

论文

瞬变电磁对含水层的超前探测效果分析

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摘要:

在隧道开挖过程中,掌子面前方多存在充水、充泥断层或裂隙等地质病害体形成的含水夹层.基于等效导电平面法基础上的视纵向电导二次微分成像方法,利用“H”型地电模型理论得到含水夹层的视纵向电导微分成像响应特征和识别方法,提出视电阻率和视纵向电导相结合进行含水夹层的探测方法,以此来指导瞬变电磁法在隧道内的超前地质预报工作,提高了瞬变电磁探测的精度及准确度.

关键词: 瞬变电磁;含水夹层;视纵向电导;超前探测

The effect analysis of advanced detection of water interbed by TEM

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Abstract:

During tunnel excavation processes,some geological diseases such as water-filled or mud filled cracks and other geological faults, often occur in front of the working face, which usually exist in a form of the water interlayer. By means of apparent longitudinal conductance quadratic differential coefficient imaging based on the equivalent conductive plane method,the response characteristics and the identify method of the apparent longitudinal conductance quadratic differential coefficient imaging were obtained through the “H” type geoelectricity model. Then, the effect of water interbed advance detection was analyzed by way of apparent longitudinal conductance quadratic differential coefficient imaging. The conclusions can be used to direct the transient electromagnetic method in tunnel geological forecast and to improve the accuracy of TEM detection.

Keywords: transient electromagnetic; water interbed; apparent longitudinal conductance; advanced detection

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