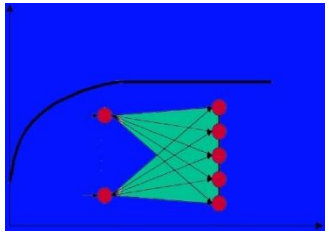


GeoNeurale

Announces

Geostatistical Analysis and Applications for the Reservoir Characterization of Sedimentary Formations

GATE – Garchinger Technologie und Gründerzentrum

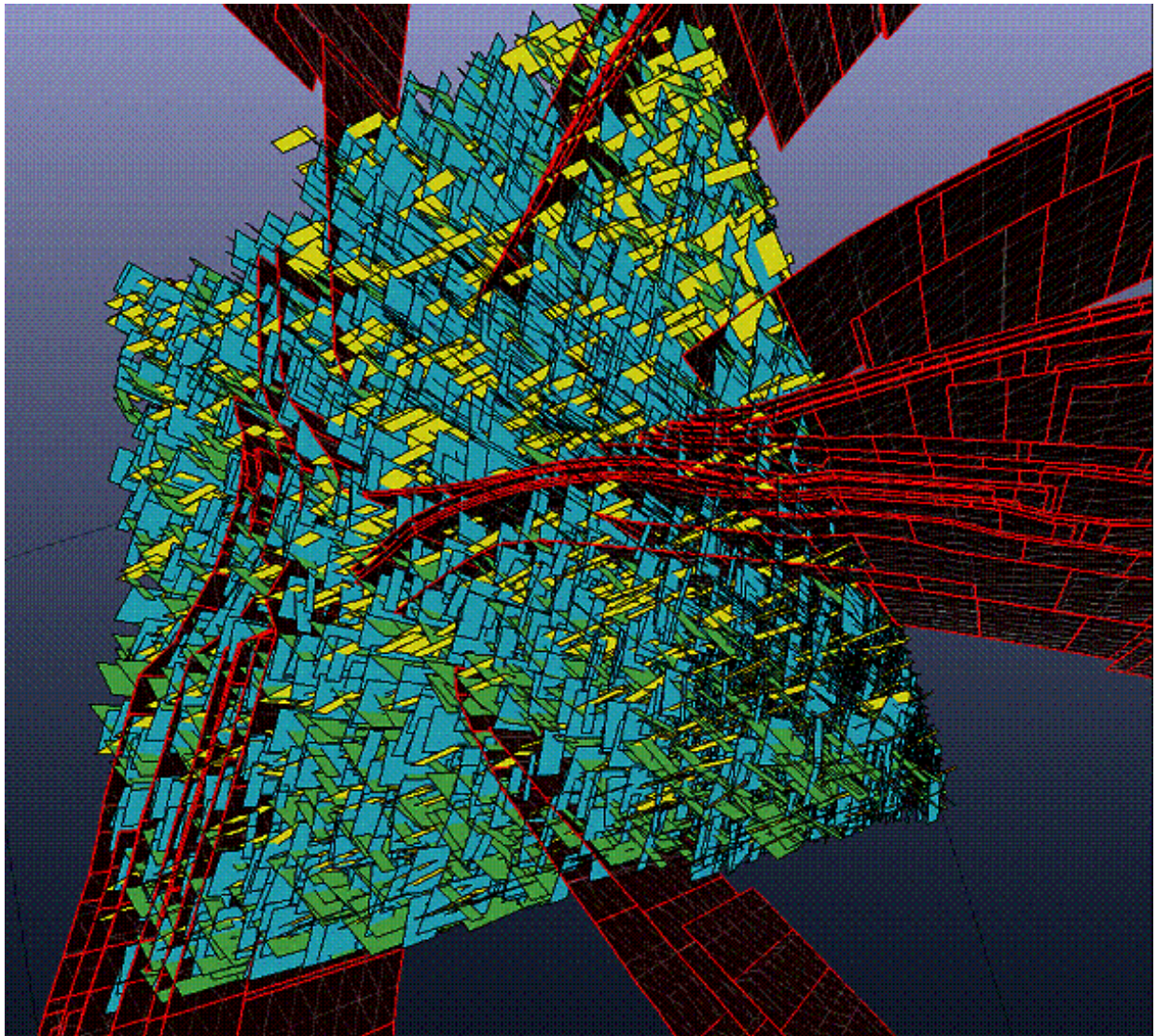
Munich

Geostatistical Analysis and Applications for the Reservoir Characterization of Sedimentary Formations

In cooperation with the: **Centre de Géostatistique , Ecole des Mines de Paris – France**

This course is the latest development of the Geostatistical School of Fontainebleau. This strong group of Spatial Statistics continues the work of Matheron that in this institution grounded the theoretical fundamentals of Geostatistics.

This group belonging to thie center that developed applications like Isatis, Isatoil, Heresim,Scirocco, presents new theories applied to the reservoir characterization of sedimentary formations.



Geostatistical Analysis and Applications for the Reservoir Characterization of Sedimentary Formations

GeoNeurale - MUNICH

(5 Days)

INSTRUCTORS:

Prof. Helene Beucher , Prof. Didier Renard

Centre de Géostatistique , Ecole des Mines de Paris – France

TARGET:

Geologists, geophysicists, petrophysicists, modeling specialists, reservoir engineers involved in reservoir characterization, mining engineers involved in resource evaluation.

COURSE FEES: 3200 Euro + 19% VAT **(The 19% VAT Tax is 100% refunded from the German Finance Ministry)**

REGISTRATION DEADLINE: 30 days before the course start

ONLINE REGISTRATION: www.GeoNeurale.com

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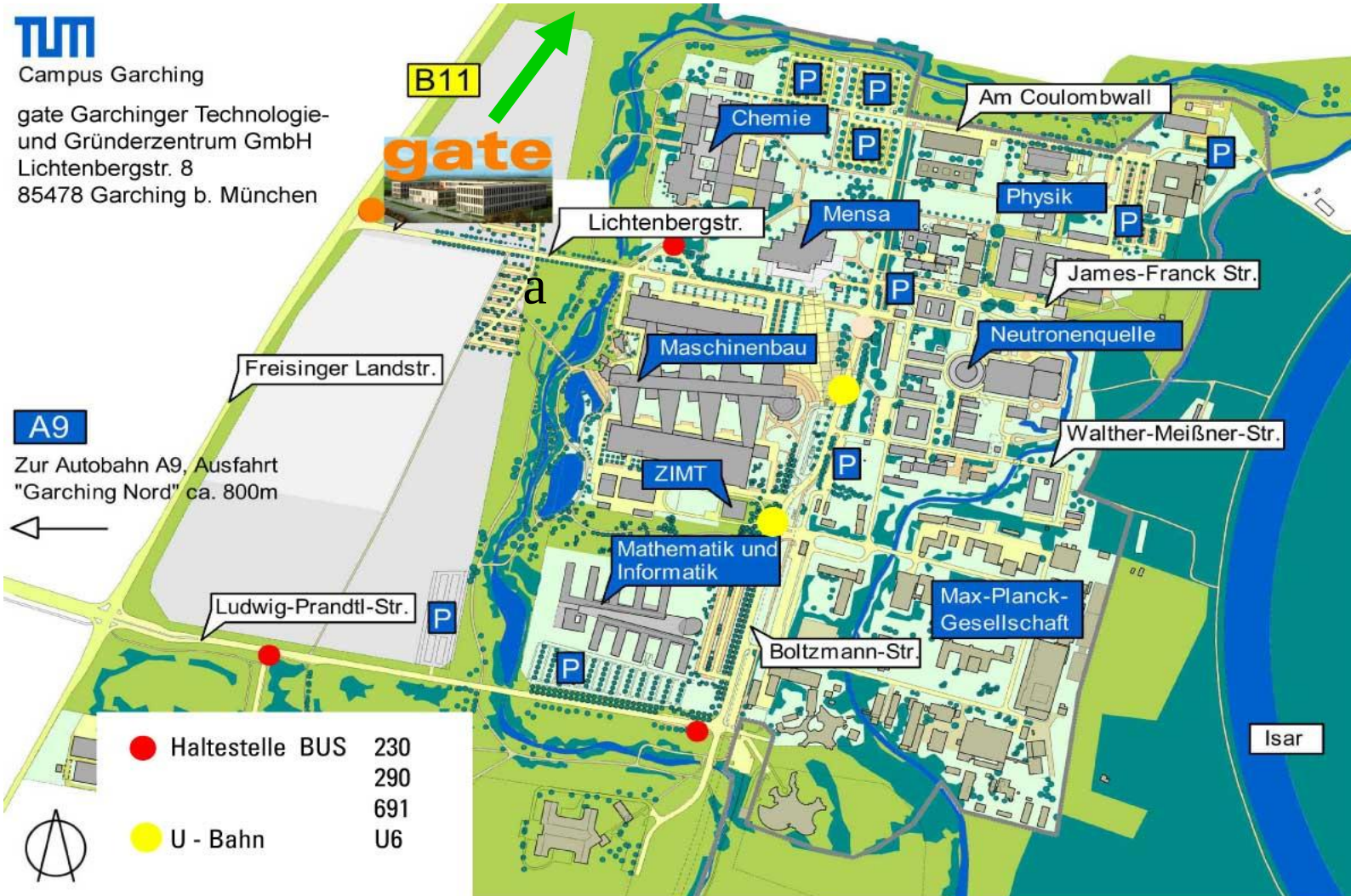
GeoNeurale

Office

and

Training Location



Geostatistical Modeling for Petroleum Reservoir Characterization

The aim of this course is to provide extensive knowledge of the methods commonly used in geostatistics. In particular, it includes an in-depth review of up-to-date stochastic simulation techniques and gives the opportunity to discuss the pros and cons of various simulation techniques.

This is an advanced course and provides a strong theoretical background for those geoscientists involved in analytical processing and interpretation of field data for reservoir characterization, including structural and property and modeling.

The course will start with some mathematical fundamentals, e.g. elementary probability and statistics concepts, linear regression theory.

This propaedeutic program will assist the delegate to better understand the subsequent theoretical developments.

From the practical point of view the course provides key aspects to the understanding of geostatistical concepts, models and methods; it aims at presenting comprehensively the following themes in a petroleum framework:

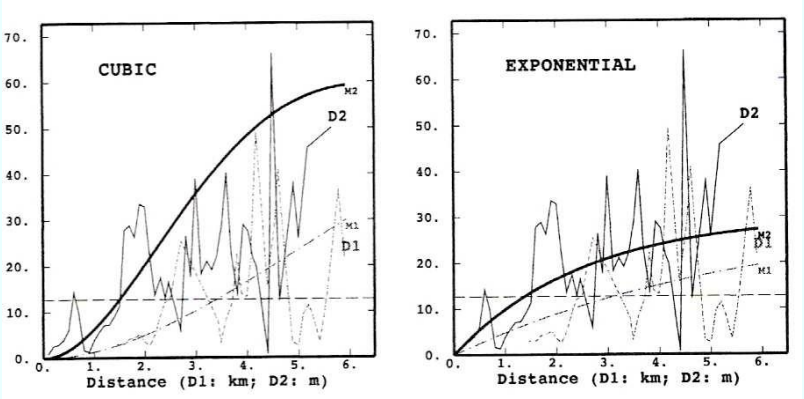
Geostatistical estimation methods for improvement of data integration in reservoir characterisation

PROGRAM

- **Variography**:

  - Basic concepts: spatial statistics, stochastic framework, stationarity
  - Experimental variograms, variogram cloud, variogram map, anisotropies. Sensitivity analysis. Pitfalls

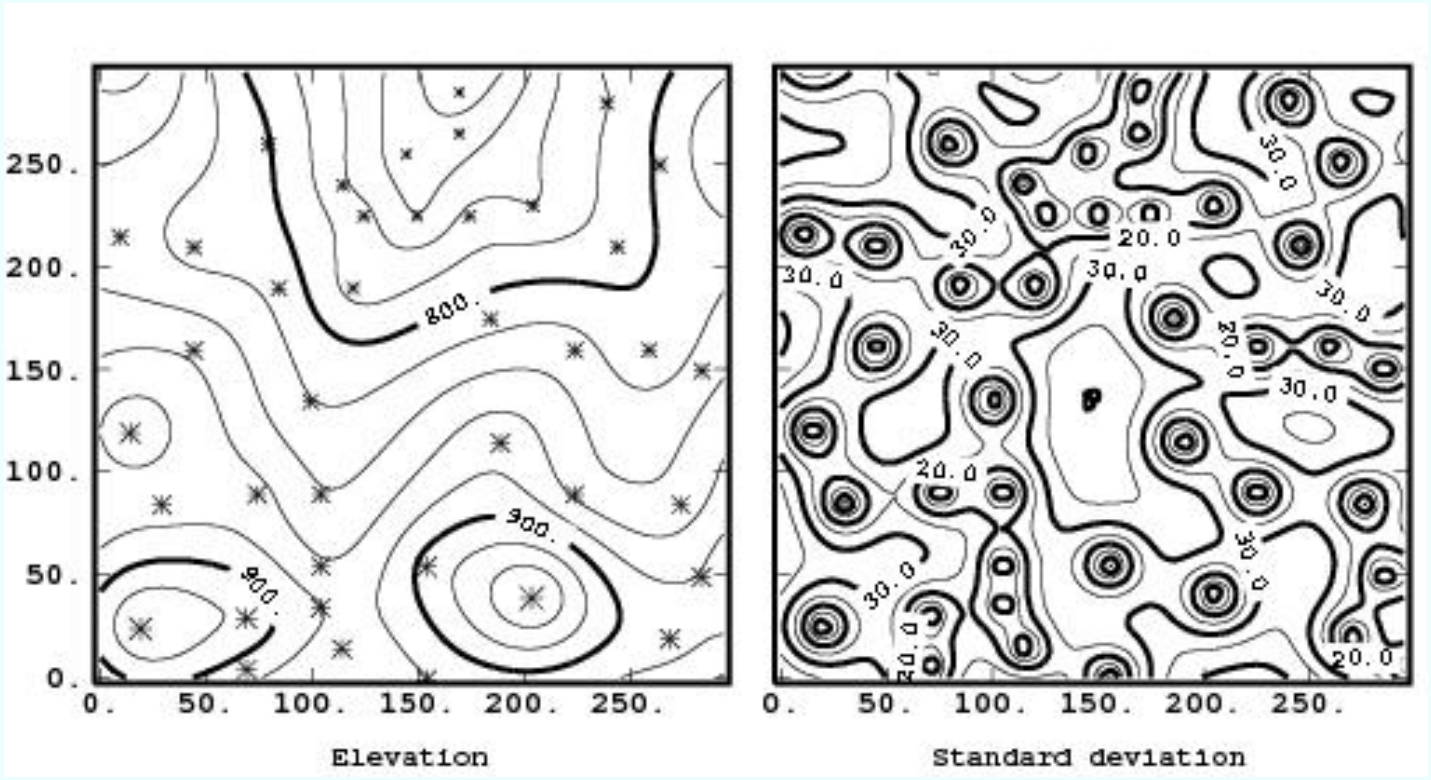
Fitting the model: basic authorized structures, nested variograms, anisotropies. .



$$\begin{pmatrix} \gamma(\mathbf{x}_1-\mathbf{x}_1) & \dots & \gamma(\mathbf{x}_1-\mathbf{x}_n) & 1 \\ \vdots & \ddots & \vdots & \vdots \\ \gamma(\mathbf{x}_n-\mathbf{x}_1) & \dots & \gamma(\mathbf{x}_n-\mathbf{x}_n) & 1 \\ 1 & \dots & 1 & 0 \end{pmatrix} \begin{pmatrix} w_1^{\mathrm{OK}} \\ \vdots \\ w_n^{\mathrm{OK}} \\ \mu_{\mathrm{OK}} \end{pmatrix} = \begin{pmatrix} \gamma(\mathbf{x}_1-\mathbf{x}_0) \\ \vdots \\ \gamma(\mathbf{x}_n-\mathbf{x}_0) \\ 1 \end{pmatrix}$$

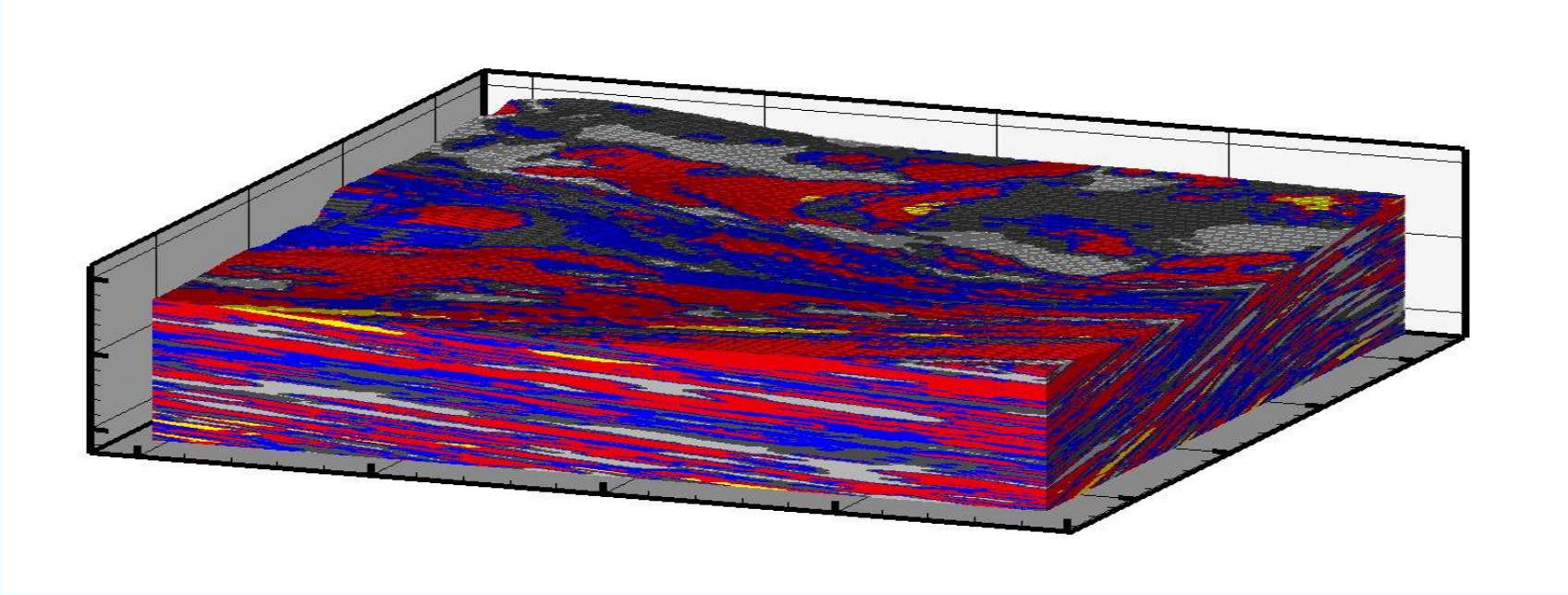
Estimation:

- **Classical interpolation algorithms**
- **Kriging: Simple, Ordinary and Intrinsic kriging models. Applications for punctual, block estimation.**
- **Neighborhood characteristics: 2-D and 3-D, anisotropy, declustering, strategy with respect to the sampling pattern.**



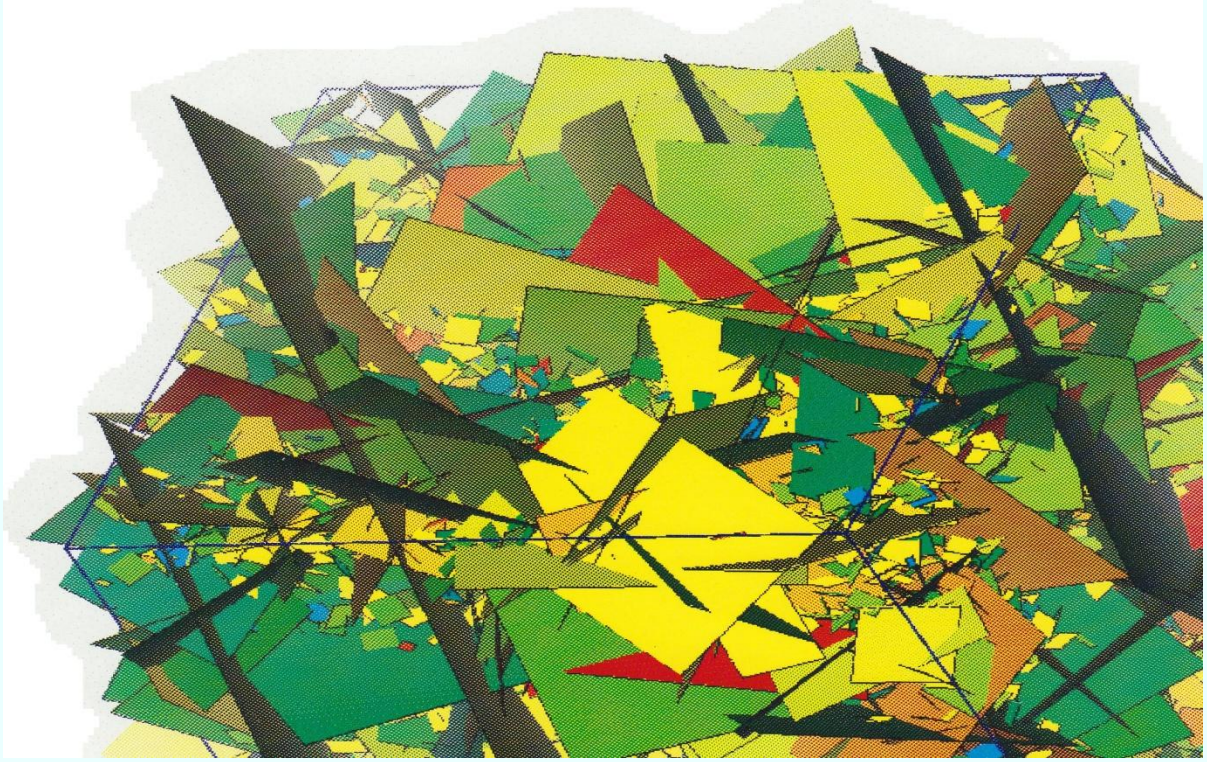
Simulations (continuous variables):

- **Generation of random variables**
- **Simulation of Gaussian Random Functions (SGS, Turning bands,…)**
- **Conditioning to data, Gaussian anamorphosis**



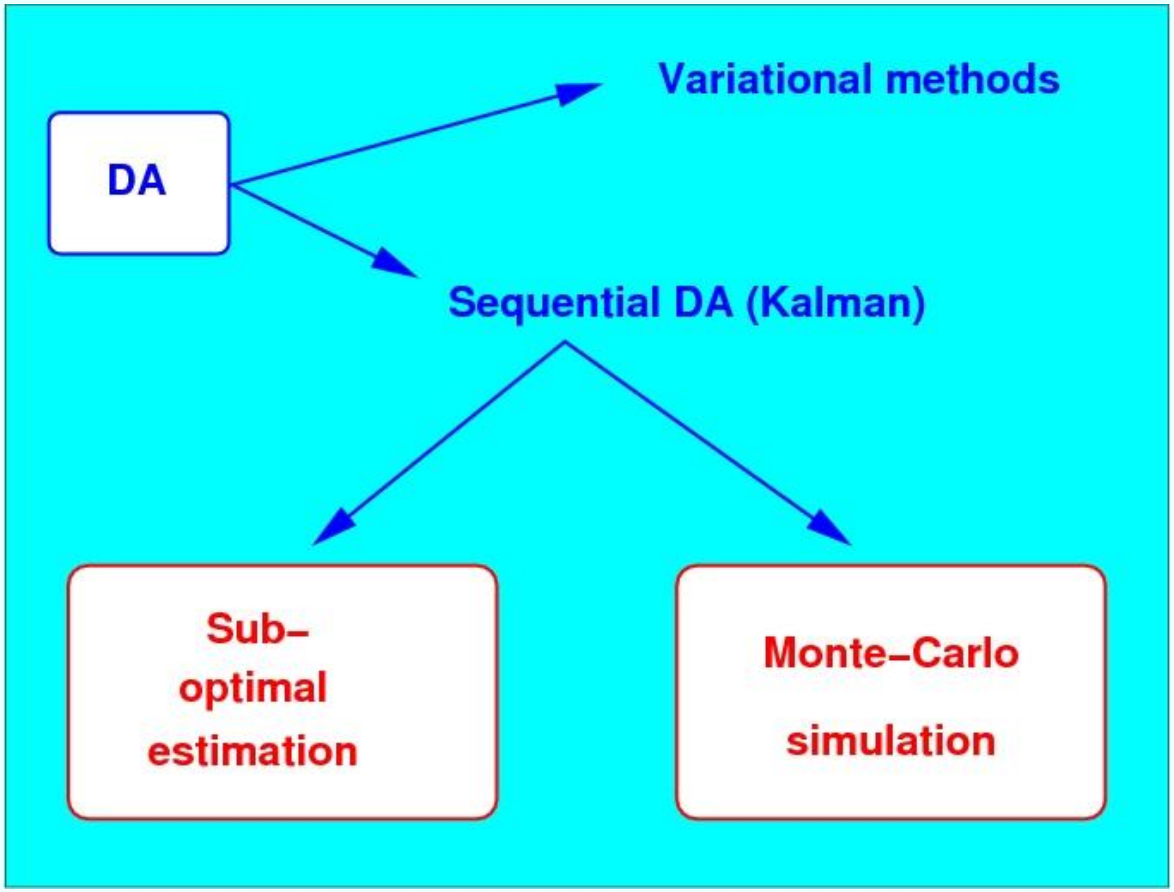
Simulations (categorical variables):

- **Sequential Indicator Simulation (SIS)**
- **Pluri-gaussian truncated Gaussian (PGS)**
- **Boolean Scheme (BS)**
- **Multipoints Simulations (MPS)**
- **Genetic Models,**
- **Integration of additional constraints (seismic information)**



The course will be split between lessons and practice. All the concepts introduced during this course will be illustrated by examples or real case studies. Short specific exercises will be given during the course (do not forget a hand-pocket calculator)

Throughout the week, a case study will also be used in order to put all the concepts into practice. This task will be performed using the geostatistical package ISATIS.



Registration Details

•Course fee: 3200 Euro + 19% VAT (The 19% VAT Tax is 100% refunded from the German Finance Ministry)

•Registration deadline : 30 days before the course start

Payment and Registration

Tuition fees are due and payable in Euro upon enrollment in the course by bank transfer to the bank account given below unless another payment form is agreed

Unless otherwise indicated, the payment should be received before the date specified in the invoice as payment term to make the enrollment effective.

To register to the course please fill in the registration form and fax or email it along with the confirmation of your bank transfer to:

GeoNeurale
Lichtenbergstrasse 8
85748 Munich - Garching
T +49 89 8969 1118
F +49 89 8969 1117

ONLINE REGISTRATION: www.GeoNeurale.com

Bank Information: Genossenschaftsbank EG Muenchen

Bank Account N. 519618 BIC – Code : GENODEF 1M07

BLZ 701 694 64 IBAN : DE19 7016 9464 0000 5196 18

Please indicate your name and the purpose: “Geostatistical Modeling course fee".

Provisions

Tuition fees are due and payable in Euro upon enrollment in the course. Unless otherwise indicated, fees do not include travel costs and living expenses of the participant.

Payments are also accepted via personal or company check, traveler's check, credit card, and Company Purchase Orders.

Cancellations by Participant:

All cancellation are subject to a 100 Euro non-refundable cancellation fee. Cancellation have to be notified to our office, at least 30 days prior to the course start date to receive a refund (less the 100 Euro cancellation fee).

If the participants are unable to cancel prior to the 32 days notification date, they may substitute another person at their place in a course by notifying us prior to the course start date.

Course Cancellations:

GeoNeurale reserves the right to cancel the courses if necessary. The decision to cancel a course is made at least two weeks prior to the course start date. If a course is cancelled, the participant will receive a full reimbursement of the tuition fees (but not of the plane ticket or hotel expenses or any other costs), or will be enrolled in another course upon his decision (the cost of the original course will be applied to the cost of the replacement course).

Before booking any flight or hotel, please wait the written course confirmation on our website. GeoNeurale can not be responsible for any penalties incurred for cancellation or change of flights or hotel reservations .

Refunds:

GeoNeurale will promptly remit all refunds of tuition fees due to cancellations or annullment (less any appropriate non-refundable cancellation fee) within 30 days of the course cancellation.

Force Majeure:

GeoNeurale can not be responsible for cancellations due to “force majeure” events : airplane or airport strikes, emergency situations, natural catastrophes and all situations and incidents independent or outside the human control that can delay or cancel the course. In case of such events related cancellations the course tuition fees will be refunded to the client .

GeoNeurale is not responsible for any delay or absence caused by the training instructor or training instructor company for reasons which are independent or out of the control of GeoNeurale´s decisions.

AGREEMENT: Upon enrollment all parts accept the above mentioned provisions. The above specified provisions shall regulate the agreement between GeoNeurale and the participant and the participant company and will enter into force upon enrollment.

REGISTRATION FORM

Please fill out this form and Fax to +49 89 8969 1117

or Email to Courses@GeoNeurale.com

Geostatistical Modeling for Petroleum Reservoir Characterization

Munich

Course Fee: 3200 Euro + 19% VAT (The 19% VAT Tax is 100% refunded from the German Finance Ministry)

Registration Deadline:

Name:

Company:

Address:

Job Title:

Phone:

Fax:

Email:

SIGNATURE: _____