



2003 SEG/EAGE Distinguished Instructor Short Course

November 5<sup>th</sup>, 2003, 9.00 a.m.

Eni via Emilia, 1- S.Donato M.se, Italy

# GEOSTATISTICS FOR SEISMIC DATA INTEGRATION IN EARTH MODELS

*Dr. Olivier Dubrule* (TotalFinaElf)

## ➤ ABSTRACT

In recent years, the use of geostatistics has spread from the world of reservoir characterisation to that of velocity analysis, time-to-depth conversion, seismic inversion, uncertainty quantification, and more generally to that of seismic data integration in earth models. Nevertheless, many geoscientists still regard geostatistics as little more than a statistical black-box. By explaining the concepts and applications, the goal of this course is to clarify the benefits of geostatistics and help spread its use.

The course will cover the use of geostatistics for interpolation (kriging...), heterogeneity modelling, uncertainty quantification (simulation...), and data integration (cokriging, external drift, geostatistical inversion...). A variety of applications and examples will be presented, including velocity mapping, time-to-depth conversion, heterogeneity modelling, and seismic data integration in stochastic earth models. The relationships between geostatistics and approaches more familiar to geophysicists, such as filtering or bayesian methods, will also be discussed, without entering into mathematical details.

A number of case studies will be presented, covering examples from various parts of the world. This will be a lively course, illustrated by examples, exercises and discussion sessions.

The short-course presentation, limited to one-day, will provide an overview of basic concepts and applications. The course document will provide a support to the course, and further extend some of the more technical considerations.

As a result of following this course, geoscientists, and more specifically geophysicists will better understand how geostatistics fits into their workflow, what tools and techniques they should use depending on the problem at hand, and what added-value may result from its use.

## ➤ WHO SHOULD ATTEND

This is a great opportunity for those interested in solving practical problems involving data interpolation, earth modelling, multidisciplinary data integration or uncertainty quantification.

## ➤ BIOGRAPHY

Dr. Dubrule obtained a PhD Degree in Petroleum Geostatistics at Ecole des Mines de Paris in 1981. He then worked for Sohio Petroleum Company in the USA (1982-1986), Shell International in The Netherlands (1986-1991) and, since 1991, he has been with Elf and TotalFinaElf, working in France and in the UK. During his career, he has held a variety of staff and management positions where he developed and applied new techniques for reservoir characterisation, earth modelling, risk analysis and uncertainty quantification. After leading the "Earth Modelling and Uncertainty Quantification" group at TotalFinaElf, Dr. Dubrule recently became manager of Geoscience Training and Communication.

Dr. Dubrule has authored more than twenty papers in the field of geostatistics and earth modelling. In 1991, he received the President's prize of the International Association of Mathematical Geology, for "Outstanding Contribution to Mathematical Geology by an individual 35 years or younger". In the last decade, he organised and chaired a number of events organised by SPE, EAGE, SEG or AAPG. Dr. Dubrule is the author of AAPG Course Notes Series #38 "Geostatistics in Petroleum Geology", and editor (with E. Damsleth) of "Petroleum Geostatistics" a Special Issue of EAGE's Petroleum Geoscience Journal, published in 2001.

Online registration at <http://www.eage.nl/education/>. Registration Deadline: October 29<sup>th</sup>.

The registration fee is 35.00 € for EAGE/SEG members, 105.00 € for non-members.