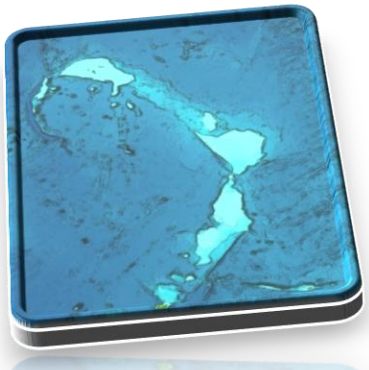
Seychelles Petroleum Potential
&
Exploration Opportunities

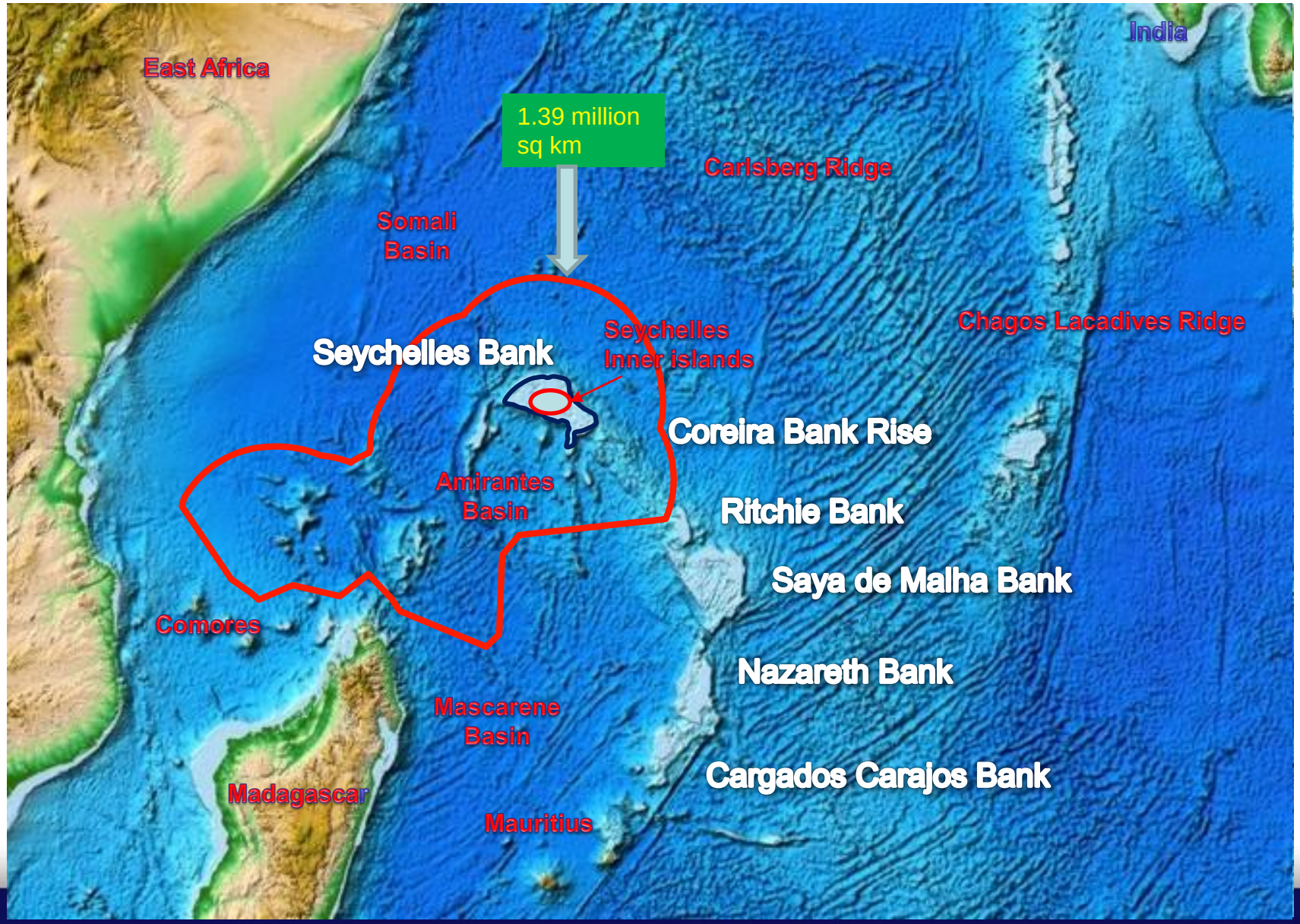


Patrick J Samson
Exploration Manager
PetroSeychelles

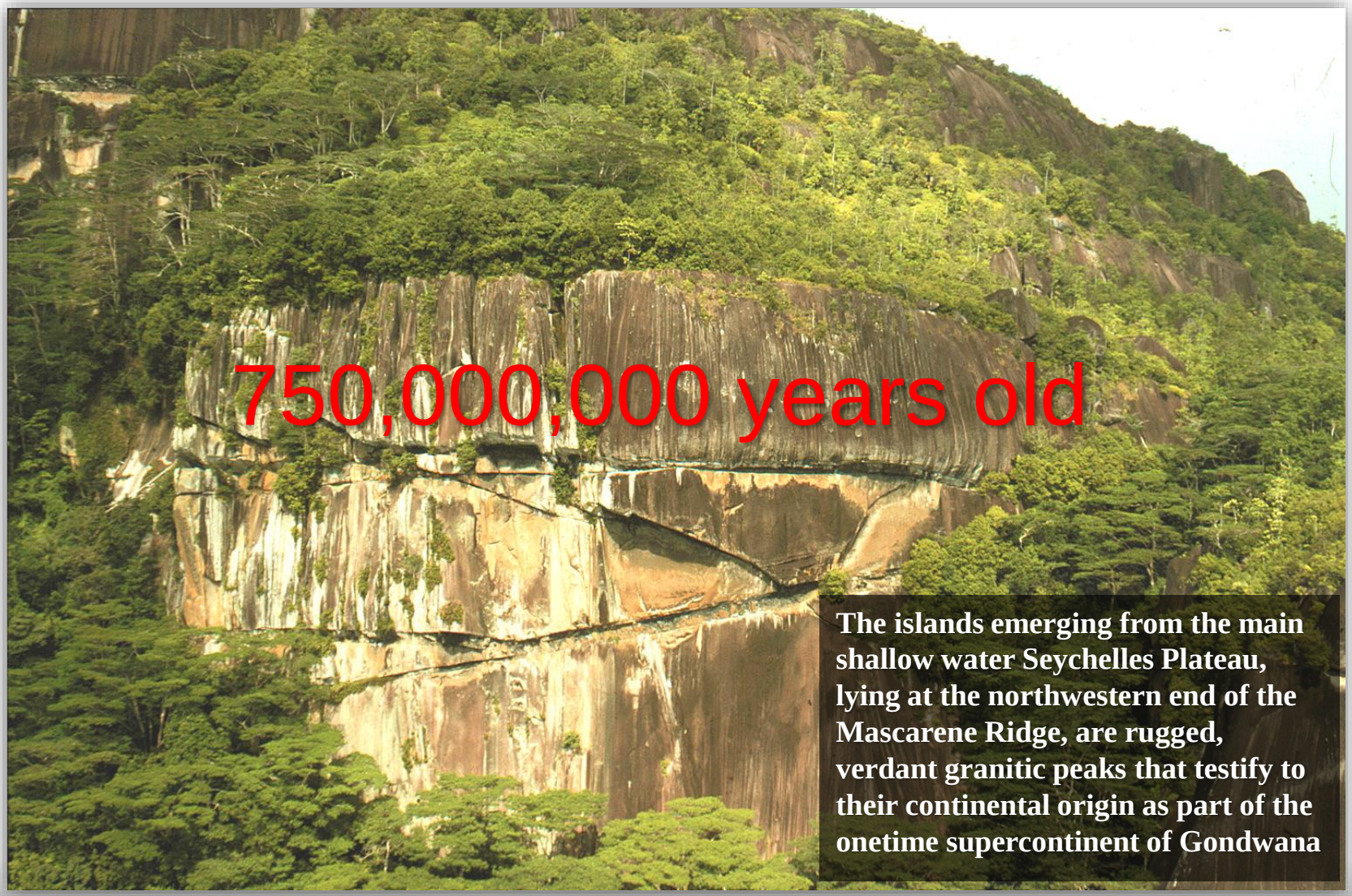
Topics

- Geographic Location and Data Availability
- Tectonic Evolution and Petroleum Potential
- Legal Framework and Fiscal Regime
- Seychelles/Mauritius Shared Extended Continental Shelf (Joint Management Area)

Geographical Setting of Mascarene Plateau



Outcrop Geology



The islands emerging from the main shallow water Seychelles Plateau, lying at the northwestern end of the Mascarene Ridge, are rugged, verdant granitic peaks that testify to their continental origin as part of the onetime supercontinent of Gondwana

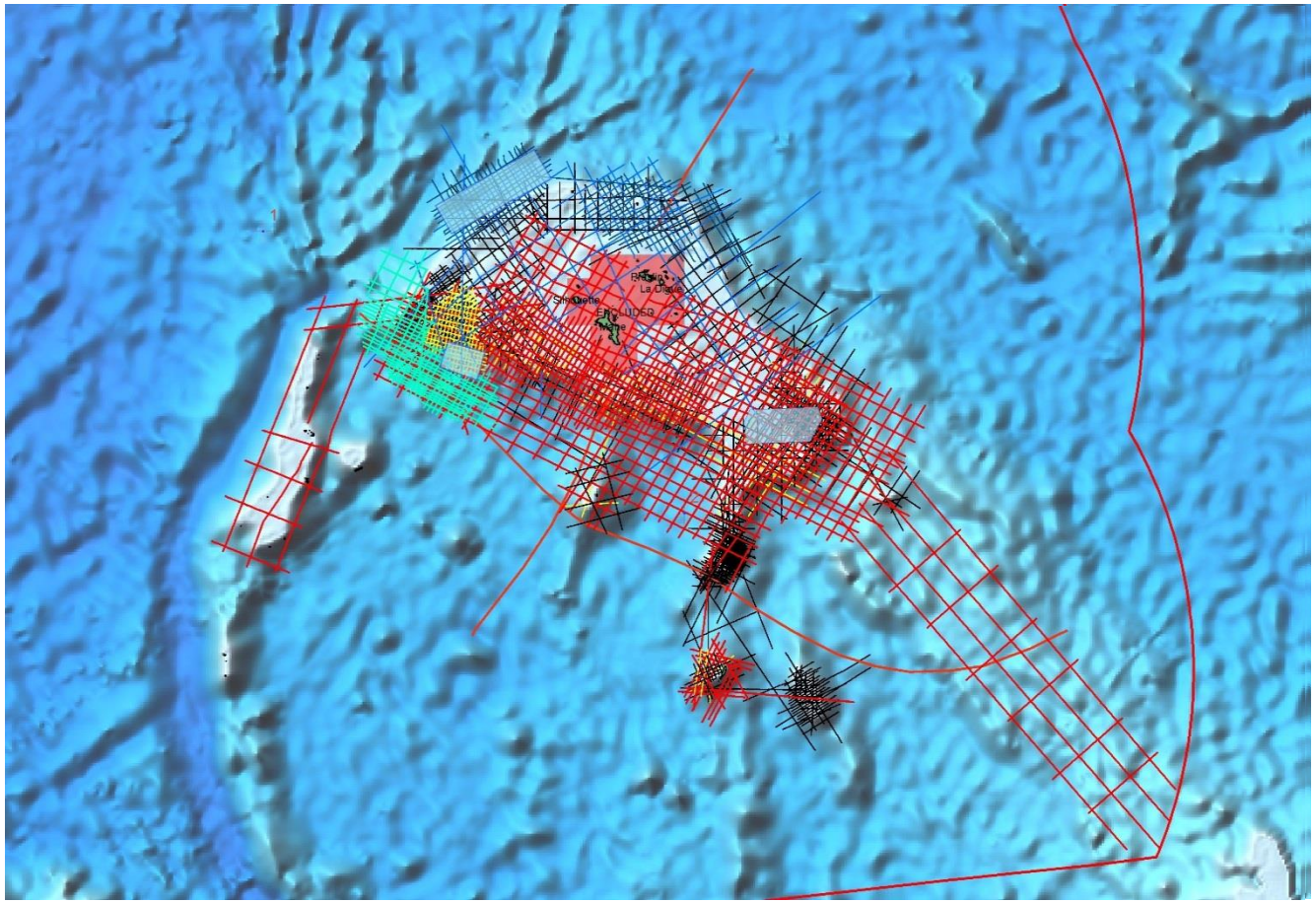
Well Control

4 Wells have been drilled so far in Seychelles

Drilled by Amoco 1980/81

Drilled by Enterprise in 1995

Seismic Data coverage Map



Open File Data

- 23,150 line km of seismic, gravity & magnetic (available as paper copies and field data on exabyte and 3480)

Infill Data

- Several companies acquired 2D infill data in the early 2000s

Multi-client Data

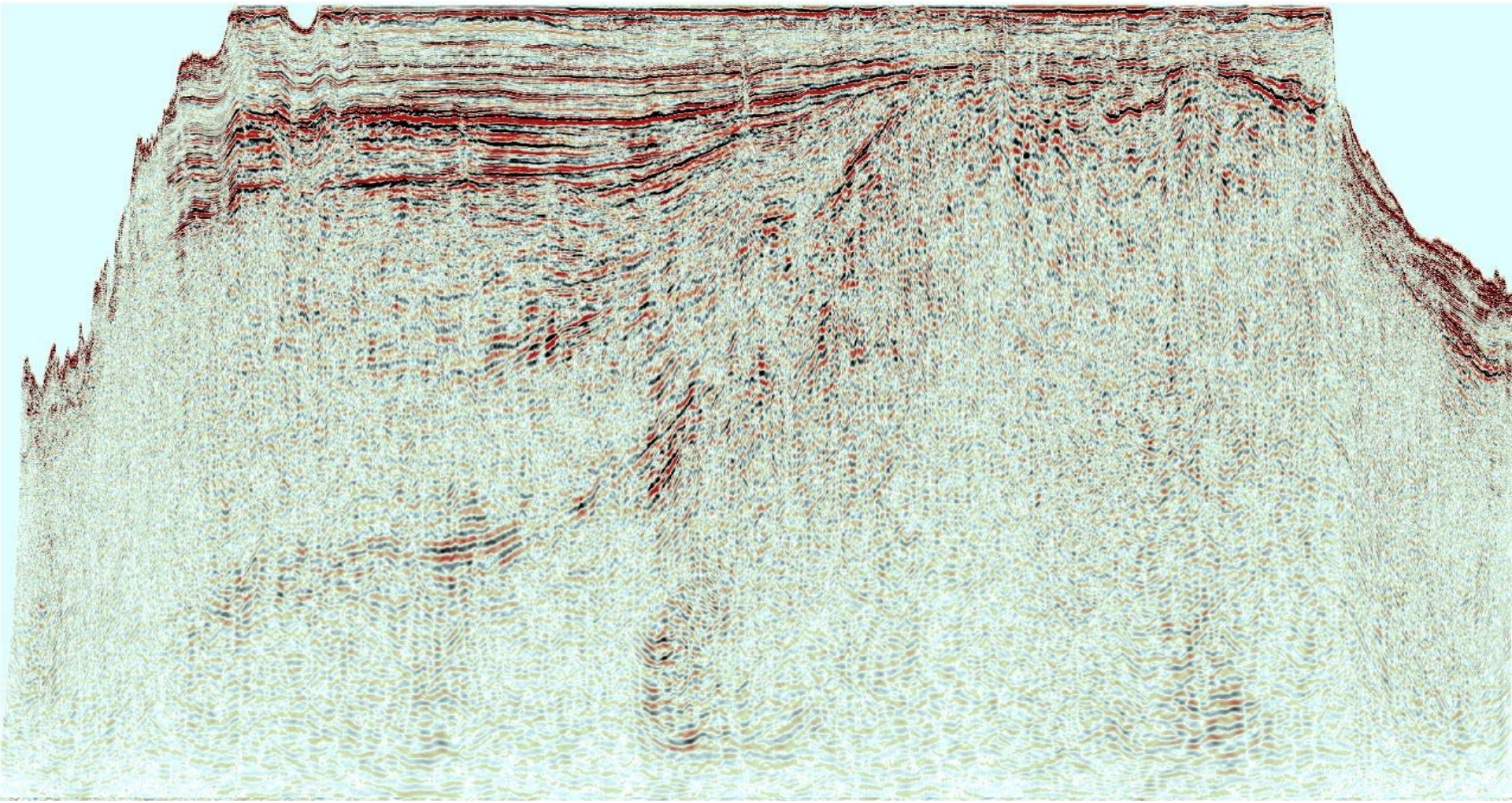
- Fugro acquired 20,000 line km Of large offset high fold 2D seismic On multi-client basis in 2010

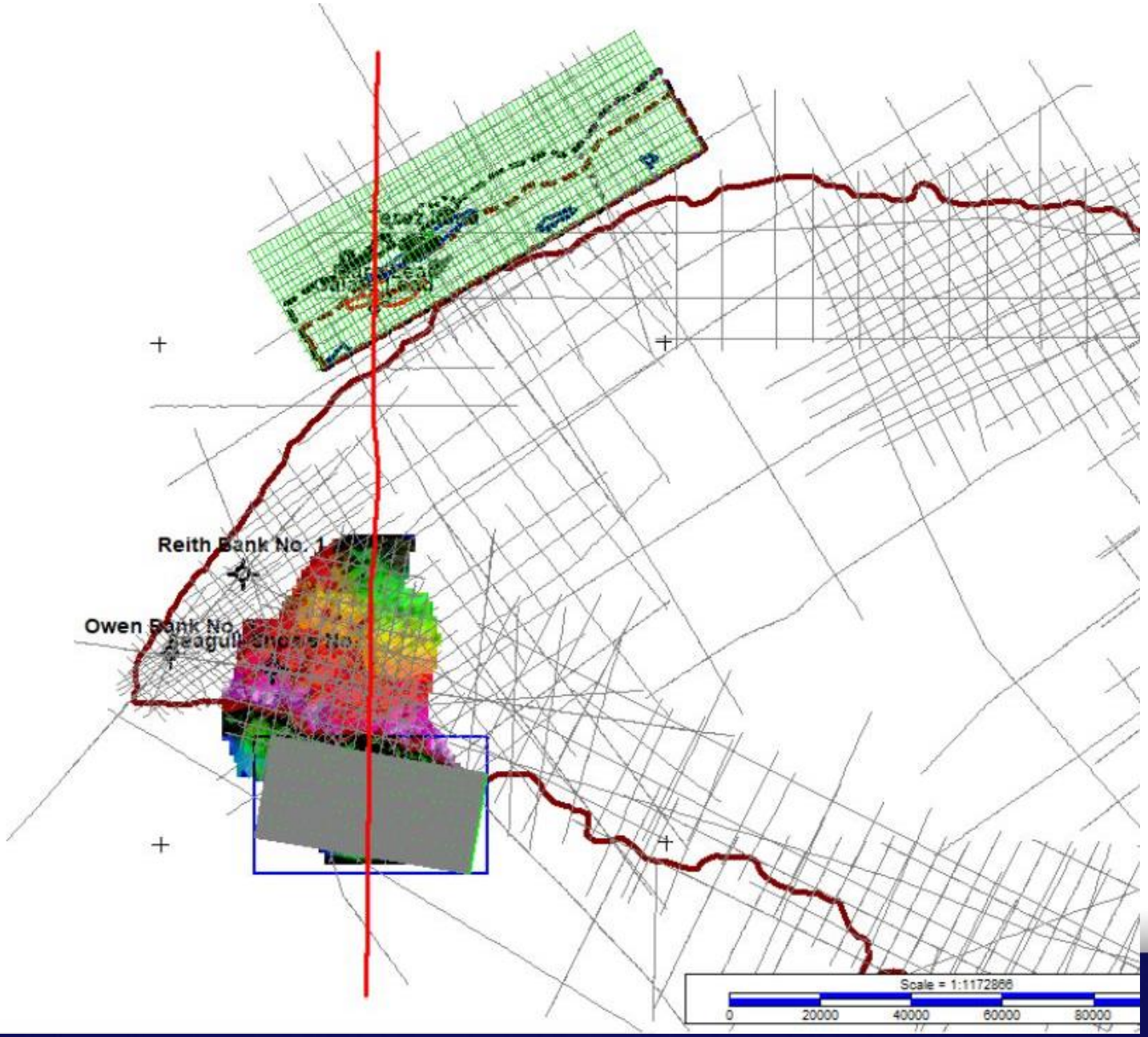
ION GXT acquired 3 regional lines SPAN project

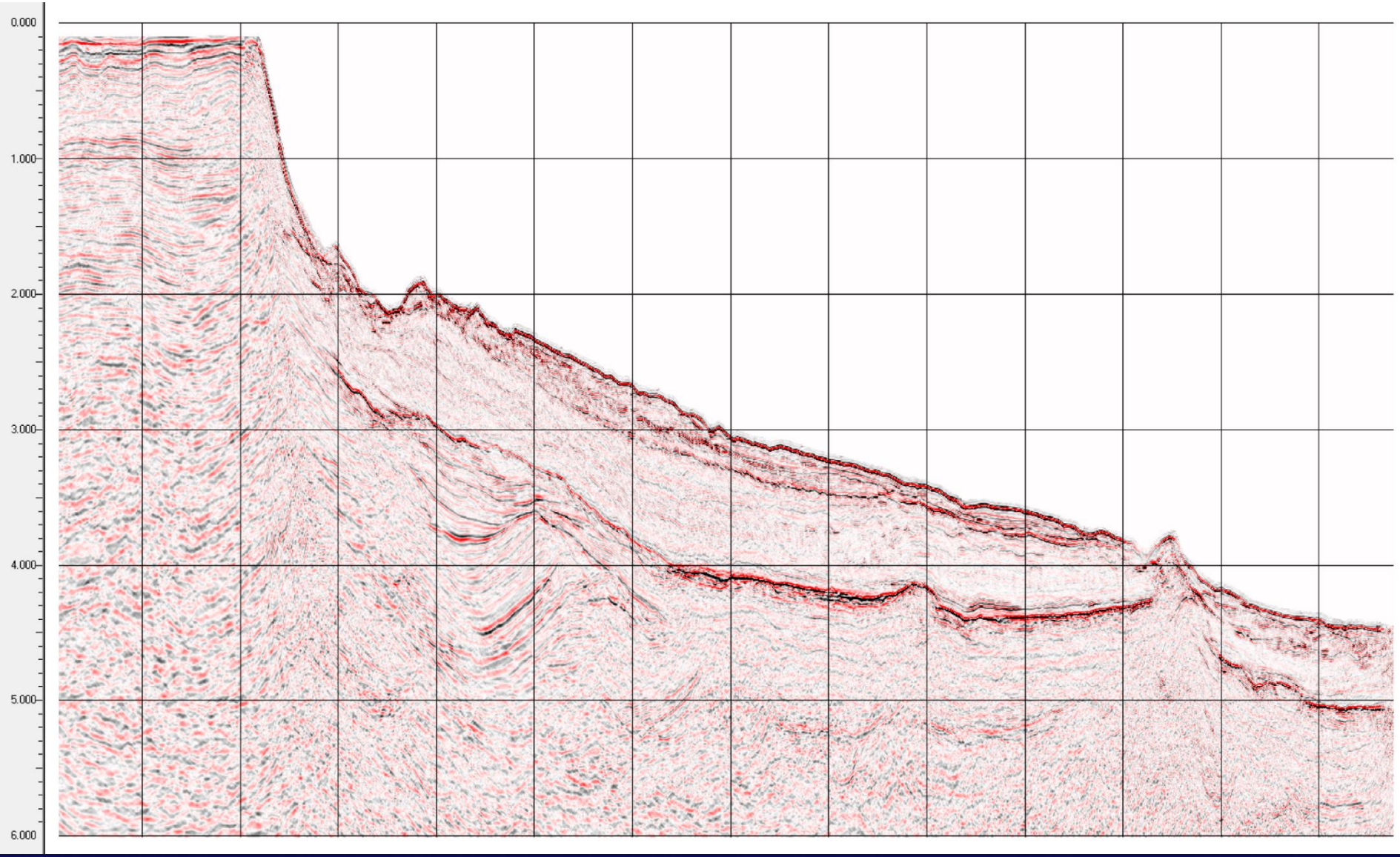
3D

Afren
Ophir

Improved Imaging




Reith Bank No. 1
Owen Bank No
Scale = 1:1172866
0
20000
40000
60000
80000

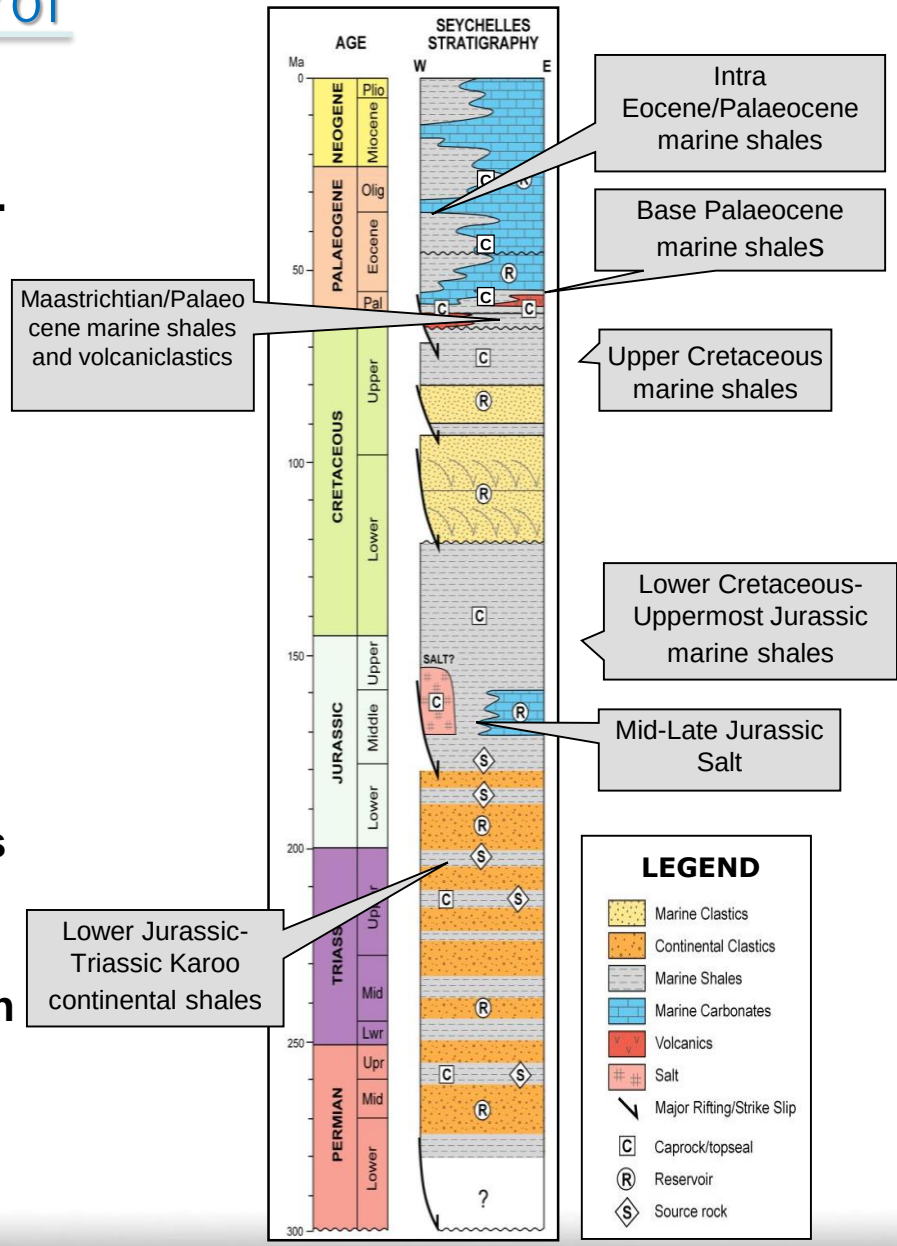

0.000
1.000
2.000
3.000
4.000
5.000
6.000

Well Control

- **This stratigraphic column is a compilation from all four wells and available seismic data. It also pulls in regional elements from the Bombay High and Madagascar area, both of which were juxtaposed against Seychelles prior to plate tectonic break up.**

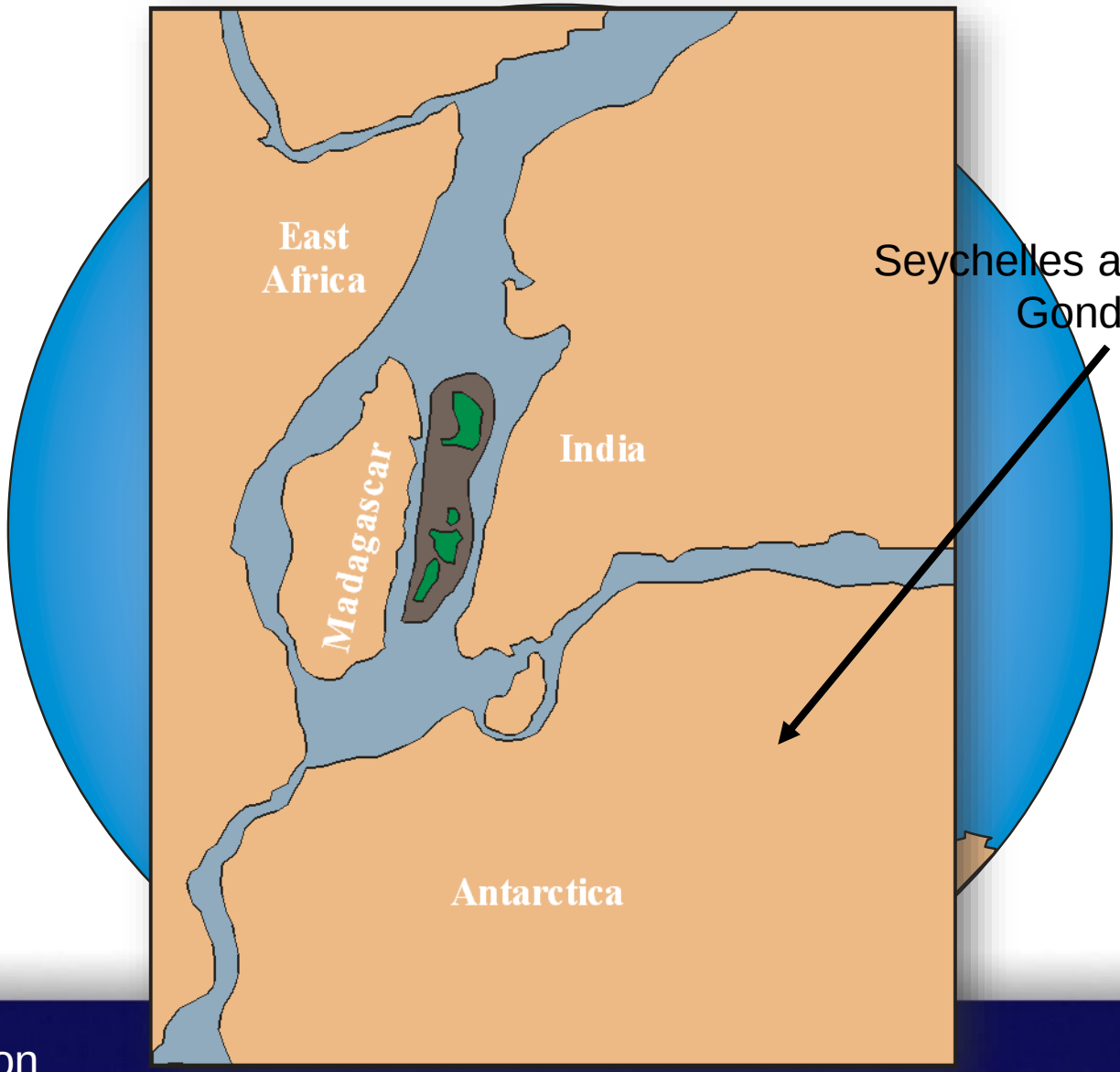
- **Age of the Jurassic salt is speculative, but is reasonable when compared against East Africa and Madagascar analogues. Distribution of Jurassic salt is also unknown**

- **Age of oldest sediments in the Karoo basin is unknown. In Northern Madagascar the oldest known Karoo is Permian. The oldest Permian in northernmost Madagascar is marine, and therefore it is highly likely that any Permian in Seychelles is also marine and therefore a good oil prone source rock**



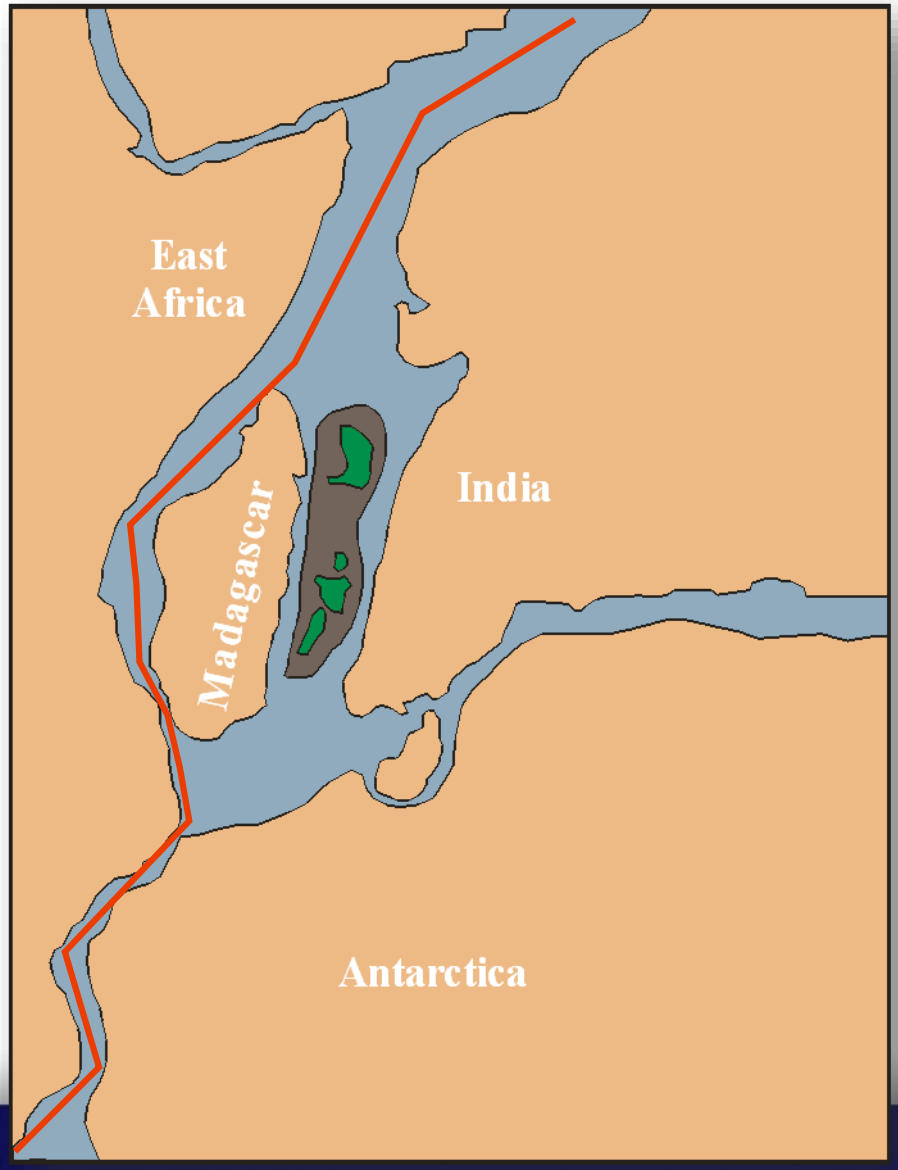
Tectonic Evolution

Permian
300Ma

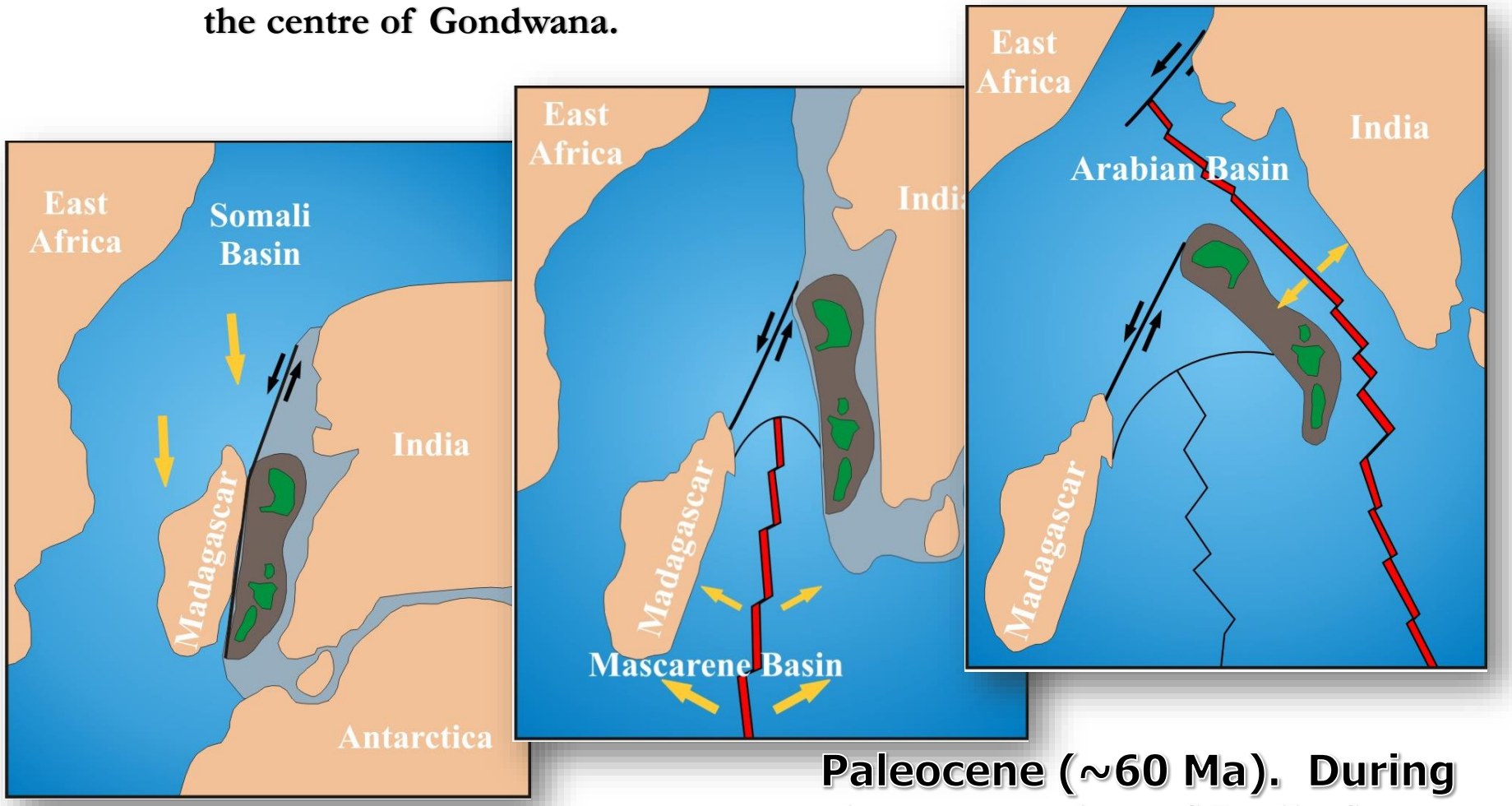


INITIATION OF PROTRACTED EXTENSIONAL TECTONISM WHICH LEAD TO THE EVENTUAL CLEAVAGE OF EAST AND WEST GONDWANA

225Ma

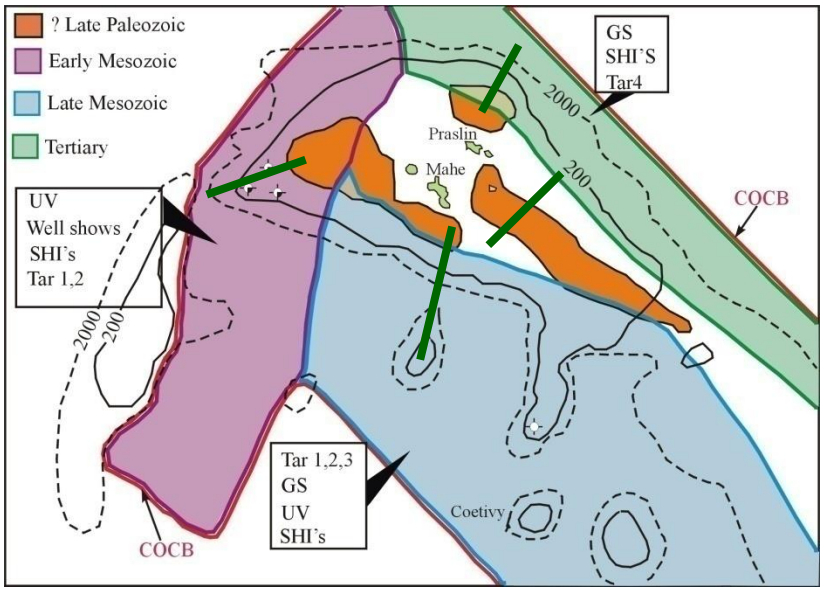


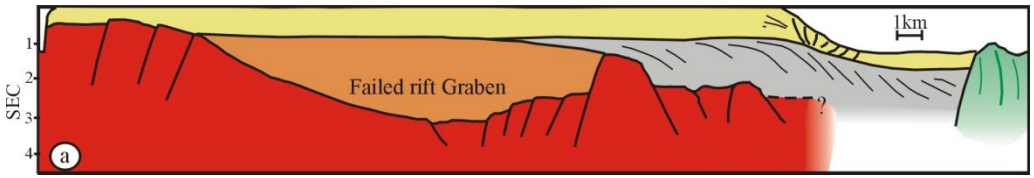
The complexity of the tectonic evolution of the Mascarene Plateau is due to the imposition of three phases of rift/drift tectonics that eventually cleaved the microcontinent from the centre of Gondwana.

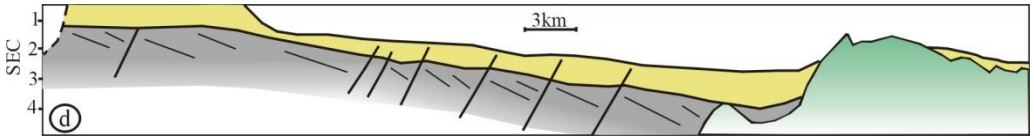


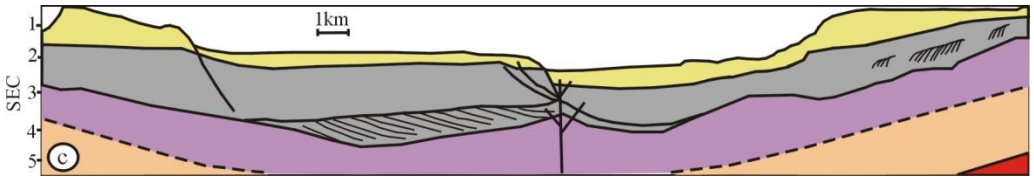
Paleocene (~60 Ma). During the separation of India from Mascarene Plateau.

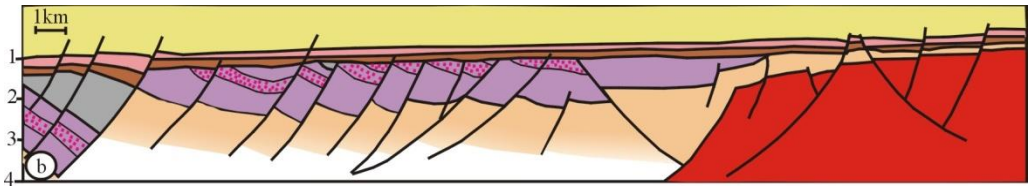
Exploration Provinces/Play Styles

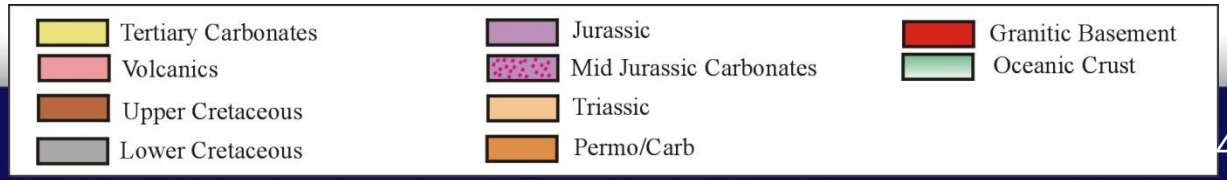




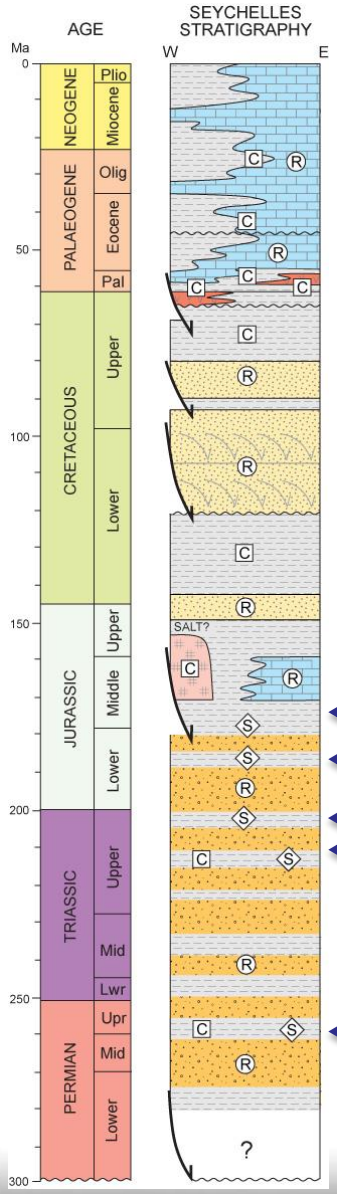








Source



LEGEND

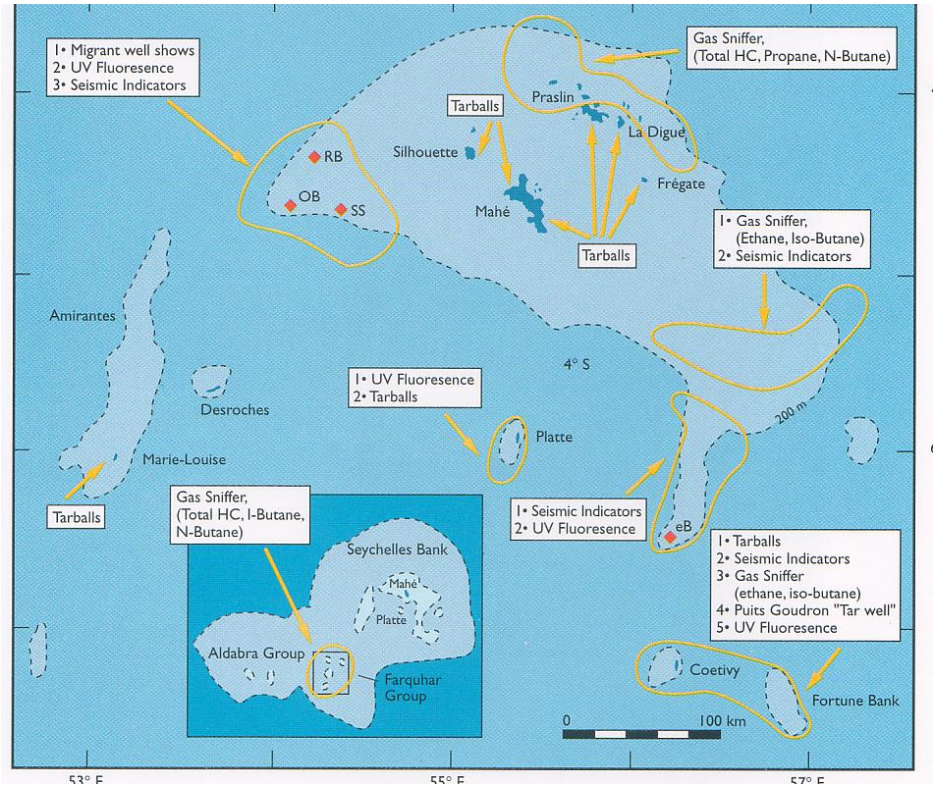
- Marine Clastics
- Continental Clastics
- Marine Shales
- Marine Carbonates
- Volcanics
- Salt
- Major Rifting/Strike Slip
- C Caprock/topseal
- R Reservoir
- S Source rock

Several source horizons were encountered In the Amoco wells within the Upper Triassic To mid Jurassic section

Source intervals encountered in the wells

Tar Balls

Beach standings of tar are a regular occurrence in Seychelles. The tars collected can be correlated to the local stratigraphy.



The two Seychelles oil families

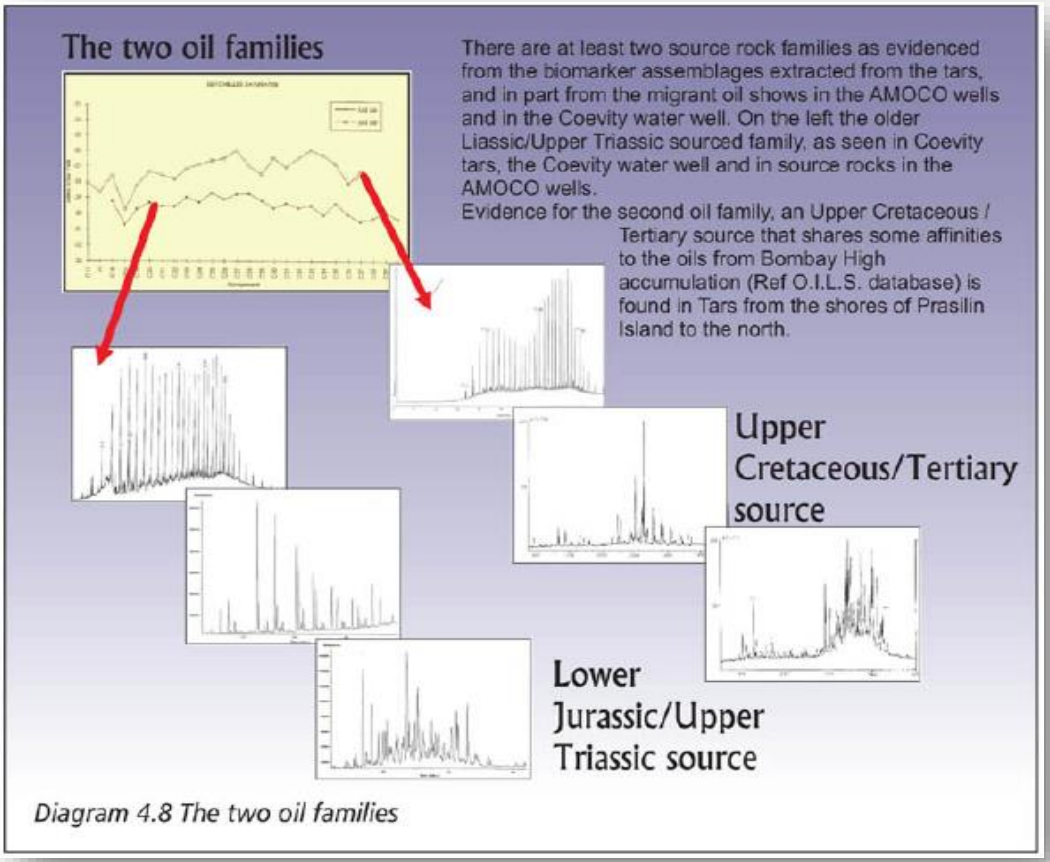


Diagram 4.8 The two oil families

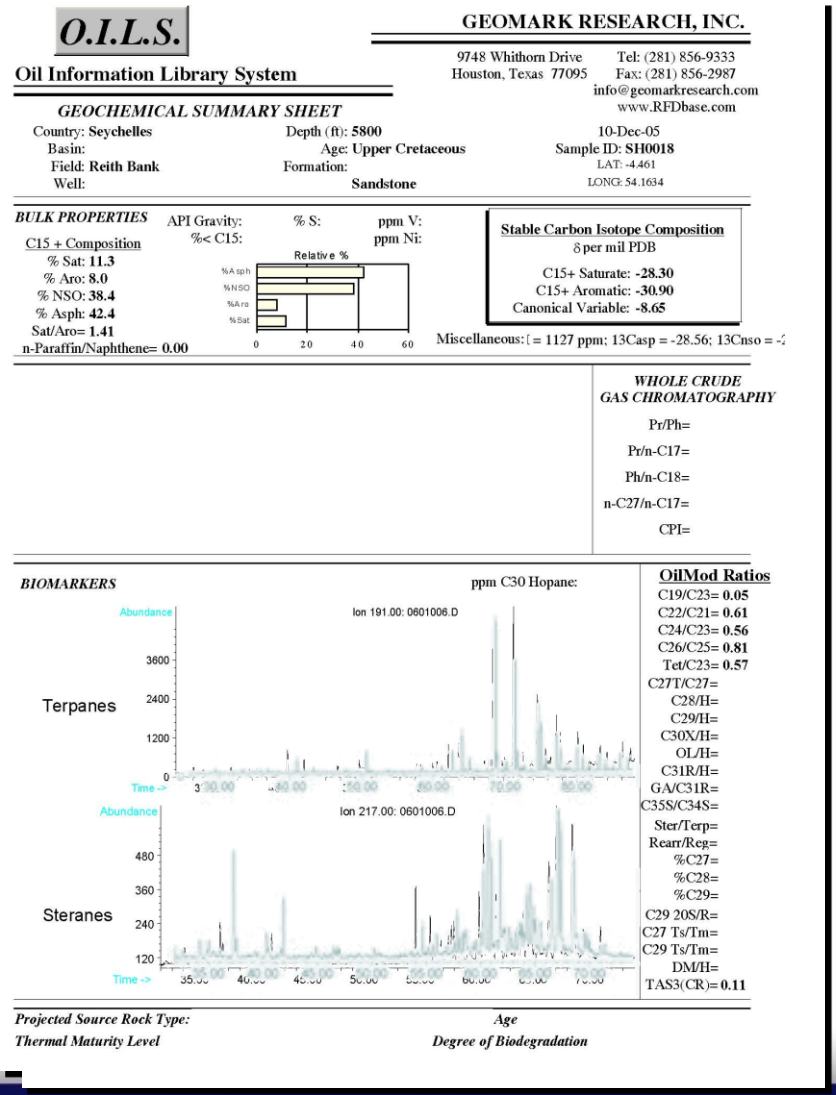
- Biomarker assemblages from tar and also from some migrant oil shows from AMOCO wells suggest at least two source rock families:

1. The first family is typed to an Early Jurassic - Upper Triassic source, as seen in Coetivy tars, in the Coetivy water well and in source rock analysis of the AMOCO wells

2. The second family is typed to an Upper Cretaceous/ Tertiary source, shares some affinities with oils from the Bombay High and is found in Tars from shores on Praslin Island

Tarballs source rocks correlation

Cuttings and SWC biomarker distribution



O.I.L.S.
Oil Information Library System

GEOMARK RESEARCH, INC.
9748 Whithorn Drive Houston, Texas 77095
Tel: (281) 856-9333 Fax: (281) 856-2987
info@geomarkresearch.com www.RFDbase.com

GEOCHEMICAL SUMMARY SHEET

Country: Seychelles
Basin:
Field: Reith Bank
Well:
Depth (ft): 5800
Age: Upper Cretaceous
Formation:
Sandstone
10-Dec-05
Sample ID: SH0018
LAT: -4.461
LONG: 54.1634

BULK PROPERTIES
C15 + Composition
% Sat: 11.3
% Aro: 8.0
% NSO: 38.4
% Asph: 42.4
Sat/Aro= 1.41
n-Paraffin/Naphthene= 0.00

API Gravity:
%< C15:
% S:
ppm V:
ppm Ni:
Relative %
%A sph
%NSO
%A ro
%Sat
0 20 40 60

Stable Carbon Isotope Composition
δ per mil PDB
C15+ Saturate: -28.30
C15+ Aromatic: -30.90
Canonical Variable: -8.65

Miscellaneous: [= 1127 ppm; 13Casp = -28.56; 13Cnso = -

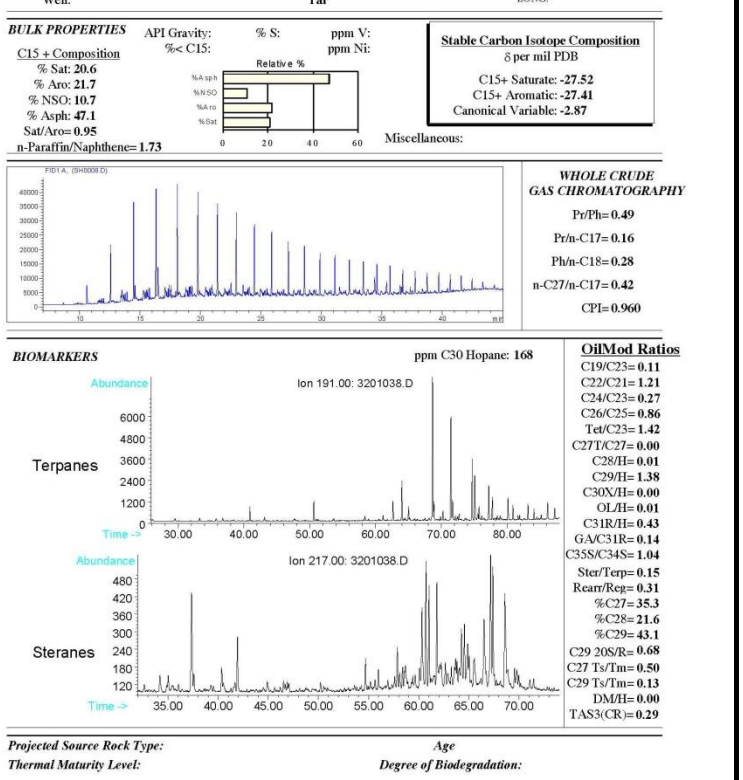
WHOLE CRUDE GAS CHROMATOGRAPHY
Pr/Ph=
Pr/n-C17=
Ph/n-C18=
n-C27/n-C17=
CPI=

BIOMARKERS
ppm C30 Hopane:
Abundance
Ion 191.00: 0601006.D
Terpanes
Time ->
Abundance
Ion 217.00: 0601006.D
Steranes
Time ->

OilMod Ratios
C19/C23= 0.05
C22/C21= 0.61
C24/C23= 0.56
C26/C25= 0.81
Tet/C23= 0.57
C27T/C27=
C28/H=
C29/H=
C30X/H=
OL/H=
C31R/H=
GA/C31R=
C35S/C34S=
Ster/Terp=
Rearr/Reg=
%C27=
%C28=
%C29=
C29 20S/R=
C27 Ts/Tm=
C29 Ts/Tm=
DM/H=
TAS3(CR)= 0.11

Projected Source Rock Type:
Thermal Maturity Level
Age
Degree of Biodegradation

Local tar, Seychelles



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Tel: (281) 856-9333 Fax: (281) 856-2987
info@geomarkresearch.com www.RFDbase.com

GEOCHEMICAL SUMMARY SHEET

Country: Seychelles
Basin:
Field: Beau Vallon
Well:
Depth (ft):
Age:
Formation:
Tar
05-Nov-05
Sample ID: SH0008
LAT:
LONG:

BULK PROPERTIES
C15 + Composition
% Sat: 20.6
% Aro: 21.7
% NSO: 10.7
% Asph: 47.1
Sat/Aro= 0.95
n-Paraffin/Naphthene= 1.73

API Gravity:
%< C15:
% S:
ppm V:
ppm Ni:
Relative %
%A sph
%NSO
%A ro
%Sat
0 20 40 60

Stable Carbon Isotope Composition
δ per mil PDB
C15+ Saturate: -27.52
C15+ Aromatic: -27.41
Canonical Variable: -2.87

Miscellaneous:

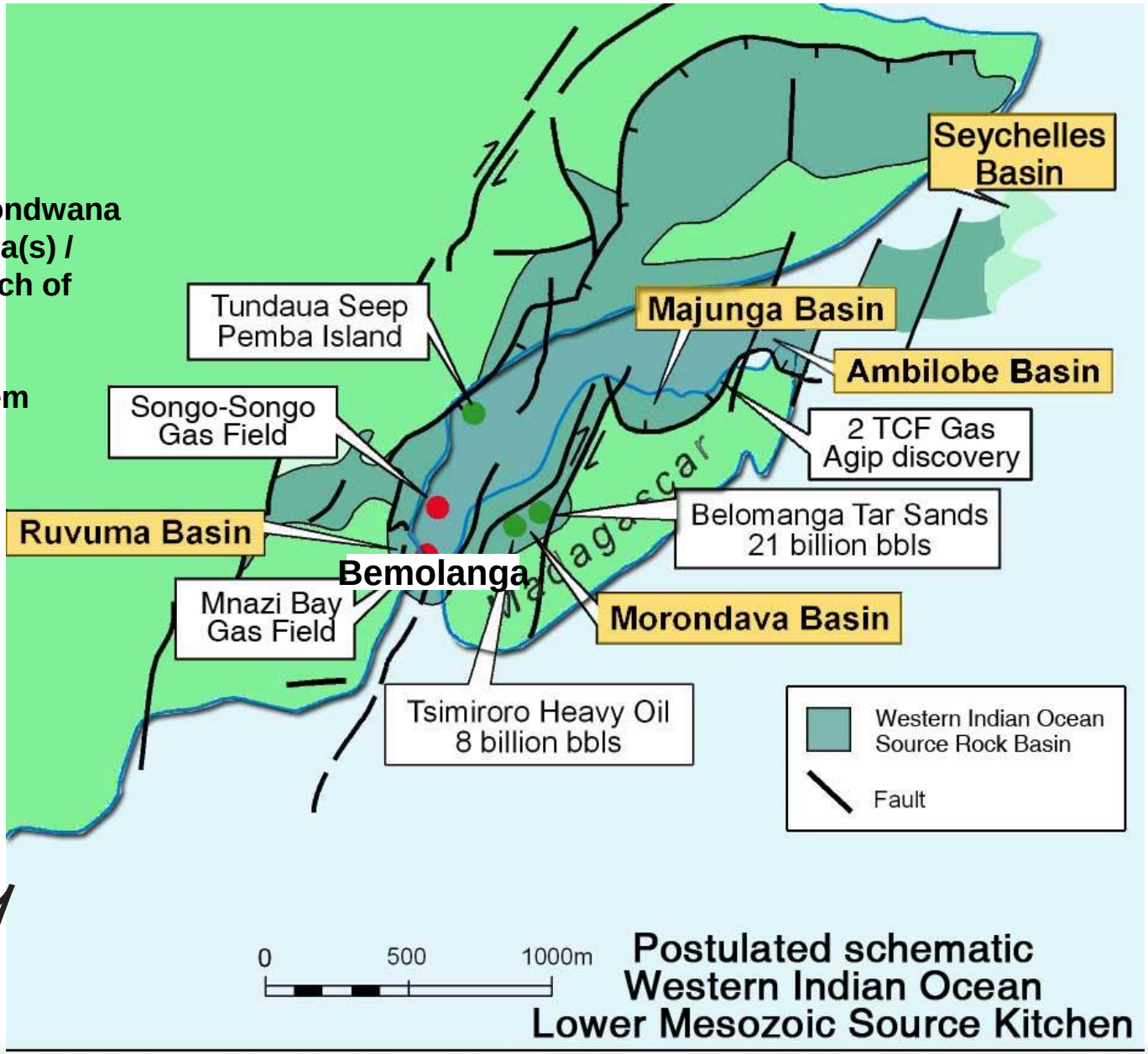
WHOLE CRUDE GAS CHROMATOGRAPHY
Pr/Ph= 0.49
Pr/n-C17= 0.16
Ph/n-C18= 0.28
n-C27/n-C17= 0.42
CPI= 0.960

BIOMARKERS
ppm C30 Hopane: 168
Abundance
Ion 191.00: 3201038.D
Terpanes
Time ->
Abundance
Ion 217.00: 3201038.D
Steranes
Time ->

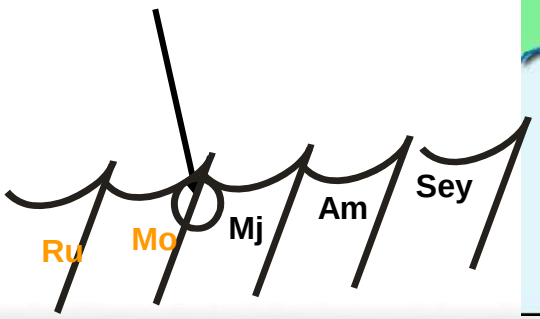
OilMod Ratios
C19/C23= 0.11
C22/C21= 1.21
C24/C23= 0.27
C26/C25= 0.86
Tet/C23= 1.42
C27T/C27= 0.00
C28/H= 0.01
C29/H= 1.38
C30X/H= 0.00
OL/H= 0.01
C31R/H= 0.43
GA/C31R= 0.14
C35S/C34S= 1.04
Ster/Terp= 0.15
Rearr/Reg= 0.31
%C27= 35.3
%C28= 21.6
%C29= 43.1
C29 20S/R= 0.68
C27 Ts/Tm= 0.50
C29 Ts/Tm= 0.13
DM/H= 0.00
TAS3(CR)= 0.29

Projected Source Rock Type:
Thermal Maturity Level:
Age
Degree of Biodegradation:

Once successful rifting of Gondwana commenced, a vast inland sea(s) / lake(s) persisted through much of the Jurassic, allowing the development of an extensive and potent source rock system



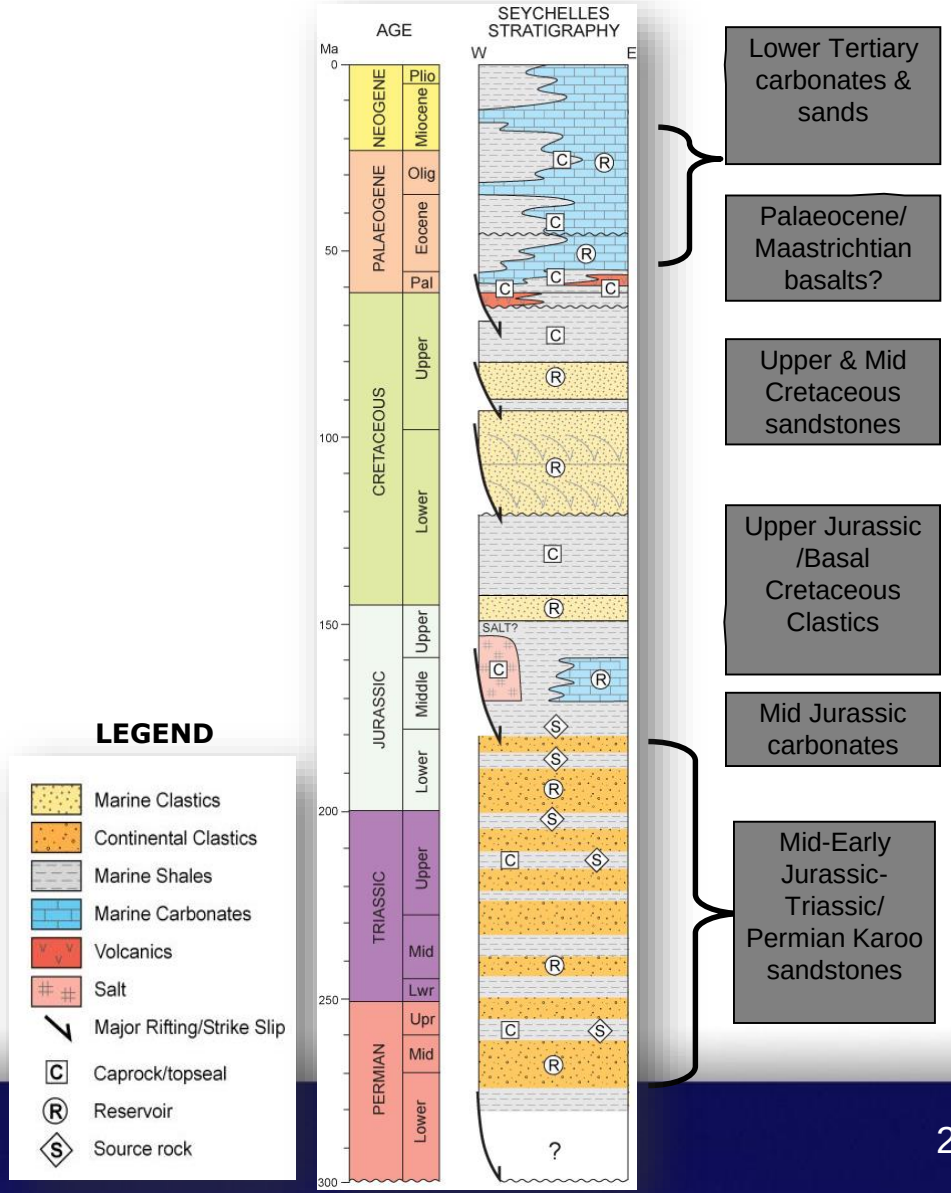
Bemolanga / Tsimoro Oil field



Reservoir

Known & Inferred Reservoirs

- Tertiary carbonates & sandstones
- Basalts? and intra-basalt series volcaniclastics and sedimentary series (especially carbonates)
- Upper Cretaceous sandstones (& potential carbonate build-ups)
- Thick mid Cretaceous sandstones – strike skip basins, large prograding sequences
- Upper Jurassic carbonates & clastics? E.g. Kutch Basin
- Mid Jurassic carbonates?
- Lower-mid Jurassic/Triassic/Permian Karoo sands

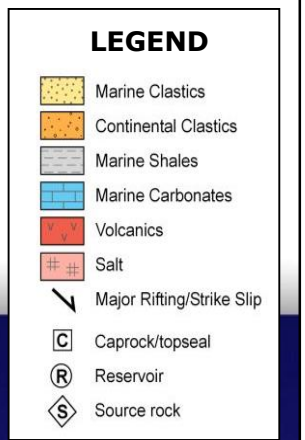


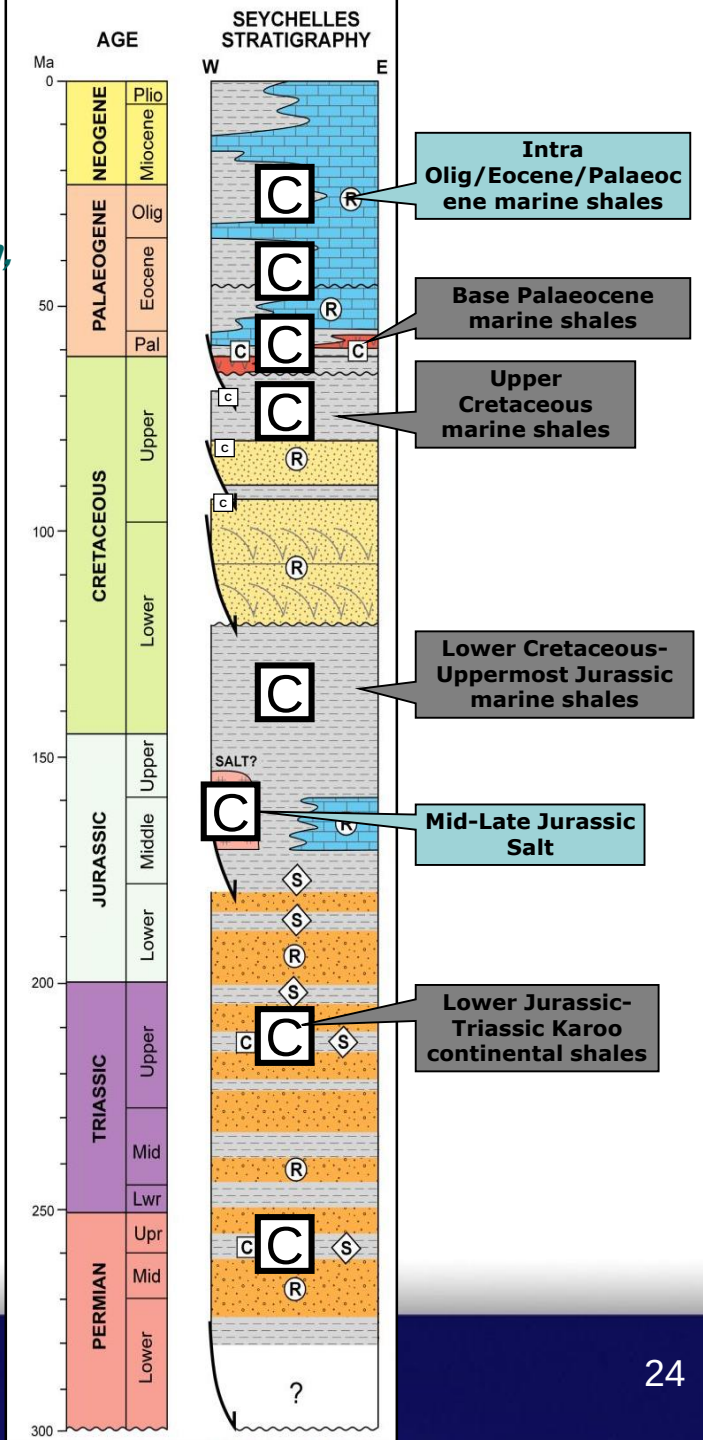
Seal

List of Seals

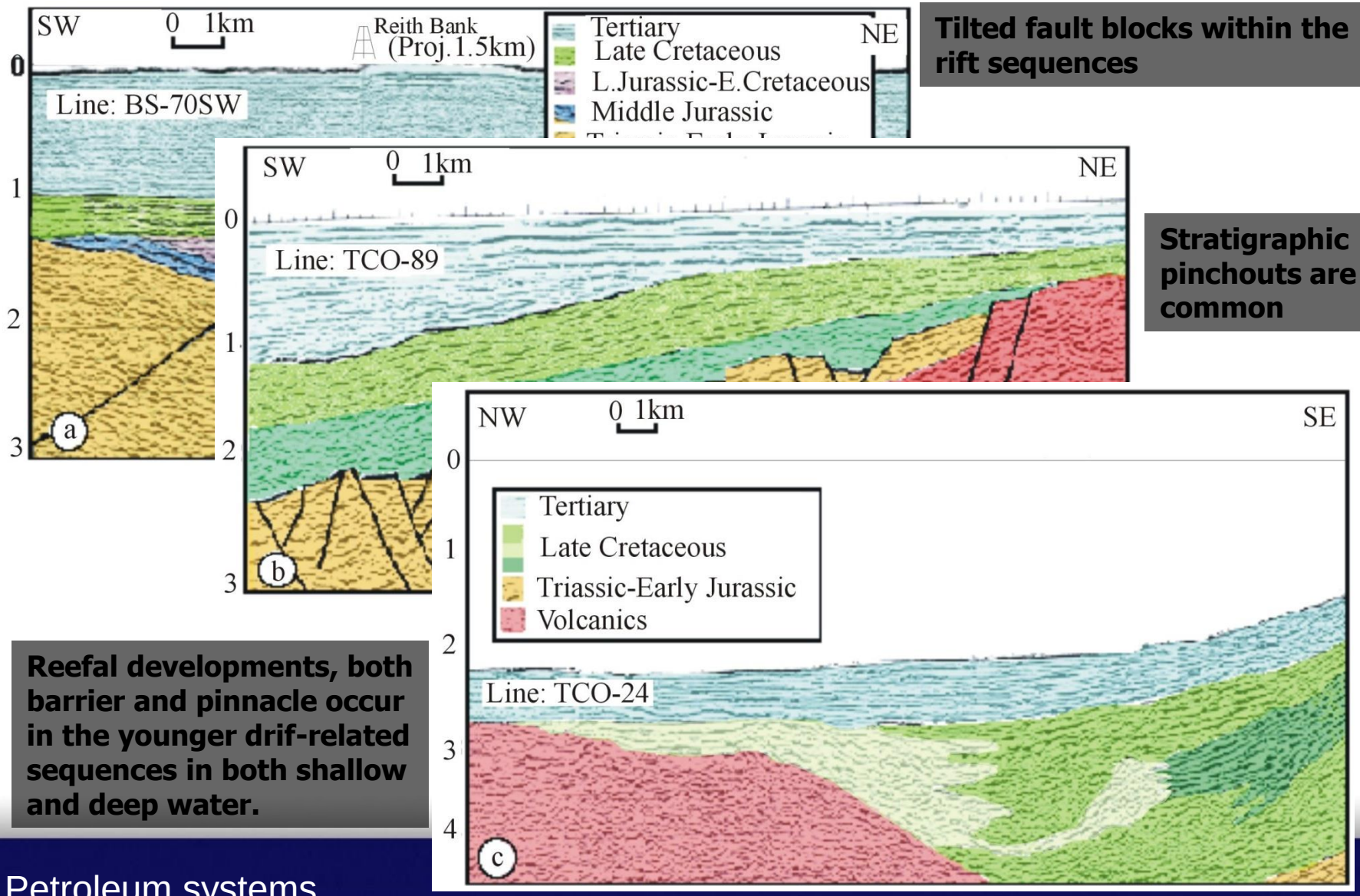
Seals are present both regionally, as marine shales of drift origin, and locally, as shale interbeds within fluvial and deltaic sequences

- **Seals proved by well data**
  - Basal Palaeocene Marine Shales
  - Upper Cretaceous Mudstones
  - Mid Cretaceous Mudstones
  - Upper Jurassic to Lower Cretaceous Shales
  - Lower Jurassic and Triassic Shales
- **Seals suggested in recent study, but unproven**
  - Tertiary Marine Shales (Eocene, Palaeocene, Oligocene/Miocene)
  - Middle to Upper Jurassic Salt





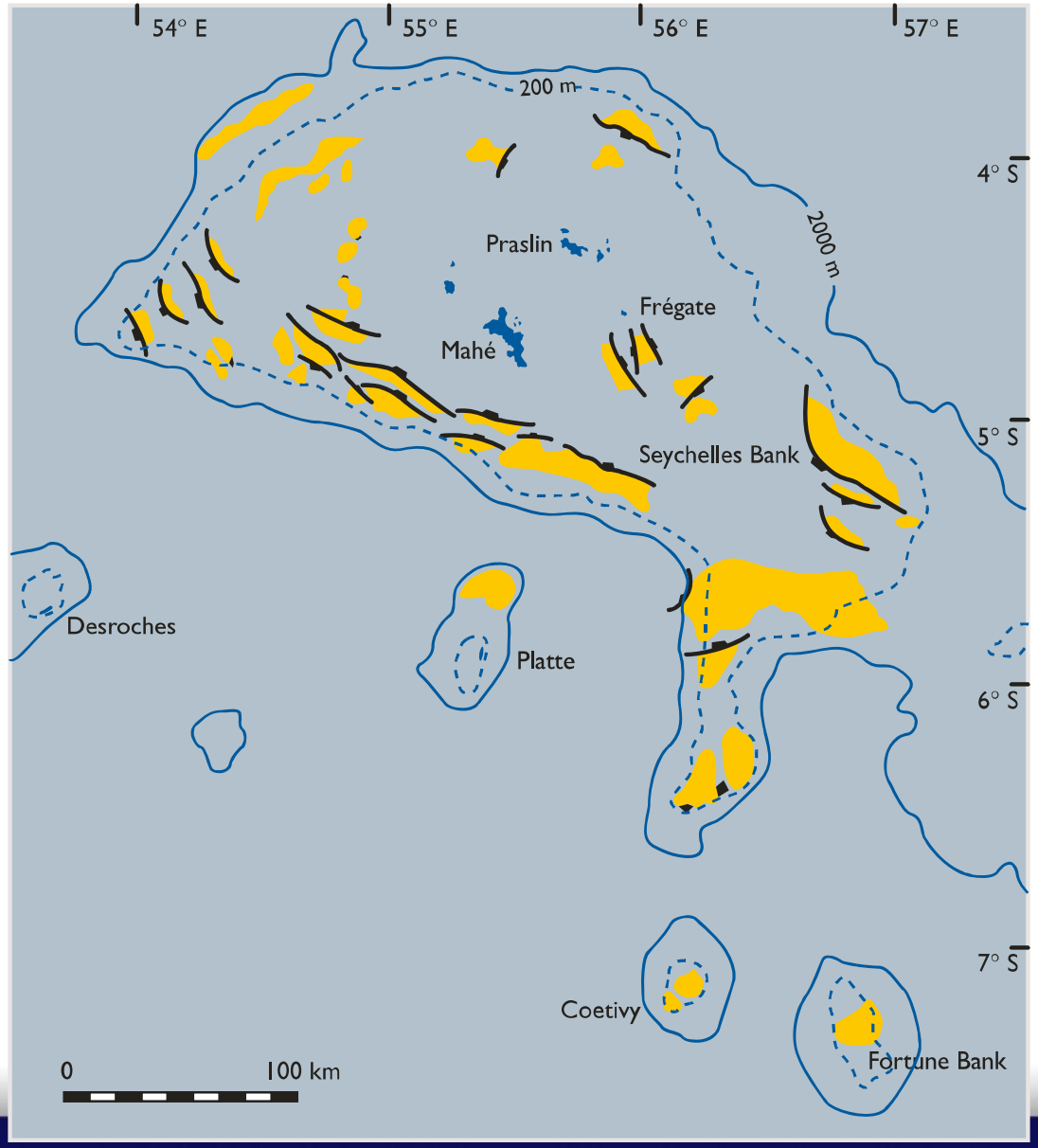
Trapping configuration



Tilted fault blocks within the rift sequences

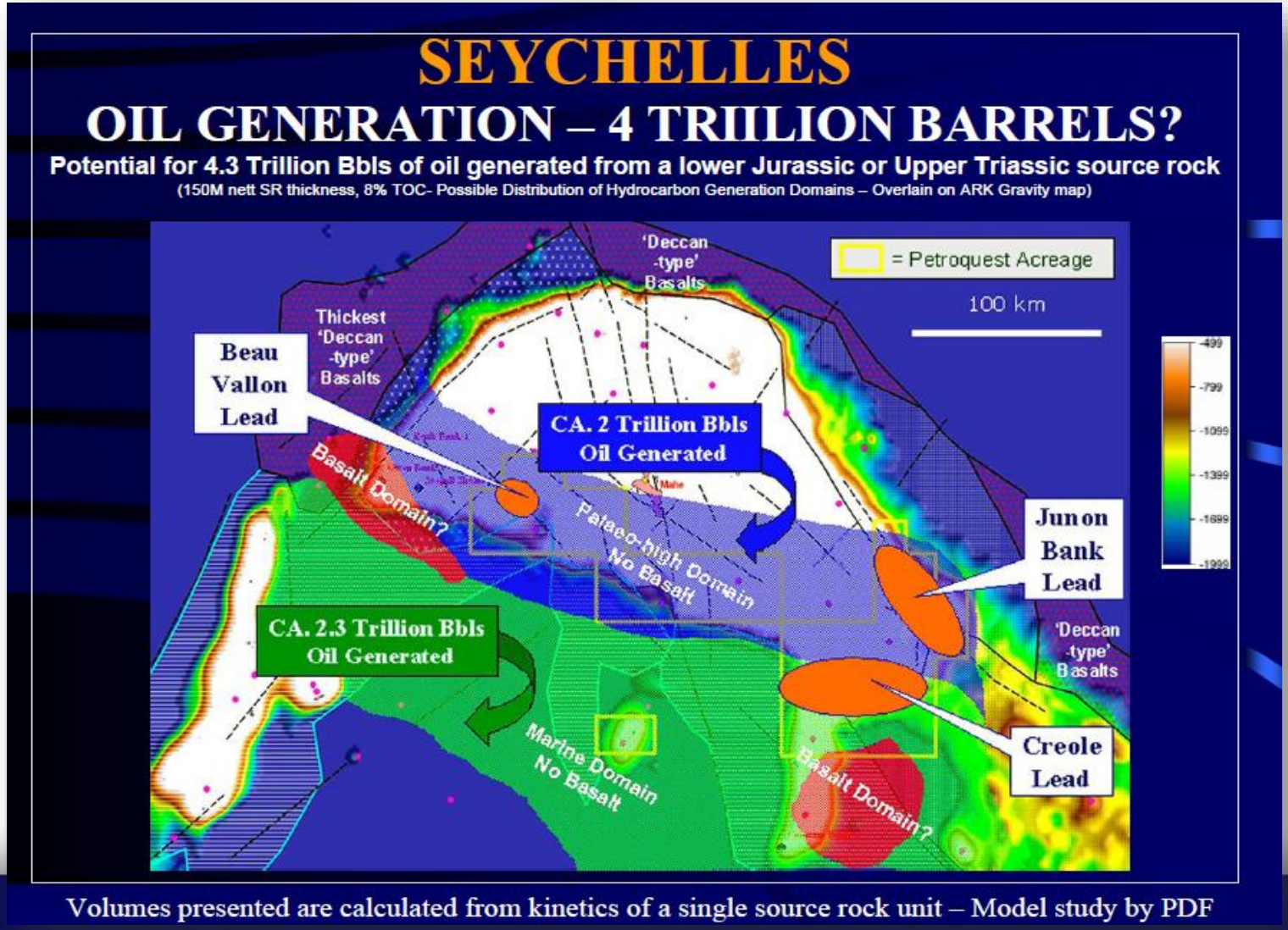
Stratigraphic pinchouts are also common

Reefal developments, both barrier and pinnacle occur in the younger drif-related sequences in both shallow and deep water.

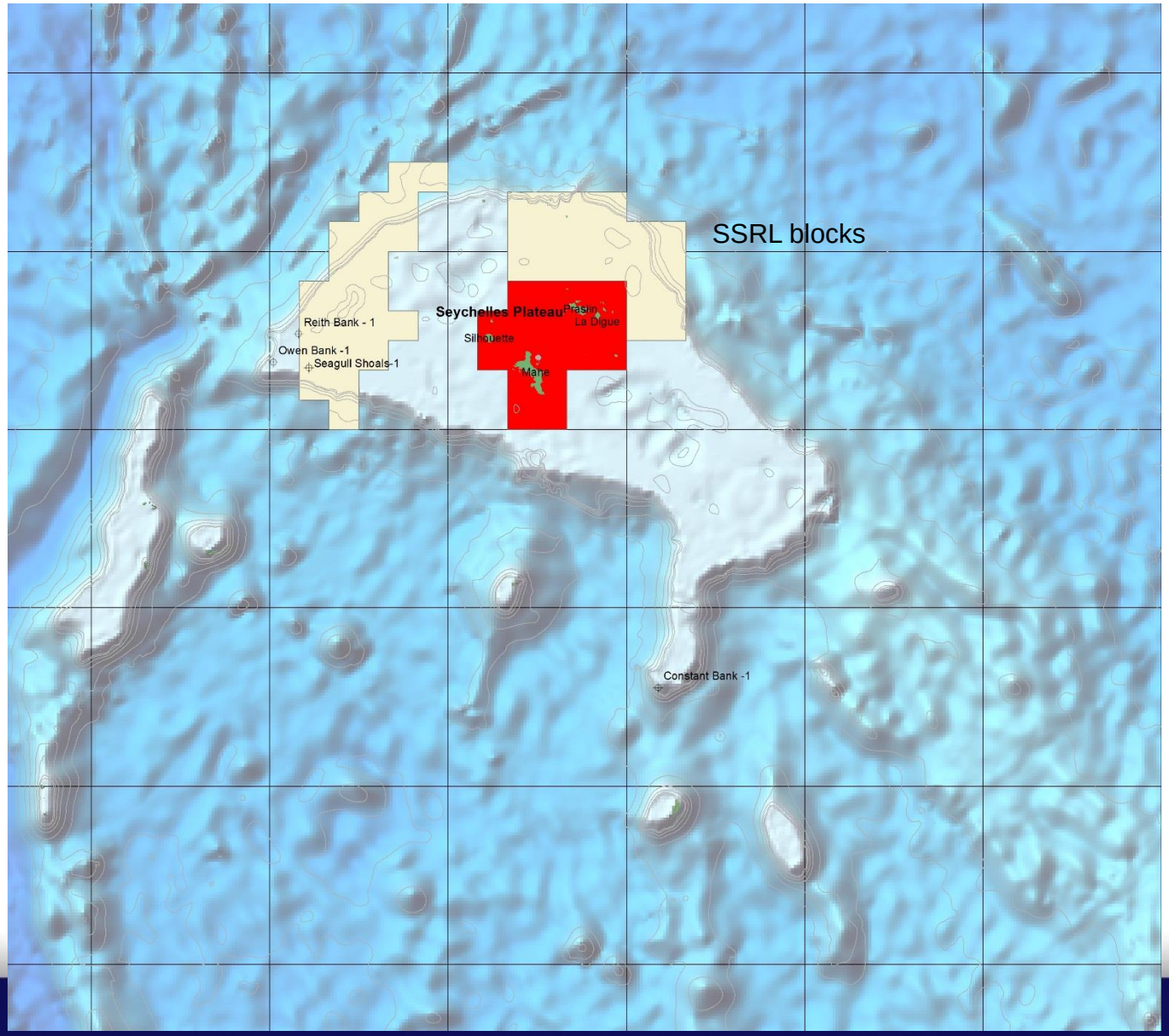


Petroleum systems

What does all this mean?



Licensing Status



Upstream Legal and Fiscal Regime in Seychelles

Legal Framework

- **Petroleum Mining Act, 1976 ("PMA")**

– A relatively short enabling Act (16 sections) , authorizing the signing by the Minister of **any type of Petroleum Agreement** for granting exclusive E&P rights to the PA-holder

– PMA authorizes **PA** to stipulate specific terms and conditions for fees and royalties.

The Licensing Initiative

Open File award process

- Applications for a 10,000sq km (max) area may be made at anytime.
- PetroSeychelles verifies if minimum application criteria are met
- Notice of application filing & solicitation of competitive applications
- No need to reveal identity of applicants or proposed terms
- Prescribed period for competitive application filing (90 days)
- Evaluation Committee selects wining application
- Negotiations start

variables in the Petroleum Agreement ?

Negotiable	Fixed
Area	Relinquishment Terms
Work Program	Fiscal Terms
Tier 2 PAPT	Training Commitment
	Rental Payments

Minimum work program

Period 1 (Years 1-3) work program must include at least funding for seismic

Period 2 (Years 4-6) work program must include funding for at least one well

Period 3 (Years 7-9) work program must include funding for at least one additional well

Weighting criteria for evaluation of competitive bids

Work program:

Geologic prognosis	10%
Period 1 commitment	40%
Period 2 proposal	10%

Fiscal considerations:

Tier 2 PAPT & any other items	10%

Applicant qualifications:

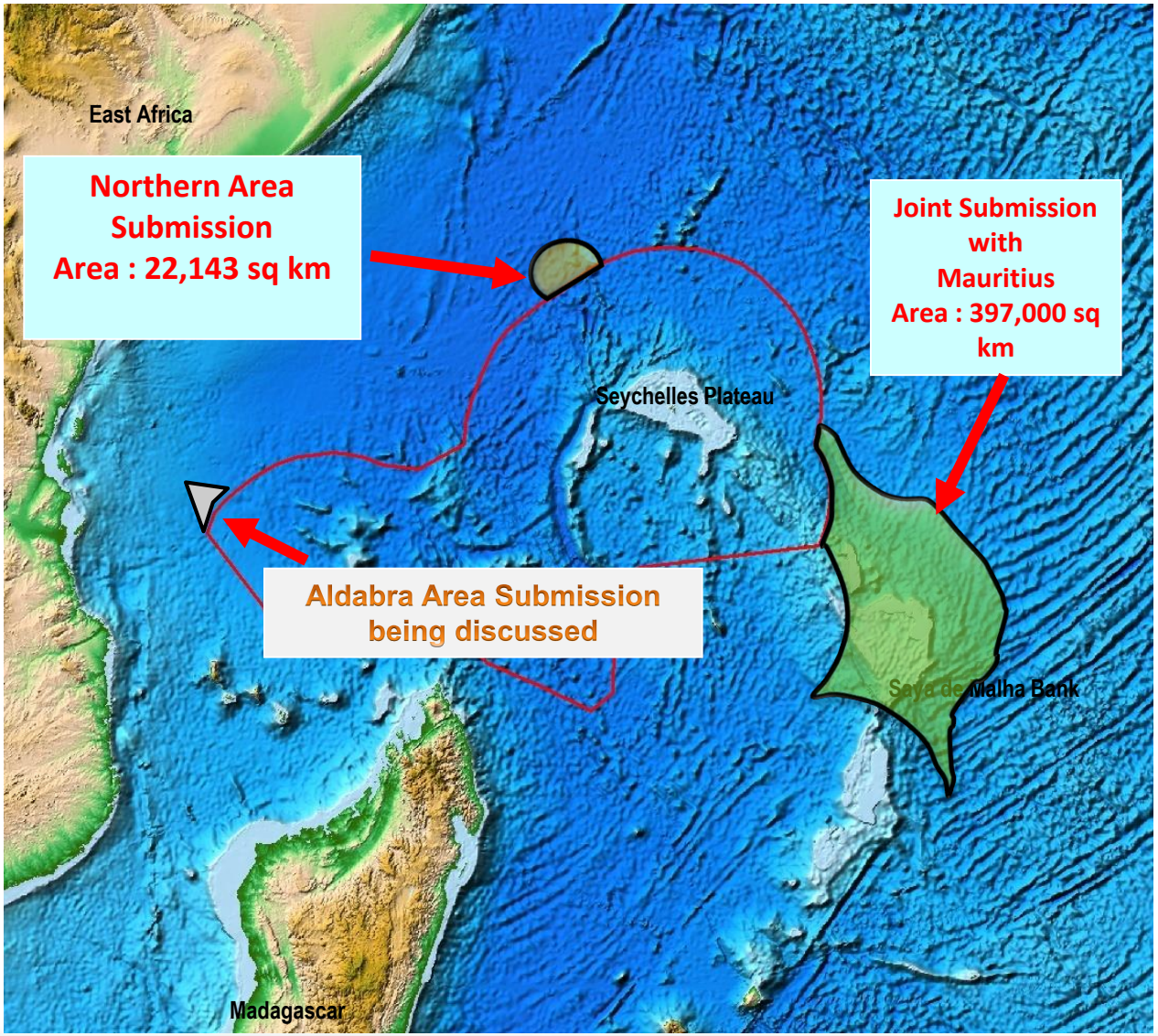
Technical	15%
Financial	15%

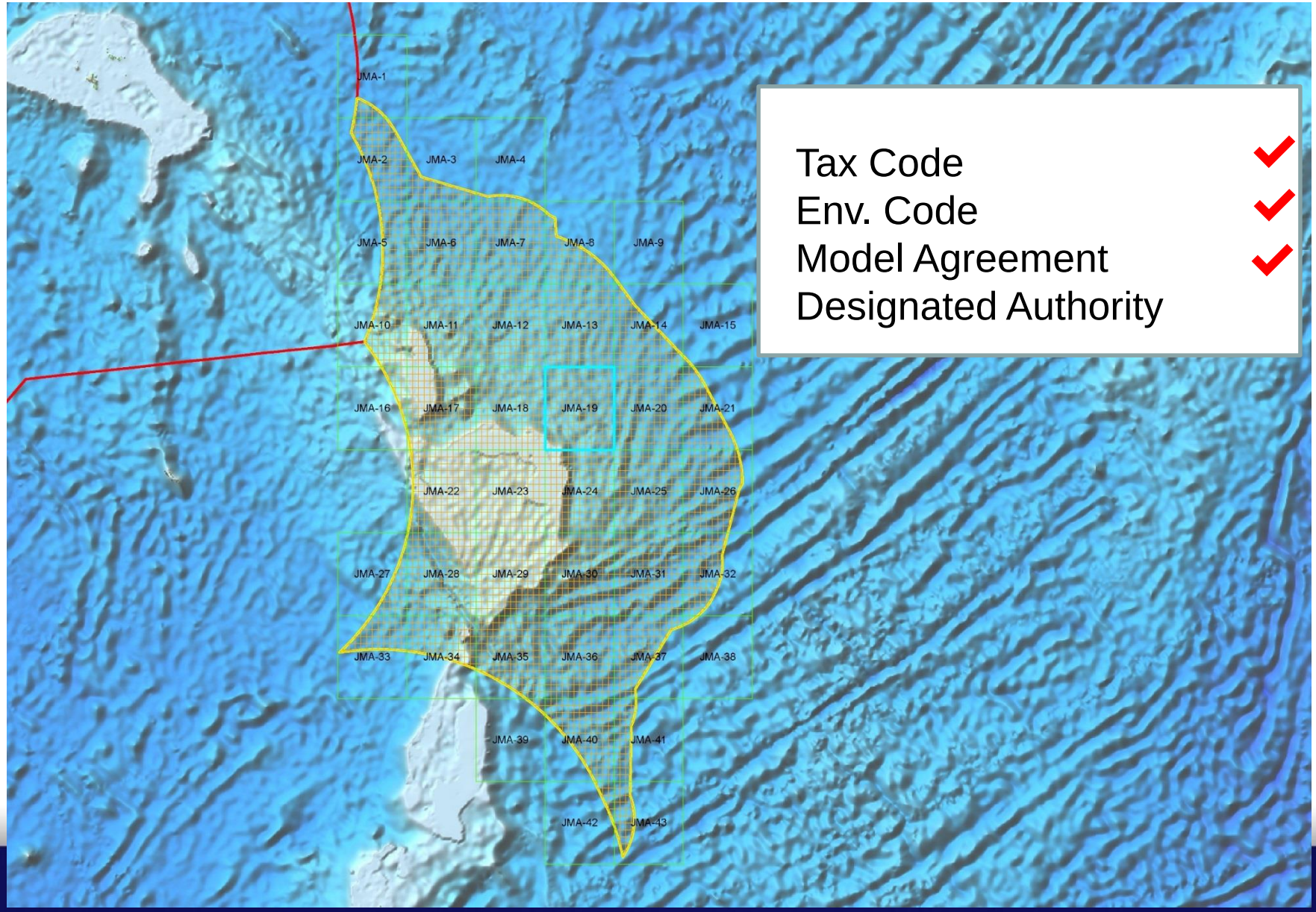
LEGAL AND FISCAL SUMMARY	TERMS
EXPLORATION PHASE	9 YEARS, 3 PERIODS
RELINQUISHMENT TERMS	FIXED
PRODUCTION PHASE	25YEARS
RENTAL	US$10 PER SQ.KM
ROYALTY	10%
PETROLEUM INCOME TAX	35%
STATE PARTICIPATION	NO
PETROLEUM ADDITIONAL PROFITS TAX	2 TIER

➢ Petroleum Additional Profits Tax (PAPT)

PAPT is a resource rent tax levied on cash flows. Currently the Model Petroleum Agreement provides for a two-tier structure for PAPT. The first tier of PAPT will become due once the Company has earned a particular threshold rate of return on its investment. The second tier of PAPT will be due after the company has earned an even higher post-tax rate of return.

Extended Continental Shelf




JMA-1
JMA-2
JMA-3
JMA-4
JMA-5
JMA-6
JMA-7
JMA-8
JMA-9
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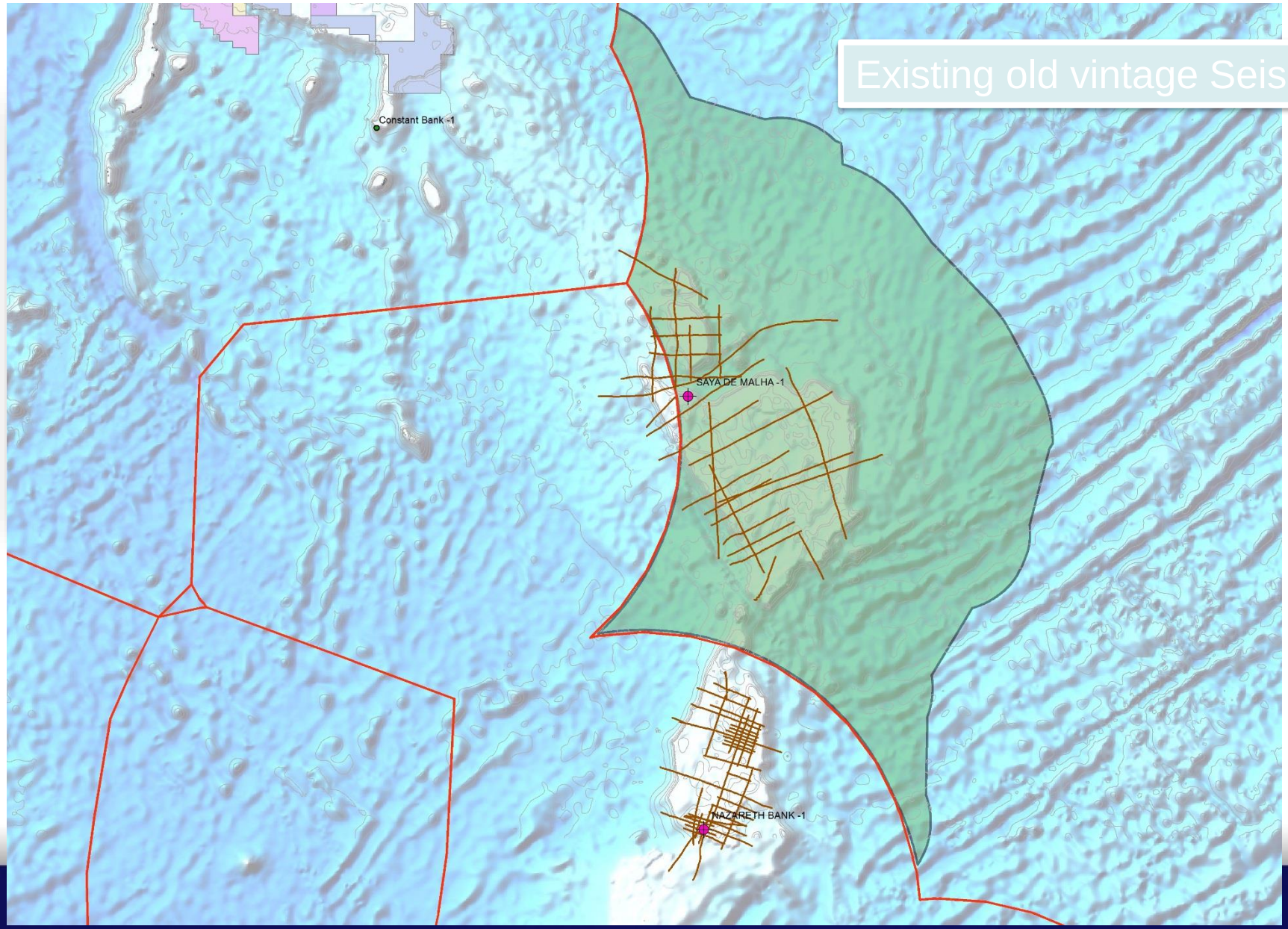
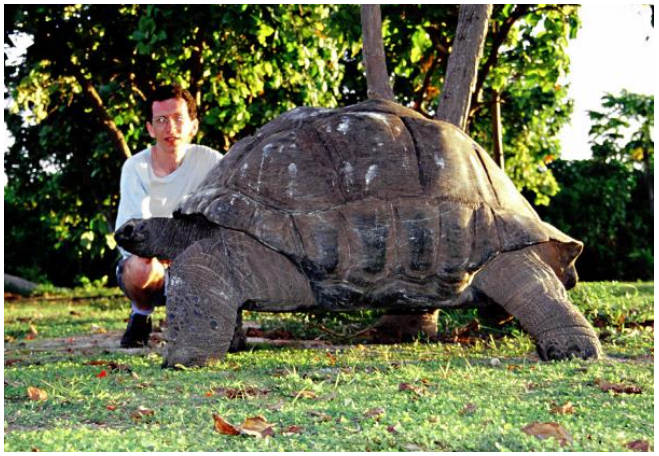
JMA-33
JMA-34
JMA-35
JMA-36
JMA-37
JMA-38
JMA-39
JMA-40
JMA-41
JMA-42
JMA-43
Tax Code
Env. Code
Model Agreement
Designated Authority


Existing old vintage Seismic
Constant Bank -1
SAYA DE MALHA -1
NAZARETH BANK -1

Giants



Will the drill bit discover other giants???

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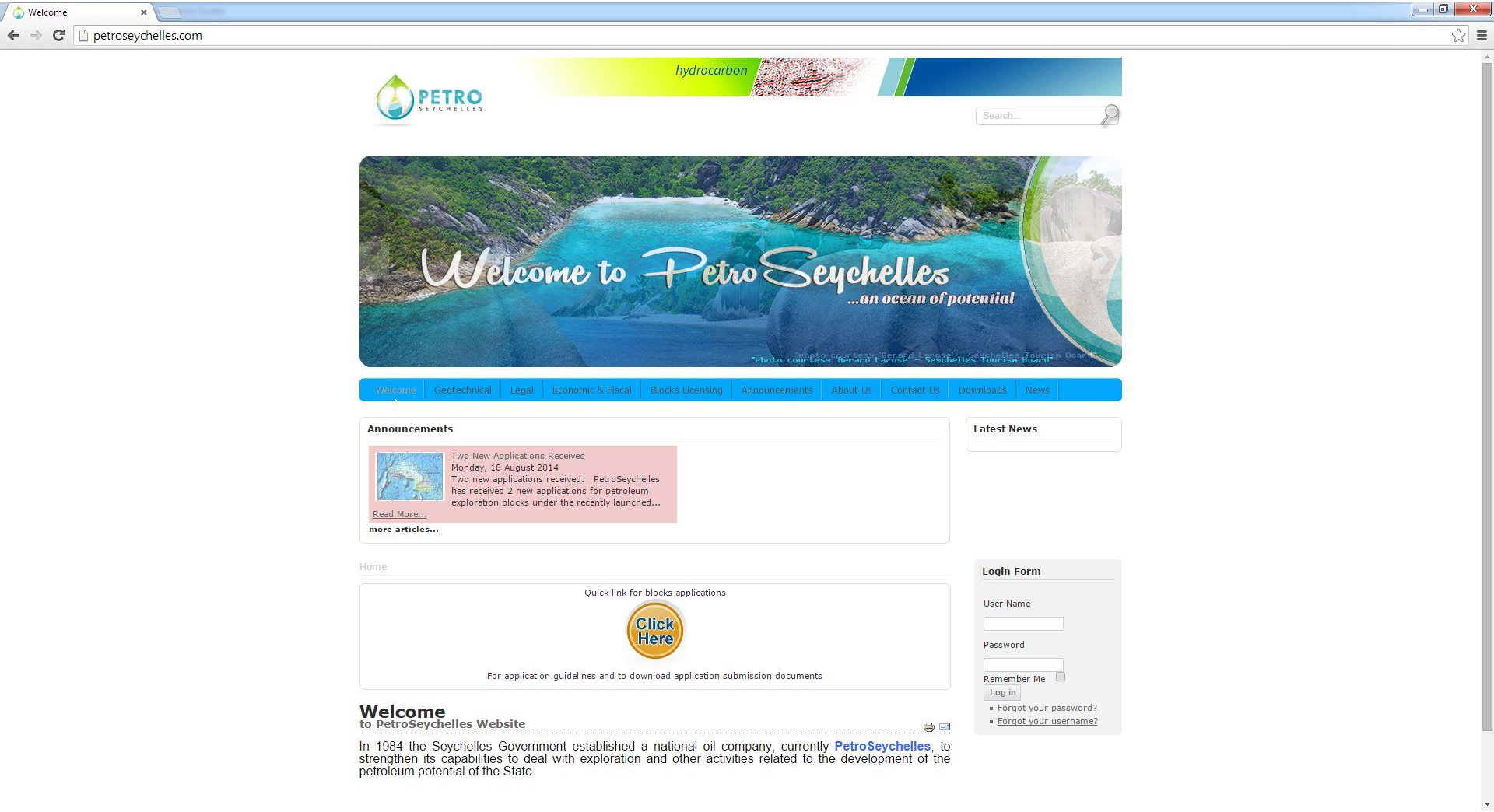

Thank You