

What is the goal?

To create a unified, blended understanding of the reservoir in order to realize its maximum economic potential for the client

What is our approach?

- We develop close interactions between different disciplines, data types and concepts
- We pay close attention to details, and do not limit integration to a collection of software applications used sequentially

iReservoir's integrated technology

- Commercial applications
 - ❖ Petrophysics
 - ❖ Geologic data base, correlation, and mapping; statistical analysis
 - ❖ Seismic interpretation, AVO, and inversion
 - ❖ Geomodeling
 - ❖ Reservoir simulation
- In-house scripts based on commercial applications
- Proprietary software to complement commercial applications
 - ❖ Nonlinear petrophysical modeling
 - ❖ Probabilistic seismic attribute analysis
- Applications/workflows developed "on the fly" jointly with the client to adapt/solve specific project need

What makes iReservoir's integration different?

- Specializes in the core disciplines needed to perform most reservoir integrated studies: geology, petrophysics, geophysics, geomodeling, and reservoir engineering
- Specializes in non-sequential integration of knowledge, data and software designed to enhance value
- Uses conventional commercial software, as well as proprietary applications tailored to solve specific problems of the client
- Emphasizes feasibility, quality control and calibration of results with hard data
- Focuses on providing solutions for the reservoir rather than simply applying technologies

Petrophysics Workflow

Project Question

Workflow Task

What is available?	Database review
Is data usable?	Quality control
Are logs consistent?	Log normalization
Conventional Analysis vs. Model	Petrophysical analysis
What is the net pay?	Net Pay Identification
Does it matter?	Facies-Units or Flow-Units
Additional engineering needs?	BVW, contacts, Phi-K
What does the seismic tell us?	Rock physics/Petrophysics relations

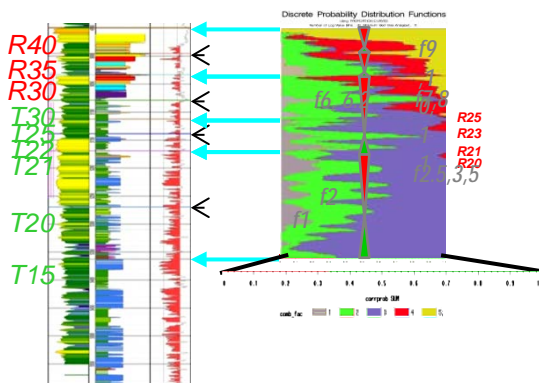


Figure: Carbonate case study: San Andres Formation, Seminole Field

Geology Workflow

Project Question

Workflow Task

What is available?	Database review
Are data/tops usable?	Quality control
Stealing faults and vertical barriers?	Validation with dynamic data
Structural and fault maps?	Seismic/log interpretation
Hierarchy of Surfaces established?	1-D Stratigraphic & facies analysis
Flow units, barriers, and baffles?	2-D correlation & facies analysis
Facies ready for geomodel?	Facies proportion curves
Aspect ratios and directionality?	Depositional model

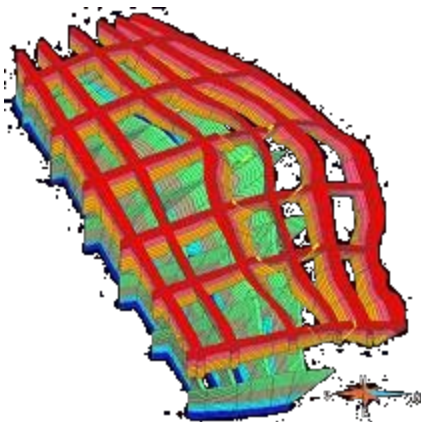
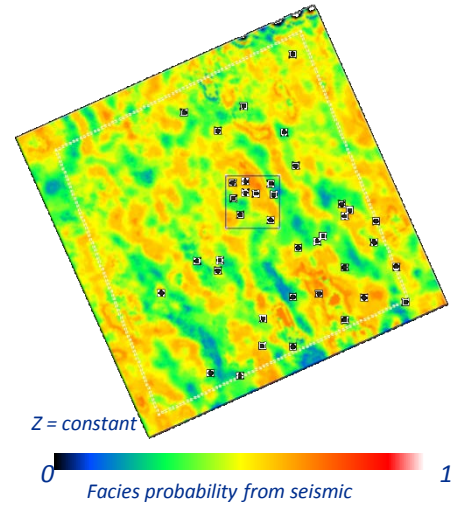
Geophysics Workflow

Project Question

- Pre-stack, post-stack data
- Is it ready to use
- What minerals and fluids?
- What does seismic tell us?
- Faults and horizons?
- Rock types, facies, faults?
- Do we need to integrate in depth?
- Can it help to distribute properties?

Workflow Task

- Data review
- Quality control
- Petrophysical analysis
- Rock physics checks
- Structural Interpretation
- Attribute extraction
- Depth conversion
- Constrain geomodeling



Geomodeling Workflow

Project Question

- What is available?
- Are data/tops consistent?
- What is required model resolution?
- Depositional environment variables?
- Are facies proportions available?
- Seismic-log calibration available?
- Porosity and permeability relationship?
- Net pay cutoff?
- Reservoir simulation grid requirements?

Workflow Task

- Database review
- Horizon/faults surfaces generation
- 3D stratigraphic grid construction
- Spatial statistics analysis
- Facies distribution
- Distribution of seis/petro relationships
- Permeability distribution
- Net-to-gross estimation
- Reservoir grid upscaling

Engineering Workflow (simulation emphasis)

Project Question

- Fluid types?
- SCAL data (by Facies)?
- Wells test (PTT, tracer, RFT, PLT)?
- Well completions, rates & pressures?
- Fluid contacts, initial saturation?
- Effective Kv, faults sealing?
- Aquifer size and strength?
- History Match?
- Forecasts (uncertainty, optimization)

Workflow Task

- PVT fluid models for simulation
- Kr, Pc, compaction behavior
- Calibration for geomodel,/ simulation
- Analyze, QC, preparation for simulation
- Initial conditions, QC with logs
- Test impact on simulations
- Test impacts on simulations
- Match dynamic data
- Simulation sensitivities, economics

