

Fast integrated full-field simulation

Reservoir simulation sits at the interface between the geological modeling of an oil or gas reservoir and the economic evaluation of possible production strategies.

The quest for accurate and realistic simulations is therefore one of the most important challenges facing the oil and gas industry today. Major decisions about field development hinge on the models and analytical processes that define modern reservoir simulation.

Emerson says that its Roxar Tempest™ solutions portfolio is rising to the challenge, providing a single, consistent interface into a complex process and a modern integrated solution for full-field reservoir simulation. Tempest leads users through every aspect of simulation, from the preparation and analysis of original data to the economic evaluation of results. The Tempest portfolio provides data preparation and analysis tools; pre-simulation calculations; compositional and black-oil simulation methods; and analytical tools for economic evaluation. All of these functions are presented through the Tempest graphical interface.

Speed and accessibility is central to reservoir simulation. To this end, says Emerson, Tempest is a fast, easy-to-use and memory-efficient tool that fronts all the Roxar simulation modules. Its graphical interface helps with the preparation of the simulation input, allows interactive run submissions, and supplies powerful 2D line graphics and 3D visualization of the results.

At the heart of Tempest is the MORE engine, which runs fully implicit studies and supports a wide range of advanced options within a single program including black-oil, steam, polymer, dual-porosity, equation of state and coal bed methane. The new segmented well model also allows for a high-resolution well model, ideal for detailed modeling. The algebraic multi-grid solver also significantly speeds up models with high permeability contrast channels such as the SPE 10 benchmark problem.

A seamless, structured and productive workflow is central to the reservoir modeling and simulation process. Emerson says that Tempest's data-preparation and job-submission features ensure that this is the case.

A prototype simulation data deck for MORE is easily created and run. The model can then be easily modified with real data, and the resulting data can be edited inside or outside the Tempest environment. Data such as PVT and relative permeability curves, can also be also graphically edited. Tempest also provides a modern data input for well data. Historical measurements may be entered as a table and well trajectories directly as 3D xyz files. There is no need for additional pre-processing tools. Dynamic data is entered in tables as 'events', which can then be interactively edited, sorted, filtered and viewed on a timeline. Full, interactive help is also available to provide a fast and powerful search facility. Jobs can be submitted locally or to remote clusters and the progress monitored interactively. The results are available automatically when the run completes. Simulation results are loaded on demand, keeping the memory requirements low even

for very large models.

Within Tempest, users work with projects consisting of multiple cases and associated observed data. This offers an efficient way to organize and manage multi-run simulations, such as sensitivity studies. Cases and observed data can readily be added to or removed from existing projects, and within a project, user defined groups and calculator expressions are common across all cases. Comparison plots for all selected cases and observed data can also be created with just the click of the mouse.

The graphical interface and sophisticated visualization capabilities are central to Tempest with the software supporting high-quality, 2D line graphs. The data may be viewed as a table, or simultaneously as a table and a highly configurable graph. The appearance of almost any item on the graph may be customized with several plots presented on a single graph. "Thumbnail plots" allow large numbers of wells to be scanned at once. The data may be from the same simulation, different simulations, or from a user-supplied, column-formatted file. This makes it easy to compare the results of different simulation runs, or to compare predicted results with historical data.

Emerson says that Tempest is a fast and powerful 3D visualization tool where simulation-grid, initial and recurrent

properties may be viewed in 3D. Multiple 3D views can be active and the model zoomed, rotated, panned and filtered. Individual cell histories can be interrogated and overall property statistics displayed. Cross sections and streamline flow visualization are also supported. Tempest is available for Windows and UNIX workstations, enabling users to take advantage of the power and the speed of parallel processing. Tempest parallel simulation scales from standard desktop machines with multi-core CPUs to Windows HPC servers and Linux clusters.

Emerson has also announced that its reservoir modeling solution, Roxar RMS, is to be launched this summer, and will include new seismic visualization with improved speed and performance. This comes only months after RMS 2010 was launched with improvements across the entire workflow from property modeling tools to a new well correlation system to enhanced structural modeling tools.

At a time when operators are looking to optimize production from increasingly marginal assets and make better decisions over the allocation of capital and resources, easy-to-use and powerful reservoir management solutions have never been more important. Emerson says that its Roxar solutions portfolio is meeting operator needs on all counts. For more info visit booth 505. ■

Dice Holdings acquires worldwideworker.com

Dice Holdings, Inc, a US based provider of specialized career websites for professional communities, announced in May that it had completed the purchase of the online and career events-related businesses of Worldwideworker, a recruitment company for the energy industry. "The acquisition of worldwideworker.com delivers on two important parts of our growth strategy: international growth and new vertical expansion," said Scot Melland, Chairman, President and CEO of Dice Holdings. "Worldwideworker is a well-regarded player in the highly-attractive energy sector. The global nature of the energy business allows us to leverage both our cross-border recruiting expertise and our international infrastructure."

Based in Dubai, Worldwideworker has an extensive international resume database and holds recruitment events at industry conferences. More than 430,000 energy professionals have registered with Worldwideworker.com and two-thirds of those are based in Asia, Africa or the Middle East. Nearly half of its candidates have at least ten years experience. "Our common goal is to help hiring managers and recruiters find the best possible talent most efficiently. Speed-to-hire is critical in the energy industry," said Frederik Rengers, CEO of Worldwideworker. "Pairing the experienced Dice team with our extensive energy-industry knowledge will drive the growth of Worldwideworker and deliver significant value to our customers." Worldwideworker is in the Job Centre at booth JC13.

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