Source Rock Evaluation and Integration of Gravity Method at Red Sea Basin, Sudan.

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Abstract (300 word limit)

The study area is located in Red Sea basin which extend parallel to the Sudanese Red Sea in order to determine and estimate the source rocks in the basin and defined the sub-basins by using the geochemistry and satellite gravity.

The Red Sea rift marks the break-up of the Afro-Arabian plate in Eocenee-Oligocene time. The tectonostratigraphic evolution can be subdivided into three major phases: Pre-rift, Syn-rift and Post-rift phase.

The geophysical studies which applied to the area by satellite gravity method. The Bouger, Residual anomaly and vertical derivative maps have been created. The basin appears in maps as low anomaly in between two high anomalies in East and West directions, this high anomaly interpreted as Mid Oceanic Ridge (MOR) and Red Sea Hills (RSH) respectively. By using the vertical derivative map, found the sub-basin, which contain certain vertical faults what bordered these sub-basins. Also about 8 sections done across the profiles in order to identified the accurate depths of basin where the wells were drilled, and it gave positive values.

With more than 12 wells being drilled obtained from RRI, some of which have been petroleum discoveries (gas and condensate with oil shows), Plots of Total Organic Carbon (TOC), Hydrogen Index (HI), Tmax, Oxygen Index (OI), Spore Color Index, Production Index and Paleo-tectonic sections were been created.

The results were found very good, according to the gravity method most of borehole have been located in shallow area. Very deep sub basins found in whole of the basin have been identified as good potential area to future drilling. Also, the formations of: (Kareem, Rudeis, Belayim, Dungunab, Zeit and Wardan) were classified as beasts' source rocks in the drilled boreholes.

Finally, the study was concluded with highly potential to fined hydrocarbons in the study area.

Image

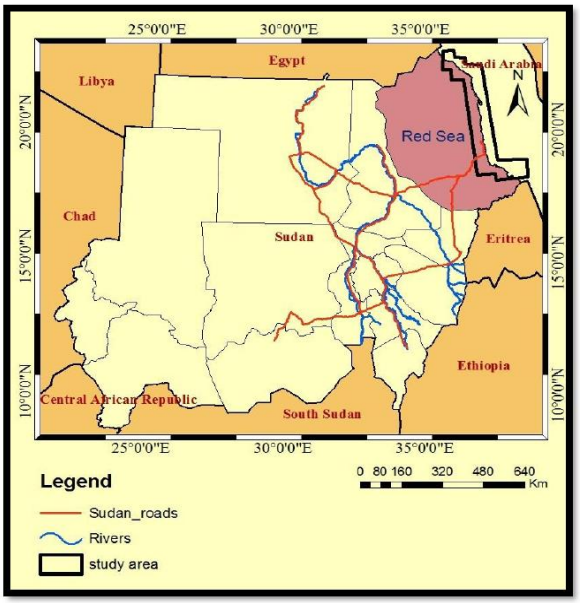


Fig. (1. 1)Map shows the location of the study area.

Recent Publications (minimum 5)

1- Beyene and Abdelsalam , 2005: , Tectonics of the Afar Depression: A review and synthesis. Journal of African Earth Science, v. 41, p. 41-59.

2- Blevin et al. (2009): , Sudan Structural GIS and SEEBASETM, Confidential Report, FrOG Tech Pty Ltd., p.194.

3- Bosworth et al., 2005 The Red Sea and Gulf of Aden Basins. Journal of African Earth Sciences, v. 43, p. 334-378.

4- EREX, 2008) : Basin study and petroleum system: Red Sea, Block-13 Sudan, Report for CPOC: p..423, unpublished.

5- Et Tom & Farwa 2017.: the use of logarithmic fitting in interpreting gravity data, tokar delta, sudan.



Biography (150 word limit)

Mohammed Abdel Moneim has hem expertise in petroleum geology, spatially in petroleum geochemistry.He has work in many geoconsultancy companies. he is dealing with many reaserchs n Sudan about strucural and applied geology. He is collaburate with Faculty of Minerals and Earth Siences at Nile Valley University.

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