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Contents

Seismic Structure of the Hawaiian Mantle Plume using Array Seismology Methods

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ABSTRACT: In this study we apply seismic array methods to infer the depth range of the plume conduit feeding the hotspot of Hawaii. The aim is to detect in real data, the out-of-plane arrivals seen in synthetic plume modelling by Stockmann et al. (2019). However, from the data collected, these arrivals are not reproduced. We suggest that this is more likely to be caused by a combination of mantle heterogeneities interacting with the seismic waves, and an increased effect of wavefront healing at larger plume-receiver distances, rather than by the total absence of a mantle plume underneath Hawaii. For direct waves measured in the Tonga - North America configuration, we found a trend in out-of-plane arrivals opposite to the results of Stockmann et al. (2019). This is not likely to be caused by the plume structure, but might be related to large scale heterogeneities in the lower mantle, for example Ultra Low Velocities Zones or Large Low Shear Velocity Provinces. Furthermore, we observe a consistent negative out-of-plane arrival of three degrees with the seismic network in Alaska for events at different locations. These negative arrivals are probably caused by local crustal and upper mantle heterogeneities, which might be compensated for, using mislocation vectors.

1 Introduction

The Earth's mantle is a complex heterogeneous layer, regarding its structure and composition (Tackley, 2012). The introduction of seismic tomography has yielded images of subducting slabs extending deep into the mantle (e.g. Van der Hilst et al., 1997), and plumes have been imaged rising from the CMB (e.g. French and Romanowicz, 2015), thereby giving evidence for whole mantle convection. Plate tectonics, as seen at the surface, is powered by mantle convection and flow. Other surface expressions of mantle convection are hotspots. These regions, describing volcanism unrelated to plate boundaries or excessive volcanism at a plate boundary (e.g. Iceland), are found both on oceanic and continental lithosphere, and have a distinct chemical composition compared to the surrounding plate ((Sun and McDonough, 1989; Fitton, 2007)). Furthermore, topography at hotspots has been observed, referred to as hotspot swells, which is not accounted for by simple conductive cooling of the lithosphere, and might indicate a flux of warm material from the mantle (King and Adam, 2014). Due to convection, plumes originating in the deep mantle are thought to transport hot material to the Earth's surface and are generally considered to be the cause of hotspots (e.g. Morgan, 1971; Zhao, 2001; French and Romanowicz, 2015). Different theories exist describing the source, shape and size of plumes forming in the lower mantle (e.g. Li and Zhong, 2017; French and Romanowicz, 2015), the mid-mantle (Cserepes and Yuen, 2000), the transition zone (Courtillot et al., 2003), or even that hotspots are caused by tectonics rather than by plumes (e.g. Anderson et al., 2005).

Low velocity zones in the upper mantle have been identified using seismic tomography, which can be correlated with hot mantle plumes (e.g. Montelli et al., 2006; Zhao, 2007). However, due to wavefront healing, it is difficult to detect actual plume conduits in the lower mantle (depth >1000 km) using seismic travel times (Hwang et al., 2011; Maguire et al., 2016). The exact depth range and origin of mantle plumes thus remains unsolved. In a recent study (Stockmann et al., 2019) a thermochemical plume was numerically modelled and synthetic waveforms were recorded in seismic arrays after passing through the plume. The authors were able to detect changes in the shape of the wavefront of P- and S-waves caused by the plume conduit.

The aim of this study is to investigate the seismic structure of the assumed Hawaiian mantle plume using array analyses applied to real data and following the synthetic study by Stockmann et al. (2019). Hawaii is the perfect candidate to look for a deep mantle plume conduit, because it has tomographic and geochemical indications of a deep mantle plume source (French and Romanowicz, 2015; Jackson et al., 2017). Furthermore, the subduction zones surrounding the Pacific plates cause an abundance in seismic events, which can be measured by seismic networks in Japan and North America. Last of all, Hawaii is located far away from plate boundaries on the Pacific plate, therefore few upper mantle structures are present to disturb seismic signals.

We study several source-receiver combinations in order to investigate the plume from different directions, but our focus will be on events in the Tonga region south of the expected plume recorded by several receiver networks in North America. If the plume exists, we expect to find a similar trend in deviations, as described in the synthetic tests by Stockmann et al. (2019). By studying different phases we aim to get information on different depth levels in the mantle underneath Hawaii, to put constraints on the depth range of the expected Hawaiian mantle plume. Furthermore, we include a synthetic model, to test that the aforementioned deviations do not form in a radially symmetric Earth, and are therefore related to lateral heterogeneities in the real Earth, such as the plume conduit of a deep mantle plume.

2 Background

2.1 Hotspots

The total number of hotspots on the Earth's surface ranges in literature between 37 by Sleep (1990) up to 68 by Morgan and Morgan (2007). Fig. 1 gives an overview of several studies on hotspot locations, and shows that, especially in South East Asia, there is not much consensus on this topic. For ocean islands on the other hand, such as Hawaii, these studies are in good agreement. As the name suggest, some hotspots are correlated to an increased heatflux, indicating a thermal source (Crough, 1979). Nevertheless, as shown by Stein and Stein (2003), the correlation does not hold for all hotspots. When located on oceanic plates, hotspots can be traced by their hotspot track, which forms when the magmatic source is fixed relative to the mantle, compared to the plate moving over the mantle due to plate tectonics (Morgan, 1981; Cuffaro and Doglioni, 2007). However, the magmatic source might be subjected to mantle flow and therefore not stationary at a geological timescale (Tarduno et al., 2009).

Hotspots located on oceanic lithosphere, consist of Ocean Islands Basalts (OIB), whereas the vast majority of the oceanic lithosphere consists of Mid-Oceanic Ridge Basalts (MORB). The composition of MORBs is globally relatively constant (Gale et al., 2013), whereas OIBs typically have a large, incoherent range in composition (Hofmann, 1989). Regional compositional similarities between OIB and MORB are suggested to be a result of mixing between the OIB reservoirs and the upper mantle, the source region of MORB (DeFelice et al., 2019). The compositional inconsistency between individual OIB locations could be caused by separate source reservoirs at depth (Hofmann, 1989). The varying helium ratios of basalts of Hawaii for example, indicate that OIB form from a compositionally different source compared to MORB, located in the lower mantle (Jackson et al., 2017). A lower mantle reservoir could be caused by the separation of the reservoir from the convective mantle, thereby maintaining a primordial composition, and might even be linked to large low shear velocity provinces in the lower mantle (LLSVPs) (Jackson et al., 2017).

The LLSVPs, located underneath the Pacific Plate and Africa, have a low velocity which is more dominant in S-waves, but also present in P-waves, and also in normal mode studies these regions show up (e.g. Davies et al., 2015; Ishii and Tromp, 1999). In the normal mode study by Ishii and Tromp (1999) an anti-correlation in shear and bulk sound velocity for the LLSVPs was found as well as a higher density. The authors hypothesize that the regions are hot, which results in upwellings, leaving denser components behind, thus causing the LLSVPs to be thermo-chemically distinct. Further expressions of the thermal character of the LLSVPs are presented by a correlation between the location of the LLSVPs, and the location of large igneous provinces (LIPs), kimberlites, and active hotspots with a deep mantle origin (Burke et al., 2008).

2.2 Mantle plumes

OIB reservoirs at depth could be linked to hotspots at the surface through mantle plumes. Mantle plumes are a subject of active debate ever since their existence was suggested by Morgan (1971). The author describes mantle plumes as narrow features transporting hot material from the lower mantle to the surface. The variations in observations between individual hotspots concerning, among others, heatflux, hotspot track and composition make it hard to say with certainty whether some or all hotspots are caused by mantle plumes. An alternative explanation for hotspots, besides mantle plumes, could be a lithospheric origin (e.g. Anderson et al., 2005).

Regarding the structure of plumes, the simple vertical features of Morgan (1971) have developed towards the idea that plumes are rising upward with a large plume head and a thinner tail (Campbell, 2005). Apart from an origin near the CMB for deep mantle plumes, in agreement with whole mantle convection, it is suggested that plumes may form at the transition zone. From the starting point of a numerical whole mantle convection model, Yan et al. (2020) found that basalt-rich reservoirs are formed at the the bottom of the transition zone between the upper and lower mantle, resulting in compositional mantle layering. Deep plumes transport the basalts from thermo-chemical piles near the CMB, representing the LLSVPs, up to the transition zone. The reservoirs proposed by Yan et al. (2020) near the transition zone, seem to complement the numerical study of Liu and Leng (2020) where a single deep mantle source splits into several plumes at the transition zone.

In the Mid-Atlantic region, plume conduits have been inferred by studying the effects of Clapeyron slopes on the depth of the phase transformations giving rise to the discontinuities in the transition zone (Saki et al., 2015). This indicates a continuation of a cluster of thin plumes from the surface, through the 410 km discontinuity. At the 660 km discontinuity the observations are less conclusive, leaving the possibility open of a larger combined source reservoir or plume head underneath the 660 km discontinuity, feeding the above cluster of thinner plumes (Saki et al., 2015).

Slow regions have been visualized in seismic tomography surrounding plume conduits, which are interpreted as being caused by hot plumes, heating the surrounding mantle through conduction (e.g. Courtillot et al., 2003; Montelli et al., 2004a; Zhao, 2007). The continuation of these plumes at depth could in theory be traces by using finite-frequency tomography. However, common resolution problems in this type of study are vertical leakage, which can indicate plumes at depth without profound data. At the same time, plumes seemingly end where they are likely to continue. Nevertheless, using this method, Montelli et al. (2006) found ten

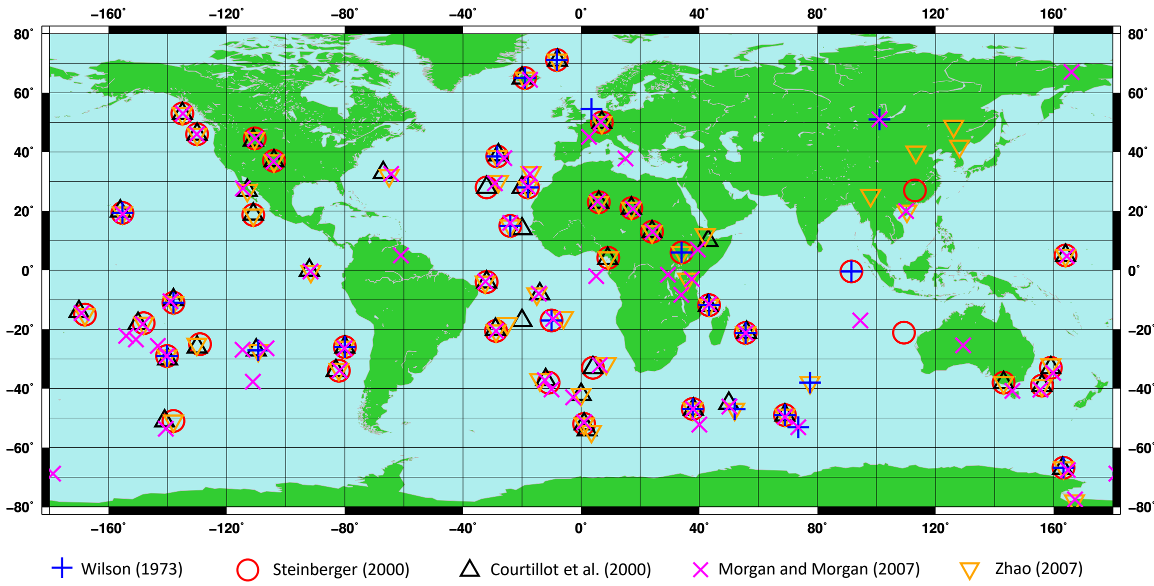


Figure 1: *Overview of the global hotspot distribution according to different studies.*

plumes to have a possible deep mantle source (Table 1). In a different study, eight hotspots, partly overlapping the previously mentioned, were found to have vertically continuous low shear velocity in the upper mantle and might be traced to regions in the lower mantle with lower velocities, in most cases the LLSVPs (Ritsema and Allen, 2003). The study of Ritsema and Allen (2003) contains only the 37 hotspots proposed by Sleep (1990). Also 3D ray tracing applied on direct and reflected P-waves has been used to study plumes, resulting in twelve hotspots with indication of a mantle plume traced through the upper mantle with their origin in the lower mantle (Zhao, 2007).

Where the previous studies based their conclusion only on seismic tomography, Courtillot et al. (2003) use five separate criteria to determine whether or not a plume has a deep source. Only one of the criteria is based on tomography. Examples of other criteria are isotope ratios and heat flux. This results in seven plumes which are likely to originate at great depth in the mantle (Table 1). From Table 1 it becomes clear that there is little agreement between the aforementioned studies in deep mantle plume sources of hotspots, except for the Hawaiian plume, which is indicated unanimously as such. The above studies all found indications for deep plumes. However, none of the studies were able to identify the actual plume conduit.

2.3 Seismic resolution

The resolution of seismic waveforms can be captured in sensitivity kernels, which typically are banana-doughnut shaped around the raypath (Marquering et al., 1999). The frequency content of the wave influences the exact shape of the sensitivity kernel. Higher frequencies will result in a thinner doughnut, with a bigger hole (Marquering et al., 1999). The width of the kernel increases as the distance from the source or receiver along the raypath increases. For direct waves, the kernel is at its widest near the bounce point of the ray (Montelli et al., 2004b). Traveltime differences, due to heterogeneities along the raypath, occur only when the width of the heterogeneity is larger than the width of the doughnut (Marquering et al., 1999).

Sensitivity kernels, however, do not take wavefront healing into account, although both describe how small scale heterogeneities become undetectable in seismic measurements (Thore and Juliard, 1999). Wavefront healing is the observation that small scale disturbances in the wavefront, of approximately wavelength size, become negligible at large distance, due to interactions with direct waves (Wielandt, 1987; Malcolm and Trampert, 2011). Thus, the influence of an heterogeneity on the traveltime of a wave increases as the distance between the heterogeneity and the receiver increases. Eventually, the measured traveltime of the wave passing through the heterogeneity, will resemble the traveltime of a wave with a similar path without the heterogeneity. Due to wavefront healing, a plume conduit may be too narrow to be detected at depth, using classical tomography methods measuring P-wave travel times (Hwang et al., 2011; Maguire et al., 2016).

2.4 Previous study by Stockmann et al. (2019), using synthetic data

In a recent synthetic study, Stockmann et al. (2019) were able to identify the plume conduit by applying seismic array methods, rather than focussing on travel times. The authors modelled a synthetic thermo-chemical distinct mantle plume originating from an iron-rich, high density, chemically distinct pile at the bottom of the model. The plume had

Table 1: *Summary of hotpots related to a mantle plume with a source in the lower mantle, by different studies: Courtillot (Courtillot et al., 2003), Ritsema (Ritsema and Allen, 2003), Montelli (Montelli et al., 2006) and Zhao (Zhao, 2007). Hawaii, highlighted in yellow, is the only hotspot recognized as to having a deep mantle plume source by all metioned studies.*

Courtillot	Ritsema	Montelli	Zhao
Afar	Afar		Afar
			Amsterdam
		Ascension	
		Azores	
	Bowie		
		Canary	
		Cape Verde	Cape Verde
Caroline			
			Cobb
		Cook Island	
		Crozet	
Easter	Easter		
			Eifel
			Hainan
Hawaii	Hawaii	Hawaii	Hawaii
Iceland	Iceland		Iceland
		Kerguelen	Kerguelen
Louisville	Louisville		Louisville
	McDonald		
Reunion			Reunion
Samoa	Samoa	Samoa	
		Tahiti	Tahiti
Tristan			
Total			
9	8	10	12

a diameter of approximately 400 km at a depth of 1000 km. Based on full waveform simulations through the plume model, synthetic seismograms were recorded by Stockmann et al. (2019). Using seismic array methods, Stockmann et al. (2019) were able to detect changes in the shape of the wavefront caused by the plume conduit, as illustrated in Fig. 2a. The source-receiver epicentral distance at which a difference between plume and non-plume models could be detected, ranged between 32° and 39° (Fig. 2a). The average aperture of the seismic arrays was ≈ 6°, with an inter-station spacing of 2°. Seismic arrays detected deviations in the azimuth of incoming seismic arrivals for both P- and S-waves, compared to a reference model without a plume.

Deviations in arrivals from the great-circle path are known as "out-of-plane" arrivals, and will hence be referred to as OOP. The OOP signals in seismic arrays on either side of the great circle path connecting the source and the plume, had opposite sign with respect to each other. The great circle path connecting the source and the plume will henceforth be referred to as GCP-SP. An OOP deviation of ≈ 10° with respect to the reference model was measured, at a distance of ≈ 5° from the GCP-SP (Stockmann et al., 2019). The OOP signals were interpreted by the authors as bending of the wavefront due to decreased seismic velocities in and near the plume conduit. Factors that might affect this trend are the size of the plume, the thermo-chemical signature and the frequencies used to measure the OOP arrival. Furthermore, in their model, Stockmann et al. (2019) detected reflections off the chemical pile at the base of the model near the great circle path connecting the source and the plume. The scatterers depicted in 2a were not found, but due to computational limitations, the authors only ran simulations with a minimum period of 15 seconds. It is possible that scattering could still occur at higher frequencies.

From the results of Stockmann et al. (2019), we extrapolated the trend as presented in Fig. 2b. The OOP deviation has a maximum at a certain GCP-SP distance, and gradually reduces to zero when the distance further increases. When the distance between the plume and the seismic network increases we might expect smaller OOP deviations, as the influence of the plume on the total wave path may be smaller.

3 Methods

3.1 Array seismology

In array seismology, a combination of receivers is used when studying the Earth, instead of a single receiver, because of two main advantages. Firstly, the signal-to-noise ratio increases compared to single stations (Rost and Thomas, 2002). Secondly, a slowness vector can be constructed, which yields information about the direction of the signal (Rost and Thomas, 2009). The assumption in most seismic array methods is that waves arrive with a planar wavefront far away from the source. In the synthetic study of Stockmann et al. (2019) the receivers were aligned orderly. For real data at larger scale this is likely not the case. A collection of stations can be referred to as a network. When the data of a network are processed, as is done using seismic array methods, the configuration is referred to as a seismic array (Schweitzer et al., 2002).

Beamforming

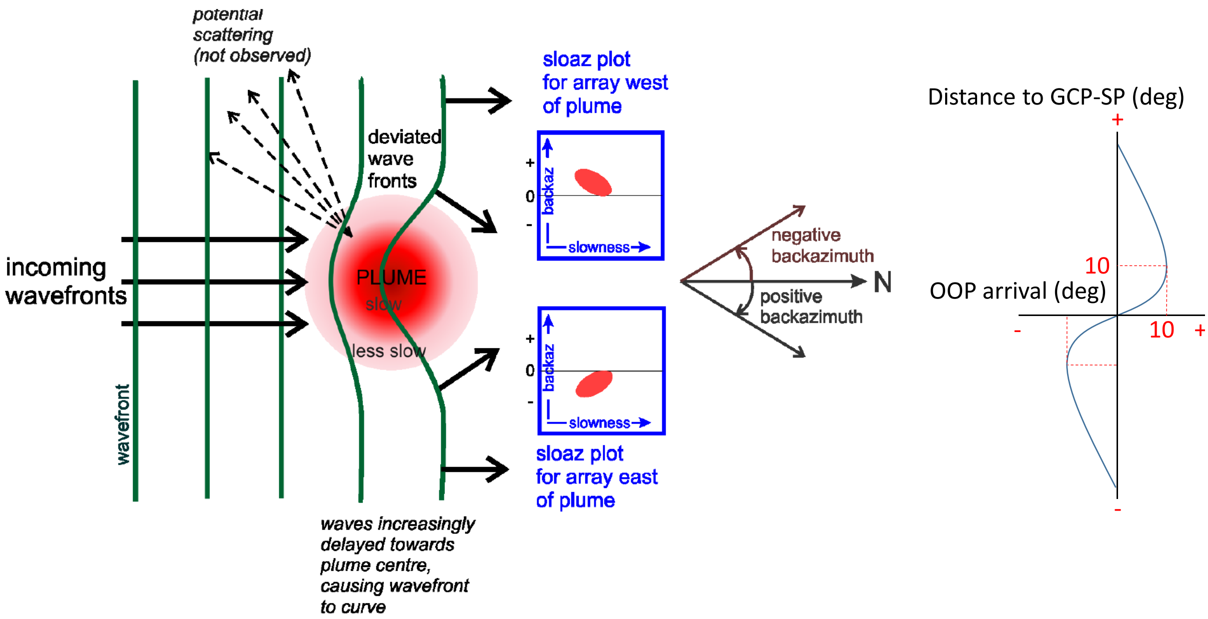
The propagation direction of the wavefront can be described with the backazimuth θ and a horizontal slowness vector $\mathbf{u}$. The backazimuth at the receiver is the angle between the North and the source location. The slowness vector u is given by:

$$u = \frac{1}{v_{app}} \tag{1}$$

$$\begin{aligned}\mathbf{u} &= (u_x, u_y, u_z)\\ &= (\frac{\sin\theta}{\nu_{app}}, \frac{\cos\theta}{\nu_{app}}, \frac{1}{\nu_{app}\tan i})\end{aligned} \tag{2}$$

$$u_{hor} = \frac{\sin\theta}{\nu_{app}}, \frac{\cos\theta}{\nu_{app}} \tag{3}$$

where v_{app} is the apparent velocity at the receivers (Rost and Thomas, 2002).



(a) (b)

Figure 2: *(a) Schematic representation of how seisimc waves are gradually bent by the mantle plume conduit. The slowness-backazimuth graphs show the backazimuth-dependent behaviour of the waves due to the plume conduit (Figure taken from Stockmann et al. (2019)). (b) Schematic extrapolation of OOP arrivals with respect to the distance GCP-SP, based on the hypothesis of Stockmann et al. (2019).*

Since several stations are combined, the wavefront will not be measured by all stations at exactly the same time, depending on their distribution, as shown by the traces in Fig. 3a. Stations parallel to the propagation direction will measure maximum time differences. Therefore, the specific backazimuth and slowness of the event results in time delays at the stations. Shifting these delayed traces correctly, increases the signal-to-noise ratio (SNR) by suppressing incoherent noise when the shifted traces are summed. This is known as the Delay-and-Sum method. For a station x_i at location $\mathbf{r}_i$, a signal $s(t)$ and noise $n_i(t)$ the stack of all shifted traces of a seismic array can thus be given by (Rost and Thomas, 2002) :

$$x_{center}(t) = s(t) + n(t) \tag{4}$$

$$x_i(t) = s(t - \mathbf{r}_i * \mathbf{u}_{hor}) + n_i(t) \tag{5}$$

$$\tilde{x}_i(t + \mathbf{r}_i * \mathbf{u}_{hor}) = s(t) + n_i(t + \mathbf{r}_i * \mathbf{u}_{hor}) \tag{6}$$

$$b_{beam}(t) = s(t) + \frac{1}{N}\sum_{i=1}^{N} n_i(t + \mathbf{r}_i * \mathbf{u}_{hor}) \tag{7}$$

where N is the number of receivers. The waveforms in separate traces must be similar for different stations, and the noise must be incoherent, in order to increase the SNR after stacking. To apply the beamforming, a discrete slowness and backazimuth are used. Therefore, the exact locations of the source and the (center) receiver must be known. When the wrong values are taken, the stack yields decreased amplitudes and signals (Rost and Thomas, 2002).

VESPA

When either the backazimuth or the slowness are known, the velocity spectral analysis, or vespa process, can be applied (Davies et al., 1971). In this method the known parameter ((horizontal) slowness or backazimuth) is fixed, and the other is allowed to vary within a given range. In this study a fixed backazimuth is used, which can geometrically be determined between the source and the center of the seismic array, and a range of slownesses taken:

$$\nu_u(t) = \frac{1}{N}\sum_{i=1}^{N} x_i(t - t_{u,i}) \tag{8}$$

where N is the amount of traces, $x_i(t)$ is the seismogram at station i and $t_{u,i}$ is the relative traveltime to station i with a variable slowness u (Rost and Thomas, 2002). The resulting vespagram shows time on one axis and the varying parameter (here slowness) on the other axis, while taking a fixed value for the other parameter (here backazimuth). Arriving phases can be distinguished in the vespagram as high stacked-amplitude signals at the corresponding arrival time and slowness, for example the pP phase in Fig. 3b.

To further improve the vespagrams, the fourth root process is applied (Rost and Thomas, 2002). Before stacking, the fourth root of the individual traces is taken, by:

$$\nu'_{u,4} = \frac{1}{N}\sum_{i=1}^{N} |x_i(t - t_{u,i})|^{1/4} \frac{x_i(t)}{|x_i(t)|} \tag{9}$$

After stacking the stacked trace is taken to the fourth power, by:

$$\nu'_{u,4} = \left|\nu'_{u,4}(t)\right|^4 \frac{\nu'_{u,4}}{\left|\nu'_{u,4}\right|} \tag{10}$$

When applying this method, the emphasis lies on coherency of signals, rather than the amplitudes. Since noise is expected to be incoherent, it will be suppressed and therefore, the slowness resolution increases after applying the fourth root process combined with the vespa analysis. The waveforms of the traces are altered in the process, but polarity of the signal is kept (Rost and Thomas, 2002).

Sloaz plots, based on fk-analysis

Slowness-backazimuth (sloaz) plots yield information on the backazimuth and the slowness at the same time. In this research, the sloaz plots are a representation of the results of a frequency-wavenumber analysis (fk-analysis). As the name suggest, the fk-analysis is done in the frequency domain. Following the shift theorem, a time shift in the time domain becomes a phase shift in the frequency domain (Schweitzer et al., 2002). The energy of the shifted traces of Eq. 6 in the beam of Eq. 7 can therefore be written as:

$$E(beam) = \int_{-\infty}^{\infty} b^2(t)dt \tag{11}$$

$$= \int_{-\infty}^{\infty} \left|X(\omega)^2\right| \left| \frac{1}{N} \sum_{i=1}^{N} e^{-i\bar{r}_t(\bar{k}-\bar{k}_0)} \right|^2 d\omega \tag{12}$$

where $k = \omega \cdot \bar{u}$ is the wavenumber vector (Rost and Thomas, 2002). The direction of k is determined by the backazimuth, and the magnitude is determined by the slowness. Representing these results in the form of sloaz plots yields images such as Fig. 3c, where the correct combination of slowness and backazimuth for an arriving phase in a specific time window can be selected, based on the amplitude of the stacked traces. The fk-analysis is best applied on small time windows. When a larger time window is applied, a series of consecutive timeslices can be used to distinguish trends in arrivals in order to pick the correct phase.

An alternative to the fk-analysis could be the Phase-Weighted-Stack (PWS) (Schimmel and Paulssen, 1997). We chose to generate the sloaz plots based on the fk-analysis, rather than the PWS, because the computation time is most efficient. The PWS method took roughly 100 times as long, while yielding similar results, as shown in Fig. 4.

Thus, combining the techniques described here and linking them to the research described in section 2.4, we recall that Stockmann et al. (2019) showed that, due to gradual bending of the wavefront near the plume conduit, the assumption of a planar wavefront arriving at the receivers is no longer valid. Since the geometry of the wavefront is altered (see Fig. 2a), the backazimuth of the arriving phase in the sloaz plots does not match the backazimuth between the event and the seismic array. Therefore, we expect the sloaz plots to show OOP arrivals, at a different backazimuth compared to the theoretical backazimuth. We suggest the OOP arrivals to follow the trend shown in Fig. 2b.

3.2 Data

To study the Hawaiian mantle plume we will look at three groups of events, to have sections crossing the expected Hawaiian plume at different azimuths. First, we selected events in the Tonga region, measured at seismic networks in North America. Second, we selected events located in South America measured by seismic networks in Japan (Fig. 5). Third, events are also taken gradually westwards from the Tonga region in the Banda region to increase the dataset. These events are measured by the three southernmost seismic networks also used for events in the Tonga region. The three event regions and their related seismic networks are henceforth referred to as Tonga, Banda and South America, matching the event locations. We will now discuss each of these regions individually. An overview of the variables used in the specific data requests is given in Table 3.

Tonga

Large seismic events occur in the Tonga region due to the active subduction zone between the 80 Ma oceanic Pacific plate and the Indo-Australian plate acting as the overriding plate (Contreras-Reyes et al., 2011). Following the Wadati-Benioff zone, earthquakes occur up to depths of more than 550 km in the downgoing slab (Hanuš and Vaněk, 1979). Due to the large quantity of deep events we expect to be able to use similar events, concerning location and focal mechanism. When receiver locations are kept constant, and the source location and focal mechanism are the same for different events, the same seismograms should be reproduced, assuming changes in the mantle occur at longer timescale. This way we expect to be able to compare the seismograms of separate events most accurately and increase precision of our dataset.

All of the selected stations measure in three components. More information on the instrumentation is provided in Appendix B. By combining the stations, six seismic networks were constructed (Fig. 5 A-F, 6 A-F). The locations of the seismic networks are chosen such that they are symmetrical about the great circle path connecting the events and the expected Hawaiian plume (Fig. 5). We expect a similar amplitude of OOP signals on each side of the GCP-SP, although the sign of the deviation is expected to change (Fig. 2b), which is expected to best show up in this configuration of seismic networks. Distances from the networks to the GCP-SP are displayed in detail in Table 3. Different seismic phases sample different parts of the mantle. The raypath is always

Table 2: *Variables used during the processing of the seismic data. In this table, backazimuth is abbreviated to 'baz' and slowness is abbreviated to 'slo'.*

event	Tonga			Banda			South America			synthetic data		
component	Z	R	T	Z	R	T	Z	R	T	Z	R	T
filter range (s)	5-50	10-75	10-75	10-75	10-75	10-75	10-75	10-75	10-75	5-50	10-75	10-75
baz range (deg)	+- 20	+- 20	+- 20	+- 20	+- 20	+- 20	+- 30	+- 30	+- 30	+- 20	+- 20	+- 20
baz incr. (deg)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
slo range (s/deg)	0-20	0-20	0-20	0-20	0-20	0-20	0-20	0-20	0-20	0-20	0-20	0-20
slo incr. (s/deg)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

an extreme value of $dT/dx = 0$. In Fig. 7 the raypaths of some seismic waves are visualized. From this figure we see that the direct phases sample the lowermantle, and surface reflections sample the upper mantle and the transition zone. The SP phase, including near-surface reflections of this phase, samples the mid-mantle underneath the Hawaiian plume.

The seismic networks located on the west coast of the US have a surface area of 5x5 degrees and all contain around 50 receivers. The receiver density is good in these arrays, as is also shown in Fig. 6 A-F. The remaining three networks, located in Alaska and Canada (TA_ASW, TA_ASE and CN), on the other hand, have fewer stations. Network CN, located mainly on Vancouver Island, has the fewest receivers. The apparently high number of stations in Table 3 is due to the summation of stations with different channels, but in this research only the HH channels were selected for this seismic array. The network TA_ASE has relatively few receivers, but the largest surface area (roughly 15x7 degrees (lon x lat)) and therefore the largest aperture and inter-station spacing (see Fig. 6).

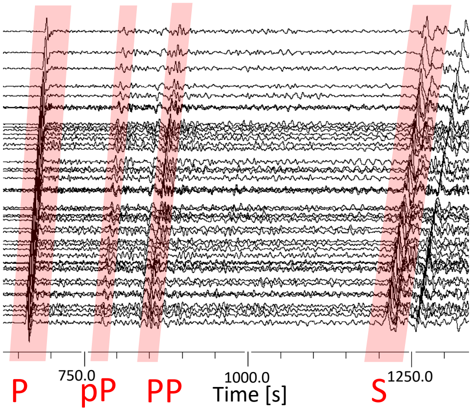
The TA consists of temporary arrays, placed east to west in the US. The receivers on the West Coast were all active in the same timespan, although the exact start- and enddate of specific stations is variable (Table 3). This means that the same events can be used for these stations. Also the three northernmost seismic networks have a similar deployment time compared to each other, but several years later compared to the southern networks. Under the assumption that the mantle changes over longer timescales, we can still compare results of different times.

Banda

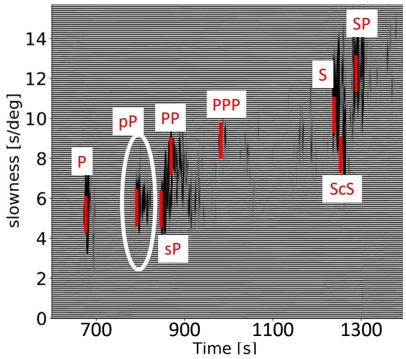
The Australian-Pacific plate boundary can be traced from the Tonga region in the east until the Sunda Trench in the west. Convergence between both plates is mostly accommodated by subduction along the boundary (Benz et al., 2011). The Banda region is a part of this boundary, showing a seismically active region due to two subduction zones dipping in opposite directions. The southern subduction zone curves at its eastern edge and is plausibly connected to the northern subduction zone (Das, 2004). Seismicity along this boundary region will be recorded at the three southern seismic networks in the United States D, E, and F, discussed in the previous paragraph (see also Fig. 5 D-F, 6 D-F). The northern three seismic networks of the previous paragraph (A-C) are not used for the events mentioned here since the GCP-SP will not cross the Hawaiian mantle plume nor the Pacific LLSVP at any locations relevant to this research. By progressively taking events more westward, the great circle paths will cross the Hawaiian mantle plume at different angles. As shown in Fig. 7, there will be no direct waves at a certain source-receiver distance. This will reduce the number of measurements that can be taken. Surface reflections, however, can still be measured.

South America

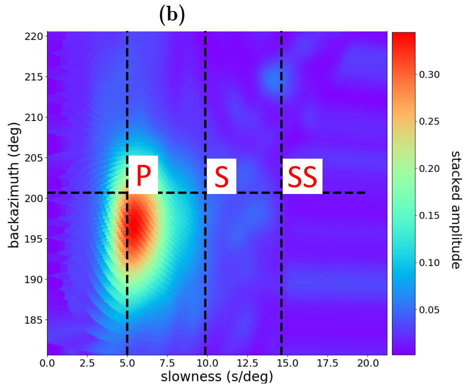
In order to find a source-receiver combination nearly perpendicular to the Tonga - North America configuration, we use events located in South America and seismic networks consisting of stations of the High Sensitivity Seismograph Network of Japan (Hi-net) (NIED, 2020) (see Appendix B). The events in South America are caused by subduction of the Pacific plate, with the South American plate acting as overriding plate. Due to low-angle subduction, the earthquakes occur only up to around 325 km depth, which is relatively shallow compared to the Tonga and Banda events (Cahill and Isacks, 1992). Details of the events are provided in Table 3 for the requested data and Appendix A for the used data. The minimum magnitude of events used for this region is 6.0 Mw, which is higher than that in the Tonga and Banda set-up. Due to the larger source-receiver distance, larger magnitudes are chosen to compensate for the increased effects of amplitude decreasing factors, mainly geometrical spreading, attenuation and scattering. Also, no direct waves are present for any of the selected events (Fig. 7). Therefore, only surface multiples will be measured. The data is recorded by three seismic networks of Hi-net stations (Fig. 5 G-I 6 G-I). The networks are located at constant



(a)



(b)



(c)

Figure 3: *Example of the data processing steps for the event occurring on 11-18-2018, measured by network TA_ASW in the Z-component. In each subfigure, the time is zero at the start of the event. (a) The traces, filtered using a second-order bandpass filter of 5-50 s and sorted by distance to the event. Several arrivals are highlighted. (b) The vespagram of the traces of figure (a). To construct the vespagram the DLS-method is applied, in combination with the 4th root process. The pP phase is pointed out. (c) sloaz plot capturing the pP phase. The maximum energy is located at a backazimuth of 196.25 degrees, a slowness of 5.20 and has an amplitude of 0.3445. The timeslice is taken at 797.5 s and has a windowlength of 15 s. The vertical dashed lines indicate the the expected slowness of the P, S and SS arrivals following the Taup computation, using earth model ak135. Marked with the horizontal black, dashed line is the theoretical backazimuth of 199.30 degrees, since the OOP arrival is the difference between the measured backazimuth and the theoretical backazimuth, it has a value of* $196.25 - 199.30 = -3.05$ *degrees.*

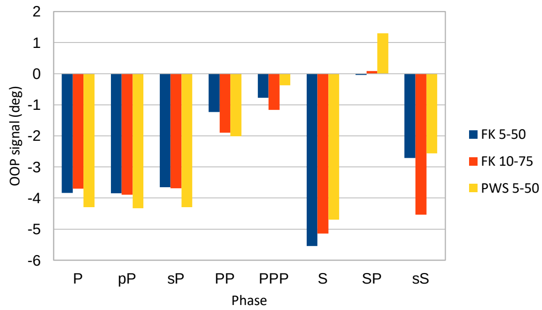


Figure 4: *Comparison of the fk-analysis and the PWS to calculate the sloaz plots. In the legend, also range of the bandpass filter in seconds is given. Events occurred in the Tonga region, recorded on the Z-component of seismic network TA_ASW.*

latitude intervals, where the middle station is located near the average great circle path connecting the event and the expected Hawaiian mantle plume.

Synthetic model

In addition to real data, we also generated synthetic data using Instaseis (van Driel et al., 2015). The program is a broadband waveform database, which generates seismograms by convoluting the Greens functions of matching source and receiver information in the database. The synthetic model used is ak135f_2, which assumes a radially symmetric Earth, following the AK135 Earth model (Kennett et al., 1995). Furthermore, Instaseis can generate seismograms in three components up to a length of 3600 s, and, finally, attenuation is taken into account. Because the synthetic model uses the same source characteristics, and the same seismic array as the real event, any deviations between the model and the real data could be an indication of heterogenieties in the crust or mantle.

The model data is very reproducible when the input is kept constant. Therefore, rather than taking the full range of events, we chose to synthetically model only a single event to compare to the real data. The event occurring at 18-11-2018 in the Tonga region was recorded exceptionally well by seismic array TA_ASW, and is therefore used as input; see Table 2. Dataprocessing of the synthetic data occurred in a similar way as for the real data.

3.3 Workflow

The seismograms used in this study are downloaded using ObsPy (Beyreuther et al., 2010), and variables used to download the data are specified in Table 3. All data are filtered using a second-order bandpass filter; see Table 2. Since large earthquakes generate lower frequencies compared to small earthquakes (Allen and Kanamori, 2003), and the events in this study all have a magnitude of at least 5.7 Mw (see

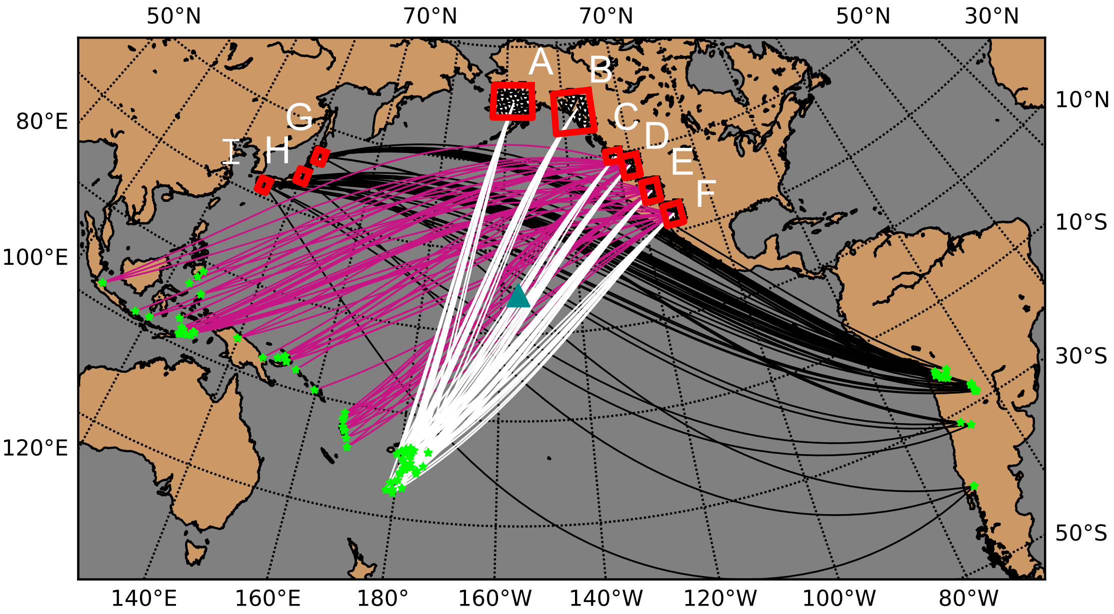


Figure 5: *Overview of the study area and geographical range of the data. The seismic arrays are marked by the red borders, the letters indicate the station: A). TA_ASW, B). TA_ASE, C). CN, D). TA_WCN, E). TA_WCM, F). TA_WCS, G). JAP_N, H). JAP_M, I). JAP_S. Studied events are marked with a green star, and Hawaii is marked with the blue triangle. The great circle paths are colored per region, white for the Tonga region measured by networks A-F, magenta for the Banda region measured by networks D-F, and black for the South American region measured by stations G-I. Detailed maps of each individual seismic network are shown in Fig. 6.*

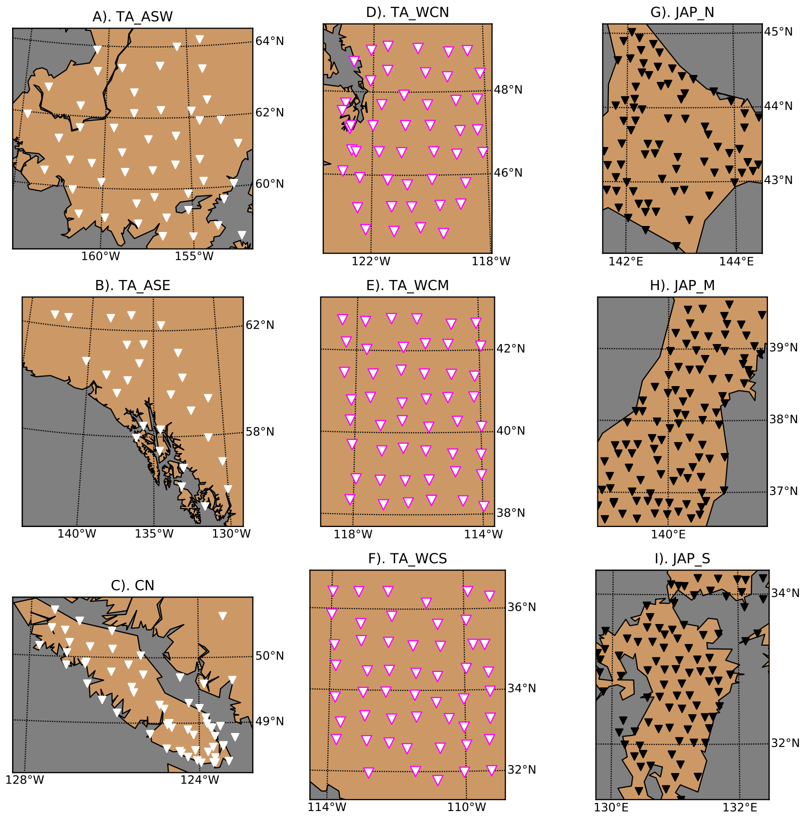
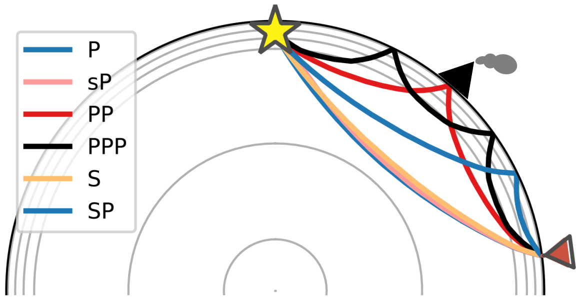
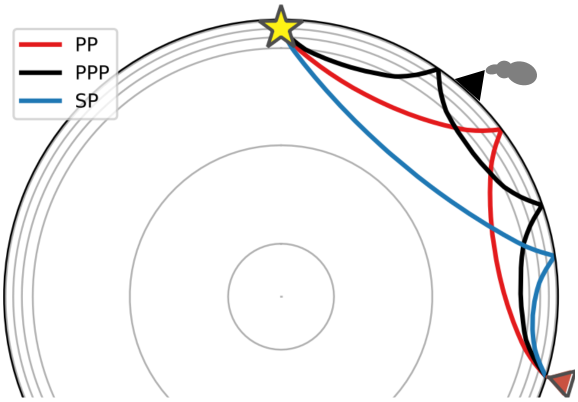


Figure 6: *An overview of the seismic networks use in this study. The inverted triangles represent the station, the color of the triangles correlate to the colors of the great circle paths of Fig. 5, to highlight which seismic arrays are used per event region. Additional information about the seismic arrays is provided in Table 3.*



(a)



(b)

Figure 7: *The above plots show the ray paths of several phases. The star represents a source detected by the receiver marked with an inverted triangle. The hotspot of Hawaii is marked with the black triangle. Radial grey lines represent major seismic discontinuities. (a) Raypaths for an event at 250 km depth, the receiver represents network TA_ASW at an average epicentral distance of 82.525° from the source. The average distance between the Hawaiian hotspot and the network is 41.74°. (b) Raypaths for an event at 200 km depth, and a receiver representing the network JAP_S at an average epicentral distance of 106.782°. The average distance to Hawaii is 65.90°. Note how no direct waves are present in (b) due to the increased source-receiver distance.*

Table 3), we can filter for relatively low frequencies. Furthermore, recorded P-waves generally contain slightly higher frequencies than S-waves (PNSN, 2020). Since the transverse (T) component is not sensitive to P-waves, the frequencies measured are expected to be slightly lower compared to the vertical (Z) and radial (R) component, which are sensitive to both P- and S-waves. Therefore, the T-component for the Tonga event region is filtered at lower frequencies, compared to the Z-component (Table 2). Finally, lower frequencies are less prone to attenuation, compared to higher frequencies (PNSN, 2020). Therefore, due to the large source-receiver distance for the Banda and South-American configuration, all components are filtered with the lower frequency filter also applied on the T-component of the Tonga events (Table 2).

Using SeismicHandler (Stammler, 1993) all traces are rotated from ENZ components to RTZ components. Also, they are submitted to a visual inspection after filtering. When the direct phases are not visible due to the large amount of noise, the event is not used. The SNR has to be good enough to visually distinguish at least the direct waves, or, for large source-receiver distance, the one time surface multiples. When this is not the case for the majority of the traces, the event is not used. When most of the data are clear however, individual traces can be deleted. This is done, for example, because they contain too much noise, they did not carry any signal or they did not capture the complete event. An example of the resulting traces is shown in Fig. 3a.

Based on these traces, the vespagrams are generated; see Table 2 for the applied settings. For the vespagrams we used the Delay-and-Sum (DLS) method in combination with the 4th Root process and again a visual inspection is applied. When the traces contain too much noise after all, the arrivals in the vespagram are not well constrained, and high amplitudes may show up on the vespagram unrelated to the seismic waves of the event. Only the events with clear arrivals in the vespagram, such as the one shown in Fig. 3b, are used to produce the sloaz plots.

The sloaz plots visualize the slowness and the backazimuth relation of stacked traces in a certain timewindow, obtained using the fk-analysis. When the vespagram shows a phase arrival (Fig. 3b), the corresponding time slice in the sloaz plot is examined. The phase is picked when the time and slowness of the sloaz plot and the vespagram match, and when the stacked amplitude in the sloaz plot is clearly focused, see 3c. This means that whether a phase gets picked or not can be arbitrary, even though we aimed at a non-biased selection. Therefore it is important to collect a database of sufficient measurements. The complete dataset is included in Appendix A. For picked phases, the phase information in the sloaz plot is saved: backazimuth, slowness, amplitude and timeslice.

Table 3: *Variables used to request seismic data using the ObsPy-code. Not all stations indicated in the table have been used, as is shown in Table A. The average inter-station distance is given in row Avrg. int-stat dist, the average source-receiver distance is given in row 'Avrg. s-r dist' and the average distance to the great circle path connecting the source and the plume is given by 'Avrg. dist GCP-SP'.*

Event gather			Tonga						Banda			South America			Synthetic Model
Seismic network			TA_ASW	TA_ASE	CN	TA_WCN	TA_WCM	TA_WCS	TA_WCN	TA_WCM	TA_WCS	Hi_N	Hi_M	Hi_S	TA_ASW
Event location	lat	min	-25.89	-25.89	-25.89	-25.89	-25.89	-25.89	-20.00	-20.00	-20.00	-42.21	-42.21	-42.21	-17.86
		max	-15.34	-15.34	-15.34	-15.34	-15.34	-15.34	9.08	9.08	9.08	-24.43	-24.43	-24.43	
	lon	min	176.80	176.80	176.80	176.80	176.80	176.80	106.00	106.00	106.00	-75.41	-75.41	-75.41	-178.79
		max	188.00	188.00	188.00	188.00	188.00	188.00	170.51	170.51	170.51	-61.70	-61.70	-61.70	
Event client			IRIS	IRIS	IRIS	IRIS	IRIS	IRIS	IRIS	IRIS	IRIS	IRIS	IRIS	IRIS	IRIS
Min. depth (km)			100	100	100	100	100	100	100	100	100	100	100	100	540
Min. magnitude (Mw)			5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	6.0	6.0	6.0	6.8
Timespan (YYYY-MM-DD)		start	2017-10-01	2017-10-01	2017-10-01	2006-08-20	2006-05-20	2006-08-20	2006-05-20	2006-05-20	2006-05-20	2004-01-01	2004-01-01	2004-01-01	2018-11-18
		end	2019-11-22	2019-12-12	2019-12-12	2008-05-01	2008-12-01	2008-05-01	2008-12-01	2008-12-01	2008-12-01	2019-11-23	2019-11-23	2019-11-23	
Nr. events			37	37	25	21	37	21	35	35	35	17	17	17	1
Network location	lat	min	58.4413	55.1718	48.3947	44.5309	38.0309	31.5309	44.5309	38.0309	31.5309	42.02	36.62	31.22	61.14
		max	64.4680	62.7816	50.7067	49.5309	43.0309	36.5309	49.5309	43.0309	36.5309	45.02	39.62	34.22	
lon		min	-165.1856	-143.5644	-127.7719	-123.1348	-118.6348	-114.1348	-123.1348	-118.6348	-114.1348	141.57	138.76	129.50	-157.52
		max	-150.1856	-128.4765	-123.1724	-118.1348	-113.6348	-109.1348	-118.1348	-113.6348	-109.1348	144.57	141.76	132.50	
Network client			USGS	USGS	USGS	USGS	USGS	USGS	USGS	USGS	USGS	NEID	NEID	NEID	ak135f_2
Nr. stations			49	27	66	53	49	51	53	49	51	76	104	91	47
Avrg. int-stat dist (deg)			0.65	0.77	0.15	0.36	0.51	0.54	0.36	0.51	0.54	0.16	0.15	0.17	
Avrg. s-r dist (deg)			82.525	86.941	84.160	85.383	84.016	84.178	99.336	103.046	106.782	153.862	157.265	165.341	80.616
Avrg. dist to grcr (deg)			-20.67	-10.71	0.84	4.82	11.86	19.32	6.92	7.79	7.34	-9.25	-4.81	0.73	-21.75

4 Results

The OOP arrivals per event for all arrays investigated in this study, and accompanying data, are shown in full extent in Appendix C. To best visualize the data we go into more depth per event region, where phases of similar paths have been grouped together. This means that for each phase, the OOP arrivals of the direct phase and near-surface arrivals of that phase are averaged, and referred to as a phase group. Thus, the P phase group, or P phases, indicate the average OOP deviation of the P, pP and sP phases. Furthermore, P- and S-waves are separated in the plots because, even though their paths might be similar, they propagate differently.

4.1 Observations

Tonga

The measured backazimuth of phases per component in the sloaz plots are shown in Fig. 8-10. In all of these figures, the data is plotted on the y-axis based on the distance to the GCP-SP of the seisimc array used. The magnitude of the error bars (σ) is based on the population standard deviation of the data, given by:

$$\sigma = \sqrt{\frac{\sum_{i=1}^{N}(x_i - x_{mean})^2}{N}} \tag{13}$$

Where N is the total amount of data. Due to the clustering of the events, all plots have the following order of arrays, from top to bottom: TA_ASW, TA_ASE, CN, TA_WCN, TA_WCM and TA_WCS. First, we focus on the datapoints marked with a circle in these figures. In the Z-component, array TA_ASW has a negative OOP arrival of -4 degrees for the direct phases, for surface reflections the OOP arrival is around -1 degree. Array TA_ASE has a slight positive OOP arrival, most dominant in the S phases. Array TA_CN has very small negative OOP arrivals of -0.5 to -1.5 degrees in all phases except for the direct S phases, where it is slightly positive (+0.5). The remaining arrays show smaller OOP arrivals, all centered around the theoretical backazimuth. The only exception is array TA_WCN of the SS phase group, which has a large positive OOP arrival, but only consists of two measurements. Other arrays also show large error bars for this phase group, e.g. array TA_ASW, but at the same time, the datapoints presented here consist of a limited amount of measurements, as it is indicated by the color of the datapoints. The error bars of the OOP arrivals in the P phases are generally slightly smaller than the S phases. The OOP arrivals per seismic array are similar for all phases. The errors on this same axis in the SS phases are large for array TA_ASW, TA_ASE and TA_WCN. As it is indicated by the color of the datapoint, the number of measurements used to construct this point was relatively small. In Fig. 8f, a geographical visualization of the great circle paths is given for the OOP arrivals measured for the P phase group. By including this image, it will be easier to compare the outcome of this event region with different event regions, which will be presented later. The results of the remaining two components of events in the Tonga region are presented in the graph format, following Fig. 8a-e. This format is applied, because in the graphs the average OOP arrival and the standard deviation are clearly visualized. Fig. 8f clearly shows that a consistent negative arrival is measured only in the north at array TA_ASW. Further south at each array, the OOP arrival measured gets slightly larger, showing a trend opposite of the extrapolated OOP arrivals of Fig. 2b.

The R-component complements the data measured in the Z-component (see Fig. 9). The P/PP/PPP phase groups show similar trends and error bars compared to each other. For the S/SS/SSS phases there are a few differences compared to the Z-component. The average OOP arrivals of the SS phases measured at array TA_ASW and TA_WCN, are respectively 4 and 4.5 degrees larger compared to the same phase groups and arrays in the Z-component. However, extreme values within the error bars of these two arrays still overlap when comparing the Z- and R-component. In the SP phases, the R-component has a negative OOP arrival of -2.5 degrees whereas the Z-component has no average OOP arrival. Again, the direct phase groups (P and S) of the northernmost array, TA_ASW, have a large negative OOP arrival.

Finally, the T-component is only measured on the S and SS phases, as shown in Fig. 10. The results of the direct phases are in line with the other components. The southern networks show negligible OOP arrivals, in contrast to the northernmost array TA_ASW, which has a large negative OOP arrival and array TA_ASE which has a positive OOP arrival. The error of array TA_ASW is relatively large for the SS phase group, but generally the direct phases are slightly more accurate than the surface reflections for this component.

Banda

The distance to the GCP-SP, at which the arrays measure the events, varies largely due to the range in the selected event-window (see Table 3). Therefore, the OOP arrivals are best visualized in the maps of Fig. 11, rather than in plots like the ones used for the Tonga region (Fig. 8-10).

The direct P phases of the Z-component (Fig. 11a) show a small, slightly negative OOP arrival for events occurring in the east of the selected window, measured by array TA_WCS. For events further west, measured by arrays further north, the OOP arrivals are larger. A similar trend is visible in the R-component. Overall, the R-component has larger OOP arrivals than the Z-component, especially at array TA_WCN. In the T-component, the direct S phases show an opposite trend, compared to the direct P phases in the Z- and R-component; see Fig. 11b. Here, the northern array TA_WCN records a negative OOP arrival for events in the west, whereas events in the east arrive at the southern array TA_WCS, with a positive OOP signal. The magnitudes of the OOP signals at array TA_WCS are relatively large (+3 degrees). In the R-component, the PP phases for events in the east arrive at every array within -.5 degrees of the theoretical backazimuth (Fig. 11c). Events further to the west have more deviation in the magnitude of OOP arrivals, but no consistent trend is present. For further phase groups, in any component, no clear trends are visible in the data. As illustrated in the plot of the PPP phases measured at the Z-component, the OOP arrivals are inconsistent and highly irregular; see Fig. 11d.

South America

Out of three seismic arrays selected to record the events in South America, the southernmost array JAP_S was examined first. The maps in Fig. 12a-b show there is little correspondence between the PP and the SS phases. Paths that have a predominantly negative OOP arrival compared to the theoretical backazimuth in the PP phases, show a positive arrival in the SS phases. Vice versa, the single event with a great circle path passing south of Hawaii in the SS phases, shows a negative OOP arrival in the SS phases, but positive for the PP phases. The histogram in Fig. 12 visualizes the distribution of OOP arrivals per phase group. Both the PP and PPP phases have an average negative OOP arrival of about -2 degrees. However, all phase groups have a very large spreading in the data, also pointed out by the large standard deviation. The amount of measurements for double surface reflections is particularly sparse. The inconsistency of these results is remarkable, but not useful for the study conducted here, since we expect small, consistent OOP arrivals. The selected events in South America are clustered in the north of the chosen event-window, with only few events occurring in the south of the selected window. As a result, the great circle path connecting the arrays and most events, passes Hawaii on the north. Due to the chosen set-up of the seismic arrays and the distribution of the events, the events measured at array JAP_S and JAP_M travel along a similar great circle path. They are therefore expected to yield the same results. The northern cluster of events, measured at array JAP_N, will not have passed the region of interest of this study and are therefore not expected to yield additional information for this study. Due to the large spreading of the data, the cluster of events north of the event-window and the chosen geometry of the arrays, it was decided that a more extensive study of the remaining components and arrays in Japan was not expected to yield additional information concerning the Hawaiian mantle plume. Instead, we focused on events in the Banda region. In the discussion some contributing factors that might cause the variations in OOP arrivals of these events are considered in more detail.

4.2 Synthetic model

The OOP arrivals measured in the synthetic model are presented in Table 4. The table shows a good agreement of all measurements, though surprisingly, they all have a small negative deviation. In the ObsPy code, the theoretical backazimuth is computed by the average location of all stations. However, the sloaz plot is created with respect to a specific station. Therefore, we also included in Table 4 the OOP arrivals measured, where instead of the average location of all stations, we take the location of the station located nearest to the average location of all stations. In this second scenario, the deviation measured is almost zero, as expected.

In light of the newly discovered deviation, all previous results have been corrected to the theoretical back-azimuth of the station closest to the center location of the seismic network. The adjusted results are visualized in Fig. 8-10 with diamonds instead of circles, and marked with a black cross to stand out more. For most networks, the deviation is small (less than 0.1 degree). For the network TA_ASE the deviation is the largest (1.29 degree), since the average inter-station distance of this network is the largest; see Table 3. The three southern networks used for events in the Tonga region show minimal differences when adjusted for the center station. Since the same stations were used for the Banda region and the stepsize of the colorscale is 0.5 degrees, no big differences in these results are expected and the results in Fig. 11 are not updated.

A summary of all adjusted results of the Tonga and the Banda region is given in Fig. 14. The red data is scattered in both the y- and x-direction, which is in line with the inconsistency of the OOP arrivals of different phases measured at different components of Fig. 11. The data of the Tonga region is clustered on the y-axis, due to grouped events and stationary networks, similar as in Fig. 8-10. For most networks the average OOP arrival is grouped near zero degrees. Network CN, plotted in Fig. 13 near the GCP-SP, has a small negative OOP arrival, but the largest consistent deviation in OOP arrivals is measured at network TA_ASW, plotted at the top of Fig. 13, and marked by green crosses. The average of OOP arrival of all picked phases at this array, is -3.09 ± 2.48 degrees ($N = 372$). These consistent negative arrivals in each phase group and each component, with the exception of the SS phases in the Z-component, stand out in the graph.

The incoherent results of the Banda region, as shown in Fig. 13, as well as the clusters of the arrays measuring the events in the Tonga region, do not follow the hypothesised OOP arrivals of Fig. 2b based on the synthetic plume model of Stockmann et al. (2019). Compared to the extrapolated trend, network TA_ASW is expected to show a small positive OOP arrival, but instead has an average negative value.

Results Tonga - North America wave paths, Z-component

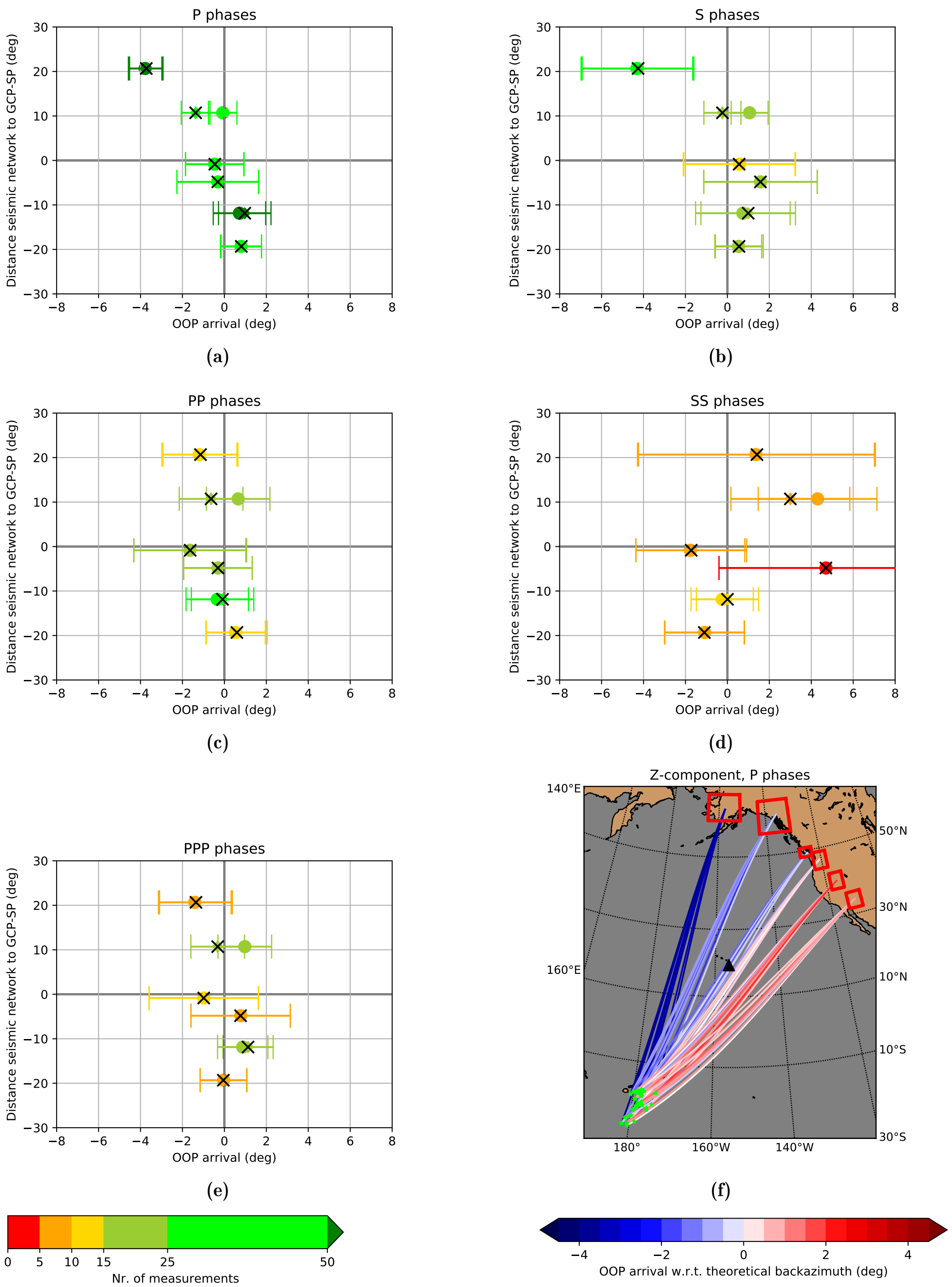


Figure 8: *Results from events in the Tonga region recorded in North America, in the Z-component. a-e): The networks are plotted on the y-axis based on the distance to the great circle path connecting the source and the plume (GCP-SP). From north to south, corresponding to top-to-bottom in the plots, the stations are TA_ASW, TA_ASE, CN, TA_WCN, TA_WCM, TA_WCS. Datapoints plotted with a circle represent the results following the original obspy-code, where the theoretical backazimuth is computed using the average location of all stations in the seismic network. Data plotted with a diamond, and highlighted by the black cross, represent the results adjusted for the theoretical backazimuth corrected to the station closest to the average station location in the network. The color of each datapoint in the plots indicates the number of measurements used for that point, as indicated by the colorbar on the left. f): geographical representation of the results of subfigure (a). Green stars indicate seismic events, the red borders indicate the network range. The lines represent the great circle path connecting the event with each seismic array. The color of the line represents the angular deviation of the OOP arrival recorded at the array, as indicated by the colorbar on the right.*

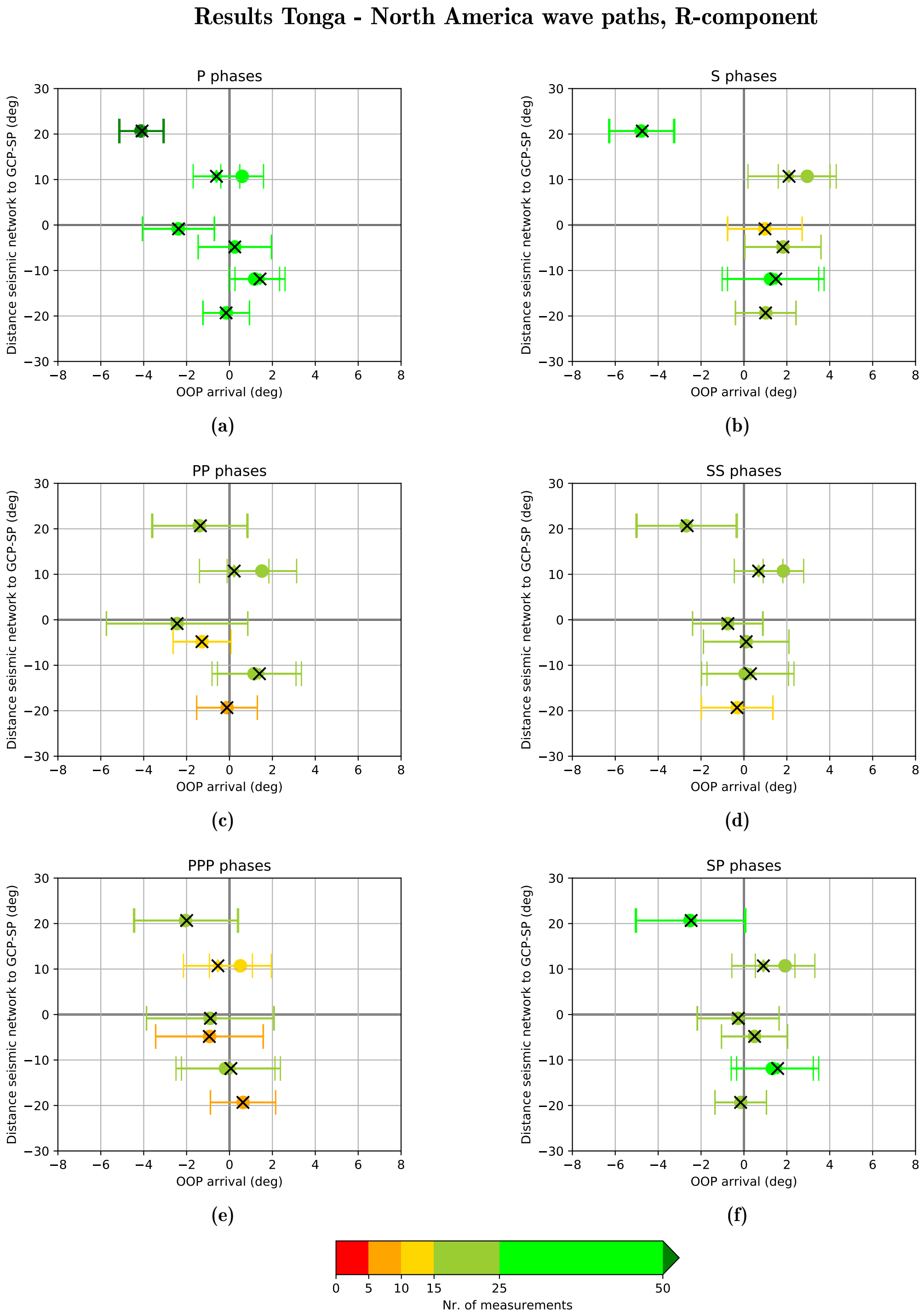


Figure 9: *Results from events in the Tonga region recorded in North America, in the R-component. The networks are plotted on the y-axis based on the distance to the great circle path connecting the source and the plume (GCP-SP). From north to south, corresponding to top-to-bottom in the plots, the stations are TA_ASW, TA_ASE, CN, TA_WCN, TA_WCM, TA_WCS. Datapoints plotted with a circle represent the results following the original obspy-code, where the theoretical backazimuth is computed using the average location of all stations in the seismic network. Data plotted with a diamond, and highlighted by the black cross, represent the results adjusted for the theoretical backazimuth corrected to the station closest to the average station location in the network. The color of each datapoint in the plots indicates the number of measurements used for that point.*

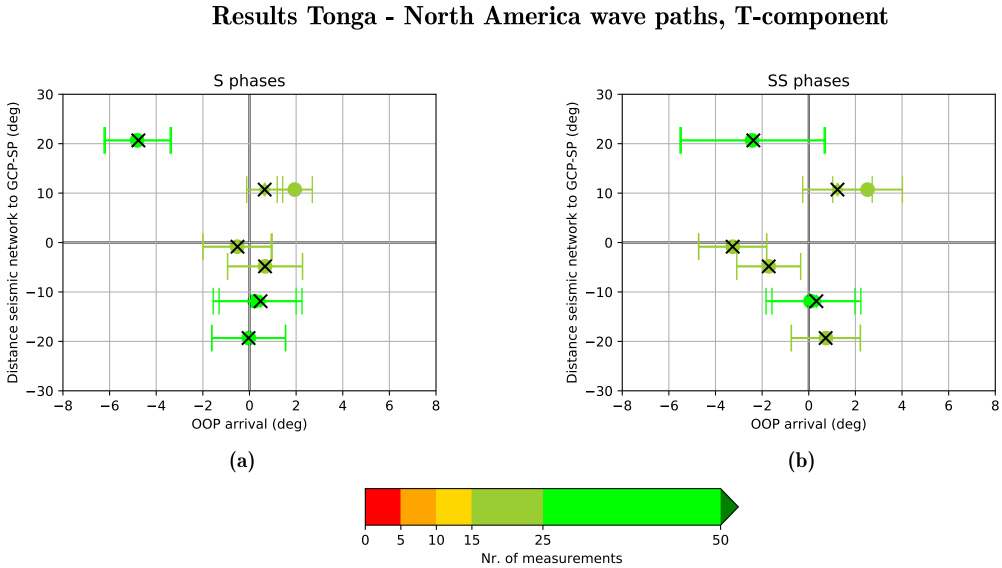


Figure 10: *Results from events in the Tonga region recorded in North America, in the T-component. The networks are plotted on the y-axis based on the distance to the great circle path connecting the source and the plume (GCP-SP). From north to south, corresponding to top-to-bottom in the plots, the stations are TA_ASW, TA_ASE, CN, TA_WCN, TA_WCM, TA_WCS. Datapoints plotted with a circle represent the results following the original obspy-code, where the theoretical backazimuth is computed using the average location of all stations in the seismic network. Data plotted with a diamond, and highlighted by the black cross, represent the results adjusted for the theoretical backazimuth corrected to the station closest to the average station location in the network. The color of each datapoint in the plots indicates the number of measurements used for that point.*

Results Banda - North America wave paths

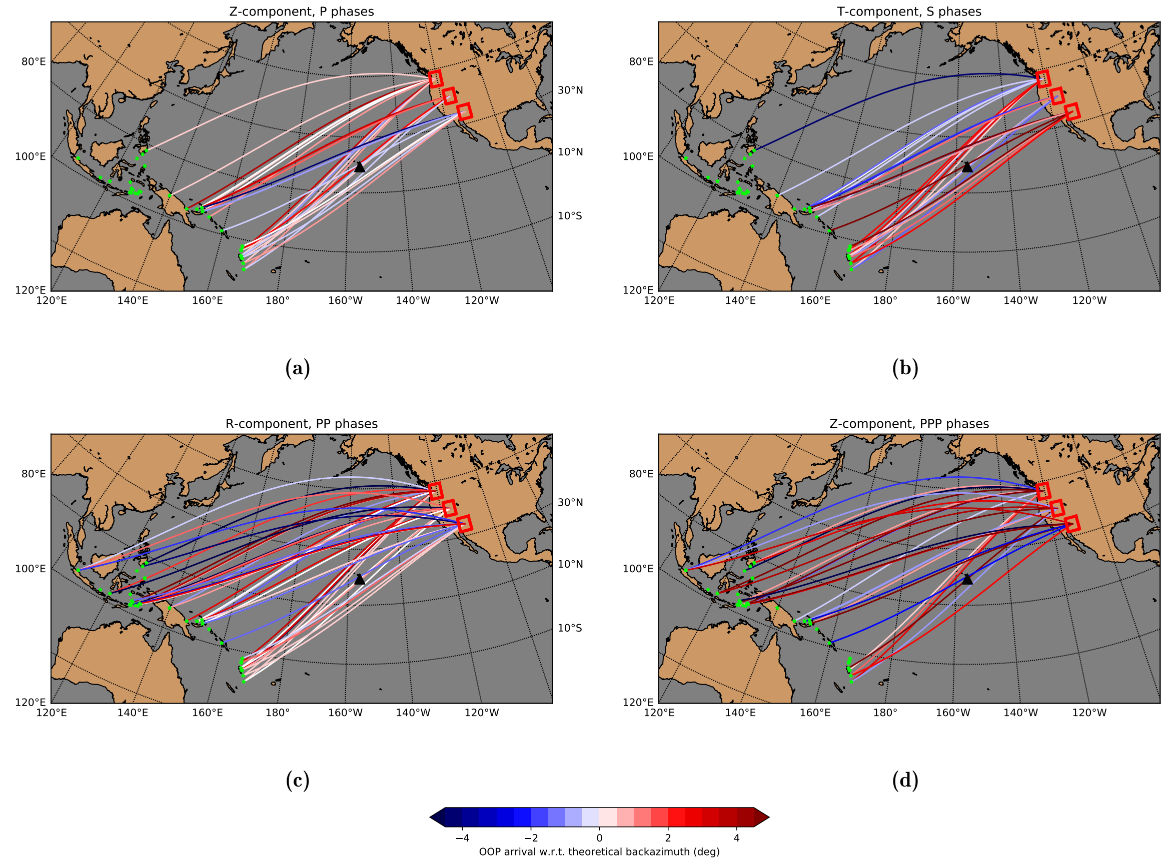
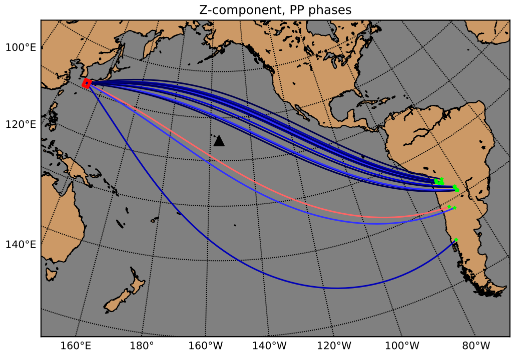


Figure 11: *Selection of the results from events in the Banda region recorded in North America. Green stars indicate seismic events, the red borders indicate the network range. The lines represent the great circle path connecting the event with the each network. Lines are only included if data of that specific phase and event-receiver combination was available. The color of the line represents the angular deviation of the OOP arrival recorded at the network. Note that it does not contain information on the traveltime, and as indicated by the colorbar, red indicates a positive deviation.*

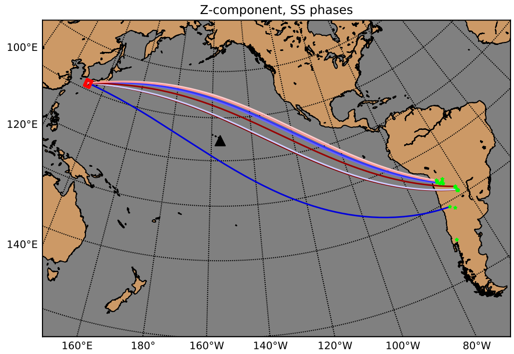
Table 4: *OOP arrivals of the synthetic model made with Instaseis, compared to the real data. The input is equivalent to the event that occurred on 18-11-2018, measured at a network equivalent to TA_ASW. For each phase group, the OOP arrival is averaged with observed near-surface reflections. For example P, pP and sP are grouped together. When no phase was picked for the real data, the corresponding cell is kept blank.*

comp.	center location						center station					
	Z		R		T		Z		R		T	
	model	real	model	real	model	real	model	real	model	real	model	real
P	-1.14	-3.17	-1.43	-4.47			0.22	-1.82	-0.07	-3.12		
PP	-1.17		-0.59	-3.90			0.19		0.77	-2.54		
PPP	-1.14	-1.80	-1.16				0.22	-1.82	0.20			
S	-1.45	-5.50	-1.34	-3.95	0.80	-3.60	-0.10	-0.95	0.02	-2.59	2.16	-2.25
SS	-1.20		-1.24	-2.06	-1.00	-3.20	0.16		0.12	-0.74	0.36	-1.14

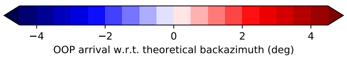
Results South America - Japan wave paths

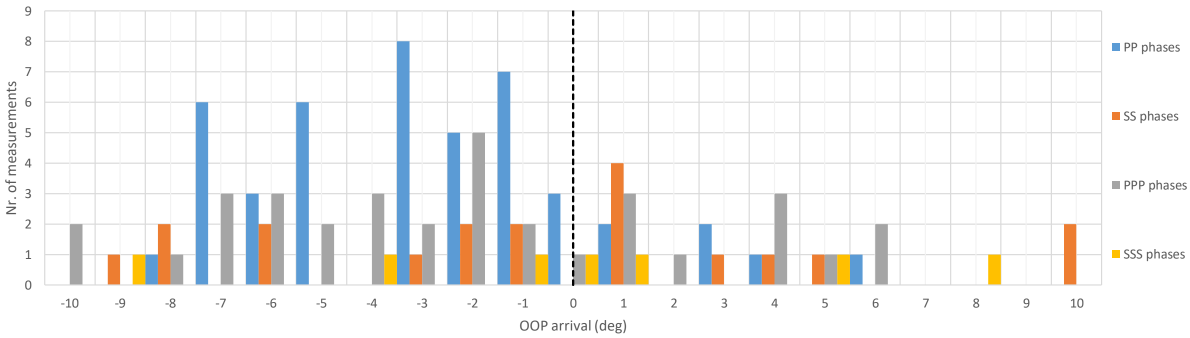


(a)



(b)





(c)

Figure 12: *Results of network JAP_S for events in the South America event region, measured in the Z-component. a,b): Geographical represenation of the measured OOP arrivals at array JAP_S. Green stars indicate seismic events, the red borders indicate the array range. The lines represent the great circle path connecting the event with the each array. Lines are only included if data of that specific phase and event-receiver combination was available. The color of the line represents the angular deviation of the OOP arrival recorded at the array. Note that it does not contain information on the traveltime, and as indicated by the colorbar, red indicates a positive deviation. c). Histogram showing the distribution of OOP arrivals for different phase groups. The average OOP arrival per phase group in the histogram are: PP phases* $-3.197 \pm 3.200°$*, SS phases* $2.038 \pm 6.631°$*, PPP phases* $-2.687 \pm 4.517°$ *and SSS phases* $-1.915 \pm 5.258°$.

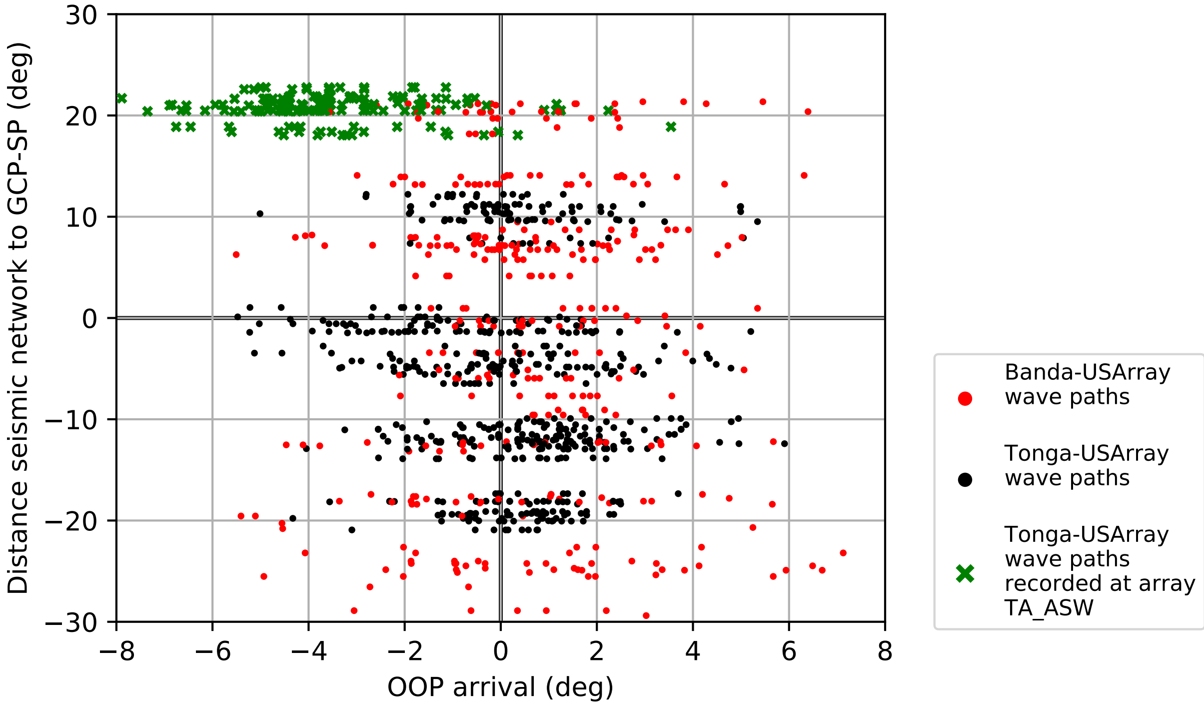


Figure 13: *Summary of all results of the Tonga and Banda region. Each datum represent a phase group in one component. All three components, and all phase groups are included for both event regions. The data of the Banda region are marked with red dots, the data of the Tonga region is marked with black dots. Data from the Tonga region, measured by network TA_ASW are marked with a green 'x'.*

5 Discussion

5.1 Tonga and Banda region

The events used in the Banda region are scattered over a large area. This geographical spreading of events causes the corresponding datapoints in Fig. 13 to show a large vertical spreading. The incoherent spreading in the recorded OOP deviation for events in the Banda region is highly variable per phase and component. This could be explained by mantle heterogeneities at varying depth ranges, interfering with these phases. From seismic tomography we know that the mantle is heterogeneous (e.g. Ritsema et al., 2011), and due to the differences in depth of ray paths per phase group (Fig. 7), each phase is affected by different structures. Furthermore, due to the range in event locations, each event measured at the arrays has travelled through different parts of the mantle. This might add to the variety of the measured OOP arrivals in the data from the Banda region.

Because the events in the Tonga region are grouped closer together, they all travel through similar paths, and are therefore affected by the same mantle heterogeneities. This might contribute to more consistent OOP arrivals measured per seismic array for events in the Tonga region (Fig. 13).

To explain the consistent negative OOP arrival measured array TA_ASW, we suggest either of the following three scenarios: A) We measure scatterers of a deep mantle feature, such as a previously subducted slab; B) The deviations are caused by local upper mantle or crustal heterogeneities; C) An apparent deviation is the result of the geometry of the seismic array.

The negative OOP arrival implies waves arriving with a smaller backazimuth, compared to the theoretical backazimuth. For scenario (A) this could indicate that instead of the direct waves, we actually measured scatterers off a mantle heterogeneity, in a similar way as done by Schumacher et al. (2018). Tomographic evidence indicates that there are two ancient slabs which might cause these scatterers (Van der Meer et al., 2018): the North Pacific slab, and the Mendocino slab. The former has a slightly shallower depth range of 400-1200 km depth, the latter has a depth range of 1400-2200 km. Since the negative OOP arrival is present in all phases, the slab should span the depth range of all phases, thereby eliminating the Mendocino slab. Scattered waves recorded from this ancient slab have a longer path, and therefore a longer traveltime. This study did not directly take traveltime into account, but if the arrival time of the phase deviated too much from the theoretical arrival time, the phase was not picked. Furthermore, at a discontinuity, a wave is reflected and transmitted into different phases. The reflected wave thus has slightly less energy than the direct incomming wave. In the sloaz plots, the maximum stacked amplitude of an arriving phase was picked. If two phases arrived at the same time it is unlikely for the scattered wave to have a stacked amplitude larger than the direct wave. Therefore, based on the traveltime and the energy of the direct and scattered waves, it is most likely that the phases selected correspond to the direct waves instead of scatterers, thus eliminating scenario (A).

To investigate the feasibility of scenario (B) we first take a look at the tectonic setting of Alaska. Being part of the North American plate, Alaska currently acts as the overriding plate on the subducting Pacific plate. The mantle wedge between the slab and the overriding plate contains low velocity anomalies up to 100-150 km depth (You and Zhao, 2012). Melting of subducted oceanic crust contributes to an increase of heterogeneities, charactarized as volcanic arc magmas. You and Zhao (2012) also observed variations in anisotropy direction in the slab and mantle wedge. The complexity of the velocity structure is captured in Fig. 14. At 65 km the anisotropy direction north of the upper boundary of the slab is parallel to the slab boundary. This is in contrast to the depth slice at 140 km depth, where the anisotropy direction within the slab is parallel to the trench, but north of the slab the anisotropy direction is normal to the trench. At 65 km depth there are also several low velocity regions north of the upper slab boundary. A relation between these upper mantle structure and resulting seismic observations at the surface is also suggested by Roecker et al. (2018).

Furthermore, Buehler and Shearer (2016) showed that mislocation vectors can vary largely over short distances in regions with large velocity variations in the upper mantle. With the heterogeneous nature of the upper mantle underneath Alaska, as pointed out by You and Zhao (2012), a mislocation vector for these structures could thus improve the data. The study of Buehler and Shearer (2016) was conducted before the employment of the USArray in Alaska, and therefore this region was not included in their the study.

To test whether these heterogeneities are the cause for the systematic negative OOP arrivals, we included a few extra events from different source regions, as shown in Fig. 15. Direct P-waves from events in Japan have a negative OOP arrivals of -2 degrees, consistent with measurements from the Tonga region. Events from South America, on the other hand, arrive near the theoretical backazimuth. The one time surface reflections of additional events in both Japan and South America arrive with a negative backazimuth of -2.5 degrees (Fig. 15). Waves from the Japan event region arrive near parallel to the trench in Alaska. It seems likely that the heterogeneities in the upper mantle underneath Alaska interact with the incoming waves. However, we would expect that, due to the heterogeneities at different depths, these interactions would result in different OOP arrivals for different phases, which is not the case.

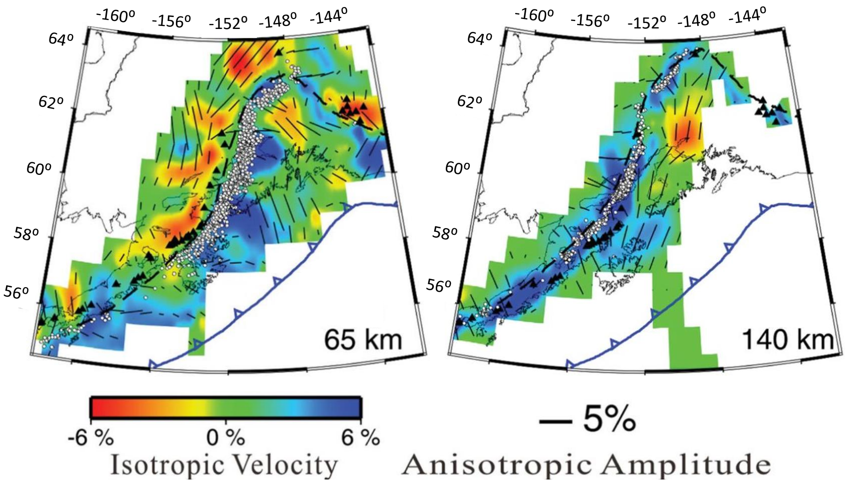


Figure 14: *P-wave tomography under Alaska at 65 km and 140 km depth. The color correlates to the isotropic velocity as indicated by the colorbar, the short bars indicate the fast velocity direction, the length correlates to the anisotropic amplitude with the scale presented. Seismic events at that depth are visualized with white dots, black triangles represent active vulcanos. The solid black lines represent active faults, the dashed black line is the upper boundary of the slab at the depth slice indicated in the figure. The teethed blue line is the Aleutian Trench. Image taken from You and Zhao (2012).*

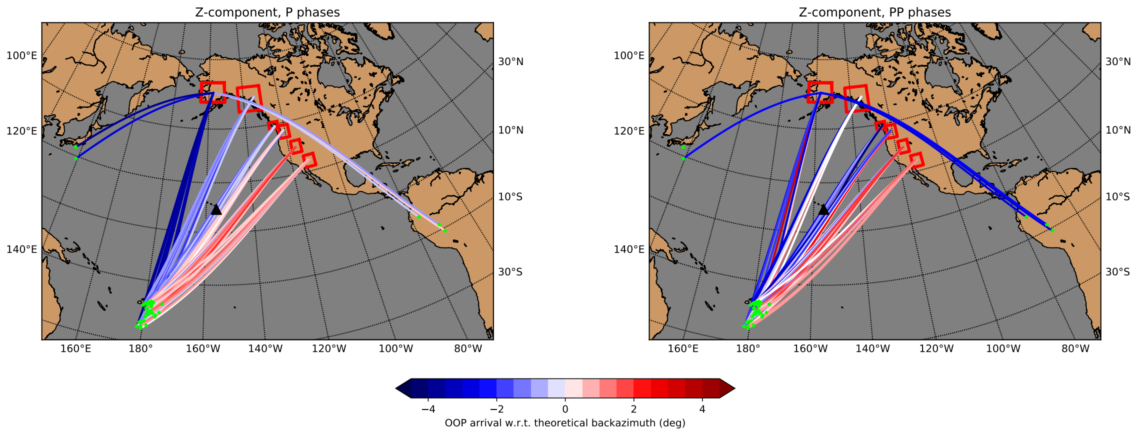


Figure 15: *Summary of all events in the Tonga region measured in the Z components for the direct and one-time surface reflected P-waves. The negative OOP arrivals of the northernmost network TA_ASW are clearly visible in blue. Also added are several extra events measured by network TA_ASW, which also yield negative OOP arrivals.*

The final scenario (C) would imply that the data has to be corrected with a mislocation vector, due to the station geometry. This mislocation vector can compensate for, for example, stations located at high topography instead of at sea level, as is assumed when applying the seismic array analysis. Beforehand, we assumed the mislocation vector for station geometry to be negligible, due to lack of mention in literature for this area. For other networks, however, the data has been greatly improved by taking a mislocation vector for station geometry and Moho depth variations into account (Jacobeit et al., 2013). Such mislocation vector could be constructed based on slowness and backazimuth of arriving waves, but we focused on the results of only the backazimuth. In the study of Jacobeit et al. (2013), documentation on local anisotropic heterogeneities were sparse near the used network, and the effect on the data is expected to be small due to the large aperture of the network. For the network used in our study, TA_ASW, the effects of the heterogeneous upper mantle and crust cause large anisotropic differences, as pointed out by Buehler and Shearer (2016), and might therefore have a significantly larger effect on the OOP arrivals compared to the station geometry. Therefore, compensating for the station geometry could reduce an apparent deviation in OOP arrivals by a small amount, but the larger deviations caused by anisotropy in the upper mantle will remain.

5.2 South America

For the South American events, recorded by the Hi-net in Japan, only the Z-component of the sourthern station has been included in the results. The wide distribution of OOP arrivals could be due to the fact that only surface reflections were measured. Due to the large source-receiver distance, no direct waves have been measured, which significantly decreased the amount of potential data. For the Tonga data, the direct P-waves were the most frequently selected in both Z- and R-component. Surface reflections are expected to be less accurate than direct waves, which might explain these large distributions. The large source-receiver distance also results in further weakening of the amplitudes due to geometrical spreading, and attenuation. Furthermore, the distance from the plume to the centre of the seismic network JAP_S is 65.90 degrees, whereas this is only 41.74 degrees for events in the Tonga region measured by network TA_ASW, and only about 20 degrees in the synthetic plume model of Stockmann et al. (2019). The increased distance between the expected heterogeneity and the receivers might result in an increased effect of wavefront healing. Consequently, any deformations of the wavefront by the plume conduit are likely to be immeasurable for this setup.

Another factor that might contribute to a larger spreading of OOP arrivals for the Japanese network, is the subduction zone directly east of Japan. The Pacific plate subducts, but we expect the influence of this subducted slab on the seismic signals to be limited. Following Snell's law, when a ray hits a surface at a straight angle, no refraction occurs. Due to the geometry of the subducting slab, we expect the waves to pass through the Pacific slab with a nearly perpendicular angle, causing minimal refraction. Finally, due to the large source-receiver distances, the GCP-SR vary largely based on the exact location of the source and the receiver, as is visible in the Fig. 5. As mentioned for the Banda region, the mantle is heterogeneous and therefore the large variety in great circle paths are all affected differently. This causes a more thorough investigation of these data to be out of the scope of this study.

5.3 Inferred plume characteristics

The fact that, overall, the expected OOP arrival trend of Fig. 2b, based on the findings of Stockmann et al. (2019), are not reproduced in our results, could indicate deviations of the Hawaiian mantle plume compared to the synthetic plumes modelled by Stockmann et al. (2019), regarding the plume structure or composition. In the lower mantle, the synthetic plumes have a width of 750 km, and a thermal anomaly of around 750 K, and they are thermo-chemically distinct form the surrounding mantle (Stockmann et al., 2019). As shown by French and Romanowicz (2015), the width of the Hawaiian mantle plume in the lower mantle can reach up to 1000 km, and will than have a thermal anomaly of 200 K. A narrower plume would cause the temperature to increase, in order to match the observations made by the authors, up to the point where a plume with a diameter of 400 km, would have the unrealistic high thermal anomaly of 2000 K. Despite the fact that this relation is made under the assumption that plumes are purely thermal features, these values are still in agreement with the synthetic plumes by Stockmann et al. (2019). Although the synthetic plumes do contain a chemical signature, they are described as being predominantly thermal.

A lower thermal anomaly of the plume might result in weaker bending of the wavefront, but seems unlikely due to the agreement in width and temperature between the two aforementioned studies. Based on our results we are, however, not able to put additional constrains on the chemical signature of the plume.

The width of the plume also influences the frequencies at which it might be measured. Specifically, by comparing waves with a frequency of 25 and of 15 seconds, Stockmann et al. (2019) showed that for longer wavelengths, phases arrive more OOP. The filters we applied had a total range from 5-75 seconds, thereby focusing on lower wavelengths as well.

One-time surface multiples in the Tonga - North America configuration had their reflection point at the surface very near Hawaii. As pointed out by Wolfe et al. (2011), the Hawaiian mantle plume might be curved in the shallow upper mantle. A tilted plume affects phases at different depth levels differently, as well as wave paths with different azimuths. In this study, few phases sampling the upper mantle underneath Hawaii are presented with a different azimuth than the Tonga - North America events. To get clearer results, it would useful to have an increased data set of events with similar great circle paths, to validate the measurements, but crossing Hawaii with at a different azimuth than the Tonga - North America configuration.

In the lower mantle, large mantle plumes appear to be vertical structures (French and Romanowicz, 2015). In the case of Hawaii, a deep mantle plume could be connected to an Ultra Low Velocity Zone (ULVZ) at the bottom of the mantle (Cottaar and Romanowicz, 2012). We were able to use waves sampling the mantle up to 2500 km depth underneath Hawaii, whereas Stockmann et al. (2019) could only go as deep as 1000 km, due to shorter source-receiver distances. Therefore, this study had the potential to study the top of the LLSVP, and a possible relation of a deep mantle plume with the ULVZ.

All these factors might add up to a different pattern of OOP arrivals compared to the extrapolated trend of Fig. 2b, but none would explain a completely opposite trend, as indicated especially by the direct P phase in the Z-component (in Fig. 8f). By the same logic used to describe the extrapolated trend based on wavefronts bending around a hot plume, an opposite OOP arrival pattern can be achieved by waves passing through a fast anomaly, such as a cold downwelling. For Hawaii there are many indications of a hot plume, but the scenario of a cold downwelling is not supported by literature and highly unlikely. Thus, the opposite trend in OOP arrivals compared to the extrapolated trend of Fig. 2b, is not related to the plume structure. Instead, it might be a result of large scale mantle heterogeneities in the lower mantle, plausibly related to the LLSVP, or ULVZ.

Last of all, this study did not look into possible scattered waves off the plume. We expect that, since we did not succeed in retrieving the plume signature, and scatters are plausibly even weaker signals, they will be more difficult to detect. To detect scattered waves in future research, we suggest to look at seismic networks located closer to Hawaii than the networks used in this study.

5.4 Uncertainties

The results in this study are presented with averaged direct and near-surface arrivals. The aim is to increase the amount of measurements per phase, so trends in the OOP deviations are more robust. Assuming that the P, pP and sP phases have similar paths, and are thus affected by the same deep mantle structures, they are expected to have the same OOP deviations. Near surface reflections are likely to interact with heterogeneities in the crust, but these interferences are not expected to cause significant deviations in the backazimuths of the arriving phases. Some complications occurred when picking the phase arrivals. First of all, triplication of the waves could occur due to seismic discontinuities (Aki and Richards, 2002). Several arrivals of the same phase would be indicated in the expected arrivals of the vespagram. However, due to the window length, in most occasions the triplications were captured in the same time slice. Therefore, each phase in the results is captured by a single measurement, despite plausible triplications.

Depending on the ray path, each phase samples the assumed Hawaiian mantle plume at a specific depth. For events in the Tonga region measured in North America, the SP phases sample the mid mantle, while for the South American events the SP phases sample the lower mantle (Fig. 7). The sampling depth of the SP phases increases with increasing source-receiver distance. For shallow events, the arrival time of SP phases and PS phases are the same, due to reciprocity. For deep events, the SP-wave arrives earlier than the PS-wave due to the differences in wave velocity between P- and S-waves. In the results presented here, phase arrivals at the expected similar arrival time of both SP and PS phases were all processed as being SP phases. However, since the ray paths of the SP and PS phases are so different, they sample different parts of the mantle and should be processed separately. Not doing so, might have added to the large standard deviation in the Z-component of network TA_WCN (Fig. 8).

The sensitivity kernel for surface multiples is more complex than the sensitivity kernel of a direct wave (Marquering et al., 1999). For the reflection point at the surface, the width of the first Fresnel zone of a one-time surface multiple can span thousands of kilometers (Koroni et al., 2019). Combined with the extremely heterogeneous nature of the crust, this results in larger inaccuracies for surface multiples compared to direct waves. Therefore, the error of the measured phases is expected to increase as the number of surface reflections increases. For the Tonga and Banda region, this trend does not hold, which could be due to the fact that not all phases are picked. Whether or not a phase is selected, is a biased process, as mentioned before. When a phase does not match the expected arrival of the vespagram, or its energy distribution in the sloaz plot is not clear, it is not picked. As a result, the database of direct waves is significantly larger than for one time surface reflections, and two time surface reflections are even sparser, as is indicated by the color of the datapoints in Fig. 8-10). By not picking weak phase of surface multiples, we might have pushed towards a smaller standard deviations of these phases.

6 Conclusions

The goal of this study was to identify the plume conduit of the assumed Hawaiian mantle plume in real data using seismic array methods, thereby confirming findings of the synthetic plume model of Stockmann et al. (2019). To this end, we used several source-receiver settings crossing the expected Hawaiian mantel plume at different azimuths. Configurations with a large source-receiver distance used in this study are the South America - Japan wave paths, and the Banda - North America wave paths. Both configurations showed inconsistent OOP arrivals which did not match the expected trends in OOP arrivals based on the synthetic plumes by Stockmann et al. (2019). This might be caused by the increased effect of wavefront healing at large plume-receiver distances. Detected OOP arrivals could be subsequently caused by mantle heterogeneities.

Events in the Tonga region measured in North America did show clusters in OOP arrivals per seismic array. In the direct phases of the Z-component, a pattern opposite to the extrapolated trend was present, dominated by consistent negative OOP arrivals of several degrees in Alaska. This pattern might be related to lower mantle heterogeneities such as the LLSVPs and ULVZ.

We expect the negative OOP arrivals in Alaska, of on average -3 degrees, to be caused by the upper mantle and crustal heterogeneities in the mantle wedge underneath Alaska (You and Zhao, 2012). However, the complex lateral and vertical signature of the mantle wedge is expected to affect each incoming phase differently, instead of causing all phases to arrive at a similar OOP azimuth. Adding a mislocation vector to compensate for these structures might improve the measurements. In addition, a mislocation vector based on the station geometry could further improve the results, by reducing minor apparent OOP deviations.

Overall, the findings of Stockmann et al. (2019) were not confirmed, and no indications of a plume conduit, at depth nor shallow, have been identified. The scenario where there is no plume feeding the Hawaiian hotspot seems unlikely, though not disproven in this study. More research on larger scale synthetic models, has to be carried out in order to find an indication for how large the source-receiver and plume-receiver distance can be, while still reproducing the results of Stockmann et al. (2019). Furthermore, expected deep mantle plumes of other hotspots with a smaller plume-receiver distance, can be looked into to confirm the results of Stockmann et al. (2019) in real data.

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Appendices

A Complete dataset

All acquired data is given presented in Table 5, per seismic network. Additional information such as seismic network boundaries and event location constraints are given in Table 3. Events that have been looked into are separated into the radial (R), transverse (T) and vertical (Z) component. For unclear events this column is left empty. Even events which have been separated into single components might not have been used in the end. For a complete list of results, see Appendix C.

Table 5: *All acquired recordings. Unclear events have not been looked into, unusable traces have been deleted.*

origin time	event lat	event lon	depth (km)	mag. (Mw)	stations available	component	stations used
T O N G A							
seismic network: TA_ASW							
2019-11-17_12:13	-20.8071	-177.8316	499.0	5.8	49		
2019-11-08_10:44	-21.9449	-179.5113	577.0	6.5	49	Z	28
2019-11-08_10:44	-21.9449	-179.5113	577.0	6.5	49	R	29
2019-11-08_10:44	-21.9449	-179.5113	577.0	6.5	49	T	32
2019-09-01_15:54	-20.3641	-178.5701	591.0	6.6	49	Z	44
2019-09-01_15:54	-20.3641	-178.5701	591.0	6.6	49	R	41
2019-09-01_15:54	-20.3641	-178.5701	591.0	6.6	49	T	46
2019-07-03_03:45	-22.1361	-179.5146	596.14	5.8	49	Z	44
2019-07-03_03:45	-22.1361	-179.5146	596.14	5.8	49	R	38
2019-07-03_03:45	-22.1361	-179.5146	596.14	5.8	49	T	36
2019-05-30_15:38	-21.7541	-176.3171	177.85	6.0	49	Z	41
2019-05-30_15:38	-21.7541	-176.3171	177.85	6.0	49	R	35
2019-05-30_15:38	-21.7541	-176.3171	177.85	6.0	49	T	43
2019-04-23_14:20	-24.7059	-178.7639	385.58	6.0	49	Z	38
2019-04-23_14:20	-24.7059	-178.7639	385.58	6.0	49	R	39
2019-04-23_14:20	-24.7059	-178.7639	385.58	6.0	49	T	42
2019-03-10_08:12	-17.8915	-178.6034	578.19	6.2	49	Z	43
2019-03-10_08:12	-17.8915	-178.6034	578.19	6.2	49	R	44
2019-03-10_08:12	-17.8915	-178.6034	578.19	6.2	49	T	37
2019-01-27_10:16	-20.102	-177.8151	562.39	5.8	49		
2019-01-26_19:56	-21.0475	-178.9592	588.0	6.2	49	Z	44
2019-01-26_19:56	-21.0475	-178.9592	588.0	6.2	49	R	37
2019-01-26_19:56	-21.0475	-178.9592	588.0	6.2	49	T	37
2018-12-26_14:11	-17.277	-174.0131	120.0	5.7	49		
2018-12-23_23:08	-20.2855	-175.071	113.0	6.4	49	Z	41
2018-12-23_23:08	-20.2855	-175.071	113.0	6.4	49	R	38
2018-12-23_23:08	-20.2855	-175.071	113.0	6.4	49	T	46
2018-11-27_02:45	-17.8924	-178.571	574.21	5.7	49		
2018-11-18_20:25	-17.8735	-178.9273	540.0	6.8	49	Z	48
2018-11-18_20:25	-17.8735	-178.9273	540.0	6.8	49	R	47
2018-11-18_20:25	-17.8735	-178.9273	540.0	6.8	49	T	48
2018-09-30_10:52	-18.3604	-178.0633	550.0	6.7	49	Z	46
2018-09-30_10:52	-18.3604	-178.0633	550.0	6.7	49	R	46
2018-09-30_10:52	-18.3604	-178.0633	550.0	6.7	49	T	45
2018-09-26_00:37	-17.9807	-178.0855	582.37	5.8	49		
2018-09-21_03:41	-17.8343	-179.88	638.64	5.7	49		
2018-09-21_03:40	-17.9071	-179.9776	652.35	5.9	49	Z	43
2018-09-21_03:40	-17.9071	-179.9776	652.35	5.9	49	R	38
2018-09-21_03:40	-17.9071	-179.9776	652.35	5.9	49	T	38
2018-09-16_21:11	-25.415	178.1991	576.0	6.5	49	Z	47
2018-09-16_21:11	-25.415	178.1991	576.0	6.5	49	R	45
2018-09-16_21:11	-25.415	178.1991	576.0	6.5	49	T	47

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Table 5 – continued from previous page

origin time	event lat	event lon	depth (km)	mag. (Mw)	stations available	component	stations used
2018-09-06__15:56	-18.2769	179.3142	656.35	5.7	49		
2018-09-06__15:49	-18.4743	179.3502	670.81	7.9	49	Z	48
2018-09-06__15:49	-18.4743	179.3502	670.81	7.9	49	R	48
2018-09-06__15:49	-18.4743	179.3502	670.81	7.9	49	T	48
2018-08-28__13:09	-18.0299	-177.9387	600.62	5.7	49	Z	41
2018-08-28__13:09	-18.0299	-177.9387	600.62	5.7	49	R	29
2018-08-28__13:09	-18.0299	-177.9387	600.62	5.7	49	T	34
2018-08-19__04:28	-16.9783	-178.0332	415.6	6.4	49	Z	47
2018-08-19__04:28	-16.9783	-178.0332	415.6	6.4	49	R	47
2018-08-19__04:28	-16.9783	-178.0332	415.6	6.4	49	T	47
2018-08-19__02:18	-18.2748	-178.3539	618.29	5.7	49		
2018-08-19__00:39	-17.9146	-177.9872	575.52	5.7	49		
2018-08-19__00:32	-17.9445	-178.2003	520.06	5.7	49		
2018-08-19__00:23	-18.4447	-177.6404	575.76	6.3	49		
2018-08-19__00:19	-18.1125	-178.153	600.0	8.2	49	Z	48
2018-08-19__00:19	-18.1125	-178.153	600.0	8.2	49	R	48
2018-08-19__00:19	-18.1125	-178.153	600.0	8.2	49	T	48
2018-05-01__19:47	-18.0199	-177.9375	585.0	5.9	49		
2018-04-05__09:07	-18.2946	-177.9138	511.0	5.8	49	Z	30
2018-04-05__09:07	-18.2946	-177.9138	511.0	5.8	49	R	30
2018-04-05__09:07	-18.2946	-177.9138	511.0	5.8	49	T	35
2018-03-09__16:23	-21.0006	-178.606	540.34	5.7	49		
2018-02-09__11:43	-17.8709	-178.6605	556.91	6.0	49	Z	36
2018-02-09__11:43	-17.8709	-178.6605	556.91	6.0	49	R	37
2018-02-09__11:43	-17.8709	-178.6605	556.91	6.0	49	T	35
2018-01-25__10:41	-17.7869	-179.6108	639.56	5.8	49		
2018-01-16__19:57	-19.4497	-179.2959	666.76	5.9	49		
2018-01-02__14:57	-24.8235	178.45	579.49	5.9	49		
2017-12-08__23:42	-16.1147	-173.9172	155.0	5.7	49		
2017-11-08__07:35	-21.8761	-179.3823	593.71	5.7	49		
2017-11-07__09:01	-17.6808	-178.5471	548.0	5.7	49		
seismic network: TA__ASE							
2019-11-17__12:13	-20.8071	-177.8316	499.0	5.8	27		
2019-11-08__10:44	-21.9449	-179.5113	577.0	6.5	27		
2019-09-01__15:54	-20.3641	-178.5701	591.0	6.6	27	Z	26
2019-09-01__15:54	-20.3641	-178.5701	591.0	6.6	27	R	25
2019-09-01__15:54	-20.3641	-178.5701	591.0	6.6	27	T	25
2019-07-03__03:45	-22.1361	-179.5146	596.14	5.8	27	Z	24
2019-07-03__03:45	-22.1361	-179.5146	596.14	5.8	27	R	22
2019-07-03__03:45	-22.1361	-179.5146	596.14	5.8	27	T	22
2019-05-30__15:38	-21.7541	-176.3171	177.85	6.0	27	Z	21
2019-05-30__15:38	-21.7541	-176.3171	177.85	6.0	27	R	21
2019-05-30__15:38	-21.7541	-176.3171	177.85	6.0	27	T	21
2019-04-23__14:20	-24.7059	-178.7639	385.58	6.0	27	Z	26
2019-04-23__14:20	-24.7059	-178.7639	385.58	6.0	27	R	22
2019-04-23__14:20	-24.7059	-178.7639	385.58	6.0	27	T	23
2019-03-10__08:12	-17.8915	-178.6034	578.19	6.2	27		
2019-01-27__10:16	-20.102	-177.8151	562.39	5.8	27		
2019-01-26__19:56	-21.0475	-178.9592	588.0	6.2	27		
2018-12-26__14:11	-17.277	-174.0131	120.0	5.7	27		
2018-12-23__23:08	-20.2855	-175.071	113.0	6.4	27		
2018-11-27__02:45	-17.8924	-178.571	574.21	5.7	27		
2018-11-18__20:25	-17.8735	-178.9273	540.0	6.8	27	Z	27
2018-11-18__20:25	-17.8735	-178.9273	540.0	6.8	27	R	24

Continued on next page

Table 5 – continued from previous page

origin time	event lat	event lon	depth (km)	mag. (Mw)	stations available	component	stations used
2018-11-18__20:25	-17.8735	-178.9273	540.0	6.8	27	T	24
2018-09-30__10:52	-18.3604	-178.0633	550.0	6.7	27	Z	27
2018-09-30__10:52	-18.3604	-178.0633	550.0	6.7	27	R	24
2018-09-30__10:52	-18.3604	-178.0633	550.0	6.7	27	T	24
2018-09-26__00:37	-17.9807	-178.0855	582.37	5.8	27		
2018-09-21__03:41	-17.8343	-179.88	638.64	5.7	27	Z	26
2018-09-21__03:41	-17.8343	-179.88	638.64	5.7	27	R	23
2018-09-21__03:41	-17.8343	-179.88	638.64	5.7	27	T	24
2018-09-21__03:40	-17.9071	-179.9776	652.35	5.9	27		
2018-09-16__21:11	-25.415	178.1991	576.0	6.5	27	Z	25
2018-09-16__21:11	-25.415	178.1991	576.0	6.5	27	R	23
2018-09-16__21:11	-25.415	178.1991	576.0	6.5	27	T	23
2018-09-06__15:56	-18.2769	179.3142	656.35	5.7	27		
2018-09-06__15:49	-18.4743	179.3502	670.81	7.9	27	Z	27
2018-09-06__15:49	-18.4743	179.3502	670.81	7.9	27	R	26
2018-09-06__15:49	-18.4743	179.3502	670.81	7.9	27	T	26
2018-08-28__13:09	-18.0299	-177.9387	600.62	5.7	27		
2018-08-19__04:28	-16.9783	-178.0332	415.6	6.4	27	Z	26
2018-08-19__04:28	-16.9783	-178.0332	415.6	6.4	27	R	26
2018-08-19__04:28	-16.9783	-178.0332	415.6	6.4	27	T	25
2018-08-19__02:18	-18.2748	-178.3539	618.29	5.7	27		
2018-08-19__00:39	-17.9146	-177.9872	575.52	5.7	27		
2018-08-19__00:32	-17.9445	-178.2003	520.06	5.7	27		
2018-08-19__00:23	-18.4447	-177.6404	575.76	6.3	27		
2018-08-19__00:19	-18.1125	-178.153	600.0	8.2	27	Z	26
2018-08-19__00:19	-18.1125	-178.153	600.0	8.2	27	R	24
2018-08-19__00:19	-18.1125	-178.153	600.0	8.2	27	T	24
2018-05-01__19:47	-18.0199	-177.9375	585.0	5.9	27		
2018-04-05__09:07	-18.2946	-177.9138	511.0	5.8	27		
2018-03-09__16:23	-21.0006	-178.606	540.34	5.7	27		
2018-02-09__11:43	-17.8709	-178.6605	556.91	6.0	27	Z	23
2018-02-09__11:43	-17.8709	-178.6605	556.91	6.0	27	R	20
2018-02-09__11:43	-17.8709	-178.6605	556.91	6.0	27	T	21
2018-01-25__10:41	-17.7869	-179.6108	639.56	5.8	27		
2018-01-16__19:57	-19.4497	-179.2959	666.76	5.9	27		
2018-01-02__14:57	-24.8235	178.45	579.49	5.9	27		
2017-12-08__23:42	-16.1147	-173.9172	155.0	5.7	27		
2017-11-08__07:35	-21.8761	-179.3823	593.71	5.7	27		
2017-11-07__09:01	-17.6808	-178.5471	548.0	5.7	27		
seismic network: CN							
2019-11-17__12:13	-20.8071	-177.8316	499.0	5.8	66		
2019-11-08__10:44	-21.9449	-179.5113	577.0	6.5	66	Z	21
2019-11-08__10:44	-21.9449	-179.5113	577.0	6.5	66	R	20
2019-11-08__10:44	-21.9449	-179.5113	577.0	6.5	66	T	21
2019-09-01__15:54	-20.3641	-178.5701	591.0	6.6	66	Z	20
2019-09-01__15:54	-20.3641	-178.5701	591.0	6.6	66	R	19
2019-09-01__15:54	-20.3641	-178.5701	591.0	6.6	66	T	19
2019-07-03__03:45	-22.1361	-179.5146	596.14	5.8	66	Z	21
2019-07-03__03:45	-22.1361	-179.5146	596.14	5.8	66	R	16
2019-07-03__03:45	-22.1361	-179.5146	596.14	5.8	66	T	18
2019-05-30__15:38	-21.7541	-176.3171	177.85	6.0	66	Z	20
2019-05-30__15:38	-21.7541	-176.3171	177.85	6.0	66	R	16
2019-05-30__15:38	-21.7541	-176.3171	177.85	6.0	66	T	18
2019-04-23__14:20	-24.7059	-178.7639	385.58	6.0	66		
2019-03-10__08:12	-17.8915	-178.6034	578.19	6.2	66	Z	22

Continued on next page

Table 5 – continued from previous page

origin time	event lat	event lon	depth (km)	mag. (Mw)	stations available	component	stations used
2019-03-10_08:12	-17.8915	-178.6034	578.19	6.2	66	R	20
2019-03-10_08:12	-17.8915	-178.6034	578.19	6.2	66	T	21
2019-01-27_10:16	-20.102	-177.8151	562.39	5.8	66		
2019-01-26_19:56	-21.0475	-178.9592	588.0	6.2	66	Z	17
2019-01-26_19:56	-21.0475	-178.9592	588.0	6.2	66	R	15
2019-01-26_19:56	-21.0475	-178.9592	588.0	6.2	66	T	17
2018-12-26_14:11	-17.277	-174.0131	120.0	5.7	66		
2018-12-23_23:08	-20.2855	-175.071	113.0	6.4	66		
2018-11-27_02:45	-17.8924	-178.571	574.21	5.7	66		
2018-11-18_20:25	-17.8735	-178.9273	540.0	6.8	66	Z	21
2018-11-18_20:25	-17.8735	-178.9273	540.0	6.8	66	R	20
2018-11-18_20:25	-17.8735	-178.9273	540.0	6.8	66	T	21
2018-09-30_10:52	-18.3604	-178.0633	550.0	6.7	66	Z	18
2018-09-30_10:52	-18.3604	-178.0633	550.0	6.7	66	R	16
2018-09-30_10:52	-18.3604	-178.0633	550.0	6.7	66	T	18
2018-09-26_00:37	-17.9807	-178.0855	582.37	5.8	66		
2018-09-21_03:41	-17.8343	-179.88	638.64	5.7	66		
2018-09-21_03:40	-17.9071	-179.9776	652.35	5.9	66		
2018-09-16_21:11	-25.415	178.1991	576.0	6.5	66	Z	15
2018-09-16_21:11	-25.415	178.1991	576.0	6.5	66	R	13
2018-09-16_21:11	-25.415	178.1991	576.0	6.5	66	T	13
2018-09-06_15:56	-18.2769	179.3142	656.35	5.7	66		
2018-09-06_15:49	-18.4743	179.3502	670.81	7.9	66	Z	17
2018-09-06_15:49	-18.4743	179.3502	670.81	7.9	66	R	17
2018-09-06_15:49	-18.4743	179.3502	670.81	7.9	66	T	17
2018-08-28_13:09	-18.0299	-177.9387	600.62	5.7	66		
2018-08-19_04:28	-16.9783	-178.0332	415.6	6.4	66		
2018-08-19_02:18	-18.2748	-178.3539	618.29	5.7	66		
2018-08-19_00:39	-17.9146	-177.9872	575.52	5.7	66		
2018-08-19_00:32	-17.9445	-178.2003	520.06	5.7	66		
2018-08-19_00:23	-18.4447	-177.6404	575.76	6.3	66		
2018-08-19_00:19	-18.1125	-178.153	600.0	8.2	66	Z	17
2018-08-19_00:19	-18.1125	-178.153	600.0	8.2	66	R	17
2018-08-19_00:19	-18.1125	-178.153	600.0	8.2	66	T	17
2018-05-01_19:47	-18.0199	-177.9375	585.0	5.9	66		
2018-04-05_09:07	-18.2946	-177.9138	511.0	5.8	66		
2018-03-09_16:23	-21.0006	-178.606	540.34	5.7	66		
2018-02-09_11:43	-17.8709	-178.6605	556.91	6.0	66	Z	13
2018-02-09_11:43	-17.8709	-178.6605	556.91	6.0	66	R	12
2018-02-09_11:43	-17.8709	-178.6605	556.91	6.0	66	T	12
2018-01-25_10:41	-17.7869	-179.6108	639.56	5.8	66		
2018-01-16_19:57	-19.4497	-179.2959	666.76	5.9	66		
2018-01-02_14:57	-24.8235	178.45	579.49	5.9	66		
2017-12-08_23:42	-16.1147	-173.9172	155.0	5.7	66		
2017-11-08_07:35	-21.8761	-179.3823	593.71	5.7	66		
2017-11-07_09:01	-17.6808	-178.5471	548.0	5.7	66		
seismic network: TA_WCN							
2008-04-18_20:39	-17.342	-179.022	553.8	6.3	53	Z	30
2008-04-18_20:39	-17.342	-179.022	553.8	6.3	53	R	21
2008-04-18_20:39	-17.342	-179.022	553.8	6.3	53	T	26
2008-02-01_12:10	-21.495	-179.352	604.2	6.0	53		
2008-01-15_17:52	-21.984	-179.535	597.6	6.5	53	Z	35
2008-01-15_17:52	-21.984	-179.535	597.6	6.5	53	R	37
2008-01-15_17:52	-21.984	-179.535	597.6	6.5	53	T	37

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Table 5 – continued from previous page

origin time	event lat	event lon	depth (km)	mag. (Mw)	stations available	component	stations used
2007-11-19_00:52	-21.185	-178.752	558.3	6.3	53	Z	43
2007-11-19_00:52	-21.185	-178.752	558.3	6.3	53	R	38
2007-11-19_00:52	-21.185	-178.752	558.3	6.3	53	T	37
2007-10-16_21:05	-25.775	179.53	509.3	6.6	53	Z	43
2007-10-16_21:05	-25.775	179.53	509.3	6.6	53	R	34
2007-10-16_21:05	-25.775	179.53	509.3	6.6	53	T	41
2007-10-08_18:37	-20.706	-177.398	337.5	5.7	53	Z	32
2007-10-08_18:37	-20.706	-177.398	337.5	5.7	53	R	36
2007-10-08_18:37	-20.706	-177.398	337.5	5.7	53	T	40
2007-10-05_07:17	-25.189	179.459	509.4	6.5	53	Z	42
2007-10-05_07:17	-25.189	179.459	509.4	6.5	53	R	38
2007-10-05_07:17	-25.189	179.459	509.4	6.5	53	T	40
2007-09-14_11:51	-23.645	179.68	552.4	5.9	53		
2007-08-26_12:37	-17.457	-174.335	127.4	6.1	53	Z	41
2007-08-26_12:37	-17.457	-174.335	127.4	6.1	53	R	37
2007-08-26_12:37	-17.457	-174.335	127.4	6.1	53	T	39
2007-08-23_11:34	-19.925	-177.718	553.8	5.7	53	Z	34
2007-08-23_11:34	-19.925	-177.718	553.8	5.7	53	R	35
2007-08-23_11:34	-19.925	-177.718	553.8	5.7	53	T	33
2007-08-11_18:04	-22.264	-179.493	606.2	5.7	53		
2007-07-26_13:52	-20.542	-178.465	567.0	5.7	53		
2007-05-13_11:26	-19.513	-179.329	668.6	5.8	53		
2007-05-07_20:32	-21.213	-178.619	550.0	5.7	53	Z	33
2007-05-07_20:32	-21.213	-178.619	550.0	5.7	53	R	27
2007-05-07_20:32	-21.213	-178.619	550.0	5.7	53	T	36
2007-05-06_22:01	-19.406	-179.315	688.0	6.1	53	Z	41
2007-05-06_22:01	-19.406	-179.315	688.0	6.1	53	R	39
2007-05-06_22:01	-19.406	-179.315	688.0	6.1	53	T	39
2007-05-06_21:11	-19.401	-179.354	676.4	6.5	53	Z	41
2007-05-06_21:11	-19.401	-179.354	676.4	6.5	53	R	33
2007-05-06_21:11	-19.401	-179.354	676.4	6.5	53	T	35
2007-04-09_02:24	-20.073	-178.082	593.0	5.9	53		
2007-03-23_22:30	-18.858	-178.371	613.1	5.8	53		
2007-01-08_20:52	-18.58	-177.847	406.8	6.3	53	Z	26
2007-01-08_20:52	-18.58	-177.847	406.8	6.3	53	R	27
2007-01-08_20:52	-18.58	-177.847	406.8	6.3	53	T	30
2006-12-02_09:52	-17.774	-174.314	135.9	5.8	53		
2006-09-03_22:57	-24.046	178.817	568.1	5.9	53	Z	21
2006-09-03_22:57	-24.046	178.817	568.1	5.9	53	R	21
2006-09-03_22:57	-24.046	178.817	568.1	5.9	53	T	26
seismic network: TA_WCM							
2008-11-29_05:59	-18.701	-177.716	386.0	6.0	49		
2008-11-19_20:38	-22.168	-179.717	595.6	5.8	49		
2008-11-05_03:41	-17.321	-174.362	187.6	5.7	49		
2008-10-22_12:55	-18.414	-175.351	233.4	6.4	49		
2008-09-01_04:00	-25.387	-177.636	171.1	6.0	49		
2008-07-19_22:39	-17.337	-177.312	391.0	6.4	49	Z	31
2008-07-19_22:39	-17.337	-177.312	391.0	6.4	49	R	29
2008-07-19_22:39	-17.337	-177.312	391.0	6.4	49	T	29
2008-07-03_03:02	-23.37	-179.778	581.2	6.2	49	Z	30
2008-07-03_03:02	-23.37	-179.778	581.2	6.2	49	R	30
2008-07-03_03:02	-23.37	-179.778	581.2	6.2	49	T	30
2008-06-15_01:13	-17.735	-179.733	611.4	5.9	49	Z	29
2008-06-15_01:13	-17.735	-179.733	611.4	5.9	49	R	28

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Table 5 – continued from previous page

origin time	event lat	event lon	depth (km)	mag. (Mw)	stations available	component	stations used
2008-06-15__01:13	-17.735	-179.733	611.4	5.9	49	T	27
2008-04-18__20:39	-17.342	-179.022	553.8	6.3	49	Z	29
2008-04-18__20:39	-17.342	-179.022	553.8	6.3	49	R	27
2008-04-18__20:39	-17.342	-179.022	553.8	6.3	49	T	29
2008-02-01__12:10	-21.495	-179.352	604.2	6.0	49		
2008-01-15__17:52	-21.984	-179.535	597.6	6.5	49	Z	44
2008-01-15__17:52	-21.984	-179.535	597.6	6.5	49	R	44
2008-01-15__17:52	-21.984	-179.535	597.6	6.5	49	T	45
2007-11-19__00:52	-21.185	-178.752	558.3	6.3	49	Z	46
2007-11-19__00:52	-21.185	-178.752	558.3	6.3	49	R	42
2007-11-19__00:52	-21.185	-178.752	558.3	6.3	49	T	44
2007-10-16__21:05	-25.775	179.53	509.3	6.6	49	Z	46
2007-10-16__21:05	-25.775	179.53	509.3	6.6	49	R	46
2007-10-16__21:05	-25.775	179.53	509.3	6.6	49	T	48
2007-10-08__18:37	-20.706	-177.398	337.5	5.7	49	Z	42
2007-10-08__18:37	-20.706	-177.398	337.5	5.7	49	R	41
2007-10-08__18:37	-20.706	-177.398	337.5	5.7	49	T	39
2007-10-05__07:17	-25.189	179.459	509.4	6.5	49	Z	46
2007-10-05__07:17	-25.189	179.459	509.4	6.5	49	R	43
2007-10-05__07:17	-25.189	179.459	509.4	6.5	49	T	46
2007-09-14__11:51	-23.645	179.68	552.4	5.9	49		
2007-08-26__12:37	-17.457	-174.335	127.4	6.1	49	Z	46
2007-08-26__12:37	-17.457	-174.335	127.4	6.1	49	R	46
2007-08-26__12:37	-17.457	-174.335	127.4	6.1	49	T	47
2007-08-23__11:34	-19.925	-177.718	553.8	5.7	49		
2007-08-11__18:04	-22.264	-179.493	606.2	5.7	49		
2007-07-26__13:52	-20.542	-178.465	567.0	5.7	49		
2007-05-13__11:26	-19.513	-179.329	668.6	5.8	49	Z	43
2007-05-13__11:26	-19.513	-179.329	668.6	5.8	49	R	33
2007-05-13__11:26	-19.513	-179.329	668.6	5.8	49	T	43
2007-05-07__20:32	-21.213	-178.619	550.0	5.7	49	Z	37
2007-05-07__20:32	-21.213	-178.619	550.0	5.7	49	R	40
2007-05-07__20:32	-21.213	-178.619	550.0	5.7	49	T	37
2007-05-06__22:01	-19.406	-179.315	688.0	6.1	49	Z	43
2007-05-06__22:01	-19.406	-179.315	688.0	6.1	49	R	39
2007-05-06__22:01	-19.406	-179.315	688.0	6.1	49	T	40
2007-05-06__21:11	-19.401	-179.354	676.4	6.5	49	Z	46
2007-05-06__21:11	-19.401	-179.354	676.4	6.5	49	R	35
2007-05-06__21:11	-19.401	-179.354	676.4	6.5	49	T	40
2007-04-09__02:24	-20.073	-178.082	593.0	5.9	49		
2007-03-23__22:30	-18.858	-178.371	613.1	5.8	49		
2007-01-08__20:52	-18.58	-177.847	406.8	6.3	49	Z	33
2007-01-08__20:52	-18.58	-177.847	406.8	6.3	49	R	31
2007-01-08__20:52	-18.58	-177.847	406.8	6.3	49	T	32
2006-12-02__09:52	-17.774	-174.314	135.9	5.8	49		
2006-09-03__22:57	-24.046	178.817	568.1	5.9	49	Z	22
2006-09-03__22:57	-24.046	178.817	568.1	5.9	49	R	27
2006-09-03__22:57	-24.046	178.817	568.1	5.9	49	T	29
2006-08-15__23:53	-21.189	-176.25	154.0	6.1	49	Z	32
2006-08-15__23:53	-21.189	-176.25	154.0	6.1	49	R	25
2006-08-15__23:53	-21.189	-176.25	154.0	6.1	49	T	27
2006-07-23__20:50	-17.93	-178.608	587.0	5.8	49	Z	30
2006-07-23__20:50	-17.93	-178.608	587.0	5.8	49	R	22
2006-07-23__20:50	-17.93	-178.608	587.0	5.8	49	T	22

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Table 5 – continued from previous page

origin time	event lat	event lon	depth (km)	mag. (Mw)	stations available	component	stations used
2006-07-18__16:02	-20.084	-178.434	587.2	5.7	49		
2006-07-16__14:24	-19.937	-178.401	596.5	5.7	49		
2006-06-27__02:59	-19.865	-178.287	569.9	6.3	49		
2006-06-11__05:46	-20.661	-179.262	662.8	5.9	49		
2006-06-09__05:58	-17.531	-178.747	564.4	6.1	49	Z	25
2006-06-09__05:58	-17.531	-178.747	564.4	6.1	49	R	26
2006-06-09__05:58	-17.531	-178.747	564.4	6.1	49	T	25
2006-06-02__07:31	-20.837	-178.701	591.6	6.0	49	Z	22
2006-06-02__07:31	-20.837	-178.701	591.6	6.0	49	R	23
2006-06-02__07:31	-20.837	-178.701	591.6	6.0	49	T	23
seismic network: TA__WCS							
2008-04-18__20:39	-17.342	-179.022	553.8	6.3	51	Z	46
2008-04-18__20:39	-17.342	-179.022	553.8	6.3	51	R	49
2008-04-18__20:39	-17.342	-179.022	553.8	6.3	51	T	48
2008-02-01__12:10	-21.495	-179.352	604.2	6.0	51		
2008-01-15__17:52	-21.984	-179.535	597.6	6.5	51	Z	42
2008-01-15__17:52	-21.984	-179.535	597.6	6.5	51	R	43
2008-01-15__17:52	-21.984	-179.535	597.6	6.5	51	T	45
2007-11-19__00:52	-21.185	-178.752	558.3	6.3	51	Z	46
2007-11-19__00:52	-21.185	-178.752	558.3	6.3	51	R	45
2007-11-19__00:52	-21.185	-178.752	558.3	6.3	51	T	43
2007-10-16__21:05	-25.775	179.53	509.3	6.6	51	Z	46
2007-10-16__21:05	-25.775	179.53	509.3	6.6	51	R	45
2007-10-16__21:05	-25.775	179.53	509.3	6.6	51	T	45
2007-10-08__18:37	-20.706	-177.398	337.5	5.7	51	Z	42
2007-10-08__18:37	-20.706	-177.398	337.5	5.7	51	R	42
2007-10-08__18:37	-20.706	-177.398	337.5	5.7	51	T	41
2007-10-05__07:17	-25.189	179.459	509.4	6.5	51	Z	47
2007-10-05__07:17	-25.189	179.459	509.4	6.5	51	R	41
2007-10-05__07:17	-25.189	179.459	509.4	6.5	51	T	46
2007-09-14__11:51	-23.645	179.68	552.4	5.9	51	Z	40
2007-09-14__11:51	-23.645	179.68	552.4	5.9	51	R	45
2007-09-14__11:51	-23.645	179.68	552.4	5.9	51	T	44
2007-08-26__12:37	-17.457	-174.335	127.4	6.1	51	Z	46
2007-08-26__12:37	-17.457	-174.335	127.4	6.1	51	R	46
2007-08-26__12:37	-17.457	-174.335	127.4	6.1	51	T	46
2007-08-23__11:34	-19.925	-177.718	553.8	5.7	51	Z	29
2007-08-23__11:34	-19.925	-177.718	553.8	5.7	51	R	39
2007-08-23__11:34	-19.925	-177.718	553.8	5.7	51	T	46
2007-08-11__18:04	-22.264	-179.493	606.2	5.7	51		
2007-07-26__13:52	-20.542	-178.465	567.0	5.7	51		
2007-05-13__11:26	-19.513	-179.329	668.6	5.8	51	Z	42
2007-05-13__11:26	-19.513	-179.329	668.6	5.8	51	R	39
2007-05-13__11:26	-19.513	-179.329	668.6	5.8	51	T	40
2007-05-07__20:32	-21.213	-178.619	550.0	5.7	51	Z	31
2007-05-07__20:32	-21.213	-178.619	550.0	5.7	51	R	35
2007-05-07__20:32	-21.213	-178.619	550.0	5.7	51	T	37
2007-05-06__22:01	-19.406	-179.315	688.0	6.1	51	Z	36
2007-05-06__22:01	-19.406	-179.315	688.0	6.1	51	R	40
2007-05-06__22:01	-19.406	-179.315	688.0	6.1	51	T	38
2007-05-06__21:11	-19.401	-179.354	676.4	6.5	51	Z	40
2007-05-06__21:11	-19.401	-179.354	676.4	6.5	51	R	37
2007-05-06__21:11	-19.401	-179.354	676.4	6.5	51	T	38
2007-04-09__02:24	-20.073	-178.082	593.0	5.9	51		

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Table 5 – continued from previous page

origin time	event lat	event lon	depth (km)	mag. (Mw)	stations available	component	stations used
2007-03-23__22:30	-18.858	-178.371	613.1	5.8	51		
2007-01-08__20:52	-18.58	-177.847	406.8	6.3	51	Z	11
2007-01-08__20:52	-18.58	-177.847	406.8	6.3	51	R	11
2007-01-08__20:52	-18.58	-177.847	406.8	6.3	51	T	11
2006-12-02__09:52	-17.774	-174.314	135.9	5.8	51		
2006-09-03__22:57	-24.046	178.817	568.1	5.9	51		
B A N D A							
seismic network: TA__WCN							
2008-11-21__07:05	-8.947	159.553	118.0	6.1	53		
2008-11-04__18:35	-17.135	168.458	205.7	6.3	53	Z	13
2008-11-04__18:35	-17.135	168.458	205.7	6.3	53	R	12
2008-11-04__18:35	-17.135	168.458	205.7	6.3	53	T	13
2008-10-23__09:21	5.957	125.778	129.9	5.7	53		
2008-09-08__18:52	-13.501	166.967	110.0	6.9	53	Z	14
2008-09-08__18:52	-13.501	166.967	110.0	6.9	53	R	14
2008-09-08__18:52	-13.501	166.967	110.0	6.9	53	T	13
2008-09-04__09:37	-12.143	167.101	272.0	5.7	53	Z	14
2008-09-04__09:37	-12.143	167.101	272.0	5.7	53	R	14
2008-09-04__09:37	-12.143	167.101	272.0	5.7	53	T	14
2008-08-04__20:45	-5.916	130.195	173.9	6.3	53	Z	15
2008-08-04__20:45	-5.916	130.195	173.9	6.3	53	R	14
2008-08-04__20:45	-5.916	130.195	173.9	6.3	53	T	12
2008-06-06__13:42	-7.495	127.885	122.0	6.0	53		
2008-05-23__22:50	-7.061	129.483	125.2	5.7	53		
2008-04-29__19:10	-6.108	127.484	404.7	5.9	53	Z	31
2008-04-29__19:10	-6.108	127.484	404.7	5.9	53	R	27
2008-04-29__19:10	-6.108	127.484	404.7	5.9	53	T	28
2008-04-02__19:10	-7.046	129.203	180.7	5.7	53		
2008-03-06__01:21	2.572	128.232	125.0	5.9	53	Z	32
2008-03-06__01:21	2.572	128.232	125.0	5.9	53	R	31
2008-03-06__01:21	2.572	128.232	125.0	5.9	53	T	30
2008-02-07__20:58	-7.582	116.819	321.7	5.7	53	Z	36
2008-02-07__20:58	-7.582	116.819	321.7	5.7	53	R	35
2008-02-07__20:58	-7.582	116.819	321.7	5.7	53	T	32
2007-12-15__08:03	-7.526	127.474	175.9	6.0	53	Z	69
2007-12-15__08:03	-7.526	127.474	175.9	6.0	53	R	33
2007-12-15__08:03	-7.526	127.474	175.9	6.0	53	T	31
2007-11-23__01:26	-4.63	151.869	150.3	5.9	53	Z	41
2007-11-23__01:26	-4.63	151.869	150.3	5.9	53	R	39
2007-11-23__01:26	-4.63	151.869	150.3	5.9	53	T	38
2007-08-08__17:05	-5.859	107.419	280.0	7.5	53	Z	42
2007-08-08__17:05	-5.859	107.419	280.0	7.5	53	R	42
2007-08-08__17:05	-5.859	107.419	280.0	7.5	53	T	41
2007-08-08__17:04	-5.926	107.681	291.2	6.1	53		
2007-08-01__17:08	-15.595	167.68	120.0	7.2	53	Z	42
2007-08-01__17:08	-15.595	167.68	120.0	7.2	53	R	42
2007-08-01__17:08	-15.595	167.68	120.0	7.2	53	T	41
2007-07-23__00:08	-4.469	149.854	571.7	5.9	53	Z	37
2007-07-23__00:08	-4.469	149.854	571.7	5.9	53	R	37
2007-07-23__00:08	-4.469	149.854	571.7	5.9	53	T	35
2007-07-01__14:34	-5.929	130.564	134.6	5.9	53	Z	41
2007-07-01__14:34	-5.929	130.564	134.6	5.9	53	R	39
2007-07-01__14:34	-5.929	130.564	134.6	5.9	53	T	37
2007-05-29__01:03	-4.587	151.841	132.5	6.1	53	Z	42

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Table 5 – continued from previous page

origin time	event lat	event lon	depth (km)	mag. (Mw)	stations available	component	stations used
2007-05-29_01:03	-4.587	151.841	132.5	6.1	53	R	39
2007-05-29_01:03	-4.587	151.841	132.5	6.1	53	T	39
2007-04-21_07:12	-3.548	151.266	407.4	6.1	53	Z	36
2007-04-21_07:12	-3.548	151.266	407.4	6.1	53	R	37
2007-04-21_07:12	-3.548	151.266	407.4	6.1	53	T	36
2007-01-23_17:16	-13.1	167.054	188.1	5.9	53	Z	42
2007-01-23_17:16	-13.1	167.054	188.1	5.9	53	R	37
2007-01-23_17:16	-13.1	167.054	188.1	5.9	53	T	38
2007-01-23_04:37	-6.821	130.031	112.7	5.7	53	Z	40
2007-01-23_04:37	-6.821	130.031	112.7	5.7	53	R	39
2007-01-23_04:37	-6.821	130.031	112.7	5.7	53	T	38
2007-01-20_02:45	-5.525	130.435	139.2	5.7	53		
2007-01-17_04:28	-3.322	139.834	100.8	6.0	53	Z	39
2007-01-17_04:28	-3.322	139.834	100.8	6.0	53	R	38
2007-01-17_04:28	-3.322	139.834	100.8	6.0	53	T	38
2006-12-27_20:15	-5.724	154.424	355.0	6.0	53	Z	36
2006-12-27_20:15	-5.724	154.424	355.0	6.0	53	R	29
2006-12-27_20:15	-5.724	154.424	355.0	6.0	53	T	27
2006-12-12_15:48	3.733	124.684	213.5	6.3	53	Z	31
2006-12-12_15:48	3.733	124.684	213.5	6.3	53	R	32
2006-12-12_15:48	3.733	124.684	213.5	6.3	53	T	30
2006-11-14_14:21	-6.39	127.998	345.0	6.1	53	Z	34
2006-11-14_14:21	-6.39	127.998	345.0	6.1	53	R	37
2006-11-14_14:21	-6.39	127.998	345.0	6.1	53	T	28
2006-11-06_20:56	-5.45	146.637	133.2	6.0	53	Z	36
2006-11-06_20:56	-5.45	146.637	133.2	6.0	53	R	32
2006-11-06_20:56	-5.45	146.637	133.2	6.0	53	T	32
2006-10-18_10:45	-15.053	167.266	115.0	6.4	53	Z	36
2006-10-18_10:45	-15.053	167.266	115.0	6.4	53	R	36
2006-10-18_10:45	-15.053	167.266	115.0	6.4	53	T	38
2006-10-03_18:03	-18.84	169.001	161.0	6.3	53	Z	38
2006-10-03_18:03	-18.84	169.001	161.0	6.3	53	R	38
2006-10-03_18:03	-18.84	169.001	161.0	6.3	53	T	35
2006-09-09_04:13	-7.219	120.106	572.0	6.3	53	Z	27
2006-09-09_04:13	-7.219	120.106	572.0	6.3	53	R	26
2006-09-09_04:13	-7.219	120.106	572.0	6.3	53	T	23
2006-09-05_04:53	7.678	126.433	135.2	5.8	53	Z	26
2006-09-05_04:53	7.678	126.433	135.2	5.8	53	R	24
2006-09-05_04:53	7.678	126.433	135.2	5.8	53	T	25
2006-08-07_22:18	-15.798	167.789	150.0	6.8	53	Z	16
2006-08-07_22:18	-15.798	167.789	150.0	6.8	53	R	16
2006-08-07_22:18	-15.798	167.789	150.0	6.8	53	T	16
2006-07-15_07:10	-4.446	126.156	364.0	5.8	53	Z	15
2006-07-15_07:10	-4.446	126.156	364.0	5.8	53	R	11
2006-07-15_07:10	-4.446	126.156	364.0	5.8	53	T	12
seismic network: TA_WCM							
2008-11-21_07:05	-8.947	159.553	118.0	6.1	49		
2008-11-04_18:35	-17.135	168.458	205.7	6.3	49		
2008-10-23_09:21	5.957	125.778	129.9	5.7	49		
2008-09-08_18:52	-13.501	166.967	110.0	6.9	49	Z	8
2008-09-08_18:52	-13.501	166.967	110.0	6.9	49	R	8
2008-09-08_18:52	-13.501	166.967	110.0	6.9	49	T	8
2008-09-04_09:37	-12.143	167.101	272.0	5.7	49	Z	10
2008-09-04_09:37	-12.143	167.101	272.0	5.7	49	R	9

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Table 5 – continued from previous page

origin time	event lat	event lon	depth (km)	mag. (Mw)	stations available	component	stations used
2008-09-04__09:37	-12.143	167.101	272.0	5.7	49	T	9
2008-08-04__20:45	-5.916	130.195	173.9	6.3	49	Z	28
2008-08-04__20:45	-5.916	130.195	173.9	6.3	49	R	22
2008-08-04__20:45	-5.916	130.195	173.9	6.3	49	T	19
2008-06-06__13:42	-7.495	127.885	122.0	6.0	49	Z	30
2008-06-06__13:42	-7.495	127.885	122.0	6.0	49	R	26
2008-06-06__13:42	-7.495	127.885	122.0	6.0	49	T	21
2008-05-23__22:50	-7.061	129.483	125.2	5.7	49		
2008-04-29__19:10	-6.108	127.484	404.7	5.9	49		
2008-04-02__19:10	-7.046	129.203	180.7	5.7	49		
2008-03-06__01:21	2.572	128.232	125.0	5.9	49	Z	45
2008-03-06__01:21	2.572	128.232	125.0	5.9	49	R	41
2008-03-06__01:21	2.572	128.232	125.0	5.9	49	T	40
2008-02-07__20:58	-7.582	116.819	321.7	5.7	49		
2007-12-15__08:03	-7.526	127.474	175.9	6.0	49	Z	47
2007-12-15__08:03	-7.526	127.474	175.9	6.0	49	R	44
2007-12-15__08:03	-7.526	127.474	175.9	6.0	49	T	41
2007-11-23__01:26	-4.63	151.869	150.3	5.9	49	Z	48
2007-11-23__01:26	-4.63	151.869	150.3	5.9	49	R	40
2007-11-23__01:26	-4.63	151.869	150.3	5.9	49	T	39
2007-08-08__17:05	-5.859	107.419	280.0	7.5	49	Z	48
2007-08-08__17:05	-5.859	107.419	280.0	7.5	49	R	42
2007-08-08__17:05	-5.859	107.419	280.0	7.5	49	T	40
2007-08-08__17:04	-5.926	107.681	291.2	6.1	49		
2007-08-01__17:08	-15.595	167.68	120.0	7.2	49	Z	48
2007-08-01__17:08	-15.595	167.68	120.0	7.2	49	R	47
2007-08-01__17:08	-15.595	167.68	120.0	7.2	49	T	44
2007-07-23__00:08	-4.469	149.854	571.7	5.9	49	Z	43
2007-07-23__00:08	-4.469	149.854	571.7	5.9	49	R	35
2007-07-23__00:08	-4.469	149.854	571.7	5.9	49	T	35
2007-07-01__14:34	-5.929	130.564	134.6	5.9	49	Z	48
2007-07-01__14:34	-5.929	130.564	134.6	5.9	49	R	36
2007-07-01__14:34	-5.929	130.564	134.6	5.9	49	T	34
2007-05-29__01:03	-4.587	151.841	132.5	6.1	49	Z	45
2007-05-29__01:03	-4.587	151.841	132.5	6.1	49	R	42
2007-05-29__01:03	-4.587	151.841	132.5	6.1	49	T	38
2007-04-21__07:12	-3.548	151.266	407.4	6.1	49	Z	46
2007-04-21__07:12	-3.548	151.266	407.4	6.1	49	R	43
2007-04-21__07:12	-3.548	151.266	407.4	6.1	49	T	44
2007-01-23__17:16	-13.1	167.054	188.1	5.9	49		
2007-01-23__04:37	-6.821	130.031	112.7	5.7	49		
2007-01-20__02:45	-5.525	130.435	139.2	5.7	49		
2007-01-17__04:28	-3.322	139.834	100.8	6.0	49	Z	38
2007-01-17__04:28	-3.322	139.834	100.8	6.0	49	R	34
2007-01-17__04:28	-3.322	139.834	100.8	6.0	49	T	34
2006-12-27__20:15	-5.724	154.424	355.0	6.0	49		
2006-12-12__15:48	3.733	124.684	213.5	6.3	49		
2006-11-14__14:21	-6.39	127.998	345.0	6.1	49	Z	32
2006-11-14__14:21	-6.39	127.998	345.0	6.1	49	R	28
2006-11-14__14:21	-6.39	127.998	345.0	6.1	49	T	27
2006-11-06__20:56	-5.45	146.637	133.2	6.0	49		
2006-10-18__10:45	-15.053	167.266	115.0	6.4	49	Z	31
2006-10-18__10:45	-15.053	167.266	115.0	6.4	49	R	27
2006-10-18__10:45	-15.053	167.266	115.0	6.4	49	T	28

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Table 5 – continued from previous page

origin time	event lat	event lon	depth (km)	mag. (Mw)	stations available	component	stations used
2006-10-03_18:03	-18.84	169.001	161.0	6.3	49	Z	33
2006-10-03_18:03	-18.84	169.001	161.0	6.3	49	R	26
2006-10-03_18:03	-18.84	169.001	161.0	6.3	49	T	25
2006-09-09_04:13	-7.219	120.106	572.0	6.3	49	Z	29
2006-09-09_04:13	-7.219	120.106	572.0	6.3	49	R	24
2006-09-09_04:13	-7.219	120.106	572.0	6.3	49	T	24
2006-09-05_04:53	7.678	126.433	135.2	5.8	49	Z	31
2006-09-05_04:53	7.678	126.433	135.2	5.8	49	R	25
2006-09-05_04:53	7.678	126.433	135.2	5.8	49	T	24
2006-08-07_22:18	-15.798	167.789	150.0	6.8	49		
2006-07-15_07:10	-4.446	126.156	364.0	5.8	49		
seismic network: TA_WCS							
2008-11-21_07:05	-8.947	159.553	118.0	6.1	51	Z	41
2008-11-21_07:05	-8.947	159.553	118.0	6.1	51	R	36
2008-11-21_07:05	-8.947	159.553	118.0	6.1	51	T	35
2008-11-04_18:35	-17.135	168.458	205.7	6.3	51	Z	43
2008-11-04_18:35	-17.135	168.458	205.7	6.3	51	R	41
2008-11-04_18:35	-17.135	168.458	205.7	6.3	51	T	38
2008-10-23_09:21	5.957	125.778	129.9	5.7	51	Z	45
2008-10-23_09:21	5.957	125.778	129.9	5.7	51	R	43
2008-10-23_09:21	5.957	125.778	129.9	5.7	51	T	43
2008-09-08_18:52	-13.501	166.967	110.0	6.9	51	Z	50
2008-09-08_18:52	-13.501	166.967	110.0	6.9	51	R	51
2008-09-08_18:52	-13.501	166.967	110.0	6.9	51	T	50
2008-09-04_09:37	-12.143	167.101	272.0	5.7	51	Z	48
2008-09-04_09:37	-12.143	167.101	272.0	5.7	51	R	47
2008-09-04_09:37	-12.143	167.101	272.0	5.7	51	T	47
2008-08-04_20:45	-5.916	130.195	173.9	6.3	51	Z	51
2008-08-04_20:45	-5.916	130.195	173.9	6.3	51	R	48
2008-08-04_20:45	-5.916	130.195	173.9	6.3	51	T	47
2008-06-06_13:42	-7.495	127.885	122.0	6.0	51	Z	46
2008-06-06_13:42	-7.495	127.885	122.0	6.0	51	R	38
2008-06-06_13:42	-7.495	127.885	122.0	6.0	51	T	41
2008-05-23_22:50	-7.061	129.483	125.2	5.7	51		
2008-04-29_19:10	-6.108	127.484	404.7	5.9	51	Z	44
2008-04-29_19:10	-6.108	127.484	404.7	5.9	51	R	46
2008-04-29_19:10	-6.108	127.484	404.7	5.9	51	T	46
2008-04-02_19:10	-7.046	129.203	180.7	5.7	51	Z	48
2008-04-02_19:10	-7.046	129.203	180.7	5.7	51	R	46
2008-04-02_19:10	-7.046	129.203	180.7	5.7	51	T	47
2008-03-06_01:21	2.572	128.232	125.0	5.9	51	Z	49
2008-03-06_01:21	2.572	128.232	125.0	5.9	51	R	41
2008-03-06_01:21	2.572	128.232	125.0	5.9	51	T	44
2008-02-07_20:58	-7.582	116.819	321.7	5.7	51		
2007-12-15_08:03	-7.526	127.474	175.9	6.0	51	Z	44
2007-12-15_08:03	-7.526	127.474	175.9	6.0	51	R	43
2007-12-15_08:03	-7.526	127.474	175.9	6.0	51	T	40
2007-11-23_01:26	-4.63	151.869	150.3	5.9	51	Z	43
2007-11-23_01:26	-4.63	151.869	150.3	5.9	51	R	41
2007-11-23_01:26	-4.63	151.869	150.3	5.9	51	T	40
2007-08-08_17:05	-5.859	107.419	280.0	7.5	51	Z	47
2007-08-08_17:05	-5.859	107.419	280.0	7.5	51	R	47
2007-08-08_17:05	-5.859	107.419	280.0	7.5	51	T	47
2007-08-08_17:04	-5.926	107.681	291.2	6.1	51		

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Table 5 – continued from previous page

origin time	**event lat**	**event lon**	**depth (km)**	**mag. (Mw)**	**stations available**	**component**	**stations used**
2007-08-01__17:08	-15.595	167.68	120.0	7.2	51	Z	47
2007-08-01__17:08	-15.595	167.68	120.0	7.2	51	R	47
2007-08-01__17:08	-15.595	167.68	120.0	7.2	51	T	47
2007-07-23__00:08	-4.469	149.854	571.7	5.9	51	Z	41
2007-07-23__00:08	-4.469	149.854	571.7	5.9	51	R	40
2007-07-23__00:08	-4.469	149.854	571.7	5.9	51	T	39
2007-07-01__14:34	-5.929	130.564	134.6	5.9	51	Z	41
2007-07-01__14:34	-5.929	130.564	134.6	5.9	51	R	41
2007-07-01__14:34	-5.929	130.564	134.6	5.9	51	T	39
2007-05-29__01:03	-4.587	151.841	132.5	6.1	51	Z	43
2007-05-29__01:03	-4.587	151.841	132.5	6.1	51	R	42
2007-05-29__01:03	-4.587	151.841	132.5	6.1	51	T	40
2007-04-21__07:12	-3.548	151.266	407.4	6.1	51	Z	33
2007-04-21__07:12	-3.548	151.266	407.4	6.1	51	R	29
2007-04-21__07:12	-3.548	151.266	407.4	6.1	51	T	28
2007-01-23__17:16	-13.1	167.054	188.1	5.9	51		
2007-01-23__04:37	-6.821	130.031	112.7	5.7	51		
2007-01-20__02:45	-5.525	130.435	139.2	5.7	51		
2007-01-17__04:28	-3.322	139.834	100.8	6.0	51	Z	11
2007-01-17__04:28	-3.322	139.834	100.8	6.0	51	R	9
2007-01-17__04:28	-3.322	139.834	100.8	6.0	51	T	9
2006-12-27__20:15	-5.724	154.424	355.0	6.0	51		
2006-12-12__15:48	3.733	124.684	213.5	6.3	51		
2006-11-14__14:21	-6.39	127.998	345.0	6.1	51		
2006-11-06__20:56	-5.45	146.637	133.2	6.0	51		
2006-10-18__10:45	-15.053	167.266	115.0	6.4	51		
2006-10-03__18:03	-18.84	169.001	161.0	6.3	51		
2006-09-09__04:13	-7.219	120.106	572.0	6.3	51		
2006-09-05__04:53	7.678	126.433	135.2	5.8	51		
2006-08-07__22:18	-15.798	167.789	150.0	6.8	51		
2006-07-15__07:10	-4.446	126.156	364.0	5.8	51		
S O U T H A M E R I C A							
seismic network: JAP_N							
2019-09-26__16:36	-40.8145	-71.9993	129.0	6.1	76	Z	
2016-11-20__20:57	-31.6226	-68.6259	108.0	6.4	76	Z	
2015-02-02__10:49	-32.7183	-67.1231	172.0	6.3	76	Z	
2013-02-22__12:01	-27.932	-63.097	575.2	6.1	76	Z	
2012-05-28__05:07	-28.043	-63.094	586.9	6.7	76	Z	
2012-03-05__07:46	-28.246	-63.294	553.9	6.1	76	Z	
2011-09-02__13:47	-28.398	-63.029	578.9	6.7	76	Z	
2011-01-01__09:56	-26.803	-63.136	576.8	7.0	76	Z	
2008-09-03__11:25	-26.736	-63.225	569.6	6.3	76		
2006-11-13__01:26	-26.052	-63.283	572.0	6.8	76		
2006-09-22__02:32	-26.868	-63.149	598.3	6.0	76		
2006-09-17__09:34	-31.733	-67.145	137.0	6.2	76		
2006-09-12__13:30	-28.944	-68.898	114.0	6.0	76		
2005-03-21__12:43	-24.725	-63.507	570.1	6.4	76		
2005-03-21__12:23	-24.983	-63.47	579.1	6.9	76		
2004-11-12__06:36	-26.705	-63.319	568.7	6.1	76		
seismic network: JAP_M							
2019-09-26__16:36	-40.8145	-71.9993	129.0	6.1	104	Z	82
2016-11-20__20:57	-31.6226	-68.6259	108.0	6.4	104	Z	89
2015-02-02__10:49	-32.7183	-67.1231	172.0	6.3	104	Z	81
2013-02-22__12:01	-27.932	-63.097	575.2	6.1	104	Z	84

Continued on next page

Table 5 – continued from previous page

origin time	event lat	event lon	depth (km)	mag. (Mw)	stations available	component	stations used
2012-05-28__05:07	-28.043	-63.094	586.9	6.7	104	Z	76
2012-03-05__07:46	-28.246	-63.294	553.9	6.1	104	Z	89
2011-09-02__13:47	-28.398	-63.029	578.9	6.7	104	Z	89
2011-01-01__09:56	-26.803	-63.136	576.8	7.0	104		
2008-09-03__11:25	-26.736	-63.225	569.6	6.3	104		
2006-11-13__01:26	-26.052	-63.283	572.0	6.8	104		
2006-09-22__02:32	-26.868	-63.149	598.3	6.0	104		
2006-09-17__09:34	-31.733	-67.145	137.0	6.2	104		
2006-09-12__13:30	-28.944	-68.898	114.0	6.0	104		
2005-03-21__12:43	-24.725	-63.507	570.1	6.4	104		
2005-03-21__12:23	-24.983	-63.47	579.1	6.9	104		
2004-11-12__06:36	-26.705	-63.319	568.7	6.1	104		
seismic network: JAP__S							
2019-09-26__16:36	-40.8145	-71.9993	129.0	6.1	91	Z	78
2016-11-20__20:57	-31.6226	-68.6259	108.0	6.4	91	Z	82
2015-02-02__10:49	-32.7183	-67.1231	172.0	6.3	91	Z	80
2013-02-22__12:01	-27.932	-63.097	575.2	6.1	91	Z	82
2012-05-28__05:07	-28.043	-63.094	586.9	6.7	91	Z	79
2012-03-05__07:46	-28.246	-63.294	553.9	6.1	91	Z	82
2011-09-02__13:47	-28.398	-63.029	578.9	6.7	91	Z	83
2011-01-01__09:56	-26.803	-63.136	576.8	7.0	91	Z	86
2008-09-03__11:25	-26.736	-63.225	569.6	6.3	91		
2006-11-13__01:26	-26.052	-63.283	572.0	6.8	91		
2006-09-22__02:32	-26.868	-63.149	598.3	6.0	91		
2006-09-17__09:34	-31.733	-67.145	137.0	6.2	91		
2006-09-12__13:30	-28.944	-68.898	114.0	6.0	91		
2005-03-21__12:43	-24.725	-63.507	570.1	6.4	91		
2005-03-21__12:23	-24.983	-63.47	579.1	6.9	91		
2004-11-12__06:36	-26.705	-63.319	568.7	6.1	91		

B Instrumentation

To measure the events in the Tonga and Banda region, the Transportable Array (TA) is used, part of the USArray project (USArray, 2020), as well as the POLARIS network, part of the CNDC (Polaris, 2018). The TA uses a Quanterra Q330 datalogger connected to a three-component broadband seismometer T120PH (USArray, 2020). The POLARIS network uses the T120PH, connected to a Taurus St. In this study we use the HH channel of the POLARIS network in three components, because the number of stations with the BH channel in this network is limited. Events in the South American region were recorded in three components by stations of the Hi-net (NIED, 2020). The Hi-net consists of over 800 stations distributed all over the Japan. Near big cities, the stations are located deeper than 1000 km, to limit noise (NIED, 2020). Data of the Hi-net are available up to 01-01-2004. For earlier events, up to Octobre 2000, data are present, but not accessible via the same data request channel. Therefore, no events before 01-01-2004 are used in this study.

C Results

All results of this study are presented here in Table 6-14. For a complete list of all events used, see Table 5 in Appendix A. For details on the settings of the acquired data see Table 3. All tables presented in this Appendix contain a single component (Z, R, T) per region (Tonga, Banda, South America, synthetic model) each. Within a table, all results are ordered per network, and sorted vertically per phase, and horizontally per event. For clarity, the rows where a change of network is indicated, are marked grey. The events are noted YY-MM(M)-DD (_HH:MM:SS). When multiple events occurred at the same day, also the hours, minutes and seconds of the event are include, otherwise only year, month and day is given. All events take place after the year 2000. In the second column the theoretical backazimuth of the average longitude and latitude of all stations within a single seismic network and the event is given in the row 'tbaz'. The rows 'TauP' indicate the arrival time of that particular phase computed with TauP, following the ak135 Earth model (Kennett et al., 1995). Note that the time is zero when the seismograms start recording. Depending on the distance between the source and receiver this is generally between 5 an 12 minutes after the event occurred. The row marked 'time' gives the timeslice used to measure the phase. The timeslice does not directly corresponds to the arrival time of the phase. For the phase to be picked, the timeslice was chosen where the amplitude was maximum and in correspondence with the vespagram. The width of a timeslice can change per component and region. The amplitude of the arriving phase in the sloaz plot is indicated in row 'amp'. The amplitude is dependent on the scaling, and timewindow used. It is a relative measurement for how a phase stands out with respect to the noise, not a quantitative measurement. The backazimuth of the maximum amplitude of an arriving phase in the sloaz plot is given in row 'baz'. The slowness of the maximum amplitude of the arriving phase is given in row 'slo'. Finally the difference between the theoretical back-azimuth (tbaz) and the measured backazimuth (baz) is computed in row 'dev'.

Table 6: *Sloaz plot results for all measured events of the Z-component for events occurring in the Tonga region, divided per network. Explanations of the used abbreviations in this table are given in the general description of this appendix.*

								TONGA Z-COMPONENT											
NETWORK TA_ASW																			
phase	event	18SEP30	18AUG28	19SEP01	19MAR10	18AUG19 _042858	18FEB09	19APR23	19NOV08	18SEP06	18APR05	19JAN26	18SEP21	18NOV18	18DEC23	18SEP16	18AUG19	19JUL03	19MAY30
	tbaz	199.94	199.37	200.15	200.44	200.10	200.46	198.99	199.33	202.17	199.36	200.00	201.67	200.65	196.13	201.80	199.87	200.55	197.18
P	TauP	378.75	373.31	386.39	374.61	383.46	377.17	426.19	392.03	370.85	383.79	389.15	369.81	377.47	430.94	412.79	372.78	394.46	432.59
	time	375.00	375.00	390.00	375.00	382.50	375.00	427.50	337.50	390.00	382.50	390.00	367.50	375.00	435.00	412.50	382.50	390.00	435.00
	amp	0.46	0.47	0.49	0.27	0.22	0.44	0.43	0.19	0.48	0.51	0.38	0.38	0.47	0.30	0.46	0.44	0.45	0.46
	baz	196.54	194.97	195.95	197.24	196.00	195.76	195.09	196.93	197.87	195.66	196.40	197.17	197.25	192.73	197.90	196.47	195.95	193.88
	slo	5.10	4.90	4.60	4.90	5.30	5.00	4.50	5.00	4.70	4.70	4.80	5.00	4.90	4.80	4.70	4.80	4.60	4.80
	dev	-3.40	-4.40	-4.20	-3.20	-4.10	-4.70	-3.90	-2.40	-4.30	-3.70	-3.60	-4.50	-3.40	-3.40	-3.90	-3.40	-4.60	-3.30
pP	TauP	496.29	499.47	511.92	496.90	476.34	495.85	515.10	516.56	508.88	494.57	514.37	504.71	493.11	459.89	537.68	498.79	521.59	476.44
	time	502.50	510.00	525.00	495.00	480.00	502.50	525.00	525.00	525.00	510.00	510.00	502.50	495.00	465.00	547.50	502.50	525.00	480.00
	amp	0.38	0.10	0.30	0.23	0.42	0.21	0.45	0.36	0.41	0.37	0.11	0.35	0.35	0.42	0.44	0.46	0.34	0.36
	baz	196.24	196.57	196.35	195.64	197.00	197.06	193.29	197.93	198.97	193.96	195.20	198.97	197.25	192.23	196.80	196.07	195.65	193.68
	slo	5.20	5.10	5.60	5.40	5.30	5.70	4.60	5.10	5.40	5.20	5.20	5.70	5.30	5.00	4.70	4.90	4.70	4.90
	dev	-3.70	-2.80	-3.80	-4.80	-3.10	-3.40	-5.70	-1.40	-3.20	-5.40	-4.80	-2.70	-3.40	-3.90	-5.00	-3.80	-4.90	-3.50
sP	TauP	552.36	560.18	571.49	555.58	519.82	552.57	555.09	575.30	575.76	546.99	573.62	570.06	548.29	471.93	595.38	559.46	581.45	495.14
	time	555.00	562.50	577.50	555.00	525.00	555.00	555.00	585.00	600.00	547.50	577.50	570.00	547.50	472.50	600.00	562.50	585.00	495.00
	amp	0.44	0.34	0.50	0.12	0.42	0.24	0.36	0.44	0.34	0.39	0.33	0.29	0.32	0.42	0.46	0.45	0.35	0.38
	baz	196.24	195.17	196.75	195.04	196.90	197.26	195.95	195.63	197.37	195.96	197.60	197.97	197.95	191.83	198.30	196.07	197.15	193.28
	slo	5.20	5.20	4.70	4.90	5.00	4.90	4.70	5.40	5.60	5.30	4.80	5.70	4.70	4.70	4.30	4.90	4.60	4.60
	dev	-3.70	-4.20	-3.40	-5.40	-3.20	-3.20	-3.04	-3.70	-4.80	-3.40	-2.40	-3.70	-2.70	-4.30	-3.50	-3.80	-3.40	-3.90
PP	TauP	574.23	569.51	589.65	569.85	571.52	572.27	638.11	598.19	571.02	579.22	593.90	567.94	571.45	622.14	632.33	568.63	603.29	630.28
	time	570.00			570.00	562.50	577.50	622.50		562.50					645.00	630.00			622.50
	amp	0.25			0.10	0.19	0.14	0.12		0.14					0.12	0.10			0.16
	baz	198.00			199.24	198.10	198.36	202.49		199.27					196.43	200.00			194.28
	slo	7.00			8.40	7.30	7.50	6.50		7.80					9.40	9.20			8.40
	dev	-1.94			-1.20	-2.00	-2.10	3.50		-2.90					0.30	-1.80			-2.90
pPP	TauP					650.25													
	time					652.50													
	amp					0.06													
	baz					199.70													
	slo					7.60													
	dev					-0.40													
sPP	TauP	732.76		758.04		697.04													
	time	735.00		757.50		697.50													
	amp	0.22		0.25		0.09													
	baz	198.34		198.85		199.20													
	slo	7.80		6.10		8.70													
	dev	-1.60		-1.30		-0.90													
PPP	TauP	687.77	683.48	705.45	683.46	682.65	685.75	755.39	714.74	686.51	692.58	710.09	682.71	684.56	733.41	752.69	682.50	720.66	743.31
	time	690.00								720.00	712.50	712.50		690.00		742.50			
	amp	0.10								0.11	0.16	0.08		0.10		0.20			
	baz	199.94								203.07	198.16	201.30		198.85		199.00			
	slo	7.80								9.90	7.90	7.90		7.60		7.90			
	dev	0.00								0.90	-1.20	1.30		-1.80		-2.80			
pPPP	TauP	776.89		807.45															
	time	780.00		810.00															
	amp	0.14		0.16															
	baz	198.14		196.25															
	slo	7.90		7.70															
	dev	-1.80		-3.90															
sPPP	TauP	850.38																	

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Table 6 – continued from previous page

T O N G A Z C O M P O N E N T																			
	time	847.50																	
	amp	0.11																	
	baz	196.54																	
	slo	9.70																	
	dev	-3.40																	
S	TauP	943.94	934.08	959.62	936.27	951.17	940.96	1035.00	970.65	930.42	953.21	965.04	928.05	941.27	1039.24	1011.72	933.03	975.71	1043.93
	time	937.50		960.00	937.50	960.00	945.00	1035.00	982.50	937.50	952.50		922.50	945.00	1035.00		960.00	967.50	1035.00
	amp	0.18		0.19	0.09	0.17	0.15	0.10	0.13	0.22	0.13		0.12	0.19	0.11		0.19	0.19	0.11
	baz	194.84		193.45	194.84	192.60	193.96	192.19	195.43	196.07	192.76		196.47	195.15	191.63		197.07	194.95	192.68
	slo	10.40		11.40	8.80	9.00	9.00	11.80	12.30	7.10	9.30		12.70	9.40	12.10		8.70	8.40	13.20
	dev	-5.10		-6.70	-5.60	-7.50	-6.50	-6.80	-3.90	-6.10	-6.60		-5.20	-5.50	-4.50		-2.80	-5.60	-4.50
SP	TauP	995.56	986.07	1016.73	987.64	997.88	992.29	1099.01	1029.90	985.04	1004.89	1023.23	981.27	991.85	1088.64	1080.16	984.76	1036.87	1097.89
	time	997.50		1012.50	982.50	990.00		1102.50	1012.50	1005.00	1005.00	1020.00	982.50	990.00	1080.00	1080.00	990.00	1020.00	1102.50
	amp	0.12		0.16	0.08	0.11		0.09	0.12	0.20	0.13	0.08	0.11	0.14	0.09	0.10	0.21	0.15	0.09
	baz	199.24		199.25	200.54	201.90		198.59	201.03	203.67	198.06	202.30	200.37	199.95	195.83	202.00	200.57	200.95	197.48
	slo	9.60		10.50	12.70	9.60		9.00	13.80	8.10	10.20	10.50	9.10	9.00	9.40	9.80	8.70	9.70	10.20
	dev	-0.70		-0.90	0.10	1.80		-0.40	1.70	1.50	-1.30	2.30	-1.30	-0.70	-0.30	0.20	0.70	0.40	0.30
pS	TauP																		
	time																		
	amp																		
	baz																		
	slo																		
	dev	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		199.94	199.37	200.15	200.44	200.10	200.46	198.99	199.33	202.17	199.36	200.00	201.67	200.65	196.13	201.80	199.87	200.55	197.18
sS	TauP	1153.45	1158.90	1183.33	1154.22	1116.44	1152.48	1192.96	1192.59	1176.12	1150.65	1188.18	1168.28	1147.39	1089.07	1234.41	1157.57	1202.25	1120.16
	time	1155.00				1117.50	1147.50			1177.50	1170.00	1185.00		1162.50	1087.50	1245.00	1155.00	1215.00	1125.00
	amp	0.08				0.13	0.10			0.10	0.14	0.11		0.11	0.13	0.10	0.09	0.10	0.09
	baz	193.04				200.50	200.56			198.37	195.36	201.10		201.55	193.93	193.00	193.77	195.95	199.28
	slo	9.60				11.60	7.30			9.70	8.90	10.50		9.40	9.00	8.70	13.10	12.60	9.90
	dev	-6.90				0.40	0.10			-3.80	-4.00	1.10		0.90	-2.20	-8.80	-6.10	-4.60	2.10
sPS	TauP																		
	time																		
	amp																		
	baz																		
	slo																		
	dev	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		199.94	199.37	200.15	200.44	200.10	200.46	198.99	199.33	202.17	199.36	200.00	201.67	200.65	196.13	201.80	199.87	200.55	197.18
sSP	TauP	1192.42		1226.18	1192.10	1154.50													
	time	1192.50		1237.50	1192.50	1170.00													
	amp	0.13		0.15	0.09	0.10													
	baz	198.34		200.65	199.14	195.60													
	slo	14.80		13.20	13.30	9.90													
	dev	-1.60	-	0.50	-1.30	-4.50	-	-	-	-	-	-	-	-	-	-	-	-	-
			199.37				200.46	198.99	199.33	202.17	199.36	200.00	201.67	200.65	196.13	201.80	199.87	200.55	197.18
SS	TauP	1275.26	1266.59	1303.17	1267.26	1270.87	1271.70	1391.86	1318.72	1269.30	1284.40	1310.89	1263.67	1270.25	1363.63	1380.93	1264.98	1327.98	1378.44
	time			1312.50		1275.00		1387.50	1305.00							1357.50			
	amp			0.10		0.06		0.08	0.10							0.08			
	baz			195.55		201.90		197.49	211.13							204.00			
	slo			11.80		14.40		10.20	10.40							10.50			
	dev	-	-	-4.60	-	1.80	-	-1.50	11.80							2.20			
		199.94	199.37		200.44		200.46												
sSS	TauP			1490.26															
	time			1507.50															
	amp			0.08															
	baz			199.05															
	slo			10.90															

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Table 6 – continued from previous page

		TONGA Z COMPONENT																	
	dev	-	-	-1.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		199.94	199.37		200.44	200.10	200.46	198.99	199.33	202.17	199.36	200.00	201.67	200.65	196.13	201.80	199.87	200.55	197.18
NETWORK TA_ASE																			
phase	event	18SEP30 _105223	19SEP01 _155420	19MAR10 _081226	19NOV08	18SEP06 _154918	18NOV18 _202546	18SEP16 _211148	18AUG19 _001940	19JUL03 _034529	19MAY30 _153801								
	tbaz	220.50	220.23	220.23	220.82	222.76	221.44	221.17	220.73	220.20	217.20								
P	TauP	399.18	405.45			393.30	399.27	433.66	393.43	414.53	450.74								
	time	397.50	412.50			412.50	397.50	442.50	405.00	412.50	457.50								
	amp	0.61	0.62			0.64	0.61	0.61	0.52	0.43	0.47								
	baz	220.40	220.83			222.86	221.14	221.67	220.13	219.30	218.10								
	slo	4.70	4.20			4.50	4.70	4.20	4.40	4.50	4.20								
	dev	-0.10	0.60	-	-	0.10	-0.30	0.50	-0.60	-0.90	0.90								
				220.23	220.82														
pP	TauP	518.24	532.56			533.54	516.49	559.17	521.16	543.19	494.94								
	time	517.50	540.00			550.00	517.50	562.50	525.00	547.50	502.50								
	amp	0.54	0.47			0.55	0.54	0.49	0.63	0.46	0.48								
	baz	220.60	219.43			222.16	221.24	221.27	220.23	221.10	218.10								
	slo	5.00	4.70			4.90	4.80	4.80	4.60	4.50	4.20								
	dev	0.10	-0.80	-	-	-0.60	-0.20	0.10	-0.50	0.90	0.90								
				220.23	220.82														
sP	TauP	573.92	591.73			599.84	571.26	616.60	581.39	602.61	513.56								
	time	577.50	600.00			600.00	577.50	622.50	585.00	615.00	517.50								
	amp	0.47	0.59			0.32	0.48	0.58	0.65	0.32	0.29								
	baz	218.70	221.13			223.86	221.64	221.67	220.13	220.50	218.10								
	slo	4.70	4.50			4.90	4.20	4.20	4.40	4.00	4.90								
	dev	-1.80	0.90	-	-	1.10	0.20	0.50	-0.60	0.30	0.90								
				220.23	220.82														
PP	TauP					607.68	606.52	667.48	601.90										
	time					615.00	600.00	667.50	615.00										
	amp					0.36	0.34	0.34	0.21										
	baz					223.36	222.34	223.07	222.13										
	slo					8.40	8.20	7.00	7.60										
	dev	-	-	-	-	0.60	0.90	1.90	1.40	-	-								
		220.50	220.23	220.23	220.82					220.20	217.20								
pPP	TauP	705.34						771.54											
	time	712.50						772.50											
	amp	0.14						0.23											
	baz	221.50						221.57											
	slo	7.40						7.60											
	dev	1.00	-	-	-	-	-	0.40	-	-	-								
			220.23	220.23	220.82	222.76	221.44		220.73	220.20	217.20								
sPP	TauP	766.68	790.61			794.17	763.62	834.85	772.73										
	time	765.00	787.50			795.00	765.00	832.50	765.00										
	amp	0.25	0.25			0.22	0.14	0.30	0.35										
	baz	221.50	223.03			219.16	221.94	221.77	221.83										
	slo	8.50	9.20			7.10	8.50	8.00	8.10										
	dev	1.00	2.80	-	-	-3.60	0.50	0.60	1.10	-	-								
				220.23	220.82					220.20	217.20								
PPP	TauP						723.15	792.43	719.20										
	time						720.00	795.00	727.50										
	amp						0.13	0.22	0.34										
	baz						221.94	224.27	221.33										
	slo						7.00	7.80	6.00										
	dev	-	-	-	-	-	0.50	3.10	0.60	-	-								
		220.50	220.23	220.23	220.82	222.76				220.20	217.20								
pPPP	TauP		846.18			827.88	812.06	886.29	813.98										
	time		847.50			832.50	810.00	877.50	810.00										

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Table 6 – continued from previous page

		TONGA Z COMPONENT									
	amp		0.29			0.39	0.23	0.24	0.39		
	baz		224.23			224.76	221.84	219.77	221.93		
	slo		7.40			6.90	8.30	9.50	7.20		
	dev	-	4.00	-	-	2.00	0.40	-1.40	1.20	-	-
		220.50		220.23	220.82					220.20	217.20
sPPP	TauP	891.39	903.18						896.45		
	time	892.50	915.00						892.50		
	amp	0.13	0.16						0.28		
	baz	221.10	217.83						221.83		
	slo	9.70	9.30						9.00		
	dev	0.60	-2.40	-	-	-	-	-	1.10	-	-
				220.23	220.82	222.76	221.44	221.17		220.20	217.20
S	TauP	984.22	997.44			974.81	984.21		973.73	1015.42	1079.92
	time	982.50	1005.00			982.50	982.50		990.00	1020.00	1080.00
	amp	0.30	0.26			0.26	0.34		0.37	0.20	0.17
	baz	222.10	221.73			223.56	223.14		222.33	222.40	218.60
	slo	8.80	8.00			7.00	9.30		8.20	8.30	9.60
	dev	1.60	1.50		-	0.80	1.70	-	1.60	2.20	1.40
					220.82			221.17			
SP	TauP		1063.61			1040.22	1044.37	1130.08	1034.62	1085.68	
	time		1072.50			1042.50	1050.00	1132.50	1257.50	1087.50	
	amp		0.26			0.20	0.26	0.22	0.28	0.18	
	baz		220.83			223.56	224.34	222.77	223.13	221.50	
	slo		8.10			7.00	14.40	8.10	13.90	9.80	
	dev	-	0.60	-	-	0.80	2.90	1.60	2.40	1.30	-
		220.50		220.23	220.82						217.20
pS	TauP										
	time										
	amp										
	baz										
	slo										
	dev	-	-	-	-	-	-	-	-	-	-
		220.50	220.23	220.23	220.82	222.76	221.44	221.17	220.73	220.20	217.20
sS	TauP	1196.44							1201.35		1085.35
	time	1207.50							1207.50		1147.50
	amp	0.17							0.28		0.19
	baz	221.60							220.33		219.30
	slo	8.90							8.00		8.90
	dev	1.10	-	-	-	-	-	-	-0.40	-	2.10
			220.23	220.23	220.82	222.76	221.44	221.17		220.20	
sPS	TauP										
	time										
	amp										
	baz										
	slo										
	dev	-	-	-	-	-	-	-	-	-	-
		220.50	220.23	220.23	220.82	222.76	221.44	221.17	220.73	220.20	217.20
sSP	TauP	1243.97	1275.51			1272.02	1240.46	1343.92	1247.46	1301.28	1215.75
	time	1252.50	1282.50			1282.50	1237.50	1357.50	1252.50	1320.00	1222.50
	amp	0.21	0.21			0.34	0.19	0.20	0.27	0.18	0.17
	baz	221.10	222.33			224.76	222.04	221.87	222.33	222.60	217.40
	slo	8.80	9.80			8.20	10.00	9.60	8.30	10.60	12.00
	dev	0.60	2.10	-	-	2.00	0.60	0.70	1.60	2.40	0.20
				220.23	220.82						
SS	TauP					1336.02			1325.45		
	time					1350.00			1335.00		
	amp					0.13			0.23		

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Table 6 – continued from previous page

									T O N G A Z C O M P O N E N T				
	baz					223.06			227.03				
	slo					15.60			17.10				
	dev	-	-	-	-	0.30	-	-	6.30	-	-		
		220.50	220.23	220.23	220.82		221.44	221.17		220.20	217.20		
sSS	TauP												
	time												
	amp												
	baz												
	slo												
	dev												
NETWORK CN													
phase	event	18SEP30 _105223	19SEP01 _155420	19MAR10 _081226	18FEB09 _114356	19NOV08 _104444	18SEP06 _154918	19JAN26 _195644	18NOV18 _202546	18SEP16 _211148	18AUG19 _001940	19JUL03 _034529	19MAY30 _153801
	tbaz	230.09	229.12	230.57	230.88	229.06	232.22	229.37	230.90	229.27	230.39	229.15	226.66
P	TauP	385.00	390.25	381.24	383.55	400.36	381.33	394.83	385.60	419.76	379.51	399.68	431.94
	time	382.50	390.00	382.50	382.50	405.00	382.50	397.50	382.50	427.50	382.50	397.50	435.00
	amp	0.88	0.92	0.46	0.92	0.73	0.61	0.69	0.81	0.94	0.91	0.76	0.58
	baz	228.89	228.12	230.27	230.48	229.16	230.42	229.87	229.40	228.27	228.89	229.45	227.96
	slo	4.70	4.60	5.00	4.90	4.40	4.90	4.60	5.10	4.40	4.70	4.10	4.80
	dev	-1.20	-1.00	-0.30	-0.40	0.10	-1.80	0.50	-1.50	-1.00	-1.50	0.30	1.30
pP	TauP	503.00	516.09	504.05	502.70	524.49	520.39		501.82	544.99	506.08	527.25	475.77
	time	502.50	525.00	502.50	502.50	525.00	532.50		502.50	547.50	510.00	532.50	480.00
	amp	0.86	0.85	0.77	0.79	0.74	0.73		0.82	0.95	0.89	0.84	0.82
	baz	229.59	228.82	229.97	230.78	228.96	231.52		230.30	229.17	228.99	228.05	224.66
	slo	4.90	4.80	5.30	5.30	4.70	4.70		5.00	4.40	4.60	4.70	5.10
	dev	-0.50	-0.30	-0.60	-0.10	-0.10	-0.70	-	-0.60	-0.10	-1.40	-1.10	-2.00
								229.37					
sP	TauP	558.94	575.59	562.60	559.30	582.54	586.99	579.65	556.85	602.55	566.60		494.48
	time	562.50	585.00	562.50	562.50	592.50	600.00	585.00	562.50	607.50	570.00		502.50
	amp	0.71	0.91	0.43	0.92	0.72	0.83	0.59	0.75	0.94	0.83		0.48
	baz	229.09	228.22	236.87	229.98	228.56	230.92	227.97	232.20	228.07	228.79		226.46
	slo	5.50	4.40	4.00	5.30	4.00	5.90	4.80	4.30	4.60	4.80		4.20
	dev	-1.00	-0.90	6.30	-0.90	-0.50	-1.30	-1.40	1.30	-1.20	-1.60	-	-0.20
												229.15	
PP	TauP			580.36	582.39	611.45			584.33	644.09			
	time			577.50	585.00	622.50			585.00	645.00			
	amp			0.45	0.56	0.25			0.68	0.78			
	baz			226.87	227.68	230.16			229.50	228.27			
	slo			7.70	8.40	7.50			8.70	7.00			
	dev	-	-	-3.70	-3.20	1.10	-	-	-1.40	-1.00	-	-	
		230.09	229.12				232.22	229.37			230.39	229.15	
pPP	TauP	681.34		680.86			699.15		680.26	747.13			667.71
	time	682.50		682.50					682.50	750.00			667.50
	amp	0.35		0.17					0.37	0.78			0.23
	baz	228.39		225.77					227.40	225.77			222.16
	slo	7.80		8.00					7.80	8.20			7.80
	dev	-1.70	-	-4.80	-	-	-	-	-3.50	-3.50	-	-	-4.50
			229.12		230.88	229.06	232.22	229.37			230.39	229.15	
sPP	TauP	742.96	764.52		742.75	777.32		771.35	740.81	810.74	749.39		
	time	750.00	772.50		742.50	787.50		772.50	742.50	817.50	750.00		
	amp	0.36	0.57		0.38	0.21		0.20	0.50	0.75	0.82		
	baz	235.19	225.32		233.18	224.36		230.57	228.80	228.87	229.59		
	slo	6.20	8.10		6.20	8.80		5.50	8.10	7.90	6.70		
	dev	5.10	-3.80	-	2.30	-4.70	-	1.20	-2.10	-0.40	-0.80	-	
				230.57			232.22					229.15	
PPP	TauP	772.32							698.67	765.93			
	time								697.50	765.00			

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Table 6 – continued from previous page

							TONGA	Z	COMPONENT				
	amp								0.38	0.68			
	baz								229.20	226.37			
	slo								7.40	7.80			
	dev	-	-	-	-	-	-	-	-1.70	-2.90	-	-	
		230.09	229.12	230.57	230.88	229.06	232.22	229.37			230.39	229.15	
pPPP	TauP	788.04	815.09		786.88					859.36	795.81		
	time	780.00	817.50		787.50					862.50	802.50		
	amp	0.37	0.41		0.26					0.47	0.49		
	baz	234.79	232.52		228.08					225.77	228.69		
	slo	6.50	6.80		9.90					8.90	10.50		
	dev	4.70	3.40	-	-2.80	-	-	-	-	-3.50	-1.70	-	
				230.57		229.06	232.22	229.37	230.90			229.15	
sPPP	TauP		886.94				894.92			925.63			
	time		885.00				900.00			930.00			
	amp		0.43				0.70			0.53			
	baz		228.42				229.42			227.27			
	slo		7.90				6.90			8.40			
	dev	-	-0.70	-	-	-	-2.80	-	-	-2.00	-	-	
		230.09		230.57	230.88	229.06		229.37	230.90		230.39	229.15	
S	TauP		967.25	947.07		987.05	951.06		957.20	1025.28	946.22	986.06	1042.63
	time		975.00	945.00		990.00	960.00		952.50	1027.50	945.00	990.00	1042.50
	amp		0.57	0.20		0.55	0.56		0.33	0.35	0.47	0.49	0.38
	baz		231.22	231.67		234.46	230.22		229.20	232.37	226.09	231.55	226.26
	slo		8.90	11.30		8.40	8.20		9.30	6.90	9.80	8.40	8.10
	dev	-	2.10	1.10	-	5.40	-2.00	-	-1.70	3.10	-4.30	2.40	-0.40
		230.09			230.88			229.37					
SP	TauP	1010.44	1026.13	1003.42	1007.47	1049.95	1010.33	1037.14	1011.18	1096.82	1000.79	1050.28	1096.29
	time	1005.00	1027.50	1005.00	1012.50	1050.00	1012.50	1042.50	1005.00	1102.50	1012.50	1050.00	1095.00
	amp	0.48	0.59	0.18	0.32	0.56	0.39	0.22	0.29	0.60	0.60	0.56	0.43
	baz	228.89	228.32	231.27	229.08	230.06	232.32	229.17	231.20	227.97	228.99	229.25	225.86
	slo	12.00	11.70	14.60	11.50	11.70	9.80	12.20	10.30	9.10	9.90	11.10	12.60
	dev	-1.20	-0.80	0.70	-1.80	1.00	0.10	-0.20	0.30	-1.30	-1.40	0.10	-0.80
pS	TauP	1179.27											
	time												
	amp												
	baz												
	slo												
	dev	-	-	-	-	-	-	-	-	-	-	-	
		230.09	229.12	230.57	230.88	229.06	232.22	229.37	230.90	229.27	230.39	229.15	
sS	TauP	1241.26								1248.99			
	time									1260.00			
	amp									0.42			
	baz									229.57			
	slo									8.50			
	dev	-	-	-	-	-	-	-	-	0.30	-	-	
		230.09	229.12	230.57	230.88	229.06	232.22	229.37	230.90		230.39	229.15	
pSP	TauP												1144.16
	time												1147.50
	amp												0.24
	baz												224.36
	slo												14.80
	dev	-	-	-	-	-	-	-	-	-	-	-	-2.30
		230.09	229.12	230.57	230.88	229.06	232.22	229.37	230.90	229.27	230.39	229.15	
sSP	TauP	1207.97	1236.03			1257.00	1240.76		1205.86	1307.39	1211.95	1262.28	1168.99
	time	1207.50	1245.00			1282.50	1252.50		1200.00	1312.50	1215.00	1260.00	1170.00
	amp	0.40	0.62			0.35	0.61		0.23	0.35	0.71	0.31	0.26
	baz	226.99	226.32			227.56	231.82		231.20	227.17	229.29	223.15	223.56

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Table 6 – continued from previous page

							TONGA	Z	COMPONENT				
	slo	9.20	11.40			8.80	7.50		10.30	6.60	8.20	9.50	11.90
	dev	-3.10	-2.80	-	-	-1.50	-0.40	-	0.30	-2.10	-1.10	-6.00	-3.10
				230.57	230.88			229.37					
SS	TauP	1415.16		1286.30	1290.03	1342.84	1299.96			1402.41	1284.34		
	time			1290.00	1297.50	1342.50	1305.00			1410.00	1290.00		
	amp			0.23	0.27	0.18	0.44			0.38	0.31		
	baz			230.37	228.28	227.46	227.02			228.87	225.39		
	slo			11.00	13.20	17.90	15.70			11.10	15.80		
	dev	-	-	-0.20	-2.60	-1.60	-5.20	-	-	-0.40	-5.00	-	
		230.09	229.12					229.37	230.90			229.15	
sSS	TauP	1586.25			1468.98								
	time				1462.50								
	amp				0.28								
	baz				233.48								
	slo				13.20								
	dev	-	-	-	2.60	-	-	-	-	-	-	-	
		230.09	229.12	230.57		229.06	232.22	229.37	230.90	229.27	230.39	229.15	
NETWORK TA_WCN													
phase	event	07OCT16	08APR18	07MAY07	07NOV19	07MAY06_211152	07MAY06	06SEP03	07AUG26	07OCT05	08JAN15	07AUG23	07JAN08
	tbaz	231.35	235.61	232.80	232.77	234.33	234.29	232.58	231.54	231.35	233.04	232.88	234.17
P	TauP	427.31	388.78	401.38	401.18	385.69	384.70	413.93	417.94	425.39	403.19	395.05	404.74
	time	427.50	390.00	405.00	405.00	382.50	382.50	412.50	420.00	427.50	405.00	397.50	405.00
	amp	0.65	0.58	0.39	0.42	0.58	0.55	0.38	0.57	0.57	0.44	0.15	0.14
	baz	230.45	237.61	232.00	232.17	234.13	233.69	233.68	232.04	231.39	233.24	233.98	238.57
	slo	4.10	4.40	4.30	4.30	4.70	4.50	5.00	5.00	4.20	4.20	4.40	5.30
	dev	-0.90	2.00	-0.80	-0.60	-0.20	-0.60	1.10	0.50	0.04	0.20	1.10	4.40
pP	TauP	540.45	507.76	520.61	521.93	526.09	526.87	537.44	450.05	538.49	531.33	514.50	496.97
	time	547.50	510.00	525.00	525.00	532.50	532.50	540.00	450.00	540.00	532.50	517.50	502.50
	amp	0.24	0.59	0.20	0.22	0.39	0.20	0.23	0.55	0.24	0.37	0.36	0.25
	baz	228.05	236.51	230.00	233.97	237.23	236.19	229.48	231.34	232.99	231.54	230.98	232.57
	slo	4.70	4.80	4.50	4.40	4.50	4.60	4.10	4.80	4.40	4.70	5.10	5.70
	dev	-3.30	0.90	-2.80	1.20	2.90	1.90	-3.10	-0.20	1.64	-1.50	-1.90	-1.60
sP	TauP	591.97	563.97	576.24	578.30	593.03	594.77	594.42	463.60	590.05	591.12	570.59	539.33
	time	592.50	570.00	585.00	577.50	600.00	592.50	600.00	465.00	600.00	592.50	577.50	540.00
	amp	0.54	0.25	0.26	0.35	0.48	0.34	0.50	0.50	0.51	0.49	0.13	0.16
	baz	229.55	229.21	231.20	232.17	235.83	234.89	230.38	232.04	230.69	232.94	233.58	232.57
	slo	4.00	4.40	4.30	4.30	4.30	3.90	4.20	5.00	4.00	4.40	3.60	5.10
	dev	-1.80	-6.40	-1.60	-0.60	1.50	0.60	-2.20	0.50	-0.66	-0.10	0.70	-1.60
PP	TauP	651.05	590.53	610.86	611.23	595.52	594.85	633.59	602.95	647.81	617.99		604.51
	time	652.50			607.50	585.00			600.00	645.00	607.50		
	amp	0.34			0.10	0.14			0.23	0.24	0.15		
	baz	230.25			232.67	233.00			231.24	232.29	232.84		
	slo	6.60			7.70	7.75			6.90	7.00	6.50		
	dev	-1.10			-0.10	-1.33			-0.30	0.94	-0.20		
pPP	TauP		688.46					735.15	631.44				
	time		690.00						630.00				
	amp		0.14						0.21				
	baz		231.91						231.44				
	slo		7.40						7.30				
	dev		-3.70						-0.10				
sPP	TauP	802.00	750.41	770.44	772.75	782.62	784.14	798.07	645.87	798.70	788.79		728.81
	time	802.50			772.50	780.00	787.50	802.50	645.00	802.50	780.00		735.00
	amp	0.15			0.09	0.21	0.11	0.18	0.30	0.07	0.09		0.12
	baz	230.75			230.67	233.83	233.99	234.68	231.24	235.19	233.74		232.07
	slo	7.50			9.70	7.20	7.00	7.40	6.90	8.20	7.70		7.80

Continued on next page

Table 6 – continued from previous page

		TONGA Z COMPONENT											
	dev	-0.60			-2.10	-0.50	-0.30	2.10	-0.30	3.84	0.70		-2.10
PPP	TauP	772.32	705.74	728.17	728.73	713.79			712.70				
	time		712.50	727.50					720.00				
	amp		0.11	0.10					0.16				
	baz		237.91	232.00					229.94				
	slo		9.40	7.90					8.70				
	dev		2.30	-0.80					-1.60				
pPPP	TauP	873.91											
	time	870.00											
	amp	0.09											
	baz	230.65											
	slo	9.10											
	dev	-0.70											
sPPP	TauP										915.87		
	time										9.15		
	amp										1201.00		
	baz										237.74		
	slo										9.20		
	dev										4.70		
S	TauP	1039.09	963.71	988.59	988.33	959.84	958.09	1013.85	1014.12	1035.36	993.08	976.11	992.80
	time	1035.00	960.00	982.50	982.50	960.00	952.50	1027.50	1012.50	1042.50	1005.00	975.00	990.00
	amp	0.11	0.16	0.09	0.13	0.18	0.08	0.20	0.13	0.10	0.16.5	0.11	0.11
	baz	231.35	239.01	234.40	230.97	235.43	239.09	233.88	229.84	234.59	237.54	236.78	238.17
	slo	10.00	8.90	9.80	8.50	7.70	8.90	9.00	8.90	8.70	8.00	10.60	10.80
	dev	0.00	3.40	1.60	-1.80	1.10	4.80	1.30	-1.70	3.24	4.50	3.90	4.00
SP	TauP	1110.44	1019.83	1050.38	1050.51	1021.48	1019.93	1082.39	1059.17	1105.84	1058.68	1035.09	1047.86
	time	1110.00	1020.00	1057.50	1042.50	1035.00	1012.50	1087.50	1065.00	1110.00	1065.00	1027.50	1057.50
	amp	0.17	0.25	0.14	0.17	0.27	0.16	0.41	0.16	0.15	0.18	0.11	0.18
	baz	233.65	237.31	235.40	234.97	234.73	235.59	233.28	231.44	232.69	232.74	238.58	234.37
	slo	10.60	10.20	10.00	10.90	8.60	10.60	10.10	11.80	10.30	10.80	9.80	9.80
	dev	2.30	1.70	2.60	2.20	0.40	1.30	0.70	-0.10	1.34	-0.30	5.70	0.20
pS	TauP	1179.27							1053.79	1175.02			
	time								1057.50	1177.50			
	amp								0.16	0.08			
	baz								229.24	232.79			
	slo								11.10	10.70			
	dev								-2.30	1.44			
sS	TauP	1241.26	1175.77	1201.11	1203.44	1209.70	1211.02	1234.10	1069.48	1237.33		1189.03	
	time						1215.00		1080.00			1185.00	
	amp						0.08		0.13			0.08	
	baz						230.29		233.24			238.58	
	slo						9.60		8.70			11.30	
	dev						-4.00		1.70			5.70	
pSP	TauP								1094.26				
	time												
	amp												
	baz												
	slo												
	dev												
sSP	TauP	1301.56	1218.86	1249.65	1252.21	1253.87	1254.90	1289.26	1112.20		1272.03		
	time	1297.50	1230.00	1252.50	1267.50	1252.50	1245.00	1305.00	1117.50		1275.00		
	amp	0.08	0.10	0.10	0.12	0.27	0.12	0.22	0.14		0.11		
	baz	233.35	221.11	250.50	234.77	234.73	232.19	230.78	231.84		235.14		
	slo	9.50	11.70	8.90	11.90	8.60	8.80	9.60	12.20		9.90		
	dev	2.00	-14.50		2.00	0.40	-2.10	-1.80	0.30		2.10		
SS	TauP	1415.16	1304.83	1341.81	1342.46	1313.89	1312.70	1383.24	1329.01				1330.67

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Table 6 – continued from previous page

T O N G A Z C O M P O N E N T																					
	time					1320.00							1342.50								
	amp					0.15							0.12								
	baz					233.93							243.97								
	slo					10.80							11.00								
	dev					-0.40							9.80								
sSS	TauP	1586.25																			
	time																				
	amp																				
	baz																				
	slo																				
	dev																				
NETWORK TA_WCM																					
phase	event	07OCT16	06JUN02	08APR18	07MAY07	08JUN15	08JUL03	07NOV19	07MAY13	06JUN09	06JUL23	07MAY06 _211152	07MAY06 _220108	08JUL19	06SEP03	07AUG26	07OCT05	08JAN15	07JAN08	06AUG15	07OCT08
	tbaz	234.51	236.51	239.77	236.37	240.06	236.14	236.48	237.97	238.86	238.32	238.06	238.03	238.66	235.83	235.83	234.93	236.51	237.49	234.39	235.93
P	TauP	421.45	390.66	385.49	397.12	384.41	406.41	396.11	382.05	381.18	379.37	381.15	380.44	395.15	411.21	410.97	419.53	398.04		427.14	411.74
	time	420.00	390.00	382.50	397.50	382.50	412.50	397.50	382.50	382.50	375.00	382.50	382.50	397.50	412.50	412.50	420.00	397.50		427.50	412.50
	amp	0.70	0.12	0.52	0.50	0.67	0.38	0.62	0.58	0.76	0.53	0.72	0.64	0.71	0.24	0.63	0.68	0.55		0.72	0.50
	baz	235.51	238.01	240.07	237.47	240.26	236.54	236.18	237.87	239.06	238.32	238.86	238.43	239.06	235.73	237.03	235.83	237.21		234.59	237.53
	slo	4.50	5.20	4.90	4.80	5.00	4.40	4.60	4.60	4.90	5.10	4.70	4.80	4.90	4.00	5.30	4.30	4.50		4.90	4.70
	dev	1.00	1.50	0.30	1.10	0.20	0.40	-0.30	-0.10	0.20	0.00	0.80	0.40	0.40	-0.10	1.20	0.90	0.70		0.20	1.60
pP	TauP	534.39	516.66	504.22	516.03	513.42	531.81	516.47	520.82	501.50	503.61	521.09	522.17	483.70	534.55	442.99	532.40	525.73	489.75	465.46	
	time	540.00	517.50	502.50	517.50	510.00	532.50	517.50	525.00	502.50	502.50	525.00	525.00	487.50	532.50	442.50	540.00	532.50	495.00	472.50	
	amp	0.40	0.28	0.60	0.22	0.50	0.55	0.37	0.11	0.73	0.43	0.40	0.16	0.62	0.31	0.55	0.25	0.53	0.47	0.54	
	baz	234.11	234.61	240.37	237.87	242.26	237.14	237.78	241.07	238.86	236.72	238.06	239.23	239.86	233.93	237.33	235.43	237.21	238.49	234.59	
	slo	4.70	4.90	5.30	4.60	5.40	4.60	5.00	4.80	5.30	5.50	4.90	5.10	5.20	4.80	5.20	4.10	4.50	4.80	4.90	
	dev	-0.40	-1.90	0.60	1.50	2.20	1.00	1.30	3.10	0.00	-1.60	0.00	1.20	1.20	-1.90	1.50	0.50	0.70	1.00	0.20	
sP	TauP	586.00	576.19	560.50	571.75	574.84	590.09	572.94	587.23	558.82	562.98	588.15	590.19	524.60	591.58	456.56	584.05	585.64	532.20	481.72	525.27
	time	592.50	577.50	562.50	577.50	577.50	592.50	577.50	592.50	562.50	562.50	592.50	592.50	532.50	600.00	457.50	592.50	585.00	540.00	487.50	525.00
	amp	0.61	0.08	0.51	0.31	0.49	0.42	0.55	0.15	0.72	0.45	0.47	0.34	0.52	0.53	0.52	0.59	0.58	0.37	0.66	0.36
	baz	237.31	239.41	239.27	235.47	240.26	238.44	237.18	243.17	237.76	236.82	239.26	239.33	239.96	234.73	236.43	236.83	237.81	238.49	234.59	238.23
	slo	4.10	5.30	5.10	4.90	4.20	4.80	4.60	4.60	5.00	5.00	4.60	4.50	4.60	4.40	5.20	4.40	4.70	4.80	4.90	4.60
	dev	2.80	2.90	-0.50	-0.90	0.20	2.30	0.70	5.20	-1.10	-1.50	1.20	1.30	1.30	-1.10	0.60	1.90	1.30	1.00	0.20	2.30
PP	TauP	641.14	596.67			588.09	622.00		588.90	579.19	578.06	588.07	587.85		628.98	592.22	637.90	609.34	593.49	619.52	610.10
	time	637.50	600.00			592.50	6225.00		585.00	600.00	577.50	577.50			630.00	592.50	637.50	607.50	600.00	615.00	607.50
	amp	0.40	0.13			0.35	0.29		0.12	0.21	0.27	0.20			0.25	0.25	0.34	0.24	0.15	0.15	0.12
	baz	235.11	236.61			240.76	234.94		240.00	234.06	237.92	238.36			235.23	236.43	234.53	236.61	239.29	234.69	237.83
	slo	7.50	6.90			6.90	7.20		8.00	7.50	7.50	8.20			7.80	7.70	7.50	8.00	7.10	7.00	6.90
	dev	0.60	0.10			0.70	-1.20		2.03	-4.80	-0.40	0.30			-0.60	0.60	-0.40	0.10	1.80	0.30	1.90
pPP	TauP	735.18		682.95				719.42		677.96				663.31		620.64				653.32	
	time			690.00				712.50		682.50				675.00		615.00				652.50	
	amp			0.17				0.12		0.16				0.16		0.23				0.28	
	baz			239.67				233.08		236.66				237.46		236.03				234.09	
	slo			7.70				9.40		8.30				7.40		7.60				7.40	
	dev			-0.10				-3.40		-2.20				-1.20		0.20				-0.30	
sPP	TauP	791.84		744.96	763.20	761.03	789.16	764.12	774.23	741.18		774.87	776.86	707.66	793.33	635.09	788.54			670.69	
	time	795.00		757.50	772.50	765.00	795.00	757.50	780.00	742.50		780.00	780.00	705.00	795.00	637.50	787.50			675.00	
	amp	0.11		0.33	0.12	0.28	0.17	0.17	0.11	0.25		0..3202	0.11	0.17	0.30	0.37	0.10			0.30	
	baz	236.01		240.97	236.47	239.96	235.14	234.68	238.47	238.56		237.36	235.23	237.46	235.83	236.63	235.03			234.49	
	slo	6.90		7.60	7.70	7.60	7.50	7.40	6.90	8.00		8.10	7.80	8.70	7.80	6.90	6.70			8.40	
	dev	1.50		1.20	0.10	-0.10	-1.00	-1.80	0.50	-0.30		-0.70	-2.80	-1.20	0.00	0.80	0.10			0.10	
PPP	TauP	761.18					741.22							700.22		712.52	757.55				
	time	757.50					742.50							697.50		720.00	757.50				
	amp	0.12					0.22							0.10		0.27	0.09				
	baz	235.91					236.84							238.16		235.83	234.63				
	slo	10.00					7.80							8.90		8.10	9.10				

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Table 6 – continued from previous page

		T O N G A Z C O M P O N E N T																		
	dev	1.40					0.70							-0.50		0.00	-0.30			
pPPP	TauP	861.45					834.69							770.87		737.16		822.17		
	time	862.50					832.50							772.50		735.00		825.00		
	amp	0.10					0.19							0.34		0.13		0.15		
	baz	236.51					239.14							238.86		235.53		239.81		
	slo	10.50					8.00							5.30		7.20		7.40		
	dev	2.00					3.00							0.20		-0.30		3.30		
sPPP	TauP						901.78			860.66			897.70	827.84						
	time						900.00			862.50			892.50	825.00						
	amp						0.12			0.10			0.06	0.25						
	baz						236.54			241.26			238.23	239.06						
	slo						9.10			7.50			7.00	7.20						
	dev						0.40			2.40			0.20	0.40						
S	TauP	1027.69	968.10	957.22	980.16	956.09	999.19	978.28			945.74	950.84	949.64	973.75	1008.49	1000.53	1023.93	982.82	979.27	1032.70
	time	1027.50	975.00		990.00	960.00	1012.50	982.50			945.00	952.50	960.00	982.50	1020.00	1005.00	1027.50	982.50	990.00	1042.50
	amp	0.15	0.27		0.18	0.46	0.39	0.26			0.12	0.29	0.12	0.39	0.38	0.18	0.15	0.19	0.12	0.16
	baz	232.61	236.61		238.27	244.76	240.84	238.40			240.42	240.76	239.83	242.76	234.73	233.93	236.23	236.61	234.79	230.19
	slo	8.90	9.00		9.10	6.80	8.20	8.40			10.30	6.90	8.70	8.50	8.60	10.30	9.70	7.60	10.20	10.70
	dev	-1.90	0.10		1.90	4.70	4.70	1.92			2.10	2.70	1.80	4.10	-1.10	-1.90	1.30	0.10	-2.70	-4.20
SP	TauP	1097.35	1027.20	1011.90	1039.89	1013.45	1065.27	1038.02	1011.94	1002.31	999.56	1010.34	1009.45	1023.85	1076.44	1042.98	1092.51	1046.52	1031.34	1082.89
	time	1102.50	1035.00	1012.50	1050.00	1020.00	1065.00	1042.50	1005.00	1005.00	1005.00	1020.00	1012.50	1027.50	1087.50	1042.50	1095.00	1050.00	1035.00	1087.50
	amp	0.27	0.26	0.29	0.21	0.25	0.30	0.28	0.11	0.16	0.23	0.32	0.20	0.37	3049.00	0.18	0.24	0.19	0.18	0.21
	baz	236.81	239.61	241.77	238.67	241.56	238.24	238.48	237.07	242.76	238.92	239.96	240.23	240.46	237.53	236.83	236.33	238.91	237.79	236.89
	slo	10.90	10.30	9.70	10.40	10.10	11.00	10.50	9.70	11.70	12.00	9.00	9.90	10.50	9.30	14.00	11.40	10.80	11.10	11.50
	dev	2.30	3.10	2.00	2.30	1.50	2.10	2.00	-0.90	3.90	0.60	1.90	2.20	1.80	1.70	1.00	1.40	2.40	0.30	2.50
pS	TauP		1237.33											1080.52		1039.90				1080.31
	time		1245.00											1087.50		1035.00				1072.50
	amp		0.14											0.20		0.15				0.24
	baz		238.91											239.16		236.53				233.99
	slo		13.70											10.30		13.00				8.00
	dev		2.40											0.50		0.70				-0.40
sS	TauP		1315.93					1192.81		1163.39						1055.73				
	time		1320.00					1192.50		1162.50						1057.50				
	amp		0.09					0.10		0.14						0.15				
	baz		234.91					239.18		237.76						237.63				
	slo		14.60					9.70		9.50						12.50				
	dev		-1.60					2.70		-1.10						1.80				
sPS	TauP												1243.79		1282.14	1077.73	1281.40	1258.53		1124.78
	time												1245.00		1290.00		1297.50	1260.00		1125.00
	amp												0.19		0.31		0.12	0.16		0.23
	baz												240.03		236.53		240.63	239.51		235.29
	slo												7.80		9.10		13.00	8.70		13.30
	dev												2.00		0.70		5.70	3.00		0.90
sSP	TauP	1286.35		1210.58		1228.40	1274.42	1239.16			1207.05	1242.07	1243.79	1173.01	1374.83		1391.15	1338.99		1146.31
	time	1282.50		1222.50		1230.00	1275.00	1237.50			1215.00	1245.00	1237.50	1177.50	1372.50		1402.50	1335.00		1155.00
	amp	0.11		0.21		0.14	0.15	0.16			0.15	0.26	0.15	0.27	0.12		0.13	0.11		0.28
	baz	233.51		239.97		241.46	236.84	235.98			239.12	238.86	238.23	240.36	234.33		235.13	236.71		233.79
	slo	9.40		12.00		12.10	15.40	8.40			12.10	9.60	14.10	9.50	12.90		11.50	15.90		10.50
	dev	-1.00		0.20		1.40	0.70	-0.50			0.80	0.80	0.20	1.70	-1.50		0.20	0.20		-0.60
SS	TauP	1397.05		1295.22	1329.01		1362.08	1327.20		1203.58	1282.12	1300.31	1299.93	1300.78		1309.66				1358.96
	time	1410.00		1297.50	1342.50		1365.00	1327.50		1207.50	1290.00	1305.00	1305.00	1312.50		1312.50				1365.00
	amp	0.10		0.09	0.09		0.16	0.07		0.20	0.09	0.23	0.11	0.17		0.11				0.10
	baz	236.61		237.97	235.47		237.74	236.88		240.16	236.02	237.36	237.53	238.36		233.03				235.09
	slo	12.90		14.70	14.30		13.10	12.90		8.00	15.40	11.40	11.30	17.10		15.10				16.80
	dev	2.10		-1.80	-0.90		1.60	0.40		1.30	-2.30	-0.70	-0.50	-0.30		-2.80				0.70
sSS	TauP																			

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Table 6 – continued from previous page

		TONGA Z COMPONENT													
	time														
	amp														
	baz														
	slo														
	dev														
NETWORK TA_WCS															
phase	event	07OCT16	08APR18	07MAY07	07NOV19	07MAY13	07MAY06_211152	07MAY06	07AUG26	07OCT05	08JAN15	07AUG23	07SEP14	07JAN08	07OCT08
	tbaz	237.39	243.05	239.72	239.92	241.54	241.69	241.65	240.03	237.90	239.77	240.33	238.92	240.52	239.47
P	TauP	418.57	383.70	393.76	394.43	381.12	380.66	379.51	409.26	417.08	396.17	388.06	407.47	391.54	409.22
	time	420.00	382.50	397.50	397.50	382.50	382.50	375.00	412.50	420.00	397.50	390.00	405.00		405.00
	amp	0.71	0.49	0.38	0.62	0.53	0.76	0.37	0.59	0.70	0.60	0.10	0.27		0.37
	baz	238.19	244.25	242.12	240.62	242.64	242.09	241.75	240.33	238.20	239.97	242.63	238.42		240.37
	slo	4.60	5.00	4.70	4.90	4.80	4.70	5.10	5.30	4.60	4.60	4.40	4.80		5.30
	dev	0.80	1.20	2.40	0.70	1.10	0.40	0.10	0.30	0.30	0.20	2.30	-0.50		0.90
pP	TauP	531.36	502.30	512.41	514.67		520.55	521.15	441.26	529.81	523.71	506.98	527.61	483.11	487.31
	time	532.50	502.50	517.50	517.50		525.00	525.00	442.50	540.00	525.00	510.00		487.50	
	amp	0.41	0.52	0.34	0.51		0.44	0.14	0.51	0.26	0.60	0.30		0.79	
	baz	236.79	242.75	239.92	240.32		242.29	242.75	240.93	239.90	240.67	242.23		241.42	
	slo	5.10	5.50	5.40	5.30		5.40	5.50	5.30	4.60	4.90	5.20		5.40	
	dev	-0.60	-0.30	0.20	0.40		0.60	1.10	0.90	2.00	0.90	1.90		0.90	
sP	TauP	583.03	558.61	568.19	571.17	586.23	587.62	589.19	454.83	581.51	583.66	563.21		525.64	522.66
	time	585.00	562.50	570.00	577.50	592.50	592.50	592.50	457.50	592.50	585.00	562.50		532.50	517.50
	amp	0.62	0.40	0.22	0.53	0.31	0.59	0.36	0.57	0.65	0.56	0.15		0.74	0.36
	baz	237.19	243.25	244.22	241.12	243.24	242.29	242.75	240.13	238.20	240.97	240.13		239.82	240.77
	slo	4.60	5.30	5.00	4.80	4.90	5.20	5.00	5.60	4.60	4.60	5.60		5.20	5.10
	dev	-0.20	0.20	4.50	1.20	1.70	0.60	1.10	0.10	0.30	1.20	-0.20		-0.70	1.30
PP	TauP	636.26					587.27	586.34	589.61	633.75	606.24			583.48	
	time	637.50					577.50		592.50	630.00	600.00			585.00	
	amp	0.37					0.28		0.21	0.31	0.23			0.44	
	baz	238.49					241.49		240.73	238.80	240.87			239.02	
	slo	7.50					7.10		7.70	7.90	8.40			7.20	
	dev	1.10					-0.20		0.70	0.90	1.10			-1.50	
pPP	TauP								618.01					661.22	
	time								615.00					660.00	
	amp								0.23					0.35	
	baz								240.63					244.22	
	slo								7.50					8.30	
	dev		-						0.60					3.70	
			243.05												
sPP	TauP		742.02		761.30	772.65	774.04	775.29	632.47						
	time		750.00		757.50	772.50	772.50	772.50	630.00						
	amp		0.09		0.13	0.08	0.21	0.09	0.30						
	baz		242.95		240.82	244.00	241.29	239.45	240.43						
	slo		7.00		8.20	7.50	7.50	9.80	7.10						
	dev		-0.10		0.90	2.46	-0.40	-2.20	0.40						
PPP	TauP	755.70							698.21				841.14		
	time	757.50							697.50				840.00		
	amp	0.17							0.16				0.11		
	baz	236.89							239.43				239.62		
	slo	7.10							7.30				8.90		
	dev	-0.50							-0.60				0.70		
pPPP	TauP	786.83													
	time	780.00													
	amp	0.14													
	baz	239.29													
	slo	7.60													

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Table 6 – continued from previous page

		TONGA Z COMPONENT													
	dev	1.90													
sPPP	TauP				871.73	893.43	894.78		749.36						
	time				870.00	892.50	885.00		750.00						
	amp				0.12	0.10	0.12		0.09						
	baz				239.62	239.34	242.19		240.23						
	slo				6.90	7.60	7.10		8.30						
	dev				-0.30	-2.20	0.50		0.20						
S	TauP	1022.02	953.71	973.49	974.97		949.86	947.81	997.21	1019.08	979.12	962.30	1000.74	966.86	
	time	1027.50	967.50	982.50	982.50		952.50	960.00	1005.00	1027.50	990.00	967.50	997.50	975.00	
	amp	0.35	0.26	0.17	0.29		0.33	0.18	0.20	0.24	0.28	0.13	0.09	0.37	
	baz	237.69	242.55	242.00	240.62		242.69	244.15	239.33	237.40	241.07	239.03	238.32	242.52	
	slo	9.50	10.00	9.80	10.20		8.30	8.80	10.80	9.40	7.80	10.70	9.70	9.80	
	dev	0.30	-0.50	2.28	0.70		1.00	2.50	-0.70	-0.50	1.30	-1.30	-0.60	2.00	
SP	TauP	1089.52	1007.61	1031.65	1033.92	1009.67	1009.14	1007.20	1039.04	1085.98	1041.20	1018.11	1065.72	1016.32	
	time	1087.50	1005.00	1035.00	1035.00		1005.00	1005.00	1050.00	1087.50	1035.00		1065.00	1012.50	
	amp	0.24	0.20	0.20	0.24		0.29	0.18	0.23	0.24	0.16		0.11	0.29	
	baz	237.39	242.35	239.42	239.82		241.09	241.55	239.43	237.40	237.57		238.42	238.12	
	slo	11.10	10.30	9.80	10.10		10.40	12.60	9.80	10.70	10.30		11.50	11.40	
	dev	0.00	-0.70	-0.30	-0.10		-0.60	-0.10	-0.60	-0.50	-2.20		-0.50	-2.40	
pS	TauP								1036.51						
	time								1035.00						
	amp								0.26						
	baz								240.43						
	slo								11.30						
	dev								0.40						
sS	TauP		1165.11		1189.27										
	time		1162.50		1192.50										
	amp		0.07		0.08										
	baz		243.55		240.52										
	slo		10.40		11.00										
	dev		0.50		0.60										
pSP	TauP								1073.70						
	time								1072.50						
	amp								0.19						
	baz								239.63						
	slo								12.80						
	dev								-0.40						
sSP	TauP				1234.88	1009.67	1240.80	1241.39		1275.01	1253.69				1184.93
	time				1237.50	1020.00	1252.50	1252.50		1290.00	1267.50				1185.00
	amp				0.13	0.08	0.25	0.10		0.12	0.10				0.10
	baz				238.12	241.14	241.00	237.95		236.60	239.27				243.97
	slo				9.90	10.30	14.00	14.10		11.10	11.40				13.40
	dev				-1.80	-0.40	-0.69	-3.70		-1.30	-0.50				4.50
SS	TauP	1388.14		1318.98		1299.03	1298.85	1297.19		1383.56					
	time	1395.00		1312.50			1327.50	1312.50		1395.00					
	amp	0.09		0.15			0.14	0.09		0.09					
	baz	238.89		238.52			240.39	241.55		233.60					
	slo	16.70		12.30			11.40	13.60		13.50					
	dev	1.50		-1.20			-1.30	-0.10		-4.30					
sSS	TauP														
	time														
	amp														
	baz														
	slo														
	dev														

Table 7: *Sloaz plot results for all measured events of the R-component for events occurring in the Tonga region, divided per network. Explanations of the used abbreviations in this table are given in the general description of this appendix.*

										TONGA R-COMPONENT									
NETWORK TA_ASW																			
phase	event	18SEP30 _105223	18AUG28 _130911	19SEP01 _155420	19MAR10 _081226	18AUG19 _042858	18FEB09 _114356	19APR23 _142017	19NOV08 _104444	18SEP06 _154918	18APR05	19JAN26	18SEP21	18NOV18	18DEC23	18SEP16	18AUG19	19JUL03	19MAY30
	tbaz	199.82	199.04	199.73	200.25	200.10	200.48	198.90	199.69	202.17	199.69	200.17	201.43	200.66	196.32	202.03	199.87	200.83	197.01
P	Taup	378.55	374.23	385.89	374.09		376.90	425.75	392.42	370.77	383.47	390.48	370.65	377.61	431.30	412.88	372.71	395.15	433.28
	time	375.00	375.00	390.00	375.00		375.00	420.00	390.00	382.50	382.50	390.00	367.50	375.00	435.00	412.50	390.00	397.50	435.00
	amp	0.47	0.46	0.46	0.21		0.48	0.40	0.43	0.42	0.45	0.46	0.21	0.48	0.44	0.47	0.53	0.34	0.45
	baz	196.42	195.64	194.83	195.45		195.68	194.50	196.29	198.27	195.09	197.07	195.83	196.26	192.62	197.83	194.67	196.53	193.31
	slo	4.80	4.70	4.20	4.40		4.70	4.60	4.50	4.30	4.50	4.30	5.00	4.50	4.40	4.10	3.40	4.10	4.60
	dev	-3.40	-3.40	-4.90	-4.80		-4.80	-4.40	-3.40	-3.90	-4.60	-3.10	-5.60	-4.40	-3.70	-4.20	-5.20	-4.30	-3.70
pP	Taup	494.11		511.39	496.35	476.26	495.56	514.65	517.00	508.80	494.23	515.82	505.63	493.27	460.27	537.79	498.72	522.35	477.14
	time	495.00		517.50	495.00	480.00	495.00	510.00	525.00	525.00	502.50	517.50	510.00	495.00	457.50	540.00	502.50	525.00	480.00
	amp	0.37		0.17	0.36	0.40	0.31	0.41	0.21	0.49	0.25	0.14	0.43	0.36	0.43	0.40	0.49	0.32	0.38
	baz	196.62		194.93	195.65	196.90	199.38	194.80	193.69	199.07	194.79	197.07	197.43	196.16	192.82	197.73	195.47	195.43	194.21
	slo	5.00		0.17	4.70	5.00	5.00	4.60	5.70	4.40	6.10	5.70	4.50	4.90	5.20	3.80	4.40	4.40	4.30
	dev	-3.20		-4.80	-4.60	-3.20	-1.10	-4.10	-6.00	-3.10	-4.90	-3.10	-4.00	-4.50	-3.50	-4.30	-4.40	-5.40	-2.80
sP	Taup	552.15	561.17	570.97	555.04	519.75	552.28	554.64	575.73	575.68	546.66	575.04	570.95	548.45	472.30	595.48	559.39	582.19	495.84
	time	555.00	562.50	577.50	555.00	525.00	555.00	562.50	585.00	592.50	547.50	585.00	562.50	555.00	487.50	600.00	555.00	585.00	495.00
	amp	0.42	0.33	0.44	0.31	0.34	0.43	0.31	0.48	0.36	0.46	0.44	0.27	0.34	0.45	0.49	0.43	0.32	0.26
	baz	196.32	194.74	196.63	194.75	197.10	196.98	194.40	197.89	198.27	195.29	196.27	197.83	196.16	193.72	198.73	195.67	195.43	189.51
	slo	5.20	5.00	4.40	4.60	4.60	4.30	5.10	4.70	5.00	4.80	4.50	4.40	4.90	5.70	3.90	5.40	4.40	5.80
	dev	-3.50	-4.30	-3.10	-5.50	-3.00	-3.50	-4.50	-1.80	-3.90	-4.40	-3.90	-3.60	-4.50	-2.60	-3.30	-4.20	-5.40	-7.50
PP	Taup	573.96	571.01							570.95	578.75			571.73		632.54			631.44
	time		577.50							570.00	570.00			585.00		637.50			630.00
	amp		0.08							0.26	0.36			0.33		0.20			0.18
	baz		200.14							199.57	197.69			196.76		198.33			196.21
	slo		8.90							7.30	5.80			5.80		6.20			6.70
	dev		1.10							-2.60	-2.00			-3.90		-3.70			-0.80
pPP	Taup			691.33				713.14				698.52			648.53				669.96
	time			682.50				712.50				705.00			645.00				667.50
	amp			0.07				0.16				0.19			0.27				0.23
	baz			201.63				197.70				202.97			195.92				199.41
	slo			8.90				6.10				5.80			5.30				6.50
	dev			1.90				-1.20				2.80			-0.40				2.40
sPP	Taup	732.48		757.26			731.94	756.54		756.02	728.23	764.03				798.84	738.30	774.52	689.97
	time	727.50		757.50			727.50	757.50		757.50	2727.50	772.50				795.00	735.00	780.00	690.00
	amp	0.27		0.30			0.17	0.25		0.18	0.27	0.25				0.30	0.30	0.18	0.18
	baz	198.82		199.53			199.88	195.70		200.97	196.09	199.77				199.93	197.67	193.43	195.11
	slo	8.20		5.90			5.50	5.40		6.90	7.10	6.10				6.70	7.80	5.90	10.20
	dev	-1.00		-0.20			-0.60	-3.20		-1.20	-3.60	-0.40				-2.10	-2.20	-7.40	-1.90
PPP	Taup									686.44					734.10	752.93			744.58
	time									690.00					727.50	750.00			750.00
	amp									0.17					0.28	0.29			0.14
	baz									196.97					193.22	196.33			194.61
	slo									9.10					5.50	6.30			10.10
	dev									-5.20					-3.10	-5.70			-2.40
pPPP	Taup	776.60	779.08	798.20		756.34	782.44		808.60	785.88	777.18	806.04	788.56				782.89		781.19
	time	780.00	780.00	802.50		757.50	780.00		810.00	795.00	780.00	810.00	787.50				780.00		772.50
	amp	0.23	0.12	0.22		0.09	0.18		0.23	0.32	0.27	0.16	0.10				0.31		0.10
	baz	195.82	193.74	197.63		200.70	199.08		201.99	200.27	193.89	195.57	201.93				196.77		197.81
	slo	7.90	7.80	7.80		10.10	7.20		7.90	7.40	7.30	7.70	8.00				7.80		9.70
	dev	-4.00	-5.30	-2.10		0.60	-1.40		2.30	-1.90	-5.80	-4.60	0.50				-3.10		0.80
sPPP	Taup	851.00		866.73					888.96	873.22							854.87		801.71

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Table 7 – continued from previous page

		T O N G A R - C O M P O N E N T																	
	time	855.00		870.00					892.50	870.00							855.00		802.50
	amp	0.15		0.14					0.20	0.19							0.15		0.12
	baz	198.92		200.23					199.49	204.87							199.07		193.41
	slo	9.80		7.70					8.00	9.90							9.40		8.00
	dev	-0.90		0.50					-0.20	2.70							-0.80		-3.60
S	Taup	943.62		958.72	935.34	951.09	940.49	1034.21	971.51	930.34	952.64	967.74	929.76	941.63	1040.03			977.16	1045.36
	time	945.00		952.50	937.50	945.00	937.50	1035.00	975.00	960.00	952.50	967.50	930.00	945.00	1042.50			975.00	1050.00
	amp	0.22		0.24	0.27	0.23	0.24	0.23	0.23	0.29	0.28	0.22	0.22	0.26	0.26			0.26	0.25
	baz	194.12		194.93	195.55	195.90	194.98	192.00	194.89	197.87	192.89	192.57	196.83	195.26	190.72			194.93	190.81
	slo	10.50		8.00	10.70	9.00	9.50	10.40	9.92	10.60	10.60	8.50	10.90	10.50	10.50			8.40	8.80
	dev	-5.70		-4.80	-4.70	-4.20	-5.50	-6.90	-4.80	-4.30	-6.80	-7.60	-4.60	-5.40	-5.60			-5.90	-6.20
SP	Taup	995.19	988.37	1015.65	986.53	997.81		1098.66		984.96	1004.22	1026.59	983.36	992.30		1080.49	984.69	1038.69	1099.66
	time	990.00	982.50	1020.00	982.50	1012.50		1110.00		997.50	1005.00	1042.50	982.50	1005.00		1080.00	990.00	1042.50	1102.50
	amp	0.21	0.13	0.24	0.23	0.17		0.22		0.29	0.28	0.31	0.21	0.27		0.20	0.36	0.25	0.21
	baz	200.02	198.14	198.73	199.15	196.20		196.90		200.67	200.99	200.57	200.43	199.46		201.13	198.87	201.03	193.01
	slo	8.70	7.60	8.30	9.00	7.70		14.70		8.40	8.80	14.10	9.40	7.70		8.50	6.70	13.60	12.70
	dev	0.20	-0.90	-1.00	-1.10	-3.90		-2.00		-1.50	1.30	0.40	-1.00	-1.20		-0.90	-1.00	0.20	-4.00
pS	Taup							1145.01							1076.11				
	time							1147.50							1072.50				
	amp							0.20							0.24				
	baz							192.80							192.02				
	slo							7.00							9.90				
	dev							-6.10							-4.30				
sS	Taup	1153.12	1160.93		1153.23		1151.99		1198.83	1176.05	1150.06	1191.10	1170.14	1147.78	1089.61	1234.69	1157.50	1203.82	1121.61
	time	1155.00	1162.50		1147.50		1147.50		1207.50	1177.50	1155.00	1200.00	1177.50	1147.50	1080.00	1252.50	1155.00	1207.50	1132.50
	amp	0.18	0.13		0.12		0.15		0.20	0.08	0.28	0.24	0.11	0.18	0.23	0.19	0.15	0.19	0.20
	baz	193.82	196.34		194.95		197.08		196.09	199.67	192.59	196.17	200.23	198.16	192.52	195.83	196.97	195.83	191.91
	slo	8.60	14.10		10.70		12.80		10.30	11.20	9.90	9.20	9.70	11.10	9.50	7.90	11.20	10.90	9.50
	dev	-6.00	-2.70		-5.30		-3.40		-3.60	-2.50	-7.10	-4.00	-1.20	-2.50	-3.80	-6.20	-2.90	-5.00	-5.10
pSP	Taup														1121.77				
	time														1125.00				
	amp														0.18				
	baz														193.42				
	slo														7.60				
	dev														-7.24				
sSP	Taup			1225.05			1190.40	1247.37	1238.84		1190.13		1207.71	1186.15	1137.35	1289.58	1195.03	1250.65	1172.39
	time			1222.50			1192.50	1252.50	1245.00		1185.00		1200.00	1185.00	1140.00	1297.50	1192.50	1252.50	1177.50
	amp			0.20			0.20	0.18	0.14		0.22		0.22	0.17	0.12	0.23	0.32	0.16	0.23
	baz			196.83			192.28	192.10	193.89		193.79		196.63	200.36	188.72	196.53	198.57	197.13	194.21
	slo			9.50			8.30	14.60	11.90		7.80		11.40	0.17	7.60	7.90	8.40	10.00	9.20
	dev			-2.90			-8.20	-6.80	-5.80		-5.90		-4.80	-0.30	-7.60	-5.50	-1.30	-3.70	-2.80
SS	Taup	1274.83	1269.38	1301.86	1265.94	1270.80		1390.68	1320.05		1283.60	1314.99		1270.80		1381.38	1264.91	1330.21	
	time	1275.00	1275.00	1305.00	1252.50	1290.00		1395.00	1335.00		1290.00	1320.00		1275.00		1387.50	1267.50	1335.00	
	amp	0.10	0.22	0.19	0.15	0.12		0.11	0.13		0.16	0.21		0.15		0.27	0.24	0.22	
	baz	198.82	195.44	196.33	196.85	193.30		193.20	193.09		193.09	196.47		195.06		199.33	197.57	196.23	
	slo	12.30	11.90	14.10	14.40	13.70		14.70	14.00		9.50	15.40		11.40		14.10	12.10	13.80	
	dev	-1.00	-3.60	-3.40	-3.40	-6.80		-5.70	-6.60		-6.60	-3.70		-5.60		-2.70	-2.30	-4.60	
sSS	Taup			1488.92	1448.96	1413.91	1449.42			1471.24			1464.94	1445.25			1452.68		
	time			1492.50	1455.00	1432.50	1477.50			1462.50			1470.00	1470.00			1477.50		
	amp			0.18	0.20	0.14	0.12			0.16			0.21	0.23			0.32		
	baz			200.33	197.65	196.50	199.08			200.97			197.83	202.06			200.67		
	slo			10.00	10.40	9.70	14.90			10.50			10.30	8.70			9.30		
	dev			0.60	-2.60	-3.60	-1.40			-1.20			-3.60	1.40			0.80		
NETWORK TA_ASE																			
phase	event	18SEP30 _105223	19SEP01 _155420	18AUG19 _042858	18FEB09 _114356	19APR23 _142017	18SEP06 _154918	18SEP21 _034141	18NOV18 _202546	18SEP16 _211148	18AUG19 _001940	19JUL03 _034529	19MAY30 _153801						

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		TONGA R-COMPONENT											
	tbaz	220.35	220.14	221.02	221.52	218.73	222.68	222.24	221.30	221.12	220.61	220.13	217.51
P	Taup	399.79	405.63		398.08	533.86	393.44		399.86	434.03	393.74	414.96	450.54
	time	397.50	405.00		397.50	532.50	412.50		397.50	442.50	412.50	420.00	450.00
	amp	0.55	0.58		0.50	0.30	0.57		0.57	0.59	0.70	0.21	0.31
	baz	221.15	220.94		222.92	219.03	222.58		222.80	219.62	221.11	219.63	218.51
	slo	4.70	4.40		4.60	3.50	4.10		4.30	3.20	3.50	2.40	4.50
	dev	0.80	0.80		1.40	0.30	-0.10		1.50	-1.50	0.50	-0.50	1.00
pP	Taup	518.91	532.77	498.79	518.34		533.71		517.13	559.54	521.70	543.65	494.74
	time	525.00	540.00	502.50	517.50		555.00		517.50	570.00	525.00	547.50	495.00
	amp	0.56	0.53	0.51	0.34		0.62		0.51	0.58	0.63	0.25	0.40
	baz	221.95	219.94	221.32	222.12		222.78		221.90	220.22	220.91	221.63	219.61
	slo	4.40	4.30	4.80	4.90		4.40		4.50	3.70	4.40	4.00	4.80
	dev	1.60	-0.20	0.30	0.60		0.10		0.60	-0.90	0.30	1.50	2.10
sP	Taup	574.57	591.93	542.01	574.65		600.00		571.90	616.98	581.73		
	time	585.00	600.00	547.50	577.50		615.00		577.50	630.00	592.50		
	amp	0.46	0.57	0.45	0.51		0.44		0.54	0.62	0.59		
	baz	222.15	219.94	222.02	221.82		220.78		222.40	222.32	222.71		
	slo	4.90	4.30	4.60	4.30		4.30		3.70	3.70	4.20		
	dev	1.80	-0.20	1.00	0.30		-1.90		1.10	1.20	2.10		
PP	Taup		621.58	605.40	606.02				607.55	668.15			
	time		622.50	607.50	607.50				607.50	667.50			
	amp		0.23	0.11	0.19				0.33	0.27			
	baz		222.44	225.32	222.62				223.60	222.82			
	slo		6.80	7.50	9.00				6.80	6.30			
	dev		2.30	4.30	1.10				2.30	1.70			
pPP	Taup								704.41	772.25	706.60		
	time								705.00	765.00	705.00		
	amp								0.13	0.19	0.23		
	baz								223.60	222.62	223.41		
	slo								9.50	9.30	8.90		
	dev								2.30	1.50	2.80		
sPP	Taup	767.78	790.99	732.01	767.07		794.48			835.55	773.31		718.73
	time	765.00	795.00	735.00	772.50		810.00			840.00	772.50		712.50
	amp	0.23	0.32	0.13	0.27		0.35			0.41	0.33		0.21
	baz	216.65	221.84	221.22	223.22		223.18			223.32	223.41		216.91
	slo	8.30	5.60	9.10	9.80		5.40			6.00	6.10		7.20
	dev	-3.70	1.70	0.20	1.70		0.50			2.20	2.80		-0.60
PPP	Taup	725.30		719.74						793.21			
	time	735.00		720.00						802.50			
	amp	0.12		0.16						0.22			
	baz	219.65		229.52						222.02			
	slo	7.90		8.70						8.80			
	dev	-0.70		8.50						0.90			
pPPP	Taup								813.24		824.01		
	time								817.50		825.00		
	amp								0.35		0.32		
	baz								222.10		219.81		
	slo								7.50		7.20		
	dev								0.80		-0.80		
sPPP	Taup	892.65	903.60			905.78	919.67				897.28		
	time	892.50	907.50			907.50	915.00				907.50		
	amp	0.22	0.13			0.16	0.26				0.26		
	baz	220.55	218.34			218.93	225.28				223.11		
	slo	8.60	10.00			8.30	9.90				7.50		
	dev	0.20	-1.80			0.20	2.60				2.50		
S	Taup	985.51	997.89	993.16	982.24	1070.94			985.47			1016.32	1079.60

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		TONGA R-COMPONENT											
	time	982.50	997.50	990.00	990.00	1080.00			990.00			1020.00	1087.50
	amp	0.40	0.04	0.35	0.33	0.41			0.38			0.40	0.41
	baz	222.95	222.44	221.22	226.32	223.03			223.80			223.73	221.01
	slo	8.80	7.10	6.90	8.10	7.00			8.10			7.40	7.50
	dev	2.60	2.30	0.20	4.80	4.30			2.50			3.60	3.50
SP	Taup	1046.55	1064.15	1048.78		1143.30	1040.34		1045.95	1131.07	1035.49	1088.17	
	time	1057.50	1065.00	1065.00		1155.00	1050.00		1042.50	1140.00	1035.00	1087.50	
	amp	0.27	0.26	0.25		0.33	0.35		0.20	0.31	0.32	0.22	
	baz	222.15	222.34	221.62		221.73	223.38		223.50	220.82	222.21	221.03	
	slo	13.40	8.20	8.90		7.80	8.40		9.00	7.10	9.40	8.50	
	dev	1.80	2.20	0.60		3.00	0.70		2.20	-0.30	1.60	0.90	
pS	Taup			1107.52		1184.74							1135.40
	time			1110.00		1192.50							1140.00
	amp			0.21		0.25							0.26
	baz			222.32		222.13							219.81
	slo			8.00		7.60							8.90
	dev			1.30		3.40							2.30
sS	Taup		1224.45		1196.59	1230.50	1224.87		1194.49	1278.16	1202.10	1245.99	1156.48
	time		1230.00		1207.50	1237.50	1260.00		1207.50	1297.50	1222.50	1260.00	1162.50
	amp		0.31		0.32	0.30	0.38		0.31	0.34	0.35	0.22	0.28
	baz		219.94		224.02	222.53	225.28		220.70	224.82	224.01	224.53	221.31
	slo		9.80		10.20	7.10	9.00		7.80	9.20	9.50	11.10	9.20
	dev		-0.20		2.50	3.80	2.60		-0.60	3.70	3.40	4.40	3.80
sSP	Taup	1245.66	1276.12		1243.82	1295.56	1272.53		1242.11	1344.47	1248.38	1302.52	1215.37
	time	1252.50	1282.50		1245.00	1312.50	1297.50		1267.50	1357.50	1260.00	1305.00	1215.00
	amp	0.29	0.33		0.30	0.39	0.28		0.30	0.29	0.32	0.23	0.28
	baz	223.35	222.24		224.52	217.93	224.38		220.40	224.62	224.51	222.33	220.61
	slo	10.70	10.70		11.70	11.70	9.70		8.20	13.20	10.70	9.60	9.70
	dev	3.00	2.10		3.00	-0.80	1.70		-0.90	3.50	3.90	2.20	3.10
SS	Taup	1337.16	1361.37		1333.05	1448.58	1336.63		1335.86	1446.54	1326.52	1391.00	1432.41
	time	1357.50	1372.50		1335.00	1470.00	1365.00		1365.00	1477.50	1365.00	1417.50	1455.00
	amp	0.22	0.21		0.32	0.32	0.30		0.28	0.32	0.23	0.28	0.21
	baz	220.75	223.24		224.92	220.63	223.08		223.60	222.52	223.01	221.73	219.61
	slo	13.80	11.90		11.40	10.60	17.50		15.90	16.50	14.60	10.40	10.00
	dev	0.40	3.10		3.40	1.90	0.40		2.30	1.40	2.40	1.60	2.10
sSS	Taup	1515.95	1550.48	1476.64	1513.34		1541.47		1512.22		1516.43	1582.32	1500.28
	time	1567.50	1575.00	1477.50	1560.00		1567.50		1515.00		1522.50	1590.00	1530.00
	amp	0.23	0.19	0.30	0.23		0.22		0.20		0.24	0.25	0.20
	baz	222.95	222.04	221.52	224.02		225.38		221.50		221.11	222.13	220.01
	slo	14.60	17.00	16.60	18.50		16.70		9.70		9.90	16.10	13.20
	dev	2.60	1.90	0.50	2.50		2.70		0.20		0.50	2.00	2.50
NETWORK CN													
phase	event	18SEP30 _105223	19SEP01 _155420	19MAR10 _081226	18FEB09 _114356	19NOV08 _104444	18SEP06 _154918	19JAN26 _195644	18NOV18 _202546	18SEP16 _211148	18AUG19 _001940	19JUL03 _034529	19MAY30 _153801
	tbaz	229.91	229.22	230.61	230.76	229.15	232.22	229.22	230.83	229.19	230.39	229.09	226.57
P	Taup	384.65	390.36	381.24	383.26	400.47	381.25	394.60	385.40	419.69	379.43		
	time	382.50	390.00	382.50	382.50	397.50	390.00	397.50	382.50	427.50	382.50		
	amp	0.80	0.84	0.47	0.88	0.35	0.87	0.63	0.65	0.87	0.94		
	baz	228.71	228.32	229.51	229.16	227.15	227.52	223.32	228.93	227.39	227.49		
	slo	3.90	4.30	3.20	3.40	4.90	4.10	5.80	4.70	4.20	4.10		
	dev	-1.20	-0.90	-1.10	-1.60	-2.00	-4.70	-5.90	-1.90	-1.80	-2.90		
pP	Taup	502.63	516.22	504.05	502.39	524.61	520.31		501.61	544.92	506.00	527.13	475.65
	time	502.50	525.00	502.50	502.50	532.50	532.50		502.50	547.50	510.00	532.50	472.50
	amp	0.82	0.76	0.63	0.73	0.72	0.81		0.78	0.81	0.79	0.54	0.64
	baz	228.11	228.12	227.21	230.16	228.05	232.92		229.33	227.49	227.39	226.99	221.47
	slo	4.60	4.60	4.70	3.60	4.70	4.90		4.30	4.10	4.30	5.30	6.30

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Table 7 – continued from previous page

		TONGA	R-COMPONENT										
	dev	-1.80	-1.10	-3.40	-0.60	-1.10	0.70		-1.50	-1.70	-3.00	-2.10	-5.10
sP	Taup		575.71	562.60	558.99	582.65	587.82	579.41	556.65	602.47	566.53		
	time		585.00	570.00	562.50	592.50	600.00	585.00	562.50	607.50	570.00		
	amp		0.86	0.31	0.87	0.64	0.80	0.75	0.75	0.80	0.67		
	baz		225.52	231.31	228.56	226.35	228.32	228.32	226.23	223.89	226.09		
	slo		4.70	4.20	4.00	4.50	5.50	3.10	5.00	5.30	5.60		
	dev		-3.70	0.70	-2.20	-2.80	-3.90	-0.90	-4.60	-5.30	-4.30		
PP	Taup			580.40	581.96	611.68			584.05	644.01	579.22	611.80	
	time			577.50	577.50	615.00			577.50	645.00	585.00	615.00	
	amp			0.39	0.79	0.30			0.64	0.37	0.72	0.24	
	baz			232.01	227.16	228.75			229.03	230.49	225.69	224.79	
	slo			6.70	8.80	8.10			6.60	7.80	8.80	8.00	
	dev			1.40	-3.60	-0.40			-1.80	1.30	-4.70	-4.30	
pPP	Taup	680.81	698.93						679.98	747.05			
	time	682.50	705.00						690.00	750.00			
	amp	0.47	0.30						0.49	0.72			
	baz	221.41	233.12						229.63	226.09			
	slo	11.60	9.20						7.50	9.40			
	dev	-8.50	3.90						-1.20	-3.10			
sPP	Taup	742.43	764.76		742.31		773.54		740.53	810.66	749.31	782.08	
	time	742.50	765.00		742.50		772.50		742.50	810.00	750.00	787.50	
	amp	0.45	0.73		0.70		0.46		0.42	0.74	0.78	0.33	
	baz	232.41	226.92		226.56		223.52		229.93	225.29	228.59	222.99	
	slo	8.00	5.50		6.80		9.00		7.00	7.40	6.20	4.90	
	dev	2.50	-2.30		-4.20		-8.70		-0.90	-3.90	-1.80	-6.10	
PPP	Taup	698.09							698.37	765.85	694.13		
	time	705.00							697.50	765.00	697.50		
	amp	0.22							0.19	0.40	0.65		
	baz	229.11							232.23	225.79	223.99		
	slo	8.50							9.90	8.60	5.70		
	dev	-0.80							1.40	-3.40	-6.40		
pPPP	Taup		806.44		786.40	822.43	805.11	813.71	786.73	872.77	788.27		
	time		810.00		787.50	825.00	810.00	810.00	787.50	870.00	787.50		
	amp		0.57		0.26	0.30	0.61	0.28	0.36	0.37	0.53		
	baz		227.62		229.76	222.75	231.82	228.92	230.43	229.49	230.89		
	slo		7.20		10.80	8.10	6.90	8.90	7.90	11.50	11.50		
	dev		-1.60		-1.00	-6.40	-0.40	-0.30	-0.40	0.30	0.50		
sPPP	Taup	862.68			861.63					925.55		907.90	
	time	862.50			862.50					930.00		907.50	
	amp	0.27			0.21					0.52		0.16	
	baz	229.11			230.56					236.19		227.09	
	slo	7.40			11.40					5.70		6.80	
	dev	-0.80			-0.20					7.00		-2.00	
S	Taup	955.57	967.55	949.33		987.33		975.89	956.88	1025.20		986.06	
	time	952.50	975.00	952.50		990.00		982.50	960.00	1035.00		982.50	
	amp	0.61	0.71	0.69		0.71		0.60	0.69	0.48		0.63	
	baz	231.41	230.12	232.21		231.05		230.92	230.73	231.69		232.79	
	slo	8.60	6.80	6.00		7.10		7.20	6.10	7.60		7.10	
	dev	1.50	0.90	1.60		1.90		1.70	-0.10	2.50		3.70	
SP	Taup	1009.71	1026.51	1003.51	1006.86	1050.32	1010.25	1036.67	1010.81		1000.71	1049.60	
	time	1012.50	1027.50	1012.50	1005.00	1050.00	1005.00	1035.00	1020.00		997.50	1050.00	
	amp	0.55	0.63	0.32	0.44	0.44	0.54	0.61	0.39		0.70	0.54	
	baz	228.21	229.22	228.91	227.16	226.25	229.82	230.02	229.53		232.09	227.29	
	slo	7.00	9.20	13.20	14.70	11.80	11.60	9.30	12.30		6.60	10.00	
	dev	-1.70	0.00	-1.70	-3.60	-2.90	-2.40	0.80	-1.30		1.70	-1.80	
pS	Taup												

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Table 7 – continued from previous page

						TONGA R-COMPONENT							
	time												
	amp												
	baz												
	slo												
	dev												
sS	Taup	1165.87		1168.23	1165.30		1198.51		1164.03				
	time	1177.50		1177.50	1170.00		1200.00		1162.50				
	amp	0.56		0.24	0.63		0.46		0.33				
	baz	231.61		228.51	229.46		230.22		233.43				
	slo	9.00		8.70	8.70		10.60		8.50				
	dev	1.70		-2.10	-1.30		-2.00		2.60				
pSP	Taup											1144.16	
	time											1147.50	
	amp											0.24	
	baz											224.36	
	slo											14.80	
	dev											-4.73	
sSP	Taup	1207.20	1236.44	1208.74		1257.40		1246.24	1205.47	1307.32	1211.88	1262.09	
	time	1207.50	1245.00	1215.00		1267.50		1252.50	1207.50	1312.50	1222.50	1267.50	
	amp	0.45	0.65	0.39		0.67		0.70	0.48	0.80	0.69	0.66	
	baz	232.81	229.52	230.81		228.55		228.82	235.23	229.89	229.89	229.79	
	slo	10.20	9.50	11.70		9.80		9.10	9.40	8.80	7.10	8.10	
	dev	2.90	0.30	0.20		-0.60		-0.40	4.40	0.70	-0.50	0.70	
SS	Taup	1292.37	1315.07	1286.44	1289.31		1299.89	1327.27	1293.15	1402.34	1284.26	1343.54	
	time	1312.50	1335.00	1290.00	1290.00		1297.50	1350.00	1290.00	1402.50	1282.50	1395.00	
	amp	0.56	0.64	0.30	0.52		0.58	0.59	0.41	0.36	0.62	0.62	
	baz	229.71	227.92	231.51	231.76		230.52	229.02	230.03	228.29	232.69	230.69	
	slo	10.00	10.70	13.50	12.40		11.60	9.70	10.90	13.00	9.80	10.50	
	dev	-0.20	-1.30	0.90	1.00		-1.70	-0.20	-0.80	-0.90	2.30	1.60	
sSS	Taup	1469.79		1470.12	1468.24	1528.61			1468.25	1589.38	1472.70		
	time	1500.00		1477.50	1500.00	1545.00			1492.50	1590.00	1485.00		
	amp	0.53		0.42	0.39	0.33			0.40	0.59	0.68		
	baz	226.41		230.61	229.06	228.25			228.33	225.19	229.29		
	slo	10.30		9.80	14.60	14.40			14.40	13.90	9.00		
	dev	-3.50		0.00	-1.70	-0.90			-2.50	-4.00	-1.10		
NETWORK TA_WCN													
phase	event	07OCT16	08APR18	07MAY07	07NOV19	07MAY06 _211152	07MAY06	06SEP03	07AUG26	07OCT05	08JAN15	07AUG23	07JAN08
	tbaz	231.50	235.35	232.75	232.95	234.27	234.30	232.77	231.51	231.51	232.90	232.78	234.12
P	Taup	427.91	388.57		401.78	385.58	384.77	416.02	417.71	425.78	402.08		
	time	427.50	390.00		405.00	390.00	390.00	420.00	412.50	427.50	405.00		
	amp	0.63	0.40		0.53	0.59	0.25	0.20	0.22	0.60	0.40		
	baz	232.70	237.35		232.95	234.97	231.80	232.07	234.71	231.84	230.50		
	slo	4.00	3.80		3.90	3.90	3.90	3.80	5.30	3.90	4.10		
	dev	1.20	2.00		0.00	0.70	-2.50	-0.70	3.20	0.33	-2.40		
pP	Taup		507.54		522.59	525.98			449.82	531.66	530.13	514.43	497.18
	time		510.00		525.00	532.50			450.00	547.50	532.50	517.50	502.50
	amp		0.61		0.51	0.33			0.48	0.31	0.44	0.39	0.53
	baz		236.85		232.65	234.87			231.81	227.74	235.00	232.18	233.52
	slo		4.40		4.00	4.80			3.90	3.70	4.30	4.30	4.10
	dev		1.50		-0.30	0.60			0.30	-3.77	2.10	-0.60	-0.60
sP	Taup	592.57	563.75		578.95	592.92	594.86		463.37	590.45	589.95		539.54
	time	592.50	570.00		585.00	600.00	592.50		472.50	600.00	592.50		547.50
	amp	0.62	0.25		0.54	0.51	0.19		0.38	0.58	0.48		0.34
	baz	233.00	235.55		234.15	238.27	236.10		233.31	232.94	231.41		234.82
	slo	3.80	4.80		3.80	4.50	4.30		3.70	3.90	4.20		3.60

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								T O N G A		R - C O M P O N E N T			
	dev	1.50	0.20		1.20	4.00	1.80		1.80	1.43	-1.49		0.70
PP	Taup	652.11			612.29				602.64	648.52			
	time	652.50			622.50				607.50	645.00			
	amp	0.42			0.12				0.13	0.32			
	baz	231.60			232.25				232.51	229.54			
	slo	5.90			8.70				10.60	6.70			
	dev	0.10			-0.70				1.00	-1.97			
pPP	Taup	746.56							739.61				683.18
	time	742.50							750.00				682.50
	amp	0.16							0.23				0.19
	baz	229.70							228.11				231.02
	slo	7.40							5.90				5.80
	dev	-1.80							-3.40				-3.10
sPP	Taup	803.09		772.61	773.85	782.49		801.75		799.44			
	time	795.00		787.50	780.00	780.00		802.50		802.50			
	amp	0.22		0.17	0.33	0.17		0.18		0.22			
	baz	229.10		230.85	233.45	233.27		232.47		230.14			
	slo	6.50		8.70	9.40	10.60		7.90		7.50			
	dev	-2.40		-1.90	0.50	-1.00		-0.30		-1.37			683.18
PPP	Taup	755.70			729.92								719.03
	time				727.50								720.00
	amp				0.14								0.24
	baz				235.25								229.72
	slo				7.00								7.30
	dev				2.30								-4.40
pPPP	Taup	875.26			820.87	814.15				855.86	829.97		
	time	870.00			825.00	810.00				855.00	825.00		
	amp	0.12			0.29	0.30				0.17	0.27		
	baz	230.90			229.95	235.47				230.74	229.10		
	slo	8.00			7.00	6.50				7.50	5.50		
	dev	-0.60			-	1.20				-0.77	-3.80		
					225.95								
sPPP	Taup	918.65			885.46					914.60			
	time	915.00			885.00					922.50			
	amp	0.20			0.18					0.16			
	baz	232.50			236.05					229.34			
	slo	10.10			9.50					6.10			
	dev	1.00			3.10					-2.17			
S	Taup	1040.31		991.12	989.62	959.69	958.31	1018.00	1013.75	1036.20	990.94	976.03	993.27
	time	1042.50		997.50	990.00	960.00	960.00	1020.00	1020.00	1042.50	997.50	982.50	997.50
	amp	0.35		0.42	0.38	0.39	0.32	0.54	0.33	0.35	0.38	0.37	0.51
	baz	233.00		234.65	235.45	235.97	238.60	234.87	231.01	232.14	235.10	235.98	238.97
	slo	8.90		7.40	8.00	5.80	8.60	8.10	9.20	8.30	7.50	8.00	6.40
	dev	1.50		1.90	2.50	1.70	4.30	2.10	-0.50	0.63	2.20	3.20	4.85
SP	Taup	1111.98	1019.43	1053.55	1052.13	1021.32	1020.21	1087.47	1058.74	1106.89	1056.01	1035.01	1048.45
	time	1110.00	1020.00	1050.00	1057.50	1027.50	1020.00	1087.50	1057.50	1117.50	1057.50	1042.50	1042.50
	amp	0.27	0.38	0.32	0.38	0.36	0.27	0.41	0.26	0.23	0.20	0.25	0.30
	baz	233.00	237.65	234.35	235.45	237.47	234.90	234.37		231.64	235.90	235.38	236.42
	slo	9.90	9.90	8.50	8.80	8.70	8.10	10.30		12.00	10.00	8.90	10.60
	dev	1.50	2.30	1.60	2.50	3.20	0.60	1.60		0.13	3.00	2.60	2.30
pS	Taup	1180.68							1053.41	1176.02			1105.68
	time	1185.00							1042.50	1200.00			1110.00
	amp	0.24							0.29	0.11			0.28
	baz	231.20							231.61	230.64			236.22
	slo	7.60							9.00	8.30			7.10
	dev	-0.30							0.10	-0.87			2.10

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TONGA R-COMPONENT																					
sS	Taup	1242.56	1175.41					1238.56	1069.10			1188.95	1157.36								
	time	1252.50	1185.00					1237.50	1072.50			1185.00	1162.50								
	amp	0.27	0.28					0.19	0.31			0.17	0.26								
	baz	236.40	236.25					234.07	230.51			233.98	237.02								
	slo	9.50	8.20					11.00	7.80			9.80	10.40								
	dev	4.90	0.90					1.30	-1.00			1.20	2.90								
pSP	Taup								1093.82												
	time								1095.00												
	amp								0.20												
	baz								231.41												
	slo								14.30												
	dev								-0.10												
sSP	Taup	1303.23		1252.96	1253.90	1253.71	1255.21	1294.83	1111.76	1297.75	1269.23	1234.72	1203.73								
	time	1305.00		1252.50	1260.00	1252.50	1245.00	1305.00	1110.00	1312.50	1275.00	1245.00	1222.50								
	amp	0.23		0.26	0.36	0.35	0.21	0.35	0.16	0.22	0.23	0.29	0.18								
	baz	231.50		231.85	232.75	234.27	232.30	230.77	231.31	229.74	233.10	232.78	235.12								
	slo	9.10		8.10	8.70	7.30	8.10	8.10	12.60	11.60	9.30	9.20	8.70								
	dev	0.00		-0.90	-0.20	0.00	-2.00	-2.00	-0.20	-1.77	0.20	0.00	1.00								
SS	Taup	1417.16		1345.71	1344.45	1313.71	1313.06	1389.82	1328.50	1410.60	1351.49	1323.31	1331.40								
	time	1425.00		1365.00	1357.50	1320.00	1327.50	1410.00	1335.00	1417.50	1380.00	1320.00	1320.00								
	amp	0.21		0.18	0.24	0.31	0.26	0.40	0.10	0.23	0.14	0.14	0.18								
	baz	234.50		229.45	233.25	234.27	235.30	235.57	229.31	234.34	234.10	231.98	230.82								
	slo	13.10		15.20	16.70	9.90	18.00	15.70	14.90	12.50	16.50	12.50	15.00								
	dev	3.00		-3.30	0.30	0.00	1.00	2.80	-2.20	2.83	1.20	-0.80	-3.30								
sSS	Taup						1519.53		1377.94		1541.74	1502.56	1473.23								
	time						1537.50		1380.00		1545.00	1507.50	1492.50								
	amp						0.22		0.20		0.10	0.15	0.28								
	baz						235.30		231.81		233.20	229.68	233.82								
	slo						10.50		13.50		18.60	14.30	16.90								
	dev						1.00		0.30		0.30	-3.10	-0.30								
NETWORK TA_WCM																					
phase	event	07OCT16	06JUN02	08APR18	07MAY07	08JUN15	08JUL03	07NOV19	07MAY13	06JUN09	06JUL23	07MAY06 _211152	07MAY06 _220108	08JUL19	06SEP03	07AUG26	07OCT05	08JAN15	07JAN08	06AUG15	07OCT08
	tbaz	234.51	236.44	239.77	236.25	240.14	236.22	236.59	237.84	238.71	238.39	237.99	238.09	238.61	235.80	235.82	234.86	236.37	237.46	234.44	235.90
P	Taup	421.30		385.62	395.97	384.91		396.10		380.10	379.66	381.39	380.67	395.13		410.59	419.24	396.99	489.15	428.09	411.40
	time	420.00		390.00	397.50	390.00		397.50		382.50	382.50	382.50	382.50	397.50		412.50	427.50	397.50	495.00	427.50	412.50
	amp	0.50		0.41	0.14	0.51		0.62		0.49	0.42	0.71	0.19	0.74		0.51	0.64	0.50	0.51	0.37	0.22
	baz	234.41		239.71	234.75	241.84		238.39		240.21	239.29	239.09	238.19	240.41		236.82	237.36	238.07	238.66	235.44	237.50
	slo	4.60		4.90	4.40	3.90		4.20		4.30	4.00	4.30	4.60	4.50		4.70	3.80	4.00	4.40	4.10	4.80
	dev	-0.10		-0.06	-1.50	1.70		1.80		1.50	0.90	1.10	0.10	1.80		1.00	2.50	1.70	1.20	1.00	1.60
pP	Taup	531.36		504.37		513.98	532.67	516.47		500.35	503.93	521.36		483.68	533.88	442.61	532.09	524.60	531.61	466.43	
	time			510.00		517.50	532.50	517.50		502.50	502.50	525.00		487.50	532.50	442.50		525.00	540.00	465.00	
	amp			0.57		0.60	0.74	0.51		0.67	0.35	0.20		0.65	0.12	0.57		0.49	0.34	0.56	
	baz			240.31		241.54	238.02	235.39		239.91	237.69	240.49		239.71	236.50	237.22		237.57	239.06	235.84	
	slo			5.30		4.70	4.30	4.10		4.60	4.10	4.70		4.40	3.80	4.50		4.40	4.30	4.70	
	dev			0.54		1.40	1.80	-1.20		1.20	-0.70	2.50		1.10	0.70	1.40		1.20	1.60	1.40	
sP	Taup	585.85		560.64		575.38	590.94	572.94		557.68		588.41		524.58		456.18	583.75	584.53		482.68	524.91
	time	592.50		570.00		577.50	592.50	577.50		562.50		592.50		525.00		465.00	592.50	585.00		487.50	525.00
	amp	0.34		0.19		0.36	0.53	0.60		0.66		0.49		0.72		0.55	0.57	0.47		0.61	0.25
	baz	239.51		241.01		241.94	236.92	237.99		238.91		238.39		240.21		238.42	236.56	236.87		234.84	239.90
	slo	4.20		5.60		4.10	4.00	4.30		4.60		4.20		4.30		4.20	4.00	4.30		4.80	4.60
	dev	5.00		1.24		1.80	0.70	1.40		0.20		0.40		1.60		2.60	1.70	0.50		0.40	4.00
PP	Taup	640.93				588.96	623.40			577.51							637.46	607.64		621.08	
	time	637.50				600.00	622.50			577.50							637.50	622.50		615.00	
	amp	0.31				0.22	0.41			0.27							0.38	0.20		0.24	
	baz	234.21				241.64	235.82			237.31							234.86	239.37		236.24	
	slo	7.80				9.00	7.40			7.20							6.00	5.90		7.50	

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TONGA R-COMPONENT																					
	dev	-0.30				1.50	-0.40			-1.40							0.00	3.00		1.80	
pPP	Taup									676.21						620.10				654.89	
	time									675.00						615.00				652.50	
	amp									0.15						0.22				0.23	
	baz									239.41						237.62				239.54	
	slo									5.90						8.00				6.10	
	dev									0.70						1.80				5.10	
sPP	Taup	791.62		745.24		761.92	790.61	764.17		739.46	745.70	775.33	777.30	700.24		634.56	788.09		716.69	672.25	
	time	787.50		757.50		757.50	802.50	780.00		750.00	757.50	772.50	772.50	697.50		630.00	787.50		735.00	690.00	
	amp	0.12		0.24		0.23	0.20	0.30		0.31	0.20	0.17	0.09	0.28		0.39	0.15		0.27	0.30	
	baz	237.11		242.21		245.24	238.82	235.09		238.61	237.79	238.79	241.59	239.01		236.02	235.16		235.76	233.34	
	slo	7.00		7.30		9.30	7.90	7.50		6.50	6.00	9.10	9.10	7.20		8.70	6.30		7.80	8.10	
	dev	2.60		2.44		5.10	2.60	-1.50		-0.10	-0.60	0.80	3.50	0.40		0.20	0.30		-1.70	-1.10	
PPP	Taup				718.33		742.79			782.29						700.47					
	time				720.00		750.00			787.50						697.50					
	amp				0.09		0.22			0.30						0.27					
	baz				235.65		238.12			240.71						233.92					
	slo				6.40		8.30			7.70						7.60					
	dev				-0.60		1.90			2.00						-1.90					
pPPP	Taup						836.30	820.12		858.65		806.27		770.89		736.53	856.85	830.13			
	time						840.00	832.50		862.50		810.00		772.50		735.00	855.00	832.50			
	amp						0.15	0.30		0.21		0.25		0.34		0.19	0.27	0.14			
	baz						238.32	238.39		242.01		235.09		237.61		236.42	234.66	238.17			
	slo						8.20	7.20		9.80		7.10		6.70		7.40	6.10	7.30			
	dev						2.10	1.80		3.30		-2.90		-1.00		0.60	-0.20	1.80			
sPPP	Taup			865.84		883.35	903.38	888.07							852.11	751.90		903.11		796.12	
	time			870.00		885.00	907.50	907.50							847.50	750.00		907.50		802.50	
	amp			0.14		0.12	0.20	0.31							0.09	0.19		0.14		0.22	
	baz			240.11		240.44	234.22	235.29							236.70	229.92		235.67		229.44	
	slo			8.00		7.10	8.70	7.00							6.20	7.00		7.90		7.00	
	dev			0.34		0.30	-2.00	-1.30							0.90	-5.90		-0.70		-5.00	
S	Taup	1027.46	966.56	957.56	977.95	957.16	1000.85	978.35				951.38	950.17	973.78	1007.32	999.87	1023.42	980.82	978.40		
	time	1035.00	975.00	945.00	982.50	952.50	1012.50	982.50				952.50	945.00	975.00	1012.50	1005.00	1035.00	982.50	975.00		
	amp	0.27	0.34	0.16	0.75	0.57	0.52	0.40				0.45	0.25	0.43	0.48	0.30	0.34	0.40	0.33		
	baz	234.41	236.54	240.21	236.75	243.64	241.02	238.99				241.59	239.19	242.71	233.80	234.82	233.26	238.17	239.66		
	slo	9.40	9.80	7.50	8.90	7.00	7.80	9.50				7.30	6.80	8.00	8.60	10.20	8.70	8.00	8.30		
	dev	-0.10	0.10	0.44	0.50	3.50	4.80	2.40				3.60	1.10	4.10	-2.00	-1.00	-1.60	1.80	2.20		
SP	Taup	1096.15	1025.32	1012.33	1037.18	1014.78	1067.28	1038.11		999.84	1000.35	1011.03	1010.12	1023.90	1074.48	1042.21	1091.25	1043.33	1030.08		
	time	1095.00	1027.50	1020.00	1035.00	1020.00	1072.50	1042.50		997.50	1005.00	1020.00	1012.50	1027.50	1080.00		1102.50	1057.50	1035.00		
	amp	0.17	0.15	0.27	0.15	0.39	0.47	0.41		0.17	0.36	0.44	0.32	0.45	0.44		0.26	0.28	0.30		
	baz	237.01	237.74	241.81	237.75	234.64	237.92	238.29		246.11	241.19	239.99	238.89	239.91	238.90		235.56	238.17	239.26		
	slo	9.70	10.50	9.90	10.10	9.40	8.10	8.20		9.20	9.50	7.80	8.10	9.80	8.70		9.90	7.30	9.40		
	dev	2.50	1.30	2.04	1.50	-5.50	1.70	1.70		7.40	2.80	2.00	0.80	1.30	3.10		0.70	1.80	1.80		
pS	Taup													1080.56		1039.23			1089.12	1082.30	1101.19
	time													1087.50		1042.50			1095.00	1072.50	1095.00
	amp													0.46		0.28			0.34	0.38	0.12
	baz													241.01		237.42			237.66	236.64	231.60
	slo													8.60		12.00			8.90	8.30	9.60
	dev													2.40		1.60			0.20	2.20	-4.30
sS	Taup		1190.97				1224.44			1161.21	1167.85					1055.07	1224.63		1141.61	1101.04	
	time		1185.00				1237.50			1170.00	1162.50					1050.00	1245.00		1147.50	1102.50	
	amp		0.12				0.21			0.32	0.18					0.24	0.30		0.20	0.26	
	baz		234.34				242.72			239.41	239.89					236.92	237.96		237.76	238.44	
	slo		10.30				8.70			9.80	9.00					9.10	7.10		10.50	7.80	
	dev		-2.10				6.50			0.70	1.50					1.10	3.10		0.30	4.00	
pSP	Taup																			1127.21	

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Table 7 – continued from previous page

TONGA R-COMPONENT																					
	time																			1132.50	
	amp																			0.41	
	baz																			236.54	
	slo																			9.40	
	dev																			2.10	
sSP	Taup	1286.06	1235.36	1211.04	1235.88	1229.80	1276.64	1239.26		1201.00	1207.89	1242.81	1244.50	1173.07	1280.61	1095.10	1280.76	1255.93	1184.83	1148.70	1190.40
	time	1290.00	1237.50	1222.50	1237.50	1245.00	1275.00	1252.50		1222.50	1207.50	1245.00	1245.00	1177.50	1282.50	1102.50	1305.00	1260.00	1192.50	1147.50	1200.00
	amp	0.11	0.17	0.21	0.08	0.21	0.26	0.32		0.32	0.23	0.39	0.24	0.41	0.27	0.26	0.26	0.25	0.24	0.30	0.23
	baz	237.41	239.64	242.21	236.65	240.54	237.22	238.19		240.61	236.49	238.39	238.69	239.91	234.40	237.22	237.56	237.57	238.06	236.64	235.20
	slo	9.10	11.60	9.20	8.30	11.00	9.20	8.90		9.40	11.90	9.40	9.40	10.30	10.60	12.20	9.30	10.60	9.30	11.80	9.40
	dev	2.90	3.20	2.44	0.40	0.40	1.00	1.60		1.90	-1.90	0.40	0.60	1.30	-1.40	1.40	2.70	1.20	0.60	2.20	-0.70
SS	Taup	1396.73	1313.65	1295.76	1325.73	1301.96	1364.69	1327.34		1281.23	1283.10	1301.17	1300.76	1300.86	1373.05	1308.76	1390.40	1335.96		1361.83	
	time	1395.00	1327.50	1320.00	1327.50	1320.00	1372.50	1327.50		1282.50	1282.50	1305.00	1320.00	1312.50	1372.50	1320.00	1410.00	1327.50		1380.00	
	amp	0.16	0.12	0.18	0.09	0.15	0.38	0.25		0.28	0.12	0.33	0.23	0.37	0.17	0.18	0.27	0.24		0.20	
	baz	232.31	238.04	244.31	234.35	243.14	236.82	238.09		238.81	240.69	237.59	239.09	238.81	233.60	235.12	234.06	236.57		232.24	
	slo	13.70	13.40	13.00	16.80	11.50	9.90	17.10		14.40	12.40	10.60	10.30	10.20	17.80	14.80	8.80	15.00		16.60	
	dev	-2.20	1.60	4.54	-1.90	3.00	0.60	1.50		0.10	2.30	-0.40	1.00	0.20	-2.20	-0.70	-0.80	0.20		-2.20	
sSS	Taup										1468.64					1358.10				1420.79	
	time										1470.00					1380.00				1447.50	
	amp										0.13					0.24				0.21	
	baz										233.99					234.72				234.94	
	slo										17.90					13.70				13.80	
	dev										-4.40					-1.10				0.50	
NETWORK TA_WCS																					
phase	event	07OCT16	08APR18	07MAY07	07NOV19	07MAY13	07MAY06 _211152	07MAY06	07AUG26	07OCT05	08JAN15	07AUG23	07SEP14								
	tbaz	237.38	243.07	239.81	239.94	241.57	241.68	241.66	240.02	238.01	239.73	240.41	238.92								
P	Taup	418.43	383.70	394.28	394.38	381.13	380.49		409.20		395.92	387.99									
	time	420.00	390.00	397.50	397.50	382.50	382.50		412.50		397.50	397.50									
	amp	0.66	0.41	0.31	0.62	0.54	0.69		0.58		0.60	0.10									
	baz	237.28	244.37	239.31	239.14	242.67	242.58		241.22		238.83	241.51									
	slo	4.20	4.30	4.00	4.30	4.80	4.40		5.00		4.10	4.40									
	dev	-0.10	1.30	-0.50	-0.80	1.10	0.90		1.20		-0.90	1.10									
pP	Taup	531.23	502.24	512.99	514.62		520.37		441.21		523.44	506.91									
	time	532.50	510.00	510.00	517.50		525.00		442.50		525.00	510.00									
	amp	0.29	0.54	0.25	0.59		0.32		0.50		0.58	0.42									
	baz	234.98	243.77	238.11	239.94		243.78		240.52		240.33	238.91									
	slo	5.10	4.70	4.90	4.60		4.50		4.70		4.50	4.60									
	dev	-2.40	0.70	-1.70	0.00		2.10		0.50		0.60	-1.50									
sP	Taup	582.89	558.55	568.75	571.12	586.24	587.45	589.26	454.78		583.40	563.14									
	time	585.00	570.00	570.00	577.50	592.50	592.50	592.50	457.50		585.00	577.50									
	amp	0.55	0.38	0.19	0.56	0.43	0.60	0.22	0.54		0.56	0.22									
	baz	237.98	244.97	239.41	238.84	240.37	241.28	241.16	240.62		239.73	238.71									
	slo	4.30	4.20	5.30	4.70	5.30	5.20	5.00	4.90		4.40	5.00									
	dev	0.60	1.90	-0.40	-1.10	-1.20	-0.40	-0.50	0.60		0.00	-1.70									
PP	Taup	636.08			600.06				589.57		605.86										
	time	630.00			607.50				592.50		630.00										
	amp	0.38			0.16				0.22		0.22										
	baz	236.18			240.34				240.72		241.73										
	slo	7.20			7.70				9.80		8.00										
	dev	-1.20			0.40				0.70		2.00										
pPP	Taup								617.97												
	time								622.50												
	amp								0.30												
	baz								238.42												
	slo								8.70												

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		T O N G A R - C O M P O N E N T										
	dev								-1.60			
sPP	Taup				761.26	772.72	773.81		632.43		776.28	
	time				765.00	772.50	772.50		630.00		772.50	
	amp				0.30	0.14	0.25		0.31		0.13	
	baz				240.64	242.87	240.38		239.32		237.13	
	slo				9.40	6.60	7.10		9.00		8.60	
	dev				0.70	1.30	-1.30		-0.70		-2.60	
PPP	Taup					704.61					723.56	
	time					705.00					720.00	
	amp					0.11					0.13	
	baz					240.47					241.13	
	slo					8.10					8.30	
	dev					-1.10					1.40	
pPPP	Taup		794.67		816.67		804.59					
	time		795.00		817.50		802.50					
	amp		0.12		0.14		0.22					
	baz		245.27		240.14		239.98					
	slo		7.80		7.20		7.60					
	dev		2.20		0.20		-1.70					
sPPP	Taup				871.70		894.98		750.33			
	time				870.00		900.00		750.00			
	amp				0.16		0.13		0.14			
	baz				238.54		242.78		242.52			
	slo				11.10		8.70		6.90			
	dev				-1.40		1.10		2.50			
S	Taup	1021.82	953.66	974.60	974.94	950.71	949.61	948.00	997.18	1019.10	978.69	962.23
	time	1027.50	975.00	982.50	982.50	952.50	960.00	960.00	997.50	1027.50	982.50	975.00
	amp	0.40	0.32	0.43	0.42	0.33	0.42	0.39	0.34	0.40	0.42	0.36
	baz	238.28	244.77	240.71	241.34	242.77	242.38	242.96	240.52	238.59	241.53	240.61
	slo	8.50	8.90	8.80	8.70	9.70	8.00	8.20	9.10	9.20	7.10	10.20
	dev	0.90	1.70	0.90	1.40	1.20	0.70	1.30	0.50	0.58	1.80	0.20
SP	Taup	1089.30	1007.58	1033.05	1033.90	1009.80	1008.85	1007.45	1039.01	1085.98	1040.68	1018.04
	time	1095.00	1012.50	1027.50	1050.00	1020.00	1020.00	1020.00	1042.50		1035.00	1027.50
	amp	0.31	0.29	0.36	0.36	0.37	0.40	0.34	0.36		0.33	0.25
	baz	237.98	242.57	238.91	240.04	240.87	242.08	242.06	240.62		240.03	239.21
	slo	8.10	9.30	10.50	8.60	9.20	8.60	8.30	8.60		9.20	9.70
	dev	0.60	-0.50	-0.90	0.10	-0.70	0.40	0.40	0.60		0.30	-1.20
pS	Taup											
	time											
	amp											
	baz											
	slo											
	dev											
sS	Taup	1222.90	1165.06					1199.99	1052.33	1220.04		
	time	1237.50	1170.00					1200.00	1057.50	1237.50		
	amp	0.18	0.19					0.08	0.28	0.28		
	baz	239.98	241.27					245.06	239.82	236.19		
	slo	9.20	13.30					8.80	10.10	7.20		
	dev	2.60	-1.80						-0.20	-1.82		
sSP	Taup	1278.61	1206.07	1231.57	1234.86	1239.69	1240.49	1241.66	1091.87		1253.15	1217.00
	time	1275.00	1207.50	1230.00	1237.50	1245.00	1237.50	1237.50	1095.00		1260.00	1215.00
	amp	0.19	0.27	0.23	0.34	0.37	0.40	0.32	0.32		0.26	0.23
	baz	236.98	243.17	236.31	238.94	240.67	243.38	242.96	241.52		241.13	238.61
	slo	12.10	11.50	10.30	9.30	11.40	11.30	11.60	7.10		9.10	9.80
	dev	-0.40	0.10	-3.50	-1.00	-0.90	1.70	1.30	1.50		1.40	-1.80
SS	Taup	1387.87	1290.00	1320.70	1322.21	1299.03	1298.52	1297.51	1304.94	1383.63	1332.72	

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		TONGA	R-COMPONENT								
	time	1410.00	1327.50	1342.50	1335.00	1305.00	1297.50	1297.50	1312.50	1387.50	1350.00
	amp	0.26	0.14	0.18	0.30	0.31	0.33	0.21	0.17	0.25	0.29
	baz	238.18	244.77	238.81	238.74	240.37	241.58	242.56	237.82	239.19	240.43
	slo	13.20	14.60	16.80	9.40	10.30	11.30	13.30	9.80	10.60	12.10
	dev	0.80	1.70	-1.00	-1.20	-1.20	-0.10	0.90	-2.20	1.18	0.70
sSS	Taup								1354.26		
	time								1357.50		
	amp								0.26		
	baz								236.02		
	slo								10.20		
	dev								-4.00		

Table 8: *Sloaz plot results for all measured events of the T-component for events occurring in the Tonga region, divided per network. Explanations of the used abbreviations in this table are given in the general description of this appendix.*

TONGA T-COMPONENT																			
NETWORK TA_ASW																			
phase	event	18SEP30	18AUG28	19SEP01	19MAR10	18AUG19	18FEB09	19APR23	19NOV08	18SEP06	18APR05	19JAN26	18SEP21	18NOV18	18DEC23	18SEP16	18AUG19	19JUL03	19MAY30
		_105223	_130911	_155420	_081226	_042858	_114356	_142017	_104444	_154918									
	tbaz	199.96	199.35	200.08	200.58	200.10	200.40	199.20	199.92	202.17	199.61	200.01	201.54	200.65	196.44	201.80	199.87	200.42	197.31
S	Taup	944.21	937.38	958.49	938.50	951.09	942.13	1033.91	971.48	930.34	952.42	967.38	929.32	941.20	1037.78	1011.64	932.95	978.14	1041.98
	time	937.50	930.00	960.00	937.50	952.50	945.00	1035.00	975.00	937.50	945.00	967.50	937.50	945.00	1027.50	1012.50	945.00	975.00	1035.00
	amp	0.26	0.26	0.28	0.20	0.22	0.20	0.25	0.32	0.32	0.24	0.27	0.27	0.17	0.25	0.23	0.29	0.26	0.21
	baz	195.06	194.65	194.48	196.28	196.00	189.10	194.50	195.52	196.87	194.11	194.71	193.94	196.15	193.34	196.80	195.57	195.22	193.01
	slo	8.70	9.30	7.80	8.80	10.70	9.80	9.00	8.80	7.40	11.30	8.50	9.00	9.90	8.90	9.20	11.00	8.60	9.20
	dev	-4.90	-4.70	-5.60	-4.30	-4.10	-11.30	-4.70	-4.40	-5.30	-5.50	-5.30	-7.60	-4.50	-3.10	-5.00	-4.30	-5.20	-4.30
sS	Taup	1153.75	1161.99	1182.11	1156.62	1116.36	1153.74	1191.82	1193.48	1193.87	1149.82	1190.71	1170.52	1147.32	1087.59	1234.34	1157.50	1204.88	1118.18
	time	1155.00	1155.00	1192.50	1155.00	1132.50	1162.50	1200.00	1207.50	1200.00	1147.50	1200.00	1162.50	1147.50	1087.50	1237.50	1170.00	1207.50	1117.50
	amp	0.24	0.29	0.28	0.19	0.15	0.25	0.28	0.30	0.98	0.26	0.23	0.26	0.26	0.25	0.28	0.28	0.26	0.24
	baz	196.46	195.65	195.38	194.98	200.60	195.80	195.00	195.32	197.37	195.21	195.11	198.34	197.95	193.24	197.50	194.57	194.42	193.11
	slo	10.10	10.60	10.80	9.10	9.00	9.40	7.60	11.20	9.30	9.00	10.60	9.40	9.00	12.10	8.50	9.40	11.10	12.60
	dev	-3.50	-3.70	-4.70	-5.60	0.50	-4.60	-4.20	-4.60	-4.80	-4.40	-4.90	-3.20	-2.70	-3.20	-4.30	-5.30	-6.00	-4.20
SS	Taup		1270.82	1301.51		1270.80		1390.21	1320.00	1269.22	1283.28	1314.45		1270.18	1361.54	1380.86	1264.91	1331.71	1375.58
	time		1275.00	1297.50		1275.00		1387.50	1320.00	1282.50	1275.00	1312.50		1267.50	1365.00	1372.50	1282.50	1327.50	1372.50
	amp		0.15	0.09		0.14		0.21	0.24	0.18	0.15	0.12		0.14	0.12	0.14	0.18	0.15	0.13
	baz		193.75	195.28		197.60		194.50	196.12	200.37	199.01	192.81		196.55	195.74	198.80	197.27	195.62	193.21
	slo		9.10	13.50		20.50		12.20	10.30	10.50	10.60	8.40		9.00	13.90	12.90	11.30	12.50	10.30
	dev		-5.60	-4.80		-2.50		-4.70	-3.80	-1.80	-0.60	-7.20		-4.10	-0.70	-3.00	-2.60	-4.80	-4.10
sSS	Taup	1452.61	1458.93	1488.56	1453.72	1413.91		1526.74	1505.85	1471.24	1451.14	1501.26	1465.47	1444.60	1406.08	1567.17	1452.68	1520.94	1443.00
	time	1485.00	1470.00	1500.00	1485.00	1425.00		1530.00	1507.50	1470.00	1447.50	1507.50	1462.50	1447.50	1410.00	1575.00	1470.00	1537.50	1440.00
	amp	0.17	0.11	0.16	0.10	0.10		0.12	0.21	0.25	0.17	0.17	0.17	0.16	0.16	0.16	0.25	0.16	0.17
	baz	193.06	197.55	196.78	211.68	196.20		197.70	199.62	200.27	199.51	197.41	197.44	198.35	194.84	201.40	199.07	196.32	193.81
	slo	14.40	13.80	11.70	16.50	13.50		9.10	20.60	10.30	10.70	10.90	11.20	13.90	13.50	11.40	10.60	14.10	20.10
	dev	-6.90	-1.80	-3.30	11.10	-3.90		-1.50	-0.30	-1.90	-0.10	-2.60	-4.10	-2.30	-1.60	-0.40	-0.80	-4.10	-3.50
NETWORK TA_ASE																			
phase	event	18SEP30	19SEP01	18AUG19	18FEB09	19APR23	18SEP06	18SEP21	18NOV18	18SEP16	18AUG19	19JUL03	19MAY30						
		_105223	_155420	_042858	_114356	_142017	_154918	_034141	_202546	_211148	_001940	_034529	_153801						
	tbaz	220.35	220.14	220.99	221.68	218.79	222.74	222.16	221.30	221.12	220.73	220.13	217.51						
S	Taup	985.51	997.89	993.41	982.23	1071.06	974.98	972.65	985.47	1052.56	974.41	1016.32	1079.60						
	time	982.50	997.50	997.50	982.50	1072.50	982.50	975.00	990.00	1050.00	982.50	1020.00	1080.00						
	amp	0.33	0.34	0.38	0.28	0.38	0.35	0.30	0.38	0.30	0.33	0.36	0.36						
	baz	222.25	222.34	222.59	223.88	222.59	224.24	224.26	223.20	224.32	222.01	223.23	219.71						
	slo	7.90	8.20	7.50	8.90	7.50	7.60	7.80	7.70	8.30	7.30	7.70	8.60						
	dev	1.90	2.20	1.60	2.20	3.80	1.50	2.10	1.90	3.20	1.28	3.10	2.20						
sS	Taup	1197.82	1224.45	1160.66	1196.58	1230.64	1224.66	1212.41	1194.49	1278.16	1202.10	1245.99	1156.48						
	time	1192.50	1230.00	1162.50	1200.00	1230.00	1237.50	1215.00	1200.00	1282.50	1207.50	1252.50	1162.50						
	amp	0.25	0.35	0.21	0.28	0.35	0.37	0.30	0.32	0.29	0.39	0.40	0.43						
	baz	221.35	221.84	224.19	223.28	221.99	223.94	223.56	222.60	223.42	221.81	222.63	219.11						
	slo	8.20	6.90	11.70	8.20	6.00	8.90	12.20	7.20	8.60	6.80	7.40	7.80						
	dev	1.00	1.70	3.20	1.60	3.20	1.20	1.40	1.30	2.30	1.08	2.50	1.60						
SS	Taup	1337.16	1361.37	1332.67	1333.04	1448.79	1336.33		1335.86	1446.54	1326.52	1391.00	1432.41						
	time	1335.00	1372.50	1342.50	1342.50	1447.50	1335.00		1342.50	1455.00	1342.50	1402.50	1440.00						
	amp	0.23	0.25	0.23	0.20	0.26	0.21		0.28	0.26	0.30	0.31	0.32						
	baz	223.95	223.54	225.59	223.18	221.79	224.34		224.80	225.52	223.31	222.13	221.41						
	slo	16.10	15.10	17.20	9.80	10.50	14.60		9.30	13.10	14.80	10.30	10.60						
	dev	3.60	3.40	4.60	1.50	3.00	1.60		224.80	225.52	223.31	222.13	221.41						
sSS	Taup	1515.95	1550.48		1513.33	1586.45	1541.16	1527.02	1512.22	1635.09	1516.43	1582.32	1500.28						
	time	1522.50	1560.00		1522.50	1582.50	1552.50	1522.50	1530.00	1635.00	1537.50	1597.50	1500.00						
	amp	0.26	0.27		0.20	0.20	0.32	0.15	0.30	0.22	0.39	0.22	0.27						
	baz	223.95	224.14		226.08	221.19	224.84	222.16	226.30	219.92	222.51	220.23	219.51						

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		TONGA					R-COMPONENT							
	slo	9.20	11.30		17.30	15.20	10.70	10.70	15.00	15.40	8.90	13.90	12.90	
	dev	3.60	4.00		4.40	2.40	2.10	0.00	5.00	-1.20	1.78	0.10	2.00	
NETWORK CN														
phase	event	18SEP30 _105223	19SEP01 _155420	19MAR10 _081226	18FEB09 _114356	19NOV08 _104444	18SEP06 _154918	19JAN26 _195644	18NOV18 _202546	18SEP16 _211148	18AUG19 _001940	19JUL03 _034529	19MAY30 _153801	
	tbaz	230.09	229.22	230.68	230.76	229.23	232.22	229.37	230.90	229.19	230.39	229.06	226.69	
S	Taup	956.11	967.55	949.58	952.95	987.58	950.99	976.21	956.78	1025.20	946.14	985.79	1042.62	
	time	952.50	967.50	952.50	952.50	990.00	960.00	975.00	960.00	1027.50	960.00	990.00	1042.50	
	amp	0.65	0.73	0.66	0.85	0.83	0.71	0.71	0.73	0.82	0.80	0.75	0.72	
	baz	229.09	229.92	230.28	231.96	230.43	230.52	230.17	229.90	230.69	228.09	230.56	227.79	
	slo	8.50	7.90	8.20	7.90	7.10	8.50	7.50	7.90	7.50	7.40	7.00	8.00	
	dev	-1.00	0.70	-0.40	1.20	1.20	-1.70	0.80	-1.00	1.50	-2.30	1.50	1.10	
sS	Taup	1166.45	1191.85	1168.50	1165.30	1208.84	1198.51	1200.19	1164.30	1248.92	1171.70	1213.11	1118.83	
	time	1177.50	1200.00	1177.50	1177.50	1222.50	1215.00	1200.00	1170.00	1252.50	1177.50	1222.50	117.50	
	amp	0.69	0.80	0.62	0.77	0.75	0.63	0.61	0.66	0.58	0.81	0.64	0.71	
	baz	228.29	228.12	228.48	231.16	228.73	229.82	228.97	228.80	230.29	226.49	227.96	226.39	
	slo	8.10	7.20	8.80	8.90	7.10	7.20	5.70	8.10	8.90	6.80	7.60	7.50	
	dev	-1.80	-1.10	-2.20	0.40	-0.50	-2.40	-0.40	-2.10	1.10	-3.90	-1.10	-0.30	
SS	Taup	1293.17	1315.07	1286.81	1289.31	1343.69	1299.89	1327.75	1293.51	1402.34	1284.26	1343.39	1376.52	
	time	1297.50	1320.00	1290.00	1290.00	1342.50	1320.00	1327.50	1297.50	1410.00	1290.00	1342.50	1380.00	
	amp	0.62	0.67	0.62	0.69	0.56	0.68	0.47	0.63	0.72	0.50	0.49	0.70	
	baz	226.59	227.62	229.38	228.76	226.93	228.92	226.37	227.40	227.69	226.69	226.46	223.19	
	slo	12.10	10.10	10.90	10.30	12.00	12.10	13.80	11.10	12.90	11.20	12.80	12.20	
	dev	-3.50	-1.60	-1.30	-2.00	-2.30	-3.30	-3.00	-3.50	-1.50	-3.70	-2.60	-3.50	
sSS	Taup	1470.61	1502.58			1528.99	1503.17		1468.62	1589.38	1472.70	1533.02	1443.94	
	time	1477.50	1507.50			1560.00	1522.50		1477.50	1590.00	1485.00	1560.00	1440.00	
	amp	0.35	0.67			0.53	0.61		0.50	0.55	0.50	0.34	0.59	
	baz	227.19	226.02			226.23	226.42		223.50	223.59	226.99	227.16	223.19	
	slo	6.70	6.60			12.30	10.10		11.90	12.20	11.20	10.60	11.80	
	dev	-2.90	-3.20			-3.00	-5.80		-7.40	-5.60	-3.40	-1.90	-3.50	
NETWORK TA_WCN														
phase	event	07OCT16	08APR18	07MAY07	07NOV19	07MAY06 _211152	07MAY06	06SEP03	07AUG26	07OCT05	08JAN15	07AUG23	07JAN08	07OCT08
	tbaz	231.43	235.65	232.77	232.97	234.42	234.36	232.75	231.59	231.85	232.98	233.06	234.04	232.11
S	Taup	1039.55	964.91	990.61	990.48	961.00	959.08	1016.34	1014.62	1036.00	992.81	977.72	991.79	1016.62
	time	1042.50	982.50	990.00	990.00	960.00	960.00	1020.00	1020.00	1042.50	990.00	975.00	990.00	1012.50
	amp	0.39	0.31	0.09	0.18	0.40	0.26	0.53	0.45	0.43	0.36	0.21	0.32	0.25
	baz	232.43	236.45	234.87	228.17	235.52	236.86	234.05	231.29	233.05	233.88	232.16	235.44	232.91
	slo	8.00	7.30	9.70	8.50	7.60	7.40	7.90	8.80	7.40	7.60	5.40	8.00	9.60
	dev	1.00	0.80	2.10	-4.80	1.10	2.50	1.30	-0.30	1.20	0.90	-0.90	1.40	0.80
sS	Taup	1241.75	1177.06	1203.27	1205.85	1210.99		1236.78	1069.99	1238.01	1221.13	1190.75	1155.82	1155.60
	time	1245.00	1185.00	1207.50	1207.50	1222.50		1237.50	1080.00	1245.00	1237.50	1192.50	1170.00	1162.50
	amp	0.35	0.50	0.27	0.42	0.28		0.49	0.46	0.27	0.42	0.43	0.38	0.32
	baz	232.83	236.75	232.67	233.87	233.92		234.15	230.59	231.35	233.68	233.76	233.14	235.91
	slo	7.60	8.90	9.30	7.60	10.80		7.80	8.40	7.40	6.40	7.70	10.30	6.60
	dev	1.40	1.10	-0.10	0.90	-0.50		1.40	-1.00	-0.50	0.70	0.70	-0.90	3.80
SS	Taup	1415.95	1306.66		1345.77	1315.70	1314.24	1387.20	1329.75	1410.29	1354.37	1325.85	1329.22	1357.72
	time	1425.00	1312.50		1350.00	1312.50	1320.00	1387.50	1335.00	1417.50	1350.00	1327.50	1335.00	1357.50
	amp	0.32	0.33		0.23	0.29	0.12	0.33	0.29	0.30	0.27	0.12	0.26	0.12
	baz	229.93	236.55		230.67	232.42	232.06	232.15	231.09	231.15	232.78	229.16	230.74	231.01
	slo	11.30	8.70		11.90	10.20	11.80	11.70	10.40	12.90	13.90	9.40	10.74	10.50
	dev	-1.50	0.90		-2.30	-2.00	-2.30	-0.60	-0.50	-0.70	-0.20	-3.90	-3.30	-1.10
sSS	Taup	1587.06	1485.40		1526.79	1520.52		1571.87	1379.20	1581.27	1544.72	1505.18	1471.01	
	time	1590.00	1485.00		1537.50	1522.50		1597.50	1380.00	1635.00	1560.00	1515.00	1485.00	
	amp	0.20	0.24		0.25	0.18		0.29	0.29	0.29	0.35.18	0.26	0.31	
	baz	229.83	235.35		230.27	236.42		228.75	230.99	228.15	232.88	230.26	231.54	
	slo	12.40	14.40		13.50	16.30		15.70	11.20	13.60	11.70	14.30	14.00	

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		T O N G A R - C O M P O N E N T																			
	dev	-1.60	-0.30		-2.70	2.00		-4.00	-0.60	-3.70	-0.10	-2.80	-2.50								
NETWORK TA_WCM																					
phase	event	07OCT16	06JUN02	08APR18	07MAY07	08JUN15	08JUL03	07NOV19	07MAY13	06JUN09	06JUL23	07MAY06 _211152	07MAY06 _220108	08JUL19	06SEP03	07AUG26	07OCT05	08JAN15	07JAN08	06AUG15	07OCT08
	tbaz	234.45	236.53	239.78	236.25	240.10	236.22	236.50	237.96	238.82	238.25	238.08	238.03	238.61	235.78	235.84	234.93	236.44	237.50	234.39	235.89
S	Taup	1026.85	967.64		978.82		1000.85		952.65	948.16	946.93	951.91		973.78	1006.39	1000.54	1023.69	981.48	978.91	1034.14	1005.00
	time	1027.50	967.50		982.50		1005.00		952.50	952.50	952.50	952.50		975.00	1012.50	1012.50	1027.50	982.50	975.00	1035.00	1005.00
	amp	0.36	0.39		0.14		0.50		0.14	0.25	0.35	0.38		0.48	0.51	0.36	0.40	0.39	0.32	0.50	0.35
	baz	234.55	234.23		234.05		239.22		239.66	239.62	240.75	239.98		241.71	234.48	235.84	235.43	236.64	239.50	233.59	236.59
	slo	8.40	8.20		7.50		8.20		7.70	10.30	6.90	7.00		8.00	8.40	8.10	7.60	8.30	9.20	9.80	8.70
	dev	0.10	-2.30		-2.20		3.00		1.70	0.80	2.50	1.90		3.10	-1.30	0.00	0.50	0.20	2.00	-0.80	0.70
sS	Taup	1228.25	1192.13	1169.23	1190.68	1187.53	1224.44	1192.89	1199.70	1162.58	1168.45	1201.07		1131.14	1226.09	1043.01	1224.92	1209.77	1142.34	1100.53	1143.46
	time	1237.50	1200.00	1177.50	1200.00	1185.00	1222.50	1200.00	1200.00	1170.00	1170.00	1207.50		1132.50	1230.00	1050.00	1237.50	1207.50	1140.00	1110.00	1155.00
	amp	0.29	0.46	0.48	0.26	0.21	0.15	0.41	0.16	0.47	0.50	0.27		0.31	0.43	0.36	0.21	0.33	0.38	0.52	0.25
	baz	235.45	234.43	240.38	235.35	241.30	234.52	237.70	236.06	236.62	237.05	236.38		240.91	236.18	235.34	234.23	236.44	236.50	232.09	238.49
	slo	8.40	8.90	8.70	9.70	10.20	9.20	9.50	9.40	8.00	9.00	11.30		10.50	7.90	10.50	10.40	7.40	8.70	8.90	11.70
	dev	1.00	-2.10	0.60	-0.90	1.20	-1.70	1.20	-1.90	-2.20	-1.20	-1.70		2.30	0.40	-0.50	-0.70	0.00	-1.00	-2.30	2.60
SS	Taup	1395.77	1315.28	1295.77	1327.04		1364.69	1327.35	1302.11		1283.92	1301.97		1300.86	1371.59	1309.71	1390.82	1336.98	1310.19	1361.10	1340.41
	time	1402.50	1320.00	1305.00	1320.00		1380.00	1327.50	1297.50		1290.00	1305.00		1305.00	1372.50	1312.50	1395.00	1335.00	1312.50	1365.00	1342.50
	amp	0.30	0.30	0.22	0.14		0.32	0.19	0.13		0.16	0.19		0.37	0.32	0.26	0.30	0.27	0.26	0.31	0.21
	baz	235.75	233.43	241.48	240.55		235.22	235.70	234.06		239.25	233.98		239.11	234.98	235.54	235.83	235.04	237.50	233.69	236.49
	slo	13.10	10.40	13.90	13.40		13.40	11.70	13.30		13.70	12.10		12.10	10.00	13.80	13.00	9.20	11.30	15.30	10.90
	dev	1.30	-3.10	1.70	4.30		-1.00	-0.80	-3.90		1.00	-4.10		0.50	-0.80	-0.30	0.90	-1.40	0.00	-0.70	0.60
sSS	Taup	1566.32	1502.92	1474.17			1551.66	1507.79	1505.15	1463.58		1506.20		1437.35	1555.74	1359.05	1561.26	1526.72	1451.61	1420.06	
	time	1612.50	1515.00	1492.50			1575.00	1515.00	1507.50	1477.50		1522.50		1447.50	1582.50	1357.50	1597.50	1537.50	1455.00	1417.50	
	amp	0.25	0.22	0.29			0.38	0.27	0.12	0.13		0.22		0.18	0.21	0.27	0.27	0.24	0.27	0.33	
	baz	236.15	235.83	241.98			238.02	234.10	234.86	242.42		240.48		240.41	237.58	235.44	235.93	236.14	236.90	231.89	
	slo	12.70	16.00	7.90			13.40	14.10	10.60	14.10		14.80		12.10	17.10	10.40	9.90	13.80	15.30	13.30	
	dev	1.70	-0.70	2.20			1.80	-2.40	-3.10	3.60		2.40		1.80	1.80	-0.40	1.00	-0.30	-0.60	-2.50	
NETWORK TA_WCS																					
phase	event	07OCT16	08APR18	07MAY07	07NOV19	07MAY13	07MAY06 _211152	07MAY06	07AUG26	07OCT05	08JAN15	07AUG23	07SEP14	07JAN08	07OCT08						
	tbaz	237.38	243.05	239.77	239.90	241.51	241.65	241.61	240.02	237.89	239.76	240.27	238.91	240.52	239.44						
S	Taup	1021.82	953.31	974.31	974.32	950.04	949.47	947.52	997.18	1018.89	978.76	960.43	1000.88		999.90						
	time	1027.50	952.50	982.50	990.00	952.50	967.50	960.00	997.50	1027.50	990.00	967.50	1005.00		997.50						
	amp	0.42	0.32	0.21	0.22	0.18	0.21	0.25	0.37	0.42	0.42	0.16	0.41		0.27						
	baz	237.78	244.95	240.67	241.80	235.30	246.25	243.01	240.12	238.29	240.26	239.87	239.51		239.94						
	slo	8.80	9.40	8.50	8.20	9.30	9.60	9.30	9.60	8.50	8.20	9.00	9.20		10.60						
	dev	0.40	1.90	0.90	1.90	-6.21	4.60	1.40	0.10	0.40	0.50	-0.40	0.60		0.50						
sS	Taup	1222.90	1164.69	1185.87	1188.58	1196.87	1198.41	1199.46		1219.81	1206.01	1172.28	1215.02		1138.17						
	time	1237.50	1177.50	1185.00	1192.50	1207.50	1200.00	1207.50		1237.50	1207.50	1285.00	1230.00		1147.50						
	amp	0.36	0.36	0.31	0.39	0.15	0.42	0.12		0.37	0.38	0.29	0.35		0.28						
	baz	237.18	243.95	239.77	239.90	240.61	241.65	240.61		235.99	239.56	240.97	239.91		238.04						
	slo	7.90	8.60	9.30	9.00	12.80	9.00	13.30		7.30	8.10	8.60	7.60		10.20						
	dev	-0.20	0.90	0.00	0.00	-0.90	0.00	-1.00		-1.90	-0.20	0.70	1.00		-1.40						
SS	Taup	1387.87			1321.27		1298.31	1296.79	1304.94	1383.31	1332.83		1360.99		1332.86						
	time	1410.00			1320.00		1305.00	1305.00	1312.50	1410.00	1342.50		1380.00		1342.50						
	amp	0.23			0.18		0.21	0.16	0.28	0.24	0.31		0.16		0.08						
	baz	238.68			240.30		239.65	239.31	241.82	236.79	240.46		240.21		240.44						
	slo	14.20			16.00		10.30	16.50	11.60	14.40	9.70		14.50		14.80						
	dev	1.30			0.40		-2.00	-2.30	1.80	-1.10	0.70		1.30		1.00						
sSS	Taup	1558.20	1467.71		1501.52		1502.38		1354.26	1553.53	1522.42	1478.55	1541.08								
	time	1605.00	1470.00		1507.50		1507.50		1357.50	1605.00	1545.00	1485.00	1560.00								
	amp	0.28	0.18		0.26		0.24		0.30	0.29	0.31	0.12	0.15								
	baz	238.68	246.75		240.80		244.05		239.72	239.09	240.86	242.07	241.01								
	slo	13.00	10.50		14.50		11.60		10.50	11.50	10.20	13.20	10.70								
	dev	1.30	3.70		0.90		2.40		-0.30	1.20	1.10	1.80	2.10								

Table 9: *Sloaz plot results for the events measured in the Z-component for events occurring in the Banda region, divided per network. Explanations of the used abbreviations in this table are given in the general description of this appendix. Due to limited page width, the remaining events measured at network TA_WCN are given in Table 12.*

BANDA Z-COMPONENT																					
NETWORK TA_WCN																					
phase	event	07APR21	07JAN17	06SEP05	06AUG07	06OCT18	08MAR06	06NOV06	06NOV14	07JUL01	07JAN23	07MAY29	08FEB07	07AUG01	08SEP08	07JUL23	06JUL15	07NOV23	08APR29	06DEC12	06OCT03
		_071248	_042826	_045302	_221855	_104532	_012159	_205651	_142101	_143412	_043719	_010327	_205818	_170851	_185206	_000832	_071047	_012647	_191002	_154803	_180313
	tbaz	266.55	275.08	292.14	245.15	247.02	288.08	268.62	282.06	280.18	279.96	265.25	290.23	246.39	248.31	267.02	283.25	265.26	282.77	291.55	243.35
P	Taup	141.35	209.79			163.22		192.07				172.25		163.60	158.94	133.71					166.33
	time	141.25	211.25			166.25		198.75				171.25		166.25	161.25	136.25					166.25
	amp	0.63	0.24			0.65		0.28				0.56		0.46	0.53	0.46					0.58
	baz	267.25	275.08			245.92		272.12				264.95		244.59	256.71	265.22					243.25
	slo	5.10	6.30			4.70		4.00				5.10		3.40	2.90	5.20					4.60
	dev	0.70	0.00			-1.10		3.50				-0.30		-1.80	8.40	-1.80					-0.10
pP	Taup	235.20	236.41	242.56		193.03		226.22				206.18		194.59	187.52	258.44					206.82
	time	236.25	238.75	246.25		198.75		228.75				206.25		198.75	191.25	256.25					208.75
	amp	0.24	0.45	0.46		0.62		0.28				0.37		0.53	0.70	0.45					0.26
	baz	265.55	276.28	292.74		245.02		272.82				267.95		245.79	249.61	267.32					246.35
	slo	7.00	5.10	5.70		4.10		5.10				3.90		3.80	4.00	5.30					4.90
	dev	-1.00	1.20	0.60		-2.00		4.20				2.70		-0.60	1.30	0.30					3.00
sP	Taup	277.20		256.72		205.18						220.10		207.24	199.18	315.49					223.66
	time	276.25		256.25		221.25						221.25		211.25	201.25	318.75					226.25
	amp	0.58		0.44		0.52						0.42		0.74	0.76	0.30					0.52
	baz	268.15		292.14		251.32						263.65		246.09	247.01	268.32					243.05
	slo	4.40		3.70		3.40						4.70		4.40	5.40	4.90					3.10
	dev	1.60		0.00		4.30						-1.60		-0.30	-1.30	1.30					-0.30
PP	Taup	365.84		453.35		375.38			506.11	510.33		392.52		376.53		367.21			501.87	478.47	385.19
	time	368.75		456.25		376.25			506.25	518.75		406.25		383.75		366.25			501.25	481.25	383.75
	amp	0.47		0.36		0.35			0.48	0.26		0.52		0.45		0.52			0.30	0.51	0.46
	baz	264.65		294.84		245.52			282.96	278.68		258.75		248.09		264.52			285.37	289.75	243.05
	slo	10.10		9.70		9.40			7.40	8.30		6.80		6.40		9.80			7.40	9.10	8.30
	dev	-1.90		2.70		-1.50			0.90	-1.50		-6.50		1.70		-2.50			2.60	-1.80	-0.30
pPP	Taup		477.30	484.46		401.86				541.73		422.64		404.02	393.03				585.03		
	time		481.25	486.25		398.75				546.25		428.75		403.75	393.75				591.25		
	amp		0.48	0.48		0.37				0.50		0.52		0.50	0.44				0.31		
	baz		276.28	294.74		250.02				279.78		262.05		251.49	250.41				287.07		
	slo		8.80	9.00		7.20				9.20		6.80		7.50	6.80				5.70		
	dev		1.20	2.60		3.00				-0.40		-3.20		5.10	2.10				4.30		
sPP	Taup		488.60	499.48		414.81		471.59	616.58	556.58		437.48		417.52	405.44	533.56			629.37	549.17	438.93
	time		491.25	501.25		418.75		471.25	621.25	556.25		436.25		418.75	403.75	541.25			631.25	551.25	438.75
	amp		0.47	0.46		0.27		0.18	0.45	0.50		0.47		0.53	0.64	0.29			0.43	0.24	0.36
	baz		275.88	301.44		251.62		274.12	282.56	279.58		264.35		248.69	247.21	264.42			285.87	290.25	241.55
	slo		9.30	9.80		9.00		7.70	8.10	9.40		6.50		6.60	6.50	9.60			5.70	7.70	5.90
	dev		0.80	9.30		4.60		5.50	0.50	-0.60		-0.90		2.30	-1.10	-2.60			3.10	-1.30	-1.80
PPP	Taup			580.62				549.57	647.41	691.48				493.39						611.56	503.81
	time			583.75				553.75	651.25	691.25				503.75						623.75	508.75
	amp			0.28				0.13	0.26	0.22				0.50						0.31	0.53
	baz			289.24				268.32	288.36	278.58				246.79						281.15	243.65
	slo			9.60				8.40	5.90	8.40				9.60						7.50	7.20
	dev			-2.90				-0.30	6.30	-1.60				0.40						-10.40	0.30
pPPP	Taup			609.83																	537.58
	time			618.75																	538.75
	amp			0.33																	0.45
	baz			293.94																	249.55
	slo			10.00																	7.40
	dev			1.80																	6.20
sPPP	Taup			625.34					753.41												

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		BANDA Z-COMPONENT																			
	time			626.25					763.75												
	amp			0.31					0.20												
	baz			295.14					277.76												
	slo			9.80					9.40												
	dev			3.00					-4.30												
S	Taup	765.08				803.24						821.47			794.53	751.87					
	time	766.25				801.25						821.25			793.75	756.25					
	amp	0.31				0.44						0.44			0.35	0.35					
	baz	267.45				246.62						267.25			246.51	268.12					
	slo	7.60				6.90						7.10			7.20	7.40					
	dev	0.90				-0.40						2.00			-1.80	1.10					
SP	Taup	837.23	978.97	977.23		867.88		938.95	1038.48	1057.55		891.37		869.36	856.57	829.94				1008.22	
	time	836.25	983.75	983.75		871.25		943.75	1036.25	1056.25		896.25		871.25	858.75	833.75				1013.75	
	amp	0.38	0.46	0.37		0.33		0.31	0.45	0.26		0.28		0.46	0.56	0.46				0.45	
	baz	267.65	277.98	285.64		245.02		268.32	279.16	280.28		265.25		246.89	244.51	267.12				289.55	
	slo	10.70	7.60	8.00		10.50		8.10	6.60	12.10		10.20		8.60	6.20	8.90				7.10	
	dev	1.10	2.90	-6.50		-2.00		-0.30	-2.90	0.10		0.00		0.50	-3.80	0.10				-2.00	
pS	Taup	884.20	927.01			841.05			1137.40												
	time	891.25	926.25			841.25			1153.75												
	amp	0.48	0.15			0.33			0.42												
	baz	268.35	273.78			248.72			283.46												
	slo	8.10	10.00			8.10			8.40												
	dev	1.80	-1.30			1.70			1.40												
sS	Taup	932.73	938.54	949.72		854.59						880.30			843.73	975.99					
	time	941.25	936.25	951.25		856.25						881.25			846.25	976.25					
	amp	0.39	0.21	0.24		0.45						0.40			0.52	0.31					
	baz	271.05	274.58	291.44		244.12						265.85			249.41	264.72					
	slo	8.60	8.30	8.10		5.70						10.20			7.10	8.00					
	dev	4.50	-0.50	-0.70		-2.90						0.60			1.10	-2.30					-
																					243.35
pSP	Taup	996.96						979.37				931.05		904.45	888.94						925.94
	time	996.25						981.25				931.25		903.75	891.25						931.25
	amp	0.25						0.17				0.45		0.27	0.42						0.47
	baz	264.65						271.62				264.85		250.89	245.31						242.65
	slo	10.10						9.30				7.20		8.80	6.20						10.60
	dev	-1.90						3.00				-0.40		4.50	-3.00	-					-0.70
																267.02					
sSP	Taup		1023.41			916.94		996.12		1116.01		948.09		920.37	903.60	1041.95					947.30
	time		1023.75			921.25		998.75		118.75		953.75		931.25	908.75	1043.75					948.75
	amp		0.36			0.46		0.37		0.32		0.28		0.25	0.34	0.33					0.22
	baz		276.38			246.92		268.22		278.18		264.25		246.19	249.11	263.82					243.15
	slo		8.60			8.60		7.60		11.70		9.30		7.10	7.50	8.60					13.10
	dev		1.30			-0.10		-0.40		-2.00		-1.00		-0.20	0.80	-3.20					-0.20
SS	Taup			1302.90		1160.20		1253.15	1400.81	1407.98				1162.32	1146.02	1144.76				1349.43	1178.24
	time			1313.75		1163.75		1276.25	1416.25	1421.25				1178.75	1148.75	1176.25				1363.75	1201.25
	amp			0.27		0.26		0.20	0.36	0.22				0.13	0.42	0.21				0.28	0.33
	baz			288.64		246.62		263.72	281.26	277.88				249.89	258.61	265.52				293.85	238.95
	slo			11.50		15.70		15.00	11.60	14.40				14.10	11.80	10.80				10.80	10.50
	dev			-3.50		-0.40		-4.90	-0.80	-2.30				3.50	10.30	-1.50				2.30	-4.40
sSS	Taup													1209.84						1432.05	1240.47
	time													1223.75						1436.25	1271.25
	amp													0.26						0.24	0.29
	baz													242.39						292.55	244.25
	slo													10.80						20.60	11.70
	dev													-4.00						1.00	0.90
pSS	Taup																				
	time																				

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B A N D A Z - C O M P O N E N T																				
	amp																			
	baz																			
	slo																			
	dev																			
NETWORK TA_WCM																				
phase	event	07APR21_071248	07JAN17_042826	06SEP05_045302	08JUN06_134248	06OCT18_104532	08MAR06_012159	06NOV14_142101	07JUL01_	07MAY29_010327	07AUG01_170851	08SEP08_185206	07JUL23_000832	07NOV23_012647	06OCT03_180313	08SEP04_093703	07DEC15_080315	07AUG08_170504	06SEP09_041312	08AUG04_204513
	tbaz	269.11	276.79	294.16	282.36	249.78	289.54	282.20	281.15	267.96	249.46	251.85	269.43	267.94	245.91	282.11	282.11	299.91	287.51	282.00
P	Taup	153.94	479.93		568.23	164.05				185.14	165.83	162.04	146.59	183.27	165.15					
	time	153.75	481.25		568.75	166.25				186.25	171.25	163.75	148.75	186.25	166.25					
	amp	0.54	0.16		0.41	0.66				0.61	0.53	0.53	0.34	0.28	0.61					
	baz	270.61	274.79		284.86	249.18				270.66	249.36	252.45	274.53	272.94	247.11					
	slo	4.90	7.80		7.30	4.70				4.70	3.70	5.10	4.50	5.00	4.60					
	dev	1.50	-2.00		2.50	-0.60				2.70	-0.10	0.60	5.10	5.00	1.20					
pP	Taup		504.09		597.37	193.86	542.41			219.10	196.83	190.66	271.58	221.35	205.65					
	time		506.25		598.75	196.25	543.75			221.25	201.25	193.75	271.25	223.75	206.25					
	amp		0.39		0.43	0.65	0.14			0.35	0.52	0.64	0.34	0.29	0.50					
	baz		279.39		285.16	249.28	289.44			265.66	248.46	255.05	269.43	265.14	244.41					
	slo		8.90		7.90	4.20	8.00			4.60	4.40	4.00	4.40	3.90	4.10					
	dev		2.60		2.80	-0.50	-0.10			-2.30	-1.00	3.20	0.00	-2.80	-1.50					
sP	Taup	289.88	515.35		610.77	206.01	556.22			233.01	209.48	202.31	328.58		222.48					
	time	291.25	516.25		611.25	206.25	561.25			233.75	2011.25	203.75	338.75		228.75					
	amp	0.61	0.53		0.43	0.60	0.16			0.28	0.70	0.40	0.12		0.66					
	baz	272.11	274.69		273.86	248.78	290.34			272.26	250.96	255.25	274.53		243.91					
	slo	4.10	9.20		5.20	4.10	6.20			3.80	4.20	4.70	4.50		3.30					
	dev	3.00	-2.10		-8.50	-1.00	0.80			4.30	1.50	3.40	5.10		-2.00					
PP	Taup	387.10			714.93	376.79		533.47	541.08	414.40	380.33	372.86	388.90	412.93	383.19		560.74	638.58	558.95	543.98
	time	391.25			716.25	378.75		536.25	544.25	408.75	388.75	376.25	388.75	421.25	383.75		563.75	636.25	558.75	546.25
	amp	0.31			0.39	0.45		0.31	0.21	0.38	0.49	0.37	0.43	0.11	0.43		0.19	0.33	0.36	0.36
	baz	268.11			286.76	248.98		278.80	285.75	270.46	250.86	255.05	269.73	270.64	245.71		288.21	301.81	287.51	279.80
	slo	10.30			8.20	7.20		7.60	9.10	6.60	6.00	10.60	10.10	4.70	7.50		9.50	7.10	6.50	10.90
	dev	-1.00			4.40	-		-3.40	4.60	2.50	1.40	3.20	0.30	2.70	-0.20		6.10	1.90	0.00	-2.20
						242.58														
pPP	Taup	467.69		523.79		403.28			572.70		407.85						601.13		670.53	583.79
	time	473.75		523.75		401.25			578.75		411.25						601.25		671.25	588.75
	amp	0.16		0.43		0.47			0.32		0.34						0.15		0.18	0.53
	baz	267.41		293.56		252.38			283.95		250.76						279.31		286.41	279.80
	slo	9.80		7.90		7.90			7.30		7.50						7.80		7.30	10.30
	dev	-1.70		-0.60		2.60			2.80		1.30						-2.80	-	-1.10	-2.20
																		299.91		
sPP	Taup	513.15		538.74		416.23	691.44	644.36	587.49	459.48	421.35	410.73	555.92	463.53	436.92		620.35	731.42	731.10	602.84
	time	518.75		538.75		416.25	693.75	643.75	588.75	458.75	423.75	416.25	558.75	468.75	438.75		623.75	731.25	733.75	608.75
	amp	0.29		0.49		0.29	0.19	0.41	0.41	0.50	0.51	0.58	0.19	0.17	0.32		0.15	0.45	0.46	0.51
	baz	276.11		292.96		253.08	296.34	281.20	281.65	270.46	250.96	255.05	273.53	261.44	246.51		281.41	305.41	288.81	282.60
	slo	5.20		8.60		7.70	5.30	7.00	9.70	7.70	7.00	8.10	7.30	7.00	10.50		9.90	4.20	7.60	10.40
	dev	7.00		-1.20		3.30	6.80	-1.00	0.50	2.50	1.50	3.20	4.10	-6.50	0.60		-0.70	5.50	1.30	0.60
PPP	Taup					493.59							516.81		501.57				717.46	
	time					501.25							518.75		503.75				718.75	
	amp					0.19							0.18		0.57				0.41	
	baz					258.18							268.33		242.61				293.11	
	slo					8.40							8.20		7.10				8.30	
	dev					8.40							-1.10		-3.30				5.60	
pPPP	Taup	585.21		655.20		518.79		746.82		564.70					535.34				816.42	
	time	586.25		656.25		518.75		751.25		568.75					536.25				818.75	
	amp	0.22		0.23		0.24		0.26		0.23					0.45				0.26	
	baz	267.61		296.76		259.88		287.20		268.86					245.91				283.81	
	slo	8.10		7.20		7.60		6.60		7.40					6.80				8.60	

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		BANDA Z-COMPONENT																		
	dev	-1.50		2.60		10.10		5.00		0.90					0.00				-3.70	
sPPP	Taup					532.07									553.84			894.61	880.55	
	time					531.25									553.75			898.75	883.75	
	amp					0.31									0.54			0.41	0.27	
	baz					245.38									246.11			298.21	295.71	
	slo					5.90									7.30			5.60	7.50	
	dev					-4.40									0.20			-1.70	8.20	
S	Taup	789.04				804.89				846.12	808.57	800.73	776.28		808.17					
	time	791.25				803.75				846.25	811.25	796.25	776.25		808.75					
	amp	0.23				0.48				0.44	0.32	0.49	0.27		0.51					
	baz	264.31				252.58				269.66	249.36	260.25	273.03		247.71					
	slo	11.40				6.60				7.00	8.40	9.00	8.50		8.80					
	dev	-4.80				2.80				1.70	-0.10	8.40	3.60		1.80					
SP	Taup	867.38	1016.63		1134.96	870.46	1061.80		1100.63	922.24	874.96	864.38	860.82	919.17			1121.48	1216.40	1092.04	1102.16
	time	878.75	1026.25		1136.25	873.75	1066.25		1103.75	921.25	881.25	868.75	863.75	928.75			1123.75	1238.75	1091.25	1103.75
	amp	0.24	0.37		0.46	0.46	0.34		0.35	0.45	0.56	0.58	0.42	0.24			0.35	0.39	0.49	0.40
	baz	272.11	278.29		285.66	248.98	294.14		281.15	268.56	251.86	258.25	270.43	266.24			285.41	298.01	287.81	283.90
	slo	6.90	6.60		8.70	10.90	7.80		6.50	13.40	9.10	7.00	7.00	8.30			9.30	6.50	6.70	9.80
	dev	3.00	1.50		3.30	-0.80	4.60		0.00	0.60	2.40	6.40	1.00	-1.70			3.30	-1.90	0.30	1.90
pS	Taup	910.04			1178.12	842.73				890.01	910.16		935.05					1303.57		
	time	913.75			1178.75	843.75				891.25	911.25		941.25					1306.25		
	amp	0.38			0.47	0.38				0.32	0.34		0.39					0.24		
	baz	270.41			282.26	253.78				265.76	250.76		270.43					297.51		
	slo	7.50			7.30	7.90				8.70	7.20		7.80					6.90		
	dev	1.30			-0.10	4.00				-2.20	1.30		1.00					-2.40		
sS	Taup	957.66				856.26		1073.84		905.21	926.04									
	time	958.75				858.75		1073.75		906.25	926.25									
	amp	0.35				0.42		0.48		0.29	0.29									
	baz	272.41				247.38		281.80		266.86	246.26									
	slo	8.60				6.20		9.60		9.80	5.00									
	dev	3.30				-2.40		-0.40		-1.10	-3.20									
pSP	Taup		1048.79			903.79	1101.21	1176.88						965.26	922.93				1249.11	1155.32
	time		1048.75			903.75	1103.75	1186.25						968.75	928.75				1253.75	1153.75
	amp		0.32			0.39	0.15	0.36						0.12	0.56				0.57	0.40
	baz		273.59			251.78	284.24	279.30						264.14	247.11				288.31	286.70
	slo		7.20			10.70	9.60	9.60						8.30	10.20				7.20	7.50
	dev		-3.20			2.00	-5.30	-2.90						-3.80	1.20				0.80	4.70
sSP	Taup	1028.12	1061.25			919.04	1116.42	1217.63	1159.21	979.05	1216.80	911.46	1073.81	983.02	944.32			1335.84		1177.15
	time	1028.75	1066.25			923.75	1118.75	1218.75	1163.75	981.25	1228.75	913.75	1076.25	986.25	948.75			1343.75		1178.75
	amp	0.27	0.27			0.50	0.20	0.25	0.26	0.26	0.25	0.50	0.36	0.16	0.35			0.46		0.32
	baz	271.81	280.79			250.18	287.84	281.60	281.35	271.16	250.96	262.45	269.63	264.94	247.71			301.01		283.90
	slo	11.40	8.30			7.00	12.30	10.20	6.90	12.50	10.50	7.20	7.30	7.30	10.60			4.10		13.60
	dev	2.70	4.00			0.40	-1.70	-0.60	0.20	3.20	1.50	10.60	0.20	-3.00	1.80			1.10		1.90
SS	Taup	1181.24	1351.54			1162.77		1451.70					1184.55	1228.86			1501.92	1648.64	1500.37	1470.69
	time	1188.75	1351.25			1161.25		1461.25					1193.75	1248.75			1513.75	1646.25	1501.25	1501.25
	amp	0.16	0.19			0.17		0.28					0.45	0.16			0.20	0.15	0.35	0.31
	baz	275.81	273.79			239.98		287.50					266.83	267.24			280.21	301.41	282.01	282.10
	slo	12.40	11.40			14.10		12.20					9.90	11.40			9.40	10.40	10.90	14.10
	dev	6.70	-3.00			-9.80		5.30					-2.60	-0.70			-1.90	1.50	-5.50	0.10
sSS	Taup	1326.35					1463.52						1373.38							
	time	1326.25					1466.25						1376.25							
	amp	0.11					0.09						0.11							
	baz	274.51					285.14						271.63							
	slo	13.50					14.40						12.80							
	dev	5.40					-4.40						2.20							
pSS	Taup				1547.16				1519.56											

Continued on next page

Table 9 – continued from previous page

B A N D A Z - C O M P O N E N T																				
	time				1551.25				1518.75											
	amp				0.29				0.18											
	baz				278.06				287.25											
	slo				8.20				11.70											
	dev				-4.30				6.10											
NETWORK TA_WCS																				
phase	event	07APR21 _071248	07JAN17 _042826	08OCT23 _092115	08JUN06 _134248	08MAR06 _012159	07JUL01 _143412	07MAY29 _010327	2007AUG01 _170851	08APR02 _191019	08SEP08 _185206	07JUL23 _000832	07NOV23 _012647	08APR29 _191002	08NOV21 _070534	08SEP04 _093703	07DEC15 _080315	08NOV04 _183545	07AUG08 _170504	08AUG04 _204513
	tbaz	271.17	277.23	295.08	281.82	290.48	281.51	270.00	252.19	281.37	254.27	271.28	270.00	283.30	262.37	255.30	282.02	250.56	299.51	281.77
P	Taup	170.30						200.91	172.20		170.27		199.13		186.71	147.78		163.98		
	time	173.75						201.25	176.25		168.75		198.75		186.25	148.75		163.75		
	amp	0.50						0.50	0.41		0.45		0.30		0.42	0.50		0.50		
	baz	270.77						269.50	253.39		254.57		269.50		261.27	255.60		249.86		
	slo	4.10						5.10	3.50		4.60		5.30		5.50	5.10		4.60		
	dev	-0.40						-0.50	1.20		0.30		-0.50		-1.10	0.30		-0.70		
pP	Taup							234.94	203.21		198.94	287.86	237.30		217.28	213.09		214.65		
	time							238.75	208.75		198.75	288.75	243.75		216.25	213.75		218.75		
	amp							0.25	0.46		0.53	0.37	0.39		0.43	0.41		0.51		
	baz							267.00	250.49		254.57	267.08	268.40		261.17	251.80		250.26		
	slo							4.60	4.20		3.30	4.80	5.20		4.80	4.70		4.70		
	dev							-3.00	-1.70		0.30	-4.20	-1.60		-1.20	-3.50		-0.30		
sP	Taup	306.45						248.83	215.86		210.58	344.77	253.01		229.72	241.46		236.12		
	time	308.75						251.25	221.25		211.50				228.75	243.75		236.25		
	amp	0.45						0.30	0.70		0.68				0.60	0.31		0.54		
	baz	270.77						270.60	250.99		255.87				262.67	258.00		255.26		
	slo	3.80						4.90	4.20		4.40				5.00	4.50		5.20		
	dev	-0.40						0.60	-1.20		1.60				0.30	2.70		4.70		
PP	Taup	414.82			597.47	553.16	575.14	441.20	391.21		386.93	415.77	439.89	566.13		364.24	594.28	385.49	679.31	573.19
	time	418.75			601.25		586.25	443.75	391.25		388.75	418.75	438.75	568.75		366.25	596.25	383.75	683.75	576.25
	amp	0.34			0.29		0.14	0.39	0.41		0.32	0.38	0.18	0.22		0.27	0.22	0.45	0.40	0.33
	baz	272.97			281.42		282.31	269.20	253.99		252.77	269.18	268.20	284.20		253.30	285.32	253.16	300.01	281.77
	slo	8.70			8.40		8.70	10.20	6.40		11.50	10.40	7.70	8.80		11.10	9.30	6.30	7.10	3.70
	dev	1.80			-0.40		0.80	-0.80	1.80		-1.50	-2.10	-1.80	0.90		-2.00	3.30	2.60	0.50	0.00
pPP	Taup				626.79	582.84	607.01	471.67	418.80		412.47	521.35	473.97	650.92	443.00		634.99	429.96		613.29
	time				626.25	583.75	608.75	471.25	418.75		416.25		473.75	656.25	446.25		633.75	433.75		621.25
	amp				0.41	0.11	0.34	0.51	0.38		0.37		0.28	0.18	0.32		0.24	0.50		0.36
	baz				282.92	299.48	280.71	271.20	254.29		254.97		275.00	279.50	266.07		284.12	253.76		287.07
	slo				5.60	7.60	7.30	7.30	9.00		7.80		6.40	4.60	9.30		9.30	6.20		4.30
	dev				1.10	9.00	-0.80	1.20	2.10		0.70		5.00	-3.80	3.70		2.10	3.20		5.30
sPP	Taup	541.41			640.16	596.59	621.75	486.42	432.27		424.85	583.60	490.67	694.82	456.21	451.39	654.13	452.96	772.63	632.26
	time	556.25			641.25	601.25	621.25	486.25	433.75		431.25	586.25	498.75	696.25	463.75	453.75	656.25	451.25	776.25	633.75
	amp	0.26			0.24	0.16	0.35	0.39	0.52		0.57	0.39	0.19	0.32	0.37	0.35	0.24	0.55	0.30	0.46
	baz	261.37			284.42	286.28	279.61	269.70	252.89		253.77	270.88	273.40	281.00	263.57	254.80	283.72	249.96	298.31	289.17
	slo	6.10			7.90	8.80	8.70	9.50	7.50		8.70	9.90	6.00	5.00	9.20	9.30	6.60	7.30	5.20	6.30
	dev	-9.80			2.60	-4.20	-1.90	-0.30	0.70		-0.50	-0.40	3.40	-2.30	1.20	-0.50	1.70	-0.60	-1.20	7.40
PPP	Taup											547.74			537.25			505.00		722.44
	time											548.75			541.25			508.75		726.25
	amp											0.22			0.27			0.36		0.36
	baz											268.58			261.57			252.86		293.07
	slo											5.90			9.80			7.80		5.30
	dev											-2.70			-0.80			2.30		11.30
pPPP	Taup						753.31	595.28						797.95						759.66
	time						756.25	598.75						798.75						758.75
	amp						0.12	0.15						0.33						0.52
	baz						280.41	278.40						278.60						285.17
	slo						9.20	9.30						5.70						5.60

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Table 9 – continued from previous page

BANDA Z-COMPONENT																				
	dev						-1.10	8.40							-4.70					3.40
sPPP	Taup				791.33		768.59	610.49								576.69			945.86	
	time				793.75		768.75	608.75								581.25			946.25	
	amp				0.14		0.19	0.19								0.25			0.47	
	baz				282.92		289.01	273.10								258.57			303.51	
	slo				8.30		8.20	10.30								9.20			4.30	
	dev				1.10		7.50	3.10								-3.80			4.00	
S	Taup	820.04						876.03	821.11		817.09		872.88		848.88			806.59		
	time	823.75						876.25	821.25		816.25		876.25		853.75			808.75		
	amp	0.18						0.19	0.23		0.38		0.18		0.37			0.27		
	baz	272.07						266.80	256.59		253.77		274.80		266.77			252.36		
	slo	10.10						8.00	9.60		7.90		9.00		9.60			8.20		
	dev	0.90						-3.20	4.40		-0.50		4.80		4.40			1.80		
SP	Taup	906.74		1115.01	1173.06	1115.23	1143.09	960.16	890.22	1149.31	884.75	899.01	957.34	1112.28	924.81	843.78	1165.21	877.19		1137.83
	time	906.25		1126.25	1176.25	1116.25	1148.75	961.25	891.25	1156.25	888.75	898.75	956.25	1113.75	928.75	846.25	1166.25	881.25		1148.75
	amp	0.27		0.43	0.49	0.24	0.30	0.42	0.45	0.39	0.47	0.36	0.32	0.26	0.41	0.16	0.43	0.46		0.36
	baz	266.17		291.48	281.02	286.28	281.71	270.30	252.99	285.47	254.07	269.18	269.20	286.90	260.37	255.70	281.52	253.16		282.47
	slo	8.20		6.20	6.60	8.80	6.20	11.20	9.60	6.20	6.20	10.00	10.00	6.40	9.20	9.40	6.80	7.40		6.30
	dev	-5.00		-3.60	-0.80	-4.20	0.20	0.30	0.80	4.10	-0.20	-2.10	-0.80	3.60	-2.00	0.40	-0.50	2.60		0.70
pS	Taup	942.49						920.20				967.46			888.40					
	time	941.25						923.75				966.25			893.75					
	amp	0.36						0.19				0.53			0.27					
	baz	270.37						273.80				269.58			262.47					
	slo	9.90						7.00				6.10			9.50					
	dev	-0.80						3.80				-1.70			0.10					
sS	Taup	989.35							874.75		866.53				901.97	891.05		895.49		
	time	991.25							878.75		868.75				903.75	901.25		898.75		
	amp	0.35							0.39		0.54				0.38	0.36		0.46		
	baz	269.67							254.99		253.07				264.57	255.90		253.16		
	slo	8.10							9.30		6.60				9.90	5.60		7.40		
	dev	-1.50							2.80		-1.20				2.20	0.60		2.60		
pSP	Taup	1014.58		1155.09	1213.46		1187.10	1000.57	926.44	1207.02	917.91		1002.56	1231.73	961.00	914.73		935.26		1193.45
	time	1018.75			1211.25		1191.25	1006.25	931.25	1213.75	918.75		1003.75	1241.25	963.75	918.75		938.75		1198.75
	amp	0.33			0.69		0.30	0.20	0.42	0.12	0.41		0.18	0.36	0.32	0.24		0.37		0.47
	baz	271.17			282.72		280.71	267.70	253.99	280.27	254.97		271.30	286.30	262.37	259.20		253.16		278.87
	slo	12.60			7.10		8.90	10.80	7.20	10.40	6.70		11.30	5.20	10.10	9.70		7.40		4.30
	dev	0.00			0.90		-0.80	-2.30	1.80	-1.10	0.70		1.30	3.00	0.00	3.90		2.60		-2.90
sSP	Taup	1068.11		1172.13	1227.60	1170.84	1202.73	1017.16	942.46	1227.96	932.82	1113.10		1279.12	975.88	952.82	1241.97	962.70		1213.63
	time	1071.25		1178.75	1233.75	1173.75	1206.25	1021.25	983.75	1228.75	958.75	1113.75		1278.75	983.75	953.75	1243.75	963.75		1221.25
	amp	0.28		0.17	0.46	0.19	0.38	0.45	0.26	0.23	0.29	0.30		0.37	0.40	0.21	0.23	0.52		0.55
	baz	266.27		295.58	285.82	289.18	280.41	268.10	252.39	278.77	254.27	271.18		284.50	266.97	256.80	274.62	253.26		283.27
	slo	6.70		10.80	5.00	8.10	10.80	10.20	10.00	11.50	9.70	7.40		7.40	10.20	11.60	9.40	10.10		4.20
	dev	-4.90		0.50	4.00	-1.30	-1.10	-1.90	0.20	-2.60	0.00	-0.10		1.20	4.60	1.50	-7.40	2.70		1.50
SS	Taup	1232.11		1484.14	1570.08	1487.38	1528.46		1189.07		1181.19	1233.99			1233.69		1564.63	1178.78		
	time			1493.75	1573.75	1513.75	1536.25		1196.25		1183.75	1233.75			1233.75		1566.25	1193.75		
	amp			0.13	0.20	0.16	0.24		0.14		0.30	0.11			0.28		0.23	0.15		
	baz			290.68	284.82	290.38	285.01		246.39		252.67	270.38			263.27		286.22	250.76		
	slo			10.10	6.50	10.00	9.10		14.70		7.40	9.30			9.80		9.20	12.50		
	dev			-4.40	3.00	-0.10	3.50		-5.80		-1.60	-0.90			0.90		4.20	0.20		
sSS	Taup	1378.32			1620.56	1538.51			1236.72		1225.23	1233.99			1280.86		1635.11	1256.90		
	time	1388.75			1632.25	1541.25			1256.25		1226.25	1243.75			1283.75		1633.75	1266.25		
	amp	0.17			0.16	0.12			0.17		0.20	0.38			0.29		0.11	0.30		
	baz	270.67			279.42	289.98			253.89		257.07	268.58			265.37		282.22	253.86		
	slo	14.20			12.00	13.40			12.70		9.40	9.80			11.60		12.10	11.50		
	dev	-0.50			-2.40	-0.50			1.70		2.80	-2.70			3.00		0.20	3.30		
pSS	Taup						1563.04													

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Table 9 – continued from previous page

		BANDA Z-COMPONENT
	time	1563.75
	amp	0.15
	baz	273.11
	slo	12.00
	dev	-8.40

Table 10: *Sloaz plot results for the events measured in the R-component for events occurring in the Banda region, divided per network. Explanations of the used abbreviations in this table are given in the general description of this appendix. Due to limited page width, the remaining events measured at network TA_WCN are given in Table 12.*

BANDA R-COMPONENT																					
NETWORK TA_WCN																					
phase	event	07APR21	07JAN17	06SEP05	06AUG07	06OCT18	08MAR06	06NOV06	06NOV14	07JUL01	07JAN23	07MAY29	08FEB07	07AUG01	08SEP08	07JUL23	06JUL15	07NOV23	08APR29	06DEC12	06OCT03
		_071248	_042826	_045302	_221855	_104532	_012159	_205651	_142101	_143412	_043719	_010327	_205818	_170851	_185206	_000832	_071047	_012647	_191002	_154803	_180313
	tbaz	266.62	275.09	292.09	245.15	247.15	288.05	268.60	281.83	280.09	279.99	265.30	290.22	246.39	248.31	266.87	283.38	265.35	282.71	291.62	243.37
P	Taup	141.60			155.73	163.66						172.43		163.56	158.90	133.02		170.88			166.32
	time	143.75			161.25	166.25						173.75		173.75	161.25	136.25		176.25			168.75
	amp	0.49			0.61	0.51						0.39		0.62	0.68	0.18		0.23			0.55
	baz	267.12			245.95	247.25						264.90		247.19	259.21	273.17		263.65			244.37
	slo	4.80			4.60	4.40						4.90		3.80	3.30	4.60		4.70			4.10
	dev	0.50			0.80	0.10						-0.40		0.80	10.90	6.30		-1.70			1.00
pP	Taup				193.60	193.47		226.09				206.35		194.55	187.48						206.82
	time				198.75	193.75		226.25				213.75		198.75	193.75						208.75
	amp				0.60	0.53		0.24				0.30		0.40	0.69						0.37
	baz				252.15	246.95		278.90				269.30		247.09	247.31						244.57
	slo				4.70	4.10		4.20				3.60		4.60	4.30						3.40
	dev				7.00	-0.20		10.30				4.00		0.70	-1.00						1.20
sP	Taup	277.44			209.33	205.62		240.07						207.21	199.14						223.65
	time	281.25			213.75	206.25								208.75	201.25						236.25
	amp	0.39			0.48	0.52								0.50	0.68						0.55
	baz	274.72			248.95	246.95								246.79	247.61						244.47
	slo	4.30			5.80	4.10								4.20	5.20						3.70
	dev	8.10			3.80	-0.20						-		0.40	-0.70						1.10
												265.30									
PP	Taup	366.28	453.12		366.06	376.15		426.05	504.62			392.85		376.49	367.56	366.08					385.21
	time	381.25	458.75		368.75	378.75		431.25	511.25			398.75		386.25	373.75	381.25					388.75
	amp	0.33	0.10		0.48	0.21		0.20	0.22			0.29		0.45	0.48	0.22					0.30
	baz	265.32	272.98		242.95	246.95		270.40	290.63			261.60		248.59	245.51	266.57					242.77
	slo	7.70	6.90		7.00	9.20		8.40	7.90			10.60		5.70	5.70	7.30					9.20
	dev	-1.30	-2.11		-2.20	-0.20		1.80	8.80			-3.70		2.20	-2.80	-0.30					-0.60
pPP	Taup	446.31	477.15	483.99	399.46				577.16	541.36		422.97		403.99	392.99						420.95
	time	448.75	478.75	493.75	403.75				578.75	546.25		423.75		408.75	393.75						421.25
	amp	0.30	0.16	0.15	0.29				0.15	0.25		0.32		0.43	0.52						0.26
	baz	267.02	272.29	265.99	235.05				288.83	280.49		264.80		252.19	251.01						247.67
	slo	8.50	9.00	12.00	6.70				6.40	6.40		7.10		7.30	7.30						6.40
	dev	0.40	-2.80	-26.10	-10.10				7.00	0.40		-0.50		5.80	2.70						4.30
sPP	Taup		488.44	499.01				471.40	615.06	556.22		437.81		417.48	405.40						438.95
	time		488.75					478.75	621.25	566.25		436.25		418.75	408.75						438.75
	amp		0.19					0.17	0.46	0.41		0.39		0.44	0.73						0.43
	baz		277.39					272.80	284.83	282.09		264.10		247.89	256.31						241.57
	slo		9.80					7.30	7.70	7.40		7.20		6.60	6.00						5.90
	dev		2.30					4.20	3.00	2.00		-1.20		1.50	8.00						-1.80
PPP	Taup								645.65	646.32				493.35							503.83
	time								646.25	653.75				498.75							513.75
	amp								0.16	0.21				0.28							0.49
	baz								289.53	275.49				249.69							244.07
	slo								7.40	7.90				10.50							6.40
	dev								7.70	-4.60				3.30							0.70
pPPP	Taup	561.45							712.11	675.69				519.50							537.60
	time	561.25							718.75	681.25				521.25							538.75
	amp	0.25							0.13	0.28				0.37							0.35
	baz	261.72							293.13	296.39				252.19							248.07
	slo	7.20							6.30	6.90				9.60							7.50
	dev	-4.90							11.30	16.30				5.80							4.70

Continued on next page

Table 10 – continued from previous page

BANDA R-COMPONENT																					
sPPP	Taup	608.64								691.06				533.33							556.11
	time	608.75								696.25				533.75							563.75
	amp	0.18								0.21				0.22							0.32
	baz	269.62								300.09				250.09							241.47
	slo	7.10								7.00				8.70							5.70
	dev	3.00								20.00				3.70							-1.90
S	Taup	765.58			789.23	804.15						821.85		804.11		750.59		819.14			810.48
	time	771.25			793.75	806.25						821.25				753.75		821.25			811.25
	amp	0.52			0.71	0.47						0.47				0.47		0.32			0.42
	baz	266.72			242.65	248.25						265.90				267.47		267.75			244.27
	slo	9.50			7.80	7.20						8.90				10.00		11.00			10.80
	dev	0.10			-2.50	1.10						0.60				0.60		2.40			0.90
SP	Taup	837.87	978.77	976.59	852.47	869.04		938.70	1036.57			891.85		869.79	856.53	828.35		890.68	1028.46	1009.17	
	time	843.75	981.25	978.75	853.75	873.75		948.75	1036.25			906.25		876.25	856.25	843.75		896.25	1033.75	1018.75	
	amp	0.26	0.46	0.45	0.40	0.48		0.28	0.38			0.38		0.64	0.46	0.45		0.15	0.25	0.53	
	baz	268.22	278.69	286.39	244.65	245.45		264.50	278.13			267.10		248.39	251.91	267.77		268.95	277.81	288.32	
	slo	7.70	10.30	10.10	7.70	7.00		8.70	7.50			8.70		9.60	7.50	8.90		7.70	10.00	5.90	
	dev	1.60	3.60	-5.70	-0.50	-1.70		-4.10	-3.70			1.80		2.00	3.60	0.90		3.60	-4.90	-3.30	
pS	Taup	884.75			837.12							865.29									925.98
	time	886.25			838.75							868.75									936.25
	amp	0.40			0.46							0.35									0.28
	baz	268.22			245.25							266.30									245.17
	slo	7.60			9.30							9.90									8.20
	dev	1.60			0.10							1.00									1.80
sS	Taup	933.26	938.38									880.68		857.53	843.69	974.65					947.34
	time	938.75	941.25									886.25		858.75	843.75	976.25					951.25
	amp	0.44	0.33									0.34		0.31	0.43	0.46					0.39
	baz	269.62	273.29									266.30		248.09	247.51	265.67					245.07
	slo	7.20	8.00									6.70		7.40	7.30	9.80					7.30
	dev	3.00	-1.80									1.00		1.70	-0.80	-1.20					1.70
pSP	Taup		1010.62	1017.89		902.86			1135.24	1099.11		931.56		904.42				933.86	1141.87	1072.33	
	time		1011.25	1023.75		906.25			1138.75	1101.25		933.75		908.75				933.75	1146.25	1071.25	
	amp		0.33	0.42		0.49			0.25	0.34		0.32		0.31				0.35	0.30	0.46	
	baz		276.99	290.99		252.25			283.43	282.79		266.20		251.49				266.35	282.81	285.92	
	slo		7.80	10.20		9.50			5.40	8.40		9.80		10.10				8.60	8.80	7.50	
	dev		1.90	-1.10		5.10			1.60	2.70		0.90		5.10				1.00	0.10	-5.70	
sSP	Taup	998.32	1023.21	1034.75		918.11			1178.16	1115.51		948.96		920.33		1040.23		953.27	1192.60	1098.86	
	time	998.75	1033.75	1036.25		923.75			1178.75	1123.75		953.75		923.75		1046.25		956.25	1193.75	1108.75	
	amp	0.25	0.39	0.46		0.31			0.44	0.44		0.45		0.37		0.50		0.34	0.52	0.53	
	baz	264.42	278.49	291.39		249.45			280.73	280.29		264.40		247.19		267.37		263.95	281.01	292.02	
	slo	7.70	11.20	10.10		10.10			9.40	12.70		10.60		9.30		7.60		8.00	7.10	5.80	
	dev	-2.20	3.40	-0.70		2.30			-1.10	0.20		-0.90		0.80		0.50		-1.40	-1.70	0.40	
SS	Taup		1302.26	1302.08	1143.40	1161.64			1398.06	1407.33		1192.15		1162.28	1145.98	1142.72		1190.50	1392.78	1350.69	
	time		1318.75	1313.75	1143.75	1168.75			1406.25	1418.75		1206.25		1178.75	1161.25	1156.25		1196.25	1396.25	1353.75	
	amp		0.19	0.44	0.49	0.45			0.29	0.43		0.24		0.29	0.54	0.36		0.15	0.14	0.34	
	baz		278.39	290.59	242.55	248.85			280.13	280.09		264.20		250.39	247.91	268.07		263.35	279.31	291.32	
	slo		14.20	9.60	7.20	8.80			10.00	8.30		8.40		9.80	9.50	7.10		9.70	11.50	13.40	
	dev	-	3.30	-1.50	-2.60	1.70			-1.70	0.00		-1.10		4.00	-0.40	1.20		-2.00	-3.40	-0.30	
		266.62																			
sSS	Taup				1201.48	1207.37			1527.24	1461.55		1244.30		1209.80	1189.85	1330.11		1249.01	1541.56	1433.33	1240.53
	time				1221.25	1213.75			1553.75	1473.75		1251.25		211.25	1208.75	1333.75		1253.75	1546.25	1453.75	1258.75
	amp				0.53	0.45			0.39	0.35		0.33		0.44	0.59	0.23		0.23	0.19	0.21	0.32
	baz				249.45	246.85			281.63	283.49		266.10		244.39	252.61	267.87		265.95	285.01	293.12	242.27
	slo				12.20	9.40			7.70	7.10		9.40		9.50	9.50	9.20		7.60	11.80	7.60	13.50
	dev				4.30	-0.30			-0.20	3.40		0.80		-2.00	4.30	1.00		0.60	2.30	1.50	-1.10
NETWORK TA_WCM																					

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		B A N D A								R - C O M P O N E N T										
phase	event	07APR21 _071248	07JAN17 _042826	06SEP05 _045302	08JUN06 _134248	06OCT18 _104532	08MAR06 _012159	06NOV14 _142101	07JUL01 _143412	07MAY29 _010327	07AUG01 _170851	08SEP08 _185206	07JUL23 _000832	07NOV23 _012647	06OCT03 _180313	08SEP04 _093703	07DEC15 _080315	07AUG08 _170504	06SEP09 _041312	08AUG04 _204513
	tbaz	269.12	276.75	294.21	294.21	249.84	289.49	281.20	281.20	268.01	249.49	251.85	269.35	267.99	246.02	253.07	282.18	300.00	287.69	281.99
P	Taup	153.94				164.43				185.38	165.97			183.49	165.90					
	time	153.75				166.25				188.75	166.25			188.75	166.25					
	amp	0.37				0.61				0.46	0.37			0.17	0.59					
	baz	268.22				249.14				272.41	246.99			266.79	247.12					
	slo	4.70				4.70				3.60	3.30			4.20	4.60					
	dev	-0.89				-0.64				4.45	-2.47			-1.15	1.21					
pP	Taup					194.25					196.97				206.40					
	time					196.25					196.25				211.25					
	amp					0.52					0.40				0.50					
	baz					250.24					247.69				254.32					
	slo					4.70					6.40				3.60					
	dev					0.46					-1.77				8.41					
sP	Taup	289.89				206.40					209.62				223.24					
	time	291.25				206.25					213.75				233.75					
	amp	0.33				0.50					0.68				0.53					
	baz	270.72				250.54					252.59				247.42					
	slo	4.10				4.20					4.50				3.60					
	dev	1.61				0.76					3.13				1.51					
PP	Taup	387.13			567.56	377.48				414.83	380.61				384.50			638.38	558.88	544.44
	time	393.75			568.75	376.25				411.25	388.75				386.25			641.25	558.75	551.25
	amp	0.31			0.19	0.35				0.22	0.42				0.41			0.36	0.43	0.30
	baz	271.82			284.28	245.54				267.41	250.19				246.22			301.10	285.89	283.69
	slo	4.90			7.60	8.10				7.50	7.00				7.90			7.70	7.90	10.40
	dev	2.71			1.92	-4.24				-0.55	0.73				0.31			1.19	-1.62	1.69
pPP	Taup		503.79		596.69	403.97			573.02	445.11	408.13								670.46	584.25
	time		503.75		596.25	403.75			573.75	446.25	411.25								673.75	586.25
	amp		0.28		0.27	0.37			0.21	0.43	0.26								0.32	0.33
	baz		279.45		286.58	251.04			288.60	267.31	249.69								280.79	281.59
	slo		9.50		8.30	7.60			6.80	7.20	8.00								7.80	10.20
	dev		2.66		4.22	1.26			7.45	-0.65	0.23				-				-6.72	-0.41
															245.91					
sPP	Taup		515.05			416.92			587.82	459.91	421.62				438.24				731.04	603.30
	time		513.75			418.75			591.25	458.75	428.75				438.75				731.25	608.75
	amp		0.27			0.30			0.20	0.33	0.51				0.36				0.37	0.31
	baz		275.55			251.44			279.40	268.21	251.49				245.22				278.99	284.59
	slo		8.90			9.20			8.90	7.70	7.80				9.70				8.00	10.20
	dev		-1.24			1.66			-1.75	0.25	2.03				-0.69				-8.52	2.59
PPP	Taup				714.14					536.62					503.04					688.07
	time				723.75					538.75					511.25					691.25
	amp				0.27					0.13					0.60					0.32
	baz				286.38					269.61					246.62					270.29
	slo				8.00					7.00					6.90					10.50
	dev				4.02					1.65					0.71				-	-11.71
																			287.51	
pPPP	Taup	585.25																	816.34	
	time	583.75																	816.25	
	amp	0.25																	0.35	
	baz	264.42																	287.09	
	slo	7.50																	7.30	
	dev	-4.69													-				-0.42	
															245.91					
sPPP	Taup														555.31					
	time														558.75					
	amp														0.54					

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Table 10 – continued from previous page

B A N D A   R - C O M P O N E N T

	baz														242.92					
	slo														7.50					
	dev														-2.99					
S	Taup	789.09				805.70				846.60			775.48		809.67					
	time	786.25				806.25				846.25			778.75		811.25					
	amp	0.40				0.56				0.38			0.40		0.41					
	baz	267.62				252.44				270.81			269.75		247.32					
	slo	10.30				7.30				11.80			8.80		10.30					
	dev	-1.49				2.66				2.85			0.32		1.41					
SP	Taup	867.44	1016.22		1134.10	871.01	1061.99	1072.59	1099.39	922.86	875.36		859.81	919.75			1121.57		1091.97	1102.85
	time	873.75	1023.75		1133.75	871.25	1068.75	1073.75	1103.75	931.25	881.25		868.75	938.75			1121.25		1091.25	1106.25
	amp	0.35	0.34		0.44	0.53	0.27	0.39	0.34	0.53	0.56		0.39	0.38			0.32		0.50	0.21
	baz	266.72	274.25		284.68	253.14	294.79	285.70	284.10	266.81	250.29		270.45	267.59			287.78		288.39	282.89
	slo	7.80	11.70		8.90	7.60	7.80	6.90	6.80	9.80	10.30		6.80	10.30			8.70		7.50	12.80
	dev	-2.39	-2.54		2.32	3.36	5.25	3.50	2.95	-1.15	0.83		1.02	-0.35			5.67		0.88	0.89
pS	Taup	910.09											934.17							
	time	921.25											936.25							
	amp	0.42											0.39							
	baz	269.62											273.25							
	slo	7.40											9.70							
	dev	0.51											3.82							
sS	Taup	957.70									862.39			909.71						
	time	958.75									868.75			913.75						
	amp	0.36									0.50			0.26						
	baz	269.72									252.69			267.19						
	slo	8.40									7.40			9.10						
	dev	0.61									3.23			-0.75						
pSP	Taup	1028.19	1048.37			904.85			1144.13	962.97	910.60			965.88	924.91			1303.31	1250.97	1155.92
	time	1031.25	1048.75			911.25			1148.75	968.75	913.75			966.25	923.75			1303.75	1256.25	1161.25
	amp	0.20	0.33			0.40			0.41	0.28	0.24			0.19	0.44			0.36	0.37	0.49
	baz	271.72	280.75			249.44			284.40	267.51	251.29			266.59	246.02			297.40	291.39	286.39
	slo	8.90	12.80			13.50			5.90	9.90	10.00			9.20	12.70			7.80	7.60	6.60
	dev	2.61	3.96			-0.34			3.25	-0.45	1.83			-1.35	0.11			-2.51	3.88	4.39
sSP	Taup	1181.34	1060.84		1188.52	920.08	1116.61	1216.37	1159.67	979.68	926.47		1074.03	983.60	946.28		1201.10	1335.59	1315.73	1176.17
	time		1066.25		1191.25	921.25	1123.75	1216.25	1158.75	981.25	931.25		1081.25	991.25	961.25		1216.25	1336.25	1333.75	1176.25
	amp		0.41		0.38	0.42	0.29	0.36	0.40	0.41	0.33		0.41	0.43	0.58		0.43	0.52	0.49	0.36
	baz		278.65		282.38	250.44	294.49	281.90	283.00	265.81	252.39		270.45	265.89	248.72		282.08	295.50	287.59	283.39
	slo		13.10		8.20	12.00	6.40	10.00	6.00	8.70	9.40		7.80	7.50	7.10		7.50	7.80	5.20	8.00
	dev		1.86		0.02	0.66	4.95	-0.30	1.85	-2.15	2.93		1.02	-2.05	2.81		-0.03	-4.41	0.08	1.39
SS	Taup		1351.01		1514.21	1164.05	1413.07	1449.91	1465.62				1183.26							1471.57
	time				1518.75	1188.75	1441.25	1456.25	1486.25				1203.75							1483.75
	amp				0.26	0.52	0.25	0.24	0.33				0.32							0.37
	baz				282.38	247.24	290.39	279.10	275.70				267.85							280.09
	slo				11.50	8.50	7.90	9.80	5.60				14.60							11.80
	dev				0.02	-2.54	0.85	-3.10	-5.45				-1.58							-1.91
sSS	Taup		1392.50		1564.37	1209.80	1463.78		1520.19	1284.68	1217.34		1372.05		1239.23					1540.78
	time		1403.75		1566.25	1213.75	1461.25		1538.75	1283.75	1216.25		1438.75		1258.75					1553.75
	amp		0.26		0.22	0.45	0.20		0.36	0.26	0.21		0.36		0.38					0.32
	baz		280.65		280.88	250.24	284.39		279.30	265.51	253.39		268.65		246.12					282.39
	slo		6.80		9.30	12.70	11.50		5.90	9.50	11.30		10.10		14.00					11.50
	dev		3.86		-1.48	0.46	-5.15		-1.85	-2.45	3.93		-0.78		0.21					0.39
pSS	Taup				1545.85															
	time				1543.75															
	amp				0.28															
	baz				281.98															
	slo				8.50															
	dev				-0.38															

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B A N D A R - C O M P O N E N T

NETWORK TA_WCS

phase	event	07APR21	07JAN17	08OCT23	08JUN06	08MAR06	07JUL01	07MAY29	07AUG01	08APR02	08SEP08	07JUL23	07NOV23	08APR29	08NOV21	08SEP04	07DEC15	08NOV04	07AUG08	08AUG04
		_071248	_042826	_092115	_134248	_012159	_143412	_010327	_170851	_191019	_185206	_000832	_012647	_191002	_070534	_093703	_080315	_183545	_170504	_204513
	tbaz	271.04	277.17	295.13	281.72	290.39	281.50	270.05	252.19	281.34	254.29	271.30	269.98	283.32	262.32	255.34	282.04	250.53	299.51	281.72
P	Taup	169.27						201.23	172.13		170.34		198.86		186.30	147.87		163.56		
	time	174.50						207.50	176.25		166.25		206.25		188.75	151.25		168.75		
	amp	0.32						0.43	0.45		0.41		0.18		0.40	0.27		0.58		
	baz	269.54						270.65	251.89		254.09		274.18		262.72	257.84		253.43		
	slo	5.10						4.40	3.40		4.60		4.80		5.00	4.90		4.40		
	dev	-1.50						0.60	-0.30		-0.20		4.20		0.40	2.50		2.90		
pP	Taup							235.27	203.14		199.01		237.02		216.87	213.18		214.23		
	time							239.50	208.75		203.75		241.25		221.25	213.75		213.75		
	amp							0.17	0.38		0.53		0.20		0.57	0.16		0.20		
	baz							264.25	254.29		256.89		266.08		259.42	254.24		247.53		
	slo							4.30	4.30		3.80		5.00		5.10	5.80		4.70		
	dev							-5.80	2.10		2.60		-3.90		-2.90	-1.10		-3.00		
sP	Taup	305.40							215.78		210.64				229.31	241.55		235.70		
	time	307.00							218.75		213.75				228.75	243.75		238.75		
	amp	0.29							0.64		0.63				0.33	0.18		0.15		
	baz	277.34							253.49		256.09				262.62	253.14		252.73		
	slo	3.60							4.30		4.70				5.60	5.20		5.50		
	dev	6.30							1.30		1.80				0.30	-2.20		2.20		
PP	Taup	413.11		551.36	596.35			441.81	391.13		387.09	416.08	439.48			364.44		384.83	679.24	572.91
	time	419.50		552.00	597.00			442.00	391.25		386.25	418.75	443.75			361.25		383.75	681.25	573.75
	amp	0.17		0.12	0.20			0.19	0.42		0.31	0.20	0.13			0.12		0.30	0.40	0.36
	baz	275.84		289.33	282.22			267.95	252.99		257.49	272.10	273.98			260.54		255.13	299.61	285.82
	slo	8.40		5.30	8.80			9.50	5.80		4.10	9.90	9.40			8.10		6.40	5.50	4.30
	dev	4.80		-5.80	0.50			-2.10	0.80		3.20	0.80	4.00			5.20		4.60	0.10	4.10
pPP	Taup			582.06	625.66		607.15	472.28	418.73		412.64				442.34	421.03		429.29		613.00
	time			584.50	632.00		607.00	474.50	423.75		416.25				443.75	423.75		431.25		613.75
	amp			0.10	0.26		0.23	0.27	0.47		0.39				0.20	0.14		0.18		0.21
	baz			291.63	283.72		284.50	272.75	252.89		255.69				260.92	249.14		248.23		280.92
	slo			4.80	7.00		7.40	7.50	7.50		7.70				8.50	6.10		7.20		9.80
	dev			-3.50	2.00		3.00	2.70	0.70		1.40				-1.40	-6.20		-2.30		-0.80
sPP	Taup	539.67			639.03		621.89	487.03	432.20		425.02		490.25	695.70		451.59	654.28	452.30	772.55	631.98
	time	539.50			639.50		622.00	492.00	431.25		423.75		491.25	696.25		453.75	656.25	456.25	778.75	633.75
	amp	0.31			0.25		0.25	0.19	0.50		0.56		0.22	0.14		0.12	0.20	0.32	0.31	0.34
	baz	265.14			285.92		280.20	270.35	251.99		254.19		263.48	282.22		255.54	279.44	250.23	296.31	288.32
	slo	5.20			7.50		7.70	9.70	7.00		8.00		6.50	5.50		8.50	7.70	7.40	4.40	5.30
	dev	-5.90			4.20		-1.30	0.30	-0.20		-0.10		-6.50	-1.10		0.20	-2.60	-0.30	-3.20	6.60
PPP	Taup						723.78	567.33	508.75		504.99							504.26		722.11
	time						727.00	569.50	0.41		506.25							503.75		723.75
	amp						0.12	0.23	6.80		0.34							0.31		0.23
	baz						278.10	269.75	250.09		248.49							248.63		281.32
	slo						8.20	10.50	6.80		6.90							7.70		5.90
	dev						-3.40	-0.30	-2.10		-5.80							-1.90		-0.40
pPPP	Taup	615.26						595.99	535.87		529.26									759.34
	time	614.50						599.50	536.25		531.25									761.25
	amp	0.13						0.21	0.36		0.27									0.22
	baz	271.14						268.15	260.29		251.49									285.42
	slo	7.60						10.30	6.00		7.20									6.30
	dev	0.10						-1.90	8.10		-2.80									3.70
sPPP	Taup	662.34					768.77		549.70		541.97								945.79	
	time	662.00					769.50		548.75		541.25								961.25	
	amp	0.14					0.19		0.31		0.30								0.17	
	baz	270.44					276.50		258.89		247.59								305.01	
	slo	7.80					8.50		6.90		7.10								6.60	

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Table 10 – continued from previous page

		BANDA R-COMPONENT																		
	dev	-0.60					-5.00		6.70		-6.70								5.50	
S	Taup	818.15						876.71			817.29		872.54		848.16	776.17		805.85		
	time	817.00						879.50			823.75		873.75		848.75	781.25		806.25		
	amp	0.35						0.32			0.53		0.20		0.40	0.15		0.25		
	baz	269.74						265.25			256.09		264.68		265.32	252.64		252.13		
	slo	8.50						7.70			5.80		8.90		10.20	9.40		8.70		
	dev	-1.30						-4.80			1.80		-5.30		3.00	-2.70		1.60		
SP	Taup	904.35		1114.98	1171.62	1115.29	1143.30	961.06	891.03		885.62	899.48	956.79	1113.44	923.92	843.54	1165.43		1270.94	
	time	912.00		1119.00	1172.50	1119.50	1154.50	964.50	896.25		893.75	898.75	956.25	1126.25	923.75	848.75	1176.25		1303.75	
	amp	0.32		0.14	0.37	0.21	0.42	0.54	0.41		0.56	0.29	0.21	0.23	0.60	0.36	0.44		0.27	
	baz	275.44		297.93	284.52	291.59	281.90	269.05	253.39		257.99	268.10	268.98	284.12	262.62	253.14	282.44		308.31	
	slo	8.00		14.00	6.60	8.30	6.60	8.20	10.30		7.20	7.50	13.20	8.00	8.90	6.30	7.20		8.10	
	dev	4.40		2.80	2.80	1.20	0.40	-1.00	1.20		3.70	-3.20	-1.00	0.80	0.30	-2.20	0.40	-	8.80	
																		250.53		
pS	Taup	940.54									853.87	967.83	922.00		887.68	858.99		870.72		
	time	942.00									853.75	968.75	921.25		556.25	856.25		871.25		
	amp	0.35									0.34	0.48	0.23		0.25	0.19		0.21		
	baz	268.34									255.09	271.00	268.08		262.82	256.84		252.43		
	slo	8.10									8.50	8.90	10.10		10.80	5.70		7.60		
	dev	-2.70									0.80	-0.30	-1.90		0.50	1.50		1.90		
sS	Taup	987.42						936.01	874.68		866.74	1032.80			901.25	891.31		894.74		
	time	989.50						937.00	878.75		873.75	1036.25			906.25	893.75		896.25		
	amp	0.19						0.33	0.34		0.51	0.30			0.47	0.48		0.22		
	baz	277.14						269.65	254.09		259.19	271.10			263.92	257.35		252.33		
	slo	6.10						7.50	8.90		7.10	13.70			11.90	6.50		10.30		
	dev	6.10						-0.40	1.90		4.90	-0.20			1.60	2.01		2.70		
pSP	Taup	1012.06		1156.66	1212.01	1158.04	1187.30		926.37		918.20		1002.00	1232.92	960.11	915.09	1221.85	934.30	1358.69	1193.10
	time	1017.50		1159.51	1219.50	1162.00	1187.00		926.25		918.75		1001.25	1236.25	961.25	923.75	1226.25	941.25	1358.75	1193.75
	amp	0.43		0.24	0.31	0.26	0.45		0.37		0.40		0.21	0.12	0.49	0.28	0.27	0.32	0.23	0.38
	baz	268.94		290.93	287.72	290.89	279.20		252.79		254.99		271.08	287.62	264.12	256.94	278.94	253.03	309.41	284.42
	slo	7.80		7.70	9.40	8.60	7.90		10.90		6.70		8.00	7.80	12.00	6.30	8.70	9.50	6.00	5.90
	dev	-2.10		-4.20	6.00	0.50	-2.30		0.60		0.70		1.10	4.30	1.80	1.60	-3.10	2.50	9.90	2.70
sSP	Taup	1065.68		1170.20	1226.15	1172.91	1202.93	1018.06	941.92		933.09	1113.58	1020.84	1280.30	974.99	953.16	1242.19	961.79		1213.28
	time	1068.75		1172.00	1227.00	1181.25	1202.00	1014.50	941.25		933.75	1116.25	1018.75	1296.25	976.25	956.25	1243.75	961.25		1213.75
	amp	0.33		0.23	0.42	0.39	0.30	0.33	0.32		0.43	0.50	0.27	0.53	0.37	0.49	0.40	0.56		0.36
	baz	266.54		296.03	285.92	291.89	279.90	270.35	253.19		254.89	268.90	267.48	283.42	264.02	254.84	278.44	253.23		280.52
	slo	7.20		6.30	8.20	9.30	9.10	11.50	9.70		5.80	7.70	9.90	5.40	12.80	8.60	6.50	8.30		9.60
	dev	-4.50		0.90	4.20	1.50	-1.60	0.30	1.00		0.60	-2.40	-2.50	0.10	1.70	-0.50	-3.60	2.70		-1.20
SS	Taup	1229.04		1484.14	1568.05			1281.74	1188.99		1181.56	1234.62	1277.57	1514.60	1232.57	1140.30	1564.97	1177.64	1725.71	1524.70
	time	1232.00		1487.00	1577.00			1284.50	1188.75		1201.25	1233.75	1278.75	1516.25	1233.75	1171.25	1583.75	1203.75	1731.25	1528.75
	amp	0.33		0.13	0.31			0.17	0.25		0.39	0.29	0.25	0.12	0.37	0.15	0.32	0.29	0.16	0.29
	baz	273.44		284.03	285.22			273.45	253.09		252.79	265.20	279.28	286.62	263.82	250.94	284.74	251.53	300.81	278.12
	slo	9.20		11.80	9.00			12.60	5.40		9.80	13.50	10.30	9.30	8.80	9.40	14.00	12.90	7.60	11.00
	dev	2.40		-11.10	3.50			3.40	0.90		-1.50	-6.10	9.30	3.30	1.50	-4.40	2.70	1.00	1.30	-3.60
sSS	Taup					1538.63	1583.75	not in	1236.65		1225.60	1425.20	1336.67	1665.99	1279.73	1240.94	1635.69	1255.75		
								sloaz												
	time					1539.50	1594.50	but	1241.25		1231.25	1431.25	1345.75	1666.25	1278.75	1261.25	1641.25	1291.25		
								super												
								clear												
	amp					0.14	0.14	in	0.38		0.51	0.21	0.20	0.08	0.42	0.36	0.14	0.51		
								vespa												
	baz					292.39	277.20		255.39		255.39	260.30	265.28	278.82	264.72	255.54	281.54	252.13		
	slo					10.70	10.80		9.30		9.70	14.30	11.30	14.10	8.00	8.50	11.80	10.90		
	dev					2.00	-4.30		3.20		1.10	-11.00	-4.70	-4.50	2.40	0.20	-0.50	1.60		
pSS	Taup						1563.38													
	time						1562.00													
	amp						0.19													

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BANDA R-COMPONENT		
	baz	278.60
	slo	14.50
	dev	-2.90

Table 11: *Sloaz plot results for the events measured in the R-component for events occurring in the Banda region, divided per network. Explanations of the used abbreviations in this table are given in the general description of this appendix. Due to limited page width, the remaining events measured at network TA_WCN are given in Table 12.*

BANDA R-COMPONENT

NETWORK TA_WCN

phase	event	07APR21 _071248	07JAN17 _042826	06SEP05 _045302	06AUG07 _221855	06OCT18 _104532	08MAR06 _012159	06NOV06 _205651	06NOV14 _142101	07JUL01 _143412	07JAN23 _043719	07MAY29 _010327	08FEB07 _205818	07AUG01 _170851	08SEP08 _185206	07JUL23 _000832	06JUL15 _071047	07NOV23 _012647	08APR29 _191002	06DEC12 _154803	06OCT03 _180313
	tbaz	266.62	275.09	292.09	245.15	247.15	288.05	268.60	281.83	280.09	279.99	265.30	290.22	246.39	248.31	266.87	283.38	265.35	282.71	291.62	243.37
P	Taup	141.60			155.73	163.66						172.43		163.56	158.90	133.02		170.88			166.32
	time	143.75			161.25	166.25						173.75		173.75	161.25	136.25		176.25			168.75
	amp	0.49			0.61	0.51						0.39		0.62	0.68	0.18		0.23			0.55
	baz	267.12			245.95	247.25						264.90		247.19	259.21	273.17		263.65			244.37
	slo	4.80			4.60	4.40						4.90		3.80	3.30	4.60		4.70			4.10
	dev	0.50			0.80	0.10						-0.40		0.80	10.90	6.30		-1.70			1.00
pP	Taup				193.60	193.47		226.09				206.35		194.55	187.48						206.82
	time				198.75	193.75		226.25				213.75		198.75	193.75						208.75
	amp				0.60	0.53		0.24				0.30		0.40	0.69						0.37
	baz				252.15	246.95		278.90				269.30		247.09	247.31						244.57
	slo				4.70	4.10		4.20				3.60		4.60	4.30						3.40
	dev				7.00	-0.20		10.30				4.00		0.70	-1.00						1.20
sP	Taup	277.44			209.33	205.62		240.07						207.21	199.14						223.65
	time	281.25			213.75	206.25								208.75	201.25						236.25
	amp	0.39			0.48	0.52								0.50	0.68						0.55
	baz	274.72			248.95	246.95								246.79	247.61						244.47
	slo	4.30			5.80	4.10								4.20	5.20						3.70
	dev	8.10			3.80	-0.20						-		0.40	-0.70						1.10
												265.30									
PP	Taup	366.28	453.12		366.06	376.15		426.05	504.62			392.85		376.49	367.56	366.08					385.21
	time	381.25	458.75		368.75	378.75		431.25	511.25			398.75		386.25	373.75	381.25					388.75
	amp	0.33	0.10		0.48	0.21		0.20	0.22			0.29		0.45	0.48	0.22					0.30
	baz	265.32	272.98		242.95	246.95		270.40	290.63			261.60		248.59	245.51	266.57					242.77
	slo	7.70	6.90		7.00	9.20		8.40	7.90			10.60		5.70	5.70	7.30					9.20
	dev	-1.30	-2.11		-2.20	-0.20		1.80	8.80			-3.70		2.20	-2.80	-0.30					-0.60
pPP	Taup	446.31	477.15	483.99	399.46				577.16	541.36		422.97		403.99	392.99						420.95
	time	448.75	478.75	493.75	403.75				578.75	546.25		423.75		408.75	393.75						421.25
	amp	0.30	0.16	0.15	0.29				0.15	0.25		0.32		0.43	0.52						0.26
	baz	267.02	272.29	265.99	235.05				288.83	280.49		264.80		252.19	251.01						247.67
	slo	8.50	9.00	12.00	6.70				6.40	6.40		7.10		7.30	7.30						6.40
	dev	0.40	-2.80	-26.10	-10.10				7.00	0.40		-0.50		5.80	2.70						4.30
sPP	Taup		488.44	499.01				471.40	615.06	556.22		437.81		417.48	405.40						438.95
	time		488.75					478.75	621.25	566.25		436.25		418.75	408.75						438.75
	amp		0.19					0.17	0.46	0.41		0.39		0.44	0.73						0.43
	baz		277.39					272.80	284.83	282.09		264.10		247.89	256.31						241.57
	slo		9.80					7.30	7.70	7.40		7.20		6.60	6.00						5.90
	dev		2.30					4.20	3.00	2.00		-1.20		1.50	8.00						-1.80
PPP	Taup								645.65	646.32				493.35							503.83
	time								646.25	653.75				498.75							513.75
	amp								0.16	0.21				0.28							0.49
	baz								289.53	275.49				249.69							244.07
	slo								7.40	7.90				10.50							6.40
	dev								7.70	-4.60				3.30							0.70
pPPP	Taup	561.45							712.11	675.69				519.50							537.60
	time	561.25							718.75	681.25				521.25							538.75
	amp	0.25							0.13	0.28				0.37							0.35
	baz	261.72							293.13	296.39				252.19							248.07
	slo	7.20							6.30	6.90				9.60							7.50
	dev	-4.90							11.30	16.30				5.80							4.70

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Table 11 – continued from previous page

										BANDA R-COMPONENT											
sPPP	Taup	608.64								691.06				533.33							556.11
	time	608.75								696.25				533.75							563.75
	amp	0.18								0.21				0.22							0.32
	baz	269.62								300.09				250.09							241.47
	slo	7.10								7.00				8.70							5.70
	dev	3.00								20.00				3.70							-1.90
S	Taup	765.58			789.23	804.15						821.85		804.11		750.59		819.14			810.48
	time	771.25			793.75	806.25						821.25				753.75		821.25			811.25
	amp	0.52			0.71	0.47						0.47				0.47		0.32			0.42
	baz	266.72			242.65	248.25						265.90				267.47		267.75			244.27
	slo	9.50			7.80	7.20						8.90				10.00		11.00			10.80
	dev	0.10			-2.50	1.10						0.60				0.60		2.40			0.90
SP	Taup	837.87	978.77	976.59	852.47	869.04		938.70	1036.57			891.85		869.79	856.53	828.35		890.68	1028.46	1009.17	
	time	843.75	981.25	978.75	853.75	873.75		948.75	1036.25			906.25		876.25	856.25	843.75		896.25	1033.75	1018.75	
	amp	0.26	0.46	0.45	0.40	0.48		0.28	0.38			0.38		0.64	0.46	0.45		0.15	0.25	0.53	
	baz	268.22	278.69	286.39	244.65	245.45		264.50	278.13			267.10		248.39	251.91	267.77		268.95	277.81	288.32	
	slo	7.70	10.30	10.10	7.70	7.00		8.70	7.50			8.70		9.60	7.50	8.90		7.70	10.00	5.90	
	dev	1.60	3.60	-5.70	-0.50	-1.70		-4.10	-3.70			1.80		2.00	3.60	0.90		3.60	-4.90	-3.30	
pS	Taup	884.75			837.12							865.29									925.98
	time	886.25			838.75							868.75									936.25
	amp	0.40			0.46							0.35									0.28
	baz	268.22			245.25							266.30									245.17
	slo	7.60			9.30							9.90									8.20
	dev	1.60			0.10							1.00									1.80
sS	Taup	933.26	938.38									880.68		857.53	843.69	974.65					947.34
	time	938.75	941.25									886.25		858.75	843.75	976.25					951.25
	amp	0.44	0.33									0.34		0.31	0.43	0.46					0.39
	baz	269.62	273.29									266.30		248.09	247.51	265.67					245.07
	slo	7.20	8.00									6.70		7.40	7.30	9.80					7.30
	dev	3.00	-1.80									1.00		1.70	-0.80	-1.20					1.70
pSP	Taup		1010.62	1017.89		902.86			1135.24	1099.11		931.56		904.42				933.86	1141.87	1072.33	
	time		1011.25	1023.75		906.25			1138.75	1101.25		933.75		908.75				933.75	1146.25	1071.25	
	amp		0.33	0.42		0.49			0.25	0.34		0.32		0.31				0.35	0.30	0.46	
	baz		276.99	290.99		252.25			283.43	282.79		266.20		251.49				266.35	282.81	285.92	
	slo		7.80	10.20		9.50			5.40	8.40		9.80		10.10				8.60	8.80	7.50	
	dev		1.90	-1.10		5.10			1.60	2.70		0.90		5.10				1.00	0.10	-5.70	
sSP	Taup	998.32	1023.21	1034.75		918.11			1178.16	1115.51		948.96		920.33		1040.23		953.27	1192.60	1098.86	
	time	998.75	1033.75	1036.25		923.75			1178.75	1123.75		953.75		923.75		1046.25		956.25	1193.75	1108.75	
	amp	0.25	0.39	0.46		0.31			0.44	0.44		0.45		0.37		0.50		0.34	0.52	0.53	
	baz	264.42	278.49	291.39		249.45			280.73	280.29		264.40		247.19		267.37		263.95	281.01	292.02	
	slo	7.70	11.20	10.10		10.10			9.40	12.70		10.60		9.30		7.60		8.00	7.10	5.80	
	dev	-2.20	3.40	-0.70		2.30			-1.10	0.20		-0.90		0.80		0.50		-1.40	-1.70	0.40	
SS	Taup		1302.26	1302.08	1143.40	1161.64			1398.06	1407.33		1192.15		1162.28	1145.98	1142.72		1190.50	1392.78	1350.69	
	time		1318.75	1313.75	1143.75	1168.75			1406.25	1418.75		1206.25		1178.75	1161.25	1156.25		1196.25	1396.25	1353.75	
	amp		0.19	0.44	0.49	0.45			0.29	0.43		0.24		0.29	0.54	0.36		0.15	0.14	0.34	
	baz		278.39	290.59	242.55	248.85			280.13	280.09		264.20		250.39	247.91	268.07		263.35	279.31	291.32	
	slo		14.20	9.60	7.20	8.80			10.00	8.30		8.40		9.80	9.50	7.10		9.70	11.50	13.40	
	dev	-	3.30	-1.50	-2.60	1.70			-1.70	0.00		-1.10		4.00	-0.40	1.20		-2.00	-3.40	-0.30	
		266.62																			
sSS	Taup				1201.48	1207.37			1527.24	1461.55		1244.30		1209.80	1189.85	1330.11		1249.01	1541.56	1433.33	1240.53
	time				1221.25	1213.75			1553.75	1473.75		1251.25		211.25	1208.75	1333.75		1253.75	1546.25	1453.75	1258.75
	amp				0.53	0.45			0.39	0.35		0.33		0.44	0.59	0.23		0.23	0.19	0.21	0.32
	baz				249.45	246.85			281.63	283.49		266.10		244.39	252.61	267.87		265.95	285.01	293.12	242.27
	slo				12.20	9.40			7.70	7.10		9.40		9.50	9.50	9.20		7.60	11.80	7.60	13.50
	dev				4.30	-0.30			-0.20	3.40		0.80		-2.00	4.30	1.00		0.60	2.30	1.50	-1.10
NETWORK TA_WCM																					

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										B A N D A	R - C O M P O N E N T									
phase	event	07APR21	07JAN17	06SEP05	08JUN06	06OCT18	08MAR06	06NOV14	07JUL01	07MAY29	07AUG01	08SEP08	07JUL23	07NOV23	06OCT03	08SEP04	07DEC15	07AUG08	06SEP09	08AUG04
		_071248	_042826	_045302	_134248	_104532	_012159	_142101	_143412	_010327	_170851	_185206	_000832	_012647	_180313	_093703	_080315	_170504	_041312	_204513
	tbaz	269.12	276.75	294.21	294.21	249.84	289.49	281.20	281.20	268.01	249.49	251.85	269.35	267.99	246.02	253.07	282.18	300.00	287.69	281.99
P	Taup	153.94				164.43				185.38	165.97			183.49	165.90					
	time	153.75				166.25				188.75	166.25			188.75	166.25					
	amp	0.37				0.61				0.46	0.37			0.17	0.59					
	baz	268.22				249.14				272.41	246.99			266.79	247.12					
	slo	4.70				4.70				3.60	3.30			4.20	4.60					
	dev	-0.89				-0.64				4.45	-2.47			-1.15	1.21					
pP	Taup					194.25					196.97				206.40					
	time					196.25					196.25				211.25					
	amp					0.52					0.40				0.50					
	baz					250.24					247.69				254.32					
	slo					4.70					6.40				3.60					
	dev					0.46					-1.77				8.41					
sP	Taup	289.89				206.40					209.62				223.24					
	time	291.25				206.25					213.75				233.75					
	amp	0.33				0.50					0.68				0.53					
	baz	270.72				250.54					252.59				247.42					
	slo	4.10				4.20					4.50				3.60					
	dev	1.61				0.76					3.13				1.51					
PP	Taup	387.13			567.56	377.48				414.83	380.61				384.50			638.38	558.88	544.44
	time	393.75			568.75	376.25				411.25	388.75				386.25			641.25	558.75	551.25
	amp	0.31			0.19	0.35				0.22	0.42				0.41			0.36	0.43	0.30
	baz	271.82			284.28	245.54				267.41	250.19				246.22			301.10	285.89	283.69
	slo	4.90			7.60	8.10				7.50	7.00				7.90			7.70	7.90	10.40
	dev	2.71			1.92	-4.24				-0.55	0.73				0.31			1.19	-1.62	1.69
pPP	Taup		503.79		596.69	403.97			573.02	445.11	408.13								670.46	584.25
	time		503.75		596.25	403.75			573.75	446.25	411.25								673.75	586.25
	amp		0.28		0.27	0.37			0.21	0.43	0.26								0.32	0.33
	baz		279.45		286.58	251.04			288.60	267.31	249.69								280.79	281.59
	slo		9.50		8.30	7.60			6.80	7.20	8.00								7.80	10.20
	dev		2.66		4.22	1.26			7.45	-0.65	0.23				-				-6.72	-0.41
															245.91					
sPP	Taup		515.05			416.92			587.82	459.91	421.62				438.24				731.04	603.30
	time		513.75			418.75			591.25	458.75	428.75				438.75				731.25	608.75
	amp		0.27			0.30			0.20	0.33	0.51				0.36				0.37	0.31
	baz		275.55			251.44			279.40	268.21	251.49				245.22				278.99	284.59
	slo		8.90			9.20			8.90	7.70	7.80				9.70				8.00	10.20
	dev		-1.24			1.66			-1.75	0.25	2.03				-0.69				-8.52	2.59
PPP	Taup				714.14					536.62					503.04					688.07
	time				723.75					538.75					511.25					691.25
	amp				0.27					0.13					0.60					0.32
	baz				286.38					269.61					246.62					270.29
	slo				8.00					7.00					6.90					10.50
	dev				4.02					1.65					0.71				-	-11.71
																			287.51	
pPPP	Taup	585.25																	816.34	
	time	583.75																	816.25	
	amp	0.25																	0.35	
	baz	264.42																	287.09	
	slo	7.50																	7.30	
	dev	-4.69													-				-0.42	
															245.91					
sPPP	Taup														555.31					
	time														558.75					
	amp														0.54					

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BANDA R-COMPONENT																				
	baz														242.92					
	slo														7.50					
	dev														-2.99					
S	Taup	789.09				805.70				846.60			775.48		809.67					
	time	786.25				806.25				846.25			778.75		811.25					
	amp	0.40				0.56				0.38			0.40		0.41					
	baz	267.62				252.44				270.81			269.75		247.32					
	slo	10.30				7.30				11.80			8.80		10.30					
	dev	-1.49				2.66				2.85			0.32		1.41					
SP	Taup	867.44	1016.22		1134.10	871.01	1061.99	1072.59	1099.39	922.86	875.36		859.81	919.75			1121.57		1091.97	1102.85
	time	873.75	1023.75		1133.75	871.25	1068.75	1073.75	1103.75	931.25	881.25		868.75	938.75			1121.25		1091.25	1106.25
	amp	0.35	0.34		0.44	0.53	0.27	0.39	0.34	0.53	0.56		0.39	0.38			0.32		0.50	0.21
	baz	266.72	274.25		284.68	253.14	294.79	285.70	284.10	266.81	250.29		270.45	267.59			287.78		288.39	282.89
	slo	7.80	11.70		8.90	7.60	7.80	6.90	6.80	9.80	10.30		6.80	10.30			8.70		7.50	12.80
	dev	-2.39	-2.54		2.32	3.36	5.25	3.50	2.95	-1.15	0.83		1.02	-0.35			5.67		0.88	0.89
pS	Taup	910.09											934.17							
	time	921.25											936.25							
	amp	0.42											0.39							
	baz	269.62											273.25							
	slo	7.40											9.70							
	dev	0.51											3.82							
sS	Taup	957.70									862.39			909.71						
	time	958.75									868.75			913.75						
	amp	0.36									0.50			0.26						
	baz	269.72									252.69			267.19						
	slo	8.40									7.40			9.10						
	dev	0.61									3.23			-0.75						
pSP	Taup	1028.19	1048.37			904.85			1144.13	962.97	910.60			965.88	924.91			1303.31	1250.97	1155.92
	time	1031.25	1048.75			911.25			1148.75	968.75	913.75			966.25	923.75			1303.75	1256.25	1161.25
	amp	0.20	0.33			0.40			0.41	0.28	0.24			0.19	0.44			0.36	0.37	0.49
	baz	271.72	280.75			249.44			284.40	267.51	251.29			266.59	246.02			297.40	291.39	286.39
	slo	8.90	12.80			13.50			5.90	9.90	10.00			9.20	12.70			7.80	7.60	6.60
	dev	2.61	3.96			-0.34			3.25	-0.45	1.83			-1.35	0.11			-2.51	3.88	4.39
sSP	Taup	1181.34	1060.84		1188.52	920.08	1116.61	1216.37	1159.67	979.68	926.47		1074.03	983.60	946.28		1201.10	1335.59	1315.73	1176.17
	time		1066.25		1191.25	921.25	1123.75	1216.25	1158.75	981.25	931.25		1081.25	991.25	961.25		1216.25	1336.25	1333.75	1176.25
	amp		0.41		0.38	0.42	0.29	0.36	0.40	0.41	0.33		0.41	0.43	0.58		0.43	0.52	0.49	0.36
	baz		278.65		282.38	250.44	294.49	281.90	283.00	265.81	252.39		270.45	265.89	248.72		282.08	295.50	287.59	283.39
	slo		13.10		8.20	12.00	6.40	10.00	6.00	8.70	9.40		7.80	7.50	7.10		7.50	7.80	5.20	8.00
	dev		1.86		0.02	0.66	4.95	-0.30	1.85	-2.15	2.93		1.02	-2.05	2.81		-0.03	-4.41	0.08	1.39
SS	Taup		1351.01		1514.21	1164.05	1413.07	1449.91	1465.62				1183.26							1471.57
	time				1518.75	1188.75	1441.25	1456.25	1486.25				1203.75							1483.75
	amp				0.26	0.52	0.25	0.24	0.33				0.32							0.37
	baz				282.38	247.24	290.39	279.10	275.70				267.85							280.09
	slo				11.50	8.50	7.90	9.80	5.60				14.60							11.80
	dev				0.02	-2.54	0.85	-3.10	-5.45				-1.58							-1.91
sSS	Taup		1392.50		1564.37	1209.80	1463.78		1520.19	1284.68	1217.34		1372.05		1239.23					1540.78
	time		1403.75		1566.25	1213.75	1461.25		1538.75	1283.75	1216.25		1438.75		1258.75					1553.75
	amp		0.26		0.22	0.45	0.20		0.36	0.26	0.21		0.36		0.38					0.32
	baz		280.65		280.88	250.24	284.39		279.30	265.51	253.39		268.65		246.12					282.39
	slo		6.80		9.30	12.70	11.50		5.90	9.50	11.30		10.10		14.00					11.50
	dev		3.86		-1.48	0.46	-5.15		-1.85	-2.45	3.93		-0.78		0.21					0.39
pSS	Taup				1545.85															
	time				1543.75															
	amp				0.28															
	baz				281.98															
	slo				8.50															
	dev				-0.38															

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									BANDA	R-COMPONENT										
NETWORK TA_WCS																				
phase	event	07APR21	07JAN17	08OCT23	08JUN06	08MAR06	07JUL01	07MAY29	07AUG01	08APR02	08SEP08	07JUL23	07NOV23	08APR29	08NOV21	08SEP04	07DEC15	08NOV04	07AUG08	08AUG04
		_071248	_042826	_092115	_134248	_012159	_143412	_010327	_170851	_191019	_185206	_000832	_012647	_191002	_070534	_093703	_080315	_183545	_170504	_204513
	tbaz	271.04	277.17	295.13	281.72	290.39	281.50	270.05	252.19	281.34	254.29	271.30	269.98	283.32	262.32	255.34	282.04	250.53	299.51	281.72
P	Taup	169.27						201.23	172.13		170.34		198.86		186.30	147.87		163.56		
	time	174.50						207.50	176.25		166.25		206.25		188.75	151.25		168.75		
	amp	0.32						0.43	0.45		0.41		0.18		0.40	0.27		0.58		
	baz	269.54						270.65	251.89		254.09		274.18		262.72	257.84		253.43		
	slo	5.10						4.40	3.40		4.60		4.80		5.00	4.90		4.40		
	dev	-1.50						0.60	-0.30		-0.20		4.20		0.40	2.50		2.90		
pP	Taup							235.27	203.14		199.01		237.02		216.87	213.18		214.23		
	time							239.50	208.75		203.75		241.25		221.25	213.75		213.75		
	amp							0.17	0.38		0.53		0.20		0.57	0.16		0.20		
	baz							264.25	254.29		256.89		266.08		259.42	254.24		247.53		
	slo							4.30	4.30		3.80		5.00		5.10	5.80		4.70		
	dev							-5.80	2.10		2.60		-3.90		-2.90	-1.10		-3.00		
sP	Taup	305.40							215.78		210.64				229.31	241.55		235.70		
	time	307.00							218.75		213.75				228.75	243.75		238.75		
	amp	0.29							0.64		0.63				0.33	0.18		0.15		
	baz	277.34							253.49		256.09				262.62	253.14		252.73		
	slo	3.60							4.30		4.70				5.60	5.20		5.50		
	dev	6.30							1.30		1.80				0.30	-2.20		2.20		
PP	Taup	413.11		551.36	596.35			441.81	391.13		387.09	416.08	439.48			364.44		384.83	679.24	572.91
	time	419.50		552.00	597.00			442.00	391.25		386.25	418.75	443.75			361.25		383.75	681.25	573.75
	amp	0.17		0.12	0.20			0.19	0.42		0.31	0.20	0.13			0.12		0.30	0.40	0.36
	baz	275.84		289.33	282.22			267.95	252.99		257.49	272.10	273.98			260.54		255.13	299.61	285.82
	slo	8.40		5.30	8.80			9.50	5.80		4.10	9.90	9.40			8.10		6.40	5.50	4.30
	dev	4.80		-5.80	0.50			-2.10	0.80		3.20	0.80	4.00			5.20		4.60	0.10	4.10
pPP	Taup			582.06	625.66		607.15	472.28	418.73		412.64				442.34	421.03		429.29		613.00
	time			584.50	632.00		607.00	474.50	423.75		416.25				443.75	423.75		431.25		613.75
	amp			0.10	0.26		0.23	0.27	0.47		0.39				0.20	0.14		0.18		0.21
	baz			291.63	283.72		284.50	272.75	252.89		255.69				260.92	249.14		248.23		280.92
	slo			4.80	7.00		7.40	7.50	7.50		7.70				8.50	6.10		7.20		9.80
	dev			-3.50	2.00		3.00	2.70	0.70		1.40				-1.40	-6.20		-2.30		-0.80
sPP	Taup	539.67			639.03		621.89	487.03	432.20		425.02		490.25	695.70		451.59	654.28	452.30	772.55	631.98
	time	539.50			639.50		622.00	492.00	431.25		423.75		491.25	696.25		453.75	656.25	456.25	778.75	633.75
	amp	0.31			0.25		0.25	0.19	0.50		0.56		0.22	0.14		0.12	0.20	0.32	0.31	0.34
	baz	265.14			285.92		280.20	270.35	251.99		254.19		263.48	282.22		255.54	279.44	250.23	296.31	288.32
	slo	5.20			7.50		7.70	9.70	7.00		8.00		6.50	5.50		8.50	7.70	7.40	4.40	5.30
	dev	-5.90			4.20		-1.30	0.30	-0.20		-0.10		-6.50	-1.10		0.20	-2.60	-0.30	-3.20	6.60
PPP	Taup						723.78	567.33	508.75		504.99							504.26		722.11
	time						727.00	569.50	0.41		506.25							503.75		723.75
	amp						0.12	0.23	6.80		0.34							0.31		0.23
	baz						278.10	269.75	250.09		248.49							248.63		281.32
	slo						8.20	10.50	6.80		6.90							7.70		5.90
	dev						-3.40	-0.30	-2.10		-5.80							-1.90		-0.40
pPPP	Taup	615.26						595.99	535.87		529.26									759.34
	time	614.50						599.50	536.25		531.25									761.25
	amp	0.13						0.21	0.36		0.27									0.22
	baz	271.14						268.15	260.29		251.49									285.42
	slo	7.60						10.30	6.00		7.20									6.30
	dev	0.10						-1.90	8.10		-2.80									3.70
sPPP	Taup	662.34					768.77		549.70		541.97								945.79	
	time	662.00					769.50		548.75		541.25								961.25	
	amp	0.14					0.19		0.31		0.30								0.17	
	baz	270.44					276.50		258.89		247.59								305.01	
	slo	7.80					8.50		6.90		7.10								6.60	

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Table 11 – continued from previous page

		B A N D A R - C O M P O N E N T																		
	dev	-0.60					-5.00		6.70		-6.70								5.50	
S	Taup	818.15						876.71			817.29		872.54		848.16	776.17		805.85		
	time	817.00						879.50			823.75		873.75		848.75	781.25		806.25		
	amp	0.35						0.32			0.53		0.20		0.40	0.15		0.25		
	baz	269.74						265.25			256.09		264.68		265.32	252.64		252.13		
	slo	8.50						7.70			5.80		8.90		10.20	9.40		8.70		
	dev	-1.30						-4.80			1.80		-5.30		3.00	-2.70		1.60		
SP	Taup	904.35		1114.98	1171.62	1115.29	1143.30	961.06	891.03		885.62	899.48	956.79	1113.44	923.92	843.54	1165.43		1270.94	
	time	912.00		1119.00	1172.50	1119.50	1154.50	964.50	896.25		893.75	898.75	956.25	1126.25	923.75	848.75	1176.25		1303.75	
	amp	0.32		0.14	0.37	0.21	0.42	0.54	0.41		0.56	0.29	0.21	0.23	0.60	0.36	0.44		0.27	
	baz	275.44		297.93	284.52	291.59	281.90	269.05	253.39		257.99	268.10	268.98	284.12	262.62	253.14	282.44		308.31	
	slo	8.00		14.00	6.60	8.30	6.60	8.20	10.30		7.20	7.50	13.20	8.00	8.90	6.30	7.20		8.10	
	dev	4.40		2.80	2.80	1.20	0.40	-1.00	1.20		3.70	-3.20	-1.00	0.80	0.30	-2.20	0.40	-	8.80	
																		250.53		
pS	Taup	940.54									853.87	967.83	922.00		887.68	858.99		870.72		
	time	942.00									853.75	968.75	921.25		556.25	856.25		871.25		
	amp	0.35									0.34	0.48	0.23		0.25	0.19		0.21		
	baz	268.34									255.09	271.00	268.08		262.82	256.84		252.43		
	slo	8.10									8.50	8.90	10.10		10.80	5.70		7.60		
	dev	-2.70									0.80	-0.30	-1.90		0.50	1.50		1.90		
sS	Taup	987.42						936.01	874.68		866.74	1032.80			901.25	891.31		894.74		
	time	989.50						937.00	878.75		873.75	1036.25			906.25	893.75		896.25		
	amp	0.19						0.33	0.34		0.51	0.30			0.47	0.48		0.22		
	baz	277.14						269.65	254.09		259.19	271.10			263.92	257.35		252.33		
	slo	6.10						7.50	8.90		7.10	13.70			11.90	6.50		10.30		
	dev	6.10						-0.40	1.90		4.90	-0.20			1.60	2.01		2.70		
pSP	Taup	1012.06		1156.66	1212.01	1158.04	1187.30		926.37		918.20		1002.00	1232.92	960.11	915.09	1221.85	934.30	1358.69	1193.10
	time	1017.50		1159.51	1219.50	1162.00	1187.00		926.25		918.75		1001.25	1236.25	961.25	923.75	1226.25	941.25	1358.75	1193.75
	amp	0.43		0.24	0.31	0.26	0.45		0.37		0.40		0.21	0.12	0.49	0.28	0.27	0.32	0.23	0.38
	baz	268.94		290.93	287.72	290.89	279.20		252.79		254.99		271.08	287.62	264.12	256.94	278.94	253.03	309.41	284.42
	slo	7.80		7.70	9.40	8.60	7.90		10.90		6.70		8.00	7.80	12.00	6.30	8.70	9.50	6.00	5.90
	dev	-2.10		-4.20	6.00	0.50	-2.30		0.60		0.70		1.10	4.30	1.80	1.60	-3.10	2.50	9.90	2.70
sSP	Taup	1065.68		1170.20	1226.15	1172.91	1202.93	1018.06	941.92		933.09	1113.58	1020.84	1280.30	974.99	953.16	1242.19	961.79		1213.28
	time	1068.75		1172.00	1227.00	1181.25	1202.00	1014.50	941.25		933.75	1116.25	1018.75	1296.25	976.25	956.25	1243.75	961.25		1213.75
	amp	0.33		0.23	0.42	0.39	0.30	0.33	0.32		0.43	0.50	0.27	0.53	0.37	0.49	0.40	0.56		0.36
	baz	266.54		296.03	285.92	291.89	279.90	270.35	253.19		254.89	268.90	267.48	283.42	264.02	254.84	278.44	253.23		280.52
	slo	7.20		6.30	8.20	9.30	9.10	11.50	9.70		5.80	7.70	9.90	5.40	12.80	8.60	6.50	8.30		9.60
	dev	-4.50		0.90	4.20	1.50	-1.60	0.30	1.00		0.60	-2.40	-2.50	0.10	1.70	-0.50	-3.60	2.70		-1.20
SS	Taup	1229.04		1484.14	1568.05			1281.74	1188.99		1181.56	1234.62	1277.57	1514.60	1232.57	1140.30	1564.97	1177.64	1725.71	1524.70
	time	1232.00		1487.00	1577.00			1284.50	1188.75		1201.25	1233.75	1278.75	1516.25	1233.75	1171.25	1583.75	1203.75	1731.25	1528.75
	amp	0.33		0.13	0.31			0.17	0.25		0.39	0.29	0.25	0.12	0.37	0.15	0.32	0.29	0.16	0.29
	baz	273.44		284.03	285.22			273.45	253.09		252.79	265.20	279.28	286.62	263.82	250.94	284.74	251.53	300.81	278.12
	slo	9.20		11.80	9.00			12.60	5.40		9.80	13.50	10.30	9.30	8.80	9.40	14.00	12.90	7.60	11.00
	dev	2.40		-11.10	3.50			3.40	0.90		-1.50	-6.10	9.30	3.30	1.50	-4.40	2.70	1.00	1.30	-3.60
sSS	Taup					1538.63	1583.75	not in	1236.65		1225.60	1425.20	1336.67	1665.99	1279.73	1240.94	1635.69	1255.75		
								sloaz												
	time					1539.50	1594.50	but	1241.25		1231.25	1431.25	1345.75	1666.25	1278.75	1261.25	1641.25	1291.25		
								super												
								clear												
	amp					0.14	0.14	in	0.38		0.51	0.21	0.20	0.08	0.42	0.36	0.14	0.51		
								vespa												
	baz					292.39	277.20		255.39		255.39	260.30	265.28	278.82	264.72	255.54	281.54	252.13		
	slo					10.70	10.80		9.30		9.70	14.30	11.30	14.10	8.00	8.50	11.80	10.90		
	dev					2.00	-4.30		3.20		1.10	-11.00	-4.70	-4.50	2.40	0.20	-0.50	1.60		
pSS	Taup						1563.38													
	time						1562.00													
	amp						0.19													

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Table 11 – continued from previous page

		BANDA R-COMPONENT
	baz	278.60
	slo	14.50
	dev	-2.90

Table 12: *The remaining events of the sloaz plot results for all measured events of the Z-, R-, and T-component for events occurring in the Banda region, divided per network. Explanations of the used abbreviations in this table are given in the general description of this appendix.*

NETWORK TA_WCN

BANDA Z-COMPONENT								
phase	event	08SEP04_093703	07DEC15_080315	08NOV04_183545	07AUG08_170504	06DEC27_201538	06SEP09_041312	08AUG04_204513
	tbaz	249.10	281.54	245.13	299.69	262.56	287.02	280.43
P	Taup			157.94				
	time			158.75				
	amp			0.68				
	baz			248.03				
	slo			4.20				
	dev			2.90				
pP	Taup			208.60		226.29		
	time			213.75		231.25		
	amp			0.75		0.35		
	baz			243.23		263.76		
	slo			5.10		4.90		
	dev			-1.90		1.20		
sP	Taup			230.07				
	time			231.25				
	amp			0.58				
	baz			242.73				
	slo			5.00				
	dev			-2.40				
PP	Taup		530.33	375.22	599.02		526.66	508.75
	time		533.75	381.25	603.75		528.75	518.75
	amp		0.38	0.56	0.48		0.48	0.42
	baz		280.84	245.73	300.19		295.32	282.13
	slo		8.80	9.50	8.20		7.20	6.00
	dev		-0.70	0.60	0.50		8.30	1.70
pPP	Taup				660.95			548.23
	time				661.25			553.75
	amp				0.42			0.53
	baz				300.19			290.23
	slo				7.50			5.70
	dev				0.50			9.80
sPP	Taup			442.60	691.39		697.89	567.36
	time			451.25			698.75	571.25
	amp			0.57			0.50	0.46
	baz			243.03			289.52	286.63
	slo			7.70			7.70	6.50
	dev			-2.10			2.50	6.20
PPP	Taup			493.49	756.99			
	time			493.75	756.25			
	amp			0.33	0.46			
	baz			238.83	300.19			
	slo			9.10	7.50			
	dev			-6.30	0.50			
pPPP	Taup			535.28	813.87			682.69
	time			536.25	816.25			686.25
	amp			0.45	0.22			0.45
	baz			252.93	297.49			284.73
	slo			8.60	9.90			5.00
	dev			7.80	-2.20			4.30
sPPP	Taup				845.62		840.76	

BANDA R-COMPONENT								
phase	event	08SEP04_093703	07DEC15_080315	08NOV04_183545	07AUG08_170504	06DEC27_201538	06SEP09_041312	08AUG04_204513
	tbaz	249.10	281.77	245.03	299.69	262.59	286.94	280.29
P	Taup	135.33		157.48				
	time	138.75		158.75				
	amp	0.37		0.67				
	baz	255.80		254.43				
	slo	4.60		4.20				
	dev	6.70		9.40				
pP	Taup			208.14				
	time			213.75				
	amp			0.44				
	baz			245.83				
	slo			3.80				
	dev			0.80				
sP	Taup			229.61				
	time			231.25				
	amp			0.53				
	baz			241.03				
	slo			4.60				
	dev			-4.00				
PP	Taup			374.46	598.98		526.41	508.08
	time			378.75	598.75		526.25	521.25
	amp			0.42	0.41		0.33	0.44
	baz			244.53	300.09		292.54	284.89
	slo			8.20	7.70		6.00	5.70
	dev			-0.50	0.40		5.60	4.60
pPP	Taup				660.91			547.55
	time				666.25			546.25
	amp				0.41			0.38
	baz				299.49			285.09
	slo				4.00			6.00
	dev				-0.20			4.80
sPP	Taup			441.84	691.35		697.63	566.68
	time			451.25	693.75		698.75	566.25
	amp			0.64	0.25		0.33	0.37
	baz			244.83	298.09		284.74	279.99
	slo			6.50	7.60		8.10	7.30
	dev			-0.20	-1.60		-2.20	-0.30
PPP	Taup				756.95			
	time				758.75			
	amp				0.36			
	baz				300.09			
	slo				7.70			
	dev				0.40			
pPPP	Taup							
	time							
	amp							
	baz							
	slo							
	dev							
sPPP	Taup			558.13	845.58			

BANDA T-COMPONENT							
phase	event	07DEC15_080315	08NOV04_183545	07AUG08_170504	06DEC27_201538	06SEP09_041312	08AUG04_204513
	tbaz	281.79	245.15	299.74	262.62	287.01	280.45
P	Taup		794.76		768.96		
	time		793.75		768.75		
	amp		0.51		0.36		
	baz		246.85		261.82		
	slo		10.20		7.30		
	dev		1.70		-0.80		
pP	Taup		883.40		916.62		
	time		891.25		921.25		
	amp		0.44		0.21		
	baz		248.25		262.22		
	slo		8.30		8.40		
	dev		3.10	3.40	-0.40		
sP	Taup	1446.61	1159.97	1574.54			1406.06
	time	1458.75	1163.75	1578.75			1411.25
	amp	0.24	0.38	0.39			0.36
	baz	286.89	247.05	301.84			287.15
	slo	8.50	11.10	6.10			11.70
	dev	5.10	1.90	2.10			6.70
PP	Taup	1516.35	1237.91	1683.84		1636.38	1474.73
	time	1521.25	1256.25	1701.25		1646.25	1478.75
	amp	0.30	0.43	0.45		0.30	0.48
	baz	281.69	245.55	302.34		284.71	284.05
	slo	10.60	6.90	5.10		9.70	12.60
	dev	-0.10	0.40	2.60		-2.30	3.60

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Table 12 – continued from previous page

		BANDA Z-COMPONENT						BANDA R-COMPONENT							BANDA T-COMPONENT
	time			843.75		841.25				566.25	848.75				
	amp			0.39		0.36				0.41	0.30				
	baz			295.19		299.92				241.13	294.39				
	slo			6.30		9.60				9.30	6.20				
	dev			-4.50		12.90				-3.90	-5.30				
S	Taup				768.22					793.95		768.45			
	time				771.25					798.75		768.75			
	amp				0.32					0.44		0.60			
	baz				265.06					246.43		263.39			
	slo				8.60					7.30		9.10			
	dev				2.50					1.40		0.80			
SP	Taup	1083.45	863.39		838.20	1049.65	1054.82		1084.83	861.60	1164.04	838.49	1049.33	1053.960967	
	time	1083.75	868.75		838.75	1058.75	1078.75		1088.75	861.25	1198.75	846.25	1051.25	1056.25	
	amp	0.24	0.43		0.42	0.50	0.46		0.41	0.39	0.53	0.50	0.44	0.486	
	baz	278.44	240.43		262.16	283.92	279.13		278.17	248.53	299.99	262.79	287.74	281.99	
	slo	6.50	11.30		9.80	6.10	7.90		6.00	7.30	7.20	9.10	6.40	10.4	
	dev	-3.10	-4.70		-0.40	-3.10	-1.30		-3.60	3.50	0.30	0.20	0.80	1.70305438	
pS	Taup							832.72			1250.68	873.81			
	time							841.25			1256.25	881.25			
	amp							0.36			0.41	0.26			
	baz							249.30			298.69	265.39			
	slo							12.10			8.00	10.40			
	dev							0.20			-1.00	2.80			
sS	Taup		883.46							882.57	1283.18	916.08			
	time		886.25							888.75	1293.75	921.25			
	amp		0.54							0.36	0.45	0.35			
	baz		246.03							245.93	299.39	256.79			
	slo		9.50							10.80	5.00	7.50			
	dev		0.90							0.90	-0.30	-5.80			
pSP	Taup		919.69	1250.72		1205.53				918.55			1205.21		
	time		926.25	1256.25		1211.25				921.25			1206.25		
	amp		0.48	0.41		0.49				0.53			0.29		
	baz		241.33	300.99		285.42				251.83			292.94		
	slo		8.70	4.90		6.60				9.10			5.80		
	dev		-3.80	1.30		-1.60				6.80			6.00		
sSP	Taup		947.51	1283.22				921.03	1159.89	946.39		979.18	1272.30		
	time		948.75	1291.25				931.25	1166.25	946.25		993.75	1278.75		
	amp		0.51	0.37				0.52	0.33	0.41		0.46	0.35		
	baz		246.53	299.09				242.70	281.87	252.23		263.49	288.14		
	slo		9.60	7.60				7.80	8.60	12.20		9.90	8.50		
	dev		1.40	-0.60				-6.40	0.10	7.20		0.90	1.20		
SS	Taup	1445.32		1574.14		1439.87	1405.28	1101.54	1447.23	1158.69	1574.10	1140.07	1439.43		
	time	1453.75		1576.25		1451.25	1408.75	1121.25	1453.75	1161.25	1573.75	1156.25	1451.25		
	amp	0.20		0.19		0.37	0.55	0.45	0.44	0.50	0.23	0.52	0.44		
	baz	279.44		300.79		288.32	281.33	249.60	278.57	241.93	298.79	263.59	281.24		
	slo	12.50		7.00		10.10	13.60	11.90	10.50	7.70	12.20	9.20	8.00		
	dev	-2.10		1.10		1.30	0.90	0.50	-3.20	-3.10	-0.90	1.00	-5.70		
sSS	Taup					1637.54		1201.67	1516.97	1236.62	1683.40	1267.92	1637.09		
	time					1661.25		1208.75	1531.25	1256.25	1688.75	1278.75	1666.25		
	amp					0.14		0.37	0.18	0.56	0.38	0.28	0.39		
	baz					288.82		247.60	282.57	245.83	294.79	261.09	282.24		
	slo					12.60		8.30	14.10	8.20	7.80	9.90	8.30		
	dev					1.80		-1.50	0.80	0.80	-4.90	-1.50	-4.70		

Table 13: *Sloaz plot results for all measured events of the Z-component for events occurring in the South American region, divided per network. Explanations of the used abbreviations in this table are given in the general description of this appendix.*

SOUTH AMERICA Z-COMPONENT																			
NETWORK JAP_S																			
phase	event	2012-	2017-	2016-	2013-	2011-	2017-	2016-	2010-	2012-	2015-	2015-	2019-	2011-	2014-	2019-	2010-	2011-	2015-
		05-28	04-15	08-04	02-22	06-20	02-18	11-20	03-04	03-05	06-10	02-02	09-26	01-01	09-24	12-24	07-12	09-02	02-11
		_05-07	_08-19	_14-15	_12-01	_16-36	_12-10	_20-57	_22-39	_07-46	_13-52	_10-49	_16-36	_09-56	_11-16	_16-43	_00-11	_13-47	_18-57
	tbazz	70.78	63.64	58.48	70.56	60.85	63.45	90.54	61.95	72.07	62.76	93.66	119.83	66.28	63.28	67.21	61.64	72.47	61.48
PP	Taup	379.55	411.26	372.09	415.21	365.15	384.46	430.32	393.13	368.68	375.51	435.01	384.63	412.11	381.08	386.23	388.02		386.23
	time	382.50	412.50	372.50	415.00	367.50	390.00	430.00	395.00	370.00	377.50	432.50	385.00	415.00	385.00	387.50	390.00		390.00
	amp	0.54	0.52	0.19	0.12	0.52	0.46	0.63	0.50	0.34	0.56	0.34	0.62	0.37	0.45	0.34	0.46		0.50
	baz	66.98	60.34	51.38	76.16	57.55	60.65	90.74	59.95	65.67	59.96	88.06	118.03	57.48	60.08	60.01	60.54		56.18
	slo	4.00	4.50	0.19	3.40	4.50	4.90	4.30	4.60	4.00	4.60	4.30	4.40	4.80	4.80	4.60	4.70		4.20
	dev	-3.80	-3.30	-7.10	5.60	-3.30	-2.80	0.20	-2.00	-6.40	-2.80	-5.60	-1.80	-8.80	-3.20	-7.20	-1.10		-5.30
pPP	Taup	504.37	449.60	435.63	538.00	397.35	437.70	458.08	422.15	487.73	406.81	477.34			434.76	510.46	417.26		439.66
	time	510.00	452.50	447.50	535.00	400.00	442.50	460.00	427.50	485.00	410.00	477.50			437.50	512.50	417.50		442.50
	amp	0.45	0.51	0.28	0.18	0.57	0.39	0.58	0.37	0.11	0.46	0.14			0.14	0.17	0.32		0.34
	baz	68.68	59.94	52.08	62.56	59.45	62.65	93.44	60.75	66.77	62.06	93.76			59.78	63.81	59.14		59.08
	slo	7.10	4.60	4.90	4.10	4.80	4.80	4.20	5.90	3.50	4.50	3.80			4.40	3.80	4.30		4.90
	dev	-2.10	-3.70	-6.40	-8.00	-1.40	-0.80	2.90	-1.20	-5.30	-0.70	0.10			-3.50	-3.40	-2.50		-2.40
sPP	Taup		466.01	464.10		410.96	461.14	469.62	434.33		420.02	495.48	430.79	593.29	458.40		429.54		463.21
	time		470.00	472.50		415.00	470.00	477.50	435.00		437.50	492.50	430.00	595.00	460.00		430.00		462.50
	amp		0.39	0.23		0.48	0.24	0.20	0.44		0.19	0.16	0.50	0.07	0.38		0.33		0.25
	baz		58.64	50.78		56.95	58.15	93.24	60.05		61.96	91.86	114.63	69.98	55.78		54.44		54.58
	slo		4.40	4.60		3.90	5.50	4.40	7.00		5.70	4.80	4.50	4.30	4.00		3.70		4.90
	dev		-5.00	-7.70		-3.90	-5.30	2.70	-1.90		-0.80	-1.80	-5.20	3.70	-7.50		-7.20		-6.90
PPP	Taup	620.35	634.75			585.87	610.86	658.24	614.09		596.67	666.39	606.30		607.43	736.37	609.08		611.67
	time	625.00	635.00			590.00	617.50	660.00	615.00		597.50	665.00	610.00		610.00	737.50	610.00		612.50
	amp	0.21	0.19			0.31	0.12	0.23	0.22		0.18	0.11	0.16		0.12	0.14	0.13		0.27
	baz	72.68	56.64			58.45	63.95	94.14	59.85		54.76	93.16	115.93		51.18	72.51	59.04		51.08
	slo	5.90	10.00			5.70	8.60	5.00	6.00		8.60	6.60	5.90		9.00	6.90	6.10		9.70
	dev	1.90	-7.00			-2.40	0.50	3.60	-2.10		-8.00	-0.50	-3.90		-12.10	5.30	-2.60		-10.40
pPPP	Taup	731.67	670.36	656.61	765.44	615.86		684.16	641.16		625.83			761.32			636.37		660.98
	time	730.00	672.50	660.00	770.00	615.00		692.50	640.00		625.00			772.50			637.50		662.50
	amp	0.25	0.20	0.08	0.13	0.30		0.22	0.19		0.11			0.09			0.12		0.17
	baz	74.58	55.04	59.18	68.86	56.45		93.74	59.15		56.96			61.88			62.44		54.98
	slo	4.60	9.60	6.30	8.80	5.90		5.40	8.00		8.40			5.50			6.00		5.10
	dev	3.80	-8.60	0.70	-1.70	-4.40		3.20	-2.80		-5.80			-4.40			0.80		-6.50
sPPP	Taup		687.42			630.01		696.13	653.80		639.54		650.76	823.00	681.62		649.12		685.54
	time		687.50			630.00		700.00	652.50		642.50		652.50	832.50	687.50		652.50		685.00
	amp		0.26			0.35		0.21	0.21		0.17		0.29	0.04	0.14		0.11		0.06
	baz		62.34			54.25		96.14	58.45		55.06		124.53	63.28	58.88		54.94		56.38
	slo		10.10			6.40		5.20	9.00		10.40		5.00	5.50	5.80		10.10		8.10
	dev		-1.30			-6.60		5.60	-3.50		-7.70		4.70	-3.00	-4.40				-5.10
SS	Taup	1575.56									1573.52			1605.92					1584.16
	time	1597.50									1577.50			1607.50					1585.00
	amp	0.05									0.09			0.05					0.05
	baz	74.88									63.16			59.68					61.78
	slo	9.00									12.10			9.70					11.70
	dev	4.10									0.40			-6.60					0.30
sSS	Taup	1798.04			1830.78	1617.09	1678.13	1695.31			1612.16			1825.08					
	time	1802.50			1835.00	1630.00	1680.00	1800.00			1612.50			1830.00					
	amp	0.08			0.06	0.15	0.07	0.13			0.10			0.06					
	baz	84.48			70.76	61.75	62.35	87.84			59.26			82.98					
	slo	10.80			12.50	12.40	10.60	9.10			10.50			9.20					
	dev	13.70			0.20	0.90	-1.10	-2.70			-3.50			16.70					

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Table 13 – continued from previous page

		S O U T H A M E R I C A Z - C O M P O N E N T																
SSS	Taup									1627.45	2039.69	1953.96	2005.03			1956.35		1960.70
	time									1627.50	2042.50	1952.50	2050.00			1955.00		1965.00
	amp									0.08	0.04	0.05	0.06			0.08		0.04
	baz									67.36	93.86	117.93	56.88			61.04		57.08
	slo									11.60	11.40	10.20	12.20			13.20		10.70
	dev									4.60	0.20	-1.90	-9.40			-0.60		-4.40
pSS	Taup	1678.30			1601.30	1650.59	1682.10	1627.60		1943.22	1706.35			1647.37				
	time	1687.50			1602.50	1655.00	1782.50	1627.50		1940.00	1705.00			1657.50				
	amp	0.11			0.05	0.08	0.12	0.09		0.07	0.07			0.09				
	baz	67.14			63.35	61.35	88.64	52.65		56.66	85.56			54.68				
	slo	11.50			10.20	11.70	10.20	12.50		12.10	10.90			12.40				
	dev	3.50			2.50	-2.10	-1.90	-9.30		-6.10	-8.10			-8.60				
sSSS	Taup		2047.19															
	time		2047.50															
	amp		0.05															
	baz		66.38															
	slo		11.80															
	dev		7.90															

Table 14: *Sloaz plot results for all measured components of the synthetic model, as recorded at a setup similar to network TA_ASW for an event similar to the one occurring on 18-NOV-2018. Also included are the additional events measured in the Z-component at network TA_ASW. Explanations of the used abbreviations in this table are given in the general description of this appendix.*

		SYNTHETIC MODEL						South America			JAPAN	
		average location			station closest to average location							
component		Z	R	T	Z	R	T	Z	Z	Z	Z	Z
phase	event	18NOV18	18NOV18	18NOV1	18NOV18	18NOV18	18NOV1	18AUG24	19FEB22	19JAN05	19JUN04	19JUL27
		_20:25:46	_20:25:46	_20:25:4	_20:25:46	_20:25:46	_20:25:4	_090408	_1017	_192538	_043916	_183107
	tbaz	200.65	200.65	200.65	199.30	199.30	199.30	96.87	98.01	96.11	260.75	265.57
	filter	bp5to50	bp10to75	bp10t75	bp5to50	bp10to75	bp10t75	bp5to50	bp5to50	bp5to50	bp5to50	bp5to50
P	Taup	673.75	673.75		673.75	673.75			453.66		203.12	189.84
	time	673.75	673.75		673.75	673.75			458.75		206.25	191.25
	amp	0.32	0.51		0.32	0.51			0.34		0.24	0.24
	baz	199.15	198.96		199.15	198.96			97.57		258.70	263.56
	slo	4.10	5.10		4.10	5.10			4.20		7.30	7.50
	dev	-1.50	-1.69		-0.15	-0.34			-0.44		-2.05	-2.01
pP	Taup	789.39	789.39		789.39	789.39		589.19	490.33	570.66	287.69	264.34
	time	788.75	796.25		788.75	796.25		591.25	498.75	573.75	288.75	268.75
	amp	0.30	0.50		0.30	0.50		0.33	0.36	0.30	0.25	0.15
	baz	199.45	199.36		199.45	199.36		97.39	97.27	95.35	257.90	261.36
	slo	4.60	5.00		4.60	5.00		4.30	4.40	3.80	9.60	7.60
	dev	-1.20	-1.29		0.15	0.06		0.52	-0.74	-0.76	-2.85	-4.21
sP	Taup	844.57	844.57		844.57	844.57		651.23	505.57		334.36	305.25
	time	843.75	848.75		843.75	848.75		653.75	511.25		343.75	306.25
	amp	0.32	0.39		0.32	0.39		0.21	0.29		0.21	0.18
	baz	199.95	199.36		199.95	199.36		97.09	97.27		256.40	259.86
	slo	4.30	6.80		4.30	6.80		3.70	4.40		4.70	6.30
	dev	-0.70	-1.29		0.65	0.06		0.22	-0.74		-4.35	-5.71
PP	Taup	867.74	867.74		867.74	867.74		705.47	662.05	687.67	325.24	313.55
	time	868.75	868.75		868.75	868.75		708.75	663.75	696.25	328.75	
	amp	0.24	0.47		0.24	0.47		0.23	0.20	0.29	0.21	
	baz	199.35	200.26		199.35	200.26		92.59	97.57	93.25	257.30	
	slo	8.70	7.70		8.70	7.70		5.70	8.80	8.10	5.90	
	dev	-1.30	-0.39		0.05	0.96		-4.28	-0.44	-2.86	-3.45	
pPP	Taup	963.16	963.16		963.16	963.16		818.35	694.43	791.88		
	time	961.25	968.75		961.25	968.75		826.25	701.25	791.25		
	amp	0.19	0.44		0.19	0.44		0.24	0.21	0.14		
	baz	199.85	199.86		199.85	199.86		94.49	94.07	93.65		
	slo	5.80	7.00		5.80	7.00		8.30	7.80	8.70		
	dev	-0.80	-0.79		0.55	0.56		-2.38	-3.94	-2.46		
sPP	Taup	1023.86	1023.86		1023.86	1023.86		886.66	710.71		421.72	
	time	1026.25	1026.25		1026.25	1026.25		888.75	711.25		426.25	
	amp	0.31	0.47		0.31	0.47		0.25	0.27		0.17	
	baz	199.25	200.06		199.25	200.06		94.99	93.17		259.20	
	slo	10.20	9.20		10.20	9.20		7.60	8.20		8.70	
	dev	-1.40	-0.59		-0.05	0.76		-1.88	-4.84		-1.55	
PPP	Taup	980.85	980.85		980.85	980.85			777.75		402.92	
	time	981.25	981.25		981.25	981.25					403.75	
	amp	0.24	0.52		0.24	0.52					0.18	
	baz	199.35	199.06		199.35	199.06					257.90	
	slo	7.10	7.20		7.10	7.20					10.20	
	dev	-1.30	-1.59		0.05	-0.24					-2.85	
pPPP	Taup	1068.86	1068.86		1068.86	1068.86		937.41	808.54			
	time	1073.75	1071.25		1073.75	1071.25		938.75	811.25			
	amp	0.19	0.38		0.19	0.38		0.23	0.24			
	baz	199.35	199.66		199.35	199.66		97.99	95.97			
	slo	10.80	11.20		10.80	11.20		6.90	8.30			
	dev	-1.30	-0.99		0.05	0.36		1.12	-2.04			
sPPP	Taup	1131.69	1131.69		1131.69	1131.69		1009.38				
	time	1136.25	1131.25		1136.25	1131.25		1011.25				
	amp	0.33	0.54		0.33	0.54		0.18				
	baz	199.85	199.76		199.85	199.76		94.79				
	slo	7.20	7.30		7.20	7.30		9.00				
	dev	-0.80	-0.89		0.55	0.46		-2.08				
S	Taup	1237.55	1237.55	1237.55	1237.55	1237.55	1237.55		1084.93		609.20	
	time	1238.75	1238.75	1236.25	1238.75	1238.75	1236.25		1093.75		613.75	
	amp	0.18	0.44	0.27	0.18	0.44	0.27		0.15		0.18	
	baz	199.25	198.86	204.15	199.25	198.86	204.15		96.27		259.90	
	slo	9.90	10.10	8.70	9.90	10.10	8.70		7.80		9.80	
	dev	-1.40	-1.79	3.50	-0.05	-0.44	4.85		-1.74		-0.85	
SP	Taup	1288.13	1288.13	1288.13	1288.13	1288.13	1288.13	1181.26	1146.74	1159.13	616.98	
	time	1288.75	1288.75	1288.75	1288.75	1288.75	1288.75	1186.25	1156.25	1158.75	618.75	
	amp	0.15	0.33	0.32	0.15	0.33	0.32	0.20	0.27	0.14	0.14	
	baz	199.35	200.46	198.35	199.35	200.46	198.35	89.69	96.37	90.35	260.05	
	slo	8.70	8.50	7.20	8.70	8.50	7.20	8.70	8.60	10.40	10.50	
	dev	-1.30	-0.19	-2.30	0.05	1.16	-0.95	-7.18	-1.64	-5.76	-0.70	
pS	Taup									1233.36		
	time									1236.25		
	amp									0.17		
	baz									91.35		
	slo									11.10		
	dev									-4.76		
sS	Taup	1443.67	1443.67	1443.67	1443.67	1443.67	1443.67					718.19
	time	1443.75	1446.25	1443.75	1443.75	1446.25	1443.75					718.75
	amp	0.19	0.46	0.34	0.19	0.46	0.34					0.18

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Table 14 – continued from previous page

		SYNTHETIC MODEL						SOUTH AMERICA	JAPAN	
	baz	199.15	199.76	198.75	199.15	199.76	198.75			265.66
	slo	11.80	11.40	9.80	11.80	11.40	9.80			15.00
	dev	-1.50	-0.89	-1.90	-0.15	0.46	-0.55			0.09
pSP	Taup									
	time									
	amp									
	baz									
	slo									
	dev									
sSP	Taup	1481.96	1481.96		1481.96	1481.96		1412.25	768.26	
	time	1478.75	1483.75		1478.75	1483.75		1416.25	778.75	
	amp	0.16	0.24		0.16	0.24		0.18	0.17	
	baz	199.85	199.56		199.85	199.56		94.49	258.00	
	slo	9.90	12.40		9.90	12.40		8.30	12.60	
	dev	-0.80	-1.09		0.55	0.26		-2.38	-2.75	
SS	Taup	1566.53	1566.53	1566.53	1566.53	1566.53	1566.53			
	time	1566.25	1566.25	1573.75	1566.25	1566.25	1573.75			
	amp	0.16	0.47	0.27	0.16	0.47	0.27			
	baz	199.45	199.66	199.25	199.45	199.66	199.25			
	slo	9.50	12.40	10.20	9.50	12.40	10.20			
	dev	-1.20	-0.99	-1.40	0.15	0.36	-0.05			
sSS	Taup		1740.96	1740.96		1740.96	1740.96			
	time		1741.25	1741.25		1741.25	1741.25			
	amp		0.25	0.27		0.25	0.27			
	baz		199.16	200.05		199.16	200.05			
	slo		15.40	12.70		15.40	12.70			
	dev		-1.49	-0.60		-0.14	0.75			