

**Hydrocarbon Systems of the East African Continental Margins**  
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Through the analysis of over some 40 oil shows and seeps throughout East Africa with the support from the respective governments over the last 5 years and through access to GeoMark's 9,000 sample OILs data base it has been possible to critically re-evaluate the Petroleum Systems operative throughout East Africa.

Contrary to the rather pessimistic view that East Africa was at best gas prone, it is abundantly clear that there is a major early Mesozoic oil prone source system operative throughout much of coastal Kenya, Tanzania and perhaps Mozambique which is also active in conjugate Madagascar and Seychelles.

All the hydrocarbon plays in East Africa appear to be related to rifting, that is apart from the recently emerging Ruvuma delta petroleum play.

Very early but failed break up of East and West Gondwanaland provided ideal conditions for the development of extremely potent source rocks in within narrow, but extensive intermontaine basins, the classic examples being the Sakoa and Sakamena formations and their equivalents on mainland Africa. Both oil and gas prone source rocks were deposited.

However, perhaps the most spectacular source system of all, which we are just beginning to comprehend, is related to the successful Lower Jurassic rifting of East and West Gondwanaland and the creation of a vast restricted basin. GCMS data for the numerous oil shows and seeps bear the classic signs of stressed conditions as would be expected within such a basin.

Beyond early mid Jurassic, continued rifting resulted in open marine conditions and no further source rock development.

However reactivation of interior faults and rifting resulted in the creation, for a second period, conditions optimal for terrestrial source rock development during the Tertiary. Oils from these younger rifts include the recent Waraga #1 discovery and the Loperot #1 oils, the later described by Dan Jarvie in EACP03. .

Further to the NE the massive Bombay High and Cambay Petroleum Systems were also developing at this time.

Finally there is new evidence through GCMS analysis for a 4<sup>th</sup> system. Perhaps East Africa's only non-rift associated petroleum system might be represented by the oils of the Manzi Bay discovery.

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