

A marine gravity and magnetic survey in the Straits of Gibraltar: results and tectonic implications.

by

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In Spring 1983 an extensive gravity and magnetic survey of the Straits of Gibraltar was performed. We deployed a KSS 30 marine gravity meter with a gyro-stabilised table and 2 marine magnetometers, types ELSEC 7704 and GEOMETRICS G-801. A support vessel of the Spanish Navy navigating with a high precision system, type RAYDIST, was used. The accuracy of the navigation was of the order of $\pm 10\text{m}$.

The evaluation of the gravity data in connection with gravity land information from Spain and Morocco showed that a major disturbance of the gravity field is located immediately off-shore the Moroccan coast in the Straits. It was shown that this major gravity anomaly is associated with a major tectonic anomaly not coinciding with the morphologic depression in the Straits. The residual gravity field showed that several of these anomalies are aligned in a NNW-SSE direction and correspond to morphological depressions.

The magnetic field has no dominating trends and indicates no significant residual anomalies. This shows that the magnetic basement is situated at a great depth.

Tectonic considerations will be discussed.

