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NON-SEISMIC METHODS: CASE STUDIES II

**INTEGRATION OF CONVENTIONAL AND UNCONVENTIONAL
EXPLORATION TECHNIQUES IN BLOCK 12, KURA BASIN,
REPUBLIC OF GEORGIA**

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ABSTRACT

In the prolific western Kura basin of the Republic of Georgia, there is a correlation between production and the density of fractures mapped at the surface. The basin contains a thick sequence of latest Miocene to recent rocks, including the rich Maycop source rocks and the Productive Series reservoir rocks. The basin lies in a west-northwest-trending, right-slip, transpressive regime at the foot of the Greater Caucasus Mountains. In this setting, the Productive Series produces best where it is highly fractured and the fractures are relatively open. However, the “open” direction depends on the local stress regime.

There is a pervasive west-northwest-trending tectonic fabric related to right-slip deformation (faults and folds) along the predominantly northward convergence of the Arabian and the Eurasian plates at the Caucasus subduction zone. This implies that the north to north-northeast fractures will be relatively open. This is true over much of the area. However, there are local exceptions that appear to be related to the presence of restraining and releasing bends in the overall right-slip kinematic regimes and to the interplay with older structural features such as the Trialet fold thrust belt.

Virtually all of the good production in Block 12 lies within high values of overall fracture density. Much of the production correlates with high densities of north-northeast fractures. There are areas where the best production correlates with concentrations of fractures of other orientations related to local stress fields.

Integrating fracture data (both fracture density and orientation) with surface geology, subsurface data, geophysical information, and well performance information can provide powerful exploration insights and guide field development including the location and orientation of directional wells.