

The study aims to investigate the influence of rifting on the processes of organic matter maturation, hydrocarbon generation, expulsion, and migration, as well as the influence of rifting on the preservation of accumulated hydrocarbons in the Gulf of Suez. The study identified the presence of sixteen generating and expelling troughs based on the results of thermal burial histories: Darag, Nebwi, Lagia, October, Fieran, Amer, Belayim, July, Ramadan, Morgan, West Zeit, East Zeit, Ashrafi, Ghara, Gemsa, and Sharm troughs. These names were given after geographic areas or known oil fields in the proximity to the respective trough or in its vicinity. All the source formations in the sixteen troughs reached top oil window and expelled their hydrocarbons at 10 million years before present (mybp) and continued till present. Such timing post-dates the Early Miocene Mid Clysmic or Mid Rudeis "disturbing" event and the Late Miocene Messinian "quiet" event, which suggest high Migration and accumulation efficiencies for hydrocarbons generated in these troughs. The Darag, Amer, Belayim, Ghara, and Sharm troughs are considered the highest in preservation as migration started the latest among other troughs (4.8 and 2.5 mybp relative to 10 to 6 mmybp for the July, Ramadan, Morgan, West Zeit, East Zeit, Ashrafi, and Gemsa troughs,). The suggested prospective areas for future exploration should be located updip and in the hydrocarbon migration pathway.