GEOSTATISTICAL MAPPING OF RQD IN SÃO FRANCISCO MINE - BRAZIL.

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Understanding the nature of rock masses is fundamental to mine planning and operation. However, effective rock mass characterization remains problematic. The cost of geotechnical evaluations combined with the natural geological variabilities, makes it difficult to obtain comprehensive information. While there is a number of rock mass properties that are of value in geotechnical engineering, a relatively short set of index properties are usually sought during site investigations. One of these index properties includes Rock Quality Designation (RQD). Nowadays, the RQD is used as a standard parameter in drill core logging and is a key element in most rock mass classification systems. This quantitative index has been widely used to identify low-quality rock zones which deserve greater attention and which may require additional borings or other exploratory work. RQD is a regionalized variable that can be estimated using geostatistical techniques. This approach, based on the theory of regionalized variables, has gained in popularity, providing a powerful tool for dealing with spatial data. After variogram modeling has been performed, predictions at unsampled locations can be made applying kriging interpolation methods. One possible approach is ordinary kriging, a linear estimation method, which main characteristic is to minimize the estimation variance. On the other hand, non linear indicator kriging, when modeled with multiple cutoffs, allows the estimation of the local cumulative probability function. Once obtained this function, it is possible to calculate the local probability of RQD values intervals, which can be used in standard classification tables.