

## **Kahil Air-FTG® (Full Tensor Gradiometry) Survey, Case Study of Non-Seismic Advances.**

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### **ABSTRACT**

Potential field technologies have witnessed significant advances in terms of resolving power and usability in recent years. One of those is Full Tensor Gradiometry (FTG). FTG is a multi-component, multi accelerometer technology that measures variation in accelerations due to the Earth's Gravity Field. The measurements form a 3D depiction of the Gravity field as sourced by sub-surface density contrasts. Such density contrasts present themselves in the form of complex geological structures as exhibited by faults, contacts, folds and variable lithologies. The resultant FTG anomaly field is ideally suited to identifying and mapping such geological complexity.

We present a case study describing the Kahil Air-FTG® and Magnetic survey data acquired over Block-55 (Kahil) in the Sultanate of Oman by Bell Geospace.

As part of Petrogas Kahil effort to explore Block 55 for hydrocarbons 8,000 Line KM of Air FTG and magnetic survey was acquired in December 2014. The FTG unit used on this project is one of three owned by Bell Geospace. They have a history of performing well during several years of marine survey work and in airborne surveys since being upgraded in 2003.

The multi-component data was processed with the latest processing techniques to enhance S/N ratios for better representation of subsurface geology and include Full Tensor Noise Reduction (FTNR) and contact lineament processing (CLP) exploiting the 3D nature of the data. Tensor Axis Realignment and Invariant Analysis techniques, uniquely suited to evaluating 3D data, were used to map potential targets and structural contact information. The FTG data was used for basement depth estimation.

The results are presented in Petrel which allows mapping of potential targets and structural and stratigraphic boundaries. Correlation with existing 2D seismic data facilitates a more comprehensive interpretation. The acquisition data and the subsequent analysis have been used for better understanding of the block's prospectivity and used to locate the newly planned seismic acquisition program.