Petroleum potential of Block 9 PSC

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Presentation Overview

- Exploration History of Block 9
- Melbana methodology – integration of all data sets
- Developing an integrated Structural/Stratigraphic model for Block 9
  Relating Play Elements – Trap, Seal, Reservoir
- New Biostratigraphic control at Marti 5
- Current Resource Assessment / High-graded Prospects
- Conclusions & Next steps

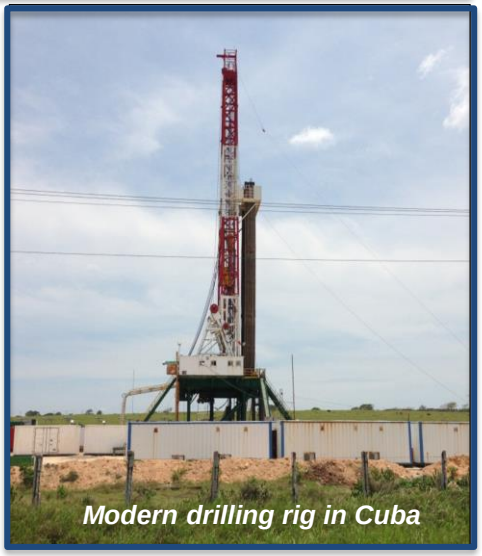
Cuba Block 9 – An Overview

Block 9 PSC

- 100%* interest in Block 9 PSC (2,380km^2 or 588,000 acres) located onshore in Cuba
- 25 year term (awarded in 2015)
- Exploration sub periods:
  - 1 (Sept 2015 to Nov 2017) – studies and seismic reprocessing – largely completed
  - 2 (Nov 2017 to Nov 2019) – 200km 2D seismic acquisition

Block 9 Prospectivity

- Lightly explored but contains natural oil seeps and has several small discoveries
- Along trend from Varadero oil field >11 billion barrels (CUPET pers. com)
- Potential for Varadero type structures in Block 9
- Adjacent to Sherritt International's producing area (~14,700 bopd)



** Subject to Petro Australis conditional option to back in for 40%, no later than Sept 2017. See announcement dated 3 Sept 2015*

Brief Exploration History of Block 9

Block 9 has a mature and working Petroleum System evidenced by the numerous natural oil seeps and several small oil discoveries

Pre 1959:

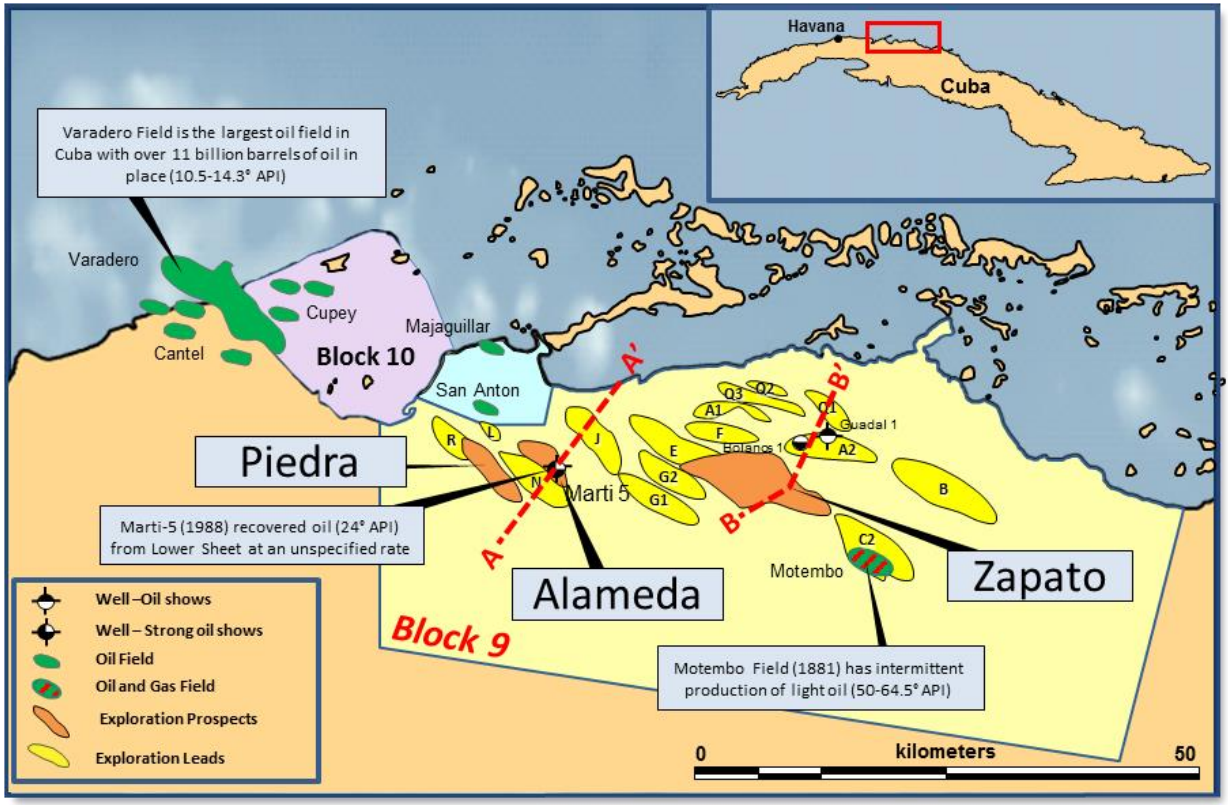
- Asphalt mined from surface deposits
- Motembo discovery – light oil, shallow, produced 5+ mmstb
- Numerous other shallow wells, many with oil shows/recoveries

1959-1991:

- Some early seismic acquisition
- Marti 2 in 1973, and Marti 5 in 1988 both recovered oil on test
- Number of other wells drilled with oil recoveries (some located pre-seismic)

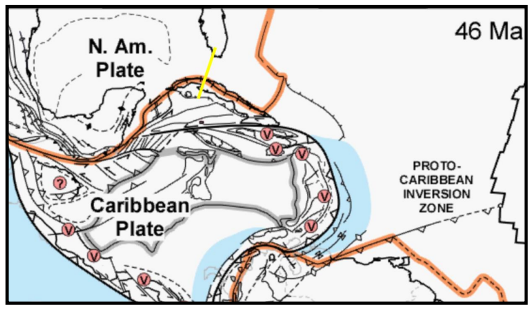
1991-2006:

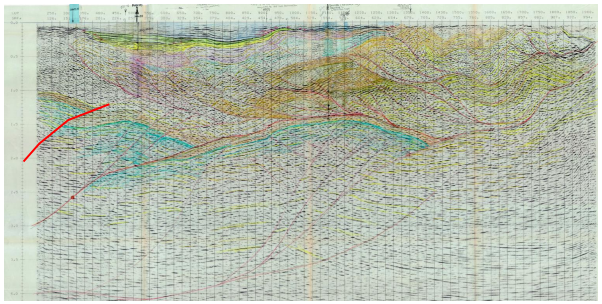
- First international PSC for Block 9
- Shallow-moderate drilling depths, but results in two producing discoveries (Majaguillar and San Anton - reserved for CUPET)

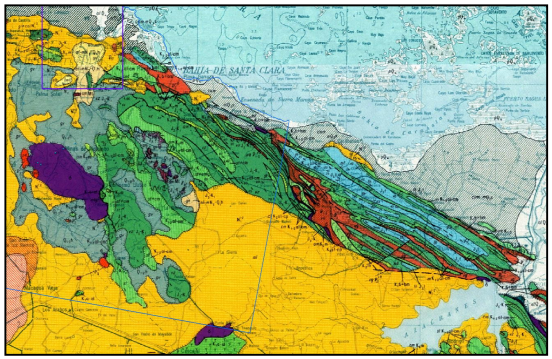


Melbana Methodology – Integration is the Key!

All datasets are reviewed - results combined into a fully integrated model



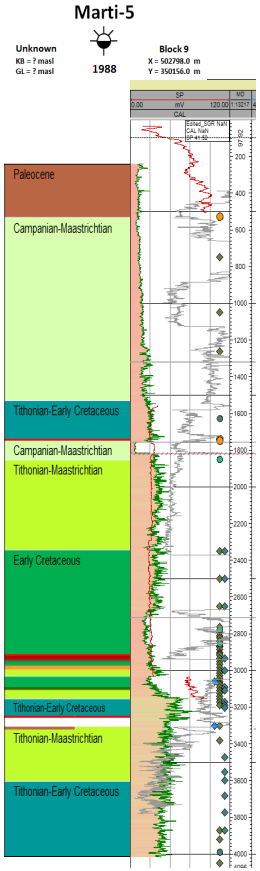




- Plate Tectonic/Kinematic Models
  - Stress/Driving Forces
- Outcrop data – regional contact attitudes
- Well data
  - Lithologic Descriptions
  - Dip data and interval thickness control
  - Chronostratigraphy - Biostratigraphy
- Seismic data – Dip Panel interpretation

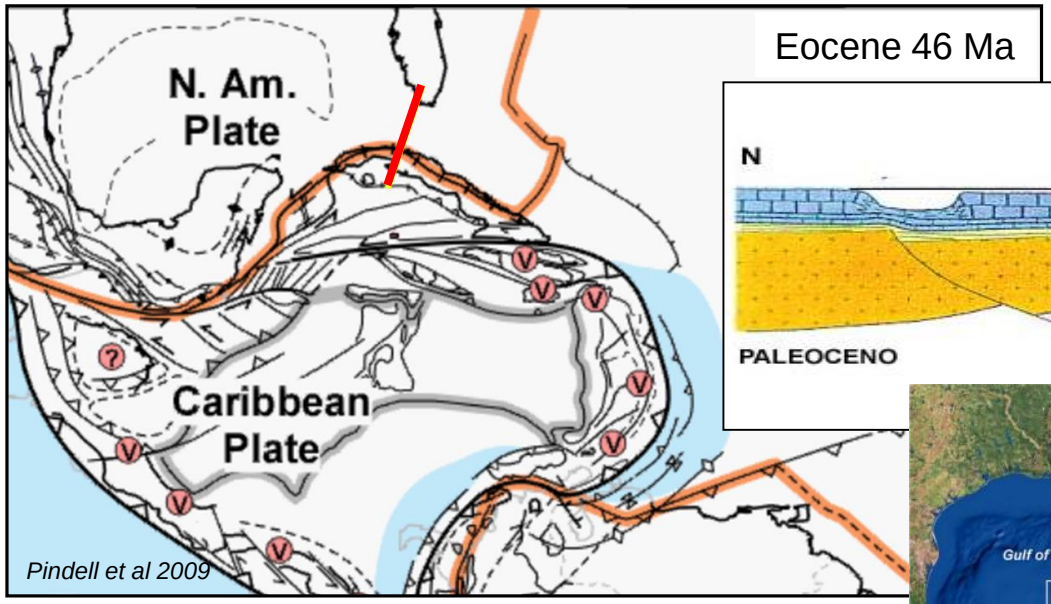
  Strain- deformation / structural elements
- Cross section construction – integration

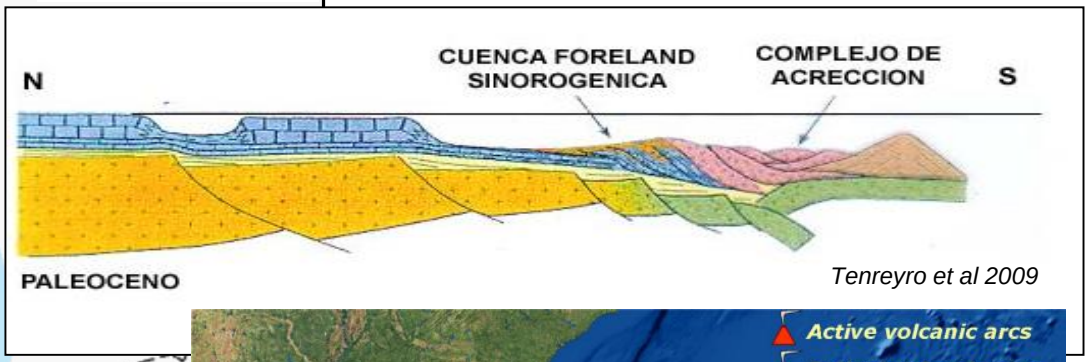
  Restoration/Balancing checking plausibility

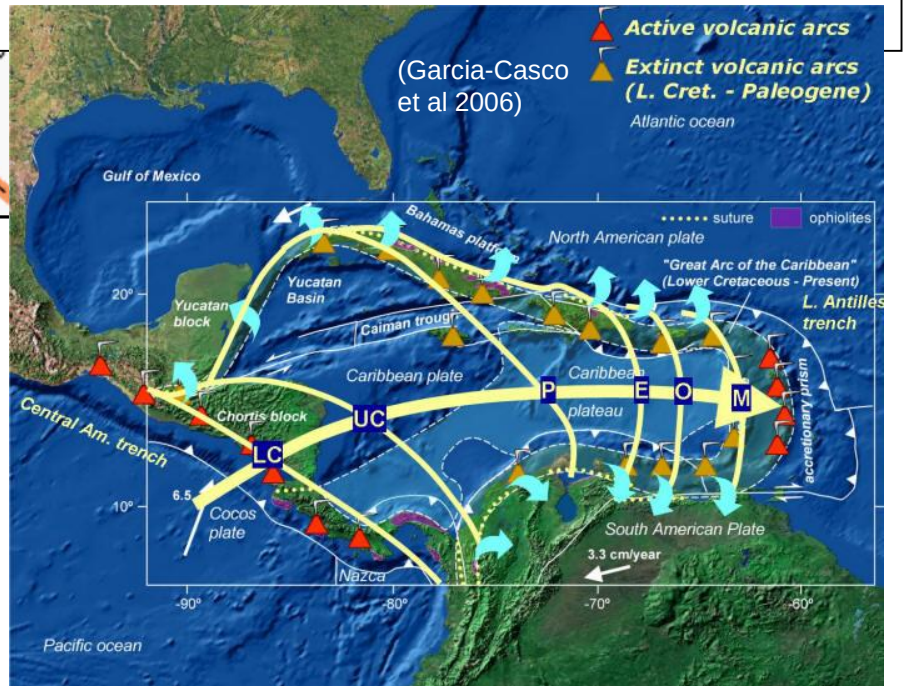


Caribbean Plate Kinematic Summary

Early work by Pindell and Tenreyro have contributed the following summaries





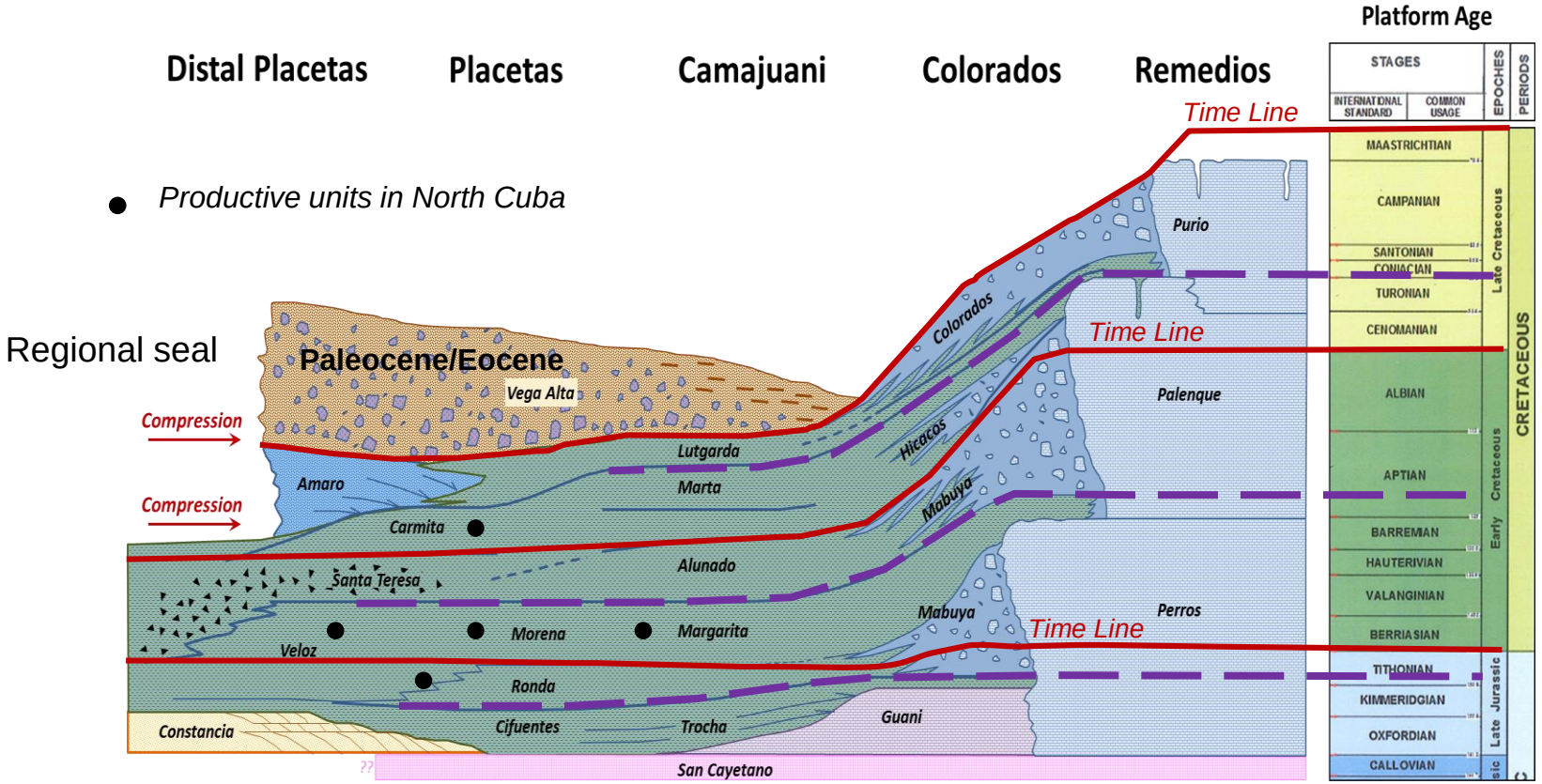


- Much debate about Caribbean plate origins
  Pacific v insitu
- The greater Antilles Arc system is clearly rolling back towards the NE and East
- For our analyses, assume that a lower Plate proto GOM Jurassic crust is subducted beneath the converging upper plate Arc system
- This Arc system contains Ophiolites with SSZ style fore-arc affinities

Block 9 : Litho-Stratigraphy / Chronostratigraphy

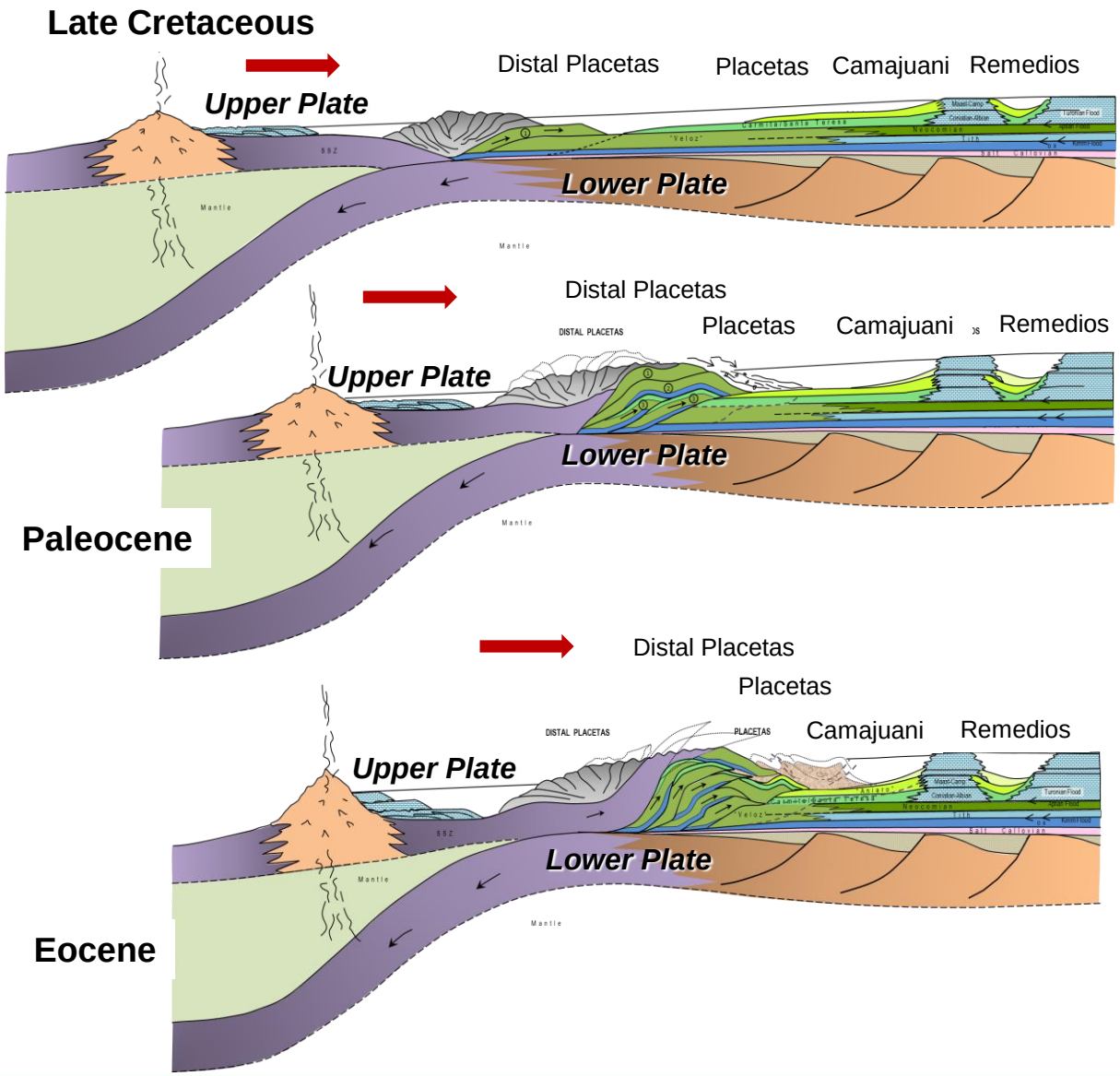
- Review of Block 9 stratigraphy on a chrono-stratigraphic basis to assist correlations and structural restoration efforts

- Requires accurate and more complete Biostratigraphy and lithological descriptions with thickness information



Large second order flooding events = regional structural detachments

Kinematic Evolution – Arc / Continent collision



Lower plate Jurassic crust of the GOM is subducted under Upper Plate Arc

Lower Plate Remedios carbonate platform / apron compressed into the North Cuban fold and thrust belt.

Multiple phases of emplacement

1. Distal Placetas facies is emplaced onto the outer parts of the lower plate

2. More Placetas is duplexed from the Lower Sheet under the emplaced sheet duplicating the most distal facies belts to form 2 upper sheets

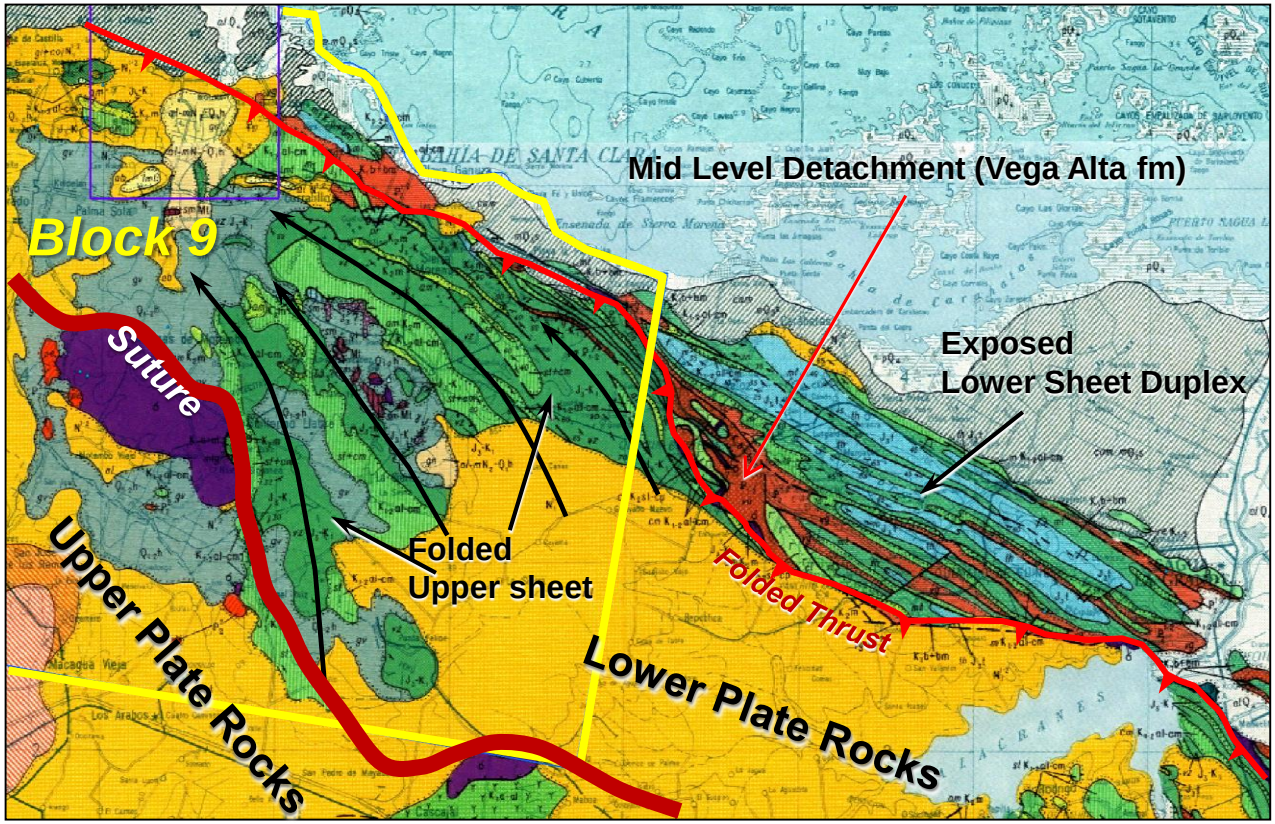
3. Initial Ophiolite slab emplacement

4. Successive horses are duplexed from the outer edge of the lower plate forming antiformal stacks refolding Upper sheets

5. Ophiolite slab overthrust/exposure

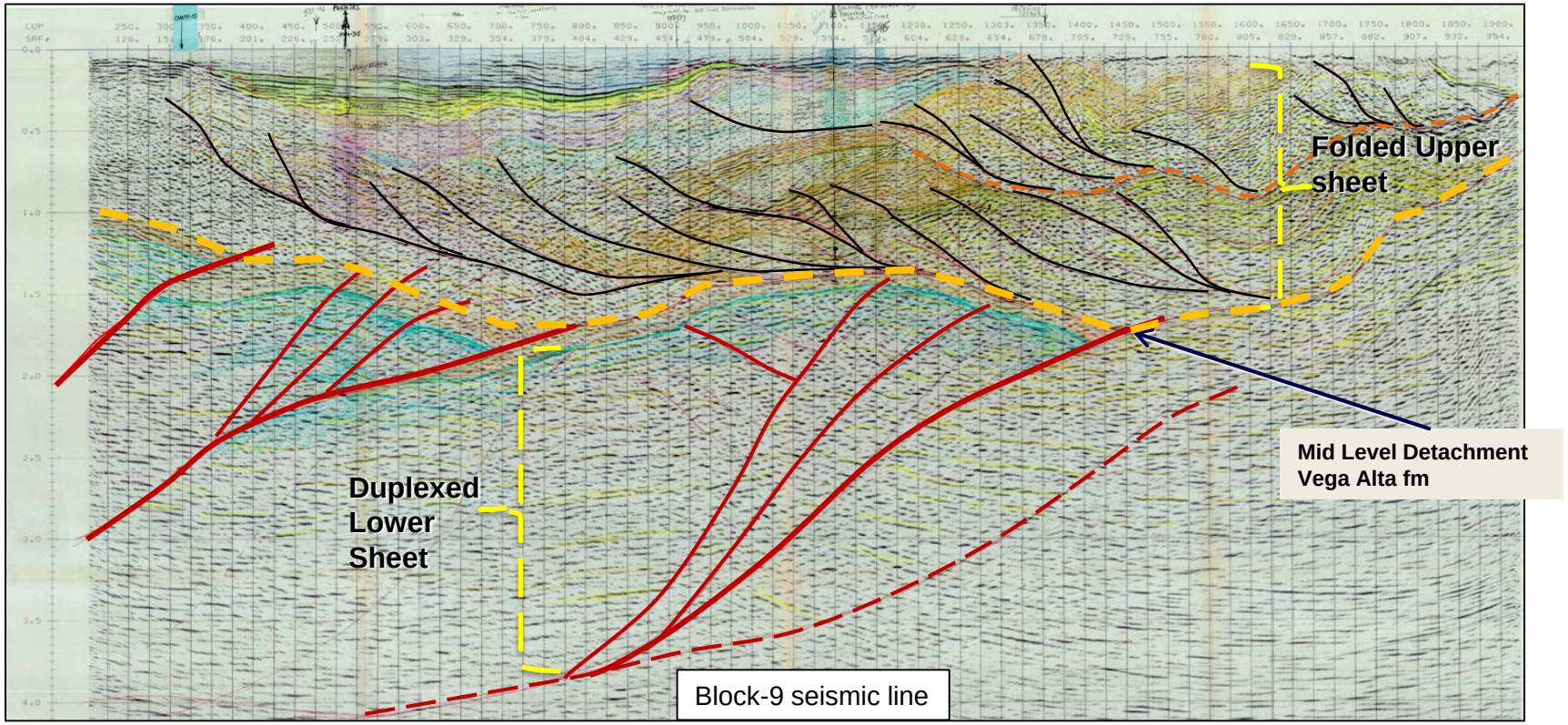
6. Back thrusting of upper sheet driven by blind lower sheet wedge emplacement

Outcrop Expression of Structural Elements



- Suture between Upper Plate rocks (Arc complex / Ophiolites) and the Lower Plate Remedios succession seen in outcrop
- Lower Plate composed of an Upper sheet (distal carbonates) folded by a duplexed Lower Sheet
- Thrusted contact between the Upper and Lower sheet defines the mid level detachment.
  - The Lower Sheet is an exhumed duplex involving proximal Jurassic to early Cretaceous
  - The Upper Sheet was emplaced on top of the Lower Sheet during early stages.
  - Later structuring of the Lower Sheet refolded the Upper Sheet and the thrusted contact

Structural Interpretation of existing seismic data



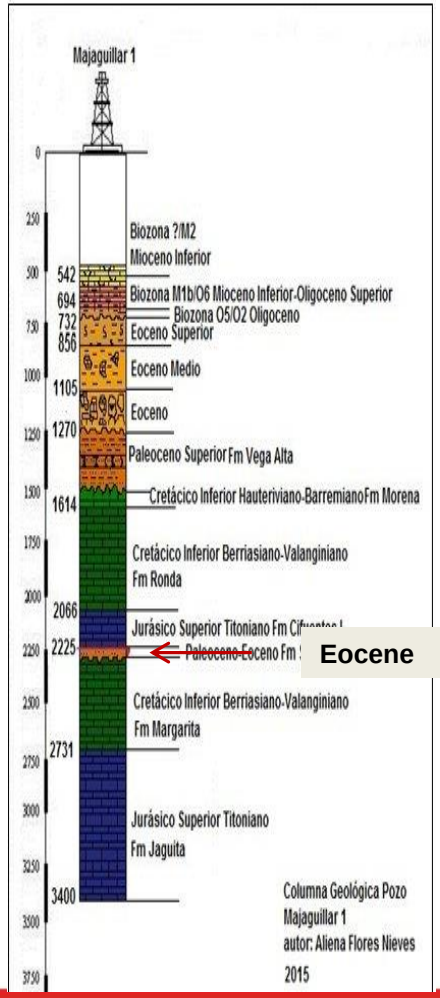
Fault Bend Folds & Fault Propagation Folds in dip panels on Block 9 seismic data
The Mid level detachment separates the forward (northerly) vergence in the Lower Sheet from dominantly backthrusting in the Upper Sheet

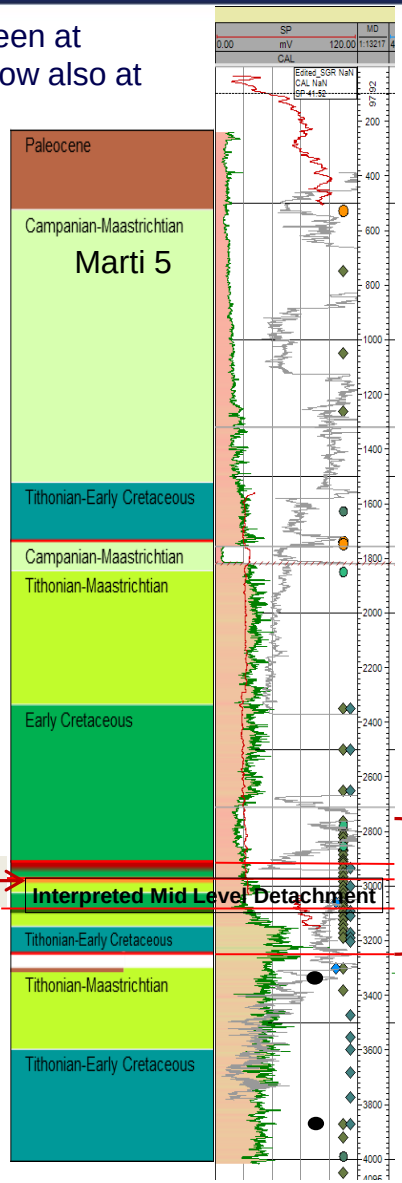
- *Blind wedges and triangle zones (commonly seen at the leading edge of foldbelts) are observed on several seismic lines in Block 9*
- *Lower sheet duplexing driving backthrusted deformation in the Upper Sheet is observed on many lines*

Well log Evidence: New Biostratigraphic Study at Marti 5

The mid level detachment is seen at Majaguillar 1 by CUPET and now also at Marti 5

Majaguillar 1





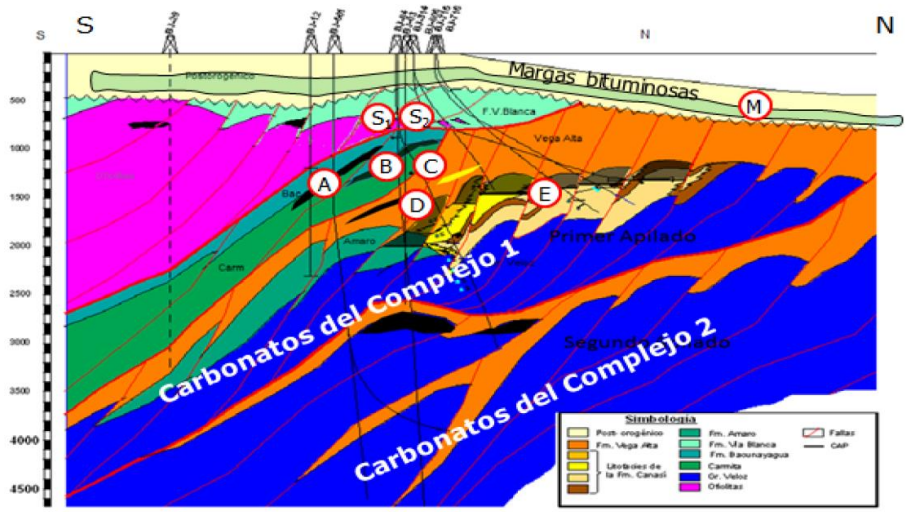
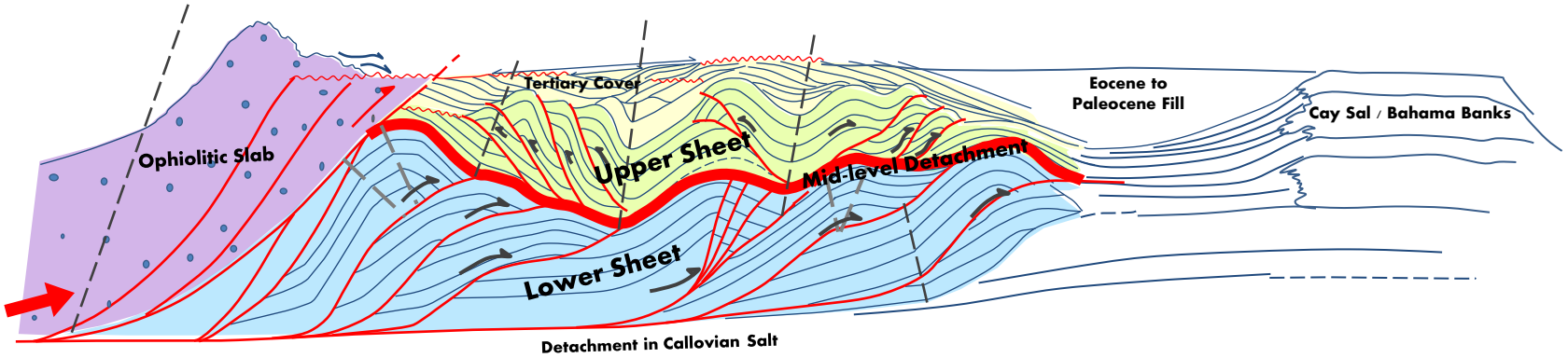


Figura1. Corte geológico del yacimiento de Boca de Jaruco.
After Afanasiev,Yudin&Azimov, Cuban Geosciencias 2015

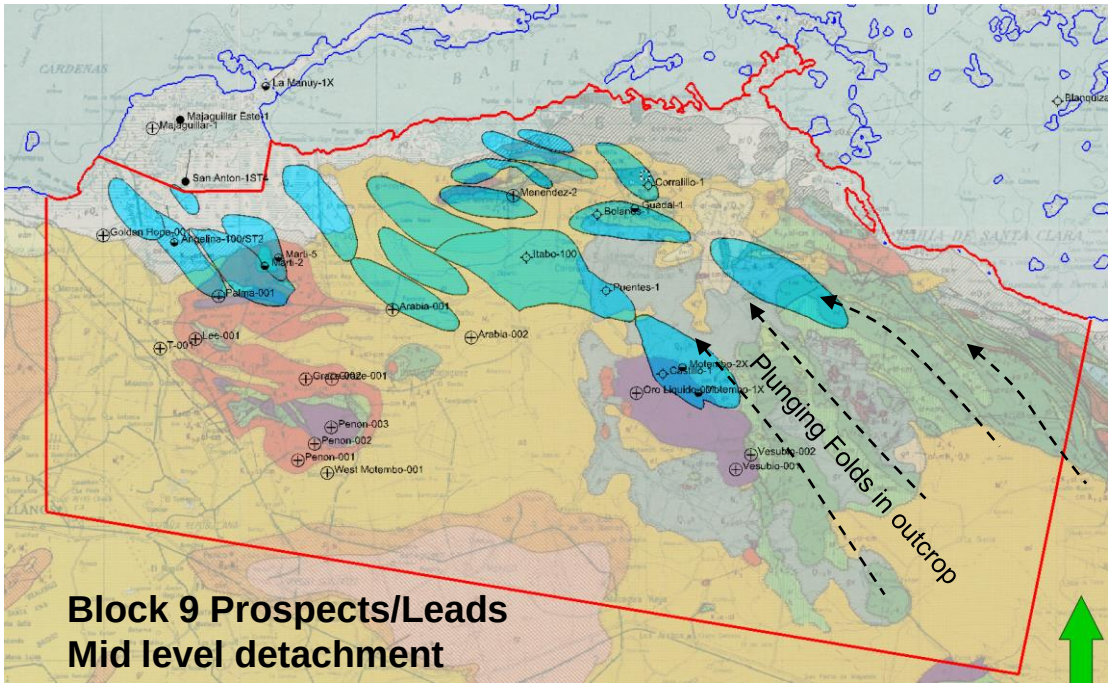
- Mid level detachment separating upper / lower sheets portrayed in many CUPET field diagrams
- Seen here in Majaguillar 1 north of Block 9
- Mid level detachment is seen on seismic over Marti 5
- New study - dense Biostratigraphic sampling over this interval identified an Eocene condensed interval not previously described
- Hence a topseal for the deeper sheet duplex play and the seal for the oil recoveries in Marti 5
- More wells being evaluated to strengthen the model

Developing a Block 9 Structural Model

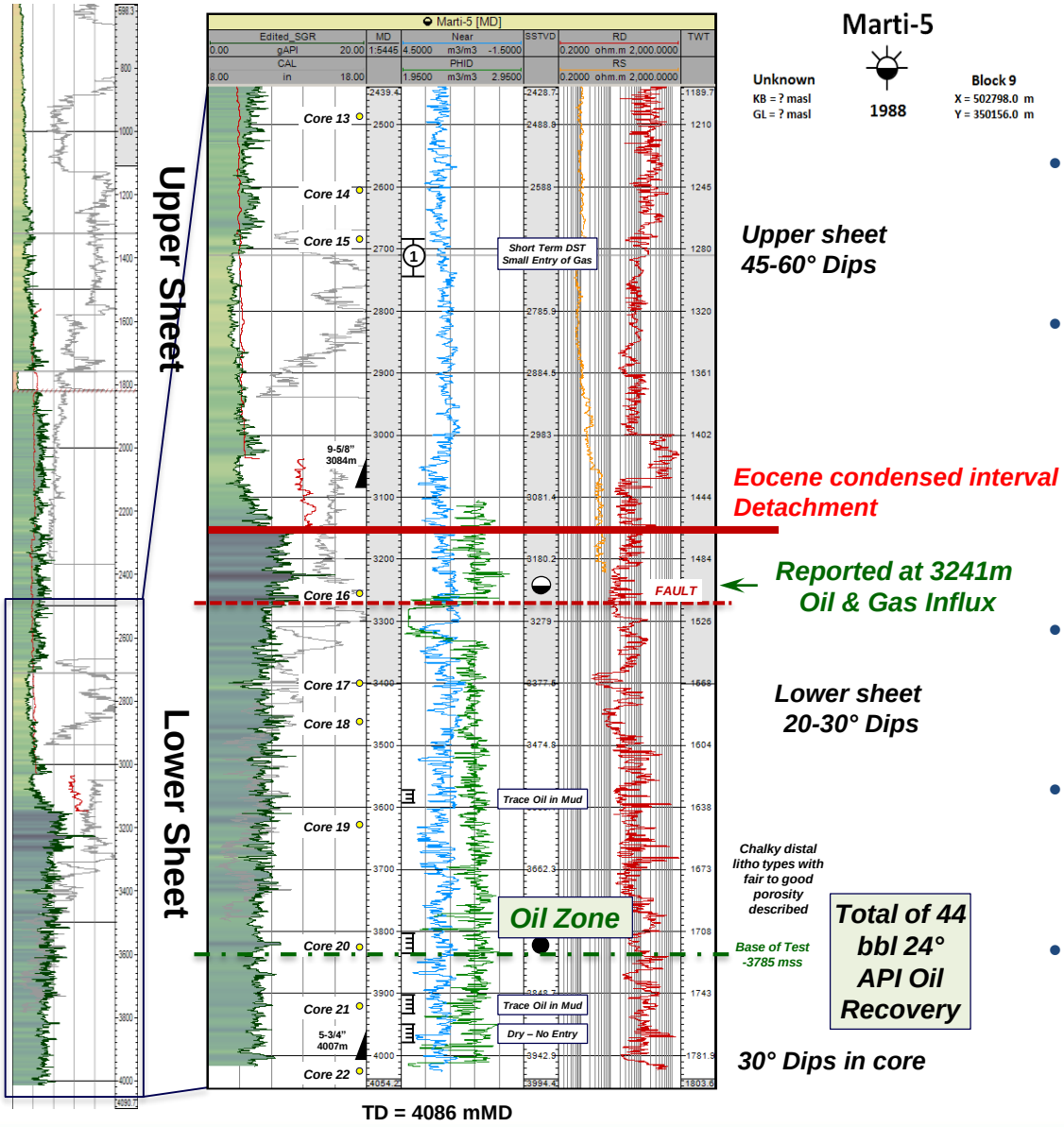
Integrating all the general observations from data and information gained from Cupet experts



- Upper Sheet, highly imbricated and back-thrusted trains of fault propagation folds composed of distal Placetas facies of Jurassic and Cretaceous age.
  - composed of at least 2 component sheets
- Lower Sheet: A thicker sheet of more proximal carbonate facies. Simply deformed into large antiformal duplex stacks mappable on existing seismic.
- Mid level Detachment - Vega Alta Fm Olistostromic sea floor facies - topseal for the deeper sheet structures.



Marti 5 – Lower Sheet Oil Recoveries

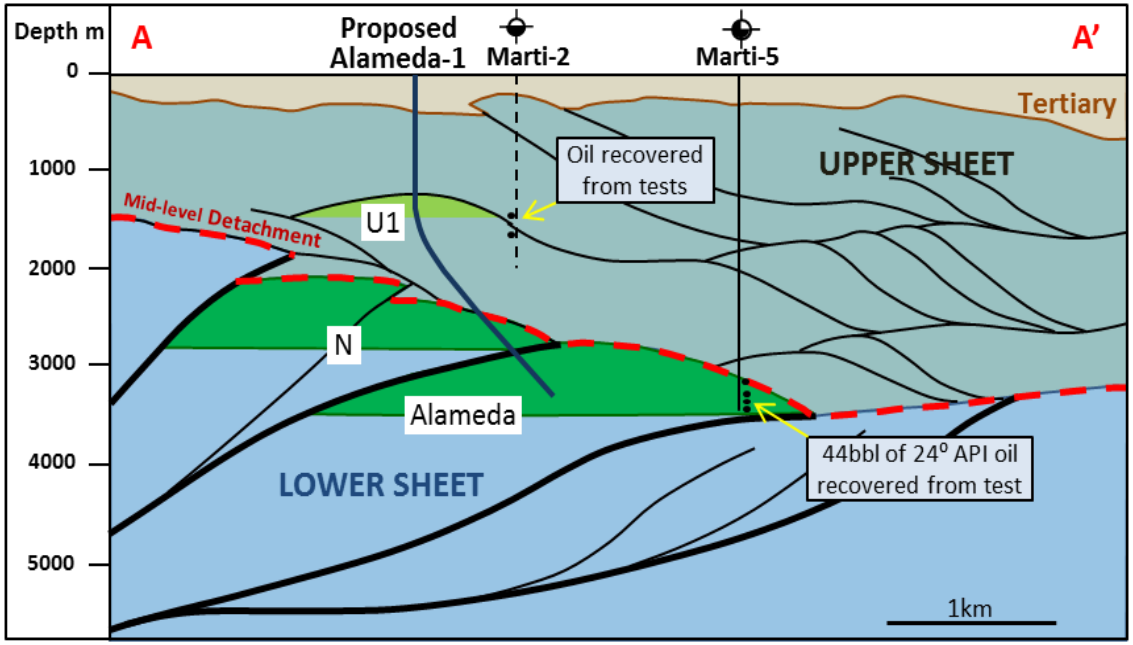


- Eocene condensed interval topseal defined at the mid level detachment
- Oil shows seen over 850m interval in Lower Sheet under the condensed interval – including a reported oil influx under the detachment
- Marti-5 dips of ~45-60° noted within core in the Upper Sheet
- Dips flatten to 20-30° below the Vega Alta in the Lower Sheet
- Testing the lower oil zone recovered 44 barrels of 24° API oil from deep within the lower sheet.

Alameda Prospect: Following up oil recoveries at Marti 5 and 2

High impact prospect, currently designing well for potential 2018 drilling

- Large antiformal duplex stack behind Marti 5 forelimb setting
- Primary objective in depth range from 3,000 to 3,700 metres
- Following up oil recoveries from Marti 2 in the upper sheet at U1
- Currently designing Alameda well to intersect several objective intervals for drilling early in 2018



Alameda Recoverable Prospective Resources (MMstb 100% share)					
Objective	**CoS***	**Low**	**Best**	**High**	**Mean**
U1	17%	2	25	93	38
N	22%	4	41	129	56
Alameda	32%	3	65	214	91

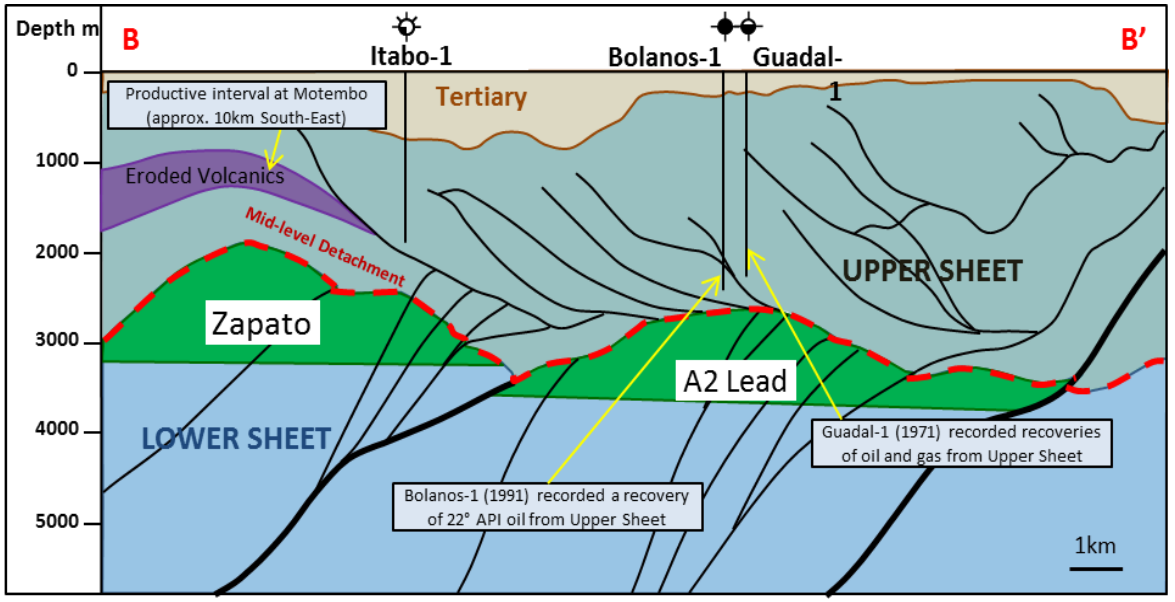
*Chance of Success

Prospective Resources Cautionary Statement: The estimated quantities of petroleum that may potentially be recovered by the application of a future development project(s) relate to undiscovered accumulations. These estimates have both an associated risk of discovery and a risk of development. Future exploration appraisal and evaluation is required to determine the existence of a significant quantity of potentially moveable hydrocarbons.

Central Area: High Potential A2 and C1 Leads

Follow up Potential – large structures with Billion barrel in place exploration potential

- A2 is a large structure supported by two nearby shallow wells that recovered oil from the upper sheet above the deeper A2 lower sheet target
- Zapato is the leading edge of a large antiformal duplex stack only 13 kms along strike from the Motembo field
- Motembo oil field has produced very light oil 50+ API since 1880's.
- Also preparing the Zapato lead for potential drilling in 2018



Prospective Resource (100%, MMstb)					
	CoS*	Low	Best	High	Mean
A2 Lead	21%	9	69	213	93
Zapato Lead	25%	5	71	297	118

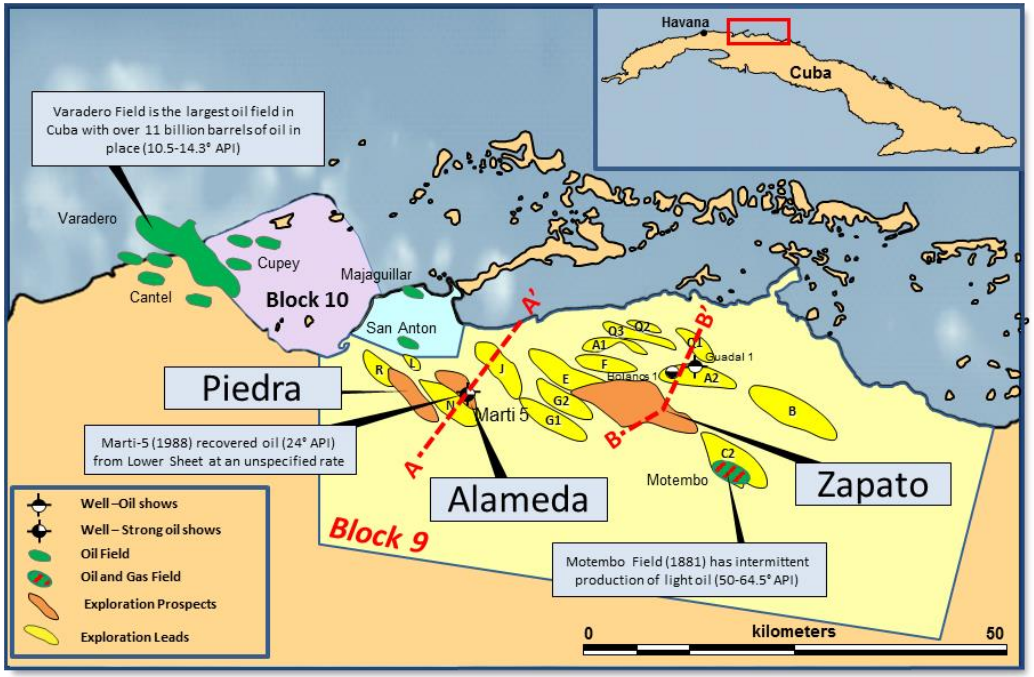
*Chance of Success

Prospective Resources Cautionary Statement: The estimated quantities of petroleum that may potentially be recovered by the application of a future development project(s) relate to undiscovered accumulations. These estimates have both an associated risk of discovery and a risk of development. Future exploration appraisal and evaluation is required to determine the existence of a significant quantity of potentially moveable hydrocarbons.

Cuba Block 9 – Resource Assessment

Large onshore acreage position along strike from multi Billion Barrel Varadero field

- Exploration potential of over 12 billion barrels of oil-in-place and Prospective Resources of ~600 million barrels (unrisked Best Estimate, 100% basis)
- 18 individual leads identified in conventional “Lower Sheet Play”
- Depths between 2,000 and 4,000 metres
- High potential prospect Alameda and Zapato identified close to historical oil recoveries
- Recoverable volumes conservatively estimated using the historical 5% recovery factor for nearby Cuban fields
- Potential for higher quality light crude oil suggested by historical oil recoveries



Block 9 Exploration Potential	Low	Best	High	Mean
	MMstb	MMstb	MMstb	MMstb
Oil-in-Place (unrisked, 100%)	1,141	12,243	42,300	17,759
Prospective Resources (recoverable, unrisked, 100%)	57	612	2115	888

Prospective Resources Cautionary Statement - The estimated quantities of petroleum that may potentially be recovered by the application of a future development project(s) relate to undiscovered accumulations. These estimates have both an associated risk of discovery and a risk of development. Future exploration appraisal and evaluation is required to determine the existence of a significant quantity of potentially moveable hydrocarbons.

Conclusion and Next steps

Conclusions:

- Built an integrated model relating the key play parameters of Trap,Seal and Reservoir.
- Identified large structures in Block 9 similar to proven fields on trend (Varadero)
- Enabled multi-billion barrel (ooip) exploration potential of the lower sheet to be characterized
- Matured several prospects for accelerated drilling

Next Steps

- Some areas of Block 9 still have no seismic coverage – unknown potential
- Ongoing assessment may add further potential
- Additional secondary objectives in Upper Sheet and Shallow Tertiary plays
- Preparing two well proposals targeting lower sheet prospects for potential drilling in early 2018
- Undertake farm-out process seeking suitably qualified partners to help pursue the world class exploration potential of Block 9 PSC