5TH BRAZILIAN PETROLEUM CONFERENCE — SESSION 1

Frontier Basins and Reserve Replacement: ANP's Strategic Outlook for Brazil's Next Exploratory Cycle

Brazil Beyond the Pre-Salt: Unlocking New Frontiers for Long-Term Energy Security

Ronan Magalhães Ávila
Deputy Superintendent of Geological and Economic Assessment [SAG/ANP]

A Regional Seismic Perspective — 4th BPC (2024), Revisited in 2026

Arbitrary regional profile presented as a play sample at the 4th Brazilian Petroleum Conference, Rio de Janeiro, 2024

4th BPC | Rio de Janeiro | 2024

This arbitrary seismic profile (~405 km, Campos/Santos Basin) was shown as a regional sample illustrating frontier play potential — structural traps, deep-water turbidite leads, and pre-salt targets along the conjugate margin.

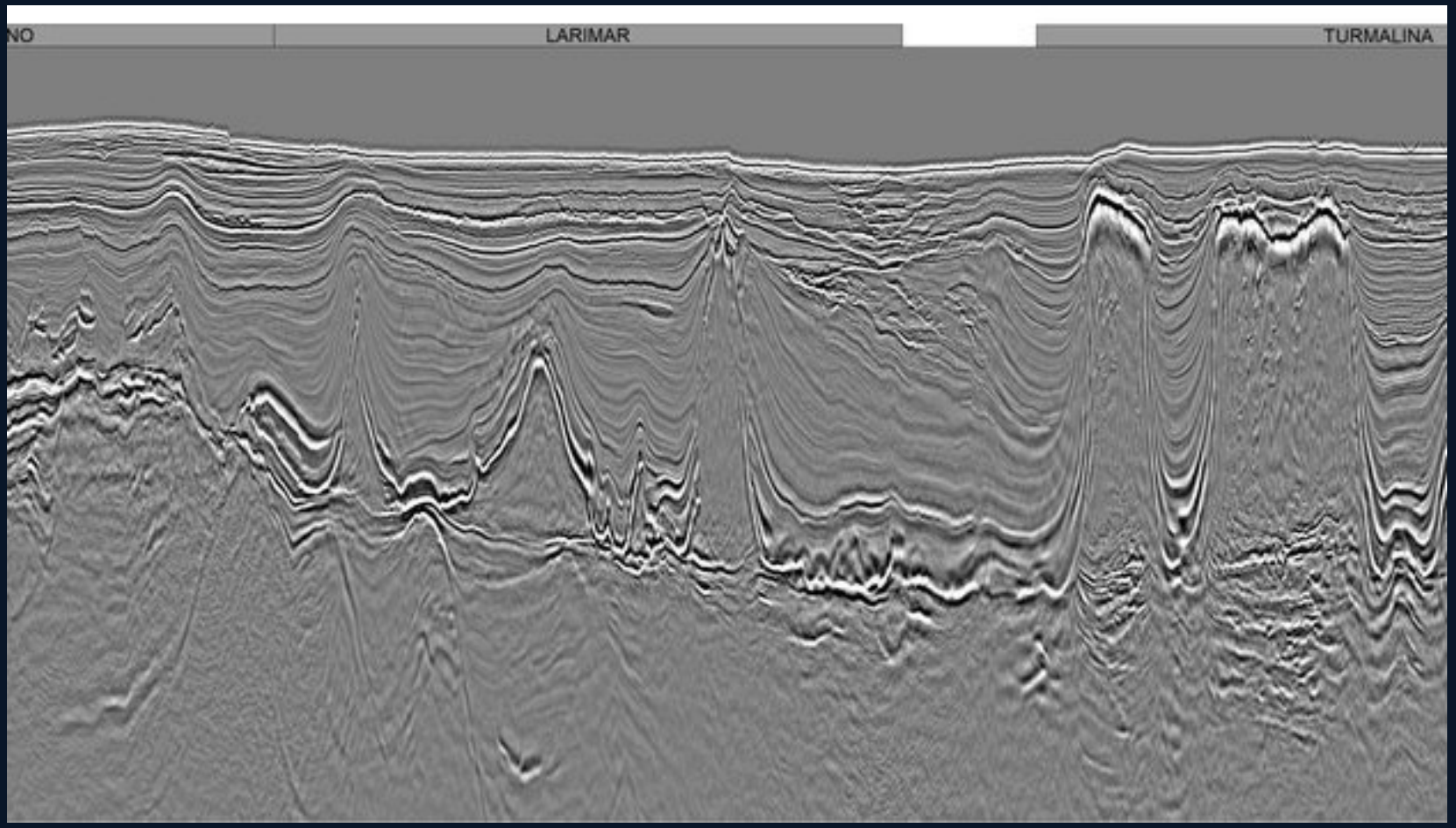
TWO YEARS ON — WHAT CHANGED (OPP):

> OPP 3rd and 4th Cycle completed

Next slides: The exploratory landscape — how the scenario transformed from 2016 to 2026

Arbitrary Seismic Line — Campos / Santos Basin Area

~405 km regional profile

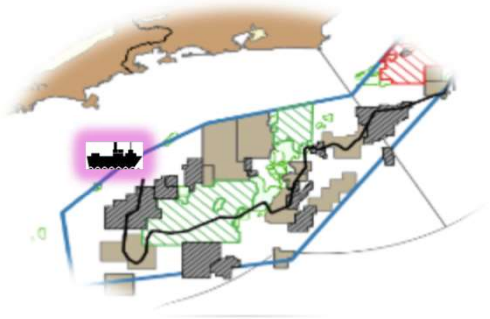


PICANHA_PH2_3_PSDM_RTM_STK — Pre-Stack Depth Migration (PSDM) / RTM

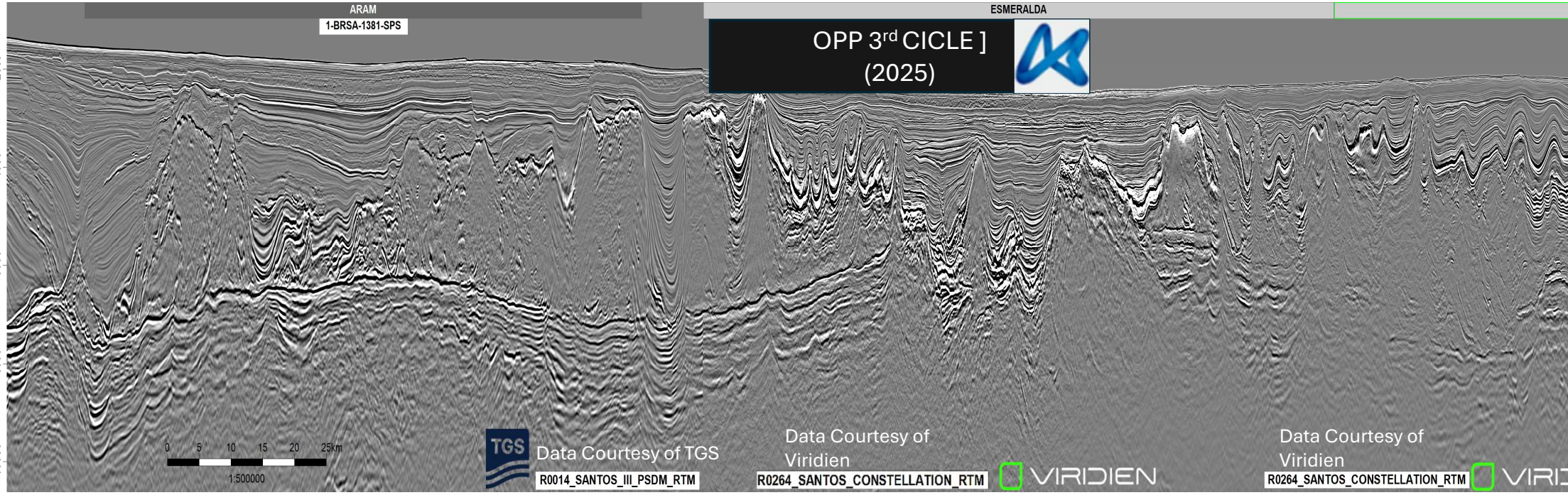
Data Courtesy of TGS

Opportunities: New Areas for the Santos Basin

OPP Overview

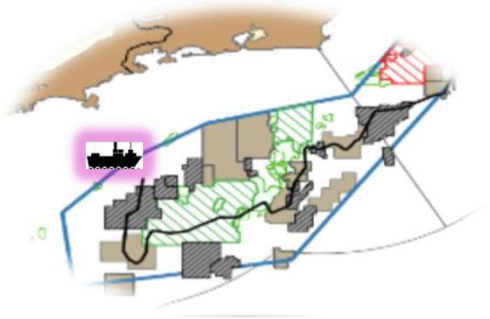


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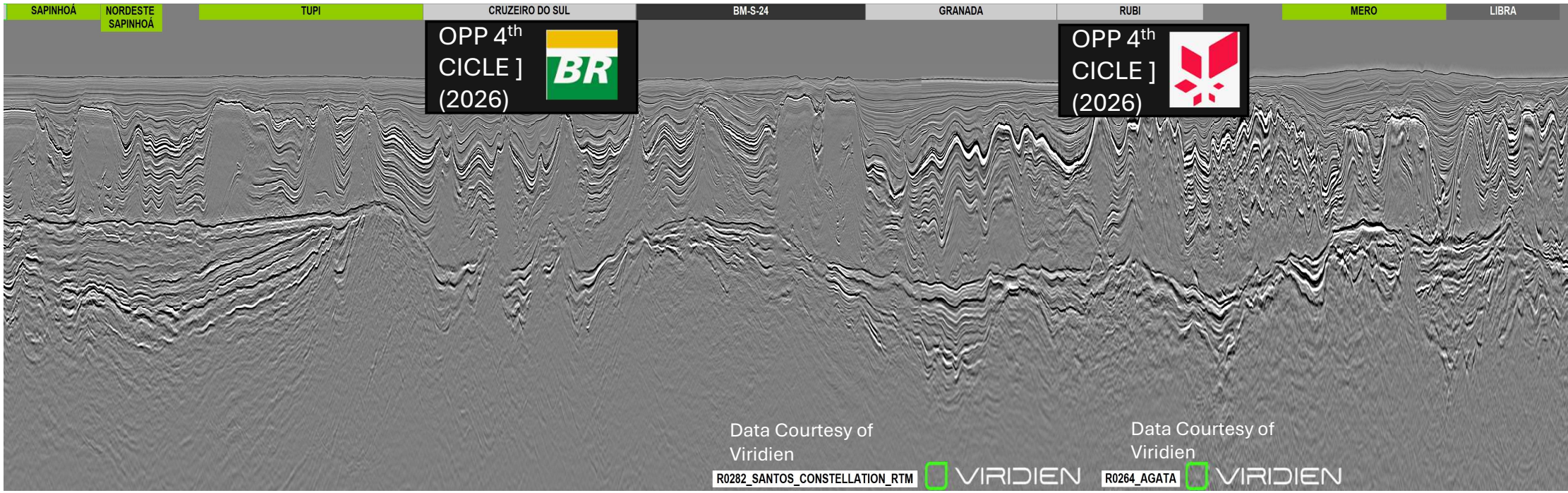


Opportunities: New Areas for the Santos Basin

OPP Overview

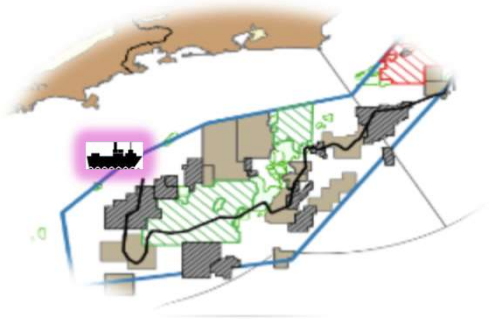


BRAZILIAN PETROLEUM CONFERENCE 4th EDITION 2024

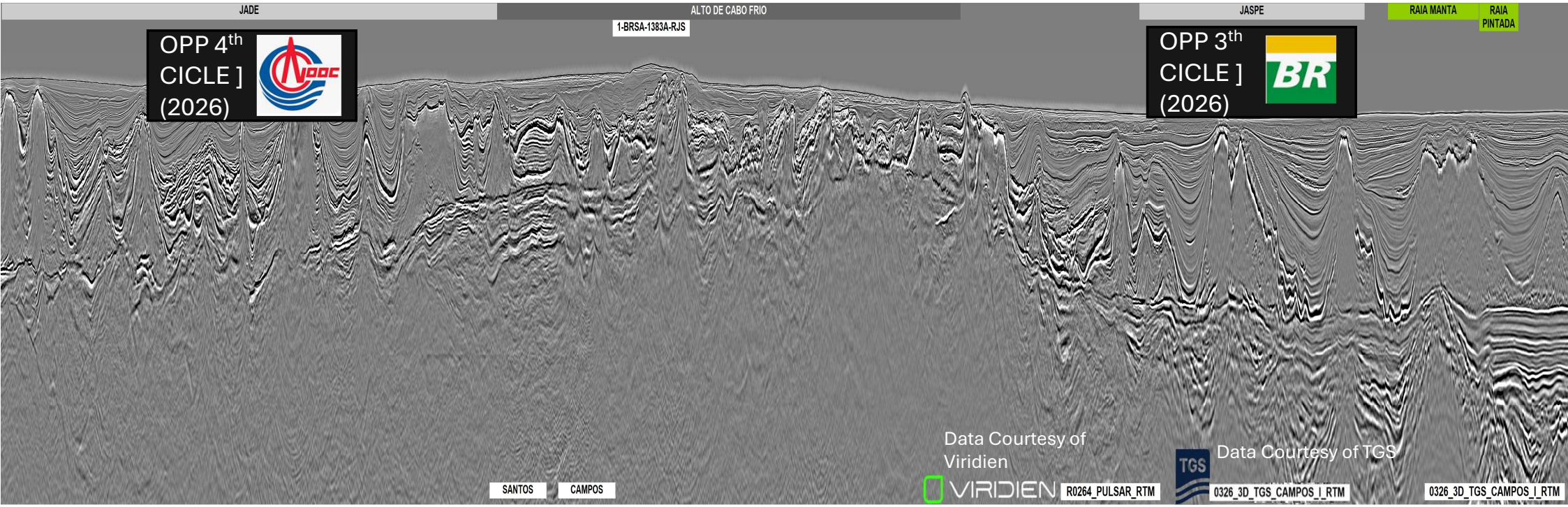


Opportunities: New Areas for the Santos Basin

OPP Overview

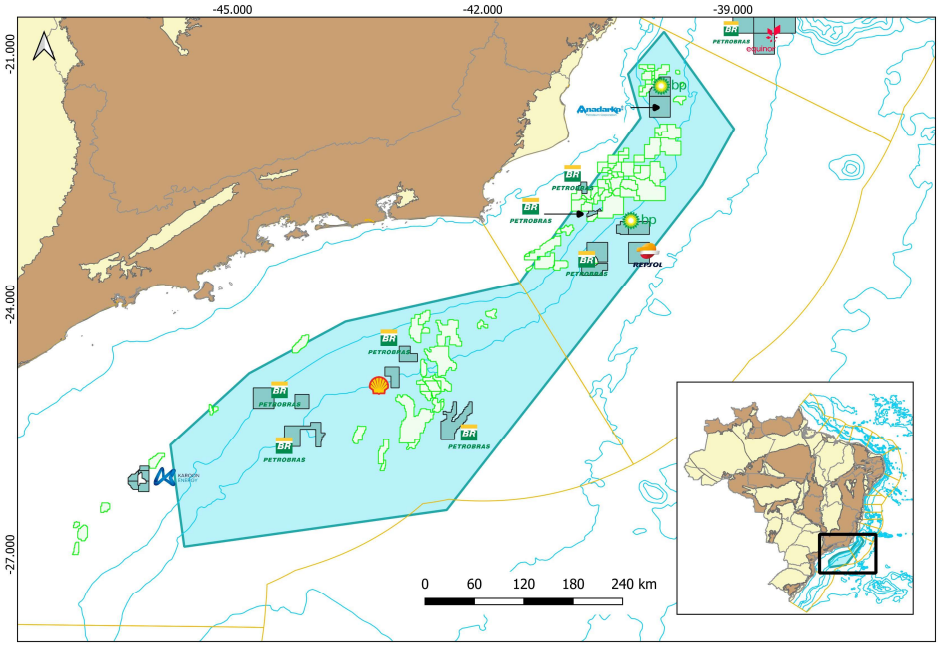


BRAZILIAN PETROLEUM CONFERENCE 4th EDITION 2024

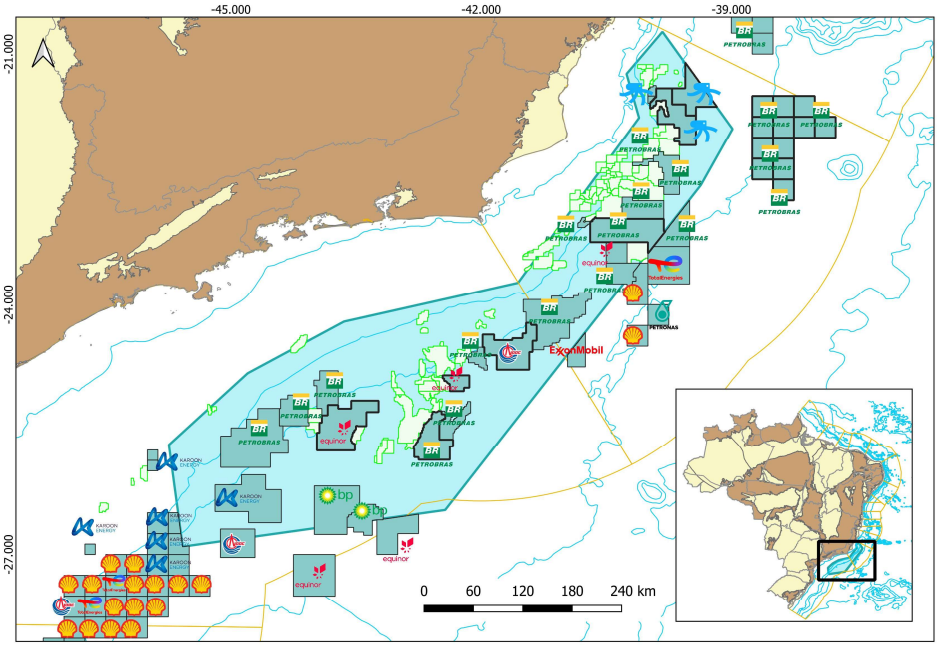


Contracts in Campos & Santos Basins: A Decade of Expansion

June 2016 — Before
Blocks featuring active contracts (OPP & OPC)



October 2026 — After
Dramatic expansion of active contracts



ANP, 2024 | ANP, 2026b

The Reserve Replacement Imperative

12.5

years

R/P Ratio (Reserves/Production) — 2025 projection

~2030s

Pre-salt production plateau approaching (projected)

587

blocks

New frontier blocks delimited by ANP (2026)

Why Act Now?

- Brazil's pre-salt plateau is approaching — plateau expected in the 2030s (projected)
- R/P ratio of 12.5 years is below the strategic safety threshold for major producers
- New exploration cycles require 8–15 years lead time from licensing to first production

Frontier Basins: The Answer

- Equatorial Margin (5 basins) — Brazil's last major underexplored frontier / +Pelotas / ...
- Extended continental shelf (+360,000 km²) — new sovereign rights approved in 2025
- Global analogs (Jubilee, Liza) demonstrate the commercial viability of these plays

ANP, 2025 | ANP, 2026b

From Priority Areas to Frontier Basins: ANP's Strategic Evolution

4th BPC — 2024

Priority Areas for the Next Exploratory Cycle

Campos & Santos Basins (OPP)

Focus on pre-salt blocks adjacent to producing fields — Magnetita, Hematita, Azurita (Campos); Jade, Rubi, Cruzeiro do Sul, Rodocrosita (Santos)

Pre-Salt Expansion

Malaquita, Opala, Calcedonia, Quartzo — geological and economic assessments via RD nº 1.137/2024 & 1.147/2024

Equatorial Margin — Initial Mapping

Foz do Amazonas, Pará-Maranhão, Barreirinhas, Ceará, Potiguar — OPC studies underway for 2025

→

5th BPC — 2026

Frontier Basins & Reserve Replacement Strategy

86 Frontier Blocks Approved (Sept 2026)

Board decision approves 86 Equatorial Margin blocks for geological study — FZA, PAMA, BAR basins

501 Blocks in 11 Sectors Delimited (Oct 2026)

"Nova Fronteira Exploratória" — 380,000 km² across 5 Equatorial Margin basins, >3,000 m depth

Extended Continental Shelf (+360,000 km²)

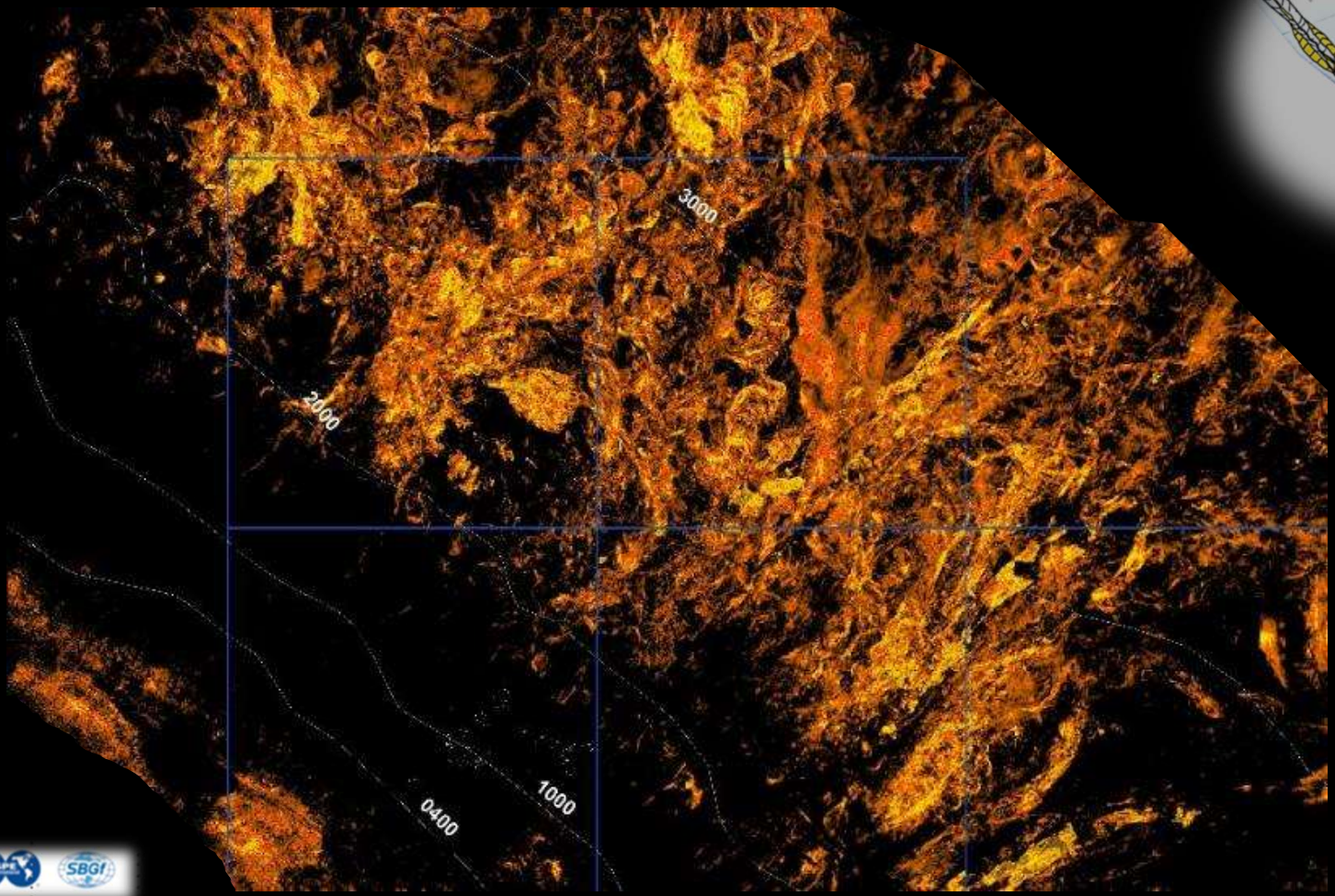
CLPC/ONU approval (March 2025) — Brazil's sovereign subsoil rights extended under UNCLOS Art. 76

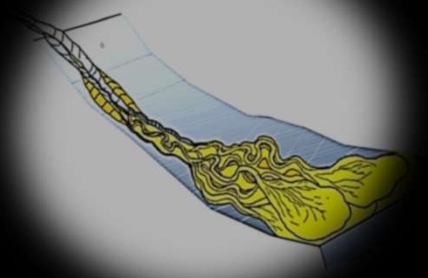
Ávila, 2024 | ANP, 2026a

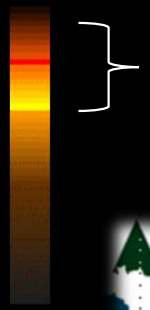
FZA BASIN

MINIMUM AMPLITUDE ATTRIBUTE: [MAXIMUM NEGATIVE VALUE]

ALBIAN – MAASTRICTHIAN INTERVAL



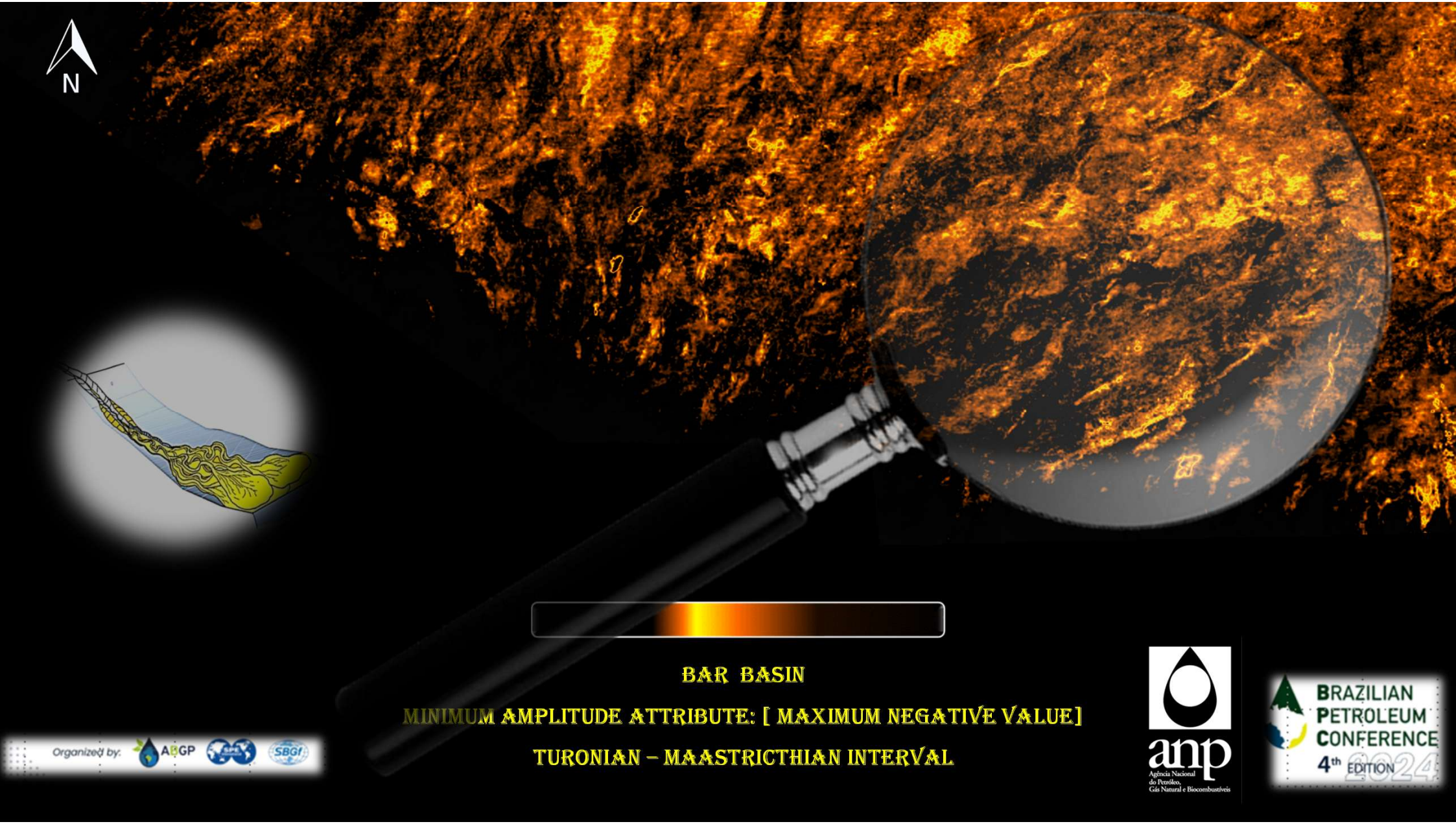




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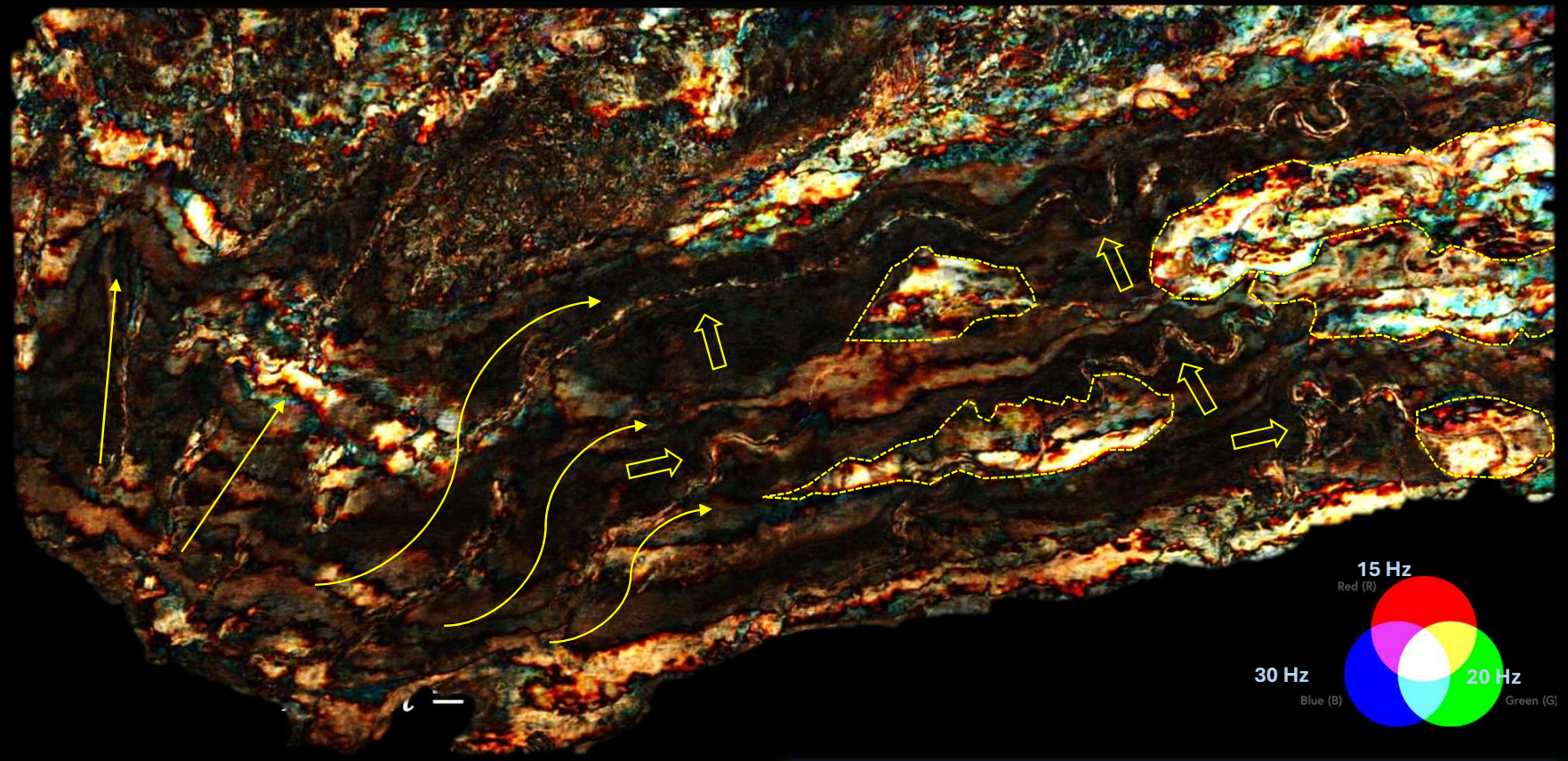
anp Agência Nacional do Petróleo, Gás Natural e Biocombustíveis

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N
BAR BASIN
MINIMUM AMPLITUDE ATTRIBUTE: [MAXIMUM NEGATIVE VALUE]
TURONIAN – MAASTRICTHIAN INTERVAL
Organized by:
ABGP
SBGf
anp
Agência Nacional do Petróleo, Gás Natural e Biocombustíveis
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2024

BAR BASIN

SPECTRAL DECOMPOSITION ATTRIBUTE (RGB) FOR ENHANCE SEISMIC GEOMETRIES





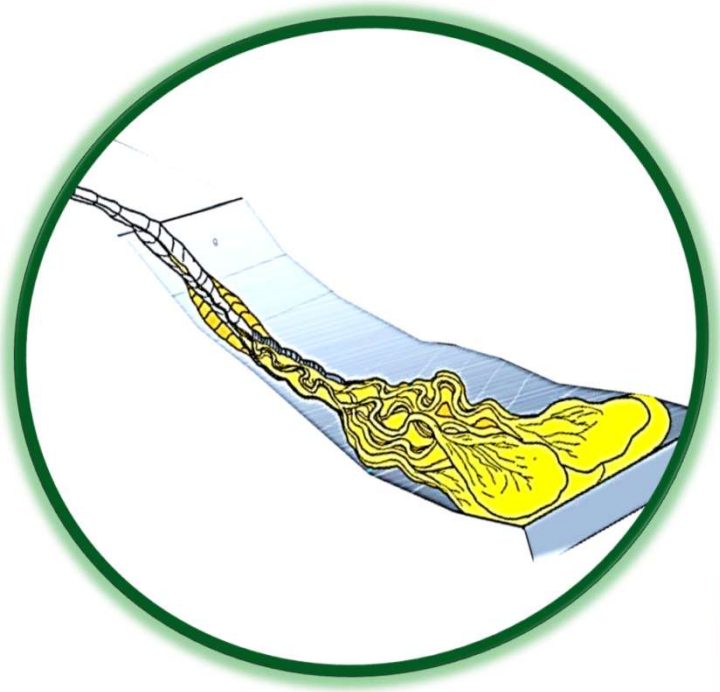
BRAZILIAN PETROLEUM CONFERENCE
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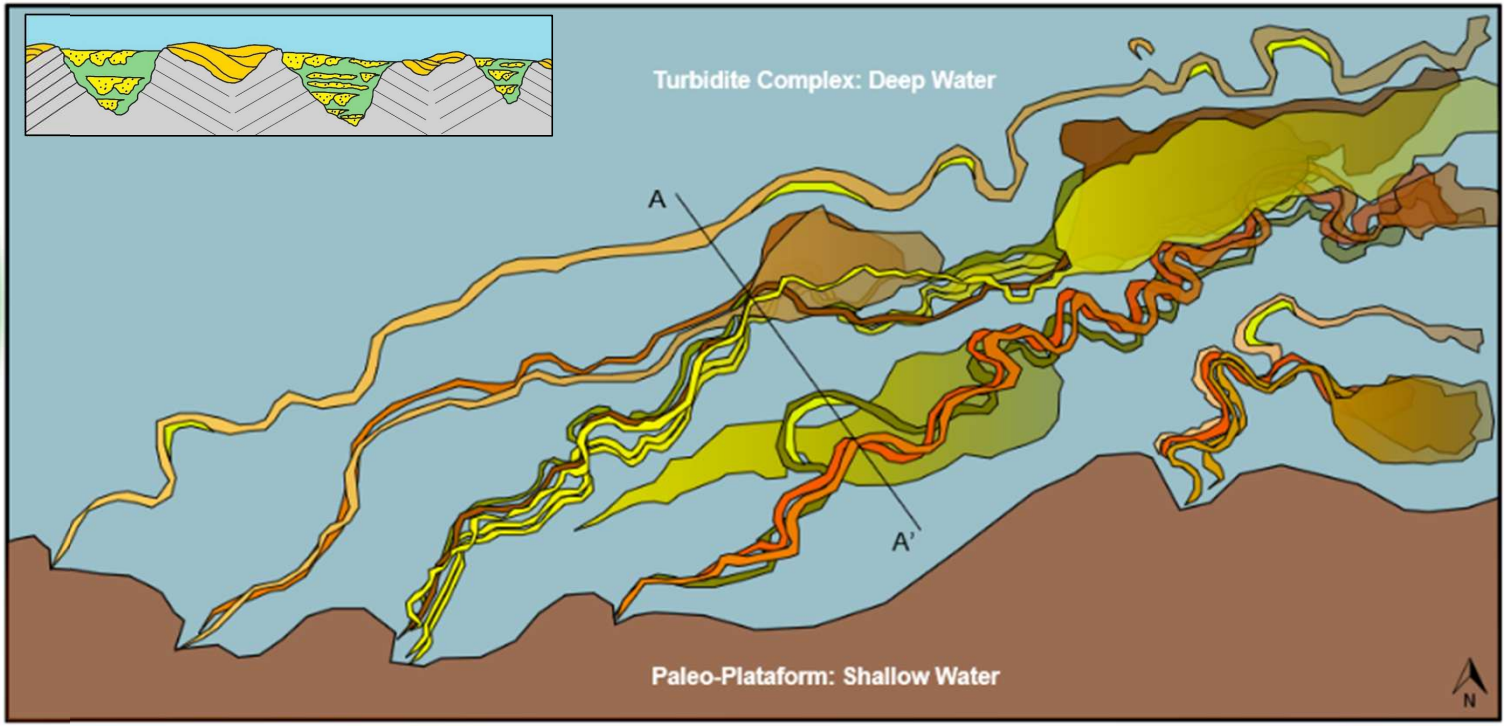
Organized by: ABGP SBGf

Permanent Offer – OPC Sample - 2025

OPC – Barreirinhas Basin

BRAZILIAN PETROLEUM CONFERENCE 4th EDITION 2024





A powerful tool for effectively engaging with the market

RES ANP 837 / 2021 - NOMINATION

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The nomination is the designation of an area by any legal entity in the oil and natural gas industry so that the ANP can study the possibility of offering it in a future bidding round

The exploratory block nomination must be forwarded to the Geological and Economic Assessment Superintendence (SAG) with the Process Type Area Nomination - Exploratory Block, and the area nomination with marginal accumulations to the Development and Production Superintendency (SDP) with the Process Type Area Nomination - Marginal Accumulations

"Nominations are a fully confidential process"

Brazil's Sedimentary Basin Portfolio

29
Delimited sedimentary basins

>7M
km² total sedimentary area

Proven Province — Pre-Salt

- Santos and Campos Basins: world-class oil province
- Libra, Buzios, Tupi — flagship pre-salt megafields
- Oil production: 3.8 MMbpd in 2025 — record high (ANP, 2025)

Underexplored Frontier — Equatorial Margin

- 5 basins: Foz do Amazonas, Pará-Maranhão, Barreirinhas, Ceará, Potiguar, + Pelotas, + Onshore, etc.
- Significant undiscovered hydrocarbon potential — conjugate margin to prolific West Africa Atlantic basins
- Ultra-deep water (>3,000 m) — frontier technology required
- 501 blocks delimited in Oct 2026 — licensing underway



Pelotas Basin: Brazil's Southern Deep-Water Frontier

Record expansion: 4 blocks (2016) → 47 blocks (2024) — #1 maritime basin under contract

#1
Maritime basin by contracted blocks

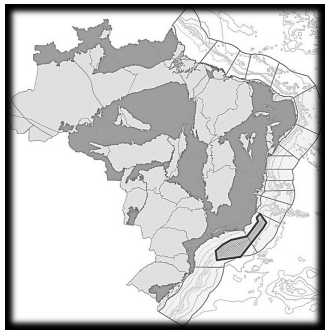
47
Exploratory blocks (end 2024)

30.5k
km² under contract

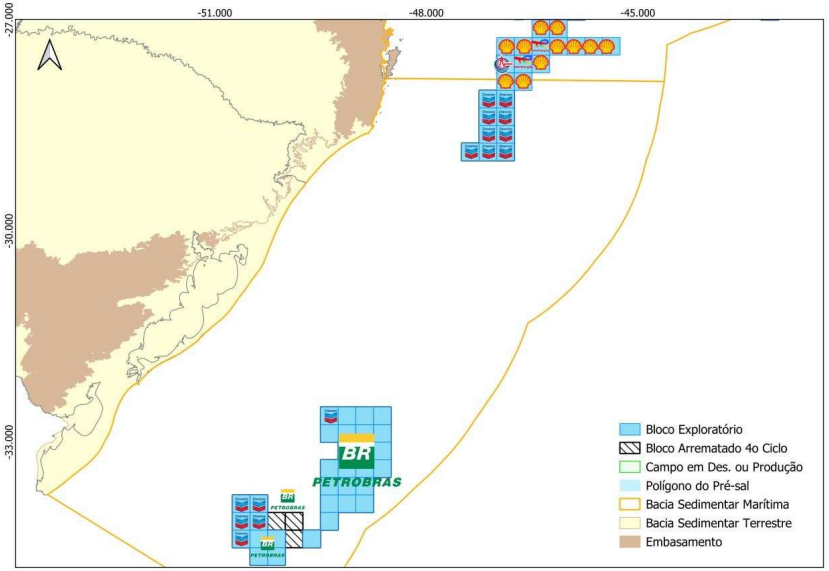
4 → 47
Block growth 2016–2024

Key Characteristics

- Southern deep-water frontier: 1,500–3,500 m water depth
- Pre-salt petroleum system — **no evaporite barrier** (salt-free)
- Active operators: **Shell, Chevron, Petrobras**
- South Atlantic conjugate-margin analog to proven West African plays
- 144 of 164 maritime frontier blocks (88%) under contract — Pelotas leads
- Complements equatorial margin in ANP's diversified frontier portfolio



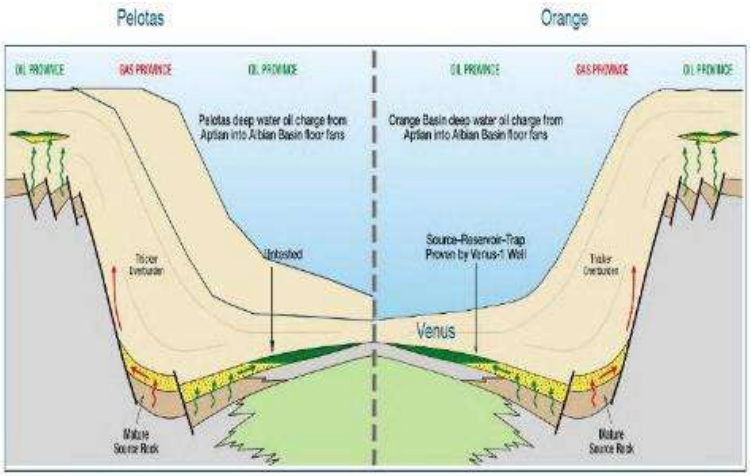
Pelotas Basin location (southern Brazil)

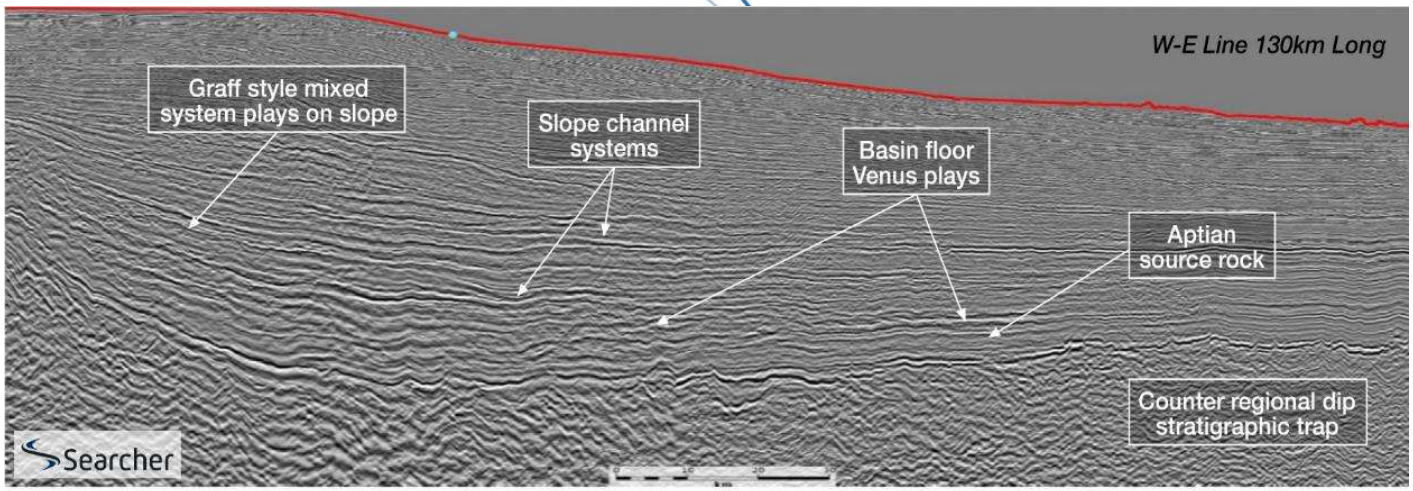


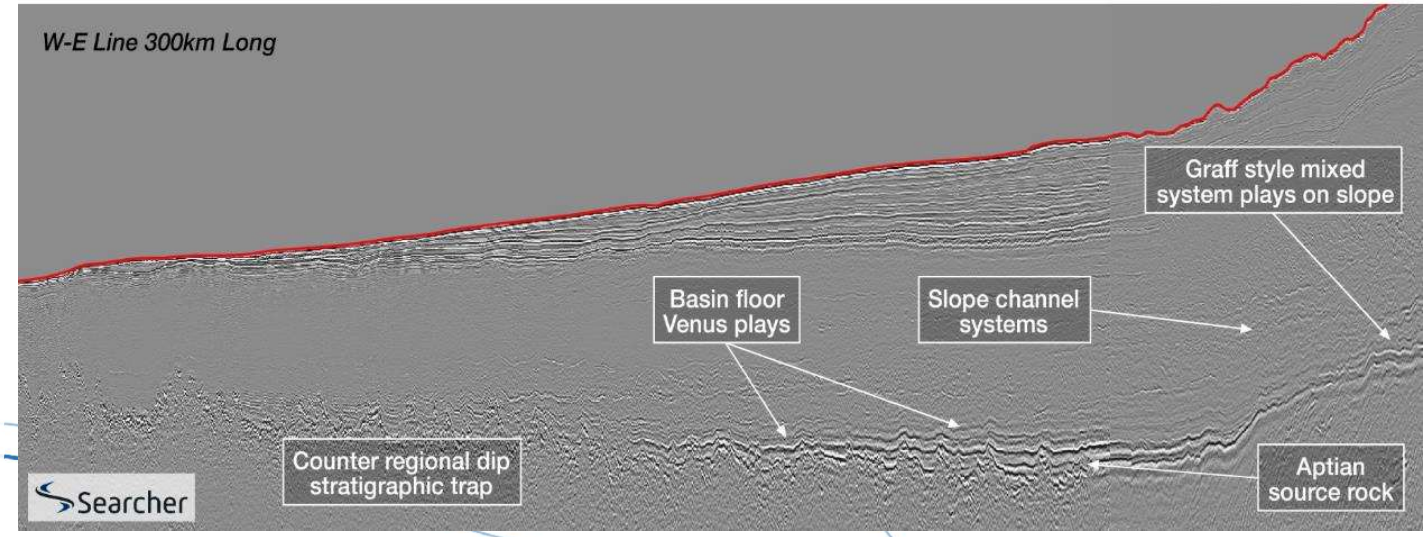
Pelotas Basin — Contracted Blocks (2024): Shell, Chevron, Petrobras | Source: ANP GIS

Pelotas Basin: Petroleum System & Exploration Evidence

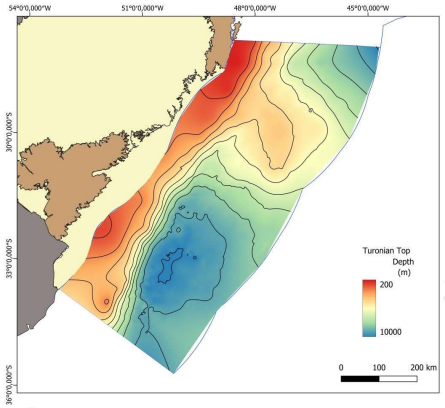
Deep sedimentary fill, Turonian source rock, and proven South Atlantic conjugate-margin plays







Turonian Top — Depth Map



Turonian Top depth (m) | Source: ANP/SAG, 2024

A Historic Milestone: Brazil's Extended Continental Shelf (LEPLAC)

March 2025 — CLPC/ONU Approval

The United Nations Commission on the Limits of the Continental Shelf (CLPC) formally approved Brazil's submission, extending sovereign subsoil rights beyond the 200 nm Exclusive Economic Zone.

360,000

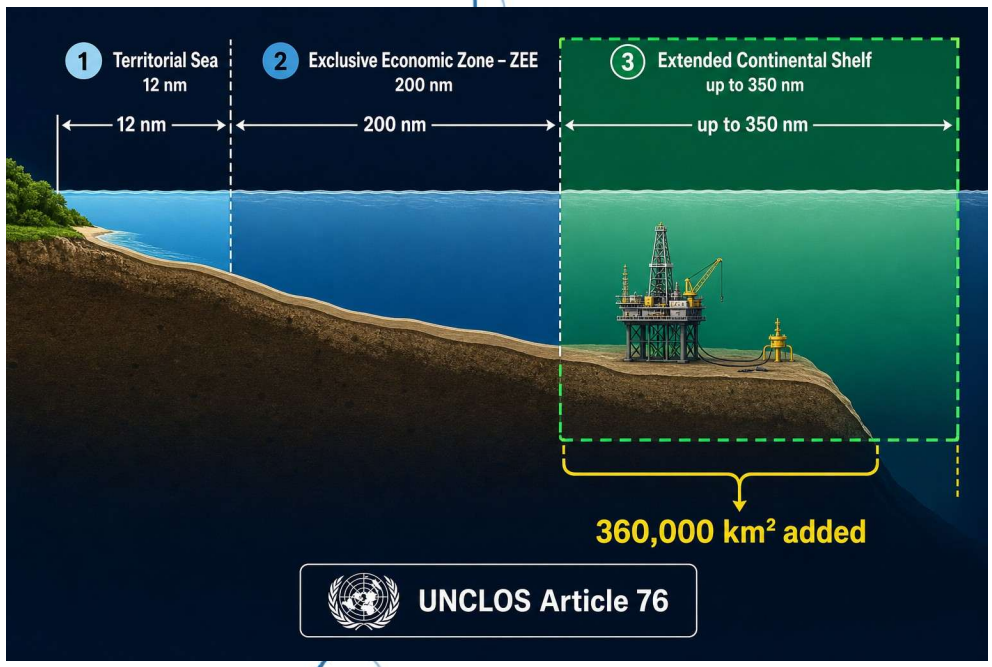
km² added to Brazil's subsoil jurisdiction

200+

nm beyond the standard EEZ limit

Legal Framework (UNCLOS Article 76)

- Sovereign rights over seabed and subsoil for natural resource exploration
- LEPLAC project (since 1987) culminated in successful UN submission
- 27 blocks in the September 2026 board decision lie beyond the ZEE — now fully covered
- International law foundation for future deep-water licensing rounds



CLPC & ONU, 2025 | ANP, 2025

Equatorial Atlantic Analogs: A Proven Play

Jubilee Field — Ghana (West Africa)

Deepwater, Tano Basin — Conjugate margin to Brazil's Equatorial Margin

~3 Bbbl estimated oil in place (GNPC)

- Discovered 2007 by Tullow Oil — brought onstream 2010
- Deep-water turbidite sandstone reservoirs (~1,100 m water depth)
- Passive margin structural setting mirrors Brazil's Equatorial Margin
- Post-expansion production: ~100,000 bopd — significant for a frontier discovery

Stabroek Block — Guyana (South America)

Deepwater Demerara Platform — same Atlantic conjugate margin system

11+ Bboe recoverable resources (Stabroek block)

- Liza discovery 2015 by ExxonMobil/Hess — now producing ~900,000 bopd (Nov 2025)
- 34+ discoveries in Stabroek block — world-class frontier success story
- Water depth: 1,500–2,000 m — comparable to Brazil's Equatorial Margin
- Demonstrates transformational frontier potential along this geological corridor

Brazil's Equatorial Margin shares the same geological heritage as Jubilee and Stabroek — same Atlantic conjugate margin, same Cretaceous play system, same deepwater turbidite reservoirs. The question is not *whether* petroleum exists, but *how much*.

Tullow Oil, 2007 | ExxonMobil & Hess, 2015

ANP Board Decision — September 4, 2026

Approval of Equatorial Margin Blocks for Geological Study — Equatorial Margin Basins

86

Total blocks approved for geological study

27

Blocks located beyond the ZEE (extended shelf)

Key Outcomes

ANP-SAG authorized to conduct geological and economic studies for 86 frontier blocks across three Equatorial Margin basins. Results to inform a potential Oferta Permanente by H1 2027.

Next Steps

Completion of G&G studies by H1 2027 — environmental guidelines from IBAMA — block inclusion in Oferta Permanente (OPC) for market offering.

Blocks by Basin — September 2026 Decision



Of the 86 blocks approved, **27 lie beyond the Exclusive Economic Zone** — now fully covered by Brazil's extended continental shelf rights (CLPC/ONU approval, March 2025).

ANP, 2026a

ANP Board Decision — October 2, 2026

Delimitation of 501 Frontier Blocks — "Nova Fronteira Exploratória" — Joint Decision with SPL, SAG & STM

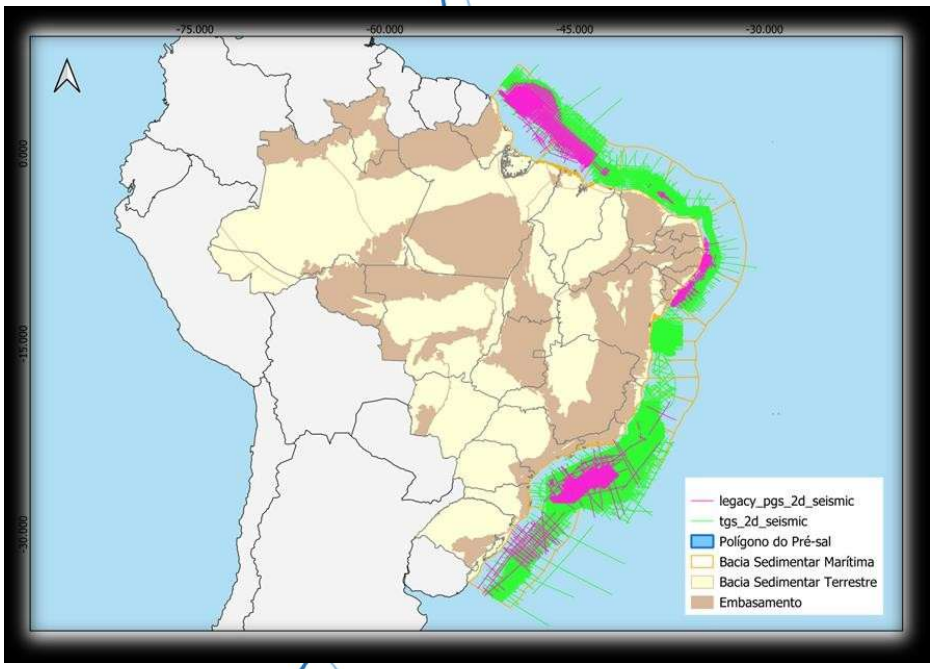
11	501	380,000
Sectors delimited across 5 basins	Frontier blocks defined	km² total area

Scope of the Decision

- Five Equatorial Margin basins: FZA, PAMA, BAR, CE, POT
- Water depths exceeding 3,000 m — true ultra-deep frontier
- Blocks to enter Oferta Permanente (OPC) following environmental guidelines
- Combined with September decision: 587 frontier blocks under ANP study

ANP Internal Reorganization — A Key Enabler

A Board decision **[RD nº TBD/2026]** approved merging **SPL (Licensing) + SAG (Geological Assessment) + STM Environmental Division** into one unified superintendence. This internal restructuring may help streamline ANP's handling of environmental aspects in frontier block licensing.



ANP, 2026b

OPC 6th Cycle & OPP 4th Cycle — October 7, 2026

Dual session held 12 days before this conference — record-setting results for Brazil's E&P sector

Oferta Permanente por Cessão (OPC) — 6th Cycle

49	9	R$3B
Blocks awarded	Sedimentary basins	Arrecadation (record)

Basins Covered

- **Onshore:** Potiguar, Tacutu, Recôncavo, Parnaíba, Tucano Sul
- **Offshore:** Campos, Espírito Santo, Santos, Ceará
- Largest OPC in ANP history by financial volume — confirms market confidence
- Mix of mature (onshore) and frontier (offshore) assets in a single cycle

Oferta Permanente de Partilha (OPP) — 4th Cycle

7	2
Blocks awarded	Basins (Campos & Santos)

Winning Companies & Oil Surplus to the Union (%)

Basin	Block	Oil Surplus (%)	
Campos	Magnetita	32.80%	Prio Forte S.A. (100%)
Campos	Hematita	7.18%	Prio Forte S.A. (100%)
Campos	Azurita	30.00%	Petrobras (100%)
Santos	Jade	18.20%	CNOOC (70%) + Sinopec (30%)
Santos	Cruzeiro do Sul	15.27%	Petrobras (100%)
Santos	Rubi	25.02%	Equinor Brasil (100%)
Santos	Rodocrosita	15.52%	Equinor Brasil (70%) + Galp (30%)

431 E&P blocks under contract — all-time record

Total Brazil E&P portfolio after October 2026 rounds | Up from 312 contracts in 2016

Both rounds: October 7, 2026

Results still being processed as of this conference | Strong industry signal

Conclusions

Brazil's Frontier Basins — A Strategic Imperative for Reserve Replacement

01

Brazil's Frontier Is Clearly Defined

587 frontier blocks delimited in 2026 (86 + 501) across 5 Equatorial Margin basins and the extended continental shelf — the geographic and geological scope is set for Brazil's next exploratory cycle.

02

Reserve Urgency Demands Action Today

With an R/P ratio of ~12.5 years and a pre-salt production plateau approaching in the 2030s (projected), the 8–15 year lead time from licensing to production means frontier exploration must begin now to maintain Brazil's energy security.

03

Global Precedents Are Encouraging

Jubilee (Ghana, ~3 Bbbl oil in place) and Liza/Stabroek (Guyana, 11+ Bboe recoverable) validate the Equatorial Atlantic conjugate margin play — Brazil's frontier shares identical geological characteristics with these world-class discoveries.

04

ANP's Strategic Framework Is Ready

Board decisions, internal ANP reorganization (SPL+SAG+STM unified), extended shelf rights (LEPLAC/CLPC 2025), and the nomination tool (RES ANP 837/2021) provide the institutional foundation for a successful next exploratory cycle.

We welcome questions, nominations, and partnership proposals — Brazil's frontier is open for business.

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Part 1 of 2

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Part 2 of 2

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Contact

Ronan Magalhães Ávila
ravila@anp.gov.br
linkedin.com/in/ronanmagalhaesavila

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