



# Geovariances Training

## RESOURCE CLASSIFICATION

### 3-day course

With this course, you will learn the state-of-the-art in resource classification and uncertainty assessment.

The course aims to go beyond the standard definitions of mining resources and reserves. It provides you with tools for quantifying the confidence intervals attached to the reserve estimates. After reviewing the fundamental concepts of variance handled by geostatistics (dispersion and extension variances), several techniques will be presented: conditional simulations, non linear estimates using the discrete gaussian model. This latest technique is unique in ISATIS and quickly provides reliable confidence intervals.

### Features

The course starts with a review of the main definitions of resources and reserves according to the standards as CIM or JORC. The limitations of the kriging variance is then discussed using simple examples. The change of support model available in the frame work of the gaussian discrete model is then detailed and applied on real 3D data for calculating confidence intervals. The interpretation of the results and their comparison with kriging variance and simulations is then discussed.

### Who should attend

Managers, exploration geologists, mining engineers involved in feasibility studies or medium to long term planning.

### Course contents

Half of the course is dedicated to practical computer exercises, using Isatis, that reinforce the previously presented theoretical notions.

- Reminders on resources and reserves notions.
- Concepts of variances calculated in geostatistics (dispersion variance, estimation variance).
- The kriging variance and its properties.
- Data distribution and kriging.
- Gaussian based methods: normal score transformation using the anamorphosis function.
- Change of support within the discrete gaussian model.
- Calculation of the confidence intervals using the discrete gaussian model.
- Geostatistical simulations for achieving the same tasks and comparison with the previous results.
- Available tools for analysing the results.
- Discussion on the limitations of the method and solutions.

### Prerequisites

A good knowledge of geostatistics, including an understanding of non linear techniques (gaussian anamorphosis, simulations) is recommended.

### On-line registration

<http://www.geovariances.com/en/mining-resource-classification-co99>

### Contact

Julien Tan - Sales Manager Mining  
+33 1 6074 9102  
[tan@geovariances.com](mailto:tan@geovariances.com)

Geovariances offers a complete set of high quality training programs in mining geostatistics for beginners and experienced users.

Geovariances courses cover basic and advanced Geostatistics and provide participants with plenty of hands-on practice with real mining data.

All courses are led by our highly experienced consultants.

Geovariances offers public courses around the world and throughout the year in English, French and Spanish.

Our consultants also provide in-house training and mentoring focused on your own needs.

Isatis, the geostatistical software solution from Geovariances, is regarded as the reference in mining geostatistics.

Leading mining and consulting companies around the world rely on Geovariances and Isatis for genuine expertise in geostatistics.

### Our Trainers

#### Jacques Deraisme Scientific Adviser Principal Consultant

Jacques is a co-founder of Geovariances. After graduating as a Mining Engineer (Ecole des Mines de Nancy, 1969) he worked from 1972 to 1986 at the Centre de Géostatistique de l'Ecole des Mines de Paris where his research activities focused on stochastic and mining simulations, and from where he obtained his PhD in 1978. Jacques has worked for Geovariances since 1986 and conducted many geostatistical studies for mining and oil companies. He has led numerous training sessions in applied geostatistics.

#### James Pocoe Senior Resource Geologist

James is a geologist from Australia with experience in mining, evaluation and exploration projects. He completed the CFSG mining geostatistics course at Centre de Géostatistique de l'Ecole des Mines de Paris in June 2009. James brings to Geovariances substantial site-based, hands-on mining industry experience in uranium, gold, base metals and iron ore. His strengths are in ore body interpretation and modelling, geostatistical analysis, estimation and resource reporting.