



Crustal structure of the Hecataeus Rise (eastern Mediterranean) deduced by marine gravity and marine magnetic modelling

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In the year 2010 extensive geophysical researches were carried out in the area of Hecataeus Rise using the German research vessel Maria S. Merian. Beside the bathymetry, refraction and reflection seismic data, marine gravity and marine magnetic data were acquired during this cruise.

The result of the research along one Wide-Angle reflection/refraction seismic line of this cruise is published 2015 by K. Welford et al.. Based on interpretation of reflection seismic and bathymetry data across the Hecataeus Rise, S. Reiche published 2015 the crustal structure and bathymetric features along some seismic profiles of this cruise. The focus of this work is to use the available sediments and crustal structures inferred by seismic information together with real marine gravity and marine magnetic data in order to produce gravity and magnetic 2-D models along all seismic profiles.

While Welford et al. used the altimetry gravity data and magnetic data from EMAG3 database for their modelling, the real gravity and magnetic data measured exactly along the seismic profiles will be used in this work. The advantage of the real marine gravity and real marine magnetic data used for the modelling is that they have higher accuracy in the values as well as in the positions. Furthermore, Welford et al. calculated the gravity and Magnetic models along some seismic profiles, while in this work the result of gravity and magnetic modelling along all seismic profiles of this cruise will be presented.

The marine gravity and marine magnetic data along all seismic profiles were recorded continuously. The accuracy of marine gravity data is about ± 1 mGal, while the accuracy of Marine magnetic data is in the range of ± 3 nT. The results of 2-D gravity and magnetic modelling will be presented and discussed in this work.