

论文

承压工作面底板破断规律双向加载相似模拟试验

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摘要:

以峰峰九龙矿承压水上工作面15423N回采时底板鼓起、破断现象为研究对象, 通过现场工作面底板岩芯钻取编录、地应力测量及工作面地应力场数值模拟反演, 获得了15423N工作面底板岩层赋存及环境应力场特征; 在此基础上采用双向加载相似模拟试验平台和基于独立弹簧组构成的承压水载荷模拟装置, 对九龙矿承压水上工作面底板破断诱发突水的机理进行了分析; 获得了工作面回采过程中, 底板不同深度岩层应力及位移场的时空演化特征。

关键词: 相似模拟; 承压水; 底板破坏; 双向加载; 位移场

Similar simulation experiment of bi-directional loading for floor-destruction rules in coal mining above aquifer

Abstract:

The mechanism of floor heave in the gob adjacent to the working face was analyzed. The aim was to understand the floor heave phenomena happened at No.15423N working face in Jiulong Coal Mine, Fengfeng mining group. Core logging of floor strata and in situ stress measurement near the investigated region were carried out. Moreover, the numerical simulation was used to obtain the in situ stress of No.15423N working face. Based on these data, a bi directional loading similar simulation experiment was carried out to analyze the process and mechanism of floor heave of gob near working face above aquifer. A series of spring group were used to simulate the aquifer. The time space evolution characteristics of stress and displacement field in floor strata were analyzed. The results could be used to explain the mechanism of water inrush accidents in Jiulong Mine.

Keywords: similar simulation; aquifer; floor destruction; bi-directional loading; displacement field

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