Geophysical Research Abstracts
Vol. 18, EGU2016-2487, 2016
EGU General Assembly 2016

Synthesize function for describing distorted 2-D magnetotelluric responses caused by topography

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In this research, the distortions of 2-D magnetotelluric responses caused by topographies are described by an appropriated synthesize functions. The damping wave equations and the considered topographic curves are used as the kernel of selected synthesize functions. The parameters of those functions are estimated by using the randomized neighborhood search method. The validity of functions is tested on half-space and COMMEMI2D-1 models with cosinusoidal, Gaussian and logistic topographic curves. The obtained results indicate that distorted apparent resistivity are well described by the selected synthesize functions with an acceptable root mean square errors. The obtained values of parameters are varied on both periods of EM wave and height of topographies.