用Hooke-Jeeves方法进行水文地质参数寻优的研究　　　点此下载全文

王敏　朱国荣　孔祥龙　江思珉　季月华

南京大学地球科学系，210093

DOI：

摘要：

　　模型验证阶段的水文地质参数调整一直是地下水数值模拟过程中的关键步骤。传统的参数调试方法如试估一校正法既需要大量的时间，又必须凭借经验进行人工干预。这对于本就缺少经验的人来说是无法逾越的难题。因此前人研究了包括单纯形等多种自动优化方法来反求水文地质参数。本文采用的Hooke-Jeeves法是一种算法简单，便于使用的优化方法，它避免了单纯形法必须先形成一系列单纯形顶点及通过形心寻优的麻烦，而是根据误差下降趋势直接寻优获得结果。方法首先将反求水文地质参数问题简化为一无约束优化问题，最终运用Hooke～-Jeeves方法对问题进行求解，是一种简单且实用的方法。

关键词：Hooke-Jeeves　水文地质参数　地下水数值模拟　无约束优化

A Study of Optimization for HydrOgeOl Ogic Parameters with Hooke- Jeeves M ethods　　Download Fulltext

W ANG Min　ZHU Guorong　KONG Xianglong　JIANG Simin　jI Yuehua

Department of Earth Sciences,Nanjing University,Nanjing,210093

Fund Project:

Abstract:

　　Optim ization for hydrogeologic parameters in phase of model examination is the most important step ingroundwater num erical modeling. The traditional methods。such as trial—and—error method。need m uch timeand need manual intervention with experiences. It is the impassable puzzle for the people short of experience. So，many researchers study several optimization method to determining the parameters. Hooke- Jeeves methodis a kind of optimization which algorithm is simple and easy to realize. This method avoids the problem insimplex method which m ust create a series of simplex peaks first and calculate the center of simplex to find theoptim al solution. And it directly optimizes the function with trend of the value reducing. The determ ination ofhydrologic parameters problem firstly converts into a unconstrained optimization, and then unsolved with theHooke- Jeeves method. It iS a simple and practical method.

Keywords:Hooke- Jeeves　Hydrogeologic parametres　Numerical model　unconstrained optimization

查看全文　　查看/发表评论　　下载PDF阅读器