三维可视化及物探新技术在矿山接替资源勘查中的应用——以铜陵狮子山矿田为例

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中文摘要:在矿山发现和勘查过程中往往积累了大量地质、物探等资料,随着地质体三维可视化和物探新处理方法的发展,利用这些方法对已有资料进行深度挖掘与开发可以提炼出新利找矿的信息,避免工作量的重复投入,可为矿山接替资源勘查提供有力的技术支持.本研究以铜陵狮子山矿田为例,收集了其勘探阶段积累下来的地质钻探及物探资料,采用地质体三维化建模技术对这些资料进行了二次处理,建立了冬瓜山铜矿的三维矿床模型.在可视化环境下,分析了矿体与各成矿地质要素之间的关系,结合新处理方法对已有重磁资料再处理获取的圈定出了寻找同类矿床的靶区一前冲靶区,并采用EH-4等物探方法进行了验证,通过钻探验证表明,采用三维可视化、物探处理新方法对已有资料进行深度挖掘与开发,不但可以为矿山资源勘查提供找矿信息,还能节约大量时间和资金.

中文关键词:三维建模 接替资源 深度挖掘与开发 物探新技术

Application of 3D Visualization Technique for Ore Deposit and New Geophysical Technology the Exploration of Mine Substitution Resources:A Case Study of the Tongling-Shizishan Ore Field

Abstract:Large quantities of geological and geophysical data are usually accumulated in the course of mine exploration.With the development of the 3D visualization technic for geological bodies and the new data-processing method for geophysics,these data can play an important role in the substitution resource exploration through refining usa information from the old data,thus avoiding repeated work.With the Tongling-Shizishan ore field as a study area,the authors collected the geological and drilling data accumulated in various exploration phases and adopted 3-D visual geological body modeling method to set up its 3-D deposit model.The relationships between geological attributes and ore bodies were analyzed under a visual environment.Based on the analytical results,the authors delineated a new target area called Qianchong in search for same type of ore deposits,and this discovery was later verified by such geophysical methods as the EH-4 technique.The drilling results have proved that the re-exploitation o data can not only provide more information for substitution resource exploration but also save funds and time.