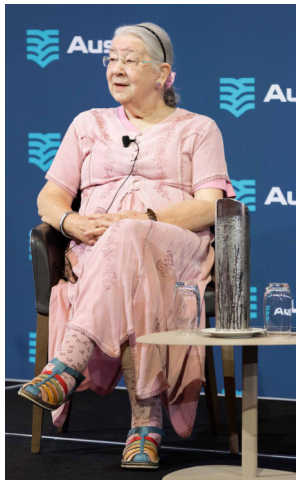


# Practical Geostatistics & Mineral Resource Estimation

## 18<sup>th</sup> – 22<sup>nd</sup> November 2024

### Oaklands Inn Conference Centre Johannesburg



#### Led by World Class Expert

##### **Dr. Isobel Clark**

BSc MSc DIC PhD FSAIMM FIMMM CEng QMR  
Professional mining engineer with over 50 years of experience  
Author of Practical Geostatistics (1979) and (2000)  
Director, Geostokos Limited, Scotland  
Former Professor of Practice at University of Johannesburg  
Former Professor, University of the Witwatersrand, Johannesburg  
Former Visiting Professor Camborne School of Mines  
11 years of lecturing at Royal School of Mines, London

#### **This 5-day course will consist of**

##### Practical Geostatistics Workshop

This will cover the practical aspect of Geostatistics. It will bring the delegates to in-depth understanding of the mysteries of ordinary kriging and its variants. This is a classroom course and includes manual exercises to reinforce understanding of the techniques. This workshop composed of lectures augmented by practical PC/laptop-based exercises covering many different applications. Case studies ranging from coal through base metals and iron ore to precious metals such as gold and platinum will be covered. All case studies are drawn from Dr Clark's extensive worldwide experience. Practical Geostatistics is aimed at any professionals dealing with the estimation from or interpolation between samples collected on a spatial basis. 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. Participants are advised to bring a laptop.

##### Mineral Resource Estimation

Participants in this Master Class section are expected to be conversant with Geostatistical procedures or at least completed Practical Geostatistics Workshop. Participants are invited to contribute discussion and ideas from their own practical experiences and to bring their own data for preliminary analysis during and after the workshop. The workshop will be discussing the real-world application of resource estimation techniques. Using little or no mathematics, participants will be encouraged to discuss their own practice and compare it to others and recognised best practice. Real projects and case studies will form an important part of the workshop and participants will be encouraged to discuss and reflect on their own organisations practices and ways to improve them.

#### Course Format

This course will be an interactive and participative workshop where participants will be encouraged to discuss their own practice and compare it to others and recognised best practice. Real projects and case studies will form an important part of the workshop and participants will be encouraged to discuss and reflect on their own organisations practices and ways to improve them.

#### Who Should Attend But not limited to:

- ✓ Mining Geologists (Exploration, Production, Resource)
- ✓ Mining Engineer
- ✓ Mine Surveyors
- ✓ Geologist
- ✓ Geologist(Trainee)
- ✓ Mineral Resource Managers
- ✓ Resource Analysts
- ✓ Mine Managers
- ✓ Mine Supervisors
- ✓ Geophysicists
- ✓ Geochemist
- ✓ Consultants
- ✓ Statisticians
- ✓ Database Managers
- ✓ MRM Practitioners
- ✓ Sampling Personnel
- ✓ Sampling Supervisors/Managers

**CLAIM 5 SACNASP CPD POINTS**

# Practical Geostatistics & Mineral Resource Estimation Agenda

## Practical Geostatistics

### Session 1

- Assumptions of spatial estimation methods
- Inverse Distance interpolation methods

### Session 2

- Statistical Methods
- Classical statistics: the Normal distribution
- Confidence levels
- Standard errors

### Session 3

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

### Session 4

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

### Session 5

- Geostatistical Methods
- Ordinary Kriging
- Lognormal methods
- Indicator methods
- Regression problems (conditional bias)
- Simulation

## Mineral Resource Estimation

### Session 6

- Assumptions and requirements for mineral resource estimation
- Data validation, top-cuts and capping
- Construction, interpretation and modelling of semi-variograms
- Model validation and reconciliation with geological knowledge
- Geostatistical resource estimation, 3D and block modelling and Kriging
- Other Kriging techniques, such as MIK and Lognormal Kriging
- Geostatistical Simulations and Risk Assessment
- Grade control
- Drill hole spacing analysis

### Session 7

- Construction and interpretation of semi-variograms
- Identification of trends confirmation of basic assumptions outliers
- Case Studies and BYO

### Session 8

- Choice of appropriate kriging techniques
- Practical applications of kriging
- Case Studies and BYO

### Session 9

- Discussion of case studies from course participants
- General discussion of case studies
- Case Studies and BYO

**BYO ' BRING YOUR OWN SESSIONS!!!**

**Get the trainer to address the concern you have in YOUR OWN projects!  
YOU can BRING and ANALYSE YOUR own data using Practical Geostatistics  
2000 teaching software under the supervision of Dr. Isobel Clark.**

#### In-house Training

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Contact **Hami** on +27 (0)78 382 9281 or e-mail [hami@ibssolutions.co.za](mailto:hami@ibssolutions.co.za)

HEAD OFFICE: 30 Hilltop Street Sandton View Office Park, Sandton, Telephone: +27 (0)11 025 7114

<b>Event Name:</b>	<b>Practical Geostatistics &amp; Mineral Resource Estimation</b>	<b>18<sup>th</sup> – 22<sup>nd</sup> November 2024</b>
<b>Company Name :</b>		<b>Tel No:</b>
		<b>Fax No:</b>
<b>Physical/ Postal Address:</b>		<b>Dietary requirements/ allergies:</b>
<b>Purchase Order No:</b>		

**DELEGATE DETAILS**

	<b>Delegate Name</b>	<b>Position</b>	<b>Email</b>	<b>Cell No.</b>
1				
2				
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