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COURSE BROCHURE

# Rift Basin Seismic Interpretation Training Course

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Dar es Salaam

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Registered in the United Kingdom and Saudi Arabia

# Rift Basin Seismic Interpretation Training Course

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Rift Basin Seismic Interpretation is a 1-week training course for exploration geophysicists and geologists who pick faults, growth wedges and unconformities on rift seismic and turn them into an interpreted rift basin play map. Many remaining rift leads sit in poorly imaged footwalls, subtle hanging-wall wedges and deep syn-rift fill, so interpretation quality now decides which blocks reach a well proposal. Jupiter Prime Training delivers this course in rift basin seismic interpretation.

## Why Rift Basin Seismic Interpretation Matters Now

Three forces shape rift basin seismic interpretation today. Reprocessed and broadband surveys now image deeper fault blocks, exposing earlier picks that were wrong. Exploration groups are revisiting mature rifts for subtle stratigraphic and fault-terrace traps that need finer horizon and fault work. Partners and licence holders expect interpreted surfaces they can audit, line by line. An interpreter who reads rift geometry well places wells on intact closures; one who misreads fault linkage or wedge geometry drills breached or absent traps.

## Who Gains Most from Rift Basin Seismic Interpretation

- Geophysicists who pick faults and horizons across rift blocks on two- and three-dimensional seismic
- Exploration geologists who tie well tops to seismic and check structural consistency
- Prospect mappers who convert time interpretation into depth closures beside major faults
- Seismic processing liaisons who judge whether imaging artefacts mimic geology near fault planes
- Subsurface screeners in geothermal and carbon storage projects working extensional fault systems

Interpretation groups working one rift licence gain most when geophysicists and geologists attend together and agree a single fault model.

## Rift Basin Seismic Interpretation Capabilities

Participants work from reflection character to fault framework to closure, testing each pick against structural rules.

- Identify syn-rift, rift-climax and post-rift seismic packages from reflection terminations — sequence framework choices
- Build a linked fault network from fault sticks, throw profiles and relay ramps — structural model approval
- Test interpretations with simple section restoration and fault displacement checks — peer review
- Assess imaging pitfalls such as fault shadows and velocity pull-up — depth closure confidence
- Map fault-block, footwall-degradation and hanging-wall wedge traps — lead ranking
- Communicate an interpreted map set with stated uncertainty — exploration managers and partners

## Key Rift Basin Seismic Interpretation Terms

- Growth wedge — a seismic package that thickens towards a fault, showing sediment deposited while that fault was moving.
- Relay ramp — a tilted zone of rock linking two overlapping fault segments, often a sediment entry point.
- Throw profile — a plot of vertical fault offset along strike, used to test segment linkage and spot mis-picks.
- Fault shadow — a zone of distorted or weak reflections below a fault caused by sharp velocity changes.
- Footwall degradation — erosion and collapse of an uplifted fault-block crest, creating local sediment aprons and traps.
- Onlap surface — a horizon where younger reflections terminate against an older inclined surface.

## Rift Basin Seismic Interpretation Day by Day

### Day 1: Rift Architecture as Seen on Seismic

- Seismic Expression of Half-Grabens and Horsts — Basin Segmentation Calls
- Reflection Terminations and Package Boundaries — Choosing Key Horizons to Pick
- Well-to-Seismic Ties in Faulted Blocks — Anchoring Horizon Identity
- Imaging Quality Review of Rift Surveys — Deciding Where Picks Are Reliable
- Interpretation Grid Design — Line Spacing and Fault Sampling Choices

### Day 2: Fault Picking and Fault Linkage

- Fault Stick Picking on Inlines and Crosslines — Consistent Fault Surfaces
- Throw Profiles and Displacement Maps — Detecting Segment Boundaries
- Relay Ramps and Transfer Zones — Sediment Entry and Spill Points
- Variance and Edge Attributes — Fault Detection in Noisy Volumes
- Fault Polygon Construction — Clean Inputs for Depth Gridding

## Day 3: Syn-Rift and Post-Rift Packages

- Growth Wedge Geometry — Timing Fault Activity Block by Block
- Rift-Climax Seismic Facies — Predicting Coarse Fan Bodies Near Faults
- Onlap and Truncation Mapping — Locating the Rift-to-Sag Transition
- Isochron Maps Between Key Horizons — Revealing Depocentre Shifts
- Post-Rift Draping and Compaction Folds — Separating Drape from Structure

## Day 4: Trap Styles and Depth Confidence

- Tilted Fault-Block Closures — Crest Mapping and Spill Point Picking
- Footwall Degradation and Hanging-Wall Wedge Traps — Stratigraphic Lead Recognition
- Velocity Pull-Up and Fault Shadow Corrections — Depth Closure Reliability
- Cross-Section Restoration Checks — Validating Fault Geometry Before Mapping
- Fault Juxtaposition Screening on Seismic — Flagging Sideseal Concerns for Specialists

## Day 5: Practising the Interpreted Rift Basin Play Map

- Horizon and Fault Framework for a Rift Dataset — Applying Ties and Linkage
- Growth Wedge and Facies Overlay — Applying Package Mapping to Reservoir Presence
- Trap Inventory with Depth Uncertainty — Applying Closure and Imaging Checks
- Peer Audit of Interpretation Choices — Recording Alternative Fault Models
- Interpreted Rift Basin Play Map — Completing the Lead Set for Review

## Applying Rift Basin Seismic Interpretation After the Course

- Re-pick the main bounding faults on a current survey using throw profiles and update fault polygons for the depth grid.
- Run a peer audit of one prospect's closure, checking fault shadow effects and restoration consistency before the well proposal.

## Rift Basin Seismic Interpretation Questions FAQ

### What is rift basin seismic interpretation and why does it matter now?

Rift basin seismic interpretation is the picking and mapping of faults, growth wedges and unconformities in extensional basins. It matters now because reprocessed data exposes old mis-picks and remaining traps are subtler.

### Which roles gain most from rift basin seismic interpretation?

Exploration geophysicists and geologists who interpret faulted surveys gain most. Prospect mappers and geothermal or carbon storage screeners also benefit from the fault linkage and depth checks.

## How does rift basin seismic interpretation differ from a general seismic interpretation or rift geology course?

Rift basin seismic interpretation applies picking and mapping methods to extensional geometry specifically. General interpretation courses cover all settings, while rift geology courses focus on basin evolution and petroleum elements rather than line-by-line seismic work.

## What do you bring back from rift basin seismic interpretation training?

You bring back an interpreted rift basin play map with a linked fault framework, mapped growth packages and a trap inventory carrying depth uncertainty.

## Rift Basin Seismic Interpretation: The Way Forward

The interpreted rift basin play map first informs which fault-block or wedge leads deserve detailed depth mapping. Interpreters, prospect mappers and exploration managers use it to compare leads on consistent fault and horizon picks. After its first use, revisit the fault linkage model whenever reprocessed or new seismic changes the imaging below major faults.