JASON(invertrace)

JASON

1

2

3 InverTrace AI

4 crossplot

GR RES Impedance Porosity… .

5: IverMod

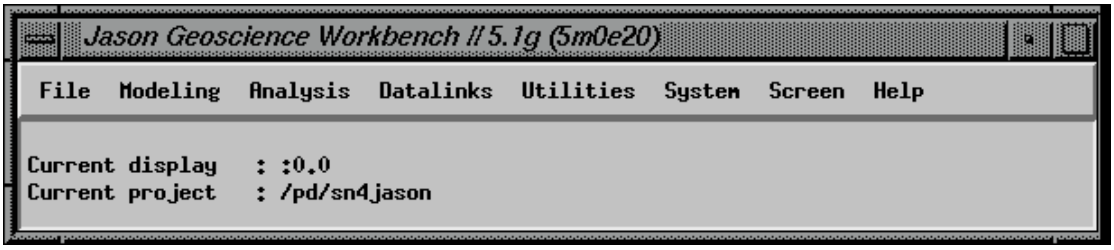
InverMod

6 InverTrace InverMod StatMod

JASON sn4jason

Seis Project

JASON JASON



1-1 JASON

→Datalinks→Landmark→Landmark98(97,2000)

1-2

1 File→SeisWorks project( )

2 Select→import→Seismic/property data( )

import→Horizons( )

LandMark import→wells

Select→Trace gate( )

4: Select→Time gate( )

Options→Desire JGW format→As file(8 bit integer.....

)

Options→Existing files→overwrite(Append.....

)

Transport→Import( )

Measured depth P-sonic

Gamma ray Density

→Datalinks→Wells→Well

log import

1-3

1 Input→Set template file( )

2 Input→Select files( )

3 Edit→Edit template

1 Start depth →Change unit(m)

2 Generic log

(Colum) (Edit header).

Colum1 JGW log type Measured depth

Log unit m

Colum2 JGW log type P-sonic

Log unit us/ft

Colum3 JGW log type Gamma ray

Log unit gAPI

Colum4 JGW log type Density

Log unit g/cm^3

4:Transport→Import selected wells

1 Edit

2 Import wells

1 100ms

2 time gate

1

2

3 0.05ms

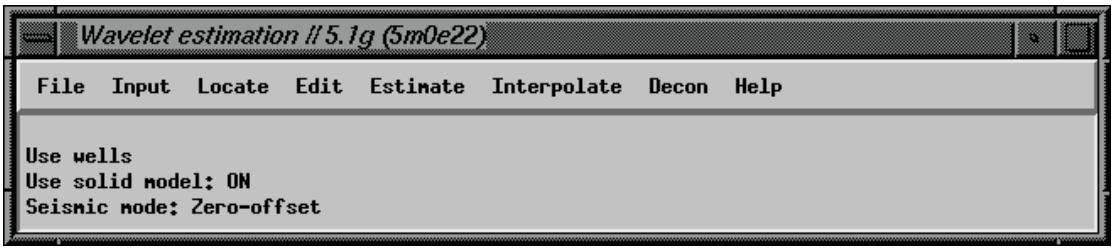
0.05ms

4

5

6 ——

→Modeling→Wavelets



2-1

1 Ricker

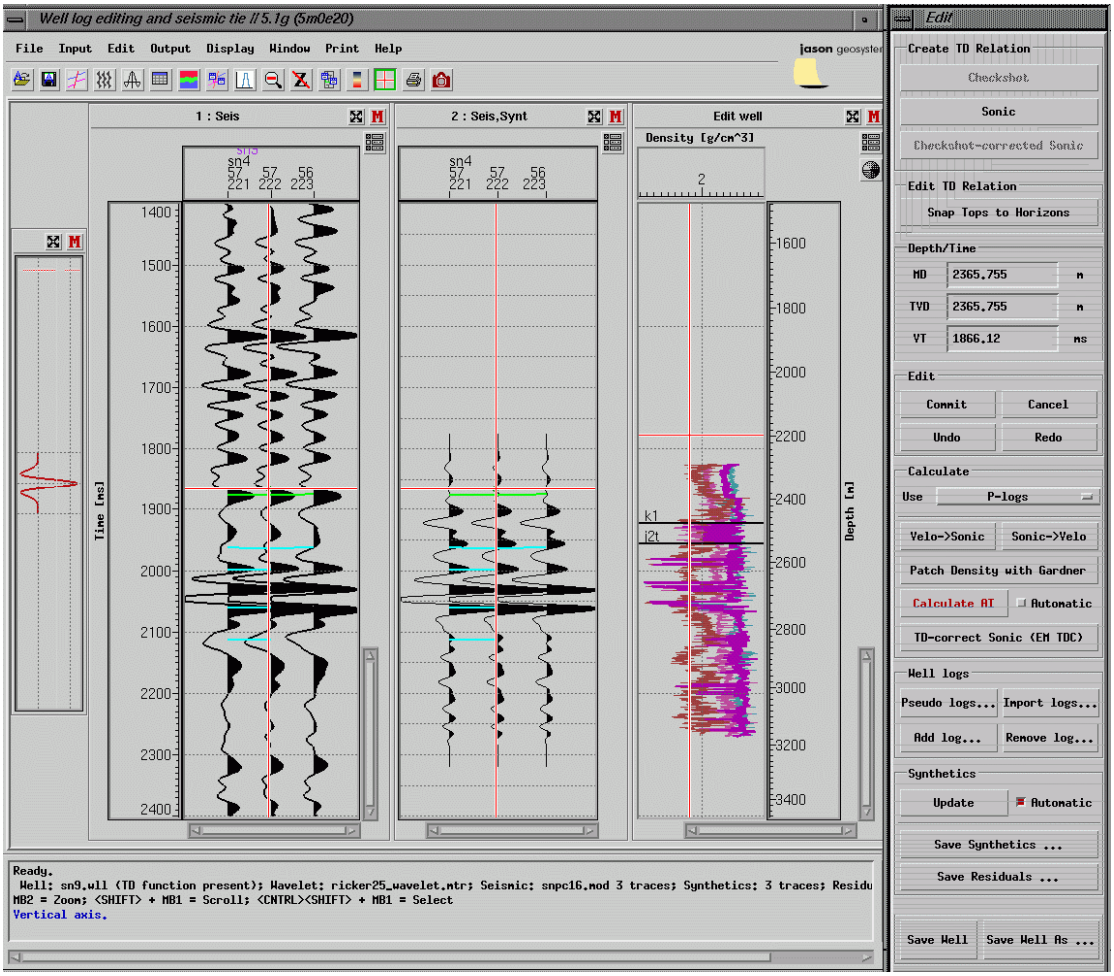
Edit→Create synthetic wavelet

Wavelet type Ricker frequency[Hz] 25

Calculate Wavelet editing QC

2 Estimate

1 →Analysis→Well log editing and Seismic tie



2-2

2 Input→well *.wll

3 Input→Horizons *.hor

4 Input→Seismic data *.mod

5 Input→Wavelet *.mtr

6 Input→Trace gate→Define tracegate

7 →Utilities→Project managenent→Project parameters

Change P-sonic(40-150)

8 Calculate AI

Edit Calculate

Calculate AI

9 Edit Create TD Relation

Sonic

10 Edit→Scale wavelet...

Scale factor

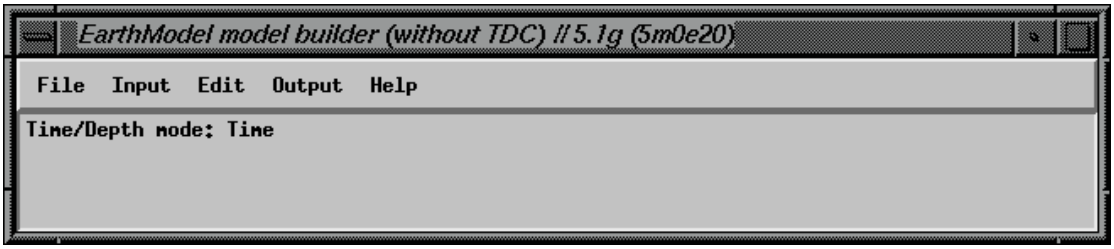
11

12

“ ”

→Modeling→EarthModel→Model builder(without

TDC( ))



3-1

1:Input→Time/Depth mode (, time)

2: Input→Horizons (,*.hor)

3:Edit→Edit framework(, , *.frw)

, **QC**

4 Input→Framework *.frw

5 Input→Select data for EarthModel→Wells(,*.wll)

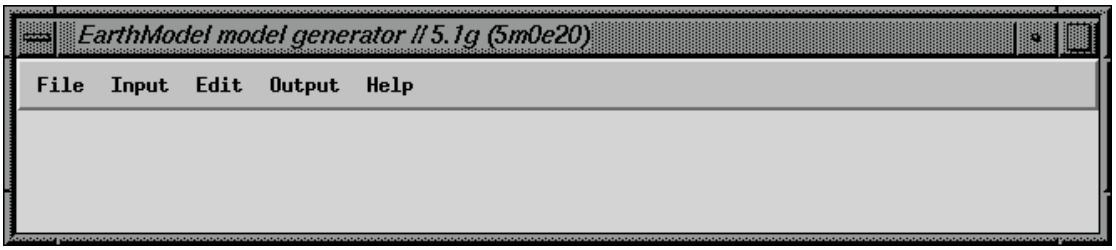
6: Input→Select data for EarthModel→Wells( )

7 Input→Trace gate

8 Output→Generate

:

→Modeling→EarthModel→Model generator



3-2

1: Input→Solid model *.mod

2: Input→Data for seismic modeling→Seismic data&Wavelets

Seismic data *.mod,

3: Input→Data for seismic modeling→Time gate

4: Input→Trace gate

5: Edit→Modeling parameters

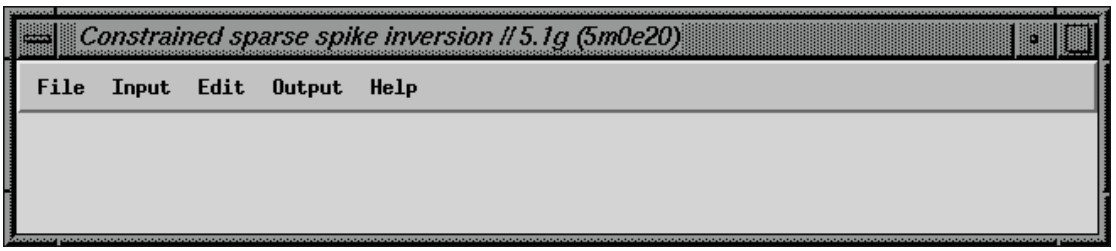
Time sample interval- *.mod

6: Output→Generate

Select output files P-Impedance in time

:

→Modeling→Invertrace→Constrained sparse spike



3-3

1 Input→Seismic data and Wavelets

→Modeling→Wavelets→Estimate→Estimate wavelet amplitude specturm

2 Input→Trace gate

3 Input→Time gate

“Use horizons” Set horizons file

*_Tinterface.hor

4 Input→Wells/User locations→Wells

5 Input→Select QC traces

6 Edit→Edit trend

7 Edit→Disable all constraints

8 Edit→Advanced→Wavelet scaling

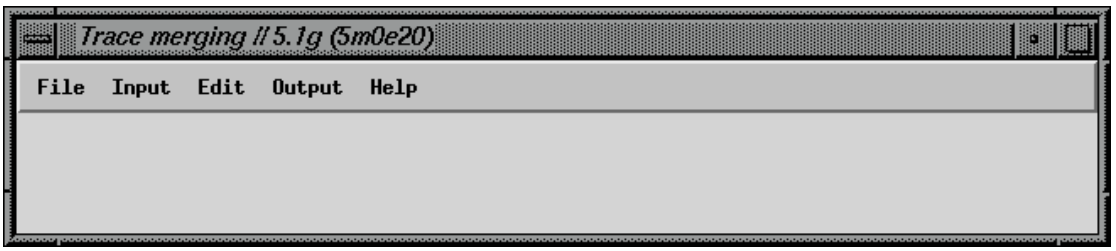
Estimate “Scale factor” 1

9 Output→Generate results

Generate the following output P_Impedance

:

→Modeling→Invertrace→Trace merging



3-4

1 Input→Low freq. data *_Timpedance.mod

2 Input→Bandlimited data *_impedance.mod

3 Input→Wavelet

4 Input→Trace gate

5 Edit→Design filter

<10Hz

Filter length 1024

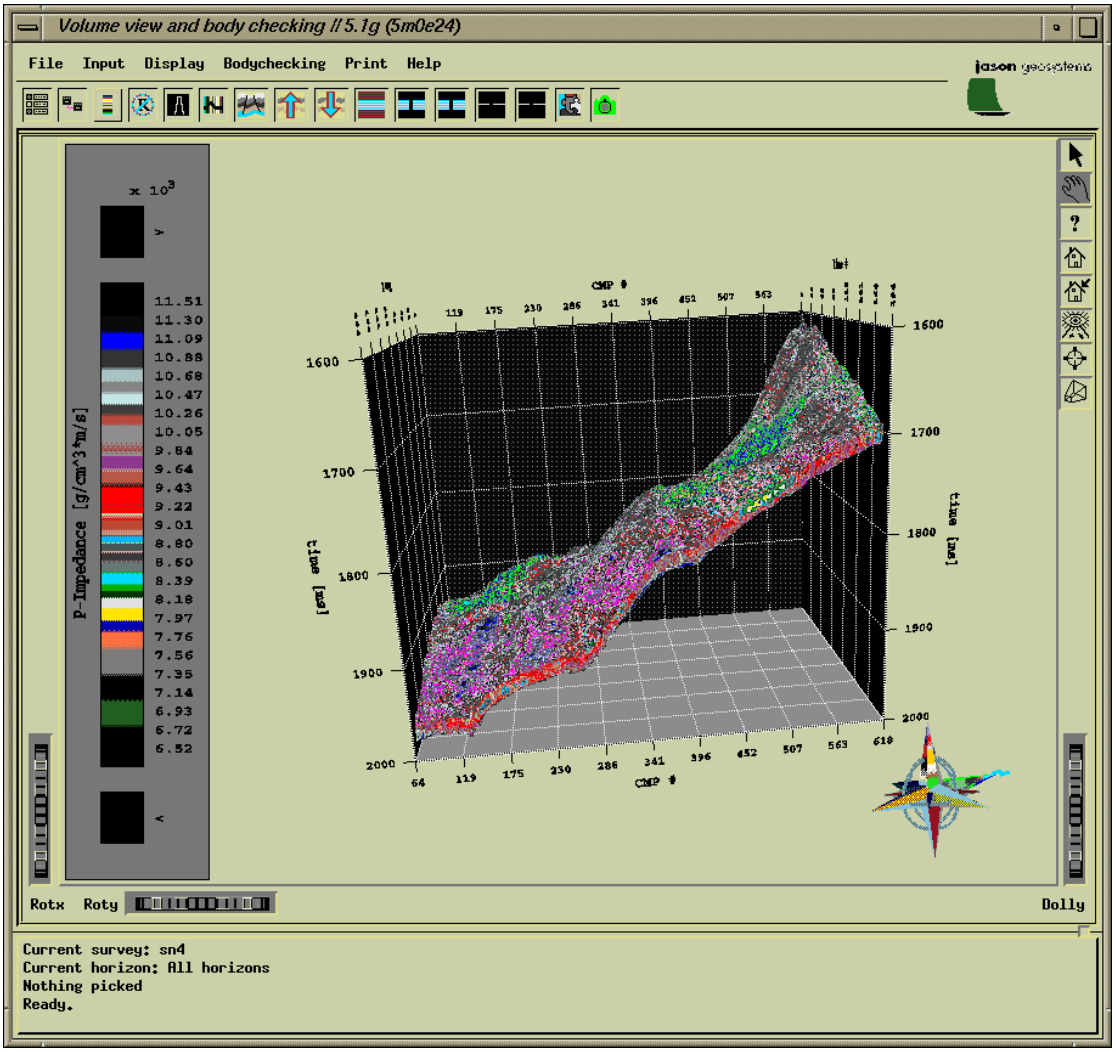
6 Edit→Edit trend

7 Output→Generate

Complete P_Impedance data

Invertrace

→Analysis→Volume view and body checking



4-1

1 Input→Select data (*.mod)

2: Input→Trace gate

3: Input→Browse tracegate

4: Input→Vertical unit→Time

5: Input→Vertical gate( )

6:Bodychecking→Bodychecking

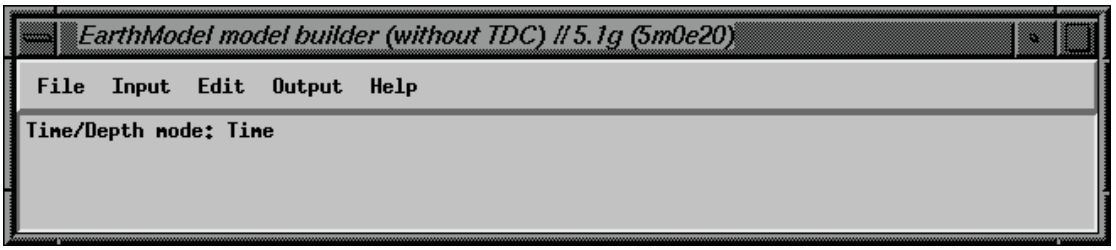
(1):Type-in range

(2):Connectivity

(3):Capture( )

(4):Save horzions(Top Base Thickness)

→Modeling→EarthModel→Model builder(without TDC( ))



4-2

1: Input→Horizons (,*.hor)

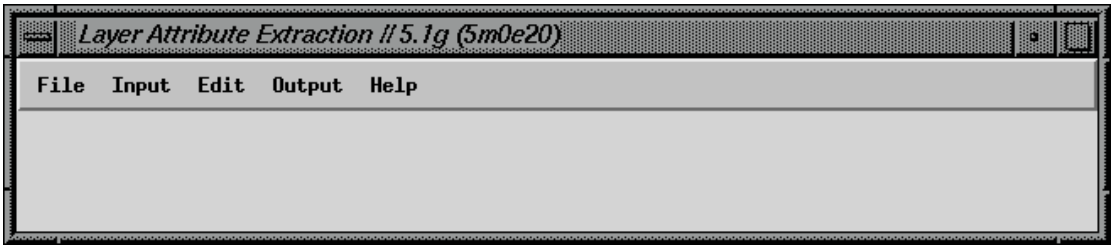
2:Edit→Edit framework(, , *.frw)

3 Input→Framework *.frw

4 Input→Trace gate

5 Output→Generate

→Analysis→Attribute extraction→Layer attributes



4-3

1 Input → Solid model *.mod

2 Input → Seismic/property data(*.mod)

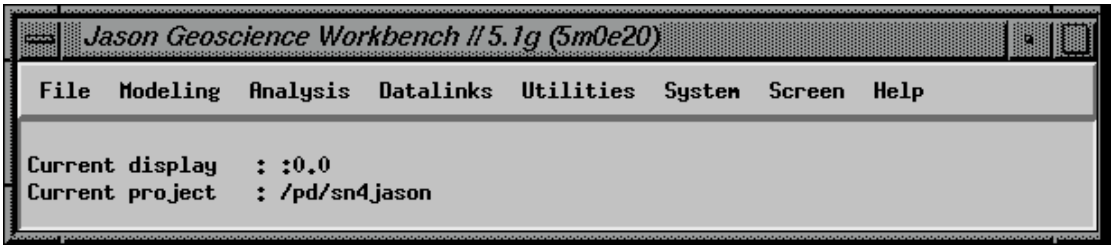
3 Input → Trace gate

4 Edit → Top

5 Edit → Attributes

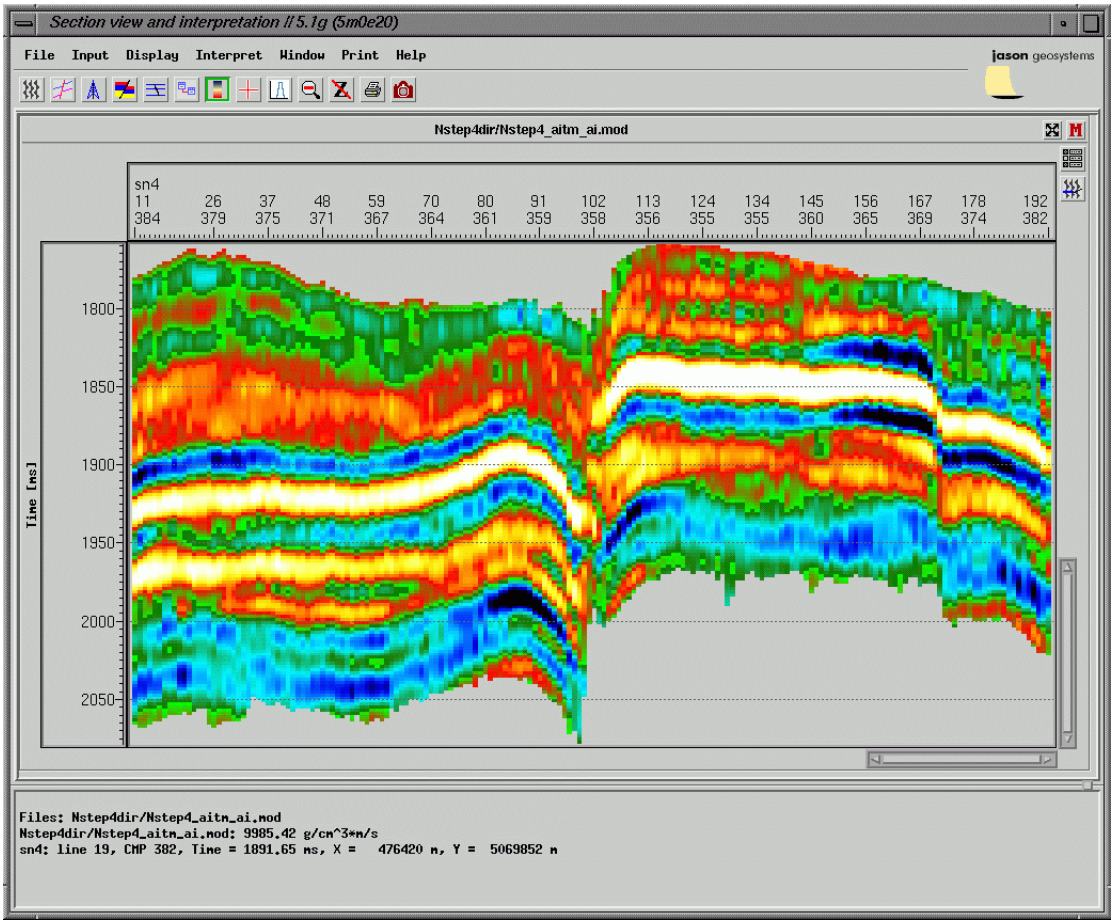
6 Output → Generate

“Horzion output file name”



5-1 JASON

→ Analysis → Section view and interpretation



5-2

1 Input→Seismic/property data

Seismic/property data

2: Input→Trace gate

3

1 Input→Horzions

2: Input→Trace gate

3

JASON 5.2

3D			2D		
21	32	CDP number	21	32	CDP number
13	32	line number	400 bytes		line name
73	32	X	73	32	X
77	32	Y	77	32	Y
109	32	first sample time	109	32	first sample time

3D (*.sgy)

Datalinks → Seismic/Property data → SEG-Y → Disk SEG-Y Import …

1 Parameters …

1) Create/edit SEG-Y format definition …→

Definition name → Standard disk SEG-Y

SEG-Y dimension → ◆ 3D

SEG-Y disk mode → ◆ C

Quick verify settings →

File name → List … → SEG- Y

[Show EBCDIC header …] 3200

[Show binary header …] 240

, :

CDP → CDP ensemble number (offset 21) → **21**

Line number → Specify trace header position below → **221**

X coordinate → Source X-coornate (offset 73) → **73**

Y coordinate → Source Y -coornate (offset 73) → **77**

XY unit → ■ Manual override → **m**

……

2) Select / edit transport parameters …

(1) Segy format list [Standard disk SEGY]

(2) ■ Time [Edit unit …] → us

(3) Time gate

1500 --- 3500 ms

(4) Time of first sample 0 ms

(5) ■ 3D

(6) [Add …] → test.sgy

(7 [Test.sgy] [Edit …] →

Survey name [test]

Set corners … o Eg 9 $ Û

(3) Make X Y

(1)(2) (3) á . È ^ Ý,X# 4“ $ ÛEg 9E¯ • Ä
Ä4 ÅFile o Save and Exit

i D B tEQ

Ô Ã tEQ i Æ4“ â i ! ÄEä · i Ú ÿEg 9 Å Ö
1ÃLAS ã ê ASCII [Ê Ö
ASCII [Ê w01.asc

depth1	log1	log2	log3	…
depth2	…	…	…	…
…	…	…	…	…

2ÃDatalinks o Wells o Well log import (las,ASCII)…
(1)Input o Set template file .. o EÝ i Æ4“ D B [o Ok
(2) Input o Select files… o EÝ i Æ4“ D B [Ê o Ok
Ä3 ÅEdit o Edit template …
a) Start depth Change unit… "¼ ã#Å z) !
b) Null value 0.000 "¼ ã þ n D ,X></ 6 ã Å
c) Datum 0.000 Change unit … "¼ ã#Å z) !
Manual
d) Well position (0.0,0.0) Change unit … "¼ ã#Å z) !
Manual
e) Show file hrader … Ã ¹,ß [Ê ,X Y •
fÿEä ë4êEe
EÝ Ô þ type o EÝ Ô þlog o Edit header …
JGW representation
JGW log type
JGW annatation
Ctrl +EÝ º Ô þ Type o EÝ º Ô þ log o Edit header…
"¼ ã Ö1) Depth: Ttack mode o Track only
2) ª Æ4“ ÖTrack mode o log only
3) ¼ ã) !

(4) Edit o Existing files Overwrite
Append and overwrite overlap
Append and don’t overwrite overlap

(5) Transport o Import selected wells …

2 Datalinks → Wells → Well tops import (ASCII) …

(1) Input → ASCII well tops file …→ tops

(2) Input →Parameters …→

1) Separator

✓ White space	’
Comna	“ ”
Colon	“ “
Semicolon	‘ ‘
Vertical bar	|

2) Well top name

Column [2] top name

3) [✓] File contains wellnames

Column [1] well name

4)

[✓] Import time values

Column [4] time

Unit [s]

5)

[✓] Import depth values

Column [3] depth

Unit [m]

[Save parameters as …] → *.tpl

6) Ok

(3) Input → Output files … (

Well file [.wll] [List …] .wll

X coord [ ] X .Y

Y coord [ ]

Datum [0]

(4) Existing files →
- Overwrite ✓
- Append and overwrite overlap
- Append and don’t overwrite overlap

(5) Transport → Import

3 tops

4 File → Save and Exit

Utilities → Project management → Project parameters …

1 Edit → Type and units …

Add …

Data type : GR

Unit : gAPI

Data ytpe : Lithology

Unit : none

ν Lithologic data type : Edit litho-types …

→ Add …

Litho-type : shale

Integer representation : 0

……(: sand 1, oil-sand 2, …)

Ok

2 File → Save and Exit

usertypelist.txt

6.0 :

Edit user defined clases → Add clases → (clases)

→ Edit user defined types→ Add type→ → (types) → (units)

→ clases

Horizon data Export & Import

GeoQuest

Export (Geoquest) horizons … 3D

Datalinks → Geoquest IES(x) → Horizons export …

1 > geohorsexp . input.hor (input.hor JGW

2 Enter Geoquest card image format :

1:

…

5: P7 (Multi horizon 3D)

6: P7 (Multi horizon 2D)

Enter your choice :5 (p7(Multi horizon 3D)))

3 Enter name Geoquest file (without extension) : (

geo

(Trace gate)

4 Use this tracegate (YN) y

5 Enter element to store JGW trace number in :

1 trace numbers

2 CDP numbers
3 shotpoints
4 x position
5 y position
Enter your choice : 1
6 (
Enter number to (De) select horizon (0:ready) : 1
Enter the geoquest unit (s) : ms (ms)
Enter the geoquest column in which to output (1=Time, 2=Amplitude) (1) : 1
(
7 Enter number to (De) select horizon (0=ready) 0
(geo.p701)

Import horizons (3D) (ms)
Datalinks → Geoquest IES(x) → Horizons import …
1 Input :
(1) Geoquest files …→ gqs.p701
(2) Horizons …→ → type of all
(3)
→ Z data unit ms → Ok (ms)

(4) Line / traces …→ none ( ) → Ok (trace gate skip ?, and survey name)
(attribute unit:)
2 Options …→
(1) File options …
File type P7(3D)
CDP number Use trace field
4 Read x y coordinates
X Y unit : m
Inspect files … (
Ok
(2) Existing files →
Overwrite ✓
Append and overwrite overlap
Append and don't overwrite overlap
3 Transport → Import selected horizons …
→ input.hor JGW
→ Ok

VelMod

1 HANDVEL-- 2D

CDP

1 9 16 24 32 40 48

```
12345667890123456789012345678901234567890123456789012345678901234567890
HANDVEL      140
         340     1601      820     1842     1171     1944
        1540     2075     1980     2240     2245     2276
        2620     2335     3254     2443
HANDVEL      179
         340     1602      540     1695      860     1841
        1540     2057     1820     2172        …        …
```

ms m/s

2 HANDVEL—3D

CDP

1 89 16 24 32 40 48

```
12345667890123456789012345678901234567890123456789012345678901234567890
HANDVEL 20   140
         340     1601      820     1842     1171     1944
        1540     2075     1980     2240     2245     2276
        2620     2335     3254     2443
HANDVEL 20    179
         340     1602      540     1695      860     1841
        1540     2057     1820     2172        …        …
HANDVEL 35   140
         340     1601      820     1842     1171     1944
        1540     2075     1980     2240     2245     2276
        2620     2335     3254     2443
HANDVEL 35    179
         340     1602      540     1695      860     1841
        1540     2057     1820     2172        …        …

          …
```

DataLinks → Velocity data …(Import ascii Velocity files)

1 Parameters …

(1) Select / edit transport parameters …

Velocity file format :

HANDVEL → HANDVEL 2D format (project)
HANDVEL 2D format (system) ✓
HANDFVEL 3D format

PreMAX → ProMAX 2D format (project)
ProMAX 2D format (system)

■ Time

Velocity unit of input files : ms

■ 2D

■ 2D lines

Add … → (vel836.dat)

→ Edit … →

JGW velocity file : stack_velocity.mod

Model type : Velocity

Sample interval : 2 ms

Ok

(2)Desired JGW format

(3)Existing file :

(4) Existing XY coordinates :

2 Transport → Import selected file …

3 File → Save & Exit

4 :

:

VelMod → Velocity conversion …

1 Input:

(1) Stacking velocity data …→ stack_velocity.mod

(2) Trace gate …

2 Edit → Datum

■ Use constant time datum

Constant time datum (0) : 0

3 Output → Generate …

Instanteous velocity vi_time.mod List …

Generate

4 File → Save & Exit

5

VelMod → Model builder (without TDC)

1 Input :

(1) Time / Depth mode …→ Time

(2) Horizons …→

(3) Tramework …(

(4) Trace gate … (skip=0,

2 Edit …

(1) Edit framework …

(2) Edit data for EarthModel → Areal weight interpolation :

(Locally weighted or locally weighted & trianglation)

3 Output → Generate …

■ Run now

.h

Output solid model : vel

4 file → Save & Exit

VelMod → Property conditioning …

1 Input :
- (1) Time / Depth mode …→ Time
- (2) solid model …→ vel
- (3) Seismic / Property data …→ vi_time.mod
- (4) Trace gate …
- (5) Datum parameters …→
  - ■ Use constant time datum
    Constant time datum (s) : 0

2 Edit …
- (1) Scatter correction …
  Select layers …
  Left … jump
  Right … jump
  Apply
  …… (
  Done
- (2) Smoothing filter …
  Smoothing filter : ▶ Rectangle / ▶ Triangle
  Inline
  Crossline

3 Output :
- (1) QC panel →
- (2) Generate …
  Seismic / Property file | Tpropcond.mod |

4 File → Save & Exit

VelMod → Model interpolator …

1 Input:
- (1) Time/Depth mode → Time
- (2) Solid model → Vel
- (3) Layers … →
- (4) Data for seismic modeling → Tpropcond.mod ( )
- (5) Trace gate →
  - Input trace gate → (skil

	line	CMP
	20	140
	35	179
skip	14	38

  - Output trsce gate → skip

	line	CMP
	20	140
	35	179
skip	0	0

2 Edit :
- (1) Interpolation/extrapolation method → local …
- (2) Interpolation parameters :
  Max interpolation distance : 1000 ( )
  Lteral interpolation : horion fitting
  Time sample interval : 4 ms
  Vertical interpolation property data : blocking

3 Output → Generate
- ■ Run now

→ interpolation_Tvelocity.mod
Timpedance _*from*_velocity.mod
Timpedance_from_gardner.mod
Tsonic_from_velocity.mod
……

:

Analysis → Well log editing and seismic tie …
1 Output → Create pseudo.wll

Well file : pseudo.wll List …

X Y ( )

Extract pseudo logs … → *Timpedance_from_velocity.mod
Tsonic.mod
Tvelocity.mod (logs)
……

Horizon file : *Tinterfacece.hor List …

tops

2
3.

**
1.
2
3 Tvelocity ,Timpedance … ((0,3)HZ
4 Tvelocity ,Timpedance …

Well Edit TDC & Synthetics

Analysis → Well log editing and seismic tie …
(1) Input → Well… ⇐ *.wll
(2) (p_sonic,density,…)
(3) (,)
a)
b)

→ Draw log

Commit

(4) : Calculate Density with Gardner

5 Calculate AI

Select logs

6 → p_Impedance

(6) → Save as …
(7)

Control panel

sonic

Time (s) : 1.85
Depth (m) : 2481.8 →

M → Display → Well vertical type → Time

→

Save as … → *_T1.wll

Tops Horizons

Modeling → Wavelets

1 :

Input → Seismic mode … → ■ Zero offset
AVA

Input → seismic → seismic data … →

Input → Wells/User locations → Select well … → ***T1**.wll

Input → Time gate … → … ( )

Input → Select traces… ,

Number of trace per well
3

Generate trace selection

Lateral search distance (m) 100 ←

2 Edit → Create synthetic wavelet …

Wavelet Ricker

Output wavelet Create wavelet.mtr

Start time : -0.05

L ength (s) : 0.1

Rickerr wavelet central frequency (HZ) : 65

Calculate Show wavelet

Compare with seismic spectra …

OK

3 Well log editing and seismic tie :

Input → Seismic data …→ seismic.mod

Input → Wavelet → Create_wavelet.mtr

(tops) (horizons)

Edit mode : Bulk shift all

Stretch / squeeze all

Edit → Scale wavelet …

(

Estimate

…

Save as …→ *T2.wll

Input → Seismic data …→ seismic.mod

Input → Wells/User locations → Select well …→ ***T2**.wll

Estimate → Estimate wavelet amplitude and phase spectra …

Taper Papoulis ( )

Output wavelet amp+phase_wavelet.mtr

Wavelet start time(s): -0.050

Length(s): 0.100

Wavelet maximum frequency (HZ): 70

Calculate Show

Auto correlation

OK

Well log editing and seismic tie … :

Input → Wavelet → amp+phase_wavelet.mtr

Select logs … → p_sonic
Time (
P_impedance( )

Save as … → *T3.wll

!! tops horizons

1

100ms

2 time gate):

1

2

3

0.05ms

0.05ms

Input → Time gate …

■ Use horizons

Set horizons file … → *Tinterface.hor

Offset from top horizon(s): 0.05

Offset from bottom horizon(s) : 0.05

4) .

5

6 ———

(1) Edit → Scale wavelet …

(2_ InverTrace → CSSI → Edit → Wavelet scaling …

Input wavelet amp+phase_wavelet.mtr

Output wavelet amp+phase wavelet scale.mtr

Estimate

Ok 1, amp+phase_wavelet.mtr

Input

amp+phase_wavelet _scale.mtr

p_sonic :

Analysis → Well lig editing and seismic tie →

TD-correct Sonic (EM TDC)

Save as … → *_calibri.wll

EarthModel builder with TDC

Analysis → Graph view …
Input → Single trace …
→ , *last.mtr
→ 0

Earth Model EM

1 tops logs Horizons
2 top name & horizon name
3
4. horizon name (layer name)
5 Time-Depth

EarthModel:
( )EarthModel → Model builder (without TDC) **Without TDC**
1 Input :
(1) Horizons …→ input.hor
(2) Horizons / tops to tie …→ (
)
(3) Framework … → *.frm (*.frw)
(4) Wells …→ *T*.wll ctrl +
(5) Logs …→
(: p_sonic,
density,
p_impedance)
(6) Trace gate …→
2 Edit
(1) Edit framework … ------- (*.frw)

a)

datum

b) QC trace gate … QC
Generate QC ( )
QC panel ⇐ ( )

c) Save as …(*.frw)
d) Ok

(2)Edit data for EarthModel
Areal weight interpolation ( )
→ Inverse diatance weighted
Locally weighted

Triangulation
→ Locally weighted & triangulation
Well weights …→ 1
Log parameters … →
Log P_sonic
Vertical detail : 4ms ( )
( )

3 Output → Generate …
(1) λ Run now
(2) : * **T**interface.hor) ——— ( )

(3) Output solid model : notdc
Output directory: Solid_notdc
(4) Interface & layers : Merged Separate ✓

../solid_notdc/Tinterface.h*

4 File → Save & Exit
5

( )EarthModel → Model generator … **Without TDC**

1 Input :
(1) Solid model …→ notdc (Model builder without TDC)
(2) Trace gate …

2 Edit :
(1) Model parameters …
Time sample interval : 0.004 s
InverTrace
310
0.25
(2) Edit data for seismic modeling :
Wavelet interpolation …→
Time gate …→ ■ Use horizons
Set horizons file … ⇐ *Tinterface.hor
Top horizon
Bottom horizon

3 Output → Generate … Timpedance.mod ---- Trace merging

EarthModel:

( )EarthModel → Model builder (with TDC) **TDC**

1 Input :
(4) Horizons …→ input.hor
(5) Horizons / tops to tie …→ (
)
(6) Framework … → *.frm (*.frw)
(4) Wells …→ *calibre.wll ctrl +
(7) Logs …→
(8) Trace gate …→

2 Edit

(1) Edit framework … ------- (*.frw)

a)

datum

c) QC trace gate … QC
Generate QC ( )
QC panel → ( )

c) Define datum … → *Time horizon
Depth from Well tops

e) Save as …(*.frw)
f) Ok

(2)Conversion parameters …
Standard deviation depth datum : 0
Standard deviation depth thickness : 6 2
Standard deviation sonic scale factor : 0.1

(3)Edit data for EarthModel and / or InverMod
Areal weight interpolation ( )
→ Inverse diatance weighted
Locally weighted
Triangulation
Locally weighted & triangulation
Well weights …→ 1
Log parameters … →
Log sonic
Vertical detail : 2 m 1ms
( )

3 Output → Generate …
(3) ■ Run now
(4) : * calibre.wll Tinterface.hor , Zinterface.hor
( )

(3) Output solid model : tdc

Output directory : solid_tdc

(4) Interface & layers : Merged Separate ✓

*calibre.wll
Tinterface.h*
Zinterface.h*

4 File → Save & Exit
5

( )EarthModel → Model generator … **TDC**
1 Input :
(1) Solid model …→ tdc (Model builder with TDC)
(2) Trace gate …
2 Edit :
(3) Model parameters …

Time sample interval : 0.001 s 0.0005
InverMod StatMod
Depth sample interval : 2 m 1ms
310
0.25

(4) Edit data for seismic modeling :
Wavelet interpolation …→
Time gate …→ ■ Use horizons
Set horizons file … *Tinterface.hor
Top horizon
Bottom horizon

3 Output → Generate … *.mod
■ Run now
: Timpedance_from_sonic.mod
Timpedance_from_sonic_and_density.mod
Timpedance_from_sonic_gardner.mod
Tporosity.mod
Tsonic.mod
Tdensity.mod
……
Zimpedance_from_sonic.mod
Zimpedance_from_sonic_and_density.mod
Zimpedance_from_sonic_gardner.mod
Zporosity.mod
Zsonic.mod
Zdensity.mod
……
*Ok
../solid_tdc/*.m*

4 File → Save & Exit
5
horions .tops .logs

EarthModel → Model interpolator … ( )

1 Input :
(1) Time / Depth mode …→ Time
(2) Solid model … → tdc1
(3) Layers …→
(4) Seismic /Property data …→ velocity.mod
(5) Trace gate … { Input trace gate …
Output trace gate …

2 Edit :
(1) Inter / extrapolation method …→
(2) Interpolation parameters …
Time sample interval : 0.004 s 0.002 s
Maximum lateral interpolation distance : 25 m

Lateral interpolation seismic data → Horizon fitting ✓
→ Well weights

Vertical interpolation seismic data → Blocking
→ Interpolation ✓

3 Output → Generate …→ interpolate.mod

4 File → Save & Exit

Wavelets → Wavelet estimation … WE

( ) Input :

1 Seismic data …→ seis.mod

2 Wells / User locations

■ Use wells

Select wells → *.wll

■ User other location

Select location … ( )

3 Solid model …→

■ Use solid model

Select solid model …→ tdc1

4 Time gate …

■ Use horizons

Set horizons file …→ *Tinterface.hor

Top horizon

Bottom horizon

5 Select traces …→

( ) Output → Create synthetic wavelet …

Wavelet type :

(Ricker

Ricker wavelet central frequency : 35)

Double cosine ✓

Low	Opper	Lower	Upper
0	25	37.5	62.5
0	10	80	100

Output wavelet *.mtr List …

list…

Start time : -0.03 Phase rotation : 0

Length : 0.06 Sample interval : 0.002

QC

Ok

( ) Input :

Wells /User location …

■ Use wells

Select wells → tdc1_tdc_*.wll

■ Use other location

Select location …

( )

( ) Output → Estimate wavelet amplitude & phase spectra …

Taper type : None / Papoulis ✓ / Cosine

Output wavelet [* .mtr]

Wavelet start time : -0.064 -0.03
Wavelet length : 0.128 0.06
Wavelet maximum freq. : 100
(Wells correlation range (s) : 0.01
Use prior wavelet to stabiliz ■ Yes □ No
Prior wavelet : wavelet-1.mtr
Prior wavelet weight : 0.1)
QC
Ok
File → Save & Exit

Applications → display & Editors → Graph visualization …
→ Input → Single trace …
→ 0

InverTrace

InverTrace → Constrained sparse spike … **CSSI---**

1 Input :
(1) Seismic data and wavelets …→
Seismic → list …→ seis.mod
Select Wavelet …→ list …⇐
(2) Trace gate …
(3) Time gate …→
■ Use horizons
Set horizons file …→ *Tinterface.hor
Top horizon
Bottom horizon
(4) Wells / User locations
■ Use wells
Select wells …→ (
(5) Select QC traces … (3-5)

2 Edit :
(1) Edit trend :
Trend is : **constrant**
Horizonfile …→ *Tinterface.hor
Horizons …→
From log …→ (

Select well … ( )
Save as …→ *.atm ⇐ Ok

(2) Edit constraints … ( )

Save as …→ *.atm → Ok
(3) Wavelet scaling …
Input wavelet [ ]
Output wavelet [ ]

Correlation range (s) : 0.02
Scale factor : 1 estimate
Save as …

input

(4) Edit and QC parameters …

Lambda 5 50 35
5 100 25
QC Lambda

(5) Advance → Wavelet interpolation …→

(6) Advance → Trace to trace constraints …
Trace to trace constraints → On
→ Off ✓
On: Acoustic impedance constraint: 4800 kg/m^3*m/s*m
Two travel time constraint : 4e-05 s/m)

(7) Advance → Soft trend constraints …
Soft trend constraints : → On
→ Off ✓
[On: Soft trend constraints (%) : 20]

(8) Advance → sparse spike parameters …
Lambda : 35
Reflectivity norm : 0.9
Seismic misfit norm : 2

(9) Advance → Performance settings …
Maximun number of iterations for sparsity : 5
Maximum number of initial model iterations : 6
Maximum frequnce : 60 200 f<1/2σ

3 Output → Generate results …
■ Run now
Batch directory : Invertrace

:
■ Generate acoustic impedance data
☐ Generate reflection coefficients
■ Generate synthetic data
☐ Generate residual data
Ok

4 File → Save & Exit

InverTrace → Trace Merging … **AITM**

1 Input :
(1) Low freq. AI data …→ Timpedance.mod
(2) Bandlimited AI data …→ ssi_impedance.mod ssi_batch_cssi
(3) Wavelet →
(4) Trace gate …

2 Edit :
(1) Design filters …→
Lowpass
Bandpass
Filter length : 512 1024 ( )
(2) Edit trend … ( )

3 Output → Generate …

■ Run now

:

- ■ Complete acoustic impedance data → **aitm_ai. Mod**
- ■ Low freq. Component of AI → **aitm_ai_low . Mod**
- ■ Bandlimited component of AI → **aitm_ai _bandlimited . Mod**
- ☐ AI data with trend subtracted ( ) dAI
- ☐ AI data with constant subtracted

Constant [0] (kg/m^3*m/s)

[Generate]

4 File → Save & Exit

: (1) EarthModel

(2) Processing ToolKit → Resample Timpedance.mod

5 AI 10 75 HZ AI

InverTrace → Create / Edit tables …

AI - porosity → save as …→ ai_poro.tab
AI - Velocity → save as …→ ai_velo.tab
AI - Net pay (Net factor) → save as …→ ai_net.tab

InverTrace → Net pay & porosity estimation … (NPPE)

1 Input :

(1) Calculate by → AI – trend –baselineAI
→ AI only ✓

(2) Reservior has → Low ✓
→ High AI ( )

(3) AI data … → aitm.mod (Trace Merging result)
(4) AI to porisity table …→ ai_poro.tab
(5)AI to velocity table …→ ai_velo.tab
(6) AI to Net pay table …→ ai_net.tab
(7) Trace gate …
(8) Time gate …→

- ■ Use horizons

Set horizons file …→ *Tinterface.hor
Top horizon
Bottom horizon

2 Edit :

(1) Baseline value … (AI)
(2) Edit trend …

3 Output → Generate

■ Run now

: *.mod & *.hor

- ☐ Complete difference AI data
- ☐ Difference AI data within time gate
- ■ Net pay
- ■ Porosity

[Generate]

4 File → Save & Exit

InverMod

1 (horizons) tops
2 EarthModel (with TDC)

InverMod → Princapil component analysis … **PCA---**

1 Input:
(1) PCA mode :
Principal component analysis … (gi)
Seismic character inversion (sci)
Both ✓ (both)
(2) Solid model … → tdc1 (EarthModel solid model)
(3) Seismic data (seismic character inversion) …→ seis.mod

(4) Uncertainties … (*.unc) (
(5) Trace gate …
2 Edit …
(1) PCA parameters …→

PCA type : PCA unconstrained (default) ✓
PCA constrained
Singular value decomposition type : SVD all pc ✓
SVD seismic data pc
Constraint type principal components : None
Hard
Soft
Hard (default) ✓
Constraint type weights : None
Hard
Soft
Hard (default) ✓
Constraint type sum : None
Soft
Soft (default) ✓
Constraint type inverse : Hard
Soft
Hard (default) ✓
Bounds principal components : Automatic ✓
User defined
Principal component info cutoff : 0.98
Principal component info cutoff : 0.98

(2) Seismic data parameters …(sci) : →
Seismic data : seis.mod
Wavelet start (s) : -0.064
Wavelet length (s): 0.128
Wavelet max. freq. 80

(3) Edit uncertainties …
3 Output → Generate …
■ Run now
Output solid model : pca_both
4 File → Save & Exit

InverMod → Model estimation … **ME**

1 Input :

(1) Me mode …→

Me mode :

- Geologic inversion (gi)
- Seismic character inversion (sci)
- Both ✓

(2) Solid model : pca_both (PCA)

(3) Wavelets …→

(4) Seismic data (gi) → seis.mod

(5) Seismic data … (sci) → seis.mod

(6) Wells …→

(7) Logs…→

(8) Trace gate …

(9) Time gate …

- Use horizons

Set horizons file …→ *Tinterface.hor

Top horizon

Bottom horizon

2 Edit:

(1) Wavelet interpolation …→

(2) Seismic parameters …→

Maximum frequnce (HZ) : 80 200

(3) Estimation parameters …

Standard deviation weight misfit : 0.2

Standard deviation trace scale misfit : 0.1

Standard deviation wavelet start time : 0.004 s

3 Output → Generate …

- Run now

Output solid model

pca_both _me

4 File → Save & Exit

InverMod → Model generator …

1. 1 Input :

(1) Solid model → pca_both_me me

(2) Data for seismic modeling

Wavelets …→ 1

Seismic data …→ seis.mod

(3) Trace gate …

2 Edit :

(1) Modeling parameters …

Time sample interval : 0.001 s 0.0005

Depth sample interval : 2 m 1

310

0.25

(2) Edit data for seismic modeling

Wavelet interpolation …→

Time gate …→

- Use horizons

Set horizons file …→ *Tinterface.hor

Top horizon

Bottom horizon

3 Output → Generate …

- Run now

: *.mod

Ok

4 File → Save & Exit

5

/project/pca_both/areal_weight.hor
/project/pca_both_me / areal_weight.hor
/project/pca_both_me/*syn.m*
/project/pca_both_me/Tinterface.hor
/project/pca_both_me*.mod …..