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论文

基于分区变权模型的煤层底板突水脆弱性评价——以开滦蔚州典型矿区为例

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摘要:

在解决煤层底板突水预测预报评价难题时, 传统的常权模型存在固定权重不能反映各主控因素指标值在突变情况下及各主控因素之间组合关系的变化, 以及因素权重也应随之变化的情况。为此, 笔者将分区变权理论引入底板突水脆弱性预测评价中, 构建了符合煤层底板突水预测评价问题变化规律的分区状态变权向量及分区变权模型。同时以开滦蔚州典型矿区为例, 应用分区变权模型对目标煤层底板突水脆弱性进行了预测评价, 并和传统常权模型下的预测评价结果进行对比分析, 结果证明变权模型的预测评价效果更好。

关键词: 底板突水; 脆弱性评价; 分区变权模型; 权重; 状态变权向量

Vulnerability assessment of coal floor groundwater bursting based on zoning variable weight model: A case study in the typical mining region of Kailuan

Abstract:

During the regular forecast and assessment of coal floor groundwater bursting, the traditional constant weight model can not realize the weights of controlling factors should also be altered when the situation of index values appear mutation induced by sudden changes of main controlling factors and the relations among them. In order to effectively solve the problem, the authors introduced the zoning variable weight theory to the vulnerability evaluation of coal floor groundwater bursting, and constructed zoning status variable weight vector and zoning variable weight model that meet the forecast and assessment laws of coal floor groundwater bursting. The zoning variable weight model was used to predict the vulnerability of the coal floor groundwater bursting in a typical mining region of Kailuan, and compared with the assessment result of the constant weight model. It's proved that the evaluation effect of the variable weight model is better.

Keywords: coal floor groundwater bursting; vulnerability assessment; zoning variable weight model; weight; status variable weight vector

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