



RokDoc[®]

RokDoc v5.4[®] Training Course Outline

RokDoc

- **What is RokDoc**
- **Introduction to Rock Physics**
 - What is Rock Physics?
 - A RokDoc Workflow
- **Workflow 1 - Project Management**
- **Introduction to Project level data**
 - Averages
 - Minerals Sets
 - Fluids Sets
 - Working intervals
- **Introduction to Well level data**
 - Vp-Vs-Rho Sets
 - Log Sets (Mineral & Fluid)
 - Volume Fraction Sets
 - Saturation Sets
- **Workflow 2 – Importing Well Data**
 - Well LAS loading
 - Markers – and creating WI's
 - Positions and deviation surveys
 - Checkshots
- **Workflow 3 - Well Viewer**
 - General right-click options (Project map view and Well viewer)
 - Colours (Display options)
 - Mouse actions (Display options)
 - Creating and using well Views



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- **Workflow 4 – Basic Cross-plotting for Data QC**
 - Data QC in crossplotter. Using trend lines and rock physics models.
 - Cross-plot log editing and data conditioning. Deriving project specific relationships and trend lines and equations.

- **Introduction to the Log Calculator**
 - Basic functionality

- **Introduction to the User Programmer**
 - Basic functionality

- **Rock physics essentials**
 - Data acquisition
 - Seismic essentials
 - Elastic properties and moduli
 - Density and V_s prediction

- **Workflow 5 – V_s Prediction**
 - Bulk Rock Properties - Minerals and Fluids
 - Creating Volume sets – Assign mineral properties and normalise VSh curves.
 - Creating Saturation sets
 - V_s Prediction
 - How to use defaults
 - Empirical methods
 - Greenberg Castagna method for water saturated rocks.
 - Calibration technique for measured shear data.
 - V_p - V_s -Rho Sets
 - V_s calibration
 - Case study

- **Workflow 6 – Deriving Averages**
 - Deriving averages for use in single interface models
 - Using working intervals and cut-offs to derive averages.



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- **Workflow 7 – Blocky Operations – AVO and Gassmann Fluid Substitution**
 - **AVO**
 - Karl Zoeppritz
 - AVO principles
 - Blocky AVO single-interface model
 - **Gassmann Fluid Substitution**
 - Principles
 - Fluid and mineral mixing
 - Elastic Bounds
 - Empirical relationships
 - Limitations
 - Performing blocky fluid substitutions in RokDoc
 - QC Plots

- **Workflow 8 – Gassmann Log Fluid Substitution**
 - Shaley Sand Gassmann – Dry Rock Modelling
 - Standard Gassmann

- **Workflow 9 – Domain Transformations**
 - **MD-TVDSS**
 - Deviation/position surveys
 - QC'ing deviation trajectories
 - **TVDSS-TWT**
 - Using Checkshots
 - Using the drift curve and calculating VCalibrated

- **Workflow 10 – Synthetic Gathers Log Elastic Properties and Log Filtering**
 - **Log AVO**
 - Synthetic gather generation
 - Gather manipulation
 - Gather Analysis
 - **Log elastic properties**
 - Angle dependent properties
 - Angle independent properties
 - Log Filtering



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- **Workflow 11 – Advanced Cross-plotting**
 - Matrix cross-plotting
 - Single-well and multi-well cross-plotting
 - Trend Lines and Overlays
 - Data discrimination and using the histograms
 - Inversion Feasibility studies
 - Weighted stack cross plotting
 - Projection and weighted stacks

- **Workflow 12 – Blocky Anisotropy (Optional)**
 - Computational
 - Fluid Substitution
 - Derived Methods
 - Database
 - Plane Waves
 - AVO

- **Workflow 13 – Log Anisotropy (Optional)**

- **Workflow 14 – Loading and viewing seismic**
 - Reading SEG Y files
 - Inline and Crossline Viewers
 - Viewing time slices

- **Workflow 15 – Roy White Wavelet Extraction**
 - QC'ing extraction location – PEP maps and correlation lag
 - QC'ing wavelets
 - Synthetic gathers
 - A case study



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RokDoc-2D[®]

- **Introduction to 2D**
 - Resolution, interference and tuning
 - Bright, flat and dim spots
 - Navigating in RokDoc-2D

- **Workflow 1 – Tuning Model**
 - Creating and filling bodies
 - Manipulating model parameters
 - Measuring attributes
 - Changing body properties

- **Workflow 2 – Anticline Model**
 - Creating models to conceptualize hypotheses
 - Creating new bodies and geometries
 - Fluid substitution
 - Wavelet frequency and offset variation
 - Elastic impedance
 - Pseudo wells

- **Workflow 3 – One Well Layer Cake Model**
 - Filling the model
 - Wavelet/filter frequency variation
 - Fluid effects
 - Porosity effects
 - Noise effects

- **Workflow 4 – Model from Seismic**
 - Populating the model
 - Interpreting events
 - 'Matching' to seismic
 - Calculator



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- **Workflow 5 – Multi-Well Model from Seismic Backdrop**
 - Using more than one well
 - Importing backdrops
 - Re-positioning wells
 - Digitising geologically consistent events
 - Perturbing the model

- **Workflow 6 – Anisotropy (Optional)**
 - Building the model
 - VTI Anisotropy
 - HTI Anisotropy

- **Rock physics case study**