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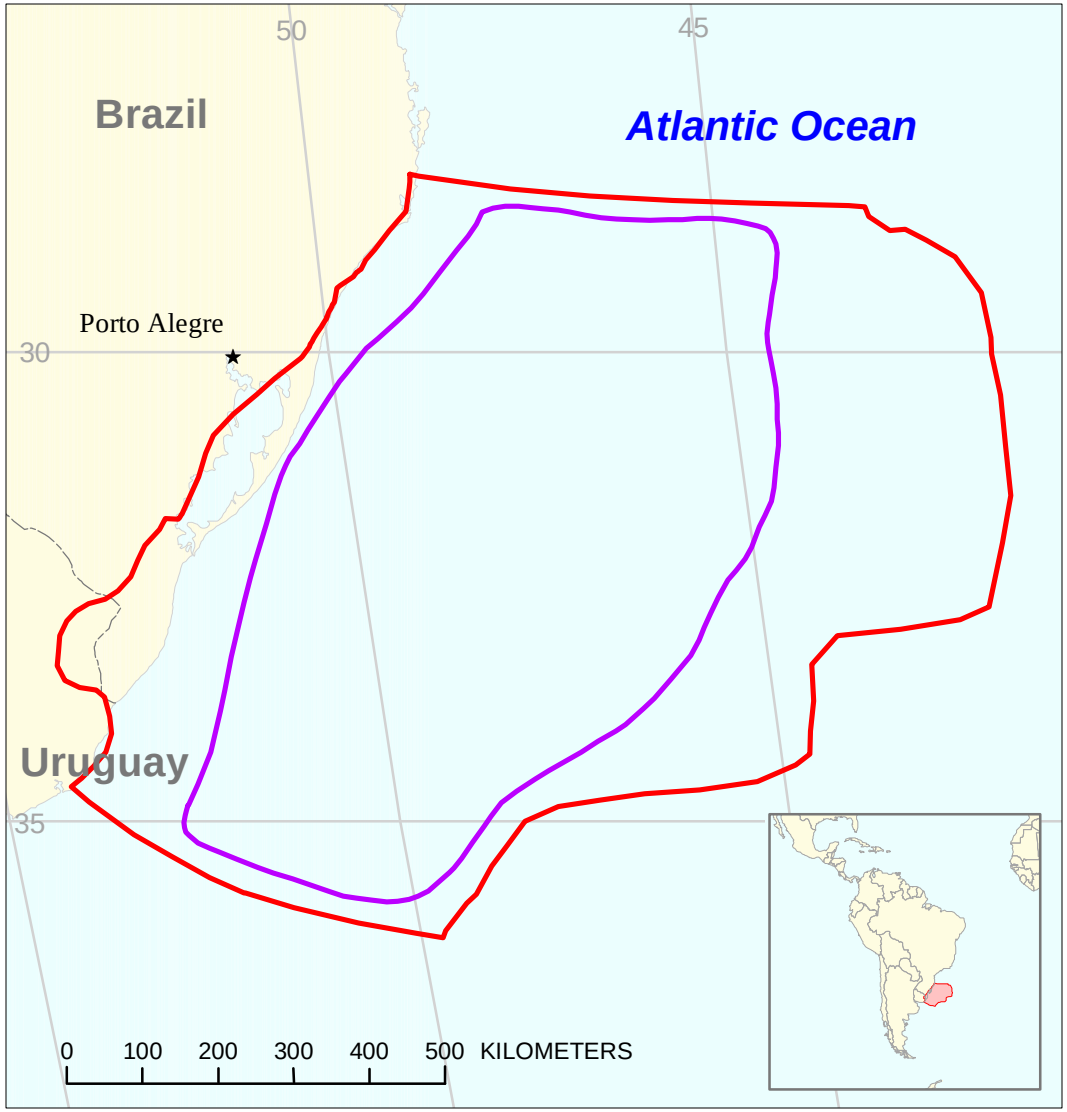
Pelotas Plaform and Basin Assessment Unit 60370101



Geologic Summary

Detailed map of this assessment unit

Assessment Input Data

Assessment Results

- Assessment Unit Summary
- Detailed Assessment Results
- Undiscovered Field-Size Distributions

USGS PROVINCE: Pelotas Basin (6037) **GEOLOGIST:** C.J. Schenk

TOTAL PETROLEUM SYSTEM: Cenomanian-Turonian-Tertiary Composite (603701)

ASSESSMENT UNIT: Pelotas Platform and Basin (60370101)

DESCRIPTION: This assessment unit encompasses much of the Pelotas Basin from the Florianopolis Arch in the north to the Polonio Arch in the south, and from about the 100 m to 3600 m water depths. Included is the area of the Rio Grande Cone.

SOURCE ROCKS: Source rocks are postulated to be mudstones of the Cenomanian-Turonian interval, and possibly Early Tertiary mudstones.

MATURATION: Timing of maturation is postulated to have occurred in the deeper parts of the basin in mid-Tertiary time based on thickness of section on seismic lines.

MIGRATION: Migration is postulated to be local, from bottomset mudstones into adjacent lowstand sandstones of all types. However, thermogenic gas may be migrating vertically throughout a large part of the basin. Listric faults may be common in the Rio Grande Cone, and may serve as migration pathways.

RESERVOIR ROCKS: Reservoirs are postulated to be lowstand fan sandstones, slope-channel sandstones, shelf-edge deltaic sandstones, and lowstand shoreline sandstones, similar to the Cretaceous-Tertiary Brookian clastic section of the Alaskan North Slope.

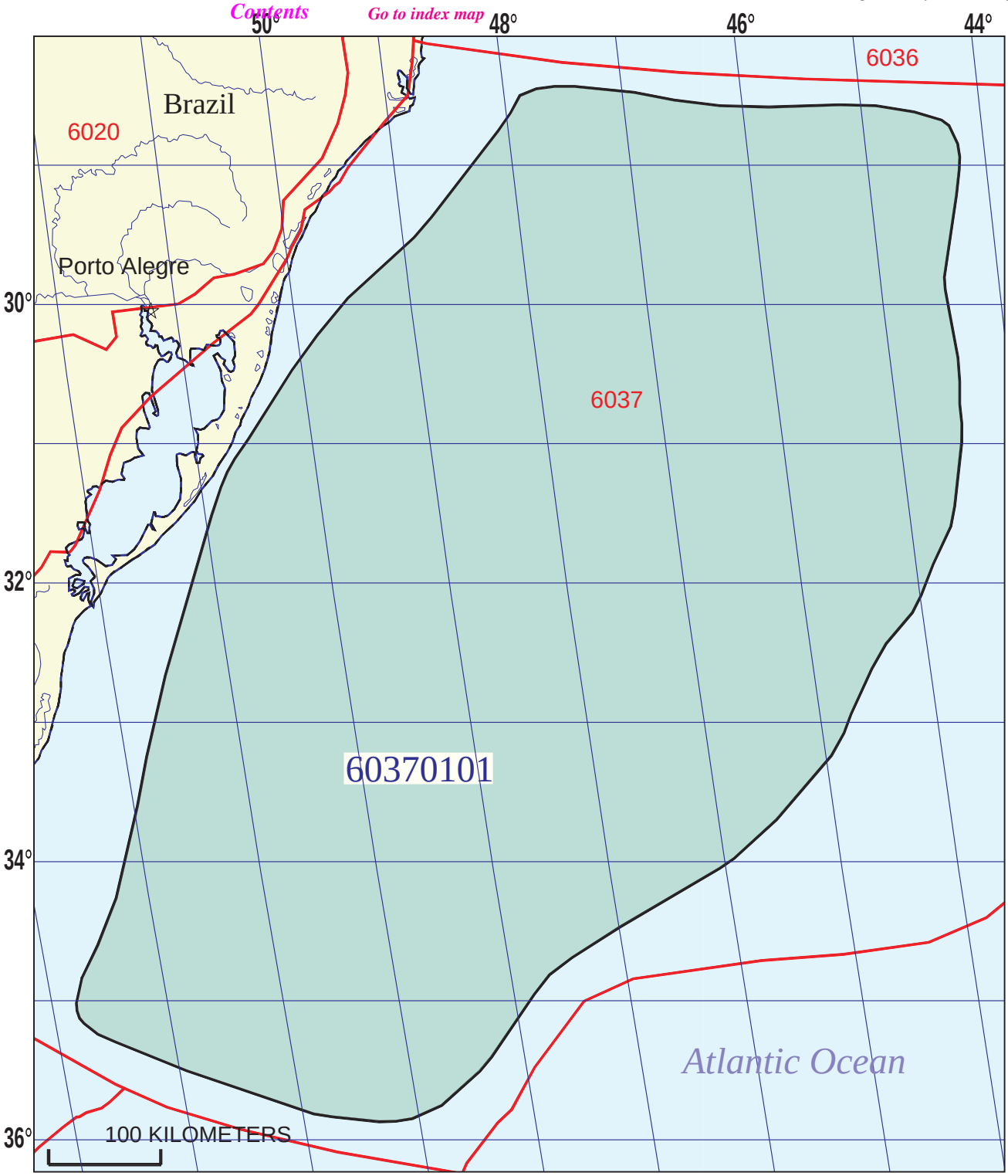
TRAPS AND SEALS: Traps are postulated to be largely stratigraphic traps in lowstand sandstones. Traps related to listric faults may be present in the area of the Rio Grande Cone. Seals are considered to be mainly intraformational mudstones.

REFERENCES:

Cainelli, C., and Mohriak, W.U., 1998, Geology of Atlantic eastern Brazilian basins; Brazilian Geology Part 2: 1998 American Association of Petroleum Geologists International Conference and Exhibition, Short Course, Rio de Janeiro, chapter paginated.

Kingston, J., 1994, Undiscovered petroleum of southern South America: U.S. Geological Survey Open-File Report 94-559, 443p.

Telnaes, N., Mello, M.R., and Requejo, A.G., 1998, Geochemistry of Cenomanian-Turonian anoxic environments: a comparison between Brazil and West Africa, *in* Mello, M.R., and Yilmaz, P.O., eds., 1998 American Association of Petroleum Geologists International Conference and Exhibition, Rio de Janeiro: Extended Abstracts Volume, p. 596.



Pelotas Platform and Basin Assessment Unit - 60370101

EXPLANATION

- Hydrography
- Shoreline
- 6037 — Geologic province code and boundary
- Country boundary
- Gas field centerpoint
- Oil field centerpoint
- 60370101 — Assessment unit code and boundary

Projection: Robinson. Central meridian: 0

USGS science for a changing world

SEVENTH APPROXIMATION
NEW MILLENNIUM WORLD PETROLEUM ASSESSMENT
DATA FORM FOR CONVENTIONAL ASSESSMENT UNITS

Date:……..	11/17/99		
Assessment Geologist:……..	C.J. Schenk		
Region:……..	Central and South America	Number:	6
Province:……..	Pelotas Basin	Number:	6037
Priority or Boutique……	Boutique		
Total Petroleum System:……	Cenomanian-Turonian-Tertiary Composite	Number:	603701
Assessment Unit:……..	Pelotas Platform and Basin	Number:	60370101
* Notes from Assessor	Alaskan North Slope - Brookian partial analog.		

CHARACTERISTICS OF ASSESSMENT UNIT

Oil (<20,000 cfg/bo overall) **or** Gas (≥20,000 cfg/bo overall):… Oil

What is the minimum field size?……. 8 mmboe grown (≥1mmboe)
(the smallest field that has potential to be added to reserves in the next 30 years)

Number of discovered fields exceeding minimum size:…… Oil: 0 Gas: 0
Established (>13 fields) _____ Frontier (1-13 fields) _____ Hypothetical (no fields) X

Median size (grown) of discovered oil fields (mmboe):
1st 3rd _____ 2nd 3rd _____ 3rd 3rd _____
Median size (grown) of discovered gas fields (bcfg):
1st 3rd _____ 2nd 3rd _____ 3rd 3rd _____

Assessment-Unit Probabilities:

Attribute	Probability of occurrence (0-1.0)
1. **CHARGE:** Adequate petroleum charge for an undiscovered field ≥ minimum size……	1.0
2. **ROCKS:** Adequate reservoirs, traps, and seals for an undiscovered field ≥ minimum size……	0.9
3. **TIMING OF GEOLOGIC EVENTS:** Favorable timing for an undiscovered field ≥ minimum size	1.0

Assessment-Unit GEOLOGIC Probability (Product of 1, 2, and 3):…….. 0.90

4. **ACCESSIBILITY:** Adequate location to allow exploration for an undiscovered field ≥ minimum size…… 1.0

UNDISCOVERED FIELDS

Number of Undiscovered Fields: How many undiscovered fields exist that are ≥ minimum size?:
(uncertainty of fixed but unknown values)

Oil fields:……min. no. (>0)	1	median no.	25	max no.	70
Gas fields:……min. no. (>0)	1	median no.	25	max no.	70

Size of Undiscovered Fields: What are the anticipated sizes (**grown**) of the above fields?:
(variations in the sizes of undiscovered fields)

Oil in oil fields (mmbo)……min. size	8	median size	50	max. size	3500
Gas in gas fields (bcfg):……min. size	48	median size	300	max. size	17000

Assessment Unit (name, no.)
Pelotas Platform and Basin, 60370101

AVERAGE RATIOS FOR UNDISCOVERED FIELDS, TO ASSESS COPRODUCTS

(uncertainty of fixed but unknown values)

Oil Fields:	minimum	median	maximum
Gas/oil ratio (cfg/bo)……	1100	2200	3300
NGL/gas ratio (bngl/mmcfg)……	30	60	90

Gas fields:	minimum	median	maximum
Liquids/gas ratio (bngl/mmcfg)……	22	44	66
Oil/gas ratio (bo/mmcfg)……			

SELECTED ANCILLARY DATA FOR UNDISCOVERED FIELDS

(variations in the properties of undiscovered fields)

Oil Fields:	minimum	median	maximum
API gravity (degrees)……	20	35	50
Sulfur content of oil (%)……			
Drilling Depth (m) ……	1000	2500	4500
Depth (m) of water (if applicable)……	100	1000	3600

Gas Fields:	minimum	median	maximum
Inert gas content (%)……			
CO_2 content (%)……			
Hydrogen-sulfide content (%)……			
Drilling Depth (m)……	1000	3000	5500
Depth (m) of water (if applicable)……	100	1000	3600

Assessment Unit (name, no.)
Pelotas Platform and Basin, 60370101

ALLOCATION OF UNDISCOVERED RESOURCES IN THE ASSESSMENT UNIT TO COUNTRIES OR OTHER LAND PARCELS (uncertainty of fixed but unknown values)

1. Brazil represents 95 areal % of the total assessment unit

Oil in Oil Fields:	minimum	median	maximum
Richness factor (unitless multiplier):……			
Volume % in parcel (areal % x richness factor):…		95	
Portion of volume % that is offshore (0-100%)……		100	

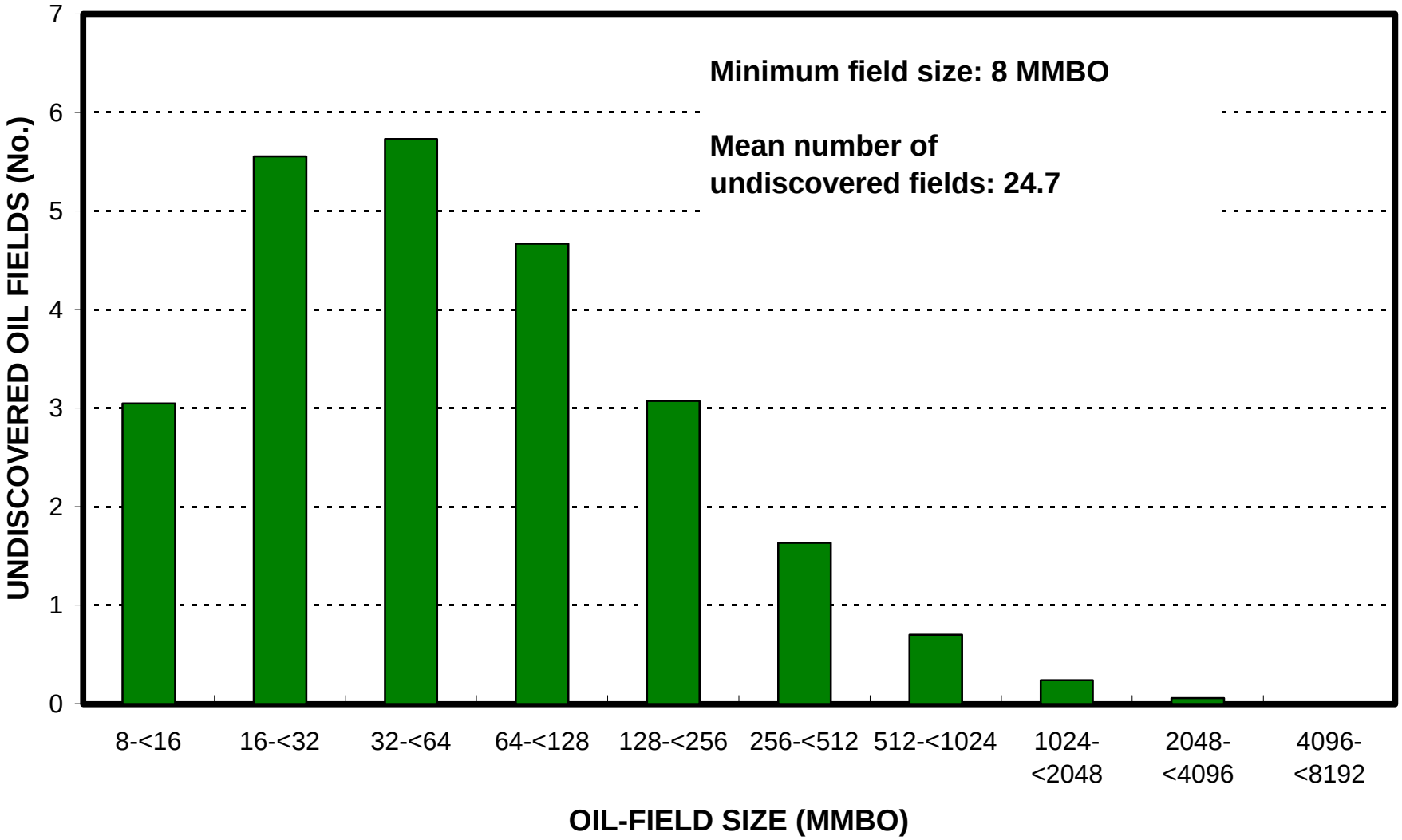
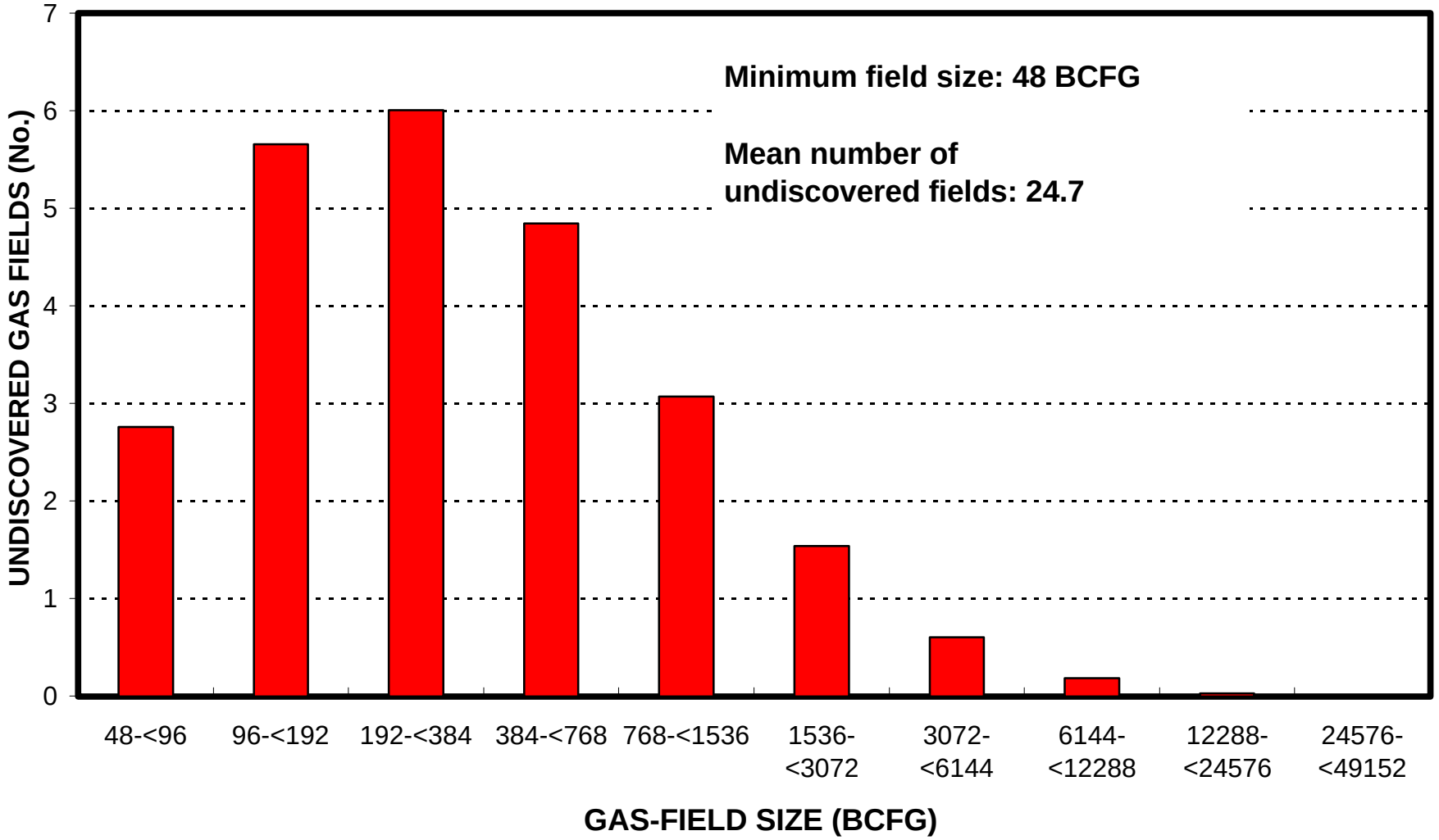
Gas in Gas Fields:	minimum	median	maximum
Richness factor (unitless multiplier):……			
Volume % in parcel (areal % x richness factor):…		95	
Portion of volume % that is offshore (0-100%)……		100	

2. Uruguay represents 5 areal % of the total assessment unit

Oil in Oil Fields:	minimum	median	maximum
Richness factor (unitless multiplier):……			
Volume % in parcel (areal % x richness factor):…		5	
Portion of volume % that is offshore (0-100%)……		100	

Gas in Gas Fields:	minimum	median	maximum
Richness factor (unitless multiplier):……			
Volume % in parcel (areal % x richness factor):…		5	
Portion of volume % that is offshore (0-100%)……		100	

Pelotas Platform and Basin, AU 60370101
Undiscovered Field-Size Distribution



Pelotas Platform and Basin, AU 60370101
Undiscovered Field-Size Distribution