

Survey type: VSP Zero-Offset  
Company: Lamont Doherty Earth Observatory  
Well: Expedition 350, Site U1437D  
Field: IBM-1 (Rear Arc)  
Country: Pacific Ocean  
Run: 3  
Date: 23-Apr-2014

Recorded by: C. Furman

Witnessed by: G. Guerin

## Introduction

This Single-Offset (Zero-Offset) VSP job was conducted using a VSI tool with a single shuttle directly connected to the cartridge. The seismic source for the job was a pair of 250 cubic inch G-Guns charged to a pressure of 1950 PSI and deployed in a horizontal 2-gun array from the #3 Crane at the port side, aft of the rig.

## Survey Results: Zero Offset VSP

Data from this job was good, overall, although anchoring was an issue at some stations. For those stations, the transit-time peaks were manually selected and then auto-tuned by the software to pick the inflection point correctly once the proper peak had been designated.

**Well Information**

<b>Company</b>	Lamont Doherty Earth Observatory
<b>Well</b>	Expedition 350, Site U1437D
<b>Field</b>	IBM-1 (Rear Arc)
<b>Country</b>	
<b>State</b>	Pacific
<b>Logging Date</b>	20-Apr-2014
<b>Run Number</b>	2
<b>Service Order</b>	
<b>Well Head (Latitude)</b>	N 31.7897
<b>Well Head (Longitude)</b>	E 139.02631
<b>Well Head (X Coordinate)</b>	0.0 UTM
<b>Well Head (Y Coordinate)</b>	0.0 UTM
<b>Total Depth - Driller</b>	900.0 m
<b>Total Depth - Logger</b>	900.0 m
<b>Maximum Hole Deviation</b>	0.0 deg
<b>Azimuth of Maximum Deviation</b>	
<b>Program Version</b>	19C0-187
<b>Bit Size</b>	9.875 in
<b>Recorded by</b>	C. Furman
<b>Witnessed by</b>	G. Guerin

**Elevation Information**

<b>Permanent Datum</b>	GL
<b>Elevation Permanent Datum</b>	0.0 m
<b>Above Permanent Datum</b>	0.0 m
<b>Drilling Measured From</b>	Drill Floor
<b>Derrick Floor</b>	-2127.3 m
<b>Ground Level</b>	0.0 m
<b>Kelly Bush</b>	-2127.3 m
<b>Log Measured From</b>	Drill Floor
<b>Elevation Log Zero</b>	0.0 m

**Depth Corrected Information**

<b>Water Velocity</b>	1500.0 m/s
<b>Seismic Reference Datum</b>	0.0 m

**Remarks**

Hole drilled with RCB coring bit and bottom hole assembly (BHA). 9 7/8 " BS
Sea floor depth reference used for this presented log. Original log files
recorded were taken with depth reference at drill floor.
Borehole correction utilizing bit size (BS) as requested.

**Well Information**

Well Type	Vertical
Rig / Platform Type	DP Drillship
Well Reference Azimuth (Magnetic, True, or Grid North)	Magnetic

**Elevation Information**

Water Depth	2127.3m
Water Temperature	9 degC
Water Salinity	
Weathered Zone Depth	
Elevation Depth	

**Sea Condition**

Sea Condition	Light
Wave Height	Less than 1m
High Tide Level	
High Tide Time	
Low Tide Level	
Low Tide Time	

**Velocity Information**

Weathered Velocity	
Elevation Velocity	

**Downhole Equipment Information**

<b>Tool Type</b>	VSI, Single-Shuttle
<b>Surface Equipment</b>	WSI / WSAM
<b>Combined Tool</b>	EDTC-LEHQT
<b>Number of Shuttles</b>	1
<b>Nominal Receiver Spacing</b>	N/A
<b>Gimbaled (Y/N)</b>	Y
<b>Downhole Geophone Type</b>	GAC-D
<b>Sensitivity</b>	
<b>Natural Frequency</b>	
<b>Damping Factor</b>	
<b>DC Resistance</b>	
<b>Receiver #1</b>	
<b>Receiver #2</b>	
<b>Receiver #3</b>	
<b>Receiver #4</b>	
<b>Receiver #5</b>	
<b>Receiver #6</b>	
<b>Receiver #7</b>	
<b>Receiver #8</b>	

# VSP

**General Information**

<b>Survey Type</b>	Zero Offset VSP
<b>Surface Recording Length</b>	500.0 ms
<b>Surface Sampling Rate</b>	1.0 ms
<b>Downhole Recording Length</b>	3000.0 ms
<b>Downhole Sampling Rate</b>	1.0 ms
<b>Top of Survey</b>	2349.5 m
<b>Bottom of Survey</b>	2999.5 m
<b>Number of Shots</b>	103
<b>Number of Downhole Traces</b>	103
<b>Number of Downhole Traces used for Processing</b>	47

**Stack Summary Listing (1/1) from VSI\_002\_Ggun250x2\_geo\_wavefield\_z.ldb**

Stack Number	Measured Depth [m]	True Vertical Depth [m]	Measured Time [s]	One-way Vertical Time [s]	Two-way Vertical Time [s]	Interval Velocity [m/s]	Average Velocity [m/s]	RMS Velocity [m/s]
	0	0	0	0	0			
						1513.9		
14	2349.5	2349.5	1.5461	1.5519	3.1038		1513.9	1513.9
						1814.8		
13	2399.9	2399.9	1.5738	1.5797	3.1593		1519.2	1519.7
						1798.1		
12	2449.8	2449.8	1.6016	1.6074	3.2149		1524.0	1525.0
						1919.1		
11	2499.9	2499.9	1.6277	1.6335	3.2671		1530.4	1532.1
						1839.6		
10	2549.9	2549.9	1.6549	1.6607	3.3214		1535.4	1537.6
						1397.5		
9	2599.8	2599.8	1.6906	1.6964	3.3929		1532.5	1534.8
						1936.7		
8	2649.8	2649.8	1.7164	1.7222	3.4445		1538.6	1541.6
						2012.6		
7	2699.9	2699.9	1.7413	1.7471	3.4943		1545.3	1549.3
						2078.5		
6	2750.0	2750.0	1.7654	1.7712	3.5425		1552.6	1557.7
						2118.8		
5	2799.6	2799.6	1.7888	1.7947	3.5893		1560.0	1566.3
						2155.8		
4	2849.7	2849.7	1.8120	1.8179	3.6358		1567.6	1575.2
						2205.7		
3	2899.6	2899.6	1.8346	1.8405	3.6810		1575.4	1584.5
						5190.7		
2	2949.8	2949.8	1.8443	1.8502	3.7004		1594.3	1624.3
						2702.5		
1	2999.5	2999.5	1.8627	1.8686	3.7372		1605.2	1638.4



**Shot Summary Listing (1/1)**

Measured Depth [m]	Tool Number	Stack Number	Relative Bearing [deg]	Caliper [in]	Anchoring force [kg]	Shot number
2349.5	1	14	-24.5	12.7	786.1	100, 102, 104
2399.9	1	13	-16.7	13.1	922.6	94, 95, 96
2449.8	1	12	-30.5	12.2	376.3	84, 86, 87, 88, 89
2499.9	1	11	-15.4	12.8	916.4	75, 79, 80
2549.9	1	10	-11.4	12.4	1558.0	68, 70, 71, 73
2599.8	1	9	-12.1	11.9	909.1	62, 63, 66
2649.8	1	8	-13.5	11.6	901.8	56, 57, 58, 59, 60
2699.9	1	7	-43.9	11.8	892.4	51, 53, 54, 55
2750.0	1	6	-17.1	11.3	940.5	46, 47, 48, 49, 50
2799.6	1	5	-5.4	10.9	866.9	38, 39, 41, 42
2849.7	1	4	-8.4	10.7	757.5	34
2899.6	1	3	23.5	10.8	827.1	17
2949.8	1	2	-6.9	10.7	712.1	12
2999.5	1	1	-24.0	10.6	847.0	1, 2, 4, 5, 7

**Observer's Note (1/2)**

Well depth [m]	Time	Shot Type	Shot#	Stack#	Source	Remarks
2999.5	03:17:04	SHOT	1	1	Ggun250x2	
2999.5	03:17:22	SHOT	2	1	Ggun250x2	
2999.5	03:17:40	SHOT	3	1	Ggun250x2	Bad TT Pick
2999.5	03:17:58	SHOT	4	1	Ggun250x2	
2999.5	03:18:16	SHOT	5	1	Ggun250x2	
2999.5	03:18:35	SHOT	6	1	Ggun250x2	Bad Pick
2999.5	03:18:53	SHOT	7	1	Ggun250x2	
2949.8	03:25:07	SHOT	8	2	Ggun250x2	Bad Pick - Manually Adj
2949.8	03:25:41	SHOT	9	2	Ggun250x2	Noisy
2949.8	03:26:02	SHOT	10	2	Ggun250x2	Garbage
2949.8	03:26:21	SHOT	11	2	Ggun250x2	
2949.8	03:27:23	SHOT	12	2	Ggun250x2	Good
2949.8	03:27:41	SHOT	13	2	Ggun250x2	
2949.8	03:28:31	SHOT	14	2	Ggun250x2	Coupling Problem
2949.8	03:28:49	SHOT	15	2	Ggun250x2	Noisy
2899.6	03:35:46	SHOT	16	3	Ggun250x2	Garbage
2899.6	03:36:06	SHOT	17	3	Ggun250x2	Good - only shot in stack
2899.6	03:36:27	SHOT	18	3	Ggun250x2	
2899.6	03:36:45	SHOT	19	3	Ggun250x2	Noise
2899.6	03:37:03	SHOT	20	3	Ggun250x2	
2899.6	03:37:22	SHOT	21	3	Ggun250x2	
2899.6	03:38:01	SHOT	22	3	Ggun250x2	
2899.6	03:38:19	SHOT	23	3	Ggun250x2	
2899.6	03:38:43	SHOT	24	3	Ggun250x2	
2899.6	03:39:01	SHOT	25	3	Ggun250x2	
2899.6	03:39:55	SHOT	26	3	Ggun250x2	
2899.6	03:40:21	SHOT	27	3	Ggun250x2	
2899.6	03:40:50	SHOT	28	3	Ggun250x2	
2899.6	03:41:36	SHAK	29			Poor anchoring on entire station except for one good shot
2849.7	03:48:40	SHOT	30	4	Ggun250x2	
2849.7	03:48:59	SHOT	31	4	Ggun250x2	Late
2849.7	03:49:18	SHOT	32	4	Ggun250x2	
2849.7	03:49:36	SHOT	33	4	Ggun250x2	
2849.7	03:50:07	SHOT	34	4	Ggun250x2	Only decent shot, probably too early
2849.7	03:50:35	SHOT	35	4	Ggun250x2	
2849.7	03:52:39	SHOT	36	4	Ggun250x2	
2849.7	03:52:57	SHOT	37	4	Ggun250x2	
2799.6	04:02:02	SHOT	38	5	Ggun250x2	
2799.6	04:02:20	SHOT	39	5	Ggun250x2	
2799.6	04:02:40	SHOT	40	5	Ggun250x2	
2799.6	04:03:01	SHOT	41	5	Ggun250x2	
2799.6	04:03:21	SHOT	42	5	Ggun250x2	
2750.0	04:09:41	SHOT	43	6	Ggun250x2	
2750.0	04:10:01	SHOT	44	6	Ggun250x2	
2750.0	04:10:21	SHOT	45	6	Ggun250x2	
2750.0	04:10:53	SHOT	46	6	Ggun250x2	Good
2750.0	04:11:15	SHOT	47	6	Ggun250x2	
2750.0	04:11:35	SHOT	48	6	Ggun250x2	
2750.0	04:11:56	SHOT	49	6	Ggun250x2	
2750.0	04:12:16	SHOT	50	6	Ggun250x2	Good
2699.9	04:19:23	SHOT	51	7	Ggun250x2	
2699.9	04:19:43	SHOT	52	7	Ggun250x2	Noisy
2699.9	04:20:04	SHOT	53	7	Ggun250x2	
2699.9	04:20:26	SHOT	54	7	Ggun250x2	
2699.9	04:20:47	SHOT	55	7	Ggun250x2	
2649.8	04:27:22	SHOT	56	8	Ggun250x2	
2649.8	04:27:42	SHOT	57	8	Ggun250x2	
2649.8	04:28:02	SHOT	58	8	Ggun250x2	
2649.8	04:28:22	SHOT	59	8	Ggun250x2	

**Observer's Note (2/2)**

Well depth [m]	Time	Shot Type	Shot#	Stack#	Source	Remarks
2649.8	04:28:42	SHOT	60	8	Ggun250x2	
2599.8	04:35:01	SHOT	61	9	Ggun250x2	Noisy
2599.8	04:35:21	SHOT	62	9	Ggun250x2	Forced TT on all five other shots
2599.8	04:35:41	SHOT	63	9	Ggun250x2	
2599.8	04:36:40	SHOT	64	9	Ggun250x2	
2599.8	04:37:17	SHOT	65	9	Ggun250x2	
2599.8	04:38:40	SHOT	66	9	Ggun250x2	Noisy station, but manually picked viable TT
2549.9	04:45:58	SHOT	67	10	Ggun250x2	
2549.9	04:46:18	SHOT	68	10	Ggun250x2	Good
2549.9	04:46:38	SHOT	69	10	Ggun250x2	Garbage
2549.9	04:46:58	SHOT	70	10	Ggun250x2	Good
2549.9	04:47:18	SHOT	71	10	Ggun250x2	Good
2549.9	04:47:38	SHOT	72	10	Ggun250x2	
2549.9	04:48:07	SHOT	73	10	Ggun250x2	
2499.9	04:55:44	SHOT	74	11	Ggun250x2	Good
2499.9	04:56:04	SHOT	75	11	Ggun250x2	Good
2499.9	04:56:24	SHOT	76	11	Ggun250x2	
2499.9	04:56:44	SHOT	77	11	Ggun250x2	
2499.9	04:57:04	SHOT	78	11	Ggun250x2	
2499.9	04:57:25	SHOT	79	11	Ggun250x2	
2499.9	04:57:45	SHOT	80	11	Ggun250x2	
2449.8	05:05:11	SHOT	81	12	Ggun250x2	Garbage
2449.8	05:05:50	SHOT	82	12	Ggun250x2	
2449.8	05:06:10	SHOT	83	12	Ggun250x2	
2449.8	05:07:24	SHOT	84	12	Ggun250x2	Good
2449.8	05:07:44	SHOT	85	12	Ggun250x2	
2449.8	05:08:04	SHOT	86	12	Ggun250x2	Good
2449.8	05:08:24	SHOT	87	12	Ggun250x2	Good
2449.8	05:08:44	SHOT	88	12	Ggun250x2	Good
2449.8	05:09:05	SHOT	89	12	Ggun250x2	Good
2399.9	05:16:27	SHOT	90	13	Ggun250x2	Bad Waveform
2399.9	05:16:47	SHOT	91	13	Ggun250x2	
2399.9	05:17:07	SHOT	92	13	Ggun250x2	
2399.9	05:18:15	SHOT	93	13	Ggun250x2	
2399.9	05:18:35	SHOT	94	13	Ggun250x2	
2399.9	05:18:55	SHOT	95	13	Ggun250x2	
2399.9	05:19:24	SHOT	96	13	Ggun250x2	Forced picks for 3 shots to get mediocre stack
2399.9	05:20:56	SHOT	97	13	Ggun250x2	
2349.5	05:30:28	SHOT	98	14	Ggun250x2	
2349.5	05:30:48	SHOT	99	14	Ggun250x2	
2349.5	05:31:57	SHOT	100	14	Ggun250x2	
2349.5	05:32:17	SHOT	101	14	Ggun250x2	
2349.5	05:32:37	SHOT	102	14	Ggun250x2	
2349.5	05:32:57	SHOT	103	14	Ggun250x2	
2349.5	05:33:17	SHOT	104	14	Ggun250x2	

**Source Configuration (Air Gun)**

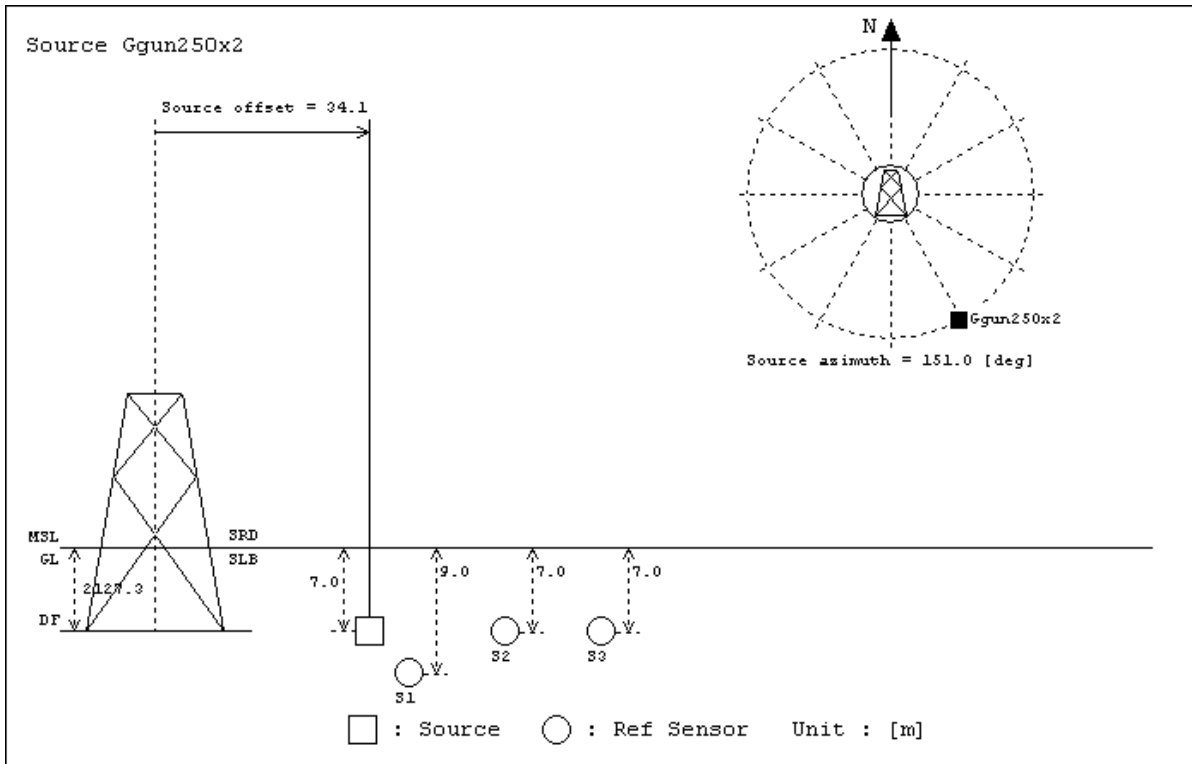
<b>Source Location</b> (Rig, Boat, Pit, Borehole)	Crane #3
<b>Source Group ID</b> (A, B, C, ...)	Ggun250x2
<b>Source Offset</b> (for fixed offset)	34m
<b>Source Azimuth</b> (for fixed offset)	151deg magnetic
<b>Source Depth from Surface</b>	7
<b>Source Depth from Logging Zero</b>	18

<b>Gun Controller Type</b>	WSI
<b>Gun Controller Model Name</b>	G-Gun
<b>Gun Controller Serial Number</b>	
<b>Gun Type</b>	
<b>Gun Serial Number(s)</b>	
<b>Gun Configuration</b> (3 Gun Cluster, Gun Array, etc.)	2 Gun Array
<b>Gun Chamber Volumes</b>	250 Cu. In. Each
<b>Gun Pit/Borehole Information</b>	
<b>Compressor Type</b>	Rig Air
<b>Compressor Flow Rate</b>	
<b>Air Regulator Pressure</b>	1950 PSI

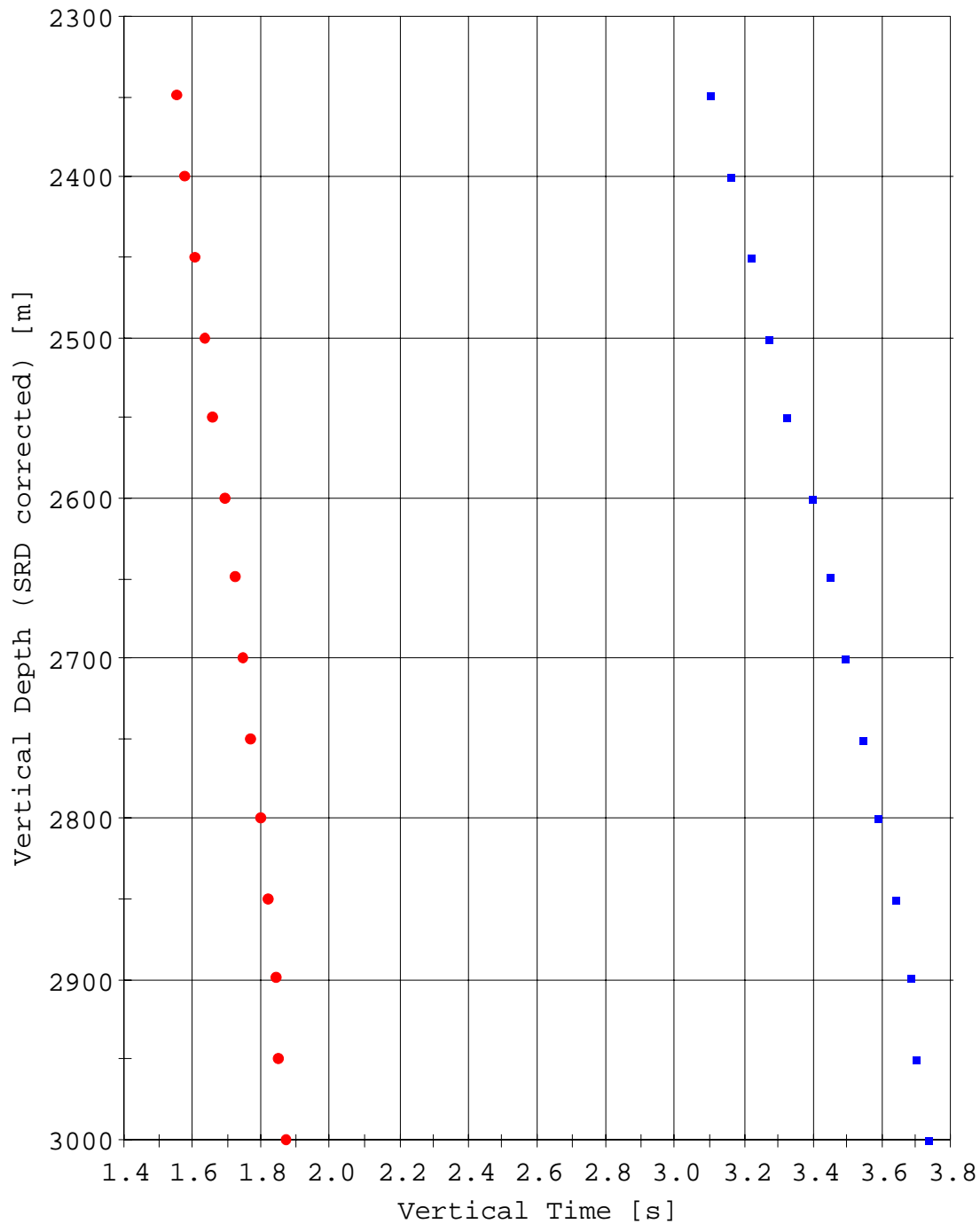
**Surface Sensor Configuration**

<b>Number of Surface Reference Sensors</b>	1
<b>Surface Recording Length</b>	
<b>Surface Sampling Rate</b>	
<b>Sensor Type (S1)</b>	MP-24H
<b>Sensor Type (S2)</b>	
<b>Sensor Type (S3)</b>	
<b>Sensor Depth from Surface (S1)</b>	9
<b>Sensor Depth from Surface (S2)</b>	
<b>Sensor Depth from Surface (S3)</b>	
<b>Sensor Depth from Logging Zero (S1)</b>	20
<b>Sensor Depth from Logging Zero (S2)</b>	
<b>Sensor Depth from Logging Zero (S3)</b>	
<b>Sensor Offset from Source (S1)</b>	0
<b>Sensor Offset from Source (S2)</b>	
<b>Sensor Offset from Source (S3)</b>	

# Source Geometry Sketch

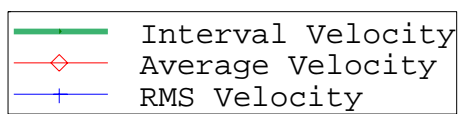
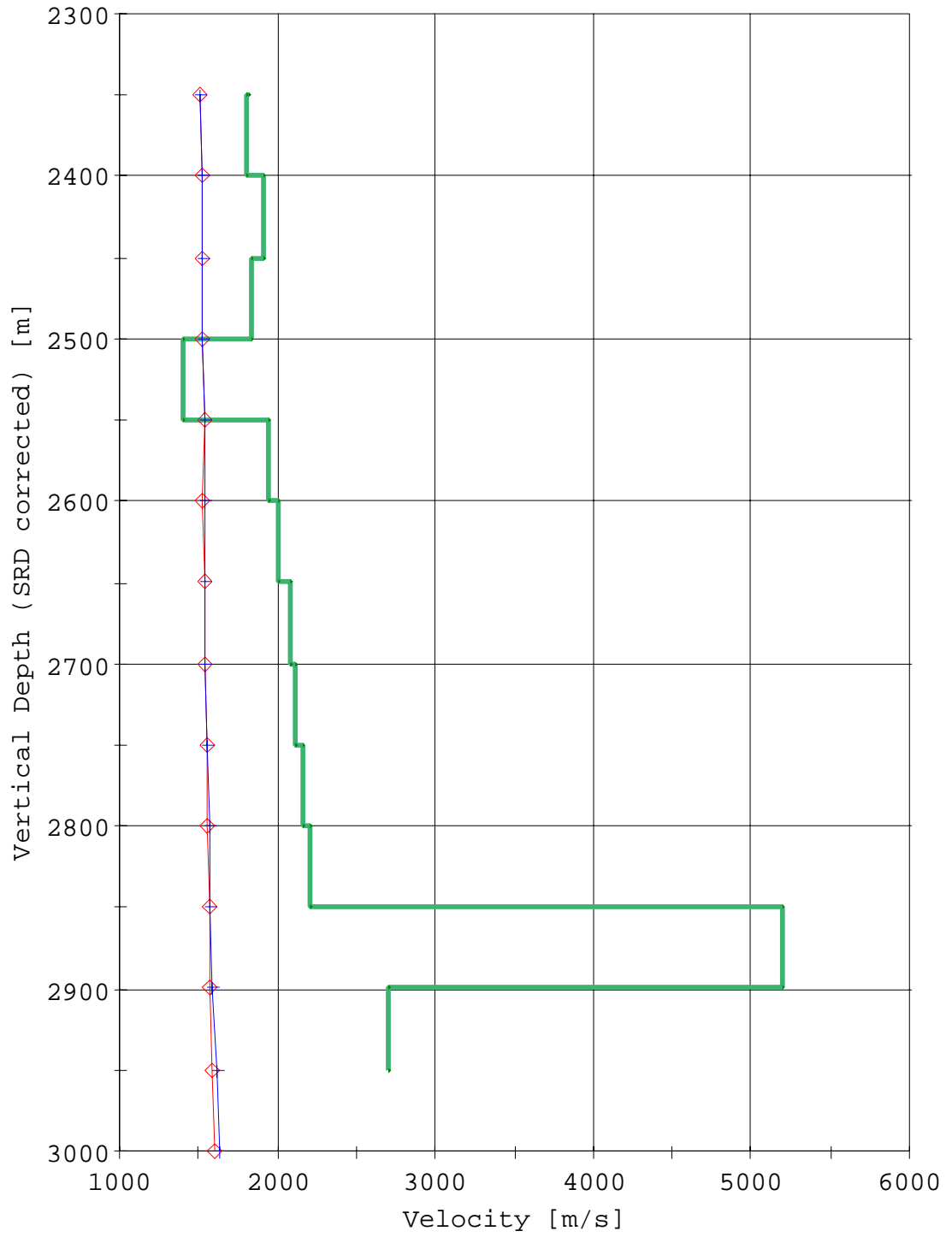



Time Depth Plot

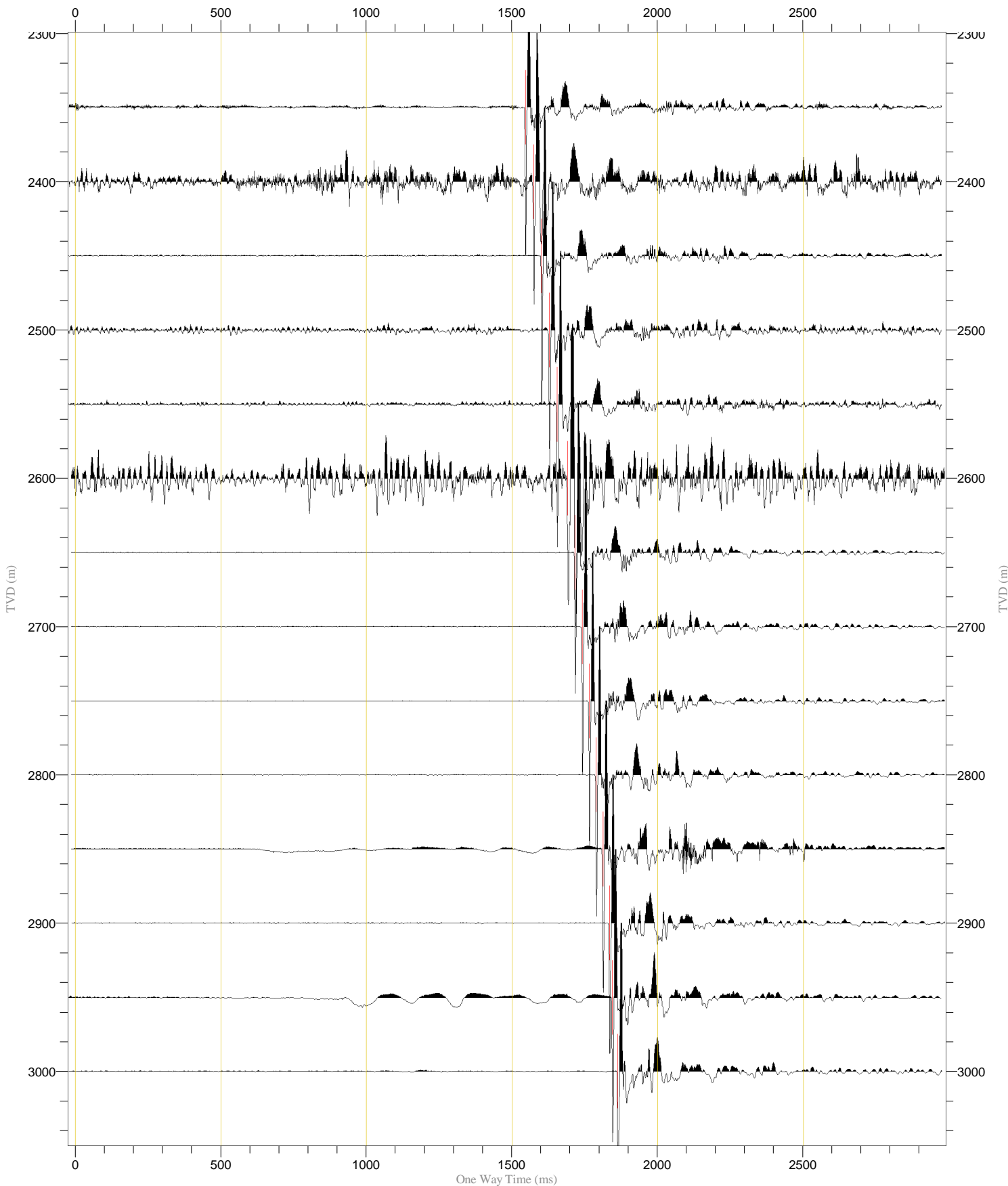


- One-way Vertical Time
- Two-way Vertical Time

Velocity Plot



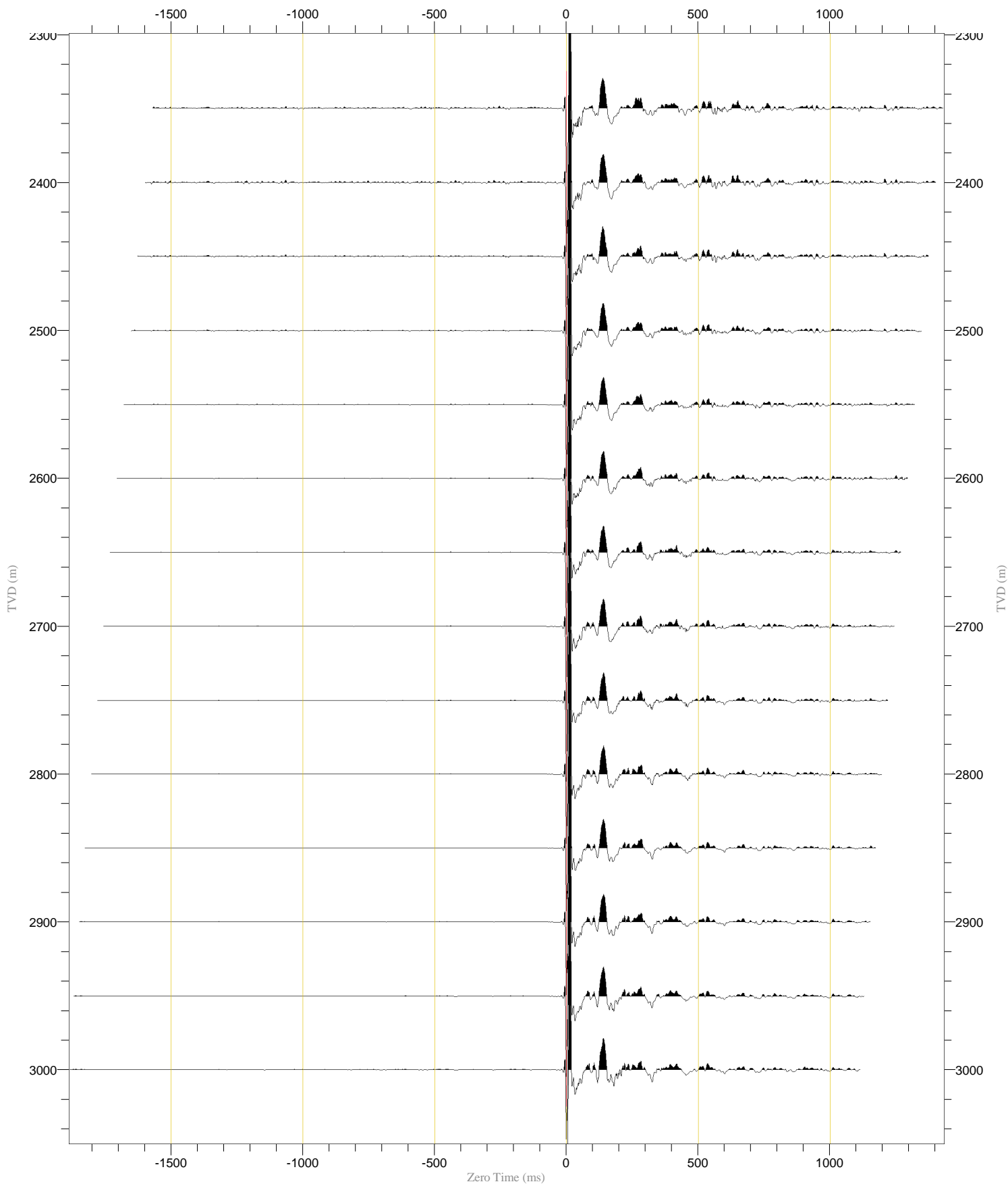
Raw Stack (Z)	Normalization Trace by Trace (250%) Polarity Normal One Way Time (ms) Scaling 5.7 cm/sec, 1/3450	
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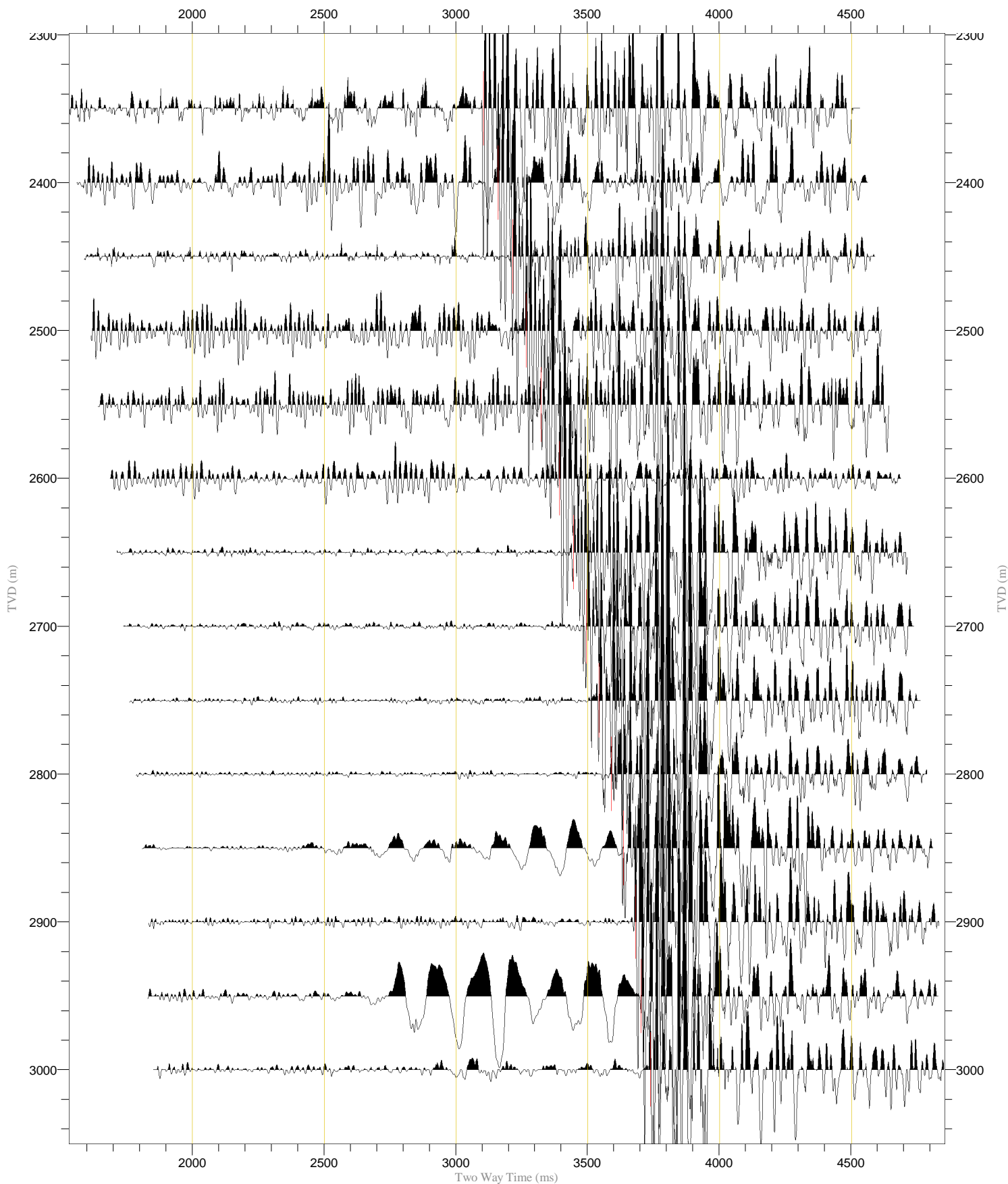
VSP Downgoing  
BPF 5.0 - 90.0Hz  
Median Filter 9 Traces

Normalization Trace by Trace (250%)  
Polarity Normal  
Zero Time (ms)  
Scaling 5.2 cm/sec, 1/3450



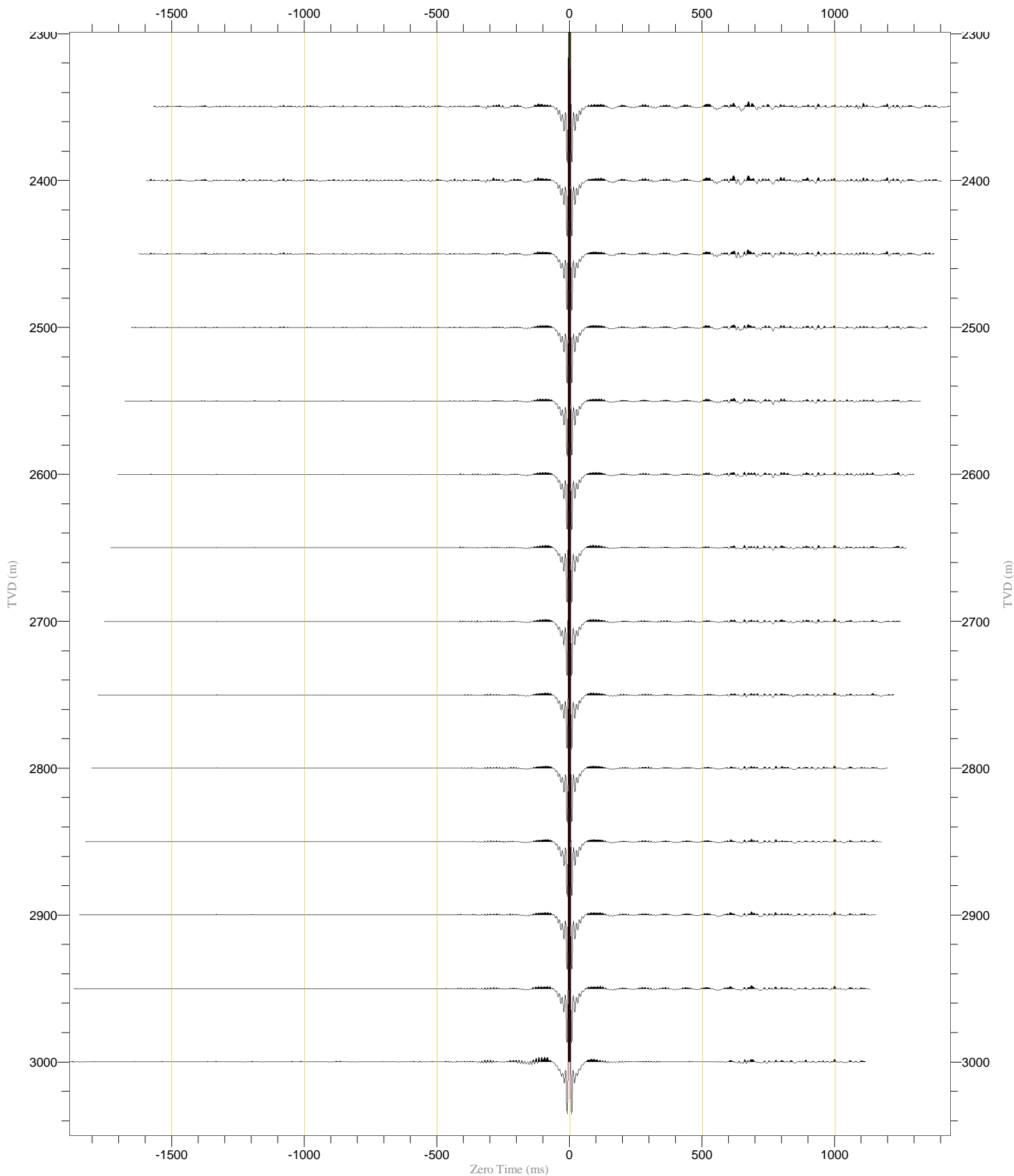
VSP Upgoing  
BPF 5.0 - 90.0Hz  
Median Filter 9 Traces

Normalization Trace by Trace (250%)  
Polarity Normal  
Two Way Time (ms)  
Scaling 5.2 cm/sec, 1/3450



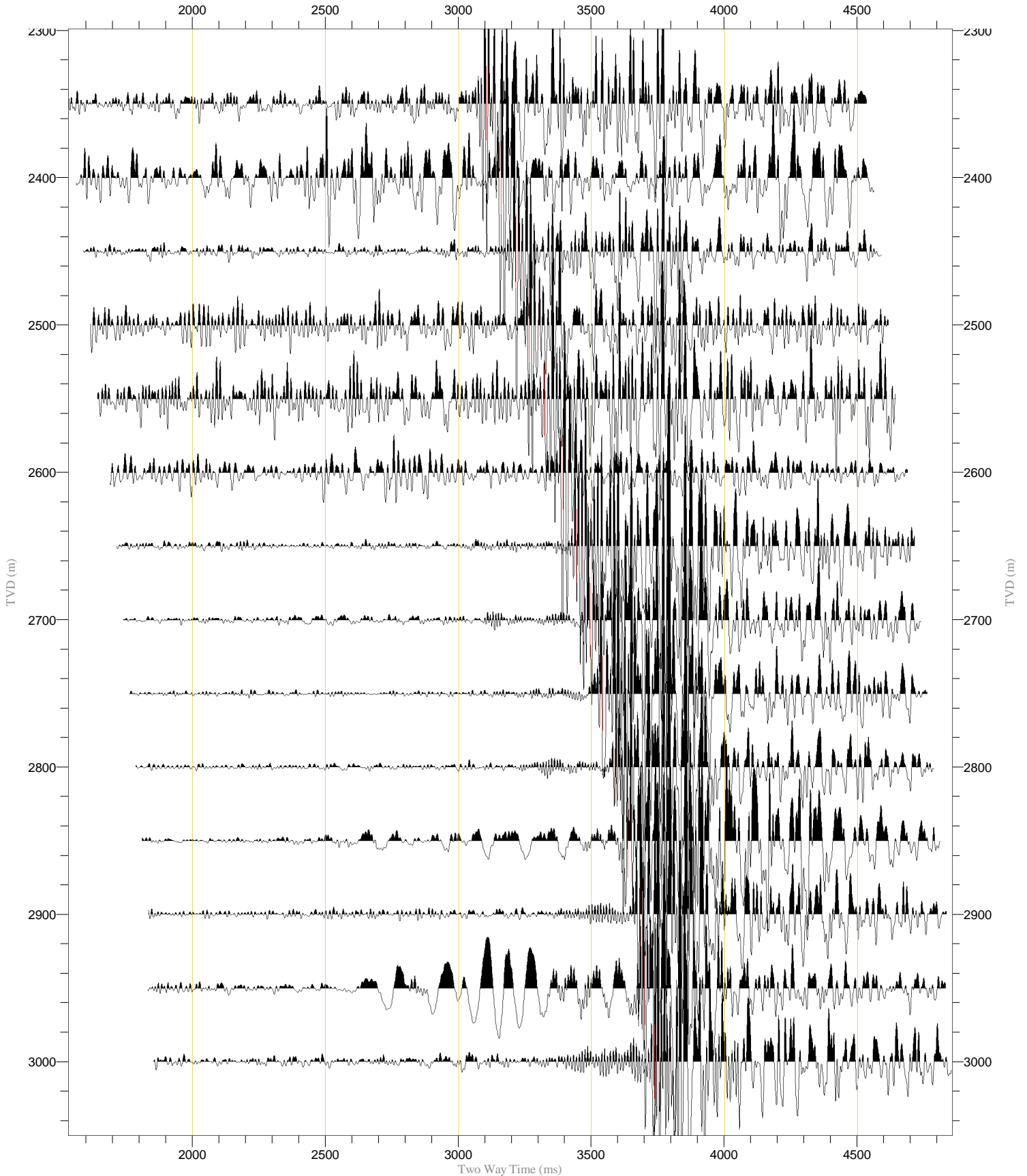
VSP Waveshape decon downgoing  
BPF 5.0 - 90.0Hz  
Median Filter 9 Traces  
Waveshape Decon.(wavelet: 8.0 - 85.0 Hz zero-phase)

Normalization Trace by Trace (250%)  
Polarity Normal  
Zero Time (ms)  
Scaling 5.2 cm/sec, 1/3500



VSP Waveshape decon upgoing  
BPF 5.0 - 90.0Hz  
Median Filter 9 Traces  
Waveshape Decon.(wavelet: 8.0 - 85.0 Hz zero-phase)

Normalization Trace by Trace (250%)  
Polarity Normal  
Two Way Time (ms)  
Scaling 5.2 cm/sec, 1/3500



VSP Corridor Stack (Input)

BPF 5.0 - 90.0Hz

Median Filter 9 Traces

Waveshape Decon.(wavelet: 8.0 - 85.0 Hz zero-phase)

BPF 8.0 - 85.0Hz

Travel time exponent = 1.50

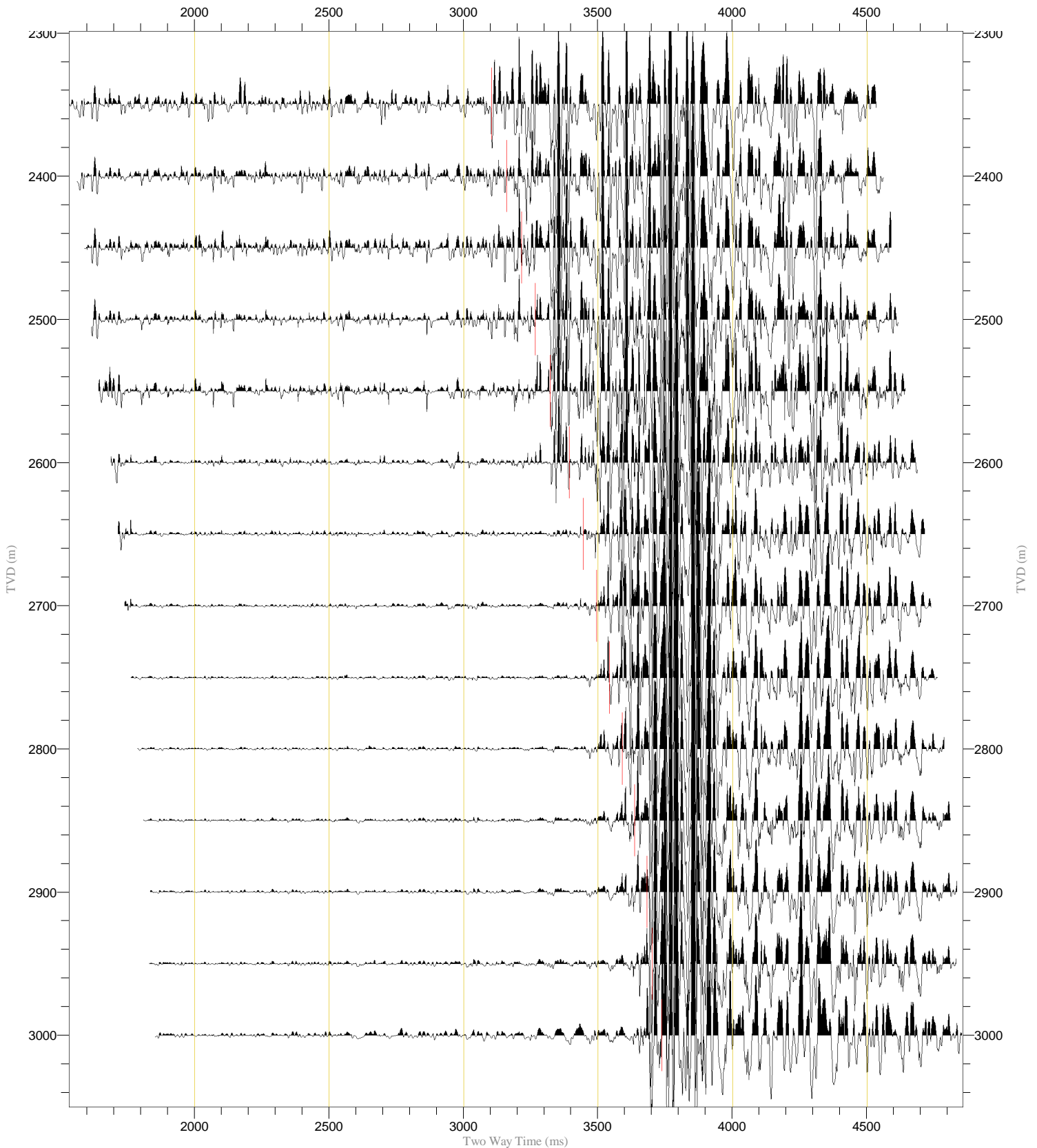
Median Filter 7 Traces

Normalization Trace by Trace (250%)

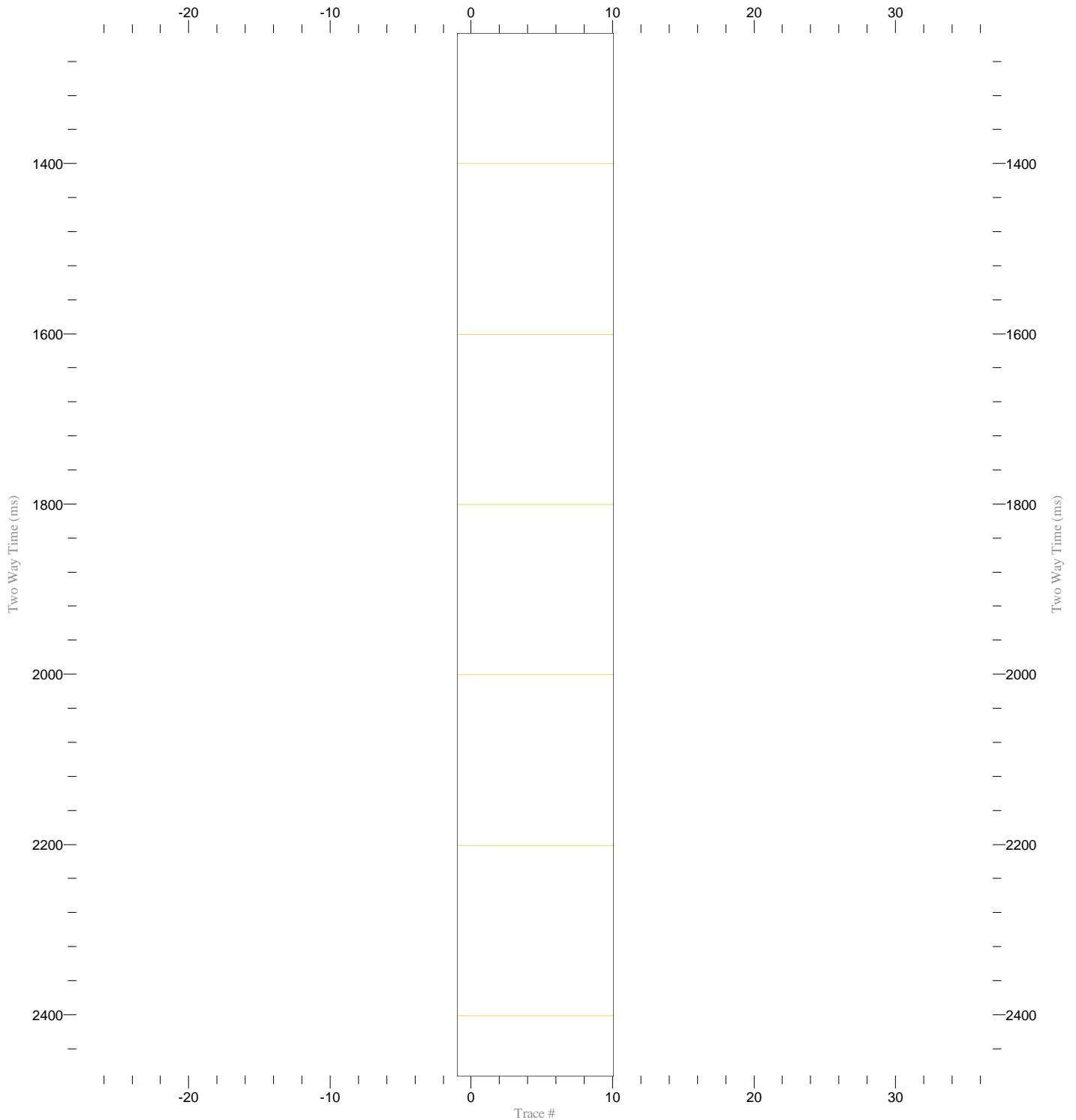
Polarity Normal

Two Way Time (ms)

Scaling 5.2 cm/sec, 1/3640



VSP Corridor Stack (output) BPF 5.0 - 90.0Hz Median Filter 9 Traces Waveshape Decon.(wavelet: 8.0 - 85.0 Hz zero-phase) BPF 8.0 - 85.0Hz Travel time exponent = 1.50 Median Filter 7 Traces Corridor Stack (Mean): BPF 5.0 - 90.0Hz	Normalization Trace by Trace (250%) Polarity Normal Two Way Time (ms) Scaling 15.00 cm/sec, 4.01/cm	
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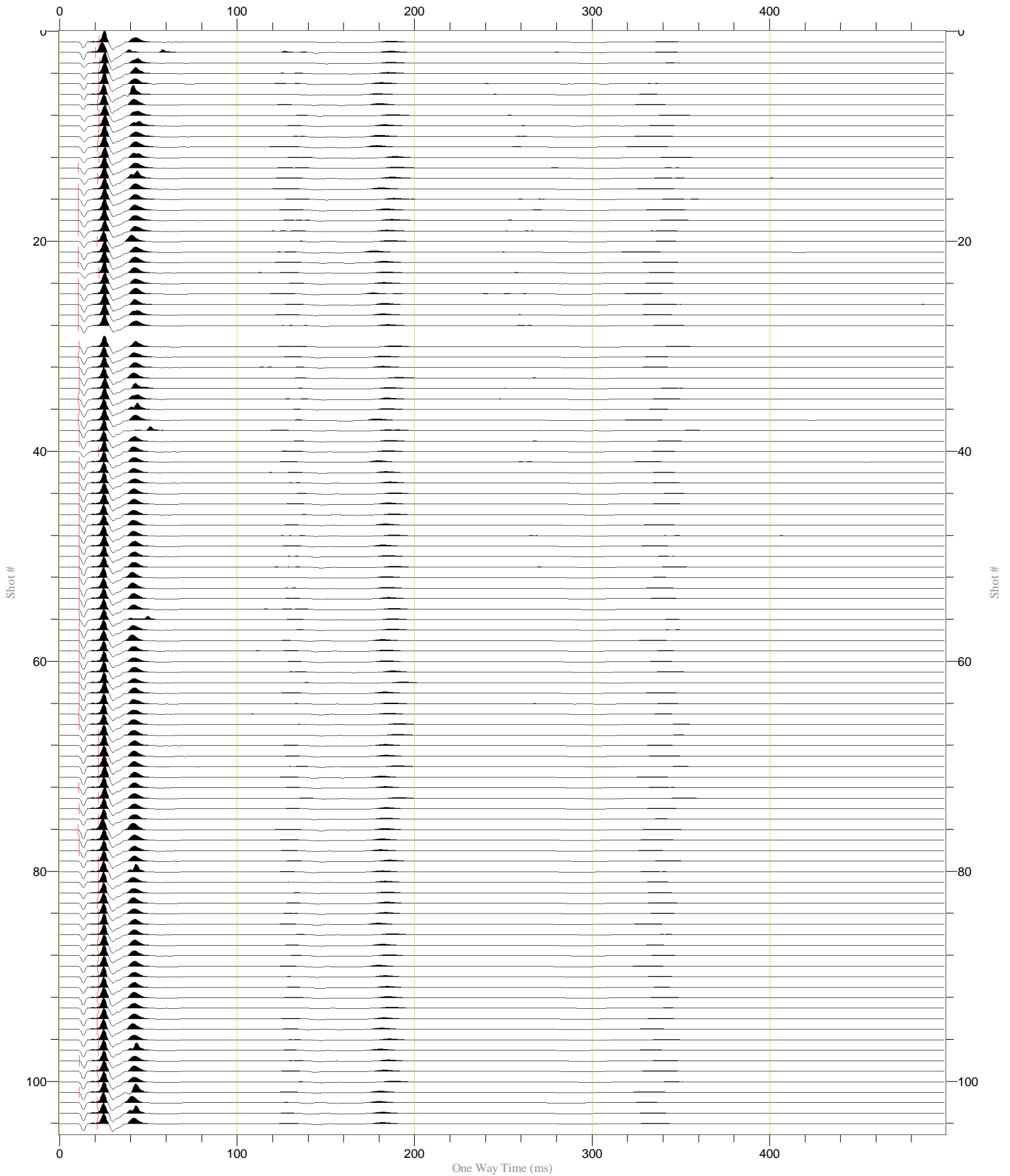
Source Sensor Signature

Normalization Trace by Trace (100%)

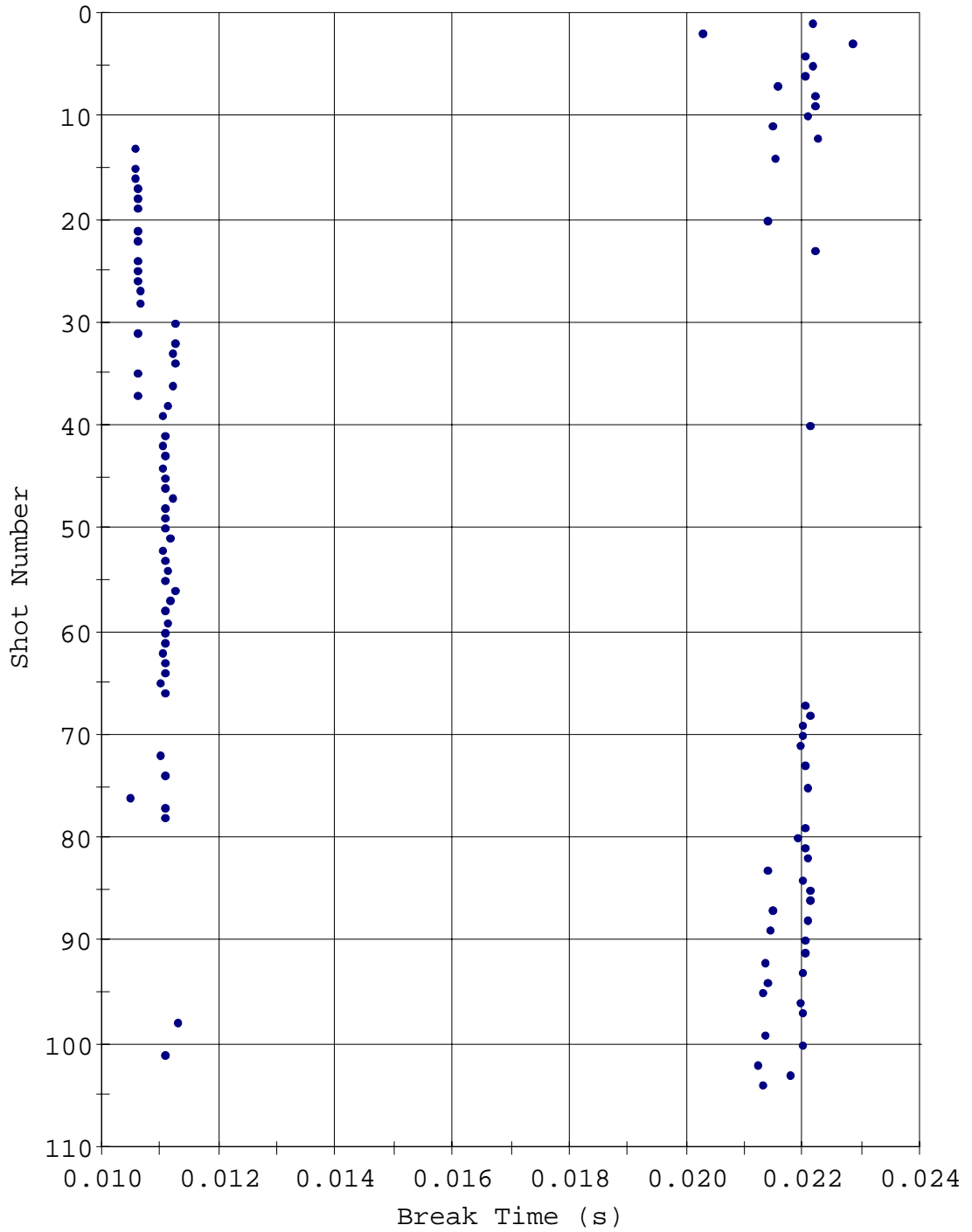
Polarity Normal

One Way Time (ms)

Scaling 34.99 cm/sec, 4.83/cm



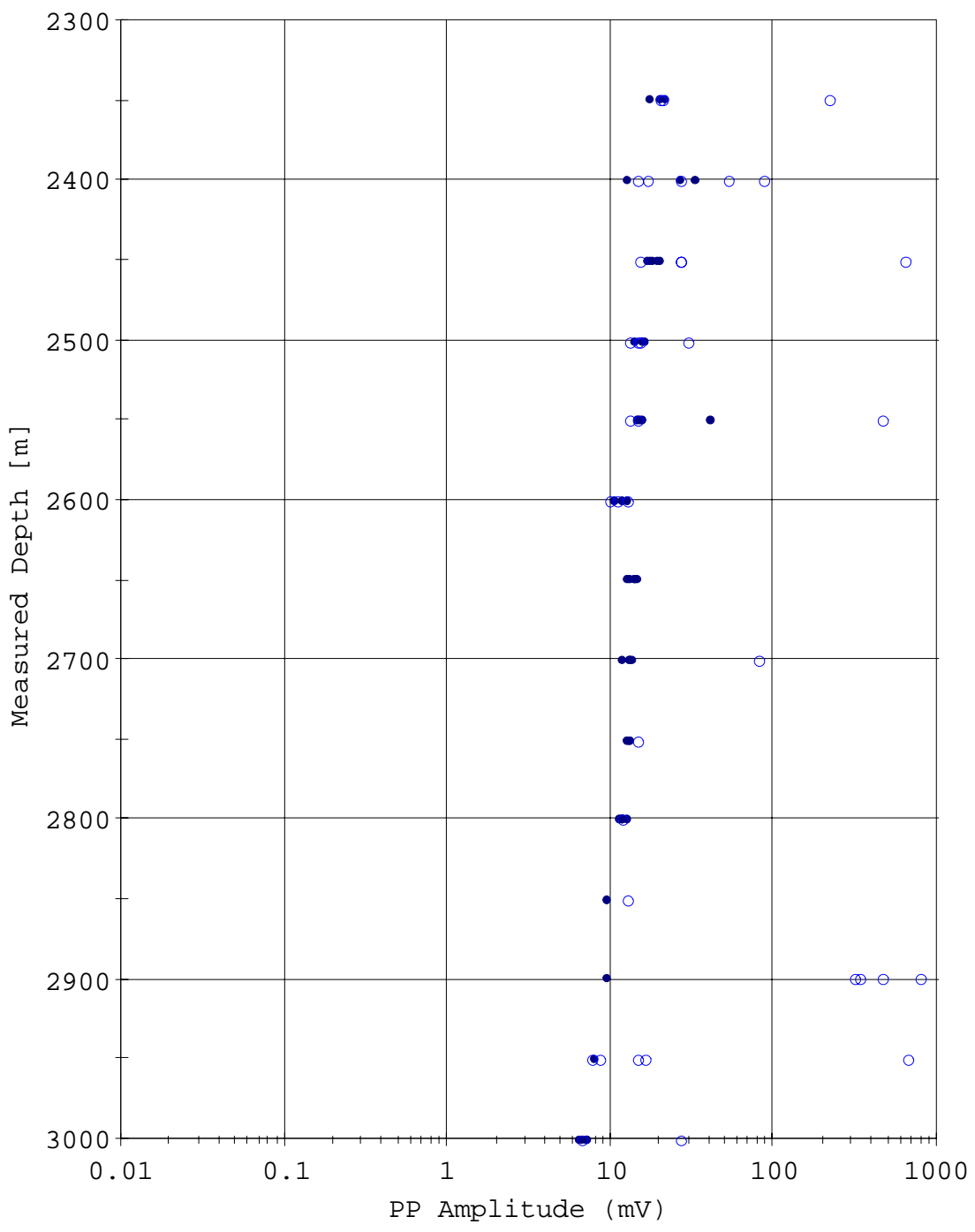
Surface Sensor QC Plot Page



• Surface Sensor Break Time

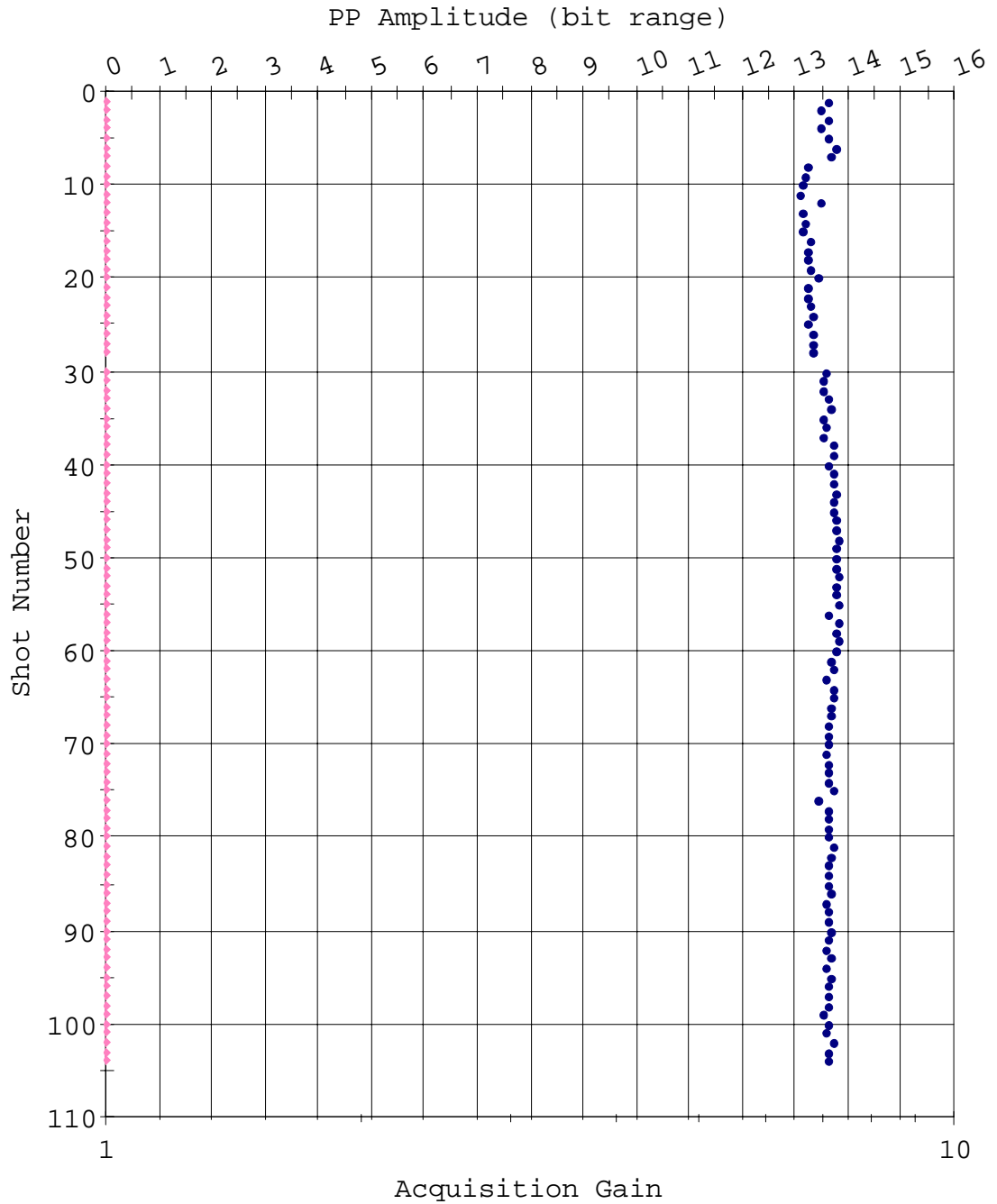


Peak To Peak Plot (Z)



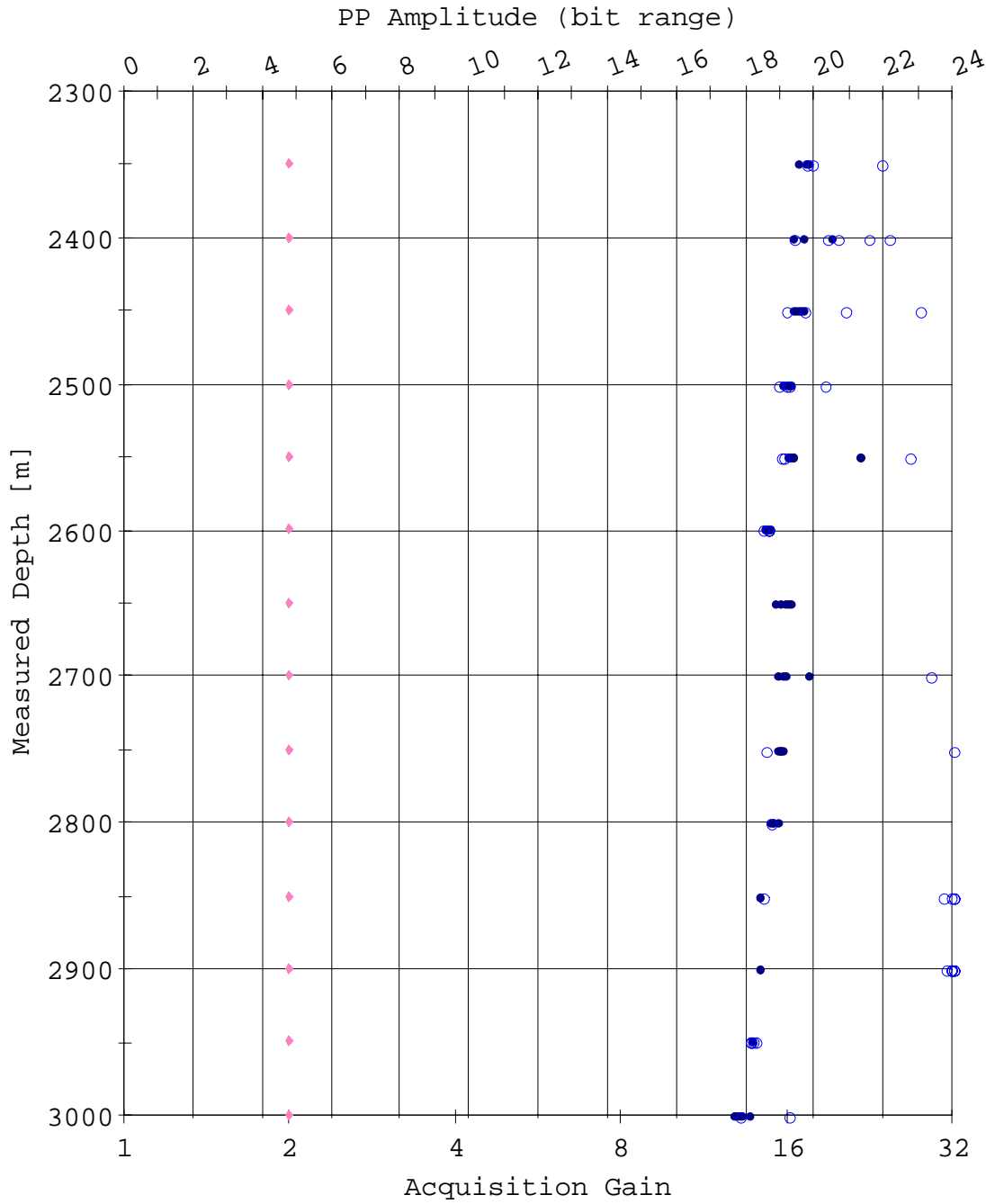
• PP Amplitude (mV) accepted for stack  
○ PP Amplitude (mV) rejected

Amplitude QC Plot (Surface)



- PP Amplitude (bit range) accepted for stack
- PP Amplitude (bit range) rejected
- ◆ Acquisition Gain

Amplitude QC Plot (Z)



- PP Amplitude (bit range) accepted for stack
- PP Amplitude (bit range) rejected
- ◆ Acquisition Gain

**Observer's Note (1/2)**

Well depth [m]	Time	Shot Type	Shot#	Stack#	Source	Remarks
2999.5	03:17:04	SHOT	1	1	Ggun250x2	
2999.5	03:17:22	SHOT	2	1	Ggun250x2	
2999.5	03:17:40	SHOT	3	1	Ggun250x2	Bad TT Pick
2999.5	03:17:58	SHOT	4	1	Ggun250x2	
2999.5	03:18:16	SHOT	5	1	Ggun250x2	
2999.5	03:18:35	SHOT	6	1	Ggun250x2	Bad Pick
2999.5	03:18:53	SHOT	7	1	Ggun250x2	
2949.8	03:25:07	SHOT	8	2	Ggun250x2	Bad Pick - Manually Adj
2949.8	03:25:41	SHOT	9	2	Ggun250x2	Noisy
2949.8	03:26:02	SHOT	10	2	Ggun250x2	Garbage
2949.8	03:26:21	SHOT	11	2	Ggun250x2	
2949.8	03:27:23	SHOT	12	2	Ggun250x2	Good
2949.8	03:27:41	SHOT	13	2	Ggun250x2	
2949.8	03:28:31	SHOT	14	2	Ggun250x2	Coupling Problem
2949.8	03:28:49	SHOT	15	2	Ggun250x2	Noisy
2899.6	03:35:46	SHOT	16	3	Ggun250x2	Garbage
2899.6	03:36:06	SHOT	17	3	Ggun250x2	Good - only shot in stack
2899.6	03:36:27	SHOT	18	3	Ggun250x2	
2899.6	03:36:45	SHOT	19	3	Ggun250x2	Noise
2899.6	03:37:03	SHOT	20	3	Ggun250x2	
2899.6	03:37:22	SHOT	21	3	Ggun250x2	
2899.6	03:38:01	SHOT	22	3	Ggun250x2	
2899.6	03:38:19	SHOT	23	3	Ggun250x2	
2899.6	03:38:43	SHOT	24	3	Ggun250x2	
2899.6	03:39:01	SHOT	25	3	Ggun250x2	
2899.6	03:39:55	SHOT	26	3	Ggun250x2	
2899.6	03:40:21	SHOT	27	3	Ggun250x2	
2899.6	03:40:50	SHOT	28	3	Ggun250x2	
2899.6	03:41:36	SHAK	29			Poor anchoring on entire station except for one good shot
2849.7	03:48:40	SHOT	30	4	Ggun250x2	
2849.7	03:48:59	SHOT	31	4	Ggun250x2	Late
2849.7	03:49:18	SHOT	32	4	Ggun250x2	
2849.7	03:49:36	SHOT	33	4	Ggun250x2	
2849.7	03:50:07	SHOT	34	4	Ggun250x2	Only decent shot, probably too early
2849.7	03:50:35	SHOT	35	4	Ggun250x2	
2849.7	03:52:39	SHOT	36	4	Ggun250x2	
2849.7	03:52:57	SHOT	37	4	Ggun250x2	
2799.6	04:02:02	SHOT	38	5	Ggun250x2	
2799.6	04:02:20	SHOT	39	5	Ggun250x2	
2799.6	04:02:40	SHOT	40	5	Ggun250x2	
2799.6	04:03:01	SHOT	41	5	Ggun250x2	
2799.6	04:03:21	SHOT	42	5	Ggun250x2	
2750.0	04:09:41	SHOT	43	6	Ggun250x2	
2750.0	04:10:01	SHOT	44	6	Ggun250x2	
2750.0	04:10:21	SHOT	45	6	Ggun250x2	
2750.0	04:10:53	SHOT	46	6	Ggun250x2	Good
2750.0	04:11:15	SHOT	47	6	Ggun250x2	
2750.0	04:11:35	SHOT	48	6	Ggun250x2	
2750.0	04:11:56	SHOT	49	6	Ggun250x2	
2750.0	04:12:16	SHOT	50	6	Ggun250x2	Good
2699.9	04:19:23	SHOT	51	7	Ggun250x2	
2699.9	04:19:43	SHOT	52	7	Ggun250x2	Noisy
2699.9	04:20:04	SHOT	53	7	Ggun250x2	
2699.9	04:20:26	SHOT	54	7	Ggun250x2	
2699.9	04:20:47	SHOT	55	7	Ggun250x2	
2649.8	04:27:22	SHOT	56	8	Ggun250x2	
2649.8	04:27:42	SHOT	57	8	Ggun250x2	
2649.8	04:28:02	SHOT	58	8	Ggun250x2	
2649.8	04:28:22	SHOT	59	8	Ggun250x2	

**Observer's Note (2/2)**

Well depth [m]	Time	Shot Type	Shot#	Stack#	Source	Remarks
2649.8	04:28:42	SHOT	60	8	Ggun250x2	
2599.8	04:35:01	SHOT	61	9	Ggun250x2	Noisy
2599.8	04:35:21	SHOT	62	9	Ggun250x2	Forced TT on all five other shots
2599.8	04:35:41	SHOT	63	9	Ggun250x2	
2599.8	04:36:40	SHOT	64	9	Ggun250x2	
2599.8	04:37:17	SHOT	65	9	Ggun250x2	
2599.8	04:38:40	SHOT	66	9	Ggun250x2	Noisy station, but manually picked viable TT
2549.9	04:45:58	SHOT	67	10	Ggun250x2	
2549.9	04:46:18	SHOT	68	10	Ggun250x2	Good
2549.9	04:46:38	SHOT	69	10	Ggun250x2	Garbage
2549.9	04:46:58	SHOT	70	10	Ggun250x2	Good
2549.9	04:47:18	SHOT	71	10	Ggun250x2	Good
2549.9	04:47:38	SHOT	72	10	Ggun250x2	
2549.9	04:48:07	SHOT	73	10	Ggun250x2	
2499.9	04:55:44	SHOT	74	11	Ggun250x2	Good
2499.9	04:56:04	SHOT	75	11	Ggun250x2	Good
2499.9	04:56:24	SHOT	76	11	Ggun250x2	
2499.9	04:56:44	SHOT	77	11	Ggun250x2	
2499.9	04:57:04	SHOT	78	11	Ggun250x2	
2499.9	04:57:25	SHOT	79	11	Ggun250x2	
2499.9	04:57:45	SHOT	80	11	Ggun250x2	
2449.8	05:05:11	SHOT	81	12	Ggun250x2	Garbage
2449.8	05:05:50	SHOT	82	12	Ggun250x2	
2449.8	05:06:10	SHOT	83	12	Ggun250x2	
2449.8	05:07:24	SHOT	84	12	Ggun250x2	Good
2449.8	05:07:44	SHOT	85	12	Ggun250x2	
2449.8	05:08:04	SHOT	86	12	Ggun250x2	Good
2449.8	05:08:24	SHOT	87	12	Ggun250x2	Good
2449.8	05:08:44	SHOT	88	12	Ggun250x2	Good
2449.8	05:09:05	SHOT	89	12	Ggun250x2	Good
2399.9	05:16:27	SHOT	90	13	Ggun250x2	Bad Waveform
2399.9	05:16:47	SHOT	91	13	Ggun250x2	
2399.9	05:17:07	SHOT	92	13	Ggun250x2	
2399.9	05:18:15	SHOT	93	13	Ggun250x2	
2399.9	05:18:35	SHOT	94	13	Ggun250x2	
2399.9	05:18:55	SHOT	95	13	Ggun250x2	
2399.9	05:19:24	SHOT	96	13	Ggun250x2	Forced picks for 3 shots to get mediocre stack
2399.9	05:20:56	SHOT	97	13	Ggun250x2	
2349.5	05:30:28	SHOT	98	14	Ggun250x2	
2349.5	05:30:48	SHOT	99	14	Ggun250x2	
2349.5	05:31:57	SHOT	100	14	Ggun250x2	
2349.5	05:32:17	SHOT	101	14	Ggun250x2	
2349.5	05:32:37	SHOT	102	14	Ggun250x2	
2349.5	05:32:57	SHOT	103	14	Ggun250x2	
2349.5	05:33:17	SHOT	104	14	Ggun250x2	