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Statistical distribution of lithospheric magnetic anomalies as manifestation of growth-decay mechanism of geodynamics

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When we analyse statistical distributions of magnetic anomalies in different areas of the world, especially for marine data, they are typically non-Gaussian, showing in particular an evident Laplacian statistical character. Although this aspect was already pointed out (e.g. Walker and Jackson, Geophys. J. Int., 143, 799-808, 2000), so far no clear explanation has been given. On the basis of the complex geodynamics of lithosphere, where while new lithospheric material is produced at ridges, old one is destroyed at trenches into the mantle, we propose a physical-mathematical model which is based on a growth-decay evolution of the geodynamics, such as the generalised statistical model proposed for Laplacian distributions by Mathai (J. Can. Stat., v.21,277-283, 1993). An attempt to model marine magnetic anomalies will be shown and discussed.