



同登科, 张先敏. 致密煤层气藏三维全隐式数值模拟[J]. 地质学报, 2008, 82(10): 1428-1431

致密煤层气藏三维全隐式数值模拟 [点此下载全文](#)

[同登科](#) [张先敏](#)

中国石油大学(华东)
， 山东东营， 257061; 中国石油大学(华东)
， 山东东营， 257061

基金项目：国家重点基础研究发展规划“973”项目(编号2002CB211708)和国家“863”计划项目(编号2006AA06Z236)资助成果

DOI:

摘要点击次数： 169

全文下载次数： 69

摘要:

我国煤层普遍存在低渗、低储层压力和低含气饱和度等不利条件，许多研究表明，低渗透多孔介质中的气体运移存在启动压力梯度。为了让数值模拟模型能更加准确地描述致密煤储层中流体的运移特性，基于前人的研究成果，建立了考虑启动压力梯度的致密煤层气藏三维、非平衡吸附、拟稳态条件下气、水两相耦合流动数值模拟模型，并给出了模型的全隐式有限差分格式和数值求解方法。最后利用沁水盆地某生产井的试井资料进行了模拟计算，模拟结果表明，在其他条件相同的情况下，启动压力梯度的存在使得煤层的降压效果变差，且延迟了产气高峰的到来。对比该井的开采资料，模拟结果是合理的，模型能正确反映致密煤层气藏中流体的运移特征。

关键词：[煤层气](#) [启动压力梯度](#) [全隐式](#) [数值模拟](#)

Fully Implicit Numerical Simulation of Tight Coalbed Methane Reservoir [Download Fulltext](#)

[TONG Dengke](#) [ZHANG Xi anmin](#)

China University of Petroleum, Dongying, Shandong, 257061; China University of Petroleum, Dongying, Shandong, 257061

Fund Project:

Abstract:

Disadvantages of coal seams in China are of low permeability, low reservoir pressure and low gas saturation, and many researches show that the gas flowing in low permeability media needs a starting pressure gradient. Based on previous researches, a three dimensional, two phases coupled flow mathematical model was presented to describe the characteristic of fluid flow in tight coalbed methane reservoir. Besides, the fully implicit numerical model was given by the finite difference method and linear equations were solved by Orthomin method. Finally, the simulation was conducted by the well test data of some production wells in Qinshui Basin. The results indicate that the existence of starting pressure gradient makes the depressurization effect worse and delays the coming of the gas production peak under the other conditions. Compared with the production data of this well, the simulation result is reasonable and the model could represent the characteristic of fluids flow in tight coalbed methane reservoirs.

Keywords:[coalbed methane](#) [starting pressure gradient](#) [fully implicit](#) [numerical simulation](#)

[查看全文](#) [查看/发表评论](#) [下载PDF阅读器](#)

您是第**582554**位访问者 版权所有《地质学报(中文版)》

地址：北京阜成门外百万庄26号 邮编：100037 电话：010-68312410 传真：010-68995305

本系统由北京勤云科技发展有限公司设计

