AVO Evaluation for Pennsylvanian Reservoir Rocks in the Anadarko Basin, OK

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AVO has proven to be an effective hydrocarbon indicator technique for Miocene and Pliocene gas exploration especially in the Gulf of Mexico. Careful processing and calibration of pre-stack seismic data with petrophysical properties along with detailed petrophysical modeling has made AVO an important tool for lowering drilling risks and increasing the drilling rate success. Although AVO has proven effective in the gulf coast, little or no research has been published on the implementation of this technique in the Anadarko Basin. AVO dependency for fluid saturated formations such as Skinner and Red Fork formations is going to be studied by the used of wave propagation and ray trace seismic models created from well logs and pre-interpreted formation tops. All models were run using seismic modeling software, which determines amplitudes and phases of reflection and transmission coefficients for each boundary represented in the seismic models. In this work we evaluate the feasibility of AVO as a hydrocarbon prediction tool in the Skinner and Red Fork formations in the Anadarko Basin from petrophysical analysis and AVO modeling.