地球物理学报 2005, 48(1) 222-228 DOI: ISSN: 0001-5733 CN: 11-2074/P

论文

坑道直流电阻率测深异常研究

黄俊革，鲍光淑，阮百尧

1 桂林工学院资源与环境工程系，桂林 541004 2 中南大学资源环境与建筑工程学院，长沙 410083

摘要： 电阻率测深数据可利用坑道的四个面和四个角得到。但由于受到坑道本身和体积效应影响，坑道内电阻率测深资料解释的困难很大。本文用有限单元法对坑道内的直流电阻率测深进行数值模拟计算。首先给出坑道中正常电位的取值，并利用有限单元异常电位计算法对坑道内电阻率测深进行正演计算。结果表明，在异常体断面尺寸、埋深及所用电极距与坑道截面尺寸相差不大时，坑道面上的测深断面反映的基本是本坑道面外侧地质体的信息，对其他位置的地质体没有明显反映，坑道角断面则反映的是相邻两个坑道面外侧地质体的综合信息。

关键词： 坑道 电阻率 测深 有限元 数值模拟

A study on anomalous bodies of DC resistivity sounding in tunnel

HUANG Jun-Ge BAO Guang-Shu RUAN Bai-Yao

Department of Resources and Environment Engineering, Guilin Institute of Technology, Guilin 541004, China School of Info-Physics Engineering, Central-South University, Changsha 410083, China

Abstract: The resistivity sounding data can be carried out on four corners and four walls in tunnel. It is diffcult to interpret the sounding data because of the influence of tunnel itself and volume-effect. In this paper,we performed modelling of DC resistivity sounding in tunnel using the finite element method(FEM). First, the value of normal potential in tunnel is presented. Then, modeling of resistivity sounding in tunnel is using anomalous potential method of FEM is performed. The result shows that when the size,the depth of bodies and on surface of tunnel mainly reflect the geologic bodies outside the surface and weakly the bodies on other positions.The section maps of sounding on corners of tunnel show the bodies outside the two adjacent surfaces synthetically.

Keywords: Tunnel Resistivity Sounding FEM Numerical modelling

收稿日期 2003-07-14 修回日期 2004-09-27 网络版发布日期

DOI:

基金项目:

通讯作者:

作者简介:

作者Email:

PDF Preview

参考文献：

本刊中的类似文章