



GEOGRAPHICAL AND SEISMIC DATA
OGADEN BASIN DECEMBER 2012

Geographical and Seismic data

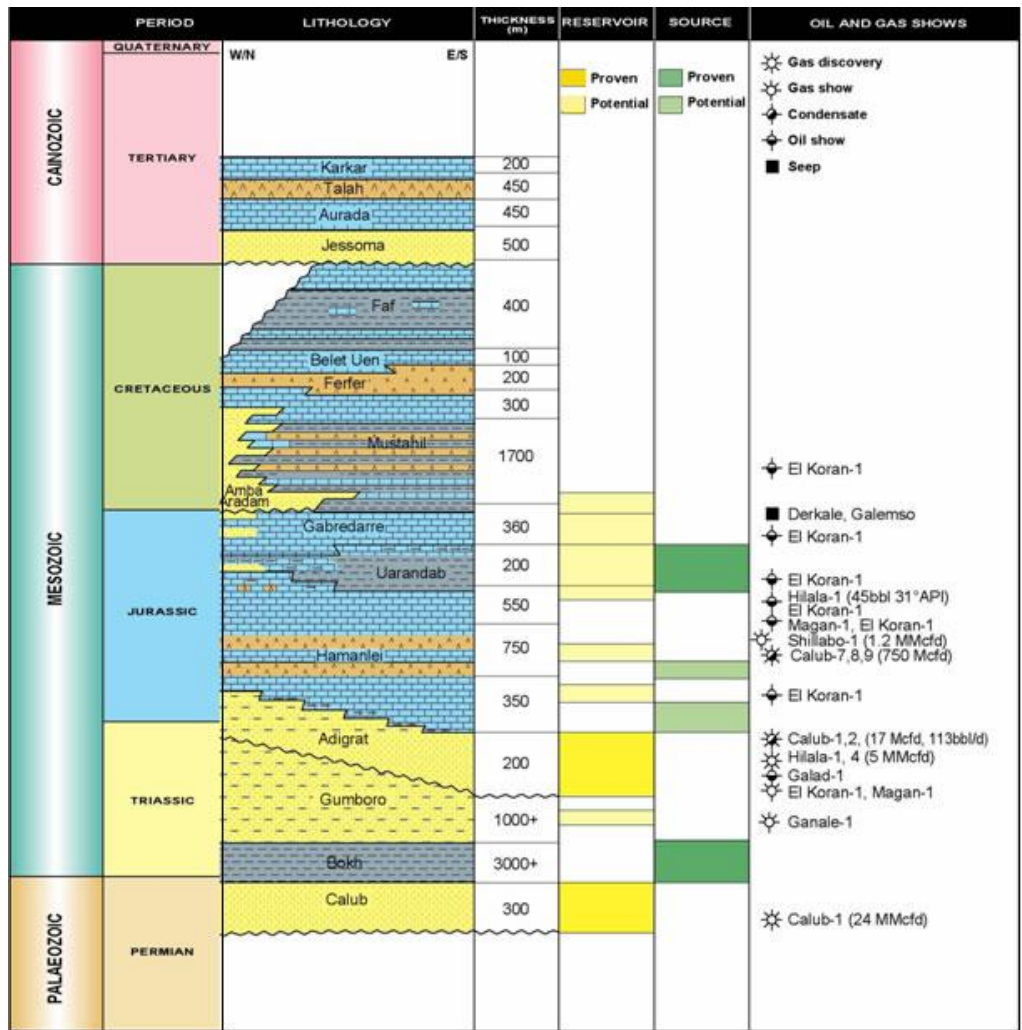
SUMMARY OF HYDROCARBON POTENTIAL IN THE OGADEN BASIN

Gravity, Aeromag and seismic data (acquired in 1992) have identified the presence of a rift system in north eastern Ogaden Basin. (Source: Maxus)

A petroleum system study of the Ogaden Basin has concluded that this newly identified rift system, east of the Marda Fault Zone, is of Permo-Triassic, Karoo age (Source: Petronas / Ministry Joint Study).

The Karoo is a prolific petroleum system in East Africa with billions of barrels of oil discovered in Madagascar, several trillion cubic feet (Tcf) of gas condensate in the Ogaden Basin, and a large number of hydrocarbon shows all along the East African coastal basins.

Numerous structural traps were identified on SouthWest Energy's block 9, 9A and 13 in the Ogaden Basin, two of which show potential recoverable resources of over 500 million barrels of oil equivalent (BOE).



Karoo

CHART SHOWING PETROLEUM SYSTEMS IN THE OGADEN BASIN

Main reservoir rocks (hydrocarbons are contained in a reservoir rock, the oil gathers in the pores in the rock): Calub and Adigrat sandstones.

Main source rock (when organic rich rock is exposed to high pressure and temperature hydrocarbon forms): Bokh shale.

THE KAROO PETROLEUM SYSTEM

Age and composition:

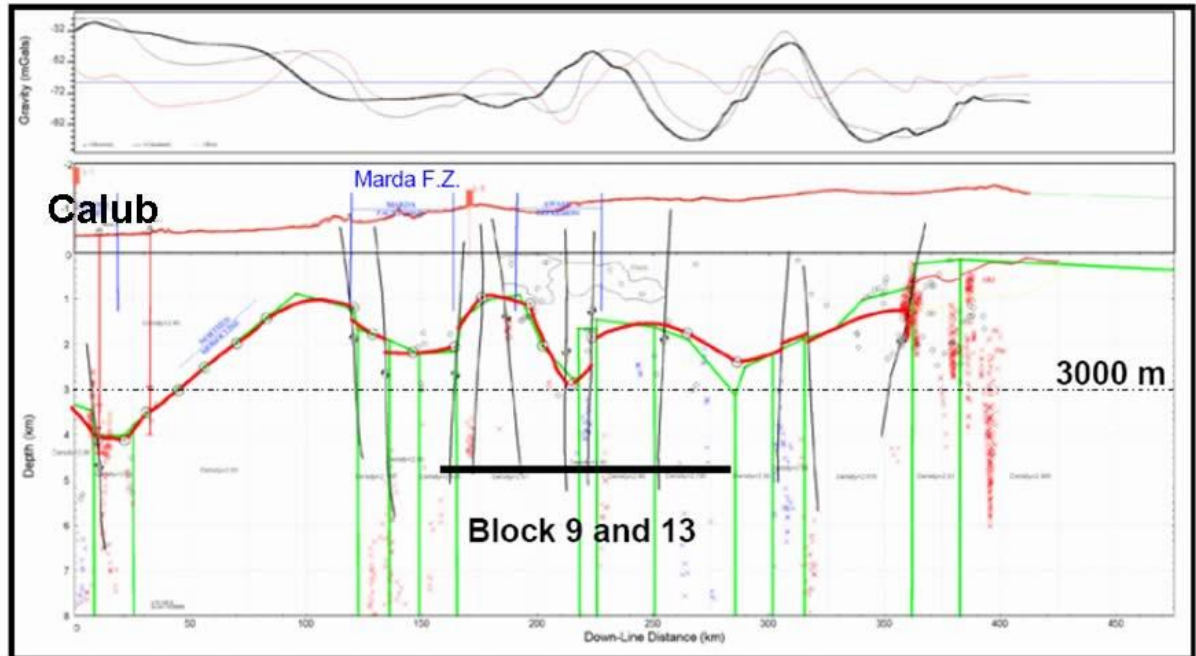
Triassic to Early Jurassic Adigrat Formation

- Various facies (body of rock with specified characteristics) are present, from coals through to variably carbonaceous mudstones/siltstones
- The formation shows complex association of fluvial-alluvial-delta and delta front environments associated with a major transgression

Triassic Bokh Formation Shales

- Probable lacustrine facies associated with the main rift phase in the Karroo sequence
- Deep water anoxic layer in lake.

HYDROCARBON POTENTIAL SUMMARY – DEPTH TO BASEMENT ROCK FROM GRAVITY DATA



HYDROCARBON POTENTIAL SUMMARY CHART.

In addition to proving the continuation of Karoo rifting north of the Marda fault zone, due to a shallower burial depth, attributed to the lack of Jurassic and Cretaceous age rifting episodes in the region, it is expected that Karoo age potential source rocks would still be in the oil window in north eastern Ogaden Basin where blocks 9, 9A and 13 are located.

COMPARISONS WITH OTHER PERMO-TRIASSIC PETROLEUM SYSTEMS

Madagascar - Morondava Basin

A proven Permo-Triassic petroleum system

- Tsimiroro heavy oil accumulation
estimated oil in place (OIP) of 3-5 Billion barrels
- Bemolanga (estimated OIP of 2-20 Billion barrels)
Sourced from Triassic Middle Sakamena lacustrine shales
- Sakaraha oil discovery
Sourced from Triassic Isalo lacustrine source rock
- Large number of seeps on basin flanks

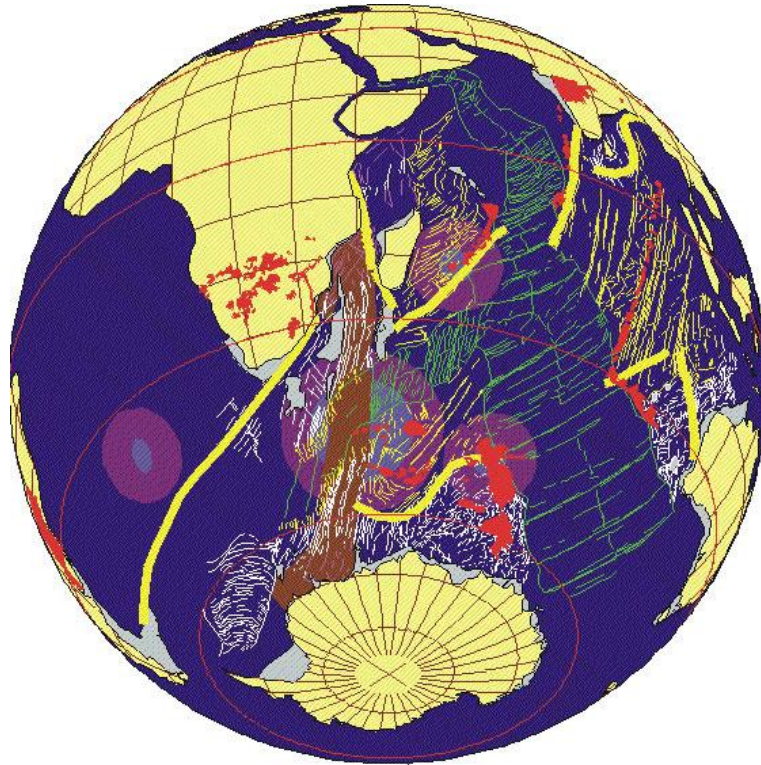
Ethiopia - Ogaden Basin

Proven Petroleum System with 2.7 Tcf gas and condensate discovery

- Bokh Shale and possibly the Gumboro and Adigrat equivalent to source rocks of Morondava Basin
- Ogaden Basin also has seeps on basin margin



REGIONAL TECTONIC HISTORY RELATED TO THREE RIFTING EPISODES, LINKED TO THE BREAK-UP OF GODWANA



REGIONAL TECTONIC HISTORY MAP

Permo-Triassic (Karoo)

- Fragmentation of Africa / Madagascar / Indo-Australian blocks
- Initiation of the Indian Ocean

Upper Jurassic - Cretaceous

- Progressive opening of Indian Ocean
- Rifting along the Central African Shear Zone

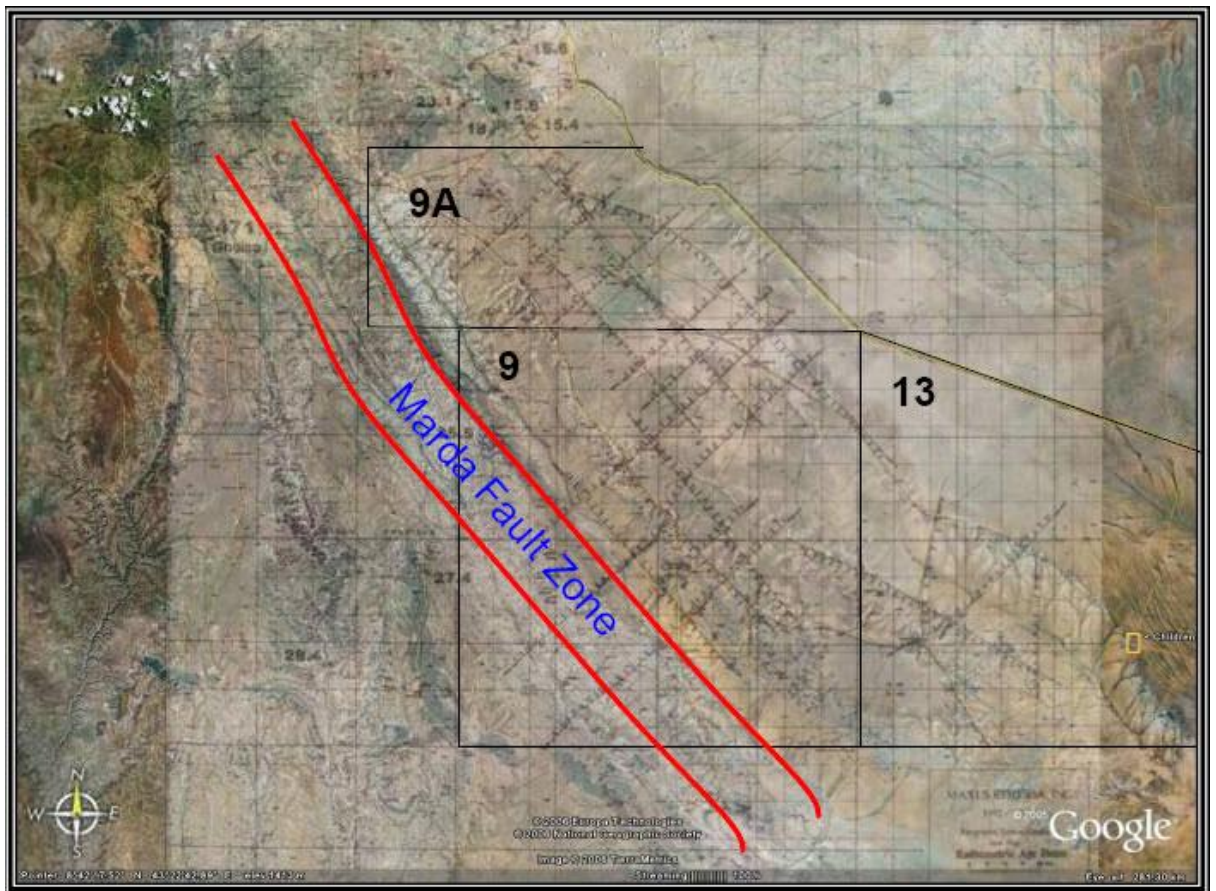
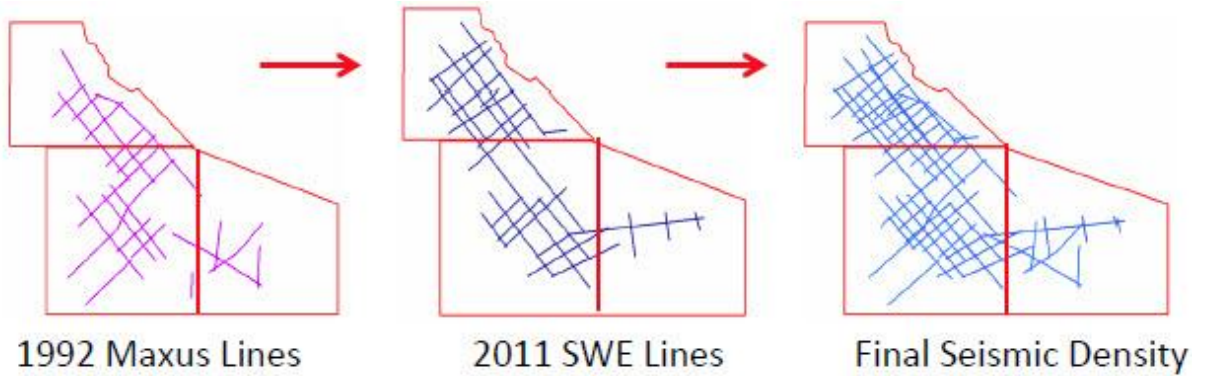
Tertiary

- Break-up of Afro-Arabian plate
- Opening of Red Sea and Gulf of Aden
- Development of East African rift system

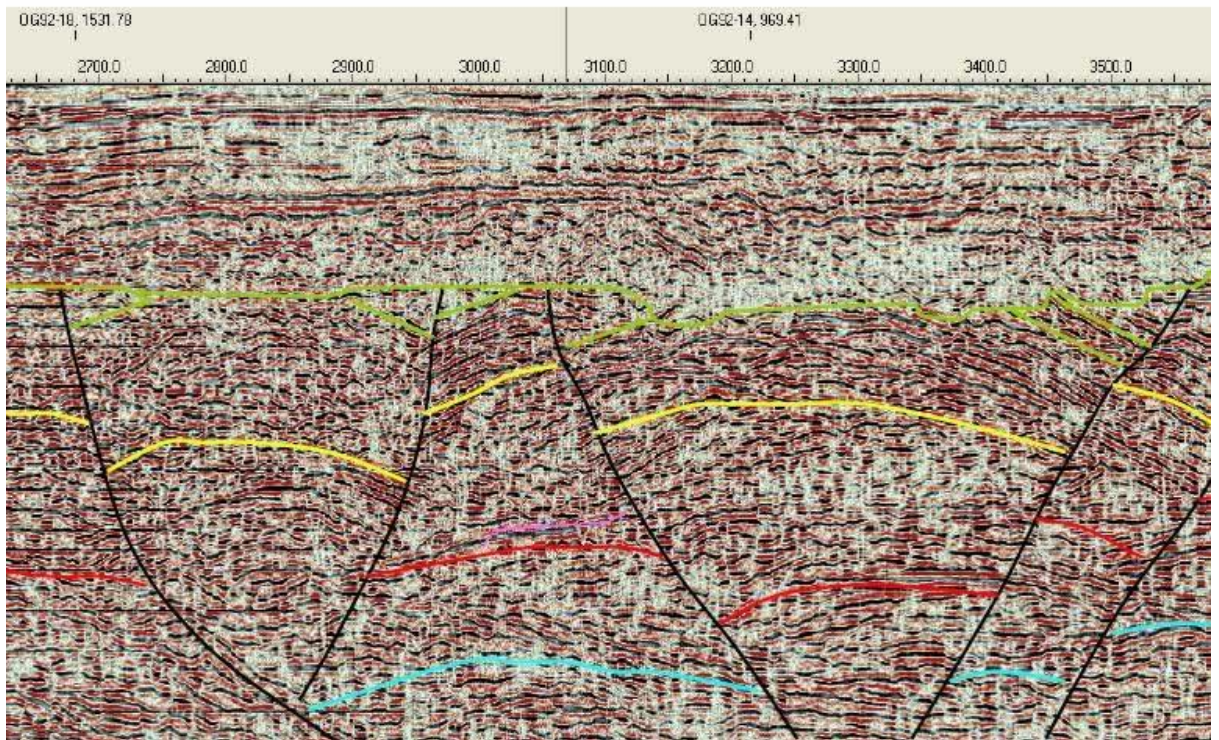
SEISMIC DATA FOR THE OGADEN BASIN

The seismic programme covers 1,500 sq km of 2 dimensional data. Currently data for 1,050 sq km (70%) of the total area has been collected and processing of this data has begun.

SWE has performed intense parameter testing using buried geophones and non-linear input energy. It is now possible to see deeper than 7.0 seconds.



SATELLITE MAP WITH SEISMIC COVERAGE



SEISMIC EXAMPLE ACROSS THE AREA SHOWING ERODED RIFT SECTION BELOW THE UNCONFORMITY
OG 92-10