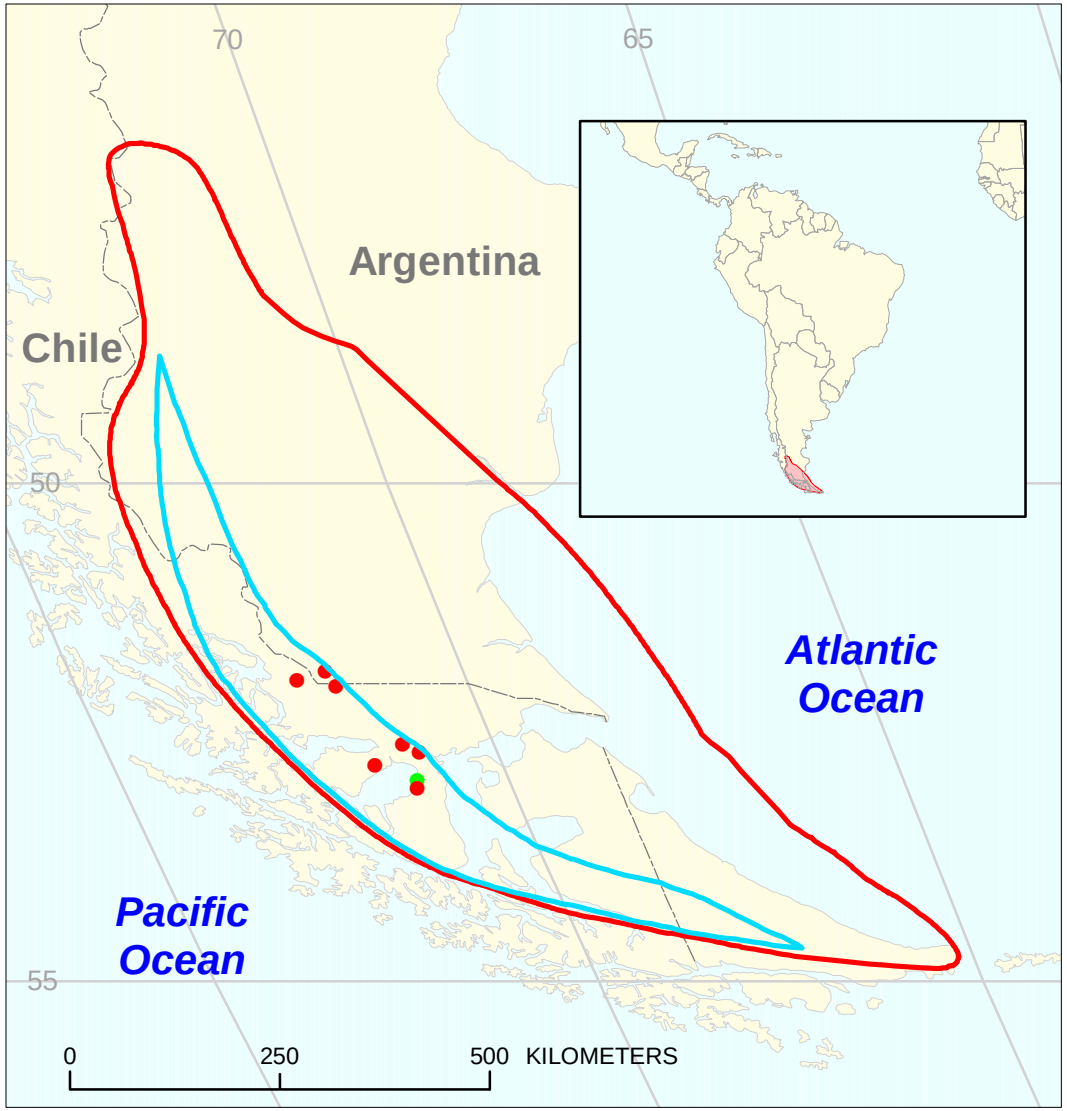
Go to Table of Contents

Go to index map

Andean Fold Belt Structures
Assessment Unit 60590102



Andean Fold Belt Structures Assessment Unit 60590102
Magallanes Basin Geologic Province 6059

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: Magallanes Basin (6059) **GEOLOGIST:** C.J. Schenk

TOTAL PETROLEUM SYSTEM: Lower Inoceramus (605901)

ASSESSMENT UNIT: Andean Fold Belt Structures (60590102)

DESCRIPTION: This assessment unit is defined by structural traps along the western flank of the Magallanes Basin where Andean compression formed structures such as anticlines and folds with Tertiary sandstone reservoirs.

SOURCE ROCKS: Source rocks are the Lower Cretaceous "Lower Inoceramus" marine mudstones.

MATURATION: Maturation of the "Lower Inoceramus" source rocks began in the Late Cretaceous, and peak generation was in the Late Cretaceous-Early Tertiary.

MIGRATION: Andean compression in the Tertiary resulted in the remobilization of hydrocarbons that had generated and migrated previously.

RESERVOIR ROCKS: Major reservoirs are Oligocene Loreto Formation fluvial to shallow marine sandstones, and possibly Eocene sandstones.

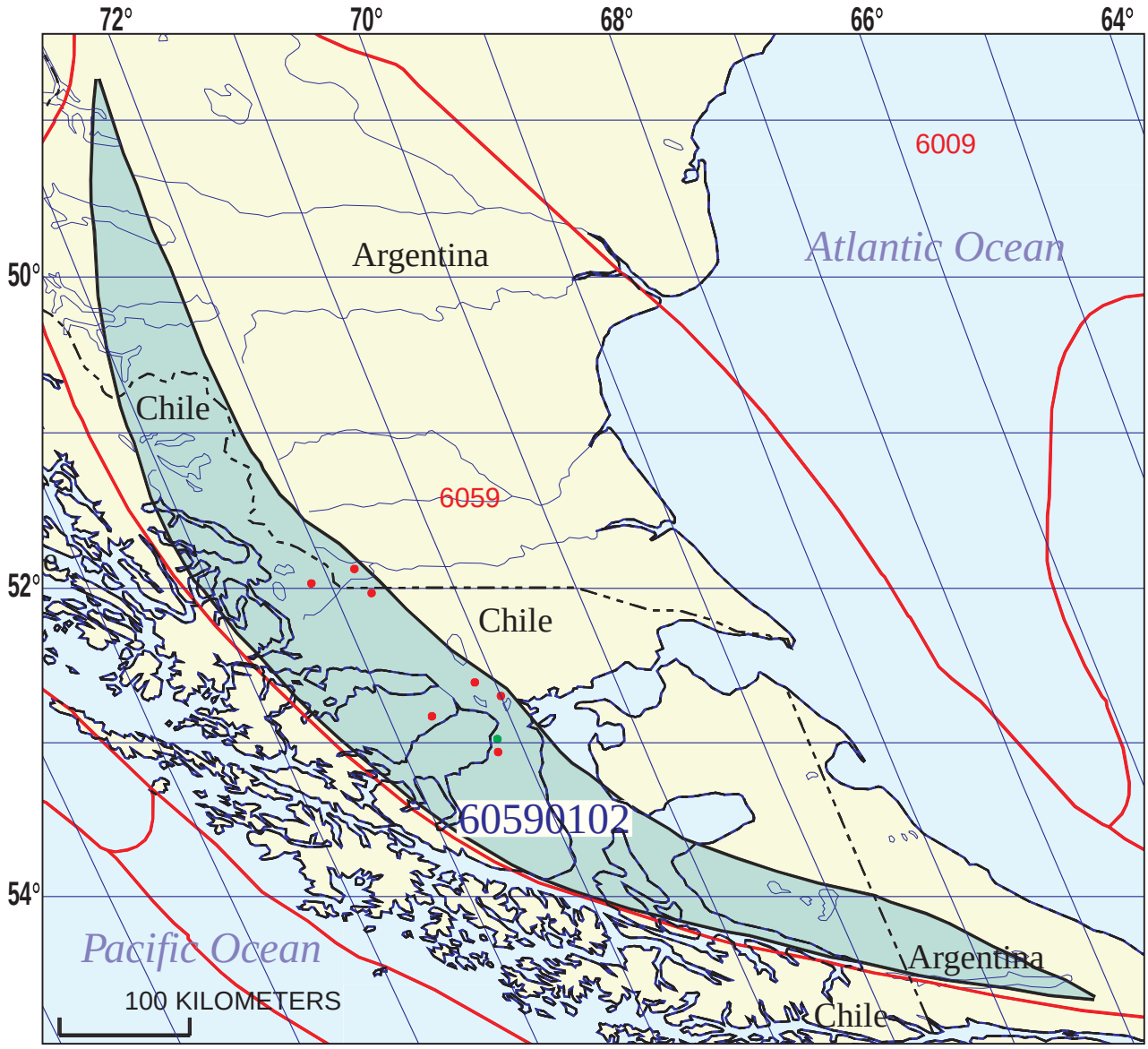
TRAPS AND SEALS: Traps include anticlines, faulted anticlines, and folds formed during the compressional tectonics of the Andean event in the Tertiary. Seals are mainly intraformational mudstones in the Tertiary section.

REFERENCES:

Biddle, K.T., Uliana, M.A., Mitchum, R.M., Fitzgerald, M.G., and Wright, R.C., 1986, The stratigraphic and structural evolution of the central and eastern Magallanes Basin, southern South America, *in* Allen, P.A., and Homewood, P., eds., Foreland basins: International Association of Sedimentologists Special Publication 8, p. 41-61.

Pittion, J.L., and Arbe, H., 1997, Petroleum system in the Austral Basin, *in* Mello, M., and Katz, B., eds., Petroleum systems of the South Atlantic margin: Hedberg Research Symposium, Extended Abstracts Volume, 3 p.

Ramos, V.A., 1989, Andean foothills structure in northern Magallanes Basin, Argentina: American Association of Petroleum Geologists Bulletin, v. 73, no. 7, p. 887-903.



Andean Fold Belt Structures
Assessment Unit - 60590102

EXPLANATION

- Hydrography
- Shoreline
- 6059 — Geologic province code and boundary
- Country boundary
- Gas field centerpoint
- Oil field centerpoint
- 60590102 — Assessment unit code and boundary

Projection: Robinson. Central meridian: 0

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

Date:……..	2/5/99		
Assessment Geologist:……..	C.J. Schenk		
Region:……..	Central and South America	Number:	6
Province:……..	Magallanes Basin	Number:	6059
Priority or Boutique……..	Priority		
Total Petroleum System:……	Lower Inoceramus	Number:	605901
Assessment Unit:……..	Andean Fold Belt Structures	Number:	60590102
* Notes from Assessor	Lower 48 growth factor. Partial analog--Neuquen Foothills Structure (60550102).		

CHARACTERISTICS OF ASSESSMENT UNIT

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

What is the minimum field size?……. 4 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: 2
Established (>13 fields) ____ Frontier (1-13 fields) X Hypothetical (no fields) ____

Median size (grown) of discovered oil fields (mmboe):
1st 3rd ____ 2nd 3rd ____ 3rd 3rd ____
Median size (grown) of discovered gas fields (bcfg):
1st 3rd 57 2nd 3rd 56 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……	1.0
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):……..…….....….	1.0
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)	2	median no.	12	max no.	32
Gas fields:…….min. no. (>0)	2	median no.	30	max no.	62

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	4	median size	10	max. size	250
Gas in gas fields (bcfg):……..	min. size	24	median size	60	max. size	2000

Assessment Unit (name, no.)
Andean Fold Belt Structures, 60590102

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)……	4	8	12

Gas fields:	minimum	median	maximum
Liquids/gas ratio (bngl/mmcfg)……	15	25	35
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)……	25	35	45
Sulfur content of oil (%)……	0.06	0.1	0.12
Drilling Depth (m) ……	1000	2500	4000
Depth (m) of water (if applicable)……	0	50	100

Gas Fields:	minimum	median	maximum
Inert gas content (%)……			
CO_2 content (%)……			
Hydrogen-sulfide content(%)……			
Drilling Depth (m)……	1000	3000	6000
Depth (m) of water (if applicable)……	0	50	100

Assessment Unit (name, no.)
Andean Fold Belt Structures, 60590102

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

1. Chile represents 80 areal % of the total assessment unit

Oil in Oil Fields:	minimum	median	maximum
Richness factor (unitless multiplier):……			
Volume % in parcel (areal % x richness factor):…		90	
Portion of volume % that is offshore (0-100%)……		25	

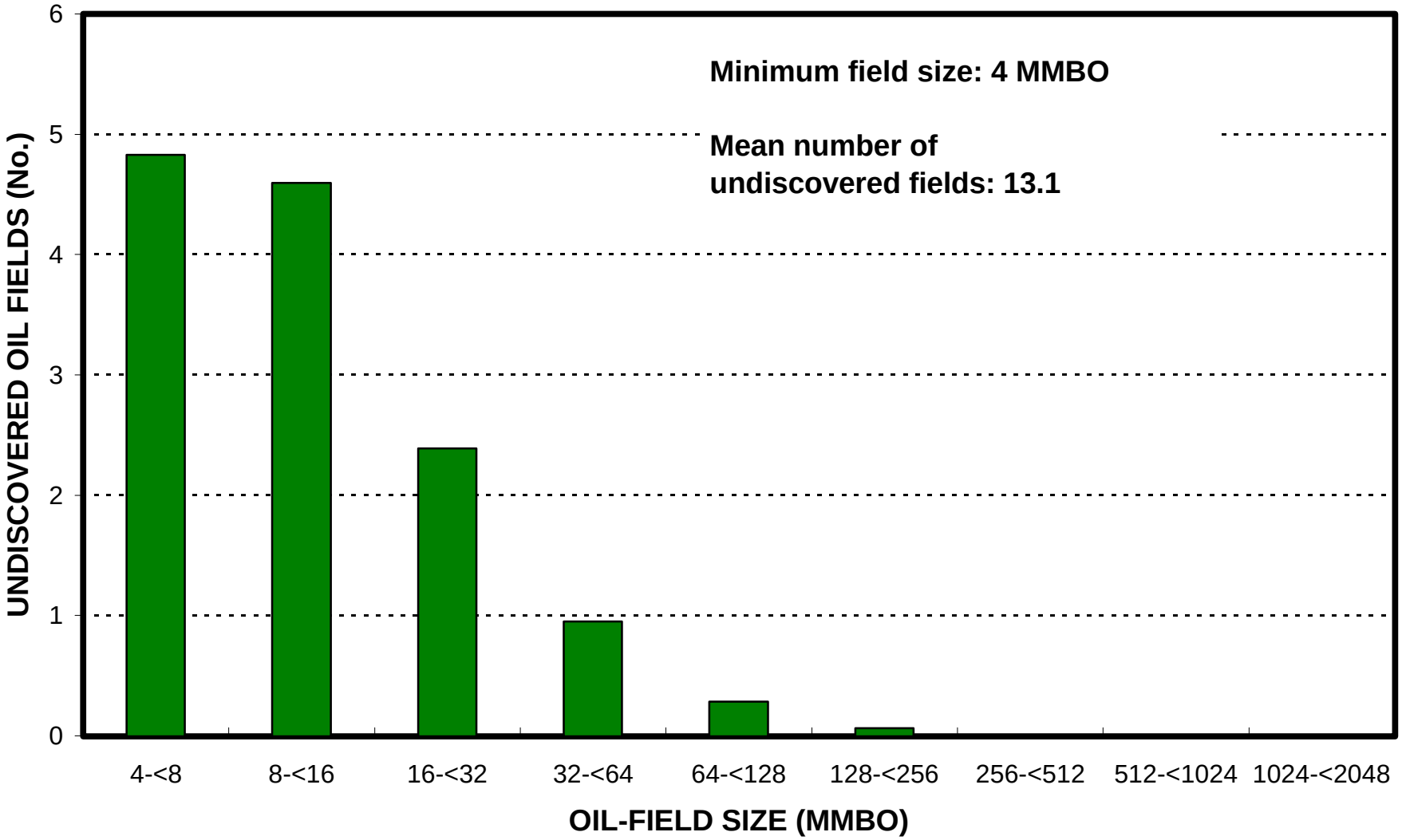
Gas in Gas Fields:	minimum	median	maximum
Richness factor (unitless multiplier):……			
Volume % in parcel (areal % x richness factor):…		90	
Portion of volume % that is offshore (0-100%)……		25	

2. Argentina represents 20 areal % of the total assessment unit

Oil in Oil Fields:	minimum	median	maximum
Richness factor (unitless multiplier):……			
Volume % in parcel (areal % x richness factor):…		10	
Portion of volume % that is offshore (0-100%)……		0	

Gas in Gas Fields:	minimum	median	maximum
Richness factor (unitless multiplier):……			
Volume % in parcel (areal % x richness factor):…		10	
Portion of volume % that is offshore (0-100%)……		0	

Andean Fold Belt Structures, AU 60590102
Undiscovered Field-Size Distribution



Andean Fold Belt Structures, AU 60590102
Undiscovered Field-Size Distribution