



Enhancement of Seismic Data Processing and Interpretation of Fracture Zones on the Upper Part of Granitic Basement in Cuu Long Basin, Vietnam

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A b s t r a c t

The fractured granite basement is the primary oil and gas reservoir in the Cuu Long Basin, Vietnam. Due to the complexity of this non-layered unconventional target, combined with complicated fault and fracture systems, the seismic data quality near and within the basement section is very low. For this reason, it is important to apply improved seismic data processing workflows, filtering and migration techniques, as well as attribute processing methods to enhance the imaging quality.

Our studies show that applying different types of filters, including the f-k, Radon transform and Tau-P, improves signal to noise ratio, removing multiples, revealing basement's top and its related fractured and fault zones. In addition, the application of multi-arrival-solution migration algorithms, such as Kirchhoff Migration and Controlled Beam Migration, provides improved imaging for identifying basement top and faults and fractures within the basement. Furthermore, the application of seismic attributes such as curvature, apparent dip, or energy gradient, is

important in locating faults and fractures, whereas mapping of intensity and orientation of such structures assists the delineation of “sweet spots” and assists the planning of exploration.

Key words: Cuu Long Basin, fractured basement, faults, filters, migration, imaging, attributes.