NEURAL NETWORK FOR ROCK SLOPE STABILITY EVALUATION

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ABSTRACT

An expert system has been developed for use in the stability evaluation of rock slopes under various geological conditions and engineering requirements. It is formed by neural network of paths and decision making procedures that use rock slope characteristics as input, evaluate the information, and lead to the output in form of the probability of failure. The input rock slopes are hierarchically characterized using various criteria, e.g., site characteristics, geological and hydrological conditions, mechanical properties, slope geometry, past failure, vegetation, ground vibration, engineering requirements, design constraints, and project goals, etc. The predictive capability of the proposed program has been verified by comparing with the actual rock slopes under stable and unstable conditions. The results are encouraging.
KEYWORDS: rock, slope, network, expert system, failure, stability, geology, hydrology