

Mathematica for Geophysical Field Separation

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Abstract: The article contains different techniques of geophysical data processing by using software Mathematica. It was known that geophysical data are usually distorted due to the influence of noise. Predominantly, the noise can be caused by geological inhomogeneous structure, by errors in measurements and methods being used, by variations of physical fields, etc. As a matter of fact, geophysical data processing is the combat with the noise of various natures. In geophysical data processing, the field separation acquires great significance. Field separation is one of the most important problems in geophysical data interpretation. For potential fields, when there are observational data for the both the profile survey and area survey. The field separation becomes a process of estimation of low frequency component, i.e., the regional anomaly, on the one hand, and high- frequency field component, i.e. the residual or local anomaly on the other hand. The kernel of Saxov Nigarrd Transform is established by author in frequency domain, and this method is sampled for comparison with other methods. The results of sampling allow us to use the method in practice. In this article the field separation is realized in frequency domain by using Computer Algebra system Mathematica.

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