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Spatial Prediction of Concealed Karstic Collapse Columns by Multiple Information Using GIS

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Abstract There is no signal of the karstic collapse columns at II617 ventilated lane in HengYuan mine from previous exploration for the effect form the complicated rock layer characters. However the karstic collapse column is founded when the mine exploration at II617 ventilated lane. For predicting karstic collapse columns spatial distribution, the main three factors effecting the development of karstic collapse columns are analyzed which are soluble rock, sustained hydrodynamic conditions and mine structure. GIS tools are used for synthesizing multiple information that represent the above main three factors, such as Limestone layer, watery information form transient electromagnetic method and mine structure. For confirming the effectiveness of this method, the second mine in Liu Qiao is choosing as research area. At last, the three key targets are selected from eight areas of possible predicted Karstic collapse columns areas.
Keywords karstic collapse column, spatial prediction, multiple information