

Coherency analysis interpretation of the Cakerawala Field in Block A-18, MTJDA

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The Cakerawala Field is located in Block A-18, Malaysia-Thailand Joint Development Area (MTDJA), in the northern Malay Basin. It is operated by Carigali-Triton Operating Company Sdn. Bhd. (CTOC) on behalf of its shareholders Petronas Carigali (JDA) Sdn. Bhd., Triton Oil Company of Thailand (JDA) Ltd., and Triton Oil Company of Thailand Inc.

The Cakerawala Field is covered by 620 sq km of 1995 3D seismic data. In mid-June 1997, Coherence Cube processing of 19,200 line km of 3D seismic data was conducted by Coherence Technology Company. Two different Coherence algorithms, the Semblance¹ and Eigen¹ were used and two seismic attributes were generated, Instantaneous Amplitude and Frequency.

The coherence processed data has provided valuable input to the Cakerawala Field development planning, by enabling more detailed structural definition, and calibration of independent sedimentary facies and reservoir architecture models.

The Coherence data exhibits fault horizon intersections and fault linkages more distinctly by comparison to the conventionally processed 3D seismic dataset. Additionally, secondary faults and other structural lineaments are observed that were not previously interpreted. The structural interpretation of the Coherence processed data has generally enabled more detailed and refined understanding of the structural controls on the field model.

Interpretation of datum slices from the Coherence processed data distributions has enabled the clear identification of sedimentary facies and geomorphological features such as; lower delta plain to estuarine fluvial and fluvial tidal channel complexes, fluvial tidal bars, clay dominated inner estuarine embayments, and shallow marine barrier bars. These interpretative results have been integrated with independent sedimentological and facies studies of cores and high resolution borehole imagery logs. The understanding of sedimentary facies assignation and distribution, and the overall reservoir architecture of the Field Model has been significantly enhanced by the merging of these two interpretations.

The Coherence amplitude attribute data has also been used in the identification of shallow gas hazard zones, to assist well location selection and optimisation of well design.

^{*1} *Trademark of Coherence Technology Company*
