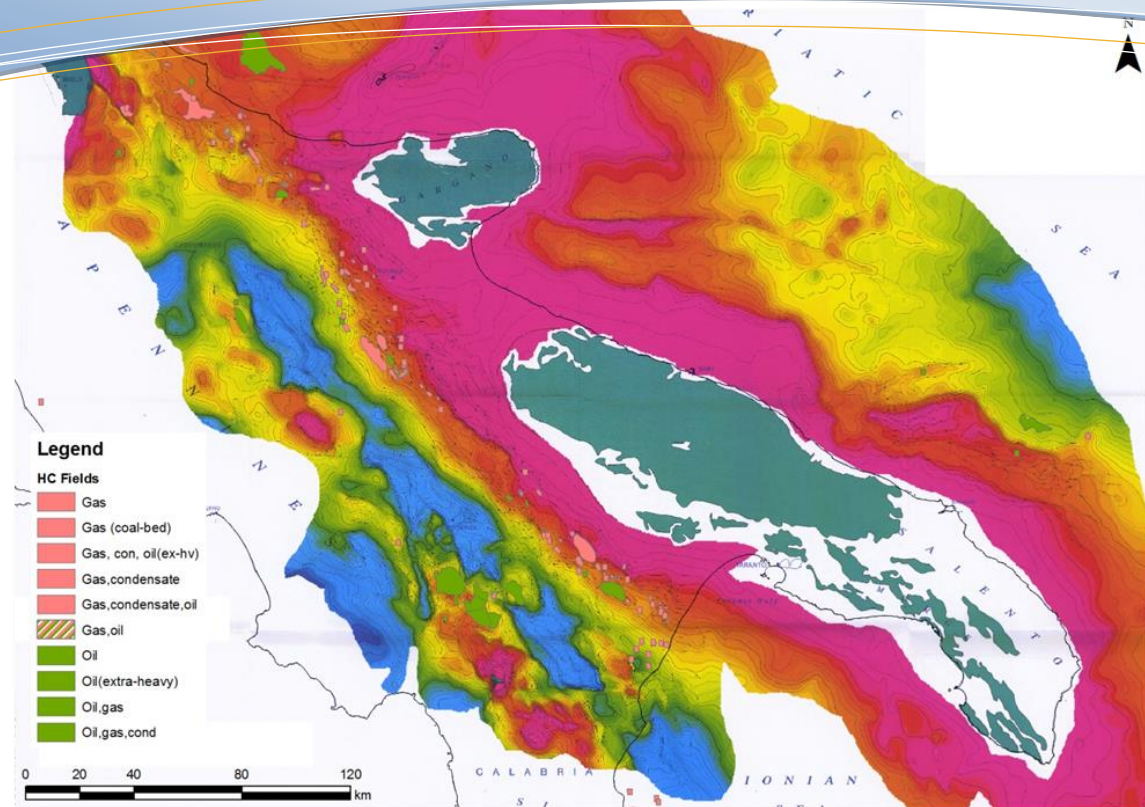


THE SOUTHERN ITALY THRUST BELTS: OFFSHORE & ONSHORE EXPLORATION POTENTIAL



Southern Italy contains the largest oil field complex in continental Europe with reserves exceeding 700 MMbbls oil and 500 Bcf of gas. The largest oil discoveries are located in the core of the Southern Apennines Thrust Belt. Other discoveries have been found in the more external part of the thrust belt (foredeep domain).

The area that covers this report is characterised by two different geological domains: the Southern Apennines Thrust belt system with the sedimentary sequences belonging to the African Plate and the Calabrian Arc that shows an European plate origin. The study area is also characterised by a zone where the two thrust systems interfere. This area is geologically extremely complex and poorly defined.

The integration of outcrop and subsurface geological information both onshore and offshore and the understanding of the kinematic evolution of the area and of the stress field are key factors to understand the exploration potential of this underexplored part of the Central Mediterranean system.

Hydrocarbon distribution in the Southern Italy is directly related to the geological characteristics and tectonic evolution of the area. In this structural-stratigraphic context, three main petroleum plays have been identified:

The fractured carbonate units of the Apulian Platform, which contain the largest and deepest oil fields in the region. The proved reservoirs are in the Cretaceous to Pliocene carbonated deposited in depositional environments varying from a shallow water lagoon to a distal ramp.

The study has been conducted by GEPlan Consulting s.r.l. based in Ferrara, Italy, who is acknowledged as one of the foremost experts in Petroleum Exploration in the Mediterranean area. The company operates several permits on behalf of clients in both onshore and offshore Italy, has also prepared speculative and proprietary reports on the Bradano Basins, Adriatic Basin, Sicily and Malta Channels basin, and is currently preparing other regional reports in the Mediterranean area.

The Mesozoic carbonates show generally low matrix petrophysical properties but they can be extremely fractured, while the Cenozoic reservoir rocks can show good matrix petrophysical properties. The source rock is represented by lower Cretaceous carbonate units deposited in platform depressions with anoxic conditions. The cap rock in the region is represented by the lower Pliocene shale deposited in the Bradano Foredeep.

The Plio-Pleistocene clastic turbidites deposited in the Bradano foredeep with biogenic gas. The characteristics of this turbidite system varies along the axes of the Foredeep.

The Miocene flysch deposits sedimented during the emplacement of the Calabrian Arc. These units host mainly Thermogenic gas generated by a poorly understood source rock.

The report integrates the available geological and geophysical published information and the work done in the area by GEPlan Consulting team both on outcrops/surface and subsurface to provide an assessment of the HC potential of the area.

The offshore part of the Southern Apennines thrust belt has only been partially explored and only recently has been opened for further exploration activity. The opening up of the Gulf of Taranto offers the opportunity to extend existing and new plays into this region following the proven structural trends.

for more information
contact:

GEPLAN CONSULTING

Via L. Ariosto, 58 –
44121 Ferrara – ITALY

ph +39-0532 207770,
fax +39 0532 1920204;
e-mail: info@geplan.it;
website: www.geplan.it

THE SOUTHERN ITALY THRUST BELTS: OFFSHORE & ONSHORE EXPLORATION POTENTIAL

REPORT CONTENTS

EXECUTIVE SUMMARY

1 INTRODUCTION

- 1.1 Objectives of the report
- 1.2 Data sources for this report & methodology

2 PREVIOUS HYDROCARBON EXPLORATION & PRODUCTION ACTIVITY

- 2.1 Italy
 - 2.1.1 Major Italian exploration & production provinces
 - 2.1.2 Main exploration targets in Italy
 - 2.1.3 Hydrocarbon Exploration in Italy
 - 2.1.4 Licenses in Italy
 - 2.1.5 HC Production in Italy
- 2.2 Southern Apennines
 - 2.2.1 Onshore Exploration
 - 2.2.2 Offshore Exploration
- 2.3 Calabrian Arc

3 GEOLOGICAL FRAMEWORK, GEOLOGY AND STRUCTURE OF THE SOUTHERN ITALY

- 3.1 Introduction
- 3.2 Africa-Europe plate motion – the Mediterranean Orogens
- 3.3 Western Mediterranean evolution (from several papers of Doglioni et al.)
- 3.4 The Apennines–Tyrrhenian system

4 STRATIGRAPHY

- 4.1 Paleogeography of the Southern Apennine and major paleogeographic domains
- 4.2 The internal units
- 4.3 Upper Triassic of the Southern Apennines
- 4.4 The Apenninic Carbonate Platform
- 4.5 The Lagonegro and Molise Basins
 - 4.5.1 The Lagonegro Formations
 - 4.5.2 The Evolution of the Lagonegro Basin
- 4.6 The Apulian Platform
 - 4.6.1 Inner platform
 - 4.6.2 Platform margin and slope
- 4.7 Tertiary Stratigraphy
 - 4.7.1 Foredeep Deposits
 - 4.7.2 Flysch Deposits
 - 4.7.3 Calabrian Arc

5 TECTONIC STRUCTURES OF THE SOUTHERN ITALY

- 5.1 Kinematic Evolution of the Southern Apennines
 - 5.1.1 Structure of the Southern Apennines
 - 5.1.1 Overview of structures in the southern Apennines chain
- 5.2 Kinematic Evolution and structure of the Calabrian Arc
- 5.3 Present Day Stress Field in Italy
 - 5.3.1 Stress Field from boreholes breakout
 - 5.3.2 Stress field from Focal Mechanism and strong earthquakes
 - 5.3.3 Stress fields in the southern Apennines from GPS Data (from Palano et al 2002)
 - 5.3.4 Seismicity and Seismic strain rate
 - 5.3.5 Present day stress field conclusion

6 PETROLEUM SYSTEMS OF SOUTHERN ITALY

- 6.1 Petroleum Play 1: Apulian Carbonates
- 6.2 Petroleum Play 2: Tertiary foredeep turbidites
- 6.3 Petroleum Play 3: Calabrian Arc
- 6.4 Seals
- 6.5 Source Rock and Hydrocarbons
 - 6.5.1 Oil source rocks and oil characteristics
 - 6.5.2 Gas source rocks and gas characteristics
 - 6.5.3 Source rock in the Calabrian arc
- 6.6 Traps
 - 6.6.1 Pre-Pliocene/Apulian Carbonate reservoirs
 - 6.6.2 Pliocene & Pleistocene Reservoirs in the Bradano Foredeep

7 PRODUCTION ACTIVITY AND MAJOR HYDROCARBON FIELDS ONSHORE & OFFSHORE IN THE SOUTHERN ITALY

- 7.1 Major oil and gas fields in Bradano Foredeep (Upper Cretaceous-Neogene)
- 7.2 Onshore Cretaceous oil fields in the thrust belt
- 7.3 Major Gas Field in the offshore of Calabrian Arc

8 SELECTED PAPERS

Enclosure:

- GIS project
- Wells & HC Discoveries map
- Gravimetric & HC Discoveries map
- Wells & Geological map
- Hydrocarbon Plays map

for more information
contact:

GEPLAN CONSULTING

Via L. Ariosto, 58 –
44121 Ferrara – ITALY

ph +39-0532 207770,
fax +39 0532 1920204;
e-mail: info@geplan.it;
website: www.geplan.it