Practical Geostatistics 2014
Presented by Dr. Isobel Clark
26th - 28th March 2014, Indaba Hotel Fourways Johannesburg

International Expert
Dr. Isobel Clark
She is a Fellow of the Royal Statistical Society

Each delegate will receive a copy
Of the practical Geostatistics 2000 text book
And CD containing (Digital version of text book and PG 2000 software, data sets and tutorials)

Your Booking & Payment secures your seat for the course.
**Course Overview**

Practical Geostatistics: as the name suggests, this course takes interested students from no knowledge of statistics or geostatistics to understanding the mysteries of ordinary kriging and its variants in 24 hours. This is a classroom course and includes manual exercises to reinforce understanding of the techniques. This course is three days long, and composed of lectures augmented by practical PC/laptop-based exercises covering many different applications. This course is based around the book Practical Geostatistics 2000, a copy of which is supplied to every participant.

Geostatistics is the name given to a particular group of techniques which model spatial processes and allow estimation of values at unsampled locations. Geostatistical estimation is a two stage process:

1. studying the gathered data to establish the predictability of values from place to place in the study area; and
2. estimating values at those locations which have not been sampled. This process is known as 'kriging'.

In mining, geostatistics is extensively used in the field of reserve valuation - the estimation of grades and other parameters from a relatively small set of borehole or other samples. Originally developed in mining, geostatistics is now widely used in many other fields. Obviously there are geological and geographical applications. However, the techniques are also used in such diverse fields as hydrology, ground water and air pollution, soil science and agriculture, forestry, epidemiology and weather prediction.

This course is aimed at any professionals dealing with the estimation from or interpolation between samples collected on a spatial basis. This is not a course for specialist geostatisticians but intended rather for those who wish to use geostatistics to enhance their practical applications or research.

No prior knowledge of statistics or geostatistics is assumed. A minimum of mathematics is necessary to explain the techniques - mainly simple algebra, up to understanding the concepts behind solving simple sets of simultaneous equations and differentiating $x^2$. Questions and discussions are actively encouraged and, indeed, form the basis of a successful course.

**Benefits of Attending**

- Gaining insights on classical statistics.
- Understand the different Statistical methods.
- Discover the Construction and Interpretation of semi-variograms.
- Gain a better understanding on the Variations on kriging.
- Identify the trends in Geostatistical methods.
- Practical exercises and case studies to be conducted.
- Understand the different methods of kriging.

**Who Should Attend**

- Mining Geologists
- Mining Engineers
- Mine Surveyors
- Geologist
- Geologist(Trainee)
- XRF Analyst
- Sampling Personnel
- Sampling Supervisors-Managers
- biologists
- Metallurgist(Trainee)
- Mineral Resource Managers
- Resource Analysts
- Mine Managers
- Mine Supervisors
- Geophysicists
- Geochemist
- Geometallurgist
- agriculturalists
- statisticians
- environmentalists and
- any other professionals dealing with the estimation from or interpolation between samples collected on a spatial basis.

**Your Expert Presenter**

**Dr. Isobel Clark**

Dr. Isobel Clark provides consultancy through Geostokos Limited, almost exclusively in the field of mineral resource and reserve estimation, most often at feasibility or even pre-feasibility stage. She has a B.Sc. (1969) in Pure and Applied Mathematics from Strathclyde University, an M.Sc. (1970) in Biometrics from University of Reading, a Ph.D. (1979) in Engineering from University of London, and a Diploma in Educational Broadcasting (1980) from University of York. She is a Fellow of the Royal Statistical Society, a Member of the Biometrics Society, a Member of the Institution of Mining and Metallurgy, Member of the Society of Mining Engineers of AIME and of MMSA which carries accreditation as a QP, a Fellow of the Southern African Institution of Mining and Metallurgy, and a Fellow of the Australasian Institution of Mining and Metallurgy.

Dr. Clark has taught at the Royal School of Mines at Imperial College, the Department of Mining Engineering at University of the Witwatersrand, and Camborne School of Mines at the University of Exeter. She is the author of Practical Geostatistics (1979), co-author of the Practical Geostatistics 2000 series with William Harper, and author of numerous technical papers and short courses. Her major area of investigative study has been in the application of the "Theory of Regionalised Variables" in ore reserve estimation and other appropriate fields.
DAY ONE
- The basic assumptions of spatial estimation methods
- Inverse Distance interpolation methods
- Classical statistics: the Normal distribution

Statistical methods
- The lognormal distribution
- Confidence levels
- Standard errors
- Grade/tonnage curves

DAY TWO
- Construction and interpretation of semi-variograms
- Identification of trends
- Multi-component models
- Confirmation of basic assumptions
- Outliers

Geostatistical methods
- The experimental semi-variogram
- Modelling semi-variograms
- Trends
- Anisotropy
- Geological features

DAY THREE
Variations on kriging
- Lognormal methods
- Indicator methods
- Non-linear geostatistics
- Regression problems (conditional bias)
- Simulation

General discussions and case studies.
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