Permedia® Petroleum System Modeling Software

OVERVIEW

The industry faces many challenges while exploring and drilling for hydrocarbons especially in the current low-price environment. Well failure and frontier play failure data shows that exploration risk lies with seal and charge whereas companies tend to concentrate on reservoir risk. Permedia® software enables the bridging of this misalignment through the creation of petroleum systems models. These models provide the only means to integrate and evaluate all the elements (source, reservoir, seal, and overburden rock) and the processes (trap formation, generation – migration – accumulation) of a petroleum system to better understand and quantify all risks around a play. As such, by integrating Permedia multiple lengthscale simulation results into exploration workflows, it is possible to highlight optimum sweet spots for both conventional and unconventional resource plays.

With Permedia software, upstream oil companies can quickly and reliably evaluate the viability of their petroleum exploration and production efforts. Permedia provides the ideal platform for quantifying volumes and fluid properties and evaluating petroleum containment potential and emplacement patterns. These highly effective workflows facilitate low-cost quantification and risk reduction to vastly improve exploration success, and optimize asset development.

KEY BENEFITS

» Integrate regional, basin and reservoir data in a single environment to better evaluate and risk every element and process of a potential play
» The software features an unmatched set of simulators and tools designed to provide insight and understanding of complex, fluid-oriented processes operating at basin and reservoir scales
» Better understand input uncertainties via a rapid scenario simulation and sensitivity analysis

KEY FEATURES

» End-to-end dynamic 1D, 2D, and 3D petroleum systems modeling workflow to provide a complete record of the evolution of a petroleum system
» Industry’s most advanced high-resolution migration simulator
» Extensible: add custom reactions and algorithms via scripts and plug-ins
» OpenWorks®, DecisionSpace Geoscience® and Neftex® Insights connectivity

This workflow was a key piece for a previous basin evaluation that led to a key business decision. The combination of DecisionSpace Geosciences and Permedia allows a quick turnaround time of structural closure computation.

ConocoPhillips
BENEFITS

Rapid Assessment and Screening
Permedia has a number of tools for the rapid assessment of depth horizons, e.g. closure analysis, trap volume analysis, fill-spill analysis and petroleum generation and expulsion analysis. These tools can easily be used by the generalist Geoscientist for quick prospect ranking and map processing.

Basin- to Reservoir-Scale Models
Permedia simulation technology enables integration of regional, basin, and reservoir data sets in a single environment, giving users the big picture and the details on the relationships between exploration through to production.

Better Assess Exploration Risk
Advanced high-resolution simulation of petroleum fluid flow within basin- and reservoir scale models enables geoscientists to better assess the elements of frontier exploration risk such as source, migration, reservoir, seal, and trap. It also improves confidence in predicting reservoir potential by reflecting parameter uncertainties and quantifying risk associated with basin- and reservoir-scale models.

Optimize Asset Development
Permedia software offers fluid-based workflows such as reserve estimation using trap volume analysis, seal analysis, reservoir compartmentalization analysis, petroleum composition, and quality analysis. These workflows ensure high value application even in the asset development of deepwater, sub-salt, and unconventional scenarios, including heavy oil, shale, the complex reservoir geometries of tight gas sands, and CO₂ sequestration projects.

Enhance Your Neftex® Insights Subscription
Permedia can easily consume Neftex data in order to create 1D, 2D and 3D basin and petroleum systems models. The types of data available for integration include wells and their associated data, structural surfaces, gross depositional environment maps, paleotopography maps, rock properties data and geochemical data. The synergy between Neftex and Permedia is powerful as it gives the ability to assess potential risk in frontier regions where data is sparse.

FEATURES

Permedia software provides a complete end-to-end workflow for basin and petroleum systems modeling: build sophisticated models, forward model pressures and temperatures, add source generation and seal characteristics, and migrate fluids using the most advanced simulator in the industry.

» Set of intelligent rapid screening and assessment tools
» Build complex earth models interactively with our 2D and 3D Prospector tool
» Comprehensive charge, reservoir, trap and seal modeling and evaluation
» Generation, migration and accumulation modeling and evaluation; high resolution and speed
» Prospect evaluation through advanced post processing tools
» Reservoir fluid modeling – Reservoir Filling, Pressure and Tracers, Fluid Mixing and Black Oil Simulator
» Extensible; add custom reactions and algorithms via scripts and plug-ins, e.g. geomechanics workflows, biodegradation workflows.
» Work at any length scale; evaluate petroleum flow and emplacement ranging from core to basin scales
» Integrate a suite of Neftex data to build, calibrate and run petroleum systems models
» Co-render and analyze data from multiple packages and across all length scales
» Works with existing data and applications
» OpenWorks® connectivity

SYSTEM AND SOFTWARE

Software Requirements
» OpenWorks® connectivity requires OpenWorks client
» Neftex® Insights data integration requires a Neftex Insights subscription

Operating Systems
» Microsoft® Windows® 7 or later 64 bit
» Red Hat® Enterprise Linux® 6/7 64 bit

Landmark offers solutions to help you deliver on your business strategies. For questions or to contact your Landmark representative, visit us at www.landmark.solutions

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