



Evidence of the ocean floor spreading in gravity data

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The evidence of ocean-floor spreading was given from marine magnetic surveys and later independently verified from the age dating of ocean-floor rock samples and from seismic studies. Here we demonstrate that a signature of the ocean-floor spreading is detectable also in gravity field. This is done based on using gravity data which are corrected for gravitational signals of the ocean crust density structures and the Moho geometry, while revealing major density structures within the oceanic mantle lithosphere. Evidence is given also for the Moho density contrast beneath the oceanic crust which is estimated from gravity data based on combined isostatic and seismic models. The relation between the ocean-floor spreading (i.e. oceanic lithosphere age), the Moho density contrast and gravity field is established by means of a logarithmic model. This model provides an empirical estimate of the density increase with the age of oceanic lithosphere.