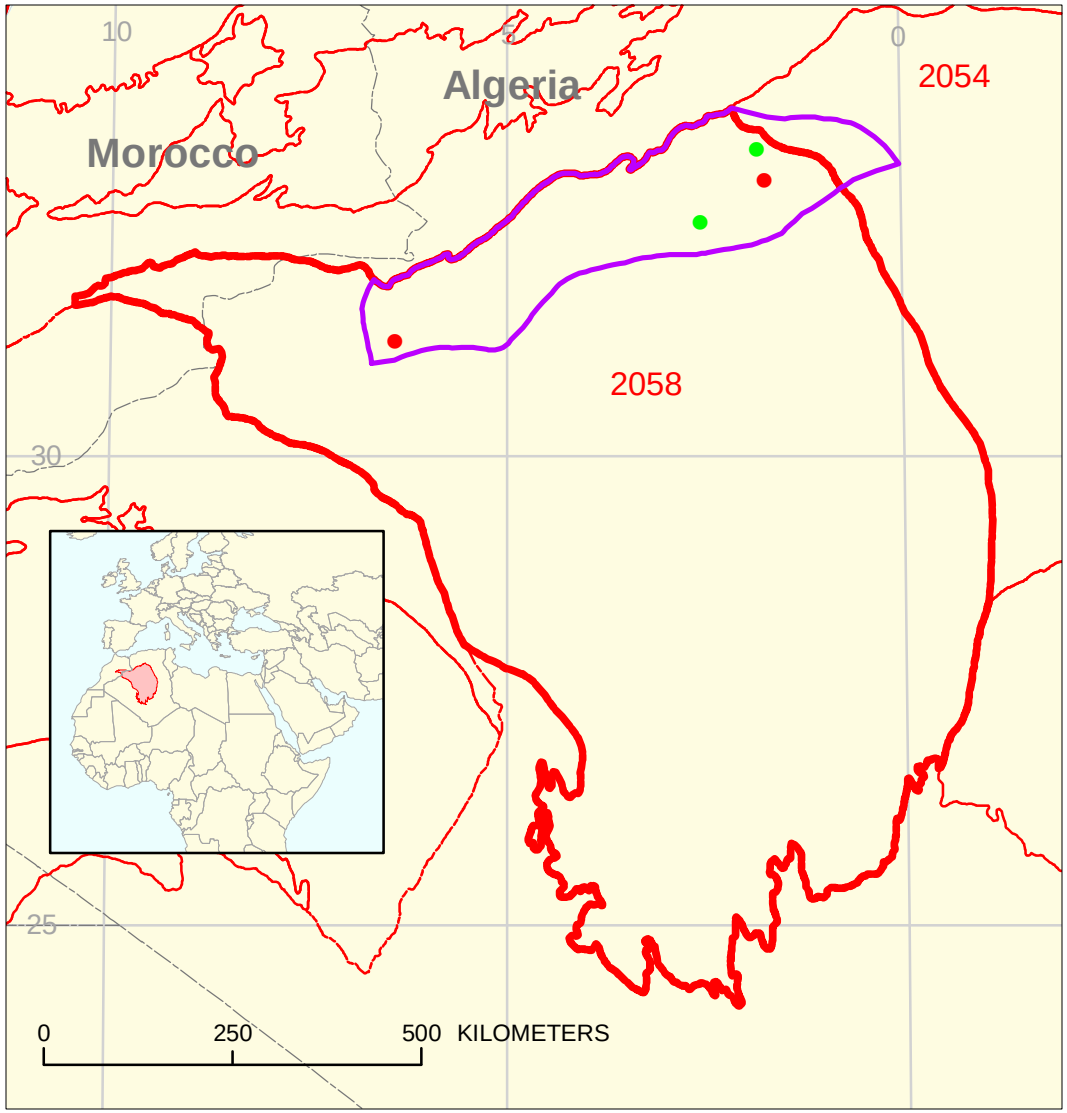
Go to Table of Contents

Go to index map

Tanezzuft-Benoud Structural/Stratigraphic Assessment Unit 20580501



Tanezzuft-Benoud Structural/Stratigraphic Assessment Unit 20580501
Grand Erg/Ahnet Basin Geologic Province 2058

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: Grand Erg/Ahnet Basin (2058) **GEOLOGIST:** T.R. Klett

TOTAL PETROLEUM SYSTEM: Tanezzuft-Benoud (205805)

ASSESSMENT UNIT: Tanezzuft-Benoud Structural/Stratigraphic (20580501)

DESCRIPTION: This total petroleum system and corresponding assessment unit coincide with the Benoud Basin (or Trough), bounded on the north by the Saharan Flexure, on the east by the Ain Rich High and Tilrhemt Arch, on the south by the Tilrhemt-Oued Namous-Maharez structural axis, and on the west by the Ensellement Zousfana (Zousfana Saddle). The Benoud Trough is a shallow foredeep that formed in the Cretaceous and the eastern portion is superimposed on part of the Triassic Basin.

SOURCE ROCKS: The primary source rock is mudstone of the Silurian Tanezzuft Formation.

MATURATION AND MIGRATION: Petroleum was generated during the Late Cretaceous and into the Tertiary. In the Hassi R'Mel area on the Tilrhemt Arch, gas may have been derived from the Benoud Trough in the north and west, whereas oil may have migrated from the Oued Mya Basin in the south.

RESERVOIR ROCKS: Known reservoir rocks are Lower Devonian and Carboniferous nearshore marine sandstone and Triassic fluvial sandstone.

TRAPS AND SEALS: Most of the known accumulations are in anticlines and combination traps. Triassic to Jurassic evaporites, mudstone, and carbonate rocks provide a regional top seal. Intraformational Paleozoic marine mudstone provides the primary seal for some reservoirs and secondary, lateral seals.

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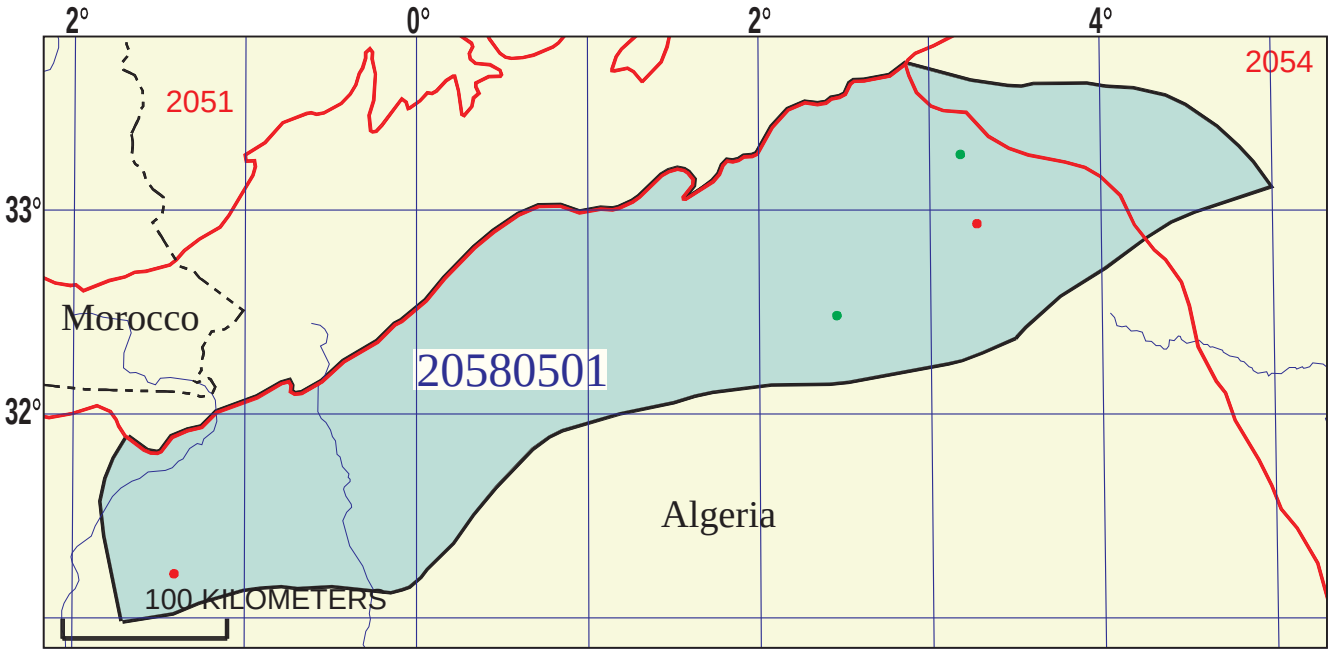


Tanezzuft-Benoud Structural/Stratigraphic Assessment Unit - 20580501

EXPLANATION

- Hydrography
- Shoreline
- 2058 Geologic province code and boundary
- Country boundary
- Gas field centerpoint
- Oil field centerpoint
- 20580501 Assessment unit code and boundary

Projection: Robinson. Central meridian: 0

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

Date:……..	12/4/98		
Assessment Geologist:……..	T.R. Klett		
Region:……..	Middle East and North Africa	Number:	2
Province:……..	Grand Erg/Ahnet Basin	Number:	2058
Priority or Boutique:……	Priority		
Total Petroleum System:……	Tanezzuft-Benoud	Number:	205805
Assessment Unit:……..	Tanezzuft-Benoud Structural/Stratigraphic	Number:	20580501
* Notes from Assessor	Satellite concept.		

CHARACTERISTICS OF ASSESSMENT UNIT

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

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: 1 Gas: 2

Established (>13 fields) _____ Frontier (1-13 fields) X Hypothetical (no fields) _____

Median size (grown) of discovered oil fields (mmboe):
1st 3rd 5 2nd 3rd _____ 3rd 3rd _____

Median size (grown) of discovered gas fields (bcfg):
1st 3rd 109961 2nd 3rd 52 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)	1	median no.	4	max no.	8
Gas fields:……	min. no. (>0)	2	median no.	10	max no.	28

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	12	max. size	200
Gas in gas fields (bcfg):……	min. size	24	median size	100	max. size	5000

Assessment Unit (name, no.)
Tanezzuft-Benoud Structural/Stratigraphic, 20580501

AVERAGE RATIOS FOR UNDISCOVERED FIELDS, TO ASSESS COPRODUCTS

(uncertainty of fixed but unknown values)

Oil Fields:	minimum	median	maximum
Gas/oil ratio (cfg/bo)……	1875	3750	5625
NGL/gas ratio (bngl/mmcfg)……	30	60	90

Gas fields:	minimum	median	maximum
Liquids/gas ratio (bngl/mmcfg)……	24	48	72
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)……		41	
Sulfur content of oil (%)……			
Drilling Depth (m) ……	1500	2250	3000
Depth (m) of water (if applicable)……			

Gas Fields:	minimum	median	maximum
Inert gas content (%)……			
CO_2 content (%)……			
Hydrogen-sulfide content (%)……			
Drilling Depth (m)……	1500	2250	3000
Depth (m) of water (if applicable)……			

Assessment Unit (name, no.)
Tanezzuft-Benoud Structural/Stratigraphic, 20580501

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

1. Algeria represents 100 areal % of the total assessment unit

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

2. Province 2058 represents 89 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%)……		0	

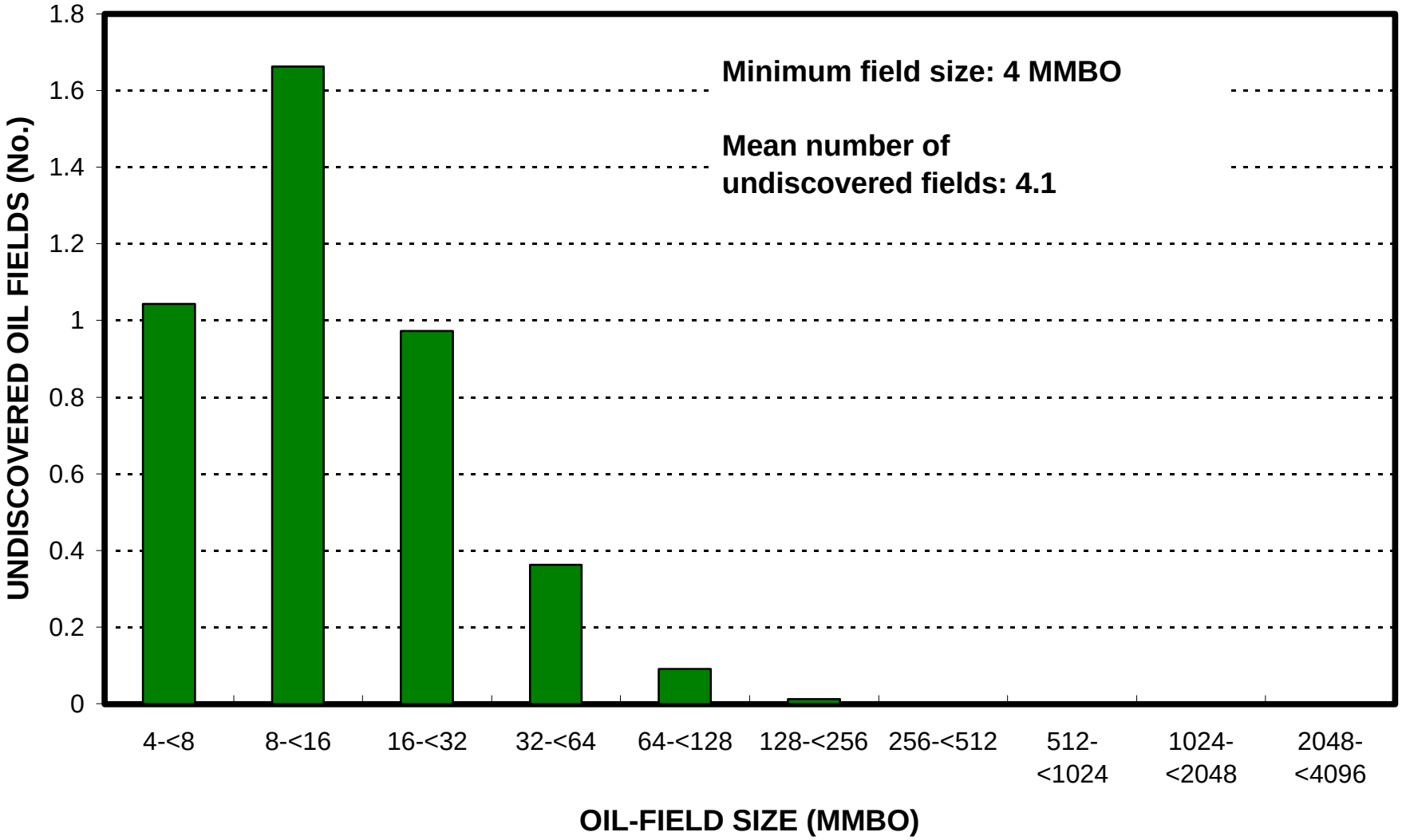
Gas in Gas Fields:	minimum	median	maximum
Richness factor (unitless multiplier):……			
Volume % in parcel (areal % x richness factor):…		95	
Portion of volume % that is offshore (0-100%)……		0	

3. Province 2054 represents 11 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%)……		0	

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%)……		0	

Tanezzuft-Benoud Structural/Stratigraphic, AU 20580501
Undiscovered Field-Size Distribution



Tanezzuft-Benoud Structural/Stratigraphic, AU 20580501
Undiscovered Field-Size Distribution