Stratigraphic architecture of Rift Systems: Special emphasis on Arid Continental Rifts

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ABSTRACT

Previous works have made significant contributions towards the study of rift basins, recognizing the interplay between extensional tectonics, climate and sedimentary fill and attempting to document the multifaceted relationships and fluctuations in sedimentation. However, these works in conjunction with industry advancement have highlighted the gaps of knowledge and sometimes-poor characterization of the stratigraphic architecture of rifts around the world such as the need to understand both margin and axial sedimentation, as well as the role that bounding and secondary faults play in the generation and movement of sediments from source to sink.

The focus of this research is to investigate the temporal and spatial development of rift basins by detailing the axial versus marginal feeder sediment systems and the resultant syn-rift fill character to address the following research goals: to create a framework to better understand the stratigraphic architecture, of basin fill within rift systems; to refine our ability to recognize the stratigraphic signature of "rift basin linkages"; test the ideas, of linkages between fluvial morphology, fill architecture and composition, and basin evolution as we seek to better.

For the purpose of this study, fieldwork detailing predominantly the Santa-Fe, syn-rift has commenced, and should be completed early 2019. I hypothesize by incorporating modern outcrop work, drone technology, geophysical data and previously conducted research, I will be able to document and model the facies relationships in axial versus marginal architecture and their sediment sources, potentially identify previously unidentified facies, and highlight possible reservoir potential within arid continental rift basin(s).