عنوان مقاله:

Selecting the optimal method to estimate the resources in Seris iron ore amony ordinary kriging, logarithmic kriging and inverse distance weighting

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خلاصه مقاله:

Siriz iron ore deposit is located ۷۵ km northwest of Zarand city (Kerman province) in central Iran. The Syriz iron ore deposit has a simple mineralogical composition. Magnetite, pyrite, chalcopyrite, hematite and iron hydroxides are the most important minerals in this deposit. The lithologic intrusive granite intrusive rocks include rock units such as quartzcinite, quartz monzonite, syenite and synogastro and its constituent magma is calc-alkaline. The use of robust methods in estimating mineral reserve plays an important role in the evaluation, design and planning of mines. In this study, we compared the weighted distance estimator method with conventional kriging and logarithmic kriging methods to select the most appropriate method from the three methods. The data used include analysis of drill core samples, ۴۷ boreholes. The purpose of the present study is to provide three-dimensional modeling based on the facts, estimation of reserve and drawing map of the tonnage of the iron ore of Syriz. In this research, the existing exploratory data were first analyzed by plotting the iron content of the coefficients against the axis of the coordinates. Finally, by using cross validation method, the optimum parameters needed for estimation by conventional kriging, logarithmic kriging and weighted distance inverse method and estimation of iron storage of this deposit in a block model. Depending on the type of deposit storage and the tonnage curves of the results, the results of these three methods were compared with the raw data. Based on the calculations and the distribution of the iron grade in the Syriz iron ore deposit, it was shown that the squared inverse method has better agreement with the known facts in the mine.

کلمات کلیدی:

Ordinary kriging, logarithmic kriging, inverse distance weighted, Geostatistics, reserve ore deposit, Siriz iron ore deposit.