

Empirical Geostatistics # 1: Kriging Slope of Regression - Sensitivities and Impacts on Estimation, Classification and Final Selection.

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ABSTRACT

With the advances in software speed and capability, many of us now are running multiple scenarios on entire models rather than just testing small areas or a few blocks. In the authors experience both the geological and geostatistical academic theory and our rules of thumb often prove un-useable or incorrect in the real world we work in. The only way to truly validate and tune our models is to complete the entire model and “see if it works”. If it lacks some property we were expecting, then we need to find out why and/or run different scenarios to see what changes. This is not always possible with tight project timelines, but we find ourselves doing more and more of this sort of thing, and in so doing, we understand that every deposit is different and requires its own “rules” to get valid and useful results. For the purposes of this paper, this process is termed Empirical Geostatistics.

Take Clayton Deutsch’s “all realisations all of the time” concept a step back. Before you even think of simulating, test the alternate realisations generated by alternate parameters such as different domaining, varying search neighbourhood parameters etc. (then, if you want, increase the number of simulations required....as you simulate each alternative.....)

Topic #1: Kriging Slope of Regression

Never has a statistic been more misunderstood, misused and abused than the poor old kriging slope of regression.

- Maximise me! (No, you’re an oxymoron)
- Classify me – I don’t care how!
- Block size with me – bigger is always better (really?)
- Drill space with me (but please don’t de-cluster me)
- Don’t top cut me, threshold me (Actually it doesn’t matter – or does it?)

This paper takes a fresh look at the humble kriging slope of regression and its close friend, kriging efficiency (KE), examines, and shows examples of, its mis-use and misunderstanding, while tying these back to potential impacts on classification, grade and tonnage estimates and final selection outcomes.