
3D Seismic Attributes Reveal Unayzah Secrets in South Ghawar, Saudi Arabia

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Integrated interpretation of 3D seismic and well data from south Ghawar, Saudi Arabia, provided better understanding of facies distribution and structural style of study area. The objective of this study is to evaluate the Unayzah reservoir potential. Several north-south and east-west well cross-sections reveal thickening and thinning pattern of Pre-Khuff clastic units. It is observed that pre-Khuff clastic thickens on the flanks of the structure while it thins on crest of this area. DETECT and CURVATURE analyses resulted in defining four major north-south fault trends and a minor east west fault. These north-south faults controlled the topography during the Hercynian and resulted in Unayzah filling the paleo-lows. A difference amplitude map was generated from the maximum and minimum amplitude of the reservoir interval. The result shows good correlation between amplitude anomalies and high potential reservoir development areas. Strong amplitude anomalies have been used in combination with structural closures to identify the future potential in the area.
