

SEISMIC DATA PROCESSING REPORT

for

SANTOS Limited.

Survey:	T48P - SOSN08C
Location:	Bass Strait, Australia
Date:	September 2008

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1 Introduction

The T48P 2D survey was acquired by the CGG Veritas vessel MV Pacific Titan in March 2008. A total of 781.65km was acquired, comprised of 17 lines.

Line SOSN08C-027 was a reshoot of line SOSN08C-017, using a reduced source size of 2130 cuin. This line was processed twice – once as a separate line, and again using the velocities from line SOSN08C-017 for PSTM and stacking.

The survey is located in the Bass Strait, Australia in water depths ranging from approximately 60-1850m.

This report describes the 2008 processing of this survey, which was undertaken at the Fugro Seismic Imaging office in Perth, Western Australia.

1.1 Personnel

Fugro Seismic Imaging Pty Ltd

Simon Stewart	Data Processing Manager
Scott Wilkinson	Senior Geophysicist
Lousie Onslow	Geophysicist

SANTOS

Malcolm Horton	Staff Geophysicist
Stuart Brew	Senior Staff Geophysicist

1.2 Location Map

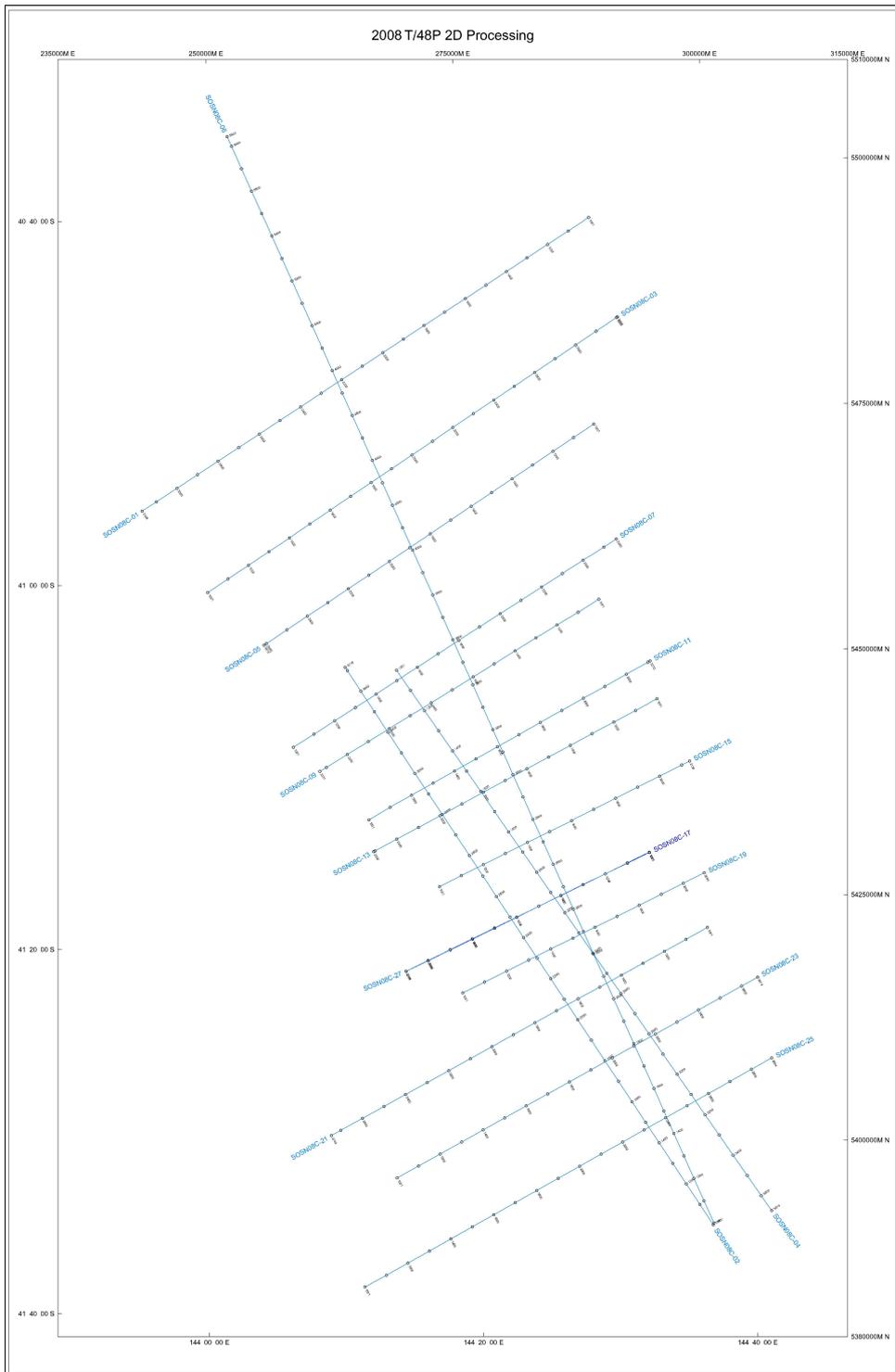


Figure 1.2.1 Line Location Map

1.3 Line Listing

LINE	First SP	Last SP	Last CDP	Length (km)
SOSN08C-001	1001	3169	4576	54.225
SOSN08C-002	1001	3716	5670	67.900
SOSN08C-003	1001	3004	4246	50.100
SOSN08C-004	1001	3674	5586	66.850
SOSN08C-005	1001	2612	3462	40.300
SOSN08C-006	1001	5843	9924	121.075
SOSN08C-007	1001	2560	3358	39.000
SOSN08C-009	1001	2331	2900	33.275
SOSN08C-011	1001	2310	2858	32.750
SOSN08C-013	1001	2306	2850	32.650
SOSN08C-015	1001	2136	2510	28.400
SOSN08C-017	1001	2099	2436	27.475
SOSN08C-019	1001	2095	2428	27.375
SOSN08C-021	1001	2744	3726	43.600
SOSN08C-023	1001	2674	3586	41.850
SOSN08C-025	1001	2894	4026	47.350
SOSN08C-027	1001	2099	2436	27.475
TOTAL				781.650

2 Acquisition Parameters

DESCRIPTION	DETAILS
<i>Data recorded by:</i>	CGGVeritas
<i>Date recorded:</i>	March 2008
<i>Vessel:</i>	MV Pacific Titan
General:	
<i>Field CMP Interval</i>	6.25m
<i>Nominal Fold</i>	120
<i>Recording Format:</i>	SEGD 8058
Seismic source:	
<i>Volume</i>	2130cu. in (Line SOSN08C-027) 3040cu. in (All Others)
<i>Pressure:</i>	2000psi
<i>Depth:</i>	6m
<i>Shot interval:</i>	25m
<i>Gun Delay</i>	50ms
Recording system:	Sercel SEAL 408XL
<i>Record length:</i>	6000ms
<i>Sample interval:</i>	2ms
<i>Number of Channels:</i>	480
<i>Near Channel:</i>	1
<i>Low Cut Filter:</i>	4.7Hz (12dB/Oct)
<i>High Cut Filter:</i>	200 Hz (370dB/Oct)
Receivers:	
<i>Streamer Length:</i>	6000m
<i>Streamer depth:</i>	8m
<i>Number of groups:</i>	480
<i>Group interval:</i>	12.5m
<i>Centre source to centre near group:</i>	145m
Navigation:	
<i>Geodetic Datum:</i>	WGS-84
<i>Projection:</i>	UTM Zone 55 South
<i>Central Meridian:</i>	147 deg East

3 Parameter Testing

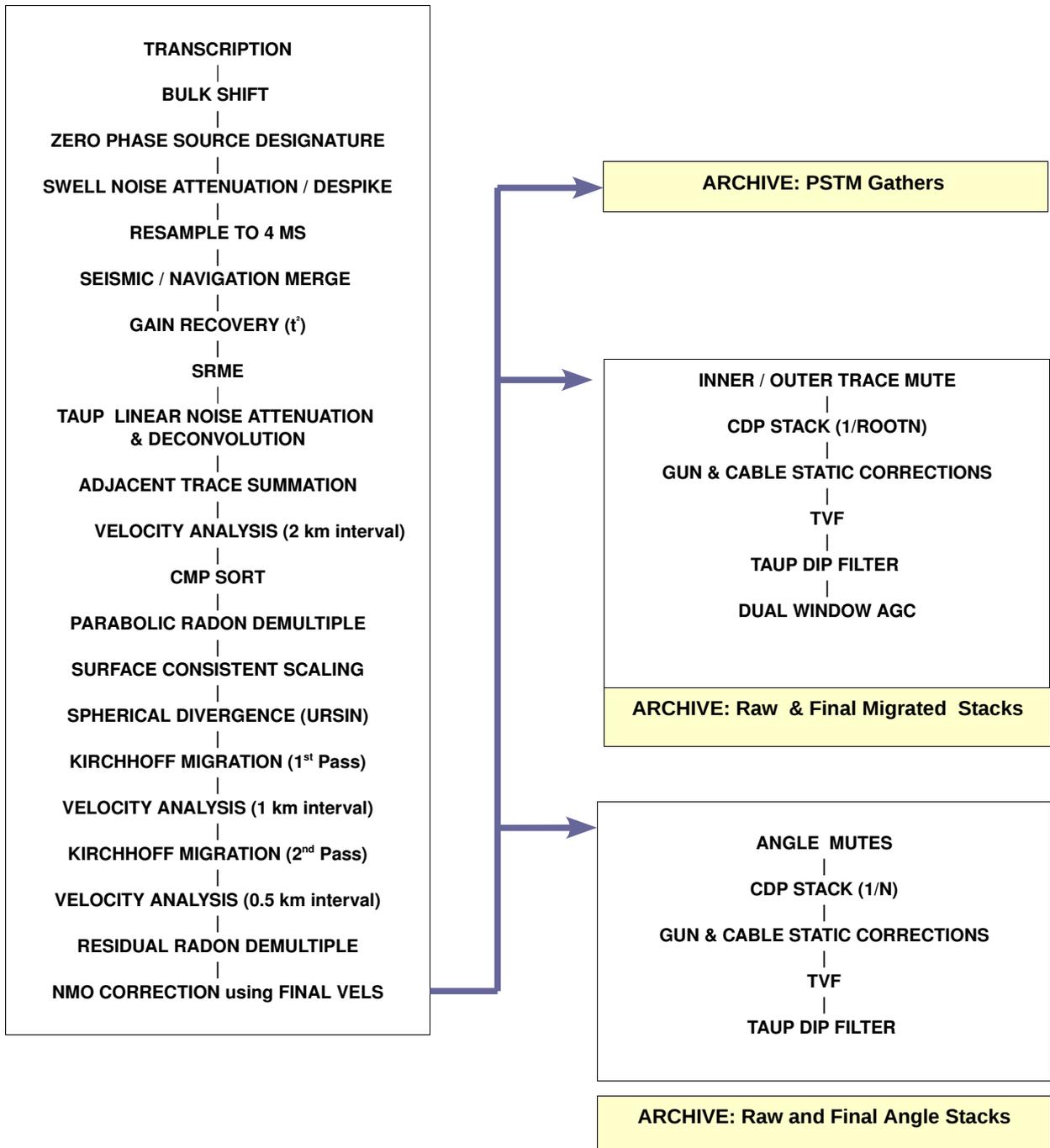
The testing was run on lines SOSN08C-006 and SOSN08C-021 with confirmatory testing on other lines as required to determine the final parameters.

Please refer to the table below for a list of the tests performed.

Description	Format
Raw displays	Shot
Gain recovery	Shot
Low Cut Filter	Shot
Swell Noise Attenuation	Shot/Stack
Source Signature (Zero phasing)	Shot/Stack
Surface Related Multiple Elimination (SRME)	Shot/Stack
Tau-P Deconvolution	Shot/Stack
Trace Interpolation	Shot/Gather
Radon Demultiple	Gather/Stack
Random Noise Attenuation	Gather/Stack
Scaling before PSTM (SCAMP)	Stack
PSTM velocity field smoothing	Velocity profile
Stack mutes (outer and inner trace)	Gather/Stack
Angle Mutes	Gather/Stack
Residual Radon	Gather/Stack
Scaling	Stack
Filter	Stack

Parameter tests were presented to Malcolm Horton of SANTOS for evaluation.

4 Processing Sequence Diagram



5 Processing Description

5.1 Transcription

Field data were converted to Fugro Seismic Imaging's internal format for processing. When reading the format shot records, strategic header values related to acquisition were preserved (where available).

5.2 Static Shift

A static shift of -50ms was applied to compensate for the gun delay.

5.3 Zero Phase Source Designature

A filter was designed to convert the supplied far field signature to its zero phase equivalent. The effect of applying this filter to the data is to remove the phase rotations caused by the recording instruments, and to collapse the effective source signature. The convolution filters were based on the modelled far field signature and included a correction for the receiver ghost.

An additional filter was designed to match the frequency spectrum of line SOSN08C-027 to SOSN08C-017.

5.4 Gain

A t squared gain was applied to the data

5.5 Swell Noise Attenuation

Swell noise attenuation is achieved by shaping the amplitude spectra of selected "swell noise affected" traces.

Analysis and attenuation are performed in the FX domain, processing one source position at a time. For analysis, the amplitude spectra are normalised, considering only the higher frequency range which is less influenced by swell noise. After normalisation the swell noise traces are recognised by their relatively high amplitude, low frequency component. The shallow portion of each shot record is muted before analysis, removing the high amplitude shallow reflections and direct arrivals.

A frequency range of 0-15Hz was selected for analysis, and for spectral scaling. Scalars are calculated to shape the spectra of individual swell noise affected traces to the mean of the non swell noise affected traces. The scalars are fully applied from 0 to one half the defined frequency range, after which the scalars are tapered to zero application at the maximum defined frequency. No modification is made to other traces.

The mechanism of swell noise recognition is not influenced by change in source energy, or by systematic variation in trace amplitude levels. Shots not affected by swell noise will not present any traces for swell noise attenuation.

Two passes of swell removal were applied, firstly in common shot domain and then in common offset domain.

5.6 Resample to 4ms

The data were resampled from 2ms to 4ms with a 3 - 90 Hz bandpass anti-alias filter.

5.7 SRME

SRME or **S**urface **R**elated **M**ultiple **E**limination uses the geometry of shot recording to estimate all possible multiples that can be generated by the surface. It was developed by the Delphi Consortium at TUDelft in the Netherlands. One order of surface related multiples is predicted using auto-convolutions of input data. The predicted multiple energy is then removed from the input gathers by a process of cascaded adaptive subtraction.

Prior to forming the multiple estimate, it is necessary to interpolate new shots such that the shot point interval is equal to the group interval. The recorded data is then extrapolated to zero offset, before constructing the multiple estimate by a series of convolutions and summation.

A mute was applied to the input shot records prior to remove direct arrival energy. Before adaptive subtraction, the modelled multiples were NMO corrected and any energy above the first sea floor multiple removed by muting.

5.8 Tau-P Linear Noise Removal and Deconvolution

The data was transformed to the Tau-P domain using the linear transform. Strong linear noise trains with large dip can be differentiated from primary energy in the linear Tau-P space, and these events are attenuated by a scaling pattern - tapering from the primary to noise areas of the transform. The transform was performed with p limits of -2500ms and +4500ms, with increments of 8ms at the far offset.

A long gap deconvolution was applied in Tau-P domain to remove short period multiples whilst minimising any wavelet shaping effects.

Total Operator Length:	WB + 140ms
Gap:	WB - 52ms
Design:	WB to WB + 3000ms
Apply From:	0ms
Apply Where:	WB < 400ms

5.9 First Pass Velocity Analysis

First pass velocities (2km interval) were determined using FSI's "MGIVA" interactive velocity analysis program. Each velocity analysis comprised a semblance display, a CDP stacked panel repeated a selected number of times with a suite of velocity functions, and a central CDP gather. The suite of functions were generated using percentage increments from a central velocity function.

The velocity analysis incorporated a map of all velocity locations, and the semblance display included functions from proximate lines. This enabled the velocities to be picked with knowledge of areal velocity trends. Velocity QC can be performed more effectively when discordant velocities can be recognised on the map.

5.10 Adjacent Trace Gather

A 2:1 adjacent trace sum and trace mix was applied to the data.

5.11 CDP Gather

Shot records were sorted into common depth point gathers.

5.12 Parabolic Radon Demultiple

After shot interpolation, High Resolution Parabolic Radon demultiple was used to attenuate multiples by modelling and subtracting using a least squares, parabolic Radon transform. Normal moveout corrections were performed using the first pass velocities, and the CDP gathers transformed into the parabolic Tau-P domain. The segment of the Tau-P domain corresponding to primary reflections is muted, leaving the multiple energy to be transformed back into the T-X domain and subtracted from the original CDP gather.

Reference offset:	6120m
Minimum - Maximum P:	-1500 to +4500ms
Number of p traces:	751
Mute Primary Energy	-1500 to +300ms
Demultiple Start Time:	Water Bottom * 1.5

5.13 Remove Gain Recovery

The t squared scaling that was applied at the start of processing was backed off in preparation for SCAMP.

5.14 Surface Consistent Amplitude Scaling (SCAMP)

The amplitude of any trace is affected by various factors, including the shot strength, response and coupling of the receivers, trace offsets and the geology. Surface Consistent Amplitude Recovery (SCAMP) is designed to analyse amplitudes in a surface consistent manner. It estimates the amplitude variations due to various components and computes weighting levels for each component, using the Gauss-Seidel iterative method. The components selected to resolve extraneous amplitude variations were the shot strength, channel number (offset) and receiver response (virtual receiver location). The Gauss-Seidel iterations were performed on all lines simultaneously, providing a survey consistent solution. The inclusion of the offset component produces a solution which balances the mean amplitudes with offset. The scalars were modified by computing a running median, such that only local fluctuations in channel amplitude removed, and the smooth amplitude variation with offset preserved.

5.15 Spherical Divergence (URSIN)

With the previously applied t squared gain function removed, it was then replaced with an offset and velocity dependent spherical divergence approximation as described by Bjorn Ursin (GEOPHYSICS Vol.55 No.4, pp492-496 1990).

Although this method is applicable to uncorrected data as a moveout tracking divergence correction, for algorithmic ease it is applied to NMO corrected CDP gathers.

5.16 Pre-Stack Time Migration (First Pass)

Kirchhoff PSTM was applied using a maximum half aperture of 7500m and a 50% stretch mute. Smoothed 100% first pass 2km velocities were used in the migration. Anti-aliasing protection was applied by pre-filtering the data within the migration scan depending upon the local migration operator dip.

5.17 Second Pass Velocity Analysis

The second pass of velocities were picked at 1km intervals on first pass PSTM gathers using FSI's "MGIVA" interactive velocity analysis program. The suite of functions were generated using percentage increments from the first pass velocities.

5.18 Pre-Stack Time Migration (Second Pass)

Kirchhoff PSTM was applied using a maximum half aperture of 3500m and a 50% stretch mute. Anti-aliasing protection was applied by pre-filtering the data within the migration scan depending upon the local migration operator dip. Smoothed 100% second pass velocities at 1km were used in the migration. Migration was performed on all offset planes using the curved ray option.

5.19 Third Pass Velocity Analysis

The third pass of velocities were picked at 0.5km intervals on second pass PSTM gathers using FSI's "MGIVA" interactive velocity analysis program. The suite of functions were generated using increments from a central velocity function. The second pass of velocities were used as the central function for this suite of velocity variant functions.

5.20 Residual Radon Demultiple

Attenuation of remnant multiples was achieved by modelling and subtraction using a least squares, parabolic Radon transform. Normal moveout corrections were performed using the final velocities, and the CDP gathers transformed into the parabolic Tau-P domain. The segment of the Tau-P domain corresponding to primary reflections is muted, leaving the multiple energy to be transformed back into the T-X domain and subtracted from the original CDP gather. The Hi-resolution radon option was invoked, where the resolution of the radon transform is improved by adding weighting terms to the least squares solution, minimising the residual error. To further reduce the potential for aliasing, the radon transform was performed after CMP interpolation.

Reference offset:	6110m
Minimum - Maximum P:	-1500 to +10500ms
Number of p traces:	1201
Multiple p cut:	-1500 to 150ms
Demultiple Start Time:	Water Bottom * 1.5

5.21 NMO Correction

Fourth order NMO corrections were applied using the final picked 0.5km velocity functions.

5.22 Inner Trace Mute

An inner trace mute was also applied to the data to remove remnant noise visible on the near traces.

<i>Water Depth (ms)</i>	<i>Offset (m)</i>	<i>Time (ms)</i>
100	127	500-6000
	128	2000-6000
1000	127	1900-6000
	128	2800-6000
2000	127	2800-6000
	1077	3900-6000
2400	127	3000-6000
	1027	4000-6000

5.23 Outer Trace Mute

An outer trace mute was also applied to the data to remove remnant noise visible on the far traces.

<i>Water Depth (ms)</i>	<i>Offset (m)</i>	<i>Time (ms)</i>
100	127	0
	200	0
	427	300
	1027	1000
	6110	4300
1000	127	900
	927	900
	1027	1400
	1227	2000
	6110	4450
2000	127	1900
	1077	1900
	1227	2800
	1777	3200
	6110	5400
2400	127	2300
	1127	2300
	1327	3200
	2527	3900
	6110	5900

5.24 Common Depth Point Stack

The traces within each CDP gather were summed using a $1/\sqrt{N}$ stack compensation.

5.25 Line Amplitude Correction

Post Stack areal consistent amplitude correction was applied to each individual line.

5.26 Statics

A static compensation for gun and cable depths was applied. The static value was calculated using average gun and cable depths supplied in the observers reports and a value of 9.3ms was used in production.

5.27 Filter

Unwanted noise that lay outside the frequency range of the desired reflection data was attenuated using a bandpass filter.

<i>Water Depth (ms)</i>	<i>Application Time (ms)</i>	<i>Frequency Limits: Hz (dB/Oct)</i>
100	100	10 (18) – 100 (72)
	1000	8 (18)– 80 (72)
	2000	5 (18)– 60 (60)
	4000	5 (18)– 50 (36)
2000	2000	10 (18)– 100 (72)
	3000	8 (18)– 80 (72)
	5000	5 (18)– 60 (60)
	6000	5 (18)– 50 (36)

5.28 Taup Dip Filter

A dip filter of +/-9ms/tr was applied to the stacked data. The process is implemented by transformation of input data trace blocks into the Tau-P domain. Shallow dipping data was protected by feeding back time variant percentages of unfiltered data.

<i>Water Depth (ms)</i>	<i>Time (ms)</i>	<i>% Feedback Of Original Data</i>
100	100	70
	1500	30
	4000	15
	6000	0
2500	2500	70
	4000	30
	5000	15
	6000	0

5.29 Scaling

A dual window AGC was applied to the data.

Length Of Long Window	1200ms
Length of Short Window	400ms
Feedback of Original Data	40%

6 Angle Stacks

6.1 Input

The input to the offset stacks is 4th order NMO corrected gathers from 5.21

6.2 Angle Mutes

Angle of incidence calculations were performed using Walden's method, and considered a smoothed version of the third pass velocities.

	<i>Angle Range (degrees)</i>
<i>Near Angle Stack</i>	3 to 20
<i>Mid Angle Stack</i>	20 to 35
<i>Far Angle Stack</i>	35 to 45

6.3 Common Depth Point Stack

The traces within each common depth point gather were summed with 1/(N) stack fold compensation.

6.4 Line Amplitude Correction

Post Stack areal consistent amplitude correction was applied to each individual line.

6.5 Filter

Unwanted noise that lay outside the frequency range of the desired reflection data was attenuated using a bandpass filter.

<i>Water Depth (ms)</i>	<i>Application Time (ms)</i>	<i>Frequency Limits (Hz)</i>
100	100	10 (18) – 100 (72)
	1000	8 (18)– 80 (72)
	2000	5 (18)– 60 (60)
	4000	5 (18)– 50 (36)
2000	2000	10 (18)– 100 (72)
	3000	8 (18)– 80 (72)
	5000	5 (18)– 60 (60)
	6000	5 (18)– 50 (36)

6.6 TAUP Dip Filter

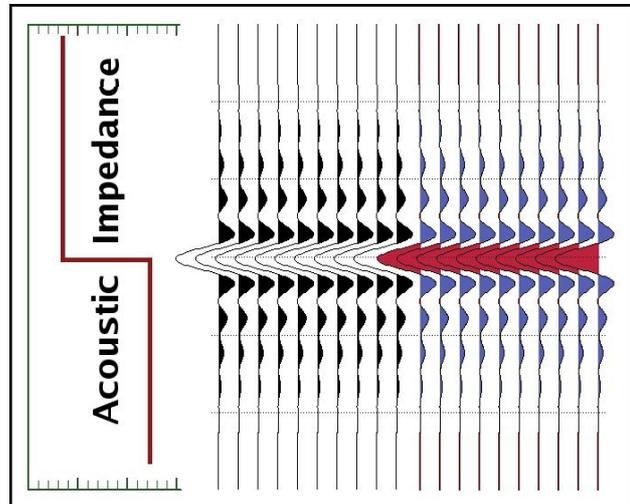
A dip filter of +/-9ms/tr was applied to the stacked data. The process is implemented by transformation of input data trace blocks into the Tau-P domain. Shallow dipping data was protected by feeding back time variant percentages of unfiltered data.

<i>Water Depth (ms)</i>	<i>Time (ms)</i>	<i>% Feedback Of Original Data</i>
100	100	70
	1500	30
	4000	15
	6000	0
2500	2500	70
	4000	30
	5000	15
	6000	0

7 Polarity

The final desired polarity was SEG reverse (or SEG negative), where an increase in acoustic impedance is represented by a negative number on tape, and white trough on display.

Figure 7.1 Desired polarity diagram. An acoustic impedance increase is represented by a peak.



8 Archive Listing

<i>Tape Number</i>	<i>Media</i>	<i>Lines</i>	<i>Description</i>
655PG006LTO	LTO	All (including SNSN08C-027comparison)	NMO Corrected PSTM Gathers
655AS004DVD	DVD	All (including SNSN08C-027comparison)	Raw Angle Stacks
655AS005DVD	DVD	All (including SNSN08C-027comparison)	Final Angle Stacks
655FS002DVD	DVD	All (including SNSN08C-027comparison)	Final PSTM Stacks
655FS003DVD	DVD	All (including SNSN08C-027comparison)	Final PSTM Stacks
655RS001DVD	DVD	All (including SNSN08C-027comparison)	Raw PSTM Stacks
655PR007CD	CD	All	Final Report Final Velocities (Western Format) CMP XY coordinates
655PR008CD	CD	All	Final Report Final Velocities (Western Format) CMP XY coordinates

Line SOSN08C-027comparison contains data from line SOSN08C-027 which has been migrated and stacked with velocities from line SOSN08C-017.

9 SEGY Header Information

9.1 Example Final PSTM Stack SEGY EBCDIC Header

C01 CLIENT : SANTOS
C02 AREA : T/48P, BASS STRAIT, AUSTRALIA
C03 LINE : S0SN08C-001
C04 DATASET : FINAL PSTM STACK
C05
C06 ACQ. YEAR : 2008 DATE PROCESSED : AUG 2008
C07 SHOT INTERVAL : 25 m GRP INTERVAL : 12.5m
C08 CABLE LENGTH : 6000 m GRPS PER CABLE : 480
C09 MIN OFFSET : 145 m MAX OFFSET : 6132.5 m
C10 DATUM OF REF : WGS84 PROJECTION ZONE : UTM 55 S
C11 COORDINATE UNITS : METRES VERTICAL DATUM : MEAN SEA LEVEL
C12 SRATE (micro s) : 2000 MAX TIME (ms) : 6000
C13
C14 PROCESSING SEQUENCE: BY FUGRO SEISMIC IMAGING
C15 INPUT SEGD / NAV MERGE / STATIC SHIFT -50ms / ZERO PHASE DESIGNATURE /
C16 DESWELL / RESAMPLE TO 4MS / SRME / TAUP LINEAR NOISE ATTENUATION & DECON/
C17 VELOCITY ANALYSIS EVERY 2KM / DECIMATE TO 25M GRPS /
C18 RADON DEMULTIPLE / URSIN GAIN / SURFACE CONSISTANT SCALING / PSTM1 /
C19 VEL ANALYSIS EVERY 1KM / PSTM2 / VEL ANALYSIS EVERY 0.5KM /
C20 RESIDUAL PARABOLIC RADON DEMULTIPLE / NMO /
C21 INNER & OUTER TRACE MUTE / STACK / GUN & CABLE STATIC
C22 TVF / TAUP DIP FILTER / DUAL WINDOW AGC / OUTPUT SEG Y
C23
C24
C25
C26
C27
C28
C29 TRACE HEADER DEFINITION
C30 ITEM BYTES FORMAT
C31 SHOTPOINT 017 - 020 INTEGER
C32 CDP NUMBER 021 - 024 INTEGER
C33 CDP EASTING 125 - 128 INTEGER
C34 CDP NORTHING 129 - 132 INTEGER
C35
C36 SP/CDP RELATIONSHIP: CDP 240 = SP 1001
C37 CDP 440 = SP 1101
C38 SP RANGE : 1001 TO 3169
C39 CDP RANGE : 1 TO 4576
C40 END OF EBCDIC HEADER

9.2 Example PSTM Gather SEG Y EBCDIC Header

C01 CLIENT : SANTOS
C02 AREA : T/48P, BASS STRAIT, AUSTRALIA
C03 LINE : S0SN08C-001
C04 DATASET : PSTM GATHERS
C05
C06 ACQ. YEAR : 2008 DATE PROCESSED : AUG 2008
C07 SHOT INTERVAL : 25 M GRP INTERVAL : 12.5M
C08 CABLE LENGTH : 6000 M GRPS PER CABLE : 480
C09 MIN OFFSET : 145 M MAX OFFSET : 6132.5 M
C10 DATUM OF REF : WGS84 PROJECTION ZONE : UTM 55 S
C11 COORDINATE UNITS: METRES VERTICAL DATUM : MEAN SEA LEVEL
C12 SRATE (MICRO S) : 2000 MAX TIME (MS) : 6000
C13
C14 PROCESSING SEQUENCE: BY FUGRO SEISMIC IMAGING
C15 INPUT SEG D / NAV MERGE / STATIC SHIFT -50MS / ZERO PHASE SIGNATURE /
C16 DESWELL / RESAMPLE TO 4MS / SRME / TAUP LINEAR NOISE ATTENUATION & DECON/
C17 VELOCITY ANALYSIS EVERY 2KM / DECIMATE TO 25M GRPS /
C18 RADON DEMULTIPLE / URSIN GAIN / SURFACE CONSISTANT SCALING / PSTM1 /
C19 VEL ANALYSIS EVERY 1KM / PSTM2 / VEL ANALYSIS EVERY 0.5KM /
C20 RESIDUAL PARABOLIC RADON DEMULTIPLE / NMO /
C21 GUN & CABLE STATIC
C22 OUTPUT SEG Y
C23
C24 TRACE HEADER DEFINITION
C25 ITEM BYTES FORMAT
C26 SHOTPOINT 017 - 020 INTEGER
C27 CDP NUMBER 021 - 024 INTEGER
C28 OFFSET 037 - 040 INTEGER
C29 CDP EASTING 125 - 128 INTEGER
C30 CDP NORTHING 129 - 132 INTEGER
C31 SOURCE EASTING 073 - 076 INTEGER
C32 SOURCE NORTHING 077 - 080 INTEGER
C33 RECEIVER EASTING 081 - 084 INTEGER
C34 RECEIVER NORTHING 085 - 088 INTEGER
C35
C36 SP/CDP RELATIONSHIP: CDP 240 = SP 1001
C37 CDP 440 = SP 1101
C38 SP RANGE : 1001 TO 3169
C39 CDP RANGE : 1 TO 4576
C40 END OF EBCDIC HEADER

9.3 SEG Y Trace Header Definition

Location of strategic values in the SEG Y stack trace header.

DESCRIPTION	TYPE	BYTE
Trace Seq No within Line		001 - 004
Trace Sequence No within archive		005 - 008
Shot Number		017 - 020
CMP Number		021 - 024
Trace No within CMP		025 - 028
Trace Identification Code		029 - 030
Stack Fold		033 - 034
Original Data		035 - 036
Offset		037 - 040
Water depth at source		061 - 064
Elevation Scalar		069 - 070
Coordinate Scalr		071 - 072
Source x coordinate		073 - 076
Source y coordinate		077 - 080
Receiver x coordinate		081 - 084
Receiver y coordinate		085 - 088
Co-ordinate Units		089 - 090
Source Static Correction (microseconds)		099 - 100
Receiver Static Correction (microseconds)		101 - 102
Total Static Applied Source + Receiver + Tidal		103 - 104
Total Gun/Recorder Delay		107 - 108
Time of First Sample		109 - 110
Number of Samples		115 - 116
Sample interval in microseconds for this trace		117 - 118
Bin Centre x co-ordinate (CMP X)		125 - 128
Bin Centre y co-ordinate (CMP Y)		129 - 132
Year data recorded (four digits)		157 - 158
Julian day of the year of recording		159 - 160
Hour of day of recording using 24 hour clock (hh)		161 - 162
Minute of hour of recording (mm)		163 - 164
Second of minute of recording (ss)		165 - 166
Time basis code: 1 = local, 2 = GMT, 3 = other, 4 = UTC		167 - 168

DESCRIPTION	TYPE	BYTE
Bin Centre x coordinate (CMP X) using scalars in locn 71		181 - 184
Bin Centre y coordinate (CMP Y) using scalars in locn 71		185 - 188
Shotpoint Number		189 - 192
CDP Number		193 - 196
Verification Tidal and Residual Statics Applied 0=No 1=Yes (Default=1)		205 - 206
Verification Gun and Cable Statics to SRD applied 0=no 1=yes (Default=0)		207 - 208
Tidal statics (in microseconds for total trace)		209 - 212

10 Data Disposition

Data	Date sent	Destination
Box 1. 30 x 3590 cartridges containing field data. Tape # 1-30 Box 2. 4 x 3590 cartridges containing field data. Tape # 31-34 1 x 3590 cartridge containing SOJ/EOJ tests. Tape # 35 1 x CD containing Observers/Source/Tape Logs/Timing Diagram, Shipping Proforma 1 x DVD containing Navigation data 1 x DVD containing QC deliverable data	2008-10-03	Santos Limited 60 Flinders Street ADELAIDE SA 6000

11 Appendix

11.1 SP-CDP Relationships

Shot point to CDP relationship, using the CMP position as reference.

LINE	First Shotpoint	First Full Fold CDP	Last Shotpoint	Last CDP
SOSN08C-001	1001	240	3169	4576
SOSN08C-002	1001	240	3716	5670
SOSN08C-003	1001	240	3004	4246
SOSN08C-004	1001	240	3674	5586
SOSN08C-005	1001	240	2612	3462
SOSN08C-006	1001	240	5843	9924
SOSN08C-007	1001	240	2560	3358
SOSN08C-009	1001	240	2331	2900
SOSN08C-011	1001	240	2310	2858
SOSN08C-013	1001	240	2306	2850
SOSN08C-015	1001	240	2136	2510
SOSN08C-017	1001	240	2099	2436
SOSN08C-019	1001	240	2095	2428
SOSN08C-021	1001	240	2744	3726
SOSN08C-023	1001	240	2674	3586
SOSN08C-025	1001	240	2894	4026
SOSN08C-027	1001	240	2099	2436

11.2 Data Examples

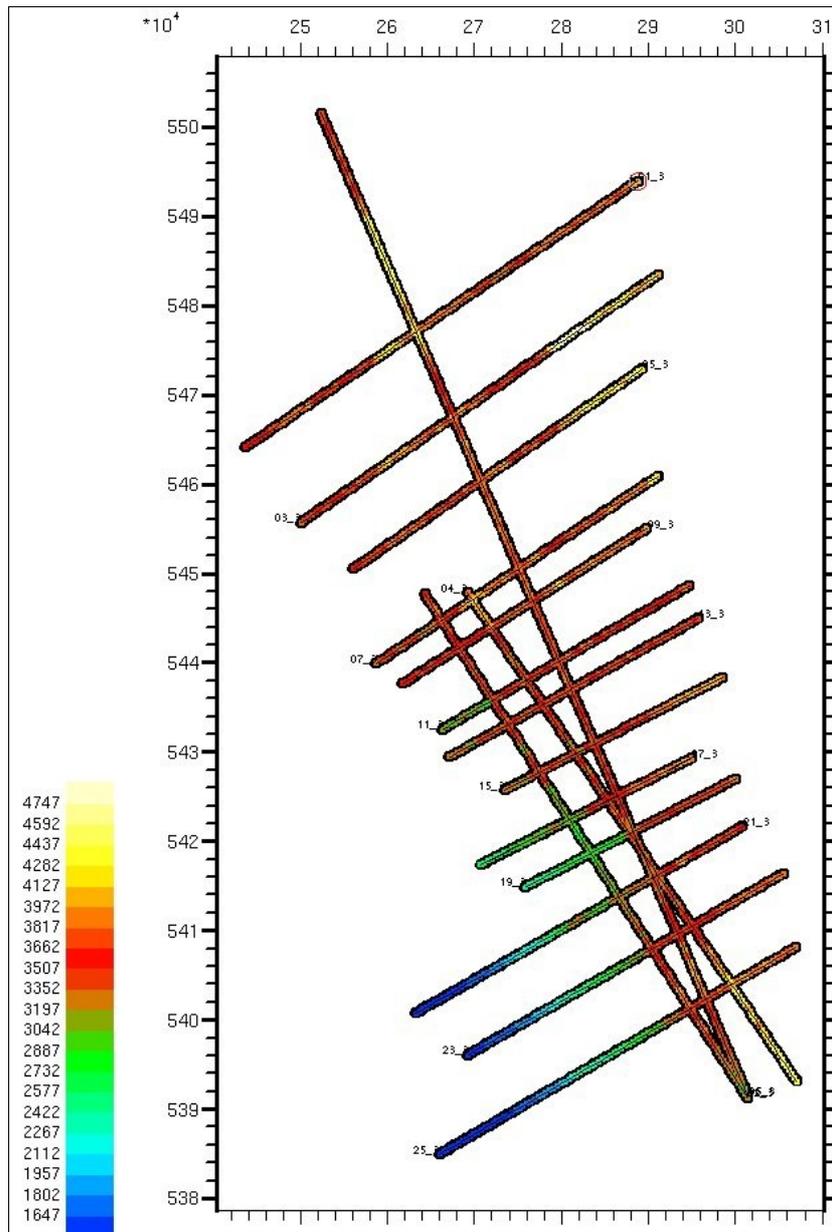


Figure 11.1 MGIVA Third Pass Velocity Setup: Velocity Map at 2500ms

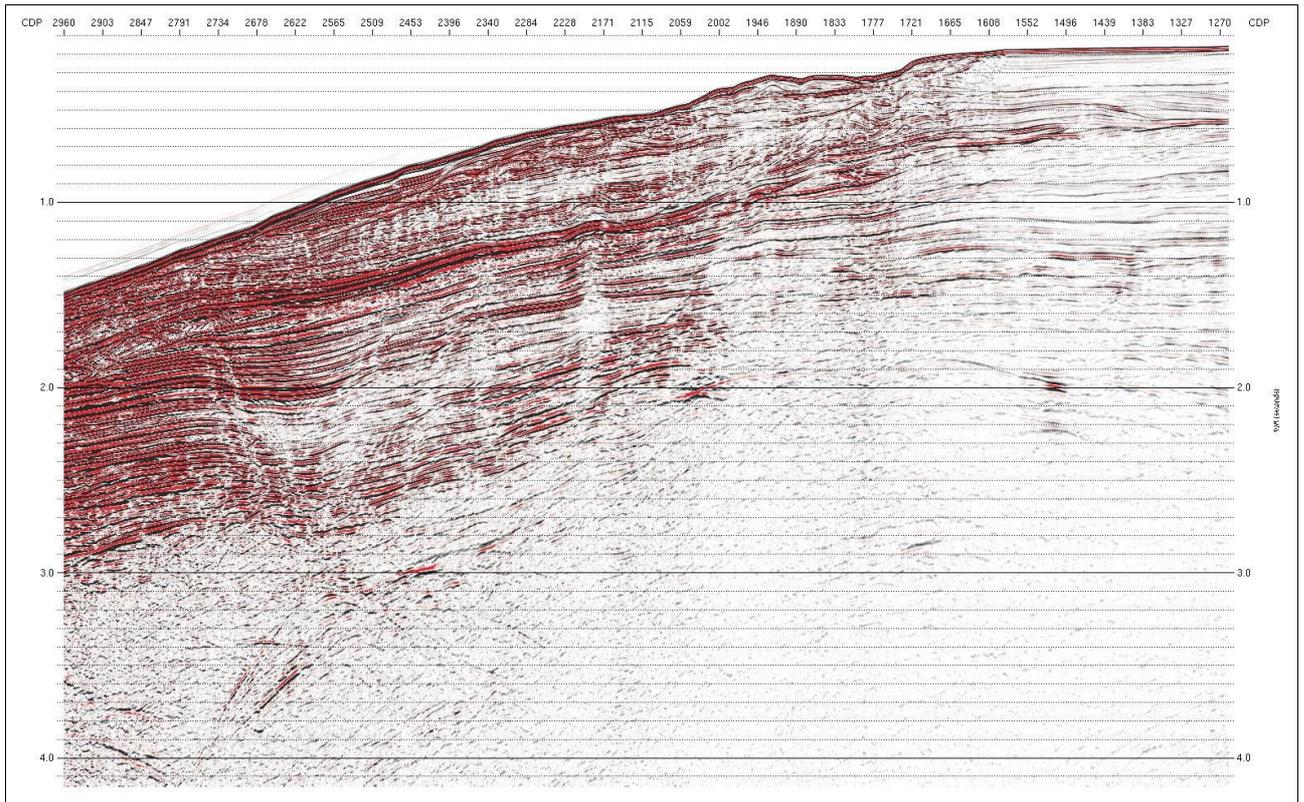
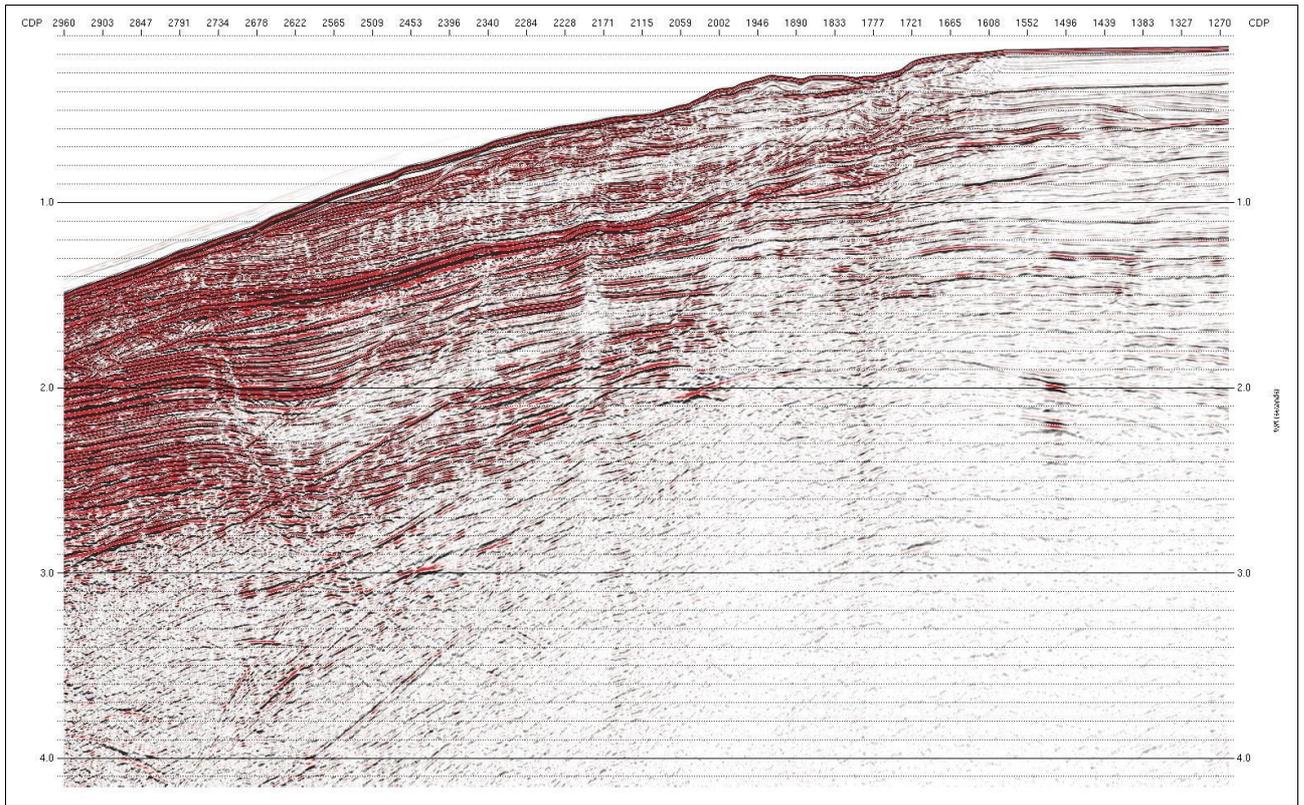


Figure 11.2 SOSN08C-021 without SRME (above) and with SRME (below)

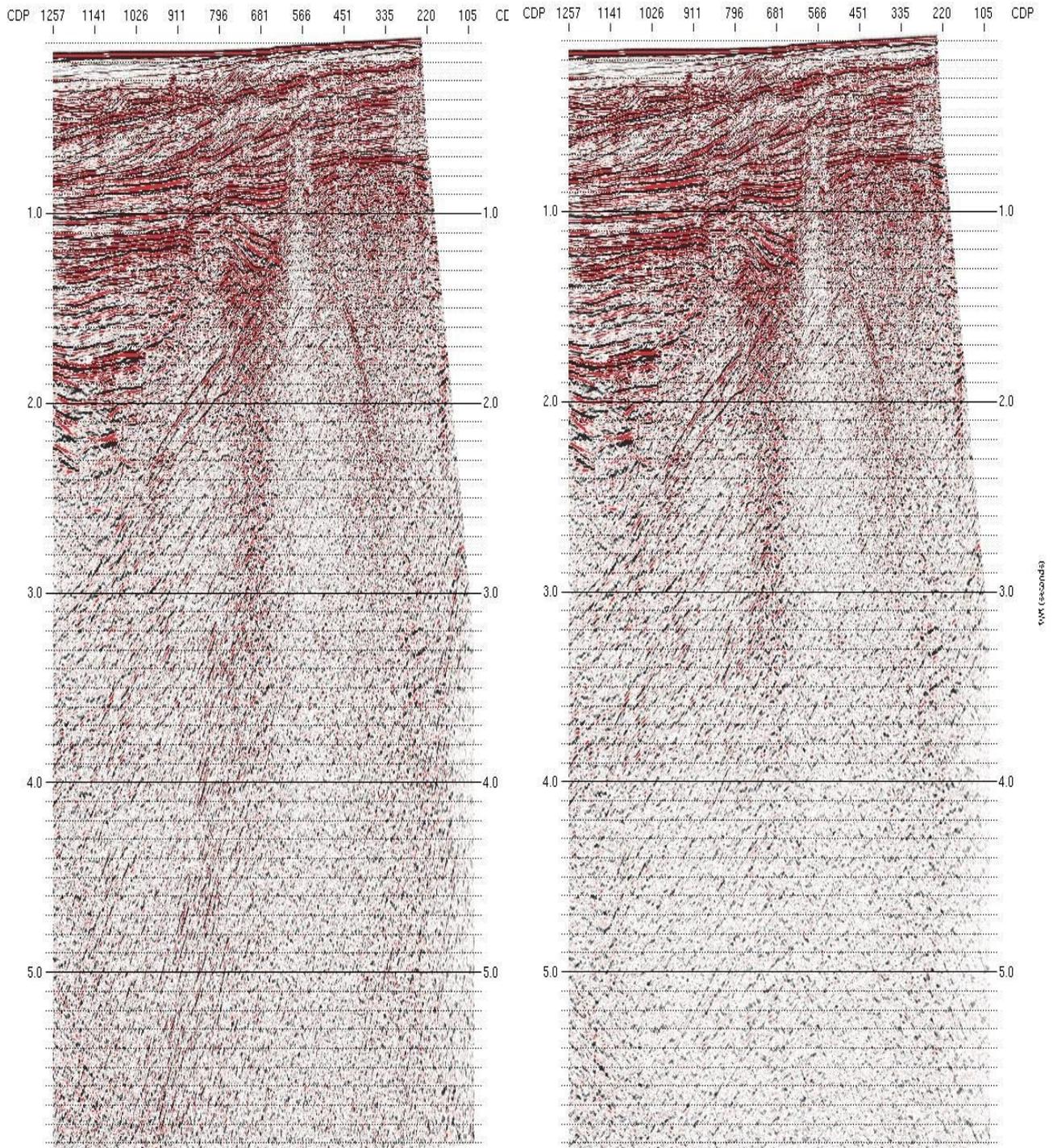


Figure 11.2.3 SOSN08C-021 without (left) and with (right) tau-p linear noise attenuation

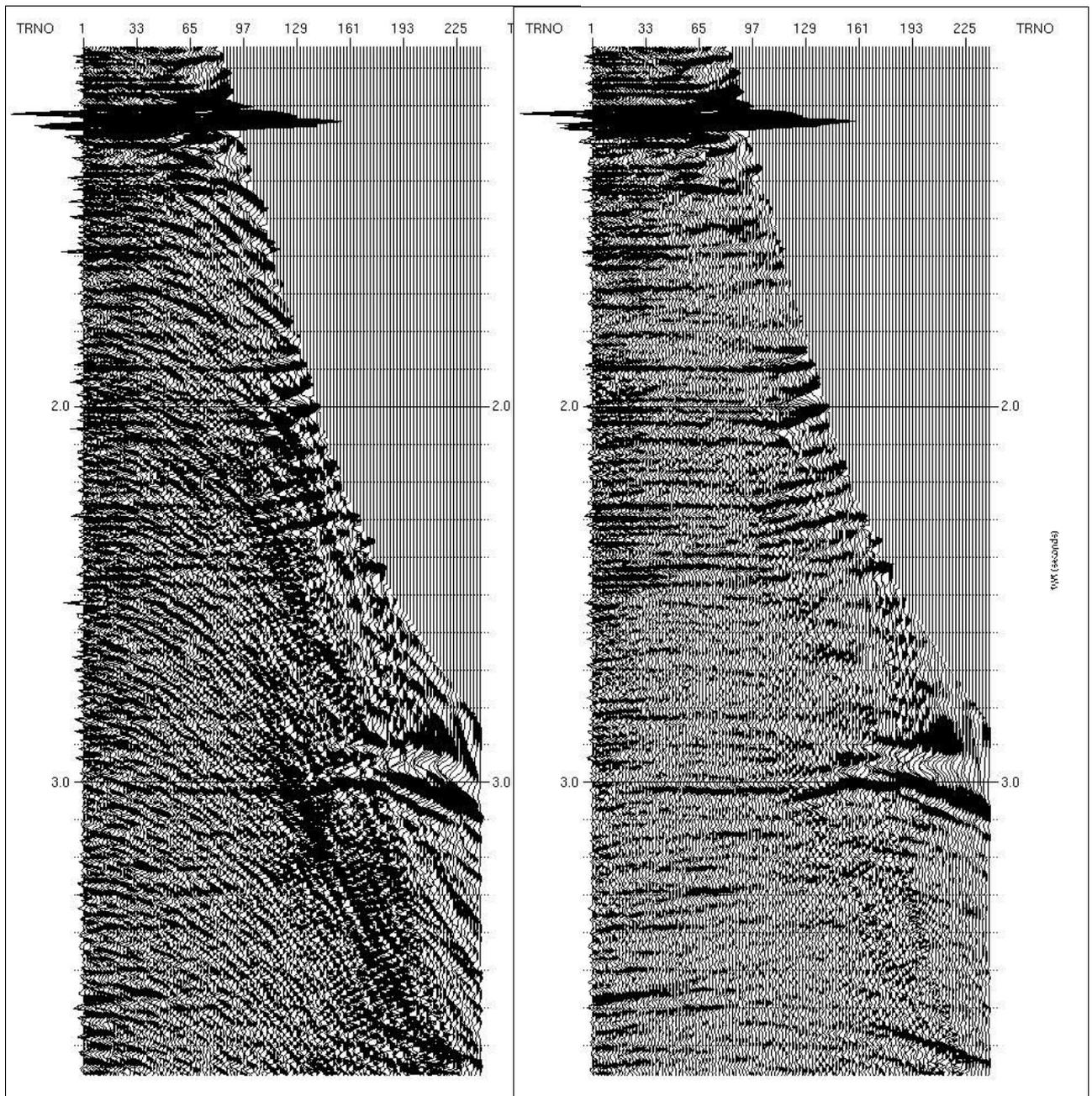


Figure 11.2.4 SOSN08C-021 without (left) and with (right) radon demultiple

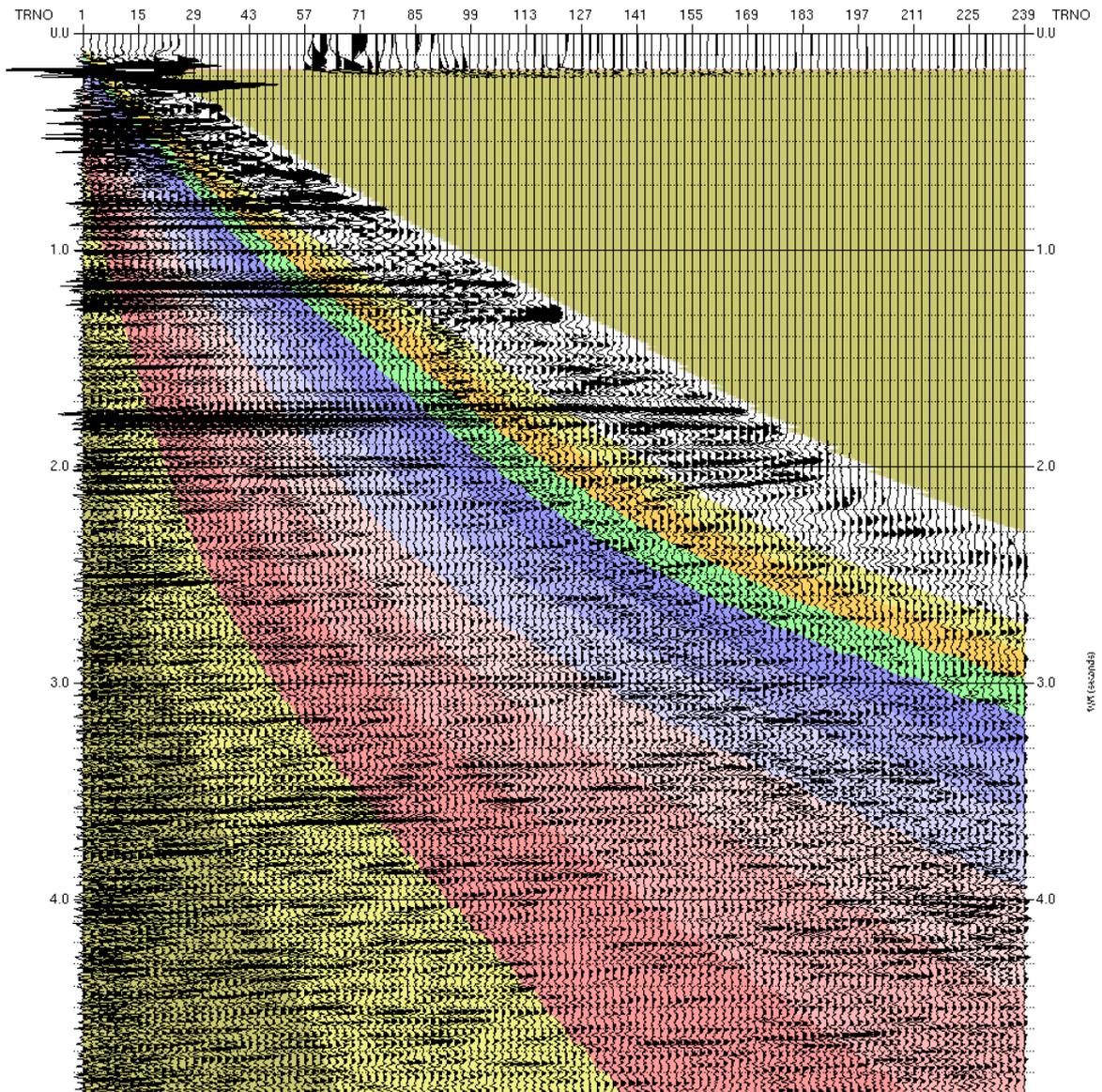


Figure 11.2.5 CDP Angles overlain – 5 degree increments

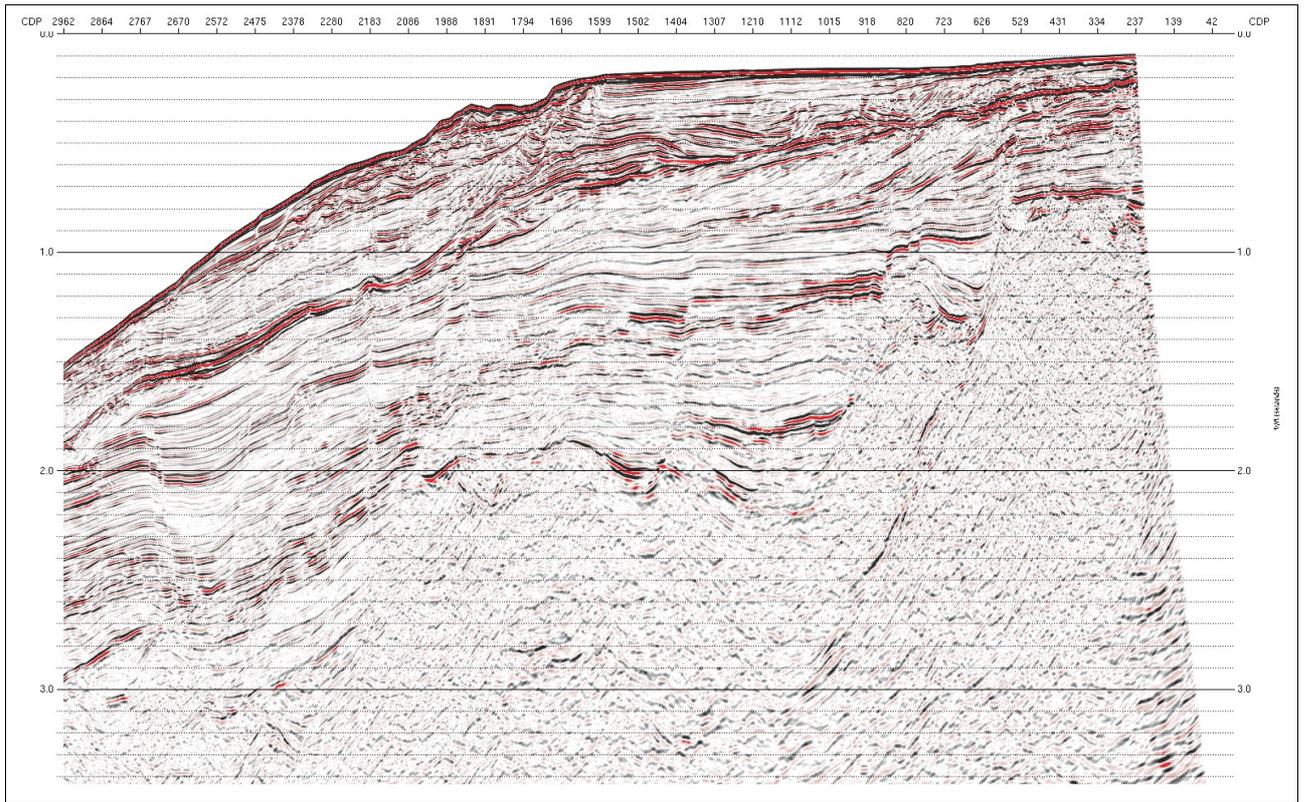


Figure 11.2.6 SOSN08C-021 Final Filtered Scaled Migration