

# A Proposed Western Extension of the Grisham Fault in the Delaware Basin of West Texas as Interpreted by Full Tensor Gradiometry Data and 3-D Seismic Data

**Alan Morgan<sup>1</sup>, Vasudhaven Sudhakar<sup>2</sup>, David Paddock<sup>2</sup>**

<sup>1</sup>Bell Geospace; <sup>2</sup>Schlumberger

9.29.2020 - 10.1.2020 – AAPG Annual Convention and Exhibition 2020, Online/Virtual

## Abstract

Full Tensor Gradiometry (FTG) data acquired in the Delaware Basin of West Texas reveal complex anomalies associated with the distribution and displacement of sediments through geologic processes such as deposition, erosion and faulting. The FTG data are interpreted with one of the goals being the identification of linear trends associated with faulting. Strike-Slip faults present a particular technical challenge as there may or may not be density contrast along pure strike-slip segments of the fault. The Grisham Fault has been interpreted by many authors over the past thirty years through the aid of poorly-imaged 2D seismic profiles, along with well data, ground gravity data and airborne magnetic data. FTG data reveals an additional 47km extension of the Grisham Fault. Analysis of 3D seismic tall window Variance data confirms the extension of the Grisham Fault to the southwestern limits of the 3D seismic survey. The FTG data indicate that the interpreted trend continues farther southwest to the limits of its acquisition.