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An Integrated Analysis of Geological and Geophysical Data for Reservoir Petrophysical Property Mapping

The Moesian Platform represents a structural unit which develops between the pre-Carpathian depression, Nord Dobrudja orogene and pre-Balkans and belongs only partly to Romania. The Predesti-Pitulati area is located in the western part of Moesian Platform and is formed of an almost complete succession of deposits beginning with the Cambrian and ending with the Quaternary. In this area several gas discoveries have been made and the interest formations are Sarmatian and Meotian sandstone.

The main characteristic of productive geological formations is the variability of petrophysical characteristics of reservoir at the same seismic horizon. Properties as porosity, hydrocarbon saturation, net pay thickness etc. can vary laterally over short distances and therefore significantly affect the reserve estimates of a reservoir. A major objective of development is to map these spatially varying reservoir properties so the new wells can be located optimally.

A reservoir characterization of this area was performed by integration of the information provided by the interpretation of seismic lines, well logs and core analysis. The analysis combines the seismic attribute with petrophysical properties in a quantitative way to predict properties distribution. The resulting maps accurately predicted the lithology distribution, porosity variability and sand thickness.