The Bear Hunt of Geostatistics

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Abstract

There is a challenge in applying geostatistical tools with actual data even for those well acquainted with geostatistical theory. A web based laboratory guide has been constructed to aid with this transition. The guide is based on WinGSLIB and GSLIB. Geostatistical tools for mining and petroleum workflows are covered.

Introduction

The name 'Bear Hunt' is descriptive of the guide's form and purpose. An acquaintance operates a bear hunt in Northern Alberta with his outfitting company. The camp is set up so that even an inexperienced hunter will succeed in 'bagging' a bear, with almost no hardship. The hunter waits in a comfortable blind. When a bear invariably arrives for the bait, it is promptly dispatched. The hunter gets the characteristic trophy pictures, and then the bear arrives home in a short period as a rug. Inexperienced hunters that go after bear by themselves are most often unsuccessful or get hurt.

Professionals in resource modeling often struggle when first applying geostatistical tools with real data. There are many implementation details that may pose stumbling blocks. Parameters that are set without understanding may cause unexpected results. Initial experiences with practical geostatistics may be similar to dropping an inexperienced hunter deep in the woods. This tutorial leads the professional directly through the use of a wide variety of tools as a guide would at bear camp. All parameters are preset and thus all infrastructures are in place at the camp. The goal of successfully applying geostatistics to an actual data set is guaranteed.

Flexibility is built in the exercises to permit experimentation with the geostatistical tools. Batch scripts and preset parameter files are provided so that the affects of key parameters can be rapidly observed.

Program Design

The web page hierarchy is set up with start-up, mining and petroleum sections. Within the mining and petroleum sections there are 12 exercises.

1. Exercise I: Data Visualization and Interpretation
2. Exercise II: Data Declustering
3. Exercise III: Normal Score Transformation and Variogram Calculation
4. Exercise IV: Variogram Modeling

The Web Based Guide

The Bear Hunt is in the form of published web page. Installation is not required. The bear hunt may be run from the CD, or be copied to any location on the hard drive and run. The web may be launched by opening the BearHunt.htm file in the web directory called 'BearHunt'.

Additional Required Programs

WinGSLIB is required for the Bear Hunt. WINGslib is available through Statios (www.statios.com). A 30 day demo is available free of charge. Condensed installation instructions and links to the Statios web site for the complete installation and software guide are provide in the Bear Hunt in the Start Up section. In addition, a postscript viewer and text editor are required.

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