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Kinematics of the oblique faults in the east central Gulf of Suez Rift, Wadi Araba, Sinai Peninsula, Egypt

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The Oligo-Miocene Gulf of Suez rift is characterized by four fault trends; a rift-parallel trend, two trends oblique to the rift trend and a cross trend. The rift-parallel trend strikes 310^o to 340^o and is referred to as the Clysmic trend. The two trends, which are oblique to the Clysmic trend, strike 350^o to 030^o and 280^o to 310^o; the first has been referred to as the north-oblique (N-oblique), and the second as the northwest-oblique (NW-oblique). The cross trend includes faults nearly orthogonal to the Clysmic trend i.e. they strike between 050^o and 075^o.

Image interpretation and detailed field mapping and structural studies at a scale of 1: 20,000 of the Wadi Araba area in southwest Sinai Peninsula indicate e Clysmic faults are mostly normal showing major dip-slip movements. The oblique faults were found to be younger than the Clysmic faults and that the N-oblique faults are characterized by major sinistral strike-slip movement, while the NW-oblique faults are characterized by major dextral strike-slip movement. Cross cutting relationship, geometry and palaeostress analysis indicate that the oblique faults are conjugate Riedel shears originated due to NE to NNE extension related to the Aqaba-Levant transform that has been active since the Middle Miocene.