THRUST PROPAGATION IN DELTA FRONT :THE ULTRADEEP OFFSHORE NIGER DELTA

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Gravity tectonics in the Pliocene-Pleistocene off the Niger delta has produced a fold-and-thrust belt at its toe far offshore in an area which is well imaged by reflection seismic. Syn-sedimentary deformation has developed a range of structures varying in style and magnitude of shortening from duplexes and pop-up trains to antiformal stacks and imbricate fans. The types of structures (style, size, spacing, duration of activation...) appear to be directly related to parameters such as : thickness of the sedimentary pile (depth of detachment), sedimentary and detachment slopes, nature and internal structure of the sedimentary pile (presence and position of « stiff » units), nature and thickness of the detachment unit... Some relationships are proposed and illustrated. Also, the complete view of the delta fold-and-thrust belt permits the lateral scan of structures (from little deformed to complex) thus giving an insight of their evolution through time. An analysis is proposed with the aid of analog modeling. As a result, structural domains with specific controlling factors can be identified and related to the tectonic and sedimentary build-up of the delta. This still ongoing structural and sedimentary setting can thus provide a key reference for the basic understanding of fold-and-thrust belts, elsewhere often hindered by a more complex evolution.