

# Perspectives of Exploration in Brazil: general view on recent discoveries

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# Perspectives of Oil and Gas Exploration in Brazil

- General View of Exploration in Brazil
- Blocks awarded to Petrobras in 1988 (Round 0)
- Blocks awarded in Rounds 1, 2, 3 and 4

# General View of Oil and Gas Exploration in Brazil

- 29 Sedimentary Basins
  - 6.4 million km<sup>2</sup>
    - 1.6 million km<sup>2</sup> offshore
    - 4.8 million km<sup>2</sup> onshore
  - Proven Reserves- 9.87 billion boe:
    - 86% oil
    - 14% non-associated natural gas
    - 86% offshore
    - 14% onshore

# General View of Oil and Gas Exploration in Brazil

- Exploration efforts focused on productive areas
  - Seismic data acquisition (since 1997):
    - proprietary:
      - 25,758 km 2D
      - 33,247 km<sup>2</sup> 3D
    - multi-clients:
      - 302,957 km 2D
      - 123,022 km<sup>2</sup> 3D
  - 428 wells drilled (since 08/1997)
- Extensive sedimentary area to be explored
- Low density of seismic and well data in most of the Brazilian basins

# General View of Oil and Gas Exploration in Brazil

- ANP is responsible for prospecting work in non-productive areas
  - 10 year Plan
    - expand geological knowledge
    - evaluation of oil potential of the basins
    - increase in attractiveness
    - growth in exploration activity
    - offer of new areas for bidding

# General View of Oil and Gas Exploration in Brazil

- **Current concessions**
  - 42 Concessionaires: 10 national, 32 foreign
    - **Exploration**
      - 113 blocks
      - 36 concessionaires
    - **Development and Production - 284 fields in 15 basins**
      - 47 development
      - 237 production
      - 7 operators

# Perspectives of Oil and Gas Exploration in Brazil

- **Blocks awarded to Petrobras in 1998 (Round 0)**
  - Exploration effort
  - Findings Notification
  - Evaluations
  - Declarations of Commerciality

# Blocks awarded to Petrobras in 1998 (Round 0)

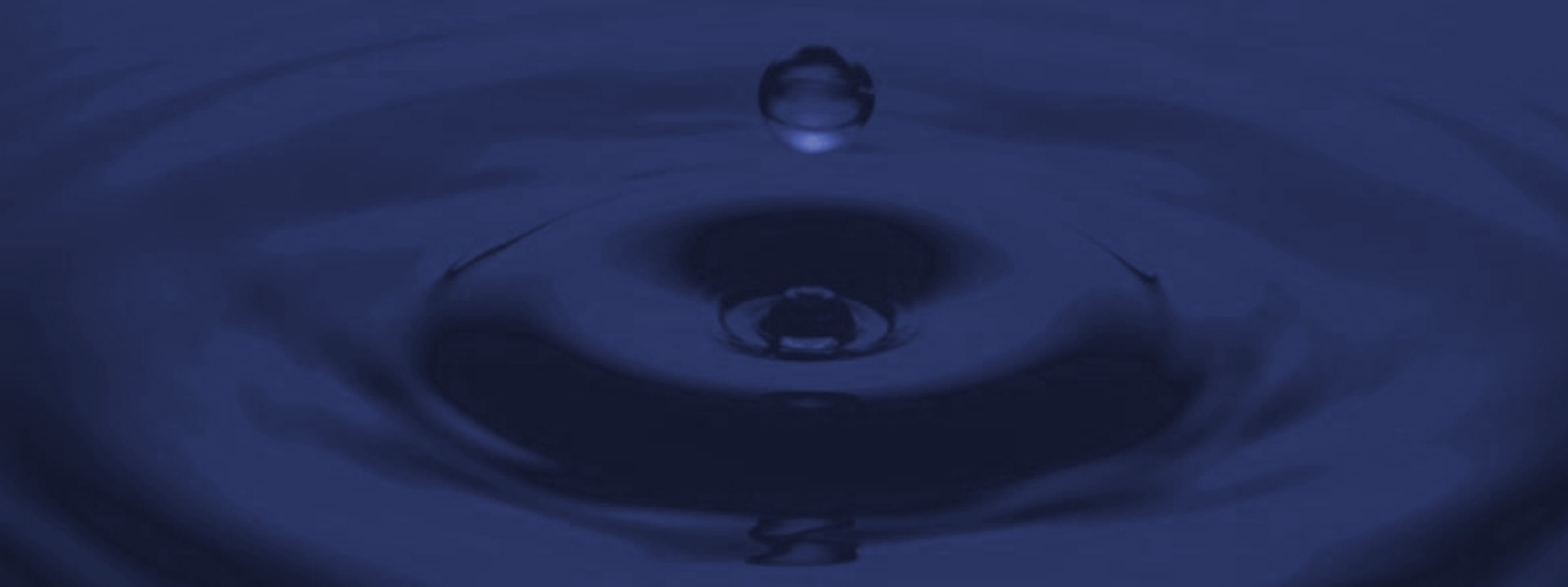
- **Exploration effort performed**

- 115 blocks awarded in 1998
- 36 blocks currently under concession
- total exploratory wells (since August 06, 1997): 425
- acquired 2D seismic (km): 15,624
- acquired 3D seismic (km<sup>2</sup>): 28,122

# Blocks awarded to Petrobras in 1998 (Round 0)

- **Findings Notification**

- Total of discoveries notified : 218
- Total of wells with discoveries: 160
- Total of blocks with discoveries: 62

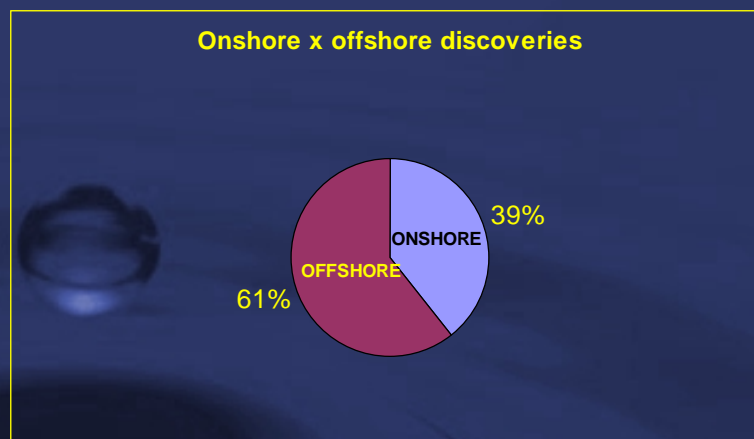


# Blocks conceded to Petrobras in 1998 (Round 0)

- Discoveries Notification**

- Number of wells with discoveries by Sedimentary Basins and water depth

BASIN	NUMBER OF DISCOVERIES
Amazonas	10
Camamu	12
Campos	54
Cumuruxatiba	1
Espírito Santo	61
Foz do Amazonas	3
Paraná	7
Potiguar	24
Recôncavo	11
Santos	29
Sergipe-Alagoas	8
Solimões	2



	WATER DEPTH (M)	WELLS
ONSHORE	-	87
OFFSHORE	0 a 100	40
	100 a 400	4
	400 a 1000	8
	1000 a 2000	67
	>2000	15

# Blocks awarded to Petrobras in 1998 (Round 0)

- Findings Notification

## Obtaining information for exploration

- potential for the occurrence of commercial findings in new plays in the Camamu, Solimões, Santos e Espírito Santo basins
- Actual possibility of commercial gas occurrences in the Paraná basin
- importance of the Santos, Camamu and Espírito Santo basins for the future of Brazilian production and reserves

# Blocks awarded to Petrobras in 1998 (Round 0)

- **Evaluations**

- According to Law 9478/1997

- For the evaluation of the findings concessionaires are obliged to present an evaluation plan, which needs ANP's approval
- After the work related to the evaluation, the concessionaire has the option to declare the commerciality of the findings prior to its development.

# Blocks awarded to Petrobras in 1998 (Round 0)

- **Evaluations**

- Findings evaluation plans presented
  - 40 evaluation plans in 11 basins

BASIN	APPRAISAL PLANS
Amazonas	2
Camamu	1
Campos	2
Cumuruxatiba	1
Espírito Santo	11
Paraná	2
Potiguar	8
Recôncavo	3
Santos	6
Sergipe-Alagoas	3
Solimões	1

- **Operators**

- Petrobras (37)
- EIPaso (2)
- Shell (1)

# Blocks awarded to Petrobras in 1998 (Round 0)

- **Evaluations**

- Evaluation Plans (forecast volume of activities):
  - 46 formation/production tests;
  - acquisition of 847 km<sup>2</sup> of 3D seismic and 600 km of 2D seismic;
  - Drilling of at least 50 extension wells.
- Approved investment of approximately 400 million dollars in the period from 05/1999 to 08/2003

# Blocks awarded to Petrobras in 1998 (Round 0)

- **Evaluations**

- relevant findings still under evaluation
  - Block BCAM-40 (gas)
  - Block BFRD (gas)
  - Block BA-3 (gas)
  - Block BC-60 (oil)
  - Block BS-500 (oil and gas)



# Blocks awarded to Petrobras in 1998 (Round 0)

- Evaluations

- Results

- 20 completed evaluation plans
    - Definition of 7 new oil fields and expansion of 3 others
    - BSOL-5 ANP has extended the deadline for the marketability declaration (gas findings) (market development or infrastructure and transport implantation)
    - 260.0 MMboe *in situ* already declared as commercial
    - 1106.0 MMboe *in situ* evaluated but currently still not declared as commercial and considered as Resources.

# Blocks awarded to Petrobras in 1998 (Round 0)

- **Declarations of Commerciality**
  - Wells where Findings resulted in Declarations of Commerciality
    - Findings at wells 1-SRL-1-ES and 1-SRN-1-ES (Block BREG) annexed to São Rafael Field
    - Finding at well 4-SS-3-RN (BPOT-6) annexed to Estreito Field
    - Finding at well 1-PAL-1-ES (BCED) annexed to Fazenda Alegre Field

# Blocks awarded to Petrobras in 1998 (Round 0)

- **Declarations of Commerciality**

- Wells where findings resulted in Declarations of Commerciality

- Mosquito Field, with conversion of wells 1-MOS-1-ES and 4-MOS-2-ES (Block BCED) into producers;
- Curió Field, well 1-BRSA-32-BA (block BREC-9);
- Beija-Flor Field, well 4-MP-12-BA (block BREC-11);
- Cardeal Field, well 1-BRSA-84-BA (block BREC-11);
- Angico Field, well 1-BRSA-7-RN (block BPOT-6);
- Siri Field, well 1-RNS-140-RN (block BPOT-10);
- Asa Branca Field, well 1-BRSA-63-RN (block BPOT-4).

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- **Blocks awarded in Rounds 1, 2, 3 and 4**
  - Exploration effort
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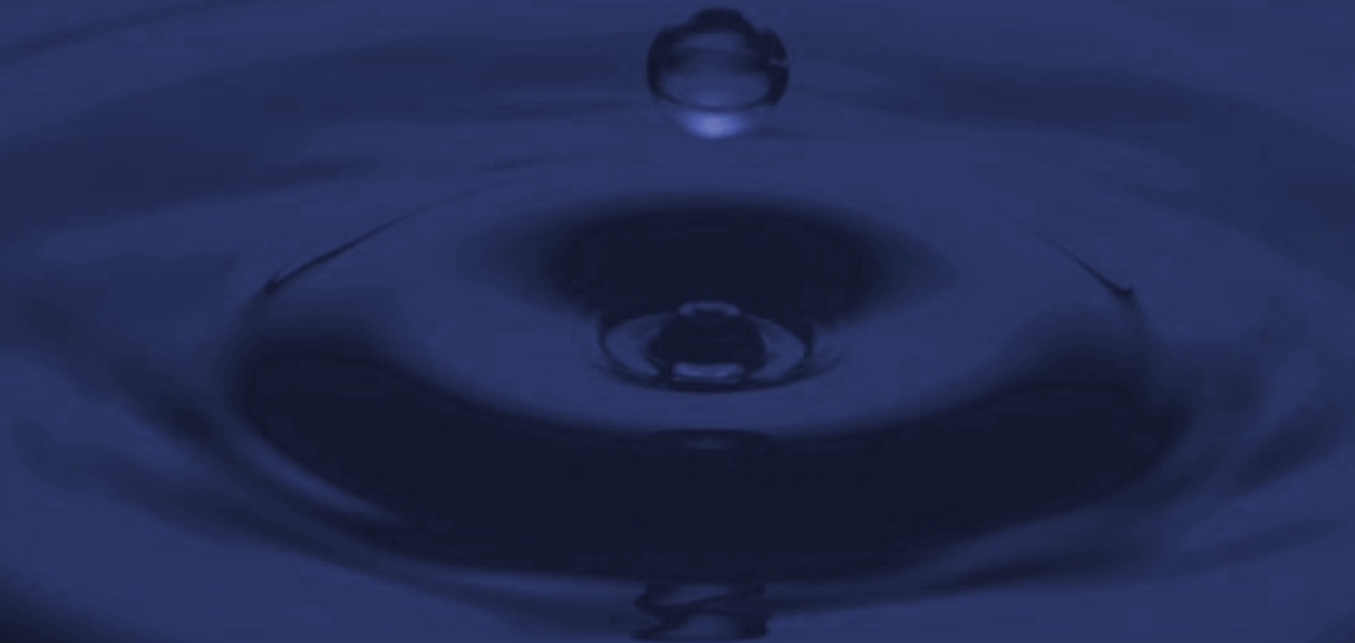
# Blocks awarded in Rounds 1, 2, 3 and 4

- **Exploration effort performed**

- 88 exploration blocks awarded in the four rounds
- 77 blocks currently under concession
- 71 blocks in the first exploration period
- total of exploratory wells drilled: 5
- acquired 2D seismic (km): 10,134
- acquired 3D seismic (km): 5,125

# Blocks awarded in Rounds 1, 2, 3 and 4

- Findings Notifications
  - Results relative to the discoveries
    - Total of notified discoveries: 4
    - Total of wells with discoveries: 3
    - Total of blocks with discoveries: 3



# Perspectives of Exploration in Brazil

- **Summary**

- Brazil, large sedimentary area with low data density
- New plays
- Expectation of increase in reserves in the short term
- Exploration in the blocks of Rounds 1 to 4 still in their initial phase



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**Brasil Round5**  
Quinta Rodada de Licitações

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