



# Aspo April 2023

Two decades of conventional O&G discoveries

The main discoveries in 2022 and 2023

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2000-2022

First steps in a new century  
Conventional O&G Exploration Results

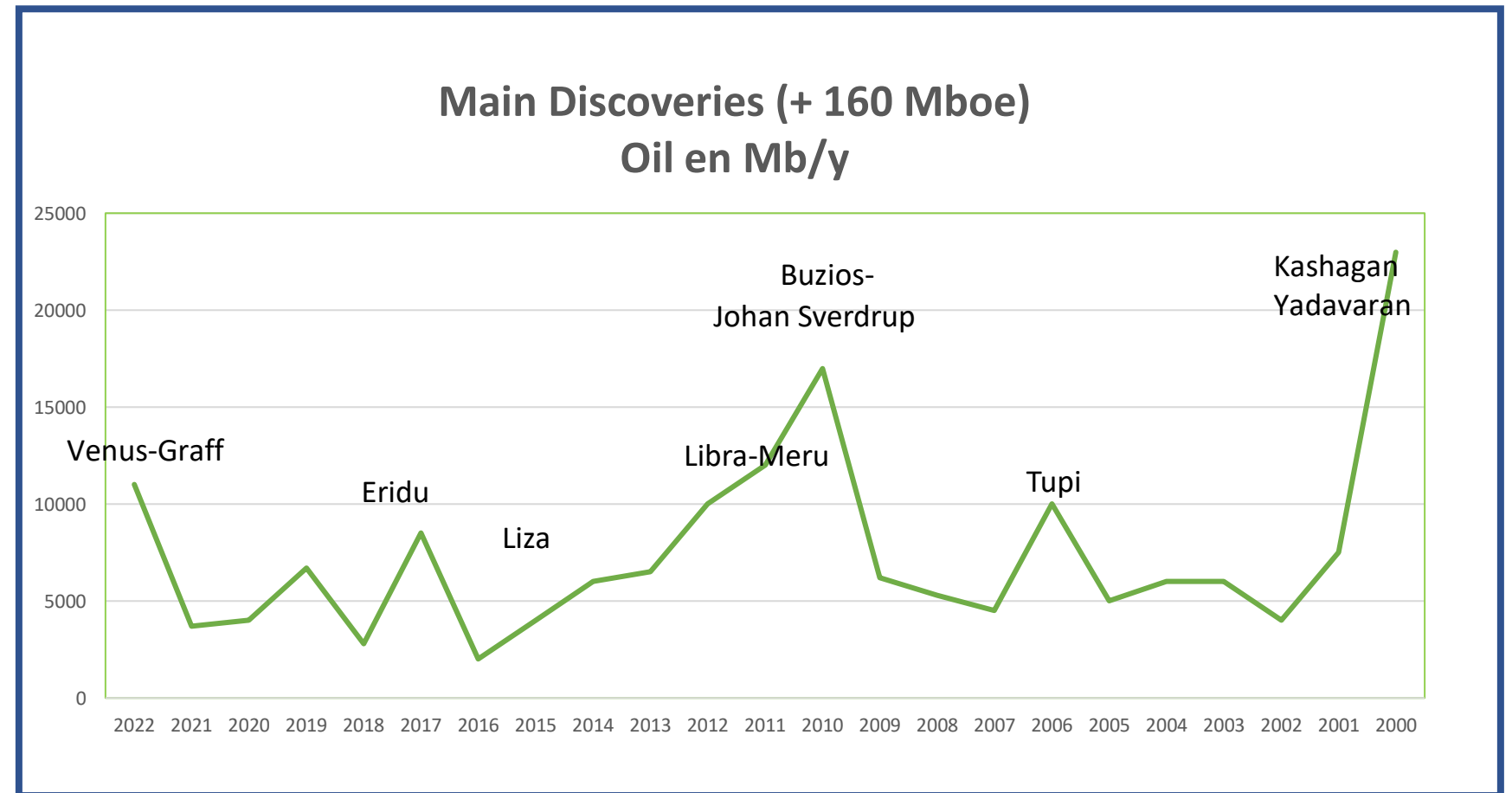
# Two decades of Conventional Oil discoveries



Yearly GLOBAL mean discovery is close to 7.5 Gbo/y whereas Consumption is close to 30 Gbo/y , **4 times more !**  
**Not sustainable at all !**

Main discoveries have been made mainly in frontier offshore  
Brazil (subsalt Santos) / USA (GOM and Alaska);  
Guyana Deep offshore

**Oil is in the West !**  
Statement largely enhanced if we add the non conventional discoveries (US-Argentina)

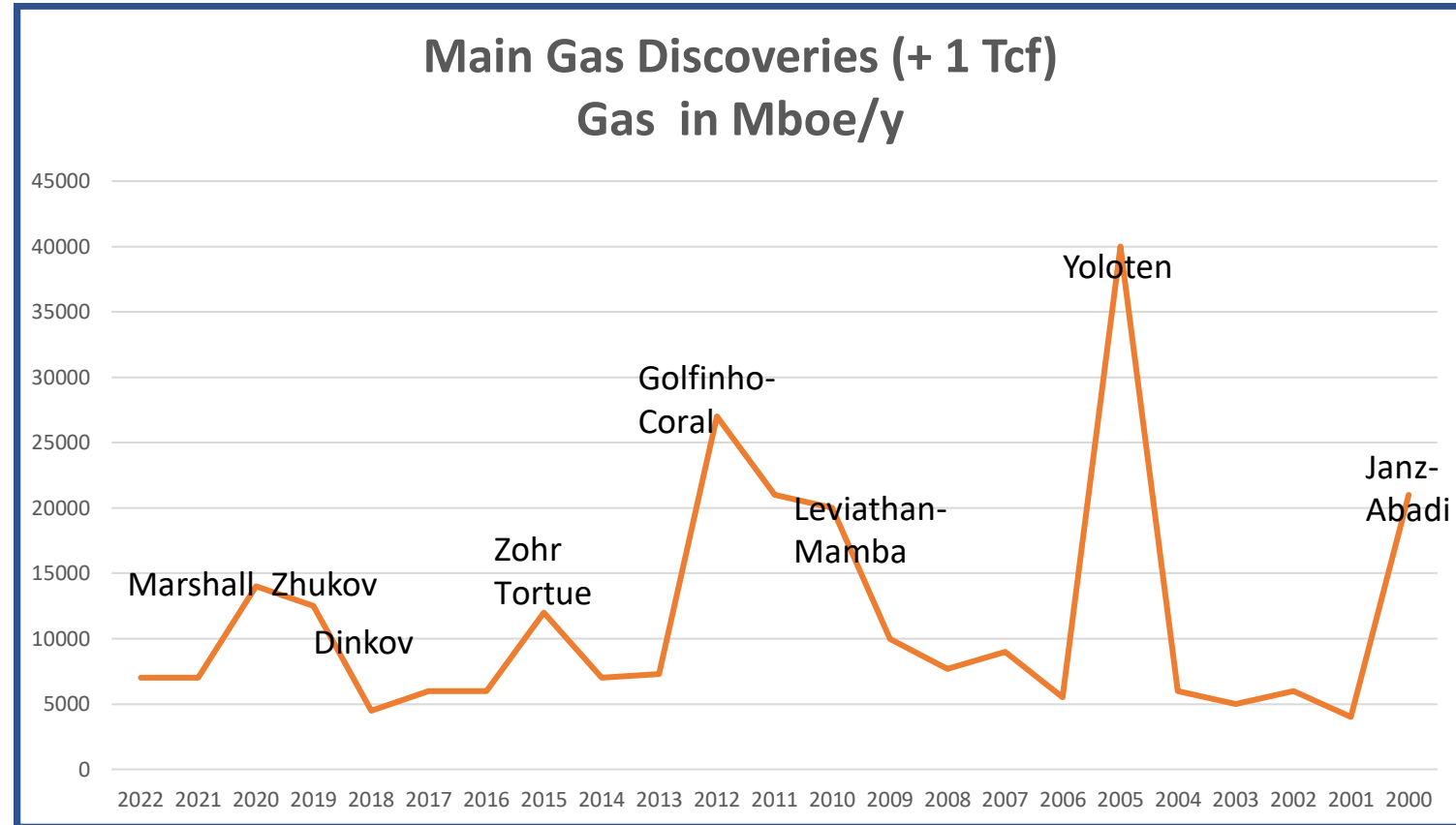


# Two decades of Conventional Gas discoveries

Yearly GLOBAL mean discovery is close to 70 Tcf/y whereas Production is 110 Tcf/y; **even for gas the balance is in deficit !**

Main discoveries are in Russia/Turkmenistan/Mozambique/East Med (Egypt-Israel-Cyprus) , Australia, Senegal-Mauritania

Gas is geographically better diversified but **Gas is mainly in East !**





# 2022 O&G Exploration Results

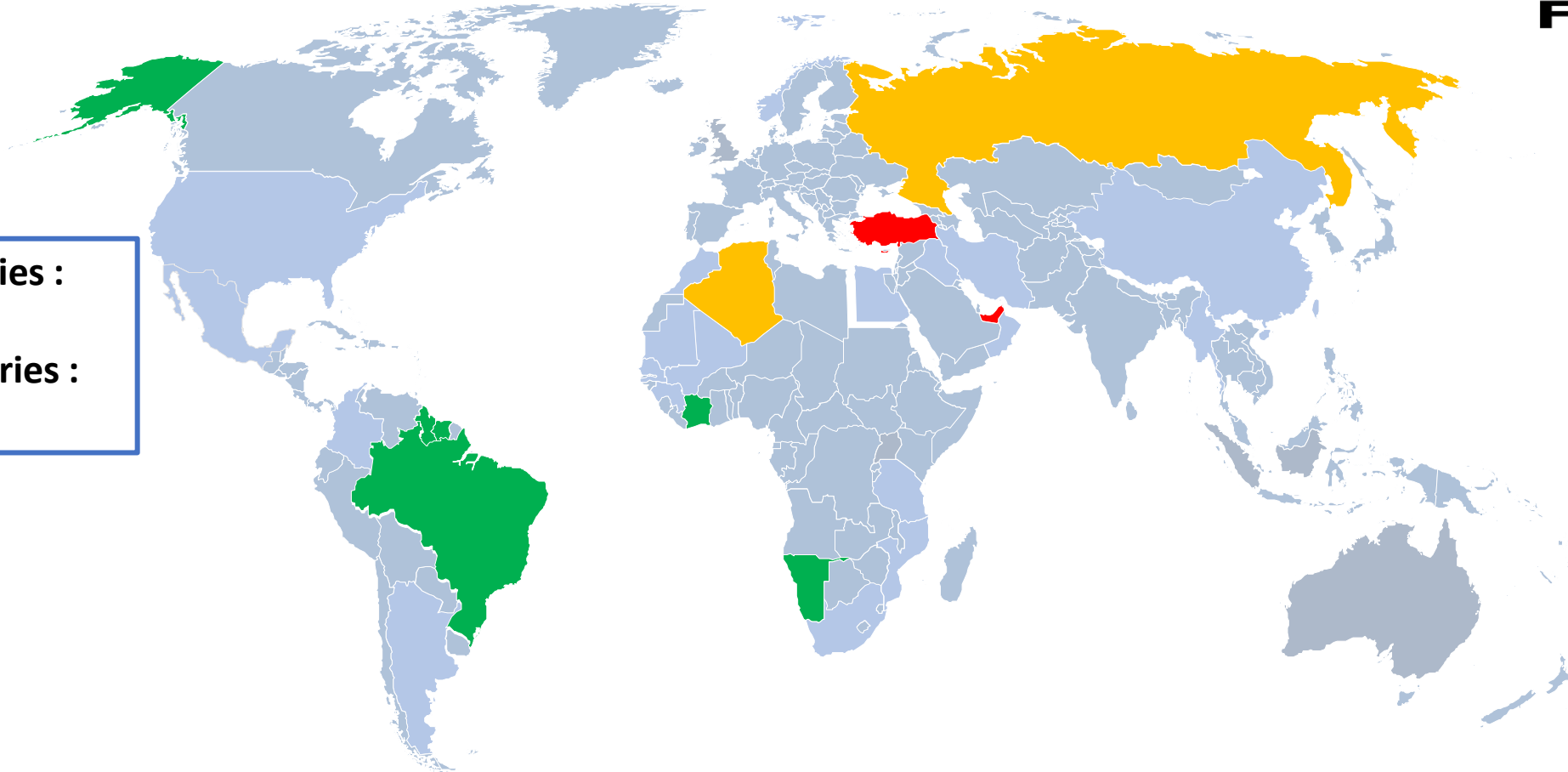
## 2022 EXPLORATION SYNTHESIS

### New major conventional discoveries



■ OIL  
■ GAS

Oil discoveries :  
11 Gbo  
Gas discoveries :  
8 Gboe

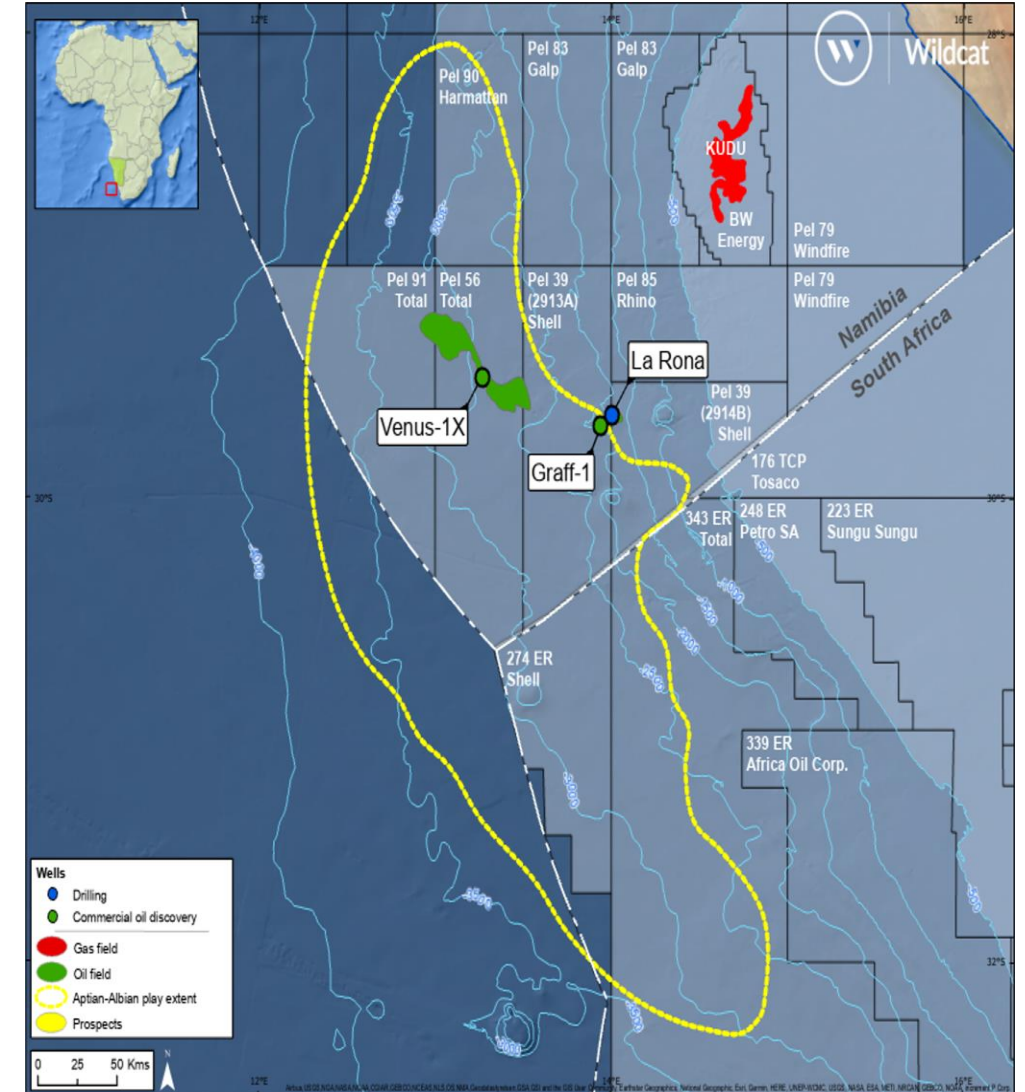


**Oil** : Guyana-Suriname/Alaska/Brazil (Santos)/Namibia-Ivory Coast  
**Gas** : Turkey/East Med (Cyprus)/UAE  
**Gas and Oil** : Algeria-Russia

# Namibia : Orange Basin : a new oil province in deep offshore Africa

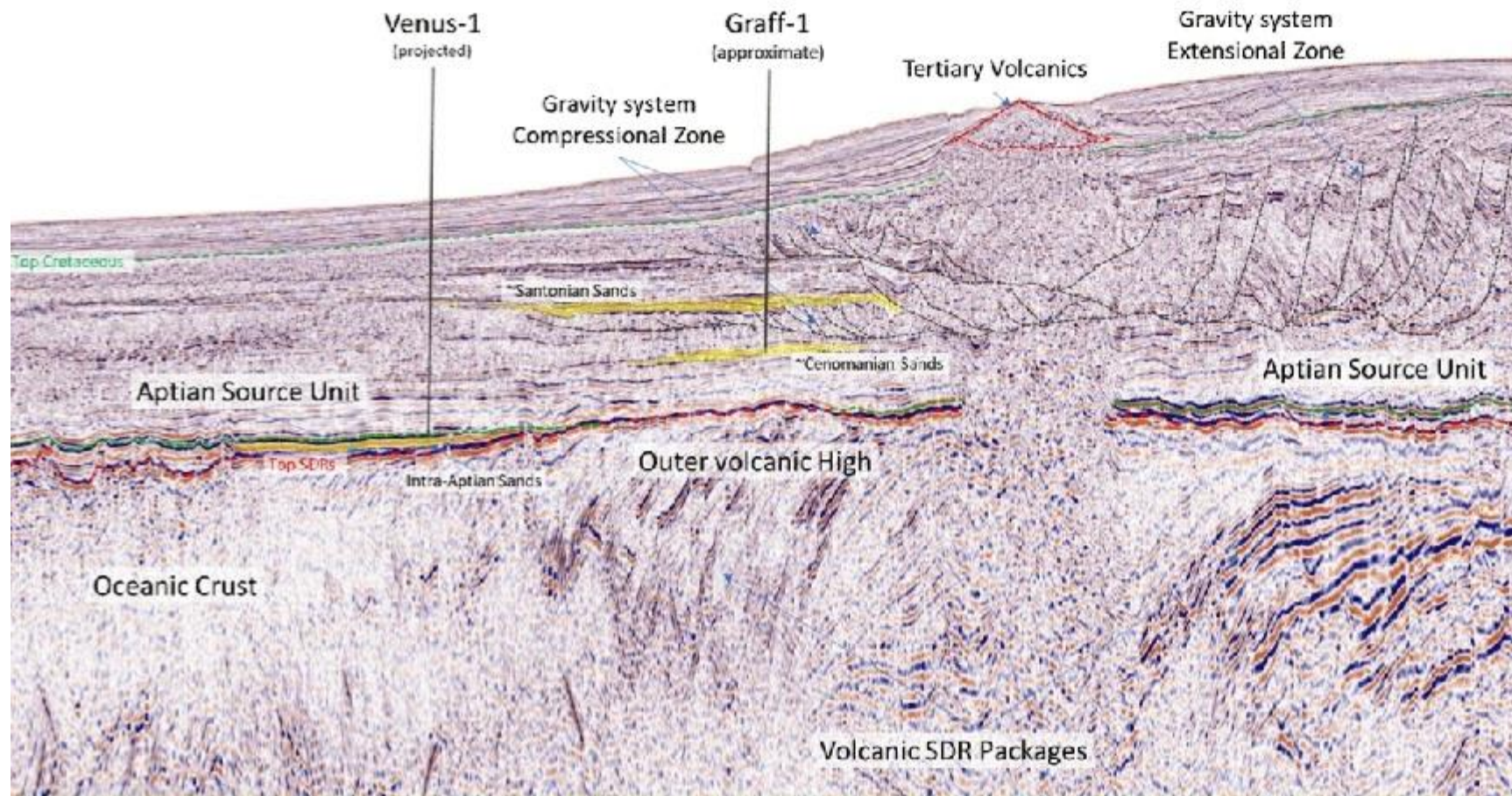
## Two discoveries annouced 1st Quarter 2022

- **Graff 1 by Shell** : WD 2000 m ; TD : 5375 m  
Mixed Cenomano-Turonian Cretaceous  
Turbidites plays –
- 300 Mbo to 1 Gbo Reserves ? Appraisal called  
La Rona has been drilled :
- Junker 1 drilled in March 2023 positive too
- **Venus 1 by TotalEnergies 40 % (QP 30  
%/Impact 20 %, Namcor 10 %) : Wd : 3000 m ;  
TD ; 6300 m** Albian basin floor fan with 84 m of  
oil net pay
- Huge reservoir extension with AVO and DDC :  
600 Km2 !
- **Reserves 800 Mb to 3 Gbo ?** But not tested :  
Permeability ? GOR ?
- Appraisal well (with test) in March 2023





# Namibia : Orange Basin : a new oil province in deep offshore Africa



ION SPAN™ surveys include contiguous data across the South Atlantic margin

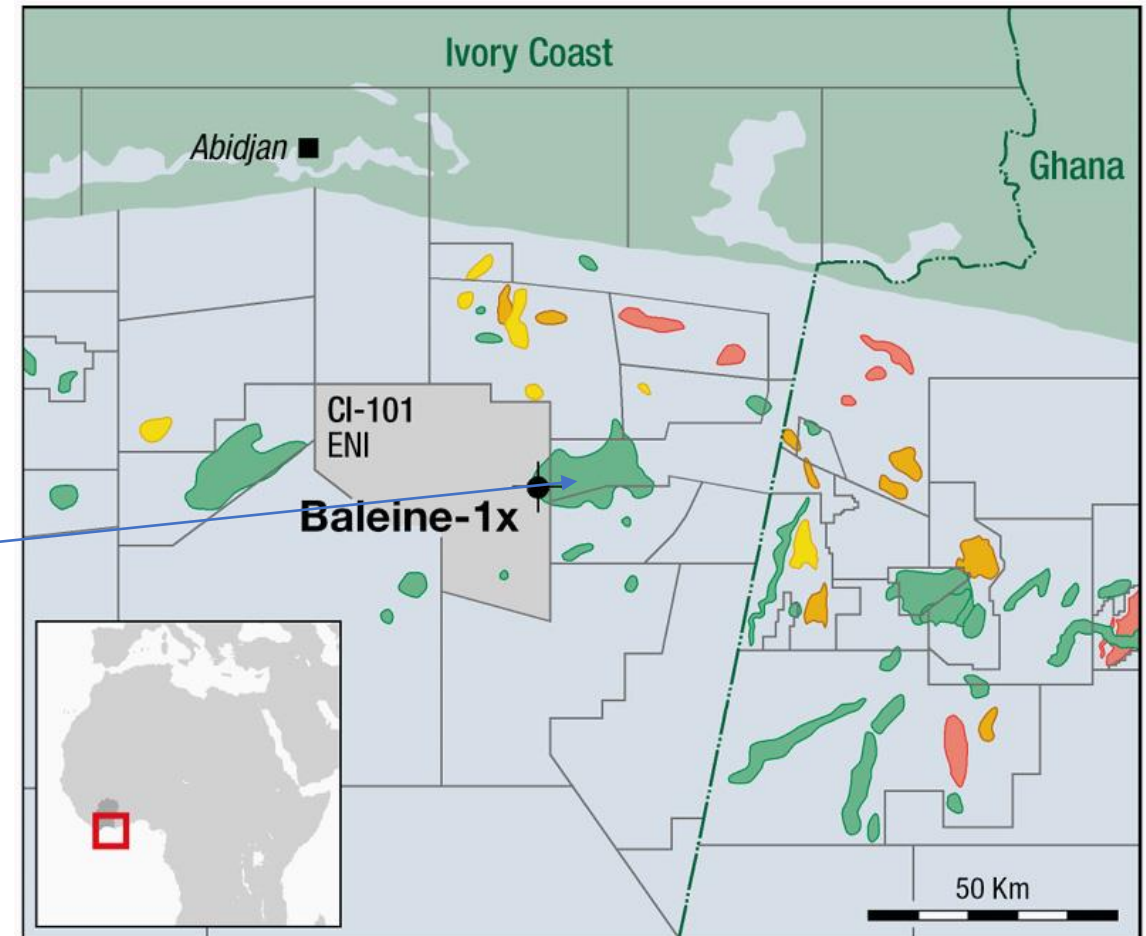




# Ivory Coast-Baleine Field –Appraisal 2022

Appraisal-extension drilled mid 2022 at Baleine-East 1X by ENI ON block CI-802 , 5 km east of discovery well  
Excellent results increasing the IOIP from 1.5 to 2.5 Gbo and IGIP from 2 to 2.5 Tcf  
First oil fast track development expected end of 2023

Baleine Est- 1  
Appraisal on CI-802

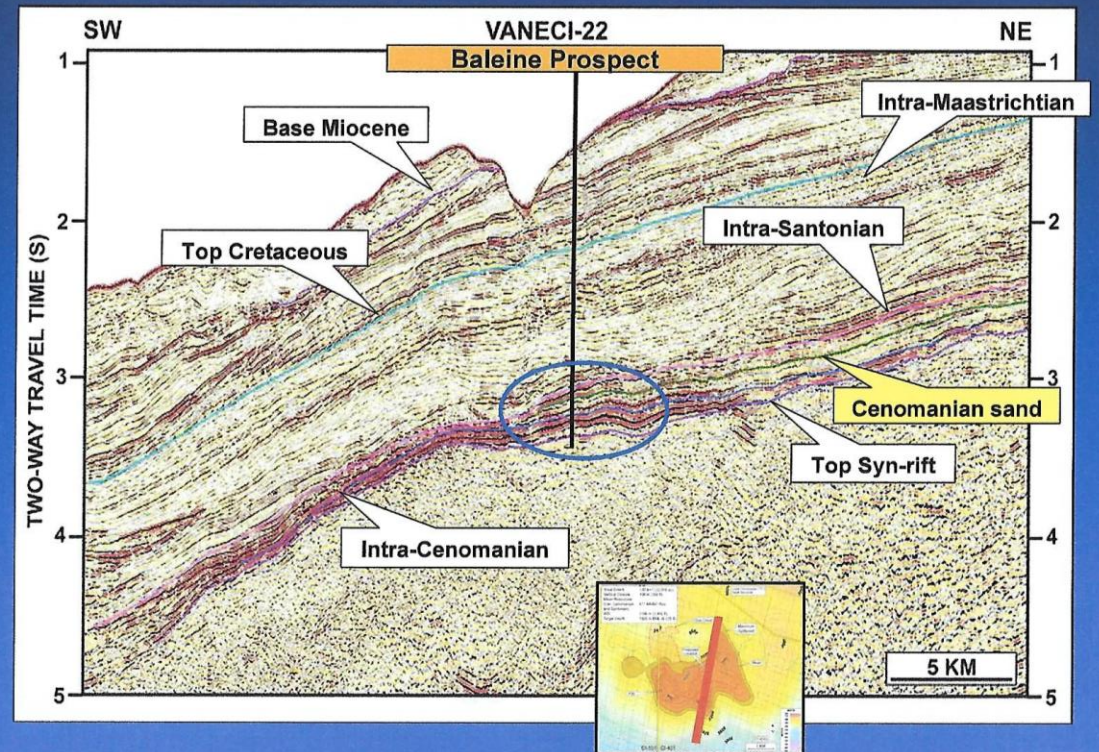


# Ivory Coast- Major O&G discovery- CI 101 block by ENI in 2021

Baleine 1 well ENI 90 %; Petroci 10 %  
TD : 3445 m  
light oil-bearing intervals (40° API) of Santonian and Cenomanian-Albian age. Cenomanian-Albian level shows discrete to good reservoir and has been successfully tested to production. Very probable extension in block CI-802 (ENI op)

**IOIP 1.5 to 2 Gbo**  
**IGIP 1.8 to 2.5 Tcf**

## Baleine Prospect – 2005 2D Dip Line



# Brazil : a new exploration step towards UDO

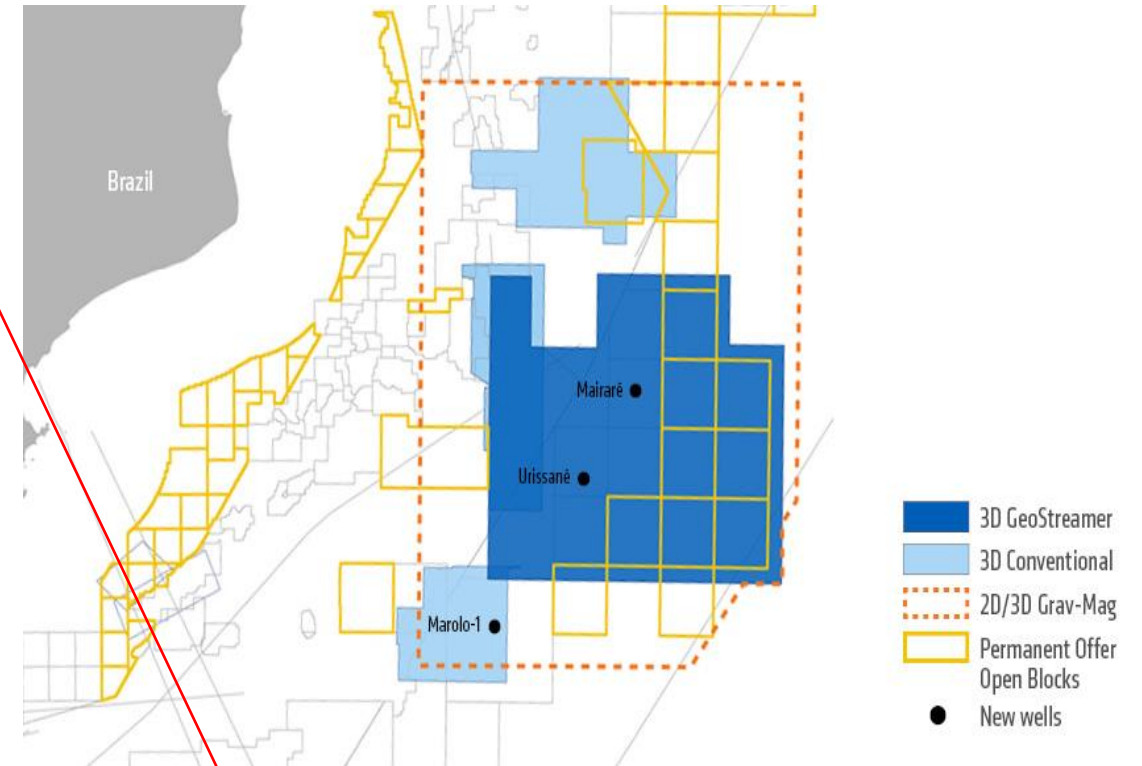
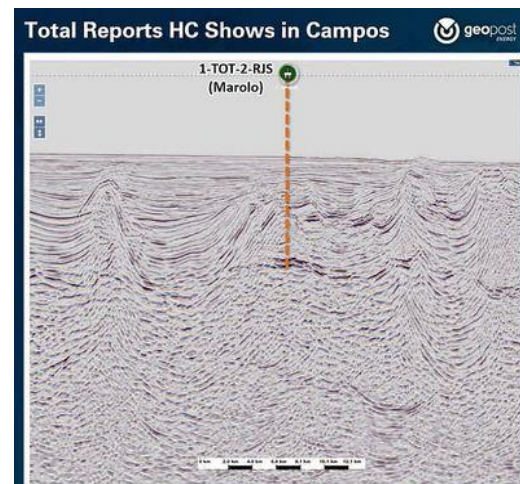
## Campos with major risks : facies and sour gas

**Alto de Cabo Frio :WD 1850 m /Petrobras and BP  
DST in presalt carbonate / 500 Mboe ?**

**Urissané 1 (2021) by Petrobras 50 % (Exxon 50%) WD :  
2950 m, Oil shows ?**

**Mairare 1 by Exxon ? Petrobras ? WD : 2850 m CM-346**

**Marolo 1 (2022) by TotalEnergies (next Ubaia 1 ?) : oil  
shows ? WD : 2950 m**

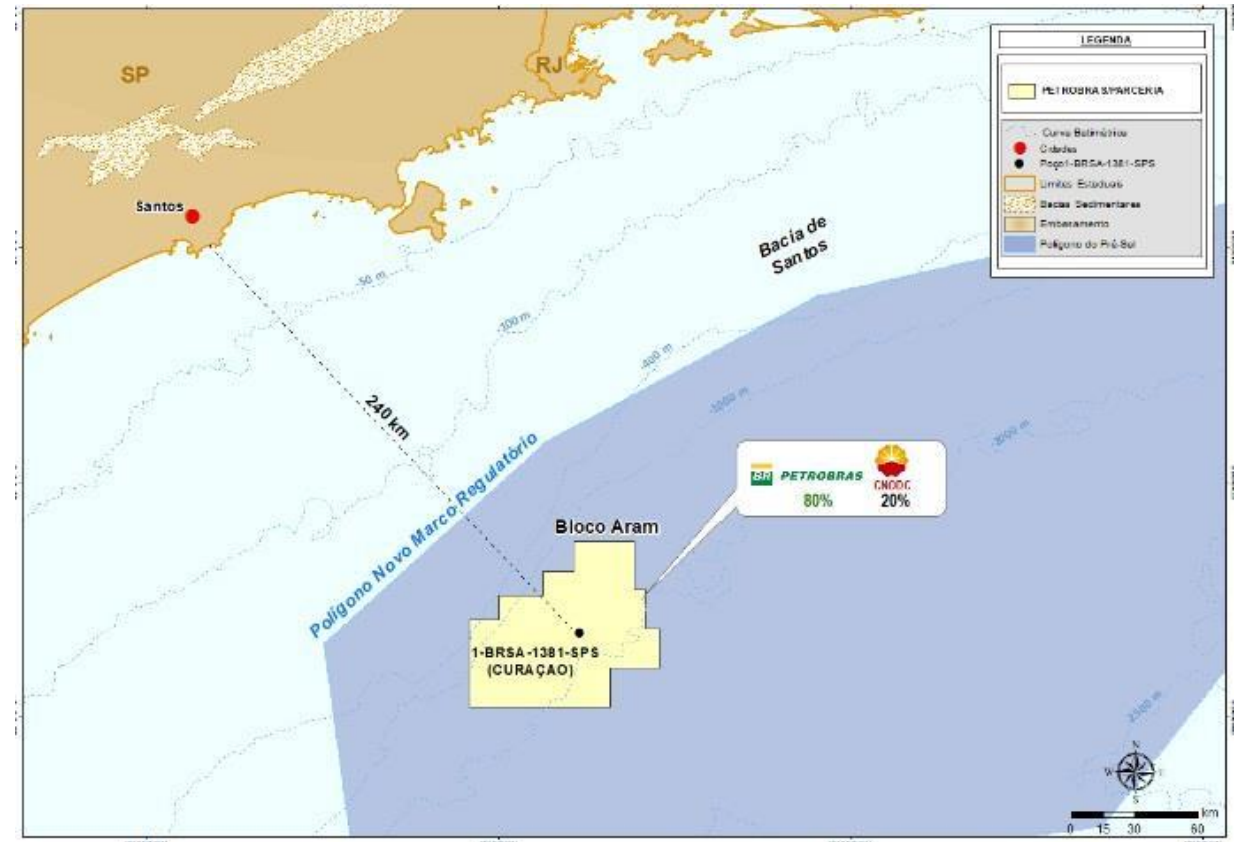




# Renewal extensive exploration in Santos Basin

Petrobras (80 %) and CNPC (20 %) made a large discovery in Santos presalt carbonates, Well Curacao-1 (WD : 1900m) now Aram -1 encountered 300 m of gross oil pay in 2021, Discovery was tested mid 2022 showing strong productivity

Oil reserves could be as far as 1500 Mbo

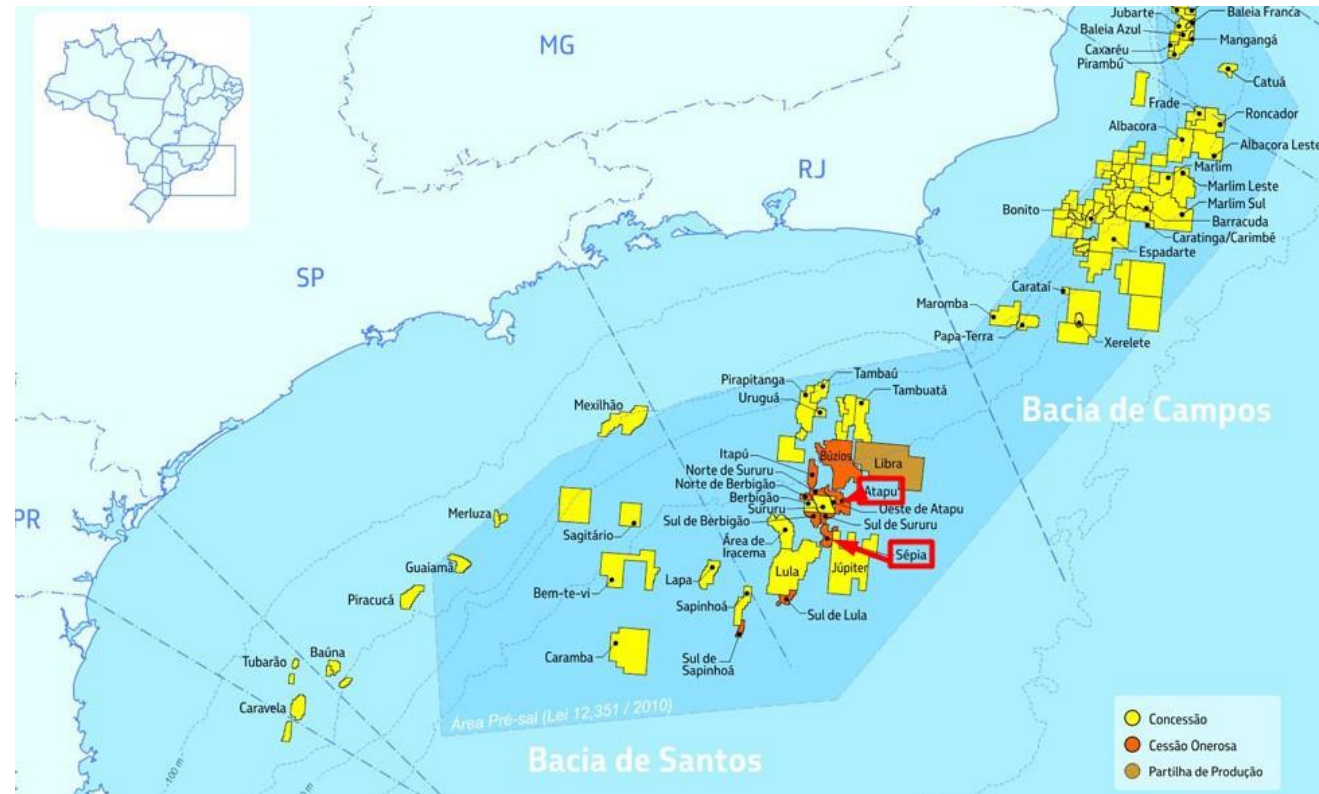


# Brazil –Santos- Sepia Extension

oil discovery by the Pedunculo well, located in the NW of the Sépia oil field, approximately 250 km off the coast of Rio de Janeiro, Brazil.

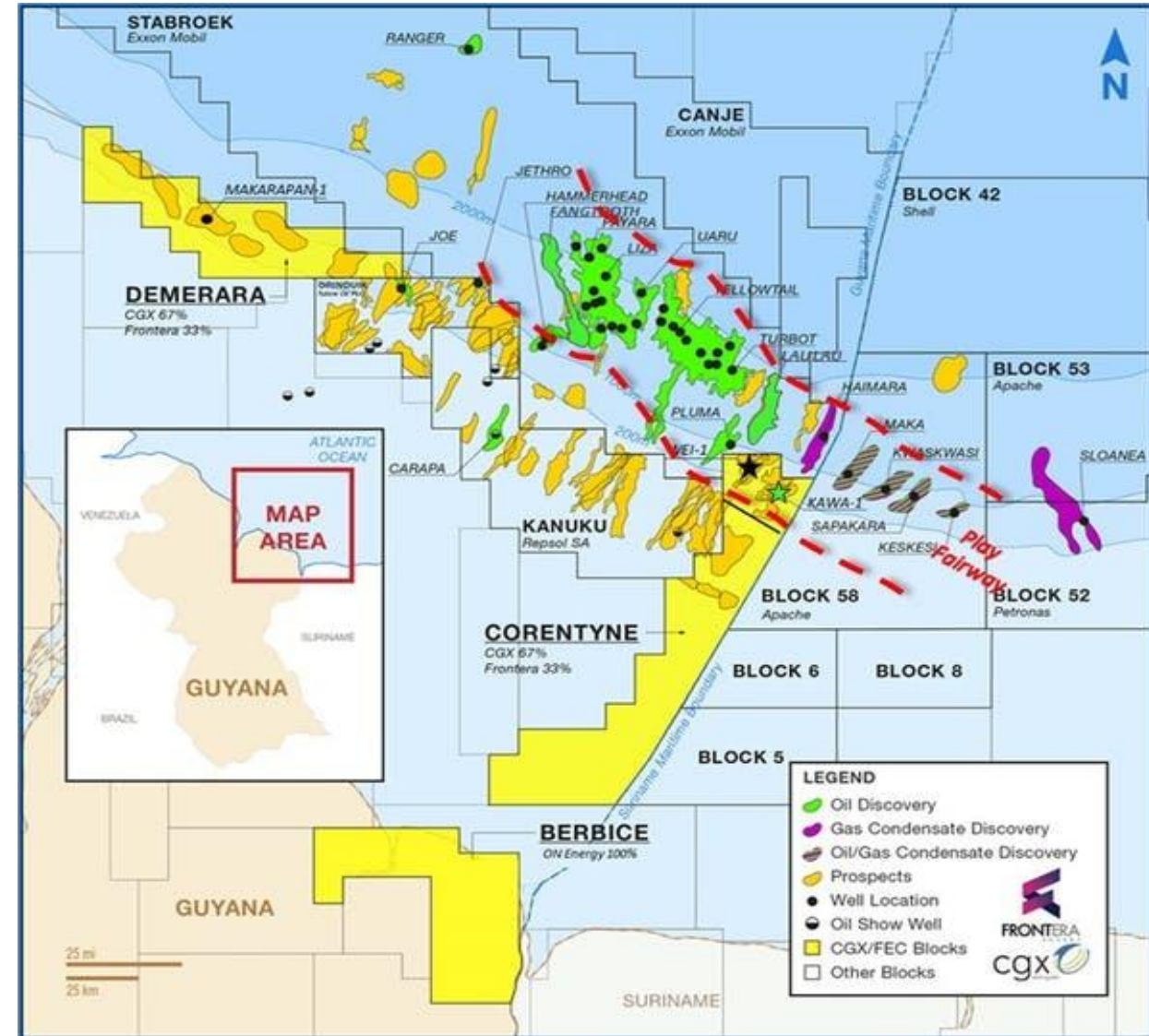
This discovery lies within the Sépia Coparticipated Area, to Petrobras (30%), TotalEnergies (28%), QatarEnergy (21%) and Petronas (21%), The Sépia is currently producing 170,000 barrels of oil per day.

“The resources confirmed by the Pedunculo well appear to exceed pre-drill expectations and add to the potential for future development of the area. The well was drilled at a WD 2,200 meters. **The net thickness of the well’s oil column is one of the highest ever recorded in Brazil.**”



# Guyana-Surinam basin : multi-sources Cretaceous sandy turbidites

- 2022 : 9 Exxon discoveries in Guyana ( 1,5 Gbo) and 2 TE in Suriname (500 Mbo)
- Guyana and Surinam reservoirs could be different from the few published maps
- Younger and shallower in Guyana
- Large deep sea fans in Guyana like Lizza
- Restricted feeders in Surinam
- Multi source points : large ranges of poro-perm values ?
- Higher GOR in Surinam
- **TOTAL : 12 Gbo in Guyana ; 2 Gboe in Surinam ?**



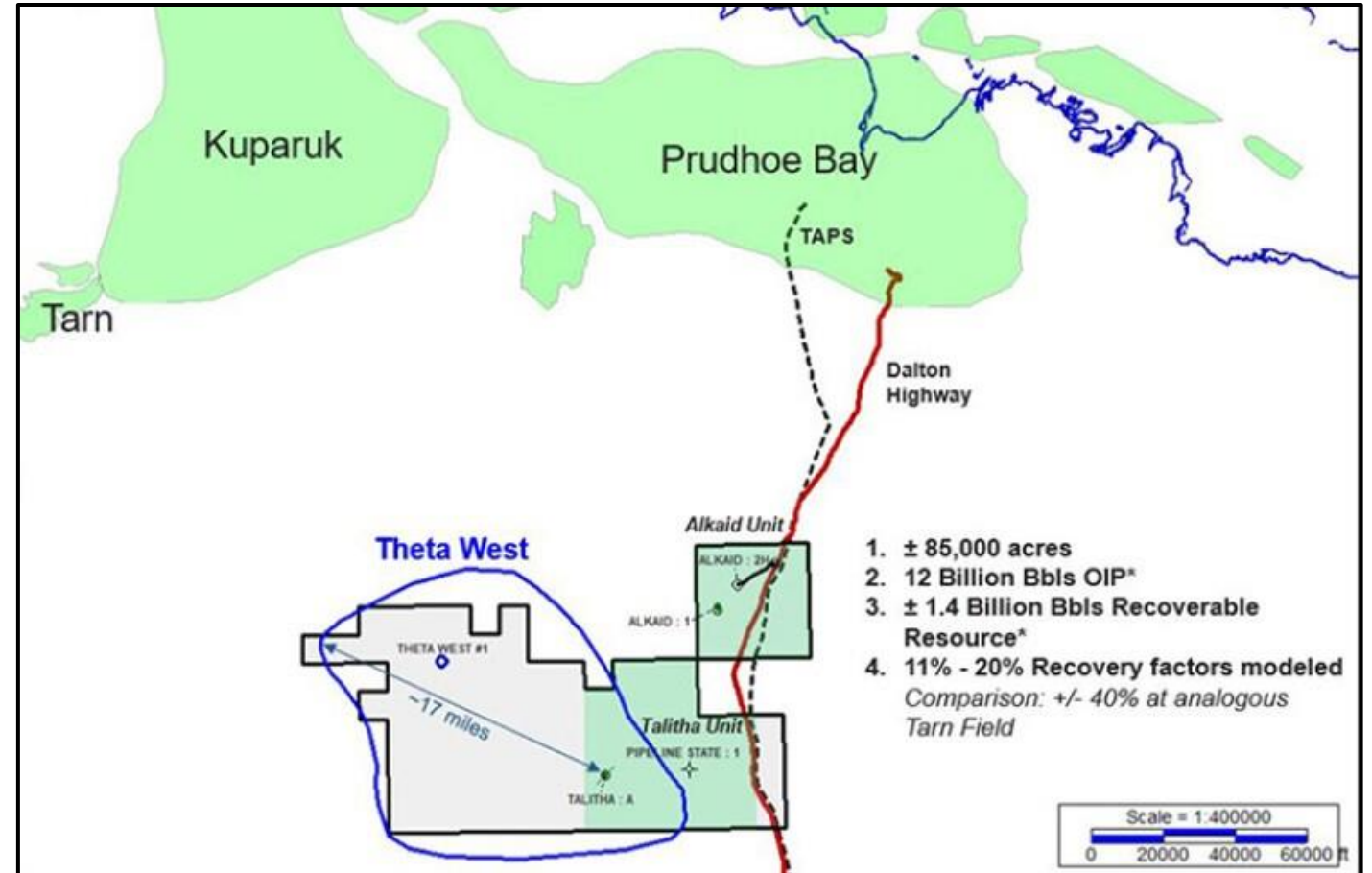


# Major discovery in onshore Alaska ?

Pantheon Ressources announced a 1,7 Gbo reserves discovery **at Theta West well** at 2160 m depth, with a 410 m oil column in rather good réservoirs

Updip of Talitha discovery oil bearing also

Separated from Alkaid 1 and 2 tested at,,, 120 bopd 80 Mbo

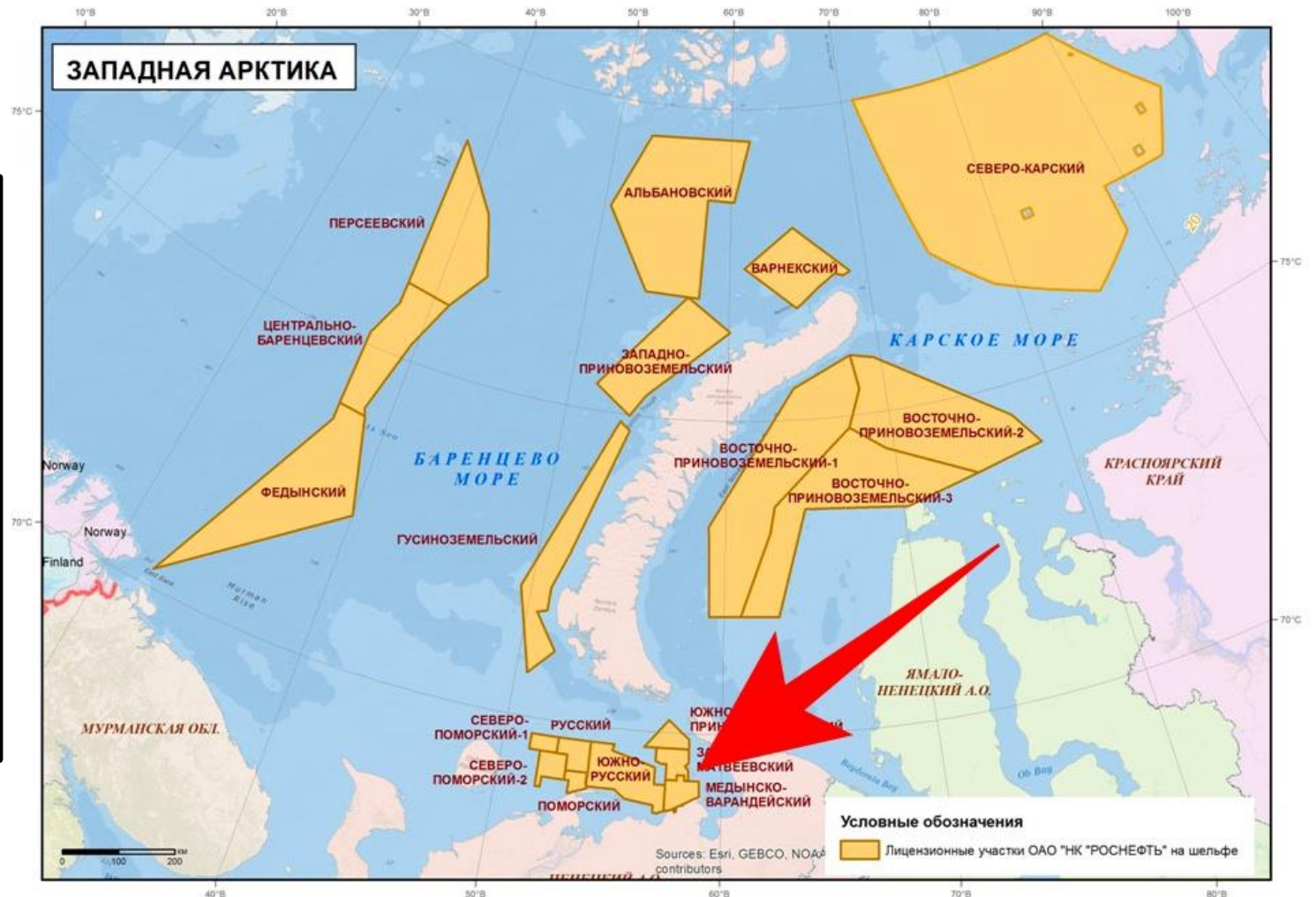


# Russia – Pechora Sea – Rosneft oil discovery

Madachagskoye 2 well drilled from the coast in 2021/2022 , TD at 4435 m test 130 to 250 m<sup>3</sup>/d of light oil

Field could have 575 Mbo reserves  
Reservoir parameters not disclosed,

South of Prirazlomnoye (Gasprom) field : arctic development with artificial island, horizontal drilling and multiple fracks stages.



# Twin discoveries in block 6 Cyprus

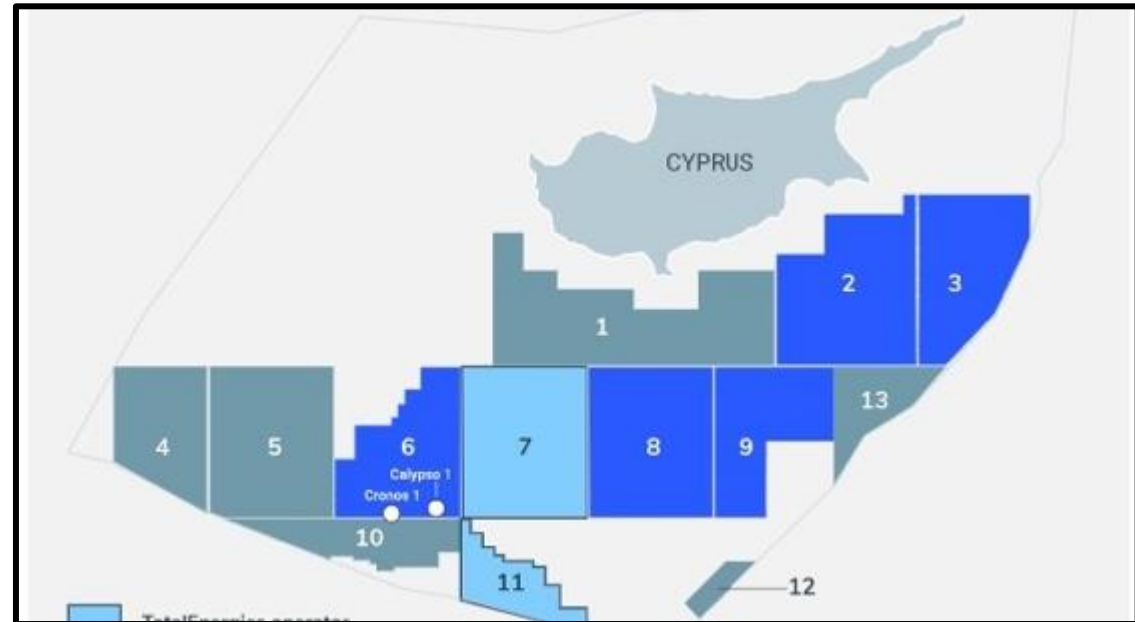
ENI operator (50 %) and TE (50%) partner  
announced two discoveries in  
Miocene to Cretaceous  
carbonates in bloc 6 :

**Chronos 1 (260 m net pay) and Zeus(110 m net pay)**

around 3 Tcf each

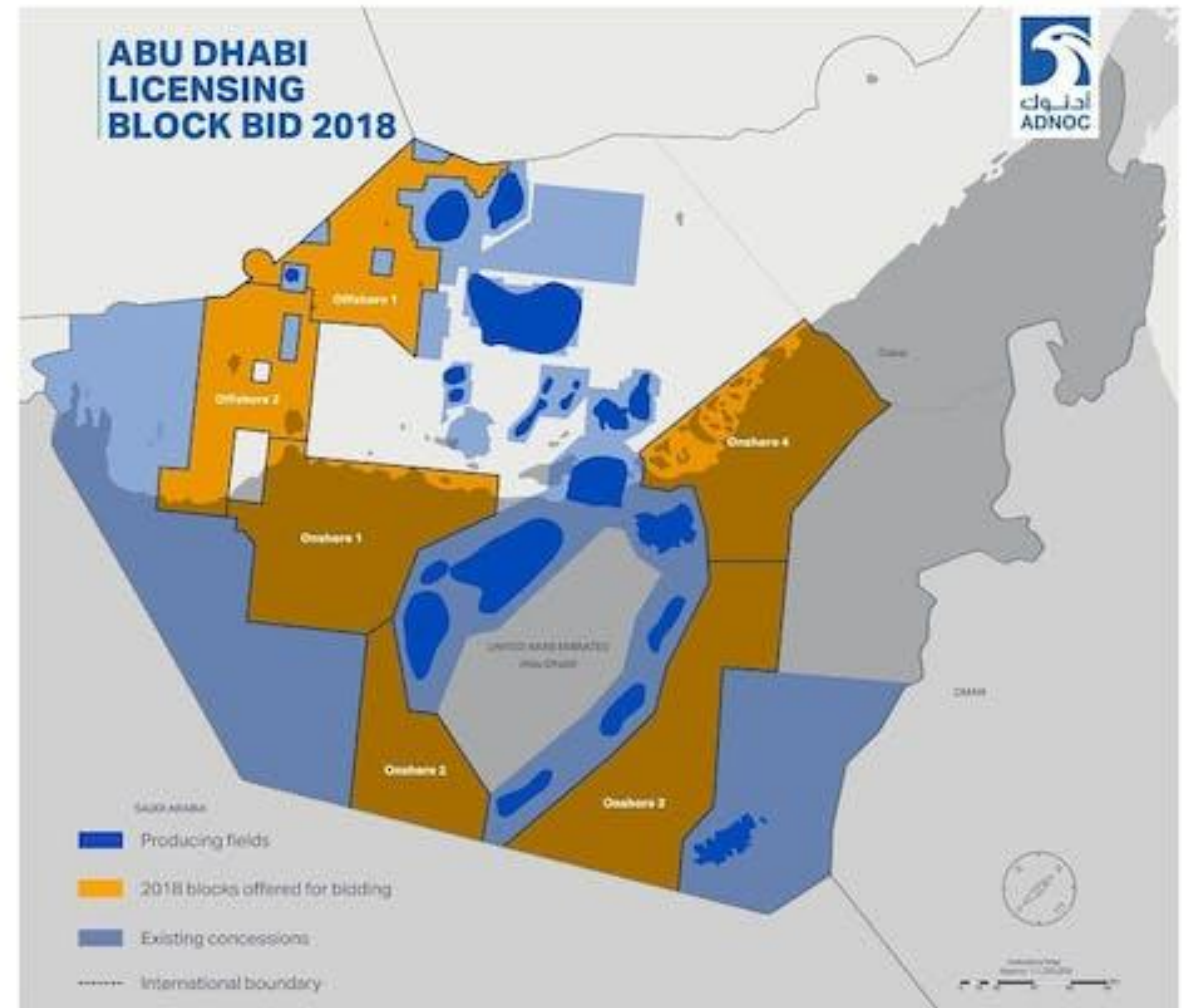
## GIP discoveries

After Calypso (bloc 6) and Glaucus (Exxon block 10) a development associated with Aphrodite (Chevron block 12) seems probable : FLNG or LNG ?



# Oil and gas discoveries in UAE

- Onshore block3 by Occidental : 100 Mbo
- Onshore block 4 by INPEX : 1 Gboe
- Offshore block 2 by ENI : 2 Tcf in shallow Fm and 1-2 Tcf in deep Jurassic Fm





# 2023 O&G Exploration Results



# Largest Turkeysh oil discovery (May 2023)

Discovery at Sehit Aybuke Yalcin-1  
well drilled by TPAO- SE Turkey

162 m gross oil pay

Top reservoir : 2770 m

High flow rate at DST : 10000 bopd

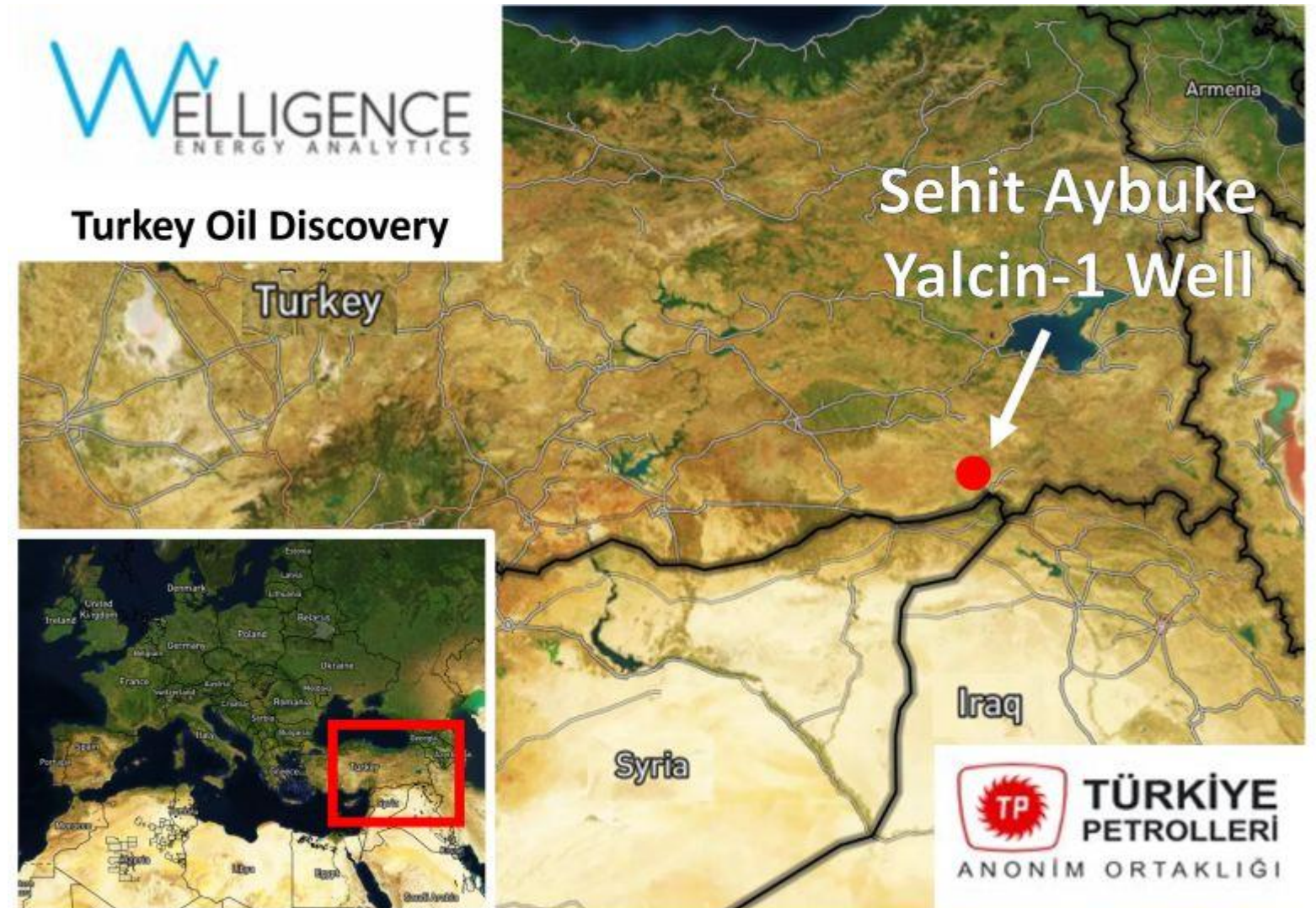
41°API oil

Fractured Cretaceous Carbonates

36 km2 folded structure

1 Gbo OIP / 350 Mbo reserves ?

Production forecast : 100 Kbopd





# New gas discovery offshore Egypt

-Chevron (45%,op), ENI (45%) and Tharwa (10%)

Well Nargis 1- WD : 300 m; TD :5100 m

60 m net gas pay in Miocene and Oligocene sands

3 to 4 Tcf GIP

Fast tract development through ENI facilities

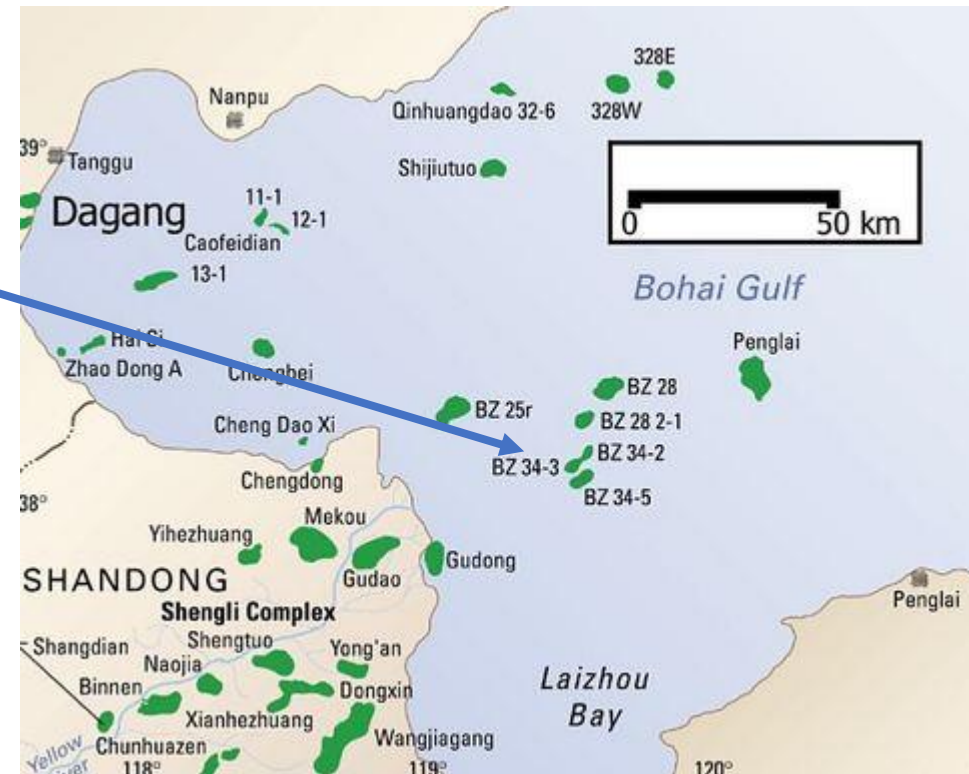


# New CNOOC oil discovery in Shallow Bohai Bay

-CNOOC operated Bozhong 26-6 well  
-WD : 20 m: TD : 4500 m

320 m oil pays in Moi-Oligocene sands  
DST : 2040 bopd and 11 Mscmpd

Reserves : 600 Mbo ?



BACK-UP

# Venus Appraisal -2023

## **Namibia's Venus Appraisal Campaign to See Arrival of Second Rig**

Tuesday, May 16, 2023

A second rig, the DeepSea Mira, is expected to arrive in Namibia shortly to join the Venus appraisal campaign. The high-impact appraisal campaign commenced with the spud of the Venus-1A well, located 13km to the north of the discovery well Venus-1X, on March 4, 2023.

[Africa Oil Corp](#), in its Q1 2023 results update, noted that the appraisal program is targeting up to four wells (including the re-entry of Venus-1X discovery well, in Block 2913B), to appraise the Venus light oil discovery and to investigate a potential westerly extension of Venus, the Nara prospect on Block 2912. The multi-well appraisal and exploration campaign in Namibia's Orange Basin commenced on March 4, 2023.

Africa Oil has an interest in this program through its shareholding in Impact Oil and Gas Ltd. (Impact), which in turn has a 20.0% WI in Block 2913B and a 18.9% WI in Block 2912, giving Africa Oil effective interests of 6.2% and 5.9% in these blocks respectively



# Unconventional Gas play Australia

- Australian Empire Energy Lto started the appraisal of Carpentaria 1 shale gas discovery with 3 wells : 1 V and 2 H (3 km long) wells in EP 187 (Betaloo Basin-Northern Territories)
- Velkerri Shales at 1800 m depth
- Audited Reserves at 1C/2C/3C :8/48/100 G.m3

