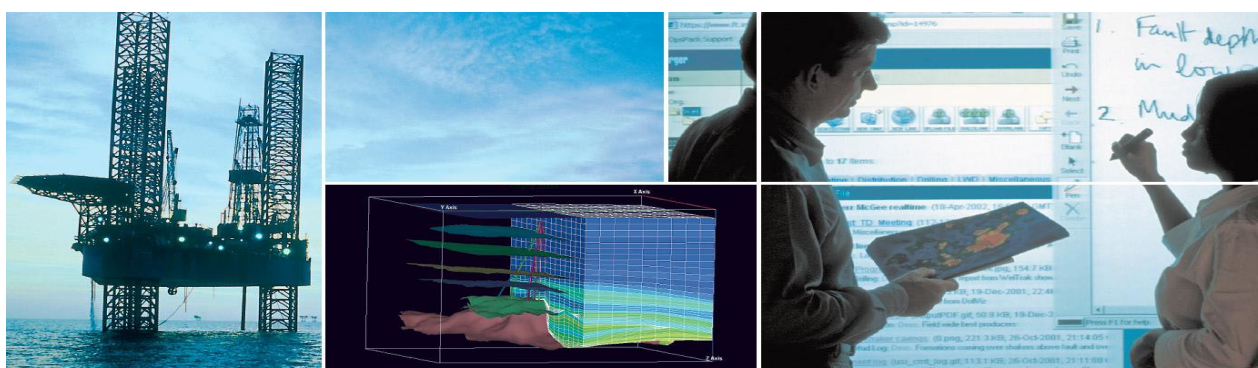


Data & Consulting Services | Driven by Data

Survey type: Rig Source VSP Survey
Company: Origin Energy Resources Ltd
Well: Rockhopper-1 ST1
Field: Rockhopper
Country: Australia
Date: 9-Feb-2010

VSP QC Report prepared by DCS, Perth

This QC report contains Time-Depth information and QC plots of VSP Field Data after Time picking and QC processing by the DCS processing center.



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Introduction

A borehole seismic survey was recorded in a deviated (max 36.1 deg) offshore well Rockhopper-1 ST1 on 9 February 2010. This survey included Rig Source VSP measurements from 3431.7 m MD DF to 1615.2 m MD DF. Above this depth check shots can be used from the survey acquired on 4 January 2010 in the Rockhopper-1 well, reported in a separate Checkshot QC report. The data were acquired using a 4 shuttle (15.12 m spacing) VSI downhole Tool.

A Delta G-Gun (3x150 cu. inch) array was deployed from the Rig (Kan Tan IV) with an azimuth of 029 degrees with reference to North. The offset of gun was fixed 46 m from the wellhead. The guns were submerged from a buoy 4.8 meters below the tide level and fired at 1850 psi using N2 bottles. A calibrated Near Field (NF) reference hydrophone was deployed 1.25 meters below the center of the gun cluster. Schlumberger's Trisor Gun controller was used for the tuning and firing of the gun cluster, hence no source to hydrophone time correction is required. Complete field results are reported in the separate Acquisition Survey Report.

QC Results

This Quick-look report comments on the quality of the acquired data and presents QC displays of the acquired data as well as a re-picked Time-Depth listing after QC by the DCS processing centre. Options for further processing of the data are discussed.

Data quality is considered to be excellent. The VSP levels were acquired with at least 5 good repeatable shots per level. A Gamma Ray log was run for depth correlation and the VSP was shifted down 1.2 m to be on depth with the Run 1 reference log.

Seismic Reference Datum (SRD) for the vertical Time-Depth information in this report is LAT. The average tide level during the VSP survey was 2.1 m above LAT and a bulk correction has been applied to the data. Survey geometry corrections and a static shift to correct the data to SRD were applied. This correction was done with a surface velocity of 1524 m/s.

The various QC displays present the stacked X, Y and Z component data as well as a TT aligned display of the Z component. The NF hydrophone sensor and Trisor QC displays show that the source signature / Gun depth were stable. Quicklook QC VSP processing was done and several QC displays including the upgoing deconvolved wavefield and the Corridor Stack are presented in this report.

It is important to realize that these QC results use simple geometry correction only and that, due to the significant well deviation and the use of a rig source, further processing is required to obtain more accurate vertical times and an image underneath the well trajectory.

Further Processing Recommendations

Our recommendation is to proceed with full 3-C VSP processing and combine these results with those of the Rockhopper-1 survey as well as sonic calibration, synthetic seismogram generation and surface seismic to obtain a three way tie. Advanced products like Q Estimation, Phase Matching and Shear velocity analysis can also be considered.

Company	Origin Energy Resources Ltd
Well	Rockhopper-1 ST1
Field	Rockhopper
Country	Australia
State	TAS
Logging Date	9-Feb-2010
Run Number	5
Service Order	
Well Head (Latitude)	39° 47' 34.18" S
Well Head (Longitude)	145° 26' 21.47" E
Well Head (X Coordinate)	366374.1 UTM
Well Head (Y Coordinate)	5594071.5 UTM
Total Depth - Driller	3482.0 m
Total Depth - Logger	3482.5 m
Maximum Hole Deviation	36.7 deg
Azimuth of Maximum Deviation	
Program Version	17C0-154
Bit Size	8.500 in
Recorded by	P.Guzman/ T.Ngartamta
Witnessed by	Robert

Permanent Datum	LAT
Elevation Permanent Datum	0.0 m
Above Permanent Datum	26.0 m
Drilling Measured From	DF
Derrick Floor	26.0 m
Ground Level	-74.3 m
Kelly Bush	
Log Measured From	DF
Elevation Log Zero	26.0 m

Water Velocity	1524.0 m/s
Seismic Reference Datum	0.0 m

- Rockhopper-1 ST1 is a deviated well located in T/18P in the Bass Basin.
- Toolstring run as per toolsketch.
- Data acquired until 1800 m only as per client request
-
-
-
-
-
-
-
-
-
-
-
-
- Additional mud properties:
Chlorides=XXXmg/L; FV=XXsec/qt@ XXdegC; PV= XXcP@XXdegC; YP=XXlbs/100ft ² ; Tot Hardness=XXXmg/l.

Borehole Seismic Source Information

Engineer: Patricia Guzman / Togto N.

Well Name: Rockhopper-1 ST1

Date: 09-Feb-2010

Rig: Kan Tan IV

<Geometrical Coordinates>

Longitude: 145 26' 21.47" E

Latitude: 39 47' 34.18" S

<UTM Coordinates>

Easting: 366,374.124 E

Northing: 5,594,071.512 N

Permanent Datum: LAT

Log Measured From: DF

Elev. 26.0

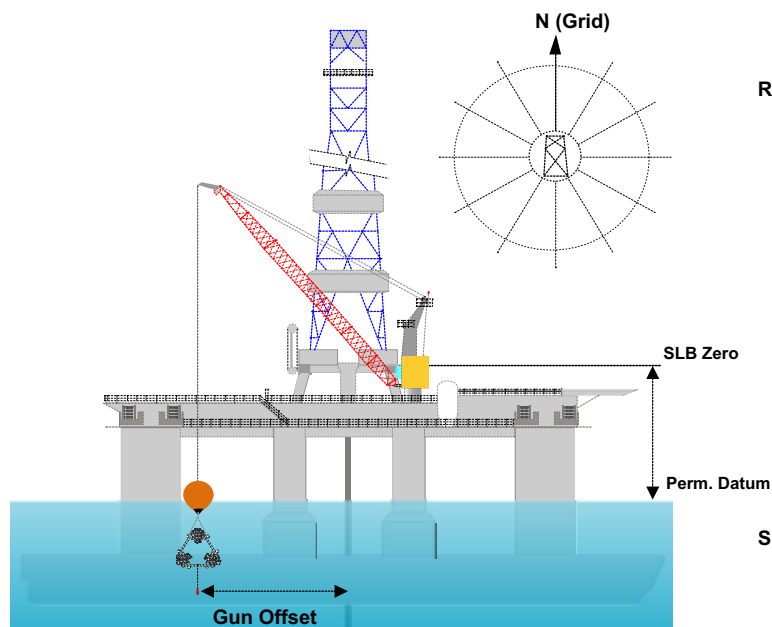
Unit : m

SRD (Seismic Reference Datum): LAT

Elev. 0.0

from SLB zero: 26.0 (SRDS)

Water Depth: 74.3



RIG Heading: 317.0 deg
 Rig Crane used: ☐ Port side ☒ Starboard side
 Rig Crane azimuth (from Rig Heading): 47.0 deg
 Gun Azimuth (Grid North): 29.0 deg (GAZI)
 Hy1 Azimuth (Grid North): 29.0 deg

Gun Offset: 46.0 (GOFF)
 NF Hydrophone Offset: 46.0

Surface Velocity: 1524 m/s (SVEL)

Cluster Gun Type:

☐ WSGC-P90☒ WSGC-T90

Gun Type:

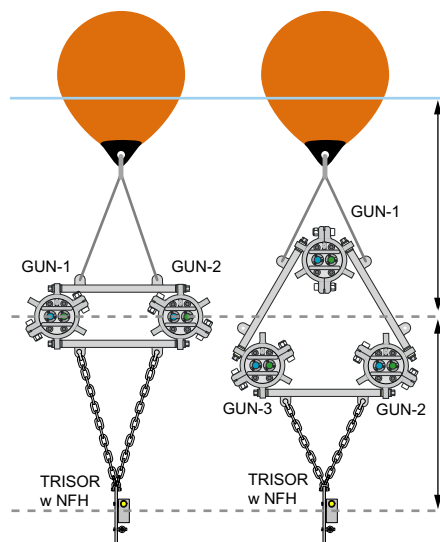
☒ WSG-G150 (G-Gun 150cu.inch)
☐ WSG-G250 (G-Gun 250cu.inch)

GUN-1 sn: 451105

GUN-2 sn: 773101

GUN-3 sn: 451182

Cluster Frame sn: MWA04



Gun Depth from Local Tide
4.8

Gun Depth from SLB
28.7 (GDSZ)

NF Hydrophone Type: FJORD HD1-TC

SN: HD1-TC0409-068-016F (WSQB-UB 8025)

Sensitivity (nC/B): 75.8 (-016F)

Hy 1 Depth from Gun
1.25

Hy 1 Depth from LT
6.05

Hy 1 Depth from SLB zero
29.95

Air Gun Firing Pressure: 1850 psi

Accumulator Pressure (Inlet pressure): 2400 psi

Source of Air supply: N2 Gas Bottle Racks

Air Controller (Regulator) Type: WAP-SS01

sn: V18-P0001

Sea Condition

Sea Condition: Slight

Low Tide Level: 1.1

High Tide Level: 2.4

Wave Height: 2.0

at 02:06 09/feb/10

at 08:06 09/feb/10

Main survey started at 06:40 09/feb/10
 ended at 10:50 09/feb/10

Tide Table available: ☒ Yes☐ No

Average Local Tide during survey 2.1 m above LAT

HSE

Safe Distance: 0.0

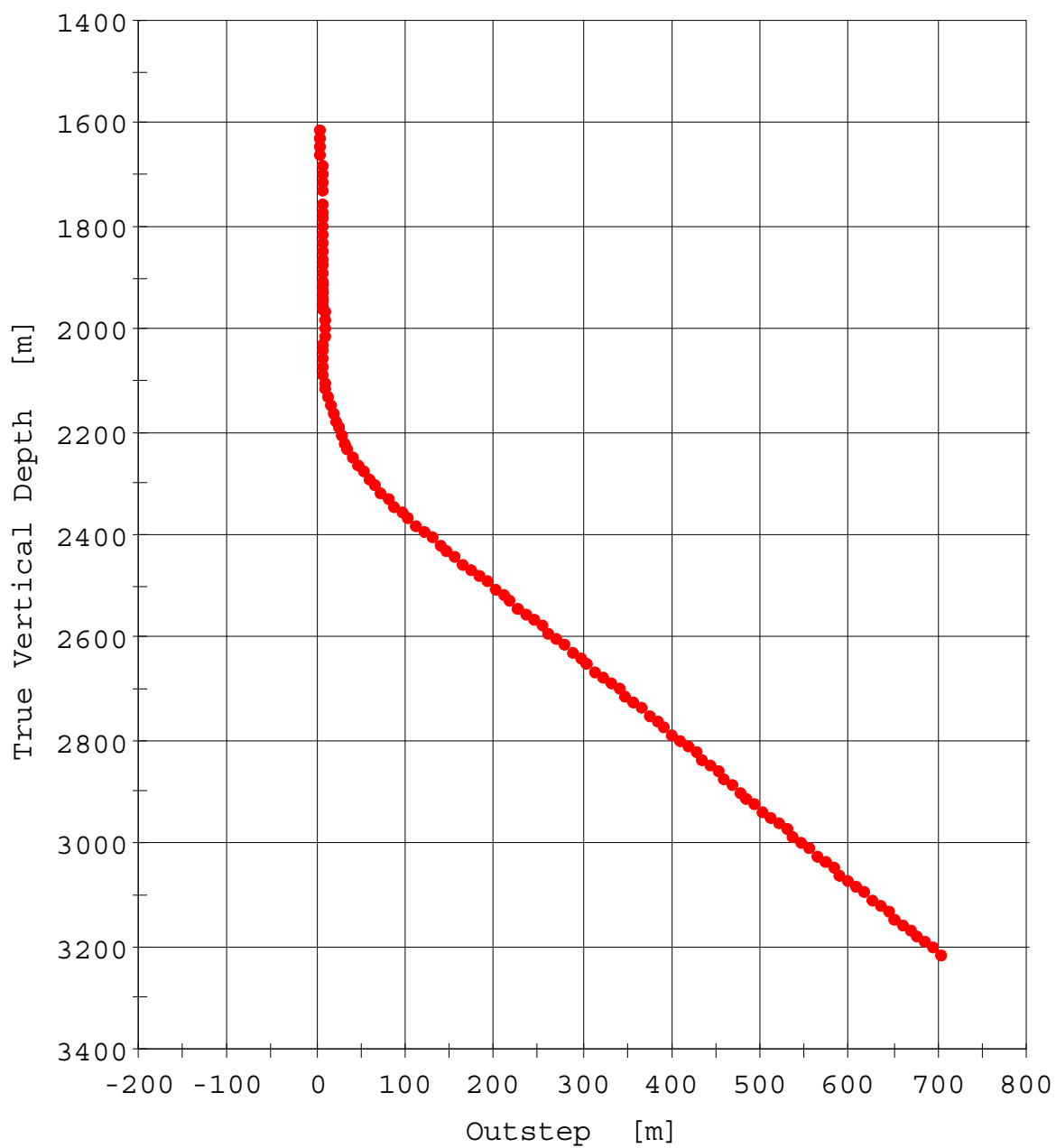
Observation of Marine Mammals

Marine Mammals sighted in 30 minutes before the survey

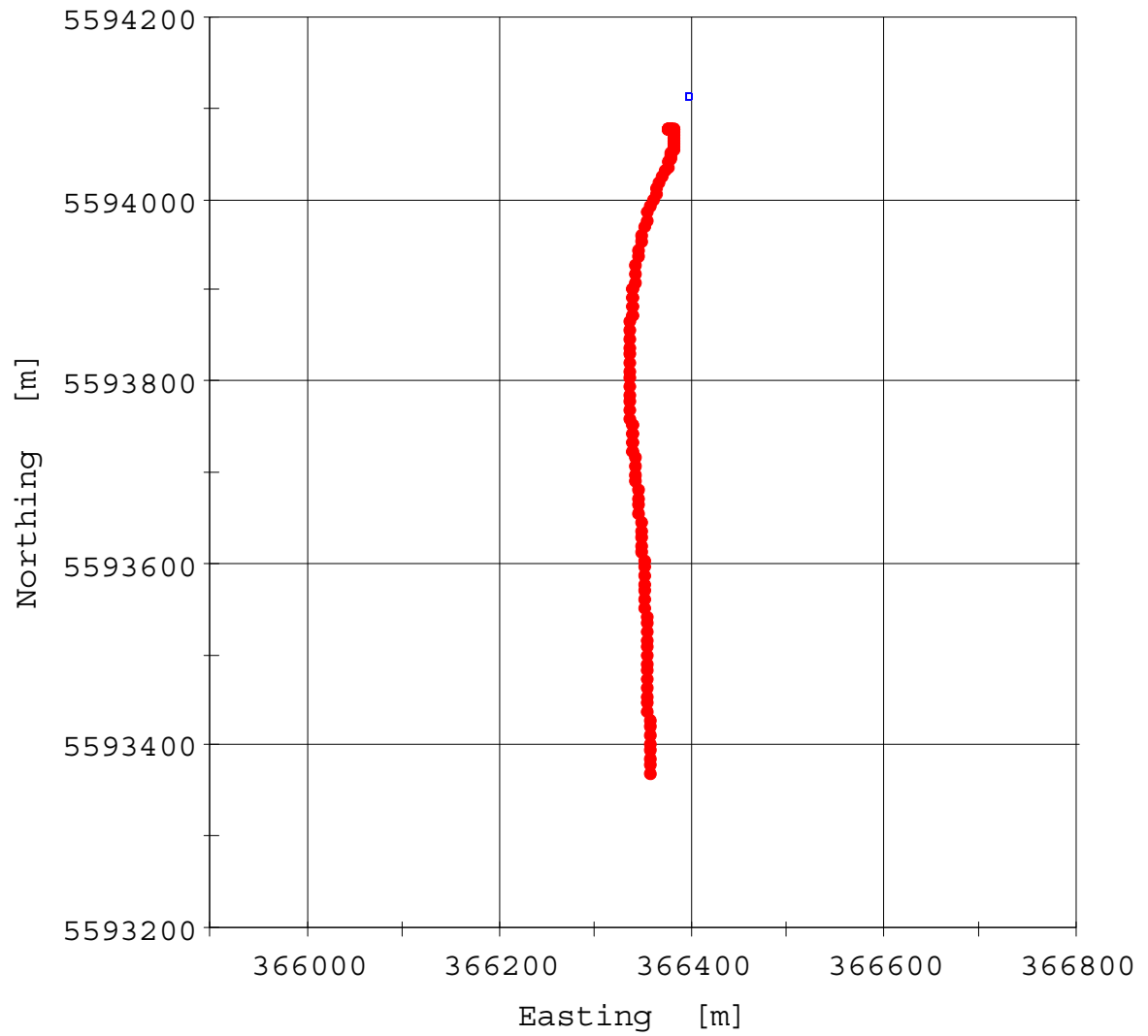
Soft-Start implemented:

☐ Yes
☒ Yes

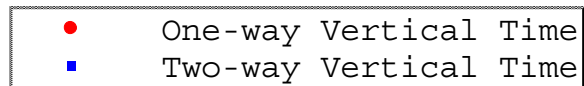
☒ No
☐ No

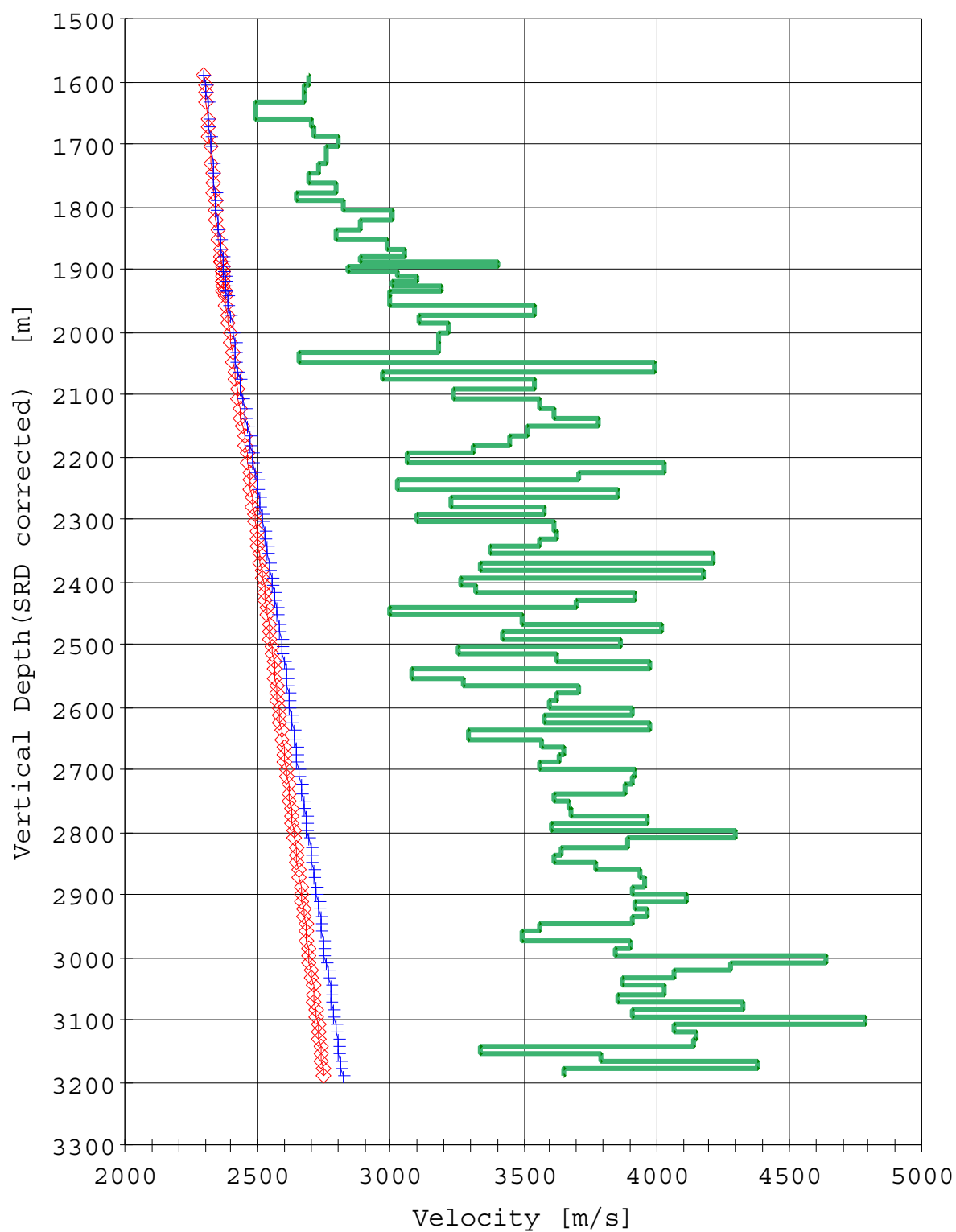
Well Profile

• Receiver Position

Geometry Information (X-Y)

● Receiver Position
□ Source Position

Time Depth Plot

Velocity Plot Page

Stack Summary Listing (1/5) from VSI_006_Rockhopper 1_geo_wavefield_z.1df

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			
						2300.0		
37	1615.2	1589.2	0.6894	0.6910	1.3819		2300.0	2300.0
						2692.2		
37	1630.4	1604.3	0.6950	0.6966	1.3932		2303.1	2303.4
						2675.1		
37	1645.5	1619.5	0.7007	0.7022	1.4045		2306.1	2306.6
						2676.8		
37	1660.6	1634.6	0.7063	0.7079	1.4158		2309.1	2309.8
						2490.9		
36	1685.1	1659.1	0.7162	0.7177	1.4354		2311.6	2312.4
						2703.5		
36	1700.2	1674.2	0.7217	0.7233	1.4466		2314.6	2315.7
						2710.2		
36	1715.3	1689.3	0.7273	0.7289	1.4578		2317.6	2318.9
						2799.9		
36	1730.4	1704.4	0.7327	0.7343	1.4686		2321.2	2322.8
						2753.7		
34	1757.3	1731.3	0.7425	0.7440	1.4881		2326.8	2329.0
						2725.2		
34	1772.4	1746.4	0.7480	0.7496	1.4992		2329.8	2332.2
						2692.0		
34	1787.5	1761.5	0.7536	0.7552	1.5104		2332.5	2335.1
						2791.8		
34	1802.7	1776.6	0.7590	0.7606	1.5212		2335.8	2338.6
						2648.2		
33	1817.9	1791.9	0.7648	0.7664	1.5327		2338.1	2341.1
						2824.7		
33	1833.0	1807.0	0.7701	0.7717	1.5434		2341.5	2344.8
						3001.9		
33	1848.1	1822.1	0.7752	0.7768	1.5535		2345.8	2349.7
						2881.8		
33	1863.3	1837.2	0.7804	0.7820	1.5640		2349.4	2353.6
						2789.8		
32	1877.7	1851.6	0.7856	0.7872	1.5744		2352.2	2356.8
						2989.1		
32	1892.8	1866.8	0.7906	0.7922	1.5845		2356.3	2361.3
						3053.3		
32	1907.9	1881.9	0.7956	0.7972	1.5944		2360.6	2366.3
						2882.4		
5	1914.1	1888.0	0.7970	0.7986	1.5972		2360.6	2366.3
						2882.4		
31	1915.3	1889.3	0.7981	0.7998	1.5995		2362.3	2368.1
						3399.5		
32	1923.0	1897.0	0.8004	0.8020	1.6040		2365.3	2371.6
						2844.5		
5	1929.2	1903.1	0.8018	0.8035	1.6069		2365.3	2371.6
						2844.5		
31	1930.5	1904.4	0.8030	0.8046	1.6093		2366.8	2373.3
						3025.6		
30	1938.8	1912.8	0.8058	0.8074	1.6148		2369.1	2375.9
						3096.4		
5	1944.3	1918.3	0.8068	0.8084	1.6168		2369.1	2375.9
						3096.4		
31	1945.6	1919.5	0.8080	0.8096	1.6191		2371.0	2378.1
						3004.4		
30	1954.0	1927.9	0.8107	0.8124	1.6247		2373.2	2380.5
						3186.9		
5	1959.4	1933.4	0.8117	0.8133	1.6266		2373.2	2380.5
						3186.9		
31	1960.7	1934.6	0.8129	0.8145	1.6290		2375.3	2383.0
						2996.6		

Stack Summary Listing (2/5) from VSI_006_Rockhopper 1_geo_wavefield_z.1df

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]
30	1969.1	1943.0	0.8157	0.8173	1.6346		2377.4	2385.3
						2993.6		
30	1984.2	1958.2	0.8207	0.8223	1.6447		2381.2	2389.6
						3540.2		
29	1999.2	1973.1	0.8249	0.8266	1.6531		2387.1	2396.8
						3104.5		
29	2014.3	1988.2	0.8298	0.8314	1.6628		2391.3	2401.6
						3220.6		
29	2029.4	2003.3	0.8345	0.8361	1.6722		2396.0	2406.9
						3179.5		
29	2044.5	2018.3	0.8392	0.8408	1.6816		2400.4	2412.0
						3177.8		
28	2059.6	2033.3	0.8439	0.8455	1.6911		2404.7	2416.9
						2653.5		
28	2074.8	2048.3	0.8496	0.8512	1.7024		2406.4	2418.6
						3990.7		
28	2089.9	2063.2	0.8534	0.8549	1.7099		2413.3	2427.7
						2969.5		
28	2105.0	2078.1	0.8584	0.8600	1.7199		2416.6	2431.2
						3541.0		
27	2120.2	2093.0	0.8626	0.8642	1.7283		2422.0	2437.8
						3233.6		
27	2135.3	2107.9	0.8673	0.8688	1.7375		2426.3	2442.7
						3560.9		
27	2150.4	2122.7	0.8714	0.8729	1.7458		2431.7	2449.2
						3612.5		
27	2165.5	2137.5	0.8756	0.8770	1.7540		2437.2	2456.0
						3777.3		
26	2180.8	2152.3	0.8795	0.8809	1.7619		2443.2	2463.4
						3510.1		
26	2195.9	2167.0	0.8838	0.8851	1.7702		2448.2	2469.4
						3447.0		
26	2211.0	2181.5	0.8880	0.8893	1.7787		2453.0	2475.0
						3313.6		
26	2226.1	2196.0	0.8925	0.8937	1.7874		2457.2	2479.7
						3060.2		
25	2241.2	2210.3	0.8972	0.8984	1.7967		2460.3	2483.1
						4030.8		
25	2256.3	2224.4	0.9008	0.9019	1.8037		2466.4	2491.0
						3710.3		
25	2271.4	2238.3	0.9046	0.9056	1.8112		2471.6	2497.2
						3027.8		
25	2286.6	2252.0	0.9092	0.9101	1.8203		2474.3	2500.2
						3855.6		
24	2301.7	2265.5	0.9128	0.9137	1.8273		2479.6	2506.8
						3224.3		
24	2316.8	2278.9	0.9171	0.9178	1.8356		2483.0	2510.5
						3574.8		
24	2331.9	2292.2	0.9209	0.9215	1.8430		2487.4	2515.7
						3099.8		
24	2347.1	2305.2	0.9253	0.9257	1.8515		2490.2	2518.6
						3615.1		
23	2362.2	2318.2	0.9291	0.9293	1.8587		2494.5	2523.8
						3622.5		
23	2377.3	2331.1	0.9328	0.9329	1.8657		2498.8	2528.9
						3564.1		
23	2392.4	2343.8	0.9366	0.9364	1.8729		2502.9	2533.6
						3376.2		
23	2407.5	2356.4	0.9405	0.9402	1.8803		2506.4	2537.5
						4216.4		
22	2422.7	2369.0	0.9437	0.9432	1.8863		2511.8	2544.6
						3339.8		

Stack Summary Listing (3/5) from VSI_006_Rockhopper 1_geo_wavefield_z.1df

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]
22	2437.8	2381.4	0.9476	0.9469	1.8937		2515.0	2548.2
						4181.6		
22	2452.9	2393.8	0.9508	0.9498	1.8997		2520.2	2554.9
						3268.9		
22	2468.0	2406.0	0.9548	0.9536	1.9071		2523.2	2558.1
						3320.3		
21	2483.1	2418.2	0.9588	0.9572	1.9145		2526.2	2561.4
						3923.7		
21	2498.2	2430.4	0.9622	0.9603	1.9207		2530.7	2567.0
						3695.9		
21	2513.3	2442.6	0.9657	0.9637	1.9273		2534.7	2571.8
						2997.8		
21	2528.4	2454.9	0.9701	0.9677	1.9355		2536.7	2573.7
						3498.4		
20	2543.6	2467.2	0.9740	0.9713	1.9425		2540.2	2577.7
						4022.0		
20	2558.8	2479.4	0.9773	0.9743	1.9486		2544.8	2583.4
						3420.1		
20	2573.9	2491.6	0.9812	0.9779	1.9558		2548.0	2587.0
						3867.4		
20	2589.0	2503.9	0.9847	0.9811	1.9621		2552.3	2592.1
						3253.0		
19	2604.1	2516.1	0.9887	0.9848	1.9696		2554.9	2595.0
						3627.5		
19	2619.2	2528.4	0.9925	0.9882	1.9764		2558.6	2599.2
						3979.4		
19	2634.3	2540.7	0.9959	0.9913	1.9825		2563.0	2604.6
						3079.0		
19	2649.4	2553.0	1.0002	0.9953	1.9906		2565.1	2606.7
						3273.2		
18	2664.5	2565.3	1.0043	0.9990	1.9981		2567.8	2609.5
						3709.3		
18	2679.7	2577.6	1.0080	1.0024	2.0047		2571.6	2614.0
						3622.7		
18	2694.8	2589.9	1.0118	1.0058	2.0115		2575.1	2618.0
						3594.8		
18	2709.9	2602.2	1.0155	1.0092	2.0183		2578.5	2621.9
						3915.3		
17	2725.1	2614.5	1.0190	1.0123	2.0246		2582.7	2626.9
						3576.0		
17	2740.2	2626.8	1.0229	1.0157	2.0315		2586.1	2630.7
						3977.8		
17	2755.3	2639.1	1.0264	1.0188	2.0377		2590.3	2635.8
						3289.9		
17	2770.4	2651.4	1.0305	1.0226	2.0451		2592.8	2638.5
						3572.1		
16	2785.6	2663.7	1.0343	1.0260	2.0520		2596.1	2642.2
						3649.8		
16	2800.7	2675.9	1.0381	1.0294	2.0588		2599.6	2646.1
						3630.7		
16	2815.8	2688.2	1.0419	1.0328	2.0655		2602.9	2650.0
						3562.8		
16	2830.9	2700.5	1.0458	1.0362	2.0724		2606.1	2653.5
						3924.2		
15	2846.0	2712.8	1.0493	1.0393	2.0787		2610.1	2658.3
						3912.6		
15	2861.1	2725.1	1.0529	1.0425	2.0850		2614.0	2662.9
						3880.9		
15	2876.3	2737.4	1.0565	1.0457	2.0913		2617.9	2667.5
						3615.5		
15	2891.4	2749.7	1.0603	1.0491	2.0981		2621.1	2671.1
						3675.2		

Stack Summary Listing (4/5) from VSI_006_Rockhopper 1_geo_wavefield_z.1df

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]
14	2906.4	2762.0	1.0641	1.0524	2.1048		2624.5	2674.9
						3682.7		
14	2921.6	2774.3	1.0678	1.0557	2.1115		2627.8	2678.6
						3970.0		
14	2936.7	2786.5	1.0714	1.0588	2.1176		2631.7	2683.3
						3608.9		
14	2951.8	2798.9	1.0753	1.0622	2.1245		2634.9	2686.8
						4300.4		
13	2967.0	2811.3	1.0786	1.0651	2.1303		2639.4	2692.5
						3894.6		
13	2982.1	2823.9	1.0823	1.0684	2.1367		2643.2	2696.9
						3645.4		
13	2997.2	2836.5	1.0862	1.0718	2.1437		2646.4	2700.5
						3613.9		
13	3012.3	2849.1	1.0901	1.0753	2.1506		2649.6	2704.0
						3772.5		
12	3027.4	2861.8	1.0939	1.0787	2.1573		2653.0	2708.0
						3937.2		
12	3042.6	2874.3	1.0976	1.0818	2.1637		2656.8	2712.4
						3960.8		
12	3057.7	2886.8	1.1012	1.0850	2.1700		2660.6	2716.9
						3907.5		
12	3072.8	2899.1	1.1048	1.0882	2.1763		2664.2	2721.1
						4114.6		
11	3087.9	2911.5	1.1083	1.0912	2.1823		2668.2	2725.9
						3918.7		
11	3103.0	2923.8	1.1120	1.0943	2.1886		2671.8	2730.1
						3967.2		
11	3118.2	2936.1	1.1156	1.0974	2.1948		2675.5	2734.3
						3914.0		
11	3133.3	2948.4	1.1192	1.1006	2.2011		2679.0	2738.4
						3562.8		
10	3148.4	2960.7	1.1232	1.1040	2.2080		2681.8	2741.4
						3491.5		
10	3163.6	2973.1	1.1272	1.1075	2.2151		2684.4	2744.1
						3900.0		
10	3178.7	2985.3	1.1309	1.1107	2.2214		2687.8	2748.1
						3846.7		
10	3193.8	2997.6	1.1346	1.1139	2.2278		2691.1	2751.9
						4641.3		
9	3208.9	3009.9	1.1378	1.1165	2.2331		2695.8	2757.9
						4283.0		
9	3224.0	3022.2	1.1412	1.1194	2.2388		2699.8	2762.8
						4064.9		
9	3239.1	3034.4	1.1447	1.1224	2.2448		2703.5	2767.2
						3877.0		
9	3254.3	3046.7	1.1484	1.1256	2.2512		2706.8	2770.9
						4026.3		
8	3269.4	3059.0	1.1520	1.1286	2.2573		2710.4	2775.1
						3852.2		
8	3284.5	3071.3	1.1558	1.1318	2.2637		2713.6	2778.7
						4322.2		
8	3299.6	3083.6	1.1591	1.1347	2.2694		2717.6	2783.7
						3910.9		
8	3314.7	3095.9	1.1628	1.1378	2.2757		2720.9	2787.4
						4791.8		
7	3329.7	3108.1	1.1659	1.1404	2.2807		2725.5	2793.5
						4071.9		
7	3344.8	3120.4	1.1695	1.1434	2.2868		2729.1	2797.6
						4149.2		
7	3360.0	3132.7	1.1730	1.1463	2.2927		2732.8	2801.9
						4143.8		

Stack Summary Listing (5/5) from VSI_006_Rockhopper 1_geo_wavefield.z.1df

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]
7	3375.1	3145.0	1.1765	1.1493	2.2986		2736.4	2806.2
						3341.1		
6	3386.3	3154.1	1.1796	1.1520	2.3041		2737.8	2807.6
						3787.2		
6	3401.4	3166.3	1.1835	1.1553	2.3105		2740.8	2810.8
						4381.2		
6	3416.5	3178.6	1.1869	1.1581	2.3161		2744.7	2815.7
						3652.9		
6	3431.7	3190.8	1.1908	1.1614	2.3228		2747.4	2818.5

VSP QC Processing Report

Process Flow	Parameter
	<p>[LoadLdf] Input 1: VSI_006_Rockhopper Input 2: VSI_006_Rockhopper Input 3: VSI_006_Rockhopper</p> <p>[BPFfilter] Phase: Zero Band Width: 5.0 - 200.0Hz</p> <p>[GenVelFil] Median Filter 9 Traces</p> <p>[GenVelFil2] Median Filter 3 Traces</p> <p>[WaveDecon] Waveshape Deconvolution Design Filter trace Input start at TRANSIT_TIME wavelet: 5.0 - 100.0 Hz zero-phase Polarity: Positive</p> <p>[TVG(TAR)1] Travel time exponent = 2.00</p> <p>[GenVelFil1] 5 Traces</p> <p>[BPFfilter4] Phase: Zero Band Width: 5.0 - 110.0Hz</p> <p>[Corridor] Window Start: TRANSIT_TIME - 0.000 (s) Window End: TRANSIT_TIME - -0.100 (s) (Deepest 10 traces remain) Mean Stack BPF 5.0 - 100.0Hz</p> <p>[Corridor1] Mean Stack BPF 5.0 - 80.0Hz</p> <p>[Frequency2] Process all samples Apply FZ</p> <p>[Frequency1] Process all samples Apply FK</p> <p>[Frequency] Process all samples Apply FK</p>

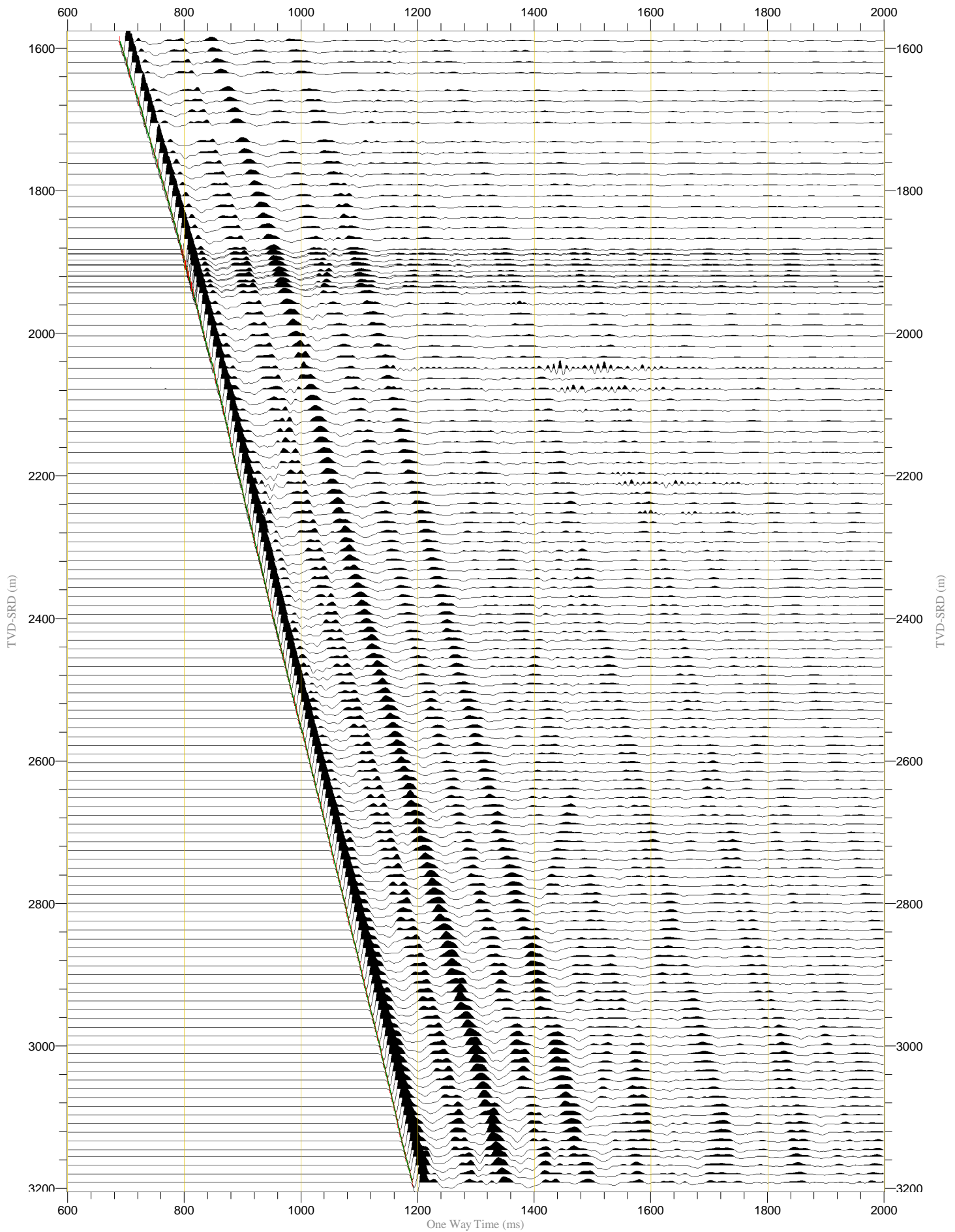
Raw Stack (Z)

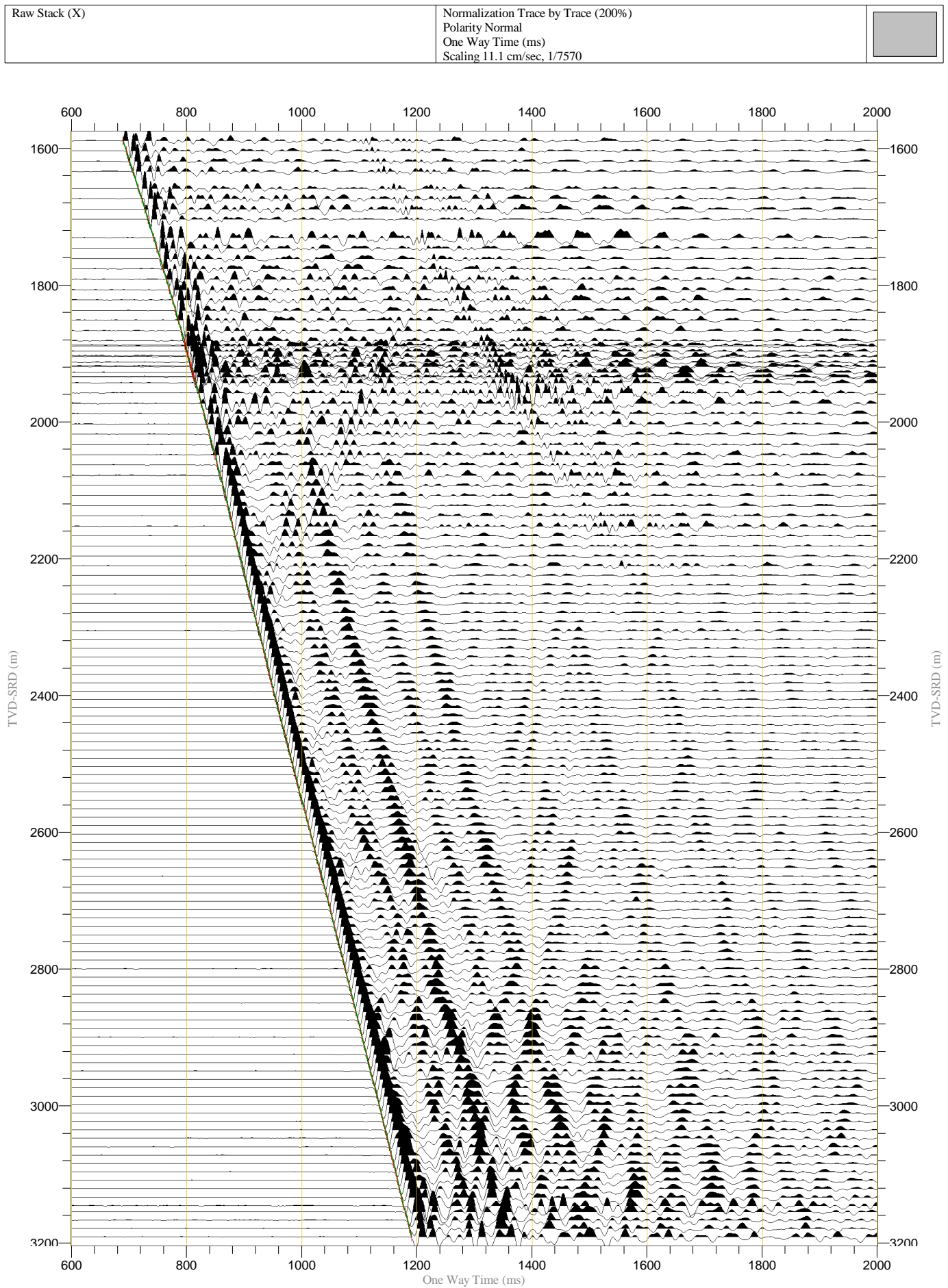
Normalization Trace by Trace (200%)

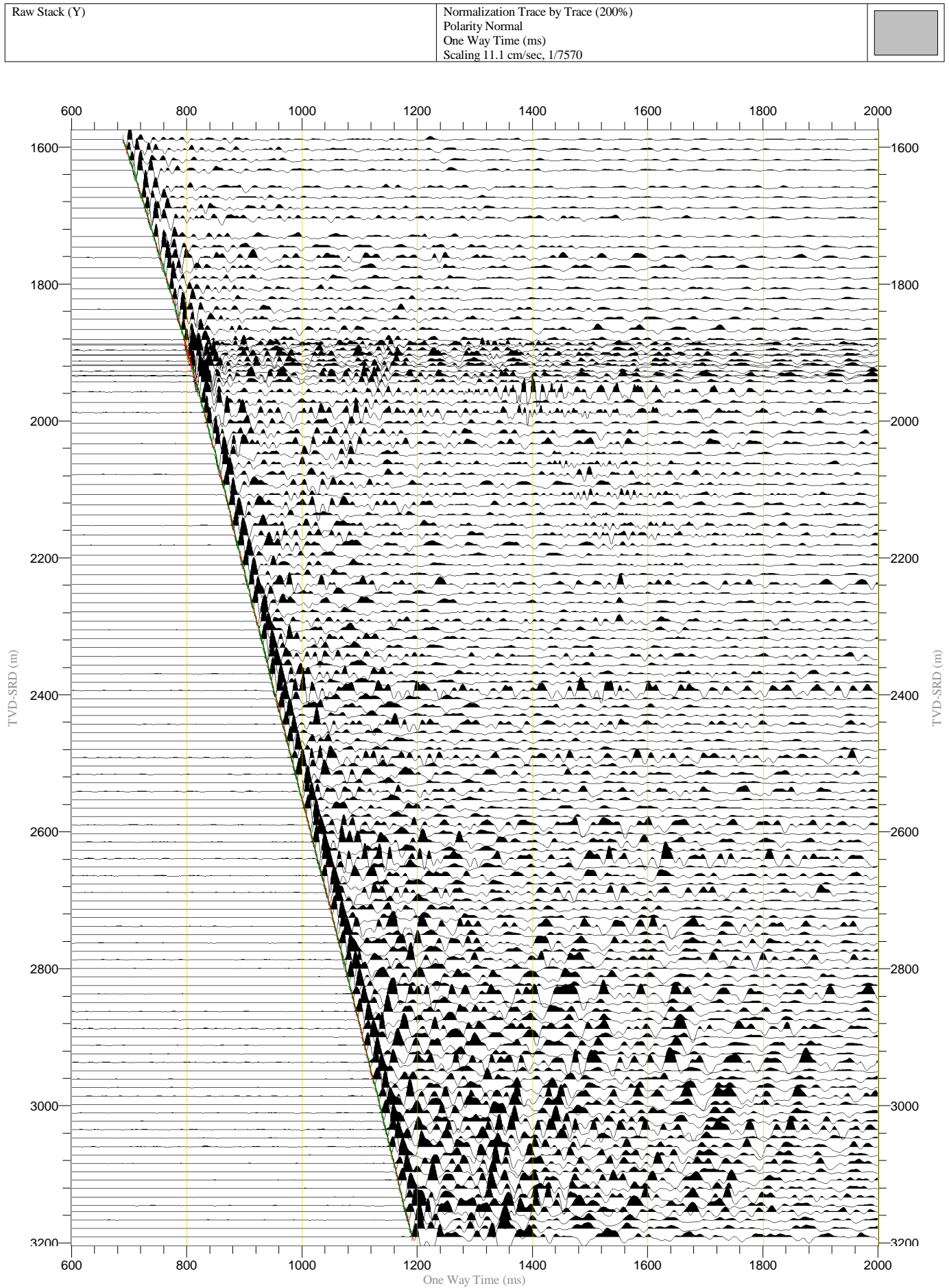
Polarity Normal

One Way Time (ms)

Scaling 11.8 cm/sec, 1/6920







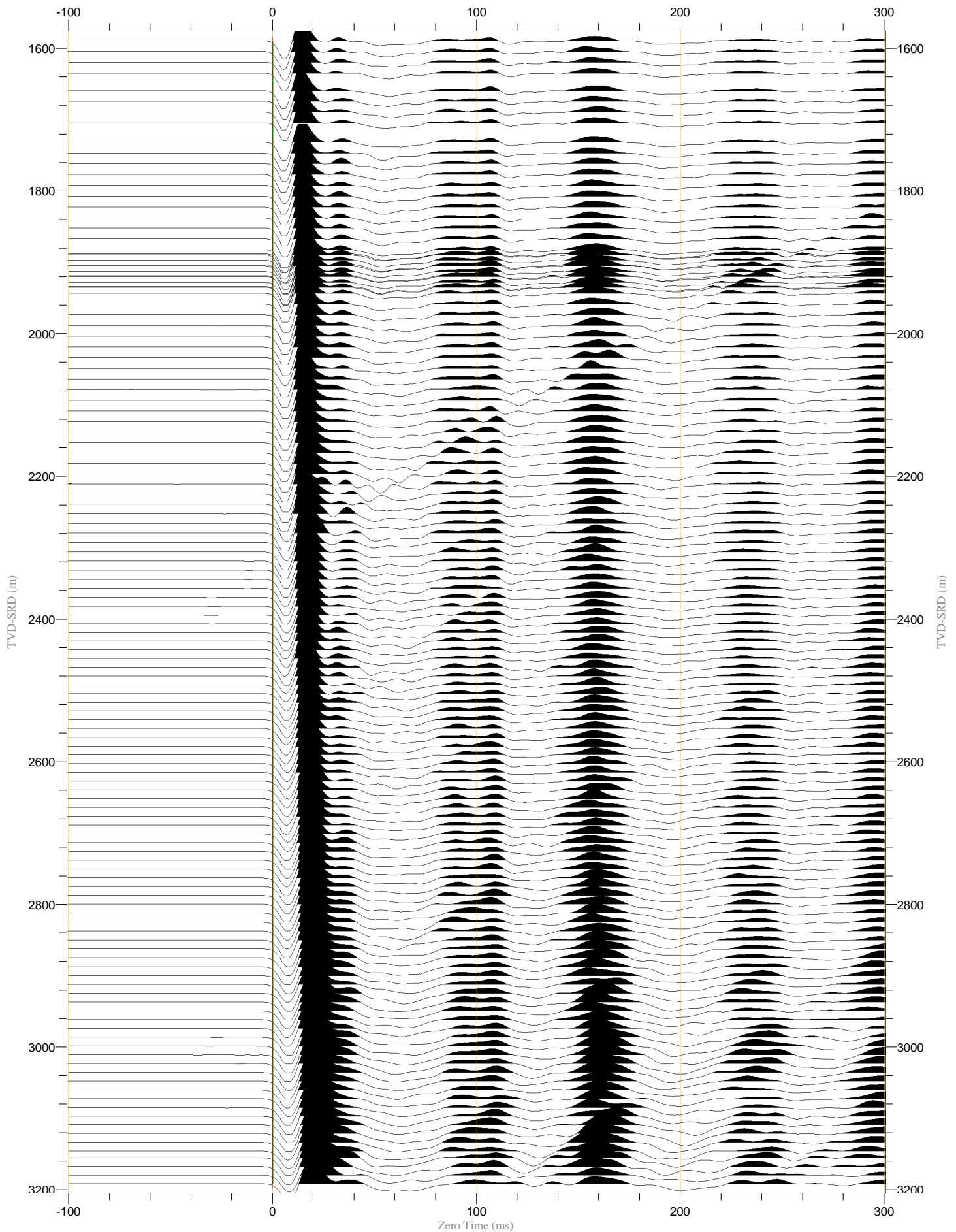
Raw Stack (Z) (Magnified)

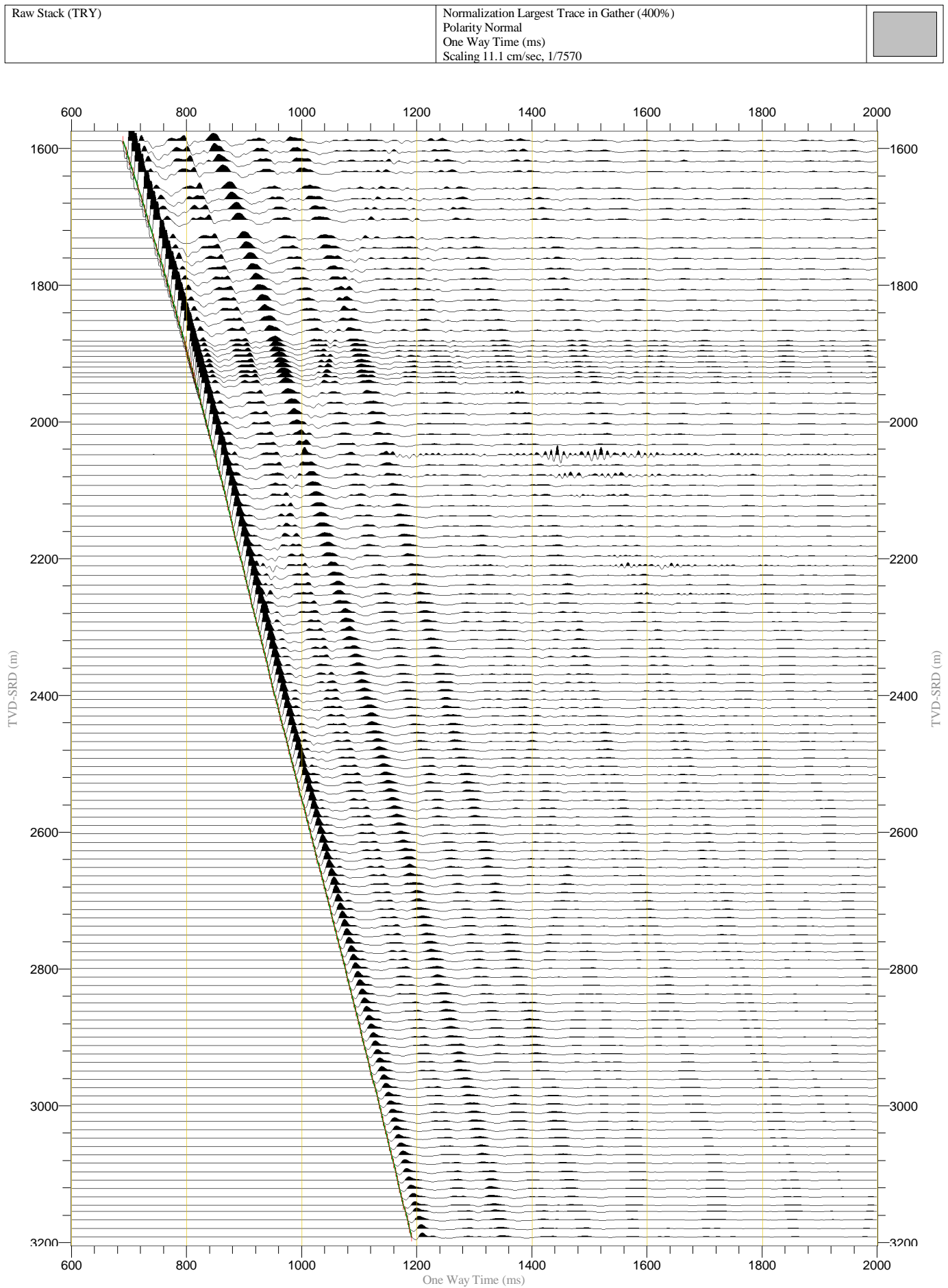
Normalization Trace by Trace (250%)

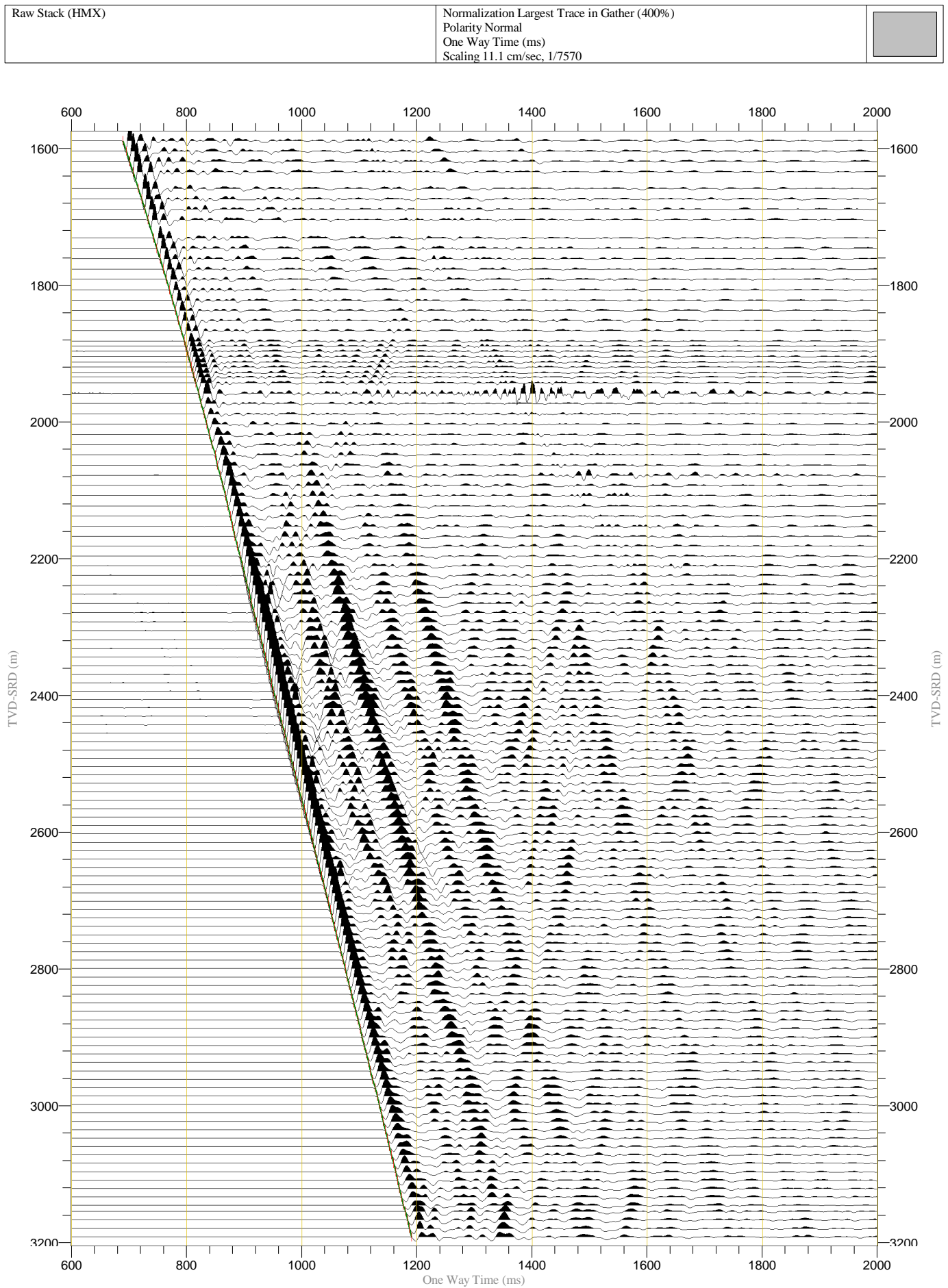
Polarity Normal

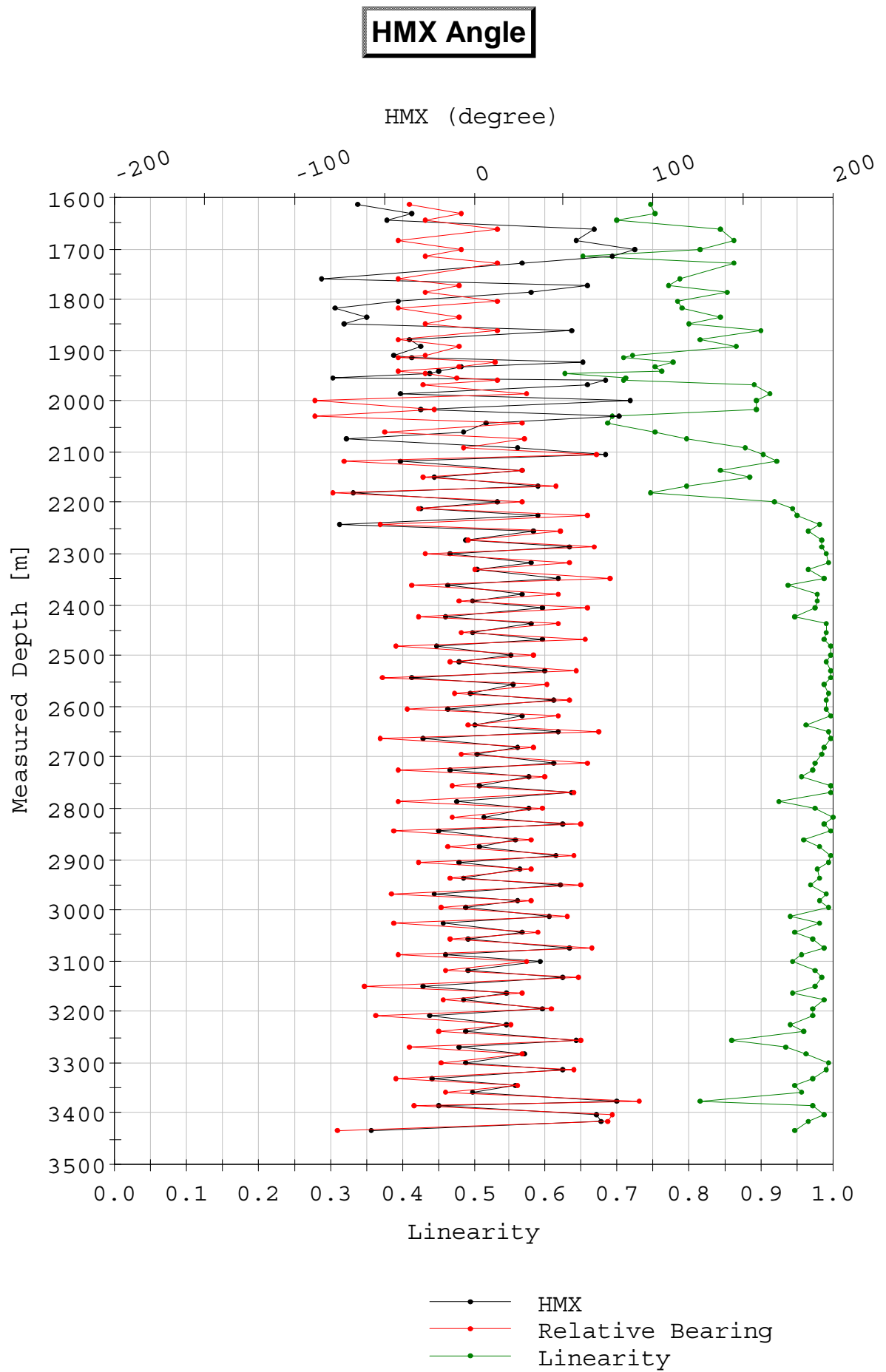
Zero Time (ms)

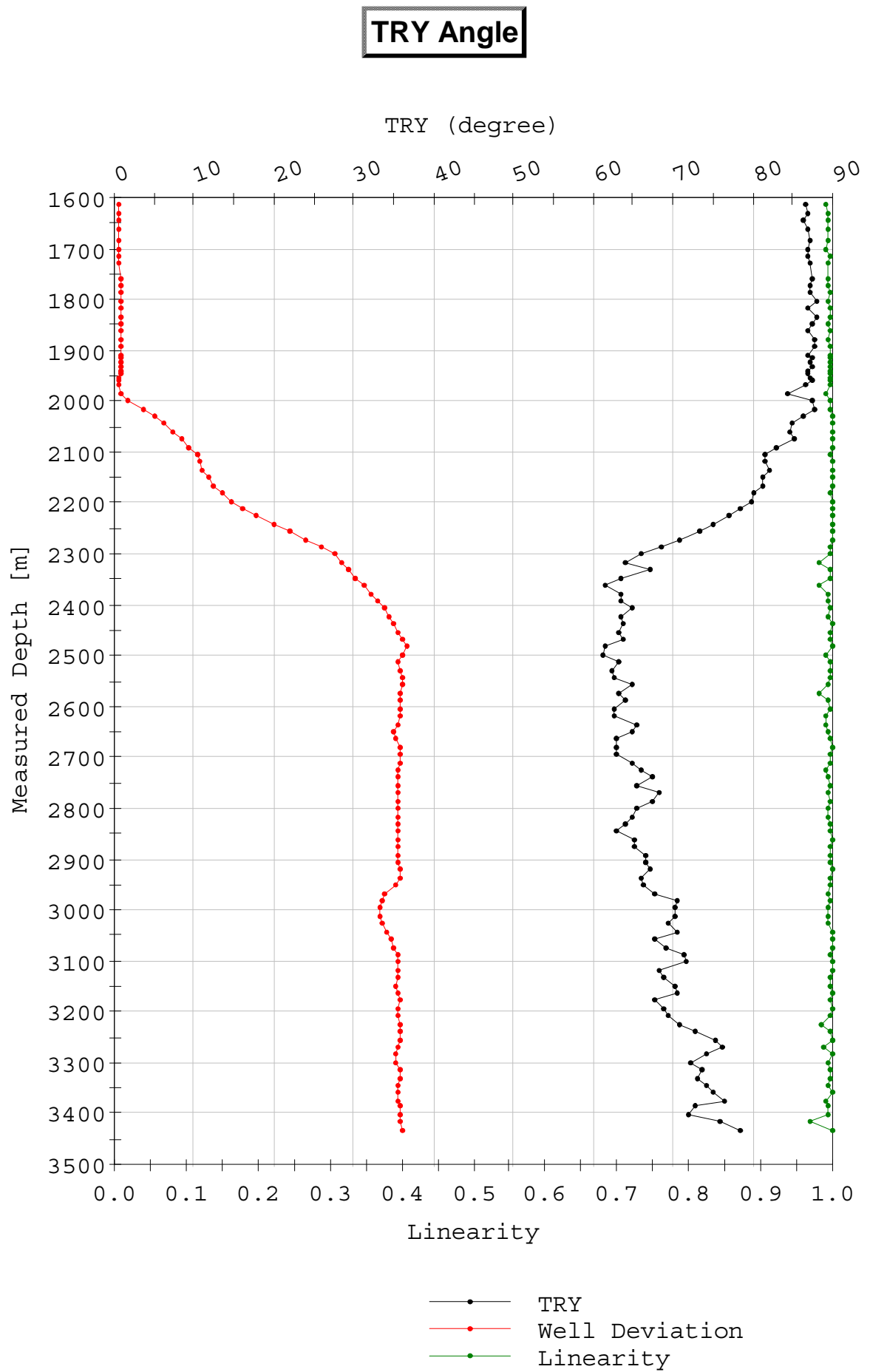
Scaling 41.3 cm/sec, 1/6920





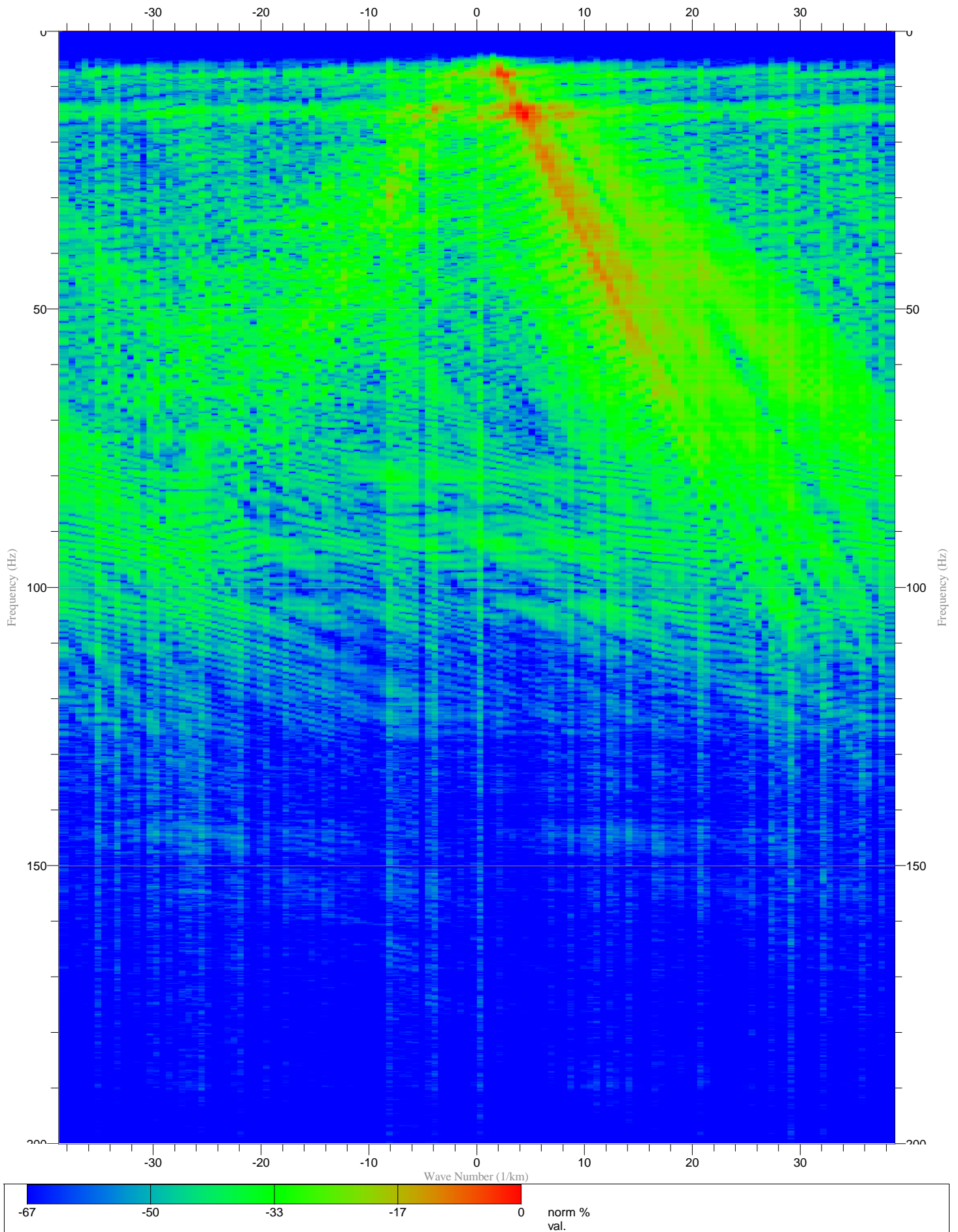






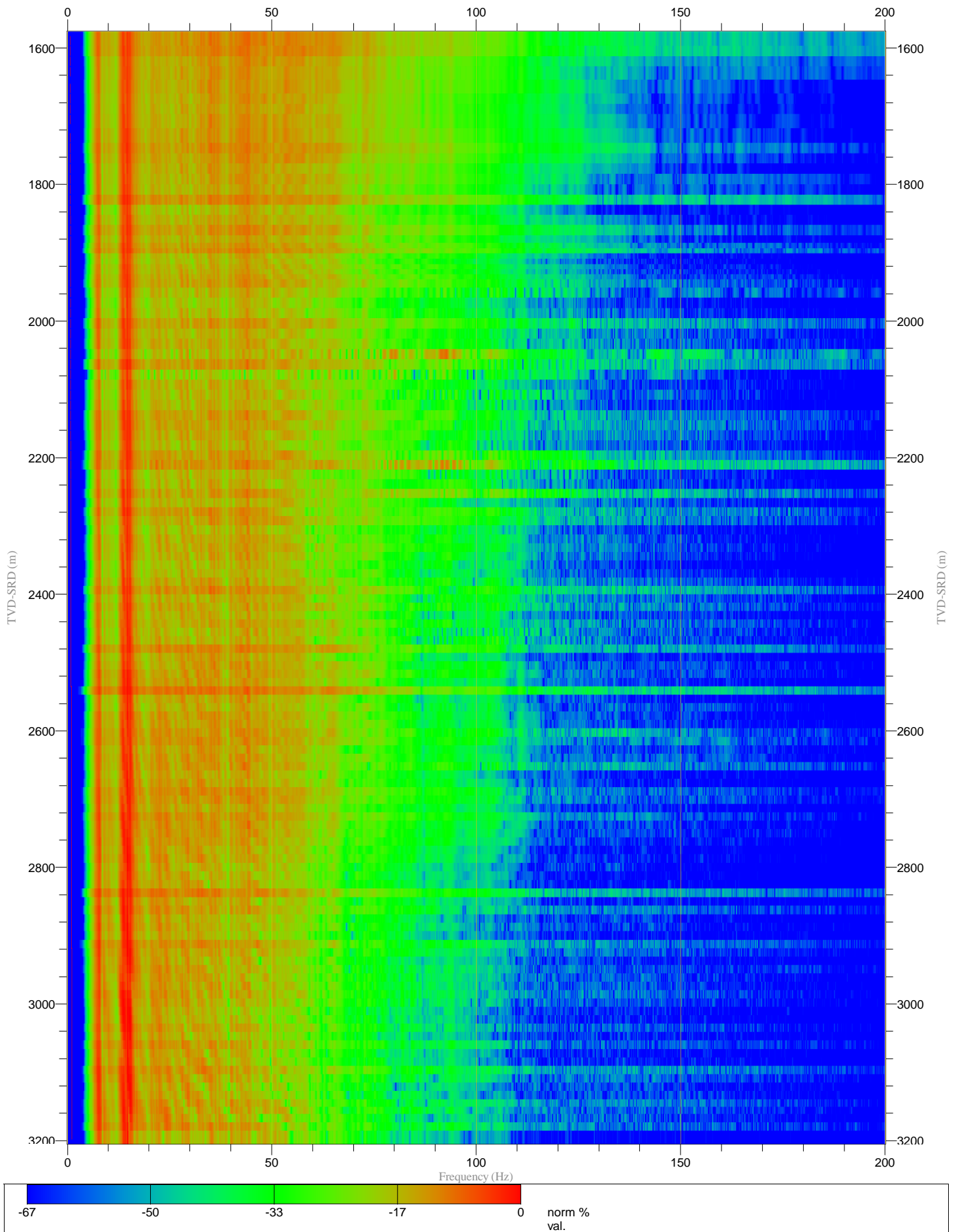
VSP Raw Stack (Z) FK
Apply FK

Normalization Trace by Trace (100%)
Polarity Normal
Frequency (Hz)
Scaling 0.12 cm/Hz, 4.58(1/km)/cm



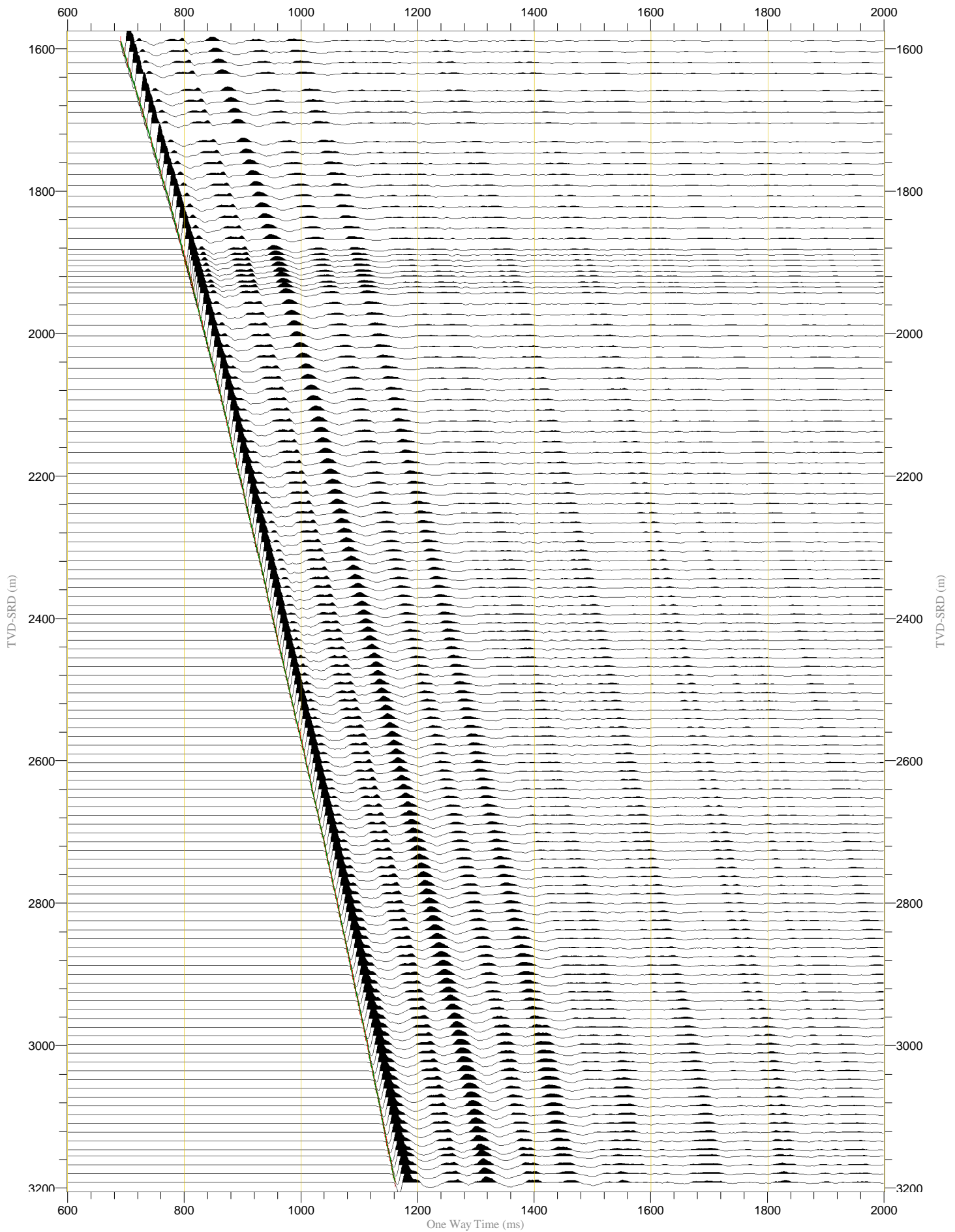
VSP Raw Stack (Z) FZ
BPF 5.0 - 200.0Hz
Apply FZ

Normalization Trace by Trace (100%)
Polarity Normal
Frequency (Hz)
Scaling 0.1 cm/Hz, 1/6950



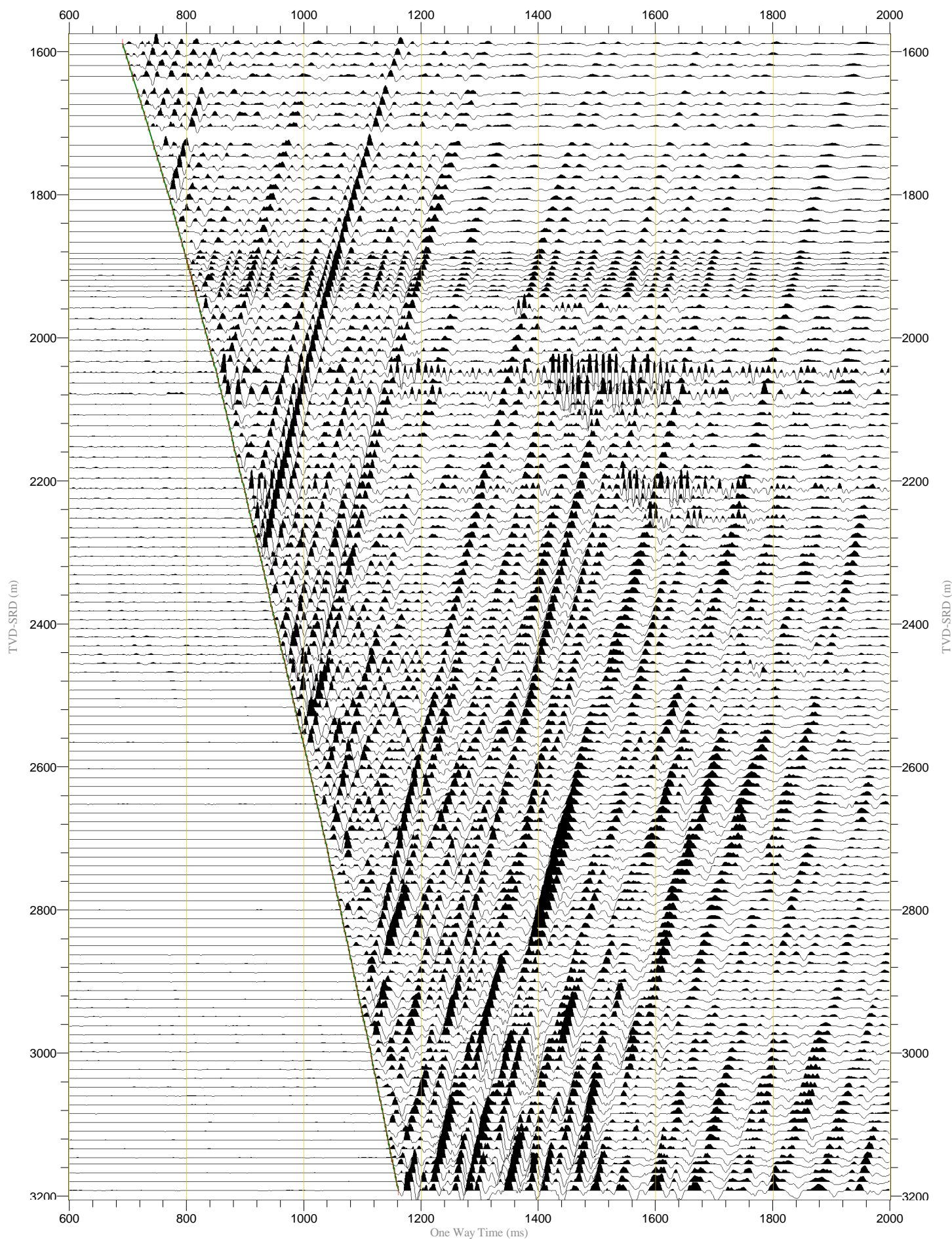
VSP Downgoing
BPF 5.0 - 200.0Hz
Median Filter 9 Traces

Normalization Largest Trace in Gather (200%)
Polarity Normal
One Way Time (ms)
Scaling 11.8 cm/sec, 1/6930



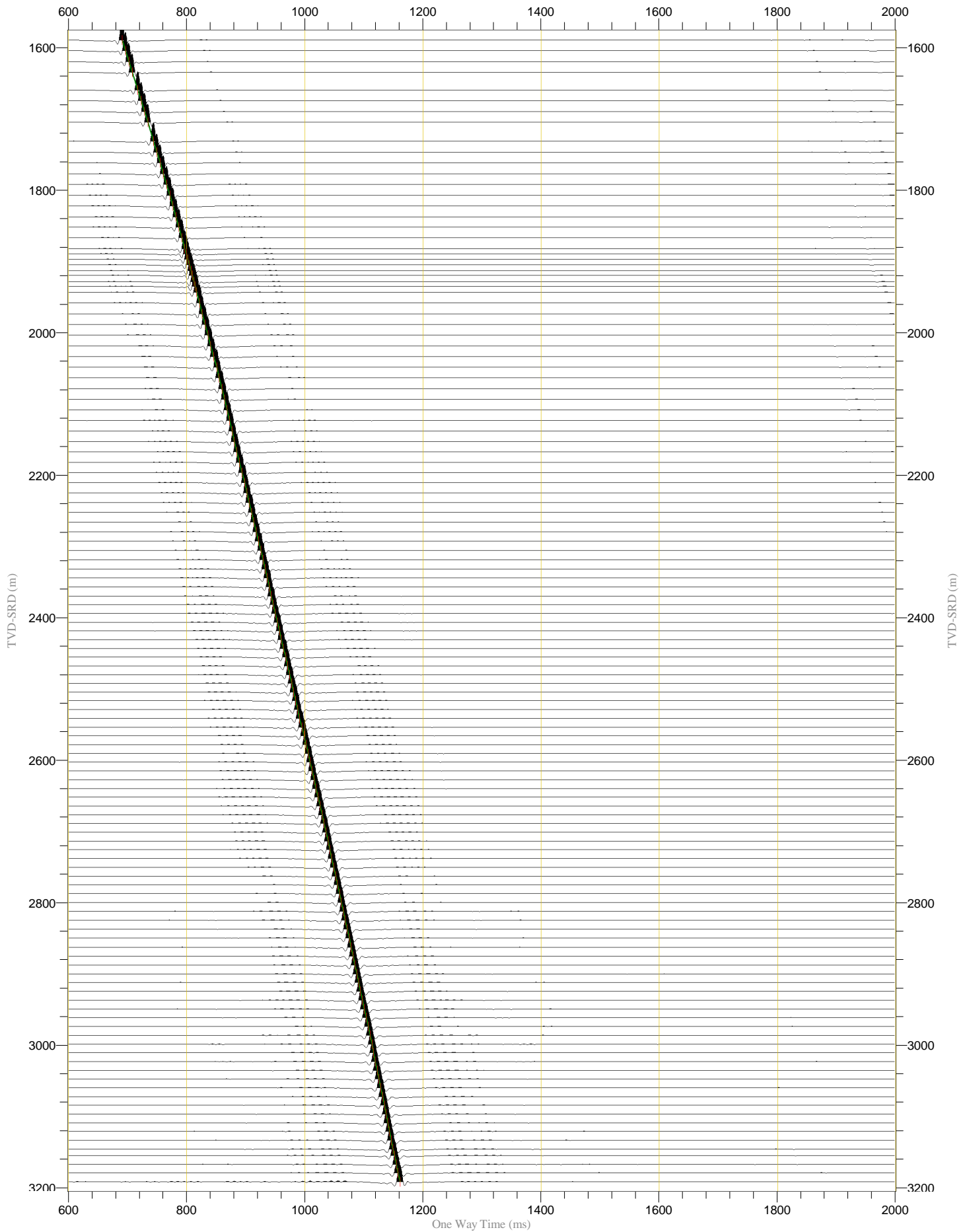
VSP Upgoing
BPF 5.0 - 200.0Hz
Median Filter 9 Traces

Normalization Largest Trace in Gather (700%)
Polarity Normal
One Way Time (ms)
Scaling 11.8 cm/sec, 1/6930



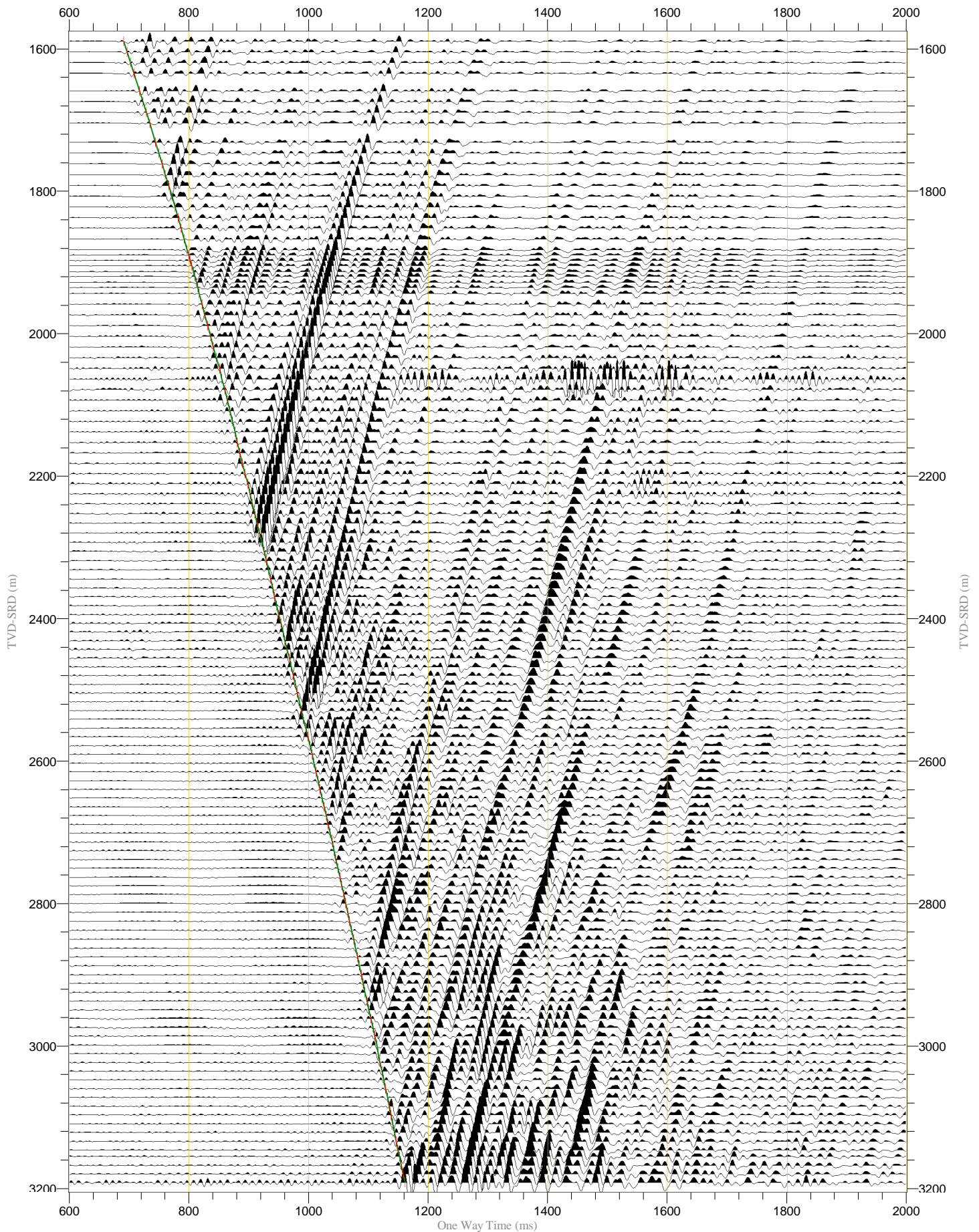
VSP Waveshape decon downgoing
BPF 5.0 - 200.0Hz
Median Filter 9 Traces
Waveshape Decon.(wavelet: 5.0 - 100.0 Hz zero-phase)

Normalization Largest Trace in Gather (200%)
Polarity Normal
One Way Time (ms)
Scaling 11.8 cm/sec, 1/7010



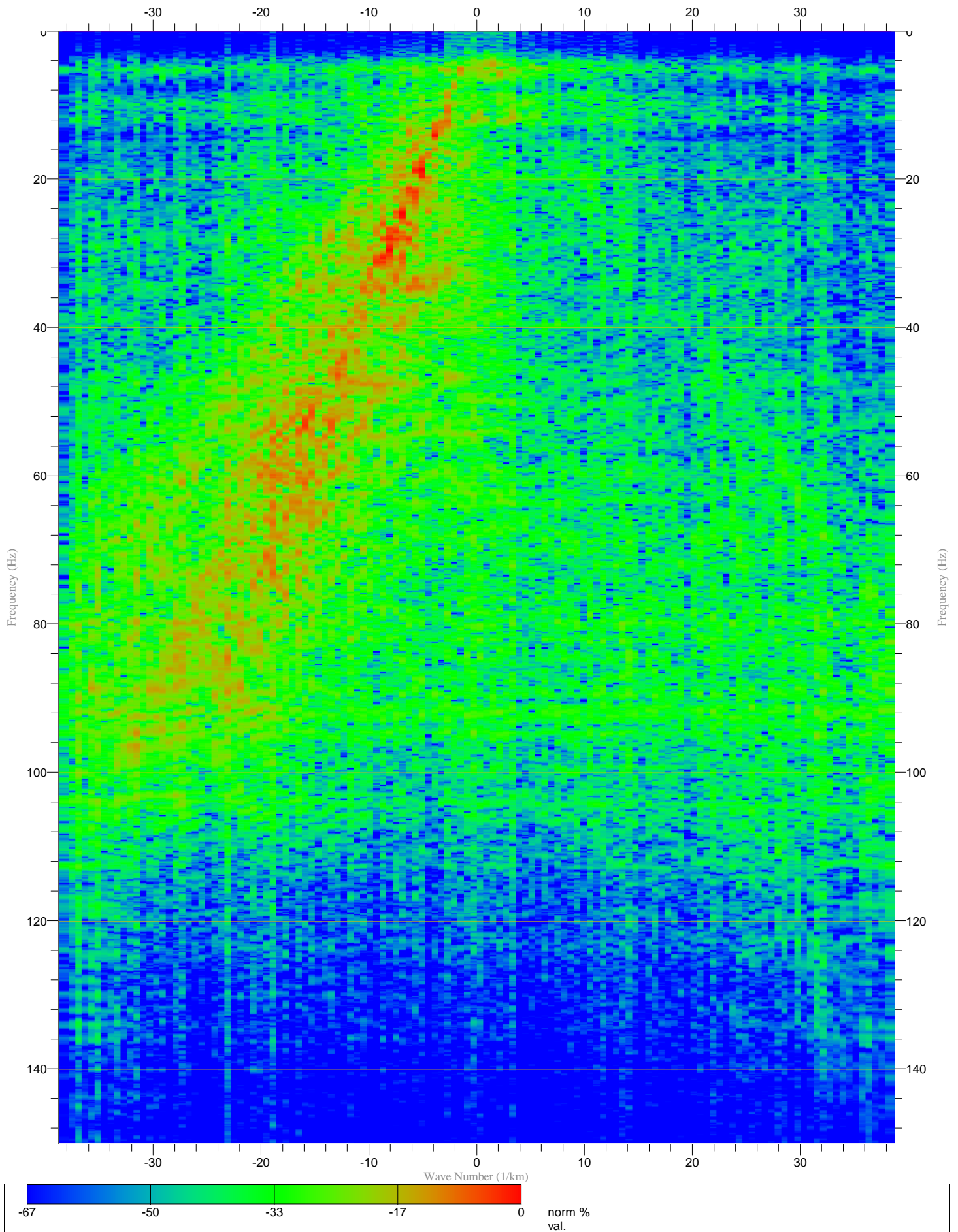
VSP Waveshape decon upgoing
BPF 5.0 - 200.0Hz
Median Filter 9 Traces
Median Filter 3 Traces
Waveshape Decon.(wavelet: 5.0 - 100.0 Hz zero-phase)

Normalization Largest Trace in Gather (400%)
Polarity Normal
One Way Time (ms)
Scaling 11.8 cm/sec, 1/7100



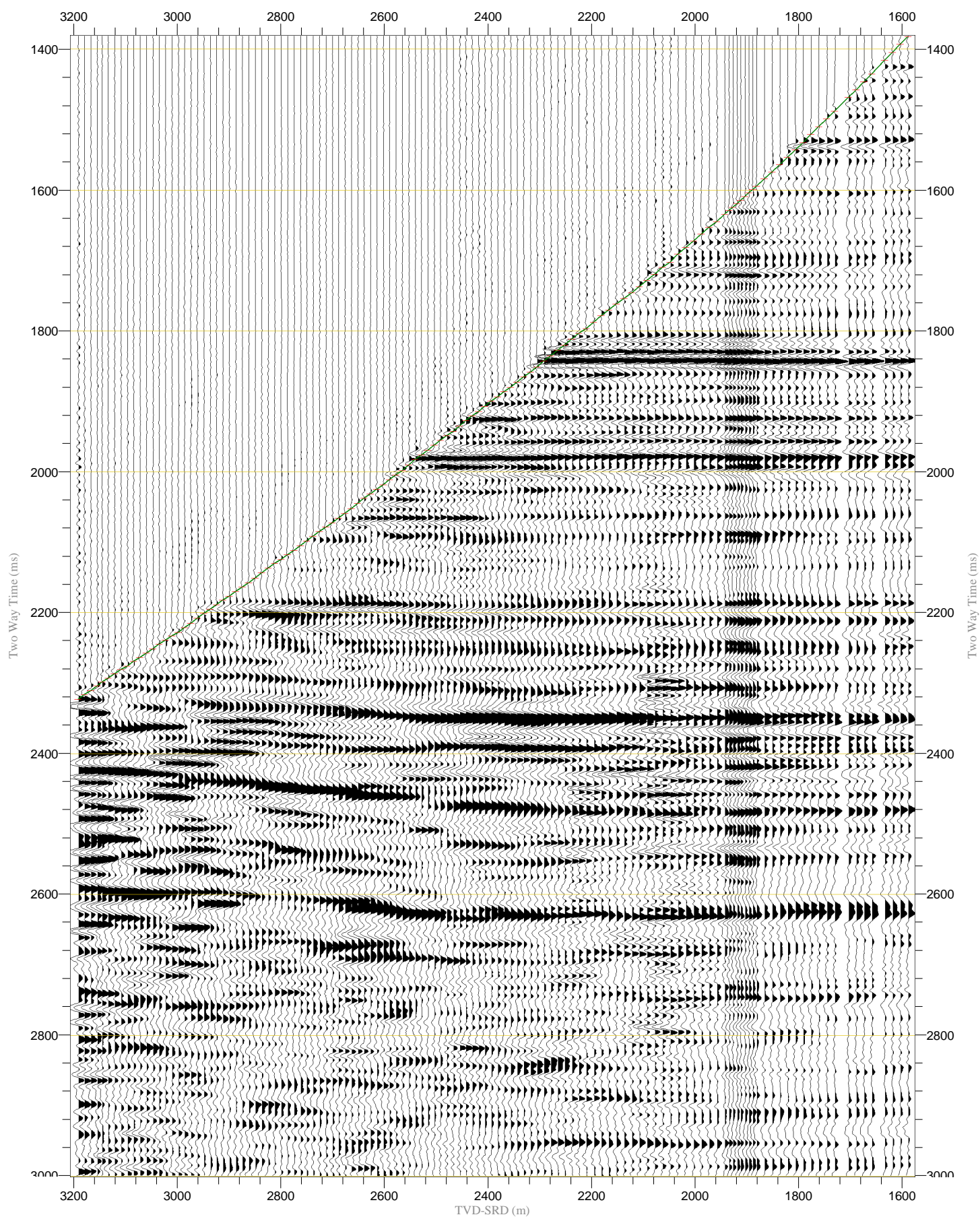
VSP Waveshape decon upgoing FK
Apply FK

Normalization Trace by Trace (100%)
Polarity Normal
Frequency (Hz)
Scaling 0.16 cm/Hz, 4.58(1/km)/cm

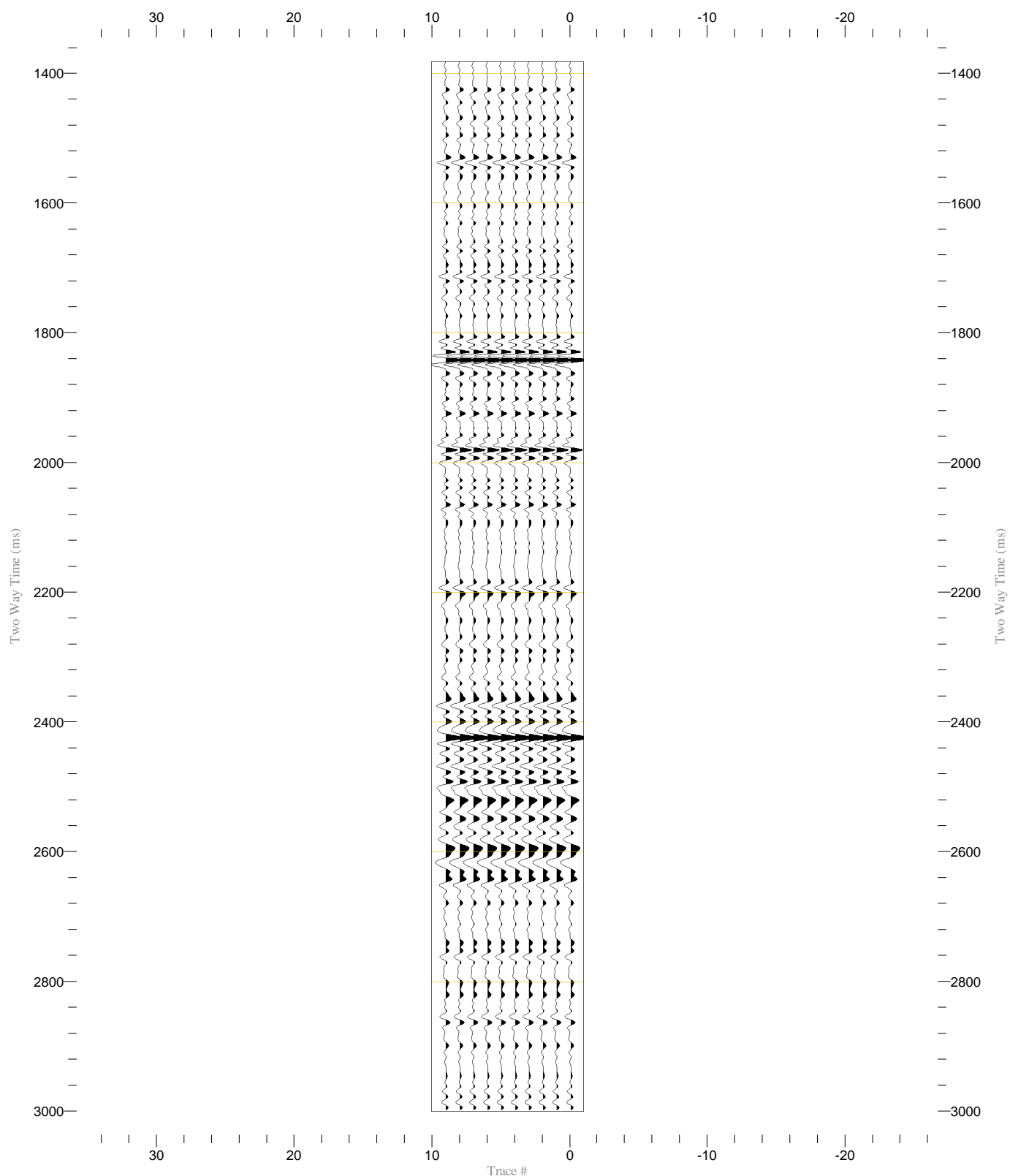


VSP Corridor Stack (Input)
BPF 5.0 - 200.0Hz
Median Filter 9 Traces
Median Filter 3 Traces
Waveshape Decon.(wavelet: 5.0 - 100.0 Hz zero-phase)
Travel time exponent = 2.00
5 Traces

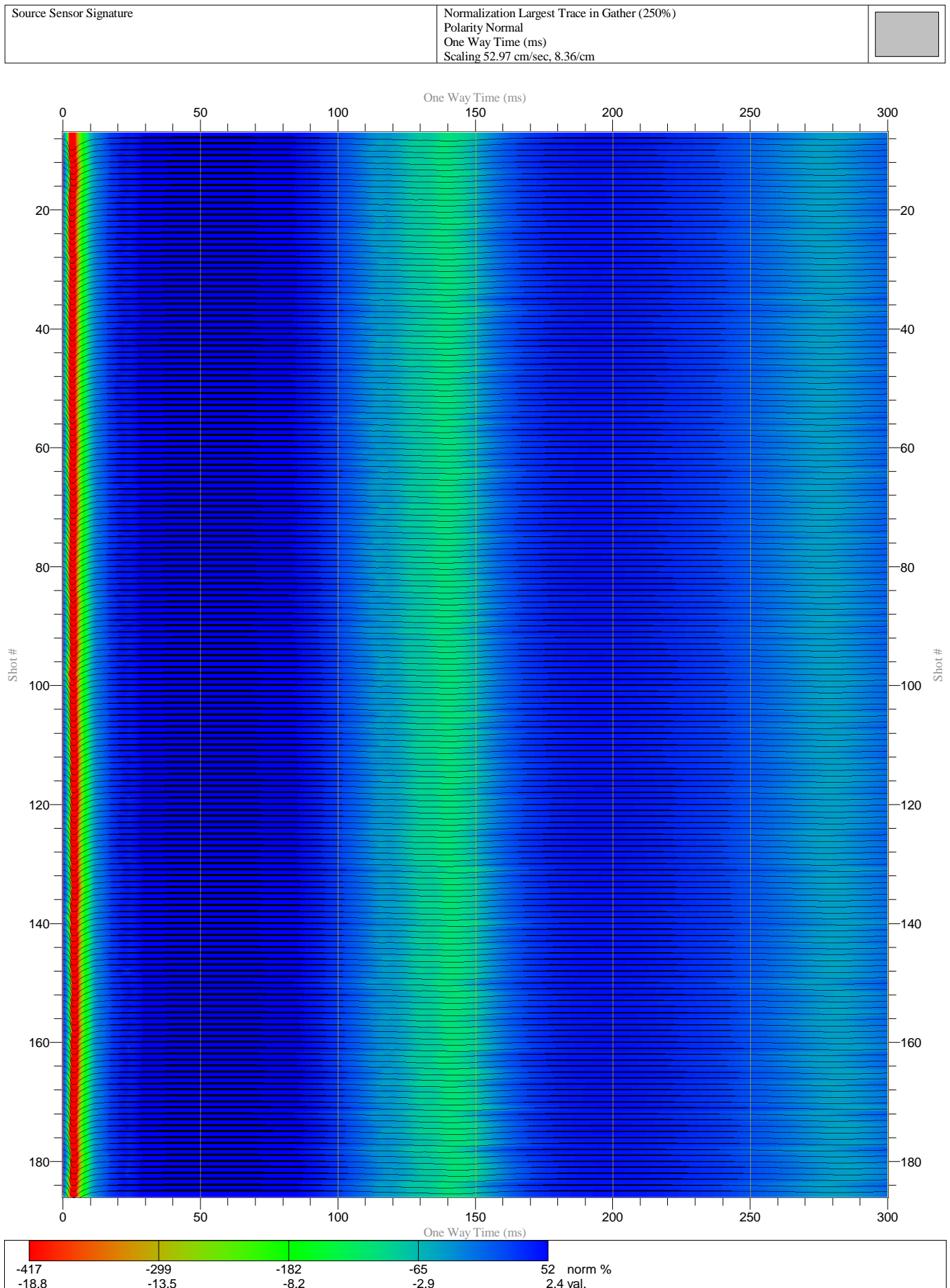
Normalization Largest Trace in Gather (400%)
Polarity Normal
Two Way Time (ms)
Scaling 13.8 cm/sec, 1/9830



VSP Corridor Stack (output) BPF 5.0 - 200.0Hz Median Filter 9 Traces Median Filter 3 Traces Waveshape Decon.(wavelet: 5.0 - 100.0 Hz zero-phase) Travel time exponent = 2.00 5 Traces BPF 5.0 - 110.0Hz Corridor Stack (Mean): BPF 5.0 - 100.0Hz	Normalization Largest Trace in Gather (150%) Polarity Normal Two Way Time (ms) Scaling 11.74 cm/sec, 4.01/cm	
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Source Signature QC Displays



Trisor QC Display

