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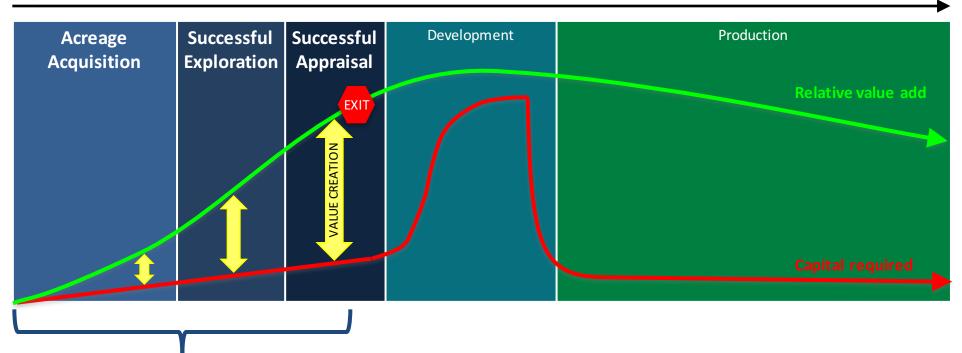
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#### Exploration & Production (E&P) lifecycle



#### Strategy: low expenditure, high value add

#### FOCUS ON EARLY STAGES OF E&P LIFECYCLE

- > Focus on geology, not geography
- ➤ High-impact, deep-water acreage
- > Young, emerging basins
- ➤ Non-operating stakes
- ➤ Reliable, proven partners/operators

#### SUCCESSFULL EXPLORATION & APPRAISAL

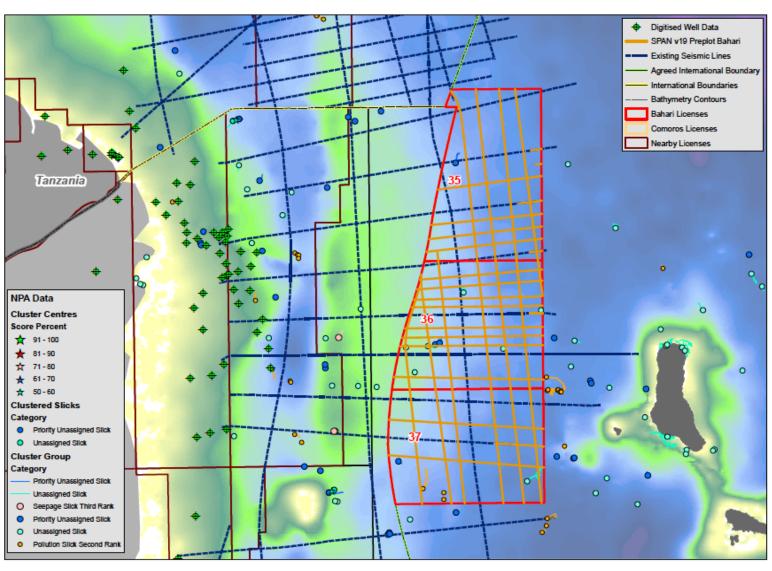
- ➤ Aim for portfolio of 5+ geologically independent assets
- ➤ De-risk with 3D seismic in 2015-2017
- ➤ Ensure full funding for the entire drilling campaign starting 2017+

#### **TIMELY EXIT**

After successful exploration/appraisal, return value to shareholders through IPO or asset/company sale





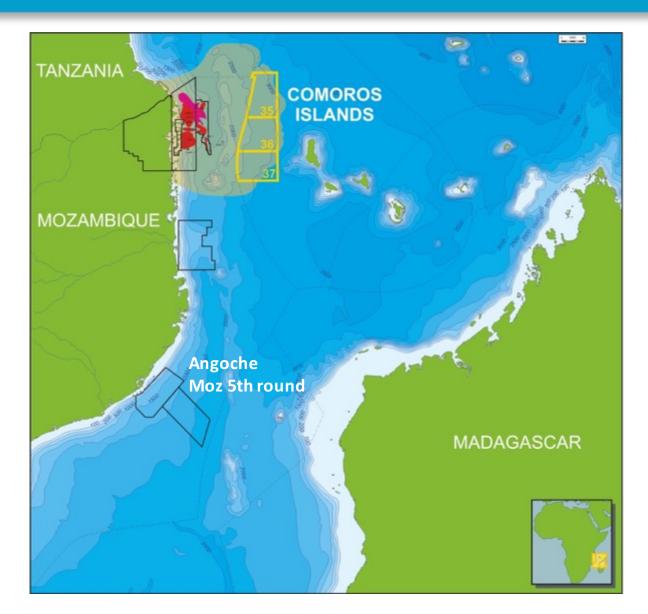


50



## **Regional Setting**



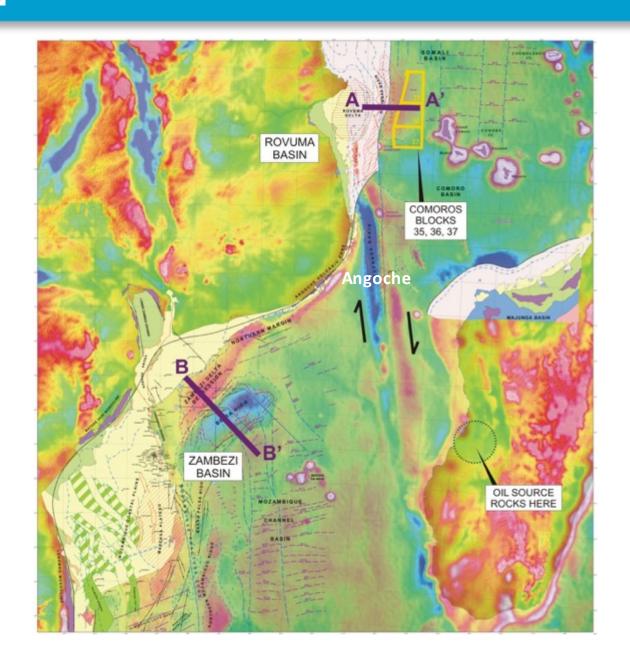


- Blocks 35, 36, 37
- 18,000 km<sup>2</sup> or 4.4 mln acres (half the size of the Netherlands)
- Adjacent to 145+ Tcf recoverable gas discovered by Anadarko/ENI in areas 1-4 offshore Mozambique
- Partnership:
  - Discover Exploration (60%)
  - Bahari Resources (40%)
- PSC fully ratified in Q1 2014
- Attractive terms Work commitments fulfilled until 2018



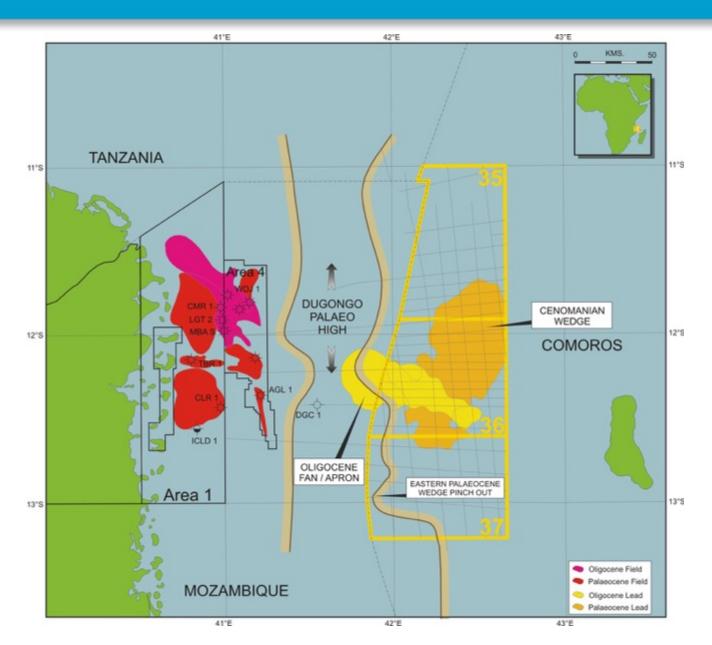
## Location of Seismic Showing Oceanic vs. Continental Crusts DISCOVER







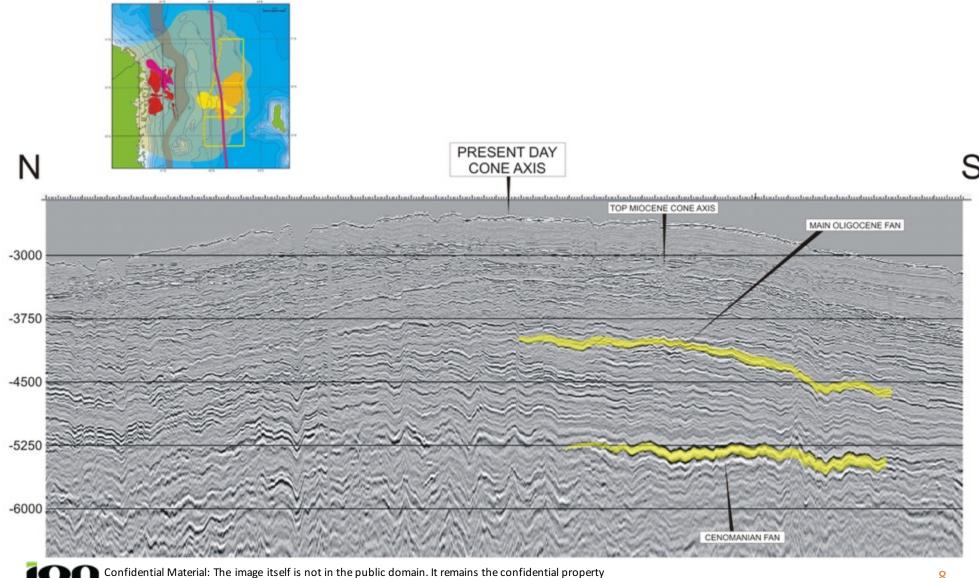






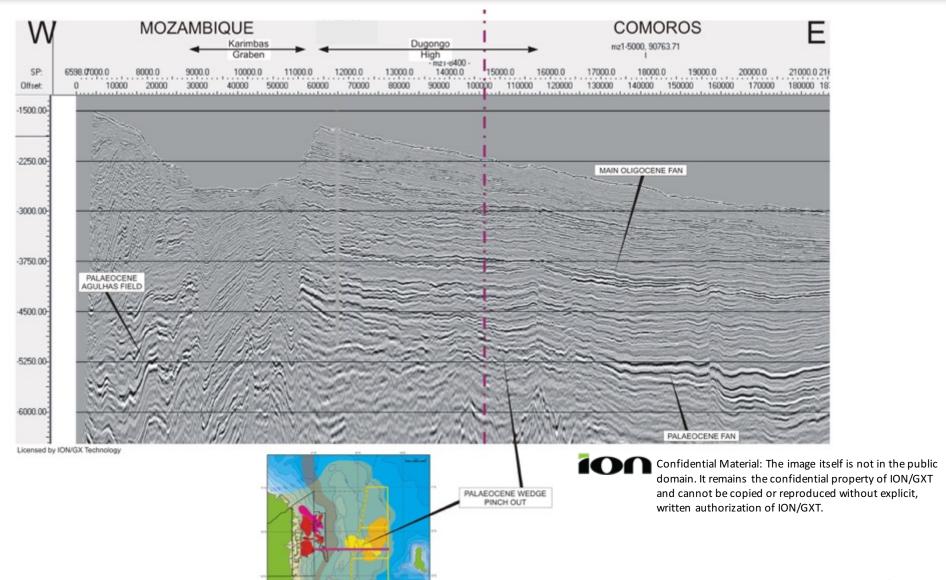
## N-S Seismic Assemblage Transverse to Rovuma Cone Delta







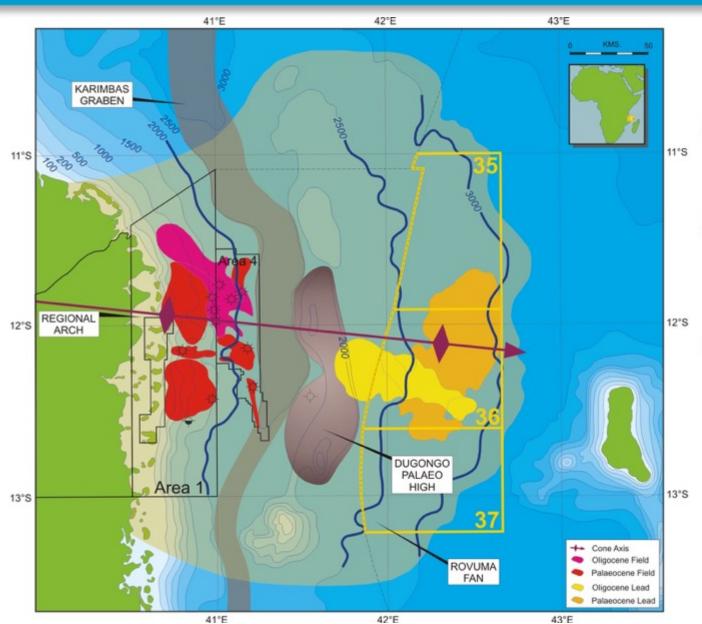






## **Petroleum System**



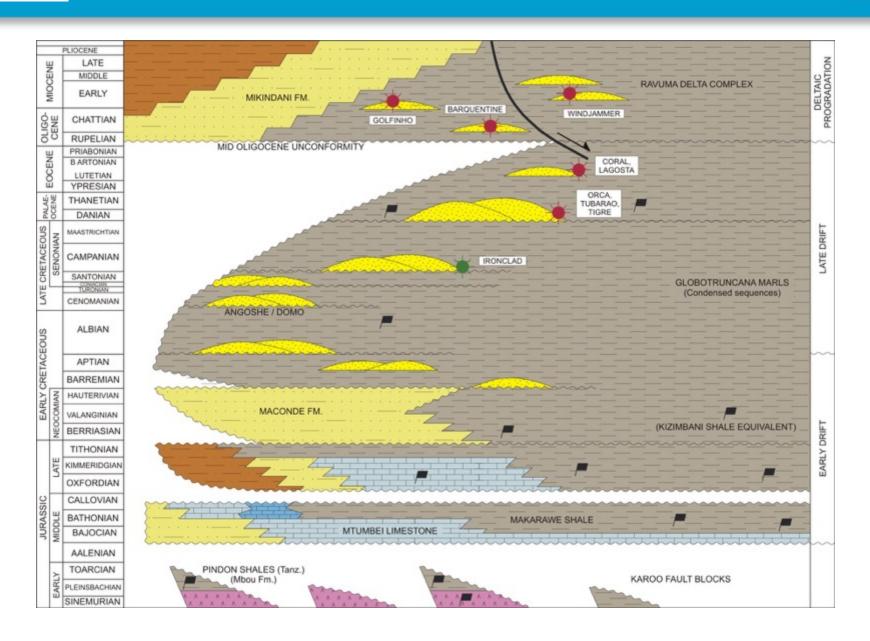


- Extensive turbidite reservoirs (Palaeocene, Eocene and Oligocene)
- Hydrocarbons trapped near crest of regional arch and by pinch-out on the Dugongo hugh
- Source rocks: Jurassic, Upper Cretaceous and Early Tertiary



# **Rovuma Basin Generalised Stratigraphy**

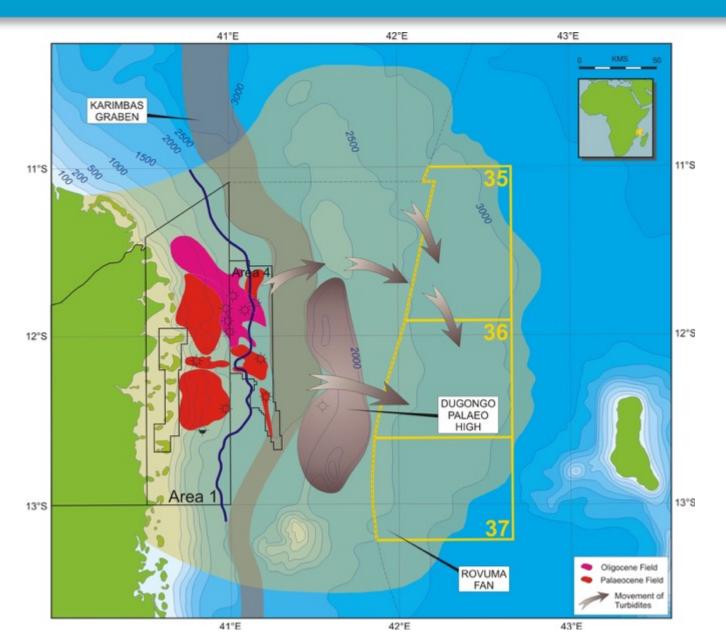






## **Direction of Turbidites**

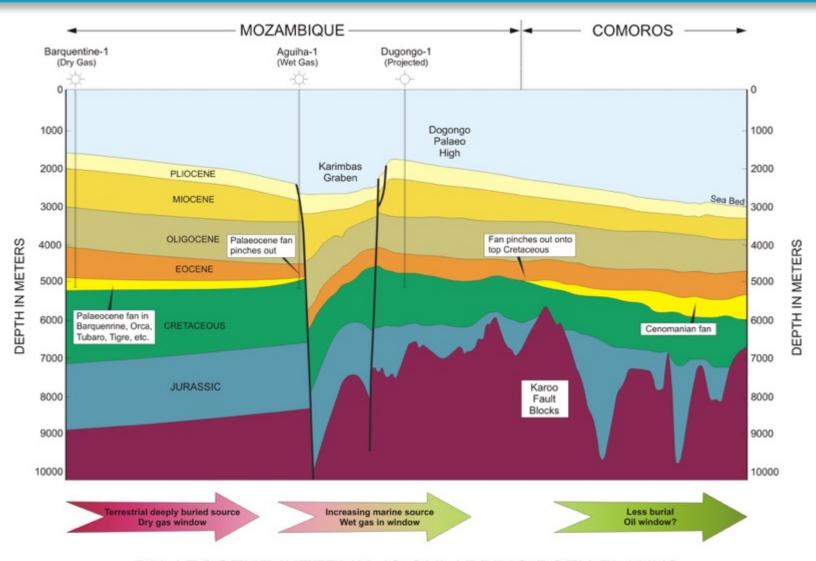






## W-E Schematic Geological Section



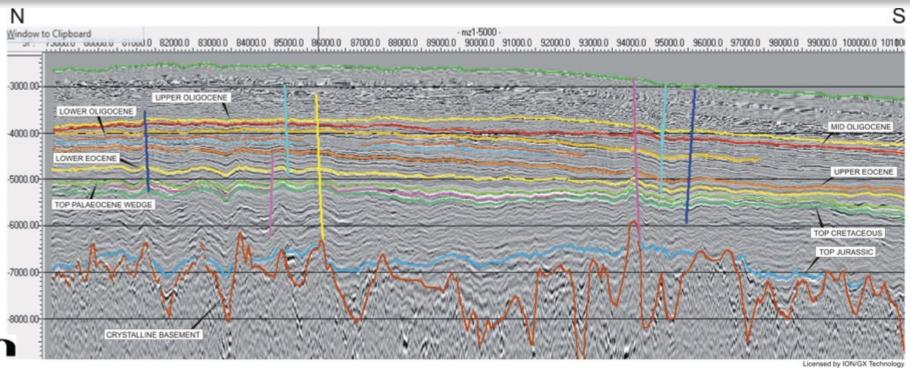


PALAEOCENE INTERVAL IS ONLAPPING BOTH FLANKS
OF A PRE-EXISTING REGIONAL ANTICLINE

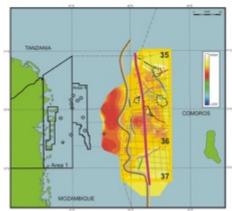


## **N-S Line Across Comoros Acreage**





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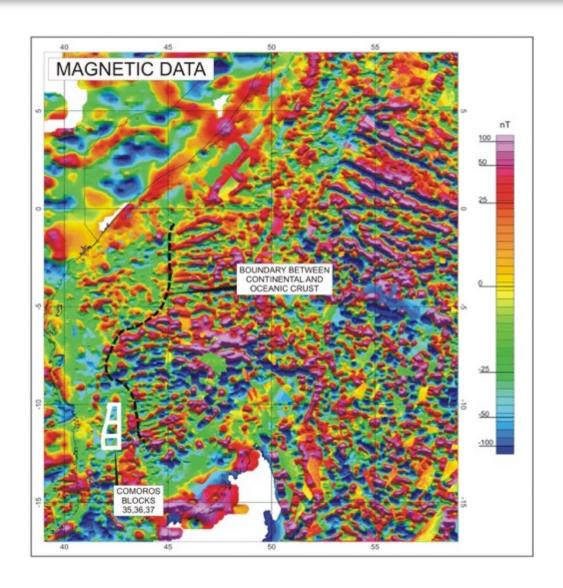
Six plays have been identified:

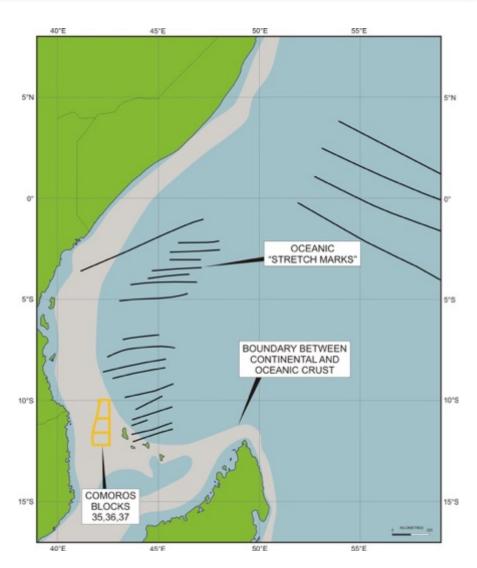
- Palaeocene or Mid Cretaceous wedge
- Lower Eocene beach and fans
- Upper Eocene channels
- Lower Oligocene fan system (Oligo 2)
- Mid Oligocene fans and subcrops (Oligo 1)
- Upper Oligocene channels



# **Continental vs. Oceanic Crust Boundary**



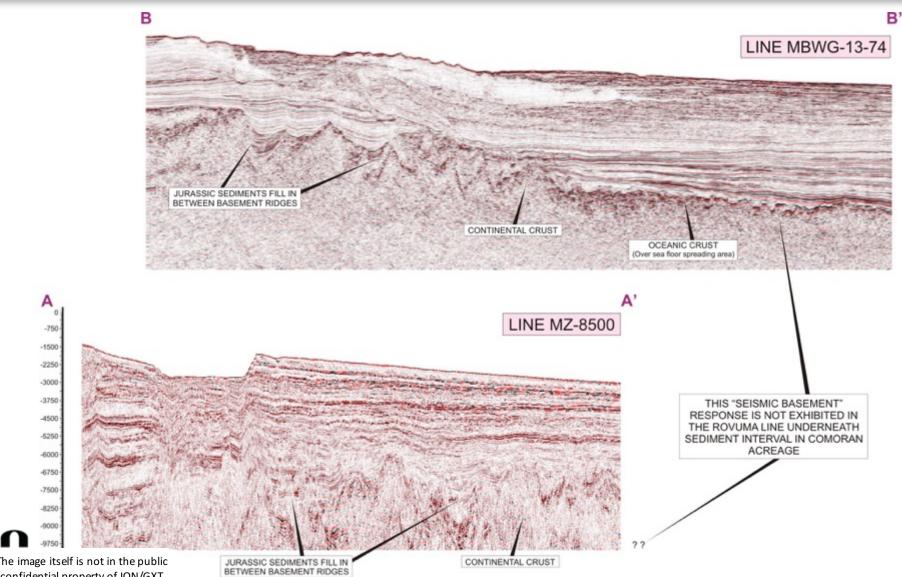






## **Seismic Showing Oceanic vs. Continental Crusts**

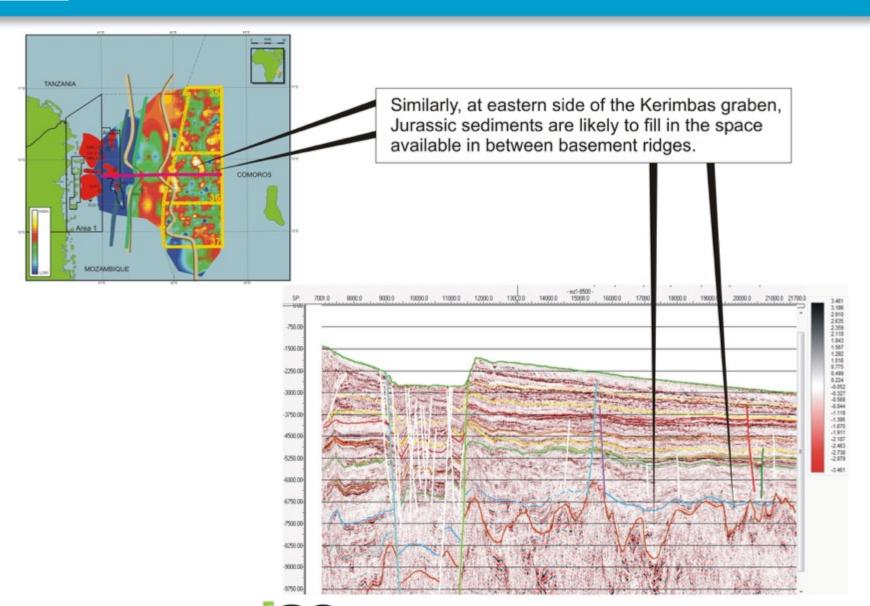






## **Comparison with Comoros Acreage: Line MZ-8500**









There are four reasons to believe that the three Comoroian licences are located over the continental crust:

 Areas over oceanic crust are characterized by the existence of paleomagnetic anomalies that enable dating of the associated sea floor spreading; our licences are located off these areas.

Where these anomalies are present, the crust is characterized by E-W and NW-SE trending magnetic lineaments that are well exhibited on the EMAG 2 map: our licences are located off these lineaments.

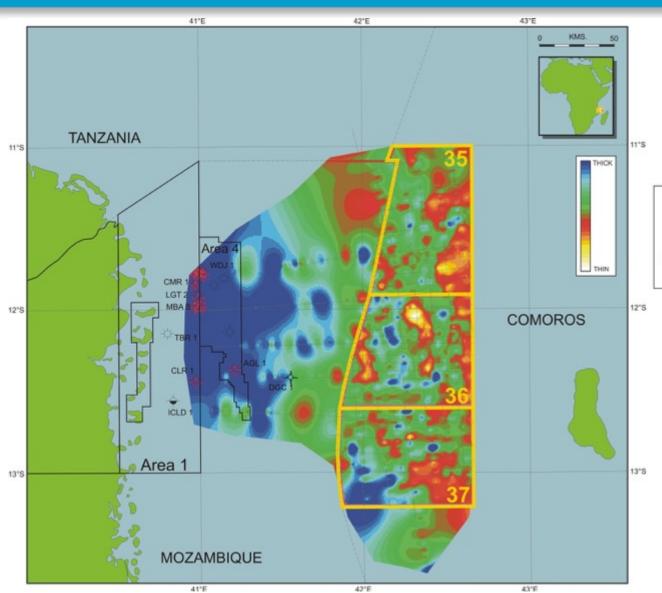
 The basement grain is characterized by two major fault trends (NW-SE and NE-SW) quite similar to those exhibited in the northern part of the Rovuma basin, onshore Tanzania, where the presence of Jurassic/Permo-Triassic source sediments and continental crust is proven by wells.

• In the Zambezi basin, the lines shot in 2013 by WesternGeco show that oceanic and continental crusts can be easily discriminated by their seismic responses: the basement in our Comoros acreage is a look alike of the continental crust exhibited on the outer edge of the Beira High.



## **Jurassic and Mid Cretacious Interval: Isopach Map**



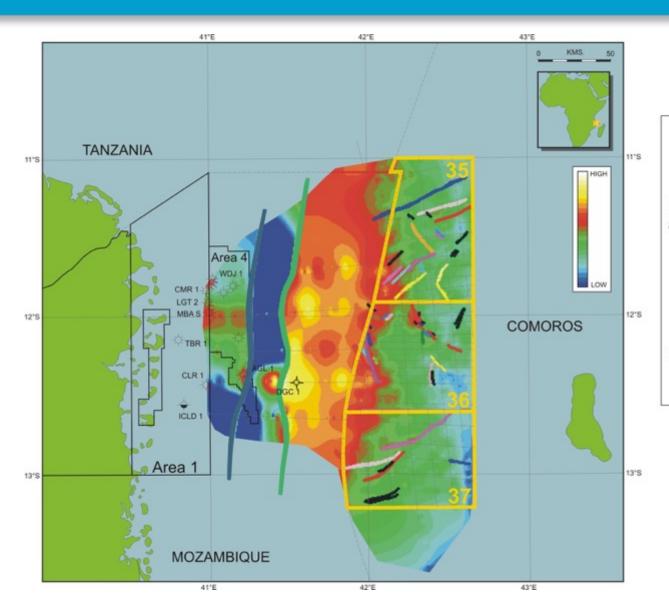


If the Cretaceous source is mature in our acreage, this isopach map shows that up to 3000m of source sediments can be expected around the main prospective structures.



## **Top Cretacious or Top Mid K: Depth Structure**





Depth to top Cretaceous ranges between 5000m and 5800m in designated blocks. The edge of red coloured area is

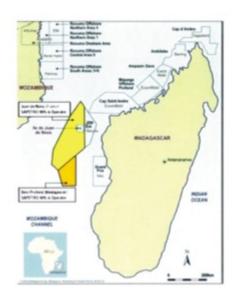
The edge of red coloured area is the 5200m contour, which matches a significant hinge line: this hinge is more or less the western limit of overlying prospective Palaeocene play.

West of the hinge line, a N-S trending syncline isolates a set of four way dip closures from the fault dependant closures at the eastern edge of the Kerimbas graben.



## **Regional Setting**

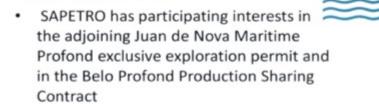


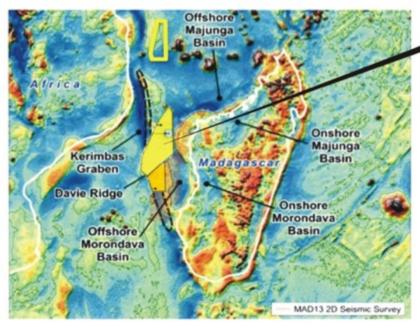


The Juan de Nova permit is situated deep offshore in French territory in the Mozambique channel, adjacent to ENI and Anadarko's discoveries in the Royuma Basin

Belo Profond is adjacent to the Juan de Nova permit and extends the plays to the south along the Davie Fracture zone

#### Juan de Nova & Belo Profond: Asset Overview





Geothermal gradient: 2.86°C / 100m

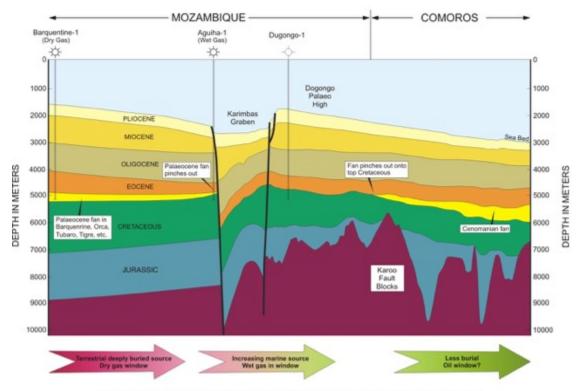
SAPETRO



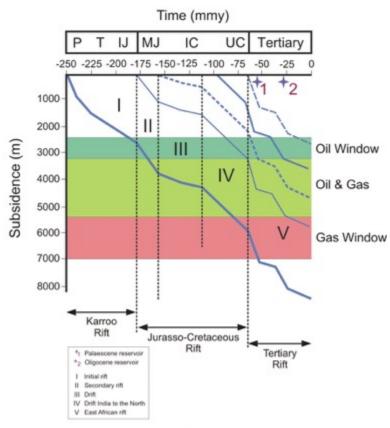
## **Burial History**



- Middle Jurassic source rock (150 MA) ⇒ Oil & gas window
- Upper Cretaceous source rock (100 MA) → Oil & gas window
- Early Tertiary source rock (65 MA) ⇒ Oil window



PALAEOCENE INTERVAL IS ONLAPPING BOTH FLANKS OF A PRE-EXISTING REGIONAL ANTICLINE

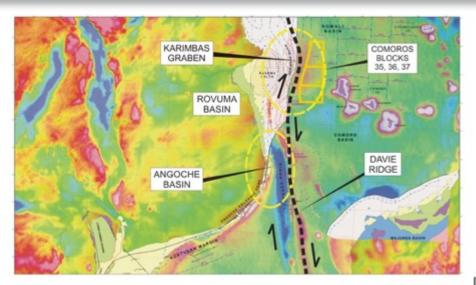


Geothermal Gradient of 2.5°c for Jurassic & Tertiary source rock



## **Angoche vs. Comoros**





Structurally, the Angoche area is located on the western flank of the Davie ridge and the Comoros acreage is located on its eastern flank.

The main expected reservoir there consists of the TuroCenomanian "Domo" sands.

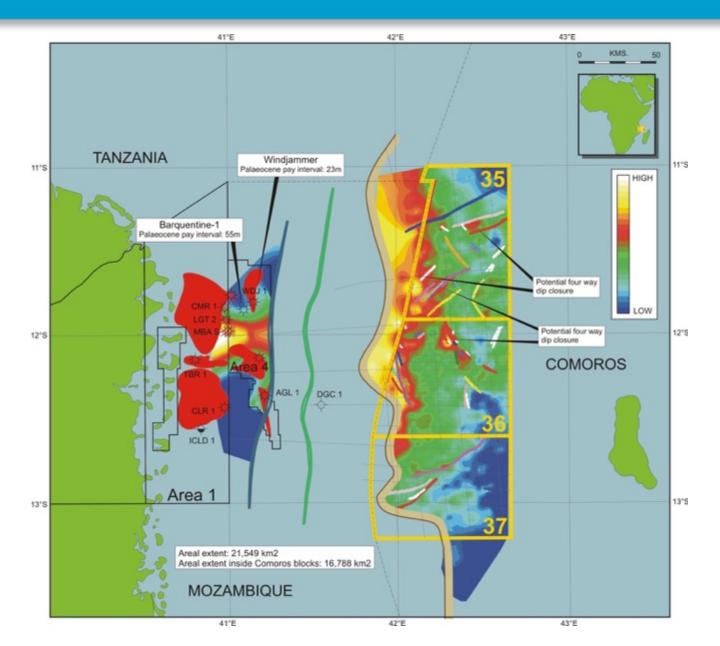
Domo sands

						TECTONISM			
PER	IOD	STAGE	LITHO- STRATIGRAPHY	LITHOLOGY South North	AGE o Ma	SOUTH NORTH Angoche Nacala basin basin			
Q	QUATERNARY		?		3 Ma				
Neogene		Pliocene	.2		5 Ma	(EARS)	EARS		
		Miocene	?	1000	5 Ma	(243)			
Paleogene		Oligocene ?		7 PA	34 Ma				
		Eocene	?	4073	55 Ma	PASSIVE MARGIN			
		Paleocene			66 Ma		_		
co	05	Maastrichian Campanian	Lower Grudja Equiv.		1000	ONSET OF PASSIVE MARGIN	PHASE		
D	04 04	Santonian	Upper Domo Sh Equiv		83 Ma	EROSION/LATE DRIFT PHASE	100		
0 8	D <sub>a</sub>	Contacian	opper trains on Expan-		89 Ma		DRIFT		
ACI	0	Tiarocian Cenomanian	Doeno Sand Equiv.		100 Ma	MARINE REGRESSION	LATE		
RET	WER	Albian Aptian Barremian	Lower Domo Sh Equiv		118 Ma	SHORT-LIVED TECTONIC UPLIFT STRIKE-SLIP CEASED (DFZ)			
C	LOJ	Neocomian	Pemba Fm Equiv.	SINONOMENTALINE VICTORS SINONOMENTALINE VICTORS	145 Ma	TECTONIC SYN-RIFT SUBSIDENCE STECTONIC	PHASE		
A S S	-	Tithonian- Kimmeridgian Oxfordian	J-Unit III		245 Ma	TRANSPRESSION DITTENSION	E.		
	0.		J-Unit II	STATE OF THE PARTY	,	TECTONIC STECTONIC	DRIFT		
	Þ		J-Unit I	STATE OF THE PARTY	167 Ma	SUBSIDENCE SUBSIDENCE	>		
	202	Bathenian- Bajocian	Makarawe Shale Eq. Mrumbei Limestone ? Occanic Crust ?	bei Limestone ?		STRIKE-SLIP STAGE (DFZ)	EARLY		
JUR	MIDD	Aalenian	Basement	7::	170 Ma	RIFTING STAGE (GONDWANA)	SW-		



# **Top Cenomanian Wedge Depth Structure**

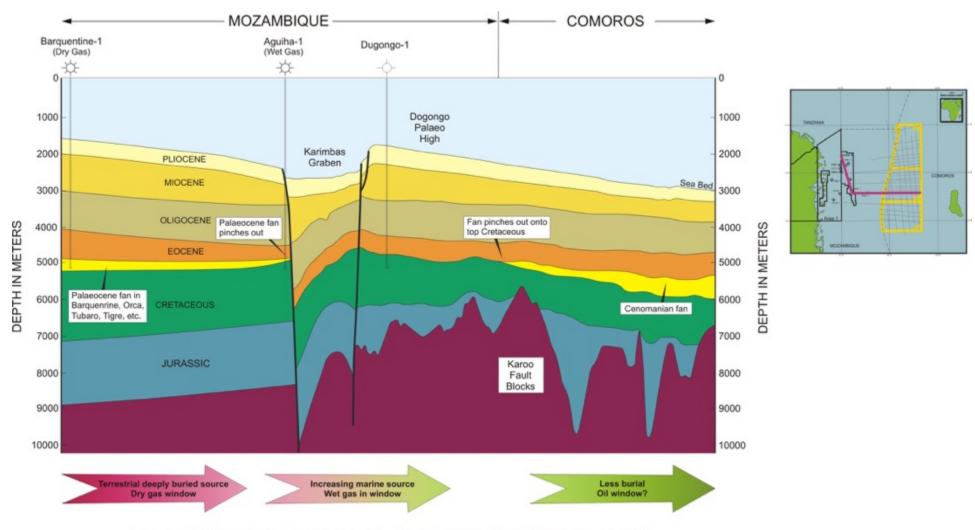






## W-E Schematic Geological Section

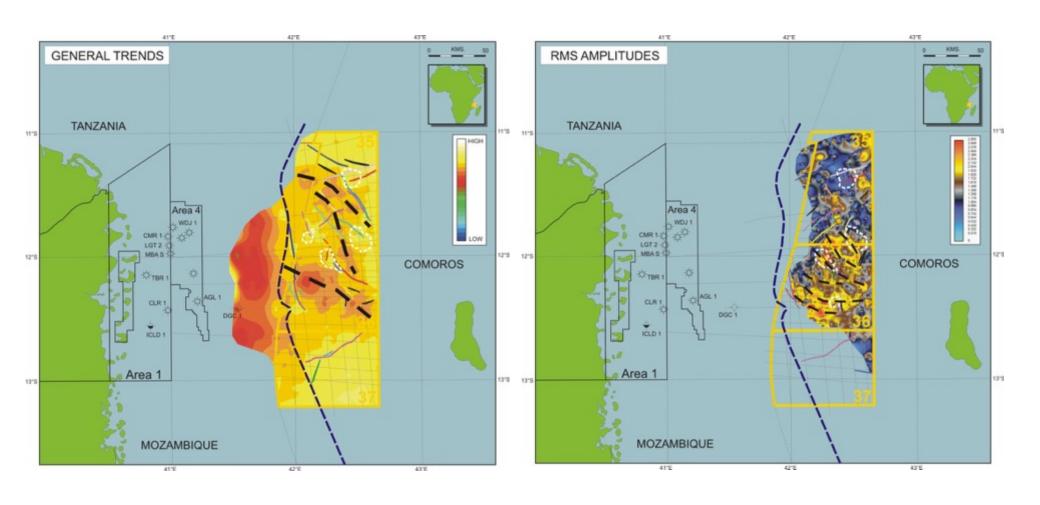




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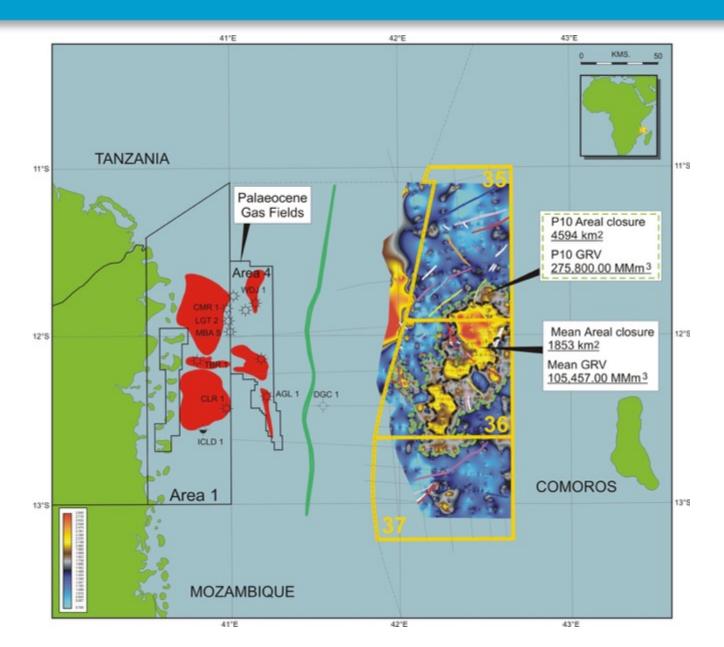






# **Cenomanian Wedge with Amplitudes**







# **Prospective Resources**



GAS CASE Pmean-P10	Area (km²)	GRV (Bm³)	N/G		S <sub>HC</sub>	$B_g$	GIIP (Tcf)	RF	Prospective resources (Tcf)
Cenomanian Fan	850-1,850	105-275	22-30%	18-20%	64-80%	350-325	30-80	80-85%	24-63

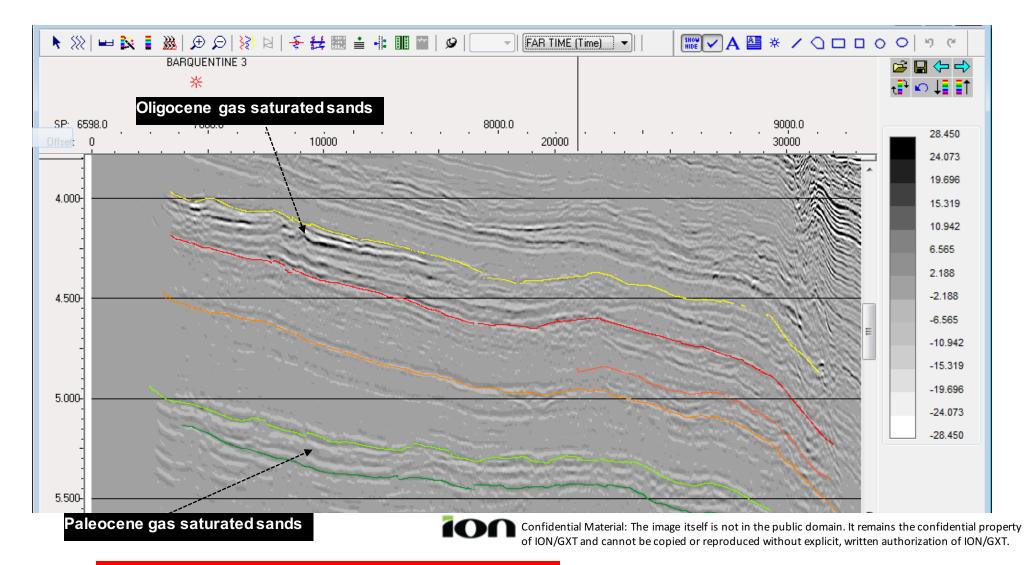
#### <u>or</u>

OIL CASE Pmean-P10	Area (km²)	GRV (Bm³)	N/G		S <sub>HC</sub>	FVF	STOIIP (Bbbl)	RF	Prospective resources (Bbbl)
Cenomanian Fan	850-1,850	105-275	22-30%	18-20%	64-80%	2.14-2.12	8-21	26-40%	2-5



## Line 8700 Oligocene & Paleocene Far

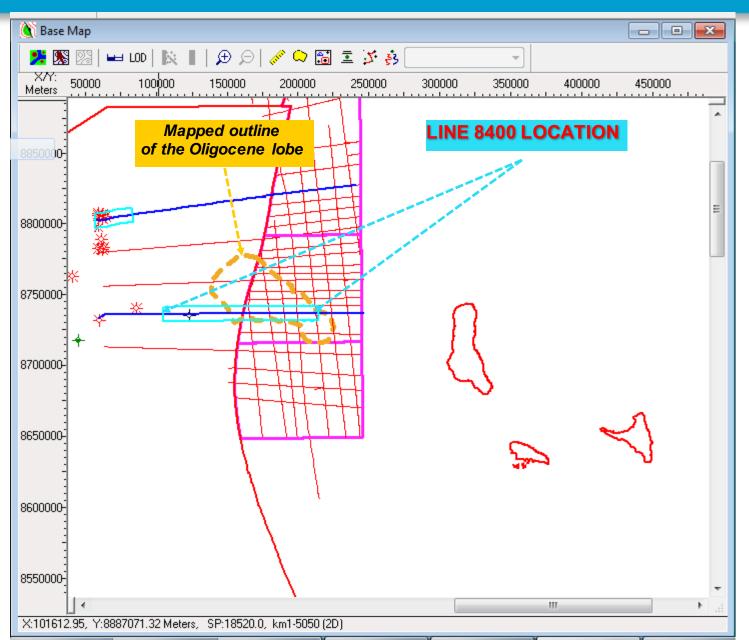






## Oligocene

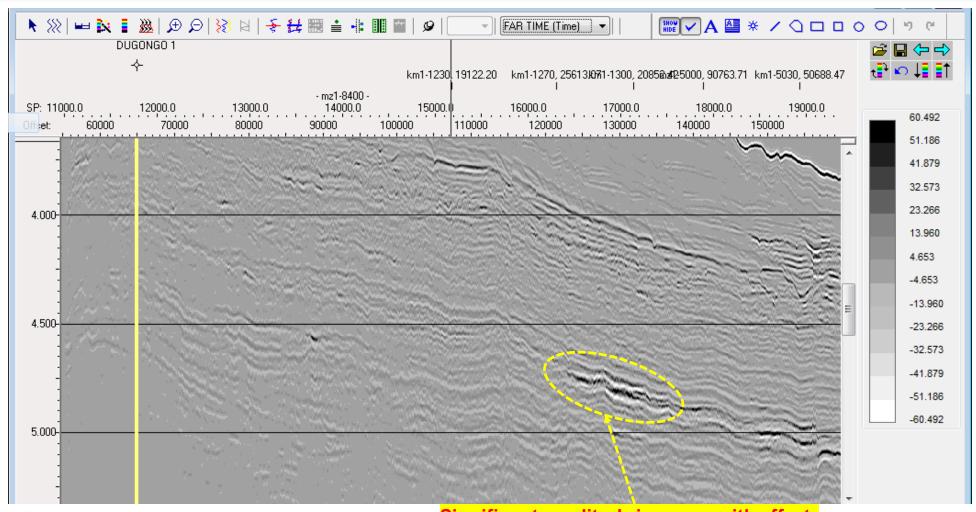






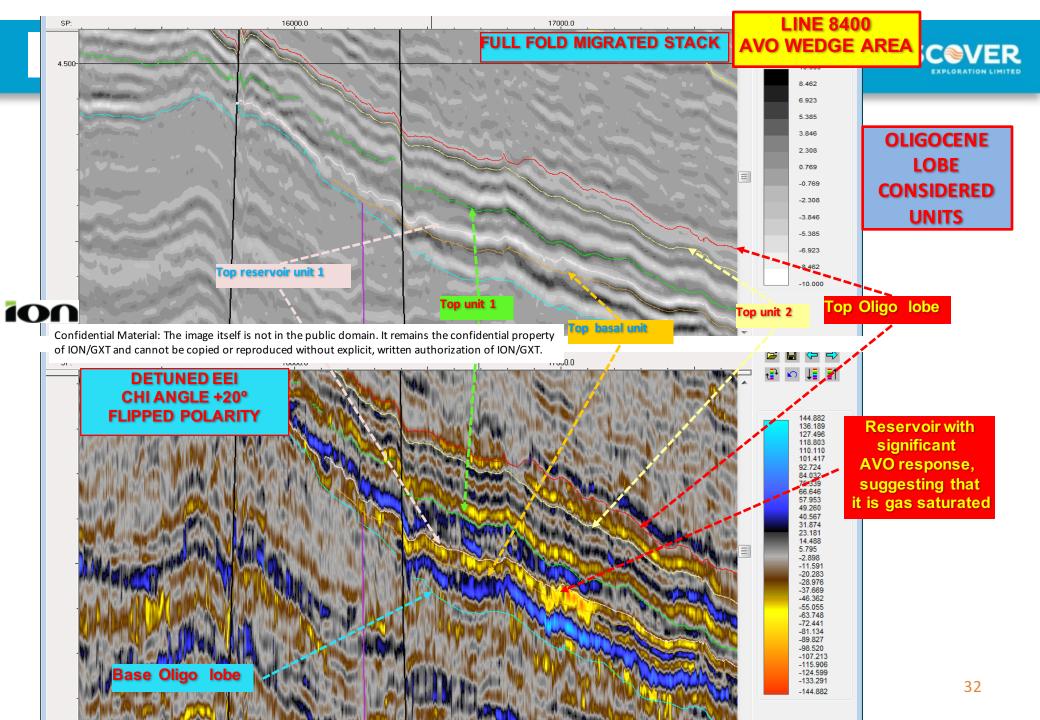
## Line 8400 Oligocene Far





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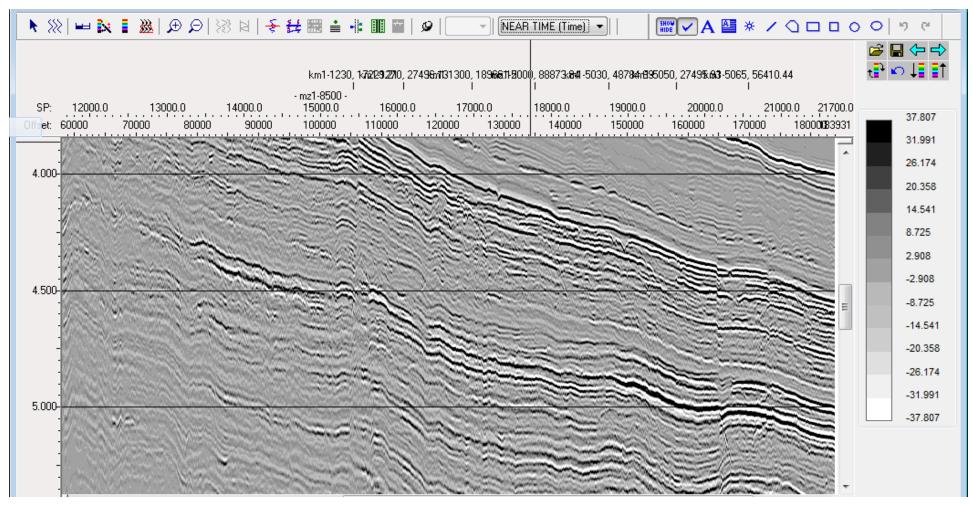
Significant amplitude increase with offset





## Line 8500 Oligocene Near



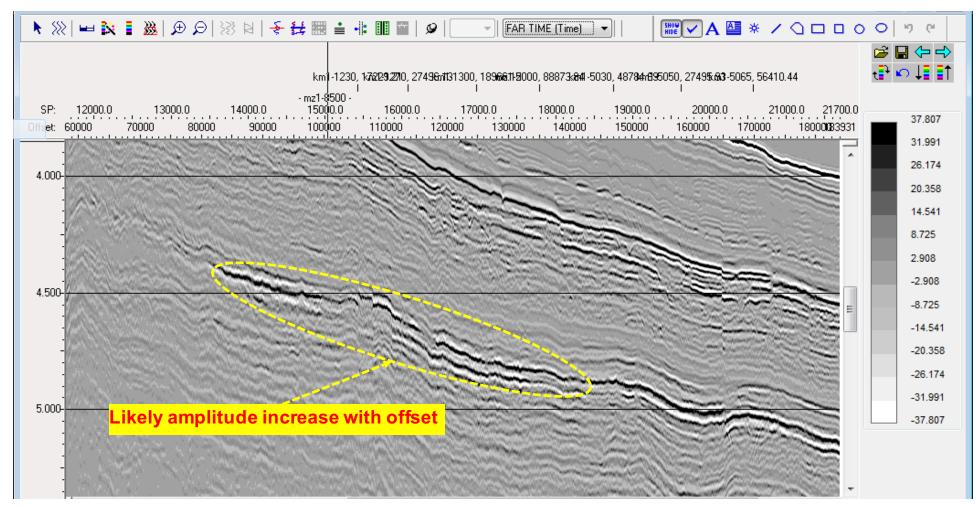






## Line 8500 Oligocene FAR

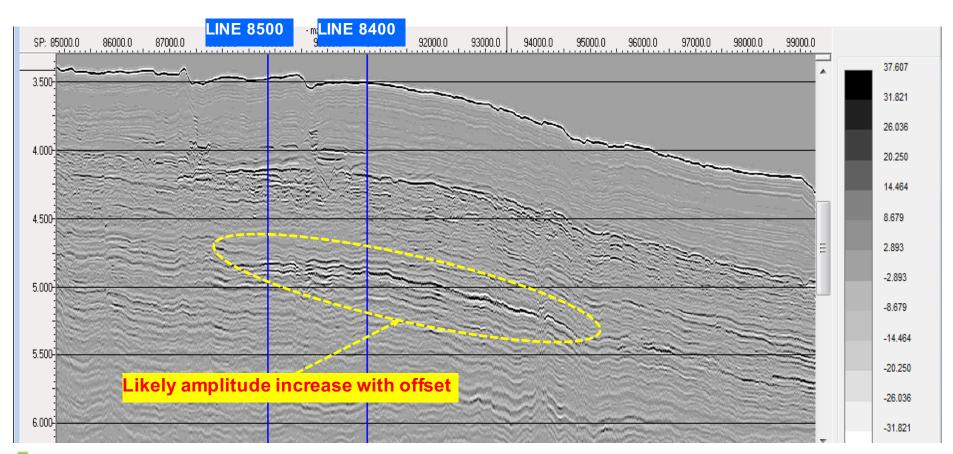




100

## Line 5000 Oligocene Far

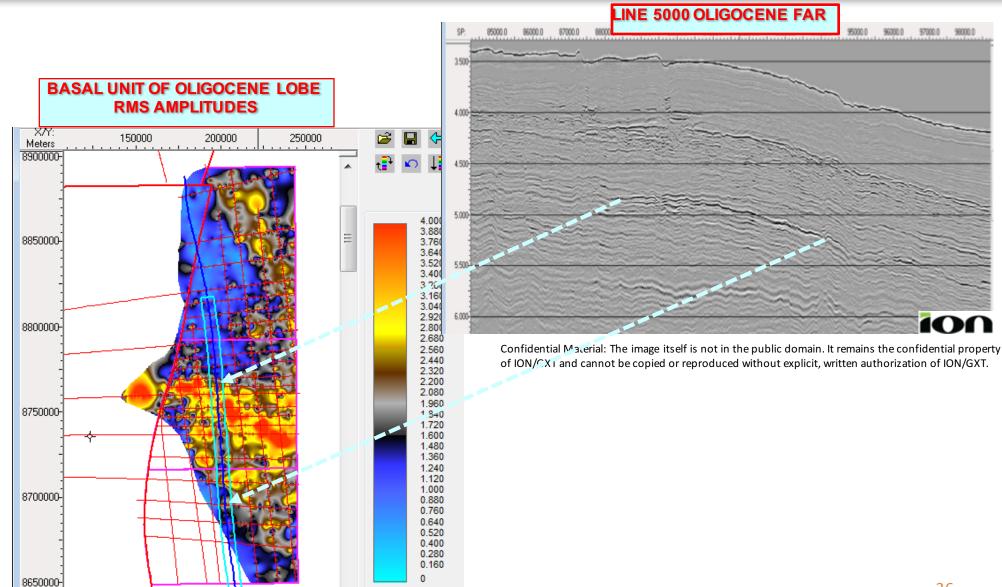






#### **Areal Extent of AVO Anomaly Exhibited on Far Offset Volume**

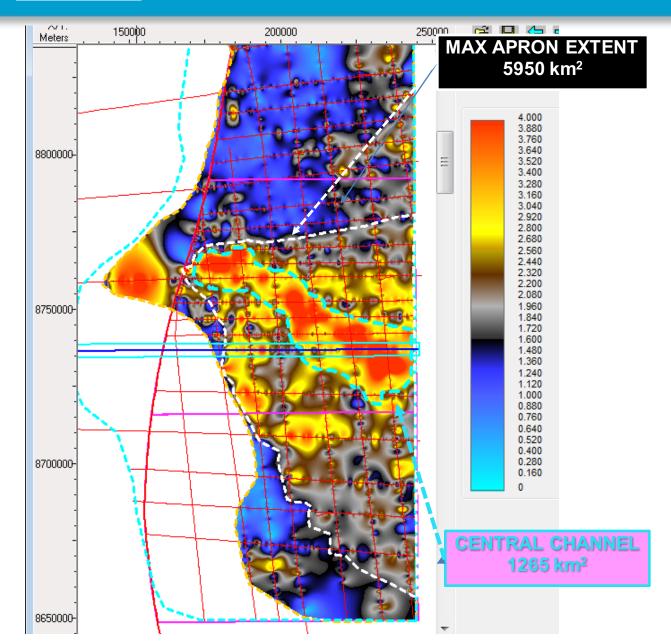






### Top Oligocene Unit 1 Reservoir to Base Pay Interval RMS Amplitudes DISCOVER







#### **LINE 8400 LEAD LIMITS**

#### APRON WESTERN EDGE Confidential Material: The image itself is not in the public domain. It remains the confidential property of ION/GXT and cannot be copied or reproduced without explicit, written authorization of ION/GXT. POTENTIAL GAS CAP WITH AVO RESPONSE **PAY INTERVAL** 150000 200000 250000 Meters 8900000-CENTRAL CHANNEL WESTERN EDGE 4.000 3.880 3.760 3.640 3.520 Confidential Material: The image itself is not in the public domain. It remains the confidential property 8850000 3.400 of ION/GXT and cannot be copied or reproduced without explicit, written authorization of ION/GXT. 3.280 3.160 2.920 2.860 2.680 8800000 2.560 2.440 2.320 1.960 1.840 8750000-1.600 1.480 1.360 1.240 1.120 1.000 0.880 0.760 0.640 8700000 0.520 0.400 0.280 LINE 8400 MIGRATED STACK DEPTH 8650000-

nz1-8400 14000.0

15000.0

13000.0

12000.0

5.000

LINE 8400 TIME FAR

km1-1270, 25613.07km1-1300, 20852.48:1-5000, 90763.71

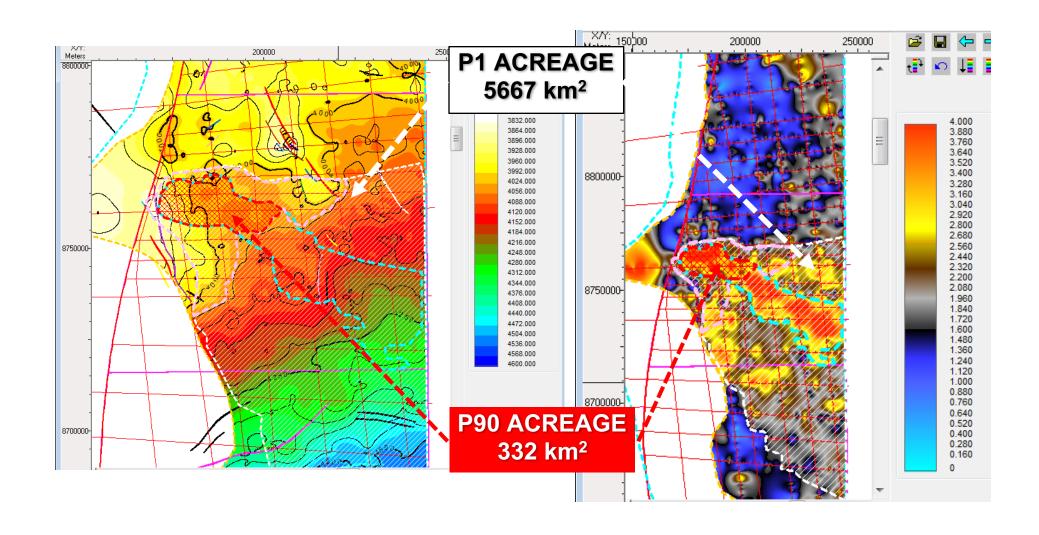
18000.0

17000.0



## **Acreages Take into Account for Assessment**







## **Comoros, the Sleeping Giant**

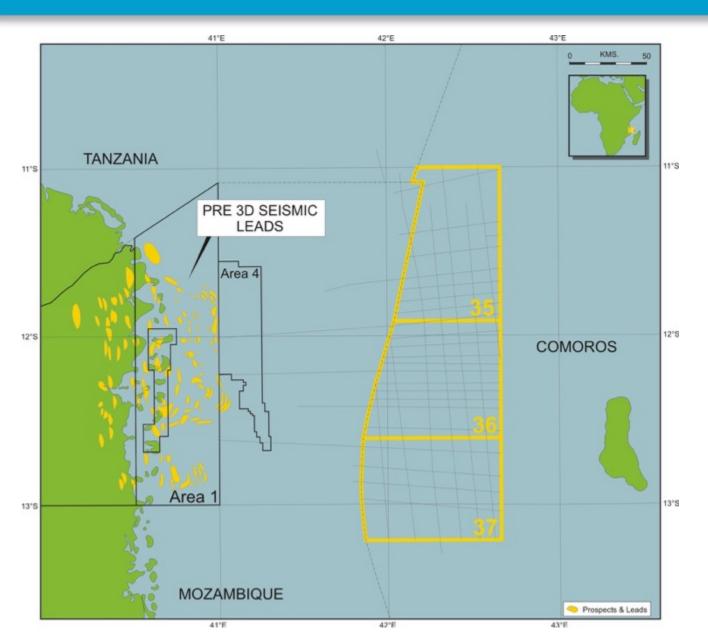


- Cenomanian, Eocene & Oligocene fans draped over regional structural arch
- Similarities to Mozambique Areas 1-4
- Dugongo High sets up traps on it's eastern flank
- Strong evidence for continental crust
- Compelling evidence for oil
  - Basin Modelling
  - AVO
  - ENI Coral Gas Field in Area 4 has wet gas
  - Less burial on source rock
- Giant resource potential Pmean prospective resources of 50 Tcf (gas) or 4.5 Bbbl (oil)
- Way forward:
  - Complete AVO on deeper horizons
  - Plan 3D seismic (2016) 7000 Km<sup>2</sup>
  - 2 Wells (2017/18)



## Rovuma Delta in 2009...

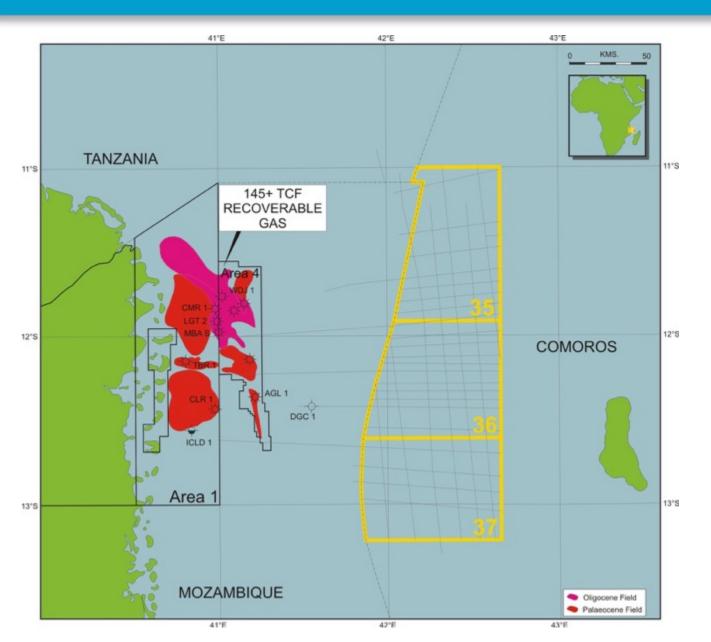






# ...and Today

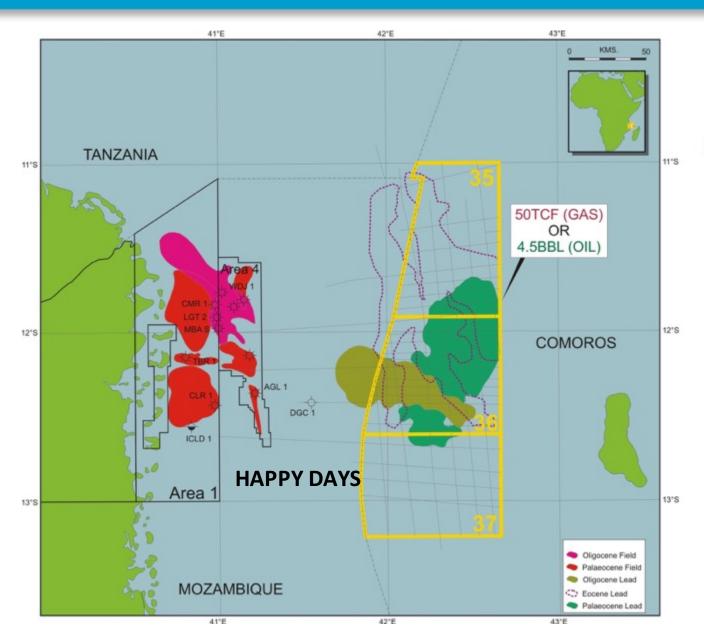






### **Comoros...the Future?**





Prospective resources: (Pmean)

OR 4.5BBL (OIL)





