[PS]Hydrocarbon Prospectivity of the Western Mediterranean Basin, The Provencal Basin*

David Williams[2], Stefania Guerzoni[2], Mara Marian[2], Enrica Battara[2], and Angelo Ricciato[1]

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Abstract

The Western part of the Mediterranean Region is one of the most attractive areas for hydrocarbon exploration in new frontiers of the entire basin. This sector is characterised by three main domains: the Valencia Trough, the Balearic Basin and the Provencal Basin.

The Provencal Basin is the result of the European Rift System, together with the Valencia trough and the Balearic domain, showing several common characteristics with these productive provinces.

The basin is placed in that portion of the Mediterranean Sea with water depth that exceed 2000m, between France, Italy, the Balearic Islands and the islands of Sardinia and Corsica. It encompasses nearly 300,000 square kilometres and includes the Rhone River submarine fan on the continental slope of southern France.

The Provencal basin is an unexplored sedimentary basin (with no exploration drilled wells and limited seismic), but onshore analogues, along the adjacent sectors of France, Spain and Italy, indicate good potentials for hydrocarbon reserves that are expected to be recognised also in the basin.

The analysis of this area suggests the presence of pre, syn and post rift complete HC systems, that have been already observed in the analogues of Sardinia and France and assessed as possible target for the HC exploration. Moreover, the presence of evaporites, which have been deposited during the Messinian Salinity Crisis (MSC), could guarantee a remarkable seal system.

The main exploration targets could be the hydrocarbons contained in the pre rift Mesozoic tilted blocks formed during the extensional phases associated to the Miocene rift. Possible quantities of biogenic gas could be included also in the Plio-Quaternary proximal to distal sediments and in the turbidites deposits related to the syn-rift phase.

The hydrocarbon potentials in the Provencal Basin have been topic of debate in the recent time, but also an interesting challenge for the oil industry, considering the undiscovered prospects for future exploration in this portion of the Mediterranean Sea.

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HYDROCARBON PROSPECTIVITY OF THE WESTERN MEDITERRANEAN BASIN, THE PROVENCAL BASIN

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Abstract

The Western part of the Mediterranean Region is one of the most attractive areas for hydrocarbon exploration in new frontiers of the entire basin. This sector is characterised by three main domains: the Valencia Trough, the Balearic Basin and the Provencal Basin.

The Provencal Basin is the result of the European Rift System, together with the Valencia trough and the Balearic domain, showing several common characteristics with these productive provinces.

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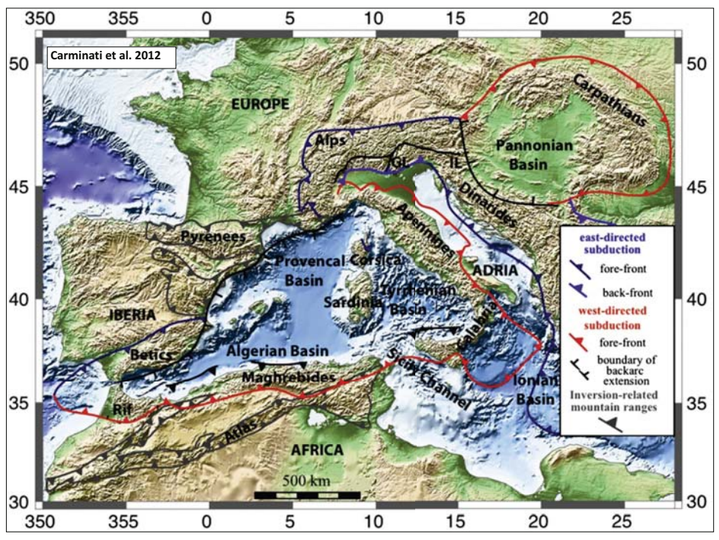
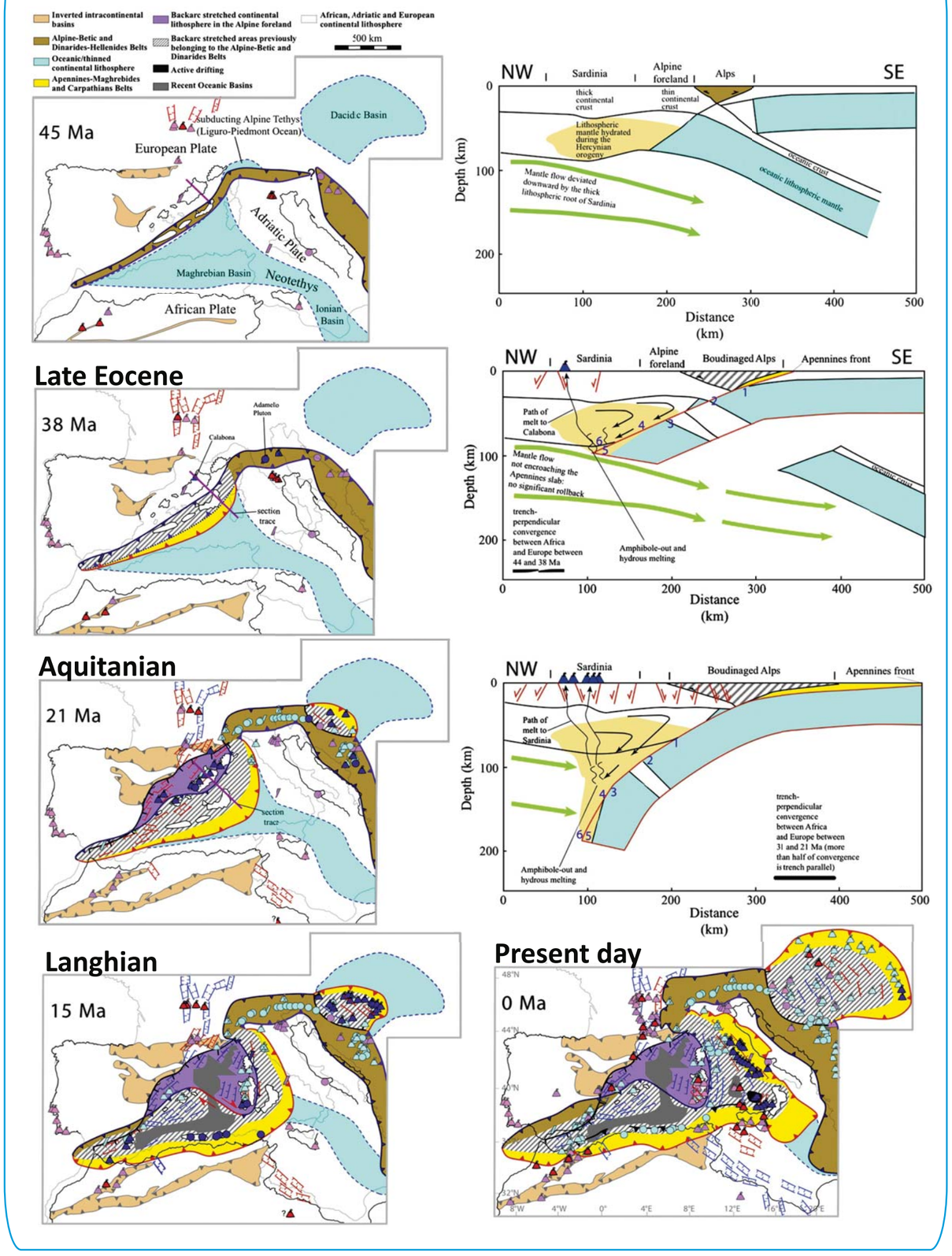


The main exploration targets could be the hydrocarbons contained in the pre rift Mesozoic tilted blocks formed during the extensional phases associated to the Miocene rift. Possible quantities of biogenic gas could be included also in the Plio-Quaternary proximal to distal sediments and in the turbidites deposits related to the syn-rift phase.

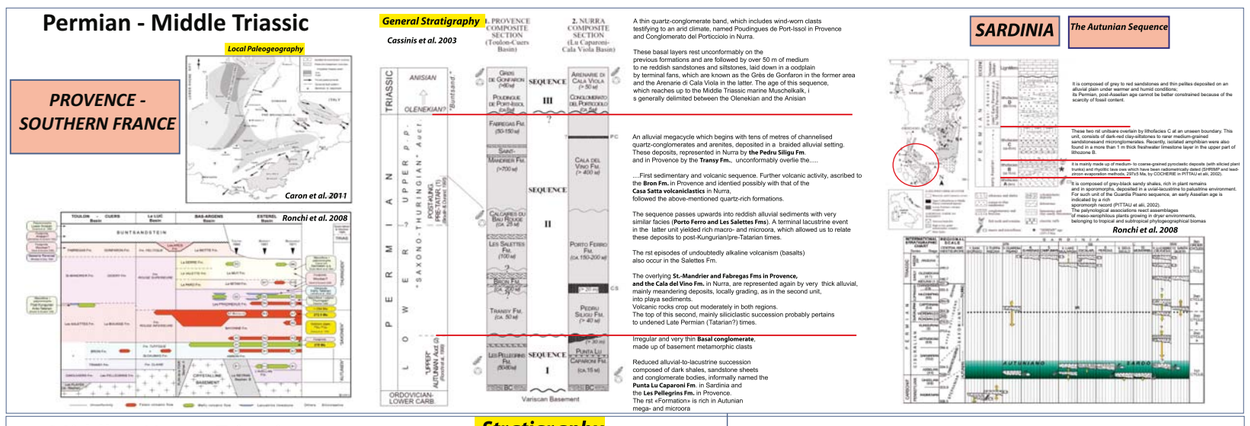
The hydrocarbon potentials in the Provencal Basin have been topic of debate in the recent time, but also an interesting challenge for the oil industry. This report provides a detailed geological characterisation, stratigraphy and geochemistry analysis (integrating the published petroleum geology and available geophysics) of the whole area focusing on undiscovered prospects for future exploration in this portion of the Mediterranean Sea.

GEOLOGICAL FRAMEWORK & TECTONIC EVOLUTION (from Carminati et al. 2012)

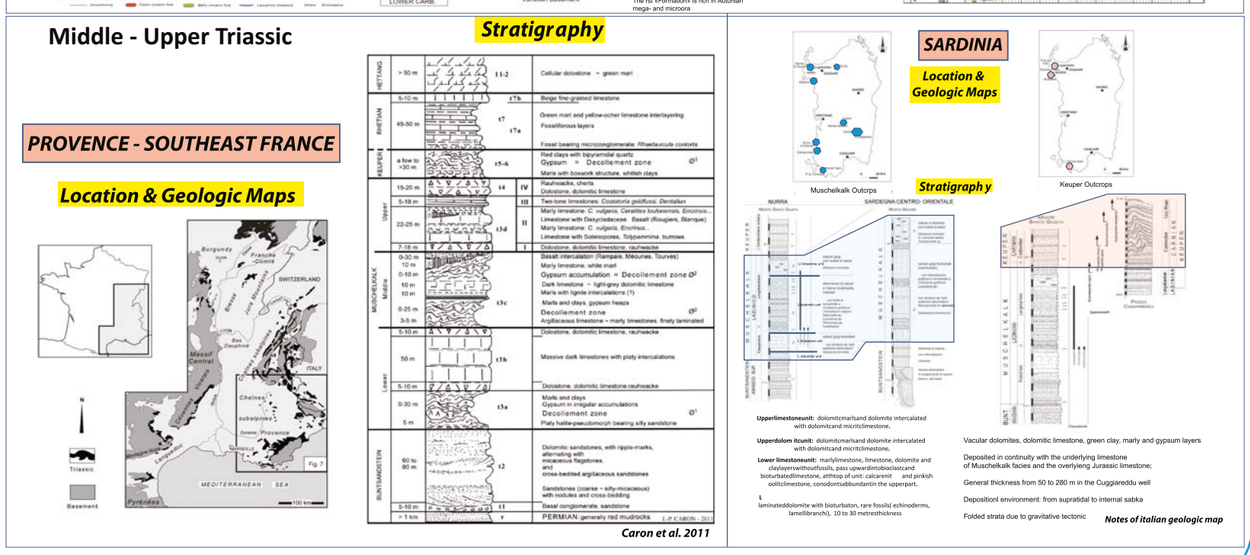


STRATIGRAPHY

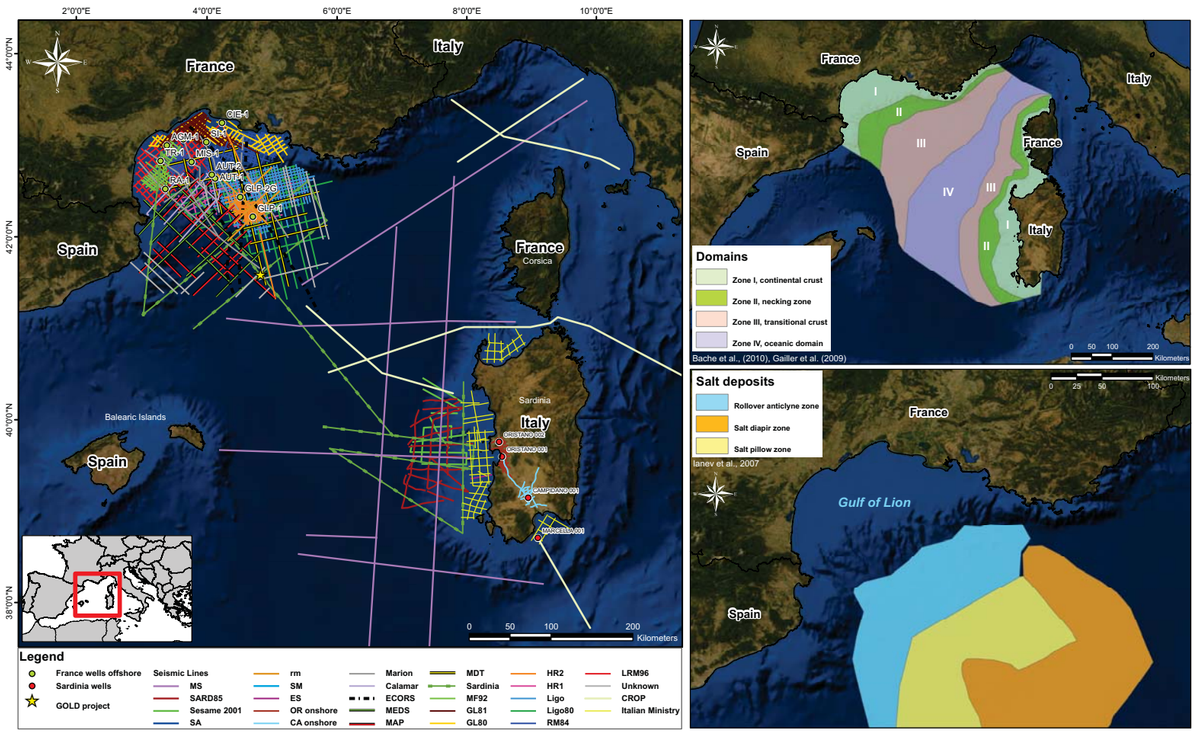
Permian - Middle Triassic



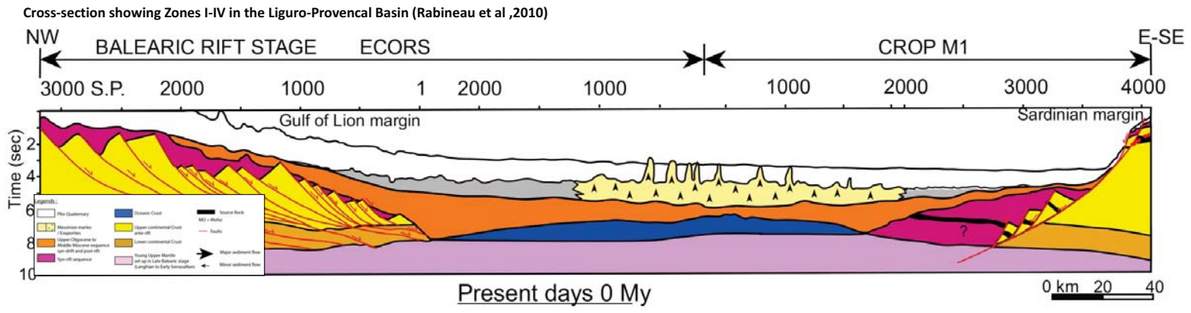
Middle - Upper Triassic



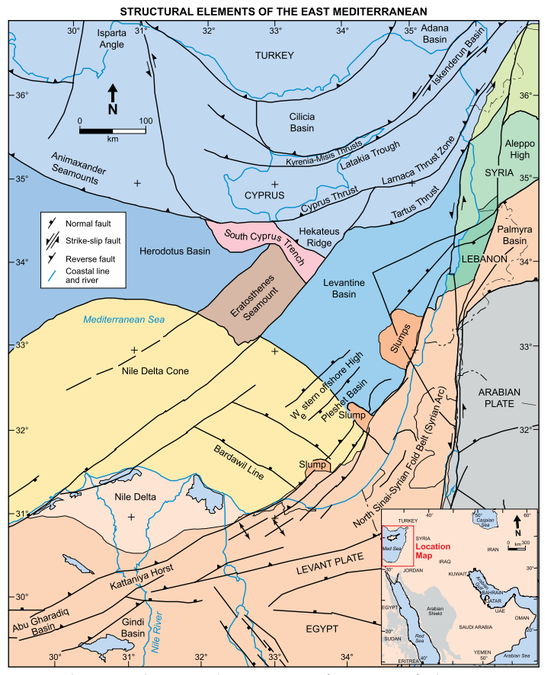
AVAILABLE SEISMIC & MAIN DOMAINS



Cross-section showing Zones I-IV in the Liguro-Provencal Basin (Rabineau et al ,2010)

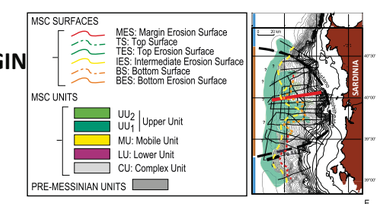


ANALOGUES (LEVANTINE BASIN)



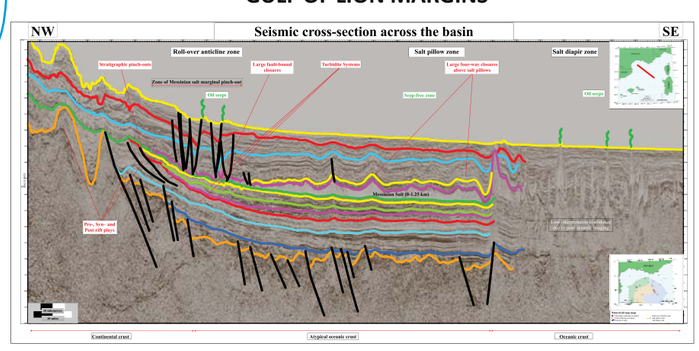
POTENTIAL PLAYS

SARDINIAN MARGIN



Seismic line across the western margin of Sardinia Line SM12 (inside the Oristano Amphitheatre, out of the main canyon) Sage et al. In: Lofi et al., 2010

GULF OF LION MARGINS



Ianev et al., 2007

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