



Marine Magnetic Anomalies of the Northern Part of the Gulf of Aqaba, Dead Sea Rift

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A high-resolution marine magnetic survey in the northern part of the Gulf of Aqaba, Dead Sea Rift was carried out during October and November 2006. The survey led by an international research group (Israel, Jordan, and USA) funded by MERC, USA and aims to provide the municipalities of Aqaba and Elat a base map of active faults for seismic hazard assessment.

The total magnetic intensity at sea surface was measured by a proton precession magnetometer.

Diurnal magnetic variation was corrected from the data by using the observation located in southern part of Israel during the survey period. The correction of the external field variation was carried out based on the continuous magnetic observations at a reference magnetic observatory close to the survey area. For calculations of the total intensity of magnetic anomaly, the IGRF model was used as the core field model in accordance with the recommendation of the IAGA. Geomagnetic total intensity anomaly map of the study area has been produced. The magnetic anomaly map shows that there are two major magnetic trends appear in the study area. These are the magnetic high across the northwest section of the Gulf and a magnetic low across the southeast section. These two general trends are divided by a northeast-trending boundary. The magnetic map reveals a complex faults system between the deep part of the Gulf as a pull-apart basin and the on land transform fault in the Araba valley.