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Seismic identification of depositional processes in a turbidite fan environment, deepwater Block SB-G, NW Sabah

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A seismic interpretation and mapping project of the Intra Stage IV F, Upper Lingan Fan Unit was carried out in the deepwater Sabah area 120 km Northwest of Kota

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Kinabalu. The objective of the project was to delineate the internal architecture of the Upper Seismic sequence of Lingan Fan Unit in an attempt to understand the environment of deposition and the processes involved. With the understanding of depositional environment, reservoir characteristics could be interpreted.

The Upper Lingan Fan Unit is a multi-sequence turbidite unit characterised by a period of active channelling and downcutting as the Lingan Fan progrades basinward. Three seismic facies were delineated from interpreted seismic paper sections of several vintages. Isochores of these three facies were generated and analysed in relation to a depth structure map on Top Lingan Fan Unit.

The mapped turbidite sequence is interpreted to be a combination of: a) Channel lob (Facies I), b) Levee-channel/crevasse splay deposits (Facies II) and c) Onlapping distal lowstand prograding wedge (Facies III). Identification and interpretation of these facies gives a better understanding of the possible reservoir quality found in any exploration prospects.

The results of this shallow analogue study gives a better insight in the complex processes involved in the deposition of a turbidite system. Additionally, it also highlights the complexities and resolution issues to be expected in a seismic interpretation at deeper depths. With the availability of high quality seismic data, it is possible to delineate the internal architecture and constrain the predicted reservoir quality in turbidite prospects.