

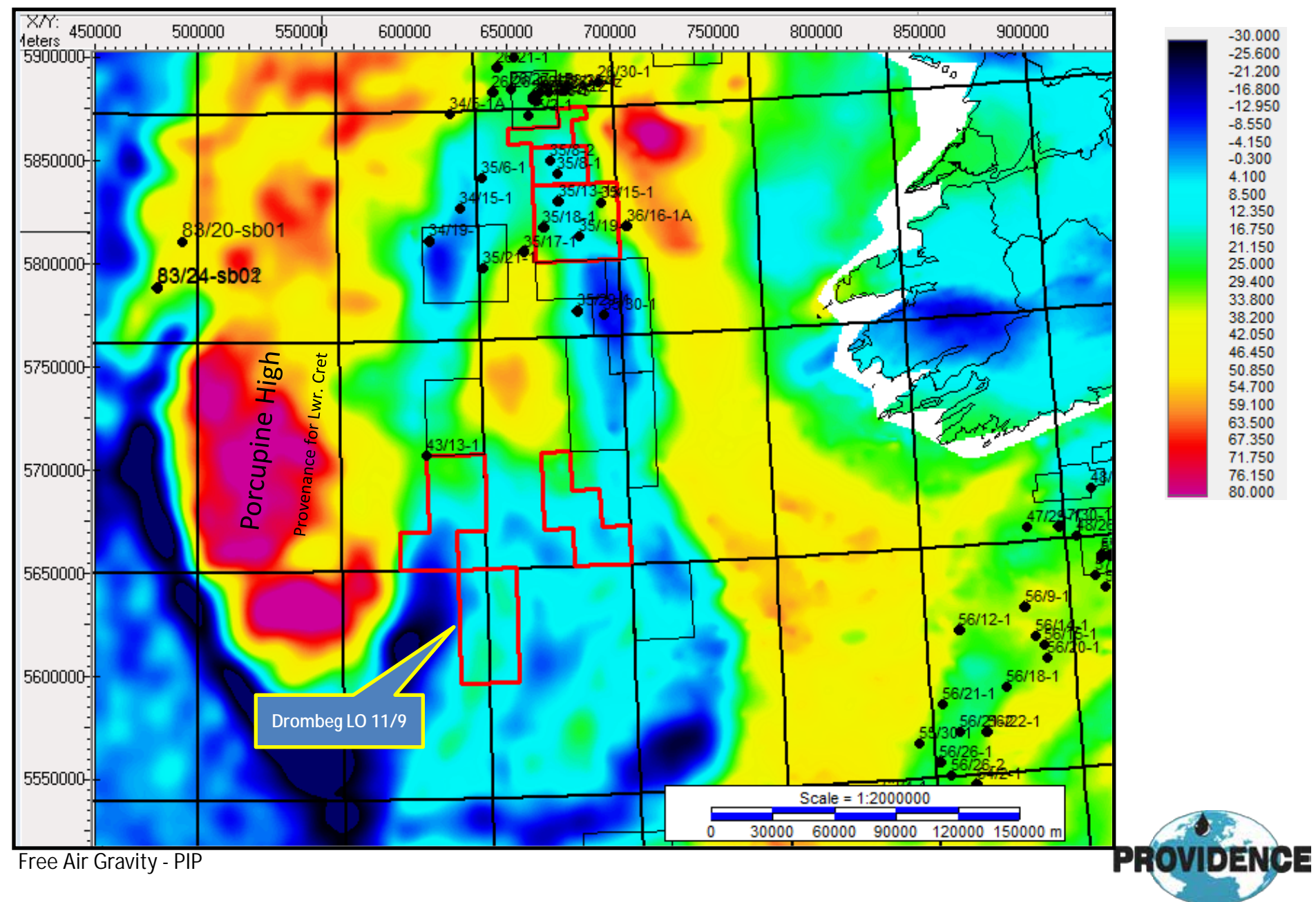
ATLANTIC IRELAND 2012 PROSPECTS 2 GO DROMBEG PROSPECT SOUTHERN PORCUPINE BASIN

Keith Byrne
kbyrne@providenceresources.com



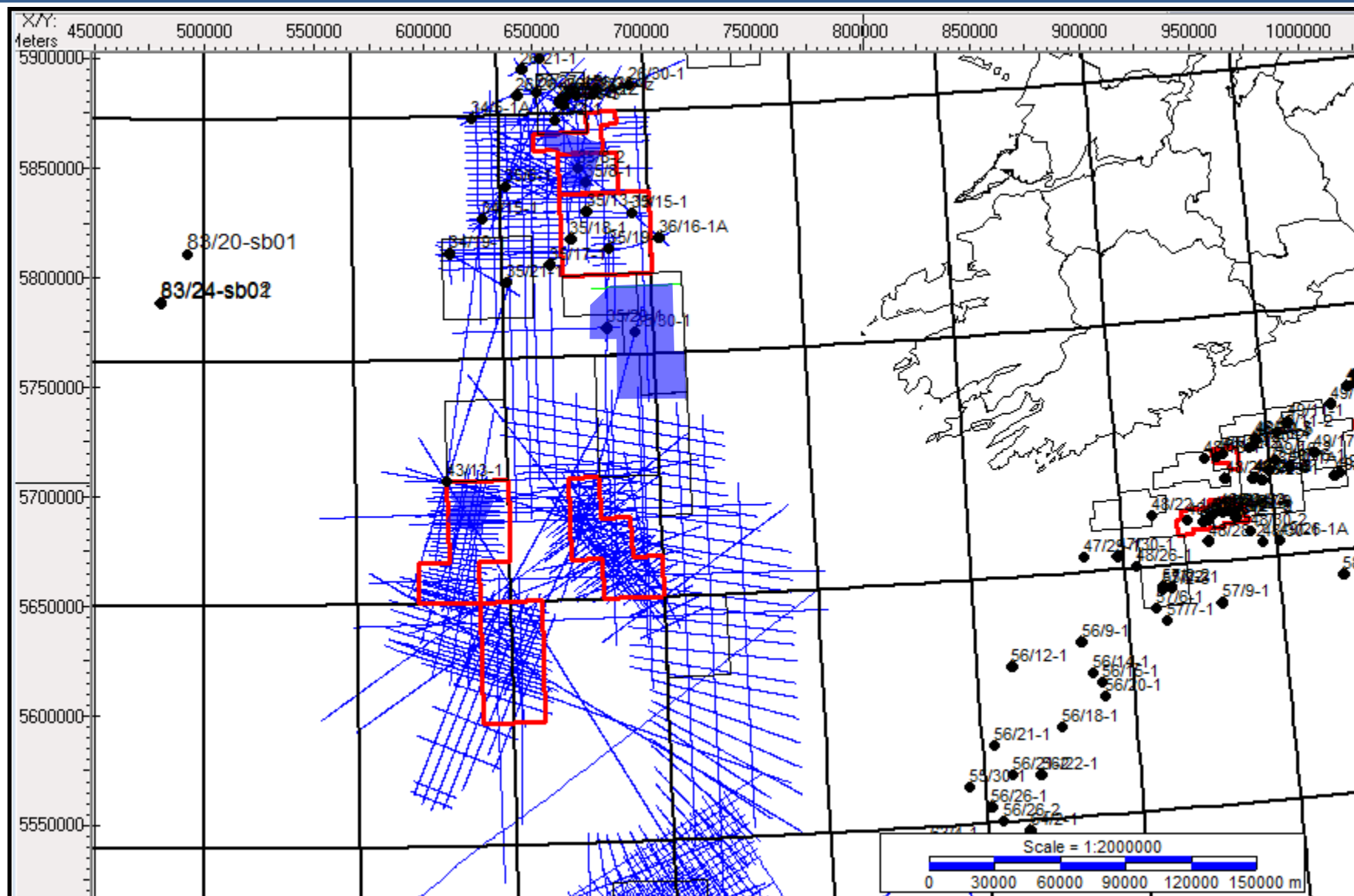
- Strong consistent AVO & Impedance Anomaly
- Deepwater turbidite fan system
- Large volume with P50 in-place of 2970 MMBO
- Charged by a fluid escape feature

LOCATION MAP





DATABASE

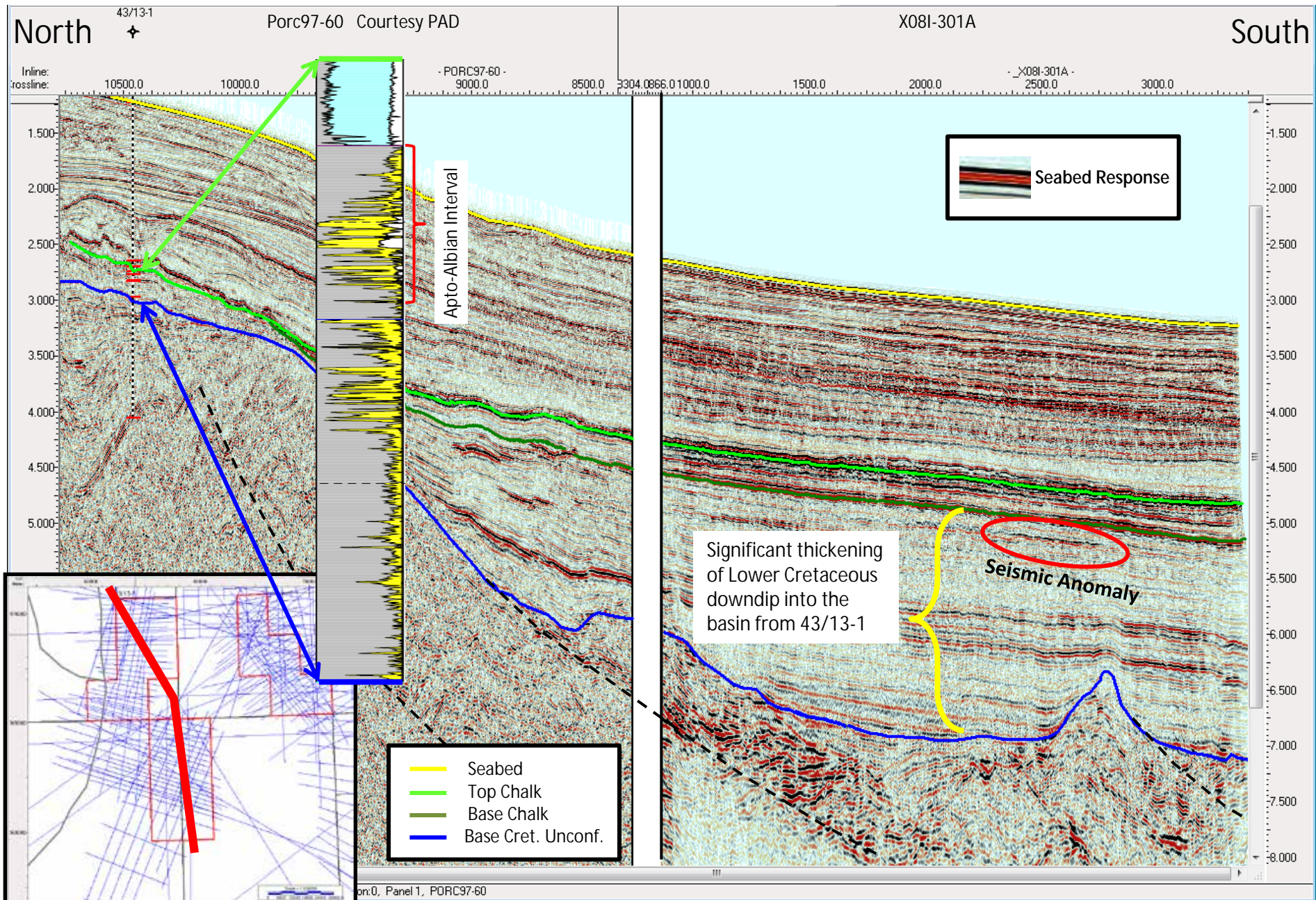


Significant proprietary database around Drombeg

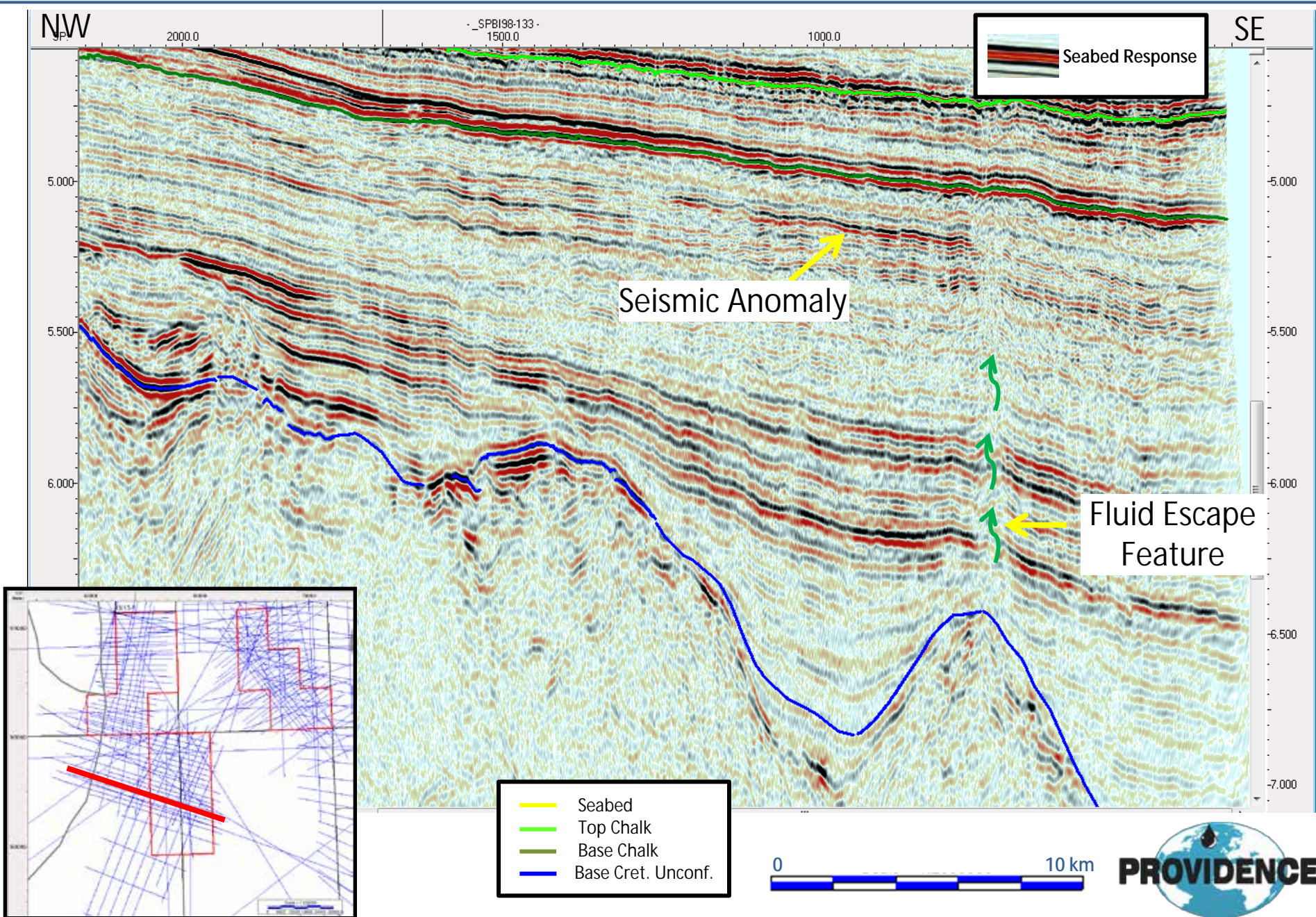




COMPOSITE REGIONAL SEISMIC LINE

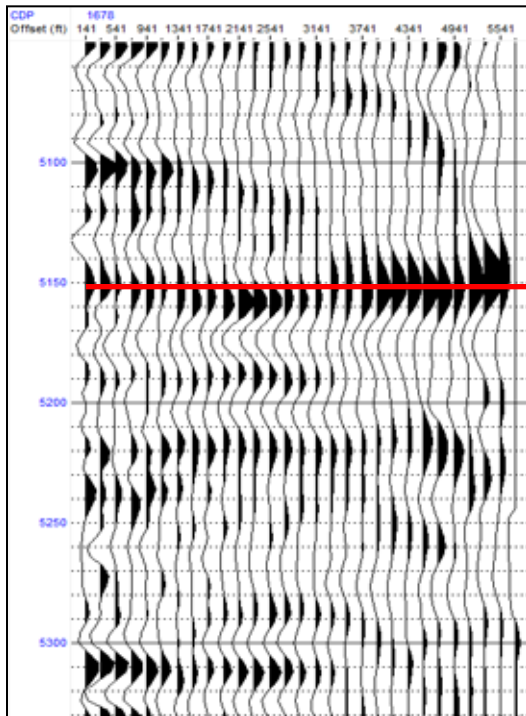


REPROCESSED SPBi98-133

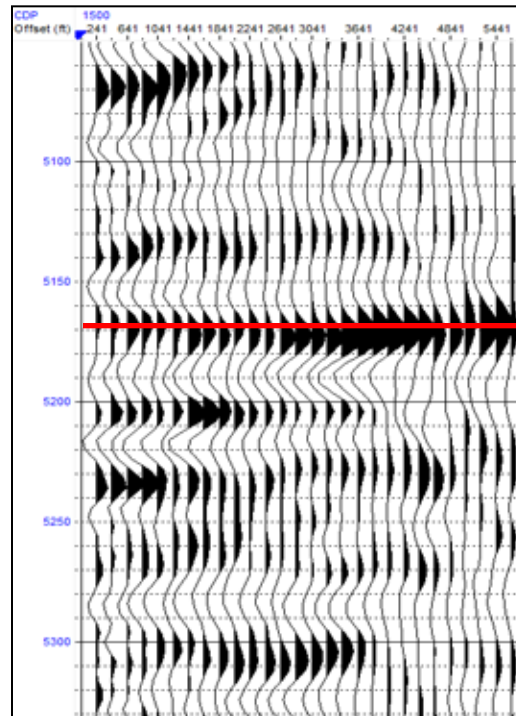


PRESTM GATHERS

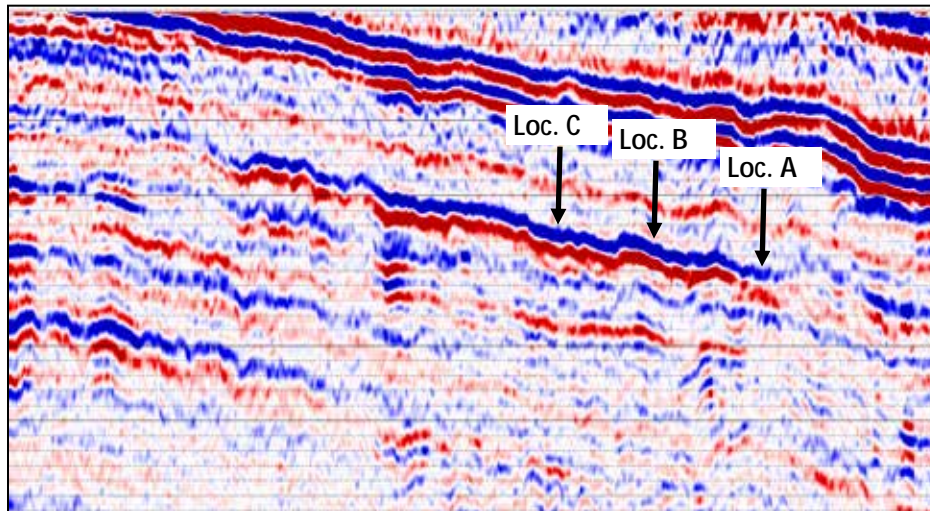
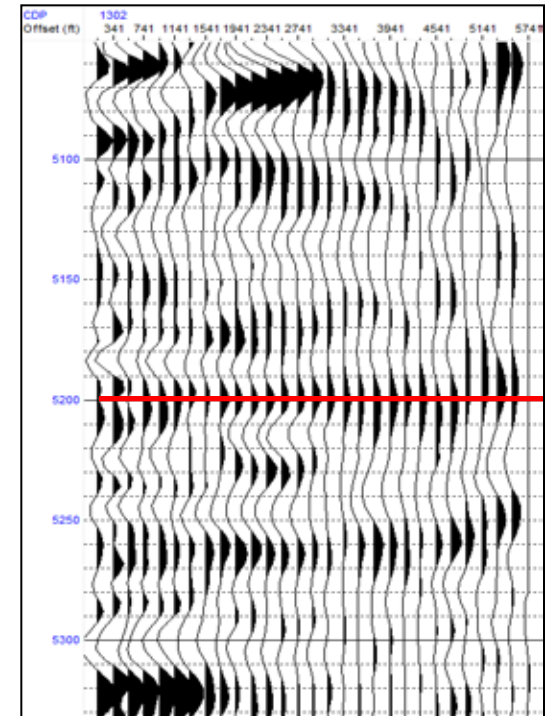
CDP 1678 – Loc. C



CDP 1500 – Loc. B



CDP 1302 – Loc. A



Offset gather AVO response

- Peak = soft (north-sea normal polarity)
- Negative intercept and negative gradient
- Softening with offset

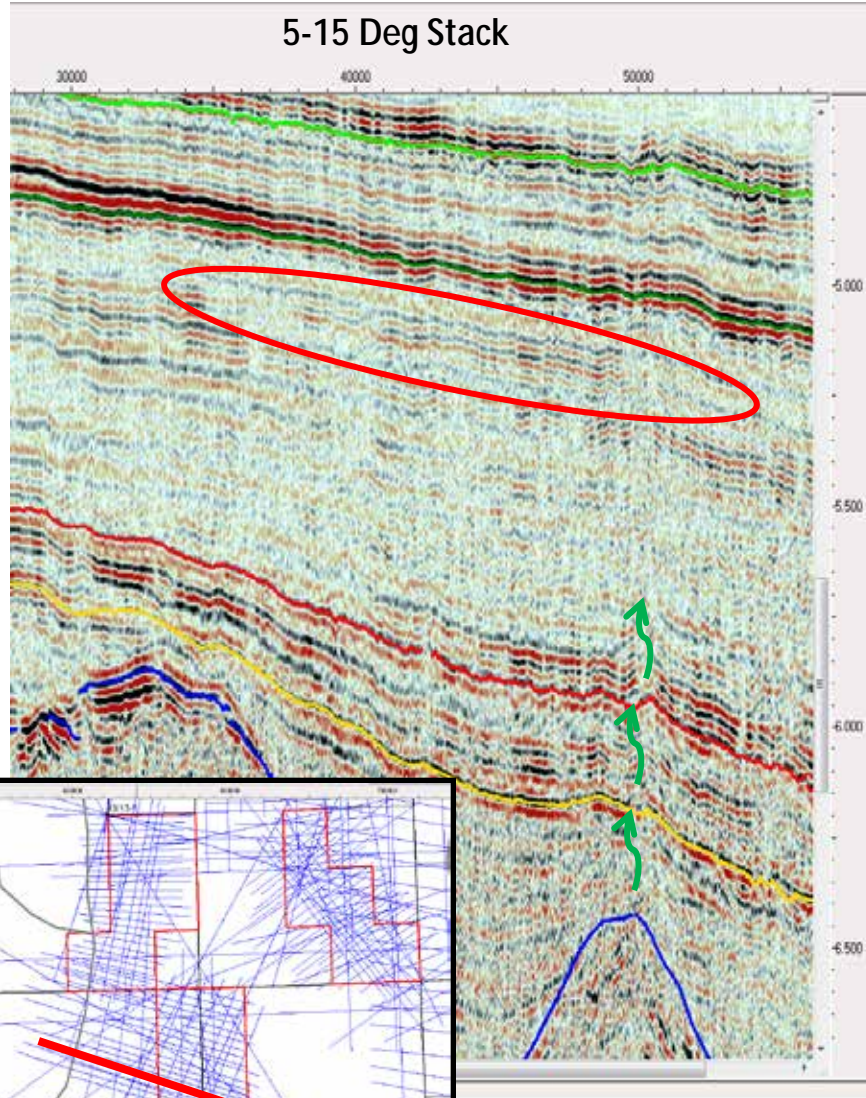
Class II AVO response



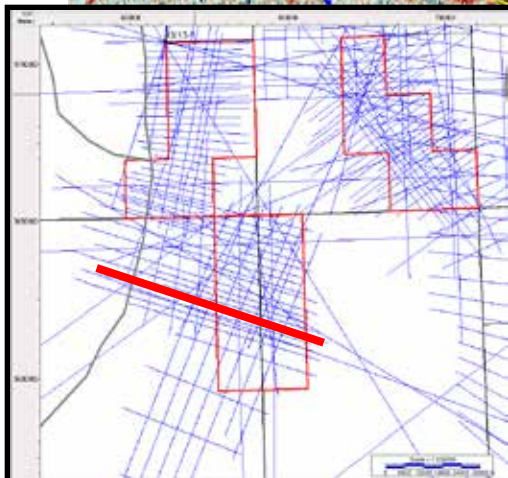
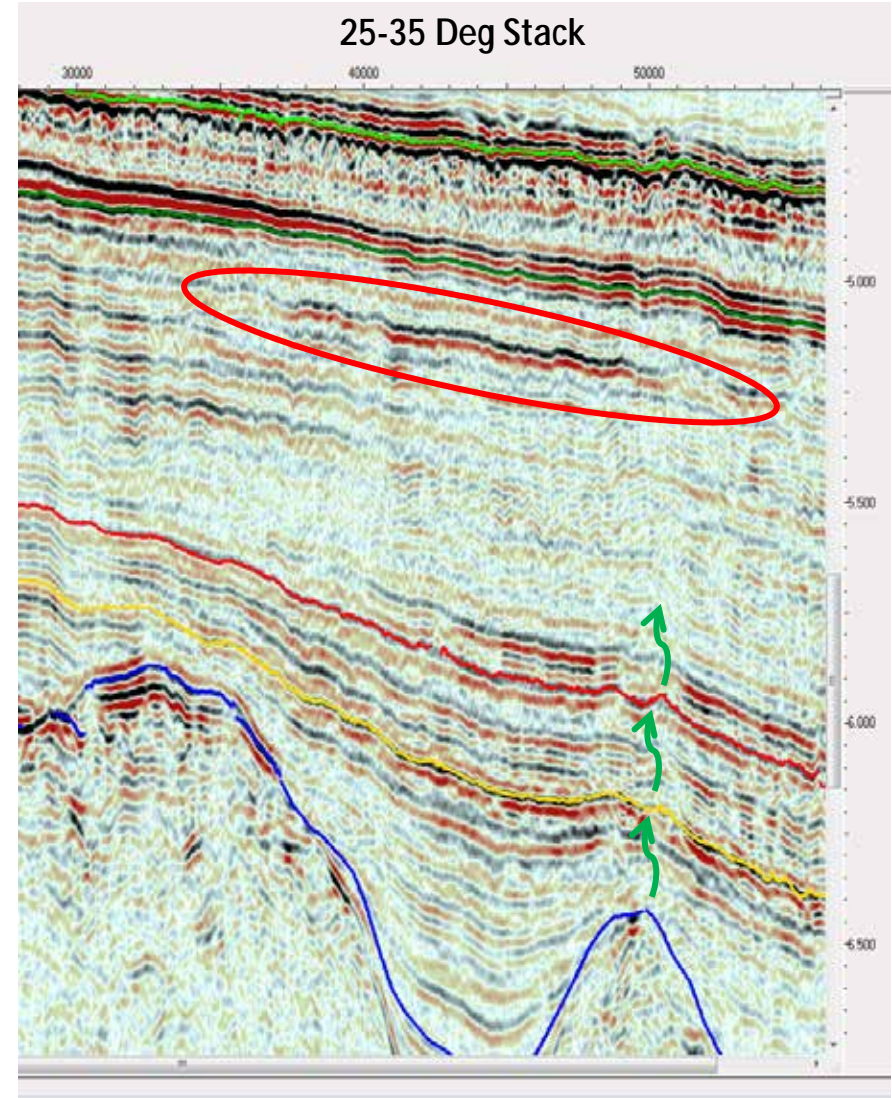


SPBi98-133 ANGLE STACK COMPARISON

5-15 Deg Stack



25-35 Deg Stack

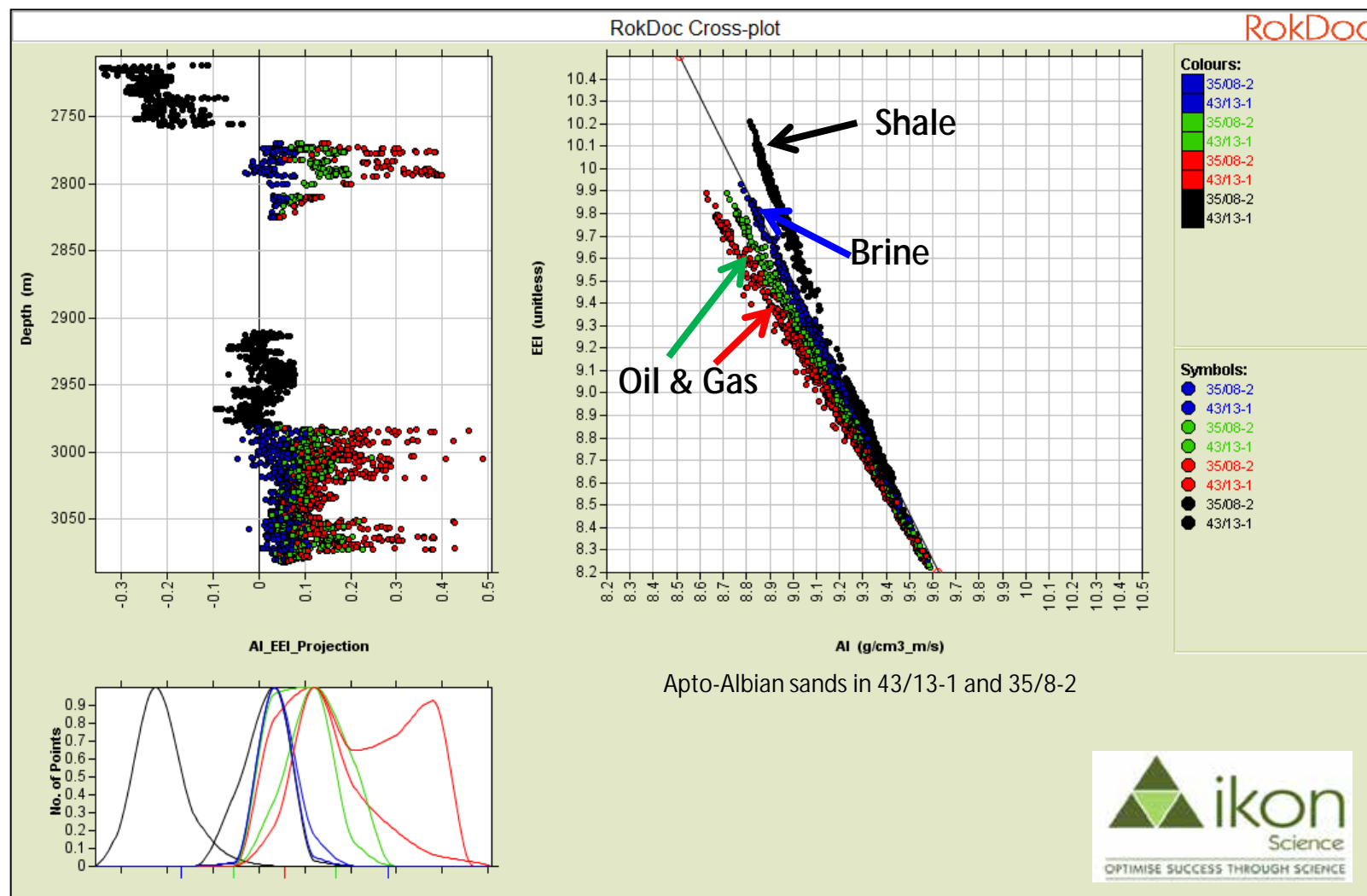


— Top Chalk
— Base Chalk
— Base Cret. Unconf.

0 10 km



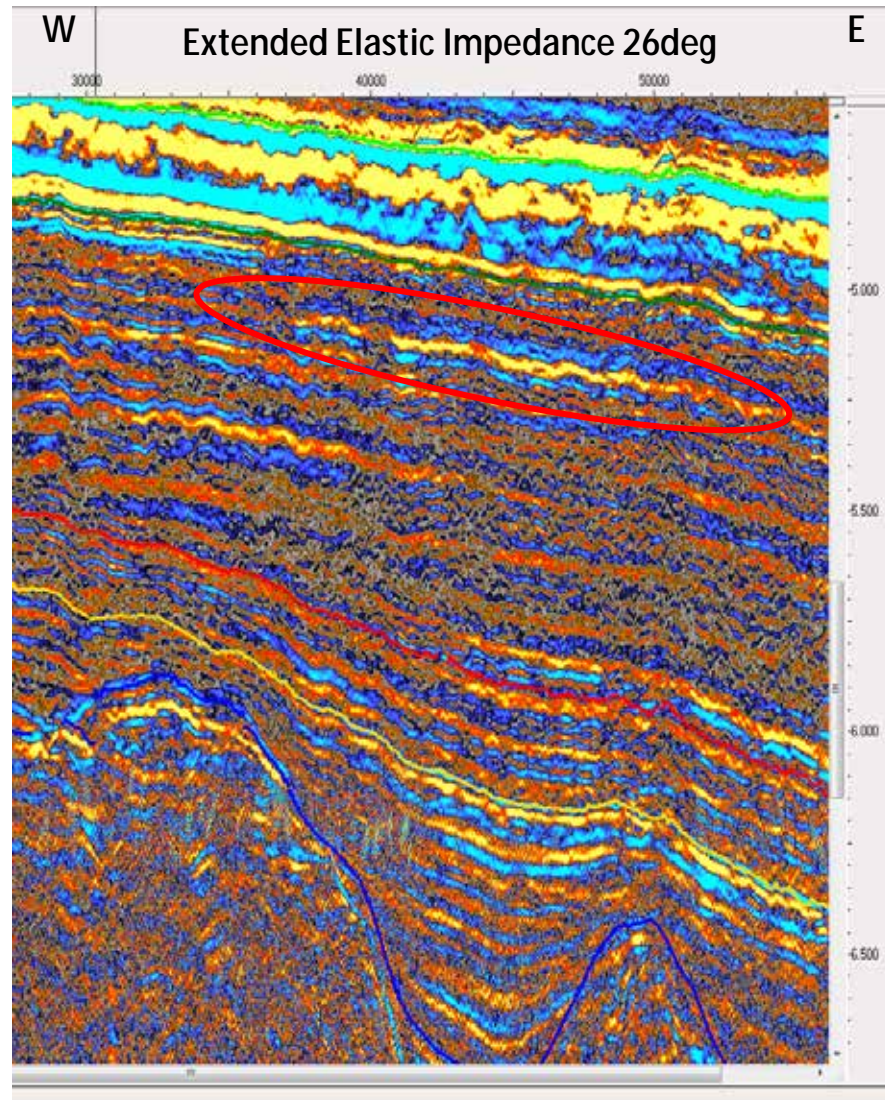
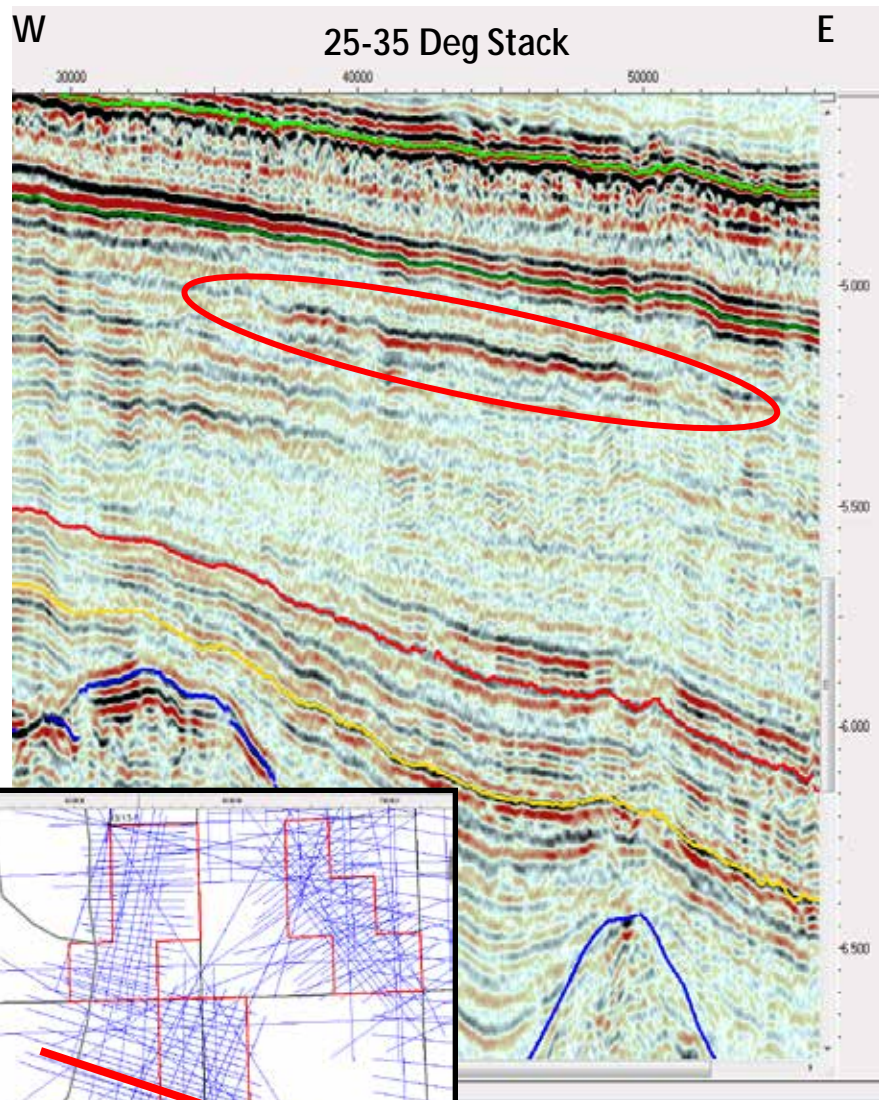
ROCK PHYSICS - IKON



Impedance cross-plotting for each fluid case indicates that absolute values of Poisson's ratio could be used to separate fluid fills and that EEI projections of $21^\circ\chi$ and $26^\circ\chi$ could be used to indicate lithology and fluid fill .



SPBi98-133 FAR STACK & EEI

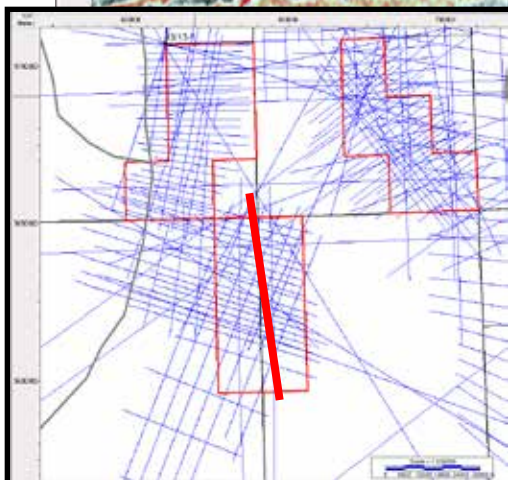
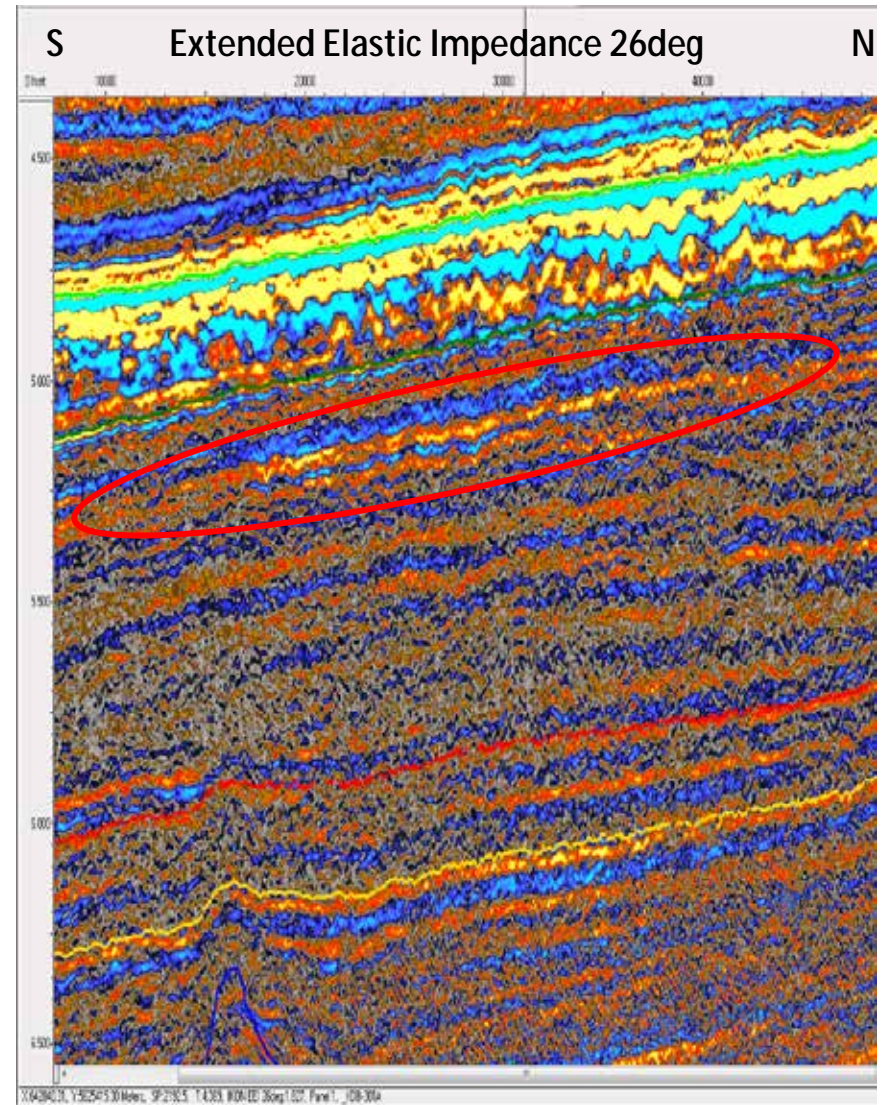
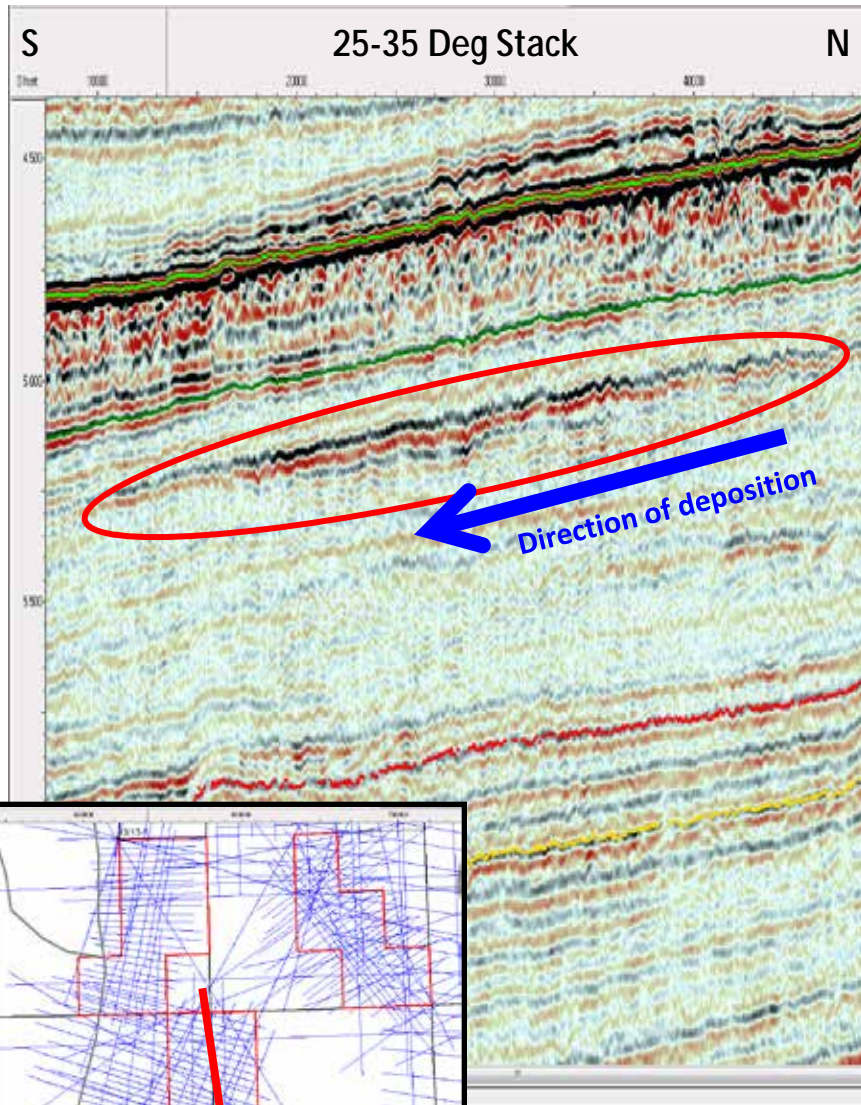


— Top Chalk
— Base Chalk
— Base Cret. Unconf.

0 10 km



X08I-301 FAR STACK & EEI

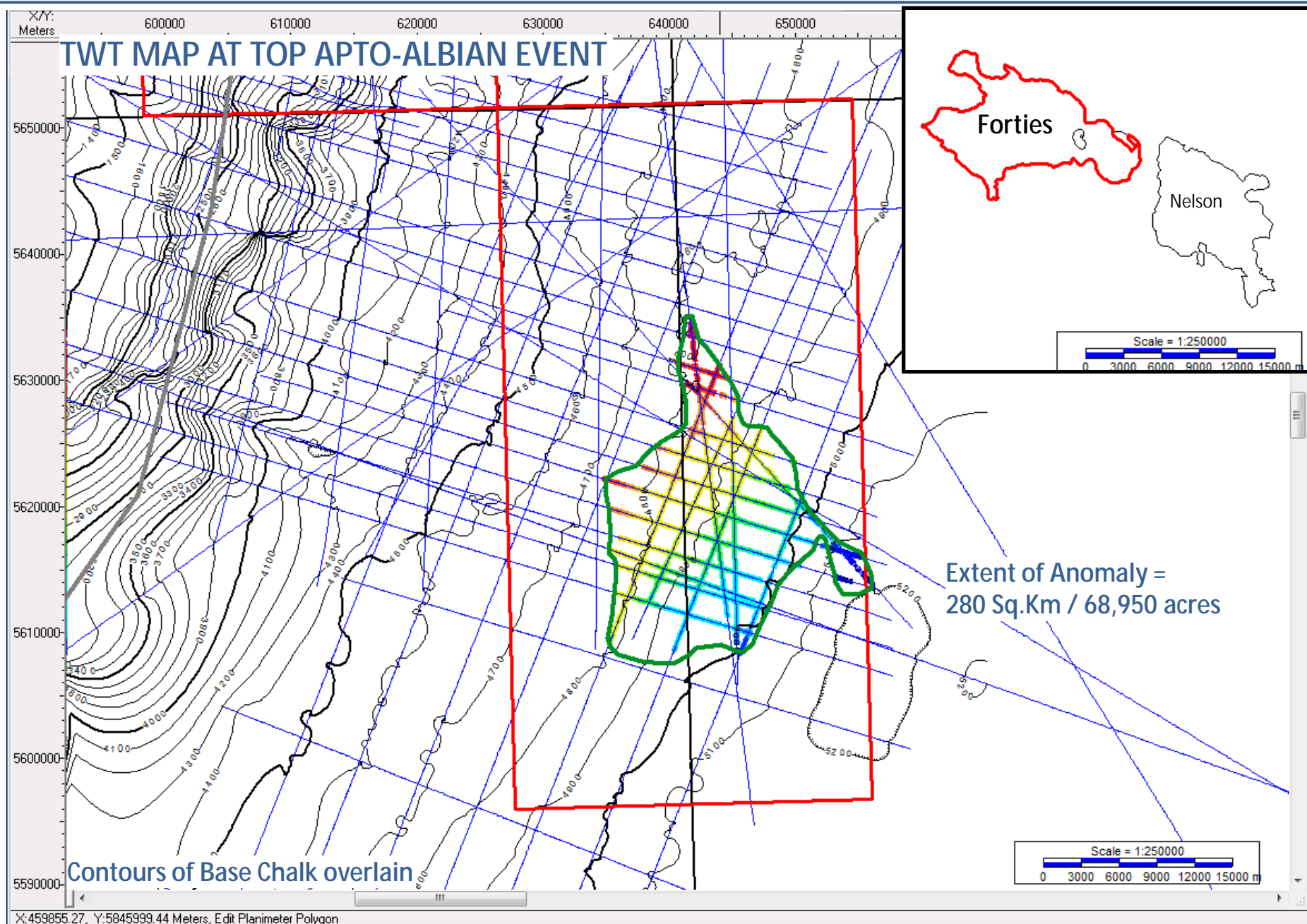


Top Chalk
Base Chalk
Base Cret. Unconf.

0 10 km

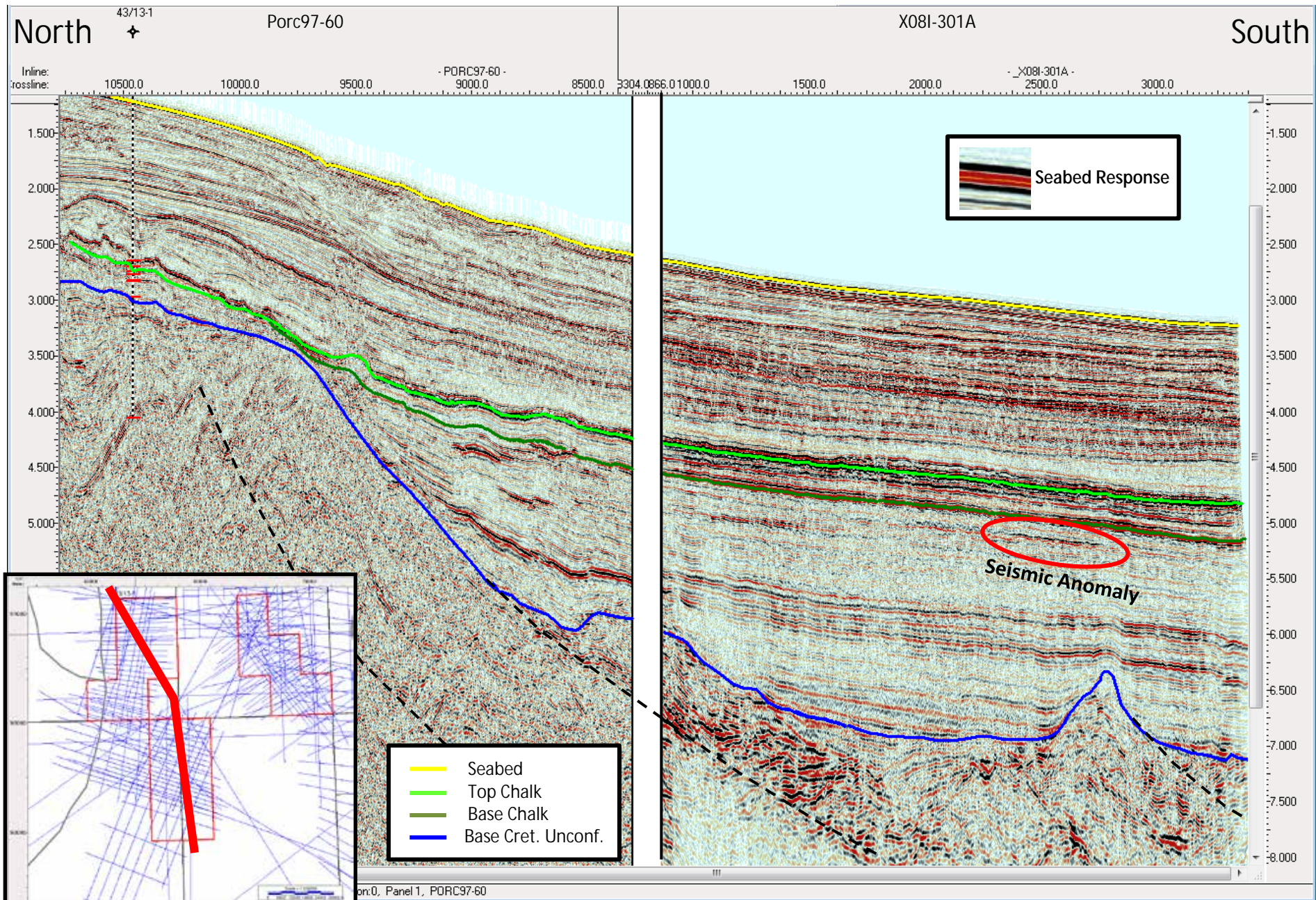


APTO-ALBIAN ANOMALY MAP

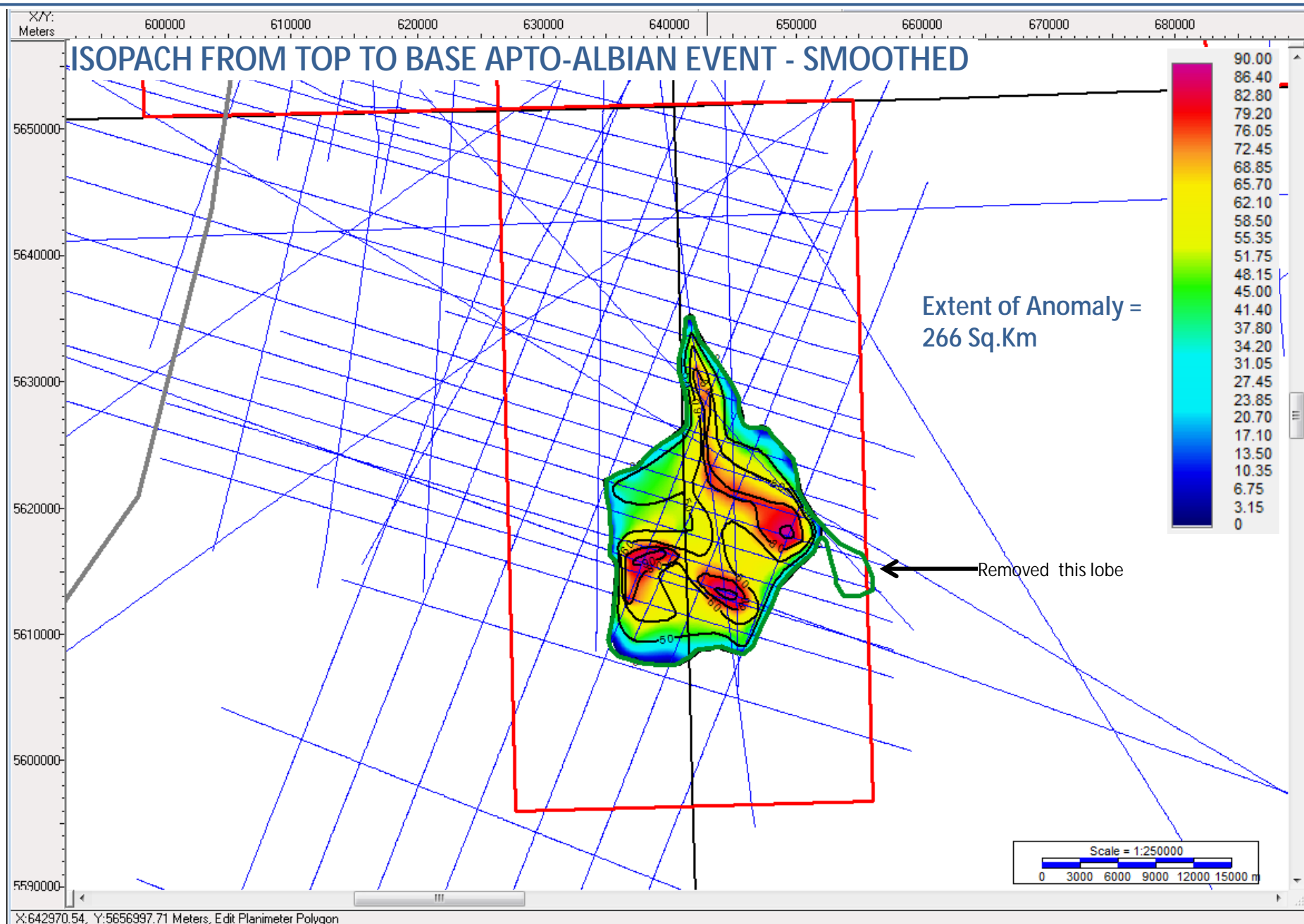




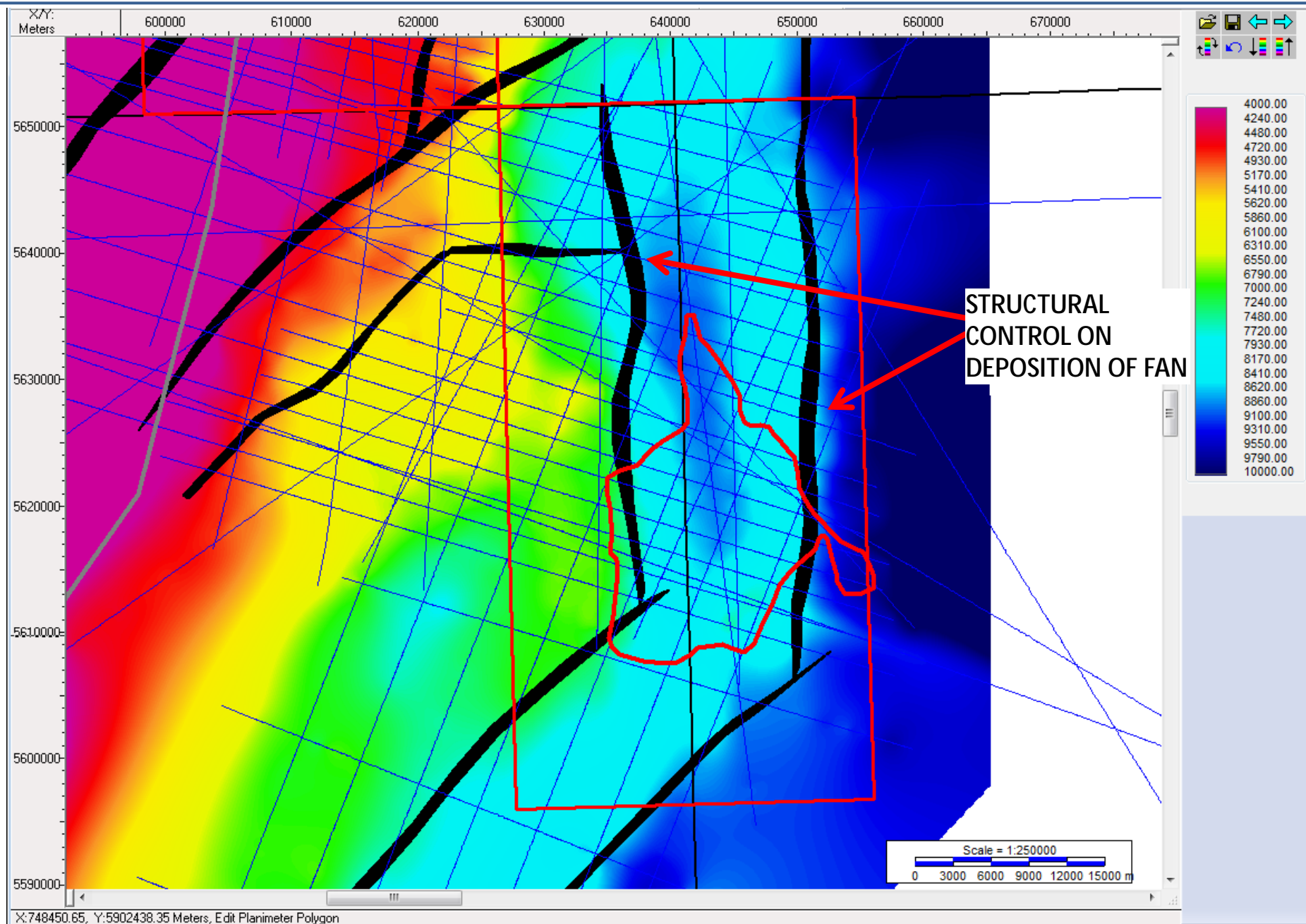
COMPOSITE REGIONAL SEISMIC LINE



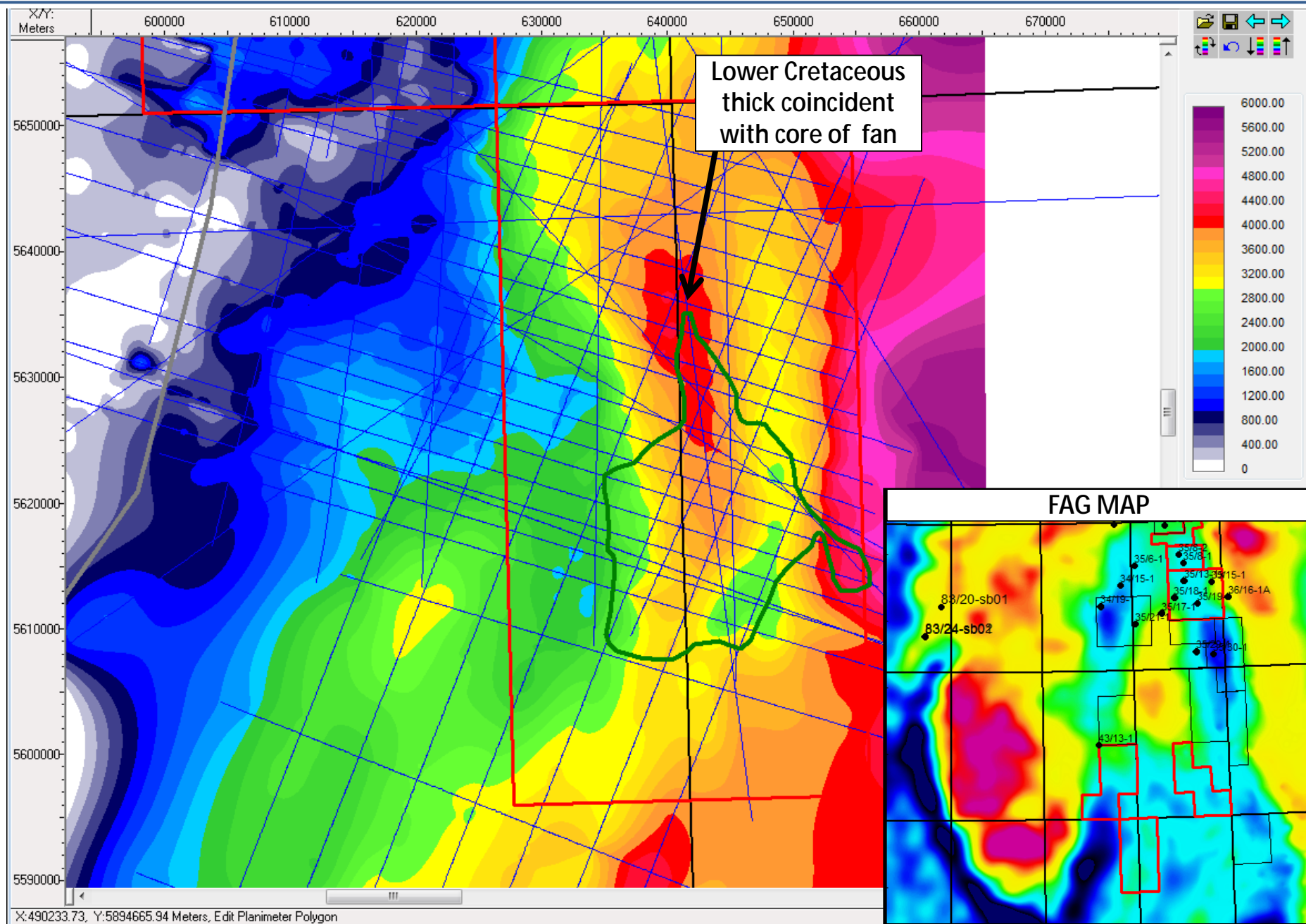
ISOPACH MAP FROM SEISMIC



BASE CRETACEOUS DEPTH MAP



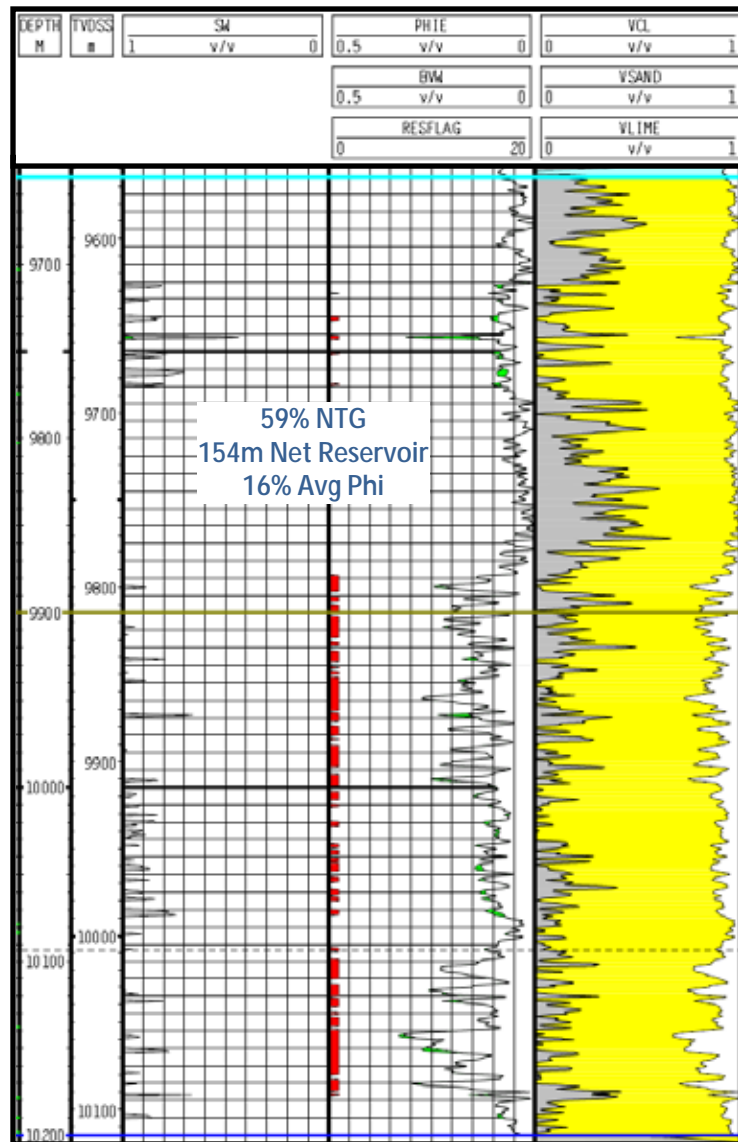
LOWER CRETACEOUS ISOPACH



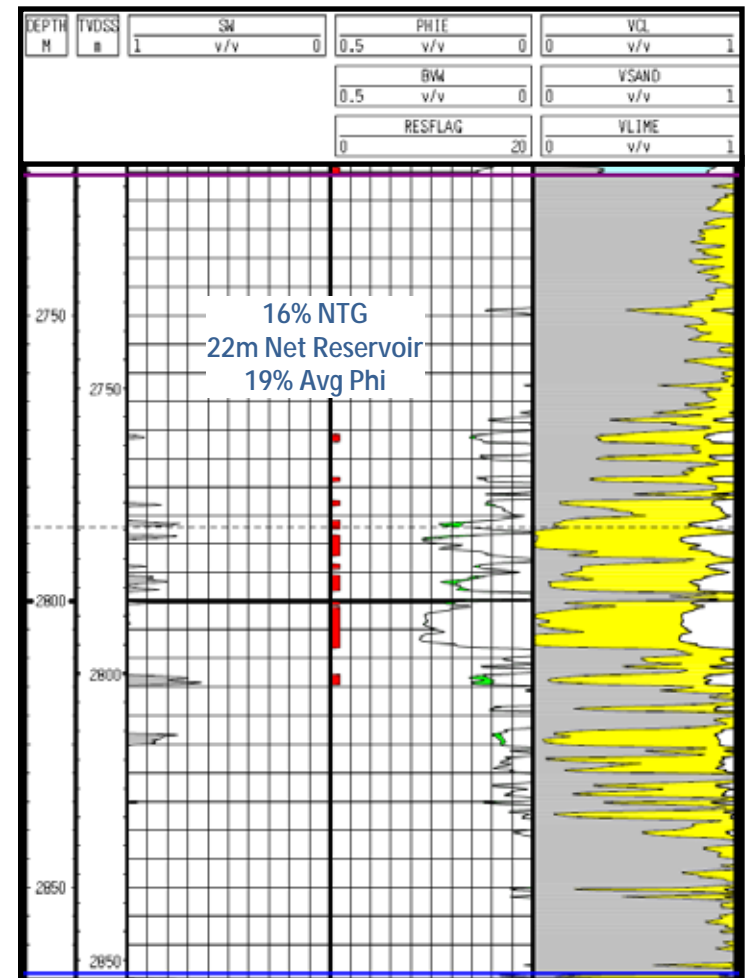


APTO-ALBIAN IN PORCUPINE BASIN

CPI 35/8-2



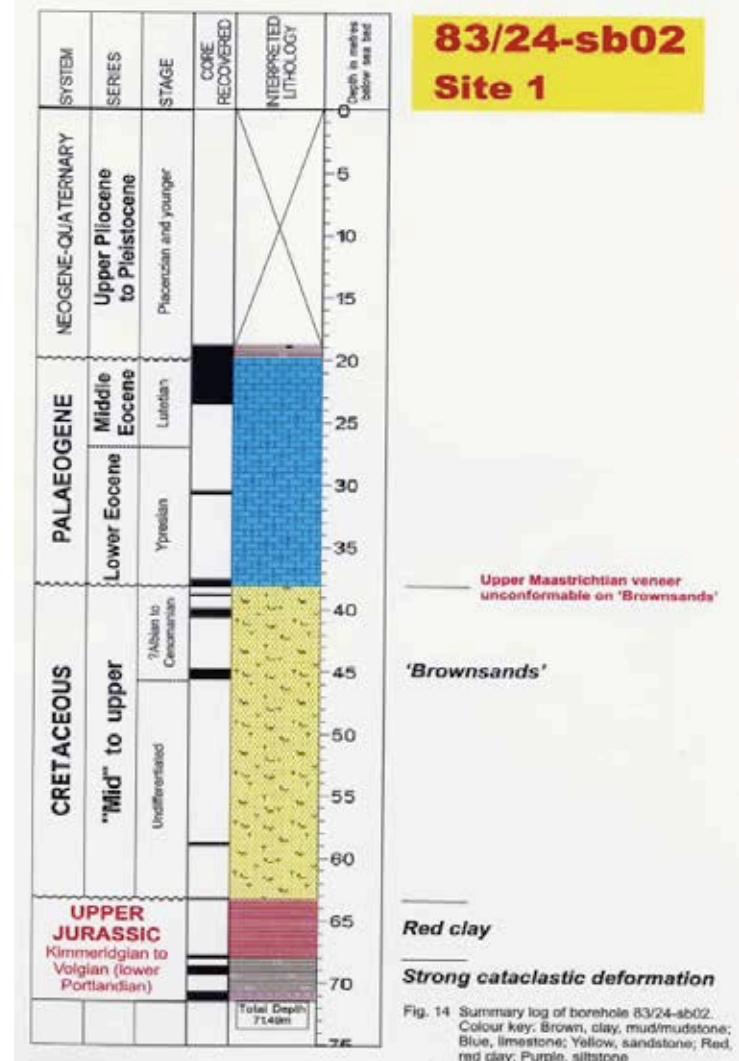
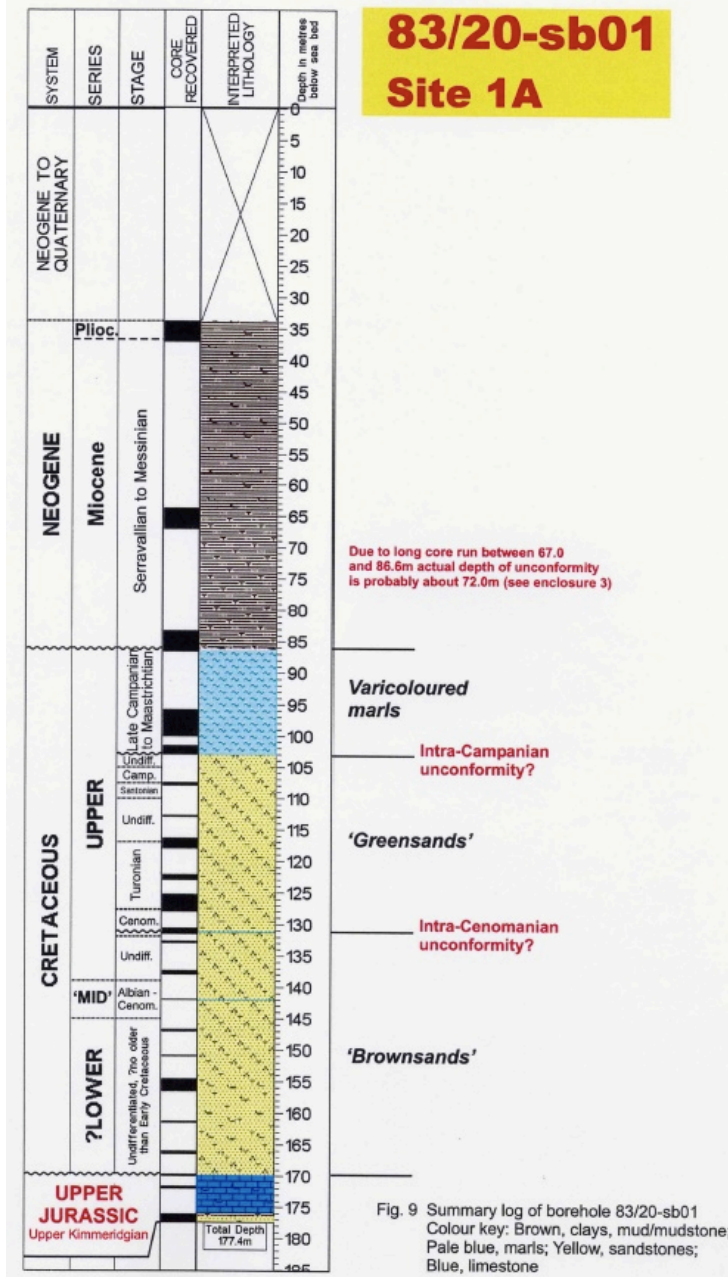
CPI 43/13-1



Depositional environment described as shoreface sands

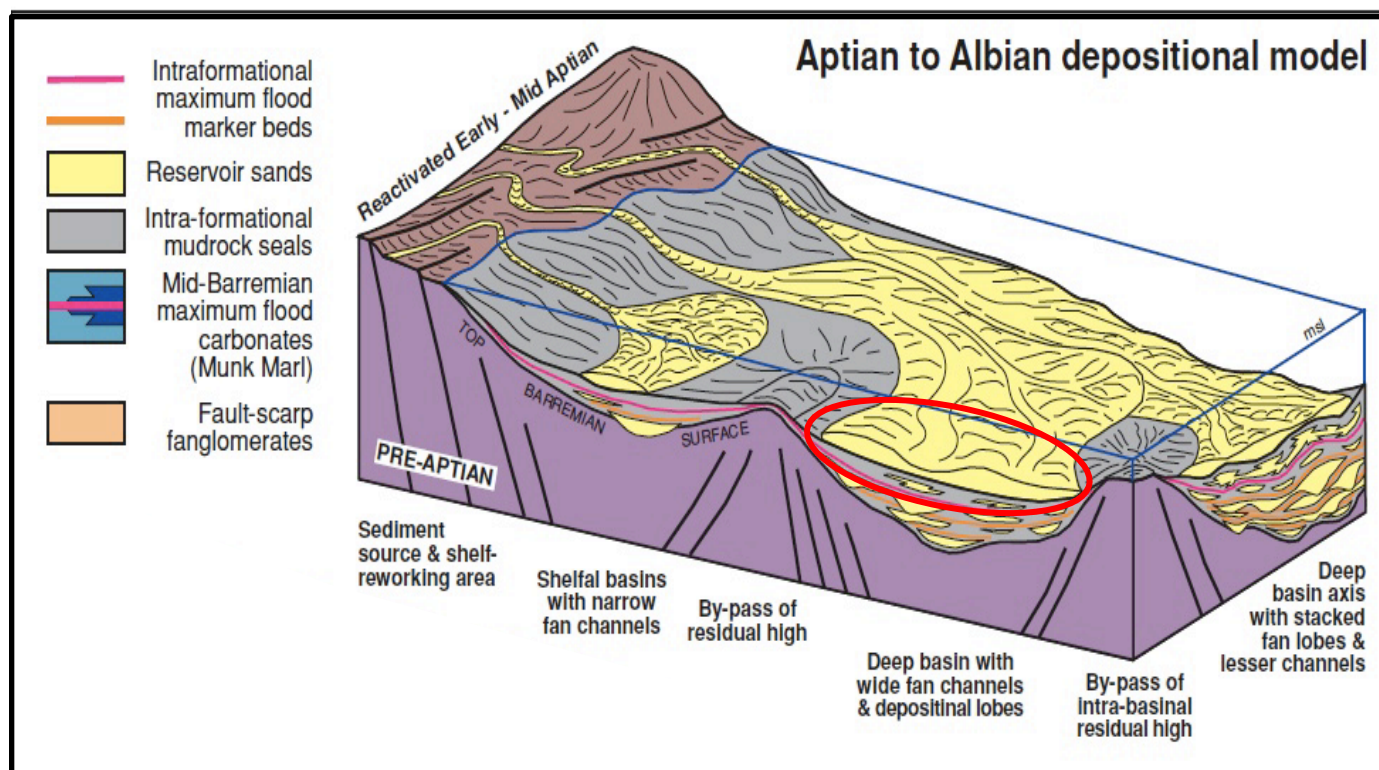


APTO-ALBIAN ON PORCUPINE HIGH



DEPOSITIONAL ENVIRONMENT

Drombeg Lower Cretaceous is interpreted to be a deepwater turbidite fan, the distal equivalent to the shoreface sands encountered in 35/8-2 and 43/13-1.



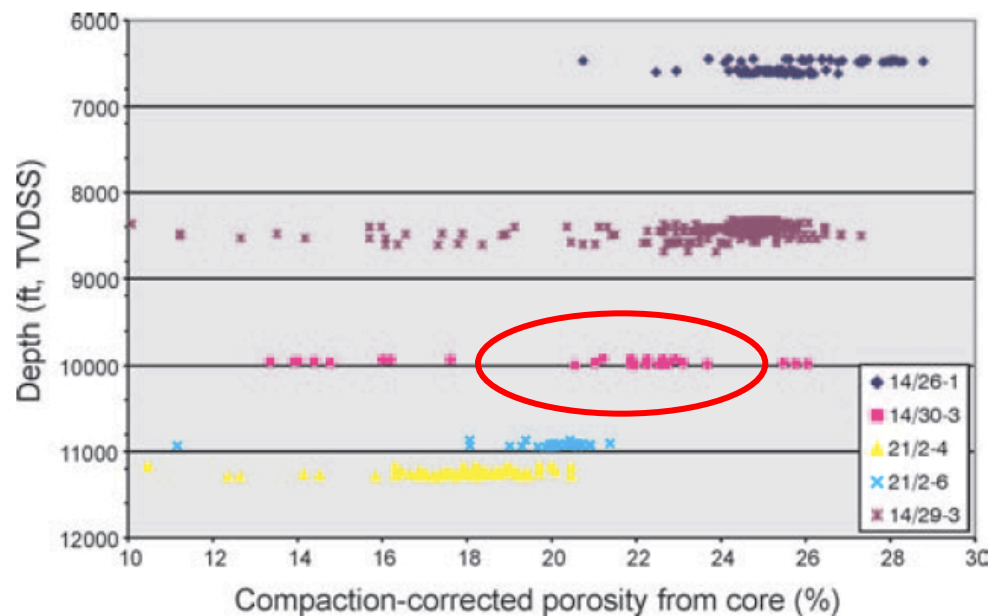
Oakman, 2005. – Lwr Cret plays of the Central and Northern North Sea



RESERVOIR PROPERTIES IN ANALOGOUS FIELDS

The Apto-Albian Kopervick Sands in the North Sea are believed to be an analogue. These sands are the reservoir for Captain, Blake, Cromarty, Atlantic, Goldeneye, Hannay, Glenn and Britannia fields.

“Typically the sandstone has excellent reservoir properties (a thickness of 200-300ft; 0.7 – 0.95 net-to-gross; 20-30% porosity) and darcy grade permeabilities”. Wilson, 2003. The Discovery of Goldeneye



Wilson 2003

Period	Age	'Amerada' Scheme from regional correlation	'Talisman' Scheme based on Cromarty (13/30) wells
Early Cretaceous	Albian	RODBY FORMATION	RODBY FORMATION
	Aptian	SOLA (CARRACK) FORMATION	SOLA FORMATION
	Barremian	VALHALL FORMATION	VALHALL FORMATION

Law 2000



SOURCE & MIGRATION

Oil is interpreted to be the HC type.

Kimmeridge clay – proven in 43/13-1 in basal margin location

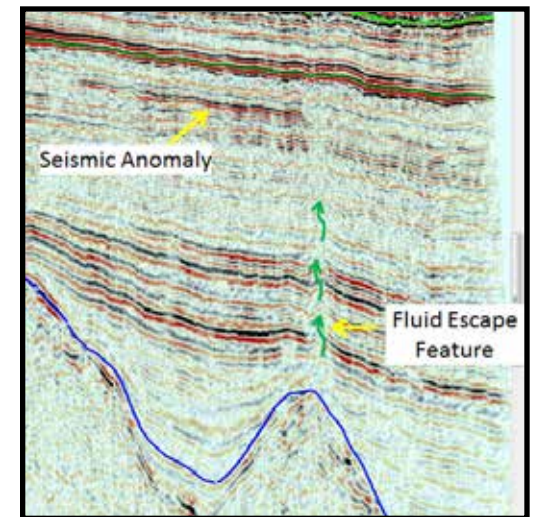
The South Porcupine Basin is believed to be cooler than historically quoted.

- Brittle deformation evident on long-offset seismic to depths of >10km
- Thick crust interpreted in South Porcupine by DIAS
- The conjugate Orphan Knoll Basin was found to be cooler than expected

A fluid escape feature is evident on seismic data from the crest of the underlying Jurassic tilted fault block.

Providence interpret the fluid escape feature as evidence of an early oil charge into the underlying Jurassic fault block which is remigrating up to the Lower Cretaceous.

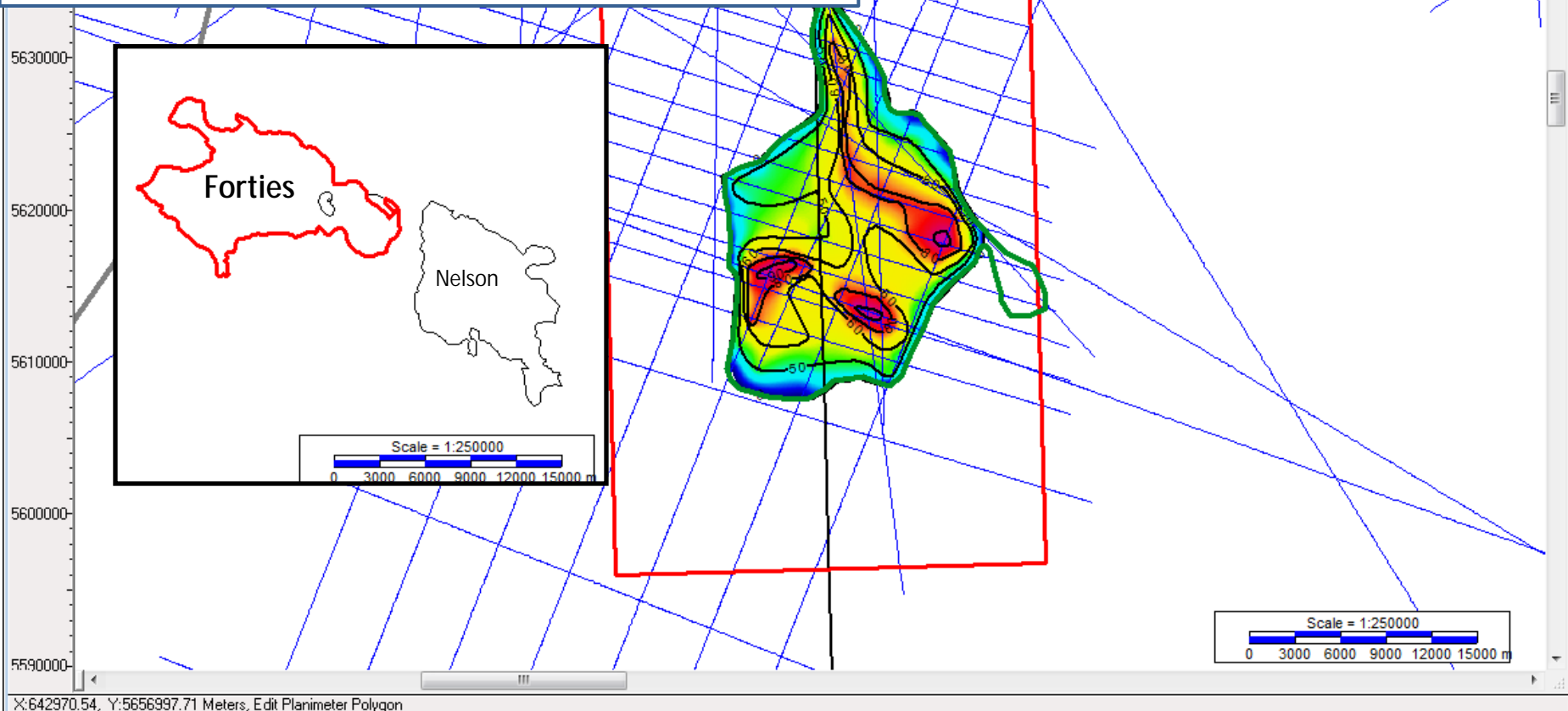
Remigration model similar to that proposed for the BP-operated giant Foinaven and Schiehallion Fields in the UK West of Shetlands



PROBABILISTIC VOLUMETRIC INPUT PARAMETERS

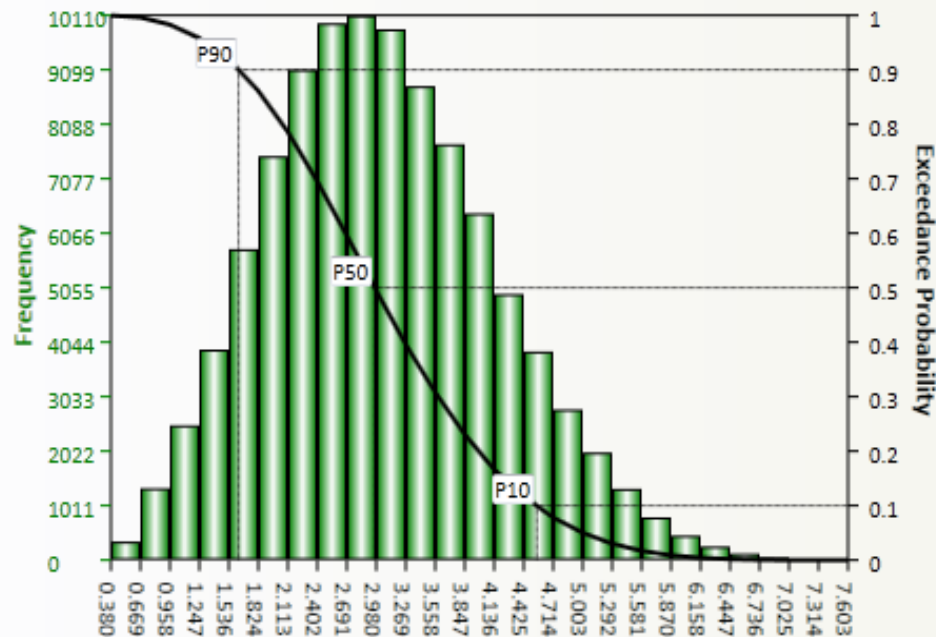
Mapped Anomaly Extent	266sqkm (removing detached lobe)
Seismic Isopach	0m to 90m (average 55m)
Analogue NTG	up to 95% (used 10-90%)
Analogue Porosity	up to 26% (used 10-25%)
Standard Sw assumption	15-35%
Standard recovery	20-40%

Calculated Bt	1.967 RB/STB
Assumed GOR	1500 Scf/Bbl



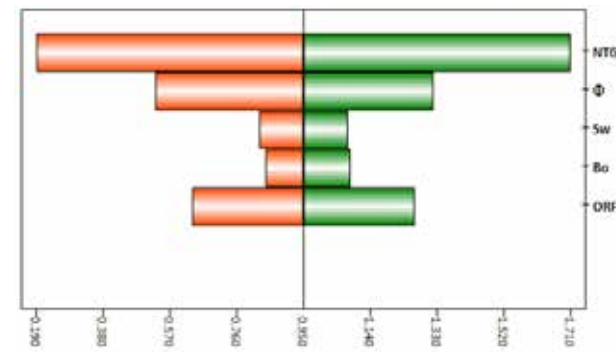
VOLUMETRIC CALCULATION

	P10	P50	P90
In-Place Oil (BB)	4.552	2.965	1.631
Assoc. Gas (TCF)	6.83	4.45	2.45
Rec. Oil (BB)	1.367	0.872	0.478
Assoc. Gas (TCF)	2.05	1.31	0.72



Oil: Hydrocarbon In-Place B (STB)

<input checked="" type="checkbox"/> Net/Gross (NTG):	Normal-P99/P01	0.1	0.50	0.9
<input checked="" type="checkbox"/> Porosity (Φ):	Normal-P90/P10	0.1	0.18	0.25
<input checked="" type="checkbox"/> Water saturation (S_w):	Normal-P90/P10	0.15	0.25	0.35
<input checked="" type="checkbox"/> Oil volume factor (B_o):	Normal-P90/P10	1.727	1.97	2.224
<input checked="" type="checkbox"/> Oil recovery factor (ORF):	Normal-P90/P10	0.2	0.30	0.4



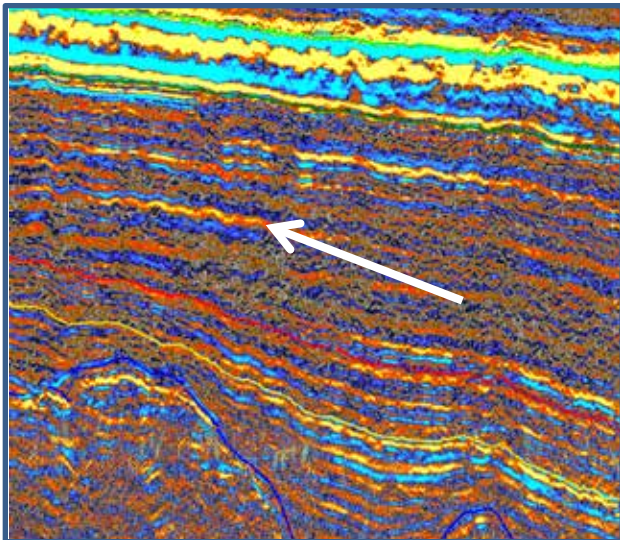
Oil: Rec. Hydrocarbon In-Place B (STB)



ADDITIONAL POTENTIAL

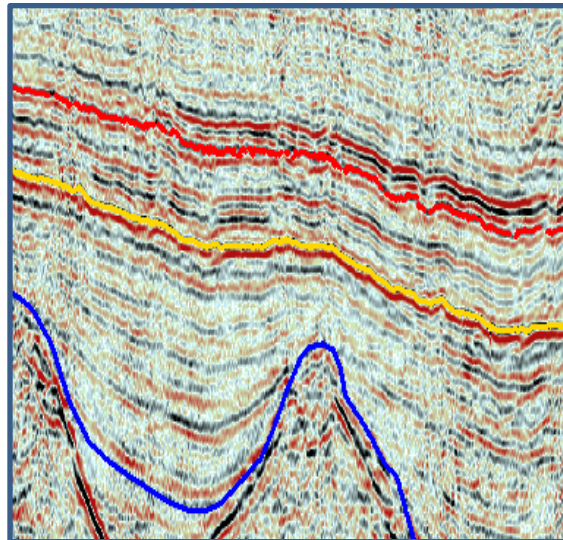
Lwr Cret

- Several other targets with EEI response
- Detailed mapping ongoing
- Success on Drombeg would calibrate the EEI response and de-risk other potential



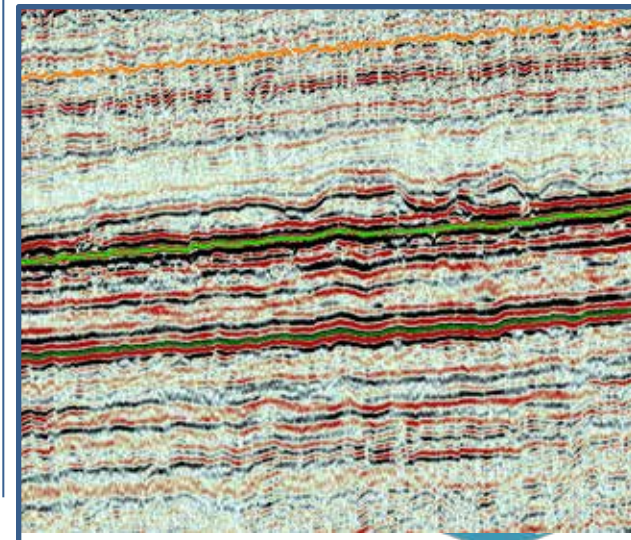
Jurassic

- Underlying Jurassic tilted fault block
- 141sq.km of closure (35,000 acres)
- Fluid escape feature at crest of fault block
- Possible early oil charge, later displaced by gas



Paleocene

- Significant mounded feature mapped in Paleocene – 295sq.km.
- Deep water fan / debrite
- Same structural control on deposition as Drombeg Lwr. Cretaceous
- Exhibits strong AVO anomaly
- Stacked vertically above Drombeg Lwr. Cretaceous



SUMMARY

- Strong consistent AVO & Impedance Anomaly
- Deepwater turbidite fan system
- Large volume with P50 in-place of 2970 MMBO
- Charged by a fluid escape feature

