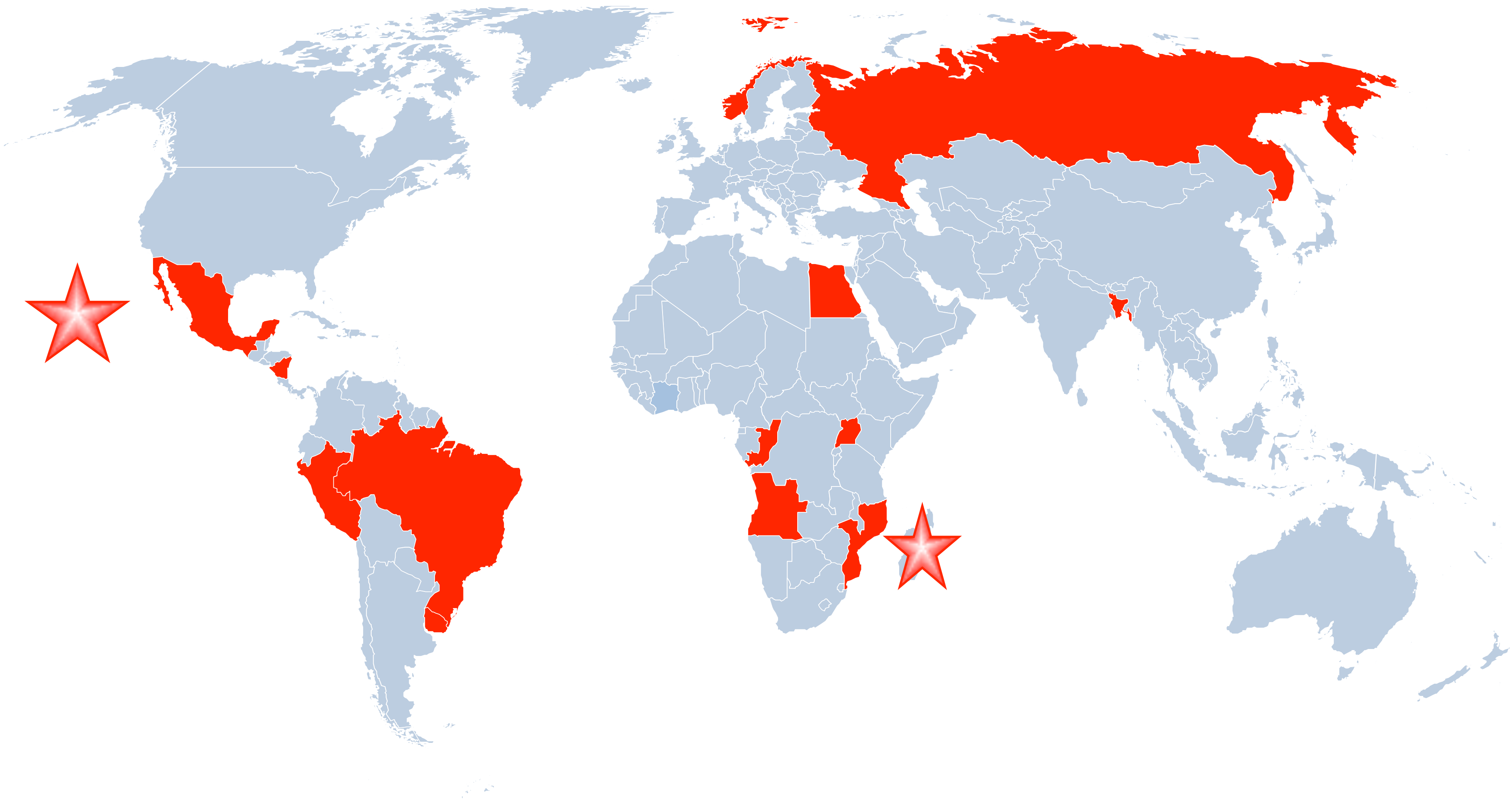
ASPO Presentation 2015 first semester : Exploration News

Marc Blaizot 15/06/2015

NEW AREAS (rounds) for EXPLORATION in 2015

(Main Opportunities)



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NEW AREAS in 2015 : Latin AMERICA

MEXICO : 1st part of 1st bidding round (From SENER webwsite) :
Ending a 76 year state monopoly ! CNH plans to open :

-14 explo blocks in SW (considered EHO ?) Campeche Bay/Reforma Basins (multi targets from Presalt ? To **Subsalt and Carbonates** from JS to UK and Tertiary sandstones ; 26 IOCs companies qualified ! Looking for subsalt GOM analogs ? ; bidding date 15/07/15

-5 DRO blocks (same area) bidding date 30/09/15

URUGUAY:
4 ultra deep waters and seven SW blocks

NICARAGUA:
All DO Pacific Ocean bloks allocated to Statoil (Gré à gré in 2013 ; drilling 2016 ?)

BRAZIL:
13th Ronda : DO blocks from Potiguar (abrupt margin) to Pelotas Basin with exception of Pre Salt area (Campos/Santos) : 1st opening in Pelotas (except gré à gré with TOTAL) Thick Cretaceous and Tertiary Delta ? The biggest BSR never seen worlwide)

PEROU
7 Amazona blocks in Ucayali, Madre de Dios, Solimoes Basins : 450 MM$ with 2 obligation wells by block

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NEW AREAS in 2015 : AFRICA

CONGO Brazzaville : 2015 ? Round

10 Offshore (Marine XIX to xx) and 12 onshore (coastal and central) blocks

ANGOLA : 2015 round

12 undrilled Ultra DO blocks in Lower Congo Basin (west of blocks « & and 32 , in Outer Delta Toe context) and in Namibe Basin (Upper Cretaceous and Tertiary Abript Margin context)

MOZAMBIQUE : 5th Round ,30/07/2015

2 ultra deep waters (Angoche Abrupt margins, Eastern Rovuma close to Comores) , one SW Zambezi Delta, 2 onshore areas (Pande-Temane, and Palmeira close to Maputo)

OUGANDA

6 blocks (3000 sqkm) onshore and offshore in Edouard (1 bl) and Albertine (4b) Lake Grabens and one block in the North of the country

EGYPT

EGAS Round : 12 Blocks offshore Nile Delta and Sinai for 21000 sqkm

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E&P : M&A DEALS : A CONSEQUENCE OF OIL PRICE FALLING ?

Halliburton buys BAKER Hughes for 34 Gus$ becoming **world largest oil drilling company** ; agreement of boards and approval of shareholders

REPSOL buys Talisman for 8.3 Gus$ becoming more american (north and latin) oriented ; prod : 400 kboe/d ; 2P RR : 1.3 Gboe **(6.5 us/boe**) **; THE Foothills Company in Exploration ?**

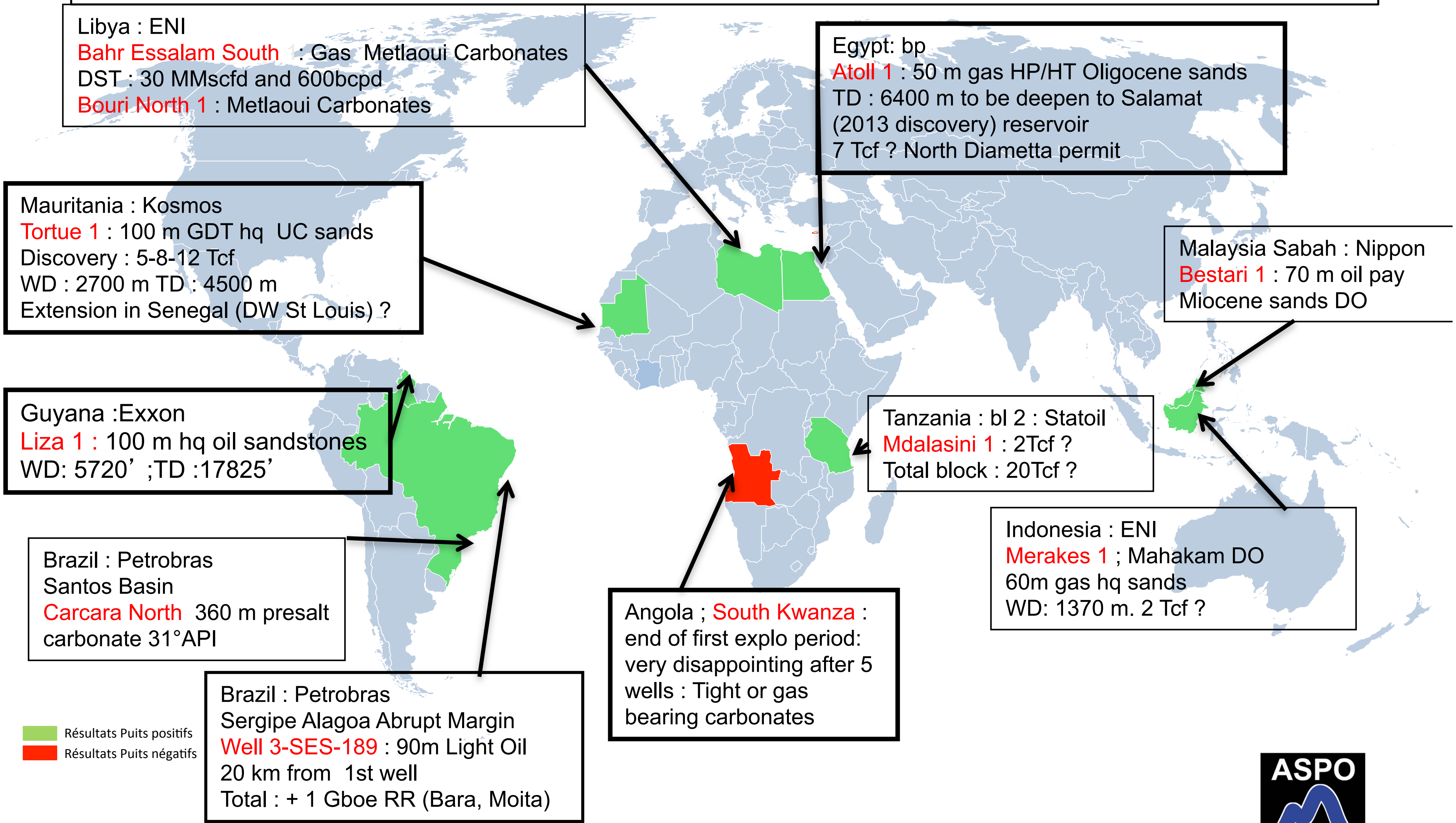
OK for Cheniere Energy (Corpus Christa LNG Plant) for exporting
13.5 Mt/an or 2.1 Bcfd !

SHELL buys BG for 70 Gus$ becoming
1st largest LNG Company with Trinidad and Egypt BG plants
Shell's strategy confirmed : the 3rd Gas Company after Gasprom and NIOC
1P reserves of 3.6 Gboe : 20us$/*boe* . 2P : 10 Gboe ? (**10 us$/boe)**
Increasing presence in Brazil and Tanzania **discoveries and explo**

Noble Energy buys Rosetta Resources for 2 Gus$:
Noble Energy buys Rosetta Ressources, : first deal in UC USA UC iEagle Ford (50000 acres) , Permian Basin (46000 acres in Delaware and 10000 in Midland) ; prod (60%oil) : 66000 boepd / 282 Mmboe 1?P reserves **(7.4 us$/ boe) .Diversication in US for Noble OR the very unconventional (after biogenic gas in Israel/Cyprus)**

EXPLORATION RESULTS HIGHLIGHTS mid 2015

1) Abrupt margins : Brazil, Guyana
2) Senegal Basin (Mauritania Tortue after Senegal Fan 1)
3) HP Deep Nile Delta



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IHS MAIN DISCOVERIES in 2015

Region	Country	Basin	Discovery Name	On/Offshore	HC Type	Current Operators	Disc Date
Africa	Mauritania	Senegal (M.S.G.B.C.) Basin	Tortue 1	Offshore - deep	Gas	Kosmos Energy Mauritania	Apr-15
C.I.S.	Turkmenistan	Amu-Darya Basin	Garakel	Onshore	Gas	Turkmengaz	May-15
Latin America	Guyana	Guyana Basin	Liza 1	Offshore - deep	Oil	Esso Exploration & Production Guyana Ltd	May-15
Africa	Tanzania	Mafia Deep Sub-basin (Tanzania Basin)	Mdalasini 1	Offshore - deep	Gas	Statoil Tanzania AS	Mar-15
Far East	China	Central Qiongdongnan Depression (Qiongdongnan Bsn)	Lingshui 25-1 (Qg) 1	Offshore - deep	Gas,condensate	CNOOC Zhanjiang	Jan-15
North America	United States	Sigsbee Sub-basin (DWGoM Basin)	Yeti	Offshore - deep	Oil	Statoil Gulf of Mexico LLC	Mar-15
Middle East	Kuwait	Dibdibah Sub-basin (Central Arabian Province)	Umm Ruaiss North 1	Onshore	Oil,gas	Kuwait Oil Co Ltd	Apr-15
Latin America	Brazil	Santos Basin	1-ECHIDNA-001-SPS	Offshore - deep	Oil,gas	Karoon Petroleo e Gas Ltda	Apr-15
Africa	Angola	Kwanza Basin	Omosi 1	Offshore - deep	Gas	ConocoPhillips Company	Apr-15
Africa	Egypt	Nile Coastal/Deep Water Sub-basin (Nile Delta Bsn)	Atoll 1	Offshore - deep	Gas,condensate	BP Egypt Oil Co	Mar-15

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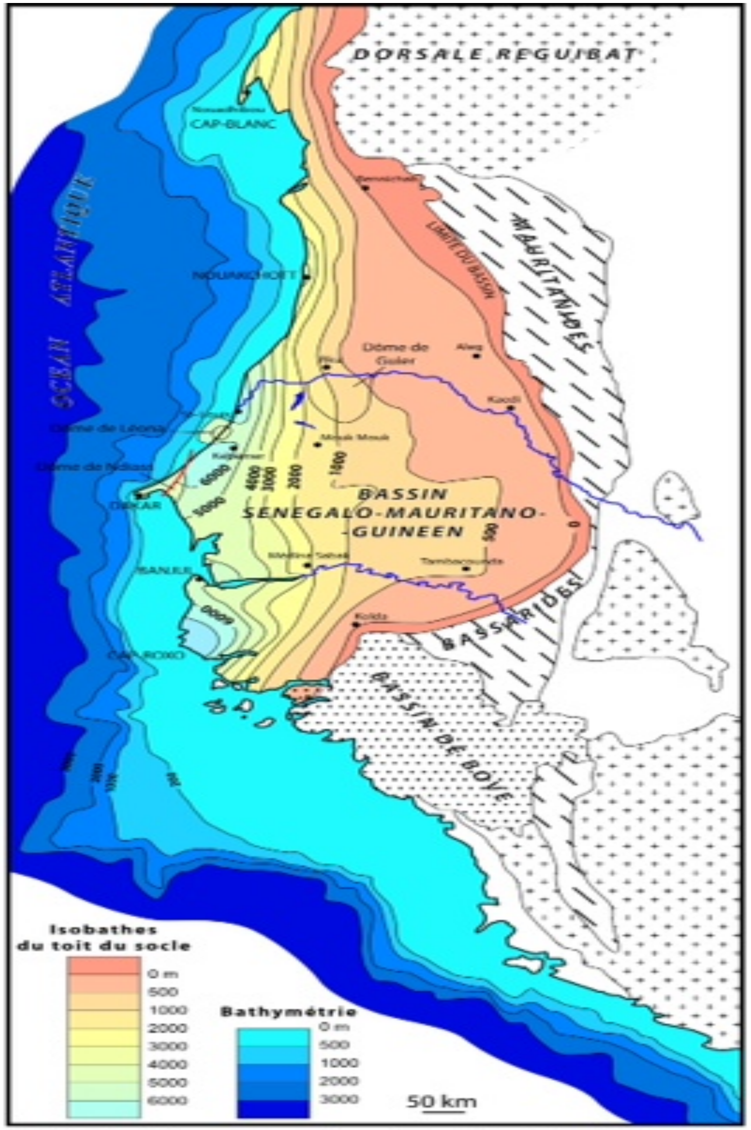
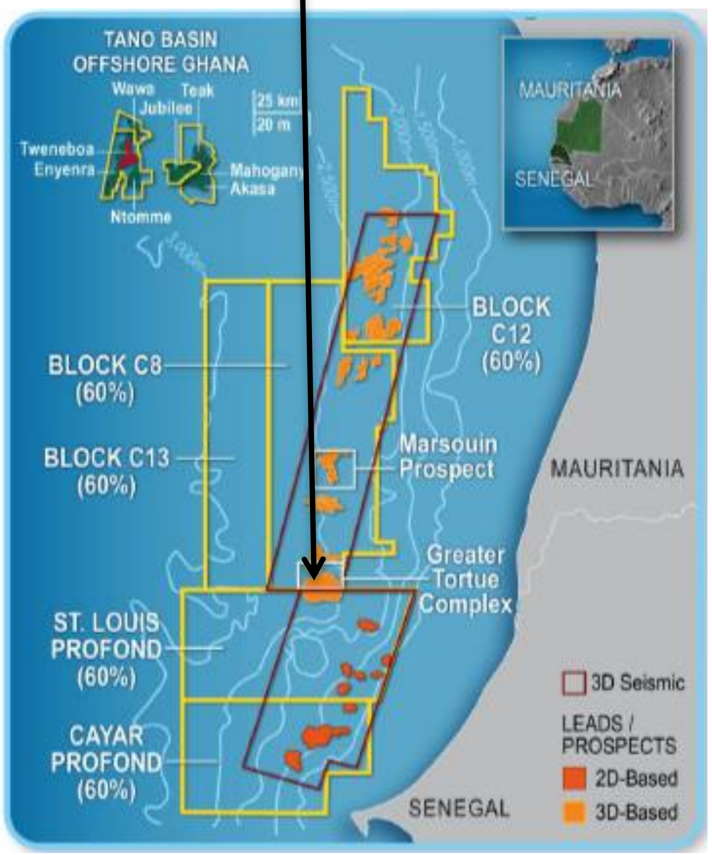
Bassin MSGBC : MAURITANO- SENEGALO …

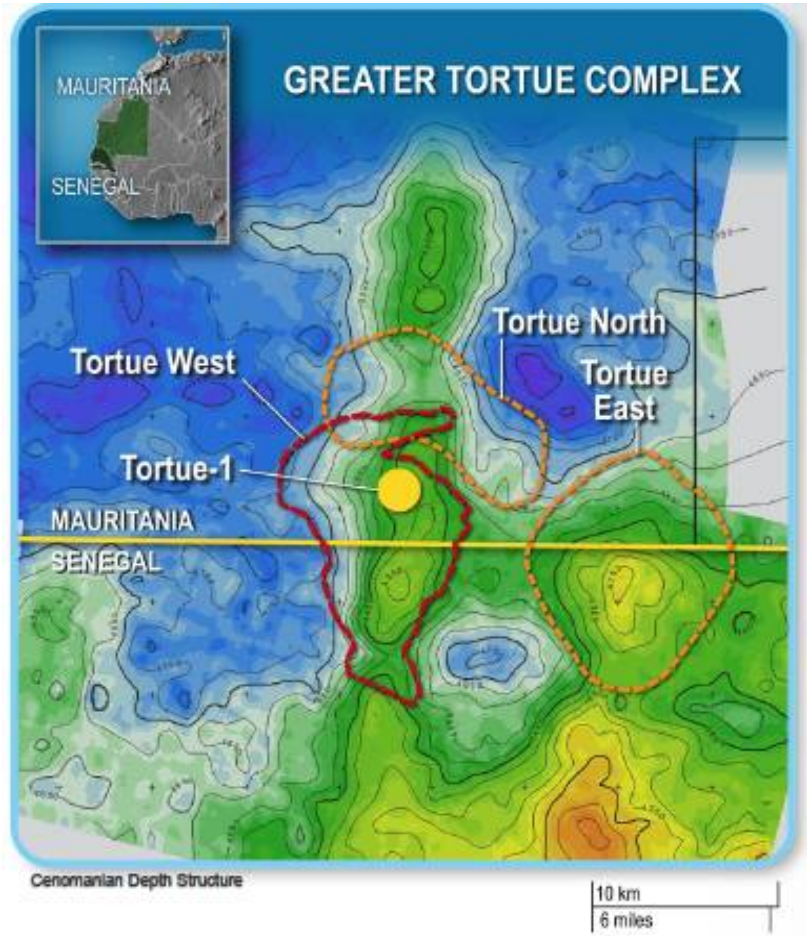
Bassin épais : plus de 6000 m
Série Jurassique à Tertiaire
RM Jurassique et Crétacé Inf
Sel Jurassique au Nord (Mauritanie
et Sud Sénégal/Guinée Bissau
Carbonates Jurassique
Clastiques Crétacé Sup et Tertiaire
Petits champs Gaz (Dakar) et
découvertes HO Dome Flore
et Indices Rufisque offshore



Compilé d'après la carte tectonique internationale de l'Afrique (1968), Liger (1979) et Ly (1985)

TORTUE 1 LOCATION (from Kosmos website on 06/06/2015)





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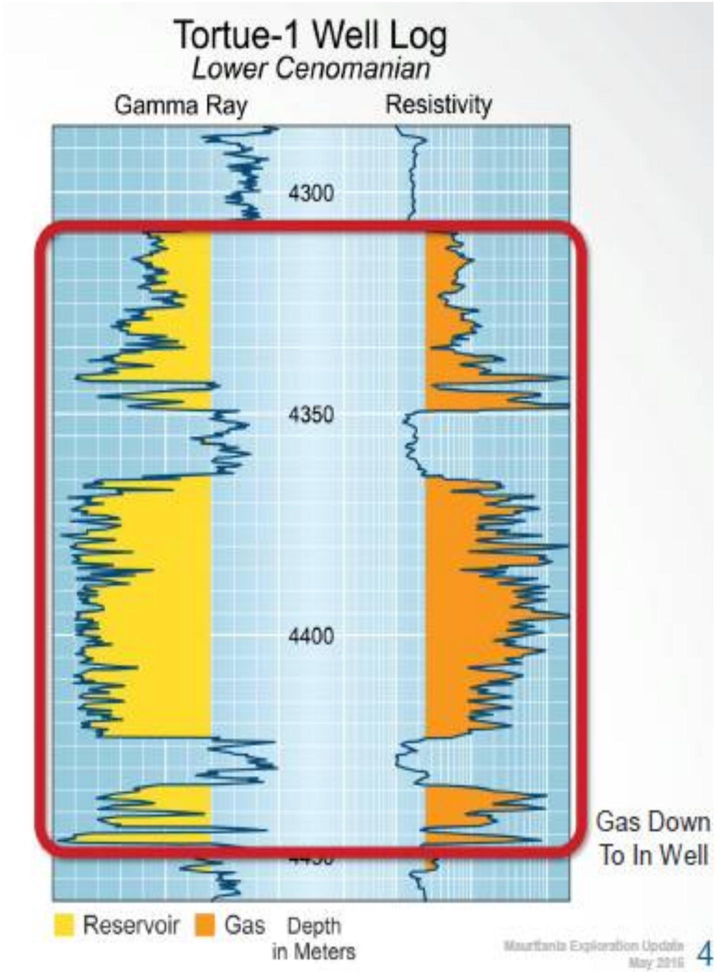
TORTUE PRESENT RESULTS AND… NEXT ?

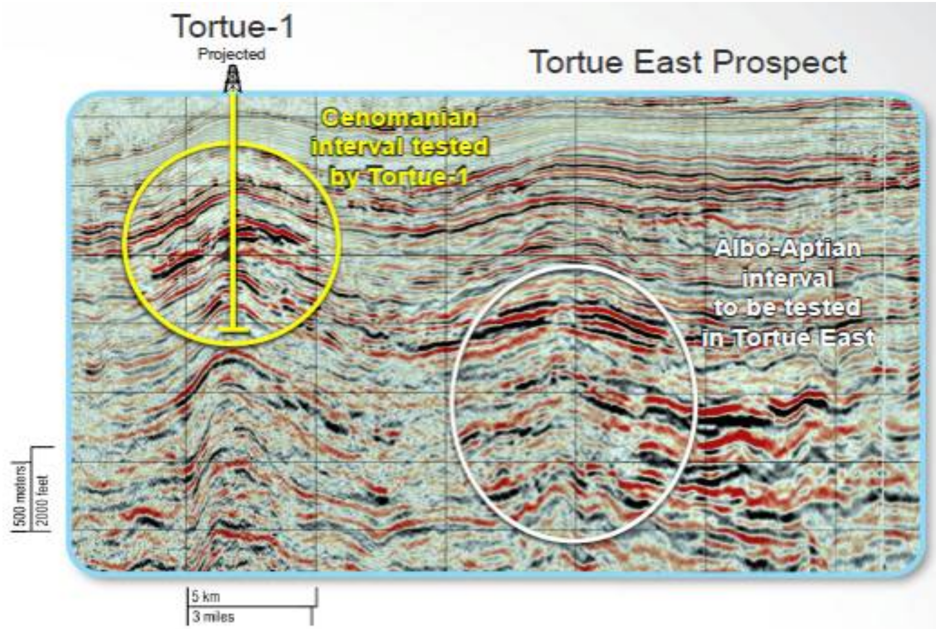


Kosmos Evaluation :

-Tortue Structure : 5-8-12 Tcf

-Greater Tortue ; 14 to 22 Tcf

If we take 200 km2 and 50% turbiditic presence : 4 to 6 Tcf



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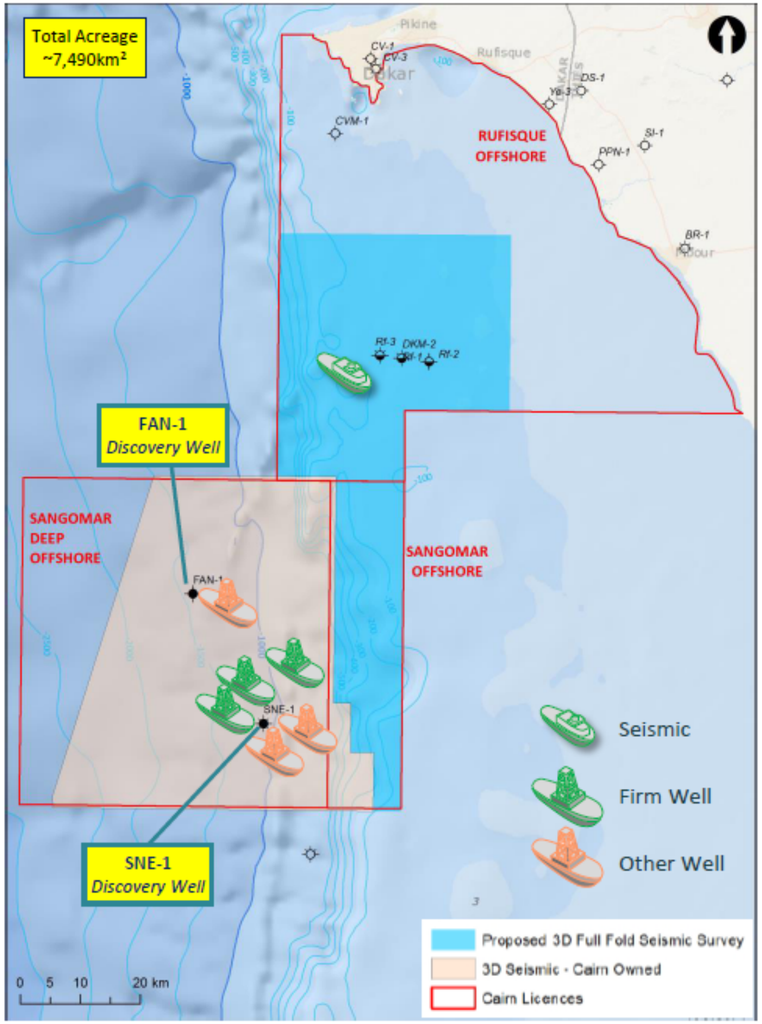
SENEGAL : CAIRN Discoveries
(Cairn 40% , Conoco 35%)

SNE : 1st discovery after Rufisque non commercial oil by Exxon in the 70’s ;
2P RR : 380 Mmbo ? ; low oil net pay : 30m and gas cap

FAN 1 : 2[nd] discovery end 2014
Mediocre reservoir ? :30 m of net oil sands on top of 500m oil gross column : **no DST but no OWC**
IOIP : 1 Gbo from operator
Is it a large strat trap or a small 4way dip ?

Very different geological setting :
- SNE : Deltaic platform for SNE below drift unconformity
-FAN : Abrupt margin for FAN above drift unconformity



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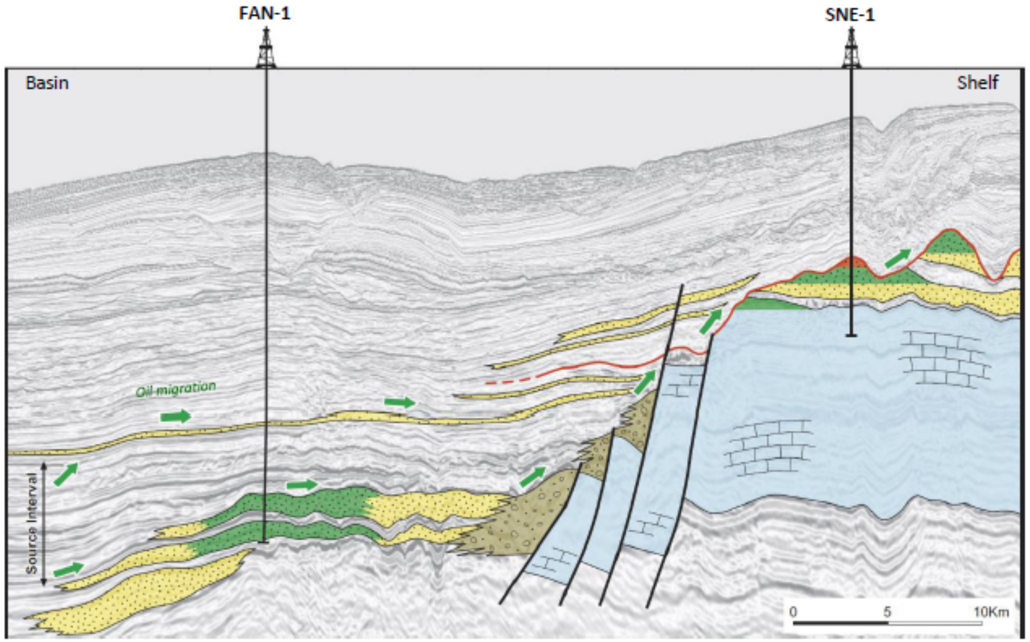
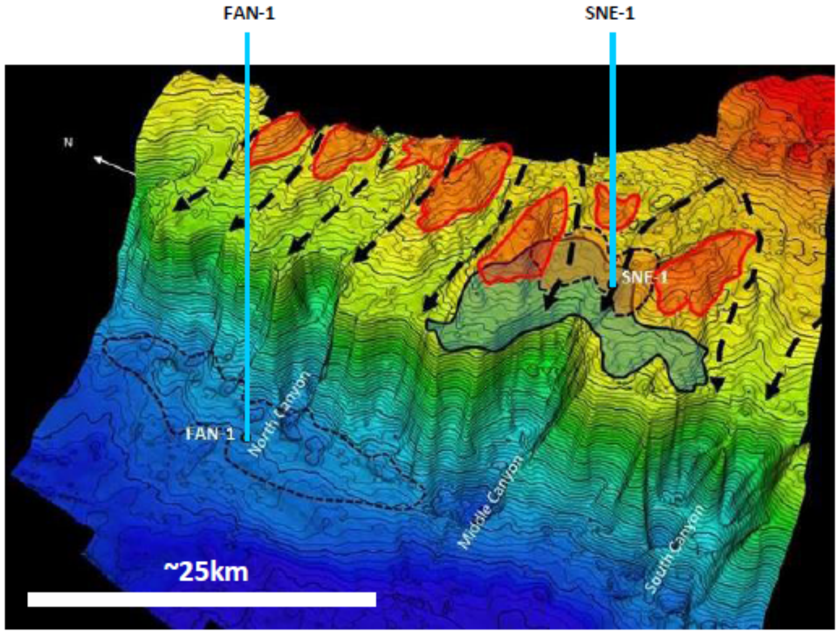
Discovery and Appraisal
Discovery Wells Drilling Schematic

- Two wells targeted multiple plays
- FAN – multiple deepwater stacked 'fans' of mid-upper Cretaceous and stratigraphic traps
- SNE – Cenomanian – Albian clastics over Aptian Carbonates – predominately structural traps
- SNE on budget, on time, no overpressure and no surprises in drilling

2D Seismic schematic



3D Seismic

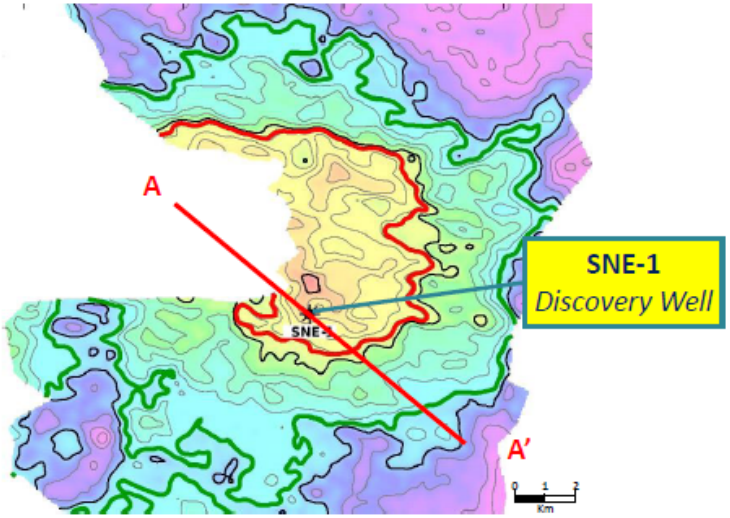


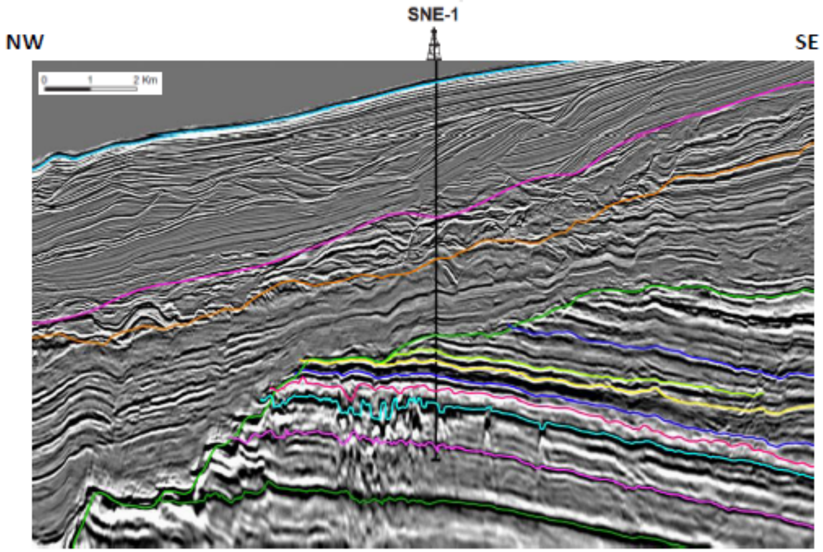
Cairn

Discovery and Appraisal
SNE Field Forward Programme

SNE-1 Appraisal Objectives

- Drilling of optimum appraisal wells
- Coring and testing of the reservoir:
  - Determine reservoir continuity and connectivity
  - Establish productivity of the reservoirs
  - Populate static and dynamic models
  - Determine commerciality and underpin exploitation plan
- Reduce uncertainty range
  - Increase 1C resource
  - Confirm and potentially increase 2C resource
  - Evaluate further oil potential
- Continue shelf area exploration

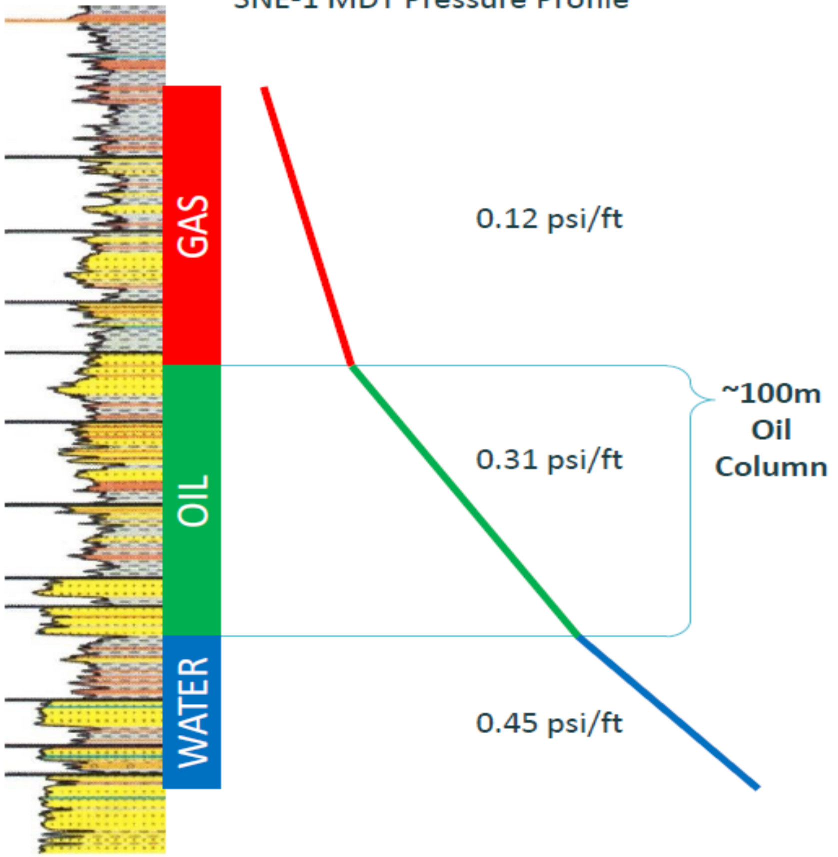




Discovery and Appraisal
SNE-1 Key Reservoir and Hydrocarbon Data

SNE-1 Shelf Well

- Gas
  - Gross 107m
  - Net Pay 19m
  - Average Porosity (PHIE) 25%
  - Average Hydrocarbon Saturation 70%
- Oil
  - Gross 96m
  - Net Pay 30m
  - Average Porosity (PHIE) 24%
  - Average Hydrocarbon Saturation 73%
- Water
  - Gross 38m
  - Average Porosity (PHIE) 22%



Delivering value from discovery and development