



## **KINEMATICS, THERMICITY and PETROLEUM POTENTIAL APPRAISAL in the EXTERNAL PARTS of FOLD-and-THRUST BELTS**

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Fold-and-thrust belts still constitute frontier areas for HC exploration. However, coupled 2D kinematic and thermal modelling techniques, based on seismic interpretation and the input of balanced cross sections, can be used to reconstruct the burial history of source rocks and reservoirs, and to identify the timing of petroleum generation. Fluid flow and pore-fluid pressure modelling can be used also to get estimates on the hydrocarbon charge of potential prospects, and on chemical transfers occurring at both regional and reservoir scale when diagenesis operates in an open system.

Bottom hole temperature and maturity ranks of the organic matter (Tmax, and R) can be used to calibrate the overall thermal history, but paleo-thermo-barometers are likely to provide better controls on the paleo-thickness of the eroded overburden.

Further post-orogenic controls exerted by mantle dynamics must be also taken into account, because they can induce rapid uplift and erosion in both the foothills and adjacent foreland, and modify strongly the overall drainage areas.

The integrated workflow developed at IFP-EN for the evaluation of the petroleum potential of fold-and-thrust belts will be documented by regional case studies in the Apennines, Sicily, Albania and North Algeria in the Mediterranean, as well as in the Sub-Andean basins from Veezuela and Colombia, and in Mexican and Canaduian segments of the North American Cordillera.