Recoverable resource estimation mixing different quality of data

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ABSTRACT: Working with different data sets in the process of mineral resource estimation is a common challenge to be addressed by the industry. The sampling methods, sensor devices, measurements times along the ROM and the key variables measured might differ between data sets. The result of these variations is reflected in the quality of each data set. Comparative exploratory data analysis, in a global and local scale, are used to verify if different data sets are sampling the same distribution. Frequently, the results show differences in the statistics, for instance: in the distribution and the experimental variography. This demonstrates that different data sets cannot be just merged and used in estimation and simulation processes if these are not previously treated. One way of integrating the different data sets with different qualities into the resource estimation process is to attribute a variance of measurement error to the unreliable data set (low quality samples). However, the estimation of recoverable resources and risk analysis remain to be verified. The methodology proposed enables an estimation and risk analysis of the recoverable resources of interest by considering the variance of measurement error calculated from the cokriging between reliable and unreliable data sets. This paper illustrates an innovative methodology with an application in a polymetallic massive sulphide deposit.