

Overview of the current and upcoming opportunities in the Offshore of Suriname



Staatsolie
21 March 2023



Vertrouwen in eigen kunnen

Suriname & Guyana

The pretty girls on the block



How do we maximize this opportunity

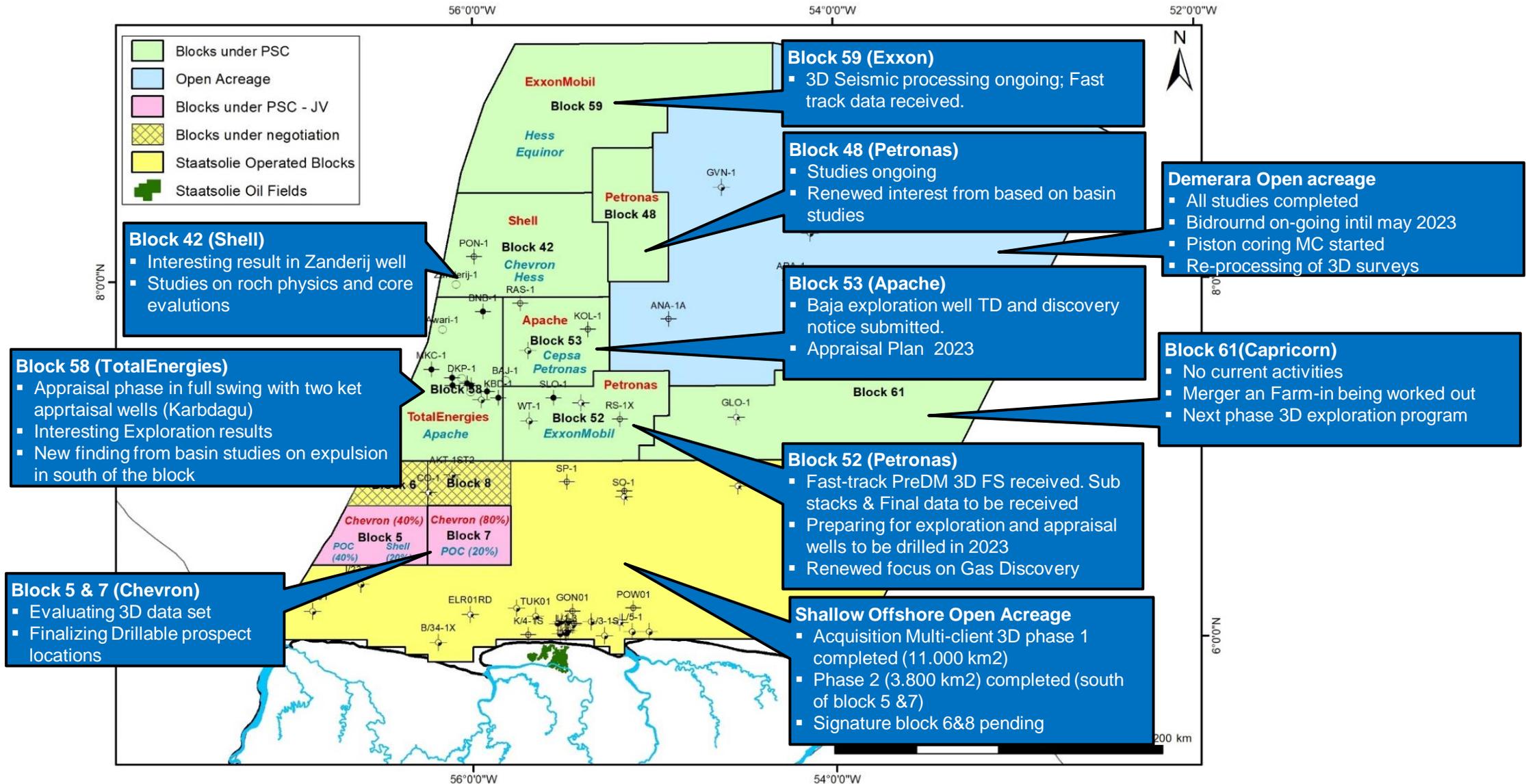
Suriname & Guyana

The pretty girls on the block



How do we maximize this opportunity

CURRENT EXPLORATION & APPRAISAL ACTIVITIES





**EXPLORATION
SUCCESS**



**Expand Basin
Knowledge**



Generate data



Strategic partnerships

Building blocks for value creation

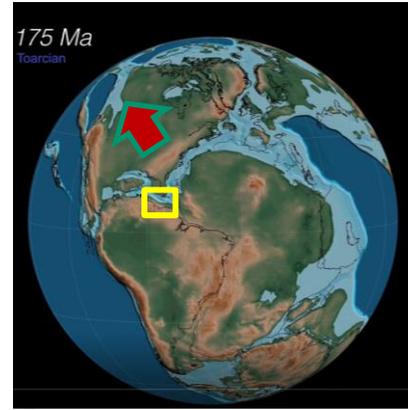
- Maximize value of existing data in the basin
- Generate new data (Multi Clients, co-invest)
- Develop basin knowledge through basin wide studies
- Internalize knowledge of IOCs and International Service Providers to further expand knowledge
- Share basin knowledge to make all parties conducting petroleum activities successful
- Actively participate in Offshore activities
- Offer opportunities to invest (Multi Clients surveys, Bid Round, Open door, Farm-in)
- Become the operator in some of the Assets (Blocks)
- Develop skilled local resources pool



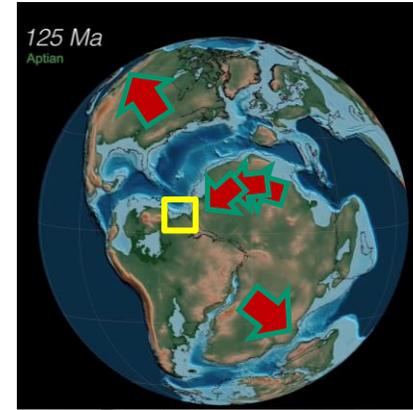
Evolution of the Guiana Basin



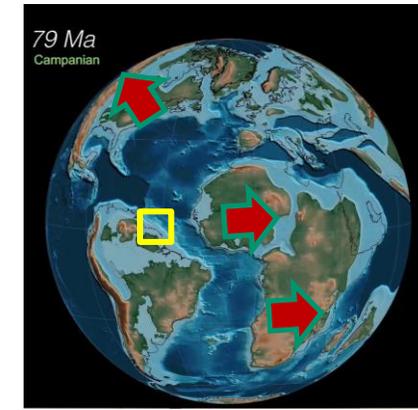
Early Jurassic
Pre-Kinematic
CAMP Magmatism



Middle Jurassic
Central Atlantic Rift
Phase
and Passive Margin I
development



Early Cretaceous
Equatorial Atlantic
Rift Phase



Upper Cretaceous
Drift and Passive
Margin II
development

Suriname in a unique geographic position related to major tectonic events in terms of structural elements, sedimentary processes, source rock-, reservoir- and trap formation, resulting in **different provinces.**

Provinces

Deep Basin Province:

- Proven province (discoveries) **golden lane**
- Canje source rock mature.
- Mainly stratigraphic plays.
- Activities: Exploration and Appraisal activities ongoing in Suriname.

On shore Province:

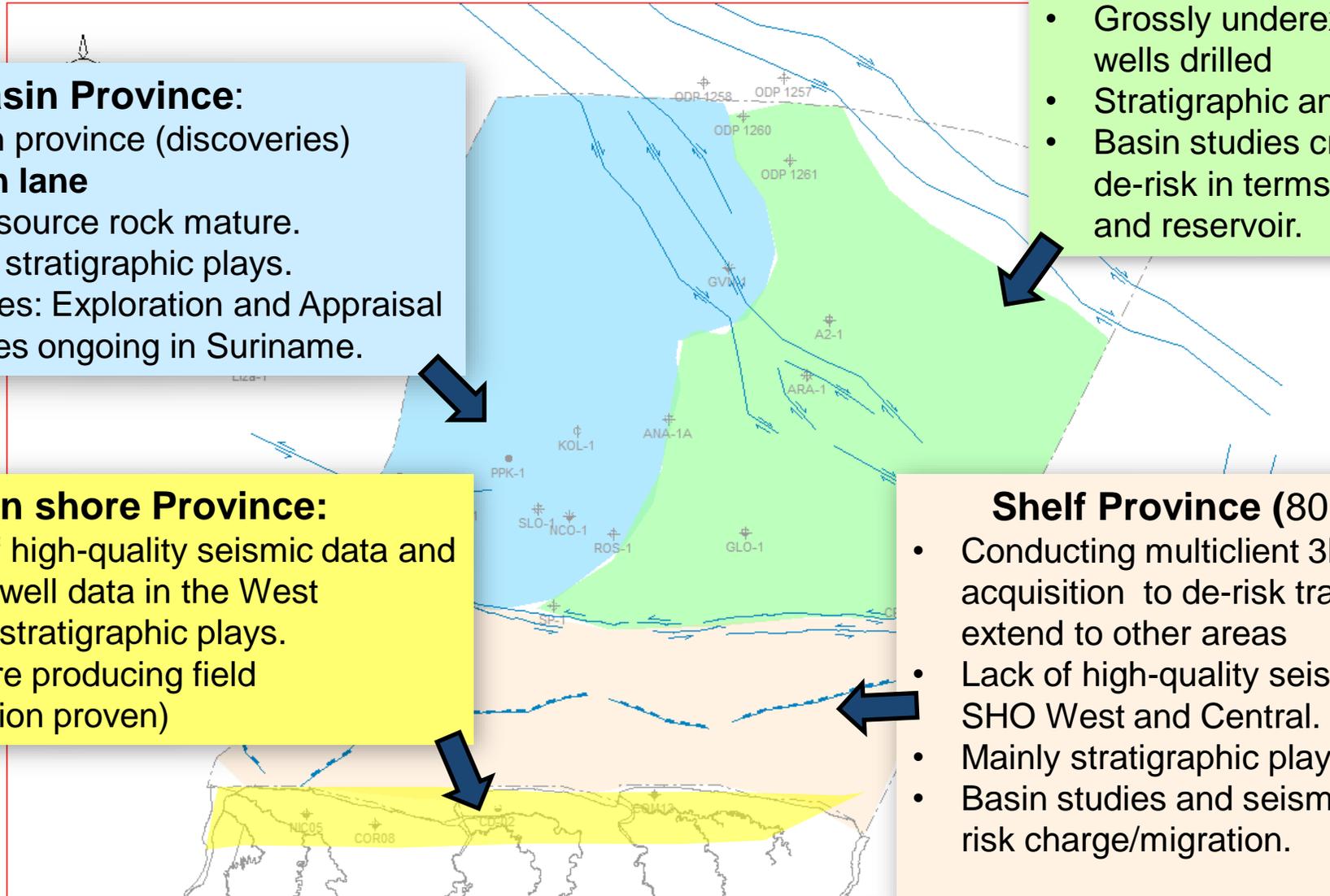
- Lack of high-quality seismic data and limited well data in the West
- Mainly stratigraphic plays.
- Onshore producing field (migration proven)

Shelf Province (80% open acreage):

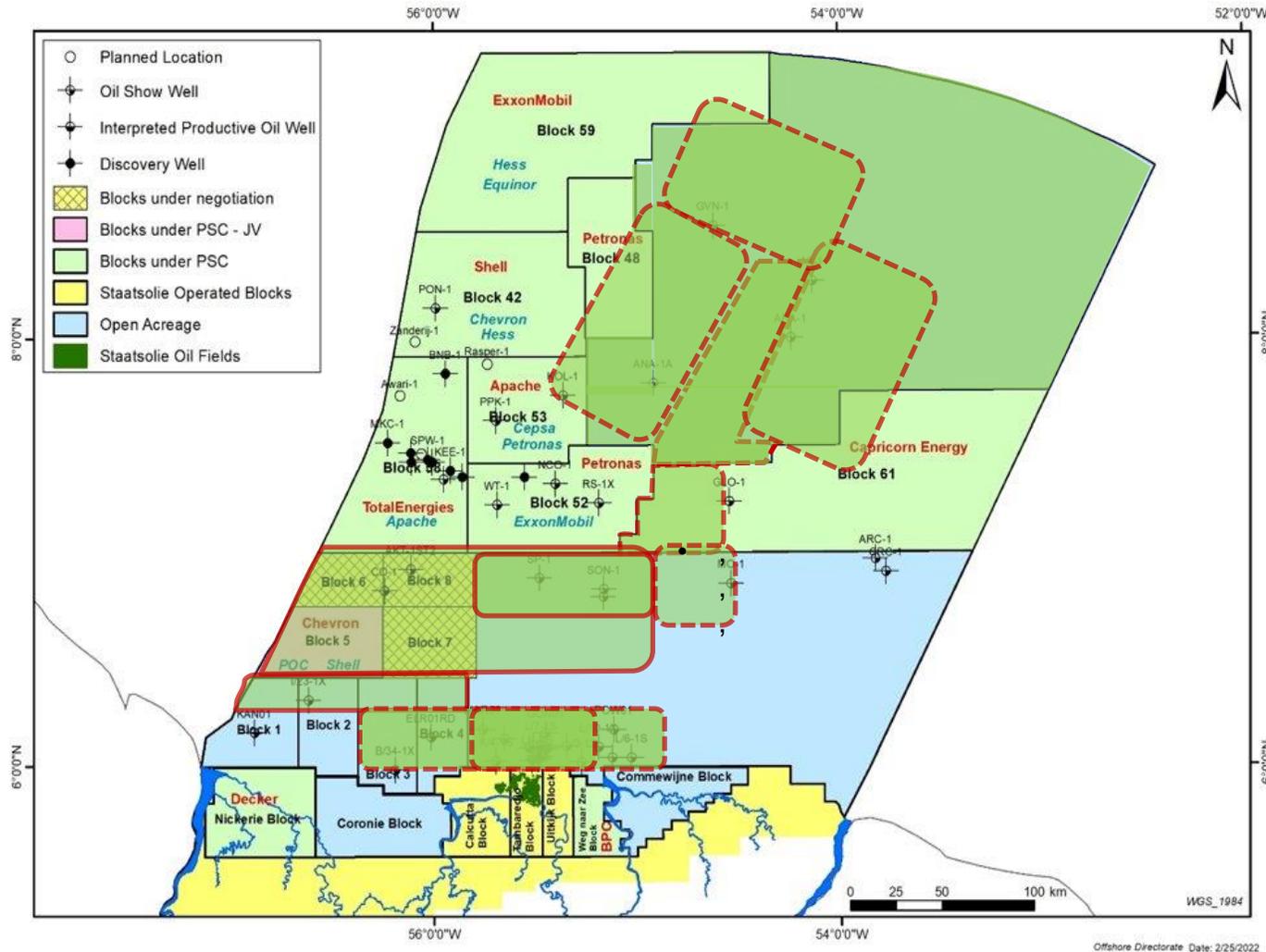
- Conducting multiclient 3D seismic data acquisition to de-risk trap. Contract flexible to extend to other areas
- Lack of high-quality seismic data apart from SHO West and Central.
- Mainly stratigraphic plays.
- Basin studies and seismic interpretations to de-risk charge/migration.

Demerara Province:

- Grossly underexplored in terms of wells drilled
- Stratigraphic and structural plays
- Basin studies created new insights to de-risk in terms of charge/migration and reservoir.

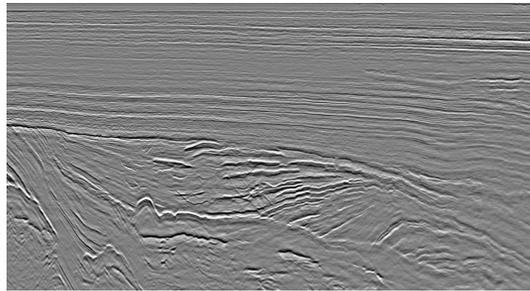
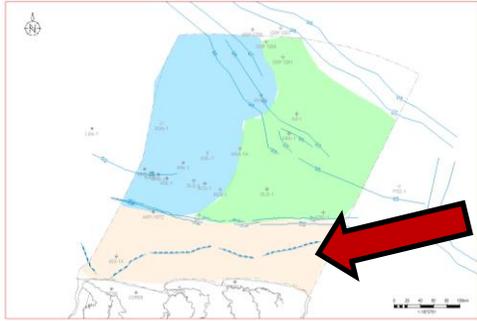


Data Acquisition overview



- 3D seismic acquisition (Deepwater, Shallow Offshore and TZ)
- Re-processing 3D
- Piston Coring
- Airborne Grav-Mag
- EM survey (planning)

EXAMPLE – SHO Bid round MC survey

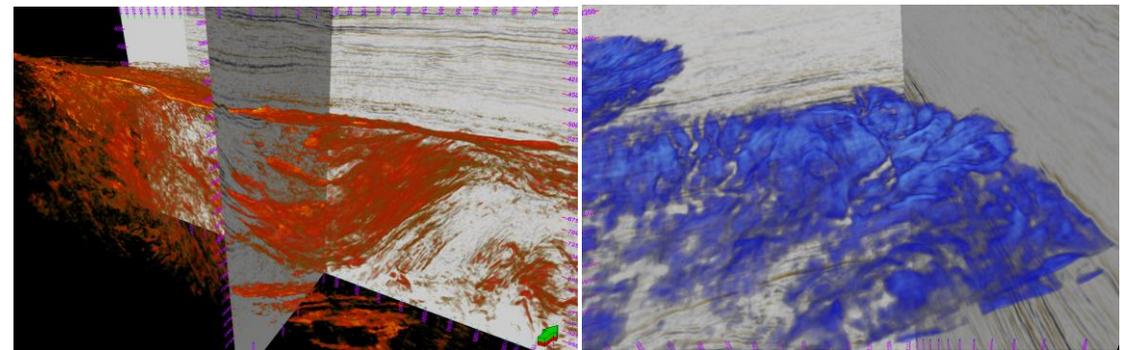
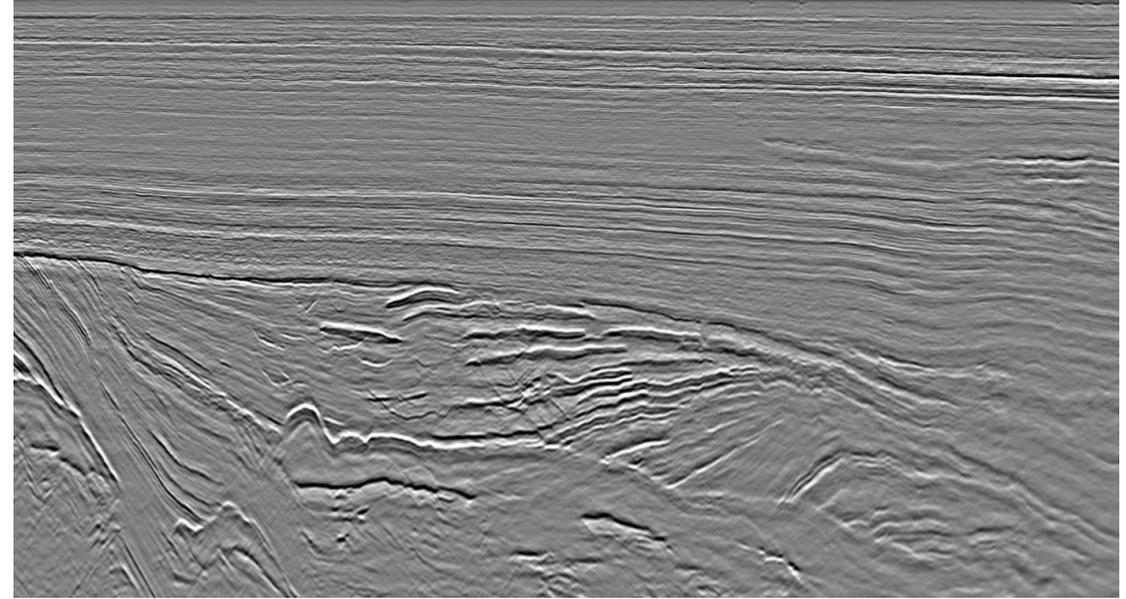
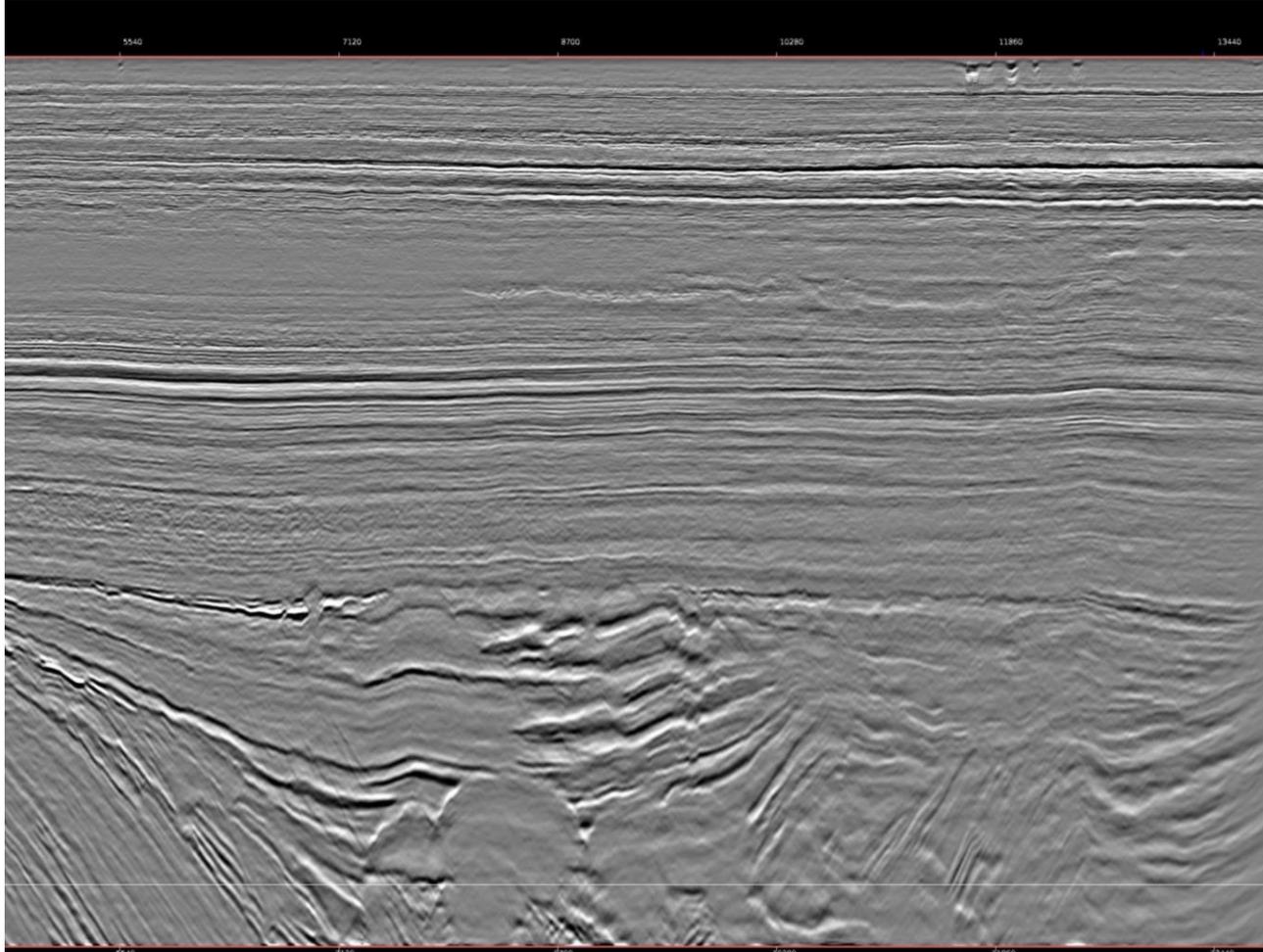


- Organized a Bid round in the SHO-West area
- Approached seismic vendors for high resolution 3D Multi Client survey in SHO areas
- Work obligation bid round PCS 100% coverage of high resolution 3D seismic coverage
- Matched data demand with supply

Results:

- Seismic data could generate drillable prospects
- Block contractors had fast track data after 2 months after signing PSC
- Strategy led to fast exploration progress

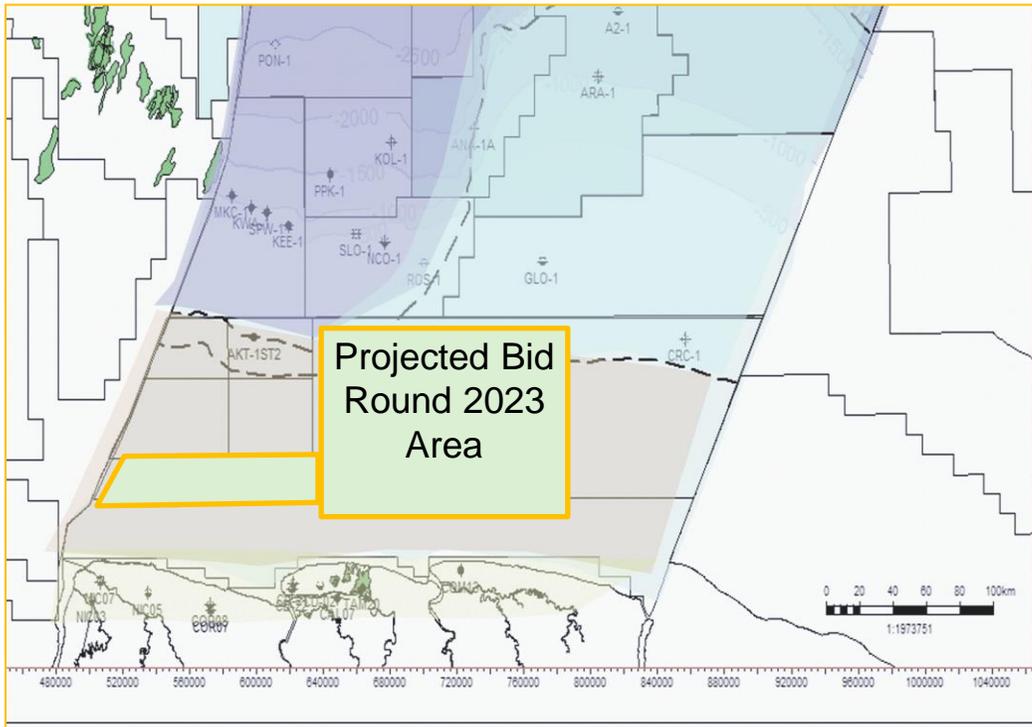
Images Multi Client 3D Data – fast track processed



Summary Shelf Province

- The Shallow Offshore remain a vast interesting and prolific area due to the many leads and prospect identified on 2D data, supported by analogue & conjugate fields and confirmed by early new high-quality 3D data.
- The proximity to the coast and shallow water depths (<100m) makes the area even more commercially interesting
- Almost 70% of the area will shortly be covered by high quality 3D data
- Piston coring survey will add information
- **The central area of the SHO continues to be prolific and will be offered in a coming Bid round by the end of 2023.**

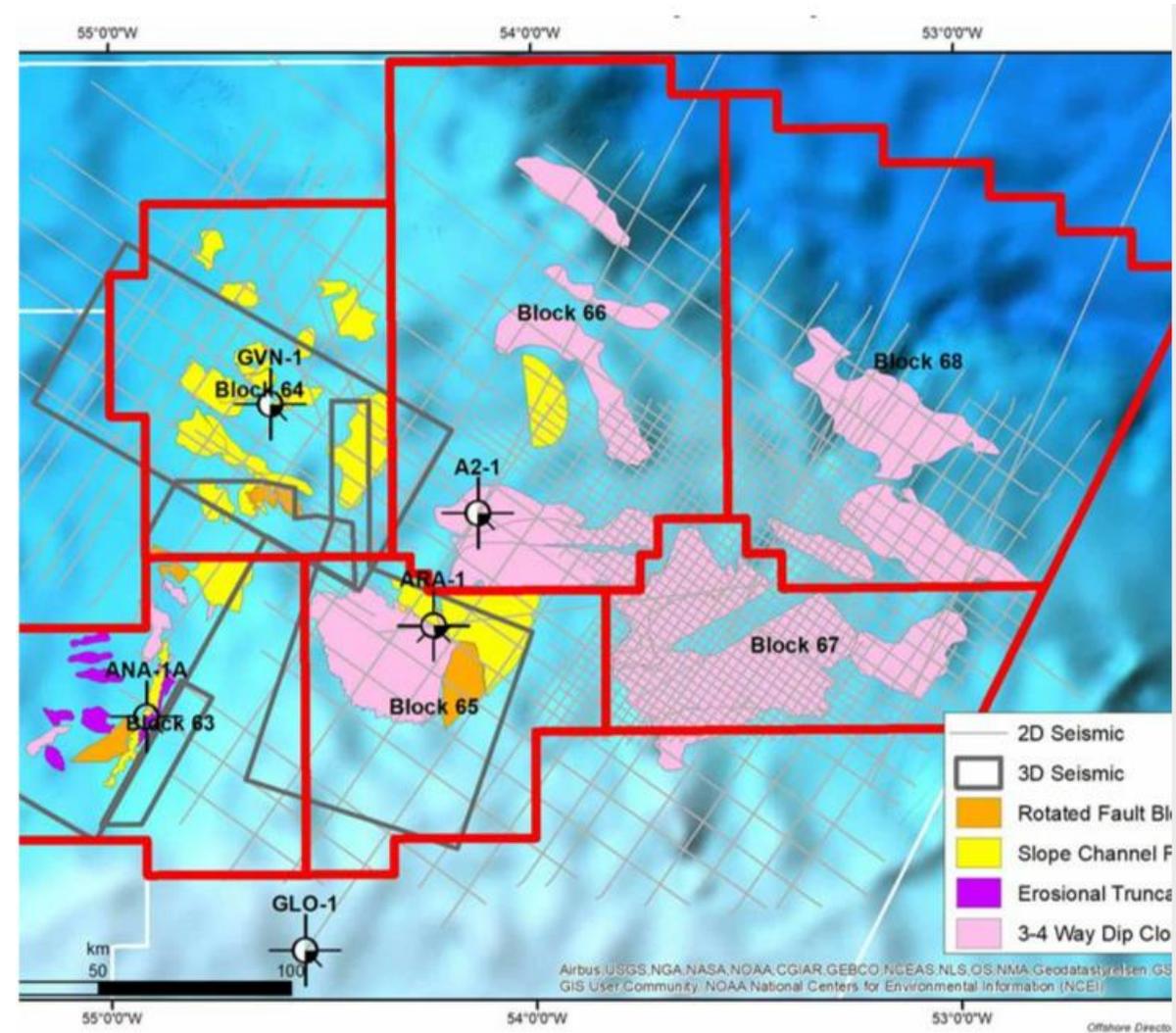
Shallow Offshore Bid Round 2023-2024



- More than 10 blocks will be offered
- Block Geometry will be geological driven
- Fiscal terms will be designed to match the economics of the blocks
- High Quality 3D data available for most of the area that can generate drillable prospects
- Piston Coring being conducted
- JV set up with Paradise Oil which is working well in Blocks 5 & 7.
- Expected launch Q4 2023

Demerara Bid Round 2022-2023

- Basin Studies were integrated to de-risk and better understand the opportunities of the blocks on offer.
- Over 60 prospects and/or leads identified so far with over 40 billion barrels mean unrisked recoverable resources (Upside in excess of 80 billion barrels).
- Multitude of the structural and stratigraphic plays; the majority is untested with only 4 wells in an area of 43,000km².
- Staatsolie offers flexible and favorable terms and conditions which are well aligned with prospectivity of the block opportunities.



EXAMPLE – Basin studies & Bid rounds

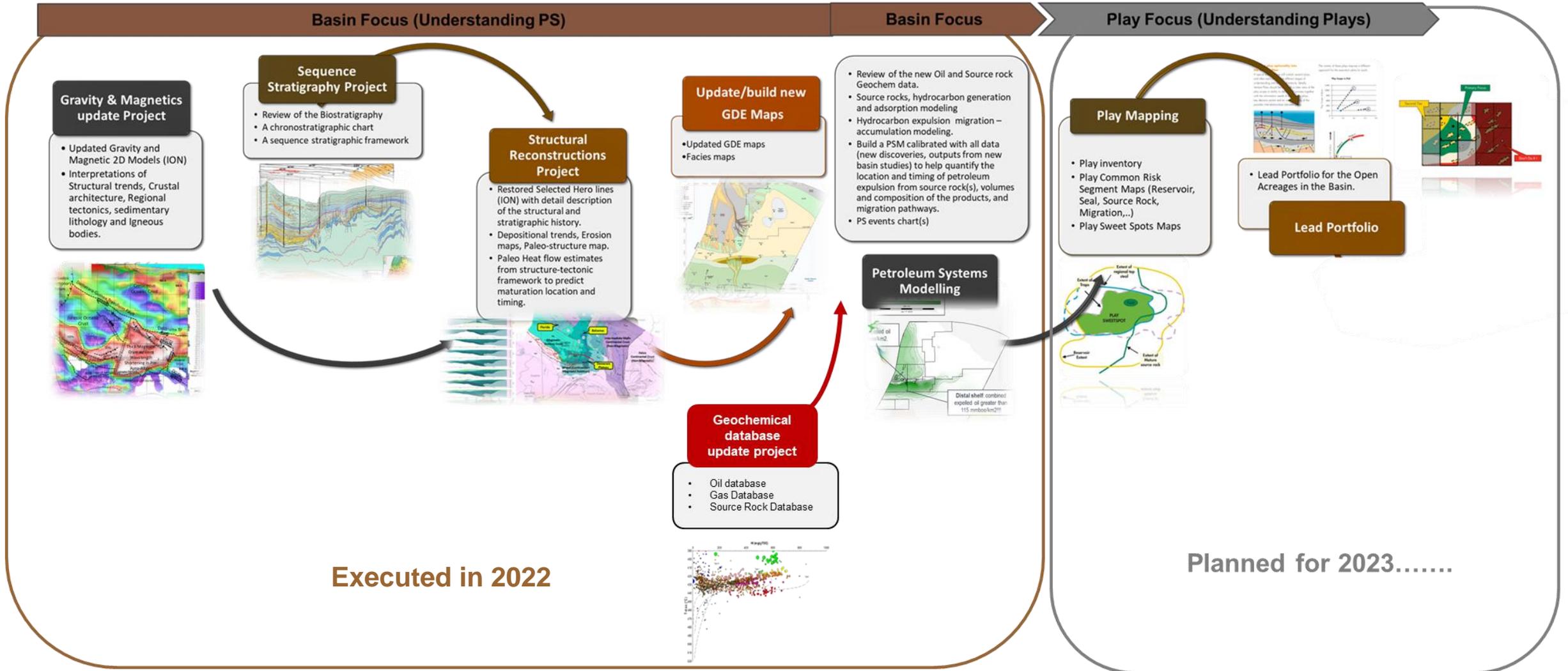


Demerara bidround
Symposium
SHO bidround

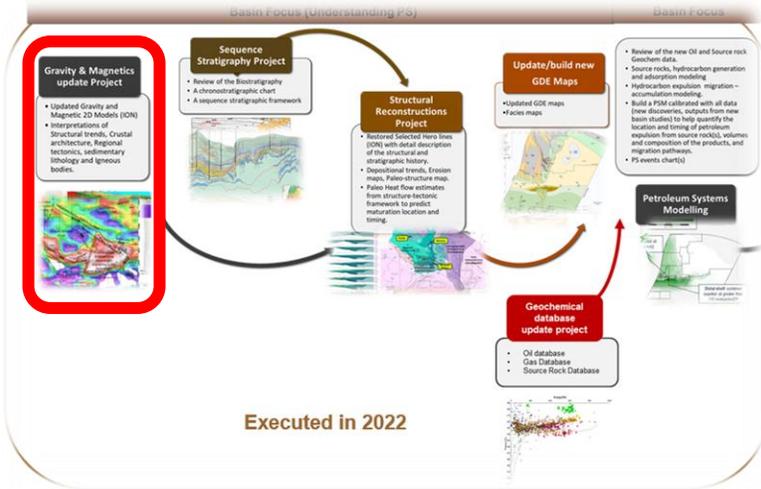


Generate data:
3D Multi Client surveys

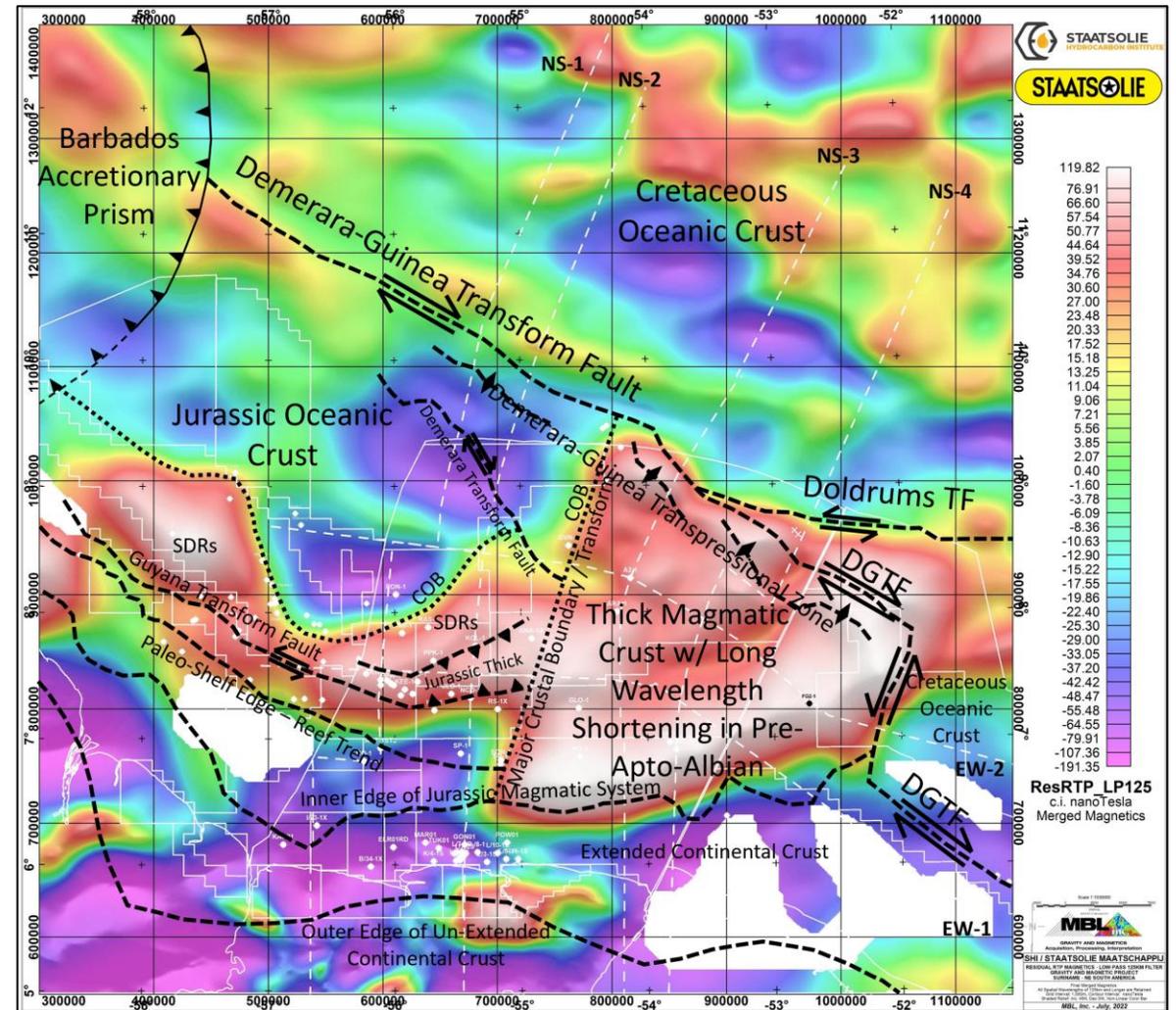
Basin Studies Workflow



Gravity & Magnetic Update Project:



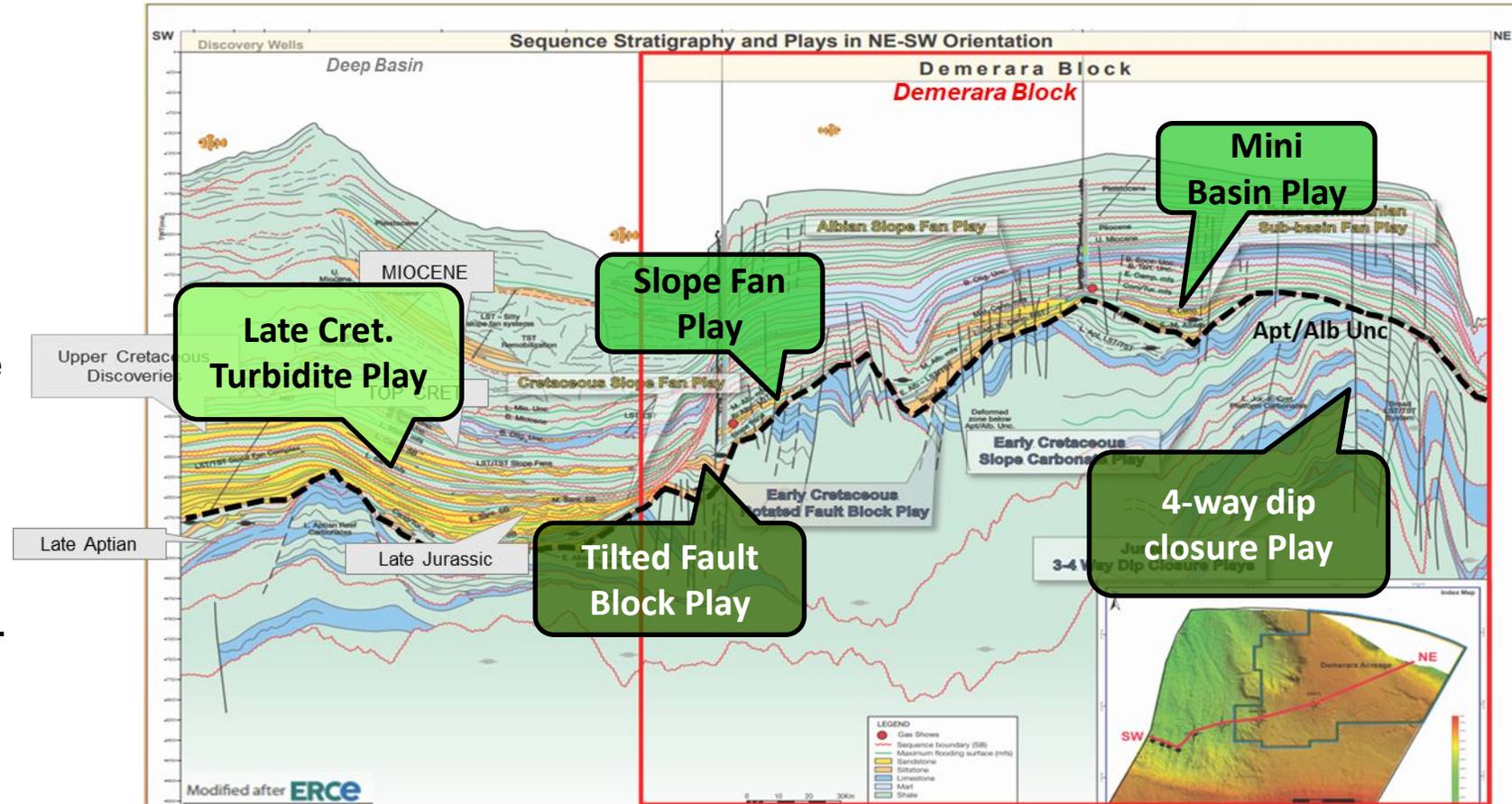
- Improved understanding of the Basin crustal model which improves the understanding of heat flow production impacting the source rock maturity in the Basin
- Key deliverables are the updated crustal models that are critical input for the Structural Reconstruction Project.



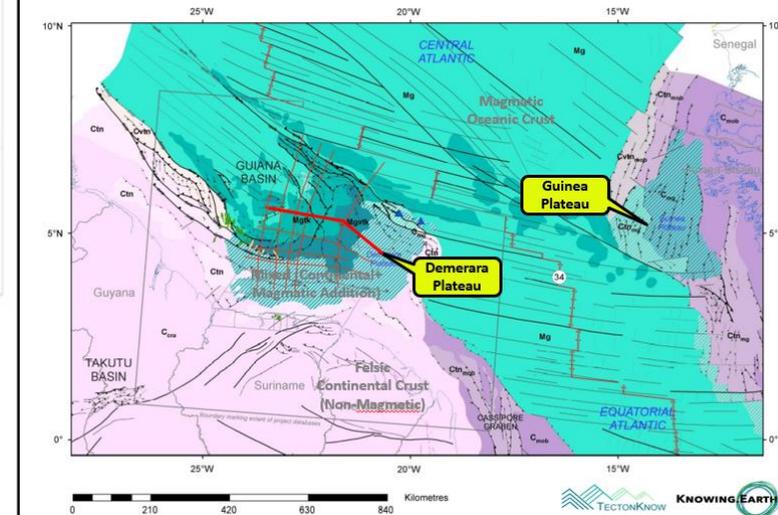
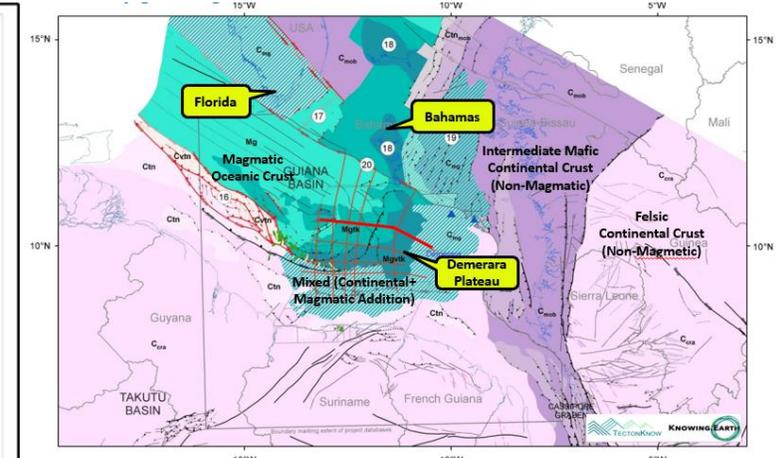
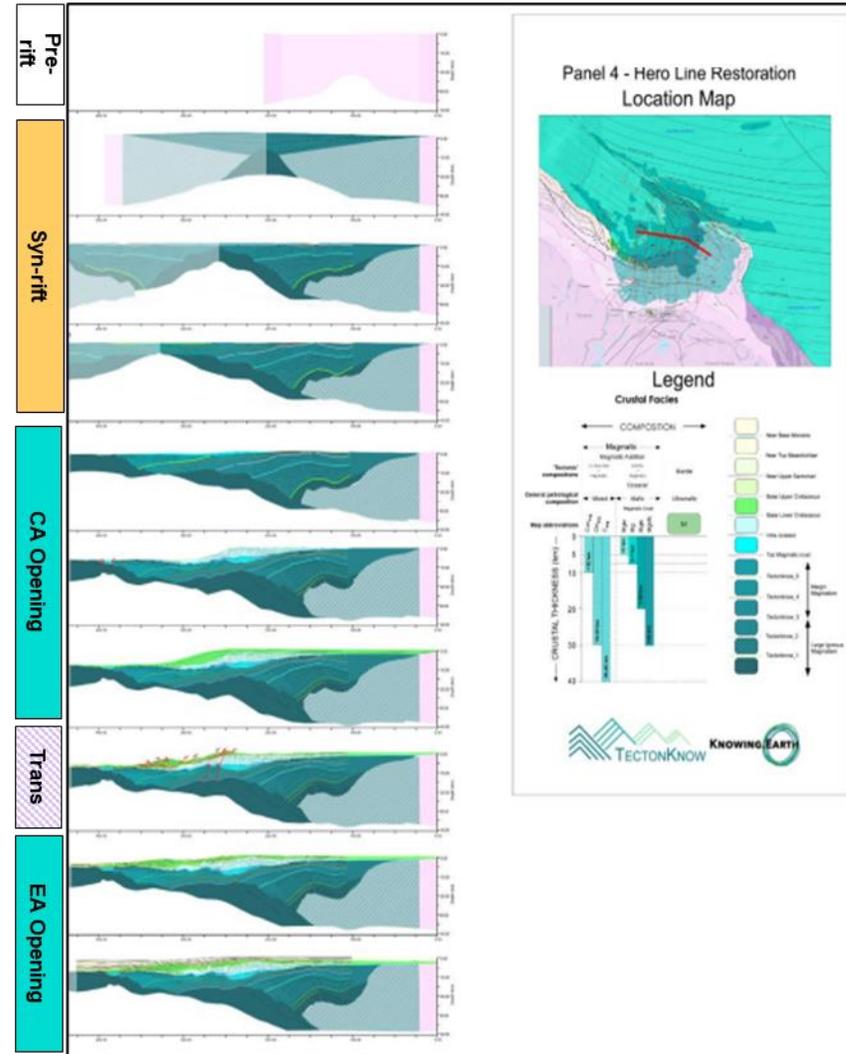
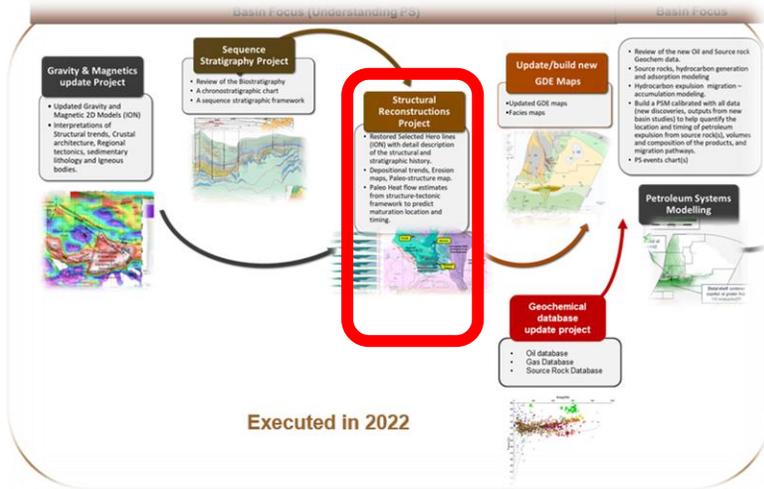
Sequence Stratigraphy Project:



- Improved understanding of the potential reservoir, seal, and source rock cyclicity and lateral extends within the different depositional sequences interpreted in the Basin. Improved understanding of the different play types within the Basin.
- Key deliverables are the depositional sequences interpreted to be used as input for the GDE Project.

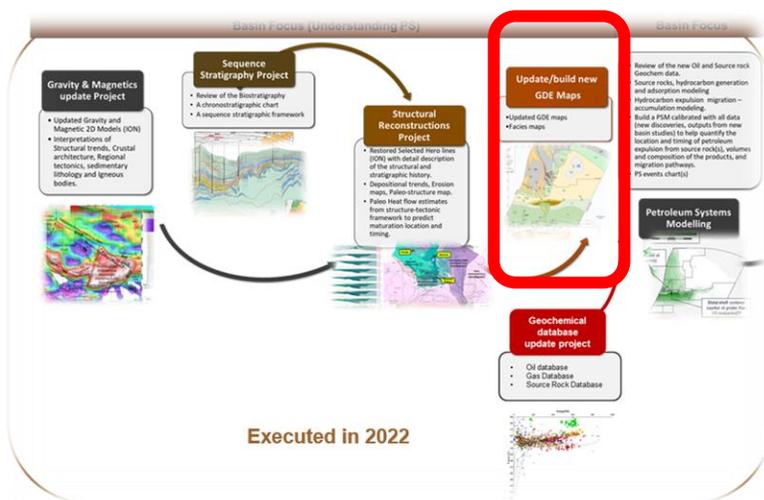


Structural Reconstruction Project:



- Improved the understanding of the Basin tectonic evolution and burial history that impacts sediment preservation and Source Rock Maturation. Better understanding of our Central and Equatorial Atlantic conjugate margins.
- Key deliverables burial history, paleo-water depth maps used as input for the GDE and PSM Projects.

Gross Depositional Environment Project:

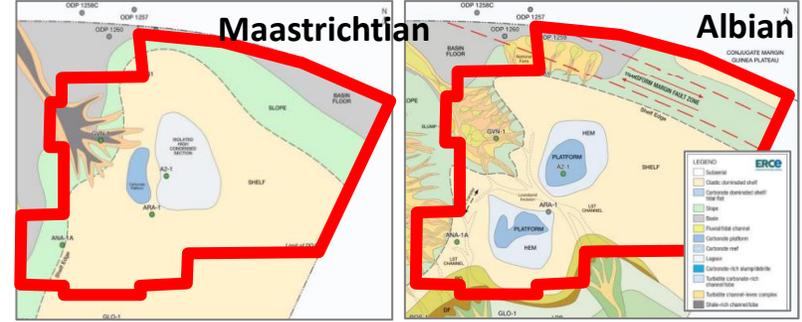


- Improved understanding of the environments of deposition for reservoir, seal and source rocks through time.
- Key deliverables are the facies distribution maps for the modelling of the source rock type.

System Period	Series Epoch	Stage Age	Key Tectonic Events	Dominant Systems Tract	GDE Map Key		
Quaternary	Holocene	Upper	Equatorial Atlantic Rifting	Regressive Clastic Dominated Margin	Oligo-Miocene		
	Pleistocene	"Ionian"					
		Calabrian					
Neogene	Pliocene	Gelasian					
		Zanclean					
	Miocene	Messinian					
		Tortonian					
		Serravallian					
Paleogene	Oligocene	Langhian				Transgressive Carbonate Dominated Margin	Paleocene-Eocene
		Aquitanian					
	Eocene	Chatthian					
		Rupelian					
		Priabonian					
	Paleocene	Bartonian	Some Carbonate Transgression				
		Lutetian					
	Cretaceous	Upper	Ypresian	Regressive Clastic Dominated Margin	Maastrichtian		
			Thanetian				
			Selandian				
Danian							
Santonian							
Coniacian							
Lower		Turonian	Transgressive Carbonated Dominated Margin	Cenomanian-Turonian			
		Cenomanian					
		Albian					
		Aptian					
		Barremian					
		Hauterivian					
Jurassic	Upper	Valanginian	Clastic LST incisions	Late Albian Mid Albian			
		Berriasian					
		Tithonian					
		Kimmeridgian		Aptian-Hauterivian			
		Oxfordian		Valanginian-Berriasian			
				Tithonian-Kimmeridgian			

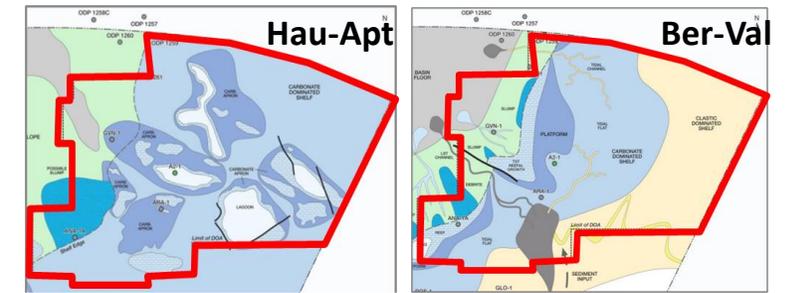
Mid-Late Cretaceous:

- Mainly Clastic Dominated Shelf: Fluvial-Deltaic to slope deposits. Minor carbonate development.
- Several flooding shales have been interpreted from well and seismic sequence stratigraphy.

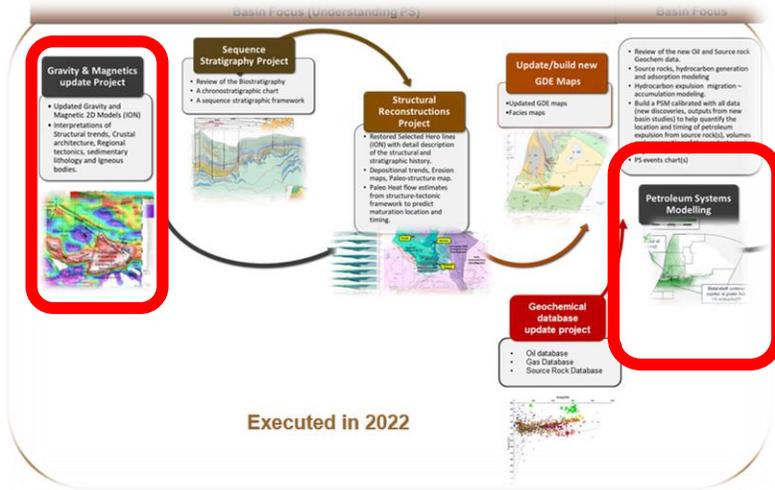


Late Jurassic to Early Cretaceous:

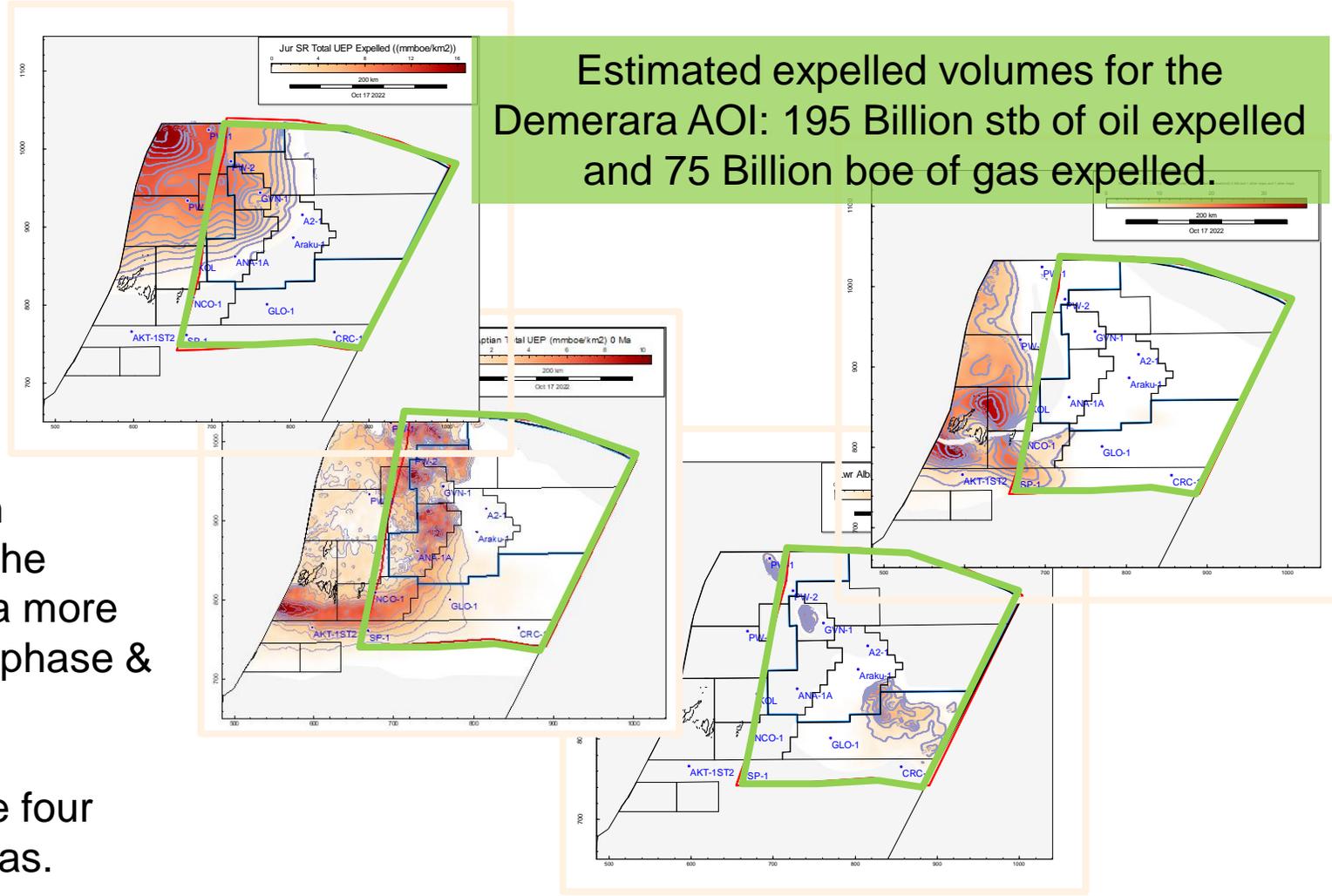
- Carbonate Dominated Shelf: Reefs, Platforms. Minor clastic inputs.
- Largely undrilled section and interpretations mainly done on seismic data.



Petroleum Systems Modelling Project:



Estimated expelled volumes for the Demerara AOI: 195 Billion stb of oil expelled and 75 Billion boe of gas expelled.

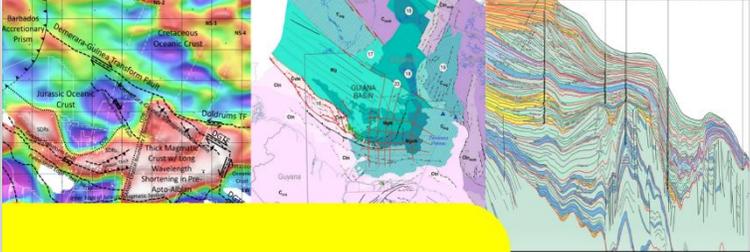


- Updated PSM Model build from scratch integrated with all the new inputs from the previously mentioned studies allowing a more accurate prediction of the hydrocarbon phase & volumes.
- Expelled Volumes are calculated for the four modelled Source Rocks for both oil & gas.

Andrew Pepper & Andres Cedeño Motta, 2022

Basin Studies *Follow-up*

- Utilize gained insight for de-risking and promoting the hydrocarbon exploration opportunities in the open acreages
- Share the knowledge with IOCs to increase the success rate in the contract acreages
- Have an in-person Basin Study Symposium in Suriname
- Offer as a knowledge bundle
- Publish and present on international conferences



BASIN STUDIES SYMPOSIUM

May 10, 11 & 12, 2023 
Paramaribo, Suriname 

For registration & additional information



Hosted by



Final Key Take-aways

- After the success in the Deep-water Province in the West, the Onshore, Shallow Offshore and Demerara provinces are the next prolific areas to be offered.
- New basin studies and 3D high quality data, provides better understanding of the subsurface in these area
- After the acquisition, processing, evaluations of the Shallow Offshore 3D data and incorporating the basin studies, a bid round will be conducted in 2023 in the SHO Central area.
- The new insights from the basin studies are such that the Demerara Bid Round was successfully launched in Q4 2022 and closes in May 2023.
- The knowledge of the basin studies will be shared in a in person symposium in Suriname on the 10 – 12 of May 2023.