	0	NNW 10	297	11,9	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 23
SO192/009-1	31.03.07	07:27	37° 21,78' S	178° 43,68' E	0	WNW 10	85	1,4	OBS/OBH	OBS/OBH	OBH an Deck	OBH 23
SO192/009-1	31.03.07	07:39	37° 21,29' S	178° 42,97' E	0	NW 10	297	11,4	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 24
SO192/009-1	31.03.07	07:53	37° 20,35' S	178° 40,05' E	0	NW 10	291	8,2	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 24
SO192/009-1	31.03.07	08:02	37° 20,17' S	178° 40,42' E	0	WNW 9	84	2,1	OBS/OBH	OBS/OBH	OBH an Deck	OBH 24
SO192/009-1	31.03.07	08:13	37° 20,25' S	178° 40,81' E	0	N 8	251	1,7	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 25
SO192/009-1	31.03.07	08:38	37° 18,85' S	178° 37,01' E	0	NW 10	329	5,8	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 25
SO192/009-1	31.03.07	08:53	37° 18,19' S	178° 37,04' E	0	WNW 10	57	1,6	OBS/OBH	OBS/OBH	OBH an Deck	OBH 25
SO192/009-1	31.03.07	09:06	37° 18,30' S	178° 37,47' E	0	NNE 9	195	2,5	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 26
SO192/009-1	31.03.07	09:32	37° 17,03' S	178° 33,19' E	0	NNW 13	312	4,7	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 26
SO192/009-1	31.03.07	09:40	37° 16,78' S	178° 33,12' E	0	NW 11	53	1,4	OBS/OBH	OBS/OBH	OBH an Deck	OBH 26
SO192/009-1	31.03.07	09:44	37° 16,76' S	178° 33,24' E	0	NW 12	45	3,2	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 27
SO192/009-1	31.03.07	10:09	37° 15,69' S	178° 30,08' E	0	NNW 13	314	7,4	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 27
SO192/009-1	31.03.07	10:28	37° 15,15' S	178° 29,94' E	0	WNW 12	69	0,9	OBS/OBH	OBS/OBH	OBH an Deck	OBH 27
SO192/009-1	31.03.07	10:40	37° 15,23' S	178° 30,09' E	0	NW 12	301	4,3	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 28
SO192/009-1	31.03.07	11:01	37° 13,94' S	178° 26,25' E	0	NW 12	295	6,6	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 28
SO192/009-1	31.03.07	11:10	37° 13,52' S	178° 26,12' E	0	WNW 12	54	1,3	OBS/OBH	OBS/OBH	OBH an Deck	OBH 28
SO192/009-1	31.03.07	11:19	37° 13,57' S	178° 26,36' E	0	N 11	281	1,8	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 29
SO192/009-1	31.03.07	11:44	37° 12,18' S	178° 22,44' E	0	NNW 11	1	3,5	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 29
SO192/009-1	31.03.07	11:53	37° 11,84' S	178° 22,63' E	0	WSW 12	54	1,4	OBS/OBH	OBS/OBH	OBH an Deck	OBH 29
SO192/009-1	31.03.07	12:00	37° 11,84' S	178° 22,82' E	2116	W 8	119	1,1	OBS/OBH	OBS/OBH	Ende Station	
SO192/010-1	01.04.07	04:17	34° 54,58' S	179° 0,02' W	5880	S 2	44,1	2	OBS/OBH	OBS/OBH	Beginn Station	
SO192/010-1	01.04.07	04:18	34° 54,56' S	178° 59,99' W	5886	S 2	64,9	0,8	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 30
SO192/010-1	01.04.07	04:44	34° 52,42' S	179° 3,46' W	5302	SSW 1	358,2	2,3	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 31
SO192/010-1	01.04.07	05:09	34° 50,31' S	179° 6,97' W	5132	S 1	344,1	2,3	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 32
SO192/010-1	01.04.07	05:36	34° 48,19' S	179° 10,52' W	4970	ENE 0	303,6	0,8	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 33

STATIONSBUCH

Station	Datum	UTC	PositionLat	PositionLon	Tiefe [m]	Windstärke [m/s]	Kurs [°]	v [kn]	Gerät	Gerätekürzel	Aktion	Bemerkung
SO192/010-1	01.04.07	06:21	34° 46,10' S	179° 13,95' W	4851	W 3	268,2	1,1	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 34
SO192/010-1	01.04.07	06:54	34° 43,85' S	179° 17,48' W	4434	WNW 1	105,4	1,1	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 35
SO192/010-1	01.04.07	07:20	34° 41,83' S	179° 21,02' W	4129	NNE 1	357	2,6	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 36
SO192/010-1	01.04.07	07:45	34° 39,74' S	179° 24,51' W	4023	NE 2	297,1	1,3	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 37
SO192/010-1	01.04.07	08:11	34° 37,62' S	179° 27,96' W	3880	NNE 1	304,6	1,7	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 38
SO192/010-1	01.04.07	08:39	34° 35,44' S	179° 31,50' W	3738	NNE 2	307,2	1,5	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 39
SO192/010-1	01.04.07	09:07	34° 33,30' S	179° 35,02' W	3640	N 1	271,7	1	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 40
SO192/010-1	01.04.07	09:33	34° 31,16' S	179° 38,55' W	3564	NNW 1	289,6	1	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 41
SO192/010-1	01.04.07	09:59	34° 29,06' S	179° 42,03' W	3464	NNW 1	327,1	0,9	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 42
SO192/010-1	01.04.07	10:33	34° 26,96' S	179° 45,57' W	3364	WSW 1	47,3	1,1	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 43
SO192/010-1	01.04.07	10:59	34° 24,79' S	179° 49,02' W	3262	NNW 2	334,2	1	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 44
SO192/010-1	01.04.07	11:26	34° 22,69' S	179° 52,56' W	3115	NW 2	272,6	1,3	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 45
SO192/010-1	01.04.07	11:53	34° 20,62' S	179° 56,01' W	2947	NNW 1	286,1	1,7	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 46
SO192/010-1	01.04.07	12:21	34° 18,39' S	179° 59,50' W	2742	N 1	357,6	0,5	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 47
SO192/010-1	01.04.07	12:48	34° 16,37' S	179° 57,00' E	2581	NW 2	293,2	2	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 48
SO192/010-1	01.04.07	13:13	34° 14,14' S	179° 53,48' E	2094	NNW 3	300,8	1,6	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 49
SO192/010-1	01.04.07	13:39	34° 12,03' S	179° 49,98' E	1577	NNW 1	301,1	0,6	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 50
SO192/010-1	01.04.07	14:04	34° 9,91' S	179° 46,51' E	1133	NW 2	293,4	2,3	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 51
SO192/010-1	01.04.07	14:31	34° 7,73' S	179° 42,98' E	2170	NW 3	317,1	1,3	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 52
SO192/010-1	01.04.07	14:56	34° 5,62' S	179° 39,48' E	2268	WSW 4	322,8	1,2	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 53
SO192/010-1	01.04.07	15:22	34° 3,48' S	179° 35,99' E	1280	WSW 1	319,7	1,4	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 54
SO192/010-1	01.04.07	15:48	34° 1,37' S	179° 32,48' E	1557	W 0	302,6	1,9	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 55
SO192/010-1	01.04.07	16:14	33° 59,20' S	179° 28,92' E	1769	ENE 1	329,3	2,1	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 56
SO192/010-1	01.04.07	16:39	33° 57,12' S	179° 25,45' E	2439	N 2	328,1	1,9	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 57
SO192/010-1	01.04.07	17:06	33° 54,95' S	179° 21,98' E	2470	NE 1	340,3	1,8	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 58
SO192/010-1	01.04.07	17:33	33° 52,83' S	179° 18,51' E	2324	ESE 1	323,7	1,4	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 59
SO192/010-1	01.04.07	17:34	33° 52,81' S	179° 18,49' E	2323	ESE 0	324,6	2,3	OBS/OBH	OBS/OBH	Ende Station	
SO192/011-1	01.04.07	21:34	33° 41,50' S	178° 59,52' E	3487	WNW 3	10,8	1	Profil	PR	Stationsbeginn	
SO192/011-1	01.04.07	21:42	33° 41,55' S	178° 59,69' E	3484	W 2	109,6	1,9	Profil	PR	Bb Airgun zu Wasser	
SO192/011-1	01.04.07	21:57	33° 41,83' S	179° 0,36' E	3483	WNW 2	114,3	2,8	Profil	PR	Stb Airgun zu Wasser	
SO192/011-1	01.04.07	22:06	33° 42,05' S	179° 0,85' E	3449	SW 5	113,6	3,9	Profil	PR	Streamer zu Wasser	Stb., Baum 5
SO192/011-1	01.04.07	22:15	33° 42,38' S	179° 1,44' E	3426	SSW 4	127,9	4,1	Profil	PR	Beginn Profil	RWK: 126°, D: 152 sm
SO192/011-1	03.04.07	11:27	35° 12,45' S	178° 30,29' W	7515	SE 4	135,8	1,4	Profil	PR	Streamer an Deck	
SO192/011-1	03.04.07	11:28	35° 12,47' S	178° 30,26' W	7507	SE 5	134	2	Profil	PR	Ende Profil	
SO192/011-1	03.04.07	11:37	35° 12,65' S	178° 29,95' W	7510	SE 4	144,2	1,9	Profil	PR	Stb Airgun an Deck	
SO192/011-1	03.04.07	11:47	35° 12,86' S	178° 29,62' W	7514	SE 4	113,2	1,9	Profil	PR	Bb airgun an Deck	
SO192/011-1	03.04.07	11:53	35° 12,99' S	178° 29,42' W	7510	SE 5	111,3	2	Profil	PR	Stationsende	
SO192/012-1	03.04.07	14:03	35° 1,24' S	178° 56,14' W	6128	SE 5	304,1	12,7	OBS/OBH	OBS/OBH	Beginn Station	
SO192/012-1	03.04.07	14:03	35° 1,24' S	178° 56,14' W	6128	SE 5	304,1	12,7	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 30
SO192/012-1	03.04.07	14:56	34° 54,29' S	179° 0,26' W	0	ESE 4	74	0,8	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 31

Station	Datum	UTC	PositionLat	PositionLon	Tiefe [m]	Windstärke [m/s]	Kurs [°]	v [kn]	Gerät	Gerätekürzel	Aktion	Bemerkung
SO192/012-1	03.04.07	15:26	34° 54,20' S	179° 0,27' W	0	ESE 6	346,8	0,8	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 30
SO192/012-1	03.04.07	16:01	34° 54,11' S	178° 59,64' W	0	ESE 5	273,9	0,4	OBS/OBH	OBS/OBH	OBS an Deck	OBS 30
SO192/012-1	03.04.07	16:11	34° 53,74' S	179° 0,57' W	0	SE 5	298,3	11,6	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 32
SO192/012-1	03.04.07	16:14	34° 53,45' S	179° 1,20' W	0	ESE 5	300,2	11,8	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 31
SO192/012-1	03.04.07	16:26	34° 52,14' S	179° 2,90' W	0	ESE 4	324,1	4,7	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 33
SO192/012-1	03.04.07	16:32	34° 51,82' S	179° 3,04' W	0	SE 4	336,9	1,9	OBS/OBH	OBS/OBH	OBS an Deck	OBS 31
SO192/012-1	03.04.07	17:15	34° 50,24' S	179° 6,79' W	0	ESE 4	29,5	0,4	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 32
SO192/012-1	03.04.07	17:16	34° 50,24' S	179° 6,79' W	0	ESE 5	115,5	0,3	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 34
SO192/012-1	03.04.07	17:38	34° 49,84' S	179° 6,38' W	0	SE 5	66,1	0,4	OBS/OBH	OBS/OBH	OBS an Deck	OBS 32
SO192/012-1	03.04.07	17:51	34° 49,19' S	179° 8,05' W	0	ESE 7	300,2	12,3	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 33
SO192/012-1	03.04.07	18:07	34° 47,72' S	179° 10,14' W	0	SE 4	328,9	1,1	OBS/OBH	OBS/OBH	OBS an Deck	OBS 33
SO192/012-1	03.04.07	18:17	34° 47,12' S	179° 11,44' W	0	ESE 7	300,6	10,7	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 35
SO192/012-1	03.04.07	18:25	34° 46,37' S	179° 13,07' W	0	SE 6	305,7	10,8	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 34
SO192/012-1	03.04.07	18:31	34° 45,77' S	179° 13,52' W	0	ESE 5	349,5	4,6	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 36
SO192/012-1	03.04.07	18:34	34° 45,63' S	179° 13,56' W	0	ESE 5	338,2	1,6	OBS/OBH	OBS/OBH	OBS an Deck	OBS 34
SO192/012-1	03.04.07	19:00	34° 44,07' S	179° 17,05' W	0	ESE 5	297	3,6	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 35
SO192/012-1	03.04.07	19:11	34° 43,62' S	179° 17,05' W	0	SE 7	22,2	0,6	OBS/OBH	OBS/OBH	OBS an Deck	OBS 35
SO192/012-1	03.04.07	19:16	34° 43,44' S	179° 17,19' W	0	ESE 6	296,5	6,8	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 37
SO192/012-1	03.04.07	19:24	34° 42,77' S	179° 18,86' W	0	ESE 6	297,2	13,4	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 36
SO192/012-1	03.04.07	19:40	34° 41,62' S	179° 20,56' W	0	ESE 5	320,1	1,4	OBS/OBH	OBS/OBH	OBS an Deck	OBS 36
SO192/012-1	03.04.07	19:55	34° 40,57' S	179° 22,66' W	0	ESE 7	306,2	12,2	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 37
SO192/012-1	03.04.07	19:57	34° 40,36' S	179° 23,07' W	0	ESE 6	303,8	11,9	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 38
SO192/012-1	03.04.07	20:11	34° 39,74' S	179° 24,20' W	0	ESE 5	258	1	OBS/OBH	OBS/OBH	OBS an Deck	OBS 37
SO192/012-1	03.04.07	20:30	34° 38,28' S	179° 26,67' W	0	ESE 6	304,5	11,7	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 39
SO192/012-1	03.04.07	20:43	34° 37,47' S	179° 27,88' W	0	SSE 4	335,8	2,3	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 38
SO192/012-1	03.04.07	20:53	34° 37,72' S	179° 27,48' W	0	E 6	150,3	1,8	OBS/OBH	OBS/OBH	OBS an Deck	OBS 38
SO192/012-1	03.04.07	21:10	34° 36,43' S	179° 29,82' W	0	ESE 6	316,6	12,9	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 39
SO192/012-1	03.04.07	21:13	34° 36,04' S	179° 30,39' W	0	ESE 5	301,7	9,7	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 40
SO192/012-1	03.04.07	21:25	34° 35,63' S	179° 31,14' W	0	E 8	176,6	0,7	OBS/OBH	OBS/OBH	OBS an Deck	OBS 39
SO192/012-1	03.04.07	21:42	34° 34,09' S	179° 33,49' W	0	ESE 6	304,5	10,1	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 41
SO192/012-1	03.04.07	21:59	34° 33,47' S	179° 34,62' W	0	E 4	319	0,6	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 40
SO192/012-1	03.04.07	22:07	34° 33,51' S	179° 34,72' W	0	E 5	276,4	1	OBS/OBH	OBS/OBH	OBS an Deck	OBS 40
SO192/012-1	03.04.07	22:19	34° 32,71' S	179° 35,99' W	0	ESE 5	312,8	8,9	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 42
SO192/012-1	03.04.07	22:30	34° 31,68' S	179° 37,48' W	0	ESE 6	311,9	9,1	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 41
SO192/012-1	03.04.07	22:42	34° 31,35' S	179° 38,07' W	0	ENE 7	151,6	0,3	OBS/OBH	OBS/OBH	OBS an Deck	OBS 41
SO192/012-1	03.04.07	22:44	34° 31,37' S	179° 38,10' W	0	ESE 5	224,9	2,2	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 43
SO192/012-1	03.04.07	23:01	34° 29,95' S	179° 40,36' W	0	E 5	300,6	7	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 42
SO192/012-1	03.04.07	23:17	34° 29,35' S	179° 41,84' W	0	E 6	252,2	1,5	OBS/OBH	OBS/OBH	OBS an Deck	OBS 42
SO192/012-1	03.04.07	23:18	34° 29,36' S	179° 41,86' W	0	ENE 7	262,1	0,8	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 44
SO192/012-1	03.04.07	23:43	34° 27,19' S	179° 45,19' W	0	NE 5	253,3	6,1	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 43

STATIONSBUCH

Station	Datum	UTC	PositionLat	PositionLon	Tiefe [m]	Windstärke [m/s]	Kurs [°]	v [kn]	Gerät	Gerätekürzel	Aktion	Bemerkung
SO192/012-1	03.04.07	23:56	34° 27,24' S	179° 45,48' W	0	E 6	74,7	0,6	OBS/OBH	OBS/OBH	OBS an Deck	OBS 43
SO192/012-1	04.04.07	00:19	34° 25,21' S	179° 48,55' W	0	E 5	308	10	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 44
SO192/012-1	04.04.07	00:34	34° 25,07' S	179° 49,08' W	0	SE 4	183,4	1,1	OBS/OBH	OBS/OBH	OBS an Deck	OBS 44
SO192/012-1	04.04.07	00:40	34° 25,05' S	179° 49,24' W	0	ESE 5	317,8	5,5	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 46
SO192/012-1	04.04.07	01:50	34° 21,00' S	179° 56,07' W	0	NNE 3	230	2,9	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 46
SO192/012-1	04.04.07	01:50	34° 21,00' S	179° 56,07' W	0	NNE 3	230	2,9	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 45
SO192/012-1	04.04.07	02:16	34° 21,19' S	179° 56,26' W	0	E 2	228,1	1,4	OBS/OBH	OBS/OBH	OBS an Deck	OBS 46
SO192/012-1	04.04.07	02:21	34° 21,13' S	179° 56,33' W	0	SSE 3	77,2	1,9	OBS/OBH	OBS/OBH	OBS an Deck	OBS 45
SO192/012-1	04.04.07	03:04	34° 22,75' S	179° 53,12' W	0	SE 3	262,5	1,2	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 45
SO192/012-1	04.04.07	03:11	34° 22,86' S	179° 52,84' W	0	SE 2	116,3	4,9	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 47
SO192/012-1	04.04.07	03:20	34° 23,02' S	179° 52,53' W	0	SE 3	131,8	0,7	OBS/OBH	OBS/OBH	OBS an Deck	OBS 45
SO192/012-1	04.04.07	03:55	34° 19,74' S	179° 58,38' W	0	SE 3	305	11,1	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 48
SO192/012-1	04.04.07	04:00	34° 19,21' S	179° 59,30' W	0	ESE 2	309,4	10,2	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 47
SO192/012-1	04.04.07	04:14	34° 18,84' S	179° 59,82' W	0	ESE 2	140,6	0,4	OBS/OBH	OBS/OBH	OBS an Deck	OBS 47
SO192/012-1	04.04.07	04:31	34° 17,51' S	179° 57,81' E	0	ESE 3	307,6	10,3	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 49
SO192/012-1	04.04.07	04:34	34° 17,26' S	179° 57,32' E	0	ESE 3	293,6	8,1	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 48
SO192/012-1	04.04.07	04:51	34° 16,71' S	179° 56,58' E	0	SE 3	222	0,8	OBS/OBH	OBS/OBH	OBS an Deck	OBS 48
SO192/012-1	04.04.07	05:11	34° 14,91' S	179° 53,43' E	0	SSE 3	322,5	8,6	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 49
SO192/012-1	04.04.07	05:14	34° 14,57' S	179° 53,21' E	0	ESE 2	337,9	6,2	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 50
SO192/012-1	04.04.07	05:28	34° 14,51' S	179° 52,93' E	0	SSE 3	254,6	2,1	OBS/OBH	OBS/OBH	OBS an Deck	OBS 49
SO192/012-1	04.04.07	05:49	34° 12,38' S	179° 50,04' E	0	SE 2	303,4	5,2	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 50
SO192/012-1	04.04.07	06:00	34° 12,15' S	179° 49,59' E	0	SE 4	234,1	1,3	OBS/OBH	OBS/OBH	OBS an Deck	OBS 50
SO192/012-1	04.04.07	06:03	34° 12,15' S	179° 49,50' E	0	SSE 5	278,6	2,8	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 51
SO192/012-1	04.04.07	06:20	34° 10,51' S	179° 46,59' E	0	S 2	306,7	8,1	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 51
SO192/012-1	04.04.07	06:33	34° 9,93' S	179° 46,19' E	0	SSE 3	346,8	0,9	OBS/OBH	OBS/OBH	OBS an Deck	OBS 51
SO192/012-1	04.04.07	06:34	34° 9,91' S	179° 46,19' E	0	SE 4	356,5	1,8	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 52
SO192/012-1	04.04.07	07:00	34° 7,92' S	179° 42,89' E	0	S 4	328	2	OBS/OBH	OBS/OBH	OBH gesichtet	OBS 52
SO192/012-1	04.04.07	07:03	34° 7,82' S	179° 42,82' E	0	SSE 5	304,7	2,2	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 53
SO192/012-1	04.04.07	07:08	34° 7,70' S	179° 42,68' E	0	SSE 5	303,5	1,5	OBS/OBH	OBS/OBH	OBH an Deck	OBH 52
SO192/012-1	04.04.07	07:29	34° 6,03' S	179° 39,73' E	0	SSE 6	313,4	5,4	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 53
SO192/012-1	04.04.07	07:42	34° 5,56' S	179° 39,18' E	0	S 4	296,6	0,5	OBS/OBH	OBS/OBH	OBH an Deck	OBH 53
SO192/012-1	04.04.07	07:43	34° 5,55' S	179° 39,17' E	0	SSE 4	340,4	0,7	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 54
SO192/012-1	04.04.07	07:55	34° 4,49' S	179° 37,39' E	0	SSE 7	303,7	12,8	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 54
SO192/012-1	04.04.07	08:16	34° 3,34' S	179° 35,56' E	0	SSE 8	315,5	1,5	OBS/OBH	OBS/OBH	OBH an Deck	OBS 54
SO192/012-1	04.04.07	08:17	34° 3,33' S	179° 35,54' E	0	SSE 9	302,2	1,4	OBS/OBH	OBS/OBH	OBH ausgelöst	OBS 55
SO192/012-1	04.04.07	08:54	34° 1,34' S	179° 32,15' E	0	SSE 5	283,9	1,5	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 55
SO192/012-1	04.04.07	08:55	34° 1,34' S	179° 32,14' E	0	SSE 4	309,6	0,1	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 56
SO192/012-1	04.04.07	09:09	34° 1,25' S	179° 32,05' E	0	SSE 5	321,8	3,1	OBS/OBH	OBS/OBH	OBH an Deck	OBH 55
SO192/012-1	04.04.07	09:21	34° 0,21' S	179° 30,38' E	0	SSE 7	307,8	11,9	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 56
SO192/012-1	04.04.07	09:22	34° 0,09' S	179° 30,19' E	0	SSE 6	308,4	11,4	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 57

STATIONSBUCH

Station	Datum	UTC	PositionLat	PositionLon	Tiefe [m]	Windstärke [m/s]	Kurs [°]	v [kn]	Gerät	Gerätekürzel	Aktion	Bemerkung
SO192/012-1	04.04.07	09:39	33° 59,13' S	179° 28,60' E	0	SE 8	298,4	1,8	OBS/OBH	OBS/OBH	OBH an Deck	OBH 56
SO192/012-1	04.04.07	09:52	33° 58,23' S	179° 27,05' E	0	SE 7	311,4	11,5	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 57
SO192/012-1	04.04.07	10:03	33° 57,36' S	179° 25,57' E	0	SE 5	297,7	4	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 58
SO192/012-1	04.04.07	10:10	33° 57,19' S	179° 25,17' E	0	SE 4	326,3	1,8	OBS/OBH	OBS/OBH	OBH an Deck	OBH 57
SO192/012-1	04.04.07	10:26	33° 55,75' S	179° 22,92' E	0	SE 6	314,6	10,7	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 58
SO192/012-1	04.04.07	10:42	33° 54,85' S	179° 21,77' E	0	SSE 3	305,3	1	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 59
SO192/012-1	04.04.07	10:43	33° 54,84' S	179° 21,76' E	0	SSE 4	337,5	1,5	OBS/OBH	OBS/OBH	OBH an Deck	OBH 58
SO192/012-1	04.04.07	11:11	33° 52,85' S	179° 18,40' E	0	SE 4	298,4	0,7	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 59
SO192/012-1	04.04.07	11:29	33° 52,76' S	179° 18,32' E	2347	SE 5	267,9	1,4	OBS/OBH	OBS/OBH	OBH an Deck	OBH 59
SO192/012-1	04.04.07	11:33	33° 52,75' S	179° 18,24' E	2362	ESE 4	272,4	1	OBS/OBH	OBS/OBH	Ende Station	
O192/013-1	04.04.07	21:53	33° 9,99' S	178° 27,83' W	5768	E 4	291,3	3,8	Magnetometer	MAGN	Beginn Station	
SO192/013-1	04.04.07	22:02	33° 9,78' S	178° 28,39' W	5784	SE 6	295	4,6	Magnetometer	MAGN	Magnetometer zu Wasser	RWK: 286°, d: 89 sm
SO192/013-1	04.04.07	22:03	33° 9,76' S	178° 28,48' W	5785	SE 6	287,3	5,5	Magnetometer	MAGN	Beginn Profil	
SO192/013-1	05.04.07	06:31	32° 46,04' S	179° 50,10' E	3383	SSE 6	284,2	10,5	Magnetometer	MAGN	Ende Profil	
SO192/013-1	05.04.07	06:54	32° 43,32' S	179° 48,62' E	3197	SSE 4	348,5	3,3	Magnetometer	MAGN	Magnetometer an Deck	
SO192/013-1	05.04.07	06:55	32° 43,27' S	179° 48,62' E	3205	S 4	352,4	2,4	Magnetometer	MAGN	Ende Station	
SO192/014-1	05.04.07	07:23	32° 39,13' S	179° 49,41' E	4205	SSE 4	86,6	3,3	OBS/OBH	OBS/OBH	Beginn Station	
SO192/014-1	05.04.07	07:25	32° 39,13' S	179° 49,50' E	4226	SSE 5	103,8	1,3	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 60
SO192/014-1	05.04.07	07:49	32° 39,89' S	179° 53,00' E	4091	SSE 4	109,4	1,7	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 61
SO192/014-1	05.04.07	08:15	32° 40,64' S	179° 56,51' E	3167	SSE 4	91	1,3	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 62
SO192/014-1	05.04.07	08:40	32° 41,38' S	179° 59,97' W	3315	SE 3	66,6	1,1	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 63
SO192/014-1	05.04.07	09:06	32° 42,24' S	179° 56,03' W	3426	SSE 4	145,5	1,3	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 64
SO192/014-1	05.04.07	09:31	32° 42,97' S	179° 52,50' W	3278	SE 4	135,6	1,7	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 65
SO192/014-1	05.04.07	09:57	32° 43,72' S	179° 49,01' W	3299	SE 4	135	1,4	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 66
SO192/014-1	05.04.07	10:23	32° 44,46' S	179° 45,47' W	3190	ESE 3	118,1	1,7	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 67
SO192/014-1	05.04.07	10:48	32° 45,20' S	179° 42,00' W	3183	ESE 2	54,6	0,6	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 68
SO192/014-1	05.04.07	11:12	32° 45,96' S	179° 38,49' W	2971	SSE 3	159,9	0,6	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 69
SO192/014-1	05.04.07	11:35	32° 46,71' S	179° 34,98' W	2889	SE 3	146,7	1,7	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 70
SO192/014-1	05.04.07	12:00	32° 47,54' S	179° 30,98' W	2493	SSE 3	128,5	1,4	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 71
SO192/014-1	05.04.07	12:24	32° 48,29' S	179° 27,49' W	1470	SSE 4	111,7	1,5	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 72
SO192/014-1	05.04.07	12:47	32° 49,06' S	179° 23,98' W	519	S 3	157,2	1,5	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 73
SO192/014-1	05.04.07	13:12	32° 49,87' S	179° 19,98' W	646	S 3	109,2	1,7	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 74
SO192/014-1	05.04.07	13:35	32° 50,62' S	179° 16,48' W	909	S 3	114,8	2,1	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 75
SO192/014-1	05.04.07	13:59	32° 51,36' S	179° 12,98' W	1424	S 5	124,7	1,2	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 76
SO192/014-1	05.04.07	14:21	32° 52,11' S	179° 9,46' W	1952	S 5	110,4	1,5	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 77
SO192/014-1	05.04.07	14:43	32° 52,87' S	179° 5,98' W	2317	SSW 5	116,5	1,4	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 78
SO192/014-1	05.04.07	15:05	32° 53,60' S	179° 2,46' W	2641	SE 4	129,4	1,3	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 79
SO192/014-1	05.04.07	15:26	32° 54,32' S	178° 58,98' W	2893	ESE 4	130,3	2,3	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 80
SO192/014-1	05.04.07	15:47	32° 55,06' S	178° 55,48' W	3087	SSE 5	117,1	2,8	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 81
SO192/014-1	05.04.07	16:10	32° 55,80' S	178° 51,98' W	3365	SSE 3	92,1	2,2	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 82

Station	Datum	UTC	PositionLat	PositionLon	Tiefe [m]	Windstärke [m/s]	Kurs [°]	v [kn]	Gerät	Gerätekürzel	Aktion	Bemerkung
SO192/014-1	05.04.07	16:32	32° 56,58' S	178° 48,50' W	3664	SSE 4	135,1	2,6	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 83
SO192/014-1	05.04.07	16:54	32° 57,33' S	178° 45,00' W	4207	SSE 5	116,5	2,4	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 84
SO192/014-1	05.04.07	17:16	32° 58,06' S	178° 41,49' W	4449	SSE 5	111,8	1,8	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 85
SO192/014-1	05.04.07	17:37	32° 58,78' S	178° 37,99' W	4840	SSE 6	98,8	2,4	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 86
SO192/014-1	05.04.07	17:59	32° 59,53' S	178° 34,49' W	4928	SSE 4	119,4	2,4	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 87
SO192/014-1	05.04.07	18:21	33° 0,24' S	178° 31,00' W	5090	SSE 5	100,8	2,6	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 88
SO192/014-1	05.04.07	18:47	33° 1,14' S	178° 26,80' W	5464	SSE 4	118,1	2,3	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 89
SO192/014-1	05.04.07	18:48	33° 1,16' S	178° 26,77' W	5463	SSE 3	110,9	1,9	OBS/OBH	OBS/OBH	Ende Station	
SO192/015-1	05.04.07	21:22	33° 6,86' S	178° 0,02' W	7056	SE 6	284,9	2,2	Profil	PR	Stationsbeginn	
SO192/015-1	05.04.07	21:32	33° 6,75' S	178° 0,34' W	7071	SSE 6	282,8	1,4	Profil	PR	Bb Airgun zu Wasser	
SO192/015-1	05.04.07	21:43	33° 6,61' S	178° 0,83' W	6990	SSE 5	284,6	3,4	Profil	PR	Stb Airgun zu Wasser	
SO192/015-1	05.04.07	21:47	33° 6,56' S	178° 1,10' W	6847	SSE 5	283,8	4,4	Profil	PR	Beginn Profil	RWK: 284°, d: 129 sm
SO192/015-1	05.04.07	21:50	33° 6,52' S	178° 1,36' W	6894	SSE 6	278,8	4,3	Profil	PR	Streamer zu Wasser	Baum 5, 200m
SO192/015-1	07.04.07	03:53	32° 35,10' S	179° 30,44' E	2956	S 4	290	2,1	Profil	PR	Streamer an Deck	
SO192/015-1	07.04.07	03:57	32° 35,06' S	179° 30,28' E	2955	S 3	277,7	2,1	Profil	PR	Ende Profil	
SO192/015-1	07.04.07	04:03	32° 35,01' S	179° 30,06' E	2947	S 4	258,9	0,8	Profil	PR	Stb-Airgunarray an Deck	
SO192/015-1	07.04.07	04:10	32° 35,05' S	179° 29,89' E	2961	S 5	239,8	1,9	Profil	PR	Bb-Airgunarray an Deck	
SO192/015-1	07.04.07	04:11	32° 35,06' S	179° 29,86' E	2955	S 4	254,2	2	Profil	PR	Stationsende	
SO192/016-1	07.04.07	04:28	32° 34,34' S	179° 29,84' E	2950	S 3	358,1	3,6	Magnetometer	MAGN	Beginn Station	
SO192/016-1	07.04.07	04:36	32° 33,70' S	179° 29,88' E	3100	S 4	2,6	6,6	Magnetometer	MAGN	Magnetometer zu Wasser	300m, rwk: 000°, d: 5sm
SO192/016-1	07.04.07	05:05	32° 29,07' S	179° 30,50' E	3001	SSW 5	57,3	10,5	Magnetometer	MAGN	Kursänderung	rwk: 103°, d: 106sm
SO192/016-1	07.04.07	14:57	32° 53,05' S	178° 27,01' W	5373	WSW 1	126,5	10,8	Magnetometer	MAGN	Kursänderung	rwK: 180°, d: 8 sm
SO192/017-1	07.04.07	15:05	32° 54,40' S	178° 26,76' W	5107	ESE 1	181,2	10,7	OBS/OBH	OBS/OBH	Beginn Station	
SO192/017-1	07.04.07	15:08	32° 54,94' S	178° 26,77' W	4922	SE 1	173,8	10,7	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 89
SO192/016-1	07.04.07	15:29	32° 56,42' S	178° 26,76' W	0	ESE 2	172,9	2,6	Magnetometer	MAGN	Magnetometer an Deck	
SO192/016-1	07.04.07	15:30	32° 56,47' S	178° 26,76' W	0	ESE 1	181,9	3,1	Magnetometer	MAGN	Ende Station	
SO192/017-1	07.04.07	16:05	32° 59,53' S	178° 26,78' W	0	E 2	178,2	7,1	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 88
SO192/017-1	07.04.07	16:16	33° 0,56' S	178° 26,78' W	0	SSE 2	176,9	3,4	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 89
SO192/017-1	07.04.07	16:29	33° 1,12' S	178° 26,70' W	0	ESE 1	146,5	0,6	OBS/OBH	OBS/OBH	OBH an Deck	OBH 89
SO192/017-1	07.04.07	16:32	33° 1,17' S	178° 26,71' W	0	SE 2	229,9	1,8	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 87
SO192/017-1	07.04.07	16:49	33° 0,80' S	178° 28,71' W	0	SE 2	287,2	8	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 88
SO192/017-1	07.04.07	17:07	33° 0,15' S	178° 30,91' W	0	WSW 0	274	1,1	OBS/OBH	OBS/OBH	OBH an Deck	OBH 88
SO192/017-1	07.04.07	17:13	33° 0,06' S	178° 31,34' W	0	SE 2	281,8	7,2	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 86
SO192/017-1	07.04.07	17:24	32° 59,76' S	178° 33,13' W	0	SSE 1	284,8	7,6	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 87
SO192/017-1	07.04.07	17:36	32° 59,43' S	178° 34,43' W	0	SE 1	291,3	1,5	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 85
SO192/017-1	07.04.07	17:37	32° 59,42' S	178° 34,45' W	0	SSW 0	281,7	1	OBS/OBH	OBS/OBH	OBH an Deck	OBH 87
SO192/017-1	07.04.07	17:52	32° 59,05' S	178° 36,70' W	0	ESE 2	288,6	11,3	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 86
SO192/017-1	07.04.07	18:04	32° 58,65' S	178° 37,91' W	0	NE 1	252	0,1	OBS/OBH	OBS/OBH	OBH an Deck	OBH 86
SO192/017-1	07.04.07	18:06	32° 58,65' S	178° 37,95' W	0	E 2	276,6	2,1	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 84
SO192/017-1	07.04.07	18:27	32° 58,13' S	178° 41,10' W	0	E 1	293,2	3,7	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 85

STATIONSBUCH

Station	Datum	UTC	PositionLat	PositionLon	Tiefe [m]	Windstärke [m/s]	Kurs [°]	v [kn]	Gerät	Gerätekürzel	Aktion	Bemerkung
SO192/017-1	07.04.07	18:37	32° 57,77' S	178° 41,30' W	0	ESE 2	38,4	1,1	OBS/OBH	OBS/OBH	OBH an Deck	OBH 85
SO192/017-1	07.04.07	18:41	32° 57,65' S	178° 41,35' W	0	ENE 3	281,6	4,4	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 83
SO192/017-1	07.04.07	18:47	32° 57,51' S	178° 42,41' W	0	E 2	274,4	12,1	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 84
SO192/017-1	07.04.07	19:08	32° 57,11' S	178° 44,52' W	0	E 2	144,1	1,1	OBS/OBH	OBS/OBH	OBH an Deck	OBH 84
SO192/017-1	07.04.07	19:18	32° 57,10' S	178° 45,75' W	0	ENE 2	280,2	11,5	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 82
SO192/017-1	07.04.07	19:26	32° 56,76' S	178° 47,57' W	0	E 1	291,8	11,4	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 83
SO192/017-1	07.04.07	19:34	32° 56,33' S	178° 48,20' W	0	NE 2	9,9	0,9	OBS/OBH	OBS/OBH	OBH an Deck	OBH 83
SO192/017-1	07.04.07	19:44	32° 56,11' S	178° 49,35' W	0	ENE 2	276,2	11,6	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 81
SO192/017-1	07.04.07	20:02	32° 55,79' S	178° 51,63' W	0	ENE 1	87,6	0,7	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 82
SO192/017-1	07.04.07	20:10	32° 55,60' S	178° 51,76' W	0	ENE 1	341,4	2	OBS/OBH	OBS/OBH	OBH an Deck	OBH 82
SO192/017-1	07.04.07	20:21	32° 55,30' S	178° 52,94' W	0	ENE 2	284,9	11	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 80
SO192/017-1	07.04.07	20:27	32° 55,11' S	178° 54,28' W	0	ENE 2	288,3	11,1	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 81
SO192/017-1	07.04.07	20:36	32° 54,91' S	178° 55,34' W	0	WNW 0	199,1	1,1	OBS/OBH	OBS/OBH	OBH an Deck	OBH 81
SO192/017-1	07.04.07	20:53	32° 54,37' S	178° 57,93' W	0	NE 2	276,6	9,5	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 80
SO192/017-1	07.04.07	20:57	32° 54,30' S	178° 58,49' W	0	NE 2	280,2	4,5	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 79
SO192/017-1	07.04.07	21:03	32° 54,28' S	178° 58,82' W	0	ENE 2	322,2	1,7	OBS/OBH	OBS/OBH	OBH an Deck	OBH 80
SO192/017-1	07.04.07	21:23	32° 53,60' S	179° 1,77' W	0	NE 1	264,4	6,8	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 78
SO192/017-1	07.04.07	21:27	32° 53,57' S	179° 2,20' W	0	ENE 1	263,7	3,8	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 79
SO192/017-1	07.04.07	21:32	32° 53,59' S	179° 2,42' W	0	ESE 1	157,9	1,7	OBS/OBH	OBS/OBH	OBS an Deck	OBS 79
SO192/017-1	07.04.07	21:48	32° 53,01' S	179° 5,02' W	0	ENE 2	284,1	9,1	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 77
SO192/017-1	07.04.07	21:49	32° 52,98' S	179° 5,18' W	0	ENE 2	282,7	7,6	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 78
SO192/017-1	07.04.07	21:57	32° 52,81' S	179° 5,93' W	0	NNE 1	298,5	1,6	OBS/OBH	OBS/OBH	OBS an Deck	OBS 78
SO192/017-1	07.04.07	22:12	32° 52,32' S	179° 8,20' W	0	NE 2	281	11	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 77
SO192/017-1	07.04.07	22:20	32° 52,07' S	179° 9,33' W	0	NE 2	284,2	3,6	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 76
SO192/017-1	07.04.07	22:22	32° 52,05' S	179° 9,43' W	0	NNE 1	282,3	2,5	OBS/OBH	OBS/OBH	OBS an Deck	OBS 77
SO192/017-1	07.04.07	22:36	32° 51,56' S	179° 11,76' W	0	ENE 3	283,5	10,2	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 76
SO192/017-1	07.04.07	22:47	32° 51,35' S	179° 12,98' W	0	NE 1	294,3	1,3	OBS/OBH	OBS/OBH	OBS an Deck	OBS 76
SO192/017-1	07.04.07	22:48	32° 51,35' S	179° 13,01' W	0	NNE 1	237,1	1,7	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 75
SO192/017-1	07.04.07	23:02	32° 50,85' S	179° 15,29' W	0	ENE 2	283,2	11,3	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 75
SO192/017-1	07.04.07	23:13	32° 50,64' S	179° 16,53' W	0	NNW 1	253,3	0,8	OBS/OBH	OBS/OBH	OBS an Deck	OBS 75
SO192/017-1	07.04.07	23:23	32° 50,99' S	179° 16,73' W	0	SE 2	250,6	4,2	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 74
SO192/017-1	07.04.07	23:37	32° 50,21' S	179° 19,16' W	0	NE 1	292,6	10,3	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 74
SO192/017-1	07.04.07	23:46	32° 49,96' S	179° 19,87' W	0	NW 1	278	1,6	OBS/OBH	OBS/OBH	OBS an Deck	OBS 74
SO192/017-1	07.04.07	23:47	32° 49,95' S	179° 19,89' W	0	NW 0	315,6	0,9	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 73
SO192/017-1	08.04.07	00:21	32° 49,13' S	179° 23,96' W	0	N 1	202,8	1,3	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 73
SO192/017-1	08.04.07	00:24	32° 49,21' S	179° 23,99' W	0	NNE 2	199,5	4,1	OBS/OBH	Gerätekürzel	OBS ausgelöst	OBS 72
SO192/017-1	08.04.07	00:40	32° 49,27' S	179° 23,89' W	0	NE 1	163	1,1	OBS/OBH	OBS/OBH	OBS an Deck	OBS 73
SO192/017-1	08.04.07	00:58	32° 48,76' S	179° 26,54' W	0	N 2	283,6	6,6	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 71
SO192/017-1	08.04.07	00:59	32° 48,74' S	179° 26,64' W	0	NNE 1	284,4	5,5	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 72
SO192/017-1	08.04.07	01:16	32° 48,34' S	179° 27,24' W	0	NE 1	58,2	1	OBS/OBH	OBS/OBH	OBS an Deck	OBS 72

Station	Datum	UTC	PositionLat	PositionLon	Tiefe [m]	Windstärke [m/s]	Kurs [°]	v [kn]	Gerät	Gerätekürzel	Aktion	Bemerkung
SO192/017-1	08.04.07	01:33	32° 47,95' S	179° 29,63' W	0	NE 1	282,8	10,2	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 70
SO192/017-1	08.04.07	02:00	32° 47,70' S	179° 30,65' W	0	E 2	139,4	1,8	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 69
SO192/017-1	08.04.07	02:12	32° 47,79' S	179° 30,48' W	0	ENE 1	115	0,6	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 71
SO192/017-1	08.04.07	02:30	32° 47,66' S	179° 30,83' W	0	SE 1	112,1	0,7	OBS/OBH	OBS/OBH	OBS an Deck	OBS 71
SO192/017-1	08.04.07	02:52	32° 47,17' S	179° 33,57' W	0	ENE 2	288,4	11,8	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 70
SO192/017-1	08.04.07	03:10	32° 47,09' S	179° 34,81' W	0	SSE 1	322,6	0,9	OBS/OBH	OBS/OBH	OBS an Deck	OBS 70
SO192/017-1	08.04.07	03:25	32° 46,45' S	179° 37,34' W	0	NE 2	279,1	7,8	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 69
SO192/017-1	08.04.07	03:50	32° 46,19' S	179° 38,38' W	2979	SE 2	188,4	1,3	OBS/OBH	OBS/OBH	OBS an Deck	OBS 69
SO192/017-2	08.04.07	04:06	32° 45,99' S	179° 37,92' W	2958	ESE 2	57,8	5,6	Magnetometer	MAGN	Beginn Station	
SO192/017-2	08.04.07	04:15	32° 45,66' S	179° 37,14' W	2906	SSW 1	62,7	7,8	Magnetometer	MAGN	Magnetometer zu Wasser	SL: 300m, rwk: 070°, d: 17sm
SO192/017-2	08.04.07	05:45	32° 40,11' S	179° 19,65' W	484	SE 2	79,4	11,1	Magnetometer	MAGN	Kursänderung	rwk: 090°, d: 67 nm
SO192/017-2	08.04.07	11:54	32° 40,01' S	178° 0,04' W	5797	E 3	89,6	11,2	Magnetometer	MAGN	Kursänderung	rwK: 360°, d: 10 nm
SO192/017-2	08.04.07	12:53	32° 30,18' S	177° 59,32' W	5901	ENE 5	301,8	10,4	Magnetometer	MAGN	Kursänderung	rwK: 270°, d: 83 sm
SO192/017-2	08.04.07	20:56	32° 30,09' S	179° 37,78' W	3060	ENE 2	264	10,4	Magnetometer	MAGN	Kursänderung	rwK: 193°, d: 15 nm
SO192/017-1	08.04.07	21:41	32° 37,45' S	179° 39,95' W	2046	E 4	190,3	10,5	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 68
SO192/017-1	08.04.07	22:24	32° 44,55' S	179° 41,81' W	0	E 2	187,5	8,9	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 68
SO192/017-2	08.04.07	22:25	32° 44,67' S	179° 41,85' W	0	ESE 3	194	6,5	Magnetometer	MAGN	Ende Profil	
SO192/017-1	08.04.07	22:26	32° 44,76' S	179° 41,88' W	0	E 3	199,3	5,5	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 67
SO192/017-2	08.04.07	22:39	32° 45,31' S	179° 42,11' W	0	ENE 3	202,8	2,4	Magnetometer	MAGN	Magnetometer an Deck	
SO192/017-2	08.04.07	22:40	32° 45,34' S	179° 42,13' W	0	ENE 3	208	2,2	Magnetometer	MAGN	Ende Station	
SO192/017-1	08.04.07	22:57	32° 45,46' S	179° 42,31' W	0	NE 2	333,7	0,4	OBS/OBH	OBS/OBH	OBS an Deck	OBS 68
SO192/017-1	08.04.07	23:03	32° 45,49' S	179° 42,43' W	0	SE 4	286,2	5,2	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 66
SO192/017-1	08.04.07	23:11	32° 44,95' S	179° 43,91' W	0	E 3	292,8	12,9	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 67
SO192/017-1	08.04.07	23:14	32° 44,69' S	179° 44,61' W	0	ENE 4	293,1	12,6	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 65
SO192/017-1	08.04.07	23:25	32° 44,28' S	179° 45,34' W	0	E 2	331	0,7	OBS/OBH	OBS/OBH	OBS an Deck	OBS 67
SO192/017-1	08.04.07	23:48	32° 43,87' S	179° 46,82' W	0	ENE 3	281,9	11,7	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 66
SO192/017-1	09.04.07	00:03	32° 43,60' S	179° 49,05' W	0	E 3	337,7	0,8	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 64
SO192/017-1	09.04.07	00:17	32° 43,27' S	179° 50,95' W	0	ENE 3	272,1	10,9	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 65
SO192/017-1	09.04.07	00:32	32° 42,89' S	179° 52,58' W	0	E 2	334,3	1,1	OBS/OBH	OBS/OBH	OBS an Deck	OBS 65
SO192/017-1	09.04.07	00:32	32° 42,89' S	179° 52,58' W	0	E 2	334,3	1,1	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 63
SO192/017-1	09.04.07	00:50	32° 42,48' S	179° 54,62' W	0	ENE 2	282	12,3	OBS/OBH	OBS/OBH	OBH gesichtet	OBS 64
SO192/017-1	09.04.07	01:05	32° 42,03' S	179° 56,04' W	0	ESE 1	351,7	0,9	OBS/OBH	OBS/OBH	OBS an Deck	OBS 64
SO192/017-1	09.04.07	01:07	32° 42,01' S	179° 56,05' W	0	ESE 2	4,7	0,5	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 62
SO192/017-1	09.04.07	01:27	32° 41,66' S	179° 58,18' W	0	ESE 2	274,5	12,4	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 63
SO192/017-1	09.04.07	01:37	32° 41,35' S	179° 59,93' W	0	ESE 1	314,6	2,1	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 61
SO192/017-1	09.04.07	01:43	32° 41,31' S	179° 59,98' W	0	ESE 2	211,4	0,6	OBS/OBH	OBS/OBH	OBS an Deck	OBS 63
SO192/017-1	09.04.07	01:58	32° 40,81' S	179° 57,74' E	0	ESE 1	293,1	9,3	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 62
SO192/017-1	09.04.07	02:00	32° 40,75' S	179° 57,43' E	0	SE 2	283,8	7,6	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 60
SO192/017-1	09.04.07	02:11	32° 40,48' S	179° 56,66' E	0	ESE 2	290,5	0,9	OBS/OBH	OBS/OBH	OBS an Deck	OBS 62
SO192/017-1	09.04.07	02:57	32° 39,87' S	179° 53,02' E	0	ENE 2	165,7	3,3	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 61

Station	Datum	UTC	PositionLat	PositionLon	Tiefe [m]	Windstärke [m/s]	Kurs [°]	v [kn]	Gerät	Gerätekürzel	Aktion	Bemerkung
SO192/017-1	09.04.07	03:06	32° 40,12' S	179° 53,08' E	0	ENE 1	177,6	0,5	OBS/OBH	OBS/OBH	OBS an Deck	OBS 61
SO192/017-1	09.04.07	03:28	32° 39,50' S	179° 50,58' E	0	NNE 0	285,7	8,1	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 60
SO192/017-1	09.04.07	03:45	32° 39,31' S	179° 49,66' E	4188	NNW 0	288,3	0,2	OBS/OBH	OBS/OBH	OBS an Deck	OBS 60
SO192/017-1	09.04.07	03:53	32° 39,30' S	179° 49,60' E	4182	NNE 0	265,6	0,1	OBS/OBH	OBS/OBH	Ende Station	
SO192/018-1	10.04.07	05:10	29° 2,16' S	177° 48,14' W	1431	SE 7	63,2	3,6	OBS/OBH	OBS/OBH	Beginn Station	
SO192/018-1	10.04.07	05:12	29° 2,14' S	177° 48,05' W	1432	ESE 9	105,1	2	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 119
SO192/018-1	10.04.07	05:37	29° 2,94' S	177° 44,00' W	1463	ESE 8	132,6	2,5	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 118
SO192/018-1	10.04.07	06:02	29° 3,78' S	177° 39,99' W	1789	E 10	131,7	2,4	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 117
SO192/018-1	10.04.07	06:26	29° 4,59' S	177° 36,01' W	2070	E 9	103,8	2,6	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 116
SO192/018-1	10.04.07	06:50	29° 5,44' S	177° 32,03' W	2369	E 10	119	2,3	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 115
SO192/018-1	10.04.07	07:15	29° 6,24' S	177° 28,01' W	2612	E 10	93	2,6	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 114
SO192/018-1	10.04.07	07:40	29° 7,13' S	177° 24,02' W	2793	E 11	120,6	1	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 113
SO192/018-1	10.04.07	08:07	29° 7,95' S	177° 20,01' W	2920	ENE 9	95,3	1,3	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 112
SO192/018-1	10.04.07	08:34	29° 8,78' S	177° 15,96' W	3054	E 10	156,4	1,3	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 111
SO192/018-1	10.04.07	09:00	29° 9,60' S	177° 11,98' W	3174	E 10	100,5	1,8	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 110
SO192/018-1	10.04.07	09:27	29° 10,46' S	177° 7,97' W	3292	E 8	125,5	0,9	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 109
SO192/018-1	10.04.07	09:54	29° 11,28' S	177° 4,01' W	3428	E 10	151,3	1,2	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 108
SO192/018-1	10.04.07	10:21	29° 12,10' S	176° 59,96' W	3555	ENE 9	75,1	0,8	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 107
SO192/018-1	10.04.07	10:47	29° 12,93' S	176° 56,01' W	3757	E 9	139,6	1	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 106
SO192/018-1	10.04.07	11:14	29° 13,75' S	176° 52,00' W	3952	E 8	165,4	0,8	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 105
SO192/018-1	10.04.07	11:40	29° 14,57' S	176° 48,00' W	4099	E 10	37,7	0,7	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 104
SO192/018-1	10.04.07	12:07	29° 15,43' S	176° 44,01' W	4621	E 9	111,6	1,2	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 103
SO192/018-1	10.04.07	12:35	29° 16,25' S	176° 40,01' W	5038	ENE 10	109	1,2	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 102
SO192/018-1	10.04.07	13:04	29° 17,10' S	176° 35,99' W	5148	ENE 9	117,1	1	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 101
SO192/018-1	10.04.07	13:32	29° 17,93' S	176° 32,01' W	4835	ENE 9	137,9	1,4	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 100
SO192/018-1	10.04.07	13:59	29° 18,77' S	176° 28,01' W	5679	ENE 9	116,7	1	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 99
SO192/018-1	10.04.07	14:26	29° 19,22' S	176° 25,71' W	5943	ENE 8	261,3	1	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 98
SO192/018-1	10.04.07	18:28	29° 28,69' S	175° 40,07' W	5991	E 8	23,2	0,5	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 97
SO192/018-1	10.04.07	19:00	29° 29,72' S	175° 35,02' W	5845	E 8	116,5	2,3	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 96
SO192/018-1	10.04.07	19:31	29° 30,79' S	175° 29,99' W	5776	ENE 9	100,7	2	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 95
SO192/018-1	10.04.07	20:03	29° 31,81' S	175° 25,02' W	5844	ENE 7	109,7	0,8	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 94
SO192/018-1	10.04.07	20:34	29° 32,84' S	175° 20,00' W	5714	NE 8	74,3	0,5	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 93
SO192/018-1	10.04.07	21:06	29° 33,89' S	175° 15,01' W	5684	NE 9	73,7	0,9	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 92
SO192/018-1	10.04.07	21:40	29° 34,93' S	175° 10,03' W	5703	ENE 10	170	1,5	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 91
SO192/018-1	10.04.07	21:55	29° 35,39' S	175° 7,77' W	5729	NE 9	104,4	11,3	OBS/OBH	OBS/OBH	Ende Station	
SO192/019-1	10.04.07	22:29	29° 36,42' S	175° 3,01' W	5715	E 7	267,6	2,4	Profil	PR	Stationsbeginn	
SO192/019-1	10.04.07	22:37	29° 36,33' S	175° 3,45' W	5725	ENE 9	283	3,3	Profil	PR	Bb Airgun zu Wasser	
SO192/019-1	10.04.07	22:46	29° 36,22' S	175° 4,00' W	5720	NE 9	293,4	3,3	Profil	PR	Stb Airgun zu Wasser	
SO192/019-1	10.04.07	22:52	29° 36,14' S	175° 4,36' W	5717	ENE 8	294,5	3,5	Profil	PR	Streamer zu Wasser	Baum 5, Stb.
SO192/019-1	10.04.07	22:59	29° 36,01' S	175° 4,89' W	5717	ENE 9	285,5	4	Profil	PR	Beginn Profil	RWK: 283°, d: 171 sm

STATIONSBUCH

Station	Datum	UTC	PositionLat	PositionLon	Tiefe [m]	Windstärke [m/s]	Kurs [°]	v [kn]	Gerät	Gerätekürzel	Aktion	Bemerkung
SO192/019-1	12.04.07	11:23	28° 56,55' S	178° 14,74' W	2195	WNW 9	304,3	3,7	Profil	PR	Streamer an Deck	
SO192/019-1	12.04.07	11:26	28° 56,53' S	178° 14,85' W	2194	W 10	288,4	0,7	Profil	PR	Ende Profil	
SO192/019-1	12.04.07	11:33	28° 56,50' S	178° 15,04' W	2188	WNW 10	266	0,8	Profil	PR	Stb Airgun an Deck	
SO192/019-1	12.04.07	11:42	28° 56,46' S	178° 15,27' W	2177	WNW 11	262,7	0,7	Profil	PR	Bb airgun an Deck	
SO192/019-1	12.04.07	11:50	28° 56,40' S	178° 15,49' W	2182	W 13	283,1	2,4	Profil	PR	Stationsende	
SO192/020-1	12.04.07	14:18	28° 59,71' S	177° 46,61' W	1397	W 10	133,2	11,7	OBS/OBH	OBS/OBH	Beginn Station	
SO192/020-1	12.04.07	14:20	29° 0,06' S	177° 46,35' W	1410	W 11	144,5	12,1	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 118
SO192/020-1	12.04.07	14:56	29° 3,29' S	177° 43,95' W	0	WSW 11	131,3	1,4	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 118, (2. x ausgelöst)
SO192/020-1	12.04.07	15:12	29° 3,35' S	177° 43,81' W	0	W 13	169	0,3	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 118
SO192/020-1	12.04.07	15:34	29° 3,35' S	177° 43,95' W	0	WSW 12	151,5	1,3	OBS/OBH	OBS/OBH	OBS an Deck	OBS 118
SO192/020-1	12.04.07	15:36	29° 3,37' S	177° 43,92' W	0	W 14	100,7	1,2	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 117
SO192/020-1	12.04.07	15:59	29° 4,21' S	177° 40,50' W	0	W 10	95,3	5,2	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 117
SO192/020-1	12.04.07	16:32	29° 4,30' S	177° 39,56' W	0	WSW 11	175,4	0,7	OBS/OBH	OBS/OBH	OBS an Deck	OBS117
SO192/020-1	12.04.07	16:37	29° 4,27' S	177° 39,43' W	0	WNW 12	86	5,6	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 116
SO192/020-1	12.04.07	17:01	29° 4,81' S	177° 35,87' W	0	SW 12	66	0,5	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 116
SO192/020-1	12.04.07	17:07	29° 4,77' S	177° 35,94' W	0	WSW 11	100,9	1,8	OBS/OBH	OBS/OBH	OBS an Deck	OBS 116
SO192/020-1	12.04.07	17:12	29° 4,73' S	177° 35,82' W	0	WNW 12	102,2	3,9	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 115
SO192/020-1	12.04.07	17:39	29° 5,63' S	177° 31,81' W	0	SW 9	253,7	0,6	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 115
SO192/020-1	12.04.07	17:40	29° 5,60' S	177° 31,82' W	0	SW 11	312,7	2,1	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 114
SO192/020-1	12.04.07	18:04	29° 5,71' S	177° 31,69' W	0	SW 11	63,6	3,4	OBS/OBH	OBS/OBH	OBS an Deck	OBS 115
SO192/020-1	12.04.07	19:25	29° 6,33' S	177° 27,77' W	0	WSW 10	78,9	1,4	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 114
SO192/020-1	12.04.07	19:28	29° 6,32' S	177° 27,77' W	0	WSW 10	256,5	0,9	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 113
SO192/020-1	12.04.07	19:33	29° 6,31' S	177° 27,86' W	0	WSW 12	61,8	1,9	OBS/OBH	OBS/OBH	OBS an Deck	OBS 114
SO192/020-1	12.04.07	20:05	29° 7,13' S	177° 23,68' W	0	WSW 12	16,2	0,7	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 113
SO192/020-1	12.04.07	20:11	29° 7,12' S	177° 23,94' W	0	WSW 12	243,8	2	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 112
SO192/020-1	12.04.07	20:12	29° 7,13' S	177° 23,94' W	0	WSW 11	92,4	0,7	OBS/OBH	OBS/OBH	OBS an Deck	OBS 113
SO192/020-1	12.04.07	20:48	29° 7,97' S	177° 19,61' W	0	W 10	281,8	0,5	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 111
SO192/020-1	12.04.07	20:50	29° 7,95' S	177° 19,60' W	0	WSW 11	259,5	0,1	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 112
SO192/020-1	12.04.07	21:04	29° 7,80' S	177° 19,74' W	0	W 10	94,3	2,3	OBS/OBH	OBS/OBH	OBS an Deck	OBS 112
SO192/020-1	12.04.07	21:25	29° 8,25' S	177° 16,66' W	0	WSW 11	95,4	10,6	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 110
SO192/020-1	12.04.07	21:30	29° 8,33' S	177° 15,93' W	0	WSW 8	81,4	5,4	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 111
SO192/020-1	12.04.07	21:43	29° 8,54' S	177° 15,83' W	0	W 9	71	0,6	OBS/OBH	OBS/OBH	OBS an Deck	OBS 111
SO192/020-1	12.04.07	22:05	29° 9,01' S	177° 12,58' W	0	W 9	117,1	10,8	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 109
SO192/020-1	12.04.07	22:07	29° 9,10' S	177° 12,24' W	0	WSW 10	105,7	8,4	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 110
SO192/020-1	12.04.07	22:20	29° 9,23' S	177° 11,83' W	0	W 8	142,4	0,4	OBS/OBH	OBS/OBH	OBS an Deck	OBS110
SO192/020-1	12.04.07	22:41	29° 9,65' S	177° 8,93' W	0	WSW 10	99,8	8,7	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 108
SO192/020-1	12.04.07	22:48	29° 9,87' S	177° 8,07' W	0	WSW 11	112,9	5,6	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 109
SO192/020-1	12.04.07	22:58	29° 10,11' S	177° 8,04' W	0	W 11	328,4	1,5	OBS/OBH	OBS/OBH	OBS an Deck	OBS 109
SO192/020-1	12.04.07	23:24	29° 10,74' S	177° 4,00' W	0	WSW 11	100,2	8,1	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 107
SO192/020-1	12.04.07	23:29	29° 11,02' S	177° 3,64' W	0	W 11	170,4	4,7	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 108

STATIONSBUCH

Station	Datum	UTC	PositionLat	PositionLon	Tiefe [m]	Windstärke [m/s]	Kurs [°]	v [kn]	Gerät	Gerätekürzel	Aktion	Bemerkung
SO192/020-1	12.04.07	23:36	29° 10,96' S	177° 3,99' W	0	SW 11	323,7	1	OBS/OBH	OBS/OBH	OBS an Deck	OBS 108
SO192/020-1	13.04.07	00:03	29° 11,55' S	177° 0,10' W	0	W 9	107,4	9,6	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 107
SO192/020-1	13.04.07	00:03	29° 11,55' S	177° 0,10' W	0	W 9	107,4	9,6	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 106
SO192/020-1	13.04.07	00:19	29° 11,71' S	176° 59,82' W	0	SW 9	53,3	1,1	OBS/OBH	OBS/OBH	OBS an Deck	OBS 107
SO192/020-1	13.04.07	00:48	29° 12,46' S	176° 56,46' W	0	WSW 8	111,3	9,8	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 108
SO192/020-1	13.04.07	00:49	29° 12,48' S	176° 56,30' W	0	SW 8	91,7	7,1	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 105
SO192/020-1	13.04.07	01:07	29° 12,41' S	176° 55,83' W	0	WSW 9	83,6	1,6	OBS/OBH	OBS/OBH	OBS an Deck	OBS 106
SO192/020-1	13.04.07	01:30	29° 12,97' S	176° 53,14' W	0	W 8	105	12,9	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 105
SO192/020-1	13.04.07	01:30	29° 12,97' S	176° 53,14' W	0	W 8	105	12,9	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 104
SO192/020-1	13.04.07	01:47	29° 13,36' S	176° 51,95' W	0	W 11	32,4	2,7	OBS/OBH	OBS/OBH	OBS an Deck	OBS 105
SO192/020-1	13.04.07	02:03	29° 13,21' S	176° 50,82' W	0	WSW 8	103,6	11	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 103
SO192/020-1	13.04.07	02:21	29° 14,38' S	176° 47,52' W	0	W 10	119,3	6,2	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 104
SO192/020-1	13.04.07	02:38	29° 14,26' S	176° 48,03' W	0	W 9	115,1	1,4	OBS/OBH	OBS/OBH	OBS an Deck	OBS 104
SO192/020-1	13.04.07	02:38	29° 14,26' S	176° 48,03' W	0	W 9	115,1	1,4	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 102
SO192/020-1	13.04.07	03:02	29° 14,93' S	176° 45,04' W	0	WSW 9	111,6	11,9	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 103
SO192/020-1	13.04.07	03:12	29° 15,45' S	176° 44,04' W	0	W 8	275	3,5	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 101
SO192/020-1	13.04.07	03:19	29° 15,21' S	176° 44,08' W	0	WSW 8	30,6	1,4	OBS/OBH	OBS/OBH	OBS an Deck	OBS 103
SO192/020-1	13.04.07	03:55	29° 16,12' S	176° 39,66' W	0	NW 10	250,1	2,4	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 102
SO192/020-1	13.04.07	03:57	29° 16,13' S	176° 39,72' W	0	W 9	254	2,1	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 100
SO192/020-1	13.04.07	04:09	29° 16,17' S	176° 40,20' W	0	WSW 10	46,6	1,2	OBS/OBH	OBS/OBH	OBS an Deck	OBS 102
SO192/020-1	13.04.07	04:33	29° 16,59' S	176° 37,05' W	0	WSW 10	106,8	11,6	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 101
SO192/020-1	13.04.07	04:44	29° 16,83' S	176° 36,11' W	0	WSW 10	338,8	2,7	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 099
SO192/020-1	13.04.07	04:46	29° 16,77' S	176° 36,11' W	0	WSW 9	357,4	1,3	OBS/OBH	OBS/OBH	OBS an Deck	OBS 101
SO192/020-1	13.04.07	05:11	29° 17,26' S	176° 33,11' W	0	WSW 10	112,6	10,9	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 100
SO192/020-1	13.04.07	05:16	29° 17,25' S	176° 32,26' W	0	W 7	86,6	7,7	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 098
SO192/020-1	13.04.07	05:25	29° 17,17' S	176° 32,13' W	0	WSW 8	3,5	1	OBS/OBH	OBS/OBH	OBS an Deck	OBS 100
SO192/020-1	13.04.07	06:39	29° 17,98' S	176° 27,80' W	5603	W 7	279,5	0,6	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 99
SO192/020-1	13.04.07	07:00	29° 18,30' S	176° 28,30' W	5557	WSW 8	319	2,2	OBS/OBH	OBS/OBH	OBS an Deck	OBS 99
SO192/020-1	13.04.07	07:11	29° 18,00' S	176° 27,97' W	5571	W 7	90,4	9,4	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 98
SO192/020-1	13.04.07	07:33	29° 17,75' S	176° 26,08' W	5782	WNW 7	344,8	1,6	OBS/OBH	OBS/OBH	OBS an Deck	OBS 98
SO192/020-1	13.04.07	13:55	29° 39,04' S	175° 15,66' W	5597	W 11	46,8	11	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 90
SO192/020-1	13.04.07	14:30	29° 35,40' S	175° 10,43' W	0	WNW 11	88,9	4,2	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 92
SO192/020-1	13.04.07	15:06	29° 35,14' S	175° 9,63' W	0	WNW 10	98,1	1,5	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 90
SO192/020-1	13.04.07	15:31	29° 35,14' S	175° 10,35' W	0	WNW 10	38,1	1,6	OBS/OBH	OBS/OBH	OBS an Deck	OBS 90
SO192/020-1	13.04.07	15:50	29° 34,68' S	175° 12,73' W	0	WNW 10	280,6	11,1	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 93
SO192/020-1	13.04.07	15:52	29° 34,60' S	175° 13,11' W	0	WNW 10	290	12	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 92
SO192/020-1	13.04.07	16:16	29° 34,03' S	175° 15,36' W	0	W 12	316	1	OBS/OBH	OBS/OBH	OBS an Deck	OBS 92
SO192/020-1	13.04.07	16:40	29° 33,36' S	175° 18,29' W	0	WNW 11	280,3	9,3	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 94
SO192/020-1	13.04.07	16:58	29° 33,00' S	175° 19,83' W	0	W 8	256	1,1	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 93
SO192/020-1	13.04.07	17:10	29° 32,81' S	175° 20,27' W	0	WNW 11	63,5	1,2	OBS/OBH	OBS/OBH	OBH an Deck	OBH 93

Station	Datum	UTC	PositionLat	PositionLon	Tiefe [m]	Windstärke [m/s]	Kurs [°]	v [kn]	Gerät	Gerätekürzel	Aktion	Bemerkung
SO192/020-1	13.04.07	17:31	29° 32,34' S	175° 22,57' W	0	NW 12	282,8	8,5	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 95
SO192/020-1	13.04.07	17:44	29° 31,98' S	175° 24,67' W	0	WNW 8	290,7	3,7	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 94
SO192/020-1	13.04.07	17:55	29° 31,68' S	175° 25,29' W	0	W 10	8,7	0,8	OBS/OBH	OBS/OBH	OBH an Deck	OBH 94
SO192/020-1	13.04.07	18:14	29° 31,21' S	175° 27,52' W	0	WNW 9	273	11	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 96
SO192/020-1	13.04.07	18:47	29° 30,83' S	175° 29,73' W	0	WNW 10	15,8	0,5	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 95
SO192/020-1	13.04.07	18:58	29° 30,55' S	175° 30,13' W	0	W 12	332	0,8	OBS/OBH	OBS/OBH	OBH an Deck	OBH 95
SO192/020-1	13.04.07	19:17	29° 30,13' S	175° 32,19' W	0	W 11	279,7	10,6	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 97
SO192/020-1	13.04.07	20:19	29° 29,69' S	175° 34,79' W	0	NW 9	329,3	3	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 96
SO192/020-1	13.04.07	20:29	29° 29,07' S	175° 34,76' W	0	WSW 11	37,9	2,5	OBS/OBH	OBS/OBH	OBH an Deck	OBH 96
SO192/020-1	13.04.07	21:08	29° 28,57' S	175° 39,83' W	5970	NW 9	308,9	6,1	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 97
SO192/020-1	13.04.07	21:16	29° 28,16' S	175° 40,11' W	6013	WSW 11	30	1,8	OBS/OBH	OBS/OBH	OBH an Deck	OBH 97
SO192/020-1	13.04.07	21:20	29° 28,02' S	175° 40,09' W	6008	WSW 9	349,8	4,7	OBS/OBH	OBS/OBH	Ende Station	
SO192/021-1	14.04.07	08:35	29° 1,26' S	177° 51,98' W	1127	SSW 4	279,1	1,6	OBS/OBH	OBS/OBH	Beginn Station	
SO192/021-1	14.04.07	08:36	29° 1,26' S	177° 52,00' W	1125	S 4	246,9	0,7	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 120
SO192/021-1	14.04.07	09:02	29° 0,46' S	177° 56,04' W	969	SW 3	279	1,6	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 121
SO192/021-1	14.04.07	09:28	28° 59,60' S	178° 0,05' W	1284	SW 3	277,1	1,4	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 122
SO192/021-1	14.04.07	09:53	28° 58,79' S	178° 4,02' W	1141	S 3	280,4	1,1	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 123
SO192/021-1	14.04.07	10:19	28° 57,97' S	178° 8,01' W	2007	SW 3	272,8	0,8	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 124
SO192/021-1	14.04.07	10:44	28° 57,12' S	178° 12,02' W	2156	SW 2	261,4	1,7	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 125
SO192/021-1	14.04.07	11:09	28° 56,29' S	178° 16,01' W	2197	S 2	323,8	0,8	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 126
SO192/021-1	14.04.07	11:34	28° 55,48' S	178° 20,03' W	2310	NNE 1	247,3	1,2	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 127
SO192/021-1	14.04.07	12:00	28° 54,66' S	178° 23,99' W	2288	SSW 3	281	1,5	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 128
SO192/021-1	14.04.07	12:27	28° 53,82' S	178° 27,99' W	1892	S 2	225,5	1,3	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 129
SO192/021-1	14.04.07	13:05	28° 52,86' S	178° 32,23' W	1862	SSE 4	268,1	6,9	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 130
SO192/021-1	14.04.07	13:28	28° 52,11' S	178° 36,01' W	1743	WSW 2	286,1	1,2	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 131
SO192/021-1	14.04.07	13:56	28° 51,27' S	178° 39,99' W	1707	SSW 1	237,5	1,9	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 132
SO192/021-1	14.04.07	14:25	28° 50,45' S	178° 44,02' W	2117	WSW 3	264,4	0,9	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 133
SO192/021-1	14.04.07	14:54	28° 49,61' S	178° 48,00' W	2106	W 1	262	2	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 134
SO192/021-1	14.04.07	15:22	28° 48,77' S	178° 52,03' W	2252	WSW 2	300,4	0,8	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 135
SO192/021-1	14.04.07	15:50	28° 47,95' S	178° 56,00' W	2535	WSW 3	300,4	2,1	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 136
SO192/021-1	14.04.07	16:18	28° 47,09' S	178° 59,99' W	2577	WSW 3	305	1,3	OBS/OBH	OBS/OBH	OBS zu Wasser	OBS 137
SO192/021-1	14.04.07	16:45	28° 46,28' S	179° 4,00' W	2542	W 3	271,5	1,2	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 138
SO192/021-1	14.04.07	17:10	28° 45,44' S	179° 8,00' W	2412	WSW 2	243,3	2,1	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 139
SO192/021-1	14.04.07	17:36	28° 44,61' S	179° 11,99' W	2497	WSW 3	237,3	2,1	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 140
SO192/021-1	14.04.07	18:03	28° 43,77' S	179° 16,01' W	2478	WSW 3	263,2	1,6	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 141
SO192/021-1	14.04.07	18:30	28° 42,91' S	179° 19,96' W	2333	SSW 3	282,2	1,5	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 142
SO192/021-1	14.04.07	18:57	28° 42,06' S	179° 23,99' W	2038	SW 3	349,1	0,6	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 143
SO192/021-1	14.04.07	19:24	28° 41,25' S	179° 27,98' W	1977	SSW 3	244,8	1,5	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 144
SO192/021-1	14.04.07	19:51	28° 40,40' S	179° 32,01' W	1974	SSW 2	275,7	1,1	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 145
SO192/021-1	14.04.07	20:20	28° 39,56' S	179° 36,02' W	1884	S 3	269,5	2,5	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 146

STATIONSBUCH

Station	Datum	UTC	PositionLat	PositionLon	Tiefe [m]	Windstärke [m/s]	Kurs [°]	v [kn]	Gerät	Gerätekürzel	Aktion	Bemerkung
SO192/021-1	14.04.07	20:47	28° 38,75' S	179° 39,99' W	1065	S 3	326,6	2,2	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 147
SO192/021-1	14.04.07	21:14	28° 37,92' S	179° 43,98' W	1530	SW 2	359,6	2	OBS/OBH	OBS/OBH	OBH zu Wasser	OBH 148
SO192/021-1	14.04.07	21:15	28° 37,90' S	179° 43,99' W	1531	SSW 2	322,2	2,3	OBS/OBH	OBS/OBH	Ende Station	
SO192/022-1	14.04.07	22:51	28° 34,61' S	179° 59,28' W	2587	S 1	88,6	3,6	Profil	PR	Stationsbeginn	
SO192/022-1	14.04.07	22:58	28° 34,67' S	179° 58,85' W	2546	ESE 1	105,9	4	Profil	PR	Bb Airgun zu Wasser	
SO192/022-1	14.04.07	23:07	28° 34,84' S	179° 58,25' W	2527	SSE 1	92,8	4	Profil	PR	Stb Airgun zu Wasser	
SO192/022-1	14.04.07	23:12	28° 34,96' S	179° 57,87' W	2541	SSW 1	79,1	7,2	Profil	PR	Streamer zu Wasser	Baum 5
SO192/022-1	14.04.07	23:18	28° 35,11' S	179° 57,37' W	2558	SE 0	89,8	5,6	Profil	PR	Beginn Profil	rwK: 103°, d: 131 nm
SO192/022-1	16.04.07	00:51	29° 4,39' S	177° 36,90' W	1977	SE 3	96	2,8	Profil	PR	Streamer an Deck	
SO192/022-1	16.04.07	00:51	29° 4,39' S	177° 36,90' W	1977	SE 3	96	2,8	Profil	PR	Ende Profil	
SO192/022-1	16.04.07	00:57	29° 4,46' S	177° 36,58' W	2080	ESE 2	99	3,3	Profil	PR	Stb Airgun an Deck	
SO192/022-1	16.04.07	01:04	29° 4,59' S	177° 36,15' W	2044	E 3	109	3,4	Profil	PR	Bb airgun an Deck	
SO192/022-1	16.04.07	01:05	29° 4,61' S	177° 36,09' W	2048	E 3	105	2,9	Profil	PR	Stationsende	
SO192/023-1	16.04.07	06:50	29° 4,67' S	177° 50,40' W	1159	ESE 3	40	13,2	OBS/OBH	OBS/OBH	Beginn Station	
SO192/023-1	16.04.07	06:51	29° 4,51' S	177° 50,24' W	0	ESE 3	41	12,8	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 119
SO192/023-1	16.04.07	07:06	29° 2,43' S	177° 48,26' W	0	ESE 4	31	4,3	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 119
SO192/023-1	16.04.07	07:18	29° 2,21' S	177° 48,15' W	0	SE 3	224	0,3	OBS/OBH	OBS/OBH	OBS an Deck	OBS 119
SO192/023-1	16.04.07	07:31	29° 1,81' S	177° 50,02' W	0	ESE 4	287	14,1	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 120
SO192/023-1	16.04.07	07:41	29° 1,26' S	177° 51,75' W	0	E 3	283	5,5	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 120
SO192/023-1	16.04.07	07:47	29° 1,32' S	177° 52,09' W	0	ESE 3	244	1,3	OBS/OBH	OBS/OBH	OBH an Deck	OBH 120
SO192/023-1	16.04.07	07:50	29° 1,32' S	177° 52,34' W	0	ESE 5	288	8,3	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 121
SO192/023-1	16.04.07	08:06	29° 0,42' S	177° 55,64' W	0	ESE 3	286	6	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 121
SO192/023-1	16.04.07	08:15	29° 0,54' S	177° 56,17' W	0	ESE 4	270	2	OBS/OBH	OBS/OBH	OBS an Deck	OBS 121
SO192/023-1	16.04.07	08:18	29° 0,53' S	177° 56,31' W	0	ESE 4	284	4,6	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 122
SO192/023-1	16.04.07	08:36	28° 59,54' S	177° 59,68' W	0	E 4	293	6,5	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 122
SO192/023-1	16.04.07	08:43	28° 59,57' S	178° 0,11' W	0	E 6	253	1,6	OBS/OBH	OBS/OBH	OBS an Deck	OBS 122
SO192/023-1	16.04.07	08:45	28° 59,57' S	178° 0,17' W	0	E 6	270	2,3	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 123
SO192/023-1	16.04.07	09:02	28° 58,80' S	178° 3,37' W	0	E 4	288	9,1	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 123
SO192/023-1	16.04.07	09:07	28° 58,69' S	178° 3,92' W	0	ENE 3	268	4,9	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 124
SO192/023-1	16.04.07	09:12	28° 58,69' S	178° 4,23' W	0	E 3	282	2,1	OBS/OBH	OBS/OBH	OBS an Deck	OBS 123
SO192/023-1	16.04.07	09:38	28° 57,87' S	178° 8,06' W	0	ENE 3	260	2,5	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 124
SO192/023-1	16.04.07	09:42	28° 57,88' S	178° 8,28' W	0	SSE 3	341	2,8	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 125
SO192/023-1	16.04.07	09:49	28° 57,87' S	178° 8,12' W	0	ESE 4	114	1,1	OBS/OBH	OBS/OBH	OBS an Deck	OBS 124
SO192/023-1	16.04.07	10:10	28° 57,19' S	178° 11,42' W	0	E 3	287	7,5	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 125
SO192/023-1	16.04.07	10:12	28° 57,13' S	178° 11,66' W	0	ENE 3	292	5,8	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 126
SO192/023-1	16.04.07	10:29	28° 57,04' S	178° 12,03' W	0	E 4	174	0,8	OBS/OBH	OBS/OBH	OBS an Deck	OBS 125
SO192/023-1	16.04.07	10:45	28° 56,59' S	178° 14,30' W	0	E 5	290	12,9	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 126
SO192/023-1	16.04.07	10:55	28° 56,30' S	178° 15,76' W	0	E 3	225	3,2	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 127
SO192/023-1	16.04.07	10:58	28° 56,37' S	178° 15,88' W	0	E 4	245	1,4	OBS/OBH	OBS/OBH	OBS an Deck	OBS 126
SO192/023-1	16.04.07	11:25	28° 55,36' S	178° 19,98' W	0	E 3	306	2,3	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 127

Station	Datum	UTC	PositionLat	PositionLon	Tiefe [m]	Windstärke [m/s]	Kurs [°]	v [kn]	Gerät	Gerätekürzel	Aktion	Bemerkung
SO192/023-1	16.04.07	11:26	28° 55,33' S	178° 19,99' W	0	SE 4	22	1,8	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 128
SO192/023-1	16.04.07	11:35	28° 55,65' S	178° 19,86' W	0	ENE 5	164	1,6	OBS/OBH	OBS/OBH	OBS an Deck	OBS 127
SO192/023-1	16.04.07	11:57	28° 54,77' S	178° 23,37' W	0	S 5	291	8,1	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 128
SO192/023-1	16.04.07	12:08	28° 54,85' S	178° 23,86' W	0	SSW 3	10	0,2	OBS/OBH	OBS/OBH	OBS an Deck	OBS 128
SO192/023-1	16.04.07	12:16	28° 54,73' S	178° 24,38' W	0	SSE 7	288	9,5	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 129
SO192/023-1	16.04.07	12:41	28° 54,14' S	178° 27,97' W	0	SE 6	231	1,8	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 129
SO192/023-1	16.04.07	12:59	28° 54,17' S	178° 28,11' W	0	SSE 7	223	1,3	OBS/OBH	OBS/OBH	OBS an Deck	OBS 129
SO192/023-1	16.04.07	13:04	28° 54,19' S	178° 28,34' W	0	SSE 9	259	5,9	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 130 (Keine Antwort, Weiterfahrt zu OBS
SO192/023-1	16.04.07	14:06	28° 53,06' S	178° 32,14' W	0	SE 7	283	4,8	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 131
SO192/023-1	16.04.07	14:33	28° 52,40' S	178° 35,84' W	0	SE 4	186	0,5	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 131
SO192/023-1	16.04.07	14:57	28° 52,45' S	178° 36,25' W	0	ESE 5	221	1,8	OBS/OBH	OBS/OBH	OBS an Deck	OBS 131
SO192/023-1	16.04.07	15:32	28° 52,70' S	178° 35,75' W	0	SE 2	283	12,9	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 132
SO192/023-1	16.04.07	15:59	28° 51,57' S	178° 39,95' W	0	SE 5	164	2,2	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 132
SO192/023-1	16.04.07	16:09	28° 51,38' S	178° 40,15' W	0	E 6	311	2,4	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 133
SO192/023-1	16.04.07	16:10	28° 51,37' S	178° 40,17' W	0	SE 5	291	1,6	OBS/OBH	OBS/OBH	OBS an Deck	OBS 132
SO192/023-1	16.04.07	16:36	28° 50,38' S	178° 43,95' W	0	NE 5	284	2,8	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 133
SO192/023-1	16.04.07	16:38	28° 50,39' S	178° 44,04' W	0	NNW 5	218	2,5	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 134
SO192/023-1	16.04.07	16:42	28° 50,54' S	178° 44,08' W	0	ENE 5	218	0,8	OBS/OBH	OBS/OBH	OBS an Deck	OBS 133
SO192/023-1	16.04.07	17:03	28° 49,61' S	178° 47,36' W	0	ENE 5	281	6,2	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 134
SO192/023-1	16.04.07	17:15	28° 49,68' S	178° 48,13' W	0	ENE 6	204	1,2	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 135
SO192/023-1	16.04.07	17:16	28° 49,70' S	178° 48,14' W	0	ENE 5	217	1,7	OBS/OBH	OBS/OBH	OBS an Deck	OBS 134
SO192/023-1	16.04.07	18:21	28° 48,87' S	178° 52,14' W	0	NNE 4	183	1,2	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 135
SO192/023-1	16.04.07	18:23	28° 48,89' S	178° 52,14' W	0	NNE 5	23	0,2	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 136
SO192/023-1	16.04.07	18:41	28° 48,90' S	178° 52,11' W	0	ENE 6	168	0,6	OBS/OBH	OBS/OBH	OBS an Deck	OBS 135
SO192/023-1	16.04.07	19:05	28° 47,84' S	178° 55,75' W	0	E 4	280	4,6	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 136
SO192/023-1	16.04.07	19:09	28° 47,89' S	178° 55,97' W	0	ENE 6	152	2,5	OBS/OBH	OBS/OBH	OBS ausgelöst	OBS 137
SO192/023-1	16.04.07	19:11	28° 47,94' S	178° 55,95' W	0	ENE 6	171	0,6	OBS/OBH	OBS/OBH	OBS an Deck	OBS 136
SO192/023-1	16.04.07	19:37	28° 47,00' S	178° 59,67' W	0	ESE 5	270	4,2	OBS/OBH	OBS/OBH	OBS gesichtet	OBS 137
SO192/023-1	16.04.07	19:41	28° 46,96' S	178° 59,93' W	0	E 5	243	2,8	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 138
SO192/023-1	16.04.07	19:46	28° 47,10' S	179° 0,00' W	0	E 6	201	0,5	OBS/OBH	OBS/OBH	OBS an Deck	OBS 137
SO192/023-1	16.04.07	20:15	28° 46,15' S	179° 3,90' W	0	ESE 7	250	2,5	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 138
SO192/023-1	16.04.07	20:16	28° 46,16' S	179° 3,94' W	0	ESE 8	251	2	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 139
SO192/023-1	16.04.07	20:19	28° 46,18' S	179° 4,03' W	0	ESE 7	273	1,2	OBS/OBH	OBS/OBH	OBH an Deck	OBH 138
SO192/023-1	16.04.07	20:45	28° 45,21' S	179° 7,74' W	0	ESE 9	242	2,5	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 140
SO192/023-1	16.04.07	21:00	28° 45,31' S	179° 7,90' W	0	E 7	37	0,6	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 139
SO192/023-1	16.04.07	21:07	28° 45,36' S	179° 8,07' W	0	ESE 4	300	0,6	OBS/OBH	OBS/OBH	OBH an Deck	OBH 139
SO192/023-1	16.04.07	21:28	28° 44,41' S	179° 11,66' W	0	ENE 5	254	5,8	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 140
SO192/023-1	16.04.07	21:30	28° 44,45' S	179° 11,84' W	0	E 7	243	4,8	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 141
SO192/023-1	16.04.07	21:34	28° 44,57' S	179° 12,02' W	0	ESE 6	211	1,6	OBS/OBH	OBS/OBH	OBH an Deck	OBH 140
SO192/023-1	16.04.07	22:00	28° 43,57' S	179° 15,82' W	0	E 6	255	2,9	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 141

Station	Datum	UTC	PositionLat	PositionLon	Tiefe [m]	Windstärke [m/s]	Kurs [°]	v [kn]	Gerät	Gerätekürzel	Aktion	Bemerkung
SO192/023-1	16.04.07	22:01	28° 43,59' S	179° 15,87' W	0	ESE 7	252	3	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 142
SO192/023-1	16.04.07	22:09	28° 43,74' S	179° 16,03' W	0	E 6	252	0,4	OBS/OBH	OBS/OBH	OBH an Deck	OBH 141
SO192/023-1	16.04.07	22:32	28° 42,75' S	179° 19,70' W	0	ESE 4	266	6,7	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 142
SO192/023-1	16.04.07	22:41	28° 42,80' S	179° 19,90' W	0	ESE 6	267	1,3	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 143
SO192/023-1	16.04.07	22:42	28° 42,80' S	179° 19,92' W	0	E 6	326	0,9	OBS/OBH	OBS/OBH	OBH an Deck	OBH 142
SO192/023-1	16.04.07	23:12	28° 41,98' S	179° 23,90' W	0	E 5	32	1,1	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 143
SO192/023-1	16.04.07	23:17	28° 42,02' S	179° 23,91' W	0	E 5	187	0,3	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 144
SO192/023-1	16.04.07	23:18	28° 42,02' S	179° 23,90' W	0	E 6	101	0,3	OBS/OBH	OBS/OBH	OBH an Deck	OBH 143
SO192/023-1	16.04.07	23:40	28° 40,95' S	179° 27,46' W	0	ESE 4	286	7,7	OBS/OBH	OBS/OBH	OBS gesichtet	OBH 144
SO192/023-1	16.04.07	23:41	28° 40,97' S	179° 27,57' W	0	ENE 3	243	4,9	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 145
SO192/023-1	16.04.07	23:47	28° 41,11' S	179° 27,89' W	0	ESE 5	214	0,6	OBS/OBH	OBS/OBH	OBH an Deck	OBH 144
SO192/023-1	17.04.07	00:10	28° 40,01' S	179° 31,63' W	0	SE 5	329	5,9	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 145
SO192/023-1	17.04.07	00:18	28° 39,97' S	179° 31,79' W	0	E 7	179	1,6	OBS/OBH	OBS/OBH	OBH ausgelöst	obh 146
SO192/023-1	17.04.07	00:28	28° 39,86' S	179° 31,82' W	0	ESE 5	15	2,5	OBS/OBH	OBS/OBH	OBH an Deck	OBS 145
SO192/023-1	17.04.07	00:52	28° 39,46' S	179° 35,44' W	0	ESE 4	278	6,9	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 146
SO192/023-1	17.04.07	01:07	28° 39,11' S	179° 35,79' W	0	SE 6	346	1,2	OBS/OBH	OBS/OBH	OBH an Deck	OBH 146
SO192/023-1	17.04.07	01:12	28° 38,98' S	179° 36,07' W	0	ESE 4	288	6,7	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 147
SO192/023-1	17.04.07	01:35	28° 38,14' S	179° 39,56' W	0	ENE 3	285	2	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 147
SO192/023-1	17.04.07	01:49	28° 38,38' S	179° 39,85' W	0	E 4	325	0,3	OBS/OBH	OBS/OBH	OBH an Deck	OBH 147
SO192/023-1	17.04.07	01:54	28° 38,29' S	179° 40,10' W	0	E 5	289	7,2	OBS/OBH	OBS/OBH	OBH ausgelöst	OBH 148
SO192/023-1	17.04.07	02:31	28° 37,23' S	179° 44,01' W	0	E 4	33	0,7	OBS/OBH	OBS/OBH	OBH gesichtet	OBH 148
SO192/023-1	17.04.07	02:47	28° 37,59' S	179° 43,95' W	1496	ESE 5	321	0,4	OBS/OBH	OBS/OBH	OBH an Deck	OBH 148
SO192/023-1	17.04.07	04:00	28° 43,52' S	179° 34,46' W	1912	ESE 5	103	12,6	OBS/OBH	OBS/OBH	Ende Station	
SO192/024-1	18.04.07	03:40	32° 26,00' S	178° 44,74' W	2890	S 9	151,3	12,8	Vermessung	EM / PS	Kursänderung	rwK: 085°, d: 42 sm
SO192/024-1	18.04.07	03:57	32° 25,91' S	178° 42,55' W	3072	SW 9	92,6	3,2	Vermessung	EM / PS	Magnetometer z.W.	SL: 300 m
SO192/024-1	18.04.07	03:57	32° 25,91' S	178° 42,55' W	3072	SW 9	92,6	3,2	Vermessung	EM / PS	Beginn Profil	
SO192/024-1	18.04.07	07:42	32° 22,68' S	177° 55,15' W	5651	SW 8	120,9	11,1	Vermessung	EM / PS	Kursänderung	rwk: 180°, d: 26sm
SO192/024-1	18.04.07	10:08	32° 47,30' S	177° 54,99' W	5718	S 11	178,5	10,7	Vermessung	EM / PS	Kursänderung	rwK: 270°, d: 19 nm
SO192/024-1	18.04.07	11:56	32° 47,88' S	178° 16,84' W	5243	SSE 13	275	10,9	Vermessung	EM / PS	Kursänderung	rwK: 180°, d: 8 nm
SO192/024-1	18.04.07	12:46	32° 55,86' S	178° 17,53' W	5568	SSE 9	146,1	10,1	Vermessung	EM / PS	Kursänderung	rwK: 088°, d: 19 sm
SO192/024-1	18.04.07	14:31	32° 55,61' S	177° 55,29' W	7014	S 10	116,3	10,4	Vermessung	EM / PS	Kursänderung	rwK: 180°, d: 31 sm
SO192/024-1	18.04.07	17:27	33° 26,24' S	177° 54,92' W	8390	SSW 11	174,8	11,9	Vermessung	EM / PS	Kursänderung	rwk: 057°, d: 9sm
SO192/024-1	18.04.07	18:22	33° 21,44' S	177° 46,02' W	8250	SSE 10	31,3	10,9	Vermessung	EM / PS	Kursänderung	rwk: 000°, d: 44sm
SO192/024-1	18.04.07	22:14	32° 37,72' S	177° 45,79' W	6816	S 9	16,5	11,9	Vermessung	EM / PS	Kursänderung	rwK: 077°, d: 8 nm
SO192/024-1	18.04.07	22:54	32° 35,41' S	177° 37,37' W	8360	S 13	89,2	11,2	Vermessung	EM / PS	Kursänderung	rwK: 180°, d: 56 nm
SO192/024-1	19.04.07	04:02	33° 29,94' S	177° 35,52' W	6877	SSE 10	182,8	9,8	Vermessung	EM / PS	Kursänderung	rwK: 214°, d: 36 sm
SO192/024-1	19.04.07	04:16	33° 30,74' S	177° 36,16' W	6939	SSE 11	225,6	1,7	Vermessung	EM / PS	Magnetometer a.D.	
SO192/024-1	19.04.07	07:31	33° 59,90' S	177° 59,92' W	7931	SE 7	213,5	11,1	Vermessung	EM / PS	Kursänderung	rwk: 202°, d: 130sm
SO192/024-1	19.04.07	19:00	35° 59,96' S	179° 0,02' W	6292	S 2	209,4	10,8	Vermessung	EM / PS	Kursänderung	rwk: 220°, d: 116sm
SO192/024-1	20.04.07	05:00	37° 28,90' S	179° 27,83' E	1539	SSW 4	232,8	10,6	Vermessung	EM / PS	Kursänderung	rwk: 301°, d: 26sm

STATIONSBUCH

Station	Datum	UTC	PositionLat	PositionLon	Tiefe [m]	Windstärke [m/s]	Kurs [°]	v [kn]	Gerät	Gerätekürzel	Aktion	Bemerkung
SO192/024-1	20.04.07	05:11	37° 28,44' S	179° 26,71' E	1418	S 3	299,6	8,8	Vermessung	EM / PS	Magnetometer z.W.	SL: 300m
SO192/024-1	20.04.07	07:20	37° 15,84' S	179° 0,01' E	1274	SSE 1	299,3	11,7	Vermessung	EM / PS	Kursänderung	rwk: 302,5°, d: 57sm
SO192/024-1	20.04.07	12:13	36° 45,22' S	177° 59,87' E	2394	WNW 2	300,2	11,6	Vermessung	EM / PS	Kursänderung	rwK: 301,9°, d: 28 sm
SO192/024-1	20.04.07	14:40	36° 30,30' S	177° 30,00' E	2502	WSW 6	278	7	Vermessung	EM / PS	Kursänderung	rwK: 270°, d:62 sm
SO192/024-2	21.04.07	15:40	36° 30,30' S	177° 30,00' E	2503	WSW 7	278	7	Vermessung	EM / PS	Ende Profil	
SO192/024-1	20.04.07	15:06	36° 30,31' S	177° 28,40' E	2446	SW 2	268,6	2,7	Vermessung	EM / PS	Magnetometer a.D.	
SO192/024-1	20.04.07	21:00	36° 30,04' S	176° 3,41' E	203	SW 3	269,7	12	Vermessung	EM / PS	Ende wiss. Aufzeichnungen	

Station SO 192-1	CTD	OBH / S ausgebracht	OBH / S eingeholt	Magnetometer	Streamer / NZ	2 x Airgun Traversen (je 4 x)	Hilfswinden und Kräne	EM 120 / Parasound - Profil	Hilfskräne/-winden Einsatzzeit	Stationszeit	Profilzeit	W 6 Zeit	EM 120 / Parasound- Zeit	Stationszeit in sm	Profilzeit in sm	W 6 Länge	EM 120 / Parasound-Verm. in sm	Bemerkungen
SO 192-1 / 01 - 1								1			7,5		7,5		67		67	EM 120 Vermessung
SO 192-1 / 02 - 1				1			1	1	18,0		18,0		18,0		184		184	EM 120 Vermessung + Magnetometer
SO 192-1 / 03 - 1	1						1			3,3		3,3				3100		CTD + Releasertest
SO 192-1 / 04 - 1				1			1	1	16,0		16,0		16,0		154		154	EM 120 Vermessung + Magnetometer
SO 192-1 / 05 - 1		29					1	1	2,9	12,1			12,1	90			90	Auslegen OBH / S
SO 192-1 / 06 - 1								1			5,5		5,5		67		67	EM 120 Vermessung
SO 192-1 / 07 - 1				1			1	1	19,5		19,5		19,5		206		206	EM 120 Vermessung + Magnetometer
SO 192-1 / 08 - 1					1	1	1	1	38,0		38,0		38,0		160		160	Seismic Profil # 01
SO 192-1 / 09 - 1			29				1		5,8	23,2				100				Aufnahme OBH / S
SO 192-1 / 10 - 1		30					1	1	6,0	13,3			13,3	105			105	Auslegen OBH / S
SO 192-1 / 11 - 1					1	1	1	1	38,3		38,3		38,3		152		152	Seismic Profil # P21
SO 192-1 / 12 - 1			30				1		6,0	21,5				108				Aufnahme OBH / S
SO 192-1 / 13 - 1				1			1	1	9,0		9,0		9,0		89		89	EM 120 Vermessung + Magnetometer
SO 192-1 / 14 - 1		30					1	1	6,0	11,4			11,4	88			88	Auslegen OBH / S
SO 192-1 / 15 - 1					1	1	1	1	30,8		30,8		30,8		129		129	Seismic Profil # P31
SO 192-1 / 16 - 1				1			1	1	11,0		11,0		11,0		119		119	EM 120 Vermessung + Magnetometer
SO 192-1 / 17 - 1			30				1		6,0	18,2				97				Aufnahme OBH / S
SO 192-1 / 17 - 2				1			1	1	18,6		18,6		18,6		192		192	EM 120 Vermessung + Magnetometer
SO 192-1 / 18 - 1		29					1	1	6,0	16,8			16,8	142			142	Auslegen OBH / S
SO 192-1 / 19 - 1					1	1	1	1	37,3		37,3		37,3		171		171	Seismic Profil # P41
SO 192-1 / 20 - 1			28				1		6,0	31,0				179				Aufnahme OBH / S
SO 192-1 / 21 - 1		29					1	1	6,0	12,7			12,7	105			105	Auslegen OBH / S
SO 192-1 / 22 - 1					1	1	1	1	26,2		26,2		26,2		131		131	Seismic Profil # P42
SO 192-1 / 23 - 1			29				1		6,0	21,1				124				Aufnahme OBH / S
SO 192-1 / 24 - 1				1			1	1	40,1		65,0		65,0		677		677	EM 120 Vermessung + Magnetometer
Total:	**1**	**147**	**146**	**7**	**5**	**5**	**23**	**19**	**359,5**	**185**	**341**	**3**	**407**	**1138**	**2498**	**3100**	**3028**	
maximal gefierte																		
Seillänge SO 192-1																3100		

IFM-GEOMAR Reports

No.	Title
1	RV Sonne Fahrtbericht / Cruise Report SO 176 & 179 MERAMEX I & II (Merapi Amphibious Experiment) 18.05.-01.06.04 & 16.09.-07.10.04. Ed. by Heidrun Kopp & Ernst R. Flueh, 2004, 206 pp. In English
2	RV Sonne Fahrtbericht / Cruise Report SO 181 TIPTEQ (from The Incoming Plate to mega Thrust EarthQuakes) 06.12.2004.-26.02.2005. Ed. by Ernst R. Flueh & Ingo Grevemeyer, 2005, 533 pp. In English
3	RV Poseidon Fahrtbericht / Cruise Report POS 316 Carbonate Mounds and Aphotic Corals in the NE-Atlantic 03.08.–17.08.2004. Ed. by Olaf Pfannkuche & Christine Utecht, 2005, 64 pp. In English
4	RV Sonne Fahrtbericht / Cruise Report SO 177 - (Sino-German Cooperative Project, South China Sea: Distribution, Formation and Effect of Methane & Gas Hydrate on the Environment) 02.06.-20.07.2004. Ed. by Erwin Suess, Yongyang Huang, Nengyou Wu, Xiqiu Han & Xin Su, 2005, to be published summer 2006. In English and Chinese
5	RV Sonne Fahrtbericht / Cruise Report SO 186 – GITEWS (German Indonesian Tsunami Early Warning System 28.10.-13.1.2005 & 15.11.-28.11.2005 & 07.01.-20.01.2006. Ed. by Ernst R. Flueh, Tilo Schoene & Wilhelm Weinrebe, 2006, 169 pp. In English
6	RV Sonne Fahrtbericht / Cruise Report SO 186 -3 – SeaCause II, 26.02.-16.03.2006. Ed. by Heidrun Kopp & Ernst R. Flueh, 2006, 174 pp. In English
7	RV Meteor, Fahrtbericht / Cruise Report M67/1 CHILE-MARGIN-SURVEY 20.02.-13.03.2006. Ed. by Wilhelm Weinrebe und Silke Schenk, 2006, 112 pp. In English
8	RV Sonne Fahrtbericht / Cruise Report SO 190 - SINDBAD (Seismic and Geoacoustic Investigations Along The Sunda-Banda Arc Transition) 10.11.2006 - 24.12.2006. Ed. by Heidrun Kopp & Ernst R. Flueh, 2006, 186 pp. In English
9	RV Sonne Fahrtbericht / Cruise Report SO 191 - New Vents "Puaretanga Hou" 11.01. - 23.03.2007. Ed. by Jörg Bialas, Jens Greinert, Peter Linke, Olaf Pfannkuche, 2007, xx pp. In English
10	FS ALKOR Fahrtbericht / Cruise Report AL 275 - Geobiological investigations and sampling of aphotic coral reef ecosystems in the NE-Skagerrak, 24.03. - 30.03.2006, Andres Rüggeberg & Armin Form, 39 pp. In English

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