

Integrated Petrophysics for Reservoir Characterization (Laptop)

Instructor **Mark Deakin, PhD** (Petrophysics)
www.petrophysics.net

WHO SHOULD ATTEND?

Petrophysicists, all geologists, reservoir engineers, geophysicists, core analysts or anyone with a year's experience with logs or formation evaluation.

YOU WILL LEARN

- The essential nature of petrophysics: it's objectives, data and uncertainties
- How to get the best possible answers from any given data set
- To perform **Quick Look Log Analysis** and **Essential Core-Log Integration** with the authors Excel spreadsheets
- To review petrophysical studies effectively and to quickly identify flawed results using a clear sequence of logical checks
- To identify and extract the key data channels from modern hi-tech logs which, when integrated with core, logs and well-tests, will answer the questions your team is asking (Author speciality)
- To understand and use what really matters from the increasingly complex barrage of modern petrophysical data
- To drill, core, log and test for clear formation evaluation results
- To avoid the 10 most common errors which ruin petrophysical results

ABOUT THE COURSE

 IPRC slide example [Testimonials](#)

This course will teach you how to evaluate reservoirs and quickly identify flawed results. Robust reserves and simulation are achieved by the logical, systematic integration of all relevant data. A quality interpretation is extremely cost-effective compared with data acquisition or development mistakes and essential with today's complex reservoirs and data sets. Integration will often replace the need to run expensive, irrelevant logs, explain apparent data conflicts and provide the correct answer faster, strengthening your position as an operator. By contrast, stand-alone log analysis often results in wrong decisions and weakens your technical position in the eyes of your partners. This course, evolved over 20 years of petrophysical consulting and lectures, demonstrates how robust answers are achieved by the logical integration of diverse data. Basic economics are addressed first by Quick Look Log Analysis and then by a disciplined, logical process to optimize the interpretation of Porosity, Saturation, Permeability and Fluid Contacts - the basis of Reserves. Low-Contrast-Low-Resistivity pay, clastics and carbonates are evaluated by straight forward integration techniques which outperform log analysis with direct, plain to see results. LWD, wireline, NMR, image logs, routine, special core and MDTs are pieced together to clarify Sw and permeability, improve reservoir simulation and typically increase booked reserves. The basic "rock physics" work flow to project results into geo-models is then reviewed.

This course is a condensed package of powerful integration techniques, using an interleaved sequence of lectures, micro-practicals, Interactive Petrophysics & Geolog demos, movies and workshops to convey a flexible and very powerful petrophysical methodology. It's manual provides a comprehensive and lasting benefit to the novice and experienced student alike. *Integrated Petrophysics..* was the first public petrophysics integration course (Jan1990) and remains **The Benchmark Petrophysics Course** today. Do not be fooled by imitations!

DAILY CONTENT

 Detailed contents

All Days: **Interactive Petrophysics** (IP) and **Geolog** real-time demos of key petrophysical procedures;

Excel Micro-practicals, Workshops & Equations; Movies; Daily Recap & Master Plan review; Reviewer's checklists (greenlists); 25 years experience and open minded, unprejudiced debate.

Day1: Petrophysical Objectives. Physics vs. Petrophysics. Concept of Data Hierarchy. Data⇒Equations⇔Answers calibrations. Quick Look Log Analysis. What is capillary pressure? Vshale & lithology, complex lithology.

IP demos/Author's Excel Quick Look sheet & Equations: Quick Look Log Analysis Workshop: Vsh, \emptyset , Sw, k.

Day2: Porosity: Total or Effective? Gas zones & complex lithologies. Calibrating porosity. Sw100 zones & Rwa derivation & effective use. IP demos/Excel Workshop: DST-Core-Log Reconciliation: Water Zone or SCAL m?

Day3: Sw: improving inputs which matter: Rw, m, Ro, Rt, n, Sw: OBM/WBM core, cap.pressure Sw, NMR & Sw-Height, Sw from routine core. Facies & wettability defined, explained and integrated. Calibrating Sw. Shaly sands: Defined & explained, integrating resistivity & non-resistivity data FMI/NMR/Pc. WaxmanSmits Qv, m*, n* with or without core!

IP demos & Excel A→Z Evaluation Template: \emptyset , Rw, Rwa, m, Pickett Plot, Sw_{pc}, core-log n, Sw, k, Netpay.

Day4: Fluid Contacts & Capillary Pressure: using MDTs effectively. Distinguishing the mobile phase. The Reservoir Master Equation: What is it? How do I use it? Permeability: Rock-types, NMR, Conventional logs, Bound fluid volume, Timur-Coates Permeability, Well test kh calibration, Producibility, Choosing between rival Sw's. Improved simulation input.

IP demos and Excel MDT Workshop: Acquisition, Interpretation.

Day5: What is Netpay? Definition: proper criteria & evaluation. Essential Geo-model checks. The Seismic-petrophysics work flow. Key recommendations for Mud, Drilling, Core, Logs, Sw & k evaluation. Surviving Peer Reviews. PhD case history. Avoiding 10 common systematic errors which ruin geological models.

THE INSTRUCTOR

 CV

Dr Mark Deakin is a consultant, author and tutor in Petrophysical Data Integration. He holds a Ph.D. in 'Integrated Petrophysics' from London's Imperial College, is an ex Amoco petrophysicist, and has 25 years experience, including 12 as a lecturer and Director of his consulting company, Petrophysics Pty Ltd. He has performed over 50 detailed reservoir studies, primarily in Southeast Asia's difficult carbonate and stacked 'low-contrast-pay' reservoirs, keeping abreast of new technologies by technical reading, operations work and lecturing. Deakin's approach is simple, first identifying and ranking reserves uncertainties then guiding the company towards maximum booked reserves via the systematic integration of targeted "data proofs". After his PhD Deakin authored **the first public "Integrated Petrophysics" course** which has evolved over 20 years to become the industry benchmark course for mainstream petrophysics. Recently Deakin developed "Carbonates & Fracture Petrophysics - A Roadmap" and the **PetroDB** cross-linked database to promote the efficient development of complex reservoirs. Deakin is a member of SPWLA and has offices in Perth, Australia.

PS: This course for benchmark mainstream petrophysics training!

REGISTER NOW! www.petrophysics.net/register.htm