

# SEISMIC WAVE ATTENUATION IN LOWER CRETACEOUS CARBONATE ROCKS: A LABORATORY ULTRASONIC STUDY

Liqin Sang

*Geology and Geophysics, Texas A&M University, College Station, Texas*

[liqin.sang@tamu.edu](mailto:liqin.sang@tamu.edu)

Seismic wave attenuation is a measure of the wave energy loss when propagating through a media. Attenuation is more sensitive to reservoir rock properties and fluid saturation than velocity. A good understanding of the relation between attenuation and rock properties can greatly enhance the interpretation of seismic data and reservoir characterization. However, there are very few laboratory measurements, especially in carbonate rocks, to establish the link. The proposed project will focus on laboratory measurements of P and S-wave attenuation at ultrasonic frequencies using core plugs from a Lower Cretaceous reservoir in an onshore oil field in Abu Dhabi. The attenuation measurements will be complemented by detailed petrophysical characterization of rock properties to accomplish the objectives of this project: (1) establish relationships of attenuation with petrophysical properties (e.g., porosity and permeability) and the textural/mineralogical properties of carbonate rocks to better understand seismic response; and (2) measure sensitivity of attenuation to fluids and fractures. Due to the link between attenuation and reservoir properties, the results from this project will have important implications toward an improved understanding of the petrophysical properties of reservoirs and applying seismic attenuation to enhance oil recovery program.

AAPG Search and Discovery Article #90249 © 2016 AAPG Foundation 2015 Grants-in-Aid Projects