



陈瑞银, 赵文智, 邱中建, 王红军. 地震动促进石油运移的一种模式及其发生边界[J]. 地质学报, 2007, 81(11): 1531-1537

地震动促进石油运移的一种模式及其发生边界 [点此下载全文](#)

[陈瑞银](#) [赵文智](#) [邱中建](#) [王红军](#)

中国石油勘探开发研究院, 中国石油勘探开发研究院, 中国石油集团公司, 中国石油勘探开发研究院 北京, 100083, 北京, 100083, 北京, 100724, 北京, 100083

基金项目: 国家重点基础研究发展计划(编号2007CB209500600), 中国博士后研究基金(编号20060400140)资助的成果。

DOI:

摘要点击次数: 135

全文下载次数: 113

摘要:

天然和人工地震动使地下孔隙流体瞬时产生相对于地层介质的加速运动趋势,即产生了作用于流体的瞬时冲力。在不考虑质量扩散力条件下,本文以岩石孔喉结构理想模型和充填其中的石油受力分析为基础,对水平、垂向两地震动作用方向上,促进石油运移时的油柱长度、孔隙、喉道等边界条件进行了分析,并考虑了静水常压和异常压力两种地层状态下的情况。研究表明,在无裂缝作为运移通道的条件下,地震动作用可以使油柱在岩石破裂前,突破一定岩石孔隙结构的喉道发生运移。对该地震动促进石油运移模式的边界条件分析认为,小孔喉比值、大半径孔隙和连续一定长度的油柱利于油柱突破喉道运移的发生,油柱在水平向地震动作用于静水常压地层、垂向地震动作用于静水常压地层、水平向地震动作用于低过剩压力梯度地层、垂向地震动作用于高过剩压力梯度地层等4种情况下,地震动促使运移发生的难度依次降低。

关键词: [地震动](#) [石油运移](#) [边界](#) [孔隙](#) [喉道](#) [剩余压力](#) [压力梯度](#)

A New Model of Petroleum Migration Inspired by Earthquake and Its Generating Boundary Conditions [Download Fulltext](#)

CHEN Ruiyin, ZHAO Wenzhi, QIU Zhongjian, WANG Hongjun Research Institute of Exploration and Development, Petrochina, Beijing, 100083; 2) China National Petroleum Corporation, Beijing, 100724)

Fund Project:

Abstract:

Natural and artificial earthquakes can trigger off some acceleratory motion tendency of ground fluids. The motion tendency will behave as some impetus of fluids migration if rock media is the reference frame of fluids migration. Based on the ideal model of pore structure and stress analysis of oil column unconsidering mass diffusion, the occurrence boundary conditions of petroleum migration under the action of earthquake are discussed. Those boundary conditions include the length of oil column, pore size, pore-throat, and different fluid pressure status. The results indicate that earthquake can inspire oil column migration through some special pore structure before fractures appear. The detailed analysis shows that lower pore/throat ratio, bigger radius of pore and longer continuous oil column are good for petroleum migration, that petroleum migration inspired by earthquake becomes easier in turn in the following cases: the lateral vibration of earthquake acts on formations with normal fluid pressure, the vertical vibration with normal fluid pressure, the lateral vibration with abnormal fluid pressure and the vertical vibration with abnormal fluid pressure.

Keywords: [earthquake](#) [petroleum migration](#) [boundary conditions](#) [pore](#) [throat](#) [surplus pressure](#) [pressure gradient](#)

[查看全文](#) [查看/发表评论](#) [下载PDF阅读器](#)

您是第582367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

