

Risk Reduction Through Quantitative Show, Seal and Migration Analysis

Audience

All exploration oriented geoscientists seeking calibrate migration and charge maps and seek to understand migration pathways and how to locate stratigraphic, fault traps and evaluate oil vs. water wet unconventional seals and reservoirs. Tight gas reservoirs are also reviewed.

This course is fundamental to all aspects of exploration and production.

Content

Overview of trap types

How many seals? Controls on fault and stratigraphic traps

Qualitative seal recognition from logs, seismic and core

Fault Seals

Seal recognition from pressure-depth plots

Pressure seals and centroids

Hydrodynamic traps

Quantifying capillarity

Free water, Oil/water, waste and transition zones

Winland diagrams and flow units

Pseudo-capillary pressure curves

Oil Shows

Continuous phase, residual, migration, dissolved hydrocarbons

Visualizing show data on logs, seismic and basin event charts

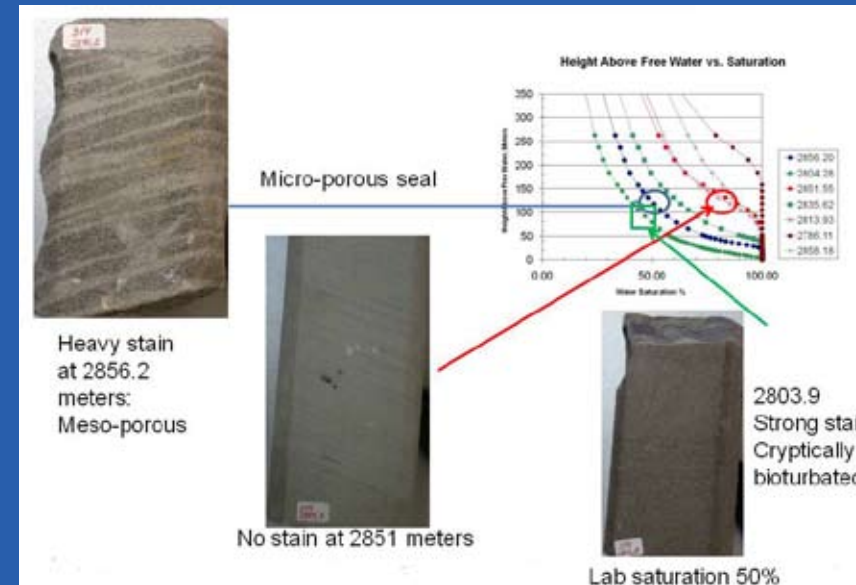
Fluid Inclusions, Head Space Gas

DHI, Seismic detection overview

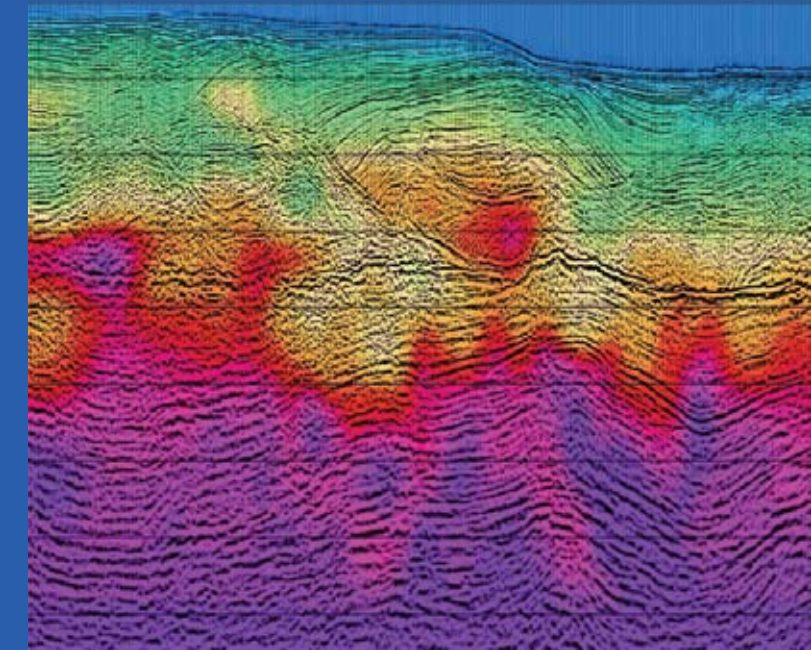
Using ARCGIS and Trinity to convert fault and facies maps into seal maps for vertical and lateral migration and trap detection

Objective: (2-4 day workshop)

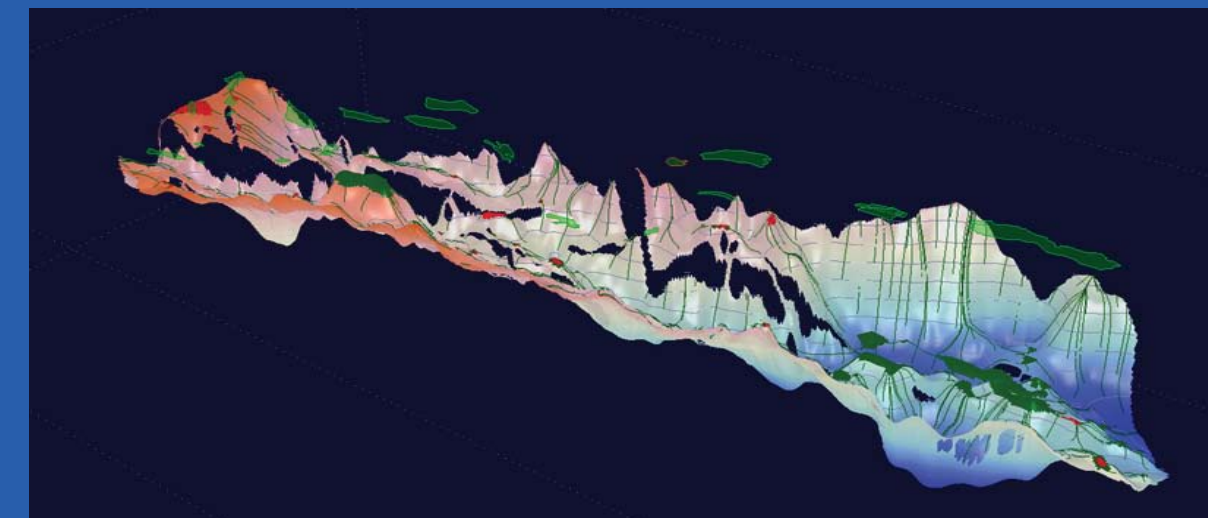
Through a combination of lecture and class exercises, learn to quantify fault, capillary and pressure seals from multiple data sets. Learn tools to quantify position in a column from show and test data (waste zone, pay or transition zone) and understand residual shows. The course emphasizes ways to use ARCGIS and TRINITY software to model migration using fault and capillary seals to identify stratigraphic and fault traps.



Quantify position in a trap or migration from shows and pseudo-cap pressure



Seismic pore pressure



Vertical and lateral migration with seals