

petro**EDGE**

SUBSURFACE MAPPING

in Exploration & Development
11 – 15 July 2011, Kuala Lumpur, 2nd run in Asia



**Expert Faculty -
Dr. James Willis**

www.petroedgeasia.net

Subsurface Mapping in Exploration & Development

11 – 15 July 2011, Kuala Lumpur, Malaysia

Course Objectives

Subsurface geologic maps are the most important and widely used document in petroleum exploration and development. Geoscientists and engineers are expected to understand and be able to efficiently and accurately generate many types of subsurface maps. Nevertheless, many geoscientists have not had sufficient formal training in the fundamental principles and methods that underlie accurately constructed subsurface maps, whether the data source is a seismic interpretation, well log correlation or both.

During the exploration process (and for that matter development process as well) understanding of the subsurface geometry, incorporating both structural and stratigraphic framework, is essential to understanding the 4D development of potential reservoirs. Subsurface maps represent the cornerstone of data presentation and information transfer in oil & gas exploration & development, whether well log based, seismic based, or both. We focus here on the fundamental principles and methodologies of accurately conveying critical data and information via subsurface mapping.

Course is practically based, including integrating multiple datasets, quick-look and advanced techniques for critically analyzing/reviewing key maps (including your own and those of others), and benefits or drawbacks of modern computing.

Who should attend

- Geologists, Geophysicists, Exploration/Production Managers, Reservoir Engineers

By attending this training course, you will better able understand:

- Review of and integration of various data types (well and seismic, and other data types)
- Well log analysis, including log types, correlation of well logs, and extraction of relevant subsurface data, including thickness corrections and logs
- Seismic analysis, including 3D, time-lapse, and attribute analysis
- Fundamentals of contouring
- Construction of and interpretation of fault plane, structure contour, and thickness maps
- Integrated mapping and cross-section construction, and other data presentation forms
- Fault juxtaposition and seal analysis
- Integration of LWD data for geosteering and reservoir navigation applications

Course is designed from an applied standpoint, with numerous **examples** and **hands-on exercises** from the petroleum industry. The course will commence at 9am on each day and complete by 5pm. Morning and afternoon breaks will be at 10:30 am and 3:30pm. Lunch will be served daily from 12:30pm to 1:30pm

Past of participants of James Willis's training courses in Asia include the following organizations:

- | | |
|---------------------------------------|------------------------------|
| - Offshore Geo-Surveys | - Geo Solutions Consultancy |
| - Petronas Carigali | - TL Geohydrographics |
| - Pearl Energy (Nam Conson) | - Carigali Hess Operation |
| - Tately N.V. | - Eaglewood Energy (BVI) |
| - Petronas Carigali | - Mitsui Oil Exploration Co. |
| - Keababangan Petroleum Operating Co. | - Newfield Sarawak |
| - PETRONAS Carigali (Vietnam) | - CGG Veritas |
| - NetSeis | |

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Subsurface Mapping in Exploration & Development

11 – 15 July 2011, Kuala Lumpur, Malaysia

5 Day Course Agenda

- **Review of and integration of various data types (well and seismic, and other data types)**
 - The “need” for sound subsurface mapping
 - Case examples of integrated subsurface studies
- **Well log analysis, including log types, correlation of well logs, and extraction of relevant subsurface data, including thickness corrections and logs**
 - Brief review of key log types, including gamma ray, spontaneous potential, resistivity, porosity logs, and others.
 - Azimuthal (image) logs – wireline (FMI-type and ultrasonic) and LWD (e.g., gamma ray, density, caliper, resistivity, etc.)
 - True dip, apparent dip, and relative dip
 - Structural and stratigraphic aspects
 - Log correlation
 - Lithostratigraphic and chronostratigraphic correlation
 - Correcting for dip and/or deviation effects
 - Structural and stratigraphic applications
 - Data extraction
 - Depth, thickness (measured versus vertical versus perpendicular), net versus gross sand/carbonate, pay thickness, etc.
- **Seismic analysis, including 3D, time-lapse, and attribute analysis**
 - Brief review of principles of reflection seismology
 - 2D versus 3D (and time-lapse) interpretation/mapping concepts
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- **Attribute analysis**
 - Seismic petrophysics
 - Hydrocarbon indicators and mapping
- **Fundamentals of contouring**
 - Rules of contouring
 - Techniques of contouring
 - Styles of contouring
 - Computer versus interpretative
- **Construction of and interpretation of fault plane, structure contour, and thickness maps**
 - The fundamental structure contour map
 - Mapping the fault plane(s)
 - Mapping reference horizons
 - Mapping reservoir horizons
 - Interval, isochore/isopach, and pay thickness maps
 - Computerized techniques – benefits and drawbacks
- **Integrated mapping and cross-section construction, and other data presentation forms**
 - Map/section synchronization
 - Includes quick-look techniques of verification
 - Structural versus stratigraphic cross-sections
 - Facies maps, fence diagrams, block diagrams, etc.
 - 3D visualization
- **Fault juxtaposition and seal analysis**
 - Fault characterization, from 3D seismic to well log to core
 - Fault juxtaposition diagrams
 - Calculations of shale smear and other seal factors
- **Integration of LWD data for geosteering and reservoir navigation applications**
 - Real-time subsurface mapping
 - Modifying the geological model with new data and changing the borehole trajectory, Structural, stratigraphic, and fluid aspects

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About Your Expert Trainer: Dr. James Willis



James J. Willis received his B.S. and M.S. degrees in Geology from the now University of Louisiana-Lafayette in 1989 and 1990, respectively, and his Ph.D. as a National Science Foundation fellow at Baylor University, Waco, Texas, in 1993.

From 1994-1996, he studied planetary tectonics as a NASA-funded postdoctoral fellow at Southern Methodist University. In 1996, he returned to UL-Lafayette, where he was awarded in 1997 the Hensarling-Chapman Endowed Professorship in Geology. He began independent consulting activities in 1991, and in 2001 he left academia for fulltime consulting for clients ranging with international contractors and supermajors. He is a Professional Geologist, registered with the Texas Board of Professional Geoscientists.

James has been the editor and publisher (both volunteer efforts) for the Lafayette Geological Society since 2002. He developed a 4D quantitative well bore guidance theory, including the concept of positive versus negative thickness (sign indicating direction of drilling section), that predated availability of key real-time data. He is also an independent consultant for Baker Hughes INTEQ.

Hear what other's have said about James Willis's classes:

-“Better than excellent. Need more courses with you as instructor.”— **MWD Supervisor, Baker Hughes INTEQ.**

-“Perhaps the best speaker I’ve ever heard.”—**Petrophysicist, Anadarko.**

-“This is one of the best courses I’ve ever taken. ... Thanks!” Operations Engineer, **Pioneer Natural Resources.**

- “Great analogies, very energetic” **Petroleum Engineer, Chevron**

- “The speaker was very knowledgeable and communicated very effectively.” **Geologist, ENI**

About **petroEDGE**

The core competencies of professionals in the Oil & Gas industry are constantly evolving. To meet this ever growing gap, Petroedge provides targeted, up-to-date, practical and technically sound training solutions that enable engineers to be continuously relevant in industry.

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REGISTRATION FORM

Kuala Lumpur, Malaysia 11 – 15 July 2011	Early Bird Price	✓	Normal Price	✓	TEAM DISCOUNTS
5 – day- Subsurface Mapping for Exploration and Development	S\$ 4600		S\$ 4800		PetroEdge recognises the value of leaning in teams. Group bookings at the same time from the same company receive the following: 3 or more at 5% off 5 or more at 7% off 8 or more at 10%
PetroEdge In-house Training { } Yes, I would like to organise this training on-site and save over 25% of total course fees! For further information about On-site Solutions, please call +65 67419927 or email info@asiaedge.net					Team discounts are exclusive of Early Bird discounts or other promotions.

DELEGATE DETAILS

Delegate 1: -----
Mr Mrs Ms Dr Other

Telephone: ----- Email: -----

Job Title: -----

Department: -----

Delegate 2: -----
Mr Mrs Ms Dr Other

Telephone: ----- Email: -----

Job Title: -----

Department: -----

Approving Manager: -----

Company: -----

Address: -----

Country: -----

Postcode: -----

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4 Easy Ways to Register

Online: www.petroedgeasia.net

Email: info@asiaedge.net

Phone: (65) 67410027

Fax: (65) 67478737

Please note:

- Indicate if you have already registered by Phone Fax Email Web

- if you have not received an acknowledgement before the training course, please call us to confirm your booking.

- photocopy this form to register multiple delegates.

Payment Methods

By Cheque/ Bank Draft: Make Payable to Asia Edge Pte. Ltd.
By Direct Transfer: Please quote AE1 with the remittance advise

Account Name: **Asia Edge Pte. Ltd.**

Bank Number: 508 Account Number: 762903-001 Swift Code: **OCBCSGSG**

All bank charges to be borne by payer. Please ensure that Asia Edge Pte Ltd receive the full invoiced amount.

PAYMENT POLICY: Payment is due in full at the time of registration. Full payment is mandatory for event attendance. I agree to Asia Edge Pte Ltd. payment terms

CANCELLATIONS & SUBSTITUTIONS: You may substitute delegates at any time. ASIA EDGE PTE LTD does not provide refunds for cancellations. For cancellations received in writing more than seven (7) days prior to the training course you will receive a 100% credit to be used at another ASIA EDGE PTE LTD training course for up to one year from the date of issuance. For cancellations received seven (7) days or less prior to an event (including day 7), no credits will be issued. In the event that ASIA EDGE PTE LTD cancels an event, delegate payments at the date of cancellation will be credited to a future ASIA EDGE PTE LTD event. This credit will be available for up to one year from the date of issuance. In the event that ASIA EDGE PTE LTD postpones an event, delegate payments at the postponement date will be credited towards the rescheduled date. If the delegate is unable to attend the rescheduled event, the delegate will receive a 100% credit representing payments made towards a future ASIA EDGE PTE LTD event. This credit will be available for up to one year from the date of issuance. No refunds will be available for cancellations or postponements.

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PROGRAM CHANGE POLICY: Please note that speakers and topics were confirmed at the time of publishing; however, circumstances beyond the control of the organizers may necessitate substitutions, alterations or cancellations of the speakers and/or topics. As such, ASIA EDGE PTE LTD reserves the right to alter or modify the advertised speakers and/or topics if necessary. Any substitutions or alterations will be updated on our web page as soon as possible.

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