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LIP-RM: An attempt at 3D visualization of in situ rock mass structures. (English)

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Summary: Mapping of rock mass structure is an important task required in many applications of mining and contracture engineering. This task has to be routinely performed using established techniques developed to provide consistent results under the wide range conditions. In this research, a new methodology was developed to achieve this task by only utilizing the basic measurement instruments which were compass-clinometer and tape meter. The method's logic was based on the alternatives of spatial position of discontinuities that are classified under four types according to the north. In the developed approach, the geometry of discontinuities was evaluated as the linear relationships. Besides, isometric presentation was preferred in developed 3D simulation software, which was named as "linear isometric projection of rock mass". Input data of the developed software were the discontinuity geometric features such as dip, dip direction, and spacing on the rocky outcrop in the form of an information system. The output was a simulation model consisting of the rock mass structure. The new software derived from the developed approaches was tested on an experimental road wall outcrop. Obtained results are very close to the situation observed in the field, and the developed software is user-friendly. In this paper, a description of the numerical model and current capabilities of the software are introduced.

MSC:

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Cited in 1 Document

Keywords:

rock mass; discontinuity; isometric presentation; 3D simulation model

Software:

LIP-RM

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