New Exploration Understanding from the Ruvuma Block (Tanzania), and Its Regional Significance

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The Ruvuma Basin of Tanzania is located to the west of a NE-SW trending transfer fault, the trace of which is followed by the Ruvuma River, with parallel fault trends to the NW. Unlike most other East African margin basins where the drift succession increases rapidly in thickness across coast parallel faults, here the entire drift and rift successions are preserved in a ramp setting that dips at low angles towards the Ruvuma transfer fault. One consequence is that the rich and thick Permo-Triassic rift succession source rocks functioned as a long term source contributing hydrocarbons though time to the entire drift succession. Additionally, there is sufficient burial in the East of the block to place the Lower Jurassic oil-prone source succession in the Oil and perhaps offshore also in the Gas Window.

Only recently have Jurassic sources become important to East African exploration. Now, where burial was more gradual, the rift succession has joined the growing list of effective sources. Where there is strong coast parallel faulting, timing between oil and gas charges can become reduced and pure oil legs may not be found. Since the NE-SW trending transfer faults were repeatedly tracked by rivers draining from the interior of Africa a wide range of channel related plays evolved. Understanding the interplay in a simple ramp setting from Ruvuma between maturation, expulsion, sand supply and trap development may help to reduce the risk of finding gas offshore.