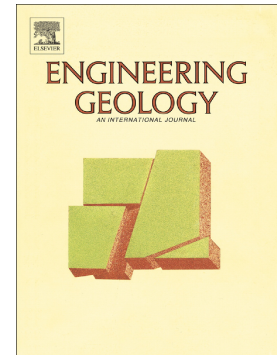


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Role of natural fractures in damage evolution around tunnel excavation in fractured rocks

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ABSTRACT

This paper studies the role of pre-existing fractures in the damage evolution around tunnel excavation in fractured rocks. The length distribution of natural fractures can be described by a power law model, whose exponent a defines the relative proportion of large and small fractures in the system. The larger a is, the higher proportion of small fractures is. A series of two-dimensional discrete fracture networks (DFNs) associated with different length exponent a and fracture intensity P_{21} is generated to represent various scenarios of distributed pre-existing fractures in the rock. The geomechanical

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