



A 3D inversion for all-space magnetotelluric data with static shift correction

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Base on the previous studies on the static shift correction and 3D inversion algorithms, we improve the NLCG 3D inversion method and propose a new static shift correction method which work in the inversion.

The static shift correction method is based on the 3D theory and real data. The static shift can be detected by the quantitative analysis of apparent parameters (apparent resistivity and impedance phase) of MT in high frequency range, and completed correction with inversion. The method is an automatic processing technology of computer with 0 cost, and avoids the additional field work and indoor processing with good results.

The 3D inversion algorithm is improved (Zhang et al., 2013) base on the NLCG method of Newman & Alumbaugh (2000) and Rodi & Mackie (2001). For the algorithm, we added the parallel structure, improved the computational efficiency, reduced the memory of computer and added the topographic and marine factors. So the 3D inversion could work in general PC with high efficiency and accuracy. And all the MT data of surface stations, seabed stations and underground stations can be used in the inversion algorithm.