



1992



1

2

3



2017-01-01

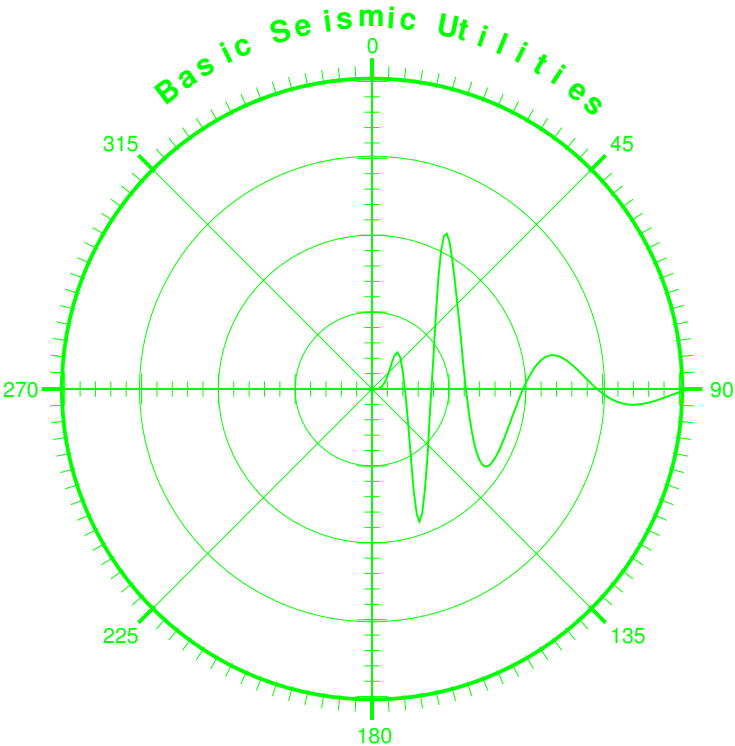
023 1 32112

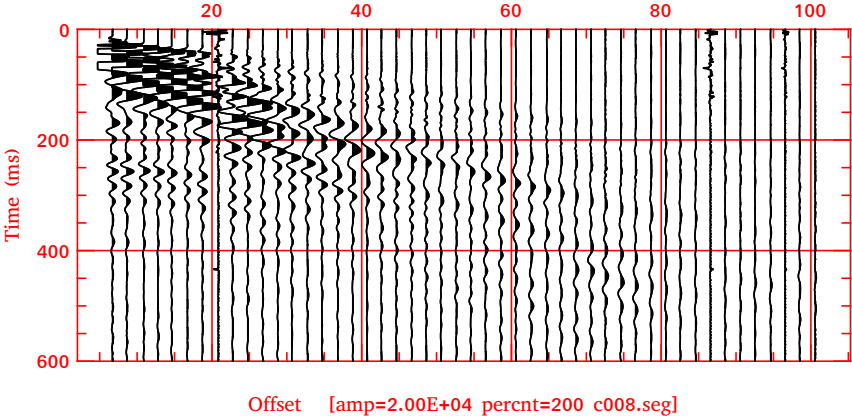


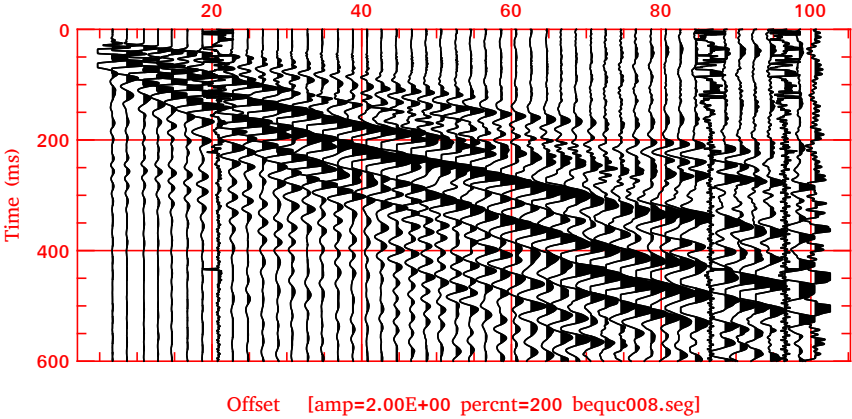


A horizontal bar chart with two bars. The top bar is light gray and the bottom bar is dark gray. Both bars have a black segment on the left side.

A large, pixelated, grayscale version of the letter 'G'. The letter is composed of many small squares in various shades of gray, creating a blocky, digital appearance. It is centered on a white background.

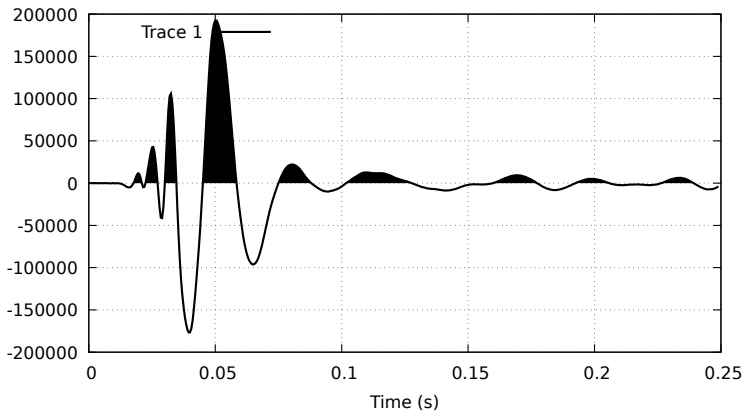




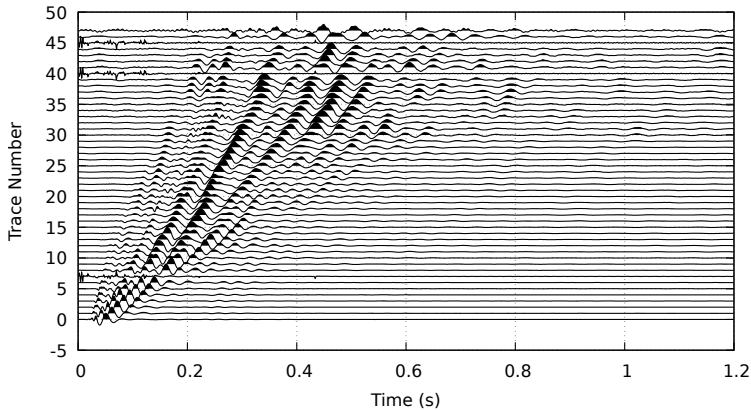




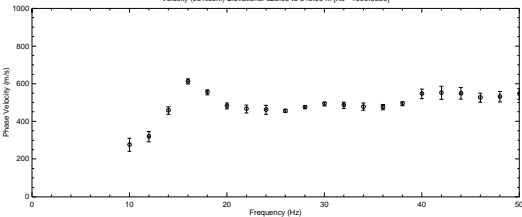
c008.seg



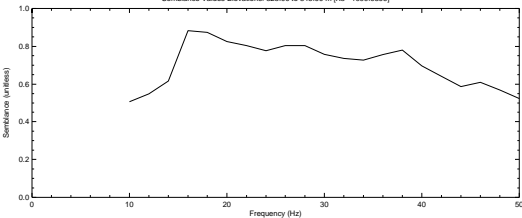
c008.seg Data Rescaled By Max Abs Values



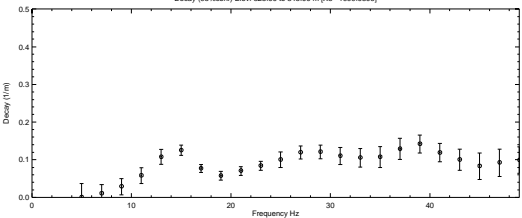
Velocity (95%conf) Elevations: 825.00 to 845.00 m [X5 1999.0306]



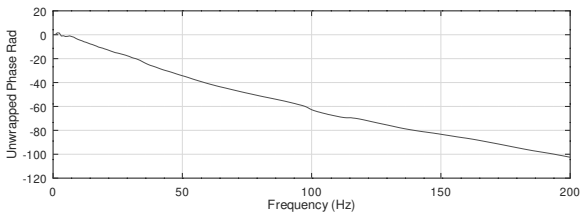
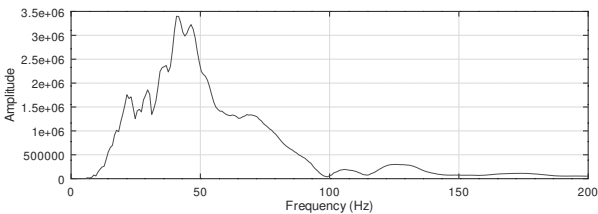
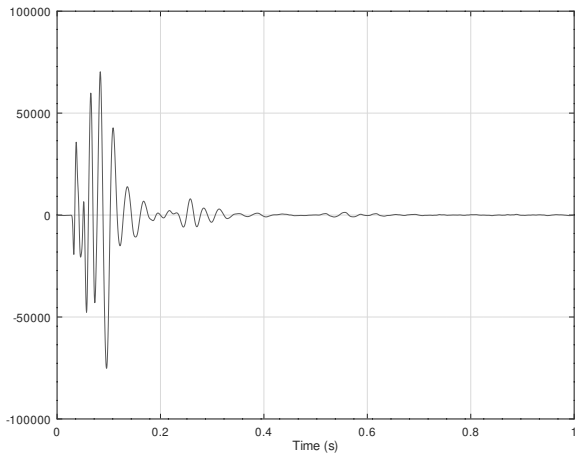
Semblance Values Elevations: 825.00 to 845.00 m [X5 1999.0306]



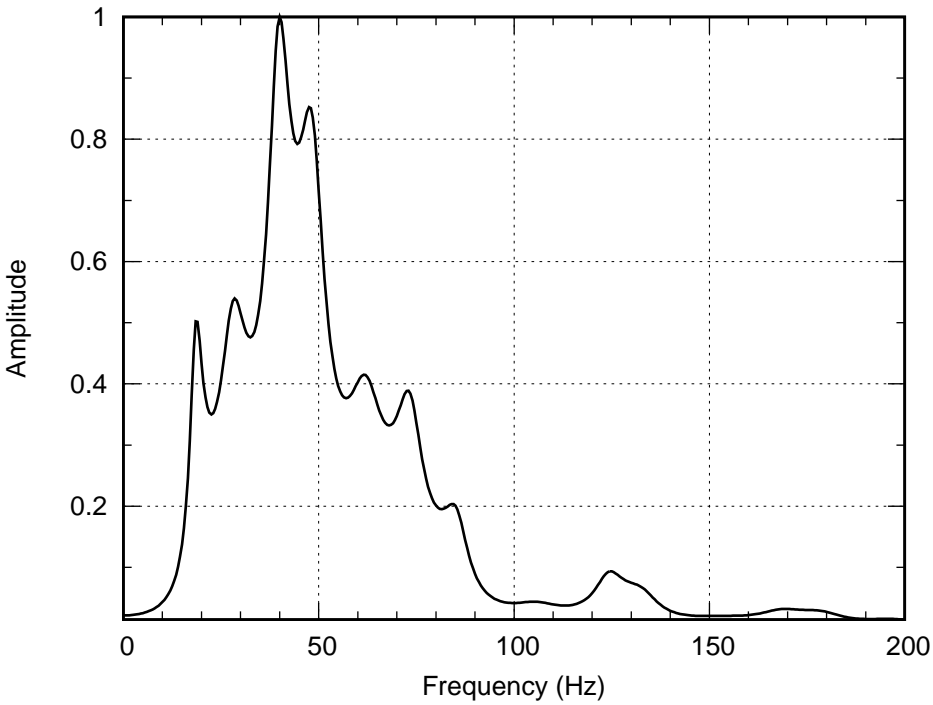
Decay (95%conf) Elev. 825.00 to 845.00 m [X5 1999.0306]



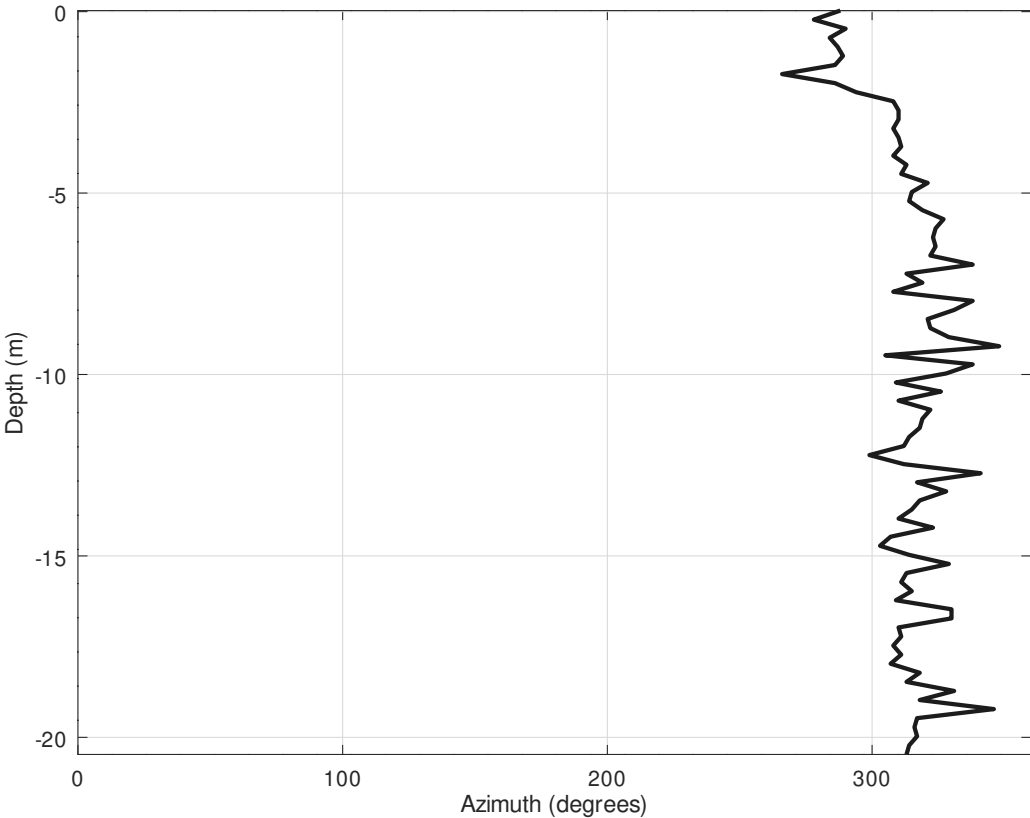
Trace 4 tmax=1.250 sec. dt=0.00050



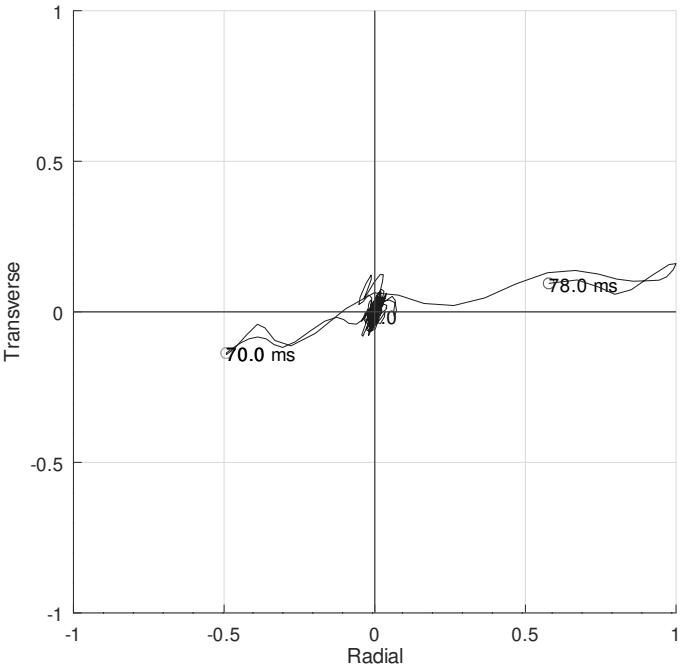
Amplitude Spectrum: c008.seg Order=134 Trace=4



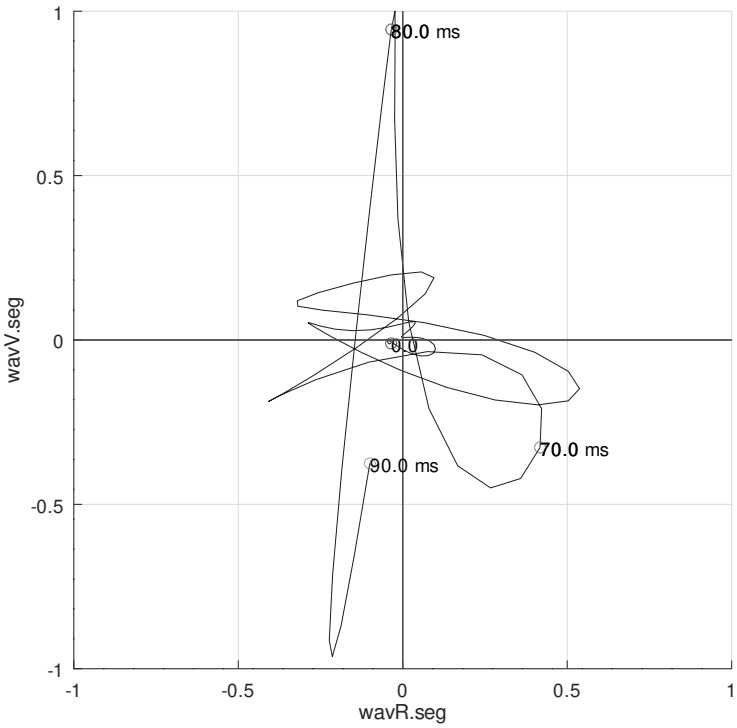
**bmrq.seg**  
**83 traces tmax=0.500 sec. dt=0.00020**



1001.seg Offset=20.778  
Shot (9963.09,10022.00,849.16)  
Rec. (9963.09,10023.25,828.42)  
Scale Factor:1.41e-01 millivolts

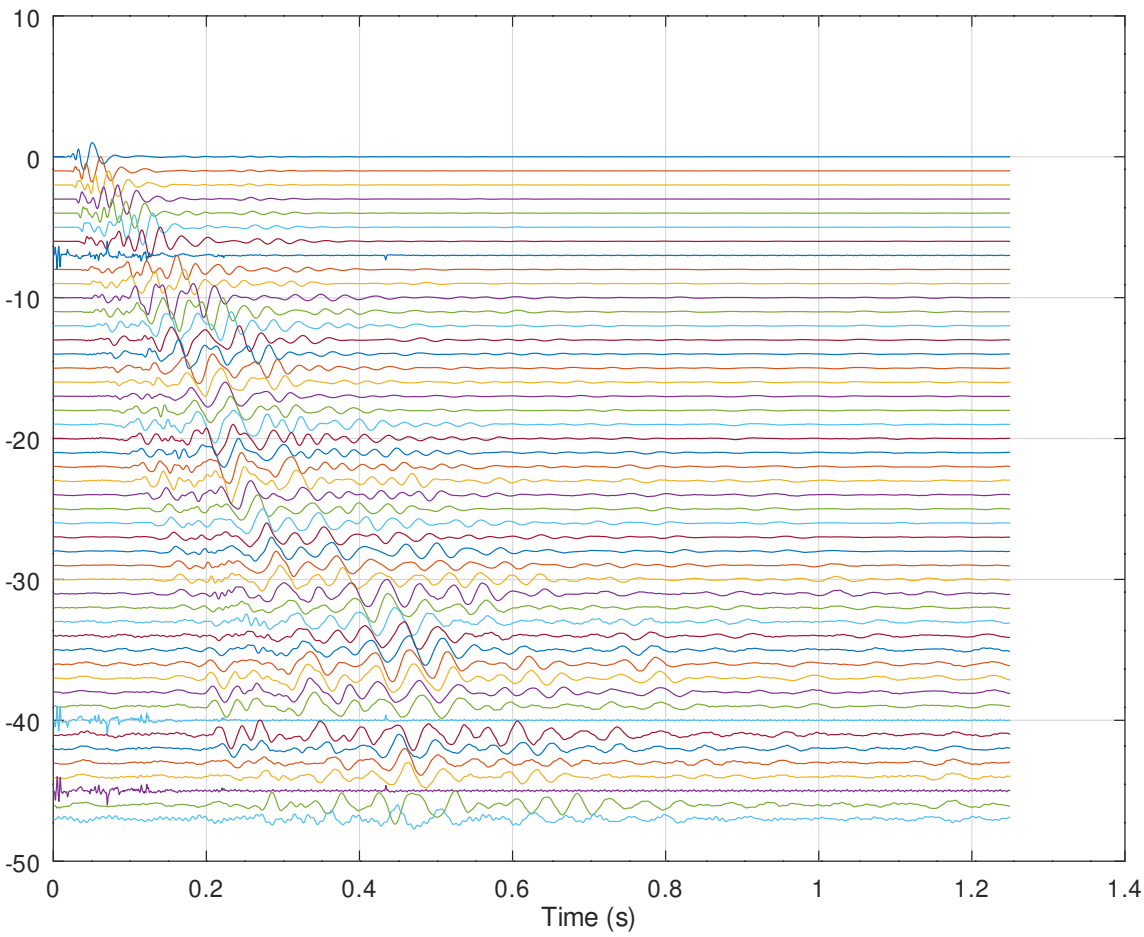


Offset=5.000 m Scale Factor:1.76e-07 mv

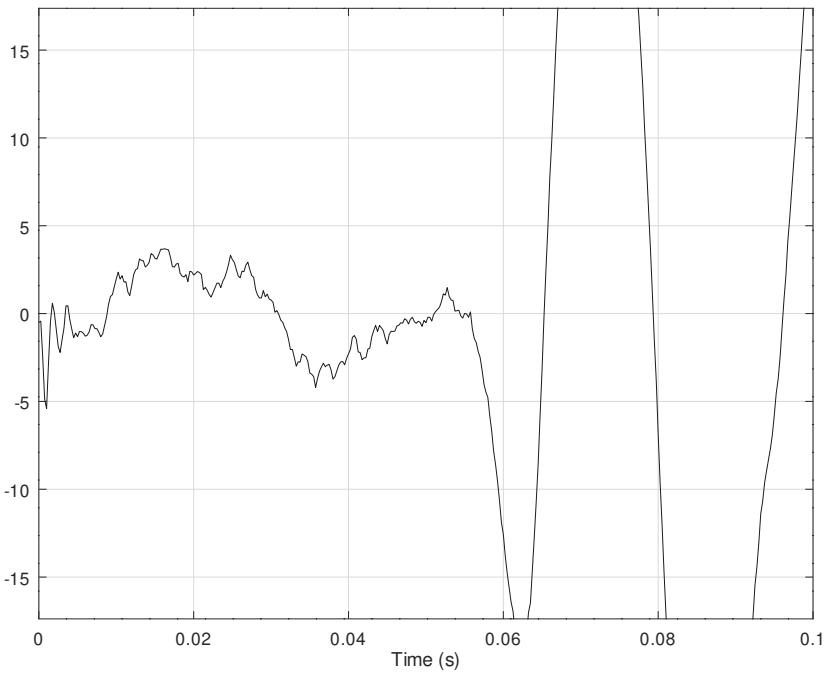


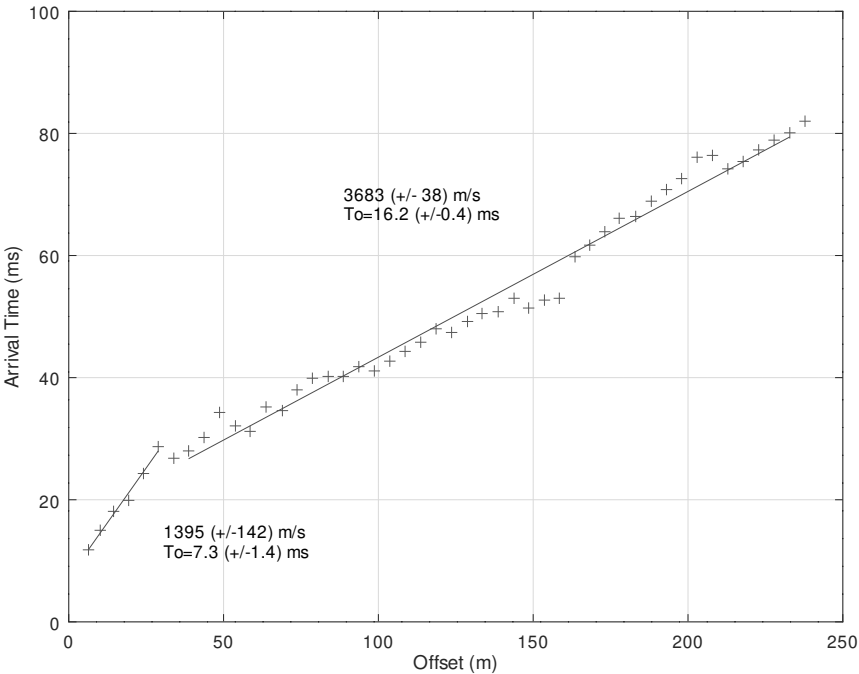


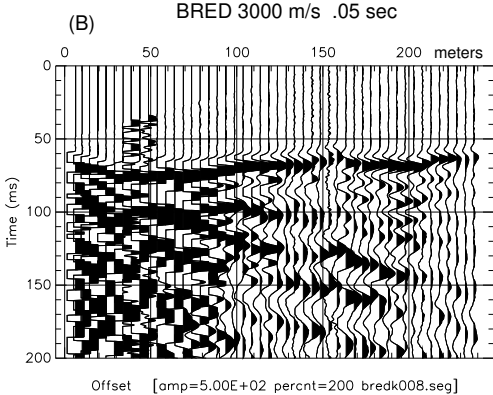
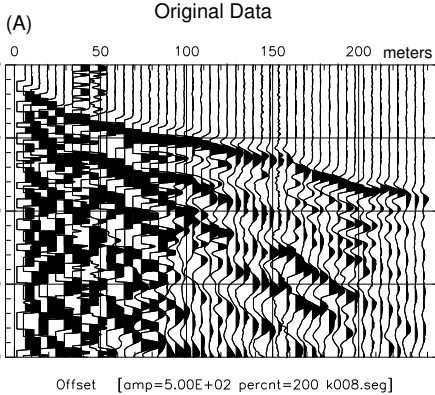
48 traces tmax=1.250 sec. dt=0.0005



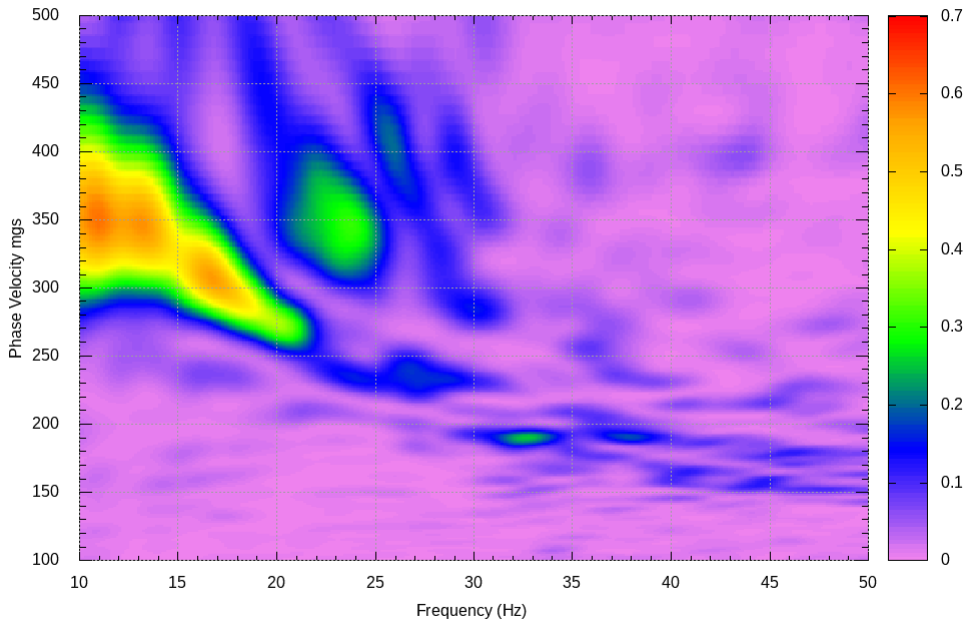
Trace Number 2



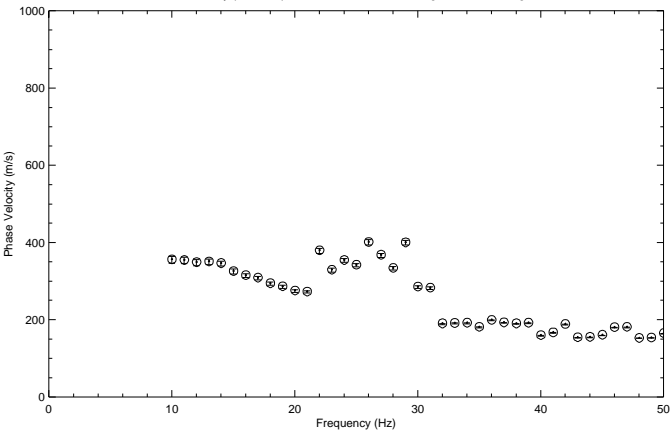




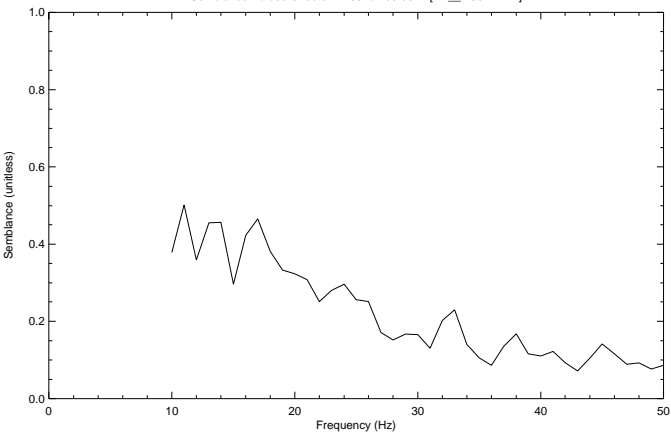
Semblance



Velocity (95%conf) Offsets: 1.00 to 100.00 m [4N\_\_ 1994.1117]



Semblance Values Offsets: 1.00 to 100.00 m [4N\_\_ 1994.1117]

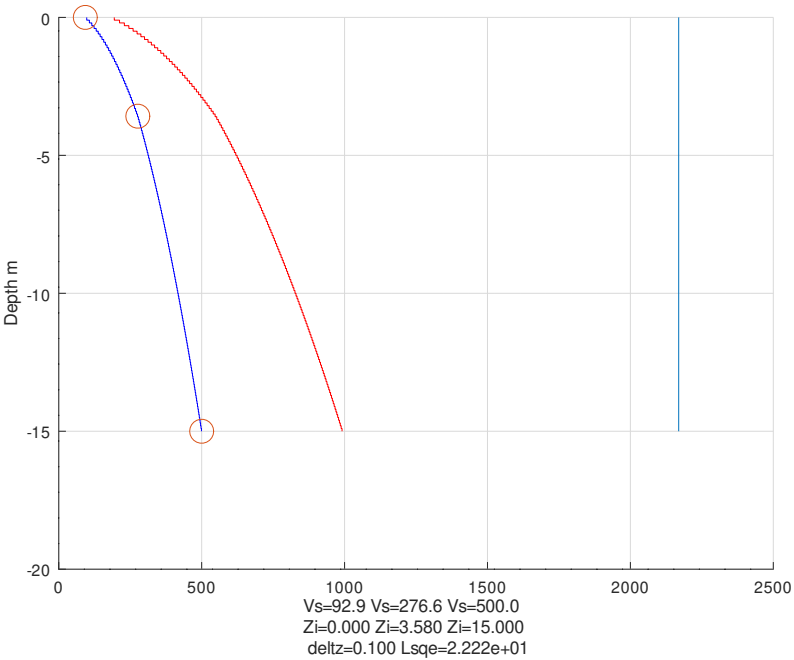




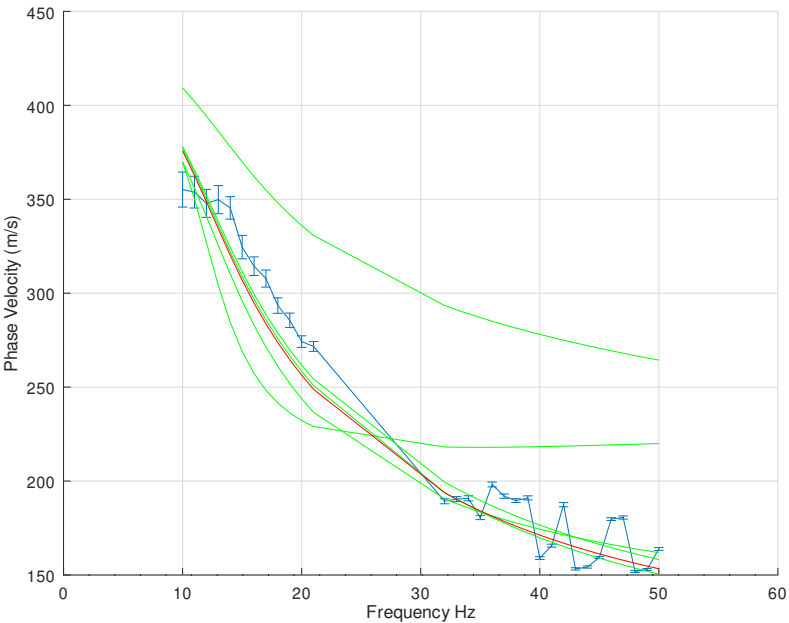




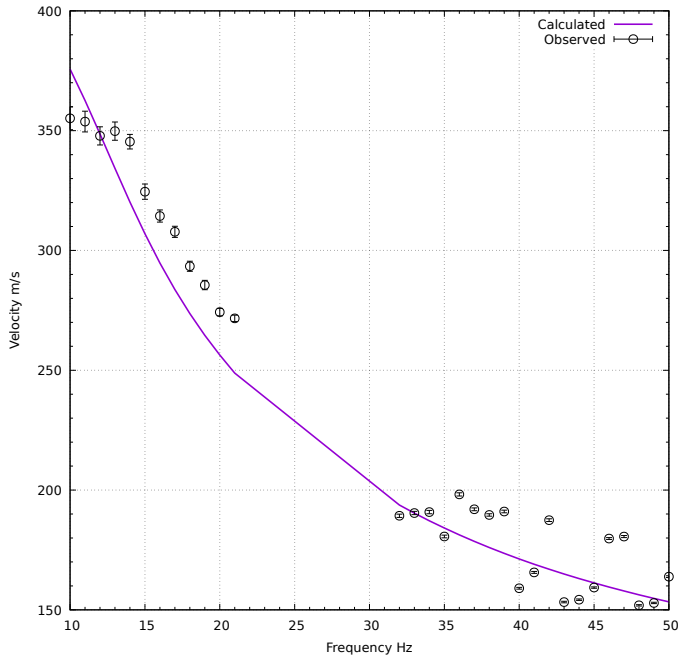
# Soil Profile



# Rayleigh Wave



## Solution









$$\Delta v = \frac{\Phi}{2\pi} \cdot T,$$



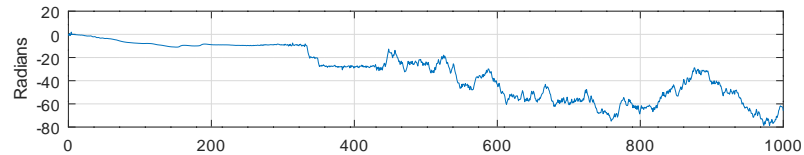
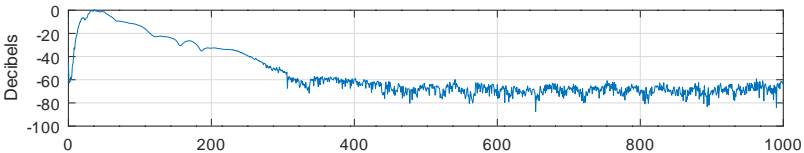




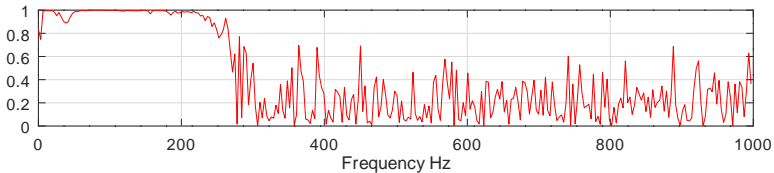


$$cc = \frac{\Delta x}{\Delta x}$$

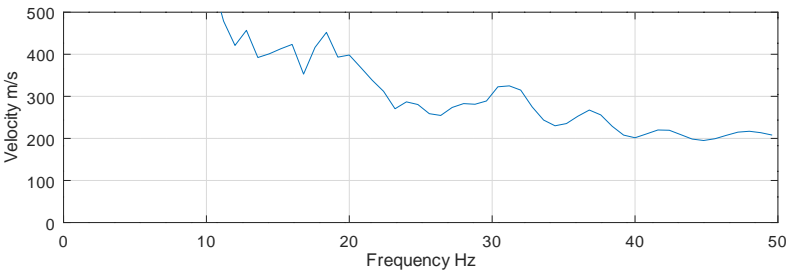
### Cross Power Spectrum



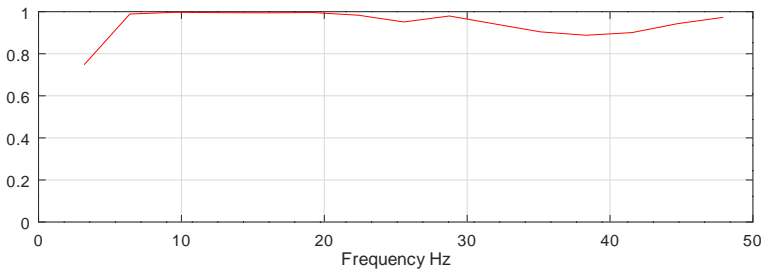
### Coherence



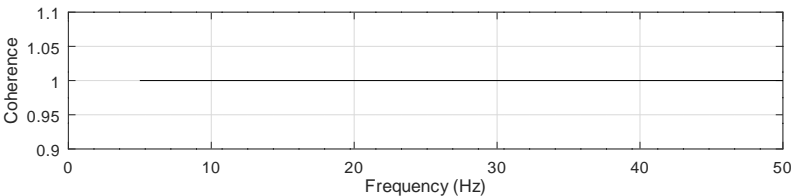
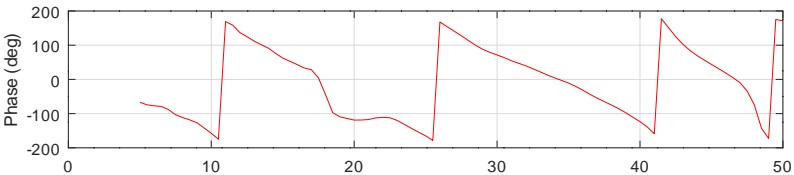
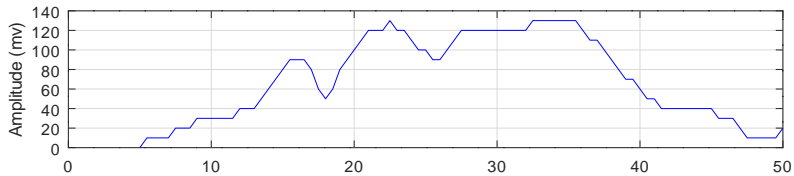
**File: c008.seg Trace: 2---3 Phase Velocity**



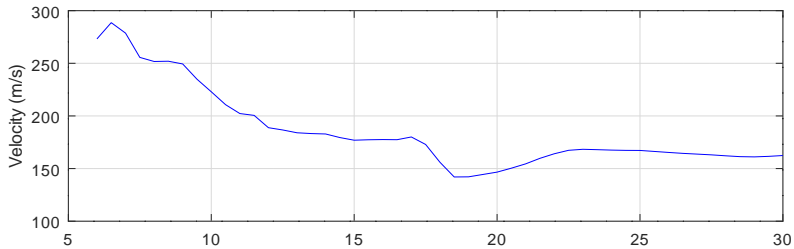
**Coherence**



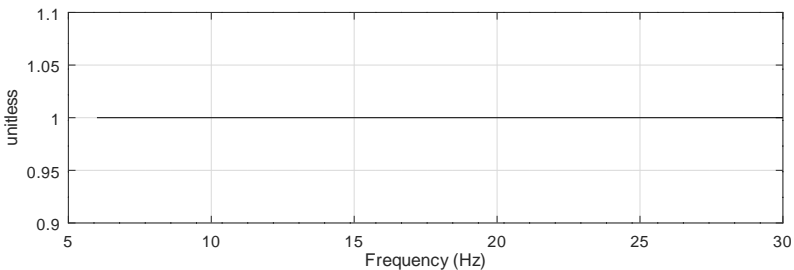
Units=feet: dX=32 R1=45 R2=77 S=-7



**Phase Velocity**  
Units=feet: dX=32 R1=45 R2=77 S=-7



**Coherence**



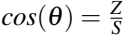
















Q

=

arcana

1

2

3

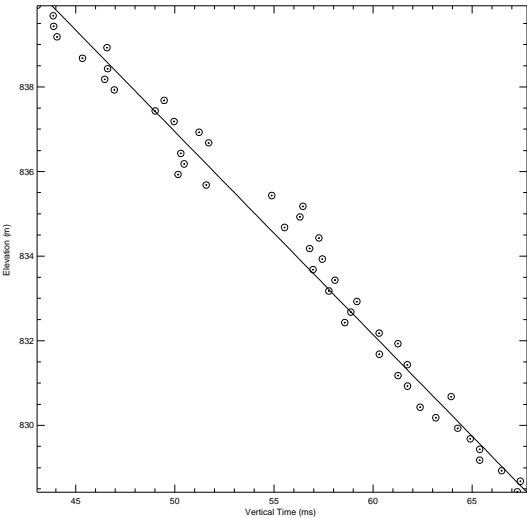
$$T_v = T_s \cdot \cos(\theta) = \frac{Z}{V_i} = \frac{S}{V_i} \cdot \cos(\theta);$$

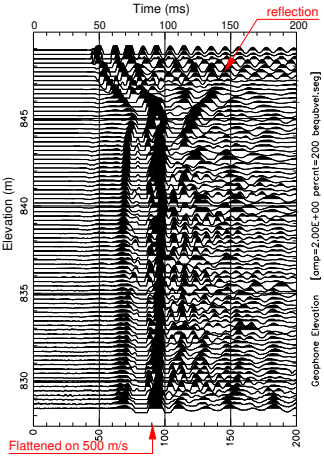




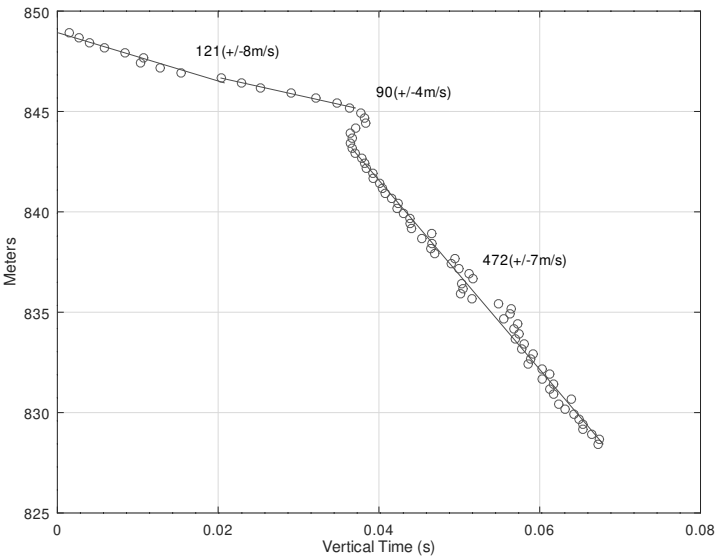


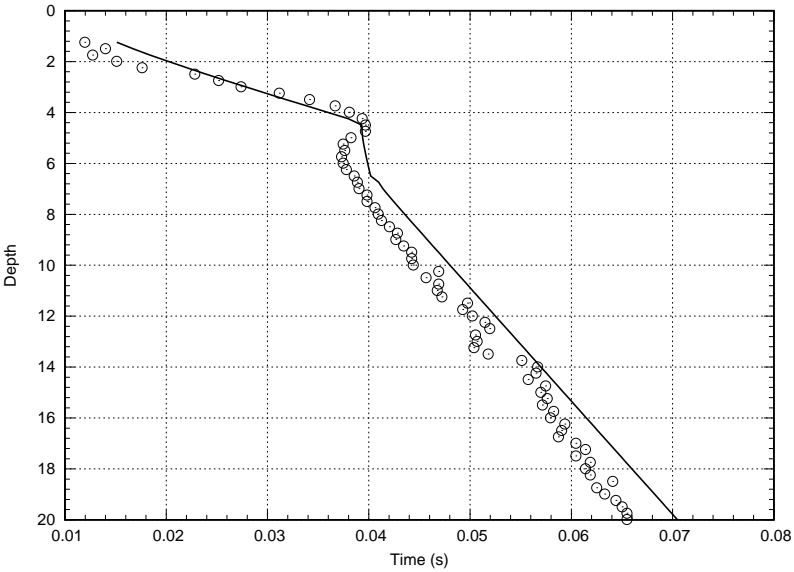
DH=00X5 UNIT=X5 Velocity=479.97 m/s (+/-) 9.69 m/s R=0.980



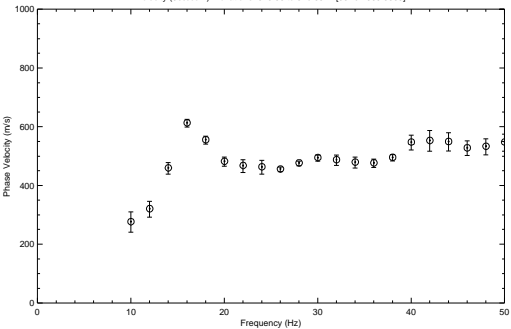


# X5 Borehole

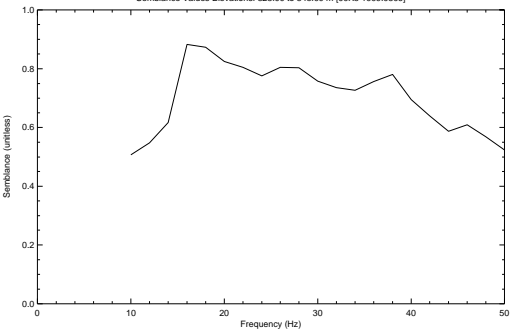




Velocity (95%conf) Elevations: 828.00 to 845.00 m [00X5 1999.0306]

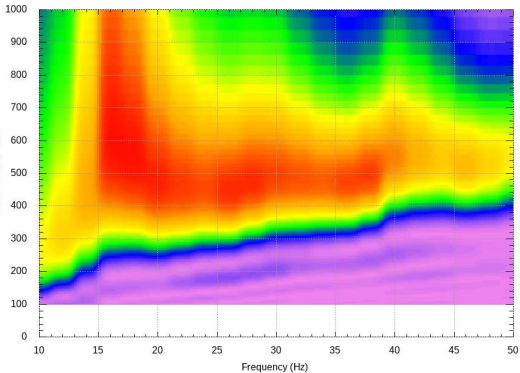


Semblance Values Elevations: 828.00 to 845.00 m [00X5 1999.0306]



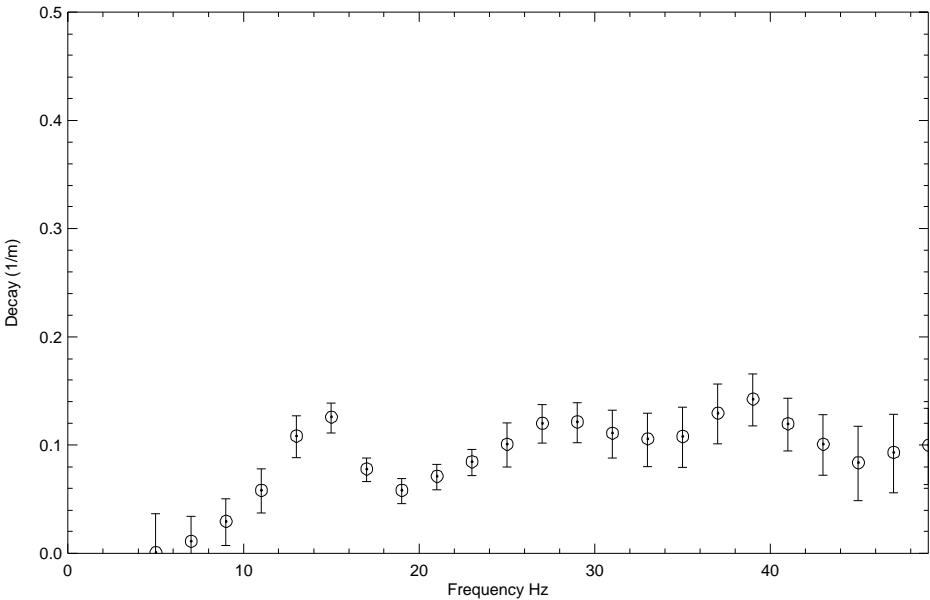
Semblance

Phase Velocity m/s





Decay (95%conf) Elev. 828.00 to 845.00 m [00X5 1999.0306]



$$\frac{\partial^2 u}{\partial t^2} = C_1 \frac{\partial^2 u}{\partial x^2} + C_2 \frac{\partial^3 u}{\partial t \partial x^2}$$



$$\left( \frac{m^2}{s^2} \right)$$



$$\pi^2 \over 6$$









www.explore.com



$$\alpha = \frac{4\sqrt{D}\omega^2 C_2}{(2\omega C_2)^2 + D^2}$$



$$D = 2 \left( c_1 + \sqrt{c_1^2 + \omega^2 c_2^2} \right).$$

$$c = \frac{2\omega^2 C_2}{D\alpha}.$$

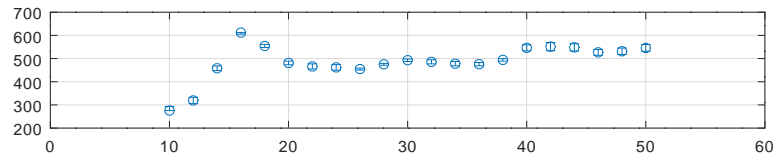
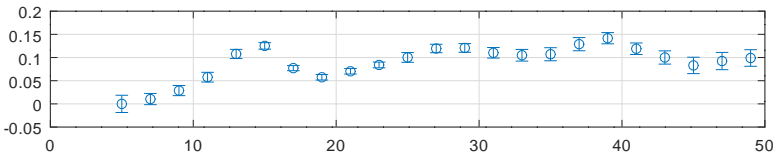
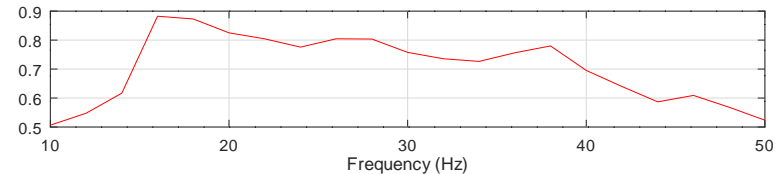
$$C_1 = \frac{(\beta^2 - \alpha^2) \omega^2}{(\beta^2 + \alpha^2)^2},$$



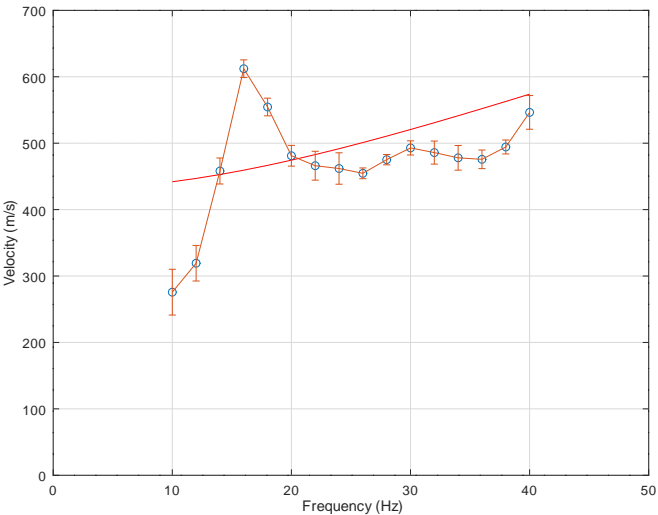
$$C_2 = \frac{2\alpha\beta\omega}{(\beta^2 + \alpha^2)^2}.$$



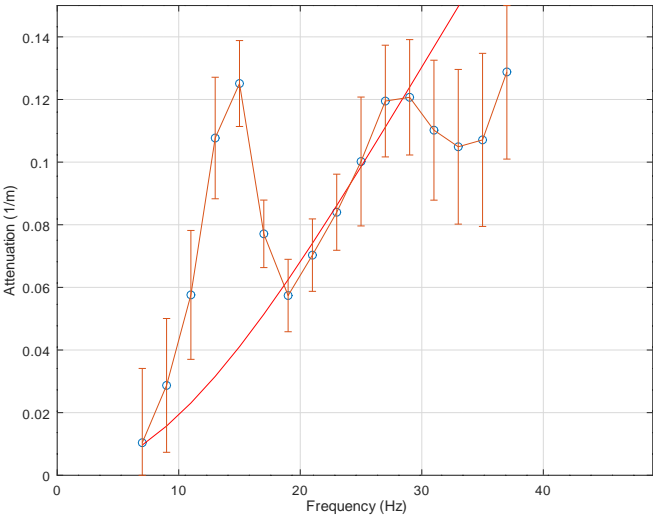


**Velocity****Attenuation****Semblance**

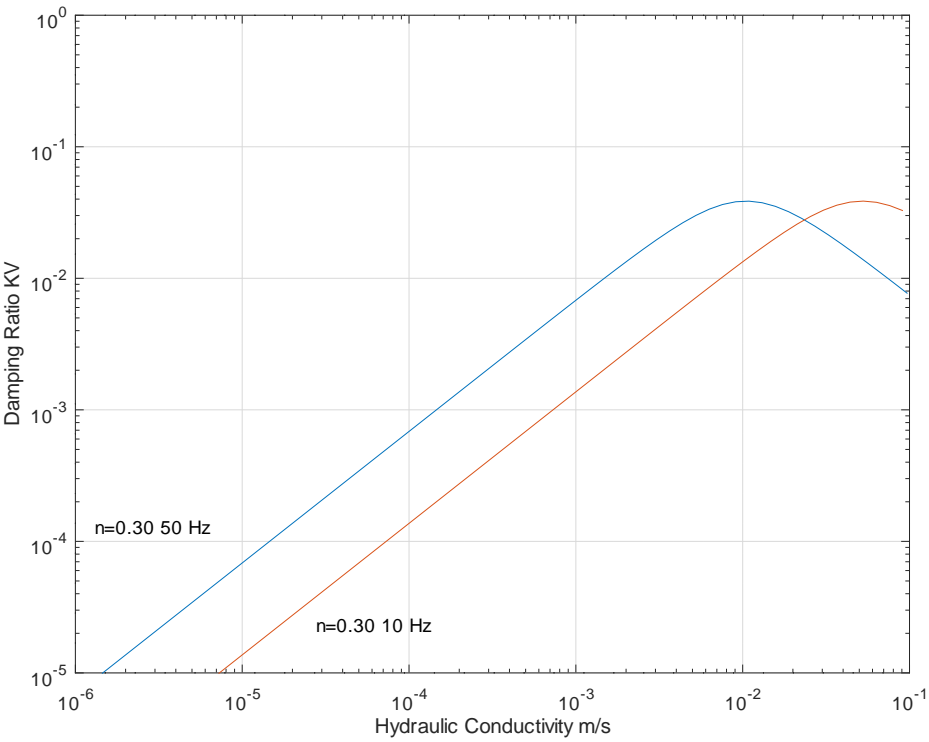
Velocity C1=184852 (+/-)6332 C2=811 (+/-)32  
95% Conf. 1/Stdv error weighting Balance=0.50



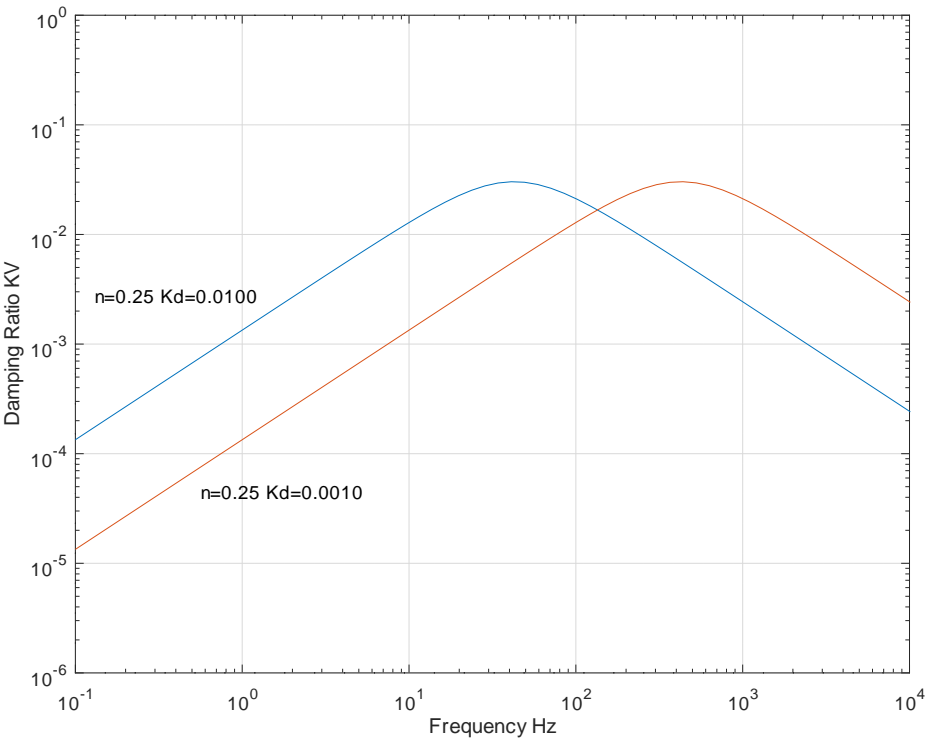
Attenuation RelaxTime=0.004389 (+/-)0.000227 sec.



Equivalent KV Damping Ratio



Equivalent KV Damping Ratio







# Enter Parameters

Frequency (Hz)

12

n (porosity)

.25

C1 stiffness ( $\text{m}^2/\text{s}^2$ )

10000

C2 damping ( $\text{m}^2/\text{s}$ )

5

+/-stdevC1

100

+/-stdevC2

1

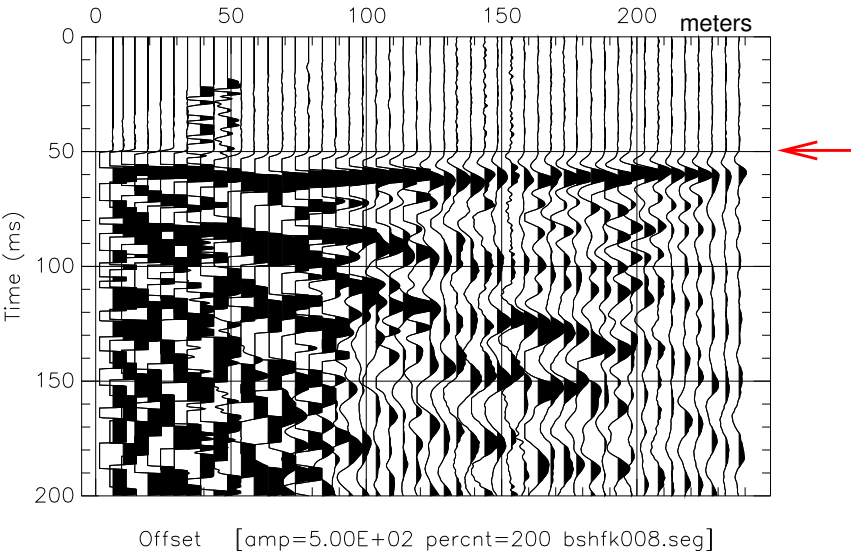
+/-stdev{porosity

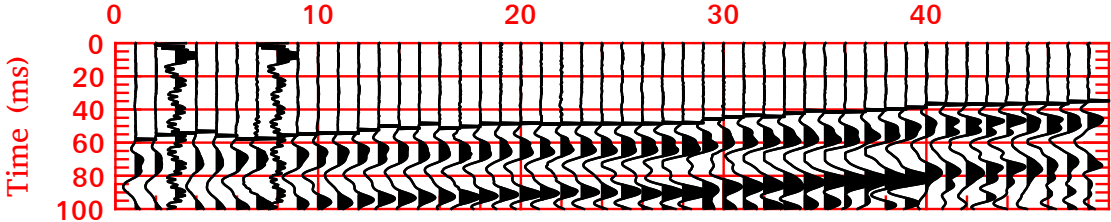
.01

OK

Cancel

# BSHF Static Shifted by Header Picks





$$T_s = \frac{(sz - sd - rz)}{vw}$$



$$x_1 = \frac{1}{V_1} = \frac{1}{v_1}$$











$$\begin{bmatrix} X_{a1} \\ X_{a2} \\ X_{b8} \\ X_{b9} \end{bmatrix} \cdot \begin{bmatrix} 1 \\ V_1 \end{bmatrix} = \begin{bmatrix} t_{a1} \\ t_{a2} \\ t_{b8} \\ t_{b9} \end{bmatrix}$$

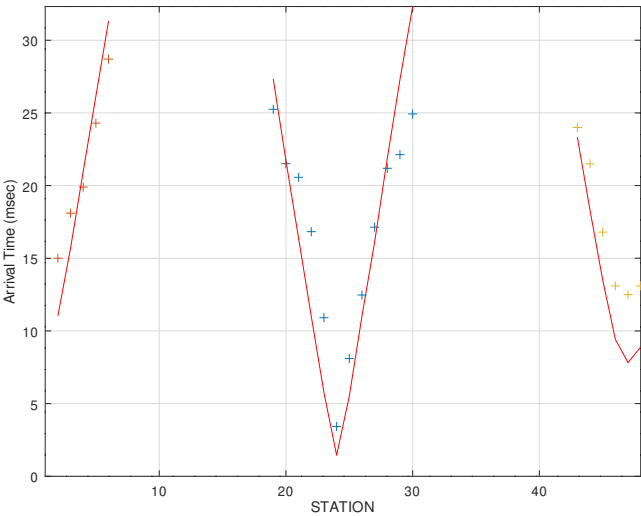
MM = [GT - 1]GT

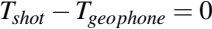
W

=

1

Direct Wave: V1= 923 (+/-) 35 m/s







$$T_{shot} + T_{geophone} + \frac{X_{sg}}{V_2} = T_{obs} \quad ;$$



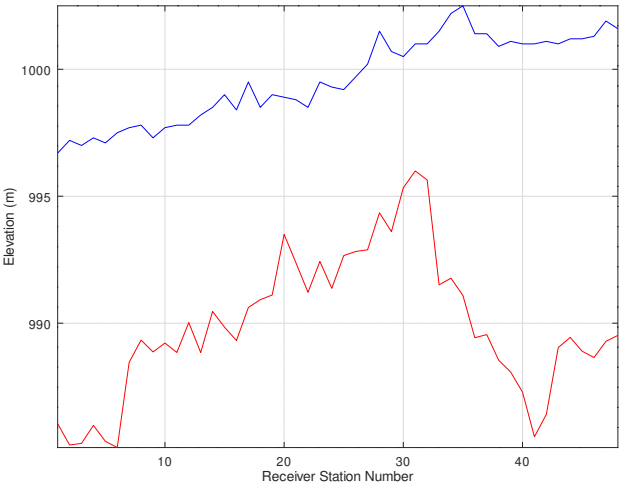
1990-1991





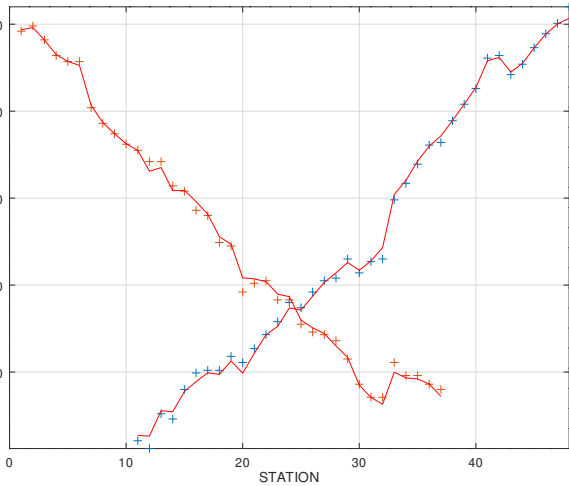


Receiver Structure (V1=923 V2=4121 m/s)



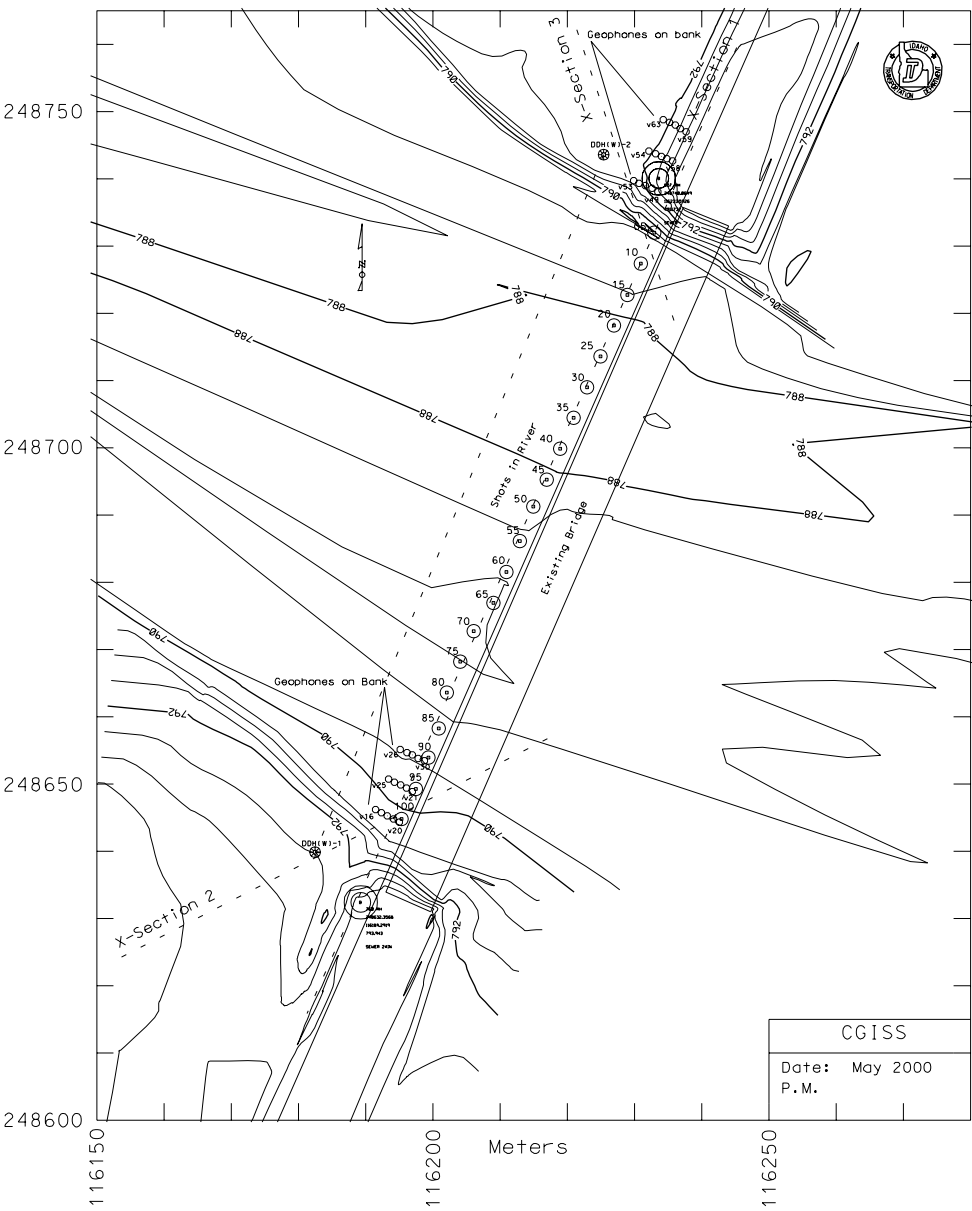
**+ = Observed Times -- Solution**

Arrival Time (msec)





# Plan View of Surface Geophysics SH55 Bridge Key 7215







$$T_d = \frac{H \cos(\theta_c)}{V_1}$$

Arise, my love, and be  
like a roe, or like a gazelle,  
like a roe that springs  
from the water, or like a gazelle  
that springs from the mountain.

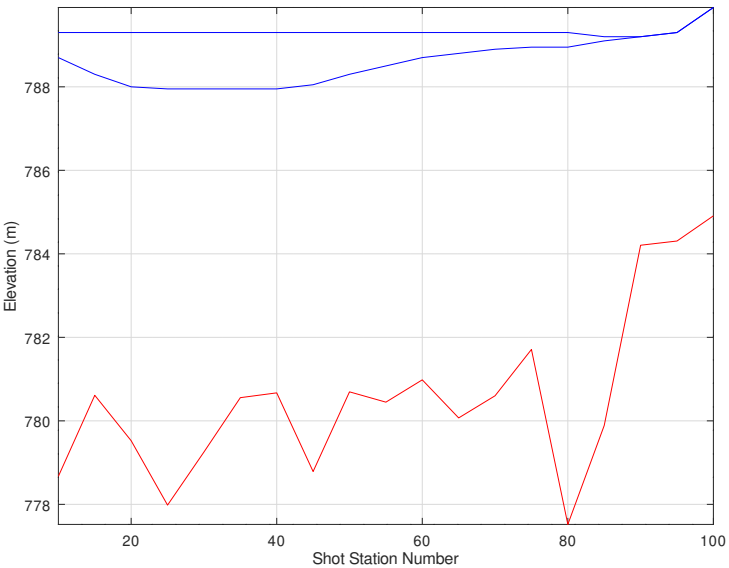
W

1

1500

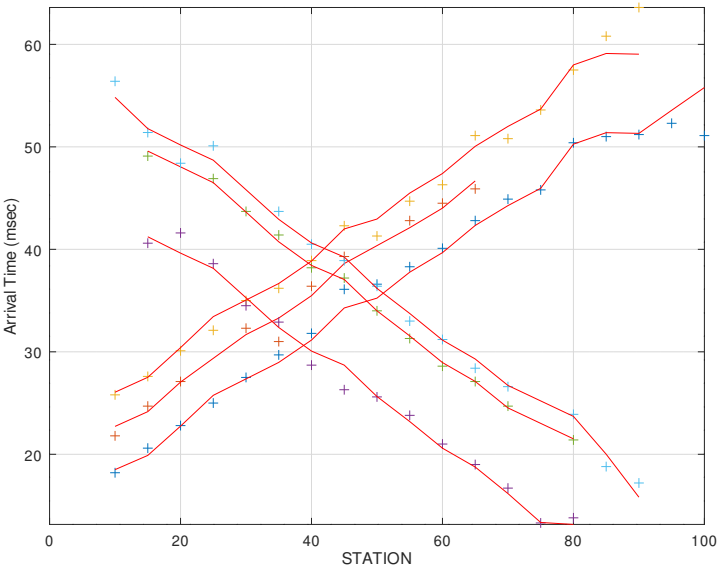
W E I R D

Shot Structure (V1=1500 V2=2216 m/s)

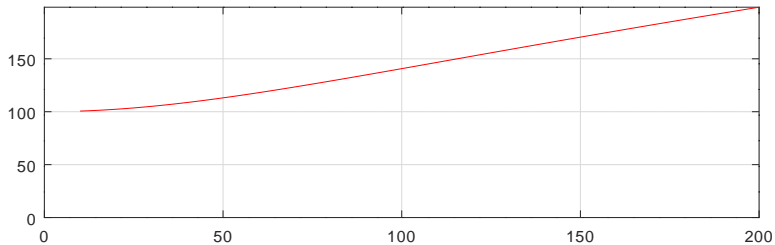




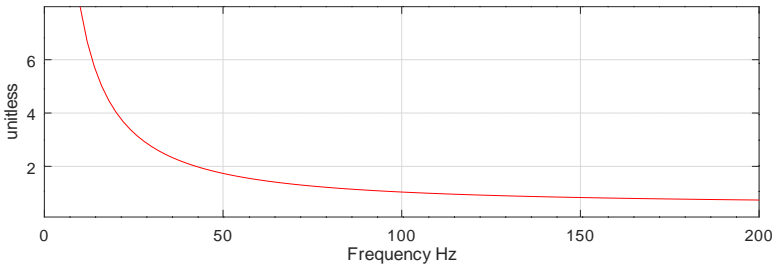
**+ = Observed Times    -- = Solution**

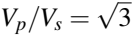


**Velocity Relaxation Time=2.000 ms C1=10000.000000 C2=20.000000**

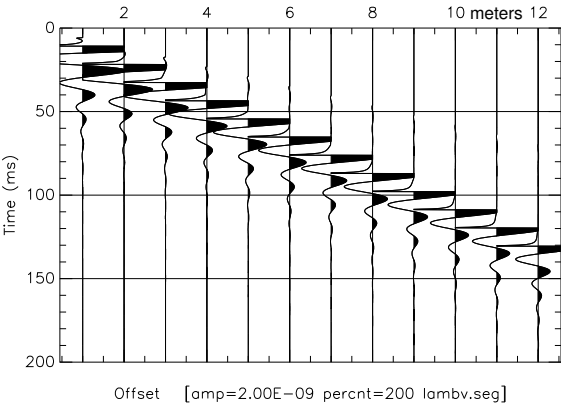


**Quality Factor, Q**

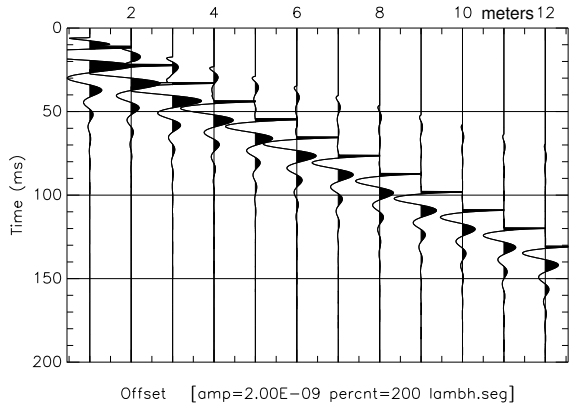




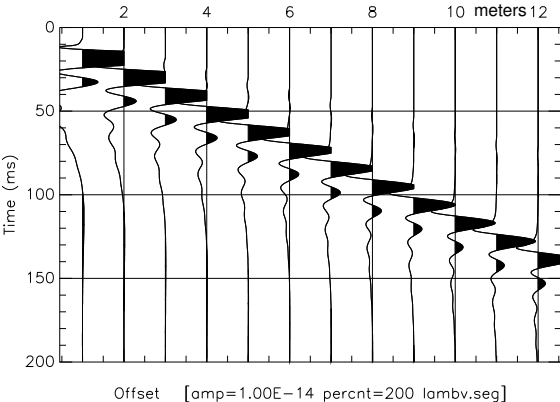
Vertical Particle Velocity



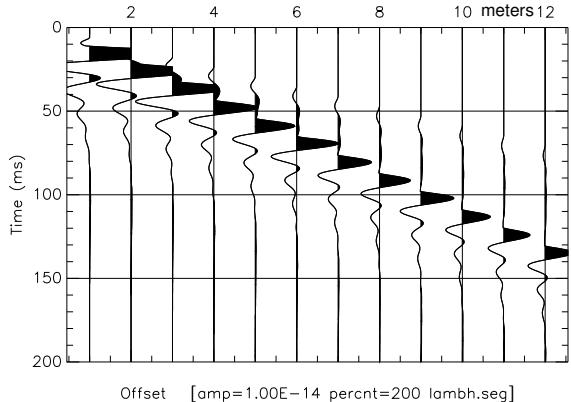
Horizontal Particle Velocity

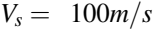


# Vertical Geophone Particle Velocity

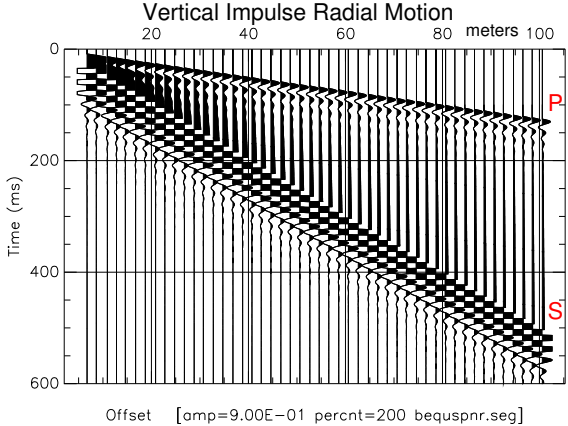
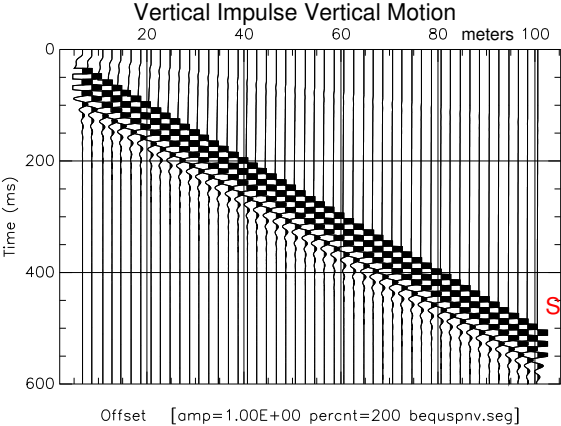


# Horizontal Geophone Particle Velocity



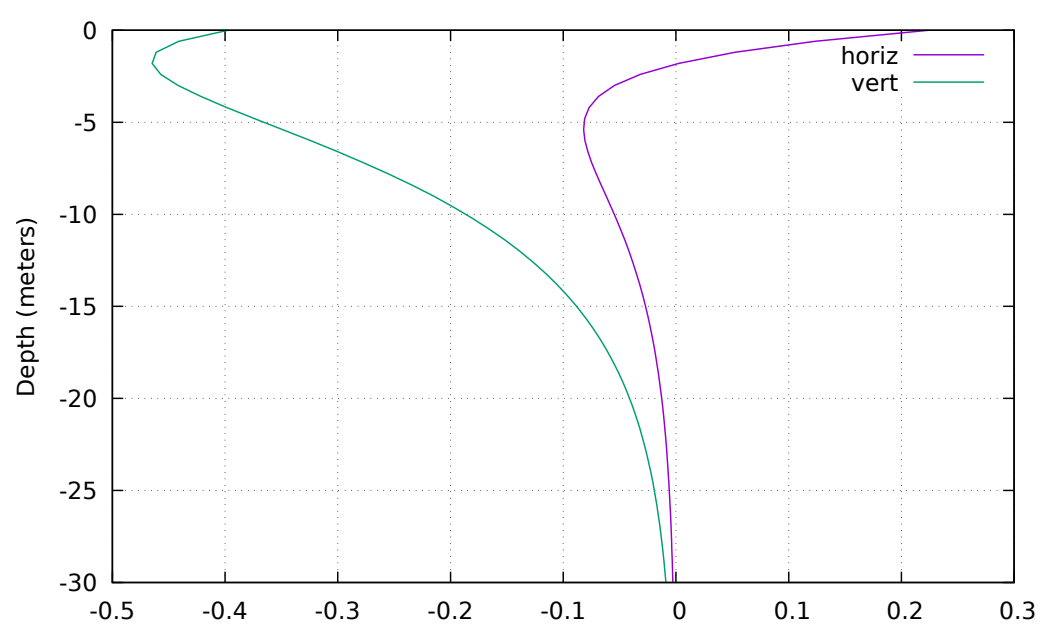


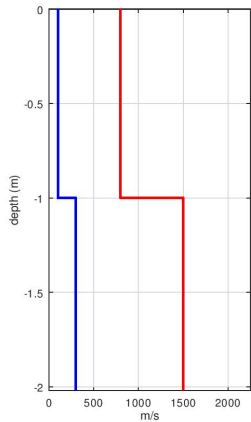
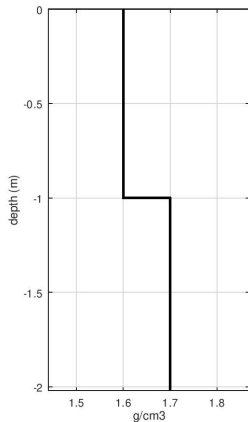
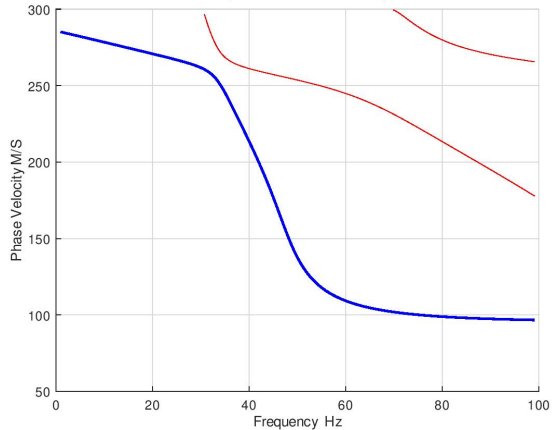
1700 AD



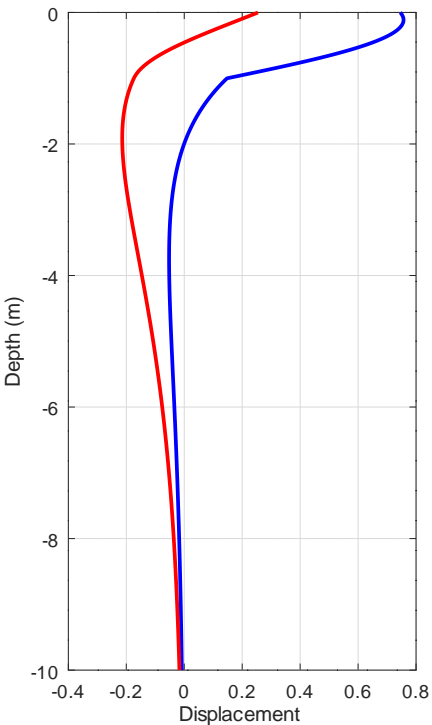




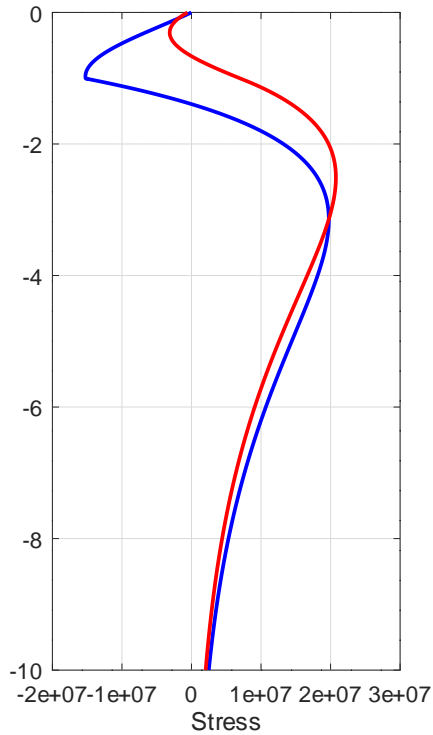


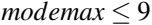
**SV and P Velocities****Mass Density****Dispersion: Phase Velocity**

**Motion Stress Vector (H and V)**

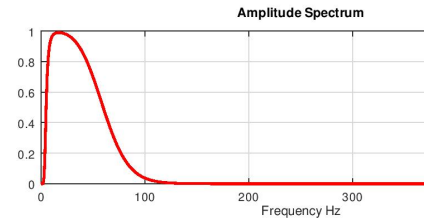
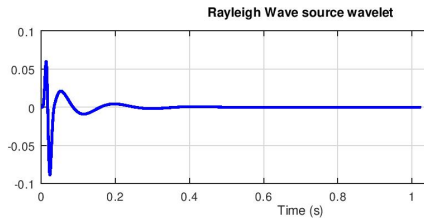


**Motion Stress Vector (H and V)**

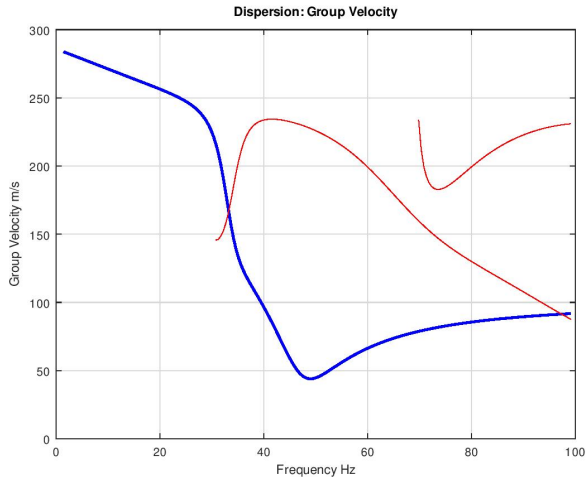




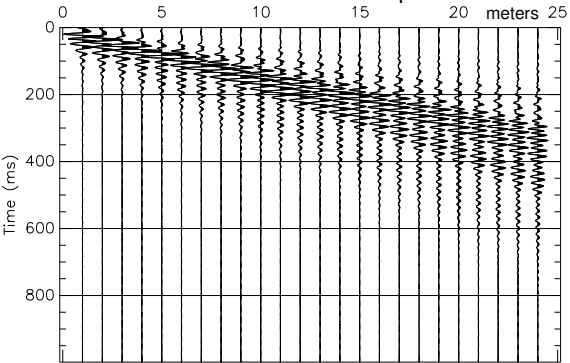
## Wavelet and Spectrum (m0.m)



## Group Velocity (matu.m)

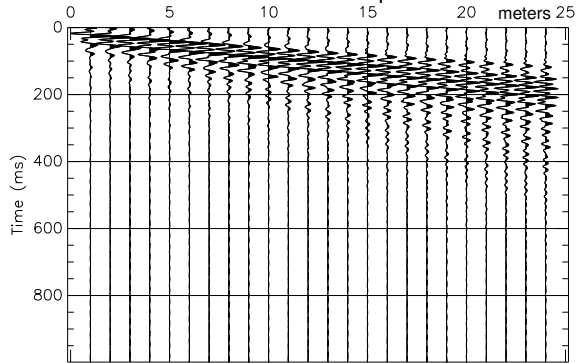


WAVES: Vertical Component



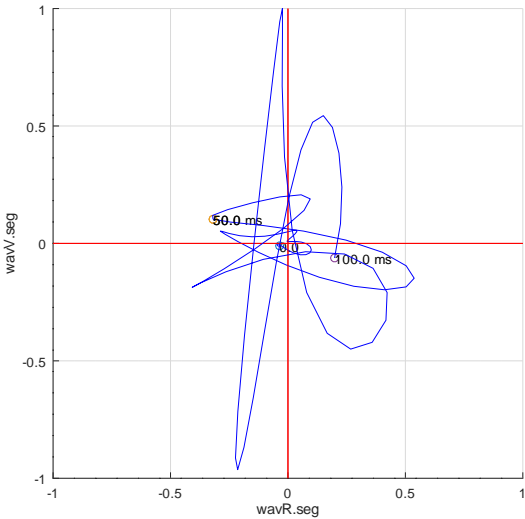
Offset [amp=8.00E+00 percnt=200 bequwavV.seg]

WAVES: Radial Component



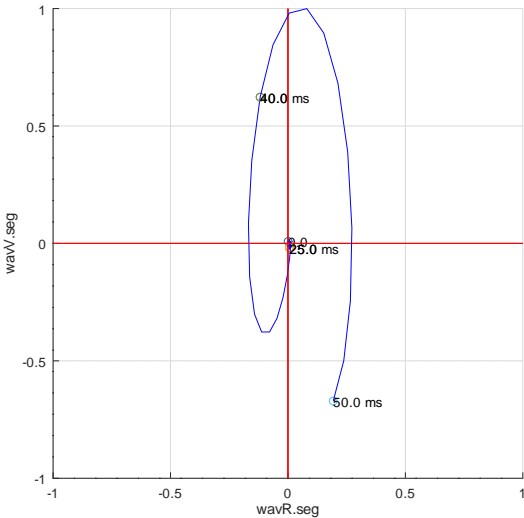
Offset [amp=8.00E+00 percnt=200 bequwavR.seg]

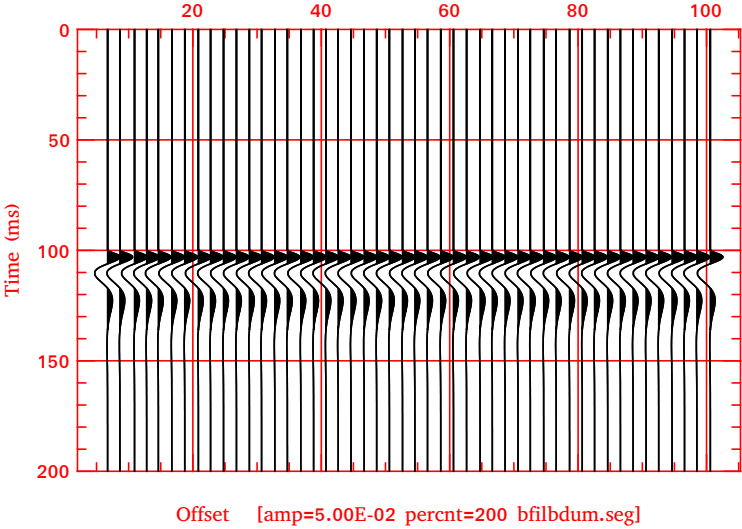
Offset=5.000 m Scale Factor:1.76e-07 mv

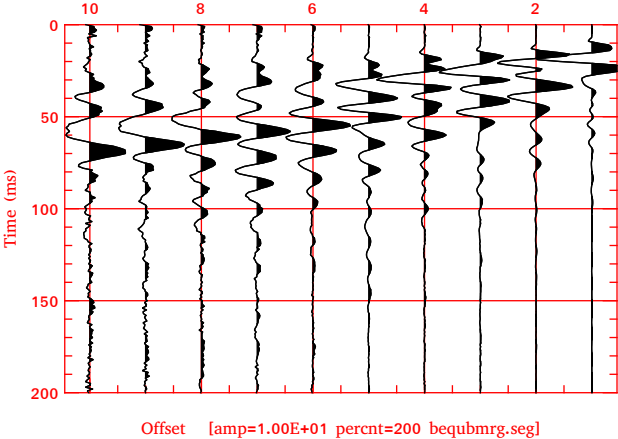


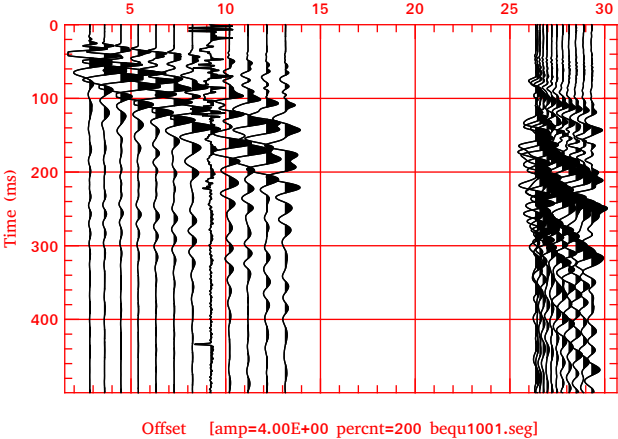


Offset=5.000 m Scale Factor:1.80e-08 mv





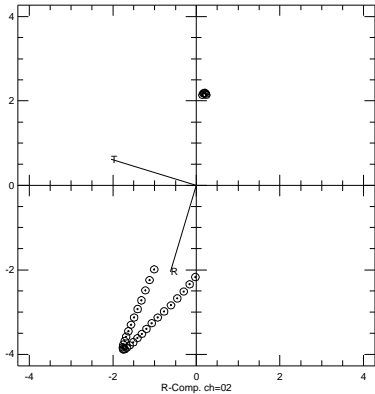






Hodogram: Shot=0010 R= 196.8 T= 286.8

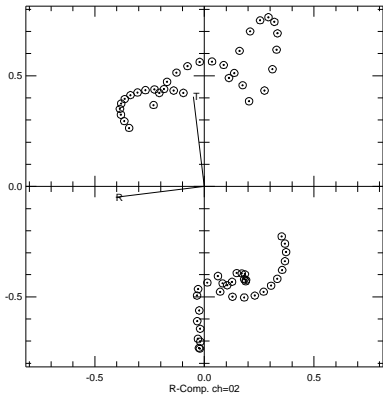
T-Comp. ch=03



R-Comp. ch=02

Hodogram: Shot=0200 R= 263.0 T= 353.0

T-Comp. ch=03



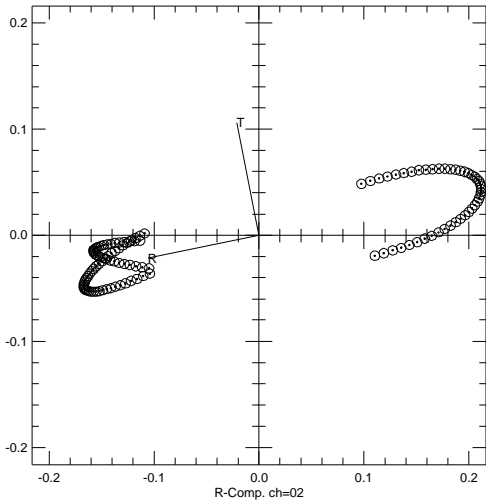
R-Comp. ch=02

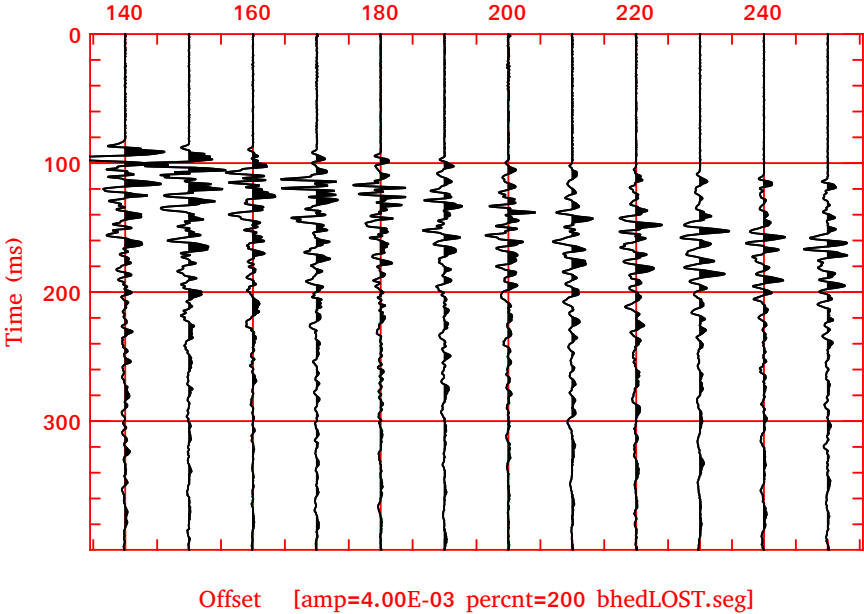
1900



Hodogram: Shot=1002 R= 258.6 T= 348.6

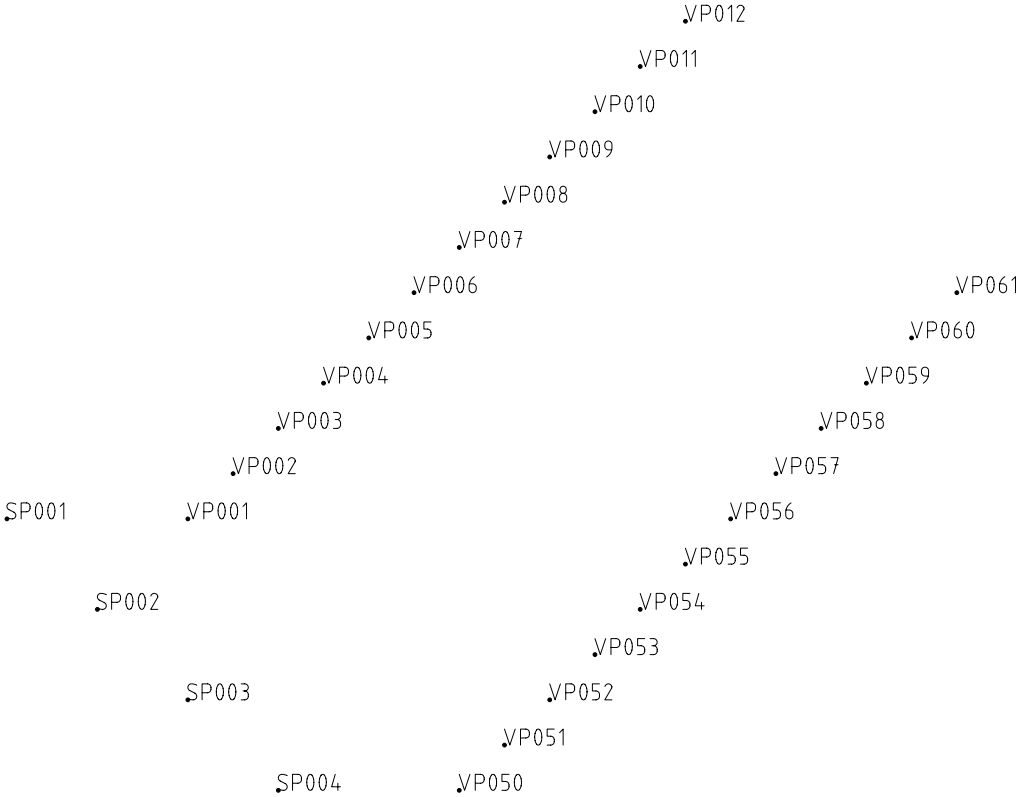
T-Comp. ch=03

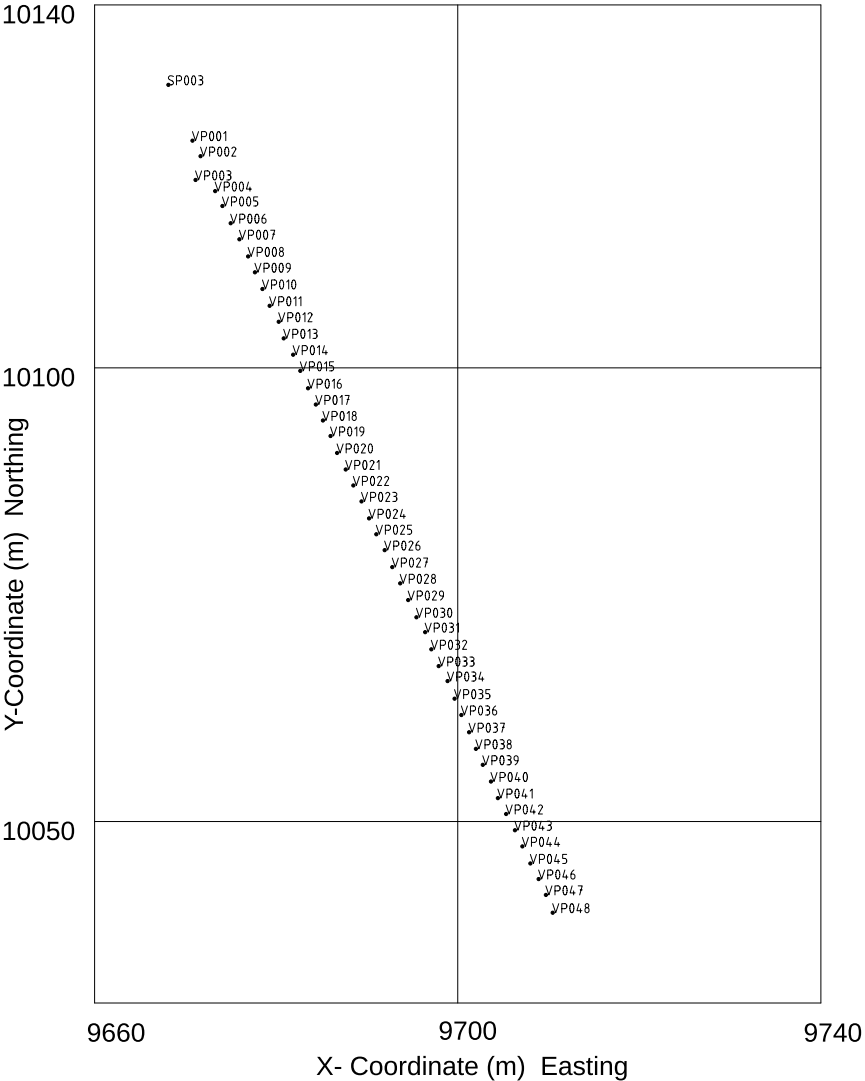


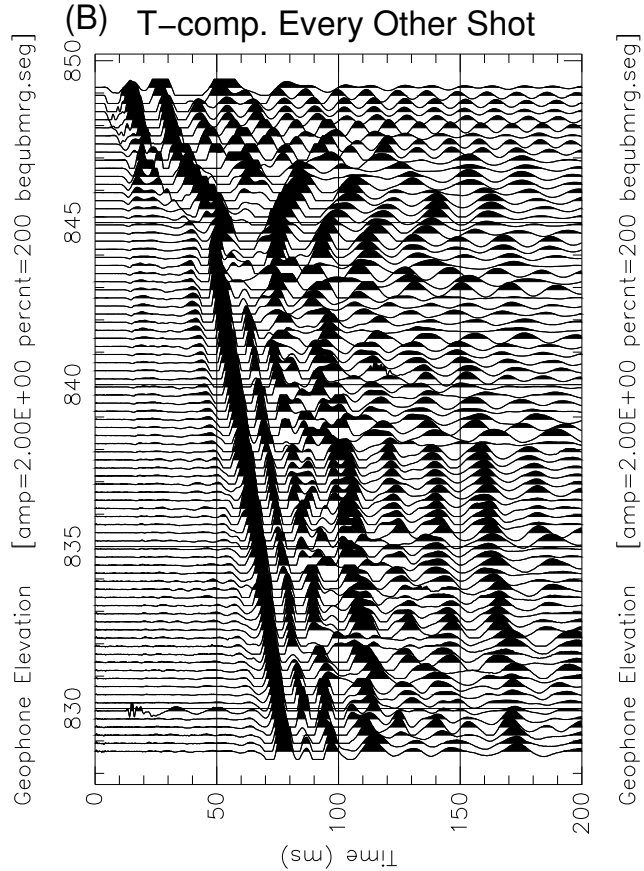
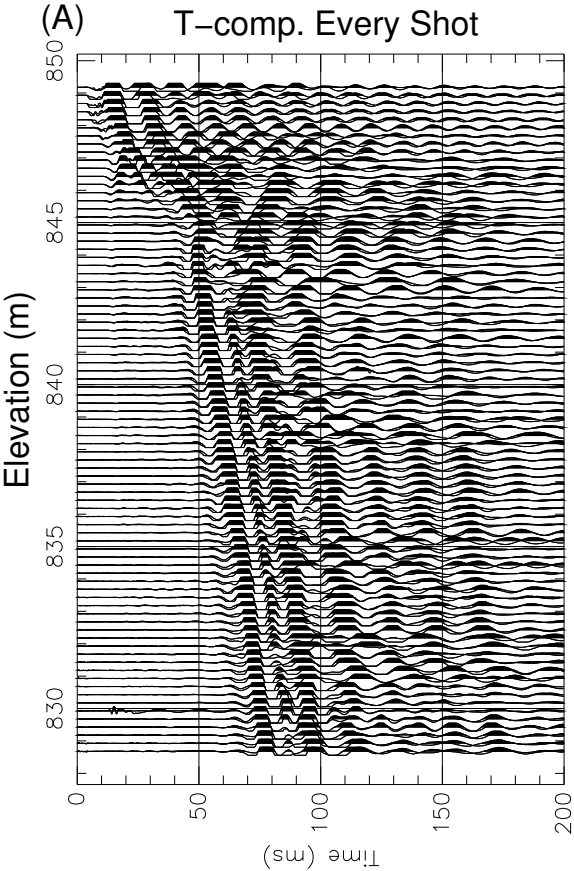


VP012	VP061
VP011	VP060
VP010	VP059
VP009	VP058
VP008	VP057
VP007	VP056
VP006	VP055
VP005	VP054
VP004	VP053
VP003	VP052
VP002	VP051
VP001	VP050

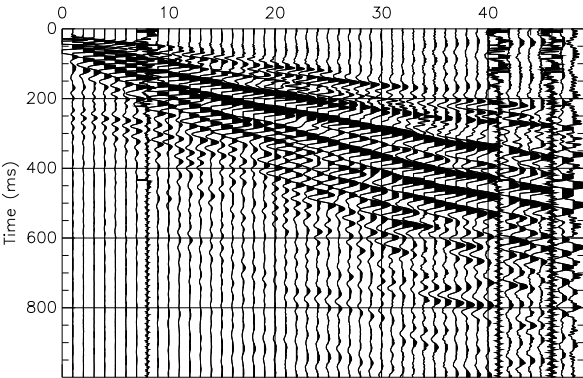
SP001      SP002      SP003      SP004





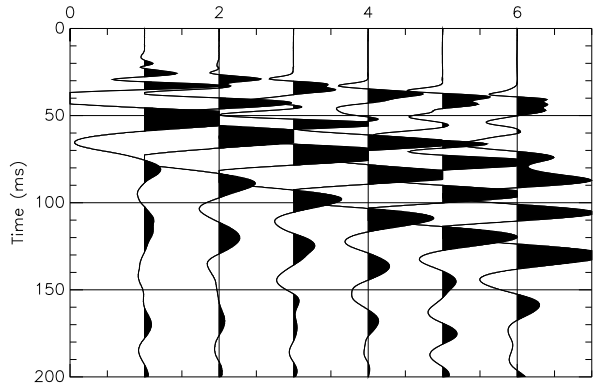


(A) Original Data 48 traces, .0005 sec $\Delta t$

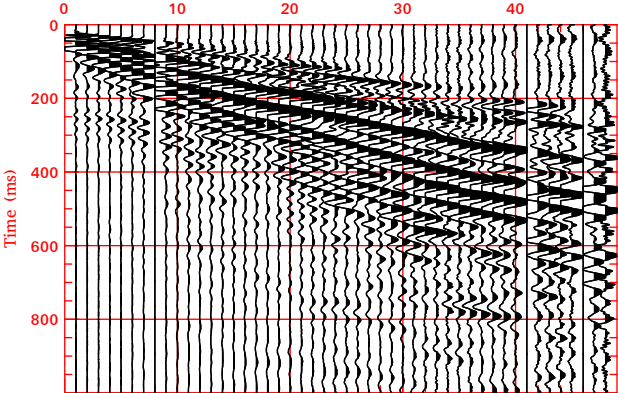


Trace Number [amp=2.00E+00 percnt=200 bequc008.seg]

(B) BEDT: First 6 traces, 0--0.2sec, .00025 $\Delta t$

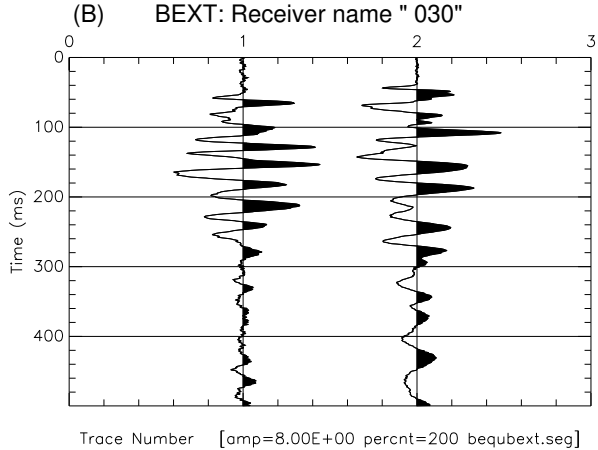
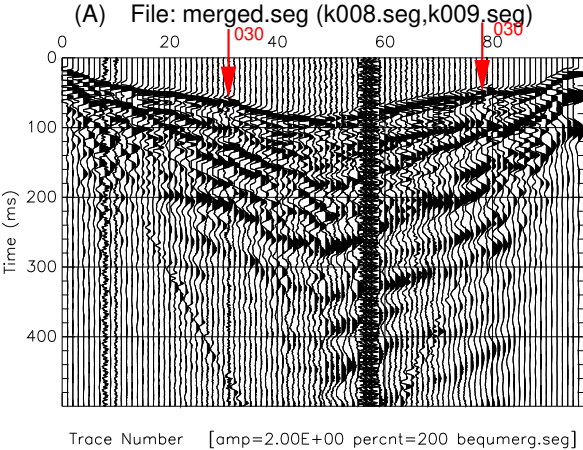


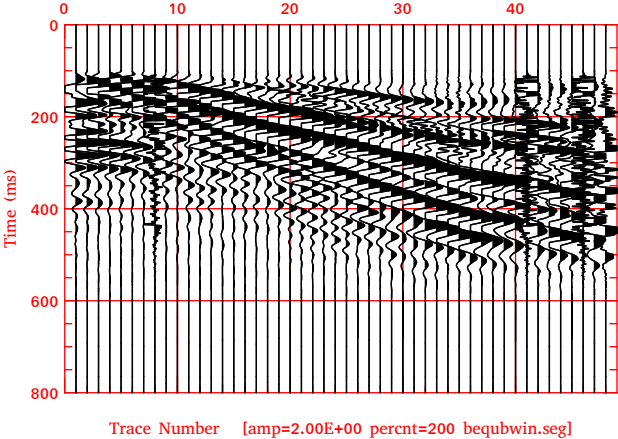
Trace Number [amp=2.00E+00 percnt=200 bequ1006.seg]

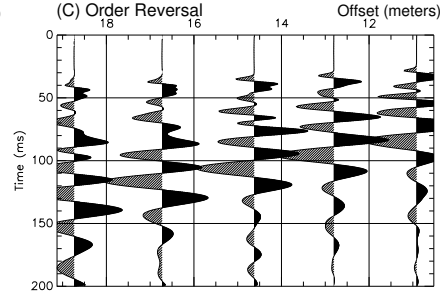
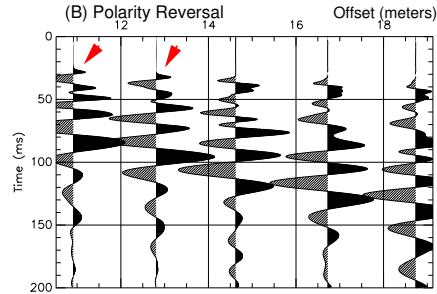
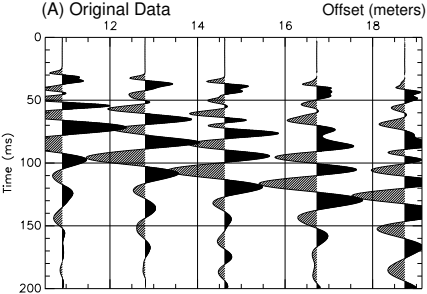


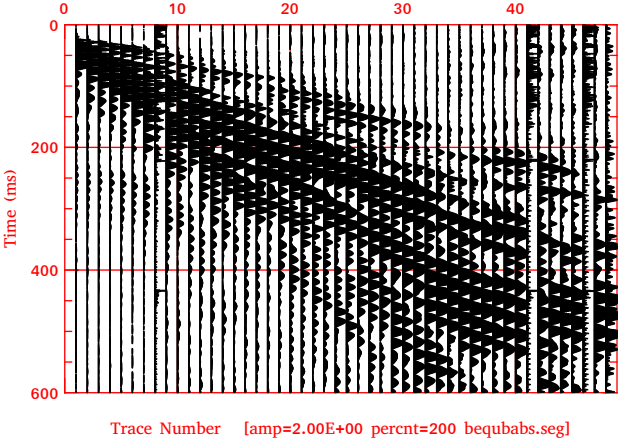
Trace Number [amp=2.00E+00 percent=200 bequkil.seg]

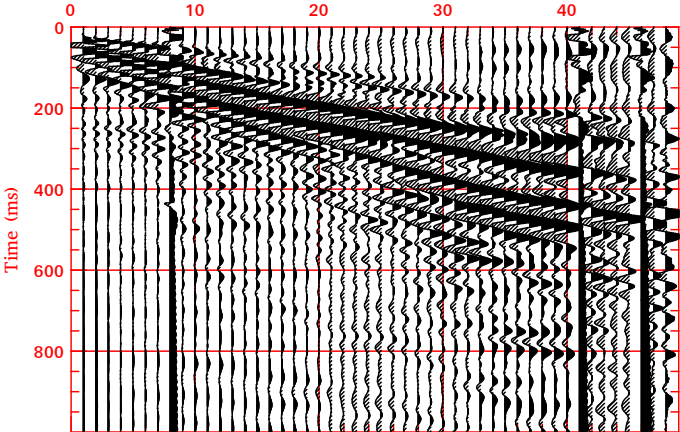




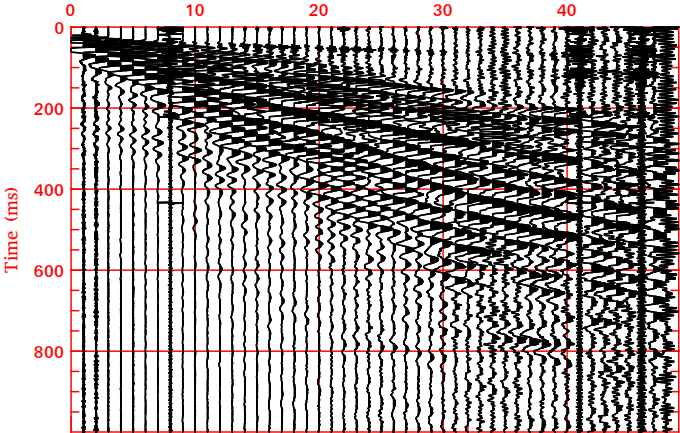




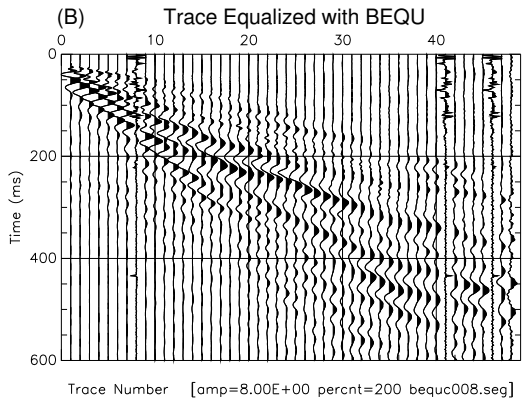
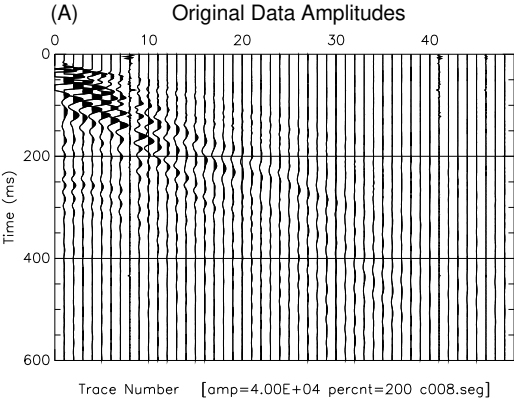


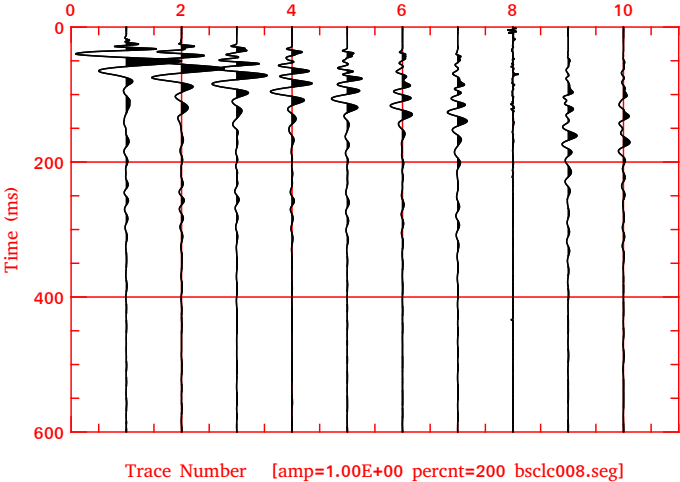


[amp=2.00E+00 percent=200 bequbint.seg]



Trace Number [amp=2.00E+00 percent=200 bequbdif.seg]

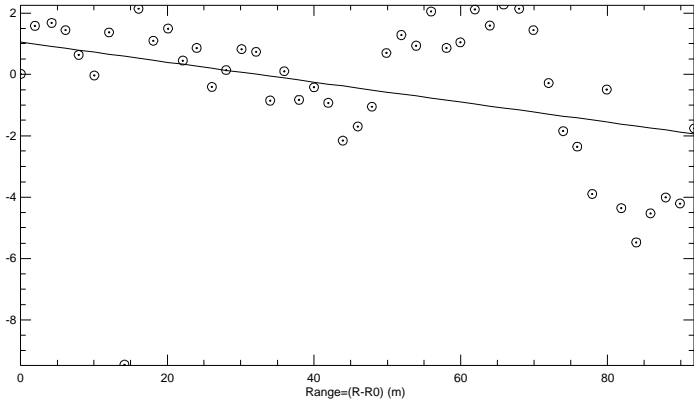


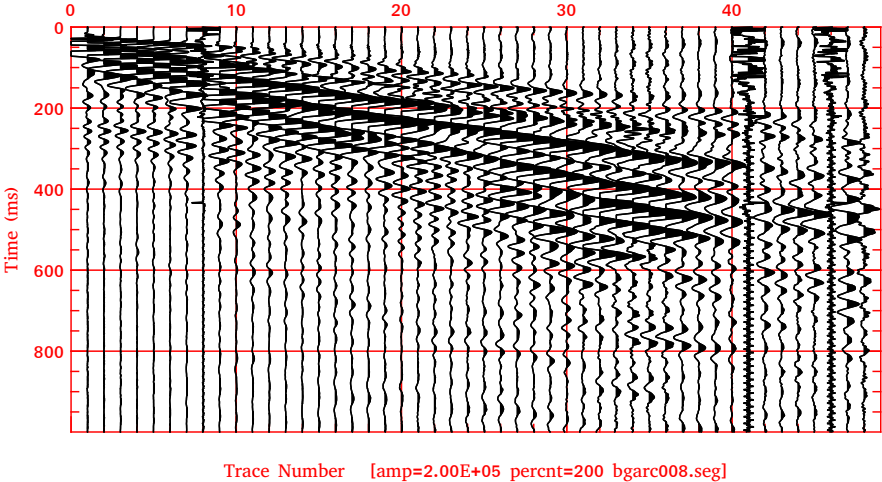




slope=-0.0325 dB/m intercept= 1.05 dB R0=6.719 m

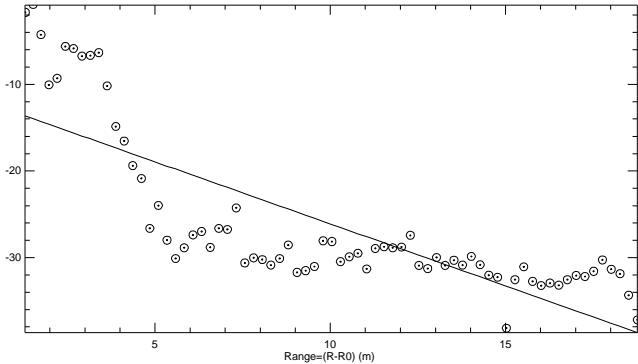
Decibels

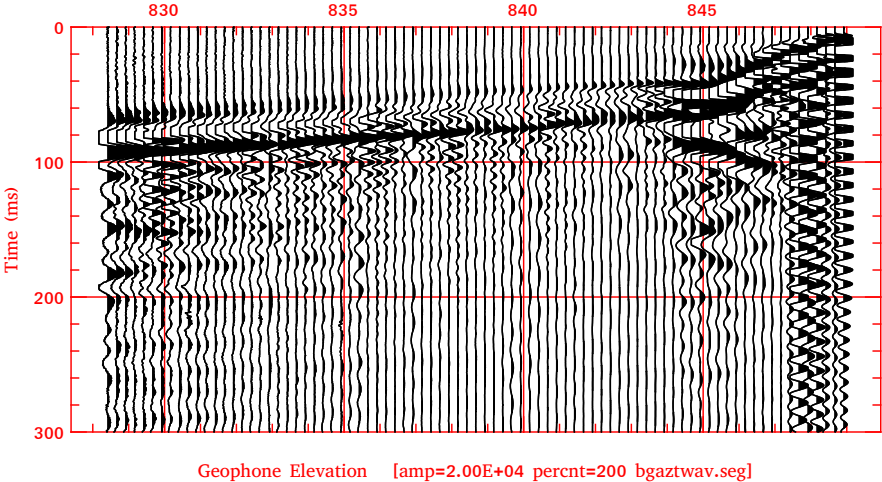


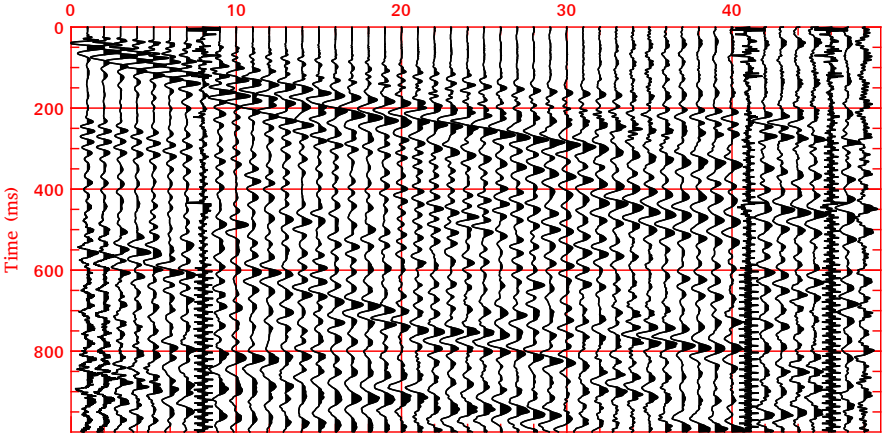


slope= -1.43 dB/m intercept=-11.80 dB R0=1.273 m

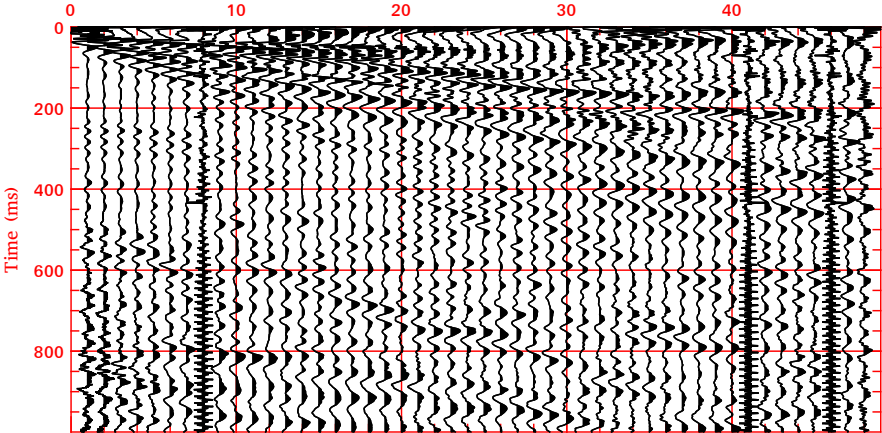
Decibels



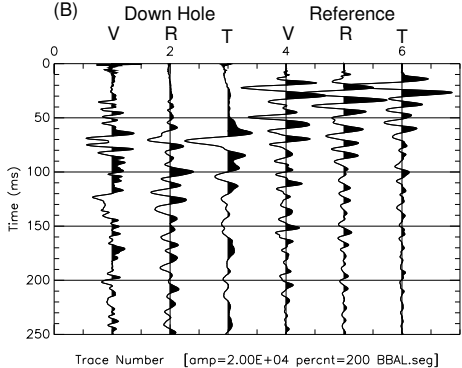
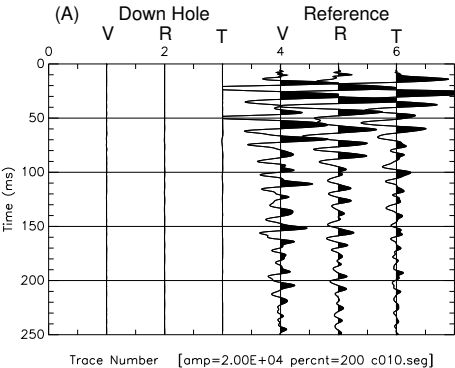


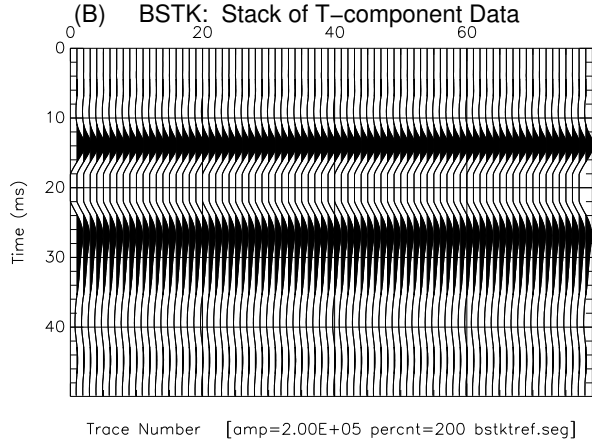
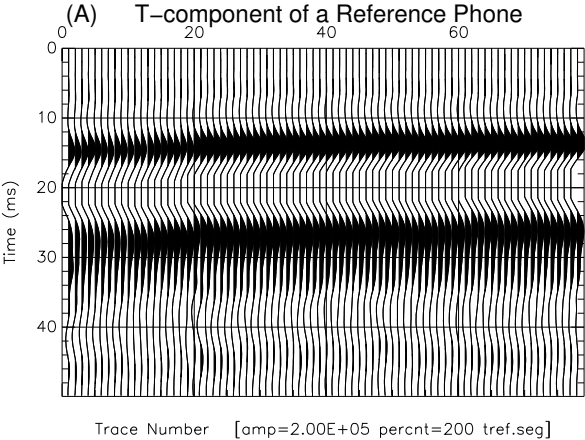


Trace Number [amp=4.00E+00 percent=200 bagcc008.seg]



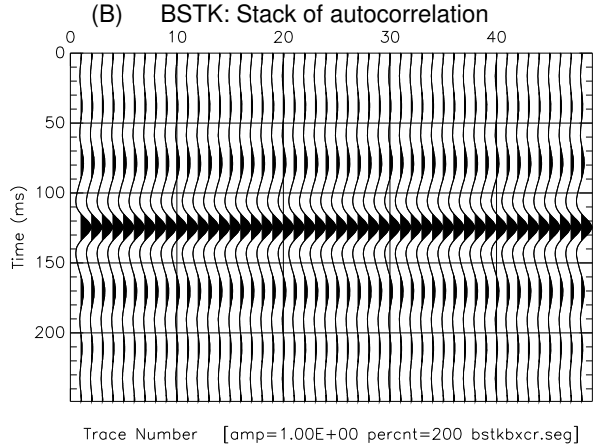
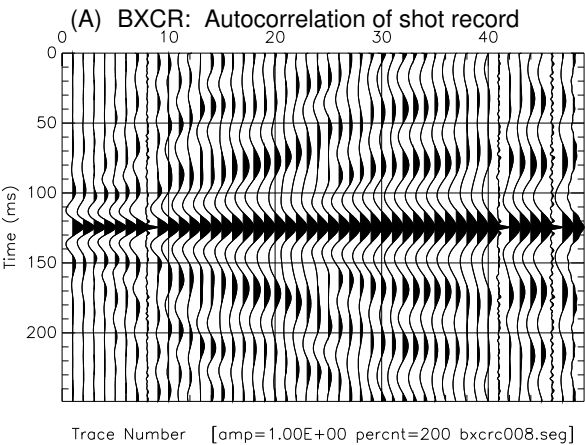
Trace Number [amp=4.00E+00 percent=200 bagcc008.seg]

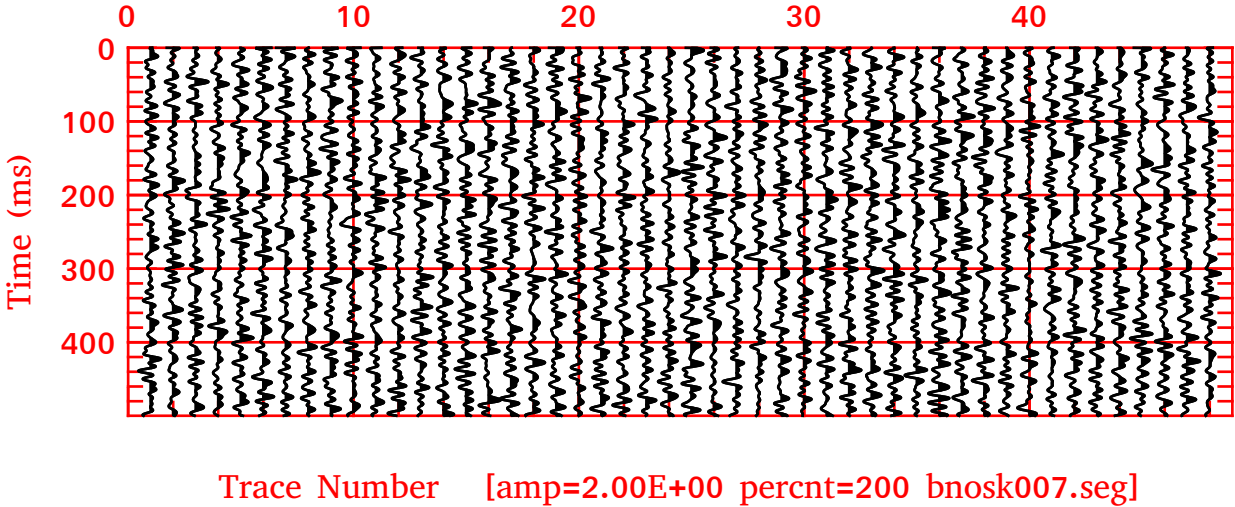




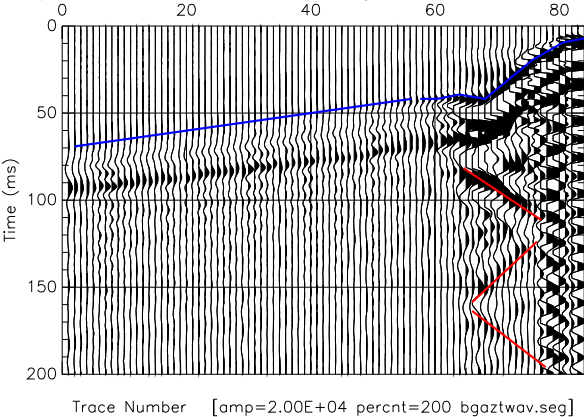




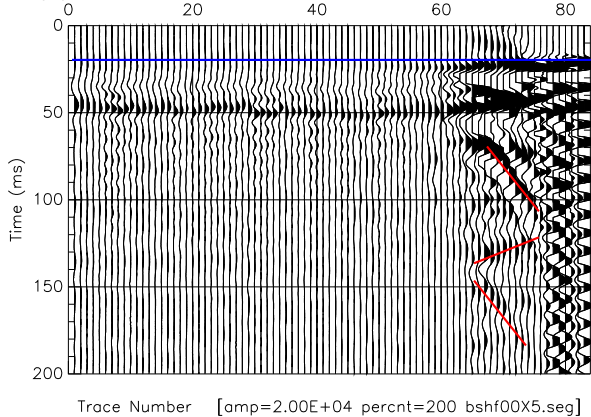




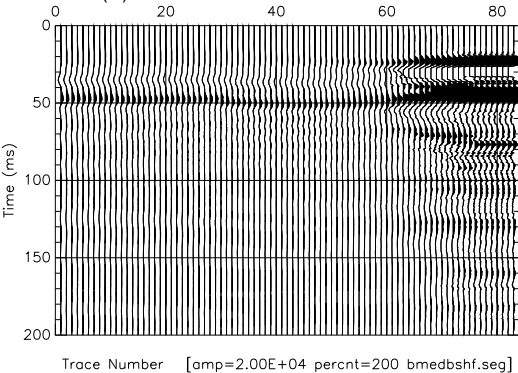
(A) Gained Down-hole Data SphDiv + 0.6dB/m



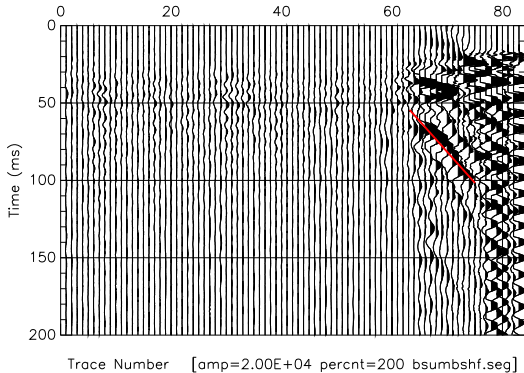
(B) BSHF: Subtract Direct Arrival Time + 20 ms



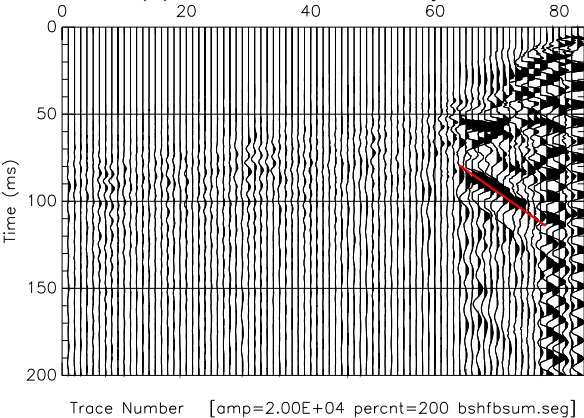
(A) BMED: 15 Trace Median Mix



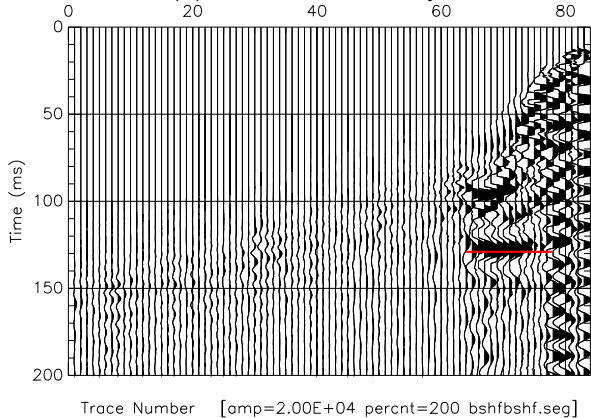
(B) BSUM: Subtract median mix from flattened

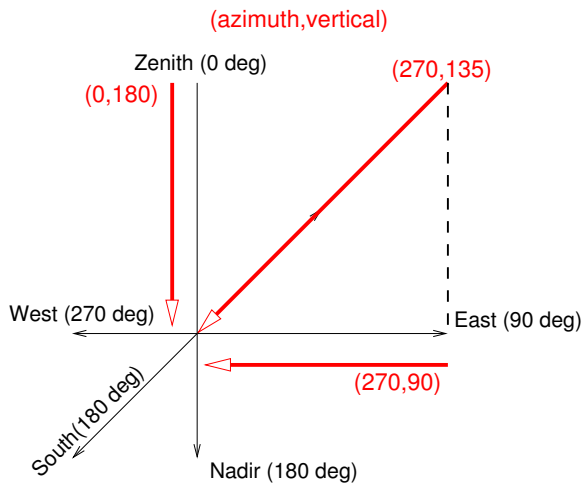
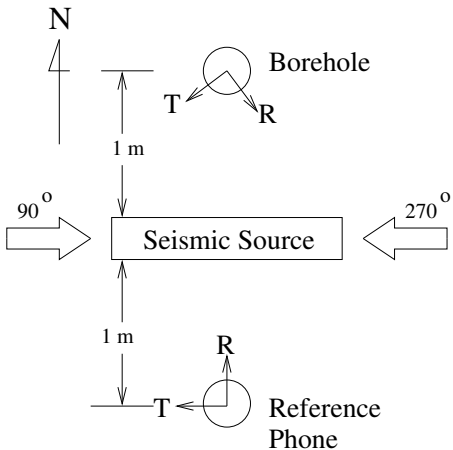


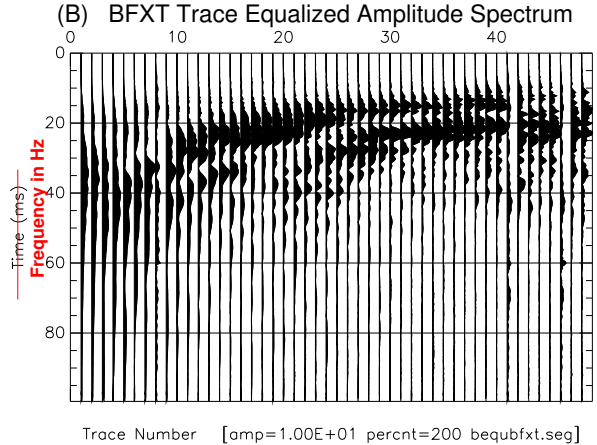
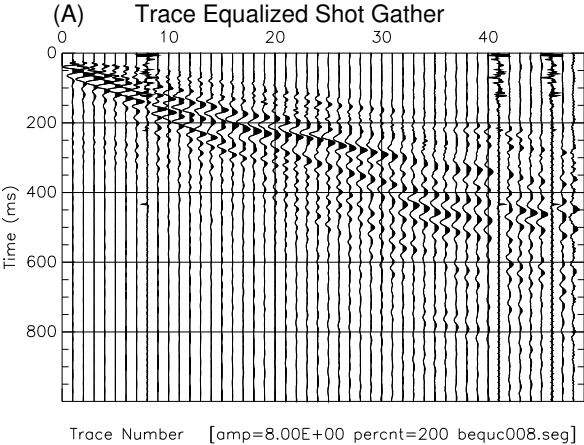
(A) BSHF: Restore to 1-way time



(B) BSHF: Shift to 2-way time





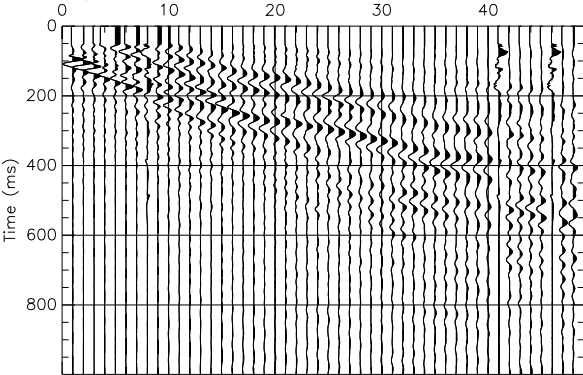






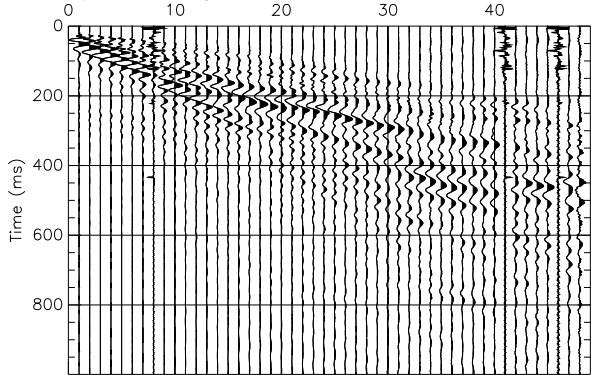
1992

(A) BCAR: Low Pass, 0.1 sec wide

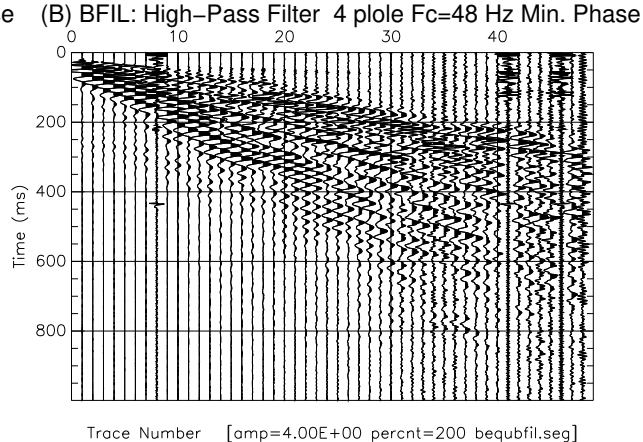
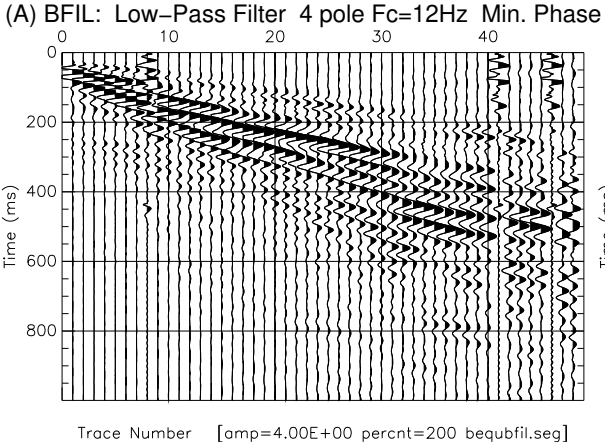


Trace Number [amp=8.00E+00 percnt=200 bequbcar.seg]

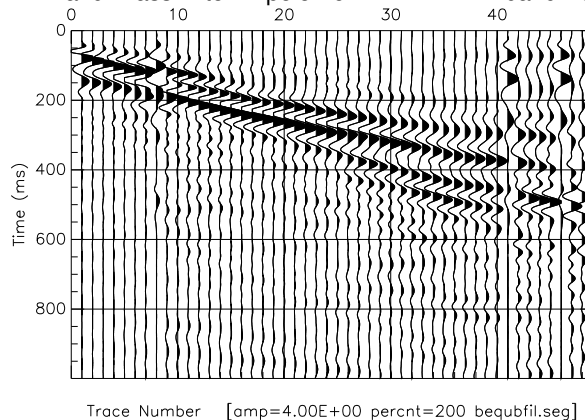
(B) BCAR: High Pass, 0.1 sec wide



Trace Number [amp=8.00E+00 percnt=200 bequbcar.seg]

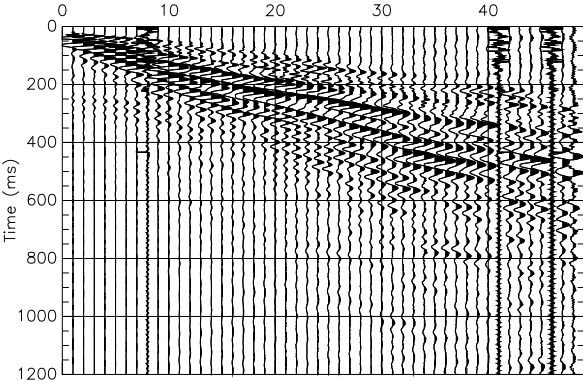


(C) BFIL: Band-Pass Filter 4 pole  $F_c=24\text{ Hz}$  24 Hz bandwidth Min. Phase



(A) BDCN: Prediction

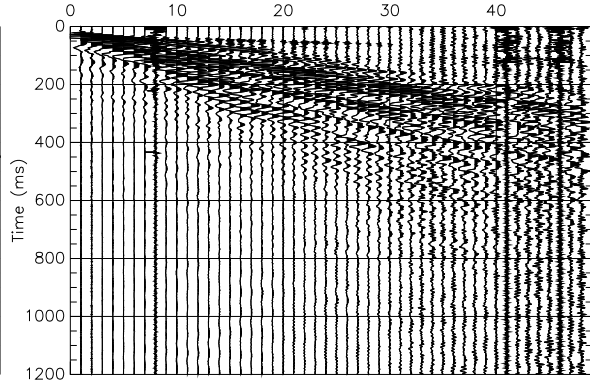
Gate: [0--1.2 sec] 30 sample operator (15 msec) 0.1 stab



Trace Number [amp=4.00E+00 percnt=200 bequbdcn.seg]

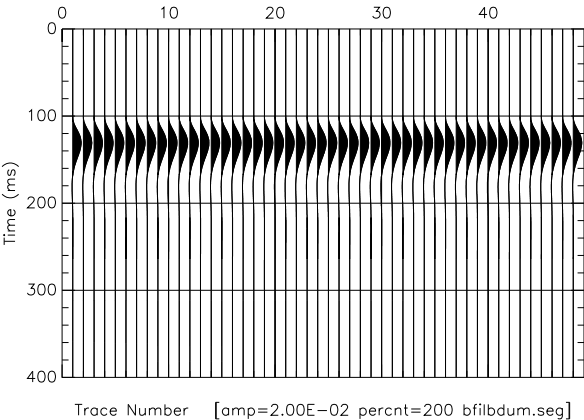
(B) BDCN: Prediction Error (Spiking Decon)

Gate: [0--1.2 sec] 30 sample operator (15 msec) 0.1 stab

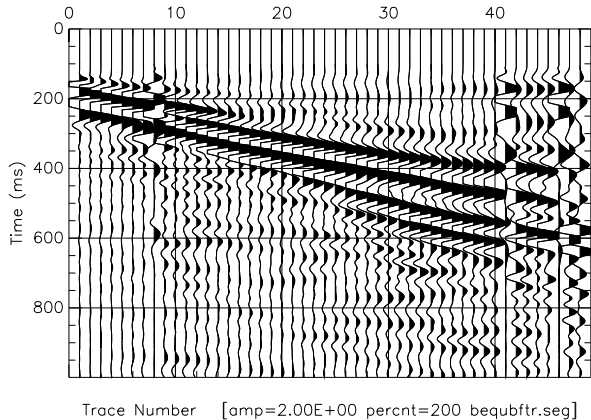


Trace Number [amp=4.00E+00 percnt=200 bequbdcn.seg]

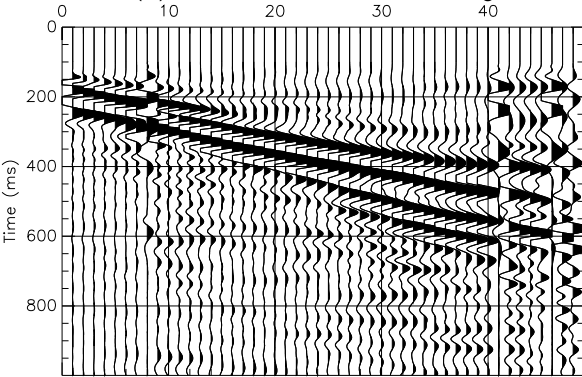
(A) BDUM-->BFIL: filtered impulse at 100 msec



(B) BFTR: Apply BDUM-->BFIL to Field Data



(B) BFTR: Filter with bfilbdum.seg



(C) BFTR: Filter with namelist file, filter.dat

