Structural interpretation of 2d seismic in the northern part of East Pande block, southern coast of Tanzania

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Seismic reflection data (profiles) were employed to characterized geological structures in the northern East Pande Block for the aim of assessing the hydrocarbon potential of the area, which lies in the southeast offshore coast of Tanzania. Structures were evaluated using 8 seismic profiles in 2D; 6 cross-line trending EW and 2 in-lines trending NS directions plus well data that included well tops, well header and well logs all of which were imported into the interactive workstation with the use of Petrel and Technology Software. Twelve – third order sequence boundaries (horizons) and two kinds of faults with a strike direction of NNW-SSE were successfully traced and picked. Faults identified are of different age resulting from two rifting events and more than one deformation episode that occurred in the area. Identified horizons were traced to produce time structure map in which later were converted to depth structural map using Time –depth relation curve. The lithology identification helped to delineate two reservoirs in the area at depth range of 3399.4m- 3835 m and 4480 m-4591 m for Top Tikiti North deepChannel-base Tikiti North deep Channel and Top Tende-based Tende respectively. Also, the existence of reservoirs were marked by presence of perfect contour closures on surface maps produced. Through all interpretation, the faults associating to reservoir were marked as possible hydrocarbon entrapment are the structural high that corresponds to normal faults.