Geostatistical Analyst—An Introduction

Goals of the workshop

- Define what geostatistics is and how it is used.
- Explain the steps involved in a geostatistical analysis workflow.
- Provide an overview of the capabilities provided in the ArcGIS Geostatistical Analyst extension (data exploration and different interpolation methods).
- Illustrate differences between and the assumptions behind the interpolation methods.
- Explain the steps involved in kriging.
- Show how to evaluate a kriging model.
- Illustrate different types of output generated from kriging.
- Explain how kriging is extended by simulation, and why simulation is useful.

Major topics covered

- An overview of geostatistics: What it is; examples of real-world applications.
- Steps in a geostatistical workflow: Deciding which method is appropriate; exploring the data; modeling spatial correlation; evaluating an interpolation model; how the output is used. Tools available in Geostatistical Analyst that support these steps will be demonstrated.
- Similarities and differences between interpolation methods: How the methods work and which underlying assumptions they are based on.
- Focus on kriging: What the advantages are of kriging; what steps are involved in creating a kriging model; different types of kriging and their uses; more advanced techniques (trend modeling and removal, data transformations); fitting a semivariogram model; defining a search neighborhood; evaluating a model using cross validation; different types of output.
- Geostatistical simulation: Explain what it is and how it extends kriging; illustrate how the simulated values can be used in decision making.