Paper 10

Seismic modelling in the Khuff Field, Sirte Basin, Libya

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The applicability of seismic modelling for a re-evaluation of geological interpretation has been investigated on Khuff Field, Sirte Basin, Libya. The Khuff-Field is located in the Kotla graben which is adjacent to the Dahra and Beda Platforms and the Zella and Marada Troughs. These features developed in response to pre-Late Cretaceous rifting and controlled the sedimentary depositional patterns during the Late Cretaceous and Early Tertiary. A seismic modelling software was used to build a geological model and to validate the geological interpretation. The validation was done by simulating propagation of seismic energy through the model to generate and test seismic model over the internal structure of a thick carbonate deposits of the Upper Cretaceous (Maastrichian) to Eocene sediments, in order to understand the distribution of the facies and their relationship to structural features in the area. The resulting synthetic records were processed and stacked. Comparison between the synthetic and the real section was encouraging. This demonstrated that the use of a seismic modelling technique is applicable to the Khuff Field.

Warta Geologi (Newsletter of the Geological Society of Malaysia), Vol. 21, No. 6, November-December 1995