

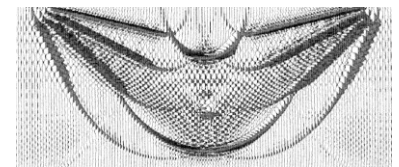
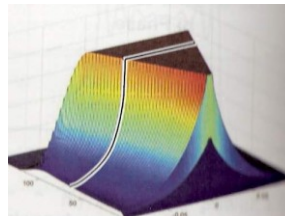
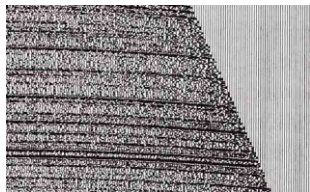
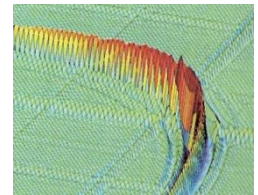
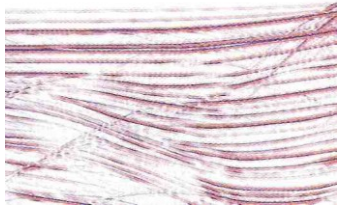
GeoNeurale

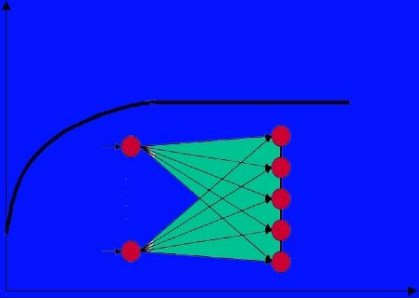
announces

3D Seismic Data Processing

GATE – Garching Technologie und Gründerzentrum

6-8 December 2010 in Munich





GeoNeurale

3D Seismic Data Processing

MUNICH

at the

GATE – Garching Technologie und Gründerzentrum

6-8 December 2010

3 DAYS COURSE

Registration deadline: 5 November 2010

NEW INEDITED PROGRAM

INSTRUCTOR: Dr. Stephen J. Hill

LEVEL: Middle - Advanced

AUDIENCE: Seismic Processing Analysts, Geophysicists , Reservoir Engineers, Petrophysicists,
Geoscientists involved in Seismic Processing and Inversion.

COURSE FEES: Euro 2300 + VAT (19%)* * [INFORMATIONS FOR VAT TAX REFUND](#)

(The VAT Tax is 100% refunded by the German Ministry of Finances)

ONLINE REGISTRATION: www.GeoNeurale.com

gate

GeoNeurale

Office

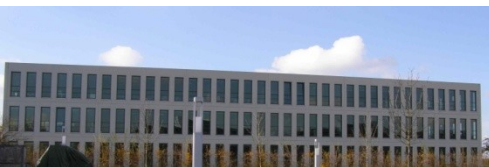
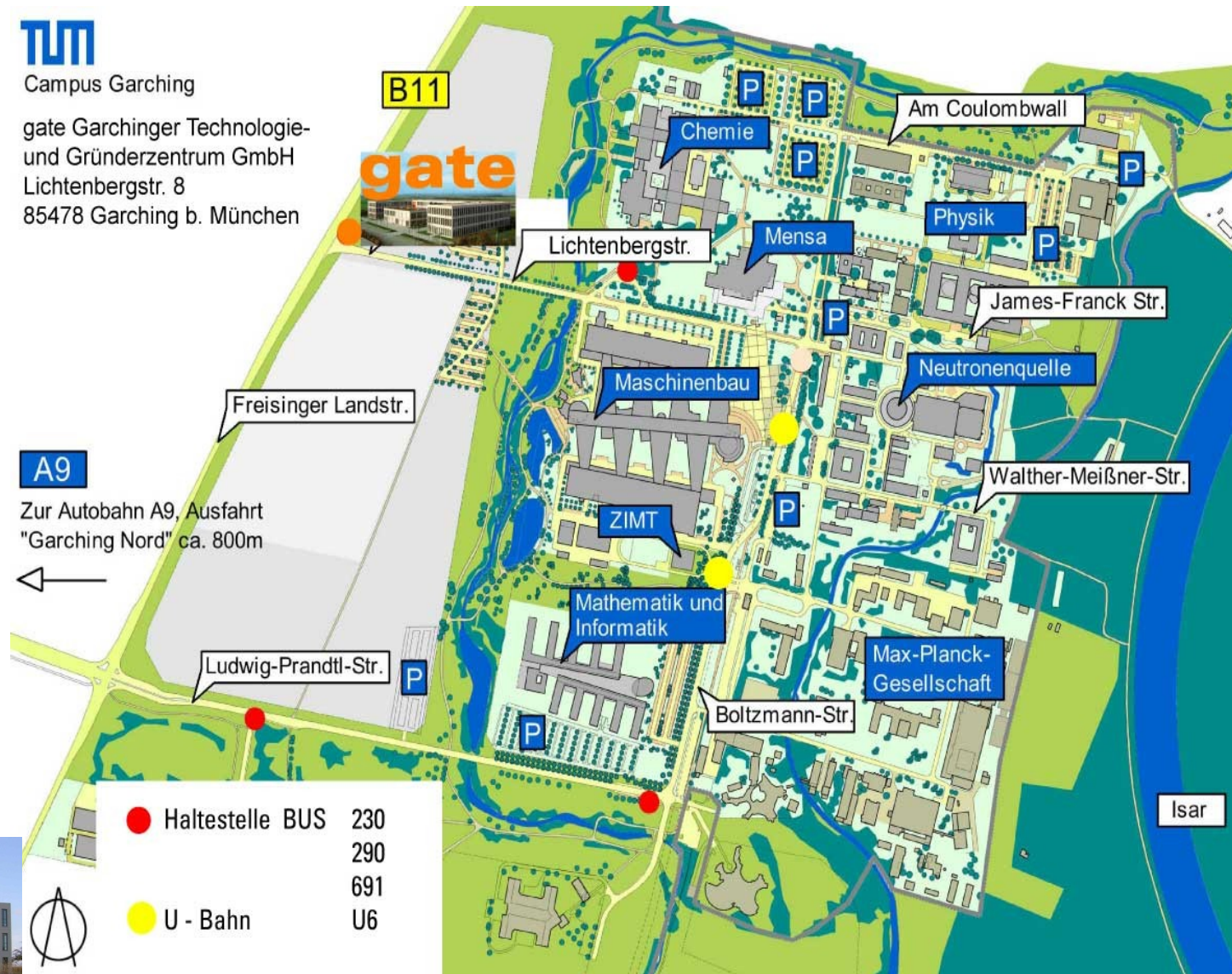
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Training Location



Campus Garching

gate Garchinger Technologie-
und Gründerzentrum GmbH
Lichtenbergstr. 8
85478 Garching b. München



3D Seismic Data Processing

Instructor: Steve Hill

Duration: three days

The “Introduction to Seismic Processing” course is just that; it is an introductory course designed for individuals who work with seismic data by explaining “how things work.” Knowing that we must keep our customer’s needs in mind, the course highlights interpretation ramifications of processing decisions. In addition to processing geophysicists, the course is also of value for seismic acquisition specialists who desire to understand the constraints that seismic processing places on acquisition design.

Course Outline

The course outline is almost the inverse of the order of the processing steps. Because each processing step has its own input requirements, understanding those requirements provides the motivation for understanding the each preceding processing step.

Quantitative, mathematical procedures inherently comprise seismic processing. By contrast, this course uses cartoons and real data examples to provide an intuitive understanding of the seismic processing procedures.

Course participants will receive a course book that will contain the contents of all overheads, with the exception of examples shown from the Oz Yilmaz classic seismic processing text.

PROGRAM

The following is the course outline and the table of contents for the course's accompanying text

- 1 Introduction to Geophysical Imaging
- 2 Creating Depth Images from Seismic Records
- 3 Zero-offset Migration
- 4 Migrating imperfect data
- 5 Migration velocities
- 6 Zero-offset migration algorithms
- 7 NMO and stack
- 8 Stacking velocity estimation
- 9 Stack & Signal-to-noise improvements
- 10 NMO & stack failures
- 11 Kirchhoff before-stack migration
- 12 Imaging conditions and pre-stack wave-equation depth migration
- 13 Velocity analysis for depth migration
- 14 Time migration
- 15 Multiples and their attenuation

PROGRAM continued

- 16 Dipping Multiples
- 17 Statics
- 18 Amplitude corrections
- 19 Filtering and coherence enhancement
- 20 Improving temporal resolution: Setting the stage
- 21 Improving temporal resolution: common solutions (deconvolution)
- 22 Surface-related multiple attenuation
- 23 Fresnel zone
- 24 Improving resolution: Spatial resolution
- 25 Improving resolution: Model resolution
- 26 Seismic acquisition
- 27 Sample seismic processing sequences
- 28 Processing summary
- 29 Processing ramifications

Appendix: correlation & frequency domain

Biography

Dr Stephen J. Hill

After earning a bachelor's degree in physics at Iowa State University and a doctorate in physics and astrophysics at the University of Colorado through the Joint Institute for Laboratory Astrophysics, Steve joined the faculty of the Michigan State University Astronomy Department in 1971. In 1976, Steve received the MSU Teacher-Scholar Award for his public service, teaching, and programming work in telescope automation.

Steve was a member of Conoco geophysics organizations from 1978 until 2003. Steve's assignments include manager of Conoco Seismic Processing and two years as an interpreter of Oklahoma and Gulf of Mexico seismic data. Steve also served as a technology consultant in Conoco's International and North American Headquarters in Houston. Most recently, Steve followed his interest in time-lapse seismic. Additionally, Steve developed and taught Conoco's internal seismic processing and seismic analysis courses.

With his recent relocation to Golden, Colorado, Steve enters the consulting phase of his career.

At present, Steve is an adjunct faculty member at the Colorado School of Mines, where he has taught a seismic processing course.

Steve is an active member of the Society of Exploration Geophysicists, presently serving as President, after having served in many other capacities.

Professional Experience

Dr Stephen J. Hill

Independent Consultant, Golden, CO

2002 – Present

- Providing seismic geophysical education to the industry.

Adjunct Professor, Colorado School of Mines, Golden, CO

2004 - Present

- Taught senior/graduate seismic processing course.
- Serve on M. S. thesis committee.

Senior Technical Advisor, Seismic Imaging Technology Center, Conoco, Ponca City

1997-2002

- Foresaw time-lapse seismic potential for improving reservoir efficiency and persuaded Conoco to implement.
- Organized, developed, created textbook and taught one-week, seismic analysis course that provides interpreters with tools to use their seismic data for quantitative reservoir characterization. Rated “excellent” by all participants.

Group Leader, Seismic Imaging Technology Center, Conoco, Ponca City

1993-1997

- Guided, mentored, QC'd 35 employees who provided all of Conoco's internal seismic processing. Interpreters deemed our timely processing most suitable in 95% of comparisons. Persuaded Conoco not to eliminate this internal processing organization.
- Organized, developed, created textbook and taught one-week seismic processing course that significantly enhanced interpreter's understanding of the potential and limitations of their seismic data. In addition to employees and interns, provided course to Duke University graduate students. Rated “excellent” by all participants.

Team Lead, Global Excellence Initiative, Conoco, Houston & London

1992-1993

- Selected as leader of team to design a more competitive geoscience technical services and research organizations.

Manager, Seismic Processing, Exploration Research and Services, Conoco, Ponca City

1990-1992

- Guided, mentored, QC'd 85 employees in providing all of Conoco's internal seismic processing. Interpreters deemed our timely processing most suitable in 95% of comparisons. Persuaded Conoco not to eliminate the internal organization.

Group Leader/Director, Exploration Research & Services, Conoco, Ponca City

1987-1990

- Guided, mentored, QC'd 33 employees in providing half of Conoco's internal seismic processing. From 95% of comparisons our processing deemed most suitable.

Director, Computer Systems Division, North American Exploration, Conoco, Ponca City

1986-1987

- Responsible for development of Conoco's well-log analysis program that provided a competitive advantage in partner disputes.
- Responsible for development and maintenance of Exploration's worldwide net of interactive computer hardware and centralized scientific software used for geophysical modeling and mapping.

Assistant to Chief Geophysicist, North American Exploration, Conoco, Houston

1986

- Selected for unique training assignment as North American Exploration Chief's assistant.
- Analyzed, systematized time-dependence and distribution of industry drilling success in U. S. onshore basins. This analysis influenced future exploration strategy.
- Disproved the theoretical underpinnings of a published statistical field-discovery method that was foundation of Conoco's heritage system. Introduction of well-founded skepticism influence exploration strategy.

Assistant to Chief Geophysicist, International Exploration, Conoco, Houston

1986

- Selected for unique training assignment as International Exploration Chief's assistant.
- Created acquisition and processing plan for Egyptian Western Desert that served as a template for future activities.

Geophysical Interpreter, North American Exploration, Conoco, Oklahoma City & Houston

1984-1985

- Selected for unique, extended training assignment as interpreter.

Professional Experience continued

- Interpreted marine seismic data with the recommendation to relinquish Gulf of Mexico lease. Recommendation accepted. Designed and developed software to map-migrate 2-D seismic data to understand placement of critical faults with increased accuracy.
- Created an interpretation strategy for prospecting in presence of overwhelming residual statics problems. Demonstrated applicability on Oklahoma seismic data.
- Designed and created rudimentary geological interpretation workstation to improve ease of producing geological cross-sections, flattened to any horizon in order to understand geologic development in a prospective area.

Assistant Director, Seismic Processing Division, North American Exploration, Conoco, Ponca City 1981-1984

- Guided, mentored, QC'd 15 employees in providing all of Conoco's internal seismic processing. Interpreters deemed our timely processing most suitable in 95% of comparisons.
- Developed and taught a three-week course in seismic processing attended by the majority of Conoco exploration personnel.
- Developed a method of imaging flanks of salt domes. Well confirmed methodology and found few million barrels of oil.
- Specified and QC'd programming of new seismic processing algorithms for amplitude control and statics determination. All programs are in active use in 2002.

Seismic Processing Geophysicist, Seismic Processing Division, Conoco, Ponca City 1978-1981

- Processed marine and land seismic data to complete satisfaction of interpreters.
- Selected for special-project group to handle stubborn processing problems.
- Co-developed two-day introductory seismic processing course to inform quickly a multitude of new hires about the potential of their seismic data.

Associate Professor, Dept. of Astronomy & Astrophysics, Michigan State University. (Tenured 1977) 1971-1978

- Created and taught the most popular introductory astronomy course to a graduate course in stellar atmospheres and radiative transfer.
- Developed all software for world's first fully automated telescope, driven by a 30,000-line, assembly language program. This computer-based method increased observational data-taking by a factor of five.
- Created program that modeled the hydrodynamics and radiative transfer of explosive stars. This work determined how the intermediate mass elements made their way into second-generation stars such as our sun.
- Courageously addressed pseudo-science through numerous public interviews.
- Created underground course in the application of mini-computers to real-time control operations. By providing this course to "terminal M. S." physics & astrophysics students, greatly increased their employability.

Instructor and Programmer, Walker Engineering.

(Summers): 1974 – 78

- Instructed others and assisted in the creation of mini-computer-based programs to test catalytic systems for FORD Motor Co. automobiles, hence allowing FORD to market its Pinto MPG according to its desired schedule.

EDUCATION

Ph.D., Physics & Astrophysics, University of Colorado, Joint Institute for Laboratory Astrophysics (1971)

B.S., Physics, Iowa State University (1965)

AWARDS & HONORS

Conoco Special Compensation Award – Creation of new Seismic Processing & Seismic Analysis Courses - 2002

Society of Exploration Geophysics Special Commendation Award –Service to SEG - 2000

Nominated, Secretary/Treasurer, Society of Exploration Geophysics. – 1999 & 2003

Society of Exploration Geophysics – Certificate of Appreciation – Service to SEG - (1998)

Conoco North American Exploration Recognition Award - Creation of the Seismic Processing School. 1981

Michigan State University Teacher-Scholar Award – 1977 - Top faculty member based on research, teaching, and public service.

PROFESSIONAL ACTIVITIES

President – Society of Exploration Geophysicists (2009 – 2010)

President-elect – Society of Exploration Geophysicists (SEG) (2008-9)

Secretary/Treasurer – Society of Exploration Geophysicists (2003-4)

Chairman – Conoco Geophysical Symposium (2000)

Society of Exploration Geophysicists Election Procedures Committee (1998 - 2000); Society of Exploration

Geophysicists Tellers Committee (1998 – 1999); Stanford Exploration Project Steering Committee (Stanford

University) (1997-8); Geophysical Society of Tulsa Spring Symposium (A One-day national symposium on

computer workstations) (1989), Society of Exploration Geophysicists Finance Committee (2004 – 2005)

Adjunct Professor, Department of Computer Science, Oklahoma State University (1988 - 1990) Responsible for a graduate thesis student.

President - Geophysical Society of Tulsa (1998 - 1999)

Member - Iowa State University Physics Counsel Advisory Board (1989 – 2002); SEG Student Section/Academic

Liaison Committee (1998 – 2000); SEG Seismic Interpretation Pitfalls Subcommittee (1997 – 2000); SEG Finance

Committee (2003 – 2006); SEG Foundation Investment Committee (2005); SEG Meetings Committee (2005 –

Present)

SEG Editor - Society of Exploration Geophysics Book Series (1998 – 2009)

SEG Associate Editor – GEOPHYSICS Journal (2004 – 2009)

SEG Editorial Board Member – The Leading Edge magazine (2005 – 2009)

SEG Author – Bi-monthly column, GEOPHYSICS Bright Spots, The Leading Edge (2005 – 2009)

Editor-elect & Editor – Geophysical Society of Tulsa (1996 - 1998)

Publicity Chairman – Society of Exploration Geophysics Midwest Meeting & Exposition (1991)

PUBLICATIONS & INVITED PRESENTATIONS

- Hill, Stephen J.; Temperature Reversal in a LTE Atmosphere: P.A.S.P., 84, 669
- Hill, Stephen J.; Hydrodynamics and Radiative Transfer Effects on an RR Lyrae Atmosphere: Astrophysical Journal, 178, 793, 1972
- Hutchinson, James L.; Hill, Stephen J.; Lillie, Charles F.; Interpretation of OAO-2 Ultraviolet Light Curves of Beta Doradus: Astronomical Journal, 80, 1044, 1975
- Hill, Stephen J.; Wilson, L. A.; Proceedings of the Solar and Stellar Pulsation Conference (Los Alamos Scientific Laboratory), 279, 1976
- Hutchinson, James L.; Hill, Stephen J.; Lillie, Charles F.; Ultraviolet Photometry from the Orbiting Astronomical Observatory XXVII: Interpretation of the Light Curve of RR Lyrae: Astrophysical Journal, 211, 207, 1977
- Wilson, L.A.; Hill, Stephen J.; Shock Wave Interpretation of Emission Lines in Long Period Variable Stars II: Periodicity and Mass Loss: Astrophysical Journal 228, 854, 1979
- Hill, Stephen J., Wilson, L. A.; Theoretical Velocity Structure of Long Period Variable Star Photospheres: Astrophysical Journal 229, 1029, 1979
- Hill, Stephen J., Workstations: Problems they solve and problems they create: The Leading Edge, 9, 1990
- Hill, S. J., 1998, Geophysicists, their migration and recruiting: The Leading Edge, 17, no. 08, 1089-1091.
- Hill, Stephen J., Dragoset, B., Weglein, A: The New World of multiple attenuation: The Leading Edge, 18, 1999
- Hill, Stephen J., Insights into the Origin of the Acquisition Footprint, Invited Presentation, University of Tulsa, April 1999.
- Hill, Stephen J., Addressing the Issues, Keynote Presentation, SEG Development & Production Forum: Time-Lapse Measurements in Reservoir Management, July 1999.
- Hill, Stephen J., Acquisition Footprint, Poster Presentation, SEG Development & Production Forum: Time-Lapse Measurements in Reservoir Management, July 1999.
- Hill, Stephen J., Two-week Seismic Processing School, Duke University Course, August 1999.
- Hill, Stephen J., Geometric Explanation of Data Mapping, Introduction to Time-lapse Seismology, Time-lapse Processing Issues and Seismic Data Acquisition Footprint, Presentations, Duke University, August 1999.
- Hill, Stephen J., 1999, Noise into signal – seismic processing alchemy?: The Leading Edge, **18**, No. 10, 1214.
- Hill, Stephen J., Shultz, Mike and Brewer, Joel, 1999, Acquisition footprint and fold-of-stack plots: The Leading Edge, **18**, no. 6, 686.
- Hill, Stephen J., Stolt, Robert and Chiu, Steve, 2001, Altering offsets and azimuths: The Leading Edge, **20**, no. 01, 210-213.
- Hill, Stephen J, 2005, Inversion-based thickness determination: The Leading Edge, **24**, 477.
- Hill, Stephen J, Marfurt, Kurt and Chopra, Satinder, Search for similarity in a slab of seismic data: The Leading Edge, **25**, no. 02, 168.
- Hill, Stephen J, GEOPHYSICS Bright Spots: The Leading Edge, bi-monthly column, 2005 – 2008.
- Save, Paul and Hill, Stephen J. Overview and classification of wavefield seismic imaging methods, The Leading Edge, 28, 170, 2009.

Registration Details

•Course fees: Euro 2300 + VAT (MwSt: 19%)*

* [INFORMATIONS FOR VAT TAX REFUND](#)

•Registration deadline : 5 November 2010

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 agreed, 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

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: " 3D Seismic Data Processing".

*VAT (MwSt: 19%) . The added value tax (VAT) can be fully refunded to your company from the German Finance Ministry provided that the company has an International Tax ID Number. This can only apply for companies outside Germany.

•PLEASE READ or DOWNLOAD the INFORMATIONS : [INFORMATIONS FOR VAT TAX REFUND](#)

Provisions

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

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

Cancellations by Participant:

All cancellations are subject to a 100 Euro non-refundable cancellation fee.

Cancellations 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).

GeoNeurale can not be responsible for any penalties incurred for cancellation or change of airline or hotel reservations.

Refunds:

GeoNeurale will promptly remit all refunds of tuition fees due to cancellations or annulment (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 parties 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

3D Seismic Data Processing

Munich, 6-8 December 2010

Course Fee: Euro 2300 + VAT (19%)* (The VAT Tax is 100% refunded by the German Ministry of Finances)

Name:

Company:

Address:

Job Title:

Phone:

Fax:

Email:

SIGNATURE: _____

INFORMATIONS, HOTELS, MAPS, LINKS

TRAINING LOCATION – RESEARCH CENTER

<http://www.geoneurale.com/documents/GATE-Y7.pdf>

GATE GARCHING

<http://www.geoneurale.com/documents/GATE-Y6.pdf>

MAP MUNICH-GARCHING

<http://www.muenchen.city-map.de/city/db/130208000001/14269/Garching.html>

MUNICH INFO and MAP MUNICH CENTRAL

<http://www.muenchen.de/home/60093/Homepage.html>

MAP MUNICH UNDERGROUND

<http://www.mvv-muenchen.de/web4archiv/objects/download/3/netz1207englisch.pdf>

HOTELS NEAR GeoNeurale

<http://www.geoneurale.com/documents/HOTELS-GARCHING.pdf>

BAVARIA INFO

<http://www.geoneurale.com/documents/Around-Munich-Info.pdf>



Nymphenburg Castle



GeoNeurale: The advanced school of Geophysics near the Alps