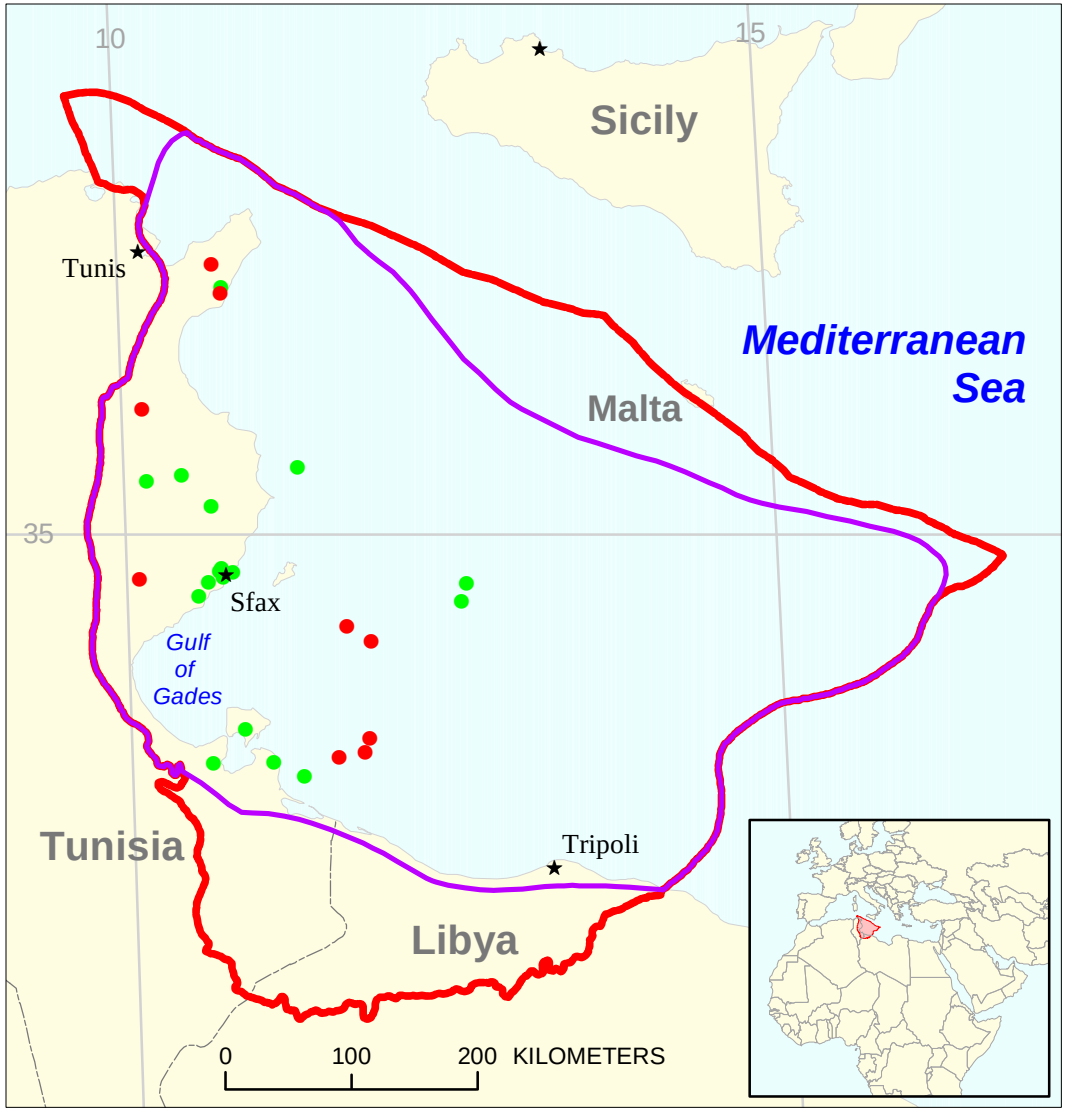
Go to Table of Contents

Go to index map

Jurassic-Cretaceous Structural/Stratigraphic Assessment Unit 20480201



Jurassic-Cretaceous Structural/Stratigraphic Assessment Unit 20480201
Pelagian Basin Geologic Province 2048

Geologic Summary

Detailed map of this assessment unit

Exploration/Discovery-History Data

- Plots of Known Field Sizes
- Plots of Grown Resources
- Tables

Assessment Input Data

Assessment Results

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

USGS PROVINCE: Pelagian Basin (2048) **GEOLOGIST:** T.R. Klett

TOTAL PETROLEUM SYSTEM: Jurassic/Cretaceous Composite (204802)

ASSESSMENT UNIT: Jurassic/Cretaceous Structural/Stratigraphic (20480201)

DESCRIPTION: This total petroleum system and corresponding assessment unit coincide with the potential extent of petroleum migration from Jurassic and Cretaceous source rocks. The Upper Cretaceous to Paleocene El Haria mudstone separates this total petroleum system from the overlying Tertiary total petroleum system.

SOURCE ROCKS: The primary source rocks are mudstone of the Jurassic Nara Formation, Lower Cretaceous M'Cherga (or Sidi Khalif) Formation, Albian Lower Fahdene Formation, and Cenomanian to Turonian Bahloul Formation. The Nara source rocks are thin black mudstone with alternating limestone, approximately 80 m thick. The M'Cherga Formation is a dark-gray calcareous mudstone containing type II kerogen and is as thick as 100 m. The Lower Fahdene Formation is a dark pelagic marl with interbedded limestone containing type II and III kerogen and is as thick as 150 m. The Bahloul Formation is a laminated black argillaceous mudstone containing type II kerogen and is approximately 20 m thick.

MATURATION: The Nara formation contains as much as 2 percent total organic carbon and maturation is described as mature to late mature; the M'Cherga Formation contains 0.2 to 3 percent total organic carbon and is described as mature to late mature; the Lower Fahdene Formation contains 0.5 to 3 percent total organic carbon and is described as early mature to mature; and the Bahloul Formations contains as much as 14 percent total organic carbon and is described as early mature to mature. Peak petroleum generation generally occurred in the Miocene and Pliocene.

MIGRATION: Petroleum migrated vertically along faults or fractures and laterally into adjacent or juxtaposed reservoirs.

RESERVOIR ROCKS: Known reservoir rocks include the Nara Formation dolomite or dolomitic limestone; Upper Jurassic M'Rabtine sandstone; Lower Cretaceous M'Cherga, Meloussi, and Sidi Aich sandstone; Aptian Serdj carbonate; middle Turonian Bireno limestone; Coniacian Douleb limestone; Upper Cretaceous Zebbag, Isis, Aleg, and Miskar carbonates; and Campanian to Maastrichtian Abiod chalk.

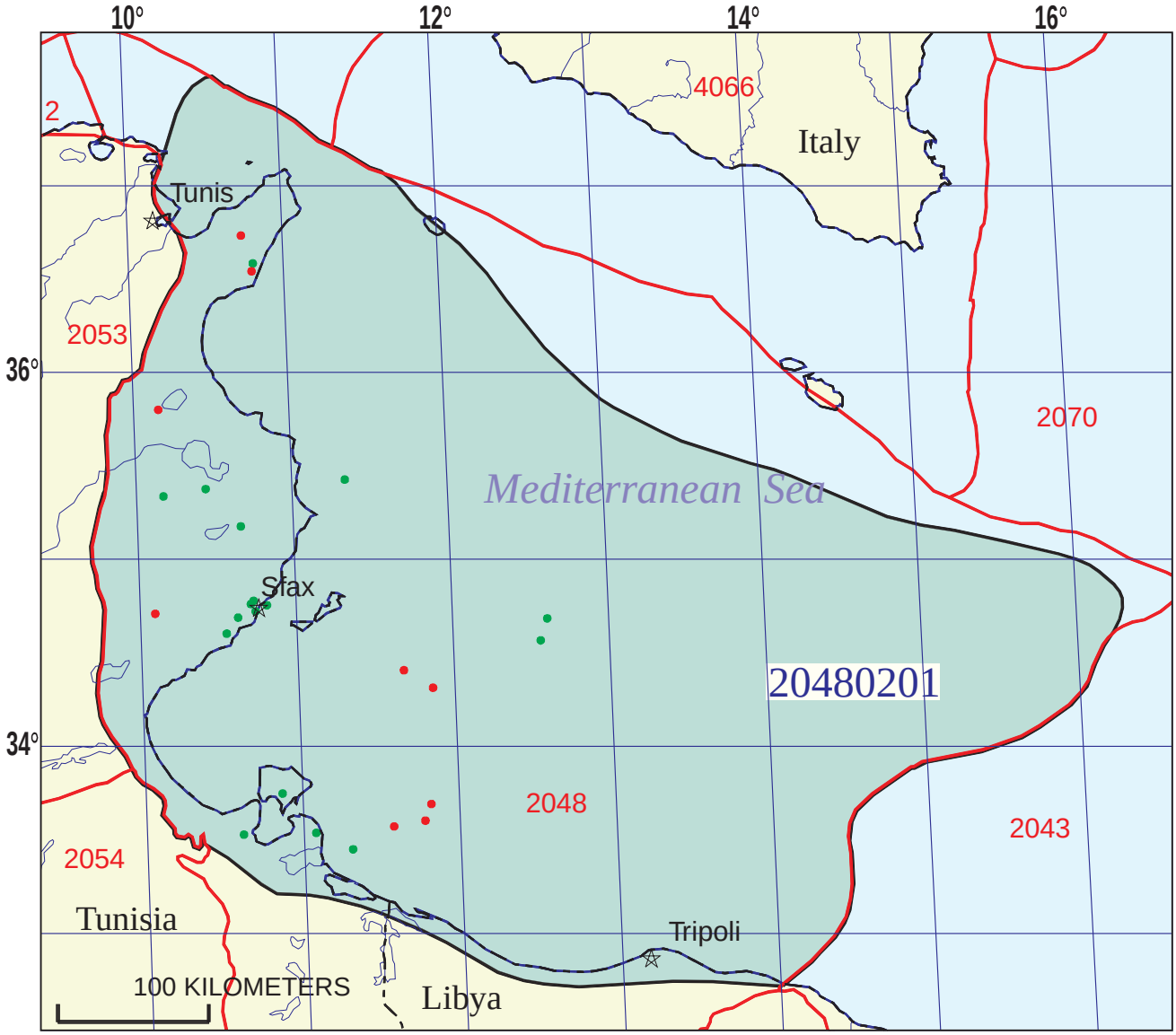
TRAPS AND SEALS: Traps types of known accumulations include fault blocks, low-amplitude anticlines, high-amplitude anticlines associated with reverse faults, wrench fault structures, and stratigraphic traps. Most of the traps formed before the middle Miocene. Seals include Upper Jurassic to Lower Cretaceous mudstone of the M'Cherga Formation, various Lower to Upper Cretaceous mudstone and carbonate rocks, and the Upper Cretaceous to Paleocene El Haria mudstone.

REFERENCES:

Bishop, W.F., 1988, Petroleum geology of east-central Tunisia: American Association of Petroleum Geologists Bulletin, v. 72, n. 9, p. 1033-1085.

Entreprise Tunisienne d'Activites Petrolieres, 1999, Information packet: Tunis, Tunisia, Entreprise Tunisienne d'Activites Petrolieres.

Macgregor, D.S., and Moody, R.T.J., 1998, Mesozoic and Cenozoic petroleum systems of North Africa, *in* Macgregor, D.S., Moody, R.T.J., and Clark-Lowes, D.D., eds., Petroleum geology of North Africa: London, Geological Society, Special Publication No. 132, p. 201-216.



Jurassic-Cretaceous Structural/Stratigraphic Assessment Unit - 20480201

EXPLANATION

- Hydrography
- Shoreline
- 2048 — Geologic province code and boundary
- Country boundary
- Gas field centerpoint
- Oil field centerpoint
- 20480201 — Assessment unit code and boundary

Projection: Robinson. Central meridian: 0

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

Date:……..	9/23/99		
Assessment Geologist:……..	T.R. Klett		
Region:……..	Middle East and North Africa	Number:	2
Province:……..	Pelagian Basin	Number:	2048
Priority or Boutique……	Priority		
Total Petroleum System:……	Jurassic-Cretaceous Composite	Number:	204802
Assessment Unit:……	Jurassic-Cretaceous Structural/Stratigraphic	Number:	20480201
* Notes from Assessor	MMS growth function.		

CHARACTERISTICS OF ASSESSMENT UNIT

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

What is the minimum field size?……. 1 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: 13 Gas: 8
Established (>13 fields) X Frontier (1-13 fields) _____ Hypothetical (no fields) _____

Median size (grown) of discovered oil fields (mmboe):
1st 3rd 7.2 2nd 3rd 22.7 3rd 3rd _____
Median size (grown) of discovered gas fields (bcfg):
1st 3rd 84 2nd 3rd 21.5 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)	5	median no.	38	max no.	105
Gas fields:……min. no. (>0)	3	median no.	28	max no.	80

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	1	median size	5	max. size	200
Gas in gas fields (bcfg):……min. size	6	median size	25	max. size	1000

Assessment Unit (name, no.)
Jurassic-Cretaceous Structural/Stratigraphic, 20480201

AVERAGE RATIOS FOR UNDISCOVERED FIELDS, TO ASSESS COPRODUCTS

(uncertainty of fixed but unknown values)

Oil Fields:	minimum	median	maximum
Gas/oil ratio (cfg/bo)……	1000	2000	3000
NGL/gas ratio (bngl/mmcfg)……	10	15	20

Gas fields:	minimum	median	maximum
Liquids/gas ratio (bngl/mmcfg)……	5	10	15
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)……	15	37	42
Sulfur content of oil (%)……	0.2	0.3	0.4
Drilling Depth (m) ……	100	2500	3500
Depth (m) of water (if applicable)……	0	150	1000

Gas Fields:	minimum	median	maximum
Inert gas content (%)……	7	13	21
CO_2 content (%)……	7	14	21
Hydrogen-sulfide content (%)……			
Drilling Depth (m)……	100	3100	4000
Depth (m) of water (if applicable)……	0	150	1000

Assessment Unit (name, no.)
Jurassic-Cretaceous Structural/Stratigraphic, 20480201

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

1. Italy represents 3 areal % of the total assessment unit

Oil in Oil Fields:	minimum	median	maximum
Richness factor (unitless multiplier):.....			
Volume % in parcel (areal % x richness factor):...		1	
Portion of volume % that is offshore (0-100%).....		99	

Gas in Gas Fields:	minimum	median	maximum
Richness factor (unitless multiplier):.....			
Volume % in parcel (areal % x richness factor):...		1	
Portion of volume % that is offshore (0-100%).....		99	

2. Malta represents 9 areal % of the total assessment unit

Oil in Oil Fields:	minimum	median	maximum
Richness factor (unitless multiplier):.....			
Volume % in parcel (areal % x richness factor):...		9	
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):...		9	
Portion of volume % that is offshore (0-100%).....		100	

3. Tunisia represents 55 areal % of the total assessment unit

Oil in Oil Fields:	minimum	median	maximum
Richness factor (unitless multiplier):.....			
Volume % in parcel (areal % x richness factor):...		60	
Portion of volume % that is offshore (0-100%).....		74	

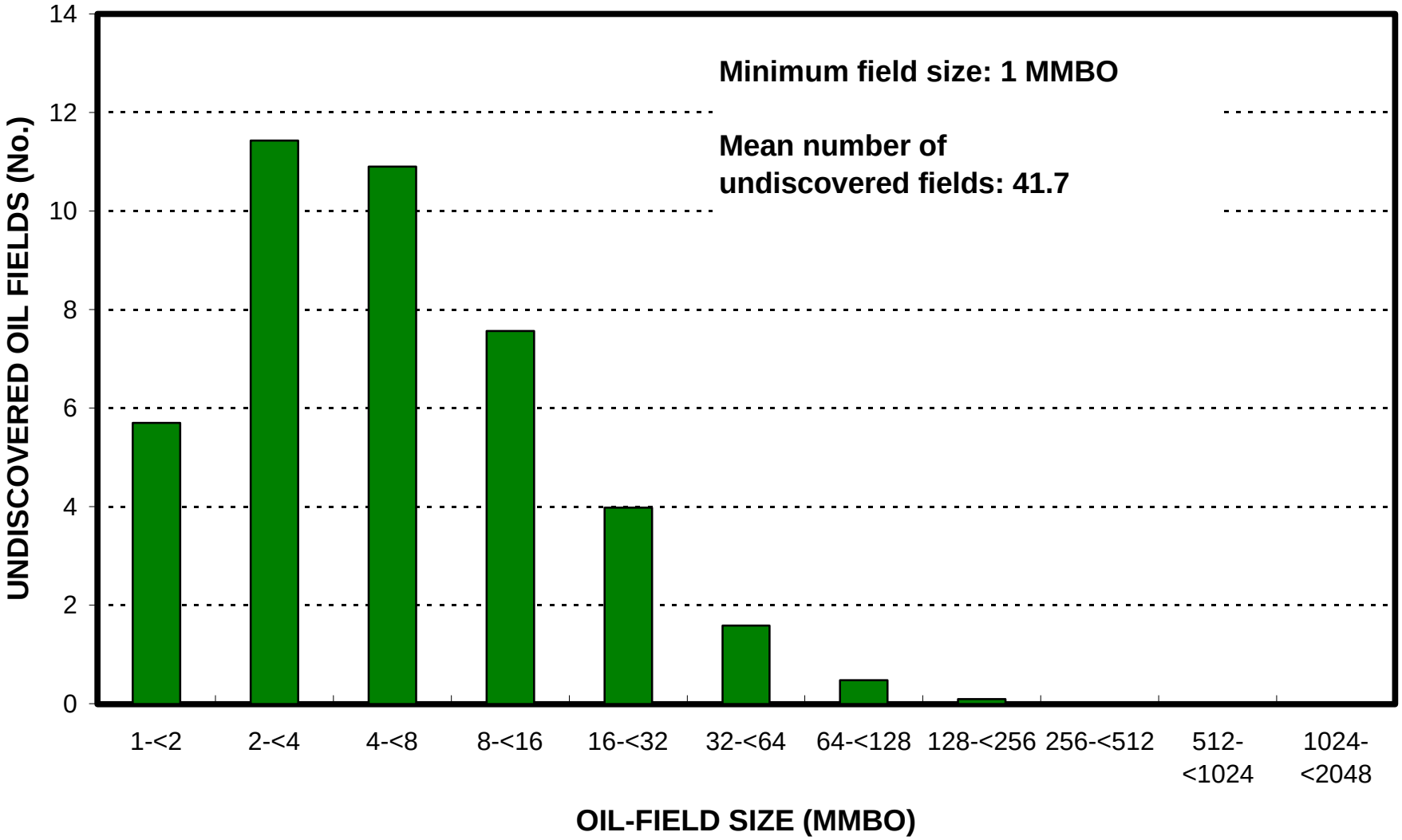
Gas in Gas Fields:	minimum	median	maximum
Richness factor (unitless multiplier):.....			
Volume % in parcel (areal % x richness factor):...		60	
Portion of volume % that is offshore (0-100%).....		74	

4. Libya represents 33 areal % of the total assessment unit

Oil in Oil Fields:	minimum	median	maximum
Richness factor (unitless multiplier):.....			
Volume % in parcel (areal % x richness factor):...		30	
Portion of volume % that is offshore (0-100%).....		97	

Gas in Gas Fields:	minimum	median	maximum
Richness factor (unitless multiplier):.....			
Volume % in parcel (areal % x richness factor):...		30	
Portion of volume % that is offshore (0-100%).....		97	

Jurassic-Cretaceous Structural/Stratigraphic, AU 20480201
Undiscovered Field-Size Distribution



Jurassic-Cretaceous Structural/Stratigraphic, AU 20480201
Undiscovered Field-Size Distribution