



# Real Geostatistics

## 24 – 25 January 2019

### Oaklands Inn & Conference Centre

**Isobel Clark is renowned for her down-to-earth approach to resource estimation in general and geostatistics in particular. After 46 years of teaching, software development and consulting in mineral resources and reserves, she will present this practical workshop with real world examples.**

Dr Isobel Clark is a professional Mining Engineer who specializes in the technical evaluation of mineral resources and reserves at all stages in the life of a mine. She has taught, researched and consulted in the field of geostatistics for over 45 years and has wealthy experience in practical application of computer-based design and evaluation methods. Possibly best known as the author of the introductory text "Practical Geostatistics" (1979), she is also co-author of a more complete textbook "Practical Geostatistic" (2000). With proven communication skills honed by training non-specialists, she has conducted numerous short courses on a regular basis to companies and educational institutions in four continents. Dr Clark lectured for 11 years at the Royal School of Mines, Imperial College, London, at the University of Witwatersrand in Johannesburg for 9 years and was visiting professor at Camborne School of Mines for 2 years. Isobel acts as a Director of Geostokos Limited and also maintains her position as associated educator at Geostokos (Ecosse) Limited, two international consultancy companies based in Central Scotland. Her recent consultancy assignments range from the evaluation of diatomite deposits in the USA to the study of protected sea-birds in the UK. Dr Isobel received her Ph.D. in Mining Engineering from the University of London, specialising in the reconciliation of grade control data with actual production. In addition to formal qualifications, she regularly attends relevant conferences to learn new methods, theory and applications. She also attends seminars and meetings of the various professional societies of which she has memberships

#### Partial list of Consultancies and Projects in Africa

- Ad hoc advice on mineral sands applications, for Shell Minerals, **South Africa**
- Advice on sampling at Richards Bay Minerals, **South Africa**
- **American Mineral Fields Int. Ltd.**, supervision of feasibility study --- valuation and geology
- Assessment of Alexander Bay Diamond Mine, **South Africa**
- Audit of resources, tantalite deposit, **Mozambique**
- Evaluation of mining resources, Hartebeestfontein Mine, **South Africa**
- Fergusson Stewart, **Johannesburg**, evaluation of Joel Mine.
- Freda-Rebecca Mine, **Zimbabwe**
- General Mining Union Corporation, **Johannesburg**
- Ghanaian Australian Goldfields, geostatistical modelling and advice on valuation
- Hartley Platinum, BHP **Zimbabwe**, peer review.
- Investigation of problems with Mine Call Factor for Libanon Mine, **South Africa**
- ISCOR Mining, audit of valuation for deposit in **Zaire**
- Johannesburg Consolidated Investment Limited, **Johannesburg**
- Lonrho **Zimbabwe**, advice on evaluation of small gold deposits
- Lumwana Copper Mine, Zambia for Barrick Corporation
- MIMCO, **South Africa**, evaluation of gold mine.
- MineNet South Africa, evaluation of resources and reserves at Skorpion project, **Namibia**
- Mineral resource and reserve valuation for Skorpion Zinc project in **Namibia**
- Palabora Mine, underground development, RTZ Management Services, **Johannesburg**.
- Potgietersrus Platinum, JCI, benchmark evaluation.
- Public statement of remaining reserves at the Droogebult Mine, **South Africa**
- Resource evaluation studies for Lonrho Platinum, **South Africa**.
- Short training for **Nigerian Geological survey**
- Small scale consultation, AngloGold Ashanti Goldfields
- Study of sampling methods and calibrations for Namco Diamond Mining, **Cape Town**
- Tenke Fungurume project, **Congo** audit of computerized database
- Vaal Reefs Exploration & Mining Co. Ltd., audit of annual reserve statement
- Valuation advice for the Ayanfuri Project, **Ghana** for Cluff Minerals

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# Real Geostatistics

## Course Summary

Described as an “intermediate” course on Geostatistics, this two-day course will consist of case studies ranging from coal through base metals and iron ore to precious metals such as gold and platinum.

Participants are invited and, indeed, encouraged to contribute discussion and ideas from their own practical experiences. Using little or no mathematics, Isobel Clark discusses case studies involving interpretation of everyday questions, such as:

- Is my data homogeneous enough for geostatistical mapping?
- Do I have trends in my data and (if so) what kind?
- How do I interpret semi- variograms which deviate from the ideal shapes?
- What Kriging method should I use (if any)?
- Should I be using Kriging results at all?

## Who Should Attend

The course is aimed at professionals who are interested in discussing the real world application of resource estimation techniques.

Mathematics and theoretical developments are held to absolute minimum. Presentations will explain the underlying assumptions of resource estimation, the techniques currently used in the real world, the advantages and limitations and the decision processes which underlie a successful resource or reserve estimation.

The course is aimed at:-

- Geologists
- Mining Engineers
- Surveyors
- Statisticians
- Environmentalists
- 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.

## Day 1

### Morning Session

A straightforward case study from data to block modelling – Including comparison of nearest neighbour, inverse distance and ordinary Kriging methods:-

- Construction and interpretation of semi-variograms
- Identification of trends
- Confirmation of basic assumptions
- Outliers

### Afternoon Session

Dealing with skewed data – simple methods such as lognormal kriging, more complex alternatives such as normal scale and multi- indicator transforms:-

- Choice of appropriate kriging techniques
- Practical applications of Kriging

## Day 2

### Morning Session

Lack of geological homogeneity; change of support; conditional bias and other real life scenarios:-

- Discussion of case studies from course participants
- General discussion of case studies

### Afternoon

Preliminary study of real data sets and open discussion guided by participants interests.

Q&A sessions:-

- General discussion of case studies
- Simulation techniques

## Course Times:

**Morning Tea & Registration : 08:00 – 08:30**

**Mid Morning Tea: 10:15 – 10:30**

**Lunch: 12:30 – 13:30**

**Afternoon Tea: 15:15 – 15:30**

# Registration Form

## Real Geostatistics

Date: 24 – 25 January 2019

Oaklands Inn & Conference Centre, Randburg.

### Pricing Options: Please tick Option

- R12 990 per delegate excl Vat – Includes 2 nights accommodation (B&B) -
- R9 990 per delegate excl Vat – No Accommodation

**Fax Completed form to: 086 625 8511**

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