

# Techlog for Reservoir Engineers

Advanced wellbore analyses in a single, integrated platform

## APPLICATIONS

- Loading of regular and special core analysis data
- Application of capillary pressure models
- Validating and calibrating log data and interpretations
- Managing uncertainty
- Performing wellbore pressure QC, pressure-depth profiling, and fluid analysis

## BENEFITS

- Increase productivity—highly intuitive interface
- Improve strategies for development and production
- Enhance understanding of reservoirs
- Advance uncertainty management
- Benefit from multiuser collaboration

## FEATURES

- Integrate all wellbore data types
- Perform advanced data preparation
- Achieve cross-domain consolidation of results
- Model capillary data pressure
- Work in an integrated, intuitive platform

The Techlog\* wellbore software platform provides unique capabilities to integrate all wellbore data types and disciplines to solve complex reservoir challenges. With Techlog software you can bring all your disparate data together—log, core, images, and production. Multiple disciplines can come together to visualize, analyze, interpret, and edit all wellbore data types in a single, easy-to-use wellbore software platform.

Reservoir engineers should be discouraged from beginning reservoir simulation studies based on generic porosity, pressure, saturation, and permeability because this practice impacts the effectiveness of their results. A related challenge is realizing value from the significant investment in acquisition of core data. Despite the importance of these data in validating and calibrating log data and interpretations for reservoir engineers, they are often not easily accessible.

### Loading data from different sources

Techlog software supports loading of regular and special core analysis (SCAL) data in any format (e.g., Microsoft® Excel® spreadsheets, text files, and even core photographs) from different laboratories. In addition to direct data loading, the ability to connect to the CoreDB application or other existing corporate database solutions makes the Techlog platform the perfect environment to bring all of these data together for interpretation.

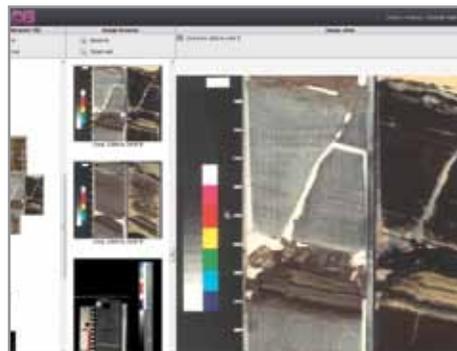
### Advanced data preparation

The value of core data is only realized when all related data acquired for the core samples is included in the analysis (e.g., historical data from different vintages, different vendors, and different experimental procedures). Techlog capabilities for handling these core data challenges include several routines to correct for reservoir conditions, experimental procedures, and other pertinent corrections, linking to a sophisticated core data model so that auxiliary information about core plugs (such as photos, conditions, and reports) are instantly available.

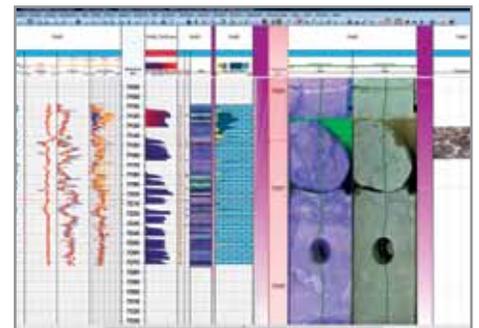
### Verify your assumptions

Capillary pressure data can be transformed into capillary pressure models in Techlog software using a variety of mathematical functions and fit models (e.g., Thomeer, Brooks-Corey, Lambda, and J functions).

Capillary pressure models are then applied to log data—either single- or multiwell cases—even if they do not have associated core data. Water saturation derived from saturation-height functions provides independent validation of the water-saturation results from the conventional



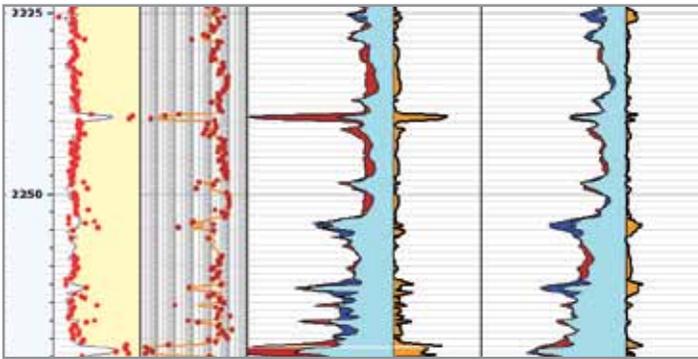
High- and low-resolution core images can be viewed in the CoreDB module.



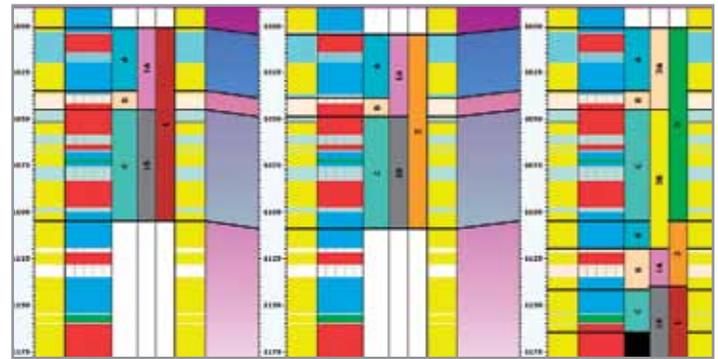
Routine and special core analysis data displayed at log scale along with core photographs in the Techlog TechCore module.



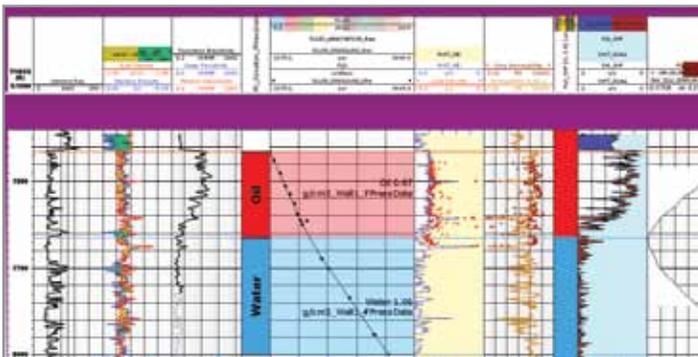
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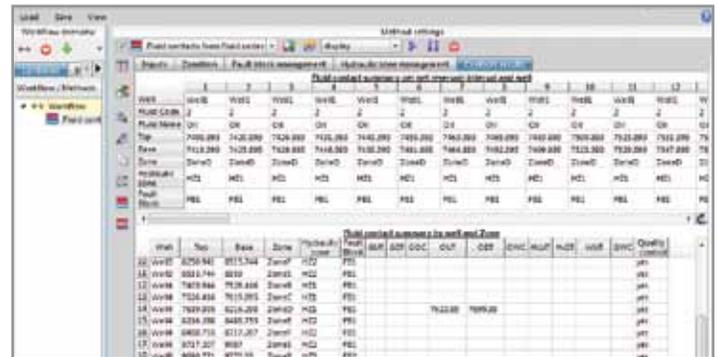
Saturation-height modeling results comparing the original core model and optimized model from the solver.



Plot showing the contacts, compartments, and fluid cores.



The free water level from the Saturation-Height Model module, plotted with the contact results generated in the Formation Pressure module.



Tabular summary of the fluid contacts from the Techlog Fluid Contact module.

log analysis. This allows the user to verify assumptions made in the water-saturation calculations during initial stages of field development.

Models can be adapted to each well using fluid contact data and fluid density information from formation pressure analysis, fluid samples, produced fluids, etc.

## Cross-domain consolidation of results

The final stages of every analysis require standardization of the results 'owned' by the processes of various disciplines. Geologists, petrophysicists, and reservoir engineers evaluate the reservoir from different perspectives. Using Techlog software, the consolidation of fluid contacts with reservoir flow units and pay zones allows asset managers to manage reserves and generate strategies for further development and production.

## Enhanced reservoir analysis

The capillary pressure models—combined with results coming from petrophysical facies models, rock typing, and fluid types—can be used by reservoir engineers and geologists to enhance their understanding of the reservoir. Advanced workflows, such as dynamic reservoir studies and property modeling, are supported by multidisciplinary data integration. Confidently propagating results of these studies

across the reservoir must be driven by a comprehensive assessment of the uncertainties in rock and fluid properties. Techlog software systematically provides uncertainty management throughout capillary pressure modeling and formation pressure analysis workflows.

The Techlog platform allows all asset team members to interact with the same data and share their discipline-specific information.

## Schlumberger Information Solutions

Schlumberger Information Solutions (SIS) is an operating unit of Schlumberger that provides software, information management, IT, and related services. SIS collaborates closely with oil and gas companies to solve today's tough reservoir challenges with an open business approach and comprehensive solution deployment. Through our technologies and services, oil and gas companies empower their people to improve business performance by reducing exploration and development risk and optimizing operational efficiencies.

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