



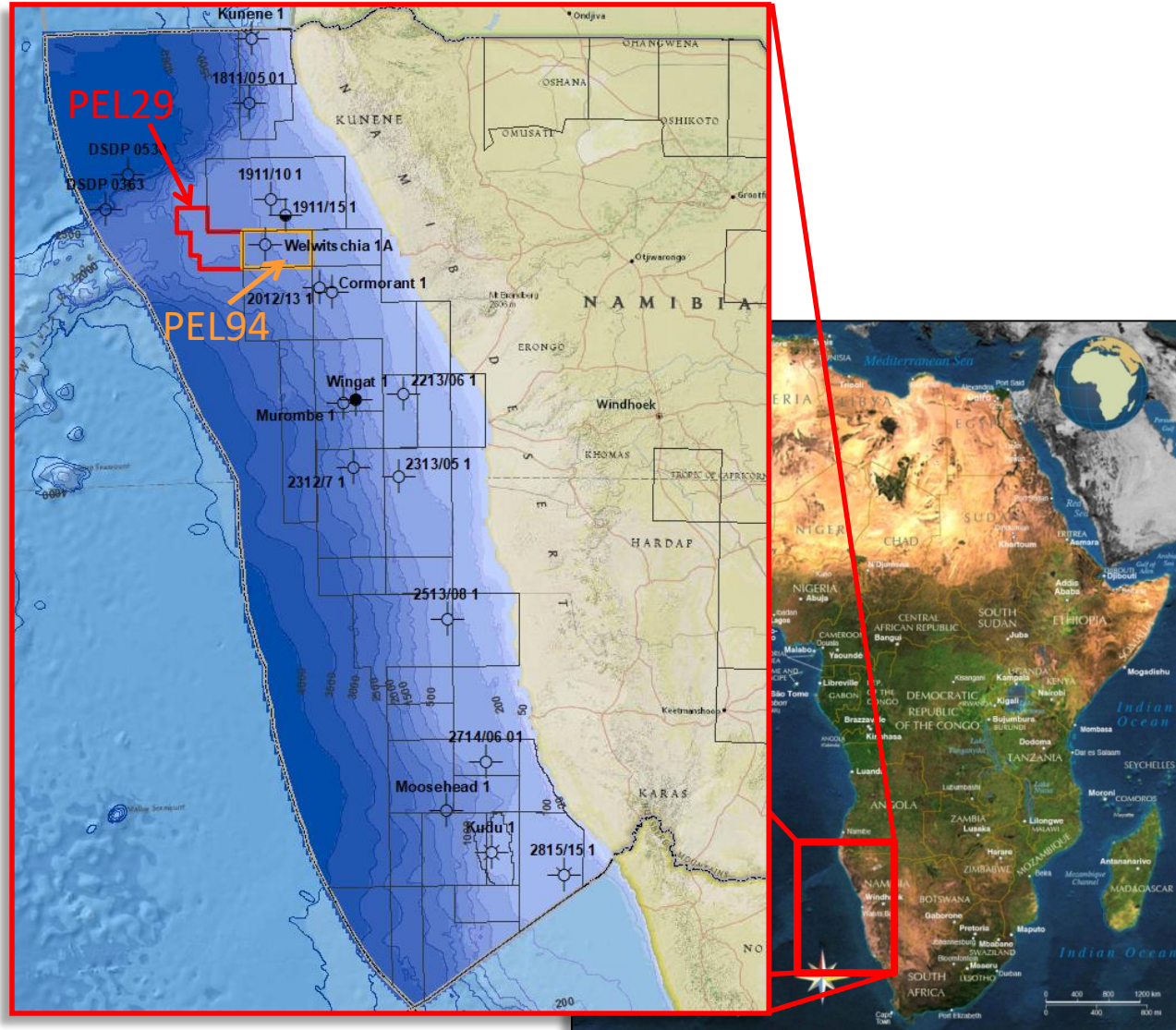
Walvis Basin, Namibia:

now all petroleum system elements are proven, where are the traps?



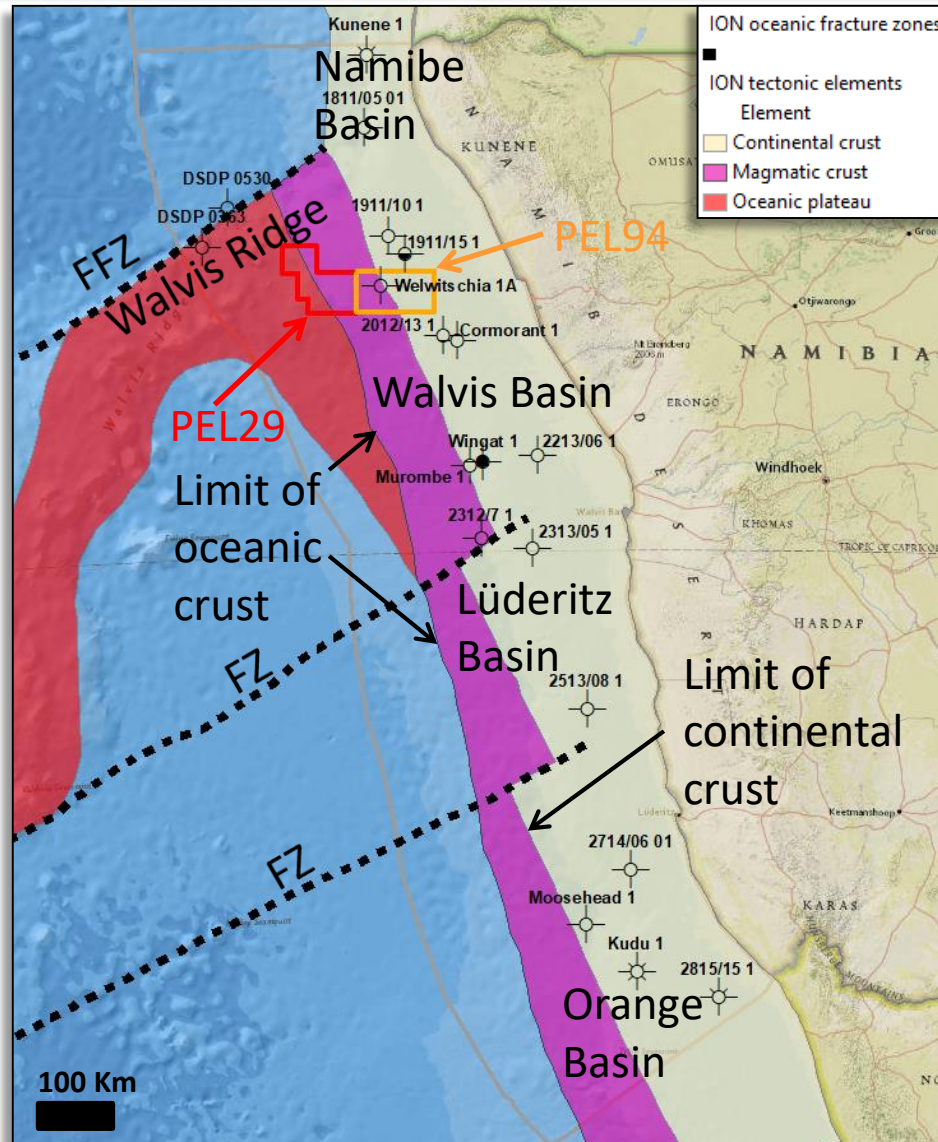
Paul Howlett, Global Petroleum Limited

Global Petroleum Limited



- Global Petroleum Limited is a public company quoted on both Australia's ASX and London's AIM stock exchanges
- Global has exploration permit applications in the Italian Adriatic Sea and 2 exploration licences in the Walvis Basin, offshore Namibia (water depths of 500-2000m)

Basins and Crustal Domains of the Namibian Margin

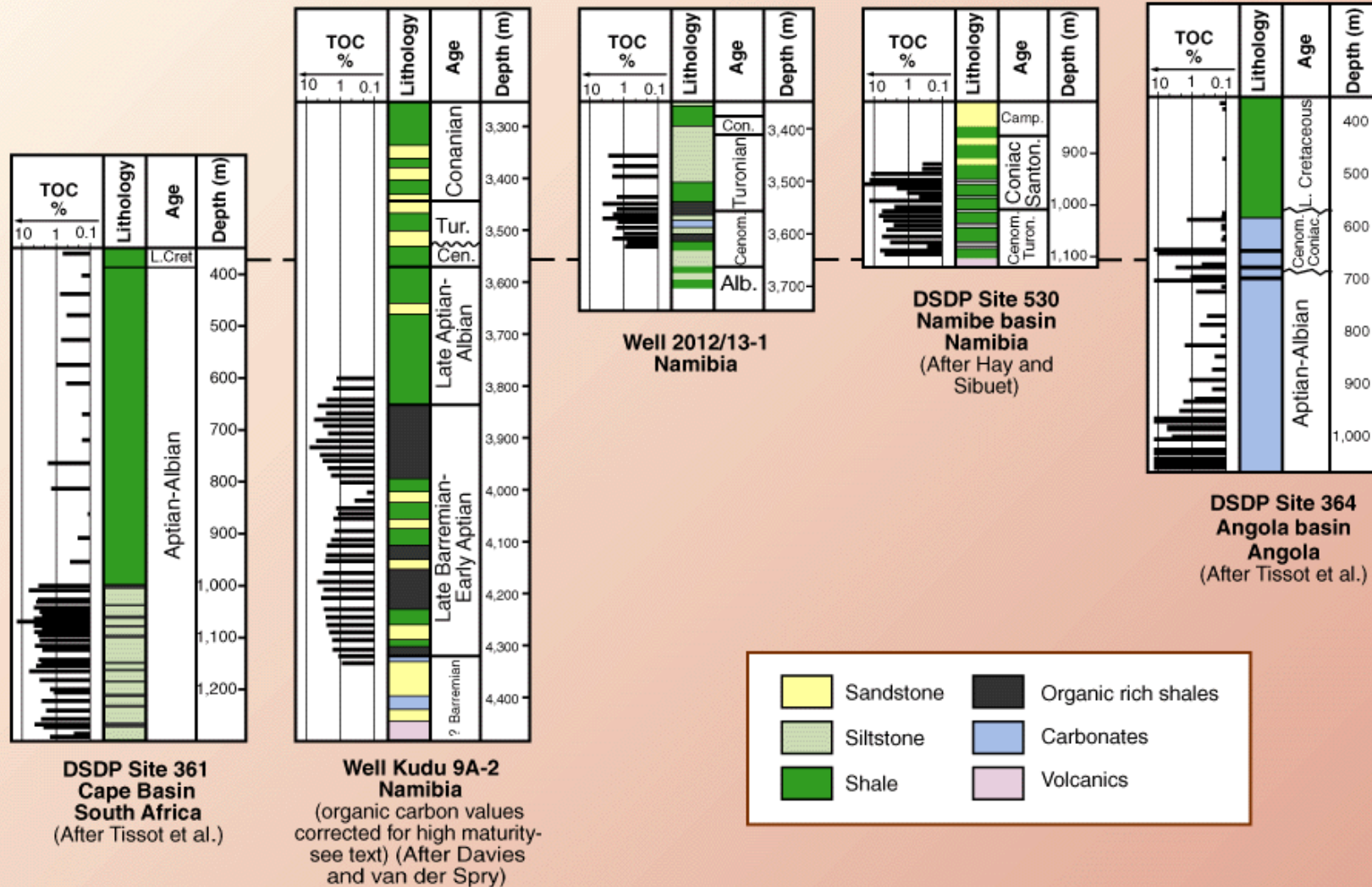


- Namibian offshore basins delimited by continuation of oceanic fracture zones
- Part of PEL94 underlain by continental crust, most of PEL94 and probably all of PEL29 underlain by magmatic crust (SDRs)
- To date only significant discovery is the undeveloped Kudu gas pool in the Orange Basin offshore southern Namibia
- Only oil recovered to surface is the Wingat-1 well in the Walvis Basin, offshore northern Namibia
- Both sourced from the Aptian marine mudstone, the “Kudu Shale”

FFZ = Florianopolis Fracture Zone; FZ = un-named oceanic fracture zones;

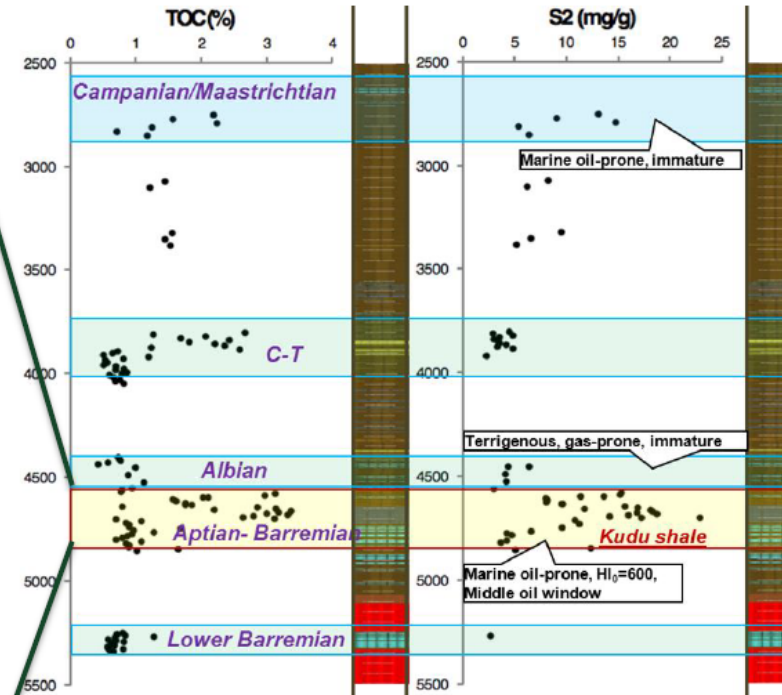
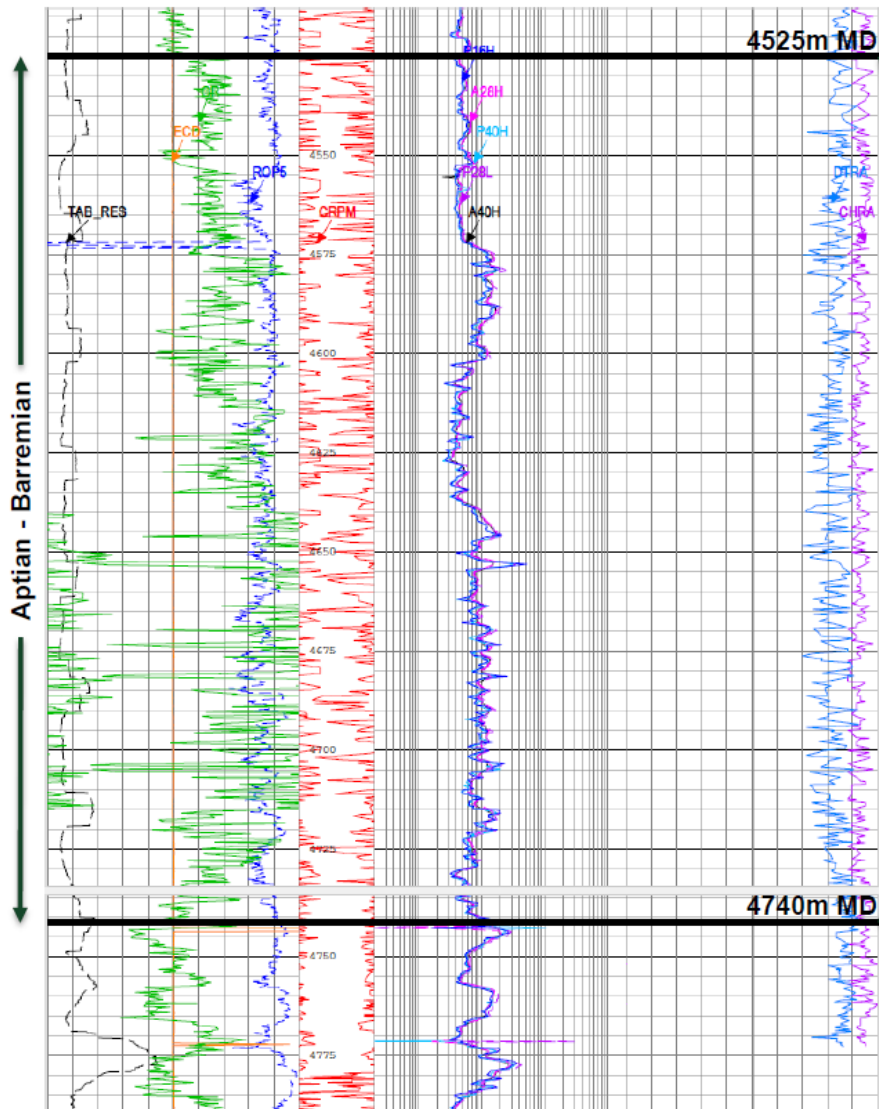
Some source rock analyses offshore SW Africa

Situation pre-2013



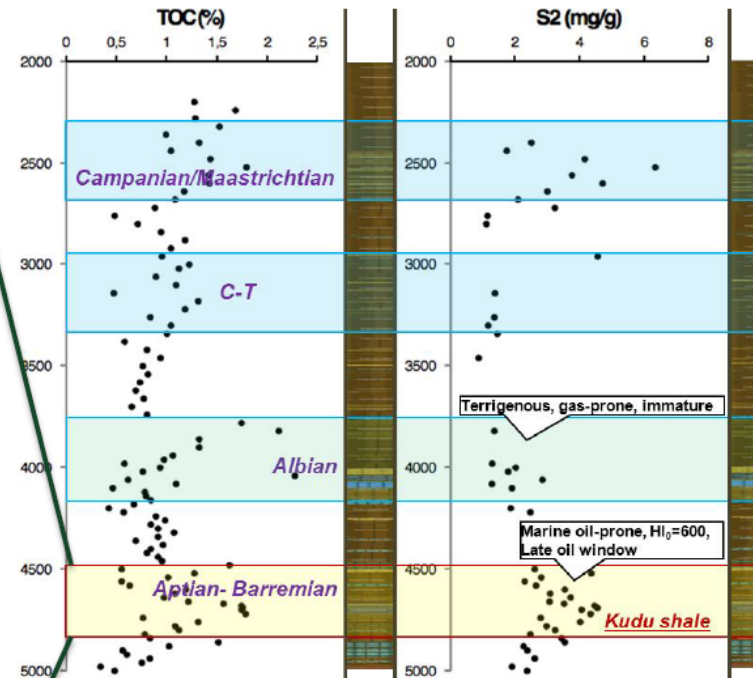
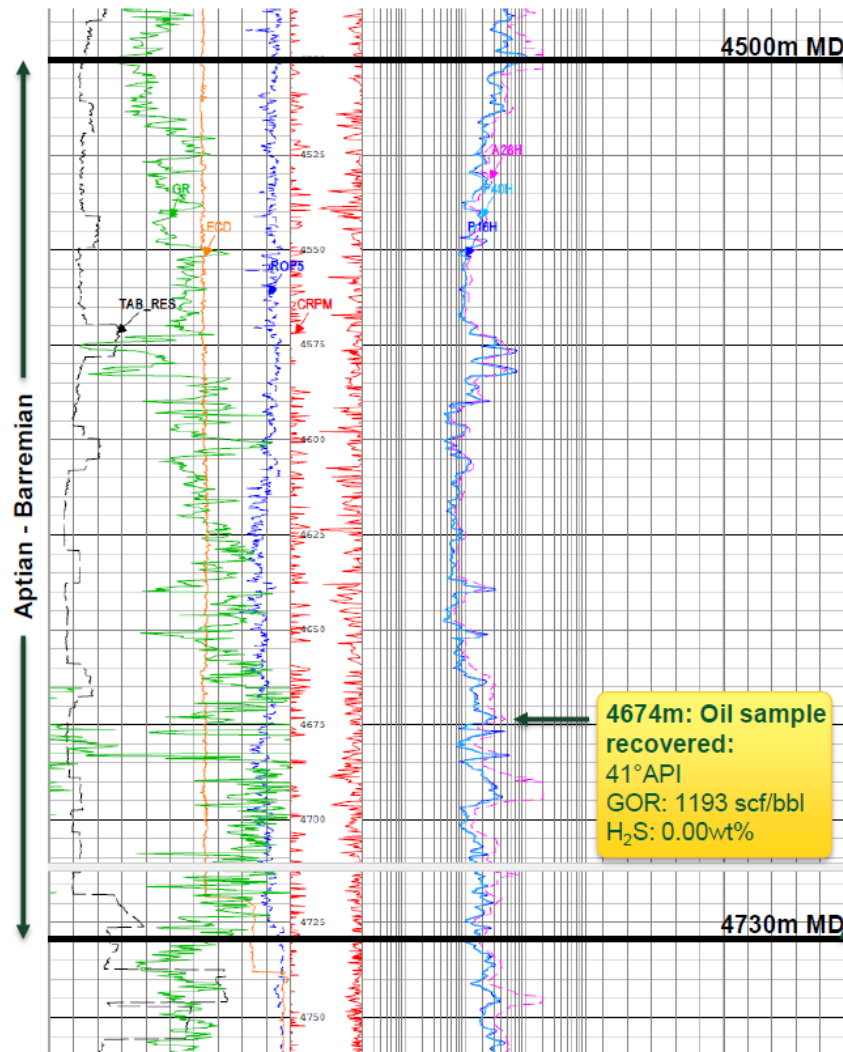
- TOC values for Kudu have been adjusted to take account for carbon loss during maturation using the method of Cornford

Aptian-Barremian source rock at the 2013 Murombe-1 well in the Walvis Basin



- 125m net source over 215m Aptian to Barremian shale interval
- Present day TOC 3-3.5% with S₂ of 10-15 mg/g indicating very good source rock potential
- Type II normal marine source rock in late oil window

Aptian-Barremian source rock and oil recovered to surface at the 2013 Wingat-1 well in Walvis Basin

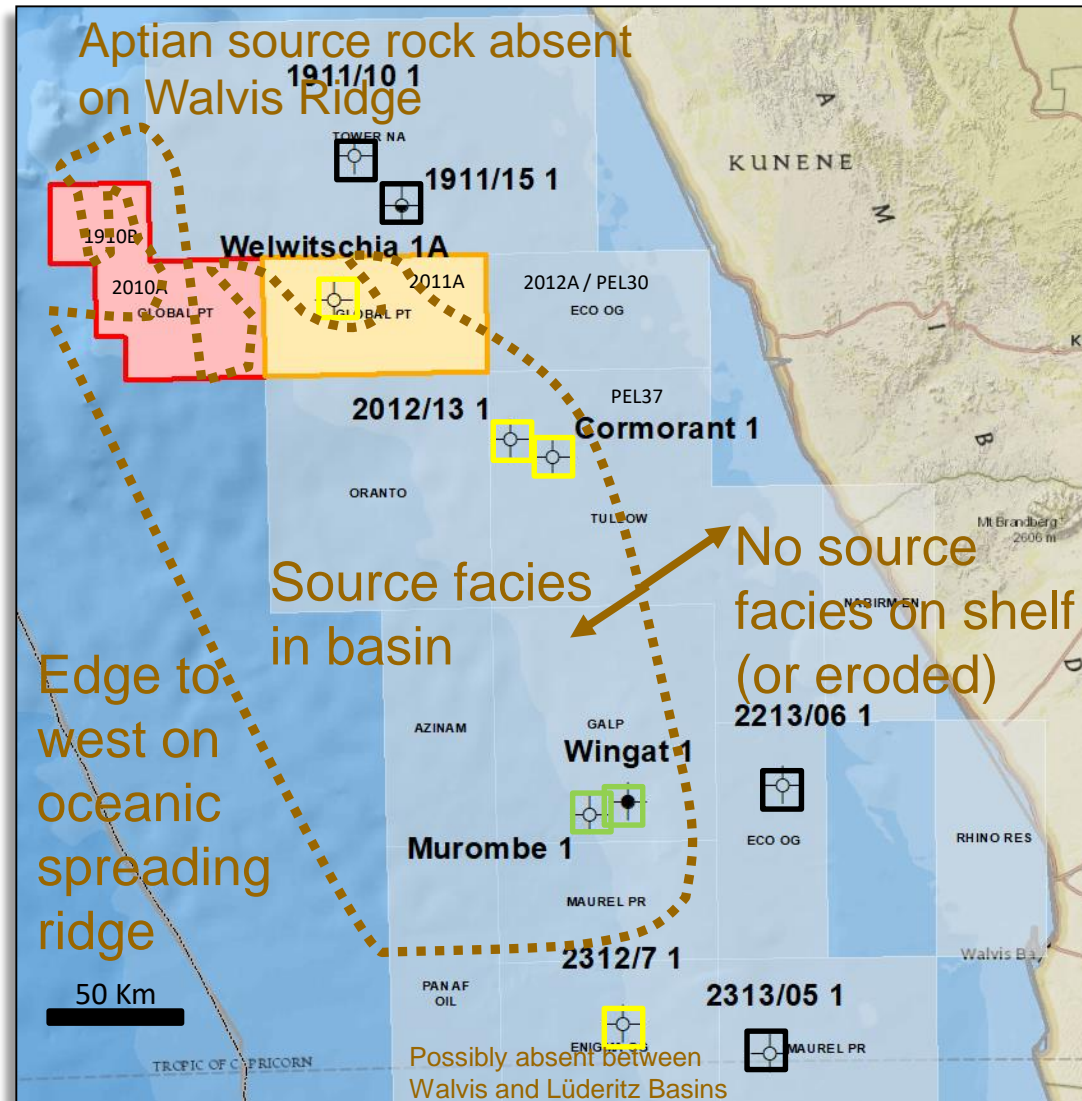


- 230m gross Aptian to Barremian shale interval
- Present day TOC's and S₂ less than Murombe – To be expected given the well is in an up dip position
- Oil sample recovered from thin sand within source rock interval – Analysis confirms light oil from normal marine type II source rock in late oil window





Aptian source rock distribution in the Walvis Basin



- PEL 0094
- PEL 0029
- Source present
- Source eroded or not deposited
- Unknown – TD is above the Aptian

Wingat-1:
Slightly lower source quality than section at Murombe
Currently in oil window
Sample of 40°API oil with no H₂S

Murombe-1:
>200m gross, 125m net
3-3.5% TOC
S₂ 10-15 mg/g
H_{lo} 600
Currently in oil window

Northern Walvis Basin contains very large fault and dip-closed structures



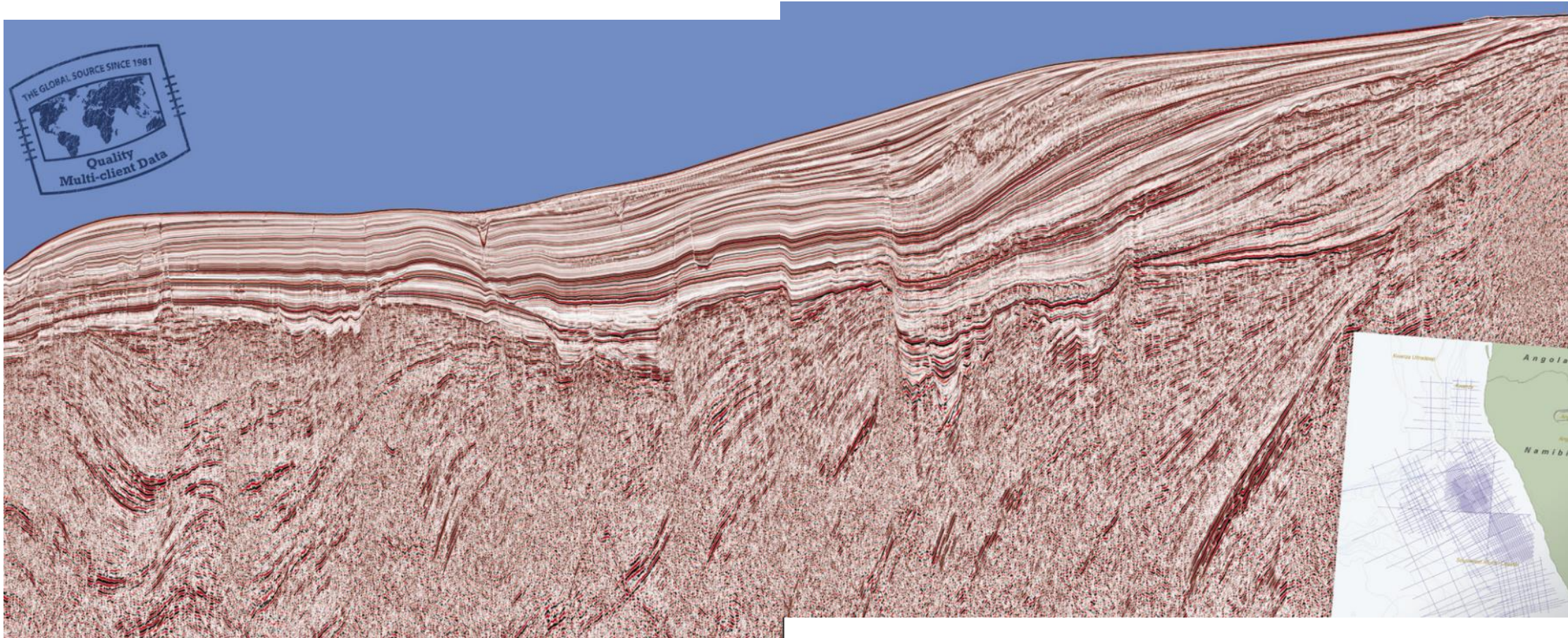
SW

Gemsbok

Welwitschia

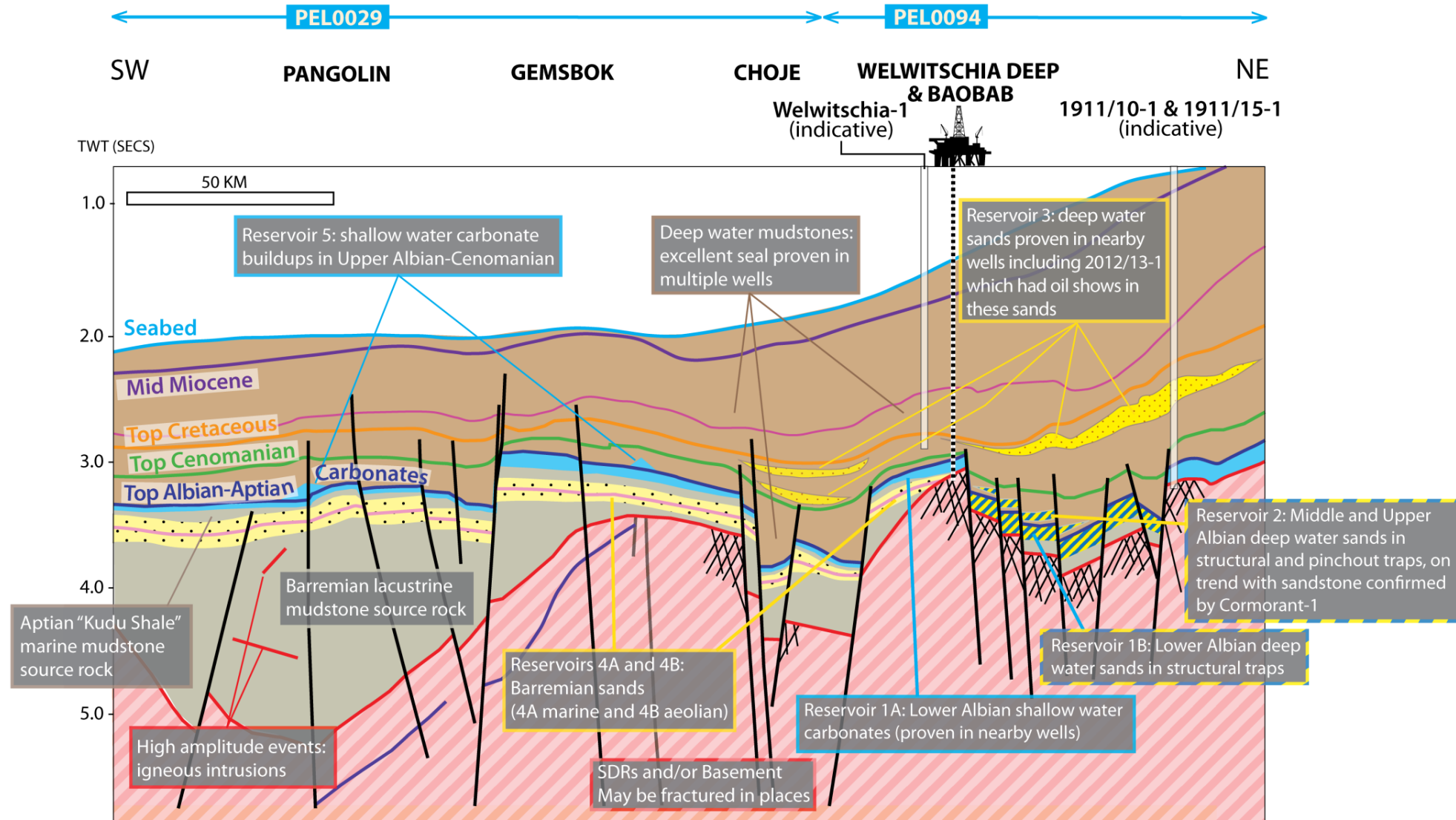
1911/15-1
& 1911/10-1

NE





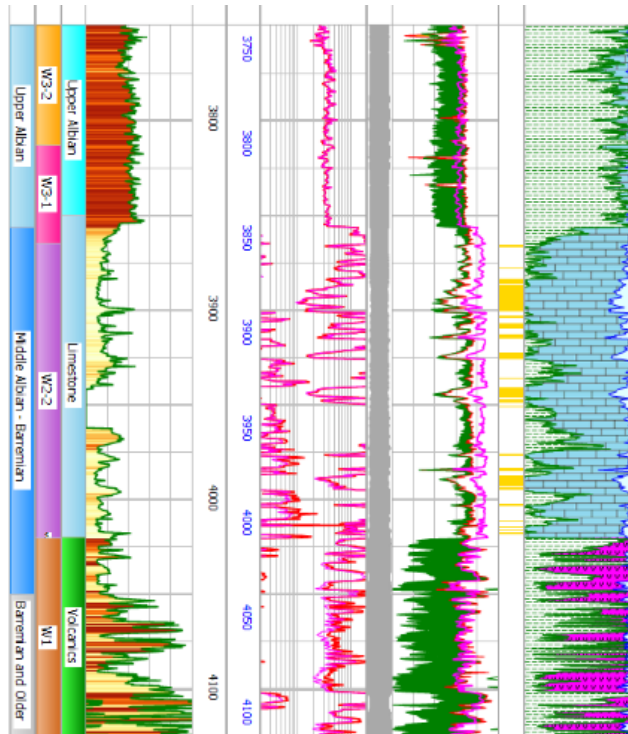
Multiple Plays in PEL94 & PEL29



Albian to Aptian carbonates: porous & permeable reservoirs proven in nearby wells

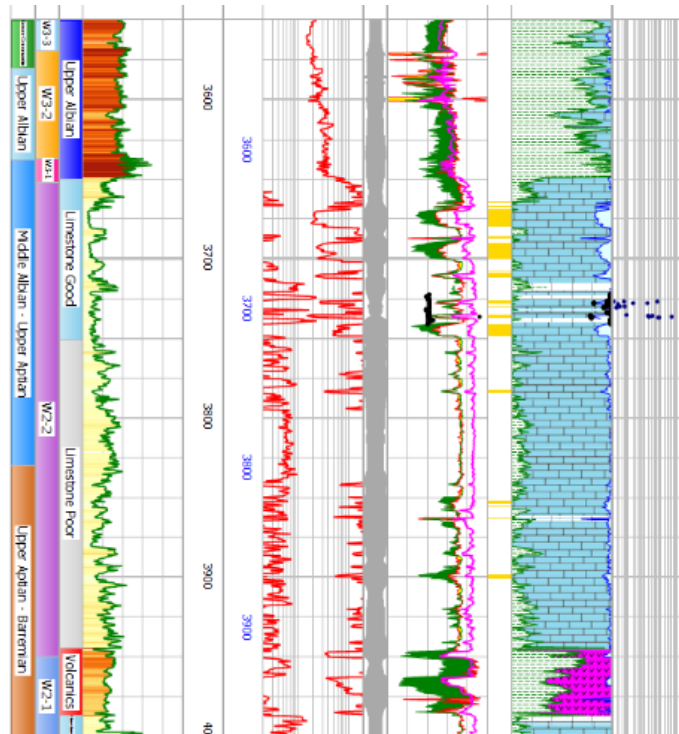


1911/10-1



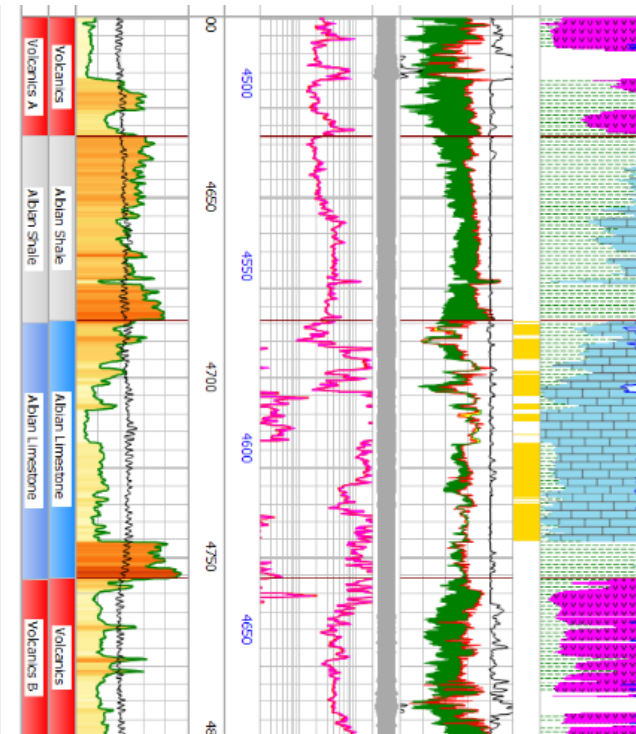
170m gross, 48.2m net
28% N:G
12% average porosity

1911/15-1

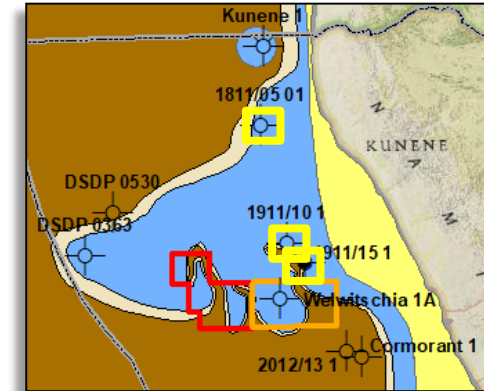


295m gross, 47m net
16% N:G
13% average porosity

1811/05-1

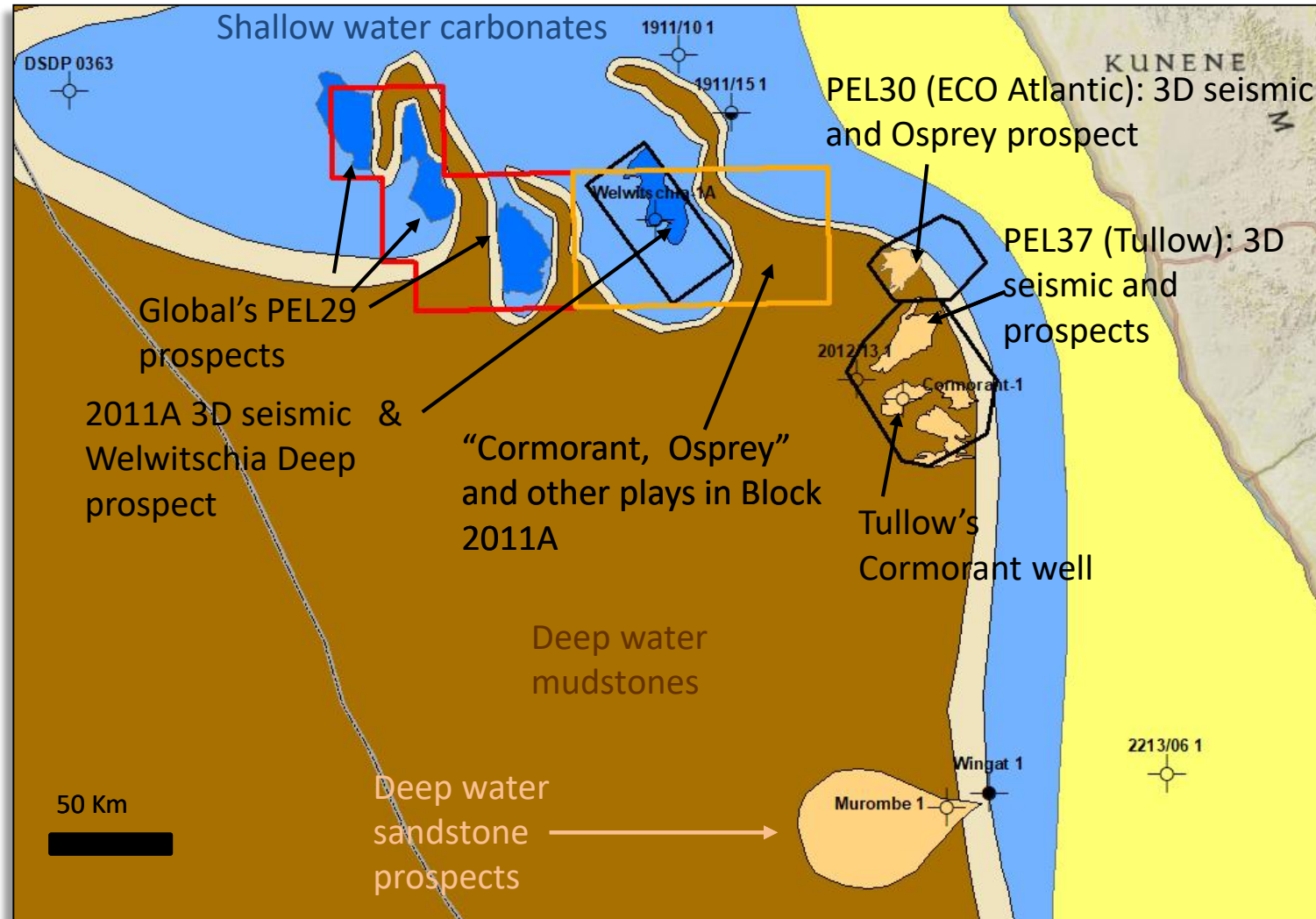


61.4m gross, 46m net
75% N:G
12% average porosity



Well data
courtesy of
NAMCOR

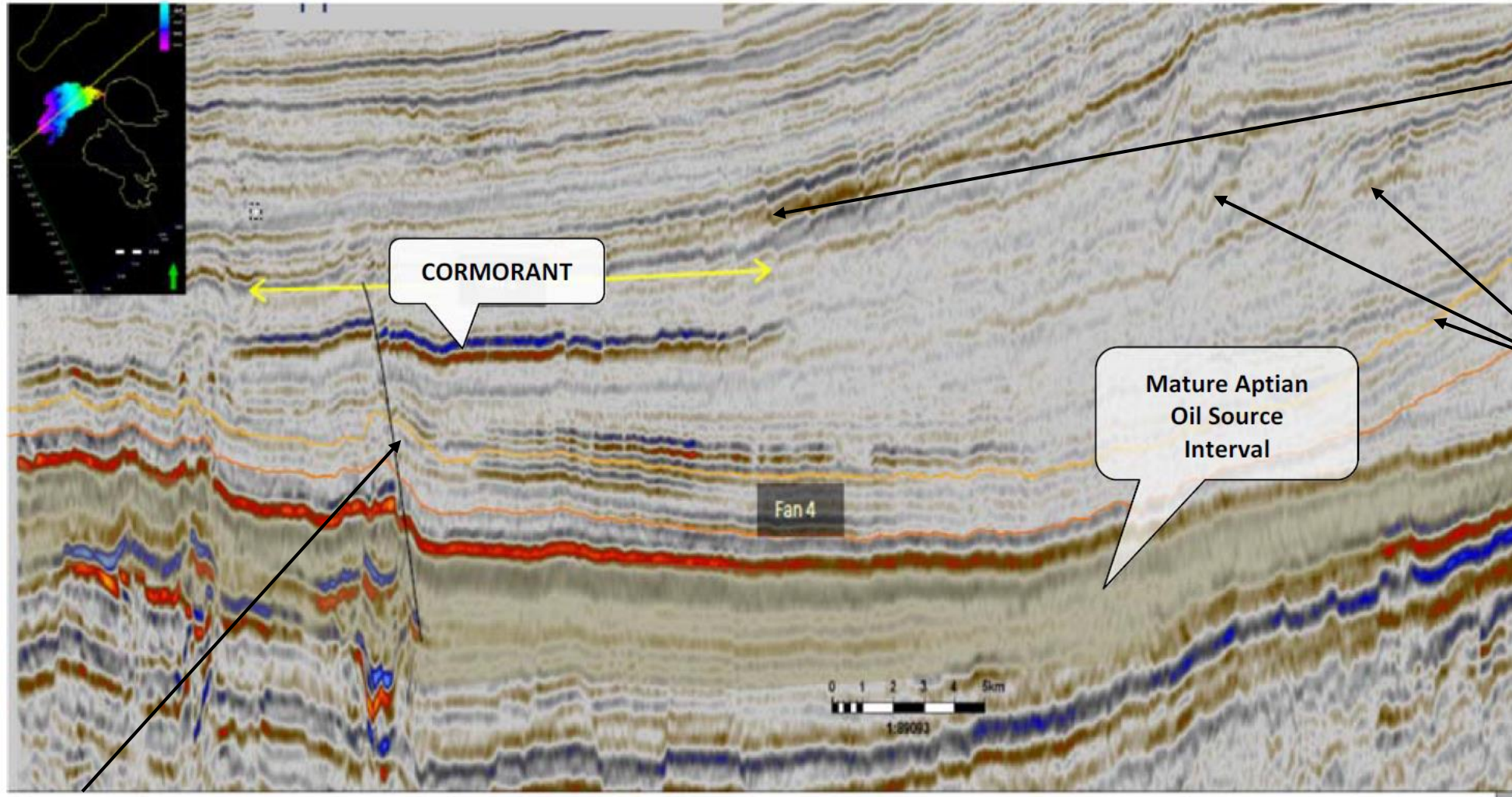
Albian plays: shallow water carbonates and deep water sandstones (new play)



Albian facies map with prospects and 3D seismic outlines

- Shallow water carbonates proven as viable reservoirs in a number of wells, but all were drilled well beyond northern edge of Aptian source rock
- Large Welwitschia Deep prospect is already covered by existing 3D seismic data
- Producing analogues to north in Angola, the Congos and also in Brazil
- New Albian sand play confirmed by the Cormorant well and Global's model is that this play extends into Block 2011A

Albian deep water sandstone play proved by the Cormorant well



Are hydrocarbons leaking up a fault into a shallower reservoir?

Albian shelf edges

Top Aptian source rock "Kudu Shale"

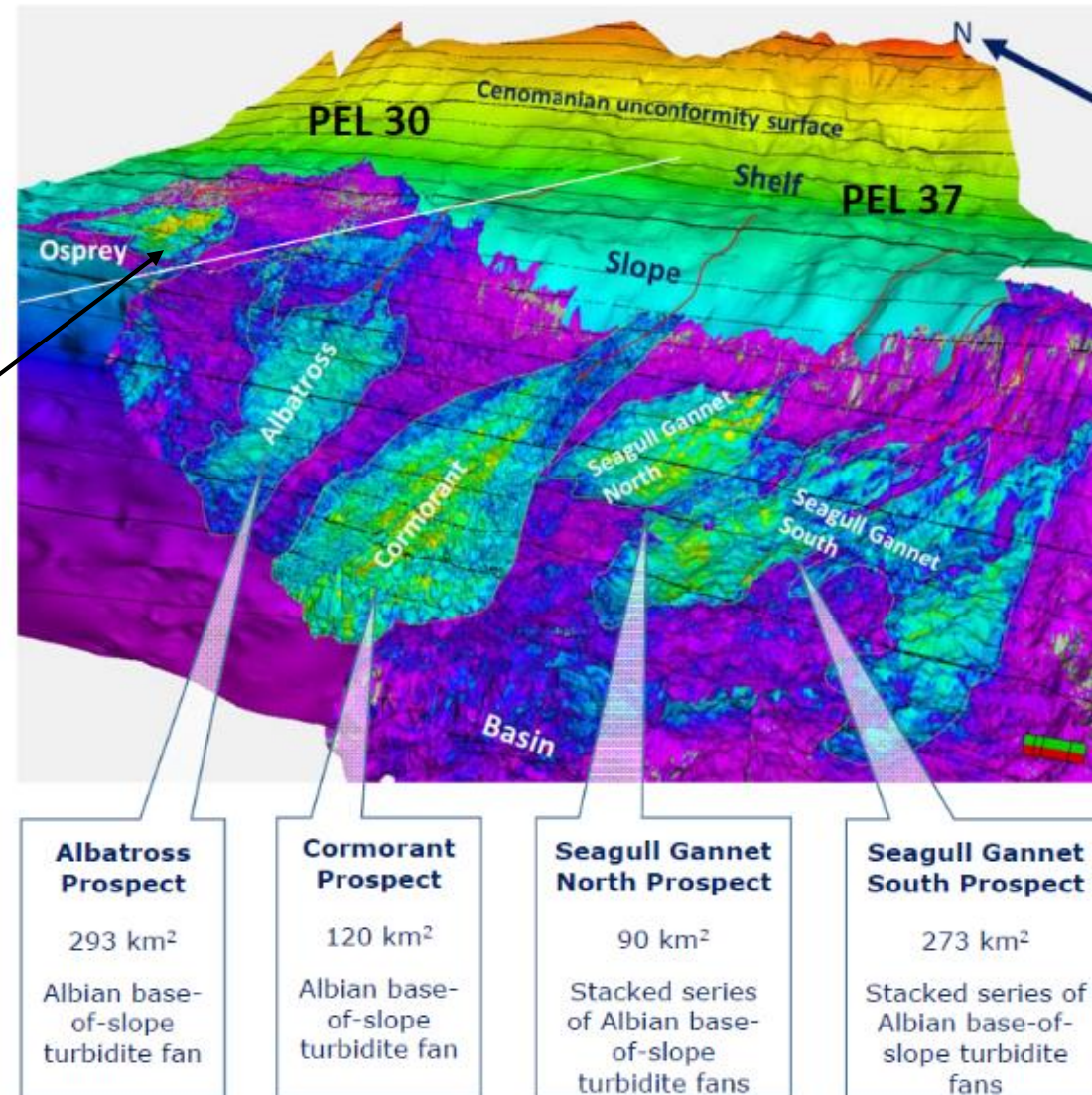
Do large faults associated allow connection between source rock and reservoir, or is there an over-pressured seal between blocking migration?

Albian deep water sandstone prospects

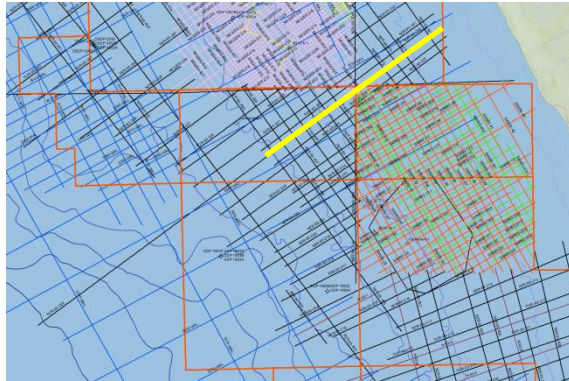


SE corner
of PEL94

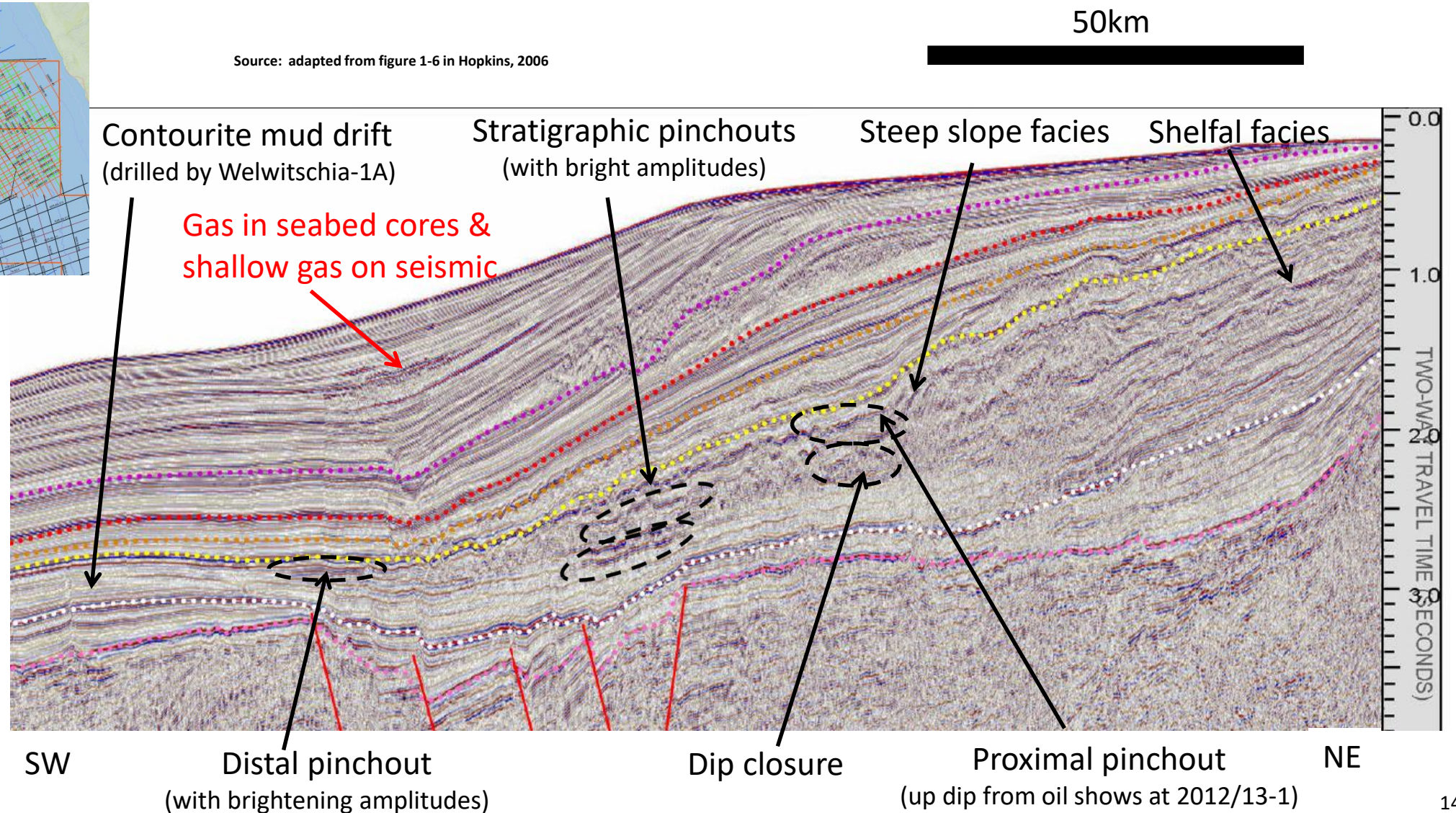
ECO Atlantic and AziNam
considering drilling Osprey
prospect in PEL30



Cenomanian-Paleocene reservoirs in the northern Walvis basin



Source: adapted from figure 1-6 in Hopkins, 2006



- Average porosities 17-25%
- Permeabilities 100-1000mD

Muddy drift D-5 on top of the Welwitschia structure and moat M-4 with Baobab lead



Baobab lead

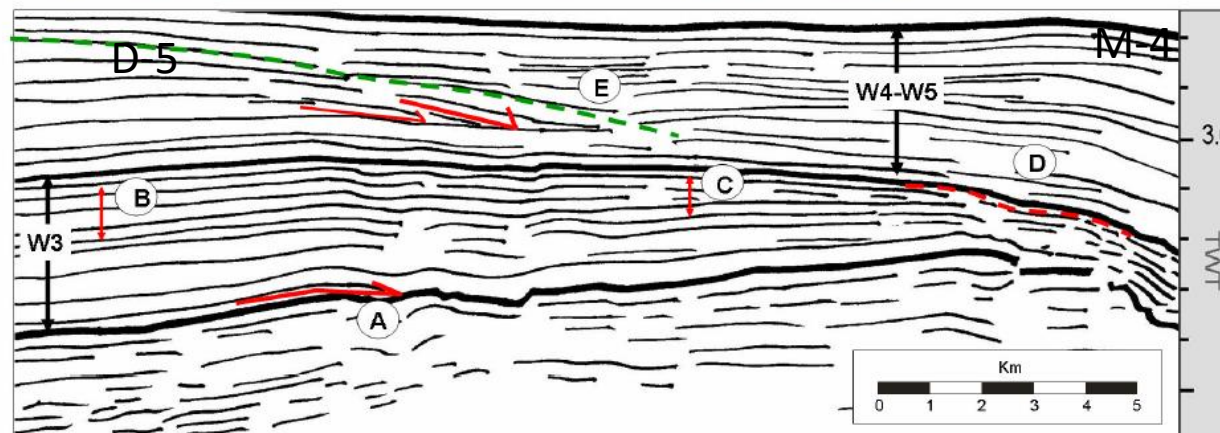
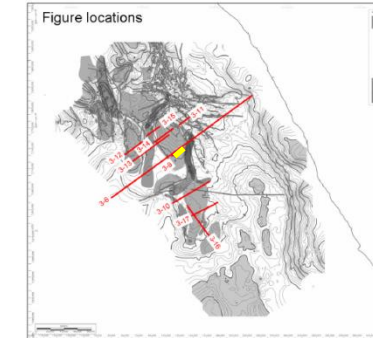
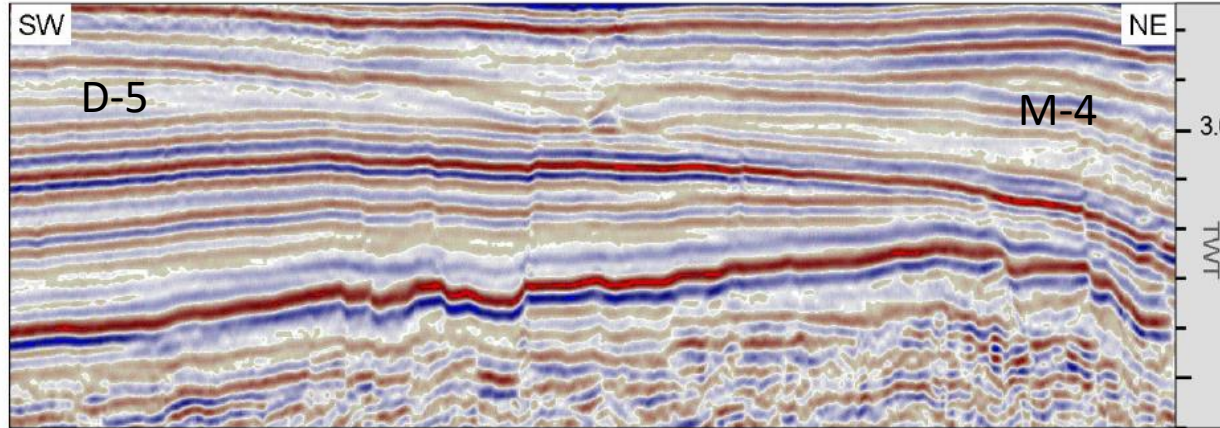


Figure 3-9 Detail from profile N2R-93-229 (Figure 3-6) showing upslope thinning of W3 sheeted drift (D-5) by onlap (A), condensation (between B and C) and erosion (red dashed line, D), and downlap of W4-W5 mounded drift (green dashed line, E) onto basal unit.

Source: figure 3-9 from Hopkins, 2006

- Drift “D-5” in the lower W4-W5 was drilled to the north of this seismic line by Welwitschia-1A and the section was composed of Campanian mudstones
- The convex upward surfaces at the top of W3 and the green dashed line in W4-W5 are depositional, not structural, and would have formed significant relief on the seafloor at those times

Cretaceous mud drifts (red) and associated onlapping lead areas in PEL94 and PEL29

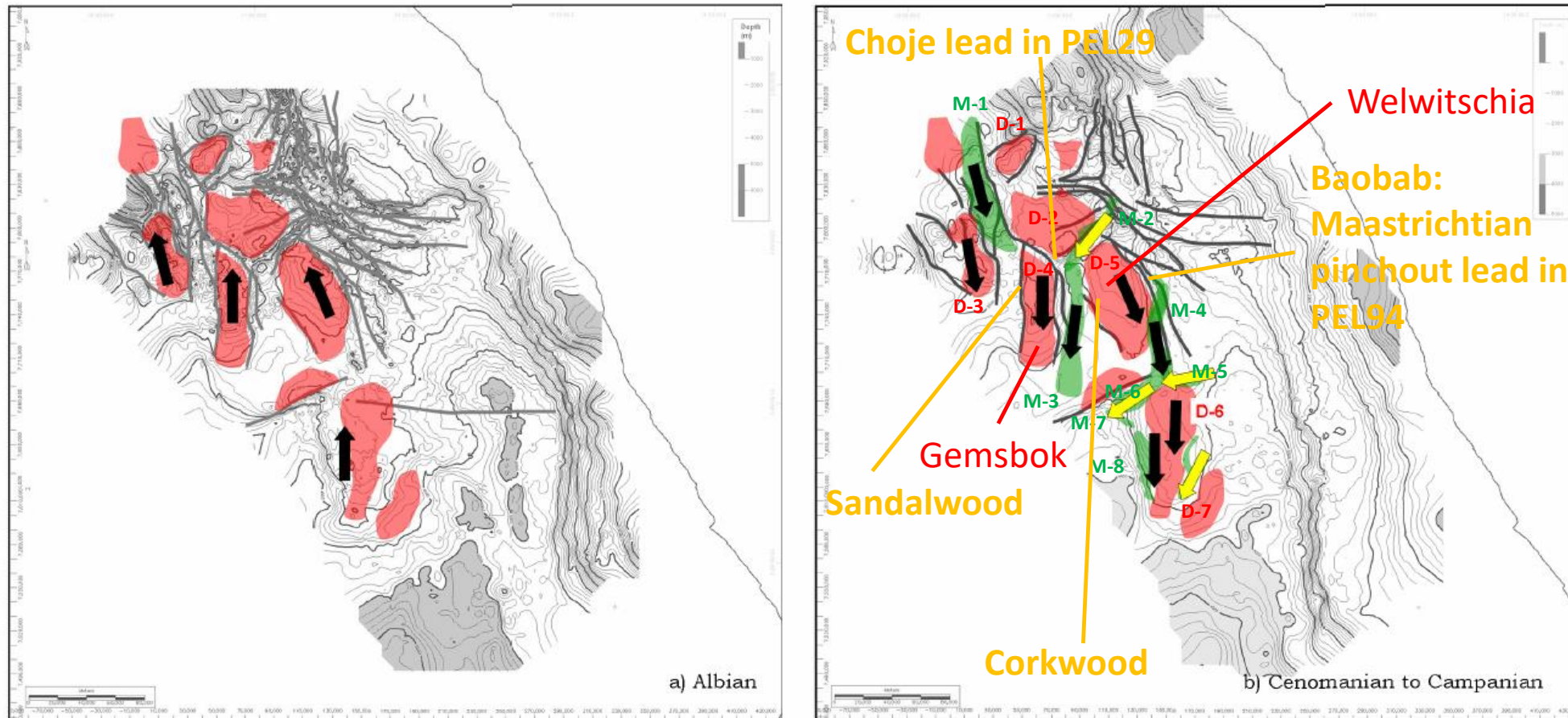


Figure 3-19 Interpretation of palaeo-current orientations for the two Cretaceous drift forming episodes, involving an intervening reversal of flow direction. Albian map (a) is based on the Base W3 surface depth structure map, and shows sheeted drifts with flow interpretation. Cenomanian to Campanian map (b) is based on Base W4-5 depth structure map and shows mounded drifts and moats with flow interpretation. Interpretation of Albian phase (a) is more tentative and is based on updip onlap onto base W3 tilted fault blocks, and on the slightly more common incidence of westward progradation; Late Cretaceous phase interpretation is based largely on long axis asymmetry, particularly of D-6. Yellow arrows denote downslope channels.

Source: figure 3-19 from Hopkins, 2006

PEL29 & PEL94: multiple plays and prospects



Gemsbok prospects

AGR-Tracs CPR, January 2018



Oil & Liquids: MMbbls Gas: Bscf	Gross Technical Prospective Resources			Net Attributable Technical Prospective Resources			Risk Factor	Operator
PROSPECT	Low Estimate	Best Estimate	High Estimate	Low Estimate	Best Estimate	High Estimate	POS (%)	
OIL - MMbbls								
Gemsbok Main	318	1091	2581	270	927	2194	12.3	Global
Gemsbok Aeolian	66	330	1296	56	281	1102	5.4	Global
Gemsbok Marine	63	323	945	53	275	803	8.8	Global
Lion North	104	291	743	88	247	631	7.5	Global
Lion South	290	823	2105	247	700	1789	7.5	Global
Dik-Dik	224	805	1969##	190	685	1674##	5.0	Global
TOTAL#	1065	3663	9639	904	3115	8193		

Table 0.1: AGR TRACS estimates of Gross and Net Attributable Unrisked Technical Prospective Resources in Global's Licence 0029 offshore Namibia

Prospective Resources Cautionary Statement (in accordance with ASX Listing Rules): the estimated quantities of petroleum that may be recovered by the application of a future development project(s) relate to undiscovered accumulations. These estimates have both an associated risk of discovery and a risk of development. Further exploration, appraisal and evaluation are required to determine the existence of a significant quantity of potentially moveable hydrocarbons

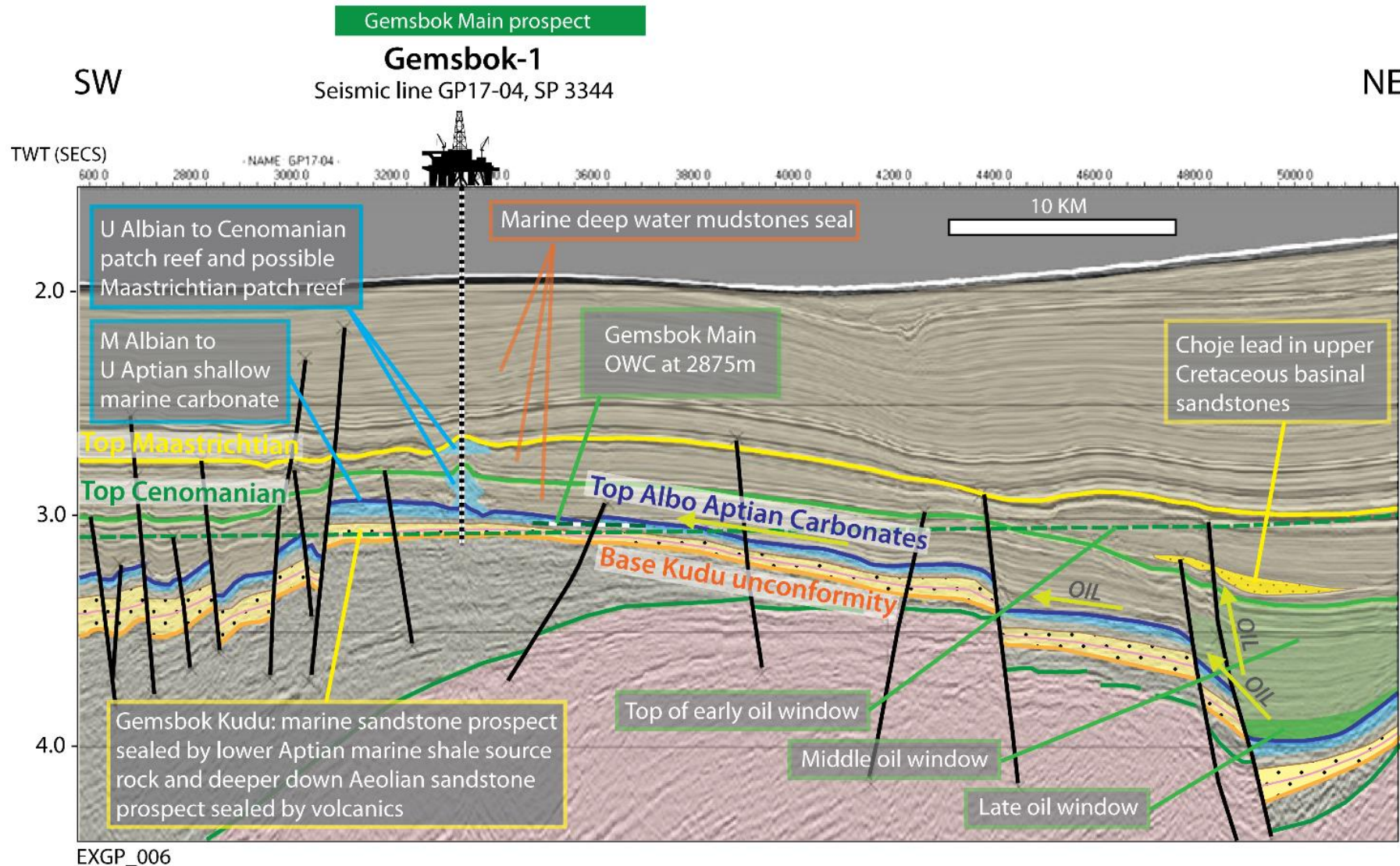
Gemsbok prospects





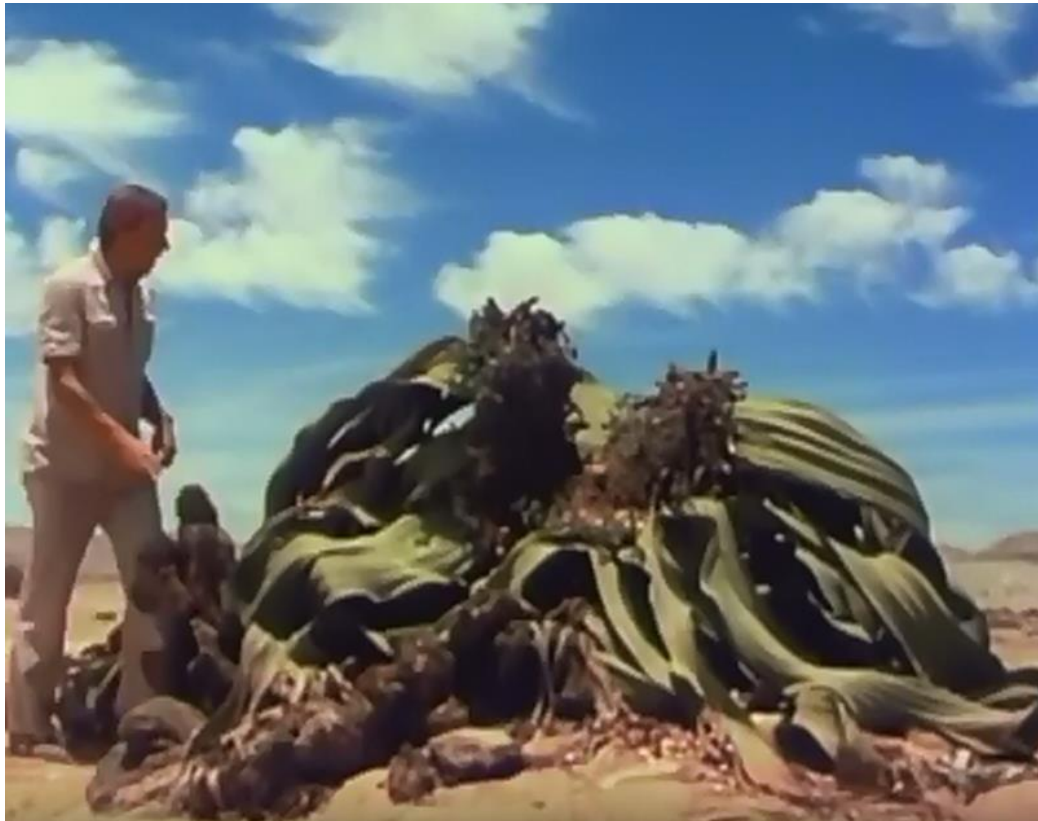
Gemsbok prospects

Albian carbonates and Barremian sandstones

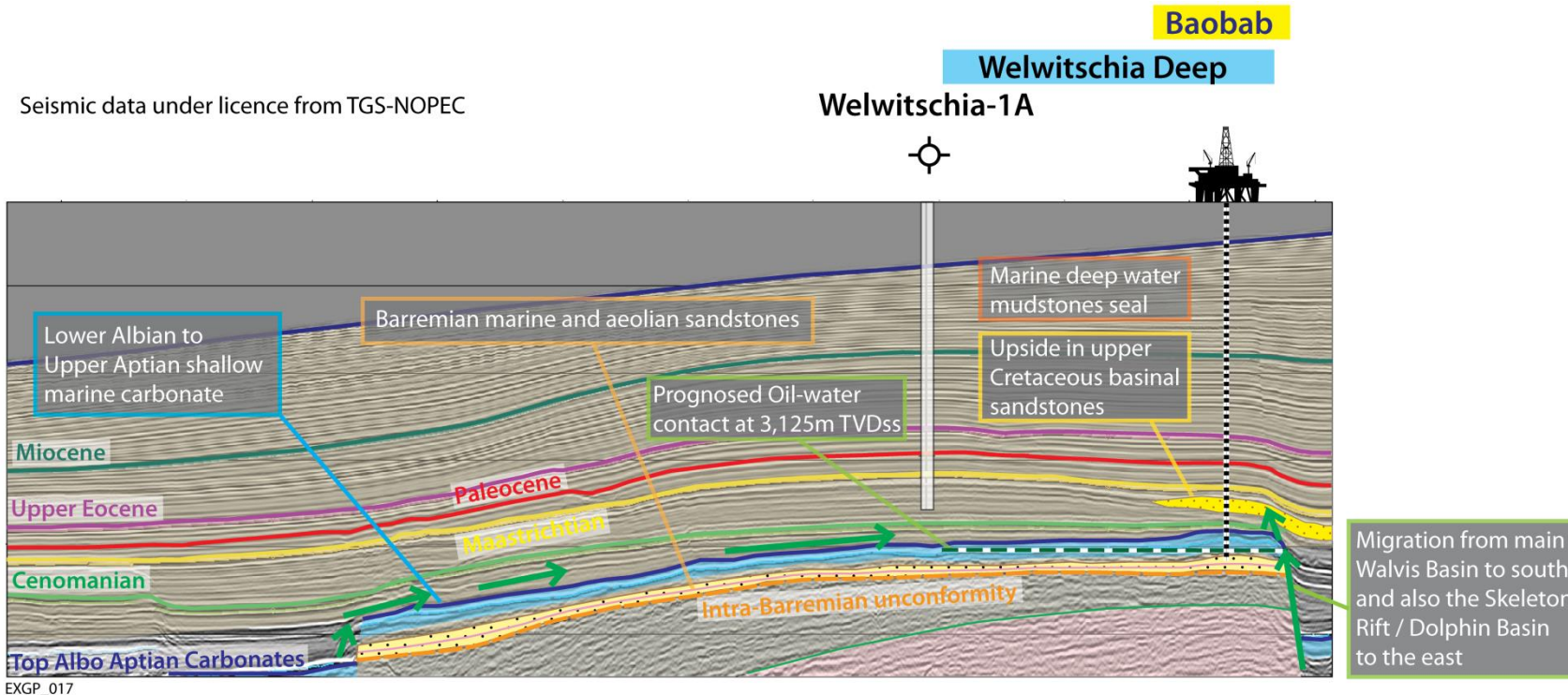


- Very large fault and dip closed structure formed in the middle Albian
- Main prospect level at Lower Albian carbonates (blue)
- Additional deeper prospect levels in marine and aeolian Barremian sandstones (stippled yellow) and Upper Cretaceous carbonate build-ups (blue)

Welwitschia Deep Albian carbonate prospect and Baobab Upper Cretaceous pinchout lead



Welwitschia Deep prospect and Baobab lead



- Welwitschia-1A well drilled in western part of 2011A in 2014, targeted Upper Cretaceous sandstones, which were absent at this location, but the well proved excellent seals
- Global believes that there is significant prospectivity – similar to that in PEL29 – in the deeper Albian carbonates (blue) of the “Welwitschia Deep” prospect, which Welwitschia-1A did not reach. Most likely area 460 sq. km
- Additional prospectivity in Upper Cretaceous reservoirs on the flanks of the Welwitschia structure e.g. the Baobab lead

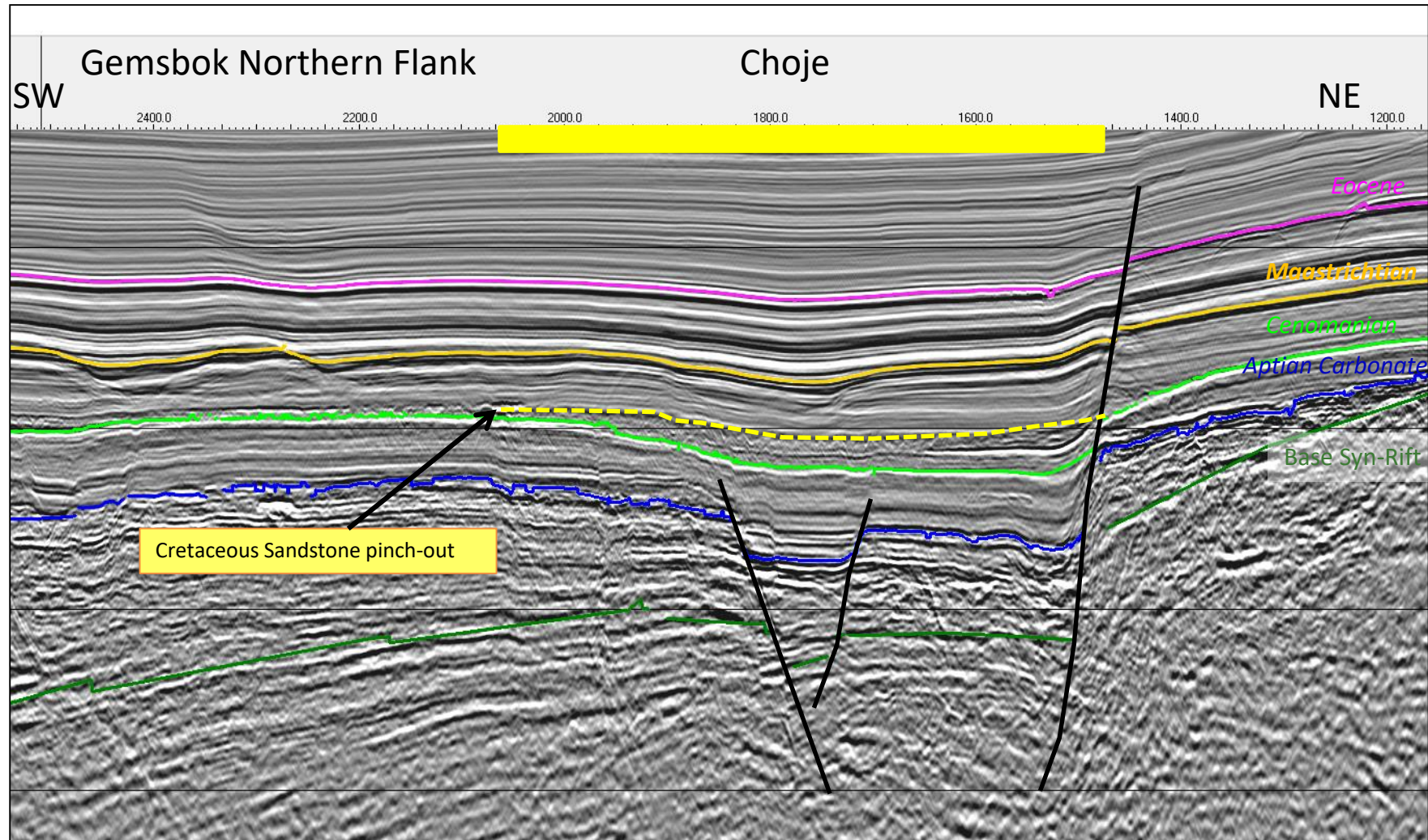
Choje lead

Upper Cretaceous mass flow deposit



Choje lead

Upper Cretaceous mass flow deposit

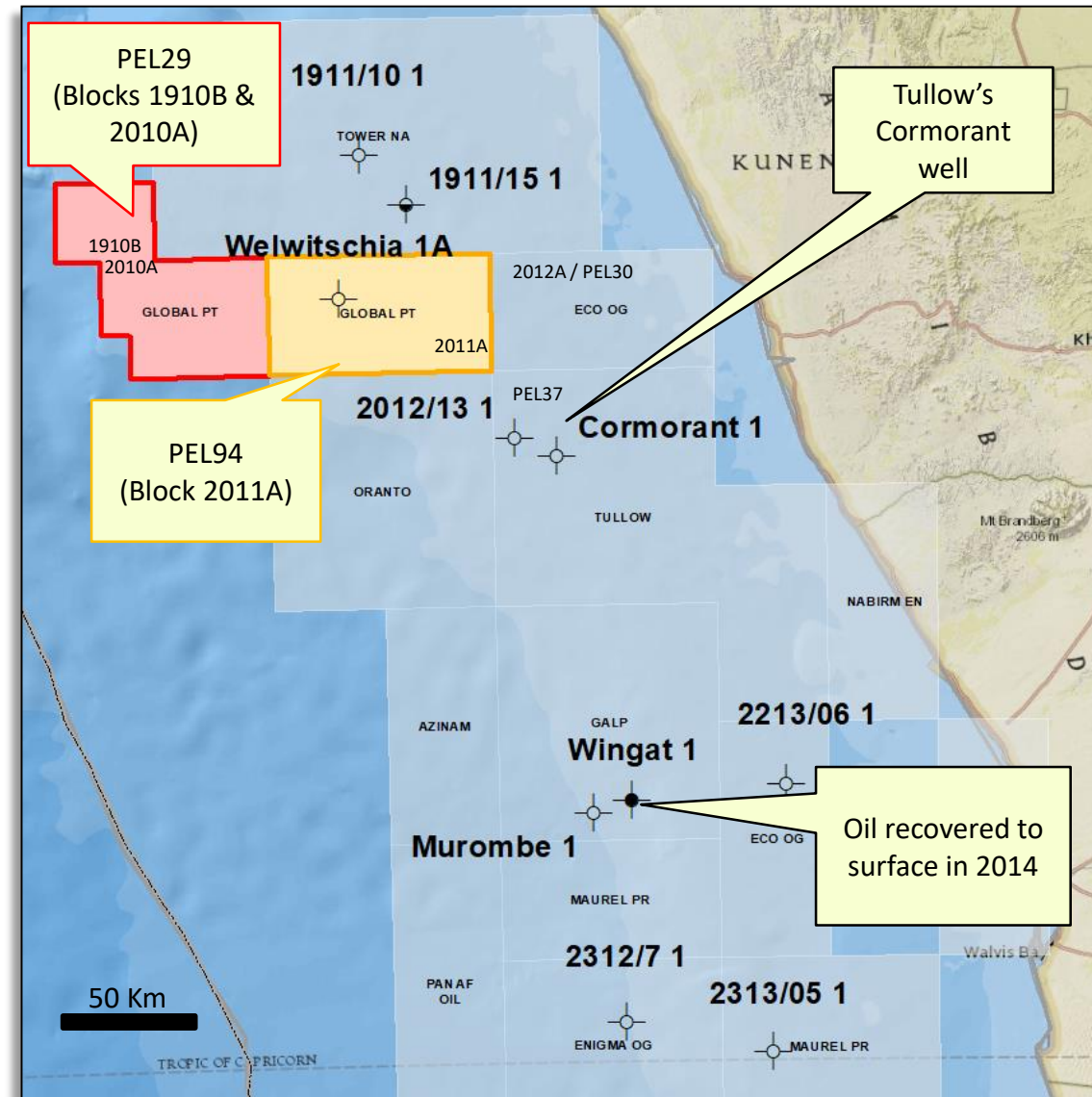


TWT

Namibia, PEL94 (Block 2011A) and PEL29 (Blocks 1910B and 2010A)



- Petroleum Agreement for new c.5,800 km² block 2011A signed in September 2018; Licence PEL94 issued in October 2018
- Global is operator and holds an 85% interest. State oil company, Namcor, and a local company, Aloe, have carried interests of 10% and 5% respectively
- Adjacent to existing Licence PEL29 - also c.5,800 km², Petroleum Agreement signed 3rd December 2011
- Global is operator, holds an 85% interest. Namcor and Bronze have carried interests of 10% and 5% respectively
- Aggregate of c.11,600 km²

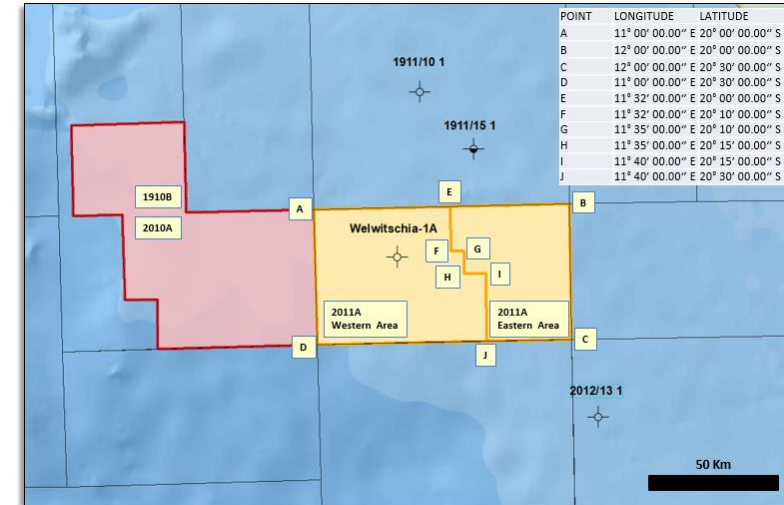


PEL94 / Block 2011A

Work Commitments



- **Initial Exploration Period Years 1 and 2 (financial commitment US\$1.3 MM)**
 - Undertake geological, geochemical and geophysical and related studies of all the data, including a gravity and magnetic study as well as a source rock and basin modelling study
 - Licence the existing 2010-vintage 3D seismic data survey, and all 2D seismic data of reasonable quality and reprocess it
- **Initial Exploration Period Years 3 and 4 (financial commitment US\$4MM)**
 - If the Company elects to continue into years 3 and 4 , then additionally the Company will acquire and process 2,000 square kilometres of 3D seismic data in the Eastern Area
 - If the Company elects not to enter into years 3 and 4, the Block will be relinquished
- **First and Second Renewal Exploration Periods (financial commitment US\$25MM)**
 - First and Second Renewal Periods, of two years, each with a well commitment
- **Global can elect to relinquish after year 2**



PEL29 / Blocks 1910B & 2010A



- Licence PEL29 issued in 2011 comprising Blocks 1910B and 2010A: acreage held is now c.5,800 km²
- In December 2018 Global entered 2-year Second Renewal Period with commitments:
 - Various studies, mainly on seismic (US\$0.35 million)
 - 600 sq km of 3D seismic data contingent on a farminee funding the survey (US\$3.6 million)
 - A well (US\$20 million)
- Since award Global has:
 - Licensed and interpreted 2,800 km of non-proprietary 2D seismic data in 2011
 - Underwritten acquisition of and licensed 2,000 km of non-proprietary 2D seismic data in 2011/12
 - Re-processed 2D seismic data over the licence area
 - Acquired and interpreted 834 km of proprietary seismic in 2017

Overview



PEL94 (Block 2011A): highly prospective acreage

- 85% Participating Interest and a light initial work programme (US\$1.3MM)
- Good evidence of Aptian source rock in eastern part of the Block and migration within it
- Very large structure at Albian carbonate level undrilled by Welwitschia-1A well and follow-on potential within PEL29
- Upper Cretaceous and Paleocene deep water sandstone plays on current 3D seismic and in the east of the block (potential new 3D seismic area), plus follow-on potential in PEL29. Baobab lead mapped above the Welwitschia Deep carbonate lead – both could be targeted by the same exploration well

PEL29 (Blocks 1910B & 2010A): significant running room

- Multiple prospects identified on 2D seismic data, with 1 reservoir in 1 prospect alone (Gemsbok) having best estimate prospective resources of 1,091 MMstb
- 85% Participating Interest

Experienced Team

- Global has operated in Namibia since 2011. Technical team has Namibian experience going back to 2003

Questions

