



## **High resolution marine geophysical survey in the northern Gulf of Eilat/Aqaba**

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A high-resolution marine geophysical survey in the northern Gulf of Eilat/Aqaba region was conducted during October and November 2006 led by an international research group (Israel, Jordan, and USA) funded by MERC. The overall aim of the research is to provide the municipalities of Aqaba and Eilat a base map of active faults for seismic hazard analyses and earthquake preparedness planning by acquisition and interpretation of high-resolution marine geophysical images of the seafloor and sub-surface strata.

The three-week marine geophysical survey collected 263 seismic lines with a total length of more than 370 km. The survey was carried out in two phases: a deep water survey (WD 10-700 m) on board the R/V "Etziona" and a shallow water phase (WD < 10 m) on board the "Danny-Boy". The high-resolution geophysical survey included the following equipment: (1) A GeoSparker seismic source with energy range of 100-1000 J and frequency range between 200-5000 Hz. The system had two hydrophone channels, one parallel to the sparker, and the other with about 50 meters offset giving a seismic penetration of more than 100 meters in the soft sediments. (2) A Simrad EM 1002 multi-beam sonar covered the entire area with a spatial resolution of about one meter. (3) A G-881 cesium magnetometer from Geometrics was dragged behind the vessel during the deep water survey, and (4) A E-Sea Scan 800 Side-Scan-Sonar was

utilized for very high resolution mapping of the seafloor morphology. Initial processing of the multi-beam and Sparker data reveals very interesting new features both on the seafloor and in the substrata that were previously unknown. Among them are deep canyons with slumping activity and a complex fault system. During 2007, the seismic data will be processed with Promax (Landmark) software and the interpretation will be done with Seiswork (Landmark) and OpendTect. Additional in-situ data (e.g. coring, diving, ROV) will be collected in the near future to help calibrate and interpret our findings.