

IRP07

Construction of the Iraq National Gravity and Magnetic Database for the promotion of Hydrocarbon Exploration

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SUMMARY

Iraq has a long history of hydrocarbon exploration which included the regional gravity surveying of Iraq using land gravity and aeromagnetic methods. These exploration data sets have now been fully compiled into digital products which provide a wealth of new structural and sub surface information for the shallow parts of the basins (main seen by the gravity data) and deep basement structures (mainly seen by the aeromagnetic data). These responses result from a strongly magnetised basement and weakly magnetised sediments that vary from 4-5 km to in excess of 13 km in thickness in eastern Iraq. Since sediments increase in density with depth due to compaction, the gravity anomalies will be associated with tectonic movements (faulting and folding) that have laterally offset the sediment layers and densities.

Detailed integrated geological and geophysical studies over the basement areas of the Arabian Plate show the basement has been affected by three main structural trends from oldest to youngest

The Pan African Idsas Fault System (1000-780 Ma)
Najd Fault System (680-620 Ma)
Transversal Fault System (Latest Precambrian)

The most recent structural deformation is the ongoing Alpine folding event in NE Iraq. This is due to the northerly movement of the Arabian Plate and collision with the Anatolian Plates first producing the E-W trending anticlines followed by the stress introduced against the Iranian Plate in a NE-SW direction resulting in NW trending anticlines of NE Iraq; some are overprinted over the Anatolian trend in N Iraq.

The poster presentation will focus on the construction of both the gravity and aeromagnetic databases and show images how the gravity and magnetic data relate to the principle basement structural trends and Alpine deformation.