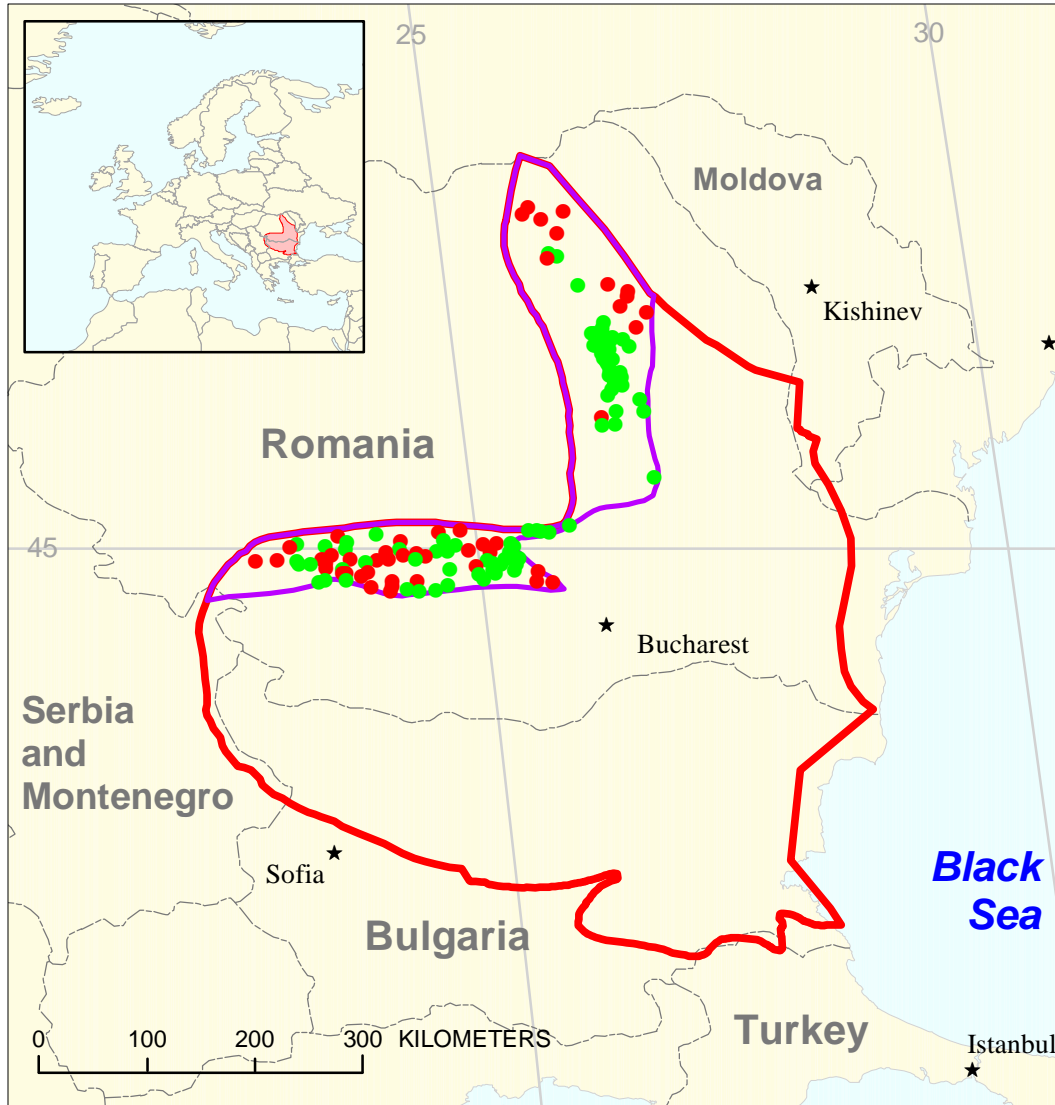


Romania Flysch Zone Assessment Unit 40610201



- Romania Flysch Zone Assessment Unit 40610201
- Carpathian-Balkan Basin Geologic Province 4061

USGS PROVINCE: Carpathian-Balkanian Basin (4061)

GEOLOGIST: M.J. Pawlewicz

TOTAL PETROLEUM SYSTEM: Dysodile Schist-Tertiary (406102)

ASSESSMENT UNIT: Romania Flysch Zone (40610201)

DESCRIPTION: This unit encompasses three structural and paleogeographic subunits in the Precarpathian: the Getic Depression, a segment of the Carpathian Foredeep between the Dimbovita Valley, the Danube, the Carpathians, and the Moesian Platform; the flysch zone of the Eastern Carpathians, also called the Marginal Fold Nappe, delimited by the Cretaceous flysch zone (Audia Unit) to the west and the Miocene Zone (Subcarpathian Unit) to the east. The third unit, the Miocene zone, is also known as the Subcarpathian Nappe, which includes the northern sector of the foredeep from the northern border of Romania to the Putna Valley between the external nappes and the foreland.

SOURCE ROCKS: Oligocene dysodile schists and blackish clays, and Miocene blackish-grey clays and marls.

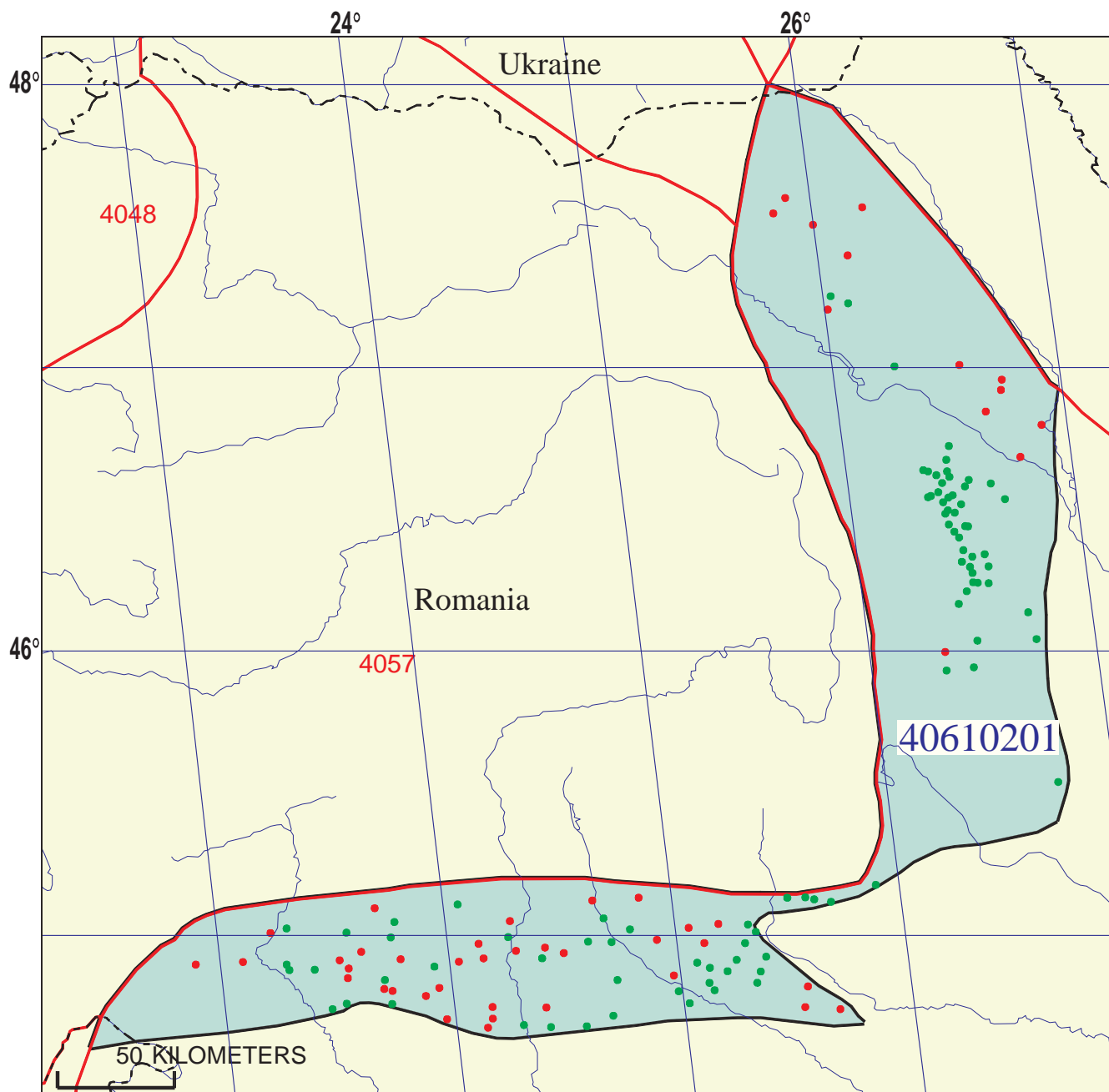
MIGRATION: Short vertical distances into structural traps and short lateral distances into stratigraphic traps.

RESERVOIR ROCKS: The main reservoir rocks are Paleogene, Miocene and Pliocene sands and sandstones. Porosity ranges from 10 to 25 percent; permeability 2 to 500 mD over a geologically varied region.

TRAPS AND SEALS: Normal and faulted anticlines, pinch-outs and unconformities. Structure area ranges from 1 to 2 km² in the Miocene Zone, 3 to 6 km² in the Marginal Fold Nappe region, and 10 to 20 km² in the Getic Depression.








REFERENCES:

- Ionescu, Nelu, 1993, Exploration history and hydrocarbon prospects in Romania, *in* Popescu, B.M., ed., Hydrocarbons of Eastern Central Europe—Habitat, exploration and production history: Berlin, Springer-Verlag, p. 217-248.
- Vuchev, V. and others, 1994, Geologic structure, petroleum exploration development and hydrocarbon potential of Bulgaria, *in* Popescu, B.M., ed., Hydrocarbons of Eastern Central Europe—Habitat, exploration and production history: Berlin, Springer-Verlag, p. 29-69.



Romania Flysch Zone Assessment Unit - 40610201

EXPLANATION

-  Hydrography
-  Shoreline
- 4061  Geologic province code and boundary
-  Country boundary
-  Gas field centerpoint
-  Oil field centerpoint
- 40610201  Assessment unit code and boundary

Projection: Robinson. Central meridian: 0

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

Date:..... 5/20/99
 Assessment Geologist:..... M.J. Pawlewicz
 Region:..... Europe Number: 4
 Province:..... Carpathian-Balkanian Basin Number: 4061
 Priority or Boutique..... Priority
 Total Petroleum System:..... Dysodile Schist-Tertiary Number: 406102
 Assessment Unit:..... Romania Flysch Zone Number: 40610201
 * Notes from Assessor Lower 48 growth factor.

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: 57 Gas: 17
 Established (>13 fields) X Frontier (1-13 fields) Hypothetical (no fields)

Median size (grown) of discovered oil fields (mmboe):
 1st 3rd 36 2nd 3rd 17 3rd 3rd 30
 Median size (grown) of discovered gas fields (bcfg):
 1st 3rd 66 2nd 3rd 47 3rd 3rd 45

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)	15	median no.	60	max no.	135
Gas fields:.....min. no. (>0)	5	median no.	35	max no.	100

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	6	max. size	100
Gas in gas fields (bcfg):.....min. size	6	median size	30	max. size	400

AVERAGE RATIOS FOR UNDISCOVERED FIELDS, TO ASSESS COPRODUCTS

(uncertainty of fixed but unknown values)

<u>Oil Fields:</u>	minimum	median	maximum
Gas/oil ratio (cfg/bo).....	500	1000	1500
NGL/gas ratio (bnl/mmcf).....	15	30	45
<u>Gas fields:</u>	minimum	median	maximum
Liquids/gas ratio (bnl/mmcf).....	20	40	60
Oil/gas ratio (bo/mmcf).....			

SELECTED ANCILLARY DATA FOR UNDISCOVERED FIELDS

(variations in the properties of undiscovered fields)

<u>Oil Fields:</u>	minimum	median	maximum
API gravity (degrees).....	20	35	49
Sulfur content of oil (%).....	0.1	0.2	0.3
Drilling Depth (m)	500	3000	6000
Depth (m) of water (if applicable).....			
<u>Gas Fields:</u>	minimum	median	maximum
Inert gas content (%).....			
CO ₂ content (%).....			
Hydrogen-sulfide content (%).....			
Drilling Depth (m).....	500	1800	6000
Depth (m) of water (if applicable).....			

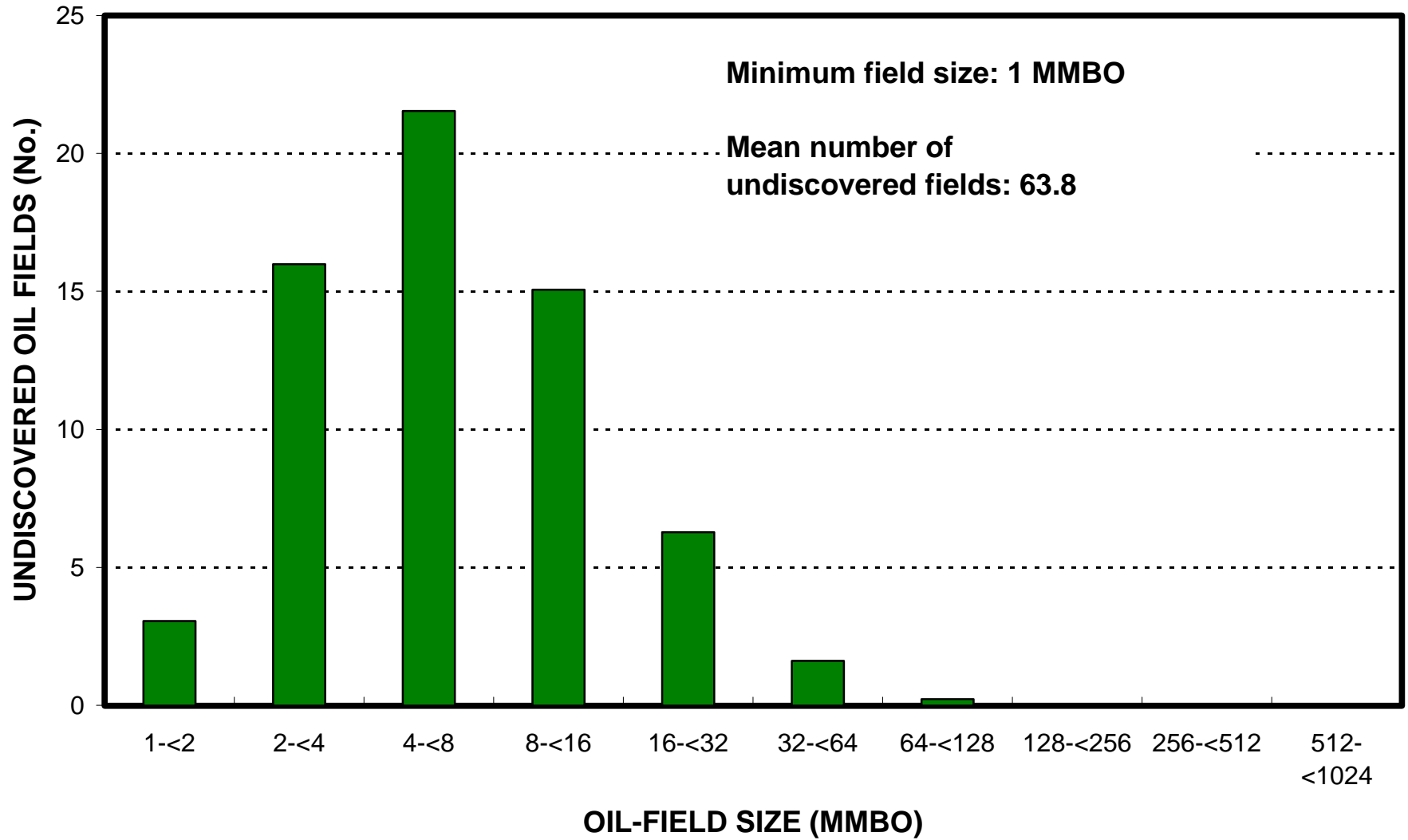
**ALLOCATION OF UNDISCOVERED RESOURCES IN THE ASSESSMENT UNIT
 TO COUNTRIES OR OTHER LAND PARCELS** (uncertainty of fixed but unknown values)

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

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

Romania Flysch Zone, AU 40610201

Undiscovered Field-Size Distribution



Romania Flysch Zone, AU 40610201

Undiscovered Field-Size Distribution

